

Robot Hand Kit (EOAT)

ROBOTHANDKIT



ASS Robot Hand Kit - Gripper components of the highest quality and precision

We developed a state-of-the-art kit of components that fits together like an erector set. It gives you sheer unlimited possibilities to build your own custom robotic tooling with ease. The kit includes advanced components that enable you to build Robotic Tooling even for complex material handling applications. The ASS Robot Hand Kit (EOAT) consists of more than 1,900 components, such as grippers, vacuum cups, profiles, and special gripper components.

According to your specifications we design Robotic Tooling from our array of grippers, vacuum cups, and aluminum profiles. We can also integrate them into your existing automation. We offer our components in different sizes to accommodate an ideal fit for your part size. All components fit together like an erector set. Most parts are in stock and ready to ship the same day.

ROBOTICTOOLING

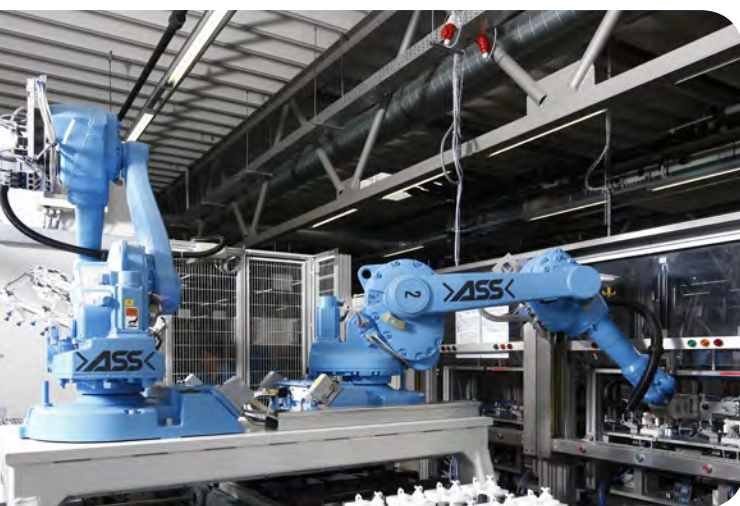


Individual Robot Hands for our Customers' Requirements

From our standard components, robotic tooling can be built for various applications, i.e. separation of parts, insert moulding, de-moulding, de-gating, quality control, and assembly. All components are designed and manufactured by ASS Maschinenbau GmbH. Every tool is made and designed according to the European Machinery Building Regulations. Quality, weight optimization, and standardization are the driving forces for new product development.

Not only do we offer to build complete robot hands made from our standard components, but if the application calls for a complete custom solution because of weight or room constraints, we will design and build custom components even if the production volume is very low.

AUTOMATIONSYSTEMS



Automation Systems for High Production Efficiency and Process Reliability

Our automation systems enable our customers to increase production efficiency and reliability, while simultaneously reducing costs and ensuring consistent quality.

Upon customer request, customized automation systems can also include the robotic integration, as well as programming. We combine material handling, conveying, quality control, robot and assembly technology into an individual custom solution and build automation systems for various applications, i.e. separation of parts, insert moulding, de-moulding, de-gating, quality control and assembly.

Our tailored automation systems include the integration and programming of robots. Quality, safety, and performance are our driving forces. We specialize in automation around the injection moulding machine with a focus on components for the automotive industry.

Gripper Components, Robot Hands And Automation Systems

ASS is your reliable partner for gripper components, robot hands, and automation systems. For more than 35 years, we have been developing intelligent solutions for various applications for the automation and robotic industries. With about 120 employees in Overath near Cologne, Germany, our subsidiary ASS End of Arm Tooling, Inc., in Plymouth, MI, USA, and other partners, we operate world-wide.

We automate complex work processes in the plastics processing industry such as material handling, inserting, degating, assembling and quality control. From small medical devices to truck bumpers, we cover a wide spectrum of applications.

Everything From One Source

Our core competencies include three major areas: Gripper Components, Robot Hands / End-of-Arm-Tooling, and Automation Systems. Handling solutions for fiber-reinforced plastics (FRP), especially carbon fiber reinforced plastic parts (CFRP) have become another core competence lately. Our portfolio includes vision systems, the production of Polyamide components in the laser-sintering process (SLS), the ASS PA-Forming and services, such as installation and robot programming.

In 2014 ASS acquired KNUR Maschinenbau GmbH located in Wörth a.d. Donau. KNUR develops and supplies automation solutions for lightweight and plastic parts for the automotive industry. The focus is in the field of fiber-reinforced plastics (FRP), particularly carbon-fiber reinforced plastic parts (CFRP).

Its portfolio ranges from standard machines operated manually or automatically to planning, designing and manufacturing of customized, highly complex special machines for complex material handling applications in the automobile industry.

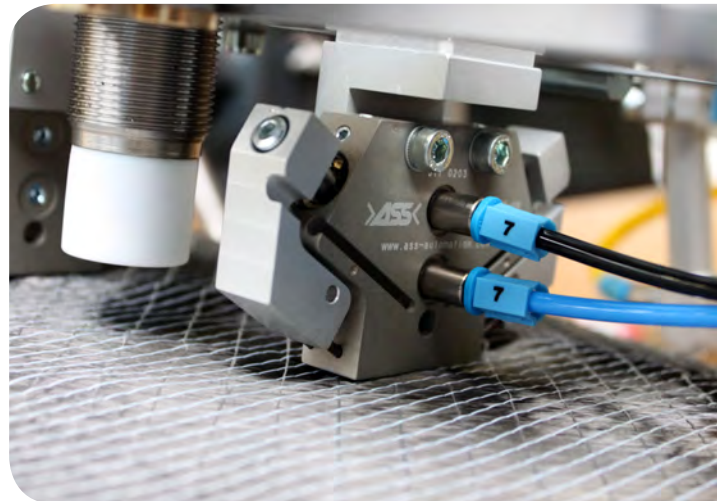
ASS and KNUR form an overarching component, gripper and automation system expertise for the plastic injection molding industry and the automated, lightweight automotive industry.

Highest Quality Standards

Quality, speed, and reliability are our daily business. It is our permanent incentive to meet the increasing demands in the plastic moulding and lightweight automotive industry.

All ASS-labeled components are developed, manufactured and produced at our factory. They are produced or delivered complying to the highest quality standards according to the EG-Machinery Directive.

All actuated parts have a declaration of incorporation or a declaration of conformity. Our quality management is certified according to ISO 9001:2015 standards.



**AUTOMATION
SYSTEMS AND
SOLUTION**



Application Examples

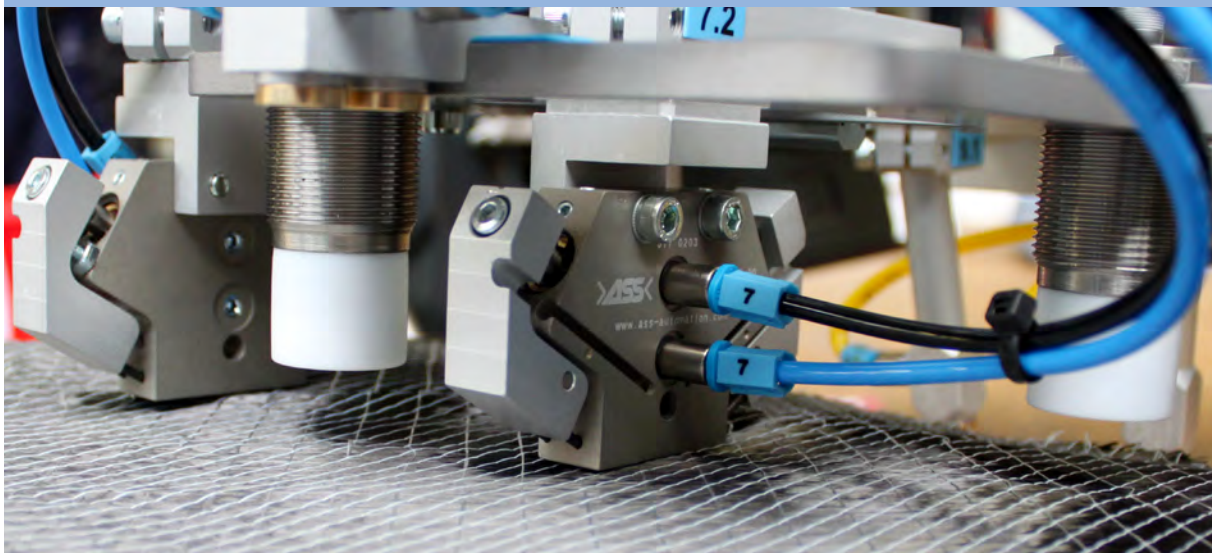
The following application examples show an extract of handling and automation solutions which are implemented in the ASS group.

The components, robotic hands (EOAT), processing stations and automation systems can be found in many areas of plastic injection moulding and automotive lightweight industrie.

Automated production of brake fluid reservoirs



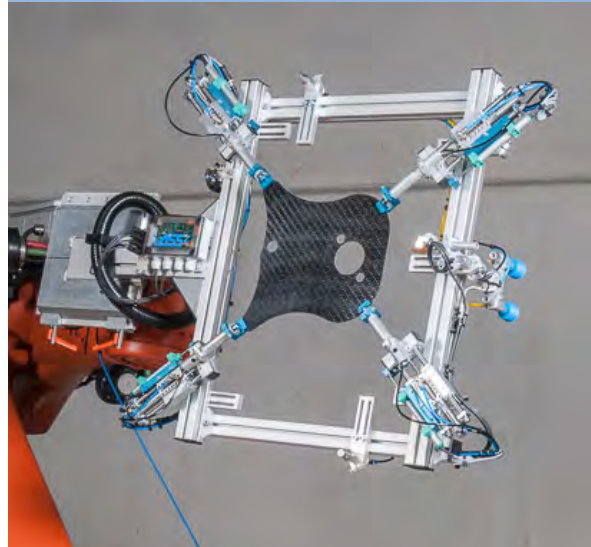
Handling of CFRP



Handling of CFRP



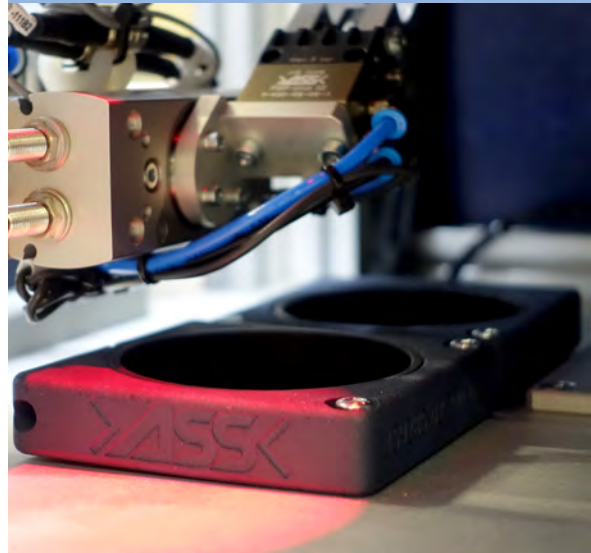
Handling of Organosheet



Feeding machine



Optical query



Bumper demoulding



Automated assembling + testing



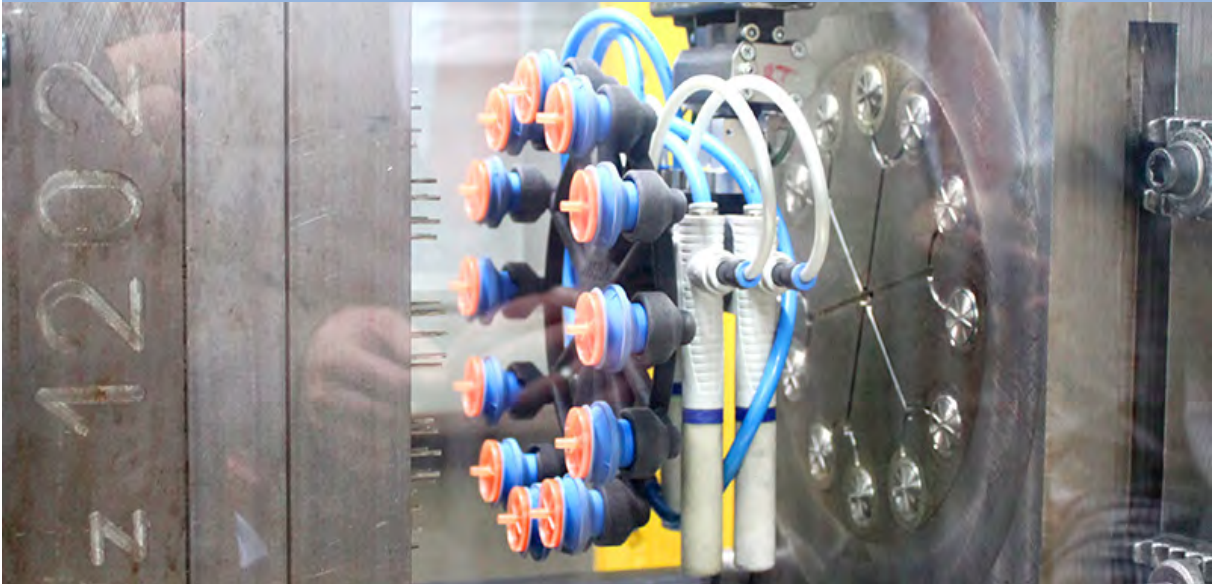
Bin-Picking



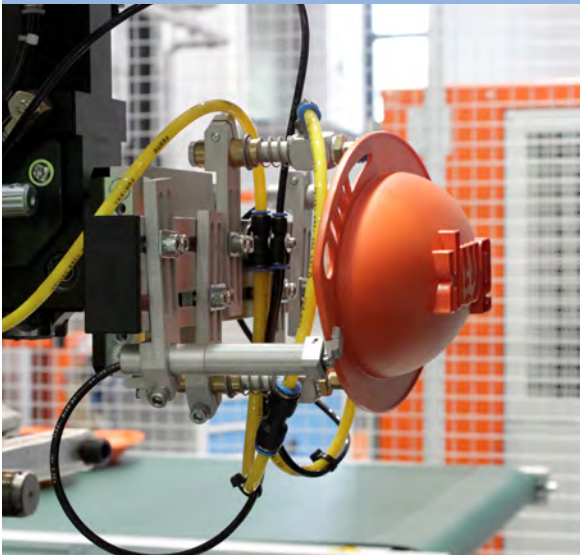
Automation system around the plastics injection moulding machine



3D printed robot hand



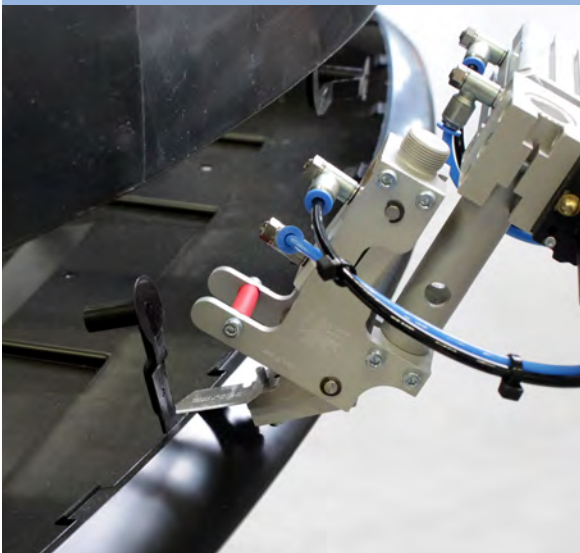
Demoulding gripper



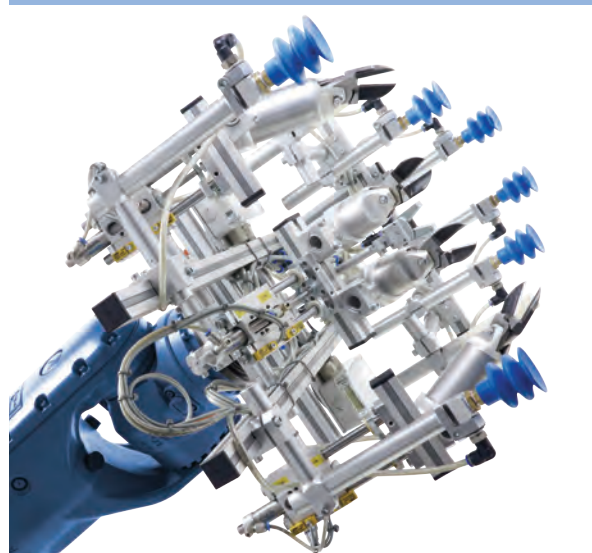
De-gating Station



De-gating



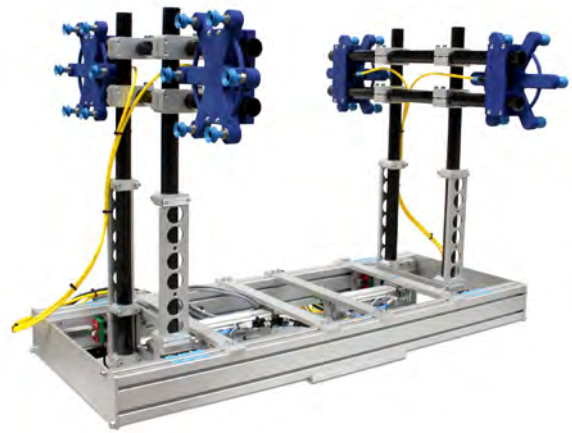
Demoulding + De-gating



Zuführtechnik



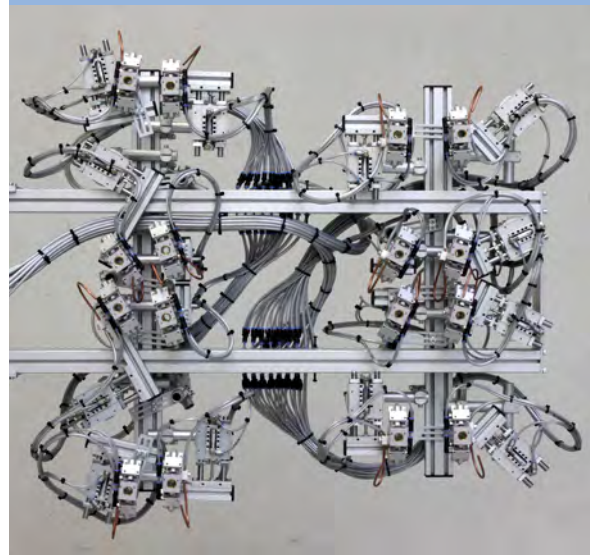
Lightweight EOAT



EOAT for limp materials



EOAT for limp materials



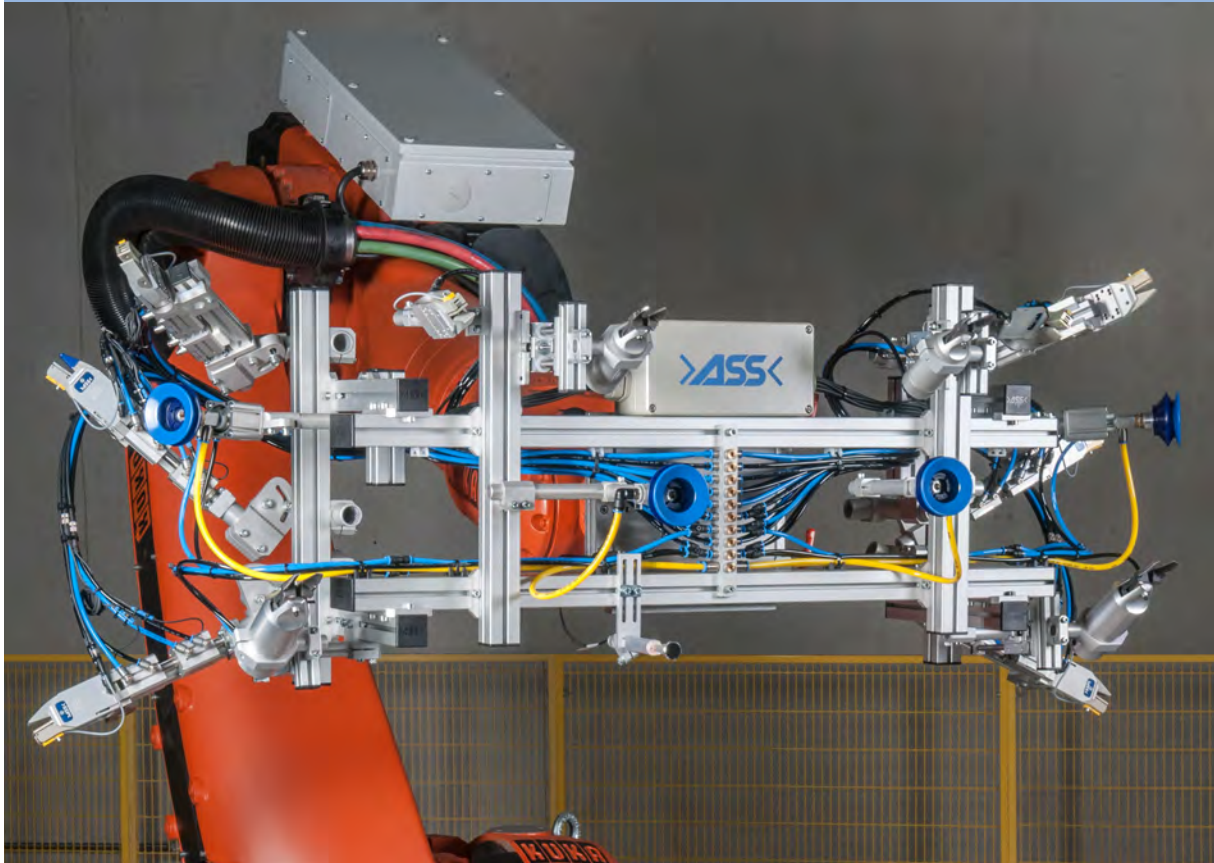
EOAT for large plates



Special robot hand



Bumper demoulding with integrated de-gating



Automation system with processing, assembly and testing tasks



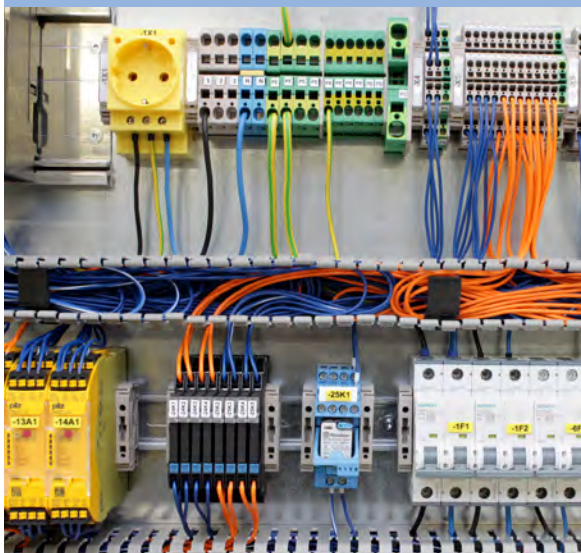
Contour nest



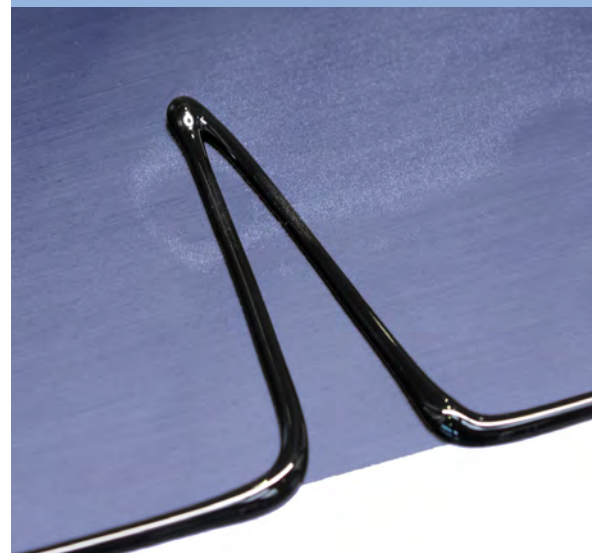
Secure sprue gripping



Control technology



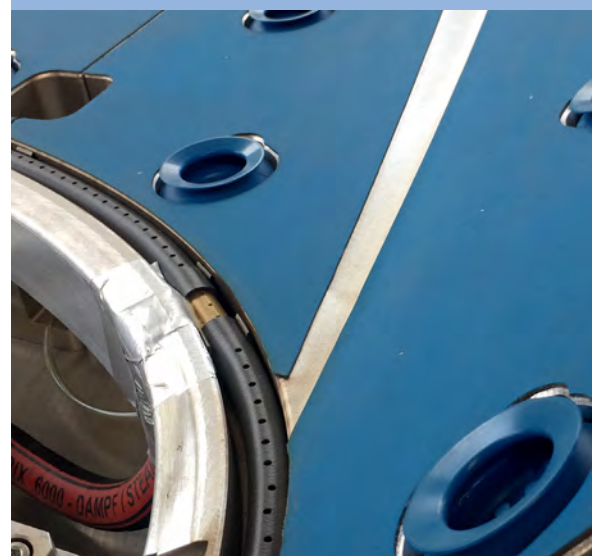
Bondingtechnology



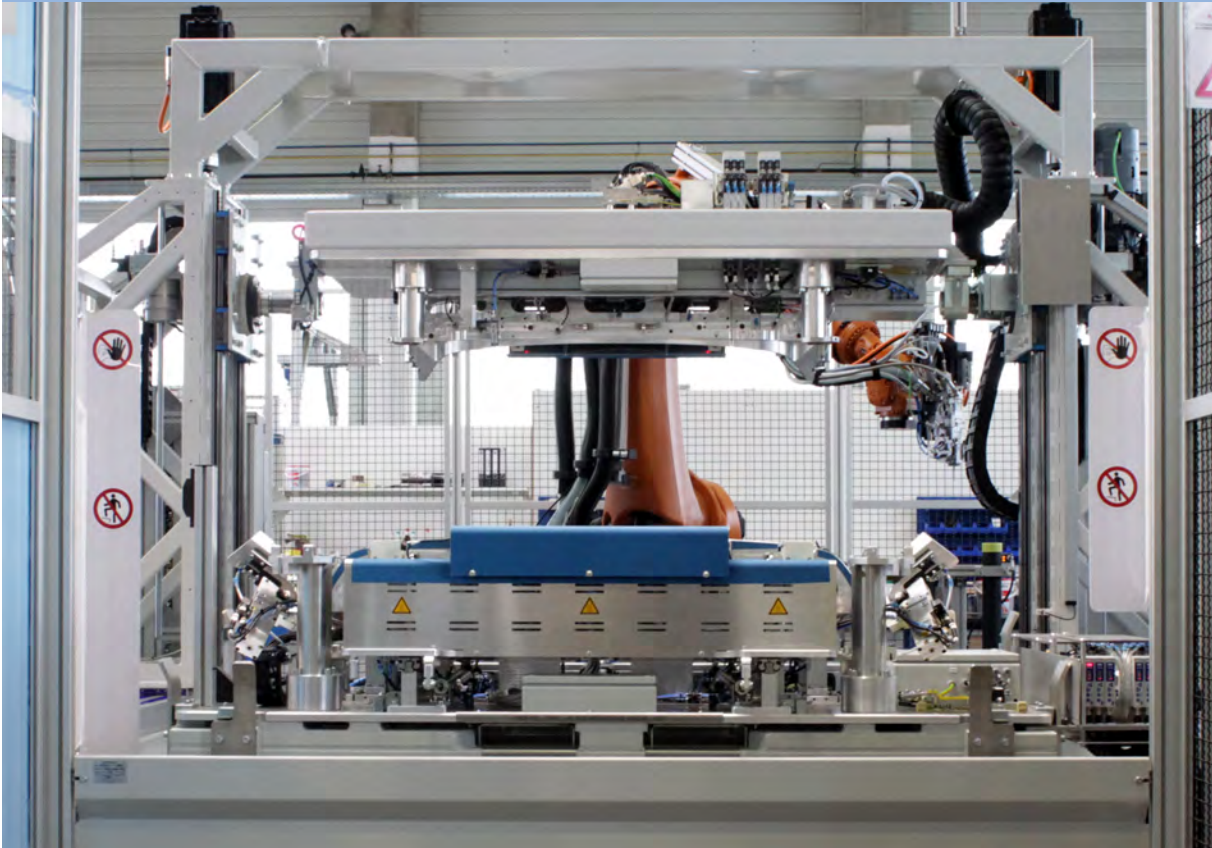
Machining centres



Coatings



Automation system for component bonding



Automation system with assembly and testing tasks



Advice to catalogue's content:

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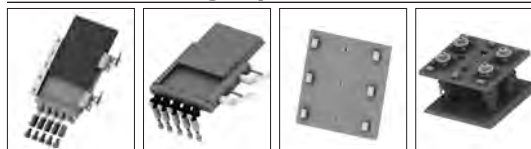
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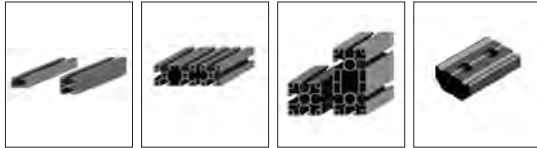
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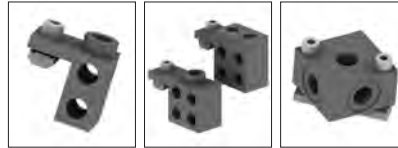
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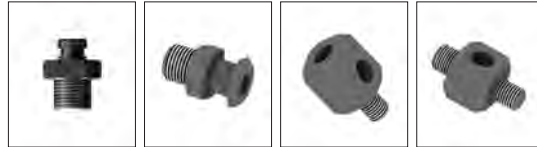
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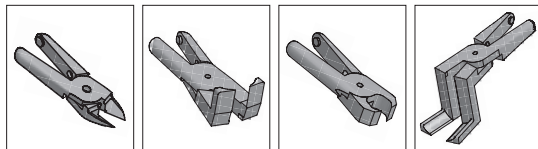
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800 Electronic and Sensors



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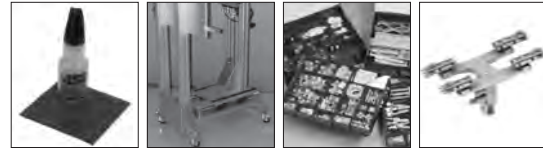
850 Pneumatic



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050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

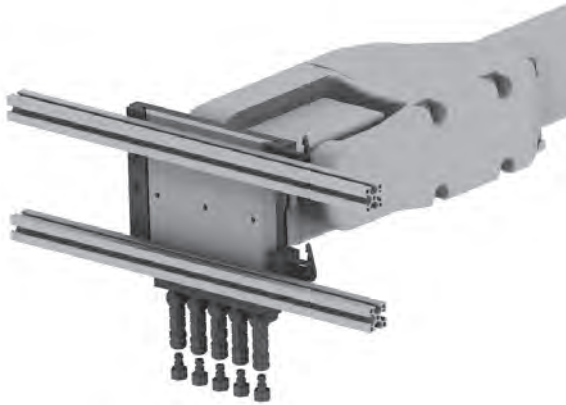
700
Special
Elements

800
Electric and
Sensors

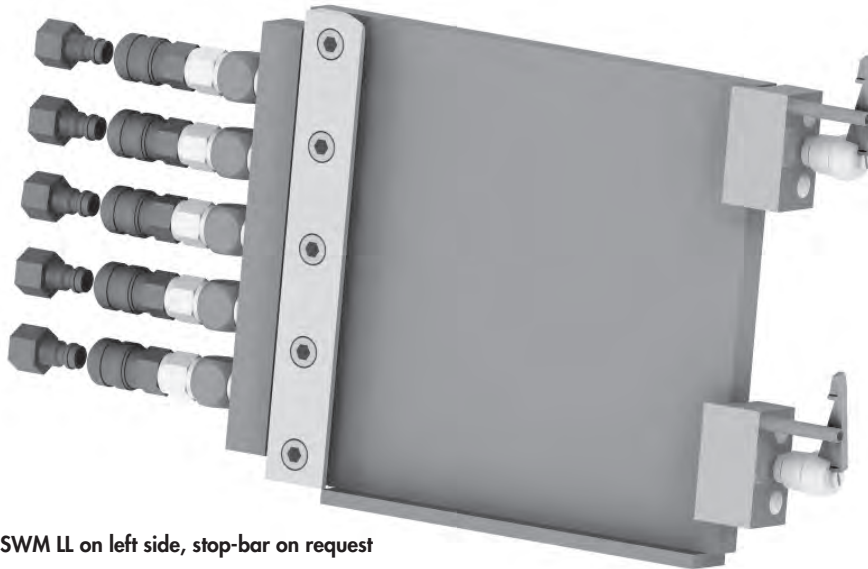
850
Pneumatic

990
Other
PA-Forming

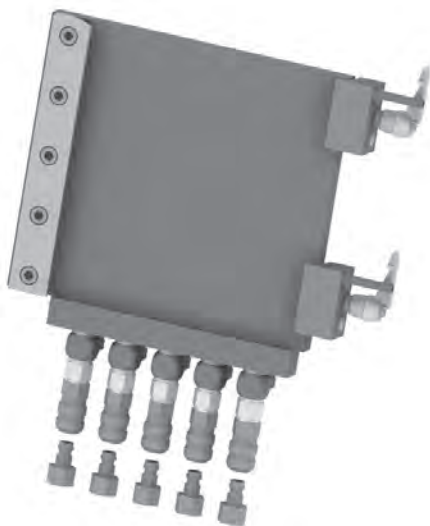
Application examples SWM



Special GPM, only on request



For mounting SWM LL on left side, stop-bar on request



Handling Weight SWM

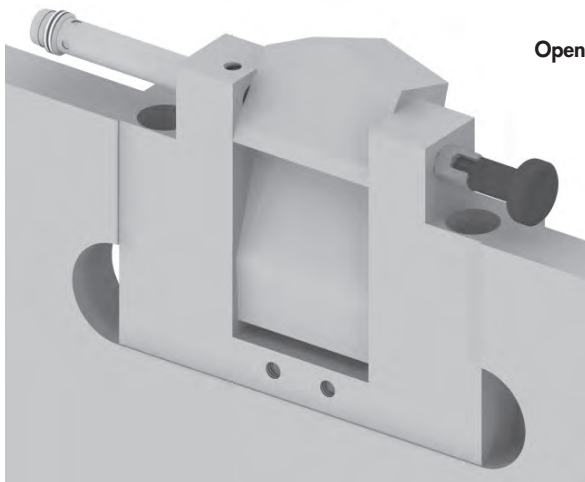
Recommended maximum handling weights of the various SWM sizes:

Description	Handling Weight [kg]
SWM 01	1
SWM 0	5
SWM 1	10
SWM 2	20
SWM 3	40
SWM 3S	60
SWM 0 E	3
SWM 1 E	6,5
SWM 2 E	12

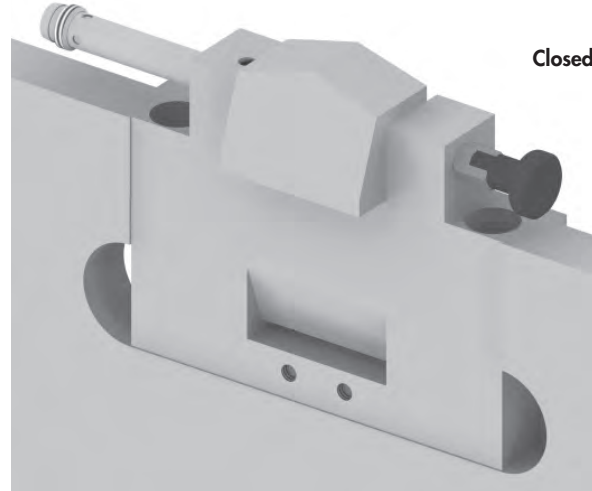
Handling weights depending on center of gravity distance, hole pattern, acceleration values of the robot etc.

Application examples SWM Safety-Lock

Only SWM 3, SWM 3-S, SWM 3-OSK and SWM 3-S-OSK.

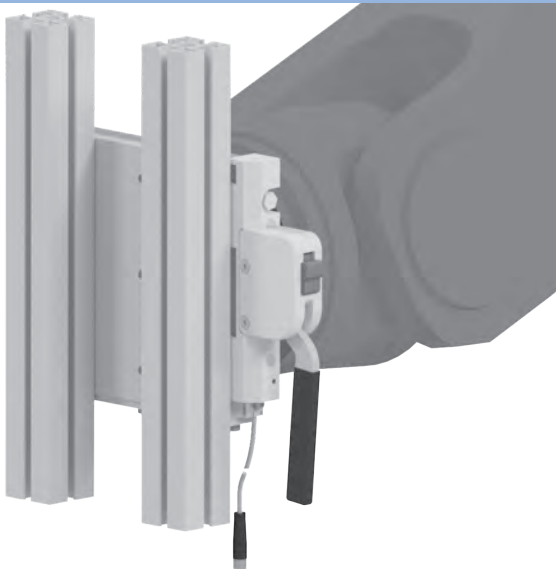


Open

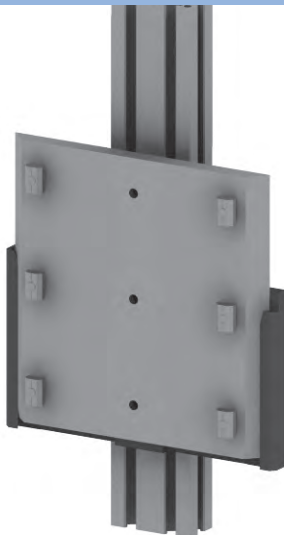


Closed

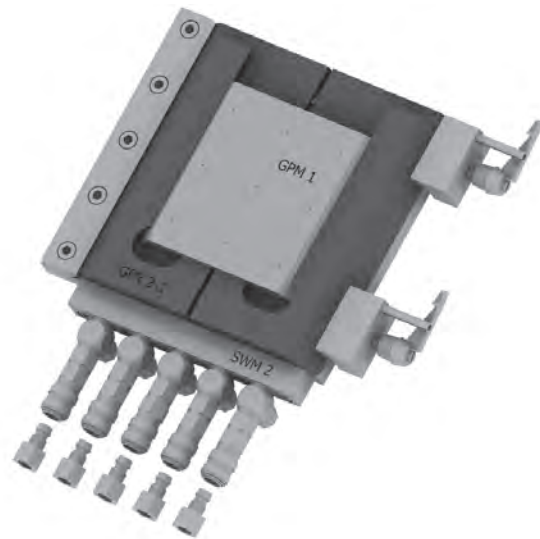
Application example SWM KH



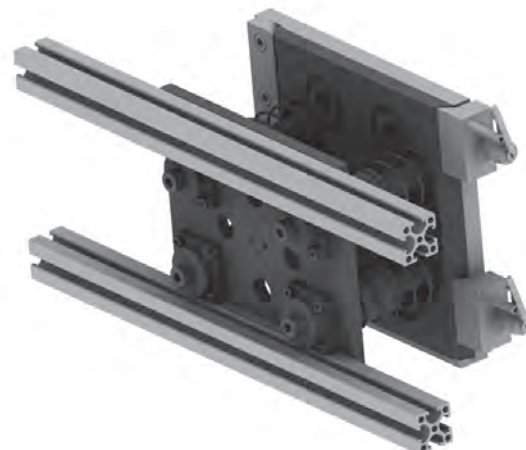
Application example GHV



Application example GPR



Application examples GPG



050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

000 | Quick Change System

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

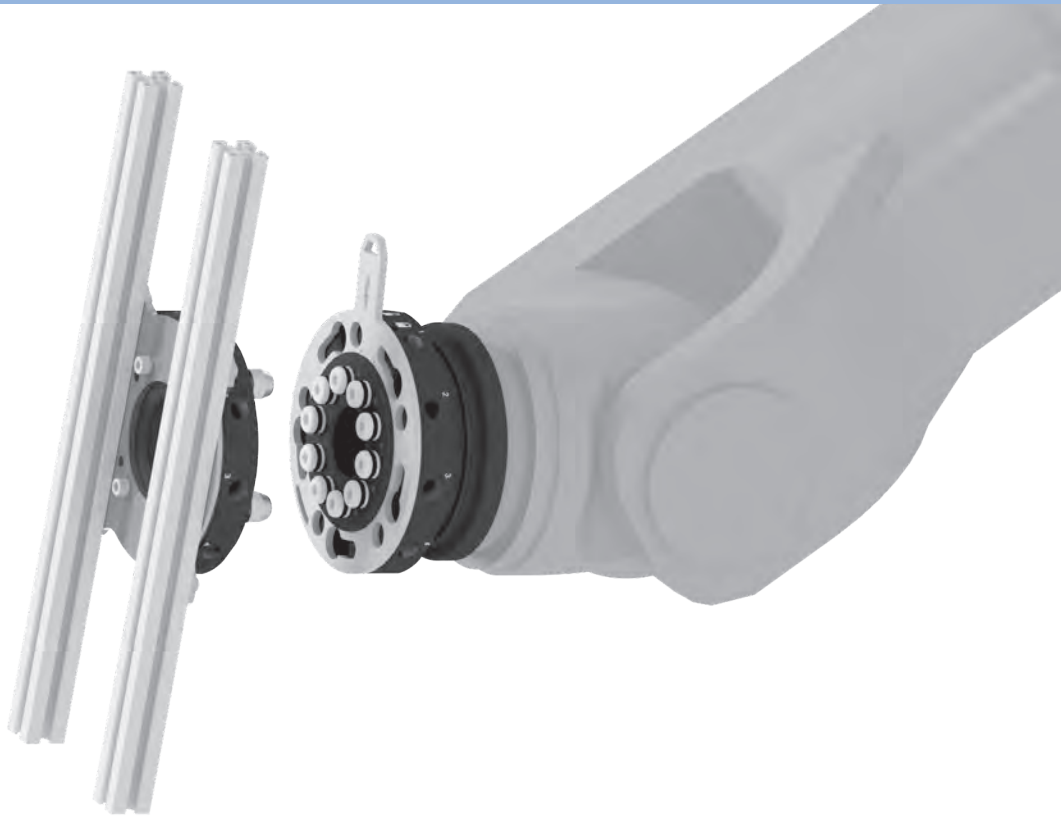
700
Special
Elements

800
Electric and
Sensors

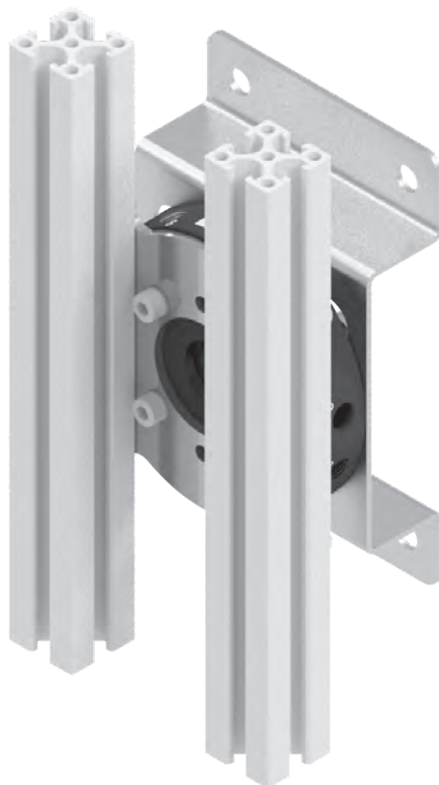
850
Pneumatic

990
Other
PA-Forming

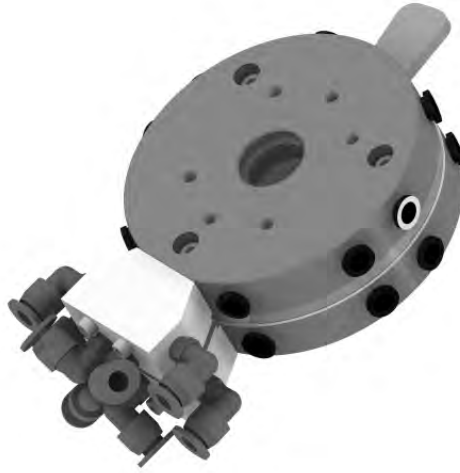
Application example SWH



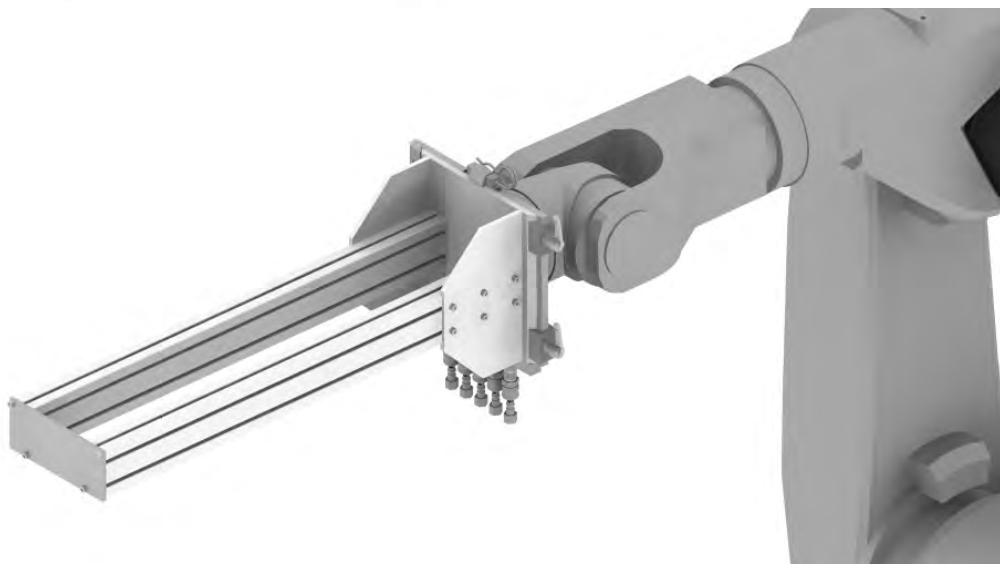
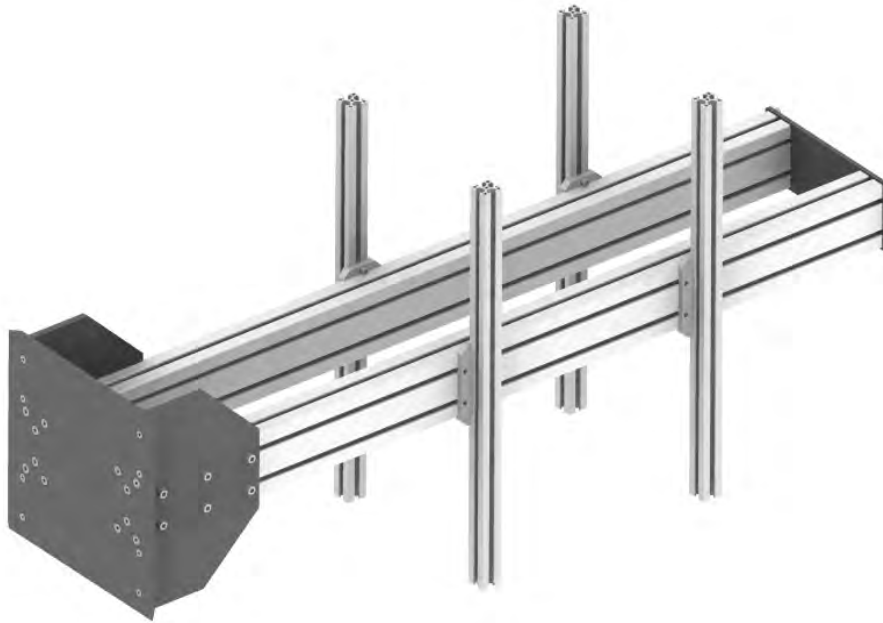
Application example GHV-SWH and GP SWH G



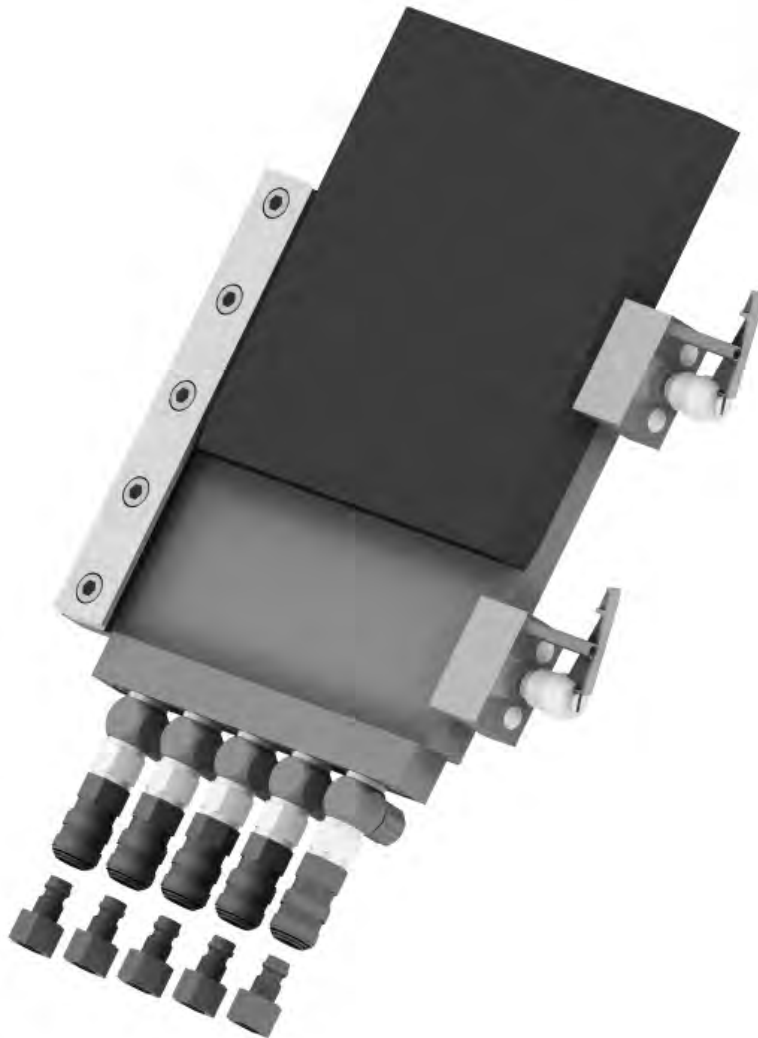
Application example SWH-PR 4



Application examples G6A



SWM / Quick Change System



Remarks:

► **Application: complete quick change system to set up robot hands and mount them to the robot**

- easy exchange of the EOAT (Robot Hand)
- extremely short EOAT (Robot Hand) change over times
- minimizes machine down time
- no need for demounting the robot hand
- to preserve position of robot hand
- integrated pneumatic
- quick release couplings
- » SWM 3-S: made of galvanized steel, GPM also made of steel
- » safety latch only for SWM 3 and SMW 3-S
- » inductive monitoring possible (sensor on demand)

Drawing:

- 1 security latch system only with SWM 3 and 3-S
- 3 air connections
- 4 STN plug in nipple
- NW plug in nipple size

Scope of delivery:

- Quick change system
- 2 base plates (GPM)
- pneumatic connection
- 1 set of plug in nipples (STN)

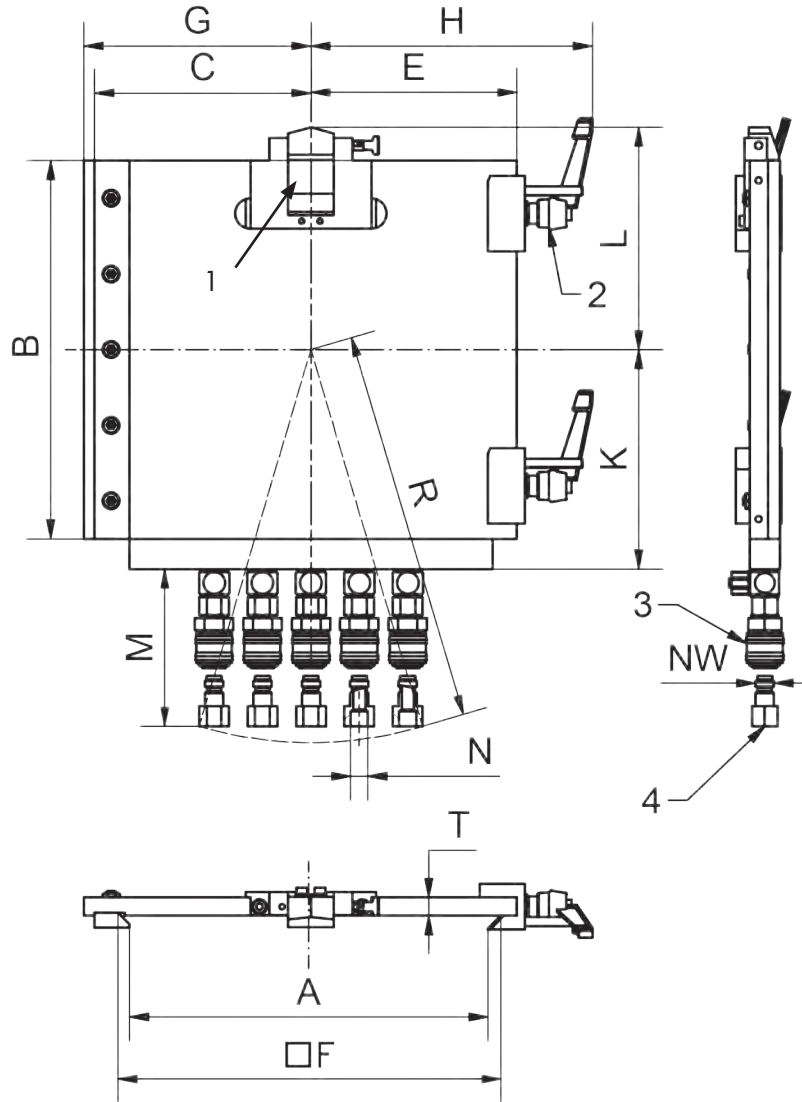
Customized hole pattern for individual robot systems on request.

Sensor for security latch (SWM 3 and 3-S) on request.

Dimensions

Part No.	Description	A [mm]	B [mm]	C [mm]	E [mm]	F [mm]	G [mm]	H [mm]	K [mm]	L [mm]	M [mm]	N [mm] ["]
1-000-05-00	SWM 01	25	40	25	24	40	25	35	26	20		
1-000-10-00	SWM 0	45	60	38	33	60	37.5	43	38	30	27	M5
1-000-15-00	SWM 1	85	100	58	54	100	57.5	63	58	50	27	M5
1-000-20-00	SWM 2	141	160	101	79	160	101	130	96	80	60	G1/8
1-000-25-00	SWM 3	231	250	150	136	250	150	186	145	147.5	65	G1/4
1-000-26-00	SWM 3-S	231	250	150	136	250	150	186	145	147.5	65	G1/4

SWM / Quick Change System (Continuation)



050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

Pneumatic Features

Part No.	Description	NW [mm]	R [mm]	T [mm]	No. of plugs	STN connector	number of hand levers	Safety latch	Material	Weight [g]
1-000-05-00	SWM 01		32	13.5			1		Aluminum	198
1-000-10-00	SWM 0	2.5	75	10	5	M5	2		Aluminum	559
1-000-15-00	SWM 1	2.5	100	10	5	M5	2		Aluminum	1037
1-000-20-00	SWM 2	5	200	12	5	G 1/8	2		Aluminum	3039
1-000-25-00	SWM 3	8	265	12	5	G 1/4	2	X	Aluminum	7212
1-000-26-00	SWM 3-S	8	265	12	5	G 1/4	2	X	Steel	12856

000 | Quick Change System

050 Profile-Channel Nut

100 Clamps

115 Tubular Clamps

120 Profile Connectors

190 Accessories-Profile

200 Vacuum Cup-Connectors

220 Vacuum Cups

224 Vacuum Cups-Special

230 Manifold

290 Adapter

300 Gripper Arms

400 Grippers

450 Gripper Fingers

600 Nipper Bodies

610 Nipper Blades

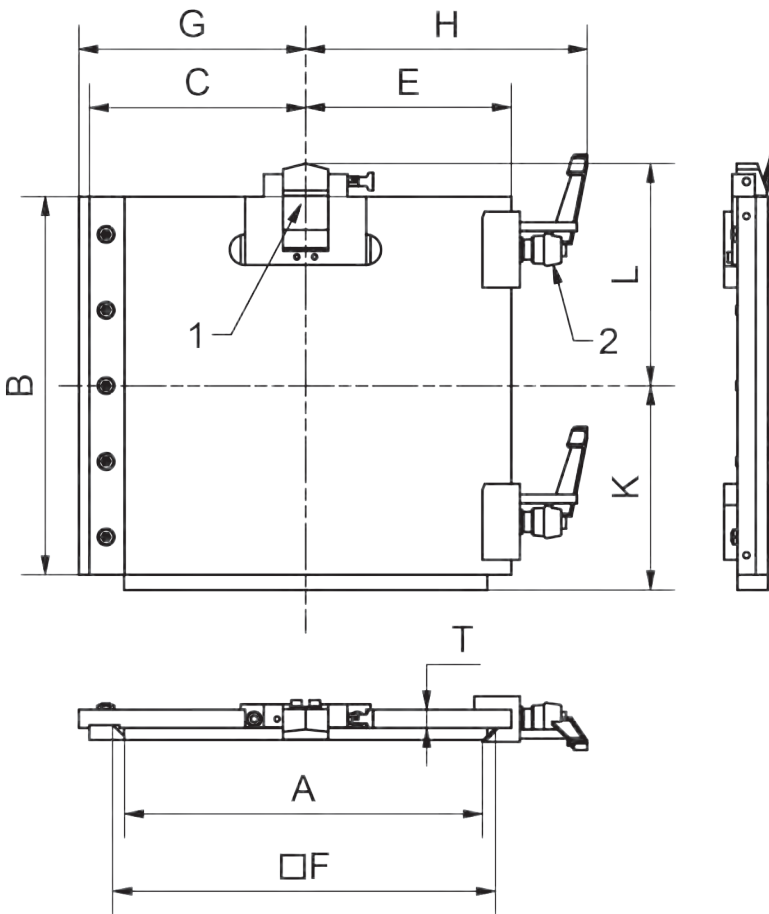
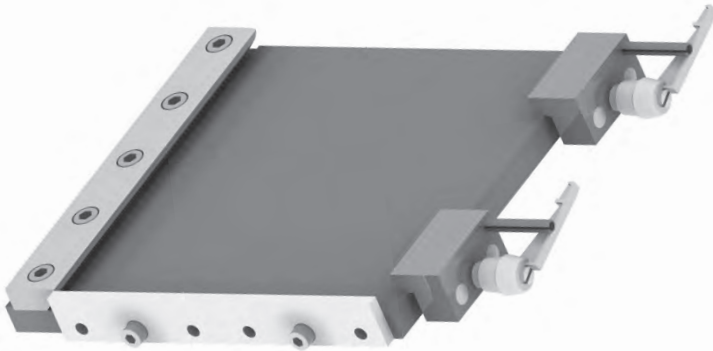
700 Special Elements

800 Electric and Sensors

850 Pneumatic

990 Other PA-Forming

SWM OSK / EOAT (Robot Hand) Quick Change Chuck



Remarks:

- easy exchange of the EOAT (Robot Hand)
- extremely short EOAT (Robot Hand) change over times
- minimizes machine down time
- no need for demounting the robot hand
- to preserve position of robot hand
- quick release couplings
- chuck mechanism made of steel
- SWM 3-S-OSK made of steel for higher payloads
- straight pin for avoiding unwanted loosening of hand lever
- safety latch only for SWM 3 OSK and SMW 3-S OSK
- » inductive monitoring possible (sensor on demand)

Drawing:

1 security latch only on SWM 3 OSK

Scope of delivery:

- SWM without pneumatic connections and base plates

Customized hole pattern for individual robot systems on request.

Sensor for security latch (SWM 3/3-S OSK) on request.

Part No.	Description	A [mm]	B [mm]	C [mm]	E [mm]	F [mm]	G [mm]	H [mm]	K [mm]	L [mm]	T [mm]
----------	-------------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------

1-000-40-00	SWM 0 - OSK	45	60	38	33	60	37.5	43	35	30	10
1-000-43-00	SWM 1 - OSK	85	100	58	54	100	57.5	63	55	50	10
1-000-46-00	SWM 2 - OSK	141	160	101	79	160	101	130	85	80	12
1-000-49-00	SWM 3 - OSK	231	250	150	136	250	150	186	135	147.5	12
1-000-53-00	SWM 3-S - OSK	231	250	150	136	250	150	186	135	147.5	12

Part No.	Description	number of hand levers	Safety latch	Material	Weight [g]
----------	-------------	-----------------------	--------------	----------	------------

1-000-40-00	SWM 0 - OSK	2		Aluminum	274
1-000-43-00	SWM 1 - OSK	2		Aluminum	492
1-000-46-00	SWM 2 - OSK	2		Aluminum	1391
1-000-49-00	SWM 3 - OSK	2	X	Aluminum	3210
1-000-53-00	SWM 3-S - OSK	2	X	Steel	7507

SWM LL / Pneumatic Connection for Quick Change System

Remarks:

- dimensions for pneumatic connection see SWM

Drawing:

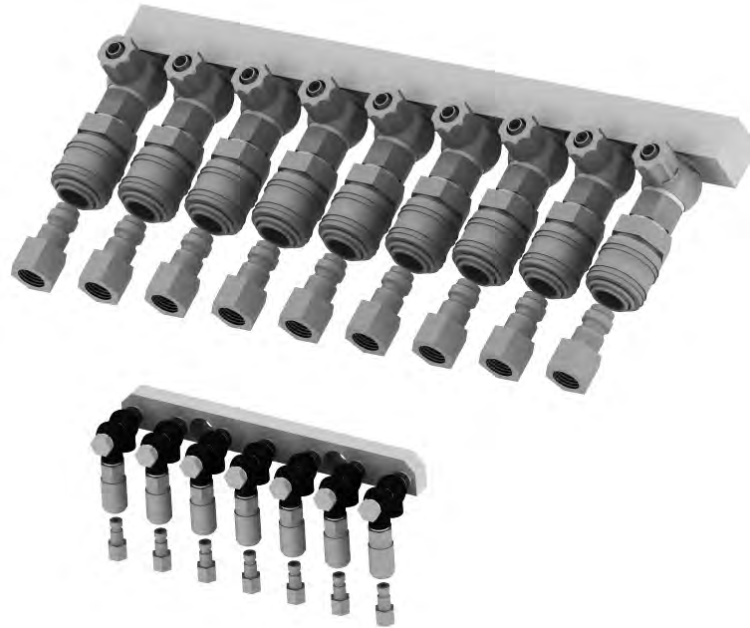
- Ø A quick connect EOAT (Robot Hand) side
- Ø B pneumatic connector to robot

Scope of delivery:

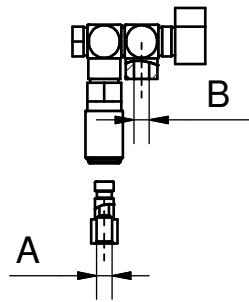
- set of Plug-In Nipple (STN) and screws

Accessories e.g.:

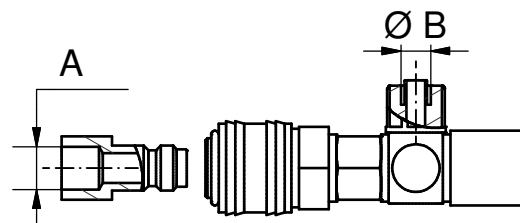
- Straight Quick Hose Connector STA
- Pneumatic Hose PSS



SWM LL 0 / SWM LL 1



SWM LL 2 / SWM LL 3



Part No.	Description	Number of connectors	A [mm]	B [mm] for hose	Weight [g]
1-000-10-04	SWM 0 LL 5	5	M5	M5	156
1-000-10-07	SWM 0 LL 7	7	M5	M5	220
1-000-15-04	SWM 1 LL 5	5	M5	M5	166
1-000-15-07	SWM 1 LL 7	7	M5	M5	226
1-000-20-04	SWM 2 LL 5	5	G1/8	4x6/4-1x8/6	418
1-000-20-07	SWM 2 LL 7	7	G1/8	6x6/4-1x8/6	565
1-000-20-09	SWM 2 LL 9	9	G1/8	8x6/4-1x8/6	717
1-000-25-05	SWM 3 LL 5	5	G1/4	4x6/4-1x8/6	891
1-000-25-11	SWM 3 LL 7	7	G1/4	6x6/4-1x8/6	1153
1-000-25-13	SWM 3 LL 9	9	G1/4	8x6/4-1x8/6	1,836

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special
Elements

800
Electric and
Sensors

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Pneumatic

990
Other
PA-Forming

000 | Quick Change System

050 Profile-Channel Nut

100 Clamps

115 Tubular Clamps

120 Profile Connectors

190 Accessories-Profile

200 Vacuum Cup-Connectors

220 Vacuum Cups

224 Vacuum Cups-Special

230 Manifold

290 Adapter

300 Gripper Arms

400 Grippers

450 Gripper Fingers

600 Nipper Bodies

610 Nipper Blades

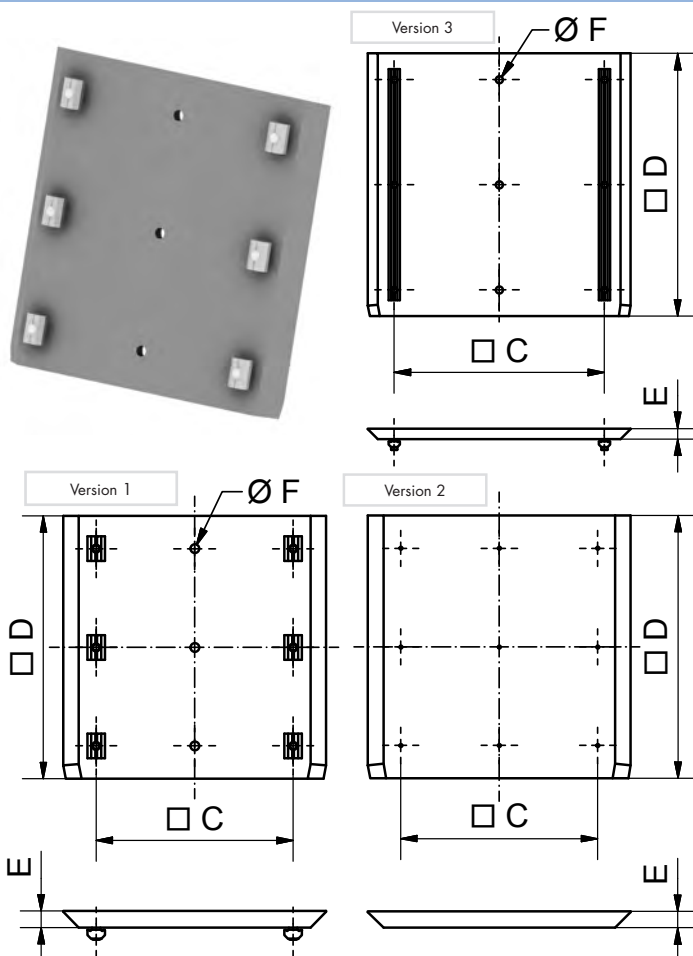
700 Special Elements

800 Electric and Sensors

850 Pneumatic

990 Other PA-Forming

GPM / EOAT (Robot Hand) Base Plate



Remarks:

Version 1:

- with channel nuts respectively sunk screw and bore holes

Version 2:

- without channel nuts
- GPM are marked (dimension C)
- GPM 1 V: thicker plate for higher payloads, reinforced version of GPM 1 for better countersinking of screws
- GPM 3 S (Steel): for higher payloads

Version 3:

- with end-to-end channel nut and bore holes
- easy mounting, strong connection
- profiles can be mounted length- or crosswise

Customized hole pattern for individual robot systems on request.

Remarks for scope of delivery:

- SK = sunk screw (DIN 6912)
- GWP = channel nut with one bore hole and screw (DIN 912)
- GWP3 = long channel nut with three bore holes and screws (DIN 912)

Part No.	Description	Version/Scope of delivery	C [mm]	D [mm]	E [mm]	F [mm]	Material	Weight [g]
1-005-05-00	GPM 01	Version 2, without GWP, without marking	-	40	8	-	Al	29
1-005-10-00	GPM 0	Version 2, without GWP, with marking	35	60	8	-	Al	71
1-005-15-00	GPM 0 L	Version 1, 4x SK, M4, for L 18-10 and X 25-10 Profile	35	60	8	-	Al	74
1-005-17-00	GPM 0 L/X	Version 1, 4x GWP, M4, optimal for L 18-18 and X-Profile	35	60	8	-	Al	96
1-005-25-00	GPM 1	Version 2, without GWP, with marking	70	100	8	-	Al	198
1-005-27-00	GPM 1 L	Version 1, 4x SK, M4, for L 18-10 and X 25-10 Profile	70	100	8	-	Al	202
1-005-28-00	GPM 1 V	Version 2, without GWP, with marking	70	100	10	-	Al	241
1-005-31-00	GPM 1 L/XV	Version 1, 4x GWP, M4, optimal for L 18-18 and X-Profile	70	100	10	-	Al	268
1-005-30-00	GPM 1 L/X	Version 1, 4x GWP, M5, optimal for L 18-18 and X-Profile	70	100	8	-	Al	225
1-005-40-00	GPM 2	Version 2, without GWP, with marking	120	160	10	-	Al	652
1-005-45-00	GPM 2 X	Version 1, 6x GWP, M5, optimal for X-Profile	120	160	10	5,5	Al	688
1-005-50-00	GPM 2 JU	Version 1, 6x GWP, M5, optimal for JU-Profile	120	160	10	6,6	Al	688
1-005-60-00	GPM 3	Version 2, without GWP, with marking	200	250	10	-	Al	1603
1-005-65-00	GPM 3 X	Version 1, 6x GWP, M5, optimal for X-Profile	200	250	10	5,5	Al	1644
1-005-66-00	GPM 3 X DN	Version 3, 2x GWP3, M5, optimal for X-Profile	200	250	10	5,5	Al	1778
1-005-70-00	GPM 3 JU	Version 1, 6x GWP, M6, optimal for JU-Profile	200	250	10	6,6	Al	1663
1-005-71-00	GPM 3 JU DN	Version 3, 2x GWP3, M6, optimal for JU-Profile	200	250	10	6,6	Al	1787
1-005-62-00	GPM 3 S	Version 2, without GWP, with marking	200	250	10	-	Stahl	4695

SWM KH / Quick Change System with Lever Locking Device

Remarks:

- with integrated safety lock against unwanted opening of the lever locking device
- easy exchange of the EOAT (Robot Hand)
- extremely short EOAT (Robot Hand) change over times
- minimizes machine down time
- no need for demounting the robot hand
- to preserve position of robot hand
- Material: Aluminium, clamps made of steel
- » inductive monitoring possible (sensor on demand)

Drawing:

1 hatched area:
no machining allowed!

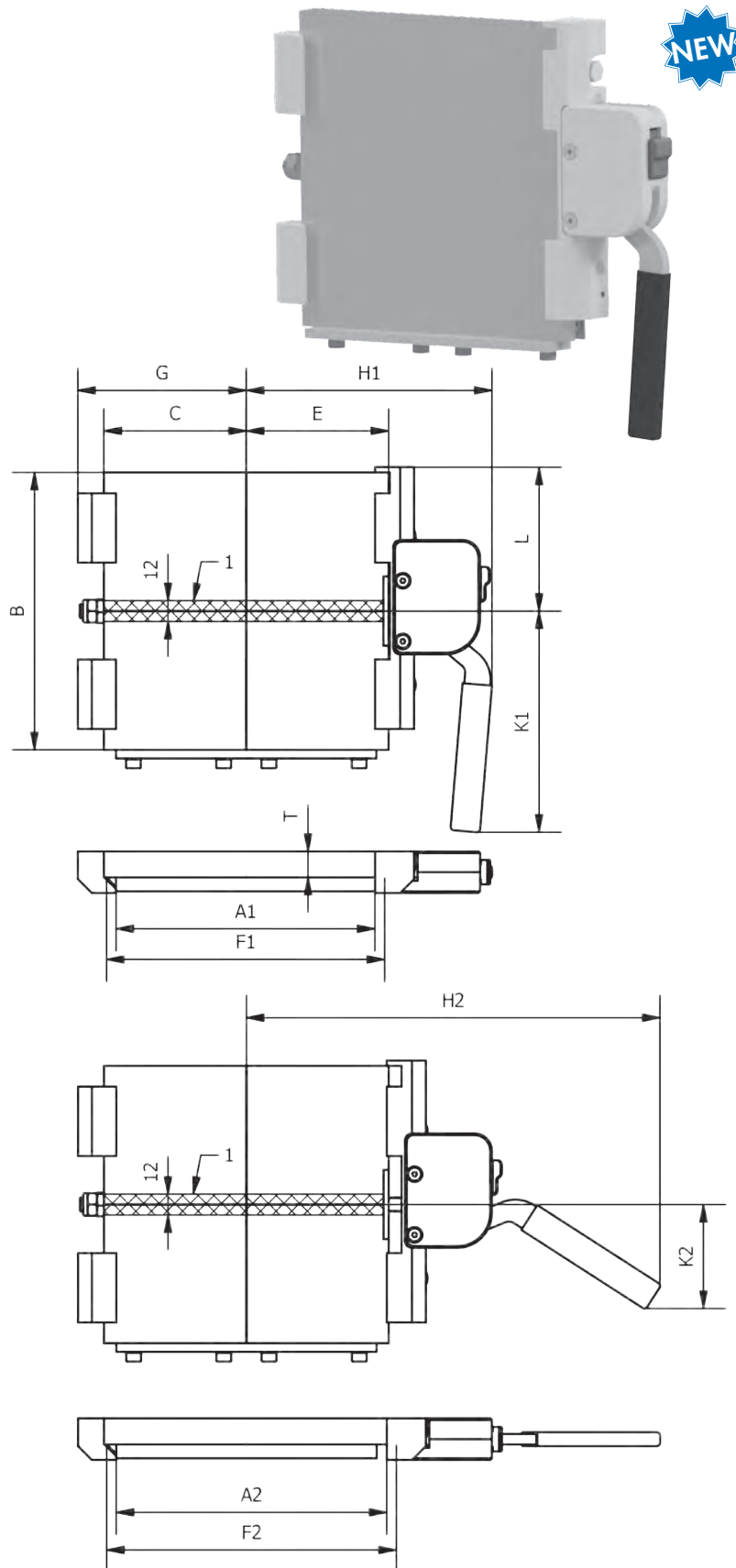
Scope of delivery:

- SWM KH without pneumatic connections and base plates

Accessories e.g.:

- Sensor IEK 8 or IES 8
- Pneumatic Connection SWM LL
- Base Plate GPM

Customized hole pattern for individual robot systems on request.



Part No.	Description	A1	A2	B	C	E	F1	F2	G	H1	H2	K1	K2	L	T	Weight
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[g]
1-000-66-00	SWM 2 KH OSK	149	156	160	82	82	160	167	97	142	240	130	60	83	15	1900

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special
Elements

800
Electric and
Sensors

850
Pneumatic

990
Other
PA-Forming

000 | Quick Change System

050 Profile-Channel Nut

100 Clamps

115 Tubular Clamps

120 Profile Connectors

190 Accessories-Profile

200 Vacuum Cup-Connectors

220 Vacuum Cups

224 Vacuum Cups-Special

230 Manifold

290 Adapter

300 Gripper Arms

400 Grippers

450 Gripper Fingers

600 Nipper Bodies

610 Nipper Blades

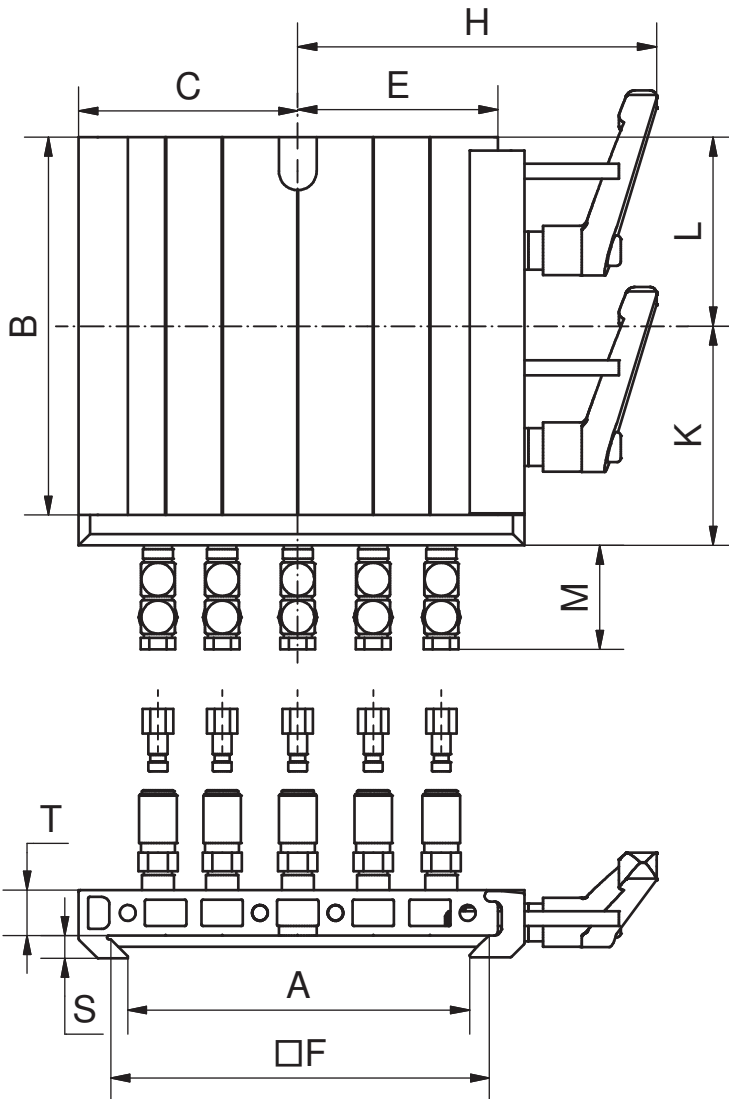
700 Special Elements

800 Electric and Sensors

850 Pneumatic

990 Other PA-Forming

SWM E / EOAT (Robot Hand) Quick Change System, Extruded



Remarks:

► **Application:** complete extruded quick change system to set up robot hands and mount them to the robot

- extreme weight reduction compared to quick change system SWM
- EOAT (Robot Hand) base plate only fits in one direction
- all SWM E with tuggle nut
- straight pin for avoiding unwanted loosening of hand lever
- easy exchange of the EOAT (Robot Hand)
- extremely short EOAT (Robot Hand) change over times
- minimizes machine down time
- no need for demounting the robot hand

Scope of delivery:

- Quick change system
- 2 base plates (GPM E)
- pneumatic connection
- 1 set of plug in nipples (STN)

Customized hole pattern for individual robot systems on request.

Part No.	Description	A [mm]	B [mm]	C [mm]	E [mm]	F [mm]	H [mm]	K [mm]	L [mm]	M [mm]	S [mm]	T [mm]	Mate-rial	Weight [g]
1-002-05-00	SWM 0 E	51	60	38	33	60	75	38	39	27.5	6	12	Al	422
1-002-10-00	SWM 1 E	90.5	100	58	53	100	95	58	62.5	27.5	6	12	Al	815
1-002-15-00	SWM 2 E	150.5	160	90	83	160	122.6	92	90	59.5	5.7	14	Al	2199

SWM E OSK / EOAT (Robot Hand) Quick Change Chuck, Extruded

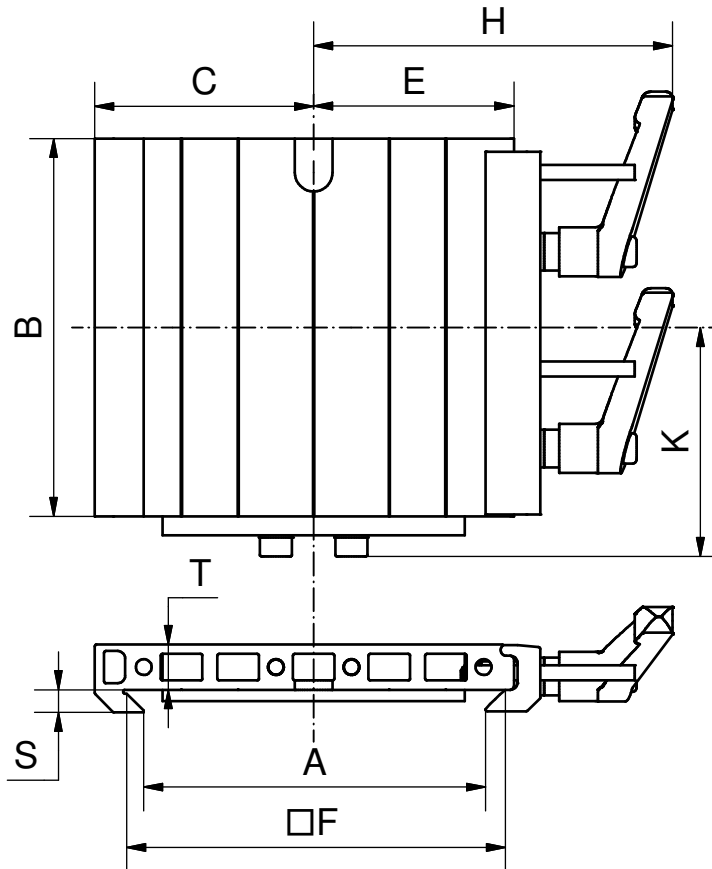
Remarks:

- extreme weight compared to standard quick changer
- EOAT (robot hand) base plate only fits in one direction
- all SWM E OSK with tuggle nut
- straight pin for avoiding unwanted loosening of hand lever
- easy exchange of the EOAT (Robot Hand)
- extremely short EOAT (Robot Hand) change over times
- minimizes machine down time
- no need for demounting the robot hand

Scope of delivery:

- Quick change system without base plates and pneumatic connection

Customized hole pattern for individual robot systems on request.



Part No.	Description	A [mm]	B [mm]	C [mm]	E [mm]	F [mm]	H [mm]	K [mm]	S [mm]	T [mm]	Material	Weight [g]
1-002-40-00	SWM 0 E-OSK	51	60	38	33	60	75	37.6	6	12	Aluminum	173
1-002-43-00	SWM 1 E-OSK	90.5	100	58	53	100	95	60.6	6	12	Aluminum	371
1-002-46-00	SWM 2 E-OSK	150.5	160	90	83	160	122.6	91.6	6	14	Aluminum	905

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special
Elements

800
Electric and
Sensors

850
Pneumatic

990
Other
PA-Forming

000 | Quick Change System

050 Profile-Channel Nut

100 Clamps

115 Tubular Clamps

120 Profile Connectors

190 Accessories-Profile

200 Vacuum Cup-Connectors

220 Vacuum Cups

224 Vacuum Cups-Special

230 Manifold

290 Adapter

300 Gripper Arms

400 Grippers

450 Gripper Fingers

600 Nipper Bodies

610 Nipper Blades

700 Special Elements

800 Electric and Sensors

850 Pneumatic

990 Other PA-Forming

SWM E LL / Pneumatic Connection for Quick Change System, Extruded



Remarks:

- dimensions for pneumatic connection see SWM

Drawing:

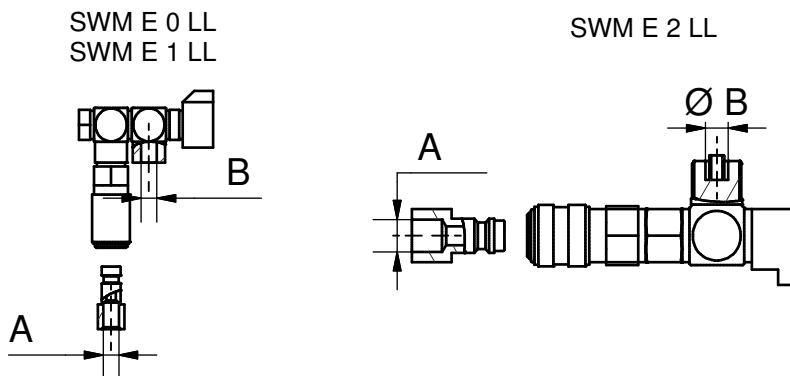
- Ø A quick connect EOAT (Robot Hand) side
- Ø B pneumatic connector to robot

Scope of delivery:

- set of Plug-In Nipple (STN) and screws

Accessories:

- Straight Quick Hose Connector STA
- Pneumatic Hose PSS



Part No.	Description	Number of connectors	A [mm] ["]	B [mm] for hose	Weight [g]
1-002-05-03	SWM E 0 LL 5	5	M5	M5	157
1-002-10-03	SWM E 1 LL 5	5	M5	M5	169
1-002-10-06	SWM E 1 LL 7	7	M5	M5	224
1-002-15-03	SWM E 2 LL 5	5	1/8	4x6/4-1x8/6	422
1-002-15-06	SWM E 2 LL 7	7	1/8	6x6/4-1x8/6	559

GPM E / EOAT (Robot Hand) Base Plate, Extruded

Remarks:

- suitable for SWM E
- extreme weight reduction
- anti-rotation of the robot hand base plates by additional positive locking (dimension B)

Version 1:

- with channel nuts respectively sunk screw and bore holes

Version 2:

- without channel nuts

Customized hole pattern for individual robot systems on request.

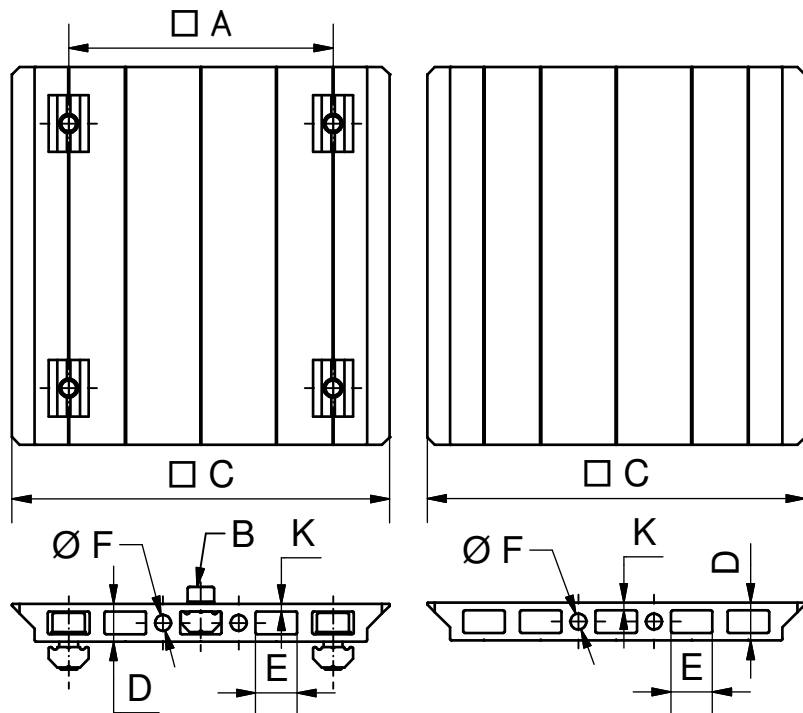
Remarks for scope of delivery:

- SK = sunk screw (DIN 10642)
- GWP = channel nut with one bore hole and screw (DIN 4762)



Version 1

Version 2



Part No.	Description	Version/Scope of delivery	A [mm]	C [mm]	D [mm]	E [mm]	F [mm]	K [mm]	Mate- rial	Weight [g]
1-007-05-00	GPM 0 E	Version 2, without GWP	60	10	11	2	Al	52		
1-007-13-00	GPM 0 E L/X	Version 1, 4x GWP, M4, with anti-rotation, optimal for L 18-18 and X-Profile	30	60	10	11	2	Al	82	
1-007-20-00	GPM 1 E	Version 2, without GWP	100	10	11	2	Al	147		
1-007-23-00	GPM 1 E L	Version 1, 4x SK, M4, with anti-rotation, for L 18-10 and X 25-10 Profile	70	100	10	11	4,2	2	Al	178
1-007-25-00	GPM 1 E L/X	Version 1, 4x GWP, M5, with anti-rotation, optimal for L 18-18 and X-Profile	70	100	10	11	4,2	2	Al	185
1-007-35-00	GPM 2 E	Version 2, without GWP, with anti-rotation	160	12	11	4,2	2,5	Al	467	
1-007-40-00	GPM 2 E X	Version 1, 4x GWP, M5, with anti-rotation, optimal for L 18-18 and X-Profile	130	160	12	11	4,2	2,5	Al	500

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special
Elements

800
Electric and
Sensors

850
Pneumatic

990
Other
PA-Forming

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

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Adapter

300
Gripper Arms

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Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special
Elements

800
Electric and
Sensors

850
Pneumatic

990
Other
PA-Forming

GHV / EOAT (Robot Hand) Holding Fixture



Remarks:

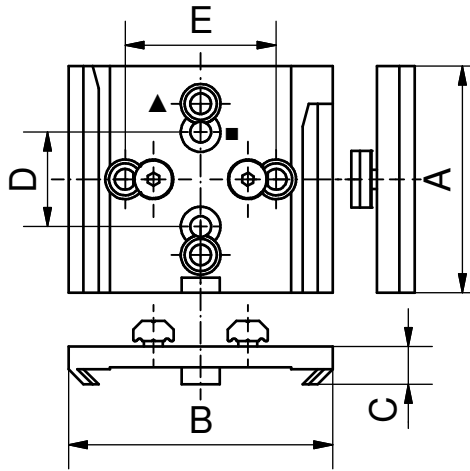
- for storing EOAT (robot hand) at e.g. walls or racks

Drawing:

- counter bore for mounting X-Profile
- ▲ counter bore for mounting JU-Profile

Scope of delivery:

- mounting material for X- and JU-Profile included



Part No.	Description	Storage Fixture for	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Material
1-006-03-00	GHV 01	GPM 01	60	50	10	■25	▲40	Aluminum
1-006-06-00	GHV 0	GPM 0	60	70	10	■25	▲40	Aluminum
1-006-09-00	GHV 1	GPM 1	60	110	10	■25	▲40	Aluminum
1-006-12-00	GHV 2	GPM 2	100	170	12	■25	▲40	Aluminum
1-006-15-00	GHV 3	GPM 3	120	270	12	■25	▲40	Aluminum

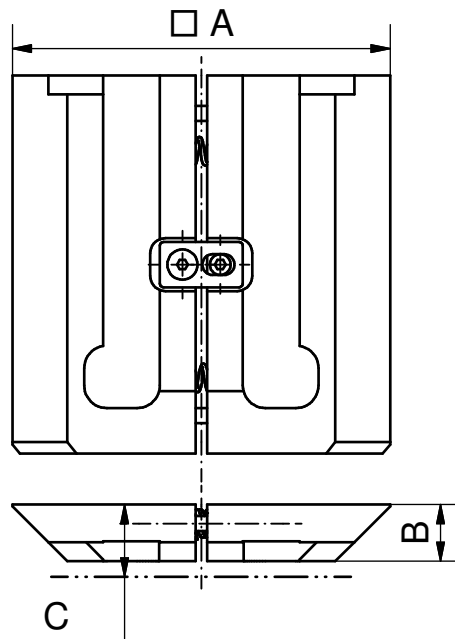
GPR / Adapter GPM → SWM

Remarks:

- ▶ **Application: adapter plate allows a smaller GPM size in a larger SWM**
- no need to convert the robots side
- » see application examples

Drawing:

C height of GPM installed in GPR



Part No.	Description	A [mm]	B [mm]	C [mm]	Adaption	Material	Weight [g]
1-005-81-00-1	GPR 1-0	100	15	18	GPM 0 → SWM 1	Aluminum	269
1-005-83-00-1	GPR 2-1	160	15	17	GPM 1 → SWM 2	Aluminum	712
1-005-85-00	GPR 3-1	250	20	22	GPM 1 → SWM 3	Aluminum	2858
1-005-86-00-1	GPR 3-2	250	20	23	GPM 2 → SWM 3	Aluminum	2377

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

000 | Quick Change System

050 Profile-Channel Nut

100 Clamps

115 Tubular Clamps

120 Profile Connectors

190 Accessories-Profile

200 Vacuum Cup-Connectors

220 Vacuum Cups

224 Vacuum Cups-Special

230 Manifold

290 Adapter

300 Gripper Arms

400 Grippers

450 Gripper Fingers

600 Nipper Bodies

610 Nipper Blades

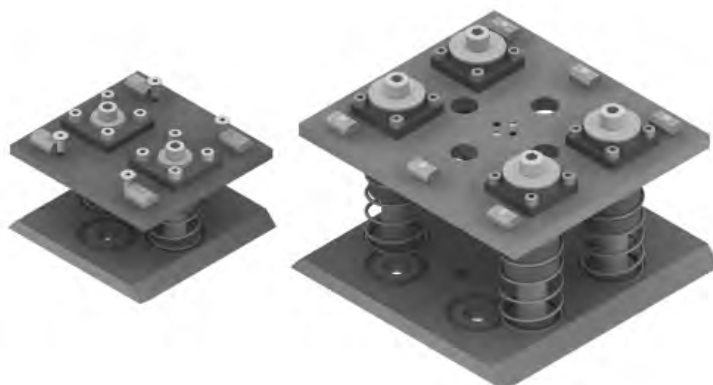
700 Special Elements

800 Electric and Sensors

850 Pneumatic

990 Other PA-Forming

GPG / EOAT (Robot Hand) Plate features Ball Bushings

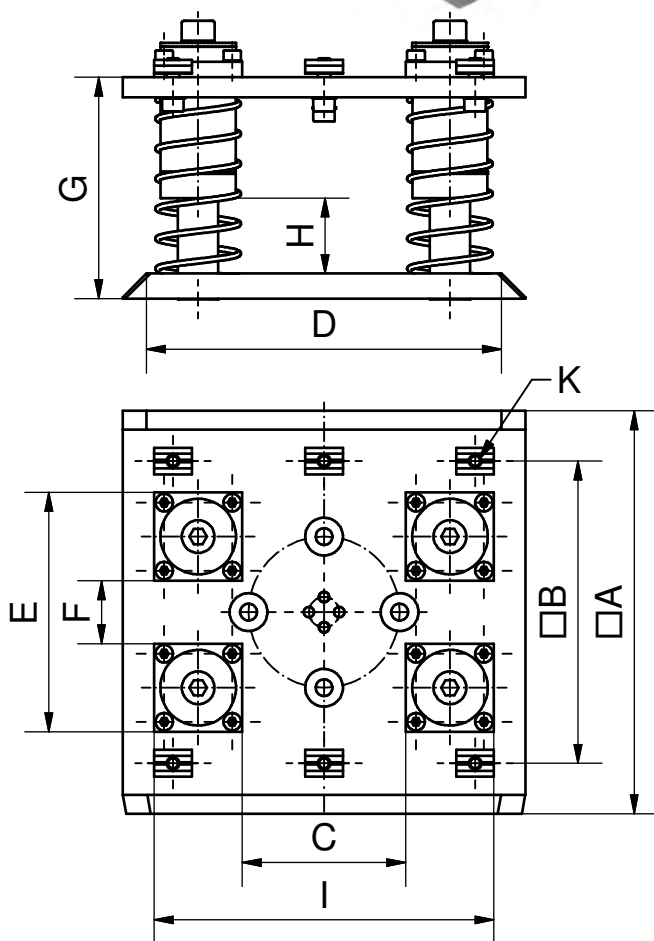


Remarks:

- robot hand base plate with bore holes and channel nuts respectively sunk screws
- moving plate can be rotated 90°
- spring tension can be reduced by removing springs

Remarks for scope of delivery:

- SK = sunk screw
- GWP = channel nut



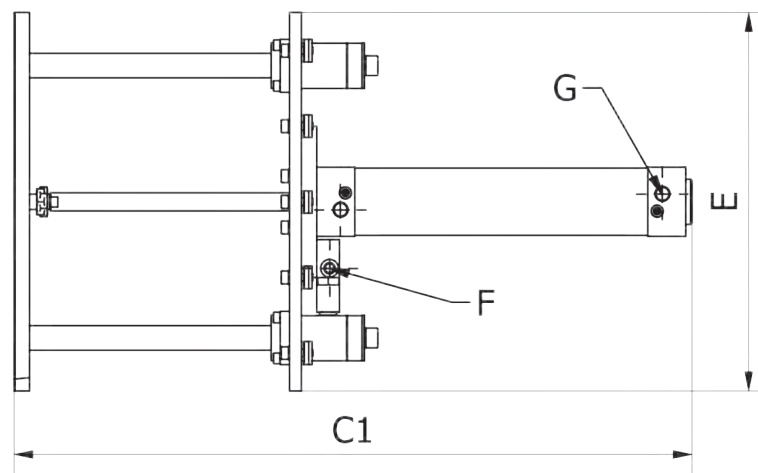
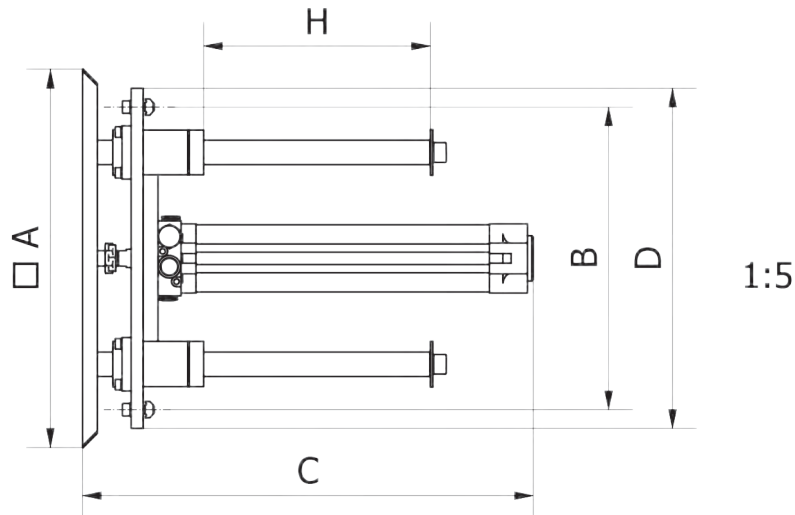
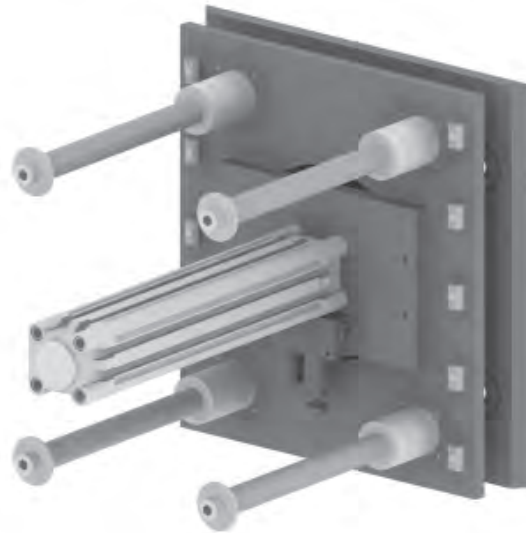
Part No.	Description	Version/Scope of delivery	A [mm]	B [mm]	C [mm]	D [mm]
1-006-20-00	GPG 1-20 L/X	2 ball bushings, 4x GWP, 4x SK, optimal for L- and X-Profil	100	70		85
1-006-26-00	GPG 2-30 X	4 ball bushings, 6x GWP, optimal for X-Profil	160	120	25	141
1-006-29-00	GPG 3-30 X	4 ball bushings, 10x GWP, optimal for X-Profil	250	200	105	231
1-006-30-00	GPG 3-30 JU	4 ball bushings, 10x GWP, optimal for JU-Profil	250	215	105	231

Part No.	Description	E [mm]	F [mm]	G [mm]	Stroke H [mm]	I [mm]	K [mm]	L [l]	Weight [g]
1-006-20-00	GPG 1-20 L/X	85	15	51,5	20		M5	2	579
1-006-26-00	GPG 2-30 X	135	65	88	30	95	M5	4	2211
1-006-29-00	GPG 3-30 X	215	145	88	30	175	M5	4	3687
1-006-30-00	GPG 3-30 JU	215	145	88	30	175	M6	4	3872

GPG-P / EOAT (Robot Hand) Plate, pneumatic

Remarks:

- ▶ **Application: for extraction of falling items**
- spring force of standard GPG raises proportionately with the translation
- counterforce of this version is constantly during the translation
- counterforce is adjustable by the integrated press-control valve
- produced air cushion dumps by the press-control valve
- » variants on demand



Part No.	Description	A [mm]	B [mm]	C [mm]	C 1 [mm]	D [mm]	E [mm]	F Ø [mm]	G ["]	H [mm]	Piston Ø [mm]	Weight [g]
----------	-------------	--------	--------	--------	----------	--------	--------	----------	-------	--------	---------------	------------

9-07-006-060-0 GPG-P-3-150 X 250 200 298 448 225 250 6/4 1/8 150 32 5857

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

050 Profile-Channel Nut

100 Clamps

115 Tubular Clamps

120 Profile Connectors

190 Accessories-Profile

200 Vacuum Cup-Connectors

220 Vacuum Cups

224 Vacuum Cups-Special

230 Manifold

290 Adapter

300 Gripper Arms

400 Grippers

450 Gripper Fingers

600 Nipper Bodies

610 Nipper Blades

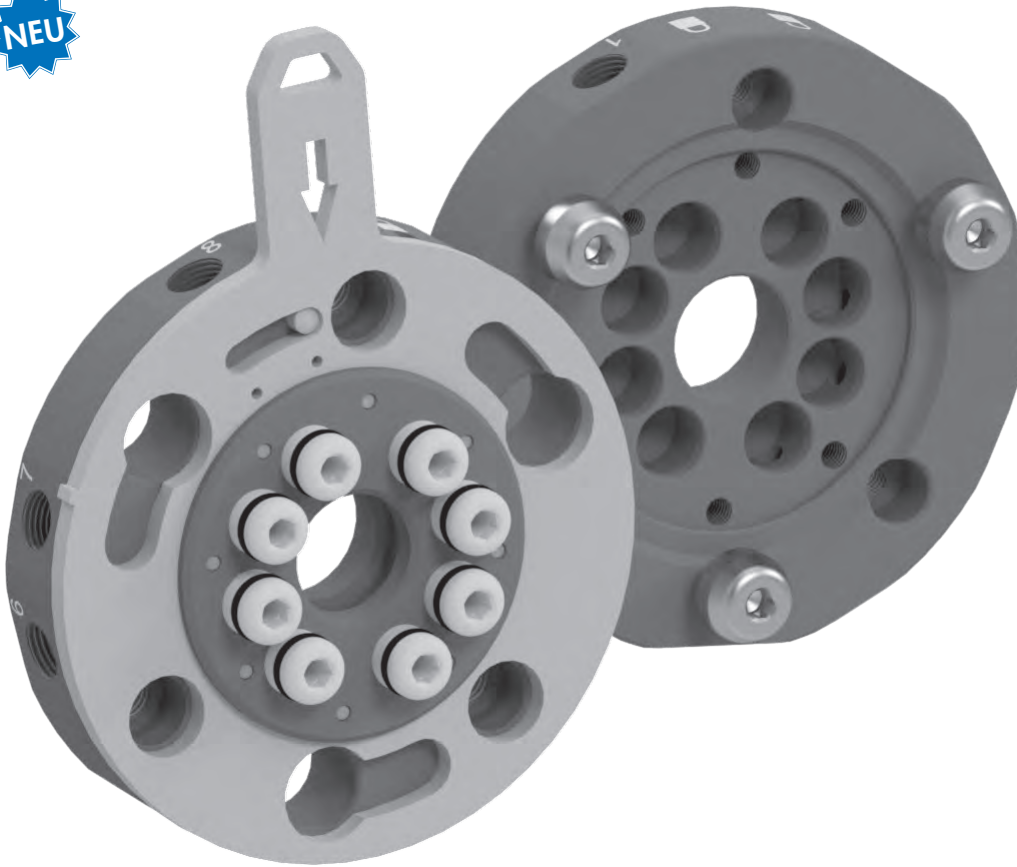
700 Special Elements

800 Electric and Sensors

850 Pneumatic

990 Other PA-Forming

SWH / Quick Change System, Semi-Automatic



Remarks:

► **Application:** semi-automatic quick-change system for the fast, positionally accurate exchange of grippers on robots

- body made of high strength aluminum
- body of high quality blue anodized
- 6, 8 or 10 pneumatic interfaces
- can be monitored
- » gripper and robot sides supplied separately
- » maximum air pressure is 6 bar, use dry and filtered air only

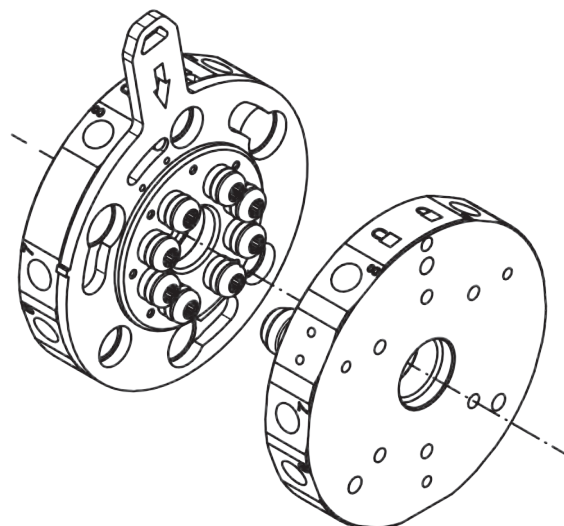
Accessories e.g.:

- EOAT Base Plate GPM-SWH
- Base Plate GP SWH G
- Holding Fixture GHV SWH
- pneumatic interface extension SWH-PG 4 and SWH-PR 4
- electrical interface extension SWH ES (D-SUB 15-pin)
- Sensor Bracket SWH SH

Recommended maximum handling weights of the various SWH sizes:

Description	Handling Weight [kg]
SWH 50	5
SWH 90	20
SWH 150	40

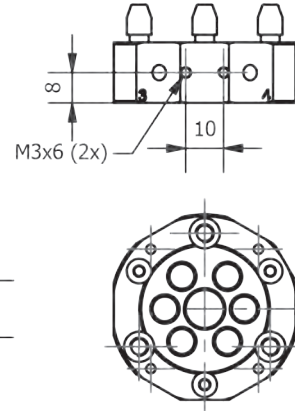
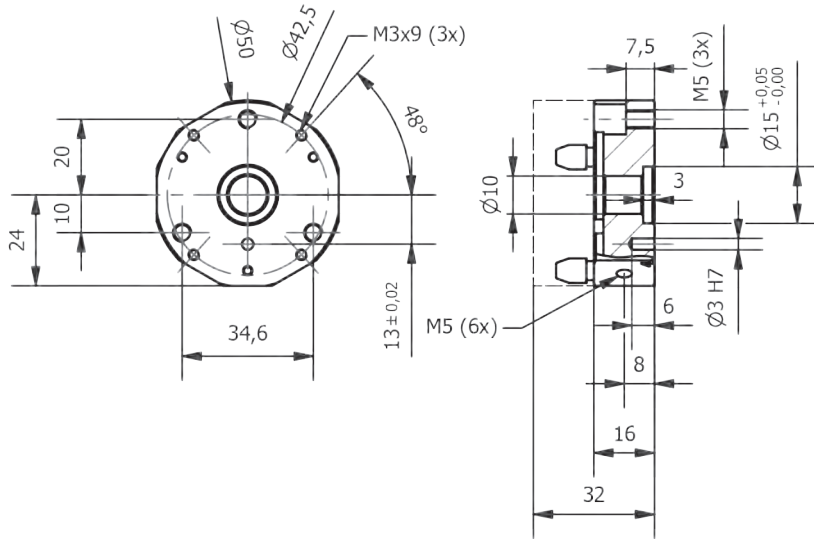
Handling weights depending on center of gravity distance, hole pattern, acceleration values of the robot etc.



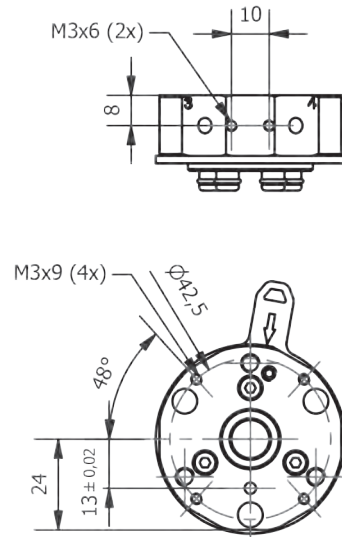
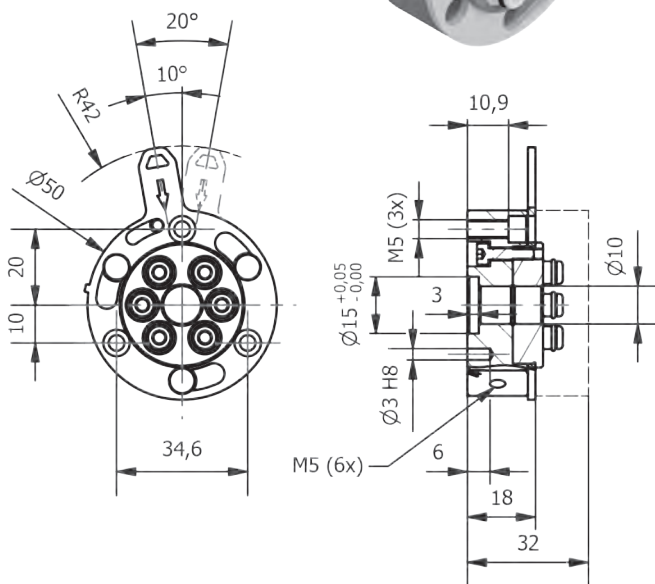
SWH 50 / Quick Change System, Semi-Automatic, Ø50mm



SWH G 50, Gripper Side



SWH R 50, Robot Side



Part No.	Description	Ø [mm]	Version	Air Connection	Weight [g]
1-021-05-00	SWH G 50	50	Gripper (EOAT) Side	6x M5	68
1-020-05-00	SWH R 50	50	Robot Side	6x M5	95

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special Elements

800
Electric and Sensors

850
Pneumatic

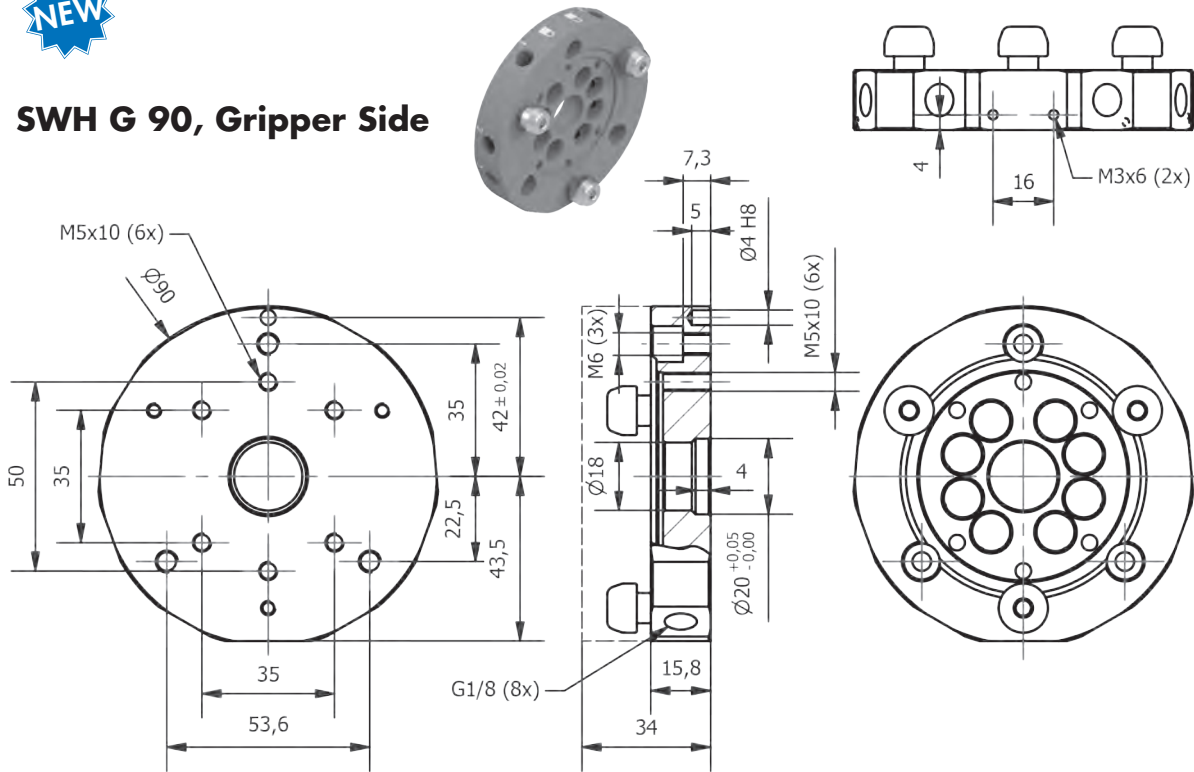
990
Other PA-Forming

000 | Quick Change System

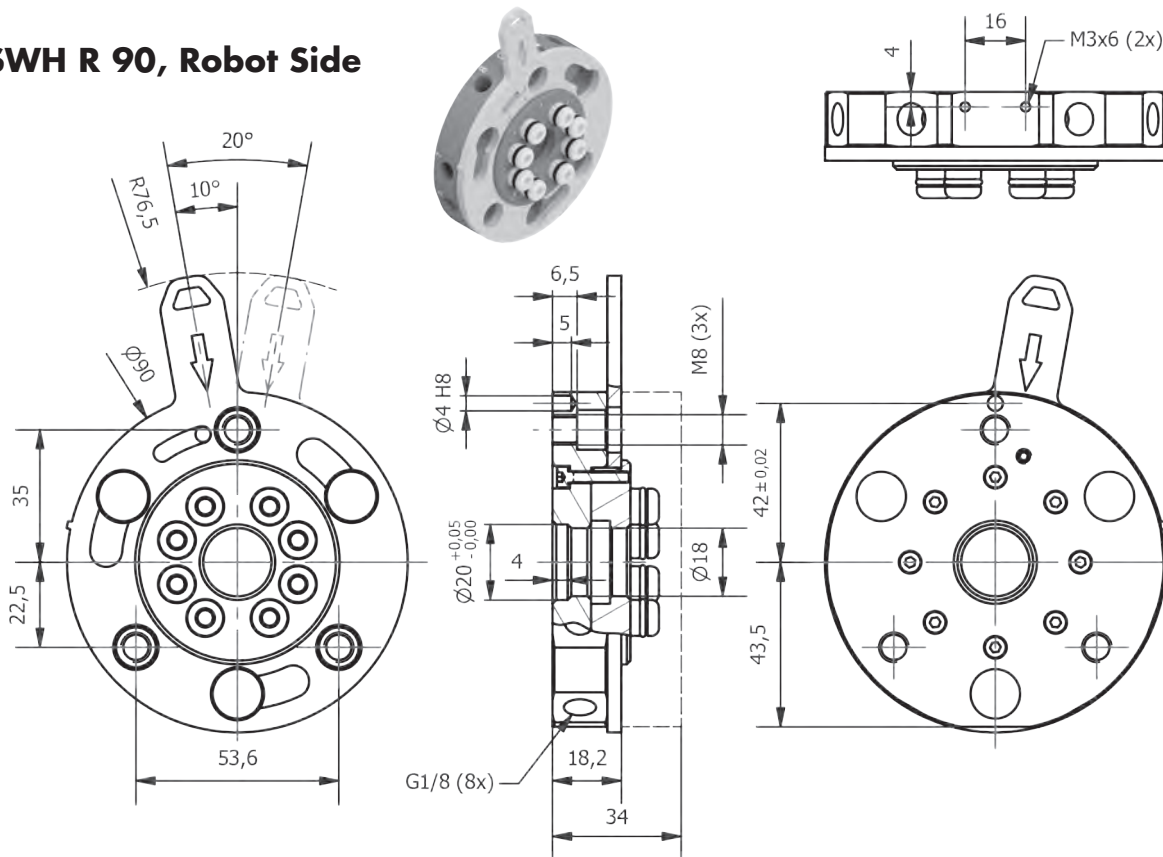
SWH 90 / Quick Change System, Semi-Automatic, Ø90 mm



SWH G 90, Gripper Side



SWH R 90, Robot Side



Part No.	Description	Ø [mm]	Version	Air Connection	Weight [g]
1-021-09-00	SWH G 90	90	Gripper (EOAT) Side	8x G1/8	212
1-020-09-00	SWH R 90	90	Robot Side	8x G1/8	325

050 Profile-Channel Nut

100 Clamps

115 Tubular Clamps

120 Profile Connectors

190 Accessories-Profile

200 Vacuum Cup-Connectors

220 Vacuum Cups

224 Vacuum Cups-Special

230 Manifold

290 Adapter

300 Gripper Arms

400 Grippers

450 Gripper Fingers

600 Nipper Bodies

610 Nipper Blades

700 Special Elements

800 Electric and Sensors

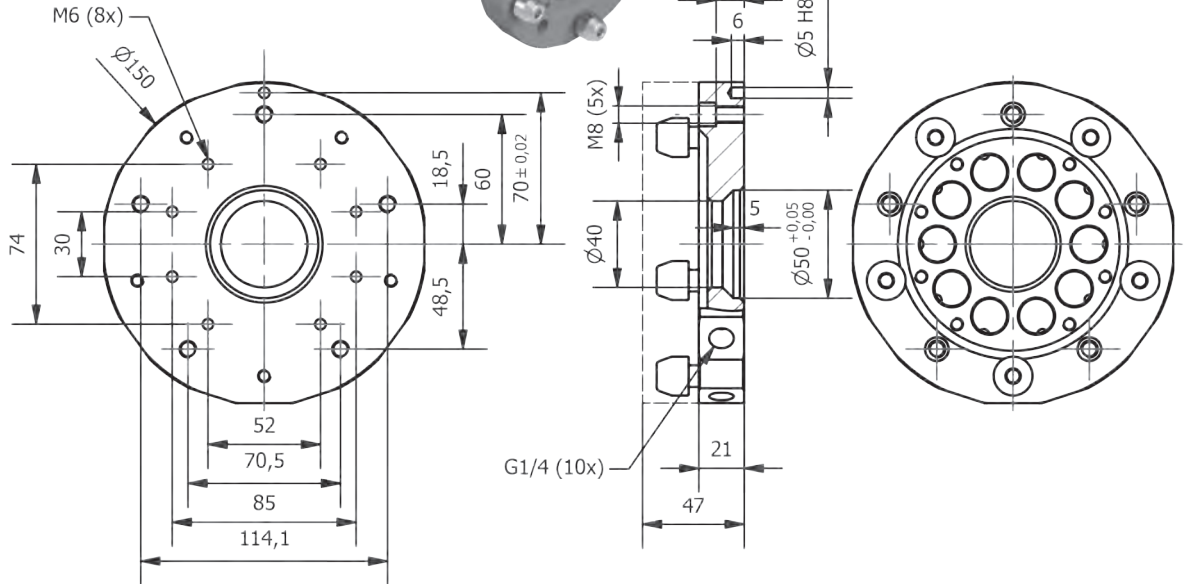
850 Pneumatic

990 Other PA-Forming

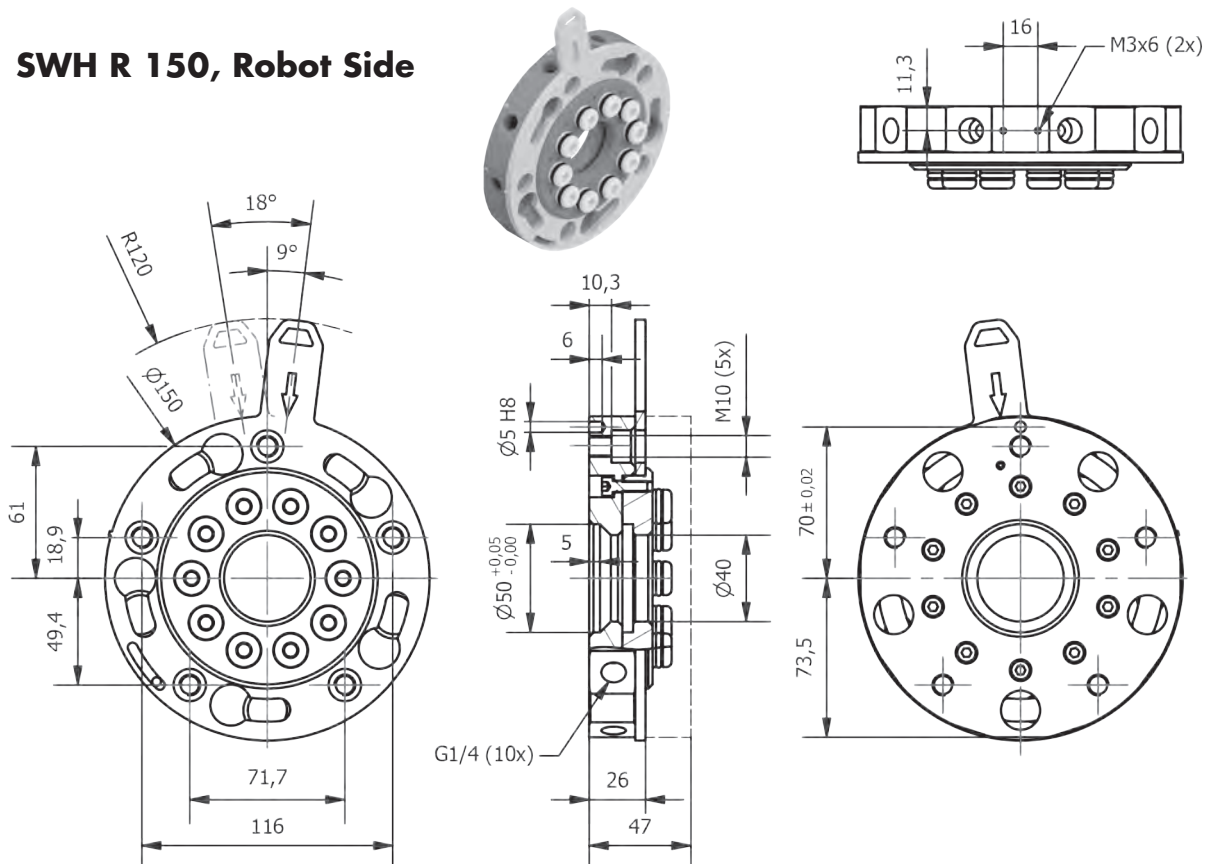
SWH 150 / Quick Change System, Semi-Automatic, Ø150 mm



SWH G 150, Gripper Side



SWH R 150, Robot Side



Part No.	Description	Ø [mm]	Version	Air Connection	Weight [g]
1-021-15-00	SWH G 150	150	Gripper (EOAT) Side	10x G1/4	810
1-020-15-00	SWH R 150	150	Robot Side	10x G1/4	1145

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special
Elements

800
Electric and
Sensors

850
Pneumatic

990
Other
PA-Forming

000 | Quick Change System

050 Profile-Channel Nut

100 Clamps

115 Tubular Clamps

120 Profile Connectors

190 Accessories-Profile

200 Vacuum Cup-Connectors

220 Vacuum Cups

224 Vacuum Cups-Special

230 Manifold

290 Adapter

300 Gripper Arms

400 Grippers

450 Gripper Fingers

600 Nipper Bodies

610 Nipper Blades

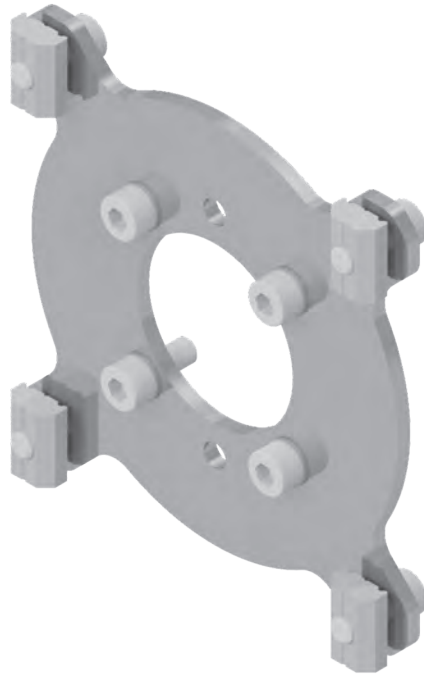
700 Special Elements

800 Electric and Sensors

850 Pneumatic

990 Other PA-Forming

GP SWH G / EOAT Base Plate for SWH



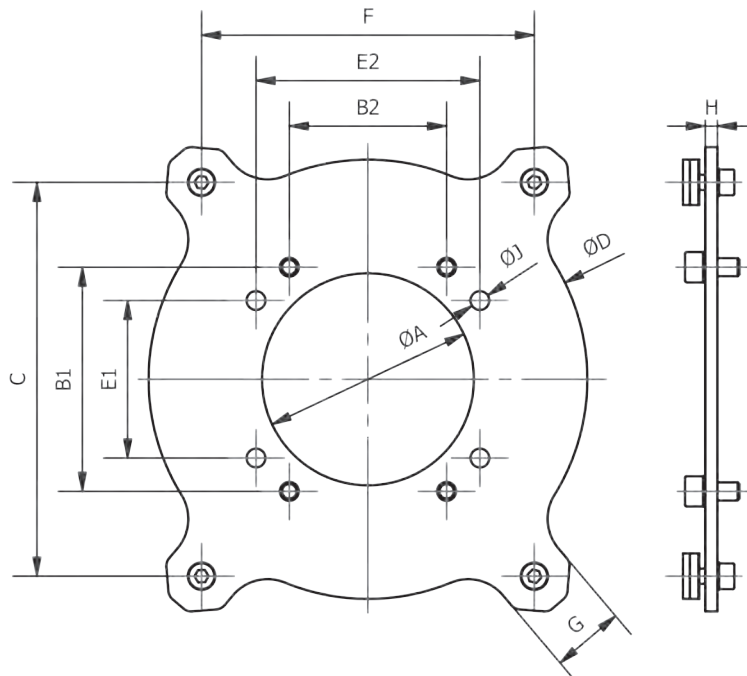
Remarks:

► **Application: Gripper Base Plate allows mounting profiles at the SWH quick change system**

- base plate for SWH quick change system
- flat and lightweight design
- SWH G (gripper side) can be mounted directly on this base plate
- profiles can be mounted directly on the base plate
- » see application example

Scope of delivery:

- mounting material

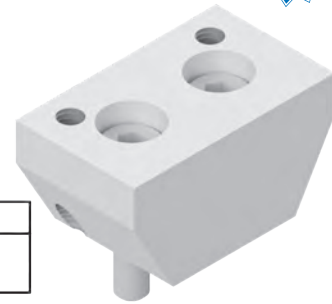
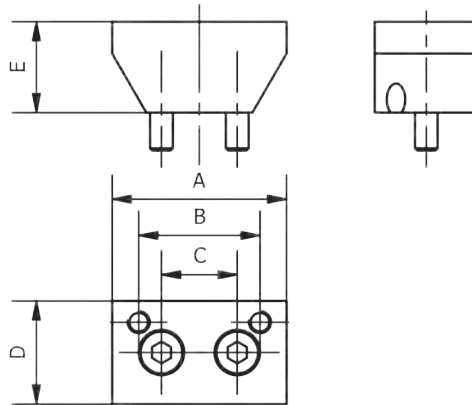
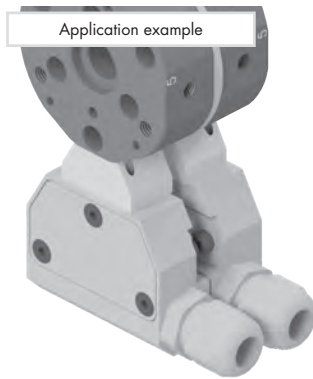


Part No.	Description	ØA [mm]	B1 [mm]	B2 [mm]	C [mm]	ØD [mm]	E1 [mm]	E2 [mm]	F [mm]	G [mm]	H [mm]	ØJ [mm]	Material	Weight [g]
1-023-05-00	GP SWH G 50	25	30	34.6	46.8	52	-	-	43.7	16	4	5.2	Aluminium	54
1-023-09-00	GP SWH G 90	37	35	35	76	87	50	-	76	16	3	5.2	Steel, galv.	180
1-023-15-00	GP SWH G 150	70	74	52	130	145	52	74	110	24	4	6.2	Steel, galv.	512

SWH DS / Spacer for Electrical Interface

Remarks:

- required for the connection of the electrical interface SWH ES to the quick change system SWH
- for SWH 90 no spacer is needed



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	suitable for	Weight [g]
1-025-05-00	SWH DS 50	23	16	10	13.6	12	SWH 50	6
1-025-15-00	SWH DS 150	28	16	-	15	8	SWH 150	7

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

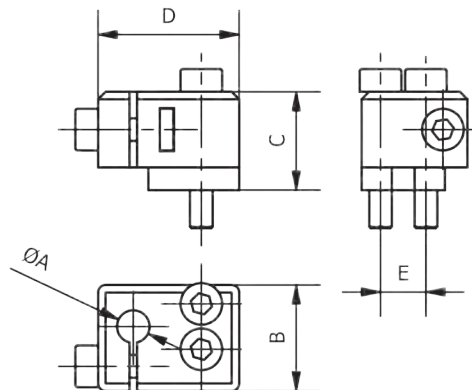
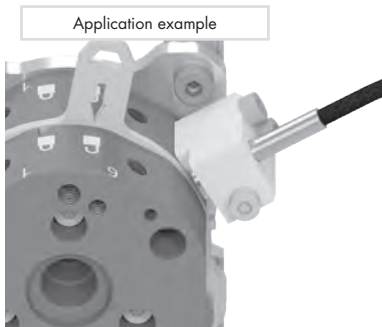
SWH SH / Sensor Bracket for Quick Change System SWH

Remarks:

- holding bracket for an inductive sensor
- to monitor the positions SWH locked / unlocked
- to assemble on the gripper side

Accessories e.g.:

- Sensor IRK 4



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	suitable for	Material	Weight [g]
1-024-05-00	SWH SH G 50	4	14	13	18.7	6	SWH G 50	PA	6
1-024-09-00	SWH SH G 90150	4	14	13	21.3	8	SWH G 90 + G 150	PA	7

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special
Elements

800
Electric and
Sensors

850
Pneumatic

000 | Quick Change System

050 Profile-Channel Nut

100 Clamps

115 Tubular Clamps

120 Profile Connectors

190 Accessories-Profile

200 Vacuum Cup-Connectors

220 Vacuum Cups

224 Vacuum Cups-Special

230 Manifold

290 Adapter

300 Gripper Arms

400 Grippers

450 Gripper Fingers

600 Nipper Bodies

610 Nipper Blades

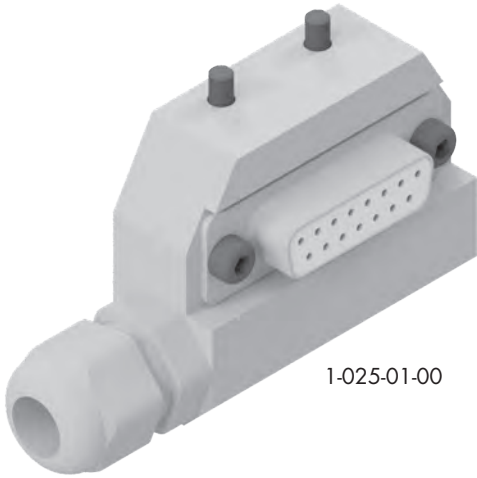
700 Special Elements

800 Electric and Sensors

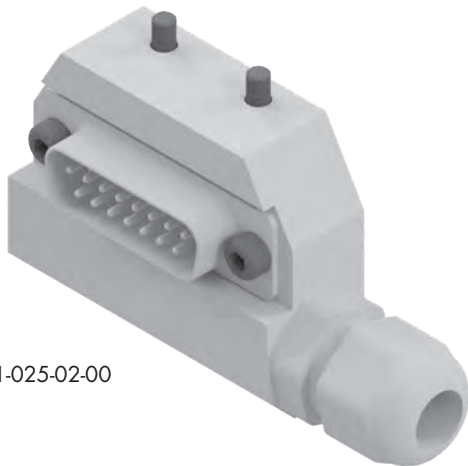
850 Pneumatic

990 Other PA-Forming

SWH ES / Electrical Interface D-SUB for SWH



1-025-01-00



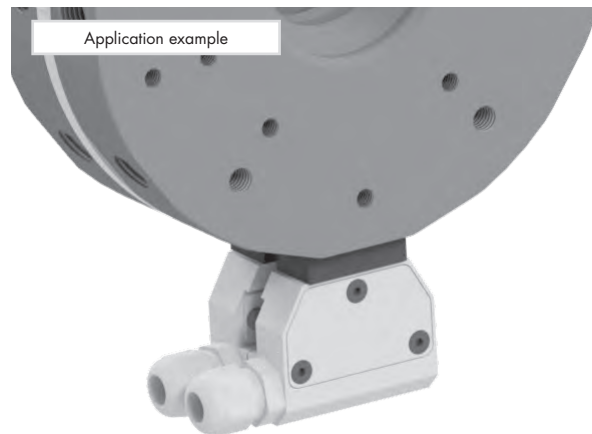
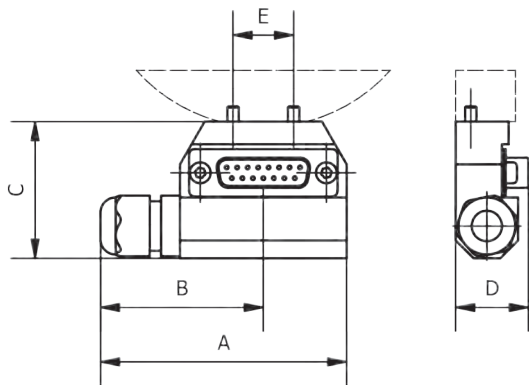
1-025-02-00

Remarks:

- D-SUB interface
- electrical interface for the SWH quick-change system
- suitable for SWH 50, 90 and 150
- for SWH 50 and 150 a spacer SWH DS is required
- 15 pin

Scope of delivery:

- incl. cable



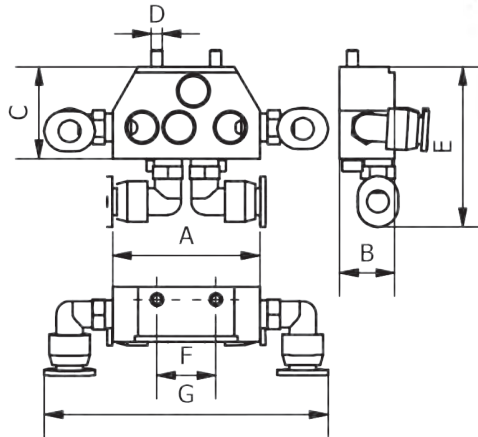
Application example

Part No.	Description	Version	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Cable length [mm]	Material	Weight [g]
1-025-01-00	SWH ES R	Robot side	67,2	43	36	19,2	16	2000	Aluminium	52
1-025-02-00	SWH ES G	EOAT side	67,2	43	36	19,2	16	1000	Aluminium	45

SWH-PG 4 / Pneumatic Interface Expansion, 4-times, Gripper Side

Remarks:

- 4 additional air-circuits
- tube diameter 6/4 mm
- suitable for vacuum
- easy backfitting, no need for modifications on WGS
- » maximum air pressure is 6 bar, use dry and filtered air only

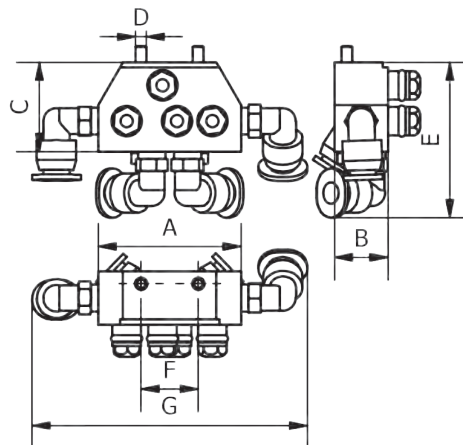


Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	Weight [g]
1-023-20-00	SWH-PG 4	40	15	25	M3	44	16	77	50

SWH-PR 4 / Pneumatic Interface Expansion, 4-times, Robot Side

Remarks:

- 4 additional air-circuits
- tube diameter 6/4 mm
- suitable for vacuum
- easy backfitting, no need for modifications on SWH
- » regulary grease O-Ring with lubricant
- » maximum air pressure is 6 bar, use dry and filtered air only



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	Weight [g]
1-023-25-00	SWH-PR 4	40	15	25	M3	44	16	77	63

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special
Elements

800
Electric and
Sensors

850
Pneumatic

990
Other
PA-Forming

000 | Quick Change System

050 Profile-Channel Nut

100 Clamps

115 Tubular Clamps

120 Profile Connectors

190 Accessories-Profile

200 Vacuum Cup-Connectors

220 Vacuum Cups

224 Vacuum Cups-Special

230 Manifold

290 Adapter

300 Gripper Arms

400 Grippers

450 Gripper Fingers

600 Nipper Bodies

610 Nipper Blades

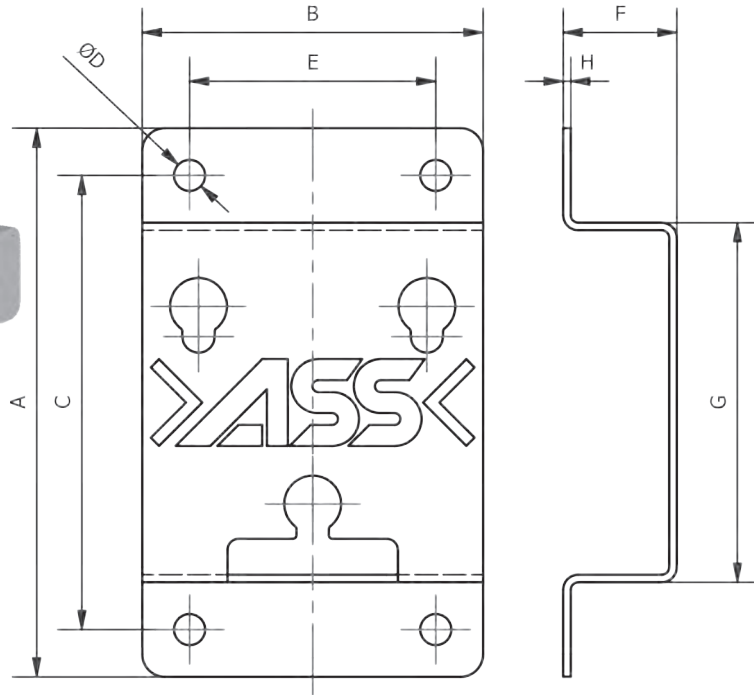
700 Special Elements

800 Electric and Sensors

850 Pneumatic

990 Other PA-Forming

GHV SWH / Holding Fixture for SWH



Remarks:

- for storing EOATs with SWH quick change system

Part No.	Description	A [mm]	B [mm]	C [mm]	ØD [mm]	E [mm]	F [mm]	G [mm]	H [mm]	suitable for	Material	Weight [g]
1-022-05-00	GHV SWH G 50	95	50	75	6.3	30	30	55	1.5	SWH 50 G	Steel, galv.	76
1-022-09-00	GHV SWH G 90	145	90	120	8.2	65	30	95	2	SWH 90 G	Steel, galv.	225
1-022-15-00	GHV SWH G 150	205	150	180	8.2	125	30	155	2	SWH 150 G	Steel, galv.	518

WGS / Quick Change System WGS



Remarks:

- ▶ Series WGS has been replaced by series SWH, see previous pages
- Quick Change System for a fast and accurate replacement of robot hands on robots
- available in two dimensions: large and small
 - WGS-RS, small (Part No. 9-07-003-001-0)
 - WGS-GS, small (Part No. 9-07-003-002-0)
 - WGS-RL, large (Part No. 9-07-003-003-0)
 - WGS-GL, large (Part No. 9-07-003-004-0)

**Special component:
Price and current delivery time on request!**

Accessories e.g.:

- Pneumatic Connection
 - WGS-PG 4 (Part No. 9-07-003-025-0)
 - WGS-PR 4 (Part No. 9-07-003-020-0)

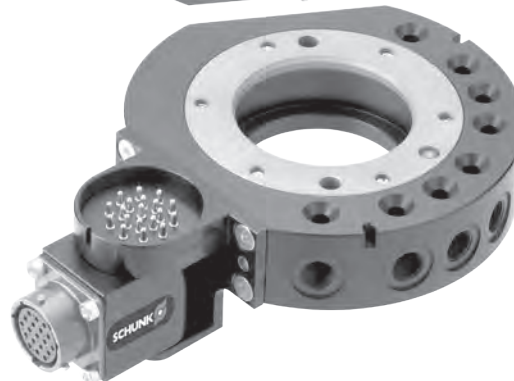
SWS / Automatic Quick Change System

Remarks:

- automatic, pneumatic, double-acting quick change system
- in case of pressure lost the locking device remains in position by pressure lost
- interface: mechanic, pneumatic, electric
- » max. moments M_{xy} :
 - SWS 011: 75 Nm
 - SWS 040: 471 Nm
 - SWS 040Q: 471 Nm
 - SWS 071: 1,185 Nm
- » electric plug is sold separately (picture shows SWS and plug)
- » SWS 040Q has an integrated piston stroke control SIP (proximity switch included)

Accessories e.g.:

- SWO-E
- other accessories on demand



Part No.	Description	Type	compatible to	
1-003-60-00	SWK-011	Quick Change Head	Robot side	SWA-011
1-003-61-00	SWA-011	Quick Change Adapter	EOAT side	SWK-011
1-003-70-00	SWK-040	Quick Change Head	Robot side	SWA-040
1-003-71-00	SWA-040	Quick Change Adapter	EOAT side	SWK-040
1-003-72-00	SWK-040Q	Quick Change Head	Robot side	SWA-040
1-003-80-00	SWK-071	Quick Change Head	Robot side	SWA-071
1-003-81-00	SWA-071	Quick Change Adapter	EOAT side	SWK-071

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

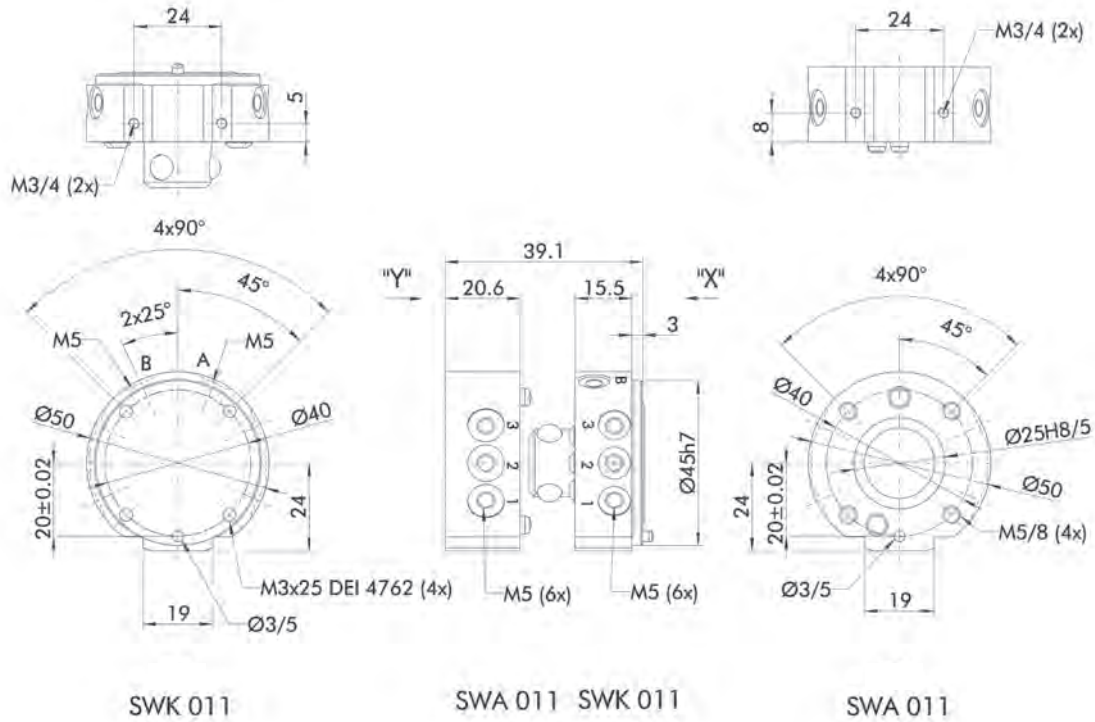
700
Special
Elements

800
Electric and
Sensors

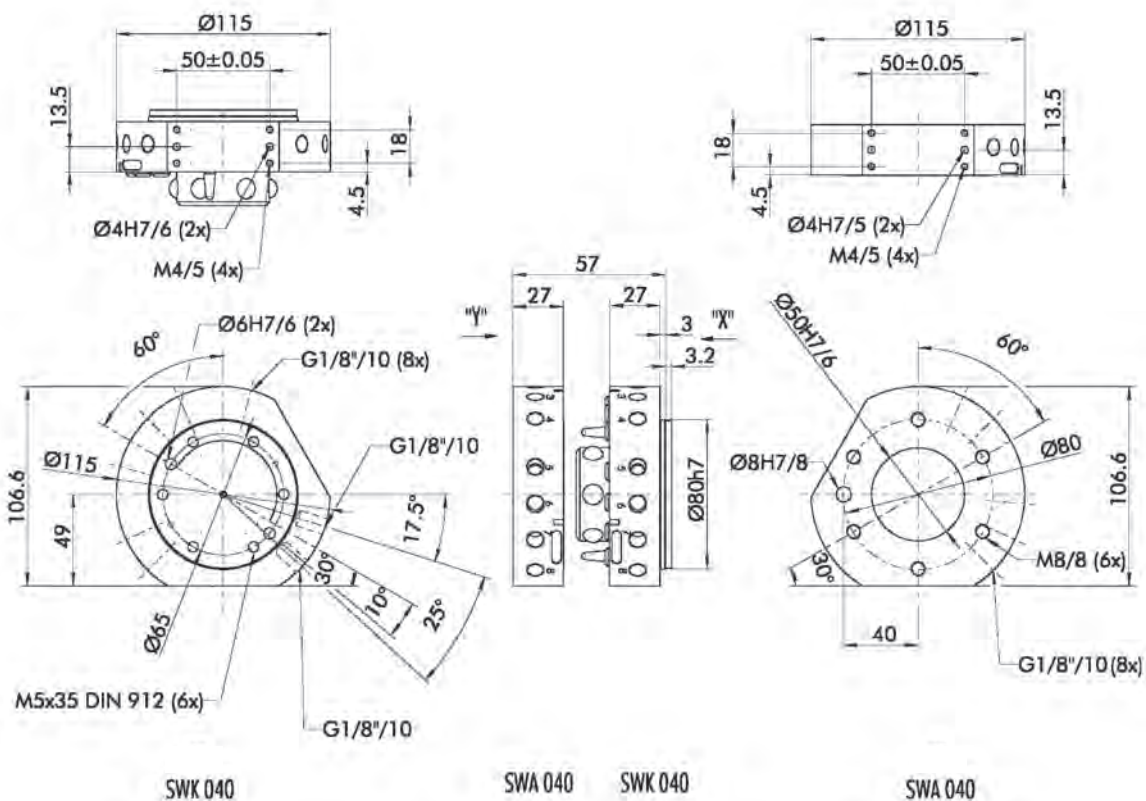
850
Pneumatic

990
Other
PA-Forming

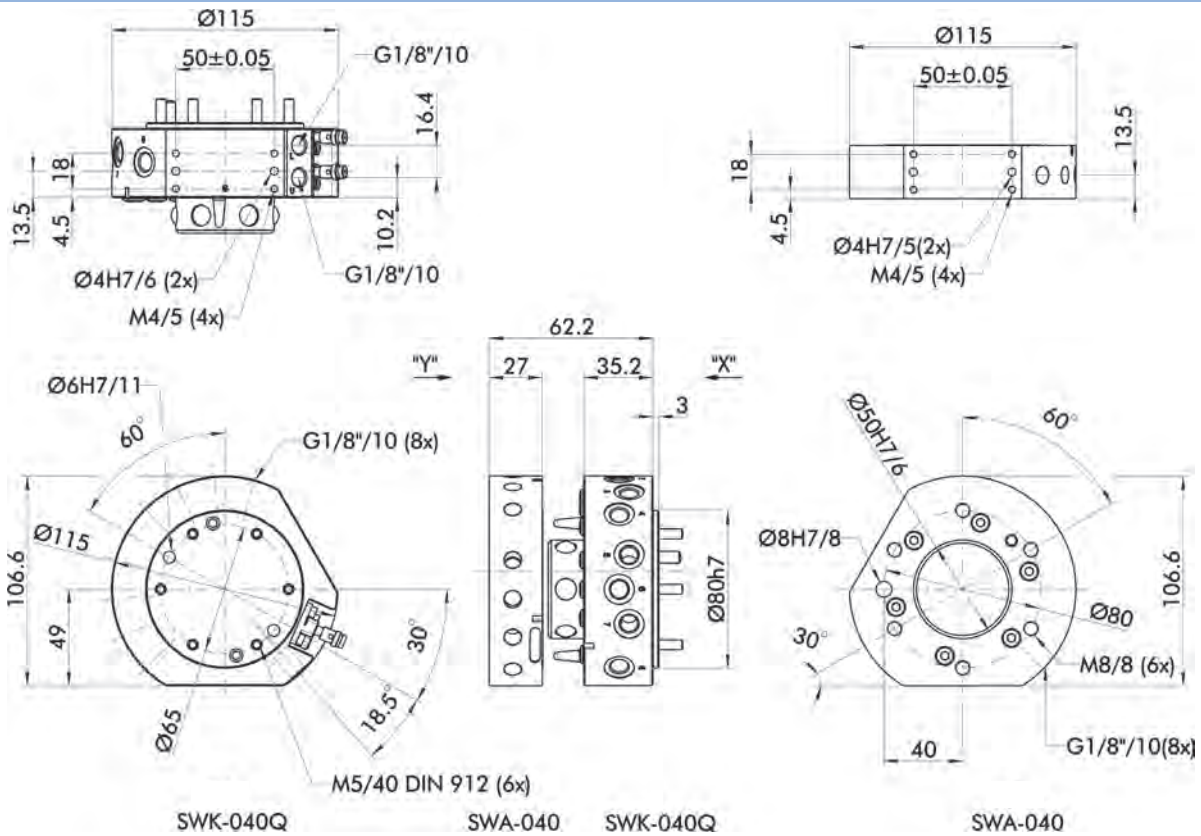
SWS 011 / Automatic Quick Change System



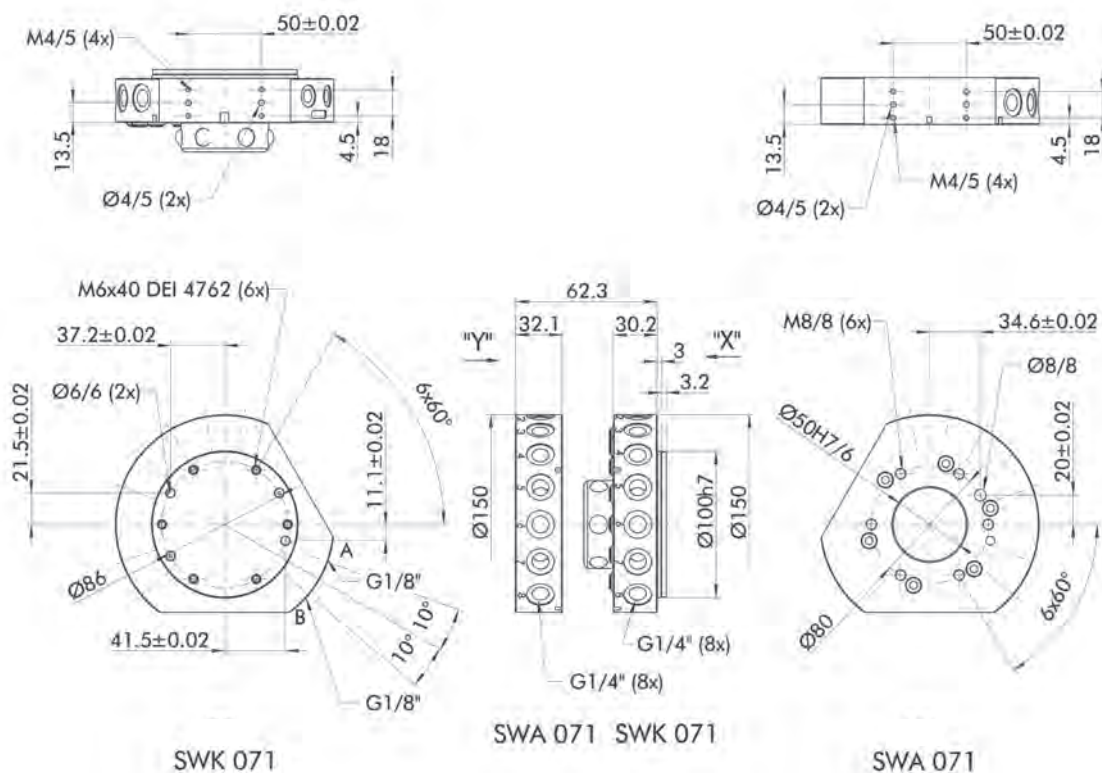
SWS 040 / Automatic Quick Change System



SWS 040Q / Automatic Quick Change System



SWS 071 / Automatic Quick Change System



000 | Quick Change System

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special
Elements

800
Electric and
Sensors

850
Pneumatic

990
Other
PA-Forming

SWO-E / Electric Connection for SWS 011

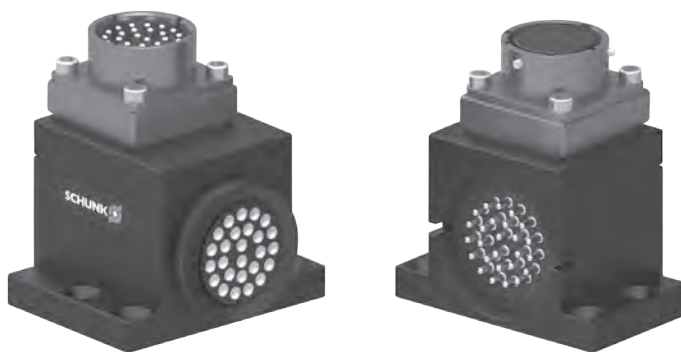


Remarks:

- electric connection for SWS 011
- 15 spring-loaded pins each 3A/50V
- cable length:
 - Robot side: 5 m
 - EOAT side: 3 m

Part No.	Description	Type	compatible to
1-003-90-00	SWO-A15-K Electric Connection	Robot side	SWK-011
1-003-91-00	SWO-A15-A Electric Connection	EOAT side	SWA-011
1-003-92-00	KAS-A15-K-0 Cable Plug	Robot side	SWO-A15-K
1-003-93-00	KAS-A15-A-0 Cable Plug	EOAT side	SWO-A15-A

SWO-E / Electric Connection for SWS 040, 040Q, 071



Bemerkungen:

- electric connection for SWS 040, SWS 040Q and SWS 071
- 15 spring-loaded pins each 3A/50V
- cable length:
 - Robot side: 5 m
 - EOAT side: 3 m

Part No.	Description	Type	compatible to
1-003-94-00	SWO-R26-K Electric Connection	Robot side	SWK-040 SWK-040Q SWK-071
1-003-95-00	SWO-R26-A Electric Connection	EOAT side	SWA-040 SWA-071
1-003-96-00	KV-5-SWK-26/25-90 Cable Plug	Robot side	SWO-R26-K
1-003-97-00	KV-3-SWA-26B-90 Cable Plug	EOAT side	SWO-R26-A

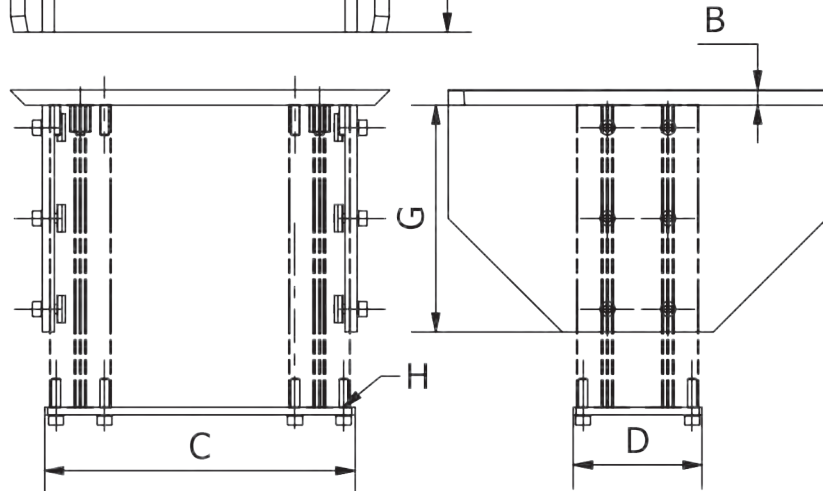
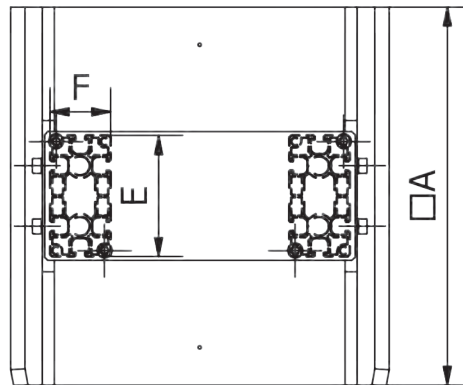
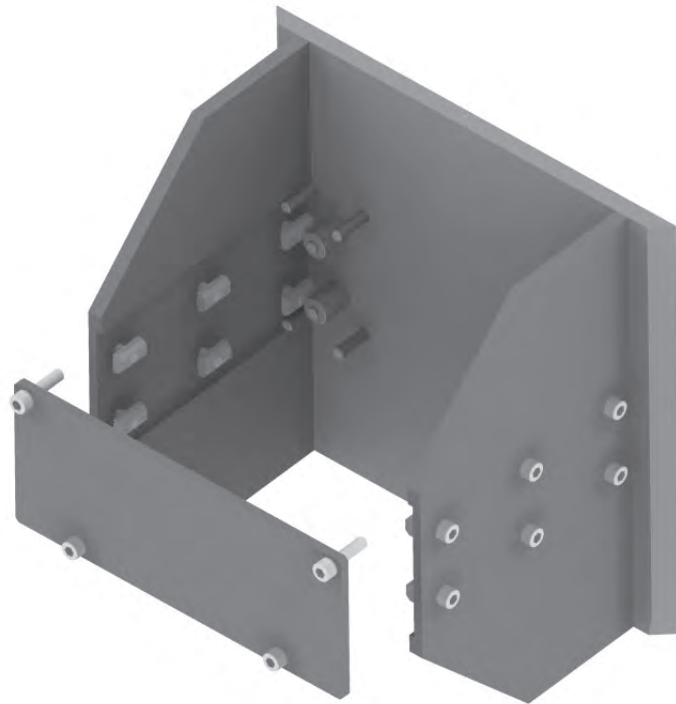
G6A-GPM 3 / Robot Hand Base Frame

Remarks:

- Robot Hand Base Frame especially for 6 axis robots
- the 6th axis can be placed beside the tool during the demolding process
- robot hand can be built double sided, e.g. insert side and demolding side
- based on GPM 3
- compatible to JU Profile 80/40

Scope of delivery:

- incl. screws thread insert
- without JU Profile



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H	Material	Weight [g]
1-009-03-00-0	G6A-GPM 3	250	10	205	85	80	40	150	M6	Aluminium	3232

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

050 | Profile-Channel Nut

050
Profile-Channel
Nut

Application examples profile L - X - JU on GPM

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

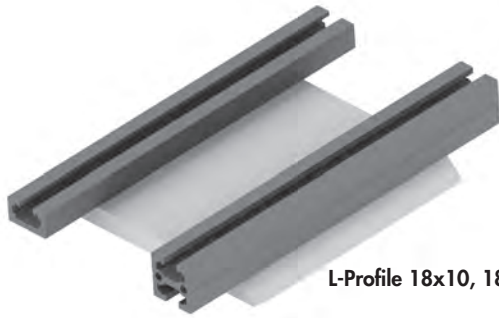
190
Accessories-
Profile

200
Vacuum Cup-
Connectors

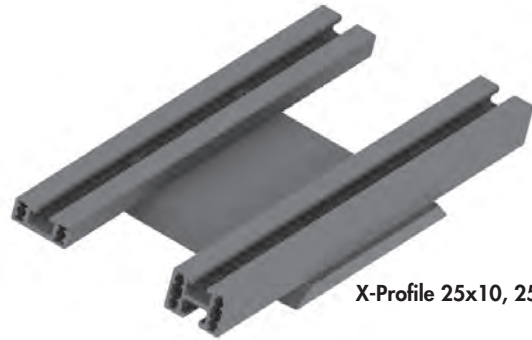
220
Vacuum Cups

224
Vacuum
Cups-Special

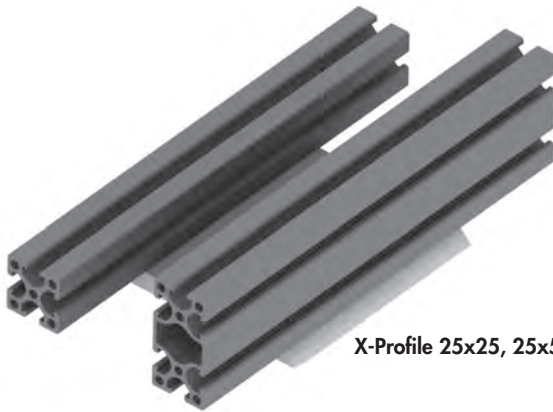
230
Manifold



L-Profile 18x10, 18x18



X-Profile 25x10, 25x18



X-Profile 25x25, 25x50



JU-Profile 40x40,
80x40

290
Adapter

Application examples base frame construction

300
Gripper Arms

400
Grippers

450
Gripper Fingers

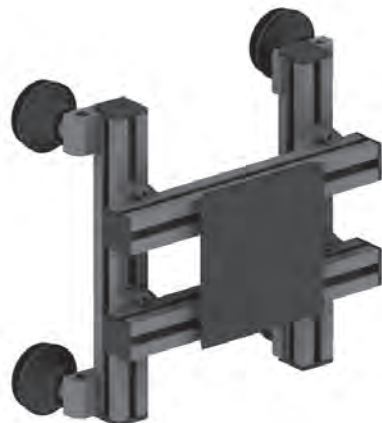
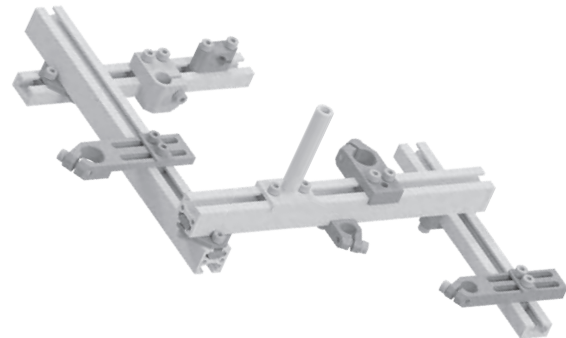
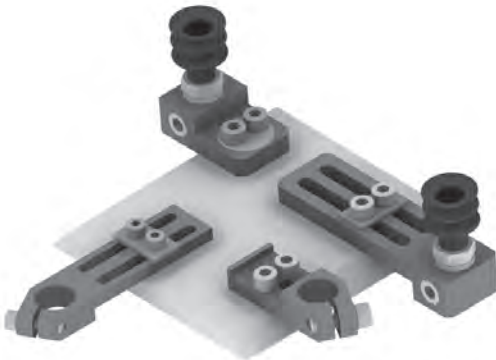
600
Nipper Bodies

610
Nipper Blades

700
Special
Elements

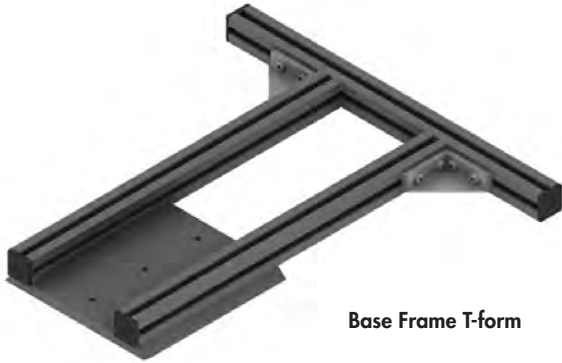
800
Electric and
Sensors

850
Pneumatic

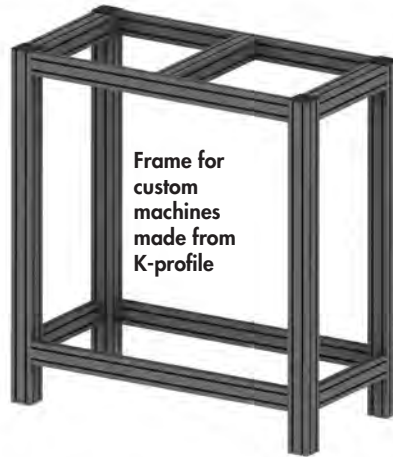


990
Other
PA-Forming

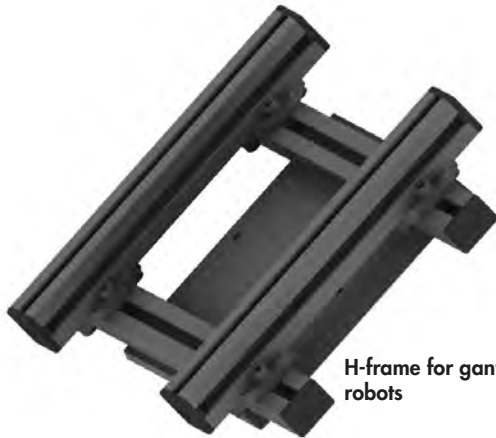
Application examples base frame construction



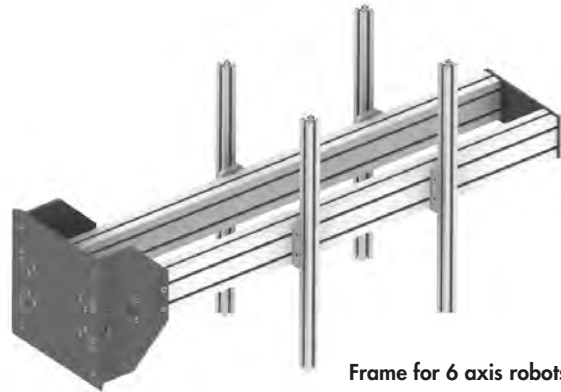
Base Frame T-form



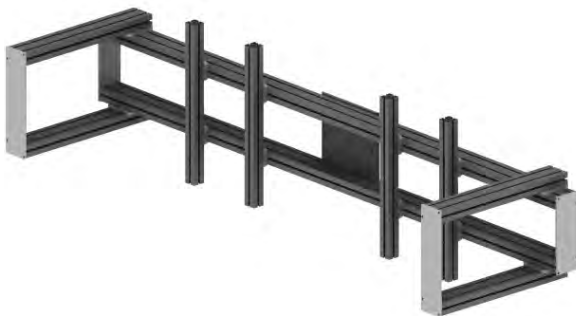
Frame for custom machines made from K-profile



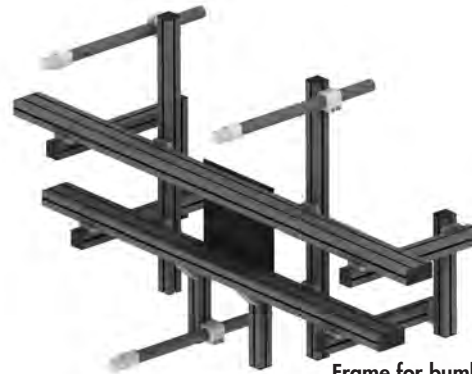
H-frame for gantry style robots



Frame for 6 axis robots



Frame for bumper eot core site de-molding



Frame for bumper eot cavity site de-molding

Application examples channel nuts



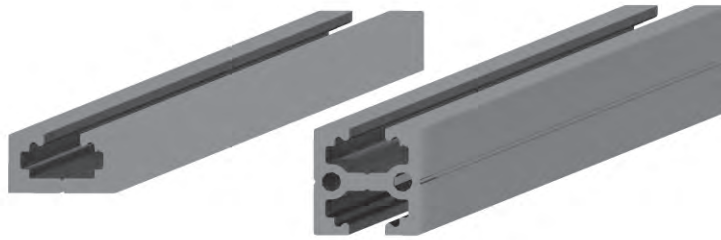
GWP in X-profile



GWP in K-profile

050 | Profile-Channel Nut

L-Profile / „Light System“ 18x10 and 18x18



Remarks:

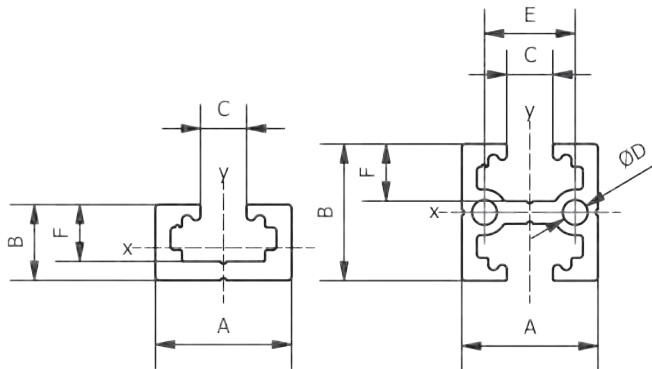
- best suited for part weight of up to 1 kg
- custom length upon request – see ordering example
- profile length min. 50 mm
- channel nuts are compatible to X and JU profiles
- special profile length larger than 2000 mm on request
- ØF = ready to be tapped for M4
- saw cut 2.50 [€]

Drawing:

Ø D core hole for M4

Ordering example for custom length 1520 mm of L 18-10 profile:

Order text :
1-051-26-00, L 18x10x1520



Measures

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	Length [mm]	Weight [g]
1-051-22-00	L 18-10-2000	18	10	6.1			7.5	2000	494
1-051-26-00	L 18-10-0001	18	10	6.1			7.5	1	0.3
1-051-42-00	L 18-18-2000	18	18	6.1	3.3	12	7.5	2000	750
1-051-46-00	L 18-18-0001	18	18	6.1	3.3	12	7.5	1	0.9

Properties

Part No.	Description	Material	Cross section area [mm ²]	Weight/Meter [kg]	Center point ex [mm]	Center point ey [mm]	Axial moment of inertia Ix [mm ⁴]	Axial moment of inertia Iy [mm ⁴]	Axial torque resistance Wx [mm ³]	Axial torque resistance Wy [mm ³]
1-051-22-00	L 18-10-2000	Aluminium	96.603	0.247	9	5.7	1057	3817	185	424
1-051-26-00	L 18-10-0001	Aluminium	96.603	0.247	9	5.7	1057	3817	185	424
1-051-42-00	L 18-18-2000	Aluminium	148.185	0.284	9	9	4182	6206	465	690
1-051-46-00	L 18-18-0001	Aluminium	148.185	0.284	9	9	4182	6206	465	690

X-Profile / „X-System“ X 25x10 and X 25x18 Profile

Remarks:

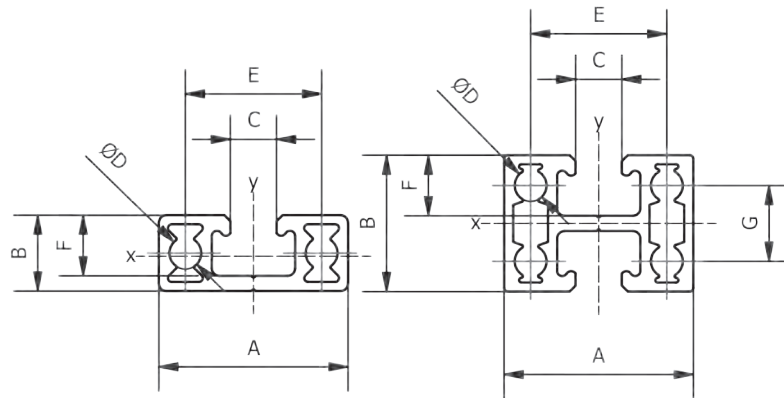
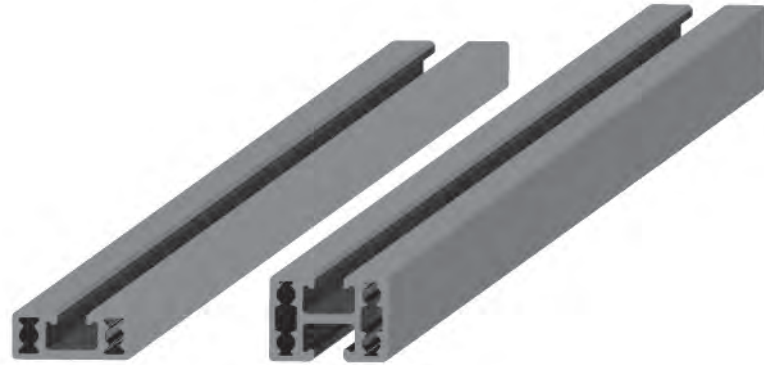
- best suited for part weight of up to 2 kg
- custom length upon request – see ordering example
- profile length min. 50 mm
- channel nuts are compatible to X and JU profiles
- special profile length larger than 2000 mm on request
- ØF = ready for M5
- saw cut 2.50 [€]

Drawing:

Ø D core hole for M5

Ordering example for custom length 1520 mm of X 25-18 profile:

Order text :
1-052-86-00, X 25x18x1520



Measures

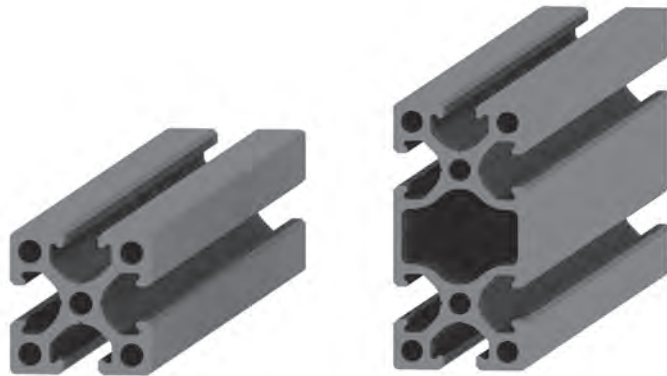
Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	Length [mm]	Weight [g]
1-052-62-00	X 25-10-2000	25	10	6.2	4.2	18	8		2000	588
1-052-66-00	X 25-10-0001	25	10	6.2	4.2	18	8		1	0.3
1-052-82-00	X 25-18-2000	25	18	6.2	4.2	18	8	10	2000	908
1-052-86-00	X 25-18-0001	25	18	6.2	4.2	18	8	10	1	0.5

Properties

Part No.	Description	Material	Cross section area [mm ²]	Weight/Meter [kg]	Center point x [mm]	Center point y [mm]	Axial moment of inertia I _x [mm ⁴]	Axial moment of inertia I _y [mm ⁴]	Axial torque resistance W _x [mm ³]	Axial torque resistance W _y [mm ³]
1-052-62-00	X 25-10-2000	Aluminium	115.421	0.294	12.5	4.58	1357	7636	296.3	611
1-052-66-00	X 25-10-0001	Aluminium	115.421	0.294	12.5	4.58	1357	7636	296.3	611
1-052-82-00	X 25-18-2000	Aluminium	166.641	0.454	12.5	9	5969	12350	663.2	988
1-052-86-00	X 25-18-0001	Aluminium	166.641	0.454	12.5	9	5969	12350	663.2	988

050 | Profile-Channel Nut

X-Profile / „X-System“ 25x25 and 50x25



Remarks:

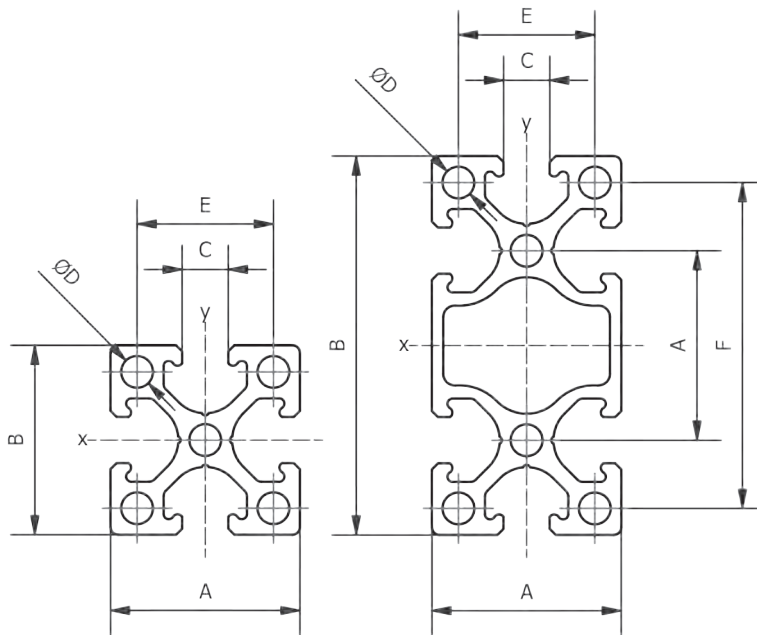
- for parts up to 10 kg
- custom length on request – see ordering example
- special profile length larger than 2000 mm on request
- saw cut 2.50 [€]

Drawing:

∅ D core hole for M5

Ordering example for custom length 1520 mm of X 25-25 profile:

Order text :
1-052-26-00, X 25x25x1520



Measures

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	Length [mm]	Weight [g]
1-052-21-00	X 25-25-1000	25	25	6	4.2	18		1000	620
1-052-22-00	X 25-25-2000	25	25	6	4.2	18		2000	1240
1-052-26-00	X 25-25-0001	25	25	6	4.2	18		1	0.6
1-052-41-00	X 50-25-1000	25	50	6	4.2	18	43	1000	1026
1-052-42-00	X 50-25-2000	25	50	6	4.2	18	43	2000	2052
1-052-46-00	X 50-25-0001	25	50	6	4.2	18	43	1	1.0

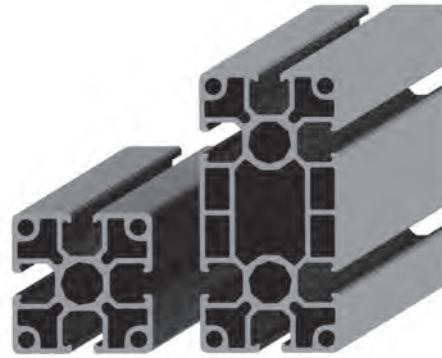
Properties

Part No.	Description	Material	Cross section area [mm²]	Weight/ Meter [kg]	Center point ex [mm]	Center point ey [mm]	Axial moment of inertia Ix [mm⁴]	Axial moment of inertia Iy [mm⁴]	Axial torque resistance Wx [mm³]	Axial torque resistance Wy [mm³]
1-052-21-00	X 25-25-1000	Aluminium	254.929	0.62	12.5	12.5	16073	16073	1286	1286
1-052-22-00	X 25-25-2000	Aluminium	254.929	0.62	12.5	12.5	16073	16073	1286	1286
1-052-26-00	X 25-25-0001	Aluminium	254.929	0.62	12.5	12.5	16073	16073	1286	1286
1-052-41-00	X 50-25-1000	Aluminium	423.309	1.026	25	12.5	111319	28244	4453	2260
1-052-42-00	X 50-25-2000	Aluminium	423.309	1.026	25	12.5	111319	28244	4453	2260
1-052-46-00	X 50-25-0001	Aluminium	423.309	1.026	25	12.5	111319	28244	4453	2260

JU-Profile / „JU-System“

Remarks:

- Jumbo Universal, the industry's first and only large profile which accommodates the same channel nut as the Light and X profiles
- specifically developed profile for part weight > 10 kg
- custom length on request – see ordering example
- special profile length larger than 2000 mm on request
- channel nut can be dropped in saw cut 2.50 [€]

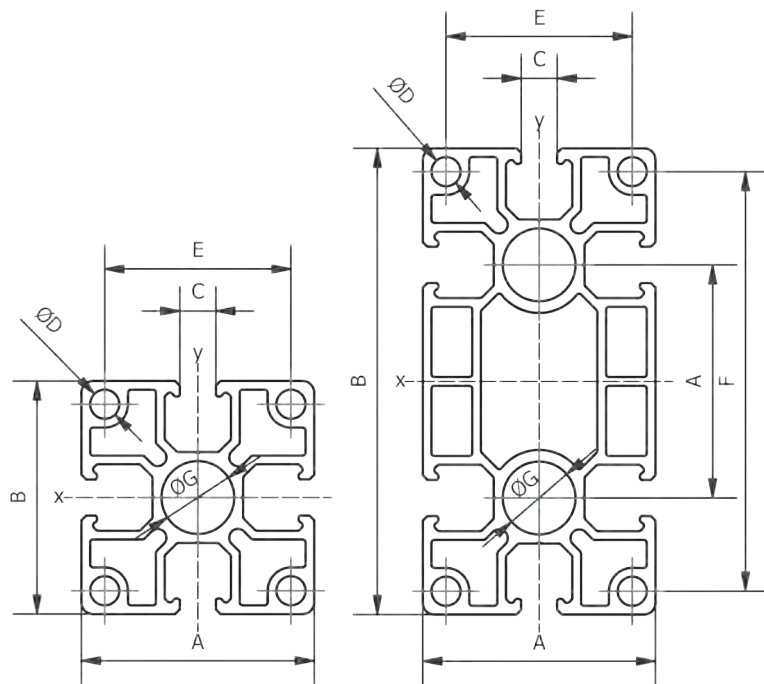


Drawing:

- ∅ D core hole for M6
- ∅ G core hole for M14x1,5,

Ordering example for custom length 1520 mm of JU 80-40 profile:

Order text :
1-055-46-00, JU 80x40x1520



Measures

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	Length [mm]	Weight [g]
1-055-23-00	JU 40-40-2000	40	40	6.2	5	32		12.5	2000	2678
1-055-26-00	JU 40-40-0001	40	40	6.2	5	32		12.5	1	1.3
1-055-42-00	JU 80-40-2000	40	80	6.2	5	32	72	12.5	2000	4634
1-055-46-00	JU 80-40-0001	40	80	6.2	5	32	72	12.5	1	2.3

Properties

Part No.	Description	Material	Cross section area [mm ²]	Weight/Meter [kg]	Center point ex [mm]	Center point ey [mm]	Axial moment of inertia Ix [mm ⁴]	Axial moment of inertia Iy [mm ⁴]	Axial torque resistance Wx [mm ³]	Axial torque resistance Wy [mm ³]
1-055-23-00	JU 40-40-2000	Aluminium	521.3	1339	20	20	86629	86629	4331	4331
1-055-26-00	JU 40-40-0001	Aluminium	521.3	1339	20	20	86629	86629	4331	4331
1-055-42-00	JU 80-40-2000	Aluminium	891.9	2317	40	20	586369	155268	14660	7764
1-055-46-00	JU 80-40-0001	Aluminium	891.9	2317	40	20	586369	155268	14660	7764

K-Profile / Construction Profile



Remarks:

- construction profile best suited for secondary machinery and fixtures
- standard channel nuts do not fit, but most connectors are available for this profile
- custom length on request – see ordering example
- special profile length larger than 2000 mm on request
- saw cut 2.50 [€]

Drawing:

- ∅ D core hole for M6
- ∅ G core hole for M8

Ordering example for custom length 1520 mm of K 80-40 profile:

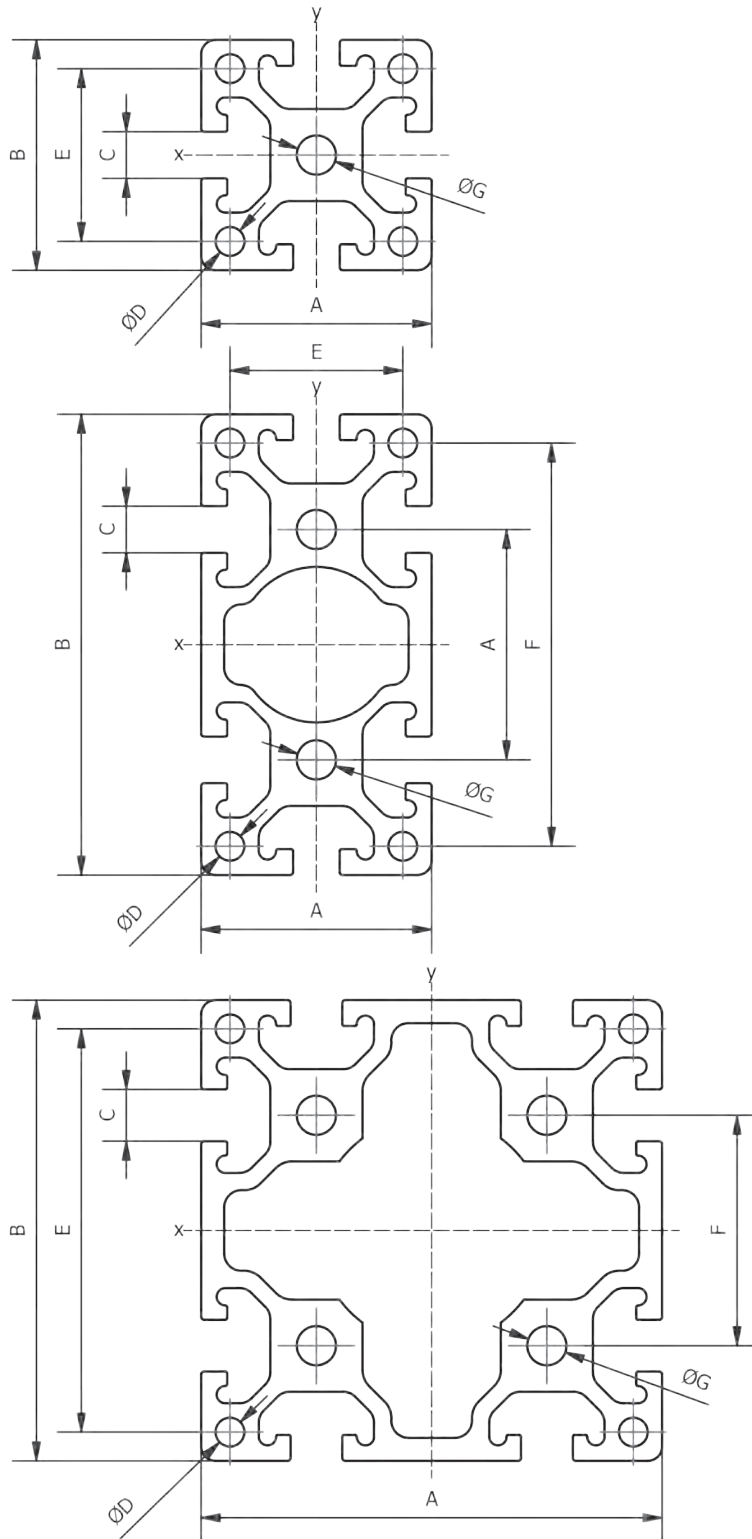
Order text : 1-054-46-00, K 80x40x1520

Measures

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	Length [mm]	Weight [g]
1-054-27-00	K 40-40-2000	40	40	8.1	5	30		6.8	2000	4200
1-054-26-00	K 40-40-0001	40	40	8.1	5	30		6.8	1	2.1
1-054-46-00	K 80-40-0001	40	80	8.1	5	30	70	6.8	1	3.6
1-054-66-00	K 80-80-0001	80	80	8.1	5	70	40	6.8	1	5.8

New

K-Profile / Construction Profile (Continuation)



Properties

Part No.	Description	Material	Cross section area [cm ²]	Weight/Meter [kg/m]	Center point ex [mm]	Center point ey [mm]	Axial moment of inertia Ix [cm ⁴]	Axial moment of inertia Iy [cm ⁴]	Axial torque resistance Wx [cm ³]	Axial torque resistance Wy [cm ³]
New 1-054-27-00	K 40-40-2000	Aluminium	780	2.09	20	20	118500	118500	5920	5920
1-054-26-00	K 40-40-0001	Aluminium	780	2.09	20	20	118500	118500	5920	5920
1-054-46-00	K 80-40-0001	Aluminium	1340	3.60	40	20	854100	222700	21350	11130
1-054-66-00	K 80-80-0001	Aluminium	2150	5.80	40	40	1516500	1516500	37910	37910

050 | Profile-Channel Nut

050
Profile-Channel
Nut

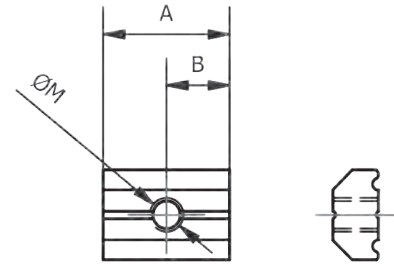
GWP1/GPF / Channel Nut with one Thread



GWP



GPF

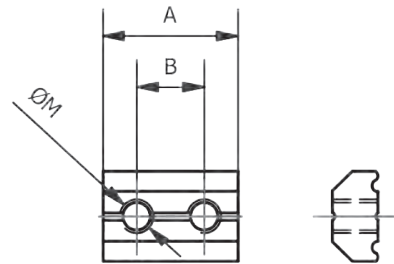
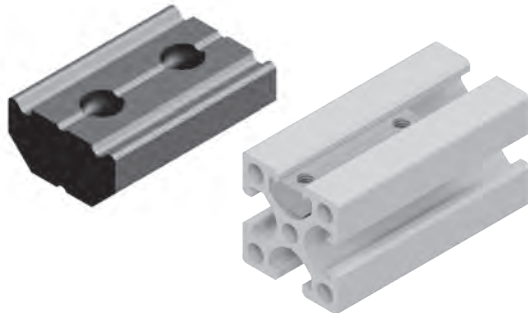


Part No.	Description	Compatible with profile	A [mm]	B [mm]	Ø M [mm]	Spring ball	Pass fit	Material	Weight [g]
1-058-31-15	GWP 3 U	L, X, JU	15	7.5	M3		x	Steel/zinc coated	5
1-058-41-15	GWP 4 U	L, X, JU	15	7.5	M4		x	Steel/zinc coated	5
1-058-51-15	GWP 5 U	L, X, JU	15	7.5	M5		x	Steel/zinc coated	5
1-058-61-18	GWP 6 U	L, X, JU	18	9	M6		x	Steel/zinc coated	6
1-059-41-22	GWP 4 K	K	22	11	M4	x		Steel/zinc coated	11
1-059-51-22	GWP 5 K	K	22	11	M5	x		Steel/zinc coated	10
1-059-61-22	GWP 6 K	K	22	11	M6	x		Steel/zinc coated	10
1-059-81-22	GWP 8 K	K	22	11	M8	x		Steel/zinc coated	9
1-061-81-00	GPF 8 K	K	22	7	M8	x	x	Steel/zinc coated	9
1-061-61-00	GPF 6 K	K	22	7	M6	x	x	Steel/zinc coated	18
1-061-51-00	GPF 5 K	K	22	7	M5	x	x	Steel/zinc coated	18

New

290
Adapter

GWP2 / Channel Nut with two Threads



Part No.	Description	Compatible with profile	A [mm]	B [mm]	Ø M [mm]	Material	Weight [g]
1-058-42-08	GWP 4-8 U	L, X, JU	16	8	M4	Steel/zinc coated	5
1-058-42-17	GWP 4-17 U	L, X, JU	25	17	M4	Steel/zinc coated	5
1-058-42-25	GWP 4-25 U	L, X, JU	33	25	M4	Steel/zinc coated	5
1-058-42-31	GWP 4-31 U	L, X, JU	39	31	M4	Steel/zinc coated	11
1-058-52-10	GWP 5-10 U	L, X, JU	20	10	M5	Steel/zinc coated	11
1-058-52-15	GWP 5-15 U	L, X, JU	25	15	M5	Steel/zinc coated	11
1-058-52-16	GWP 5-16 U	L, X, JU	26	16	M5	Steel/zinc coated	10
1-058-52-18	GWP 5-18 U	L, X, JU	28	18	M5	Steel/zinc coated	12
1-058-52-20	GWP 5-20 U	L, X, JU	30	20	M5	Steel/zinc coated	12
1-058-52-22	GWP 5-22 U	L, X, JU	32	22	M5	Steel/zinc coated	12
1-058-52-25	GWP 5-25 U	L, X, JU	35	25	M5	Steel/zinc coated	12
1-058-52-28	GWP 5-28 U	L, X, JU	38	28	M5	Steel/zinc coated	14

990
Other
PA-Forming

GWP2 / Channel Nut with two Threads (Continuation)

Part No.	Description	Compatible with profile	A [mm]	B [mm]	Ø M [mm]	Material	Weight [g]
1-058-52-30	GWP 5-30 U	L, X, JU	40	30	M5	Steel/zinc coated	14
1-058-52-35	GWP 5-35 U	L, X, JU	45	35	M5	Steel/zinc coated	16
1-058-52-38	GWP 5-38 U	L, X, JU	48	38	M5	Steel/zinc coated	17
1-058-52-40	GWP 5-40 U	L, X, JU	50	40	M5	Steel/zinc coated	18
1-058-52-42	GWP 5-42 U	L, X, JU	52	42	M5	Steel/zinc coated	20
1-058-52-45	GWP 5-45 U	L, X, JU	55	45	M5	Steel/zinc coated	20
1-058-52-50	GWP 5-50 U	L, X, JU	60	50	M5	Steel/zinc coated	22
1-058-52-58	GWP 5-58 U	L, X, JU	68	58	M5	Steel/zinc coated	26
1-058-52-60	GWP 5-60 U	L, X, JU	70	60	M5	Steel/zinc coated	26
1-058-52-63	GWP 5-63 U	L, X, JU	73	63	M5	Steel/zinc coated	27
1-058-52-65	GWP 5-65 U	L, X, JU	75	65	M5	Steel/zinc coated	28
1-058-52-70	GWP 5-70 U	L, X, JU	80	70	M5	Steel/zinc coated	29
1-058-52-80	GWP 5-80 U	L, X, JU	90	80	M5	Steel/zinc coated	33
1-058-52-90	GWP 5-90 U	L, X, JU	100	90	M5	Steel/zinc coated	37
1-058-52-00	GWP 5-100 U	L, X, JU	110	100	M5	Steel/zinc coated	41
1-058-62-10	GWP 6-10 U	L, X, JU	22	10	M6	Steel/zinc coated	6
1-058-62-15	GWP 6-15 U	L, X, JU	27	15	M6	Steel/zinc coated	8
1-058-62-20	GWP 6-20 U	L, X, JU	30	20	M6	Steel/zinc coated	10
1-058-62-25	GWP 6-25 U	L, X, JU	37	25	M6	Steel/zinc coated	11
1-058-62-30	GWP 6-30 U	L, X, JU	42	30	M6	Steel/zinc coated	14
1-058-62-35	GWP 6-35 U	L, X, JU	47	35	M6	Steel/zinc coated	15
1-058-62-40	GWP 6-40 U	L, X, JU	52	40	M6	Steel/zinc coated	18
1-058-62-45	GWP 6-45 U	L, X, JU	57	45	M6	Steel/zinc coated	19
1-058-62-50	GWP 6-50 U	L, X, JU	62	50	M6	Steel/zinc coated	22
1-058-62-51	GWP 6-51 U	L, X, JU	60	51	M6	Steel/zinc coated	21
1-058-62-60	GWP 6-60 U	L, X, JU	72	60	M6	Steel/zinc coated	25
1-058-62-70	GWP 6-70 U	L, X, JU	82	70	M6	Steel/zinc coated	29
1-058-62-80	GWP 6-80 U	L, X, JU	92	80	M6	Steel/zinc coated	33
1-058-62-90	GWP 6-90 U	L, X, JU	102	90	M6	Steel/zinc coated	36
1-058-62-91	GWP 6-91 U	L, X, JU	100	91	M6	Steel/zinc coated	36
1-058-62-00	GWP 6-100 U	L, X, JU	112	100	M6	Steel/zinc coated	40
1-059-52-10	GWP 5-10 K	K	20	10	M5	Steel/zinc coated	9
1-059-62-15	GWP 6-15 K	K	27	15	M6	Steel/zinc coated	12
1-059-62-20	GWP 6-20 K	K	32	20	M6	Steel/zinc coated	14
1-059-62-25	GWP 6-25 K	K	37	25	M6	Steel/zinc coated	18
1-059-62-30	GWP 6-30 K	K	42	30	M6	Steel/zinc coated	19
1-059-62-40	GWP 6-40 K	K	52	40	M6	Steel/zinc coated	25
1-059-62-50	GWP 6-50 K	K	62	50	M6	Steel/zinc coated	30
1-059-62-90	GWP 6-90 K	K	102	90	M6	Steel/zinc coated	51
1-059-82-00	GWP 8-100 K	K	116	100	M8	Steel/zinc coated	57
1-059-82-30	GWP 8-30 K	K	46	30	M8	Steel/zinc coated	20
1-059-82-40	GWP 8-40 K	K	56	40	M8	Steel/zinc coated	25

050 | Profile-Channel Nut

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

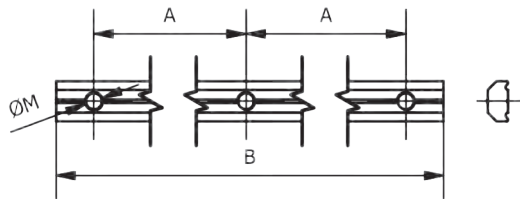
700
Special
Elements

800
Electric and
Sensors

850
Pneumatic

990
Other
PA-Forming

GWP3 / Channel Nut with three Threads



Remarks:

- channel nut with 3 bore hols
- compatible to GPM 3

Part No.	Description	Compatible with profile	A [mm]	B [mm]	Ø M [mm]	Material	Weight [g]
1-058-53-01	GWP 5-100-100 U	L,X,JU	100	220	M5	Steel/zinc coated	83
1-058-63-01	GWP 6-100-100 U	L,X,JU	100	220	M6	Steel/zinc coated	82

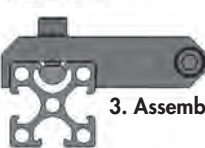
GWP EX U / Channel Nut with Swivel-in-Function



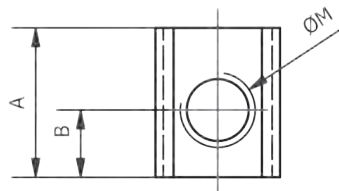
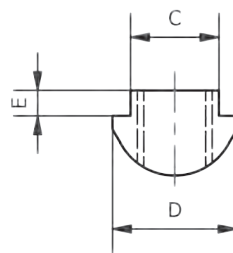
1. Inserting



2. Swiveling in



3. Assembling



Remarks:

► **Application: for adding components belated to the EOAT**

- easy to handle
- high flexibility
- no demounting of the EOAT necessary, other components stay in their original position
- compatible to X-system components
- locks against rotation, form closure

Part No.	Description	Compatible with profile	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	ØM [mm]	Material	Weight [g]
1-056-32-01	GWP EX 3 U	L, X, JU	10	2,5	5,9	8,3	1,7	M3	Steel chromated	2
1-056-42-01	GWP EX 4 U	L, X, JU	10	3,5	5,9	8,3	1,7	M4	Steel chromated	2
1-056-52-01	GWP EX 5 U	L, X, JU	10	4,5	5,9	8,3	1,7	M5	Steel chromated	2

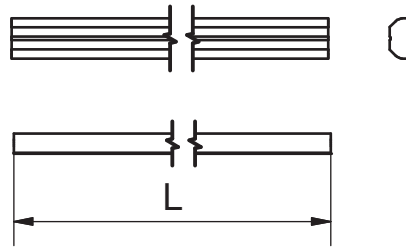
New

New

PLU / Channel Nut

Remarks:

- ▶ **Application: for making customized channel nuts**
- channel nut without bore holes

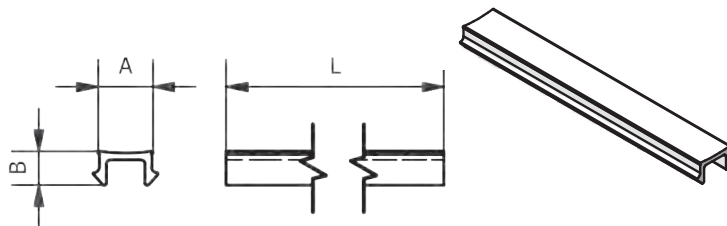


Part No.	Description	Compatible with profile	L [mm]	Material	Weight [g]
1-090-02-00	PL-U	L, X, JU	2000	Steel, zinc coded	769

ADP / Profile Channel Cover

Remarks:

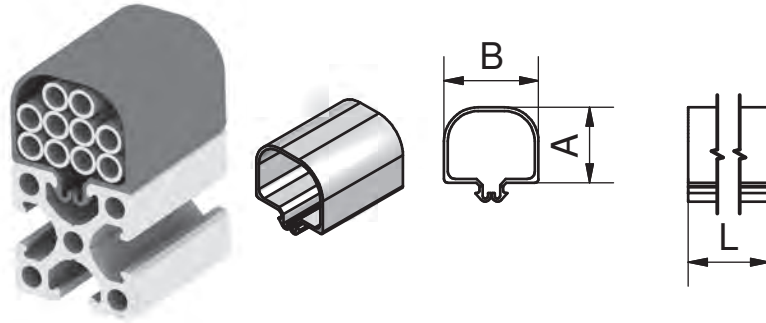
- ▶ **Application: e.g. to avoid cuttings falling into profiles in cutting stations**
- cover snaps into the profile channel
- closes the profile channel and protects it against debris
- fits in L, X and JU profile



Part No.	Description	A [mm]	B [mm]	Length [mm]	Sold in	Material
1-090-10-00	ADP 2000	6.8	4	2000	10x2000 mm	Plastic
1-090-11-00	ADP 1000	6.8	4	1000	20x1000 mm	Plastic

050 | Profile-Channel Nut

KKP / Cable and Hose Channel



Remarks:

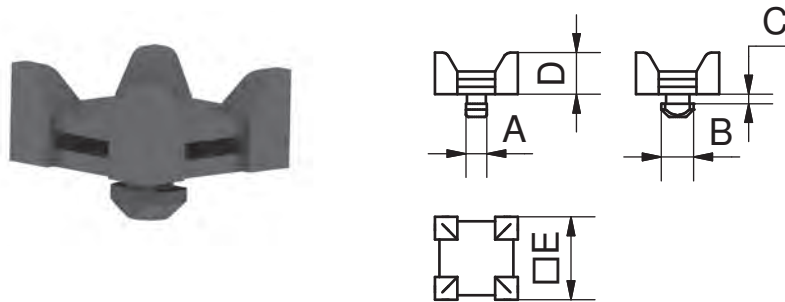
► **Application: for installing and hiding pneumatics and electrics at profiles**

- hose channel can be clipped easily to the profiles
- compatible to L-, X- and JU- Profiles
- only for stanionary machines like cutting stations

Attention: not for usage with EOAT (robot hand) due to acceleration

Part No.	Description	A [mm]	B [mm]	Length [mm]	Material
1-090-13-00	KKP 25-20	20	25	2000	Plastic
1-090-16-00	KKP 25-35	35	25	2000	Plastic

KKB / X-JU: Twist on Cable and Hose Saddle



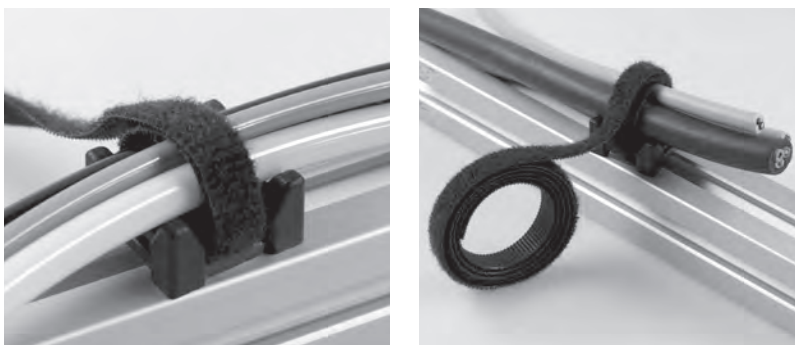
Remarks:

► **Application: allows easy attachment of hoses and cables to the Aluminium profile**

- no tools needed
- easy to swivel into profiles
- quick installation without screw
- subsequent insertion into the profiles possible
- cables can be mounted in longitudinal and transverse direction

Part No.	Description	Compatible with profile	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Material	Weight [g]
1-790-41-00	KKB-X-JU	X, JU	5.5	8.6	2.5	11	22	PA	3
1-790-44-00	KKB-K	K	8	15.8	4.3	11	22	PA	4

KLB / Hook-and-Loop Tape

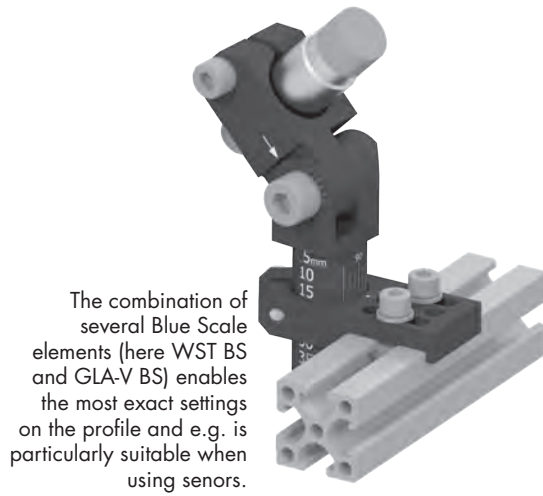


Remarks:

- versatile usage
- reusable
- can be used for all cables, pneumatic hoses and others
- easy to cut to the required length with scissors
- compatible with KKB Twist-on-Cable/Hose Saddle
- delivered without KKB

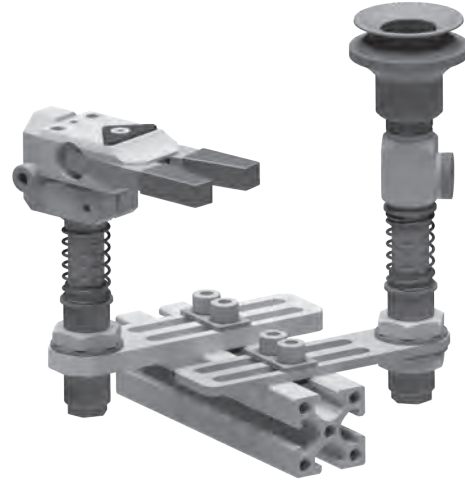
Part No.	Description	Length [m]
1-790-45-00	KLB	15

Application example Blue Scale

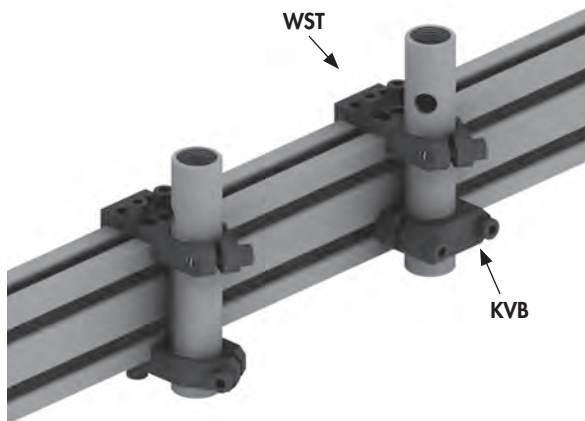


The combination of several Blue Scale elements (here WST BS and GLA-V BS) enables the most exact settings on the profile and e.g. is particularly suitable when using sensors.

Application examples WSF



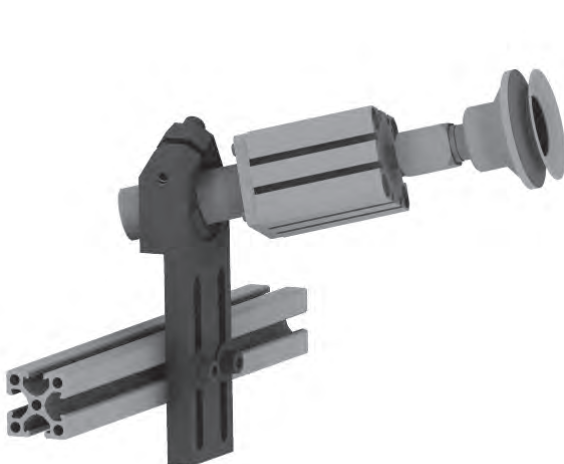
Application examples WST



Application examples WSL



Application examples WSL-G



000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special Elements

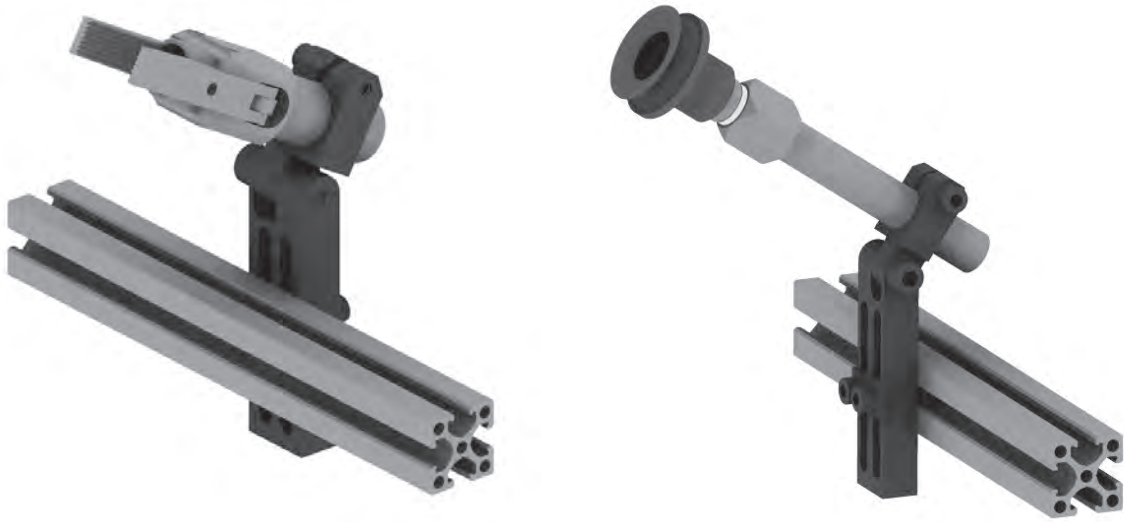
800
Electric and Sensors

850
Pneumatic

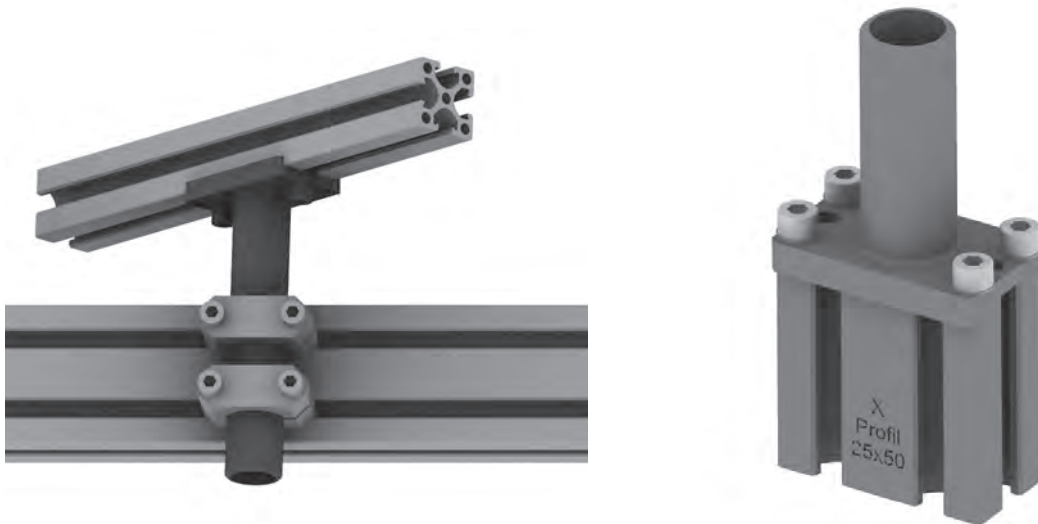
990
Other PA-Forming

100 | Clamps

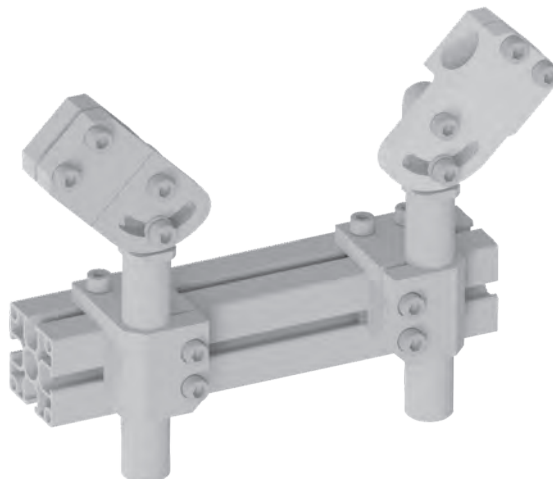
Application examples WSL GA



Application examples DKS



Application example WSW / WSW M



WSW combined with WSW M allow better setting options. In combination with the gripper arms GLA V and GLA VM assembly is more user friendly e.g. in complex robotic hands, such as the area of the bumper removal.

WST / Universal Angle Clamp

Remarks:

Type WST

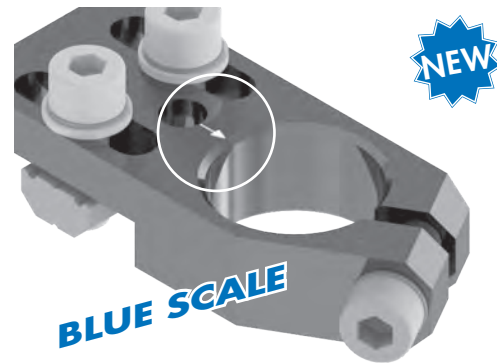
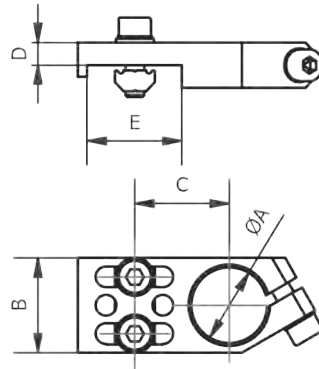
► Application: has the advantage of many possible applications: can be mounted form fit or adjustable (see application examples)

- just one tool needed: hexagon socket screw key
- mounted directly on profile
- allows compact gripper design

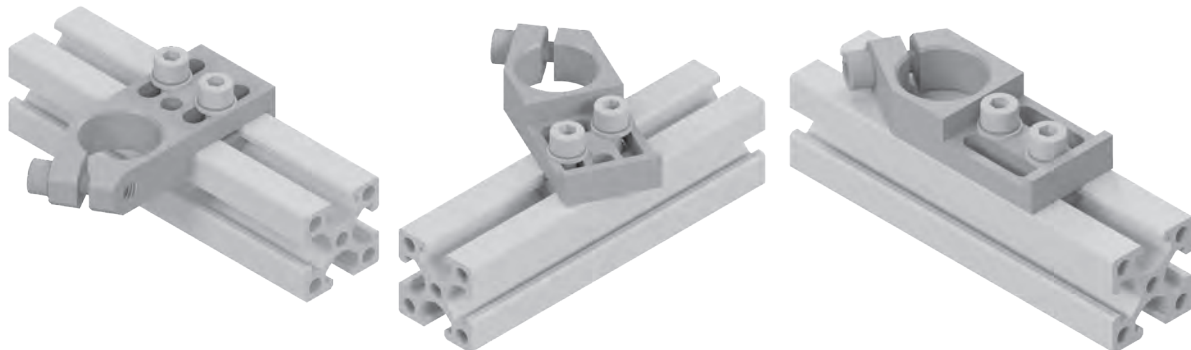
Type WST BS „Blue Scale“

► Application: for exact mounting and replicable positioning of angles etc.

- as above
- blue anodized
- with marking for exact positioning
- more Blue Scale parts are available for WKA, GLA and GLA V



Application examples



Part No.	Description	With long hole	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Material	Weight [g]
1-103-00-00	WST L 10 U		10	16	16	4	18	Aluminium	18
1-103-03-00	WST L 14 U		14	20	18	6	18	Aluminium	26
1-103-06-00	WST X 10 U		10	16	19,5	4	25	Aluminium	19
1-103-09-00	WST X 14 U		14	20	21,5	6	25	Aluminium	33
1-103-12-00	WST X 20 U	X	20	25	17,5-32,5	6	25	Aluminium	40
New 1-103-13-00	WST X 20 U BS	X	20	25	17,5-32,5	6	25	Aluminium	40
1-103-15-00	WST X 30 U	X	30	35	22,5-37,5	10	25	Aluminium	75
1-103-18-00	WST JU 20 U		20	25	32	7,5	40	Aluminium	60
New 1-103-19-00	WST JU 20 U BS		20	25	32	7,5	40	Aluminium	60
1-103-21-00	WST JU 30 U	X	30	40	27-47	10	40	Aluminium	116
1-103-27-00	WST K 20 U		20	25	32,5	7,5	40	Aluminium	63
New 1-103-28-00	WST K 20 U BS		20	25	32,5	7,5	40	Aluminium	63
1-103-30-00	WST K 30 U	X	30	40	27-47	10	40	Aluminium	125

000 Quick Change System

050 Profile-Channel Nut

100 Clamps

115 Tubular Clamps

120 Profile Connectors

190 Accessories-Profile

200 Vacuum Cup-Connectors

220 Vacuum Cups

224 Vacuum Cups-Special

230 Manifold

290 Adapter

300 Gripper Arms

400 Grippers

450 Gripper Fingers

600 Nipper Bodies

610 Nipper Blades

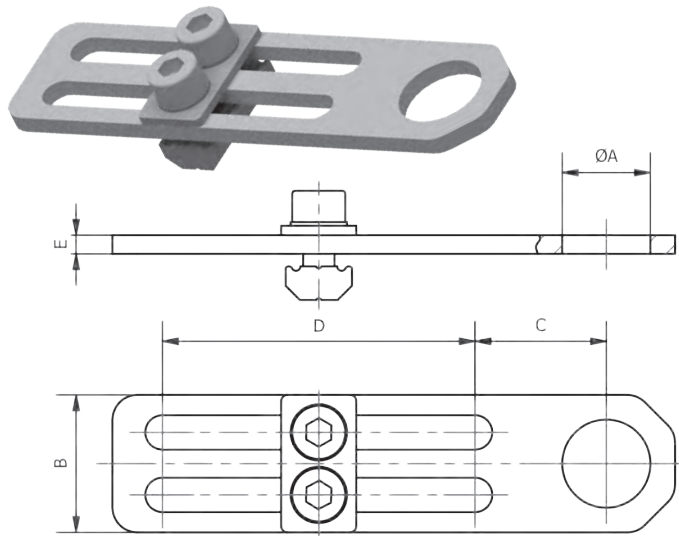
700 Special Elements

800 Electric and Sensors

850 Pneumatic

990 Other PA-Forming

WSF U / WSF M U / Flat Angle Clamp

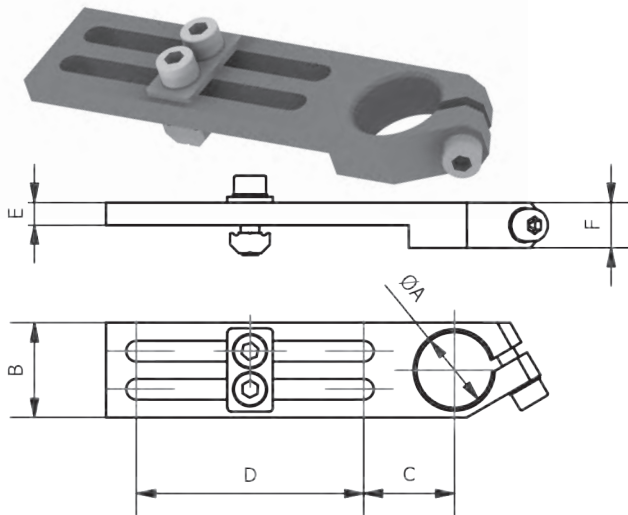


Remarks:

- ▶ **Application: universal Angle Clamp for mounting gripper arms with thread (such as GAF M)**
- **Version WSF U** without thread: Gripper Arms can be put through and counter-tightened
- **Version WSF M U** with thread: Gripper Arms can be screwed in
- same allen screw size for clamping and channel nuts
- can be mounted directly on profiles
- allows compact gripper design

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Material	Weight [g]
1-101-03-00	WSF X 10-40 U	10	18	16	40	3	zinc-pl. Steel	29
1-101-06-00	WSF X 14-50 U	14	22	21	50	3	zinc-pl. Steel	43
1-101-09-00	WSF X 20-60 U	20	30	24	60	3	zinc-pl. Steel	65
1-101-23-00	WSF X M10-40 U	M10x1	18	16	40	6	Aluminium	25
1-101-26-00	WSF X M14-50 U	M14x1	22	21	50	6	Aluminium	38
1-101-29-00	WSF X M20-60 U	M20x1.5	30	24	60	6	Aluminium	53

WSL U / Universal Long Angle Clamp



Remarks:

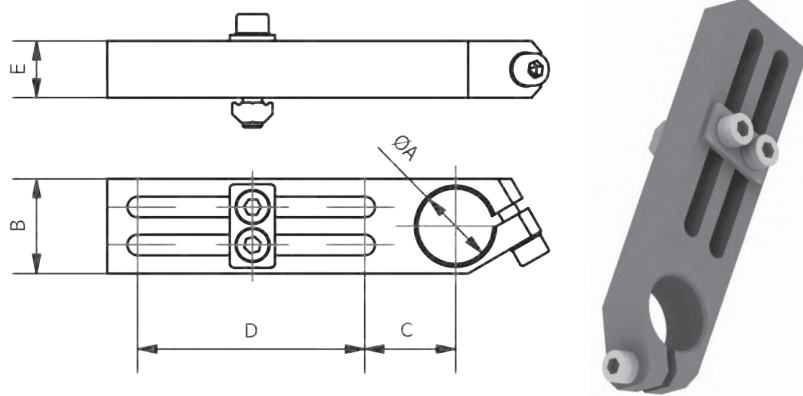
- ▶ **Application: universal Long Angle Clamp e.g. for mounting Gripper GRZ or other components with round connection to profiles**
- same allen screw size for clamping and channel nuts
- can be mounted directly on profiles
- allows compact gripper design

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	Material	Weight [g]
1-105-07-00	WSL L 10-40 U	10	16	16	40	4	8	Aluminium	21
1-105-12-00	WSL L 14-40 U	14	20	18	40	5	10	Aluminium	31
1-105-17-00	WSL X 14-50 U	14	20	21	50	6	12	Aluminium	42
1-105-22-00	WSL X 20-60 U	20	25	24	60	6	12	Aluminium	53
1-105-37-00	WSL X 30-60 U	30	35	30	60	10	20	Aluminium	114
1-105-32-00	WSL JU 20-70 U	20	30	31	70	7.5	15	Aluminium	95
1-105-42-00	WSL JU 30-70 U	30	35	30	70	10	20	Aluminium	133

WSL VU / Universal Long Angle Clamp – Heavy Duty Version

Remarks:

- ▶ **Application:** reinforced universal Long Angle Clamp e.g. for mounting Gripper GRZ or other components with round connection to profiles
- same allen screw size for clamping and channel nuts
- can be mounted directly on profiles
- allows compact gripper design

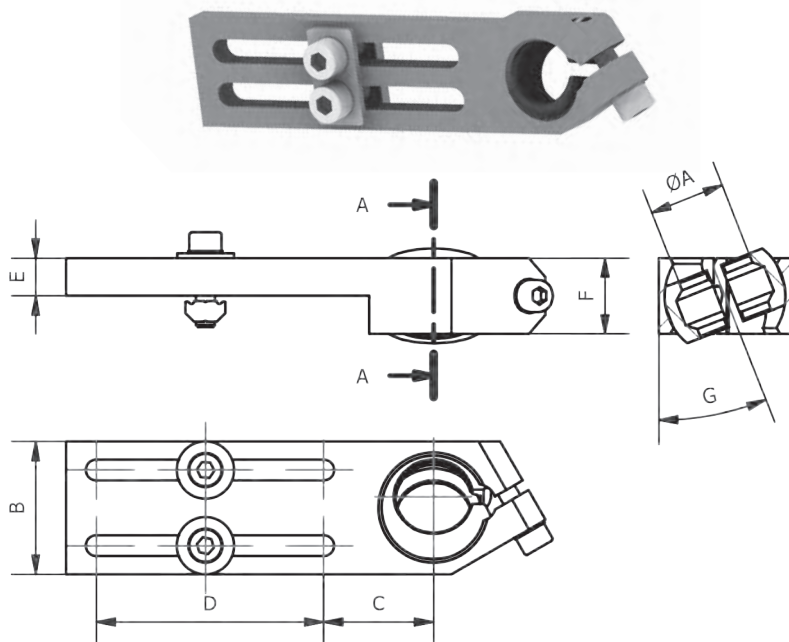


Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Material	Weight [g]
1-105-09-00	WSL L+X 10-40 VU	10	16	16	40	8	Aluminium	27
1-105-19-00	WSL X 14-50 VU	14	20	21	50	12	Aluminium	57
1-105-27-00	WSL X 20-60 VU	20	25	24	60	15	Aluminium	91
1-105-29-00	WSL K 14-50 VU	14	20	21	50	12	Aluminium	60
1-105-30-00	WSL K 20-70 VU	20	30	32	70	15	Aluminium	150
1-105-39-00	WSL X 30-60 VU	30	35	30	60	20	Aluminium	175
1-105-35-00	WSL JU 20-70 VU	20	30	31	70	15	Aluminium	141
1-105-40-00	WSL K 30-70 VU	30	40	27	70	20	Aluminium	247
1-105-45-00	WSL JU 30-70 VU	30	35	30	70	20	Aluminium	199

WSL G / Long Angle Clamp with Ball Joint

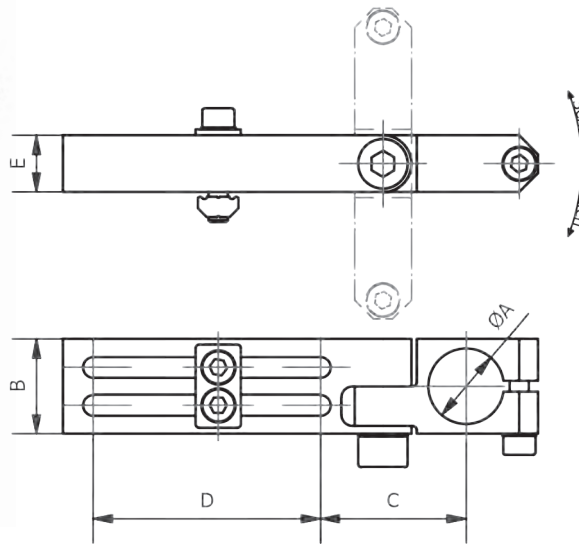
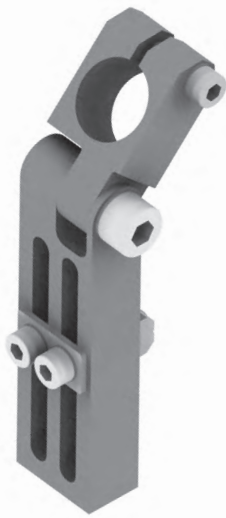
Remarks:

- ▶ **Application:** features an integrated ball joint that allows flexible angle adjustments for components
- degrees of freedom can be adjusted stepless
- can be mounted directly on profiles
- allows compact gripper design



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [°]	Material	Weight [g]
1-106-03-00	WSL G X 10-50 U	10	20	20	50	6	12	0-13	Aluminium	46
1-106-06-00	WSL G X 14-60 U	14	25	24	60	6	12	0-17	Aluminium	62
1-106-09-00	WSL G X 20-60 U	20	35	29	60	10	20	0-19	Aluminium	156

WSL GA / Long Angle Clamp with Swivel Head



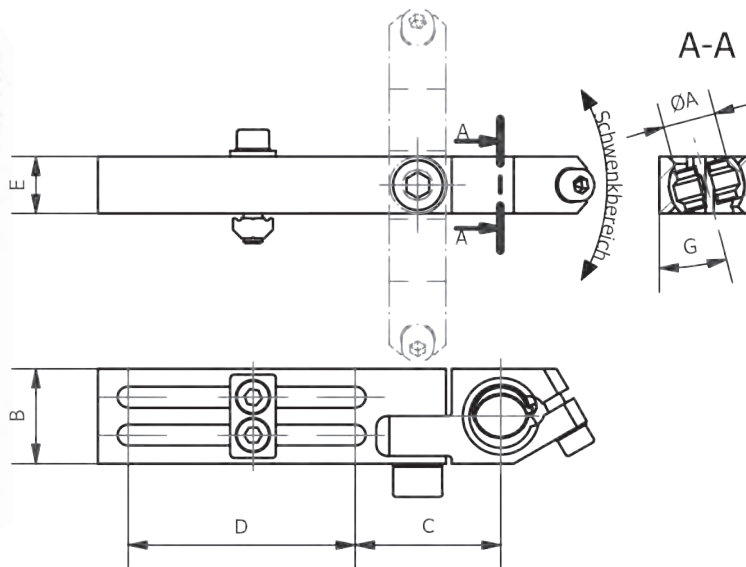
Remarks:

► **Application:** e.g. for mounting Gripper GRZ, vacuum cups etc. in an angle

- degrees of freedom can be adjusted stepless
- both directions non-rotating
- can be mounted directly on profiles
- allows compact gripper design

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Swivel Area [°]	Material	Weight [g]
1-106-33-00	WSL GA X 10	10	16	27	40	10	+/-90	Aluminium	39
1-106-36-00	WSL GA X 14	14	20	32.5	50	12	+/-90	Aluminium	69
1-106-39-00	WSL GA X 20	20	25	38.5	60	15	+/-90	Aluminium	116
1-106-42-00	WSL GA JU 30	30	35	52	82	20	+/-90	Aluminium	265

WSL KG / Long Angle Clamp with Swivel and Ball Joint



Remarks:

► **Application:** allows positioning of Gripper GRZ etc. in free angle

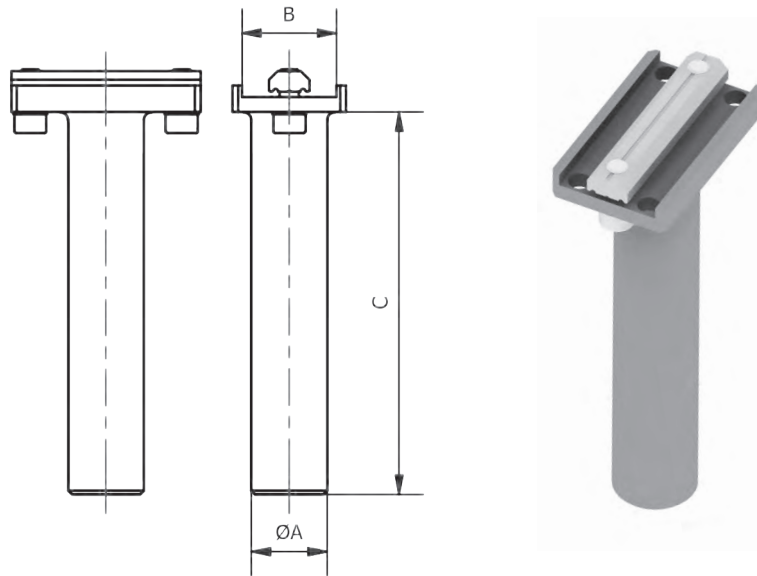
- three-dimensional adjustability for stepless adjustment
- three movable axes by angle arm and ball joint
- maximum flexibility through freely adjustable angles
- protection against misalignment
- improved fixing
- can be mounted directly on profiles
- allows compact gripper design

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Swivel Area Ball Joint G [°]	Swivel Area [°]	Material	Weight [g]
1-106-53-00	WSL KG X 10	10	20	32,5	50	12	0-13	+/-90	Aluminium	74
1-106-56-00	WSL KG X 14	14	25	38,5	60	15	0-17	+/-90	Aluminium	123
1-106-59-00	WSL KG JU 20	20	35	50	82	20	0-19	+/-90	Aluminium	294

DKS / 90° Mounting Bar

Remarks:

- can be mounted form locking to profiles
- clamping diameter fits to EOAT Robot Hand Kit and offers various adjustment options



Part No.	Description	A [mm]	B [mm]	Dimension B form locking to profile	C [mm]	Material	Weight [g]
1-110-10-00	DKS L 10-60	10	18	L 18-10 or L 18-18	60	Aluminium	26
1-110-20-00	DKS X 14-80	14	25	X 25-25 or X 50-25	80	Aluminium	55
1-110-25-00	DKS X 20-50	20	25	X 25-25 or X 50-25	50	Aluminium	58
1-110-30-00	DKS X 20-100	20	25	X 25-25 or X 50-25	100	Aluminium	77

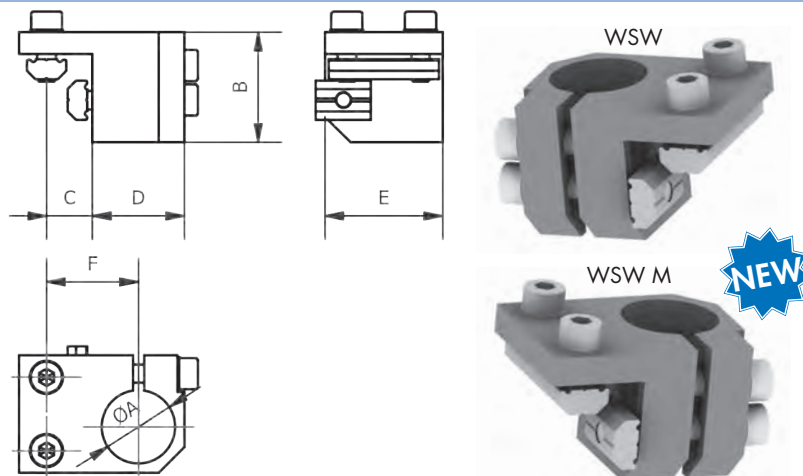
WSW / WSW M / Angle Clamp and Angle Clamp, mirrored

Remarks:

- ▶ **Application: for a very stable connection between profiles and components**
- extra strong clamp
- utilizes 2 channel nuts and wraps around the profile to minimize deflection (exception: WSW L 10)

Type WSW M:

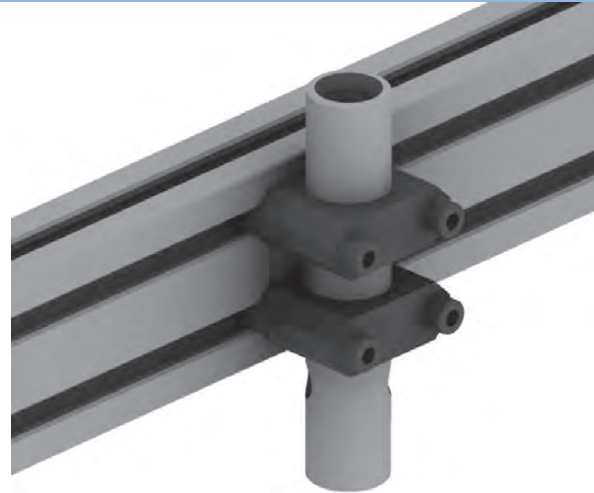
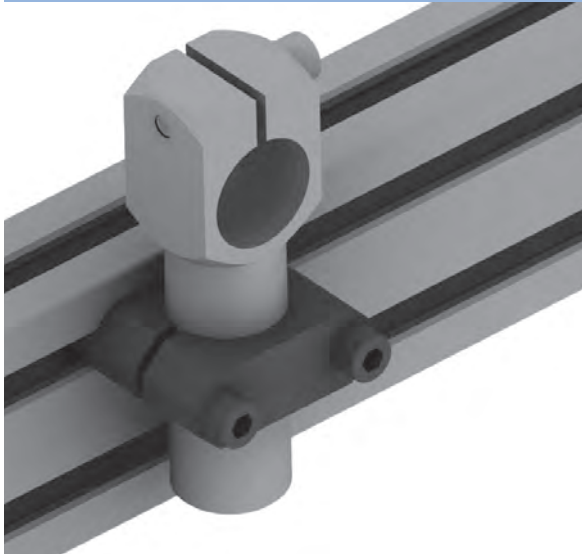
- mirrored design of WSW
- allows better setting options in a robot hand
- » see application example



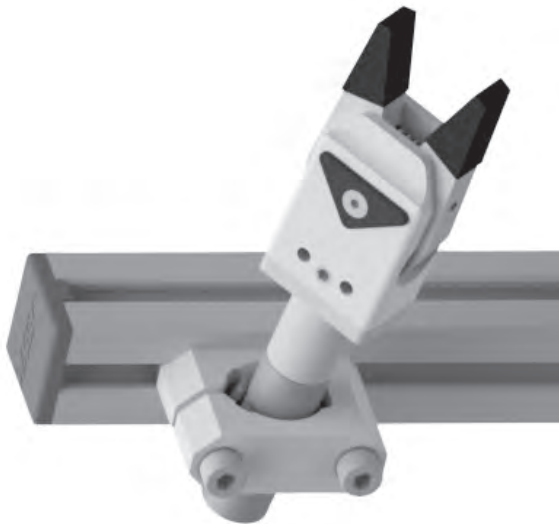
Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	Material	Weight [g]
1-102-00-00	WSW L 10	10	20	9	14	20	16	Aluminium	29
1-102-02-00	WSW X 10	10	25	12.5	14	25	19.5	Aluminium	36
1-102-03-00	WSW X 14	14	25	12.5	18	25	12.5	Aluminium	51
1-102-06-00	WSW X 20	20	30	12.5	25	32	24	Aluminium	74
New 1-102-07-00	WSW M X 20	20	30	12,5	25	32	24	Aluminium	74
1-102-09-00	WSW JU 20	20	40	20	26	35	33	Aluminium	115
New 1-102-08-00	WSW M JU 20	20	40	20	26	35	33	Aluminium	115
1-102-12-00	WSW JU 30	30	45	20	38	45	39	Aluminium	182
1-102-24-00	WSW K 20	20	40	20	25	35	32.5	Aluminium	124
1-102-27-00	WSW K 30	30	45	20	38	45	39	Aluminium	190

115 | Tubular Clamps

Application examples KVB



Application example KVB G



Application example KVB S



Application example KKS



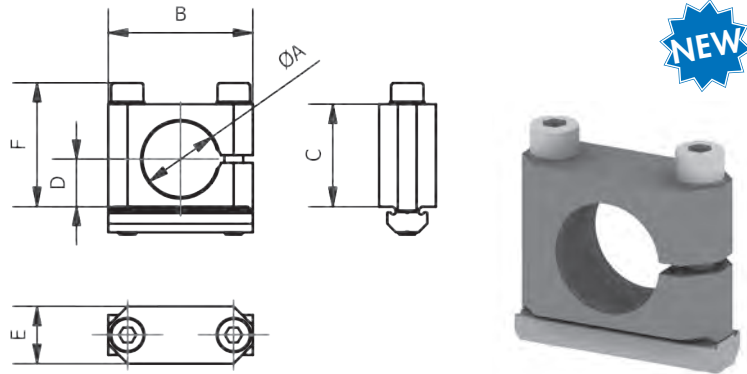
Application example PKS



KVB / Cross Connector

Remarks:

- **Application: gripper arms, adapters, etc. can be clamped at an angle of 90° to the profile**
- Cross Connector is mounted directly to the profile
- exact positioning through an additional positive connection
- by loosening a screw, various settings can be made without changing the position of the KVB

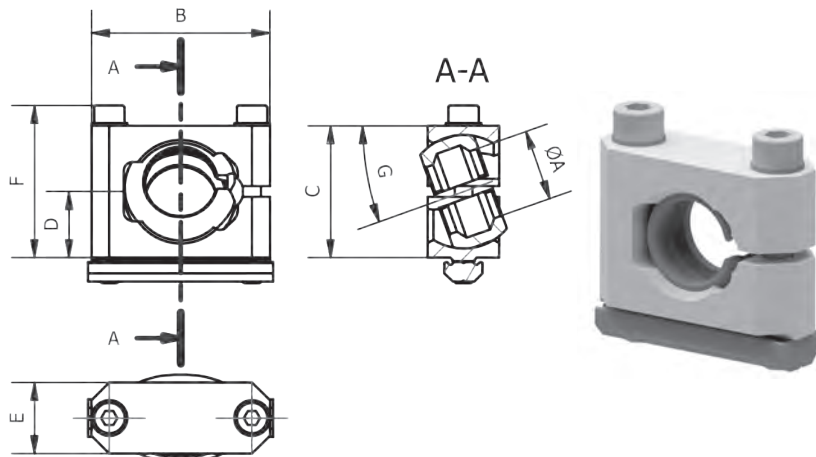


Part No.	Description	ØA [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	Material	Weight [g]
1-115-05-00	KVB L+X 10	10	25	14	7	10	18.5	Aluminum	20
New 1-115-14-00	KVB L 14	14	32	18	9	12	22.5	Aluminium	21
1-115-15-00	KVB X 14	14	32	18	9	12	23.6	Aluminum	31
1-115-24-00	KVB K 14	14	40	28.5	13.5	20	35.2	Aluminum	86
1-115-20-00	KVB X 20	20	38	27	12.5	15	32.6	Aluminum	51
1-115-25-00	KVB K 20	20	40	28.5	12.5	20	35.2	Aluminum	75
1-115-27-00	KVB JU 20	20	40	28.5	12.5	15	35.2	Aluminum	72
1-115-30-00	KVB X 30	30	50	37	17	15	42.1	Aluminum	72
1-115-35-00	KVB K 30	30	50	34.5	17	20	41.2	Aluminum	93
1-115-37-00	KVB JU 30	30	50	34.5	17	20	41.2	Aluminum	85

KVB G / Cross Connector with Ball Joint

Remarks:

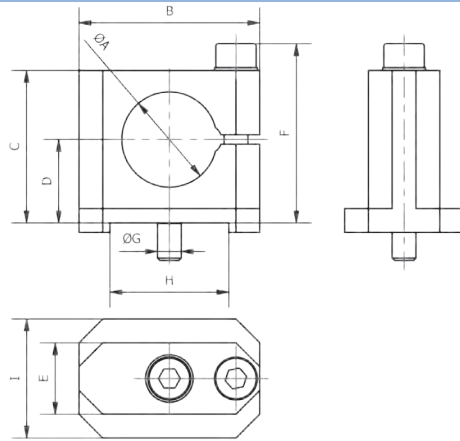
- **Application: flexible positioning of gripper arms, adapters, etc. through an additional ball joint**
- Cross Connector is mounted directly to the profile
- by loosening a screw, various settings can be made without changing the position of the KVB G



Part No.	Description	ØA [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [°]	Material	Weight [g]
1-116-46-00	KVB G X 10	10	35	23	11	12	30	0-13	Aluminium	44
1-116-48-00	KVB G K 10	10	37	22	9.5	12	29	0-13	Aluminium	54
1-116-56-00	KVB G X 14	14	40	27	13	15	33	0-17	Aluminium	60
1-116-58-00	KVB G JU 14	14	45	26.5	12.5	15	35	0-17	Aluminium	71
1-116-60-00	KVB G K 14	14	47	26.5	12.5	15	35	0-17	Aluminium	79
1-116-66-00	KVB G X 20	20	50	37	18.5	20	43	0-19	Aluminium	125
1-116-68-00	KVB G JU 20	20	55	36.5	17.5	20	45	0-19	Aluminium	142
1-116-70-00	KVB G K 20	20	55	36.5	18	20	45	0-19	Aluminium	153

115 | Tubular Clamps

KVB S / Cross Connector, front side

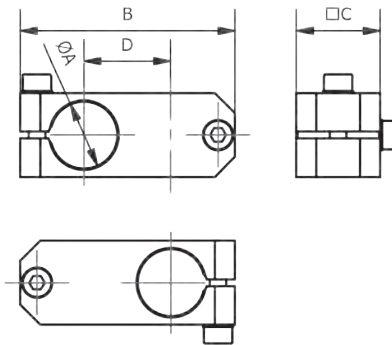


Remarks:

- ▶ **Application:** e.g. for attaching supporting feet to the EOAT
- can be screwed to the front side of profiles in difficult space conditions

Part No.	Description	ØA [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]	Material	Weight [g]
1-117-20-00	KVB S X 20	20	38	32	17.5	15	37.6	M5	25	25	Aluminium	44

KKS / Cross Clamp

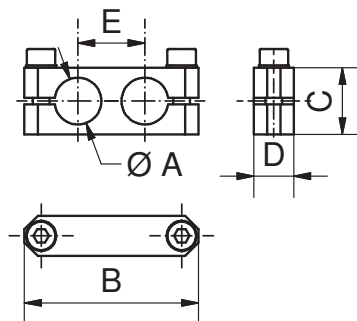


Remarks:

- ▶ **Application:** connects two components with the same clamp diameter at a 90° angle
- both clamps can be set independently

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	Material	Weight [g]
1-115-40-00	KKS 10-10-16	10	38	14	14	Aluminum	15
1-115-45-00	KKS 14-14-18	14	50	18	18	Aluminum	32
1-115-50-00	KKS 20-20-26	20	64	25	26	Aluminum	66

PKS / Parallel Clamp

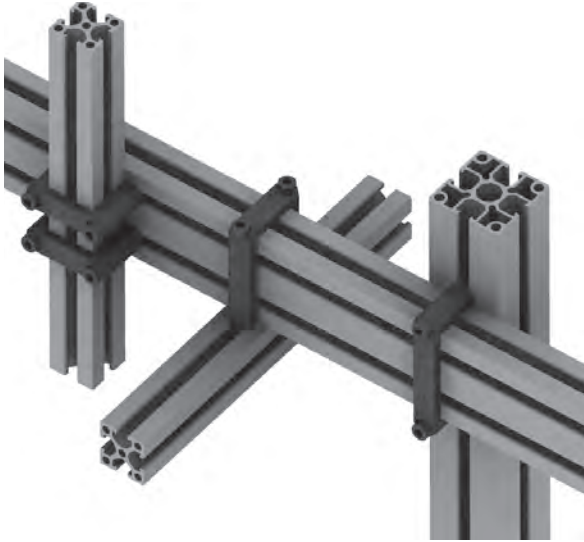


Remarks:

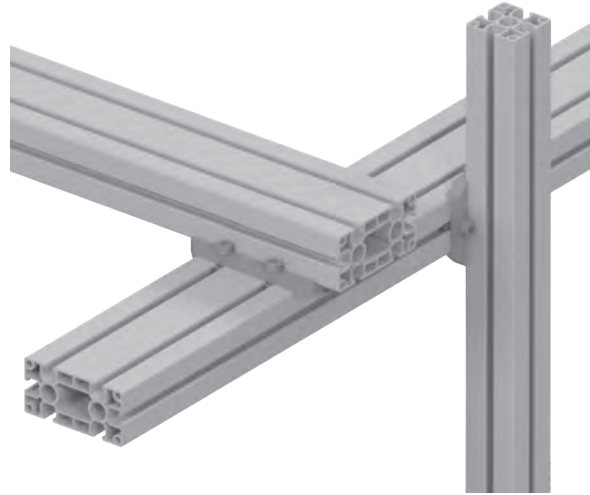
- ▶ **Application:** connects two components with the same clamp diameter parallel
- both clamps can be set independently

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Material	Weight [g]
1-115-60-00	PKS 10-10-15	10	38	15	8	15	Aluminum	11
1-115-65-00	PKS 14-14-20	14	52	20	10	20	Aluminum	29
1-115-70-00	PKS 20-20-26	20	64	25	15	26	Aluminum	42
1-115-75-00	PKS 30-30-38	30	88	35	20	38	Aluminum	98

Application example KBV



Application example KPL



Application example KPL S



Application example EVB



Application example WIV



Application example HKS



000
Quick Change
System

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special
Elements

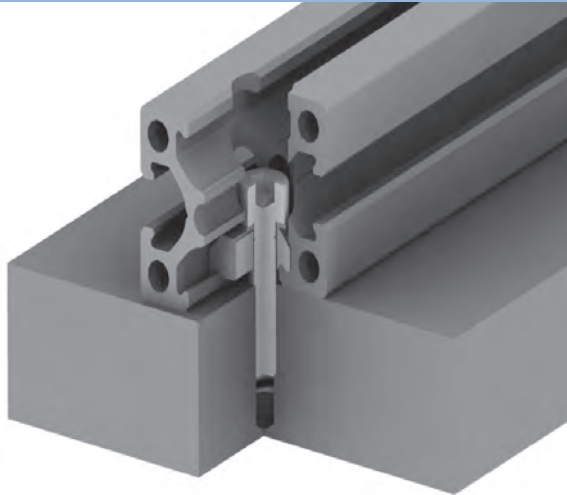
800
Electric and
Sensors

850
Pneumatic

990
Other
PA-Forming

120 | Profile Connectors

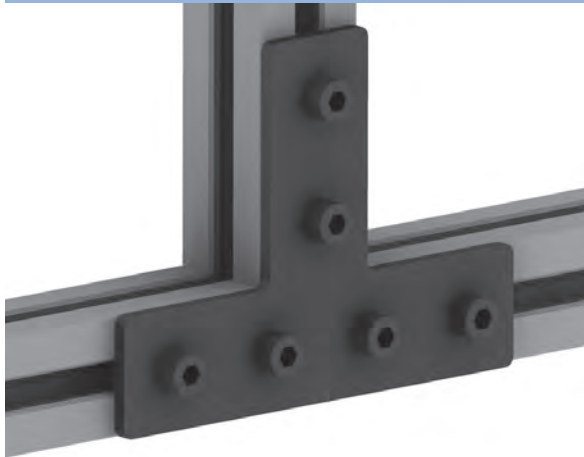
Application example SV



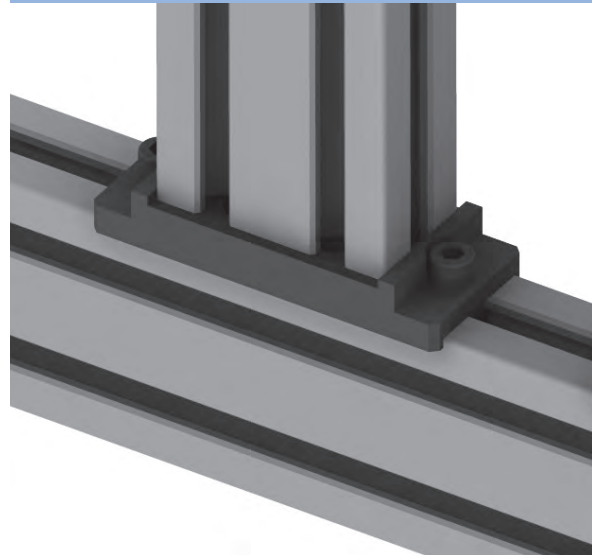
Application example EPL



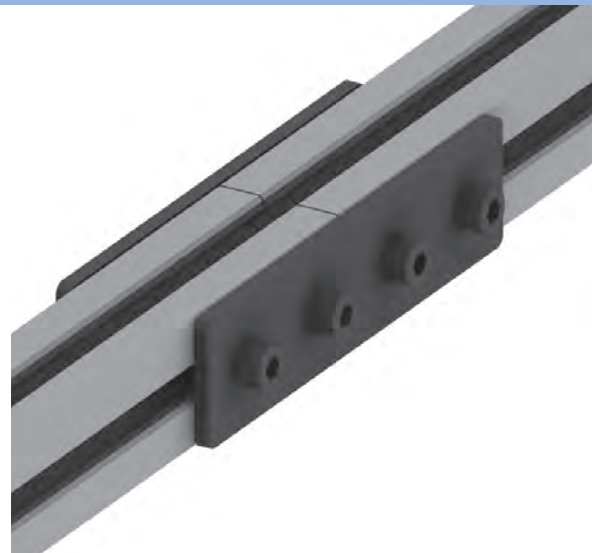
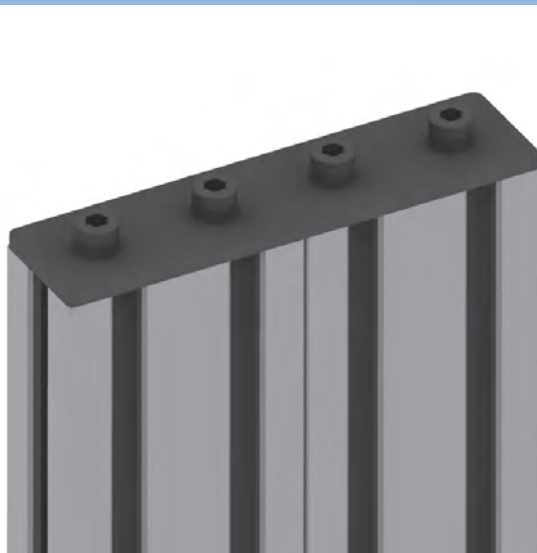
Application example VBT



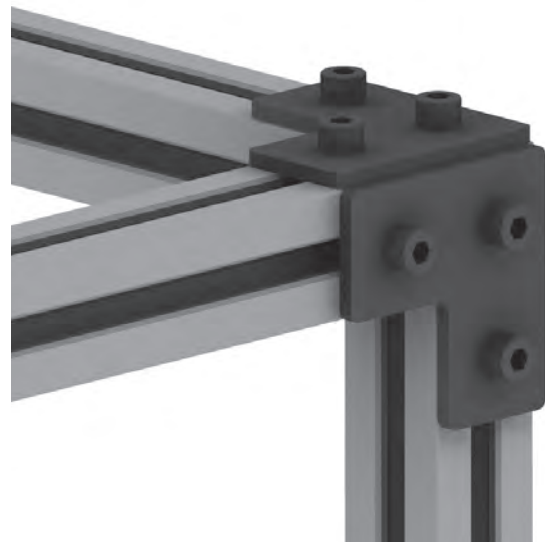
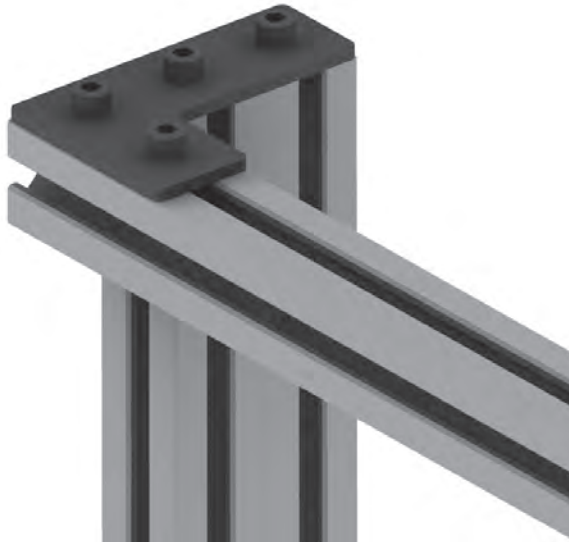
Application examples SVB



Application examples VBG



Application examples VBL



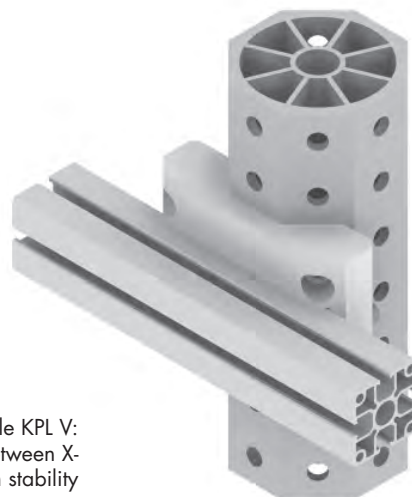
Application examples VBW 0-90° and 45°



Application examples adaption / KPL EU and KPL V EU



Application example KPL V:
form lock fixing between X-
and Europrofile form stability



000
Quick Change
System

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

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Vacuum Cups

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Vacuum
Cups-Special

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610
Nipper Blades

700
Special
Elements

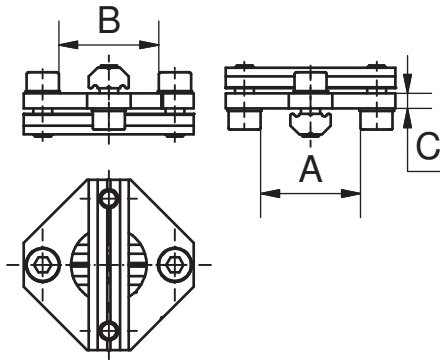
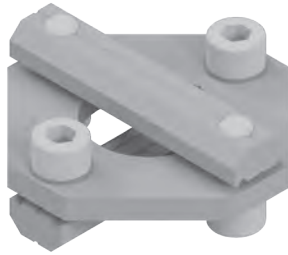
800
Electric and
Sensors

850
Pneumatic

990
Other
PA-Forming

120 | Profile Connectors

KPL F / Cross Joint Connector Flat

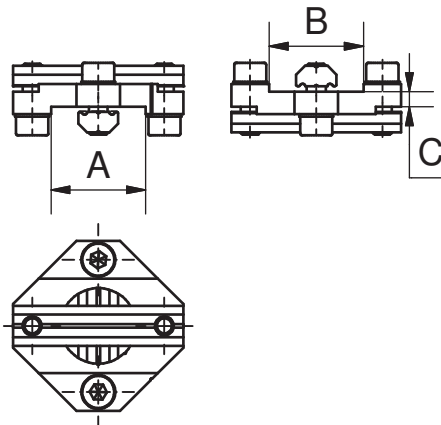
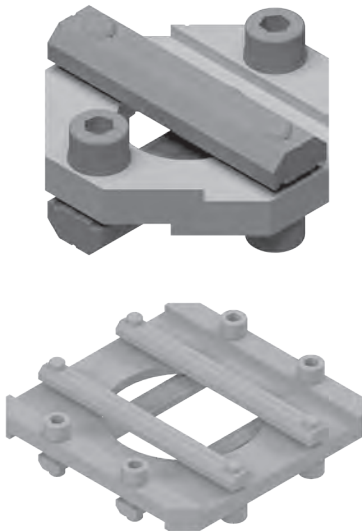


Remarks:

- ▶ **Application:** connects profiles in 90° to each other
- flat design
- no leading edges (no positive locking)
- no drilling necessary
- after loosening two screws profile can be moved in one direction, after loosening all four screws profiles can be moved in both

Part No.	Description	A [mm]	B [mm]	C [mm]	Material	Weight [g]
1-120-50-00	KPL L 18-18 F	18	18	3	Aluminium	35
1-120-60-00	KPL X 25-25 F	25	25	4	Aluminium	57

KPL / Cross Joint Connector



Remarks:

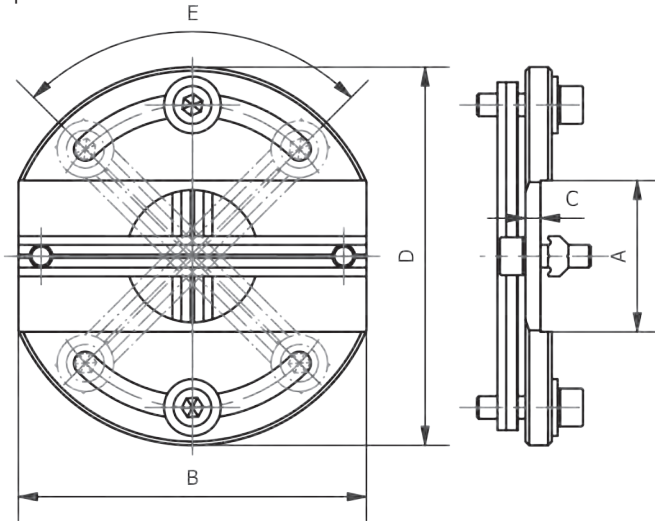
- ▶ **Application:** connects profiles in 90° to each other
- with leading edges (positive locking)
- no drilling necessary
- after loosening two screws profile can be moved in one direction, after loosening all four screws profiles can be moved in both

Part No.	Description	A [mm]	B [mm]	C [mm]	Material	Weight [g]
1-120-55-00	KPL L 18-18	18	18	3	Aluminium	38
1-120-57-00	KPL X25-L18	25	18	4	Aluminium	63
1-120-65-00	KPL X 25-25	25	25	4	Aluminium	61
1-120-70-00	KPL X 50-25	50	25	4	Aluminium	99
1-120-75-00	KPL X 50-50	50	50	4	Aluminium	180
1-120-76-00	KPL JU40-X25	40	25	4	Aluminium	117
1-120-80-00	KPL K 40-40	40	40	4	Aluminium	130
1-120-82-00	KPL JU 40-40	40	40	4	Aluminium	110
1-120-83-00	KPL JU80-X25	80	25	4	Aluminium	163
1-120-85-00	KPL K 80-40	80	40	4	Aluminium	219
1-120-87-00	KPL JU 80-40	80	40	4	Aluminium	184
1-120-90-00	KPL K 80-80	80	80	4	Aluminium	352
1-120-93-00	KPL JU 80-80	80	80	4	Aluminium	299
1-120-95-00	KPL JU80-X50	80	50	4	Aluminium	229
1-120-98-00	KPL JU40-X50	40	50	4	Aluminium	151

KPL D / Cross Joint Connector, form-locking, swiveling

Remarks:

- **Application:** connects profiles steplessly +/- 90° to each other
- profile is connected on one side with positive locking
- opposite side +/- 90° steplessly adjustable

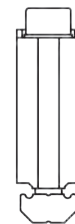
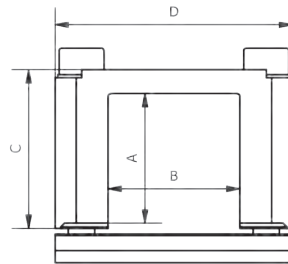


Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [°]	Material	Weight [g]
1-120-45-00	KPL D JU 40	40	92	4	100	90	Aluminium	194

KBV / Square Joint Connector

Remarks:

- **Application:** connects profiles in 90° to each other
- no drilling necessary
- after loosening two screws profiles can be moved in all directions



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	Material	Weight [g]
1-120-05-00	KBV L 10-18	9.5	18	15	32	Aluminium	23
1-120-10-00	KBV L 18-18	17.5	18	23	32	Aluminium	27
1-120-13-00	KBV X 10-25	9.5	25	15	45	Aluminium	34
1-120-14-00	KBV X 18-25	17.5	25	23	45	Aluminium	40
1-120-15-00	KBV X 25-25	24.5	25	30	45	Aluminium	46
1-120-20-00	KBV X 50-25	49.5	25	55	45	Aluminium	65
1-120-25-00	KBV X 25-50	24.5	50	30	70	Aluminium	59
1-120-30-00	KBV K 40-40	39.5	40	48.5	60	Aluminium	97
1-120-35-00	KBV K 40-80	39.5	80	50	100	Aluminium	136
1-120-32-00	KBV JU 40-40	39.5	40	50	60	Aluminium	88
1-120-37-00	KBV JU 40-80	39.5	80	50	100	Aluminium	118
1-120-40-00	KBV K 80-40	79.5	40	90	60	Aluminium	138
1-120-42-00	KBV JU 80-40	79.5	40	90	60	Aluminium	132

000 Quick Change System

050 Profile-Channel Nut

100 Clamps

115 Tubular Clamps

120 Profile Connectors

190 Accessories-Profile

200 Vacuum Cup-Connectors

220 Vacuum Cups

224 Vacuum Cups-Special

230 Manifold

290 Adapter

300 Gripper Arms

400 Grippers

450 Gripper Fingers

600 Nipper Bodies

610 Nipper Blades

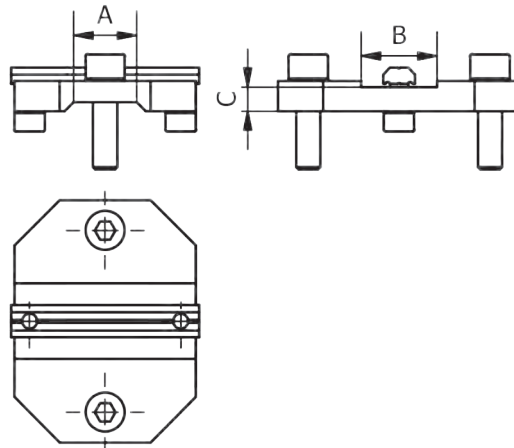
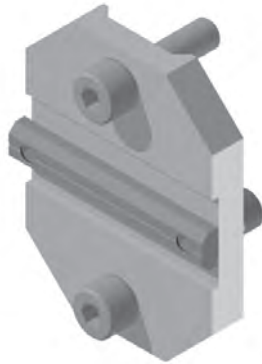
700 Special Elements

800 Electric and Sensors

850 Pneumatic

990 Other PA-Forming

KPL / Cross Joint Connector X/JU to Europrofile



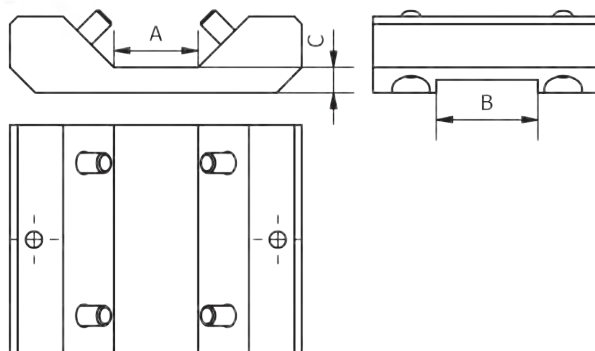
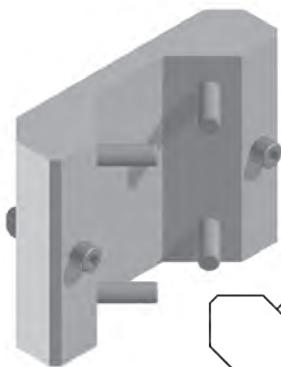
Remarks:

► **Application: Clamp for combining X profile with Euro profile for small, light parts i.e. sensors**

- no drilling required
- easy to use
- form locking for X- and Euro-profiles
- enhances the capabilities of both profiles
- » bushing for Europrofil has to be added by customer

Part No.	Description	A [mm]	B [mm]	C [mm]	X System	Euro System	Screws	Material	Weight [g]
9-07-120-065-0	KPL X25-EU50	21	25	8	X 25	EU 50	2	Aluminium	135
9-07-120-082-0	KPL JU40-EU80	33	40	8	JU 40	EU 80	2	Aluminium	237

KPL V / Cross Joint Connector X/JU to Europrofile, Strong Version



Remarks:

► **Application: Clamp for combining X profile with Euro profile securely and safely by opposing screw**

- no drilling required
- easy to use
- enhanced connectivity with 4 screw connections
- form locking for X- and Euro-profiles
- enhances the capabilities of both profiles
- » bushing for Europrofil has to be added by customer

Part No.	Description	A [mm]	B [mm]	C [mm]	X System	Euro System	Screws	Material	Weight [g]
9-07-120-090-0	KPL V EU50-X25	21	25	10	X 25	EU 50	4	Aluminium	485
9-07-120-092-0	KPL V EU50-JU40	21	40	10	JU 40	EU 50	4	Aluminium	285
9-07-120-088-0	KPL V EU80-JU40	33	40	10	JU 40	EU 80	4	Aluminium	525

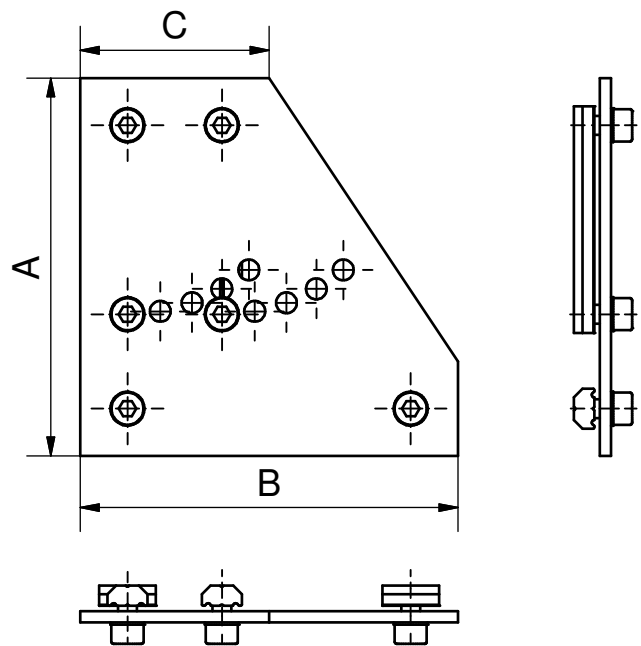
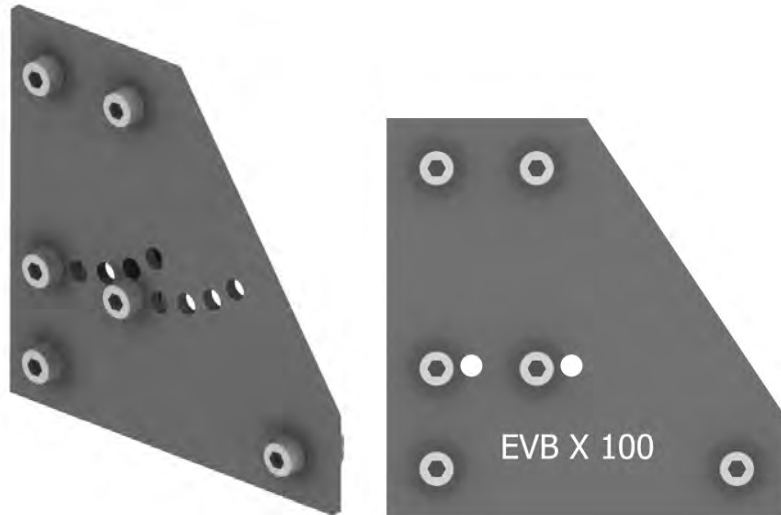
EVB / Corner Joint Plate

Remarks:

- ▶ **Application:** allows to connect profiles in angles of 90° / 100° / 110° / 120° or 130°
- exception: EVB X 100 allows 90° or 100° connections
- no need for additional work like drilling or thread cutting
- stable connection to expose profiles at an angle
- » see application examples

Scope of delivery:

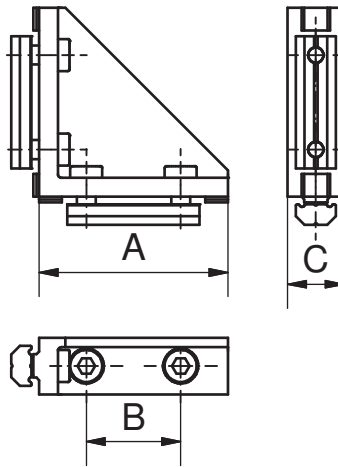
- screws and channel nuts included



Part No.	Description	A [mm]	B [mm]	C [mm]	Material	Weight [g]
1-121-85-00	EVB X 75	100	75	25	Aluminium	99
1-121-90-00	EVB X 100	100	100	50	Aluminium	136
1-121-97-00	EVB JU 100	100	80	40	Aluminium	127
1-121-95-00	EVB K 100	100	80	40	Aluminium	130

120 | Profile Connectors

WIV / Corner Reinforcement Connector 90°

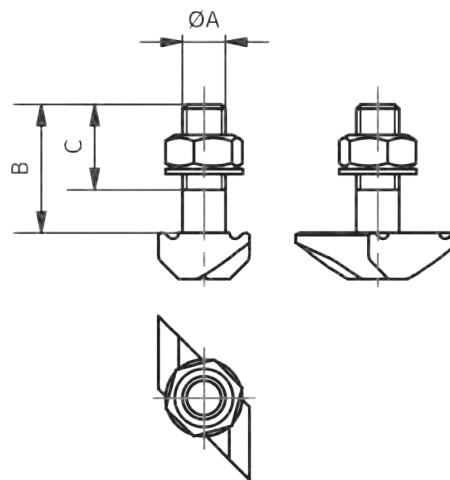


Remarks:

- ▶ **Application:** reinforces profile connections in 90°
- no need for additional works such as drilling or thread cutting
- » different models for X-, JU- and K-System, see product name

Part No.	Description	A [mm]	B [mm]	C [mm]	Material	Weight [g]
1-121-66-00	WIV X 25	25		15	Zinc-die-casting	41
1-121-71-00	WIV X 50	50	25	15	Zinc-die-casting	97
1-121-77-00	WIV JU 40	40		40	Zinc-die-casting	120
1-121-82-00	WIV JU 80	80	40	40	Zinc-die-casting	389
1-121-75-00	WIV K 40	40		40	Zinc-die-casting	146
1-121-80-00	WIV K 80	80	40	40	Zinc-die-casting	407

HKS / Removable Channel Bolt



Remarks:

- ▶ **Application:** for later insertion into the L, X and JU systems
- ideal for profiles whose front ends are already built
- packing unit: 10 pieces
- » not compatible with the K-system

Part No.	Description	A [mm]	B [mm]	C [mm]	Weight [g]
1-121-05-00	HKS X 5-15	M5	15	10	5
1-121-10-00	HKS X 5-62	M5	62	52	11

UVV / Universal Joint Connector, adjustable

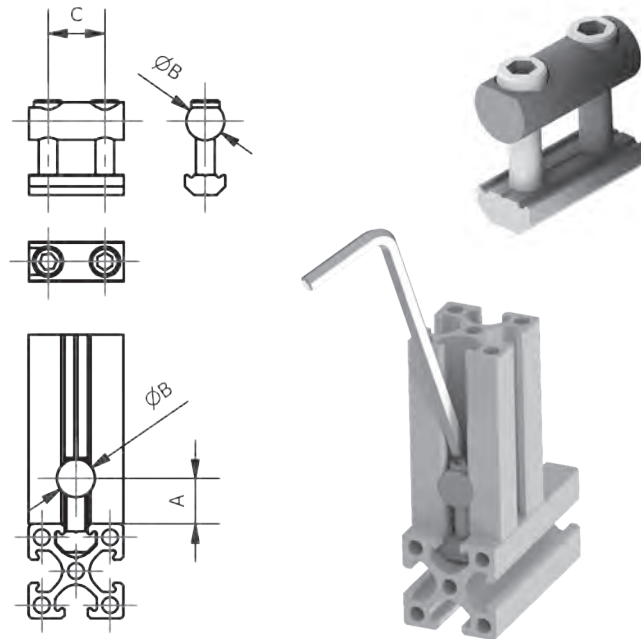
Remarks:

► **Application: for butt connecting profiles**

- one profile must be drilled
- can be postponed
- see drilling pattern

Accessories e.g.:

- Step Drill STB



Part No.	Description	A [mm]	B [mm]	C [mm]	Weight [g]
1-121-15-00-1	UVV X 25	12	10	15	20
1-121-20-00-1	UVV X 50	12	10	40	35

UVF / Universal Joint Connector, fixed

Remarks:

► **Application: for connecting profiles**

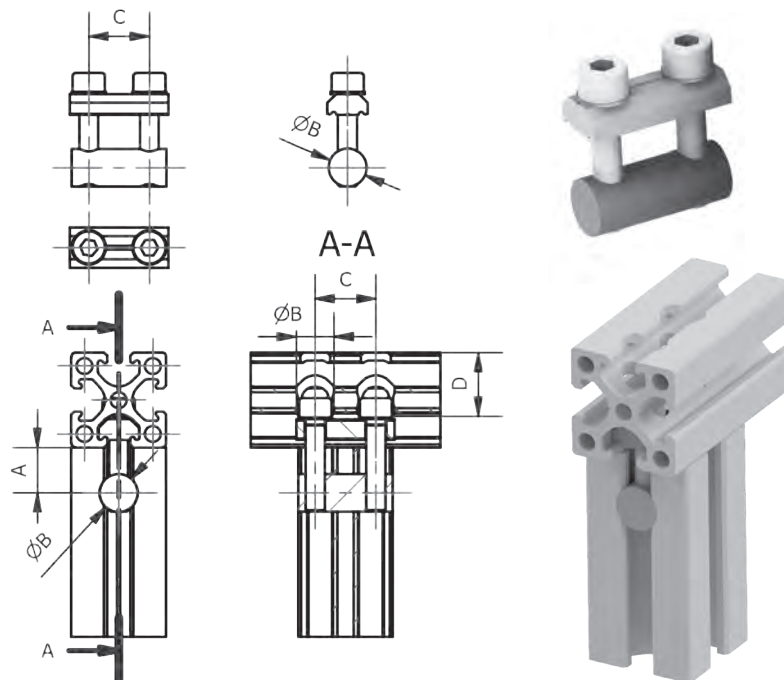
- both profiles must be drilled
- can not be moved anymore
- » see drilling pattern

Drawing:

D hole depth

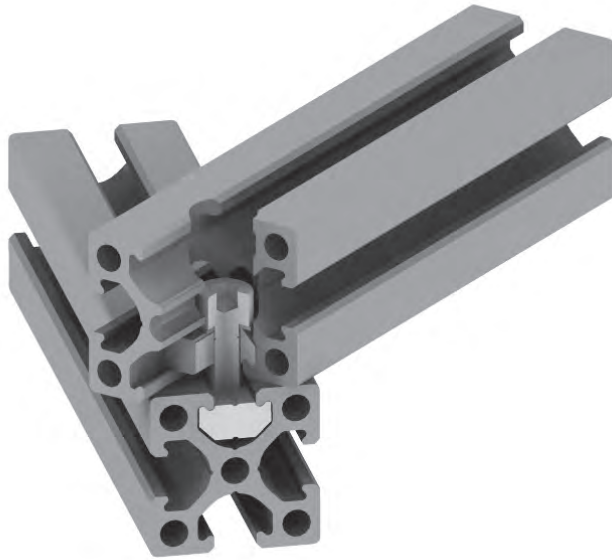
Accessories e.g.:

- Step Drill STB



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	Weight [g]
1-121-25-00	UVF X 25	12	10	16	21	22
1-121-30-00	UVF X 50	12	10	41	46	26

KV / Clinch Nut

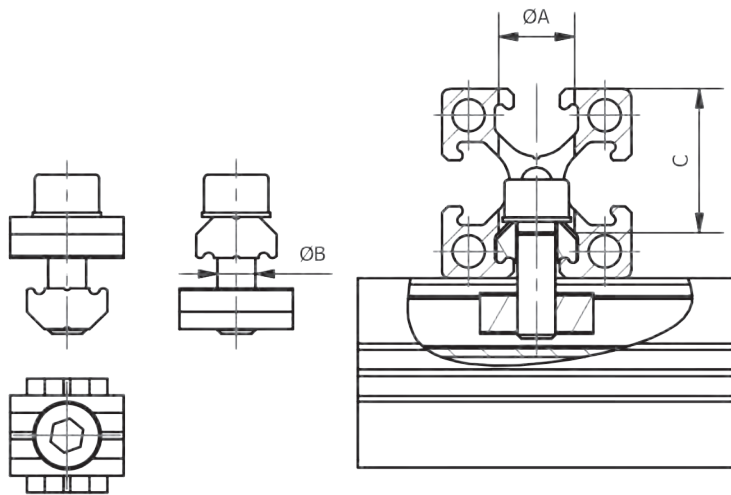


Remarks:

- ▶ **Application:** Profiles can be screwed at a 90 ° angle or at any other angle
- one profile must be drilled (Ø A, depth C)
- packing unit: 10 pieces
 - » KV L 4 S
 - “S”= counter sunk screw M4x8 for L-profile 18x10 mm

Accessories e.g.:

- Step Drill STB



Part No.	Description	A [mm]	B [mm]	C [mm]	Connection	Weight [g]	Sold in pc.
1-121-35-00	KV L 4 S	8	M 4	10/90°	L18/10 on L or X Profile	6	10
1-121-40-00	KV L 4	8 (STB M4)	M 4	13.5	L 18/18 Profil on L or X Profile	12	10
1-121-45-00	KV X 5	10 (STB M5)	M 5	21	X Profile on X or JU Profile	14	10
1-121-47-00	KV JU 6	11 (STB M6)	M 6	33	JU Profile on JU Profile	17	10
1-121-50-00	KV K 8	15 (STB M8)	M 8	33	K Profile on K-Profile	26	10

SV / Butt Connector

Remarks:

- ▶ **Application: for connecting profiles**
- packing unit: 10 pieces
- » one profile must be drilled
- » in the other profile a thread must be cut frontally
- » see table
- » Butt Connector SV K is non-rotating by form locking

Drawing:

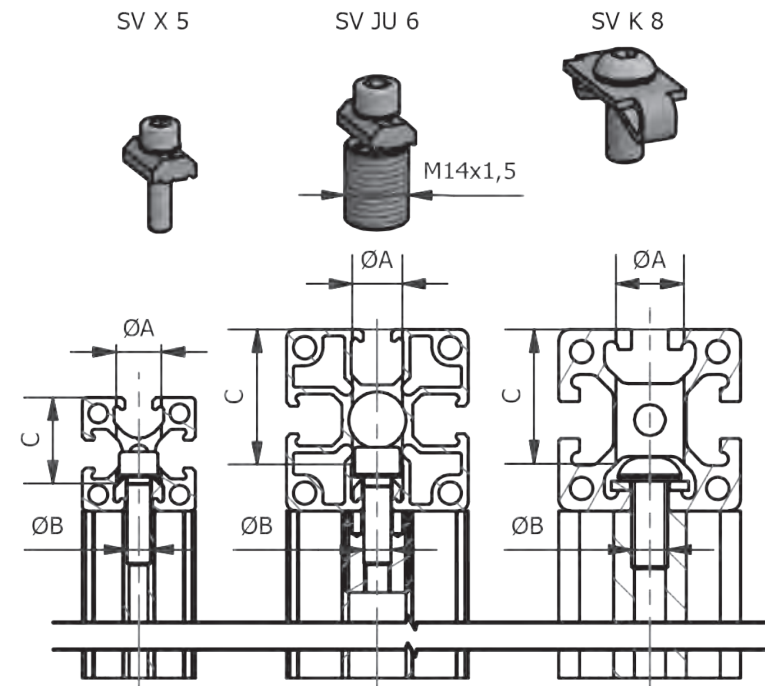
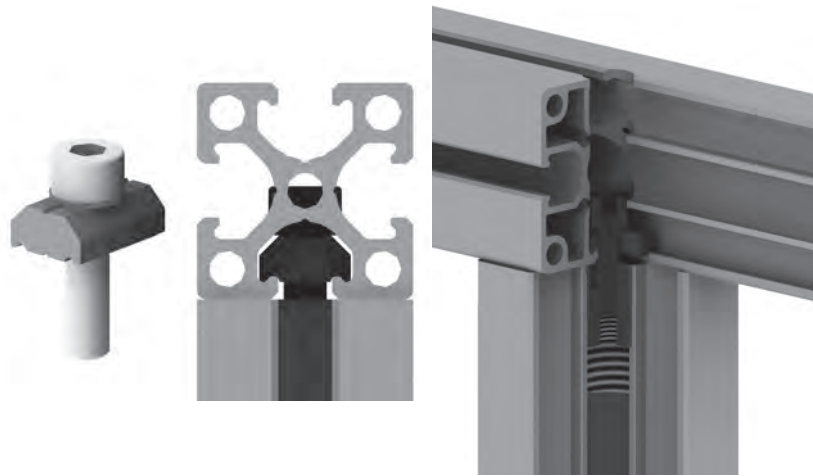
- A bore diameter
- B thread
- C drill depth

Scope of delivery:

- SV-JU 6: there is a additional thread insert included

Accessories e.g.:

- Step Drill STB
- Tap Drill GB



Part No.	Description	B [mm]	C [mm]	A [mm]	Accessories	Weight [g]	Sold in pc.
1-121-55-00	SV X 5	M 5	21	10	STB M5	9	10
1-121-57-00	SV JU 6	M 6	33	11	STB M6	26	10
1-121-60-00	SV K 8	M 8	33	15	STB M8	20	10

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

120 | Profile Connectors

EPL / End Plate for Profiles



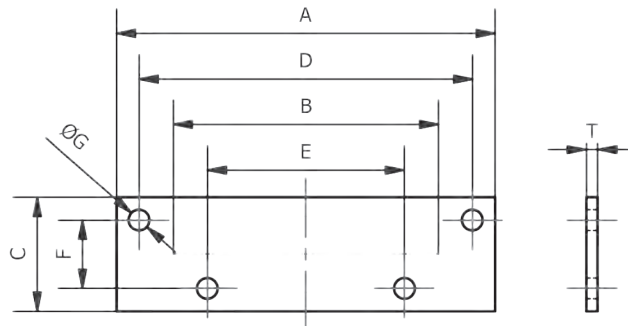
Remarks:

► **Application: for connecting profiles**

- two frontally aligned profiles can terminate with the EPL in a stable connection
- two threads have to be cut for each profile

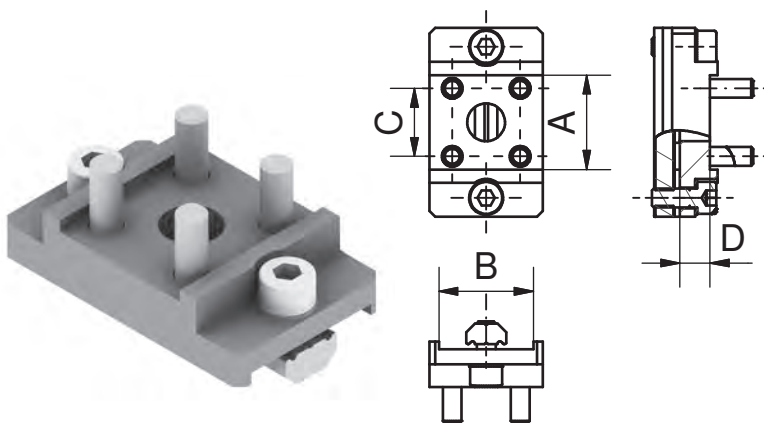
Drawing:

B profile center distance (suitable for all GPM)



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	T [mm]	for profile	compatible with	Material	Weight [g]
1-122-81-00	EPL X 1-25-25	100	70	30	88	52	18	5.5	3	X 25-25	GPM 1 X	Aluminium	22
1-122-83-00	EPL X 1-50-25	95	70	50	70	70	25	5.5	3	X 50-25	GPM 1 X	Aluminium	37
1-122-85-00	EPL X 2-25-25	150	120	30	138	102	18	5.5	3	X 25-25	GPM 2 X	Aluminium	36
1-122-87-00	EPL X 2-50-25	145	120	50	120	120	25	5.5	3	X 50-25	GPM 2 X	Aluminium	57
1-122-89-00	EPL X 3-25-25	230	200	30	218	182	18	5.5	3	X 25-25	GPM 3 X	Aluminium	55
1-122-91-00	EPL X 3-50-25	225	200	50	200	200	25	5.5	3	X 50-25	GPM 3 X	Aluminium	86
1-122-94-00	EPL JU 3-40-40	245	200	45	232	168	32	6.6	5	JU 40-40	GPM 3 JU	Aluminium	142
1-122-96-00	EPL JU 3-80-40	245	200	85	232	168	72	6.6	5	JU 80-40	GPM 3 JU	Aluminium	271

SVB / Butt Connector SVB X 25-25



Remarks:

► **Application: for connecting profiles in 90°**

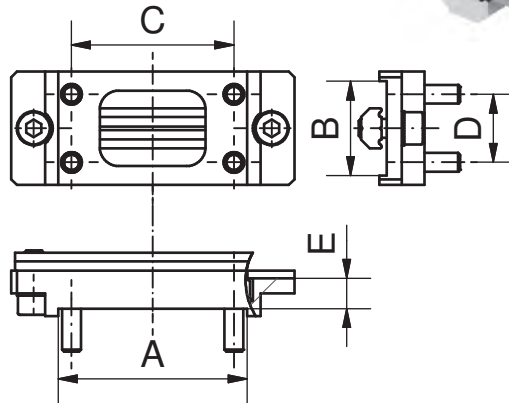
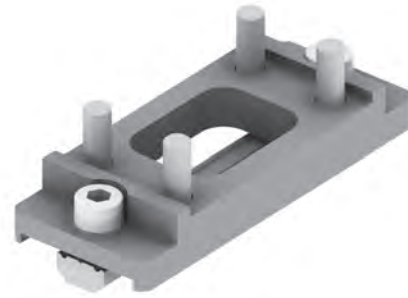
- four M5 threads have to be cut in the profile
- butt connector is screwed to the front side of the profile to be connected, this unit is screwed into the groove of the other profile and can be adjusted
- » see application examples

Part No.	Description	Dimension	Dimension	A [mm]	B [mm]	C [mm]	D [mm]	Material	Weight [g]
1-122-05-00	SVB X 25-25	X 25-25	X25-25 or X50-25	25	25	18	8	Aluminium	61

SVB / Butt Connector SVB X 25-50-25

Remarks:

- **Application: for connecting profiles in 90°**
- four M5 threads have to be cut in the profile
- butt connector is screwed to the front side of the profile to be connected, this unit is screwed into the groove of the other profile and can be adjusted
- » see application examples

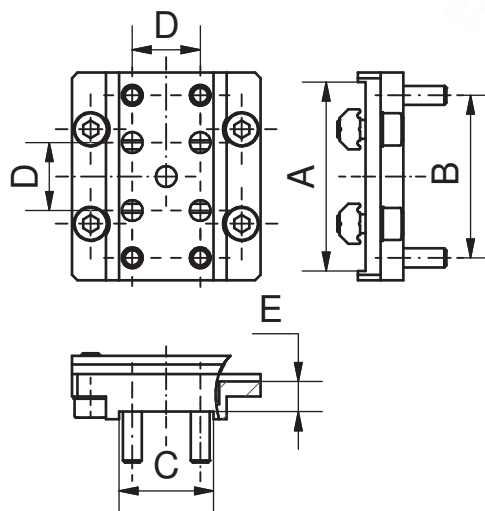


Part No.	Description	Measure A/C/D for profile	Measure B for profile	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Material	Weight [g]
1-122-10-00	SVB X 25-50-25	X 50-25	X 25-25 or X 50-25	50	25	43	18	8	Al	76

SVB / Butt Connector SVB X 50-25-U

Remarks:

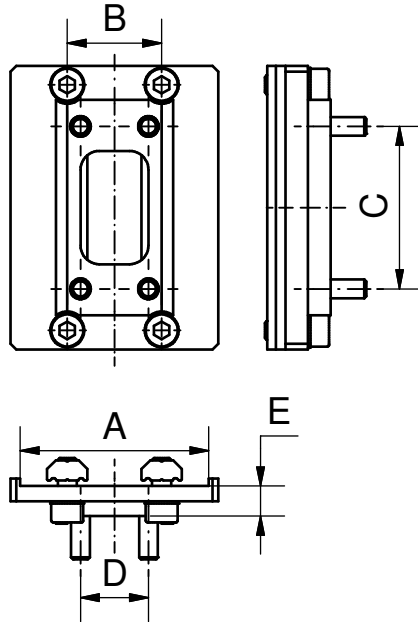
- **Application: for connecting profiles in 90°**
- four M5 threads have to be cut in the profile
- butt connector is screwed to the front side of the profile to be connected, this unit is screwed into the groove of the other profile and can be adjusted
- » see application examples



Part No.	Description	Dimension	Dimension	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Material	Weight [g]
1-122-15-00	SVB X 50-25-U	X 50-25	X 25-25	50	43	25	18	8	Aluminium	110

120 | Profile Connectors

SVB / Butt Connector SVB X 50-25-50-25



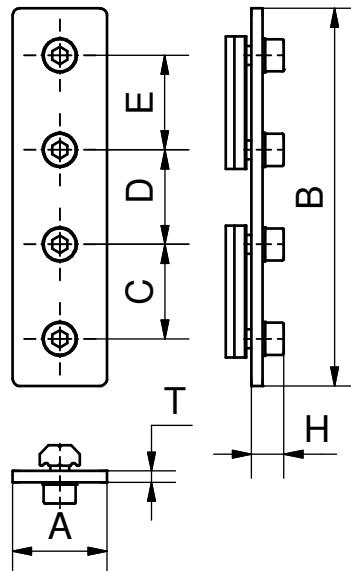
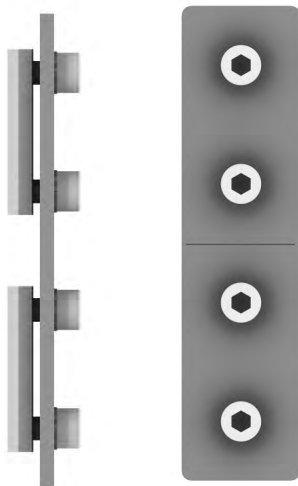
Remarks:

► **Application: for connecting profiles in 90°**

- four M5 threads have to be cut in the profile
- butt connector is screwed to the front side of the profile to be connected, this unit is screwed into the groove of the other profile and can be adjusted
- » see application examples

Part No.	Description	Dimension	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Material	Weight [g]
1-122-20-00	SVB X 50-25-50-25	X 50-25	50	25	43	18	8	Aluminium	131

VBG / Straight Support Joint Connector



Remarks:

► **Application: for connecting profiles**

- no drilling or tapping required
- with centered mark for customized separation into two halved VBG, see table

Scope of delivery:

- VBG X 25-50 and VBG X 25-75 with 1 channel nut
- other sizes with 2 channel nuts

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	H [mm]	T [mm]	with centering mark	Material	Weight [g]
1-122-25-00	VBG X 25-50	25	50	25			8.6	3		Aluminium	28
1-122-30-00	VBG X 25-75	25	75	25	25		8.6	3		Aluminium	44
1-122-35-00	VBG X 25-100	25	100	25	25	25	8.6	3	x	Aluminium	55
1-122-42-00	VBG JU 40-160	40	160	40	40	40	9.7	3	x	Steel/Zinc ctd.	208
1-122-40-00	VBG K 40-160	40	160	40	40	40	11.8	3	x	Steel/Zinc ctd.	239

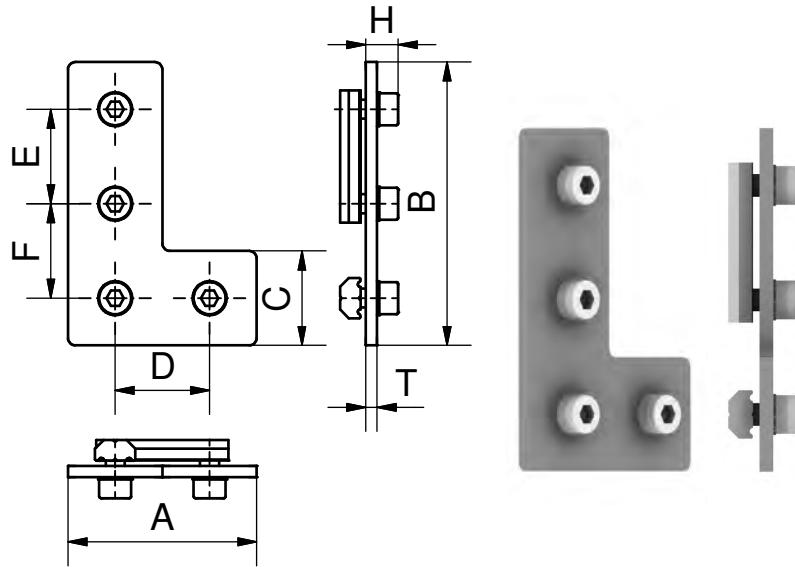
VBL / L-style Support Joint Connector

Remarks:

- **Application: for connecting profiles**
- no drilling or tapping required

Scope of delivery:

- 2 channel nuts included



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	H [mm]	T [mm]	Material	Weight [g]
1-122-45-00	VBL X 50-50	50	50	25	25		25	8.6	3	Aluminium	42
1-122-50-00	VBL X 50-75	50	75	25	25	25	25	8.6	3	Aluminium	56
1-122-57-00	VBL JU 80-120	80	120	40	40	40	40	9.7	3	Steel/Zinc ctd.	205
1-122-55-00	VBL K 80-120	80	120	40	40	40	40	11.8	3	Steel/Zinc ctd.	241

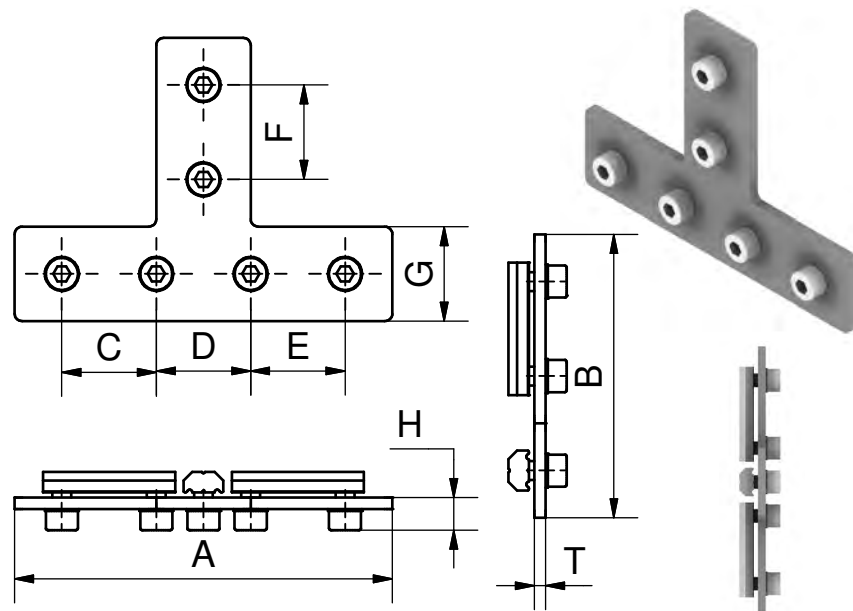
VBT / T-Style Support Joint Connector

Remarks:

- **Application: for connecting profiles**
- no drilling or tapping required

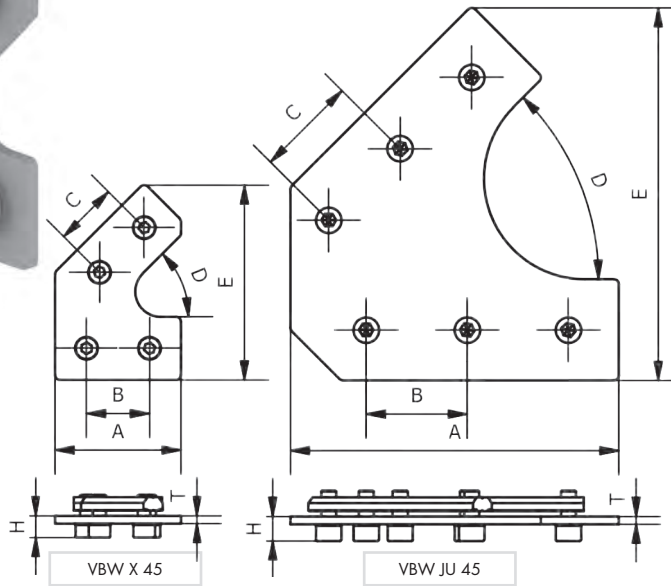
Scope of delivery:

- 3 channel nuts included



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	T [mm]	Material	Weight [g]
1-122-60-00	VBT X 50-75	50	75		25	25	25	25	8.6	3	Aluminium	56
1-122-65-00	VBT X 100-75	100	75	25	25	25	25	25	8.6	3	Aluminium	83
1-122-72-00	VBT JU 120-120	120	120	40		40	40	40	9.7	3	Steel/Zinc ctd.	262
1-122-70-00	VBT K 120-120	120	120	40		40	40	40	11.8	3	Steel/Zinc ctd.	313

VBW 45 / 45 Degree Support Joint Connector



Remarks:

► **Application:** for connecting profiles in 45°

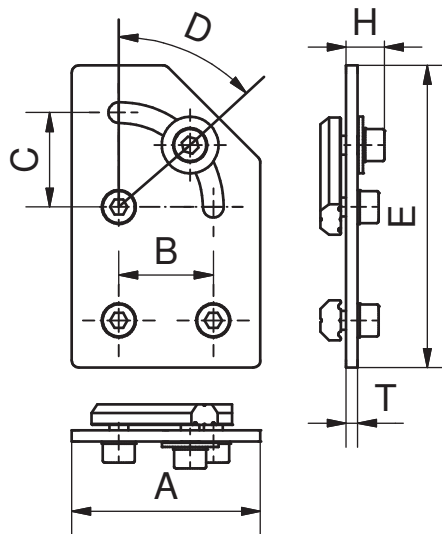
- no drilling or tapping required
- no miter cut required

Scope of delivery:

- 2 channel nuts included

Part No.	Description	A [mm]	B [mm]	C [mm]	D [°]	E [mm]	H [mm]	T [mm]	Material	Weight [g]
1-122-75-00	VBW X 45	50	25	25	45	77	8,6	3	Aluminium	58
1-122-76-00	VBW JU 45	130	40	40	45	147	9,7	3	Steel/Zinc ctd.	363

VBW 0-90 / Adjustable Support Joint Connector



Remarks:

► **Application:** for connecting profiles adjustable in 0-90°

- angle adjustable from 0-90°
- no drilling or tapping required
- no miter cut required

Scope of delivery:

- 2 channel nuts included

Part No.	Description	A [mm]	B [mm]	C [mm]	D [°]	E [mm]	H [mm]	T [mm]	Material	Weight [g]
1-122-80-00	VBW X 0-90	50	25	25	0-90	80	10	3	Aluminium	65

VBW 120 / 120 Degree Support Joint Connector

Remarks:

- ▶ **Application: for connecting profiles adjustable in 120°**
- no drilling or tapping required
- no miter cut required

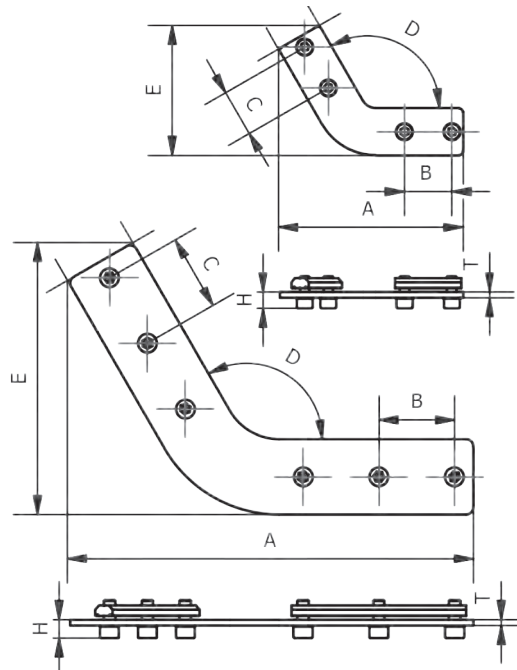
Scope of delivery:

- 2 channel nuts included



VBW X 120

VBW JU 120



Part No.	Description	A [mm]	B [mm]	C [mm]	D [°]	E [mm]	H [mm]	T [mm]	Material	Weight [g]
1-122-77-00	VBW X 120	98	25	25	120	69	9	3	Aluminium	57
1-122-78-00	VBW JU 120	215	40	40	120	144	10	3	Stahl	320

000 Quick Change System

050 Profile-Channel Nut

100 Clamps

115 Tubular Clamps

120 Profile Connectors

190 Accessories-Profile

200 Vacuum Cup-Connectors

220 Vacuum Cups

224 Vacuum Cups-Special

230 Manifold

290 Adapter

300 Gripper Arms

400 Grippers

450 Gripper Fingers

600 Nipper Bodies

610 Nipper Blades

700 Special Elements

800 Electric and Sensors

850 Pneumatic

990 Other PA-Forming

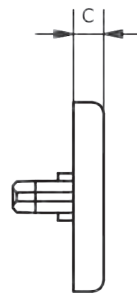
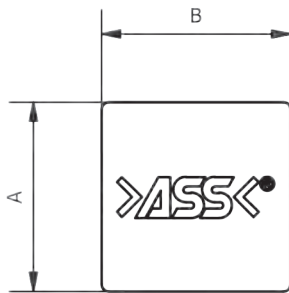
Application example STB



Application example ADK



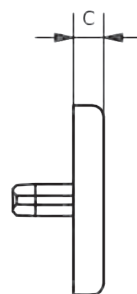
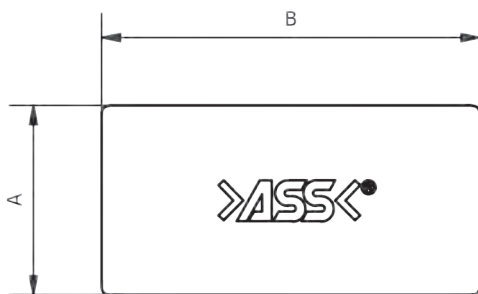
ADK / Profile End Caps



Remarks:

► **Application: for closing profile ends**

- Holes for receiving the profile caps should be deburred
- Cover caps are simply opened with a rubber hammer

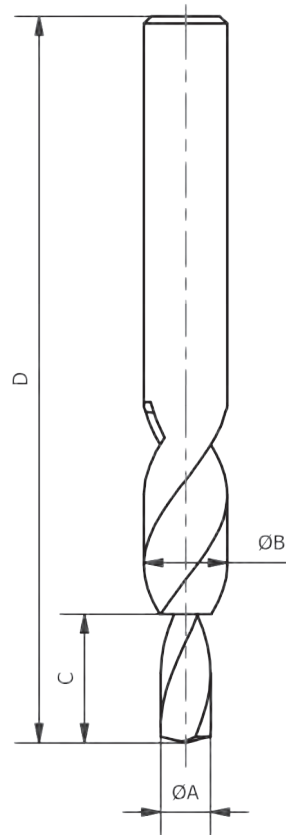


Part No.	Description	for profile	A [mm]	B [mm]	C [mm]	Weight [g]	Material
1-190-20-00	ADK L 18-10	L 18-10	18	10	4	1	ABS
1-190-22-00	ADK L 18-18	L 18-18	18	18	4	2	ABS
1-190-23-00	ADK X 25-10	X 25-10	25	10	4	1	ABS
1-190-24-00	ADK X 25-18	X 25-18	25	18	4	2	ABS
1-190-25-00	ADK X 25-25	X 25-25	25	25	4	2	ABS
1-190-30-00	ADK X 50-25	X 50-25	25	50	4	4	ABS
1-190-37-00	ADK JU 40-40	JU 40-40	40	40	4	5	ABS
1-190-42-00	ADK JU 80-40	JU 80-40	40	80	4	10	ABS
1-190-35-00	ADK 40-40 K	K 40-40	40	40	4	6	ABS
1-190-40-00	ADK 80-40 K	K 80-40	40	80	4	10	ABS
1-190-45-00	ADK 80-80 K	K 80-80	80	80	4	19	ABS

STB / Step Drill

Remarks:

- ▶ **Application: to screw components directly to profiles**
- for use with e.g.:
 - Universal Connector UVV
 - Universal Joint Connector UVF
 - Cross Connector KV
 - Butt Connector SV



Part No.	Description	for profile	A [mm]	B [mm]	C [mm]	D [mm]
1-190-80-00	STB M 4	L	4.5	8	12	77.5
1-190-82-00	STB M 5	X	5.5	10	15	89.0
1-190-84-00	STB M 6	JU	6.5	11	16.5	95.5
1-190-88-00	STB M 8	K	9	15	21	111.5

GB / Tap Drill

Remarks:

- ▶ **Application: to screw components directly to profiles**
- hand tap with cut
- cutter M14x1,5 (fine thread)



Part No.	Description	Accessory for
1-190-90-00	GB M14x1.5	SV JU 6

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special Elements

800
Electric and Sensors

850
Pneumatic

Application example SAS

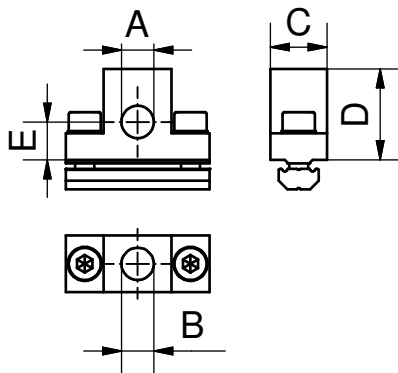
Application example WSS/WLS



Application example WSD



SAS / Vacuum Cup Connector, lateral



Remarks:

- **Application: to mount vacuum cups directly to the profile**
- suction cup connection on the side
- allows very compact EOAT design

Part No.	Description	A [mm] ["]	B [mm] ["]	C [mm]	D [mm]	E [mm]	Material	Weight [g]
1-200-70-00	SAS X 1/8-1/8	G1/8	G1/8	15	24	12	Aluminum	40
1-200-75-00	SAS X 1/4-1/8	G1/4	G1/8	15	24	10	Aluminum	39

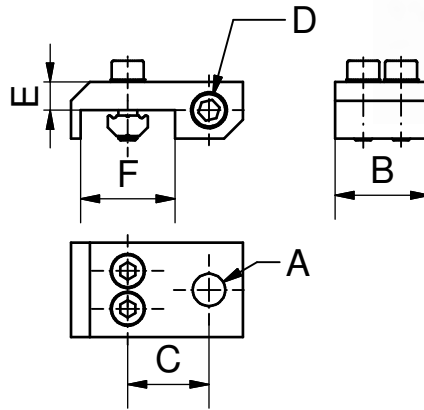
WSS / Angle Connector for Vacuum Cups

Remarks:

- **Application: to mount vacuum cups directly to the profile**
- vacuum can be connected on the left or right
- connector is form locking to profiles

Scope of delivery:

- one sealing plug included



Part No.	Description	A [mm] ["]	B [mm]	C [mm]	D [mm] ["]	E [mm]	F [mm]	Material	Weight [g]
1-200-05-00	WSS L M5-M5	M5	16	13.5	M5	4	18	Aluminum	17
1-200-10-00	WSS X 1/8-1/8	G1/8	25	21.5	G1/8	7.5	25	Aluminum	42
1-200-15-00	WSS X 1/4-1/8	G1/4	25	21.5	G1/8	7.5	25	Aluminum	40
1-200-22-00	WSS JU 1/4-1/8	G1/4	30	30	G1/8	10	40	Aluminum	83

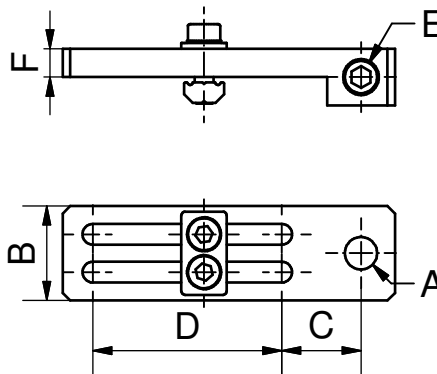
WLS / Long Angle Connector for Vacuum Cups

Remarks:

- **Application: to mount vacuum cups directly to the profile**
- vacuum can be connected on the left or right
- flexible mounting options

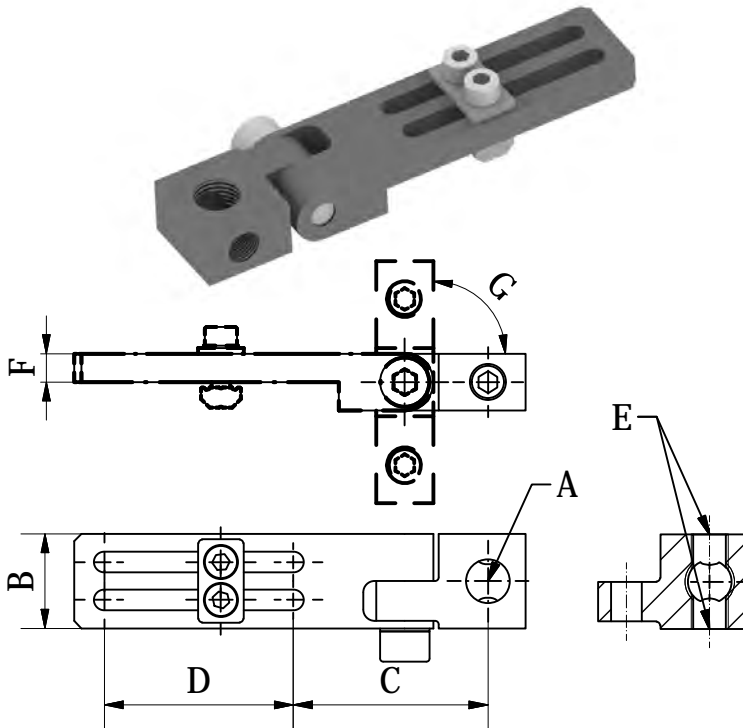
Scope of delivery:

- one sealing plug included



Part No.	Description	A [mm] ["]	B [mm]	C [mm]	D [mm]	E [mm] ["]	F [mm]	Material	Weight [g]
1-200-30-00	WLS L M5-M5-40	M5	16	14	40	M5	4	Aluminum	21
1-200-35-00	WLS X 1/8-1/8-50	G1/8	25	21	50	G1/8	7.5	Aluminum	55
1-200-40-00	WLS X 1/4-1/8-50	G1/4	25	21	50	G1/8	7.5	Aluminum	54
1-200-47-00	WLS JU 1/4-1/8-60	G1/4	30	24	60	G1/8	10	Aluminum	103

WLS GA X / Long Angle Clamp for Vacuum Cups with Swivel Head

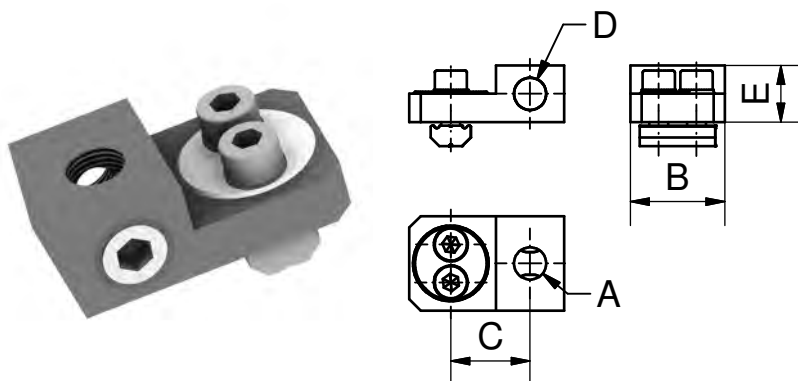


Remarks:

- **Application: to mount vacuum cups directly to the profile**
- all degrees of freedom adjustable
- compact design
- stable clamping of the swivel head
- vacuum can be connected on the left or right

Part No.	Description	A ["]	B [mm]	C [mm]	D [mm]	E ["]	F [mm]	G [°]	Weight [g]
1-200-41-00	WLS GA X 1-4-1-8-50	1/4	25	51,5	50	1/8	7,5	+/-90	95

WSD / 360° Swivel Connector for Vacuum Cups



Remarks:

- **Application: to mount vacuum cups directly to the profile**
- connector is turnable 360°
- vacuum can be connected on the left or right

Scope of delivery:

- one sealing plug included

Part No.	Description	A [mm] ["]	B [mm]	C [mm]	D [mm] ["]	E [mm]	Material	Weight [g]
1-200-55-00	WSD L M5-M5	M5	16	13	M5	10	Aluminum	18
1-200-60-00	WSD X 1/8-1/8	G1/8	25	21	G1/8	15	Aluminum	38
1-200-65-00	WSD X 1/4-1/8	G1/4	25	21	G1/8	15	Aluminum	37

Vacuum Cup properties

Vacuum Cup style recommendation:

- VS O oval vacuum cup – for of long parts
- VS 1 with 1 bellow – exact positioning
- VS 2 with 2 bellows – for uneven parts
- VS 3 with 3 bellows – for strong uneven parts

Formula to calculate the holding force:

Holding force = working area x vacuum pressure

$$F_s [N] = A [cm^2] \times P_v [N/cm^2]$$

Remarks:

- various materials in different diameters
- dimensionally stable variants and variants for curved surfaces
- each vacuum cup available with or without adapter
- exchangeable suction cups
- reusable adapters
- adapter with male and female hexagon
- for temperatures from -30° C to 200 °C
- nearly mark free (material HE)
- extra durable with high wear resistance (material PL)
- to clean the cups a commercial soap solution is recommended

Material Properties	Nitrile (N)	Silicone (S)	High Temperature Polyurethane (HE)	Polyurethane (PU)	Viton (V)
Colour	black	translucence	blue	blue	black
Wear Resistance	●●	●	●●●	●●●	●
Resistance against permanent deformation	●●	●●	●●	●	●●●
Oil resistance	●●●●	●	●●●●	●●●	●●●●
Solvent resistance	●●	●●	●●	●	●●●
General resistance to acids	●	●	●	●	●●●
Tear resistance	●●	●	●●	●●●	●●
Temperature resistance C°	-10° to +70°	-30° to +180°	-10° to +140°	-30° to + 80°	-10° to +200°
Shore Hardness DIN 53505	40 to 90	30 to 85	60 +/-5	55	65 +/-5
Non Marking characteristics	●	●●	●●●	●●	●

●●●● = Excellent ●●● = Very Good ●● = Good ● = Low to satisfactory

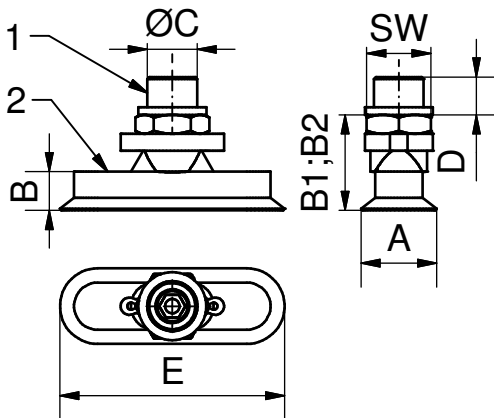
Material Data for PL Polyurethane Long Life Vacuum Cups

Material Properties	Norm	Value	Unit
Temperature		- 30 to +80	°C
Shore Hardness A	DIN 53505	78	
Tensile Strength	DIN 53504	30	N/mm ²
Tensile Elongation	DIN 53504	630	%
Tear Force	DIN 53515	750	N/cm
Abrasion Loss	DIN 53516	35	mm ³

Versions-Adapter



VS O / Vacuum Cup - oval, with Adapter



Remarks:

- ▶ **Application:** for gripping long articles
- HE = High Temperature Poly-urathane
- suction cups can be changed

Connection:

- suction cup/adapter

Scope of delivery:

- every VS is delivered with sealing ring

Holding force:

Is the theoretical value at -0.6 bar vacuum on a dry smooth and flat surface. There is no safety factor built in.

Drawing:

- 1 adapter
- 2 suction cup
- B1 normal position
- B2 compressed position

Part No.	Description	Suction cup	Adapter	Material	Operating [cm ²]	Holding force [N]	Push fit	Clamp
1-220-05-00	VS O-2x4N3	VN O-2x4	VSA 5	Nitrile	0.07	0.4	x	
1-220-06-00	VS O-2x4HE3	VN O-2x4HE	VSA 5	HE	0.07	0.4	x	
1-220-10-00	VS O-3.5x7N3	VN O-3.5x7N	VSA 5	Nitrile	0.22	1	x	
1-220-11-00	VS O-3.5x7HE3	VN O-3.5x7HE	VSA 5	HE	0.22	1	x	
1-220-15-00	VS O-5x15N5	VN O-5x15N	VSA 15	Nitrile	0.7	3.1	x	
1-220-16-00	VS O-5x15HE5	VN O-5x15HE	VSA 15	HE	0.7	3.1	x	
1-220-20-00	VS O-6x18N5	VN O-6x18N	VSA 15	Nitrile	1	4.4	x	
1-220-21-00	VS O-6x18HE5	VN O-6x18HE	VSA 15	HE	1	4.4	x	
1-220-25-00	VS O-8x24N8	VN O-8x24N	VSA 20	Nitrile	1.78	8.1		x
1-220-26-00	VS O-8x24HE8	VN O-8x24HE	VSA 20	HE	1.78	8.1		x
1-220-30-00	VS O-10x30N8	VN O-10x30N	VSA 20	Nitrile	2.79	12.3		x
1-220-31-00	VS O-10x30HE8	VN O-10x30HE	VSA 20	HE	2.79	12.3		x
1-220-35-00	VS O-15x45N4	VN O-15x45N	VSA 130	Nitrile	6.27	28.4		x
1-220-36-00	VS O-15x45HE4	VN O-15x45HE	VSA 130	HE	6.27	28.4		x
1-220-40-00	VS O-20x60N4	VN O-20x60N	VSA 130	Nitrile	11.14	50.2		x
1-220-41-00	VS O-20x60HE4	VN O-20x60HE	VSA 130	HE	11.14	50.2		x
1-220-45-00	VS O-25x75N4	VN O-25x75N	VSA 130	Nitrile	17.41	78.3		x
1-220-46-00	VS O-25x75HE4	VN O-25x75HE	VSA 130	HE	17.41	78.3		x
1-220-50-00	VS O-30x90N4	VN O-30x90N	VSA 130	Nitrile	25.07	112.9		x

VS O / Vacuum Cup - oval, with Adapter

Part No.	Description	A [mm]	E [mm]	B [mm]	B1 [mm]	B2 [mm]	C [mm]	SW [mm]	D [mm]	Weight [g]
1-220-05-00	VS O-2x4N3	2	4	6	7.8	7.5	M3	5	3	<1
1-220-06-00	VS O-2x4HE3	2	4	6	7.8	7.5	M3	5	3	3
1-220-10-00	VS O-3.5x7N3	3.5	7	6	8	7.5	M3	5	3	<1
1-220-11-00	VS O-3.5x7HE3	3.5	7	6	8	7.5	M3	5	3	<1
1-220-15-00	VS O-5x15N5	5	15	12	17	16.5	M5	8	5	2
1-220-16-00	VS O-5x15HE5	5	15	11	17	16.5	M5	8	5	2
1-220-20-00	VS O-6x18N5	6	18	12	17	16.5	M5	8	5	2
1-220-21-00	VS O-6x18HE5	6	18	11	17	16.5	M5	8	5	2
1-220-25-00	VS O-8x24N8	8	24	12	17	16.5	G1/8"	14	8	13
1-220-26-00	VS O-8x24HE8	8	24	13	17	16.5	G1/8"	14	8	13
1-220-30-00	VS O-10x30N8	10	30	12	17	16.5	G1/8"	14	8	13
1-220-31-00	VS O-10x30HE8	10	30	12	17	16.5	G1/8"	14	8	14
1-220-35-00	VS O-15x45N4	15	45	18	26	25	G1/4"	17	10	29
1-220-36-00	VS O-15x45HE4	15	45	20	26	24	G1/4"	17	10	29
1-220-40-00	VS O-20x60N4	20	60	21	26	25	G1/4"	17	10	32
1-220-41-00	VS O-20x60HE4	20	60	20	26	24	G1/4"	17	10	33
1-220-45-00	VS O-25x75N4	25	75	21	26	25	G1/4"	17	10	15
1-220-46-00	VS O-25x75HE4	25	75	21	26	24	G1/4"	17	10	41
1-220-50-00	VS O-30x90N4	30	90	21	26	25	G1/4"	17	10	49

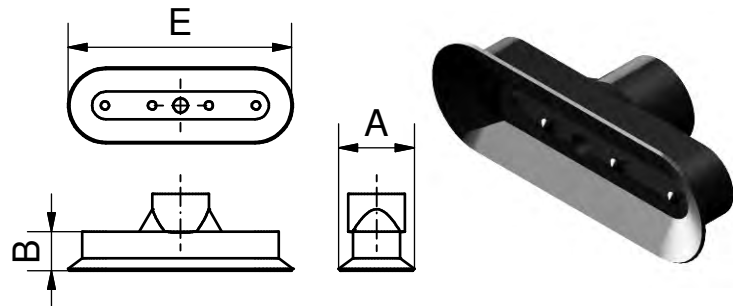
VN O / Suction Cup - oval, without Adapter

Remarks:

- with crimp connector
- for gripping long articles
- suction cup can be mounted on existing vacuum cups VS O or with adapters
- HE = High Temperature Polyurathane

Accessories e.g.:

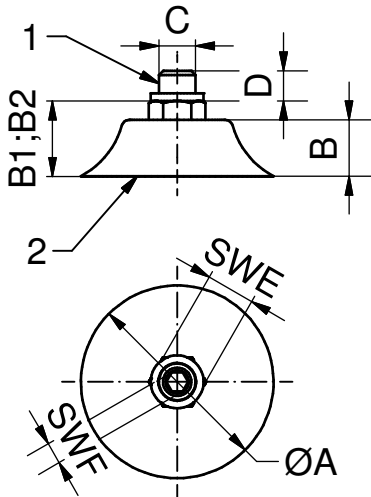
- suction cup adapter, see table and category 290



Part No.	Description	fits for Adapter	Material	A [mm]	E [mm]	B [mm]	Weight [g]
1-220-05-01	VN O-2x4N	VSA 5	Nitrile	2	4	6	<1
1-220-06-01	VN O-2x4HE	VSA 5	HE	2	4	6	<1
1-220-10-01	VN O-3.5x7N	VSA 5	Nitrile	3.5	7	6	<1
1-220-11-01	VN O-3.5x7HE	VSA 5	HE	3.5	7	6	<1
1-220-15-01	VN O-5x15N	VSA 15	Nitrile	5	15	12	<1
1-220-16-01	VN O-5x15HE	VSA 15	HE	5	15	12	<1
1-220-20-01	VN O-6x18N	VSA 15	Nitrile	6	18	12	1
1-220-21-01	VN O-6x18HE	VSA 15	HE	6	18	12	1
1-220-25-01	VN O-8x24N	VSA 20	Nitrile	8	24	12	1
1-220-26-01	VN O-8x24HE	VSA 20	HE	8	24	12	1
1-220-30-01	VN O-10x30N	VSA 20	Nitrile	10	30	12	1
1-220-31-01	VN O-10x30HE	VSA 20	HE	10	30	12	1
1-220-35-01	VN O-15x45N	VSA 130	Nitrile	15	45	18	4
1-220-36-01	VN O-15x45HE	VSA 130	HE	15	45	21	4
1-220-40-01	VN O-20x60N	VSA 130	Nitrile	20	60	21	7
1-220-41-01	VN O-20x60HE	VSA 130	HE	20	60	21	7
1-220-45-01	VN O-25x75N	VSA 130	Nitrile	25	75	21	15
1-220-46-01	VN O-25x75HE	VSA 130	HE	25	75	21	16
1-220-50-01	VN O-30x90N	VSA 130	Nitrile	30	90	21	23

220 | Vacuum Cups

VS 1 / Vacuum Cup - 1 Bellow, with Adapter



Remarks:

► **Application: for gripping even articles**

- exact positioning
- suction cup with adapter
- suction cups can be changed
- HE = High Temperature Polyurathane

Connection:

- suction cup/adapter

Scope of delivery:

- every VS is delivered with sealing ring

Holding force:

Is the theoretical value at -0.6 bar vacuum on a dry smooth and flat surface. There is no safety factor built in.

Drawing:

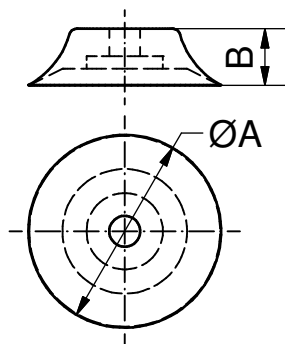
- 1 adapter
- 2 suction cup
- B1 relaxed position
- B2 compressed position
- SWE external hexagon
- SWF internal hexagon

Part No.	Description	Suction cup	Adapter
1-221-02-12	VS 1-2-N5	VN 1-2-N	VSA 10
1-221-02-22	VS 1-2-S5	VN 1-2-S	VSA 10
1-221-02-32	VS 1-2-P5	VN 1-2-P	VSA 10
1-221-03-12	VS 1-3.5-N5	VN 1-3.5-N	VSA 10
1-221-03-22	VS 1-3.5-S5	VN 1-3.5-S	VSA 10
1-221-03-32	VS 1-3.5-P5	VN 1-3.5-P	VSA 10
1-221-05-12	VS 1-5-N5	VN 1-5-N	VSA 30
1-221-05-22	VS 1-5-S5	VN 1-5-S	VSA 30
1-221-05-32	VS 1-5-P5	VN 1-5-P	VSA 30
1-221-05-82	VS 1-5-HE5	VN 1-5-HE	VSA 30
1-221-08-12	VS 1-8-N5	VN 1-8-N	VSA 30
1-221-08-22	VS 1-8-S5	VN 1-8-S	VSA 30
1-221-08-32	VS 1-8-P5	VN 1-8-P	VSA 30
1-221-08-82	VS 1-8-HE5	VN 1-8-HE	VSA 30
1-221-08-42	VS 1-8-V5	VN 1-8-V	VSA 30
1-221-10-12	VS 1-10-N5	VN 1-10-N	VSA 30
1-221-10-22	VS 1-10-S5	VN 1-10-S	VSA 30
1-221-10-32	VS 1-10-P5	VN 1-10-P	VSA 30
1-221-10-82	VS 1-10-HE5	VN 1-10-HE	VSA 30
1-221-10-42	VS 1-10-V5	VN 1-10-V	VSA 30
1-221-15-12	VS 1-15-N5	VN 1-15-N	VSA 30
1-221-15-22	VS 1-15-S5	VN 1-15-S	VSA 30
1-221-15-32	VS 1-15-P5	VN 1-15-P	VSA 30
1-221-15-82	VS 1-15-HE5	VN 1-15-HE	VSA 30
1-221-20-13	VS 1-20-N8	VN 1-20-N	VSA 50
1-221-20-23	VS 1-20-S8	VN 1-20-S	VSA 50
1-221-20-33	VS 1-20-P8	VN 1-20-P	VSA 50
1-221-20-83	VS 1-20-HE8	VN 1-20-HE	VSA 50
1-221-20-43	VS 1-20-V8	VN 1-20-V	VSA 50
1-221-25-13	VS 1-25-N8	VN 1-25-N	VSA 60
1-221-25-23	VS 1-25-S8	VN 1-25-S	VSA 60
1-221-25-33	VS 1-25-P8	VN 1-25-P8	VSA 60
1-221-25-83	VS 1-25-HE8	VN 1-25-HE	VSA 60
1-221-25-43	VS 1-25-V8	VN 1-25-V	VSA 60
1-221-30-13	VS 1-30-N8	VN 1-30-N	VSA 60
1-221-30-23	VS 1-30-S8	VN 1-30-S	VSA 60
1-221-30-33	VS 1-30-P8	VN 1-30-P	VSA 60
1-221-30-83	VS 1-30-HE8	VN 1-30-HE	VSA 60
1-221-30-43	VS 1-30-V8	VN 1-30-V	VSA 60
1-221-40-13	VS 1-40-N8	VN 1-40-N	VSA 60
1-221-40-23	VS 1-40-S8	VN 1-40-S	VSA 60
1-221-40-33	VS 1-40-P8	VN 1-40-P	VSA 60
1-221-40-83	VS 1-40-HE8	VN 1-40-HE	VSA 60
1-221-40-43	VS 1-40-V8	VN 1-40-V	VSA 60
1-221-50-13	VS 1-50-N8	VN 1-50-N	VSA 80
1-221-50-23	VS 1-50-S8	VN 1-50-S	VSA 80
1-221-50-33	VS 1-50-P8	VN 1-50-P	VSA 80
1-221-50-83	VS 1-50-HE8	VN 1-50-HE	VSA 80
1-221-50-43	VS 1-50-V8	VN 1-50-V	VSA 80
1-221-60-14	VS 1-60-N4	VN 1-60-N	VSA 110
1-221-60-24	VS 1-60-S4	VN 1-60-S	VSA 110
1-221-60-34	VS 1-60-P4	VN 1-60-P4	VSA 110
1-221-60-84	VS 1-60-HE4	VN 1-60-HE	VSA 110
1-221-80-14	VS 1-80-N4	VN 1-80-N	VSA 110
1-221-80-24	VS 1-80-S4	VN 1-80-S	VSA 110
1-221-80-34	VS 1-80-P4	VN 1-80-P	VSA 110
1-221-80-84	VS 1-80-HE4	VN 1-80-HE	VSA 110
1-221-95-14	VS 1-95-N4	VN 1-95-N	VSA 110
1-221-95-24	VS 1-95-S4	VN 1-95-S	VSA 110
1-221-95-34	VS 1-95-P4	VN 1-95-P	VSA 110

Material	Operating [cm ²]	Holding force [N]	Push fit	Tapped	A [mm]	B [mm]	B1 [mm]	B2 [mm]	C [mm] ["]	D [mm]	SWE [mm]	SWF [mm]	Weight [g]
Nitrile	0.02	0.1	x		2	4	9	8.5	M5	5	7		2
Silicone	0.02	0.1	x		2	4	9	8.5	M5	5	7		2
Polyurethane	0.02	0.1	x		2	4	9	8.5	M5	5	7		2
Nitrile	0.07	0.4	x		3.5	4	9	8.5	M5	5	7		2
Silicone	0.07	0.4	x		3.5	4	9	8.5	M5	5	7		2
Polyurethane	0.7	0.4	x		3.5	4	9	8.5	M5	5	7		2
Nitrile	0.13	0.7	x		5	6.5	11.5	11	M5	5	7	2	3
Silicone	0.13	0.7	x		5	6.5	11.5	11	M5	5	7	2	3
Polyurethane	0.13	0.7	x		5	6.5	11.5	11	M5	5	7	2	3
HE	0.13	0.7	x		5	6.5	11.5	11	M5	5	7	2	3
Nitrile	0.38	2.3	x		8	7	12	11	M5	5	7	2	3
Silicone	0.38	2.3	x		8	7	12	11	M5	5	7	2	3
Polyurethane	0.38	2.3	x		8	7	12	11	M5	5	7	2	3
HE	0.38	2.3	x		8	7	12	11	M5	5	7	2	3
Viton	0.38	2.3	x		8	7	12	11	M5	5	7	2	3
Nitrile	0.67	4	x		10	7.5	12.5	11	M5	5	7	2	3
Silicone	0.67	4	x		10	7.5	12.5	11	M5	5	7	2	3
Polyurethane	0.67	4	x		10	7.5	12.5	11	M5	5	7	2	3
HE	0.67	4	x		10	7.5	12.5	11	M5	5	7	2	3
Viton	0.67	4	x		10	7.5	12.5	11	M5	5	7	2	3
Nitrile	1.54	9.1	x		15	8	13	11.5	M5	5	7	2	3
Silicone	1.54	9.1	x		15	8	13	11.5	M5	5	7	2	3
Polyurethane	1.54	9.1	x		15	8	13	11.5	M5	5	7	2	3
HE	1.54	9.1	x		15	8	13	11.5	M5	5	7	2	3
Nitrile	2.63	15.5	x		20	10	15	13	G1/8	5	13	3	12
Silicone	2.63	15.5	x		20	10	15	13	G1/8	5	13	3	12
Polyurethane	2.63	15.5	x		20	10	15	13	G1/8	5	13	3	12
HE	2.63	15.5	x		20	10	15	13	G1/8	5	13	3	12
Viton	2.63	15.5	x		20	10	15	13	G1/8	5	13	3	13
Nitrile	4.52	26.6	x		25	14	18	16	G1/8	8	13	4	13
Silicone	4.52	26.6	x		25	14	19	16.5	G1/8	8	13	4	12
Polyurethane	4.52	26.6	x		25	14	19	16.5	G1/8	8	13	4	13
HE	4.52	26.6	x		25	14	18	16	G1/8	8	13	4	13
Viton	4.52	26.6	x		25	14	19	16.5	G1/8	8	13	4	14
Nitrile	5.73	33.7	x		30	12	17	15.5	G1/8	8	13	4	13
Silicone	5.73	33.7	x		30	12	17	15.5	G1/8	8	13	4	13
Polyurethane	5.73	33.7	x		30	12	17	15.5	G1/8	8	13	4	14
HE	5.73	33.7	x		30	12	17	15.5	G1/8	8	13	4	13
Viton	5.73	33.7	x		30	12	17	15.5	G1/8	8	13	4	16
Nitrile	9.76	57.4	x		40	14	18	15.5	G1/8	8	13	4	17
Silicone	9.76	57.4	x		40	14	18	15.5	G1/8	8	13	4	17
Polyurethane	9.76	57.4	x		40	14	18	15.5	G1/8	8	13	4	18
HE	9.76	57.4	x		40	14	18	15.5	G1/8	8	13	4	17
Viton	9.76	57.4	x		40	14	18	15.5	G1/8	8	13	4	22
Nitrile	15.55	91.5	x		50	15	20	16.5	G1/8	8	13	5	21
Silicone	15.55	91.5	x		50	15	20	16.5	G1/8	8	13	5	21
Polyurethane	15.55	91.5	x		50	15	20	16.5	G1/8	8	13	5	23
HE	15.55	91.5	x		50	15	20	16.5	G1/8	8	13	5	22
Viton	15.55	91.5	x		50	15	20	16.5	G1/8	8	13	5	29
Nitrile	21.24	125		x	60	16	23	18	G1/4	10	17	5	50
Silicone	21.24	125		x	60	16	23	18	G1/4	10	17	5	48
Polyurethane	21.24	125		x	60	16	23	18	G1/8	10	17	5	49
HE	21.24	125		x	60	16	23	18	G1/8	10	17	5	51
Nitrile	44.18	260		x	80	18	25.5	20	G1/4	10	17	5	78
Silicone	44.18	260		x	80	18	25.5	20	G1/4	10	17	5	75
Polyurethane	17.7	260		x	80	18	25.5	20	G1/4	10	17	5	76
HE	44.18	260		x	80	18	25.5	20	G1/4	10	17	5	78
Nitrile	59.45	349.9		x	95	19	26.5	21.5	G1/4	10	17	5	118
Silicone	59.45	349.9		x	95	19	26.5	21.5	G1/4	10	17	5	116
Polyurethane	59.45	349.9		x	95	19	26.5	21.5	G1/4	10	17	5	116

All dimensions of vacuum cups and suction cups are normal values.

VN 1 / Suction Cup - 1 Bellow, without Adapter



Remarks:

- for gripping even articles
- suction cup can be mounted on existing vacuum cups VS 1 or with adapters
- HE = High Temperature Polyurethane
- PU = Polyurethane
- * = M10 connection

Accessories e.g.:

- suction cup adapter, see table and category 290

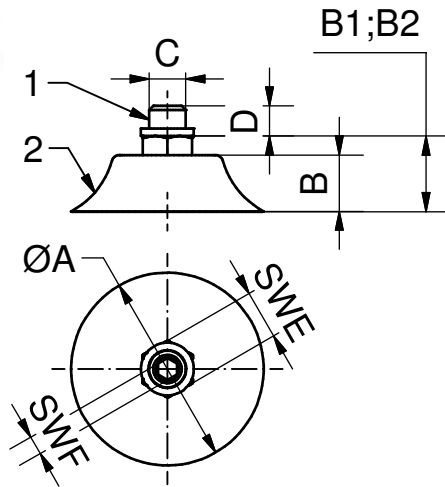
Part No.	Description	fits for Adapter	Material	A [mm]	B [mm]	Weight [g]
1-221-02-10	VN 1-2-N	VSA 10	Nitrile	2	4	<1
1-221-02-20	VN 1-2-S	VSA 10	Silicone	2	4	<1
1-221-02-30	VN 1-2-P	VSA 10	PU	2	4	<1
1-221-03-10	VN 1-3.5-N	VSA 10	Nitrile	3.5	4	<1
1-221-03-20	VN 1-3.5-S	VSA 10	Silicone	3.5	4	<1
1-221-03-30	VN 1-3.5-P	VSA 10	PU	3.5	4	<1
1-221-05-10	VN 1-5-N	VSA 30	Nitrile	5	6.5	<1
1-221-05-20	VN 1-5-S	VSA 30	Silicone	5	6.5	<1
1-221-05-80	VN 1-5-HE	VSA 30	HE	5	6.5	<1
1-221-05-30	VN 1-5-P	VSA 30	PU	5	6.5	<1
1-221-08-10	VN 1-8-N	VSA 30	Nitrile	8	7	<1
1-221-08-20	VN 1-8-S	VSA 30	Silicone	8	7	<1
1-221-08-80	VN 1-8-HE	VSA 30	HE	8	7	<1
1-221-08-40	VN 1-8-V	VSA 30	Viton	8	7	<1
1-221-08-30	VN 1-8-P	VSA 30	PU	8	7	<1
1-221-10-10	VN 1-10-N	VSA 30	Nitrile	10	7.5	<1
1-221-10-20	VN 1-10-S	VSA 30	Silicone	10	7.5	<1
1-221-10-80	VN 1-10-HE	VSA 30	HE	10	7.5	<1
1-221-10-40	VN 1-10-V	VSA 30	Viton	10	7.5	<1
1-221-10-30	VN 1-10-P	VSA 30	PU	10	7.5	<1
1-221-15-10	VN 1-15-N	VSA 30	Nitrile	15	8	<1
1-221-15-20	VN 1-15-S	VSA 30	Silicone	15	8	<1
1-221-15-80	VN 1-15-HE	VSA 30	HE	15	8	1
1-221-15-30	VN 1-15-P	VSA 30	PU	15	8	<1
1-221-20-10	VN 1-20-N	VSA 50	Nitrile	20	10	1
1-221-20-20	VN 1-20-S	VSA 50	Silicone	20	10	1
1-221-20-80	VN 1-20-HE	VSA 50	HE	20	10	1
1-221-20-40	VN 1-20-V	VSA 50	Viton	20	10	2
1-221-20-30	VN 1-20-P	VSA 50	PU	20	10	2
1-221-25-10	VN 1-25-N	VSA 60	Nitrile	25	14	3

VN 1 / Suction Cup - 1 Bellow, without Adapter (Continuation)

Part No.	Description	fits for Adapter	Material	A [mm]	B [mm]	Weight [g]
1-221-25-20	VN 1-25-S	VSA 60	Silicone	25	14	2
1-221-25-80	VN 1-25-HE	VSA 60	HE	25	14	3
1-221-25-40	VN 1-25-V	VSA 60	Viton	25	14	4
1-221-25-30	VN 1-25-P	VSA 60	PU	25	14	3
1-221-30-10	VN 1-30-N	VSA 60	Nitrile	30	12	3
1-221-30-20	VN 1-30-S	VSA 60	Silicone	30	12	3
1-221-30-80	VN 1-30-HE	VSA 60	HE	30	12	3
1-221-30-40	VN 1-30-V	VSA 60	Viton	30	12	5
1-221-30-30	VN 1-30-P	VSA 60	PU	30	12	4
1-221-40-10	VN 1-40-N	VSA 60	Nitrile	40	14	7
1-221-40-20	VN 1-40-S	VSA 60	Silicone	40	14	7
1-221-40-80	VN 1-40-HE	VSA 60	HE	40	14	7
1-221-40-40	VN 1-40-V	VSA 60	Viton	40	14	12
1-221-40-30	VN 1-40-P	VSA 60	PU	40	14	8
1-221-50-10	VN 1-50-N	VSA 80	Nitrile	50	15	10
1-221-50-20	VN 1-50-S	VSA 80	Silicone	50	15	10
1-221-50-80	VN 1-50-HE	VSA 80	HE	50	15	11
1-221-50-40	VN 1-50-V	VSA 80	Viton	50	15	18
1-221-50-30	VN 1-50-P	VSA 80	PU	50	15	12
1-221-60-10	VN 1-60-N	VSA 110	Nitrile	60	16	25
1-221-60-20	VN 1-60-S	VSA 110	Silicone	60	16	23
1-221-60-80	VN 1-60-HE	VSA 110	HE	60	16	24
1-221-60-30	VN 1-60-P	VSA 110	PU	60	16	24
1-221-80-10	VN 1-80-N	VSA 110	Nitrile	80	18	54
1-221-80-20	VN 1-80-S	VSA 110	Silicone	80	18	50
1-221-80-80	VN 1-80-HE	VSA 110	HE	80	20	52
1-221-80-30	VN 1-80-P	VSA 110	PU	80	18	51
1-221-95-10	VN 1-95-N	VSA 110	Nitrile	95	19	93
1-221-95-20*	VN 1-95-S	VSA 110	Silicone	95	19	88
1-221-95-30	VN 1-95-P	VSA 110	PU	95	19	90

220 | Vacuum Cups

VS 1 PL / Vacuum Cup - 1 Bellow, Longlife, with Adapter



Drawing:

- 1 adapter
- 2 suction cup
- B1 relaxed position
- B2 compressed position
- SWE external hexagon
- SWF internal hexagon

Remarks:

- ▶ **Application:** for gripping even articles
- extra durable with high wear resistance
- PL = Polyurethane Long Life
- exact positioning
- suction cup with adapter
- suction cups can be changed

Connection:

- suction cup/adapter

Scope of delivery:

- every VS is delivered with sealing ring

Holding force:

Is the theoretical value at -0.6 bar vacuum on a dry smooth and flat surface. There is no safety factor built in.

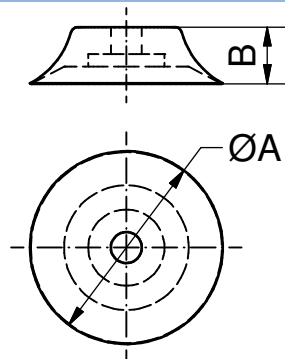
Data

Part No.	Description	Suction cup	Adapter	Material	Operating [cm ²]	Holding force [N]	Push fit
1-221-20-63	VS 1-20-PL8	VN 1-20-PL	VSA 50	PL	2.6	15.5	x
1-221-30-63	VS 1-30-PL8	VN 1-30-PL	VSA 60	PL	5.7	33.7	x
1-221-40-63	VS 1-40-PL8	VN 1-40-PL	VSA 60	PL	9.8	57.4	x
1-221-50-63	VS 1-50-PL8	VN 1-50-PL	VSA 80	PL	15.6	91.5	x

Dimensions

Part No.	Description	A [mm]	B [mm]	B1 [mm]	B2 [mm]	C [mm]	D [mm]	SWE [mm]	SWF [mm]	Weight [g]
1-221-20-63	VS 1-20-PL8	20	10	14	12	G1/8"	5	13	3	11
1-221-30-63	VS 1-30-PL8	30	12	17	14	G1/8"	8	13	4	12
1-221-40-63	VS 1-40-PL8	40	14	18	15	G1/8"	8	13	4	16
1-221-50-63	VS 1-50-PL8	50	15	20	16	G1/8"	8	13	5	20

VN 1 PL / Suction Cup - 1 Bellow, Longlife, without Adapter



Remarks:

- for gripping even articles
- extra durable with high wear resistance
- PL = Polyurethane Long Life
- exact positioning
- suction cup can be mounted on existing vacuum cups VS 1 PL or with adapters

Accessories e.g.:

- suction cup adapter, see table and category 290

Part No.	Description	fits for Adapter	Material	A [mm]	B [mm]
1-221-20-60	VN 1-20-PL	VSA 50	PL	20	10
1-221-30-60	VN 1-30-PL	VSA 60	PL	30	12
1-221-40-60	VN 1-40-PL	VSA 60	PL	40	14
1-221-50-60	VN 1-50-PL	VSA 80	PL	50	15

VS 2 / Vacuum Cup - 2 Bellows, with Adapter



Remarks:

- **Application: for gripping uneven, curved articles**
- 2 bellows to compensate for unevenness
- suction cup with adapter
- suction cups can be changed
- HE = High Temperature Polyurethane

Connection:

- suction cup/adapter

Scope of delivery:

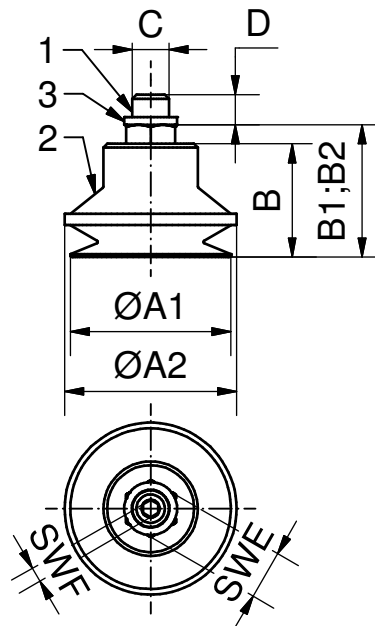
- every VS is delivered with sealing ring

Holding force:

Is the theoretical value at -0.6 bar vacuum on a dry smooth and flat surface. There is no safety factor built in.

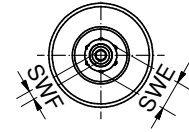
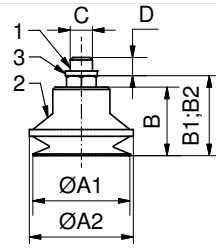
Drawing:

- | | |
|-----|---------------------|
| 1 | adapter |
| 2 | suction cup |
| 3 | sealing ring |
| B1 | relaxed position |
| B2 | compressed position |
| SWE | external hexagon |
| SWF | internal hexagon |



► Dimensions and technical data on the following page

VS 2 / Vacuum Cup - 2 Bellows, with Adapter (Continuation)



Data

	Part No.	Description	Suction cup	Adapter	Material	Working area [mm]	Operating [cm ²]	Holding force [N]	Push fit	Tapped
New	1-222-04-88	VS 2-4-HE3	VN 2-4-HE	VSA 5	HE	2.5	0.05	0.3	x	
New	1-222-04-18	VS 2-4-N3	VN 2-4-N	VSA 5	Nitril	2.5	0.05	0.3	x	
New	1-222-04-28	VS 2-4-S3	VN 2-4-S	VSA 5	Silikon	2.5	0.05	0.3	x	
New	1-222-06-88	VS 2-6-HE3	VN 2-6-HE	VSA 4	HE	3	0.07	0.4	x	
New	1-222-06-18	VS 2-6-N3	VN 2-6-N	VSA 4	Nitril	3	0.07	0.4	x	
New	1-222-06-28	VS 2-6-S3	VN 2-6-S	VSA 4	Silikon	3	0.07	0.4	x	
New	1-222-11-88	VS 2-11-HE3	VN 2-11-HE	VSA 16	HE	5.1	0.2	1.2	x	
New	1-222-11-18	VS 2-11-N3	VN 2-11-N	VSA 16	Nitril	5.1	0.2	1.2	x	
New	1-222-11-28	VS 2-11-S3	VN 2-11-S	VSA 16	Silikon	5.1	0.2	1.2	x	
	1-222-10-12	VS 2-10-N5	VN 2-10-N	VSA 30	Nitrile	5.2	0.16	0.9	x	
	1-222-10-22	VS 2-10-S5	VN 2-10-S	VSA 30	Silicone	5.2	0.16	0.9	x	
	1-222-10-32	VS 2-10-P5	VN 2-10-P	VSA 30	Polyurethane	5.2	0.16	0.9	x	
	1-222-10-82-1	VS 2-10-HE5	VN 2-10 HE	VSA 30	HE	5.2	0.16	0.9	x	
	1-222-15-12	VS 2-15-N5	VN 2-15-N	VSA 30	Nitrile	7.5	0.4	2.3	x	
	1-222-15-22	VS 2-15-S5	VN 2-15-S	VSA 30	Silicone	7.5	0.4	2.3	x	
	1-222-15-32	VS 2-15-P5	VN 2-15-P	VSA 30	Polyurethane	7.5	0.4	2.3	x	
	1-222-15-82-1	VS 2-15-HE5	VN 2-15 HE	VSA 40	HE	7.9	0.49	2.3	x	
	1-222-15-83-1	VS 2-15-HE8	VN 2-15HE	VSA 70	HE	7.9	0.49	2.3	x	
	1-222-20-13	VS 2-20-N8	VN 2-20-N	VSA 60	Nitrile	11	0.82	4.8	x	
	1-222-20-22	VS 2-20-S5	VN 2-20-S	VSA 45	Silicone	11	0.82	4.8	x	
	1-222-20-23	VS 2-20-S8	VN 2-20-S	VSA 60	Silicone	11	0.82	4.8	x	
	1-222-20-33	VS 2-20-P8	VN 2-20-P	VSA 60	Polyurethane	11	0.82	4.8	x	
	1-222-20-82	VS 2-20-HE5	VN 2-20-HE	VSA 45	HE	11	0.82	4.8	x	
	1-222-20-83	VS 2-20-HE8	VN 2-20-HE8	VSA 70	HE	11	0.82	4.8	x	
	1-222-30-13	VS 2-30-N8	VN 2-30-N	VSA 60	Nitrile	17	2.27	13.4	x	
	1-222-30-23	VS 2-30-S8	VN 2-30-S	VSA 60	Silicone	17	2.27	13.4	x	
	1-222-30-33	VS 2-30-P8	VN 2-30-P	VSA 60	Polyurethane	17	2.27	13.4	x	
	1-222-30-83-1	VS 2-30-HE8	VN 2-30 HE	VSA 90	HE	17	2.27	13.6	x	
	1-222-40-13	VS 2-40-N8	VN 2-40-N	VSA 60	Nitrile	22.5	3.8	22.4	x	
	1-222-40-23	VS 2-40-S8	VN 2-40-S	VSA 60	Silicone	22.5	3.8	22.4	x	
	1-222-40-33	VS 2-40-P8	VN 2-40-P	VSA 60	Polyurethane	22.5	3.8	22.4	x	
	1-222-40-83-1	VS 2-40-HE8	VN 2-40 HE	VSA 90	HE	22	3.8	22.8	x	
	1-222-50-13	VS 2-50-N8	VN 2-50-N	VSA 80	Nitrile	32	8.68	51.1	x	
	1-222-50-23	VS 2-50-S8	VN 2-50-S	VSA 80	Silicone	32	8.68	51.1	x	
	1-222-50-33	VS 2-50-P8	VN 2-50-P	VSA 80	Polyurethane	32	8.68	51.1	x	
	1-222-50-83-1	VS 2-50-HE8	VN 2-50 HE	VSA 90	HE	33	8.55	51.3	x	
	1-222-75-14	VS 2-75-N4	VN 2-75-N	VSA 110	Nitrile	55	23.76	139.8		x
	1-222-75-24	VS 2-75-S4	VN 2-75-S	VSA 110	Silicone	55	23.76	139.8		x
	1-222-75-34	VS 2-75-P4	VN 2-75-P	VSA 110	Polyurethane	55	23.76	139.8		x
	1-222-75-84	VS 2-75-HE4	VN 2-75-HE	VSA 110	HE	55	23.76	139.8		x

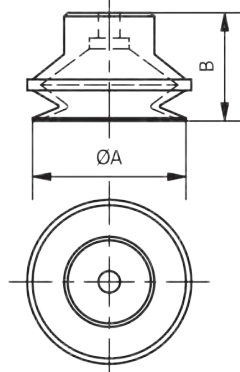
Drawing:

- 1 adapter
- 2 suction cup
- 3 sealing ring
- B1 relaxed position
- B2 compressed position
- SWE external hexagon
- SWF internal hexagon

Dimensions

A1 [mm]	A2 [mm]	B [mm]	B1 [mm]	B2 [mm]	C [mm] ["]	D [mm]	SWE [mm]	SWF [mm]	Weight [g]
4	5	5.5	10.5	9	M3	3	5	-	2
4	5	5.5	10.5	9	M3	3	5	-	2
4	5	5.5	10.5	9	M3	3	5	-	2
6	8	9	14	12	M3	5	8	-	2
6	8	9	14	12	M3	5	8	-	2
6	8	9	14	12	M3	5	8	-	2
11	13	16	21	17	M3	5	7	-	2
11	13	16	21	17	M3	5	7	-	2
11	13	16	21	17	M3	5	7	-	2
11.5	12.5	14	19	13.5	M5	5	7	2	3
11.5	12.5	14	19	13.5	M5	5	7	2	3
11.5	12.5	14	19	13.5	M5	5	7	2	3
10	12	16	21	17	M5	5	7	2	3
16	17	16	21.5	13.5	M5	5	7	2	3
16	17	16	21.5	13.5	M5	5	7	2	3
16	17	16	21.5	13.5	M5	5	7	2	4
15	17	16	24.5	17.5	M5	5	7	2	3
15	17	16	24.5	17.5	G1/8	8	13	3	11
22	24	21	27	18.5	G1/8	8	13	4	13
22	24	21	27	18.5	M5	5	13	2	12
22	24	21	27	18.5	G1/8	8	13	4	13
22	24	21	27	18.5	G1/8	8	13	4	13
22	24	21	27	18.5	M5	5	7	2	12
22	24	21	27	18.5	G1/8	8	13	4	13
33	36	30	35	25	G1/8	8	13	4	19
33	36	30	35	25	G1/8	8	13	4	18
33	36	30	35	25	G1/8	8	13	4	20
30	36	27	32	23	G1/8	8	13	5	19
42.5	45.5	30	35	25	G1/8	8	13	4	24
42.5	45.5	30	35	25	G1/8	8	13	4	23
42.5	45.5	30	35	25	G1/8	8	13	4	26
40	46	27.6	32	22	G1/8	8	13	5	24
54	59	37	42	29	G1/8	8	13	5	35
54	59	37	42	29	G1/8	8	13	5	34
54	59	37	42	29	G1/8	8	13	5	38
50	58.5	27.6	32	27	G1/8	8	13	5	36
78	84	41.5	50	26.5	G1/4	10	17	5	111
78	84	41.5	50	26.5	G1/4	10	17	5	110
78	84	41.5	50	26.5	G1/4	10	17	5	118
78	84	41.5	50	26.5	G1/4	10	17	5	113

VN 2 / Suction Cup - 2 Bellows, without Adapter



Remarks:

- for gripping uneven articles
- 2 bellows to compensate for unevenness
- suction cup can be mounted on existing vacuum cups VS 2 or with adapters
- HE = High Temperature Polyurethane

Accessories e.g.:

- suction cup adapter, see table and category 290

Part No.	Description	fits for Adapter	Material	A [mm]	B [mm]	Weight [g]	
1-222-04-87	VN 2-4-HE	VSA 5	HE	4	5.5	<1	New
1-222-04-17	VN 2-4-N	VSA 5	Nitril	4	5.5	<1	New
1-222-04-27	VN 2-4-S	VSA 5	Silikon	4	5.5	<1	New
1-222-06-87	VN 2-6-HE	VSA 4	HE	6	9	<1	New
1-222-06-17	VN 2-6-N	VSA 4	Nitril	6	9	<1	New
1-222-06-27	VN 2-6-S	VSA 4	Silikon	6	9	<1	New
1-222-11-87	VN 2-11-HE	VSA 16	HE	11	16	1	New
1-222-11-17	VN 2-11-N	VSA 16	Nitril	11	16	1	New
1-222-11-27	VN 2-11-S	VSA 16	Silikon	11	16	1	New
1-222-10-10	VN 2-10-N	VSA 30	Nitrile	11.5	14	1	
1-222-10-20	VN 2-10-S	VSA 30	Silicone	11.5	14	1	
1-222-10-30	VN 2-10-P	VSA 30	Polyurethane	11.5	14	1	
1-222-10-80-1	VN 2-10-HE	VSA 30	HE	10	16	1	
1-222-15-10	VN 2-15-N	VSA 30	Nitrile	16	16	2	
1-222-15-20	VN 2-15-S	VSA 30	Silicone	16	16	<1	
1-222-15-30	VN 2-15-P	VSA 30	Polyurethane	16	16	1	
1-222-15-80-1	VN 2-15-HE	VSA 40	HE	15	16	1	
1-222-20-10	VN 2-20-N	VSA 60	Nitrile	22	21	3	
1-222-20-20	VN 2-20-S	VSA 45	Silicone	22	21	3	
1-222-20-30	VN 2-20-P	VSA 60	Polyurethane	22	21	3	
1-222-20-80	VN 2-20-HE	VSA 45	HE	22	21	3	
1-222-30-10	VN 2-30-N	VSA 60	Nitrile	33	30	9	
1-222-30-20	VN 2-30-S	VSA 60	Silicone	33	30	8	
1-222-30-30	VN 2-30-P	VSA 60	Polyurethane	33	30	10	
1-222-30-80-1	VN2-30-HE	VSA 90	HE	30	27	9	
1-222-40-10	VN 2-40-N	VSA 60	Nitrile	42.5	30	14	
1-222-40-20	VN 2-40-S	VSA 60	Silicone	42.5	30	13	
1-222-40-30	VN 2-40-P	VSA 60	Polyurethane	42.5	30	16	
1-222-40-80-1	VN 2-40-HE	VSA 90	HE	40	27.6	14	
1-222-50-10	VN 2-50-N	VSA 80	Nitrile	54	37	24	
1-222-50-20	VN 2-50-S	VSA 80	Silicone	54	37	23	
1-222-50-30	VN 2-50-P	VSA 80	Polyurethane	54	37	27	
1-222-50-80-1	VN 2-50-HE	VSA 90	HE	50	27.6	25	
1-222-75-10	VN 2-75-N	VSA 110	Nitrile	78	41.5	86	
1-222-75-20	VN 2-75-S	VSA 110	Silicone	78	41.5	85	
1-222-75-30	VN 2-75-P	VSA 110	Polyurethane	78	41.5	92	
1-222-75-80	VN 2-75-HE	VSA 110	HE	78	41.5	88	

VS 2 PL / Vacuum Cup - 2 Bellows , Longlife, with Adapter

Remarks:

- **Application: for gripping uneven, curved articles**
- 2 bellows to compensate for unevenness
- extra durable with high wear resistance
- PL = Polyurethane Long Life
- suction cup with adapter
- suction cups can be changed

Connection:

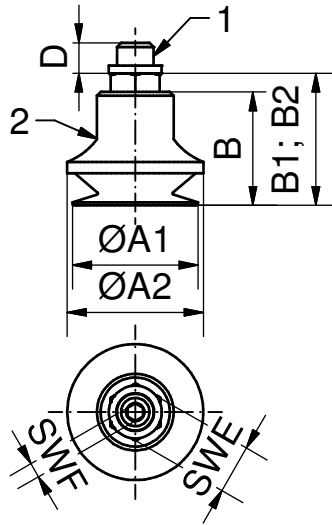
- suction cup/adapter

Scope of delivery:

- every VS is delivered with sealing ring

Holding force:

Is the theoretical value at -0.6 bar vacuum on a dry smooth and flat surface. There is no safety factor built in.



Drawing:

- 1 adapter
- 2 suction cup
- B1 relaxed position
- B2 compressed position
- SWE external hexagon
- SWF internal hexagon

Part No.	Description	Suction cup	Adapter	Material	Working area [mm]	Operating [cm ²]	Holding force [N]	Push fit
1-222-20-63	VS 2-20-PL8	VN 20 PL	VSA 60	PL	11	0.82	4.8	x
1-222-30-63	VS 2-30-PL8	VN 30 PL	VSA 60	PL	17	2.27	13.4	x
1-222-50-63	VS 2-50-PL8	VN 50 PL	VSA 80	PL	32	8.68	51.1	x

Part No.	Description	A1 [mm]	A2 [mm]	B [mm]	B1 [mm]	B2 [mm]	C ["]	D [mm]	SWE [mm]	SWF [mm]	Weight [g]
1-222-20-63	VS 2-20-PL8	20	24	21	27	18.5	G1/8	8	13	4	12
1-222-30-63	VS 2-30-PL8	30	36	30	35	25	G1/8	8	13	4	17
1-222-50-63	VS 2-50-PL8	50	59	37	42	29	G1/8	8	13	5	34

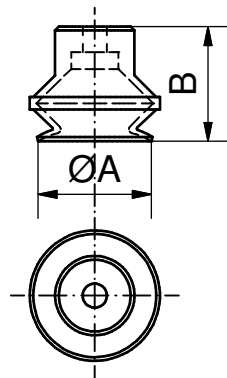
VN 2 PL / Suction Cup - 2 Bellows, Longlife, without Adapter

Remarks:

- for gripping uneven, curved articles
- 2 bellows to compensate for unevenness
- extra durable with high wear resistance
- PL = Polyurethane Long Life
- suction cup can be mounted on existing vacuum cups VS 2 PL or with adapters

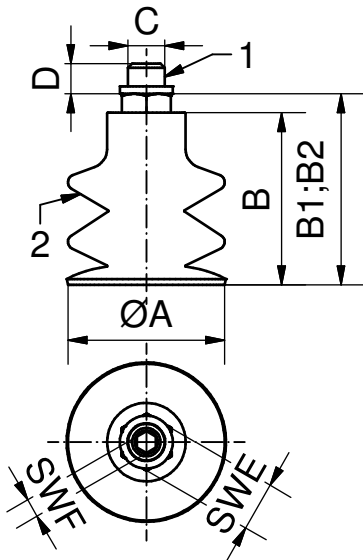
Accessories e.g.:

- suction cup adapter, see table and category 290



Part No.	Description	fits for Adapter	Material	A [mm]	B [mm]	Weight [g]
1-222-20-60	VN 2-20-PL	VSA 60	PL	20	21	2.3
1-222-30-60	VN 2-30-PL	VSA 60	PL	30	21	6.8
1-222-50-60	VN 2-50-PL	VSA 80	PL	50	36	19.6

VS 3 / Vacuum Cup 3 Bellows, with Adapter



Remarks:

► **Application: for gripping strong uneven, curved articles**

- 3 bellows to compensate for unevenness
- suction cup with adapter
- suction cups can be changed
- PU = Polyurethane
- HE = High Temperature Polyurathane

Connection:

- suction cup/adapter

Scope of delivery:

- every VS is delivered with sealing ring

Holding force:

Is the theoretical value at -0.6 bar vacuum on a dry smooth and flat surface. There is no safety factor built in.

Drawing:

- 1 adapter
- 2 suction cup
- B1 relaxed position
- B2 compressed position
- SWE external hexagon
- SWF internal hexagon

Part No.	Description	Suction cup	Adapter
New 1-223-05-88	VS 3-5-HE3	VN 3-5-HE	VSA 17
New 1-223-05-18	VS 3-5-N3	VN 3-5-N	VSA 17
New 1-223-05-28	VS 3-5-S3	VN 3-5-S	VSA 17
New 1-223-07-88	VS 3-7-HE3	VN 3-7-HE	VSA 16
New 1-223-07-18	VS 3-7-N3	VN 3-7-N	VSA 16
New 1-223-07-28	VS 3-7-S3	VN 3-7-S	VSA 16
1-223-05-12	VS 3-5 N5	VN 3-5-N	VSA 30
1-223-05-22	VS 3-5-S5	VN 3-5-S	VSA 30
1-223-05-32	VS 3-5-P5	VN 3-5-P	VSA 30
1-223-05-82	VS 3-5-HE5	VN 3-5-HE	VSA 30
1-223-08-12	VS 3-8-N5	VN 3-8-N	VSA 30
1-223-08-22	VS 3-8-S5	VN 3-8-S	VSA 30
1-223-08-32	VS 3-8-P5	VN 3-8-P	VSA 30
1-223-08-82	VS 3-8-HE5	VN 3-8-HE	VSA 30
1-223-10-12	VS 3-10-N5	VN 3-10-N	VSA 40
1-223-10-22	VS 3-10-S5	VN 3-10-S	VSA 40
1-223-10-32	VS 3-10-P5	VN 3-10-P	VSA 40
1-223-10-82	VS 3-10-HE5	VN 3-10-HE	VSA 40
1-223-10-13	VS 3-10-N8	VN 3-10-N	VSA 70
1-223-10-23	VS 3-10-S8	VN 3-10-S	VSA 70
1-223-10-33	VS 3-10-P8	VN 3-10-P	VSA 70
1-223-10-83	VS 3-10-HE8	VN 3-10-HE	VSA70
1-223-12-82	VS 3-12-HE5	VN 3-12-HE	VSA 40
1-223-12-83	VS 3-12-HE8	VN 3-12-HE	VSA 70
1-223-15-12	VS 3-15-N5	VN 3-15-N	VSA 40
1-223-15-22	VS 3-15-S5	VN 3-15-S	VSA 40
1-223-15-32	VS 3-15-P5	VN 3-15-P	VSA 40
1-223-15-82	VS 3-15-HE5	VN 3-15-HE	VSA 40
1-223-15-13	VS 3-15-N8	VN 3-15-N	VSA 70
1-223-15-23	VS 3-15-S8	VN 3-15-S	VSA 70
1-223-15-33	VS 3-15-P8	VN 3-15-P	VSA 70
1-223-15-83	VS 3-15-HE8	VN 3-15-HE	VSA 70
1-223-18-12	VS 3-18-N5	VN 3-18-N	VSA 40
1-223-18-22	VS 3-18-S5	VN 3-18-S	VSA 40
1-223-18-32	VS 3-18-P5	VN 3-18-P	VSA 40
1-223-18-82	VS 3-18-HE5	VN 3-18-HE	VSA 40
1-223-18-13	VS 3-18-N8	VN 3-18-N	VSA 70
1-223-18-23	VS 3-18-S8	VN 3-18-S	VSA 70
1-223-18-33	VS 3-18-P8	VN 3-18-P	VSA 70
1-223-18-83	VS 3-18-HE8	VN 3-18-HE	VSA 70
1-223-20-12	VS 3-20-N5	VN 3-20-N	VSA 40
1-223-20-22	VS 3-20-S5	VN 3-20-S	VSA 40
1-223-20-32	VS 3-20-P5	VN 3-20-P	VSA 40
1-223-20-82	VS 3-20-HE5	VN 3-20-HE	VSA 40
1-223-20-13	VS 3-20-N8	VN 3-20-N	VSA 70
1-223-20-23	VS 3-20-S8	VN 3-20-S	VSA 70
1-223-20-33	VS 3-20-P8	VN 3-20-P	VSA 70
1-223-20-83	VS 3-20-HE8	VN 3-20-HE	VSA 70
New 1-223-25-82	VS 3-25-HE5	VN 3-25-HE	VSA 40
New 1-223-25-83	VS 3-25-HE8	VN 3-25-HE	VSA 60

	Material	Working area diameter [mm]	Operating [cm ²]	Holding force [N]	Push fit	A [mm]	B [mm]	B1 [mm]	B2 [mm]	C [mm] ["]	D [mm]	SWE [mm]	SWF [mm]	Weight [g]
	HE	2,6	0,05	0,3	x	5	14	19	17	M3	5	7	-	2
	Nitril	2,6	0,05	0,3	x	5	14	19	17	M3	5	7	-	2
	Silikon	2,6	0,05	0,3	x	5	14	19	17	M3	5	7	-	2
	HE	1,8	0,03	0,15	x	7	14	19	16	M3	5	8	-	2
	Nitril	1,8	0,03	0,15	x	7	14	19	16	M3	5	8	-	2
	Silikon	1,8	0,03	0,15	x	7	14	19	16	M3	5	8	-	2
	Nitrile	2	0.03	0.2	x	5	9.5	14.5	10.5	M5	5	7	2	3
	Silicone	2	0.03	0.2	x	5	9.5	14.5	10.5	M5	5	7	2	3
	PU	2	0.03	0.2	x	5	9.5	14.5	10.5	M5	5	7	2	3
	HE	2	0.03	0.2	x	5	9.5	14.5	10.5	M5	5	7	2	3
	Nitrile	2.9	0.07	0.4	x	8	10	15	12	M5	5	7	2	3
	Silicone	2.9	0.07	0.4	x	8	10	15	12	M5	5	7	2	3
	PU	2.9	0.07	0.4	x	8	10	15	12	M5	5	7	2	3
	HE	2.9	0.07	0.4	x	8	10	15	12	M5	5	7	2	3
	Nitrile	4.5	0.14	0.8	x	10	15	20	16	M5	5	7	2	4
	Silicone	4.5	0.14	0.8	x	10	15	20	16	M5	5	7	2	4
	PU	4.5	0.14	0.8	x	10	15	20	16	M5	5	7	2	4
	HE	4.5	0.03	0.2	x	10	15	20	16	M5	5	7	2	4
	Nitrile	4.5	0.14	0.8	x	10	15	20	16	G1/8	8	13	3	11
	Silicone	4.5	0.14	0.8	x	10	15	20	16	G1/8	8	13	3	11
	PU	4.5	0.14	0.8	x	10	15	20	16	G1/8	8	13	3	11
	HE	4.5	0.14	0.8	x	10	15	20	16	G1/8	8	13	3	11
	HE	5	0,18	1,1	x	13	21	26	19	M5	5,5	7	2	5
	HE	5	0,18	1,1	x	13	21	26	19	G1/8	8	13	3	11
	Nitrile	5.2	0.18	1.1	x	15	23	28	20	M5	5	7	2	5
	Silicone	5.2	0.18	1.1	x	15	23	28	20	M5	5	7	2	5
	PU	5	0.18	1.1	x	15	23	28	20	M5	5	7	2	5
	HE	5.2	0.07	0.4	x	15	23	28	20	M5	5	7	2	5
	Nitrile	5.2	0.18	1.1	x	15	23	28	20	G1/8	8	13	3	12
	Silicone	5.2	0.18	1.1	x	15	23	28	20	G1/8	8	13	3	12
	PU	5.2	0.18	1.1	x	15	23	28	20	G1/8	8	13	3	12
	HE	5.2	0.14	0.8	x	15	23	28	20	G1/8	5	13	3	12
	Nitrile	8	0.49	2.9	x	18	23	28	20	M5	5	7	2	5
	Silicone	8	0.49	2.9	x	18	23	28	20	M5	5	7	2	5
	PU	8	0.49	2.9	x	18	23	28	20	M5	5	7	2	5
	HE	8	0.18	1.1	x	18	23	28	20	M5	5	7	2	5
	Nitrile	8	0.49	2.9	x	18	23	28	20	G1/8	8	13	3	12
	Silicone	8	0.49	2.9	x	18	23	28	20	G1/8	8	13	3	12
	PU	8	0.49	2.9	x	18	23	28	20	G1/8	8	13	3	12
	HE	8	0.49	2.9	x	18	23	28	20	G1/8	5	13	3	12
	Nitrile	9.6	0.65	3.8	x	20	23	28	20	M5	5	7	2	5
	Silicone	9.6	0.65	3.8	x	20	23	28	20	M5	5	7	2	5
	PU	9.6	0.65	3.8	x	20	23	28	20	M5	5	7	2	6
	HE	9.6	0.65	3.8	x	20	23	28	20	M5	5	7	2	5
	Nitrile	9.6	0.65	3.8	x	20	23	28	20	G1/8	8	13	3	12
	Silicone	9.6	0.65	3.8	x	20	23	28	20	G1/8	8	13	3	12
	PU	9.6	0.65	3.8	x	20	23	28	20	G1/8	8	13	3	12
	HE	9.6	2.01	11.8	x	20	23	28	20	G1/8	8	13	4	12
	HE	10	0.8	6.4		25	34	39	21	M5	5.5	7	2	7
	HE	10	0.8	6.4		25	34	39	21	G1/8	5.5	7	2	14

► Continuation on the following page

000
Quick Change
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050
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190
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200
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220
Vacuum Cups

224
Vacuum
Cups-Special

230
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290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
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Elements

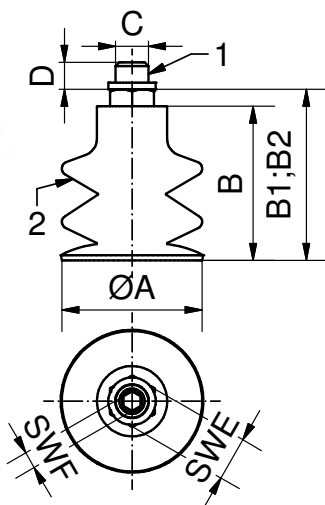
800
Electric and
Sensors

850
Pneumatic

990
Other
PA-Forming

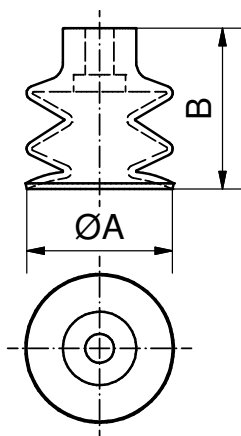
220 | Vacuum Cups

VS 3 / Vacuum Cup - 3 Bellows, with Adapter (Continuation)



Part No.	Description	Suction cup	Adapter
1-223-30-13	VS 3-30-N8	VN 3-30-N	VSA 90
1-223-30-23	VS 3-30-S8	VN 3-30-S	VSA 90
1-223-30-33	VS 3-30-P8	VN 3-30-P	VSA 90
1-223-30-83	VS 3-30-HE8	VN 3-30-HE	VSA 90
1-223-40-13	VS 3-40-N8	VN 3-40-N	VSA 90
1-223-40-23	VS 3-40-S8	VN 3-40-S	VSA 90
1-223-40-33	VS 3-40-P8	VN 3-40-P	VSA 90
1-223-40-83	VS 3-40-HE8	VN 3-40-HE	VSA 90
1-223-60-13	VS 3-60-N8	VN 3-60-N	VSA 90
1-223-60-23	VS 3-60-S8	VN 3-60-S	VSA 90
1-223-60-33	VS 3-60-P8	VN 3-60-P	VSA 90
1-223-60-83	VS 3-60-HE8	VN 3-60-HE	VSA 90
1-223-90-14	VS 3-90-N4	VN 3-90-N	VSA100

VN 3 / Suction Cup - 3 Bellows, without Adapter



Remarks:

- for gripping strong uneven articles
- 3 bellows to compensate for unevenness
- suction cup can be mounted on existing vacuum cups VS 2 or with adapters
- HE = High Temperature Polyurethane

Accessories e.g.:

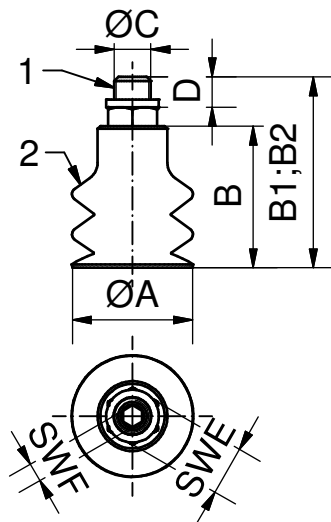
- suction cup adapter, see table and category 290

Part No.	Description	fits for Adapter	Material	A [mm]	B [mm]	Weight [g]	
1-223-05-87	VN 3-5-HE	VSA 17	HE	5	14	<1	New
1-223-05-17	VN 3-5-N	VSA 17	Nitril	5	14	<1	New
1-223-05-27	VN 3-5-S	VSA 17	Silikon	5	14	<1	New
1-223-07-87	VN 3-7-HE	VSA 16	HE	7	14	<1	New
1-223-07-17	VN 3-7-N	VSA 16	Nitril	7	14	<1	New
1-223-07-27	VN 3-7-S	VSA 16	Silikon	7	14	<1	New
1-223-05-10	VN 3-5-N	VSA 30	Nitrile	5	9.5	<1	
1-223-05-20	VN 3-5-S	VSA 30	Silicone	5	9.5	<1	
1-223-05-30	VN 3-5-P	VSA 30	Polyurethane	5	9.5	<1	
1-223-05-80	VN 3-5-HE	VSA 30	HE	5	9.5	<1	
1-223-08-10	VN 3-8-N	VSA 30	Nitrile	8	10	<1	
1-223-08-20	VN 3-8-S	VSA 30	Silicone	8	10	<1	
1-223-08-30	VN 3-8-P	VSA 30	Polyurethane	8	10	<1	
1-223-08-80	VN 3-8-HE	VSA 30	HE	8	10	<1	
1-223-10-10	VN 3-10-N	VSA 40	Nitrile	10	15	1	
1-223-10-20	VN 3-10-S	VSA 40	Silicone	10	15	1	
1-223-10-30	VN 3-10-P	VSA 40	Polyurethane	10	15	1	

Material	Working area Ø [mm]	Operating [cm ²]	Holding force [N]	Push fit	A [mm]	B [mm]	B1 [mm]	B2 [mm]	C [mm] [°]	D [mm]	SWE [mm]	SWF [mm]	Weight [g]
Nitrile	17	2.01	11.8	x	30	37.5	42.5	30	G1/8	8	13	5	21
Silicone	17	2.01	11.8	x	30	37.5	42.5	30	G1/8	8	13	5	21
PU	17	2.01	11.8	x	30	37.5	42.5	30	G1/8	8	13	5	23
HE	17	6.72	39.6	x	30	37.5	42.5	30	G1/8	8	13	4	22
Nitrile	16	2.27	13.4	x	40	45.5	51.5	34	G1/8	8	13	5	33
Silicone	16	2.27	13.4	x	40	45.5	51.5	34	G1/8	8	13	5	33
PU	16	2.27	13.4	x	40	45.5	51.5	34	G1/8	8	13	5	36
HE	16	7.79	45.9	x	40	45.5	51.5	34	G1/8	8	13	4	34
Nitrile	29	6.72	39.6	x	60	56	61	37	G1/8	8	13	5	52
Silicone	29	6.72	39.6	x	60	56	61	37	G1/8	8	13	5	51
PU	29	6.72	39.6	x	60	56	61	37	G1/8	8	13	5	57
HE	29	6.72	39.6	x	60	56	61	37	G1/8	8	13	5	54
Nitrile	32	7.79	45.9	x	90	87	92	58	G1/4	10	17	6	195

Part No.	Description	fits for Adapter	Material	A [mm]	B [mm]	Weight [g]
1-223-10-80	VN 3-10-HE	VSA 40	HE	10	15	1
1-223-12-80	VN 3-12-HE	VSA 40	HE	13	21	1
1-223-15-10	VN 3-15-N	VSA 40	Nitrile	15	23	1
1-223-15-20	VN 3-15-S	VSA 40	Silicone	15	23	1
1-223-15-30	VN 3-15-P	VSA 40	Polyurethane	15	23	2
1-223-15-80	VN 3-15-HE	VSA 40	HE	15	23	1
1-223-18-10	VN 3-18-N	VSA 40	Nitrile	18	23	2
1-223-18-20	VN 3-18-S	VSA 40	Silicone	18	23	2
1-223-18-30	VN 3-18-P	VSA 40	Polyurethane	18	23	2
1-223-18-80	VN 3-18-HE	VSA 40	HE	18	23	2
1-223-20-10	VN 3-20-N	VSA 40	Nitrile	20	23	2
1-223-20-20	VN 3-20-S	VSA 40	Silicone	20	23	2
1-223-20-30	VN 3-20-P	VSA 40	Polyurethane	20	23	2
1-223-20-80	VN 3-20-HE	VSA 40	HE	20	23	2
New 1-223-25-80	VN 3-25-HE	VSA 40 / 60	HE	10	34	6.1
1-223-30-10	VN 3-30-N	VSA 90	Nitrile	30	37.5	9
1-223-30-20	VN 3-30-S	VSA 90	Silicone	30	37.5	9
1-223-30-30	VN 3-30-P	VSA 90	Polyurethane	30	37.5	10
1-223-30-80	VN 3-30-HE	VSA 90	HE	30	37.5	9
1-223-40-10	VN 3-40-N	VSA 90	Nitrile	40	45.5	21
1-223-40-20	VN 3-40-S	VSA 90	Silicone	40	45.5	20
1-223-40-30	VN 3-40-P	VSA 90	Polyurethane	40	45.5	23
1-223-40-80	VN 3-40-HE	VSA 90	HE	40	45.5	21
1-223-60-10	VN 3-60-N	VSA 90	Nitrile	60	56	40
1-223-60-20	VN 3-60-S	VSA 90	Silicone	60	56	38
1-223-60-30	VN 3-60-P	VSA 90	Polyurethane	60	56	45
1-223-60-80	VN 3-60-HE	VSA 90	HE	60	56	41
1-223-90-10	VN 3-90-N	VSA100	Nitrile	90	87	162
1-223-90-20	VN 3-90-S	VSA100	Silicone	90	87	157

VS 3 PL / Vacuum Cup - 3 Bellows, Longlife, with Adapter



Drawing:

- 1 adapter
- 2 suction cup
- B1 relaxed position
- B2 compressed position
- SWE external hexagon
- SWF internal hexagon

Remarks:

► **Application: for gripping strong uneven, curved articles**

- 3 bellows to compensate for unevenness
- extra durable with high wear resistance
- PL = Polyurethane Long Life
- suction cup with adapter
- suction cups can be changed

Connection:

- suction cup/adapter

Scope of delivery:

- every VS is delivered with sealing ring

Holding force:

Is the theoretical value at -0.6 bar vacuum on a dry smooth and flat surface. There is no safety factor built in.

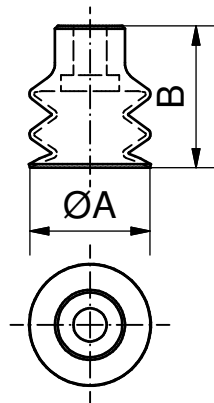
Data

Part No.	Description	Suction cup	Adapter	Material	Working area	Operating [cm ²]	Holding force [N]	Connection
1-223-20-62	VS 3-20-PL5	VN 3-20-PL	VSA 40	PL	10.8	0.65	3.8	push fit
1-223-20-63	VS 3-20-PL8	VN 3-20-PL	VSA 70	PL	10.8	0.65	3.8	push fit
1-223-30-63	VS 3-30-PL8	VN 3-30-PL	VSA 90	PL	17.8	2.01	11.8	push fit
1-223-60-63	VS 3-60-PL8	VN 3-60-PL	VSA 90	PL	30.8	6.72	39.6	push fit

Dimensions

Part No.	Description	A	B	B	B2	C	D	SWE	SWF	Weight [g]
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	
1-223-20-62	VS 3-20-PL5	20	23	28	20	M5	5	7	2	5
1-223-20-63	VS 3-20-PL8	20	23	28	20	G1/8	8	13	3	12
1-223-30-63	VS 3-30-PL8	30	37.5	42.5	30	G1/8	8	13	5	19
1-223-60-63	VS 3-60-PL8	60	56	61	37	G1/8	8	13	5	49

VN 3 PL / Suction Cup - 3 Bellows, Longlife, without Adapter



Remarks:

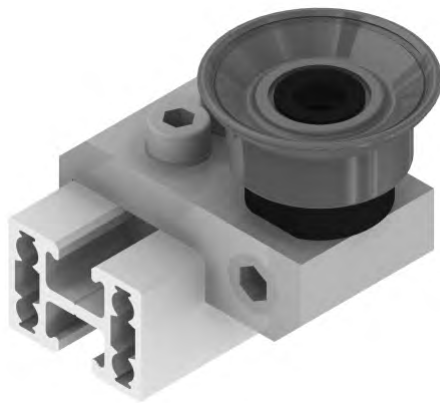
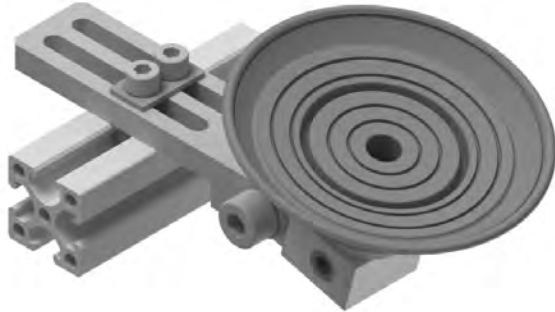
- for gripping strong uneven, curved articles
- 3 bellows to compensate for unevenness
- extra durable with high wear resistance
- PL = Polyurethane Long Life
- suction cup can be mounted on existing vacuum cups VS 3 PL or with adapters

Accessories e.g.:

- suction cup adapter, see table and category 290

Part No.	Description	fits for Adapter	Material	A [mm]	B [mm]	Weight [g]
1-223-20-60	VN 3-20-PL	VSA 40 / VSA 70	PL	20	23	2
1-223-30-60	VN 3-30-PL	VSA 90	PL	30	37.5	6
1-223-60-60	VN 3-60-PL	VSA 90	PL	60	56	36

Application examples Vacuum Cups



Vacuum Cup properties

Advantages:

- Different materials in different diameters for special applications, see product descriptions

Material specifications:

***** = very high
 *** = high
 * = low

Material: Natural Rubber (NK)

Colour: Brown
 Hardness: 40
 Working Temperature: -40 °C to 80 °C
 short term -50 to +120 °C
 Tear Resistance: **
 Aging Properties: **
 Oil & Grease Resistance: *
 Application: Low temperature

Material: Rubber (NBR)

Colour: grey or red
 Working Temperature: -30°C to 100°C
 Hardness: 45 +/-5
 Tear Resistance: ***
 Aging Properties: ****
 Oil & Grease Resistance: ***
 Application: Handling parts with grainy surfaces

Material: Perbunan (PN)

Colour: blue
 Hardness: 55 +/-5
 Working Temperature: -30°C to 100°C
 Tear Resistance: ****
 Aging Properties: *****
 Abrasion Resistance: ****
 Oil & Grease Resistance: ****
 Application: sheet metal

Material: Polyurethane (2K)

Colour: lightblue (lip)
 blue (bellow)
 Shore hardness: lip: 30 A, soft
 bellow: 40 A, medium
 Working Temperature: +10°C to +50°C
 Advantage: very soft lip and high sealing
 Application: for very uneven and heavy textured surfaces

000
Quick Change
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050
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220
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224
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230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special
Elements

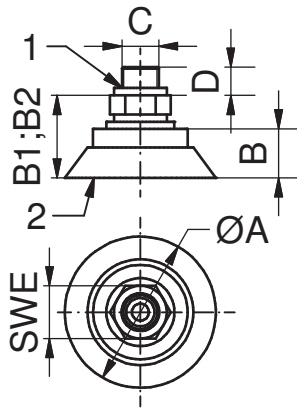
800
Electric and
Sensors

850
Pneumatic

990
Other
PA-Forming

224 | Vacuum Cups-Special

VAS SBR / Special Vacuum Cup, for rough surfaces, with Adapter



Remarks:

► **Application:** e.g. in the wood industry when handling raw chipboard

- material: natural rubber
- heat resistant up to 100 °C
- nearly mark free
- recommended for rough, grain-surfaced surfaces
- suction cup with adapter
- suction cups can be changed

Connection:

- suction cup/adapter

Scope of delivery:

- every VS is delivered with sealing ring

Holding force:

Is the theoretical value at -0.6 bar vacuum on a dry smooth and flat surface. There is no safety factor built in.

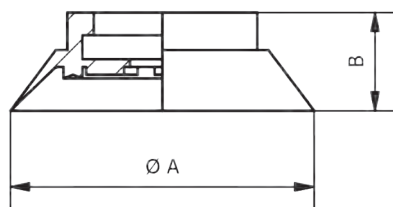
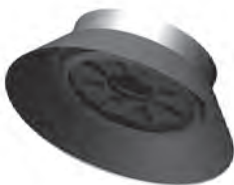
Drawing:

- 1 adapter
- 2 suction cup
- B1 relaxed position
- B2 compressed position
- SWE external hexagon

Part No.	Description	Suction cup	Adapter	screwed	Material	Holding force [N]	Operating [cm ²]
1-224-82-00	VAS 40 SBR	VSN 40 SBR	AVS 40	x	NBR	36.2	6.16
1-224-85-00	VAS 70 SBR	VSN 70 SBR	AVS 70	x	NBR	81.5	13.85

Part No.	Description	A [mm]	B [mm]	B1 [mm]	B2 [mm]	C ["]	D [mm]	SWE [mm]	Weight [g]
1-224-82-00	VAS 40 SBR	40	13	22	17.5	G1/8	8	14	20
1-224-85-00	VAS 70 SBR	70	28	37	34	G1/4	10	17	96

VSN SBR / Special Suction Cup, without Adapter



Remarks:

- material: natural rubber
- heat resistant up to 100 °C
- recommended for rough, grain-surfaced surfaces
- suction cup can be mounted on existing vacuum cups VAS SBR or with adapters

Accessories e.g.:

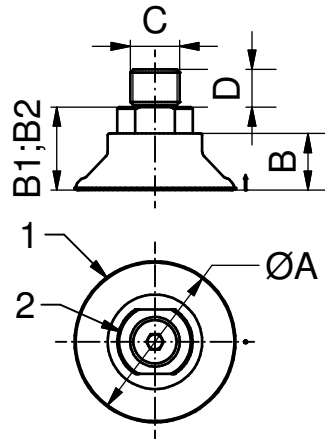
- suction cup adapter, see table and category 290

Part No.	Description	Adapter	Material	A [mm]	B [mm]	Weight [g]
1-224-82-01	VSN 40 SBR	AVS 40	NBR	40	13	6
1-224-85-01	VSN 70 SBR	AVS 70	NBR	70	28	45

VS 1 PN / Vacuum Cup for sheet metal, with Adapter

Remarks:

- **Application: specially adapted to the sheet metal handling**
- special inner structure prevents buckling or deep drawing, even with thin sheets (up to approx. 0.5 mm thick) or aluminum sheets
- soft, conformable sealing lip especially suitable for flat or slightly curved workpieces with a smooth or slightly rough textured surface
- PN = Perbunan (color: blue)
- vulcanized nipple



Drawing:

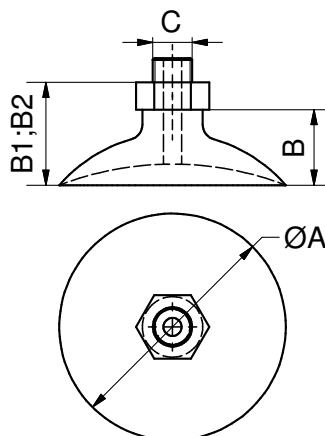
- 1 adapter
- 2 suction cup
- B1 relaxed position
- B2 compressed position

Part No.	Description	A [mm]	B [mm]	B1 [mm]	B2 [mm]	C ["]	D [mm]	SW [mm]	Material	Weight [g]
1-225-03-00	VS 1-30 PN 4	30	13	20	17	G1/4	10	17	PN	31
1-225-06-00	VS 1-40 PN 4	40	15	22	18	G1/4	10	17	PN	22
1-225-09-00	VS 1-50 PN 4	50	18	28	24	G1/4	10	22	PN	51
1-225-12-00	VS 1-60 PN 4	60	20	31	26	G1/4	10	22	PN	68
1-225-15-00	VS 1-80 PN 4	80	25	36	30	G1/4	10	22	PN	88
1-225-18-00	VS 1-100 PN 4	100	26	36	30	G1/4	10	22	PN	76
1-225-21-00	VS 1-125 PN 4	125	34	43	36	G1/4	10	22	PN	154

VS 1 NK / Vacuum Cup Natural Rubber - 1 Bellow, with Adapter

Remarks:

- **Application: e.g. suitable for very short cycle time**
- NK = natural rubber
- exact positioning
- higher load capacity
- no twisting
- suction cups are vulcanised onto nipples (exception: VS 1-34 NK 4)

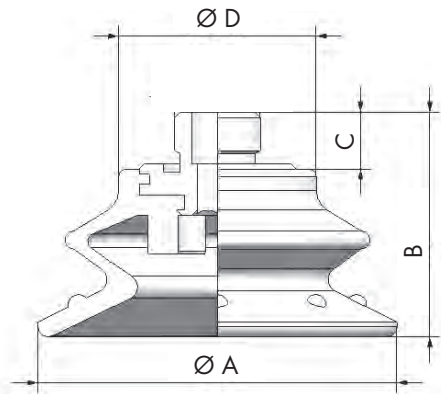


Part No.	Description	A [mm]	C [mm]	B [mm]	B1 [mm]	B2 [mm]	Material
1-229-04-00	VS 1 34 NK 4	34	G1/4	14	23	20	NK
1-229-05-00	VS 1 53 NK 4	53	G1/4	20	29	25	NK
1-229-06-00	VS 1 75 NK 4	75	G1/4	25	34	28	NK
1-229-07-00	VS 1 96 NK 4	96	G1/4	38	47	35	NK

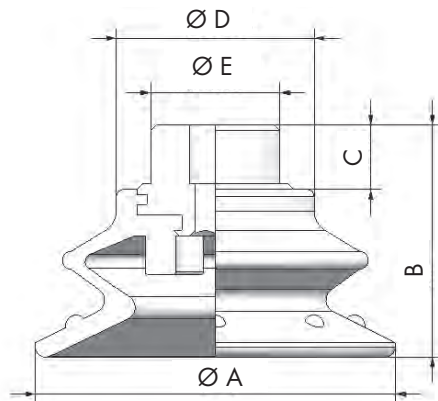
VS 2 2K / 2-Component Vacuum Cup - 2 Bellows, with Adapter



Picture: VS 2-15... to VS 2-40...



Picture: VS 2-50... to VS 2-70... (without PDN)



Remarks:

► **Application:** for high sealing, e.g. on grained, rough, uneven surfaces

- 2 bellows to compensate for unevenness and textured surfaces
 - temperature range +10°C to +50°C (higher temperatures temporary possible)
 - suction cup with adapter
 - suction cups can be changed
- Note *1:
Ø70: adapter is molded into the cup
- Note *2:
Ø50 and Ø70 adapters have to be reduced from 3/8 to 1/4 by using PDN 3/8-1/4 (Part No. 1-858-18-00)

Bellow and lip have different degrees of hardness:

- optimal suction stability
- very soft and flexible sealing lip
- Shore Hardness A
- 30 (lip very soft)
- 60 (bowl medium soft)

Holding force:

Is the theoretical value at -0.6 bar vacuum on a dry smooth and flat surface. There is no safety factor built in.

Scope of delivery:

- every VS is delivered with sealing ring

Part No.	Description	Suction Cup	Adapter	Connection	Material	Working Area [mm]	Operating [cm ²]	Holding Force [N]
1-228-15-00	VS 2-15-2K5	VN 2-15-2K	VSA 2K 15 M	M5	Polyurethane	7	0.33	2.0
1-228-20-00	VS 2-20-2K8	VN 2-20-2K	VSA 2K 20 M	G1/8	Polyurethane	11	0.87	5.2
1-228-30-00	VS 2-30-2K4	VN 2-30-2K	VSA 2K 40 M	G1/4	Polyurethane	19	2.69	16.1
1-228-40-00	VS 2-40-2K4	VN 2-40-2K	VSA 2K 40 M	G1/4	Polyurethane	25	4.71	28.3
1-228-50-00	VS 2-50-2K3-8	VN 2-50-2K	VSA 2K 50 F	G1/4* ²	Polyurethane	32	7.79	46.8
1-228-70-00	VS 2-70-2K3-8	*1	*1	G1/4* ²	Polyurethane	43	14.19	85.1

Part No.	Description	integrated filter screen	Ø A [mm]	B [mm]	C [mm]	Ø D [mm]	Ø E [mm]	Wrench Size [mm]	Weight [g]
1-228-15-00	VS 2-15-2K5		16	28	9	9		8	2
1-228-20-00	VS 2-20-2K8	x	21	28	10	12		12	4
1-228-30-00	VS 2-30-2K4	x	32	32	15	17		19	12
1-228-40-00	VS 2-40-2K4	x	42	37	15	22		19	18
1-228-50-00	VS 2-50-2K3-8	x	53	44	15	28	28	24	37
1-228-70-00	VS 2-70-2K3-8		73	60	13	50	28	22	68

VN 2 2K / 2-Component Suction Cup - 2 Bellows, without Adapter

Remarks:

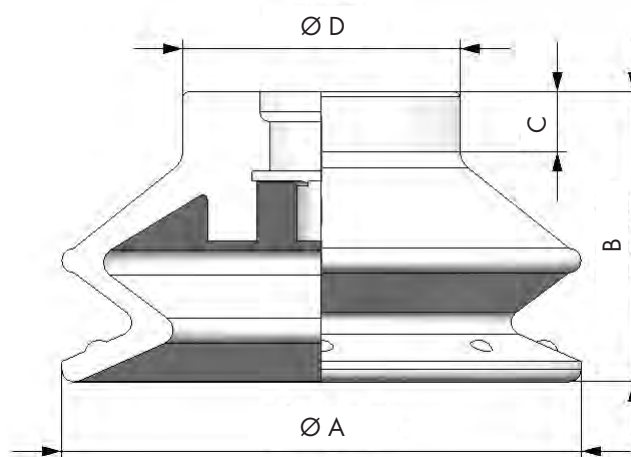
- high sealing on grained, rough, uneven surfaces
- 2 bellows to compensate for unevenness and textured surfaces
- temperature range +10°C to +50°C (higher temperatures temporary possible)
- suction cup can be mounted on existing vacuum cups VS 2 2K or with adapters

Bellow and lip have different degrees of hardness:

- optimal suction stability
- very soft and flexible sealing lip
- Shore Hardness A
- 30 (lip very soft)
- 60 (bowl medium soft)

Accessories e.g.:

- suction cup adapter, see table and category 290

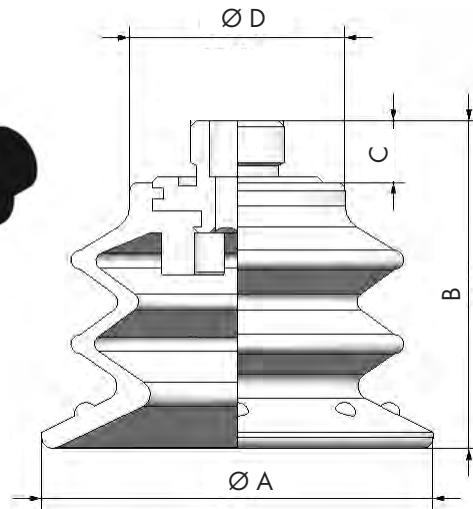


Part No.	Description	Adapter	Material	Ø A [mm]	B [mm]	C [mm]	Ø D [mm]	Weight [g]
1-228-15-01	VN 2-15-2K	VSA 2K 15 M	Polyurethane	16	19	8	9	1
1-228-20-01	VN 2-20-2K	VSA 2K 20 M	Polyurethane	21	18	5	12	2
1-228-30-01	VN 2-30-2K	VSA 2K 40 M	Polyurethane	32	17	3	17	4
1-228-40-01	VN 2-40-2K	VSA 2K 40 M	Polyurethane	42	22	4	22	11
1-228-50-01	VN 2-50-2K	VSA 2K 50 F	Polyurethane	53	29	6	28	20

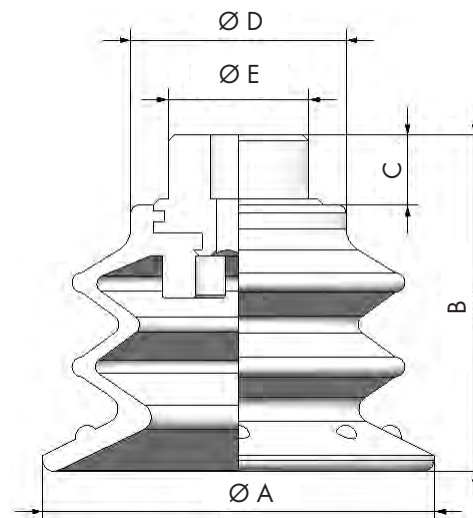
VS 3 2K / 2-Component Vacuum Cup - 3 Bellows, with Adapter



Picture: VS 3-20... to VS 3-40...



Picture: VS 3-50... to VS 3-70... (without PDN)



Remarks:

- ▶ **Application:** for high sealing, e.g. on grained, rough, strong uneven surfaces
 - 3 bellows to compensate for strong unevenness and textured surfaces
 - temperature range +10°C to +50°C (higher temperatures temporary possible)
 - suction cup with adapter
 - suction cups can be changed
- Note *1:
Ø70: adapter is molded into the cup
- Note *2:
Ø50 and Ø70 adapters have to be reduced from 3/8 to 1/4 by using PDN 3/8-1/4 (Part No. 1-858-18-00)

Bellow and lip have different degrees of hardness:

- optimal suction stability
- very soft and flexible sealing lip
- Shore Hardness A
- 30 (lip very soft)
- 60 (bowl medium soft)

Holding force:

Is the theoretical value at -0.6 bar vacuum on a dry smooth and flat surface. There is no safety factor built in.

Scope of delivery:

- every VS is delivered with sealing ring

Part No.	Description	Suction Cup	Adapter	Connection	Material	Working Area [mm]	Operating [cm ²]	Holding Force [N]
1-228-22-00	VS 3-20-2K8	VN 3-20-2K	VSA 2K 20 M	G1/8	Polyurethane	12	1.04	6.2
1-228-33-00	VS 3-30-2K8	VN 3-30-2K	VSA 2K 20 M	G1/8	Polyurethane	13	1.33	8.0
1-228-44-00	VS 3-40-2K4	VN 3-40-2K	VSA 2K 40 M	G1/4	Polyurethane	18	2.41	14.4
1-228-55-00	VS 3-50-2K3-8	VN 3-50-2K	VSA 2K 50 F	G3/8*2	Polyurethane	22	3.80	22.8
1-228-77-00	VS 3-70-2K3-8	*1	*1	G3/8*2	Polyurethane	32	8.04	48.3
1-228-78-00	VS 3-70-2K3-8-M	*1	*1	G3/8	Polyurethan	32	8.04	48.3

New

Part No.	Description	Ø A [mm]	B [mm]	C [mm]	Ø D [mm]	Ø E [mm]	Wrench Size [mm]	Weight [g]
1-228-22-00	VS 3-20-2K8	21	25	10	12		12	2
1-228-33-00	VS 3-30-2K8	30	31	10	17		13	7
1-228-44-00	VS 3-40-2K4	40	43	15	22		19	18
1-228-55-00	VS 3-50-2K3-8	50	51	15	28	28	24	37
1-228-77-00	VS 3-70-2K3-8	70	60	13	39	28	22	66
1-228-78-00	VS 3-70-2K3-8-M	70	60	13	39	28	22	66

New

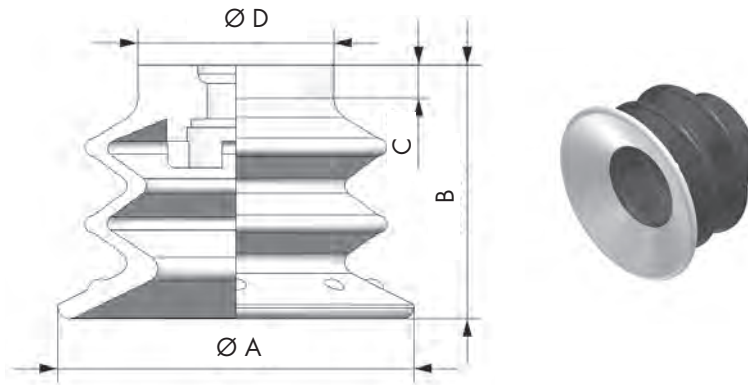
VN 3 2K / 2-Component Suction Cup - 3 Bellows, without Adapter

Remarks:

- high sealing on grained, rough, uneven surfaces
- 3 bellows to compensate for strong unevenness and textured surfaces
- temperature range +10°C to +50°C (higher temperatures temporary possible)
- suction cup can be mounted on existing vacuum cups VS 2 2K or with adapters
- see VS 3 2K

Accessories e.g.:

- suction cup adapter, see table and category 290



Part No.	Description	Adapter	Material	Ø A [mm]	B [mm]	C [mm]	Ø D [mm]	Weight [g]
1-228-22-01	VN 3-20-2K	VSA 2K 20 M	Polyurethane	21	15	2	12	2
1-228-33-01	VN 3-30-2K	VSA 2K 20 M	Polyurethane	30	21	3	17	4
1-228-44-01	VN 3-40-2K	VSA 2K 40 M	Polyurethane	40	28	4	22	10
1-228-55-01	VN 3-50-2K	VSA 2K 50 F	Polyurethane	50	36	5	28	19

VS 1 E / Vacuum Cup made of ED

Remarks:

- **Application: when good holding force and exact positioning are needed**

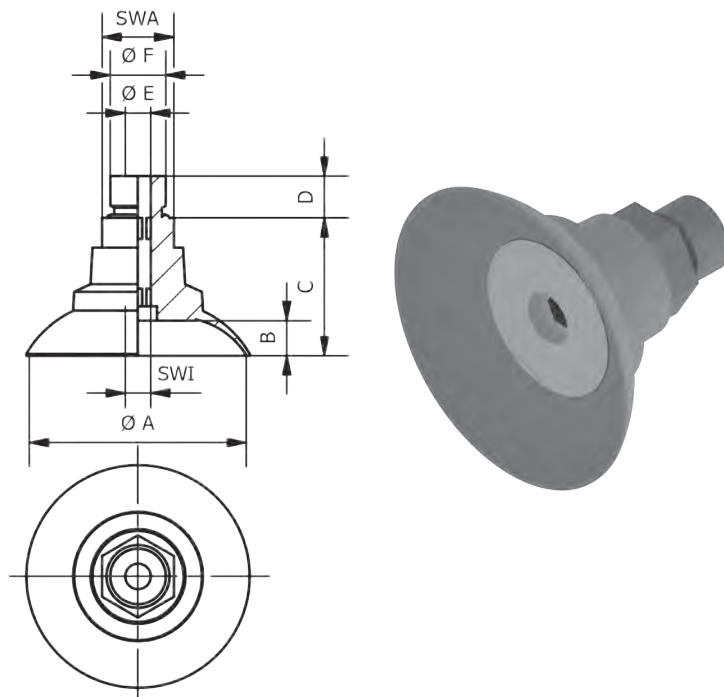
- applicable to curved surfaces
- suitable for sheet metal and oily surfaces
- prevents deep drawing and minimizes dents
- suction cup made of Elastodur
- shore hardness: 85 °Sh
- nipple made of Aluminium

Connection:

- suction cup and adapter are screwed together

Zeichnung:

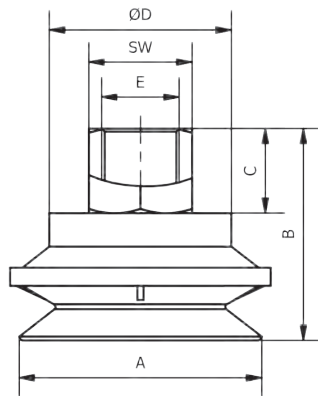
- F vacuum connection
- SWI internal hexagon
- SWA external hexagon



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F ["]	SWA [mm]	SWI [mm]	Weight [g]
1-225-25-00	VS 1-40 E 4	41,3	6,9	27,6	10	5	G1/4	17	5	17
1-225-29-00	VS 1-50 E 4	51,5	8,4	32,8	10	6	G1/4	17	6	28
1-225-33-00	VS 1-60 E 4	61,5	10,9	35,3	10	6	G1/4	17	6	31
1-225-41-00	VS 1-80 E 4	81	13,9	38,3	10	6	G1/4	17	6	39
1-225-37-00	VS 1-100 E 4	99,7	17,1	47,2	10	6	G1/4	22	6	72

224 | Vacuum Cups-Special

VS HT+ / Vacuum Cup, heat-resistant up to 300°C, with Adapter



Remarks:

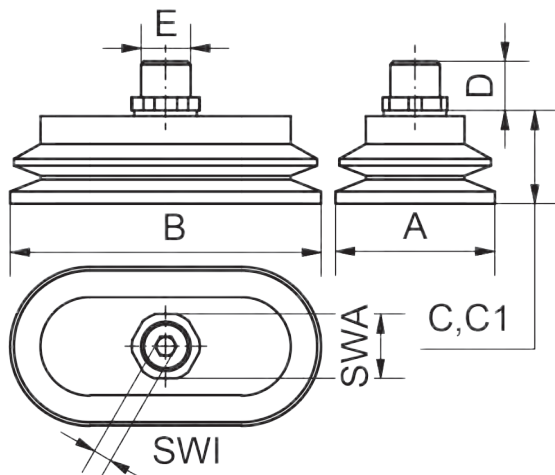
- **Application: special vacuum cup for demoulding at high temperatures**
- 2 bellows for compensating uneven surfaces
- temperature range from -20°C to +300°C
- resistant to: chemicals, chloric solvents, lubrication solvents, aromatic/aliphatic hydrocarbons

Accessories e.g.:

- Adapter PDN:
- for VS 2-40 HT+: Part No. 1-858-12-00
- for VS 2-40 HT+: Part No. 1-858-18-00

Part No.	Description	Material	Ø A [mm]	B [mm]	C [mm]	Ø D [mm]	SW ["]	Screw Thread, inside E ["]	Weight [g]
1-229-30-00	VS 2-40 HT+	Special-Viton	40	35	14	30	17	1/4	46
1-229-31-00	VS 2-50 HT+	Special-Viton	50	36	15	40	22	3/8	89

VS O 2 / Suction Cup - oval, 2 Bellows, with Adapter



Remarks:

- **Application: for demoulding tasks where high holding forces are needed**
- for gripping long articles
- HE = High Temperature Poly-urathane

Connection:

- suction cups are vulcanised to the nipple

Scope of delivery:

- every VS is delivered with sealing ring

Drawing:

- C normal position
- C1 compressed position
- SWI internal hexagon
- SWA external hexagon

Part No.	Description	A [mm]	B [mm]	C [mm]	C1 [mm]	D [mm]	E ["]	SWA [mm]	SWI [mm]	Weight [g]
1-224-90-00	VS 2 O-30x60 HE	32	62	22	16	13	G1/4	17	5	36
1-224-91-00	VS 2 O-40x80 HE	42	82	25	16	13	G1/4	17	5	44

Application example VTB1



Application example VTB2



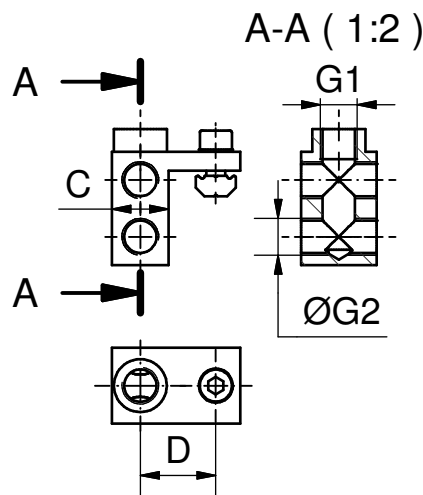
Application example LVT



VTB 1 / Manifold Block 4 Ports

Remarks:

- ▶ **Application: for expanding air circuits**
- can be mounted directly to profiles
- 1 circuit
- 1 inlet
- 4 ports



Part No.	Description	G1 ["]	G2 ["]	C [mm]	D [mm]	Input	Output	Material	Weight [g]
1-230-05-00	VTB X 1-4-1/8-1/8	G1/8	G1/8	15	20	1	4	Aluminum	31
1-230-12-00	VTB JU 1-4-1/8-1/8	G1/8	G1/8	15	27.5	1	4	Aluminum	36

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

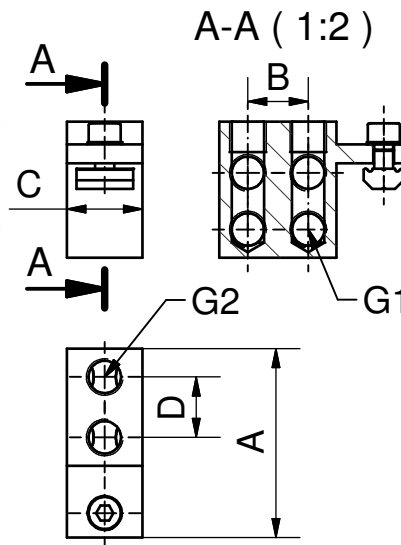
700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

VTB 2 / Manifold Block 8 Ports



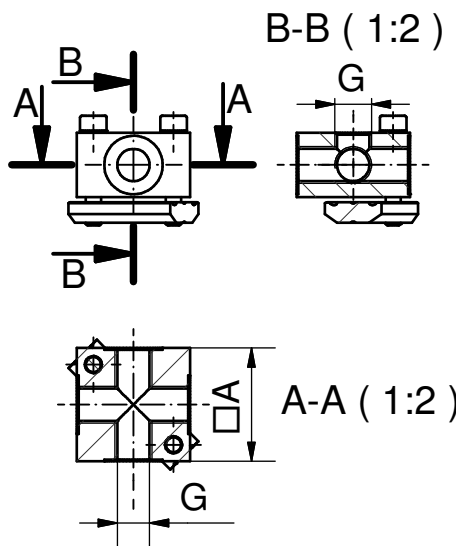
Remarks:

► **Application: for expanding air circuits**

- can be mounted directly to profiles
- VTB X 1-8-1/8-1/8 and VTB JU 1-8-1/8-1/8:
 - 1 circuit
 - 8 ports
- VTB X 2-8-1/8-1/8 and VTB JU 2-8-1/8-1/8:
 - 2 circuits
 - 4 ports per circuit

Part No.	Description	A [mm]	B [mm]	C [mm]	G1 ["]	G2 ["]	D [mm]	Input	Output	Circuits	Weight [g]
1-230-15-00	VTB X 1-8-1/8-1/8	50	15	20	G1/8	G1/8	15	1	8	1	47
1-230-25-00	VTB X 2-8-1/8-1/8	50	15	20	G1/8	G1/8	15	2	8	2	56
1-230-22-00	VTB JU 1-8-1/8-1/8	60	15	20	G1/8	G1/8	15	1	8	1	53
1-230-32-00	VTB JU 2-8-1/8-1/8	60	16	20	G1/8	G1/8	15	2	8	2	56

LVT / Light Weight Manifold Block



Remarks:

► **Application: for expanding air circuits**

- can be mounted directly to profiles
- 1 circuit
- 1 inlet
- 4 ports

Part No.	Description	A [mm]	G [mm] ["]	Input	Output	Material	Weight [g]
1-230-40-00	LVT L M5	14	5 x M5	1	4	Aluminum	13
1-230-45-00	LVT X 1/8	30	5 x G1/8	1	4	Aluminum	50
1-230-50-00	LVT X 1/4	40	5 x G1/4	1	4	Aluminum	99

Application examples AVI / VSA-VS2



VSA / Adapter for Suction Cups VN and Vacuum Cups VS

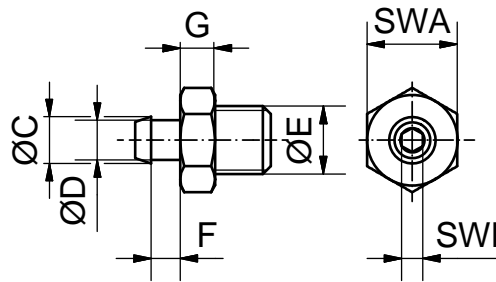
Remarks:

► **Application: adapter for Suction Cups VN and Vacuum Cups VS**

- see table and category 220

Scope of delivery:

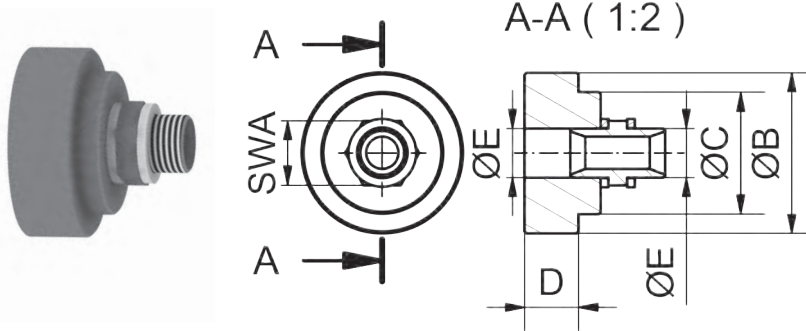
- does not include suction cup and clamp



	Part No.	Description	suitable for Suction Cup	installed in Vacuum Cup	SWA [mm]	SWI [mm]	C [mm]	D [mm]	E [mm] ["	F [mm]	G [mm]	Material	Weight [g]
New	1-290-04-00	VSA 4	VN 2	VS 2	8	-	6	4	M3	2.1	5	Al	1
	1-290-05-00	VSA 5	VN O / VN 2	VS O / VS 2	5		3	2	M3	1.5	2	Al	<1
	1-290-10-00	VSA 10	VN 1	VS 1	7		3	2	M5	1.5	5	CuZn	2
	1-290-15-00	VSA 15	VN O	VS O	8		6.5	5	M5	2	5	Al	1
New	1-290-16-00	VSA 16	VN 2 / VN 3	VS 2 / VS 3	7	-	6.6	4	M3	3.5	5	Al	1
New	1-290-17-00	VSA 17	VN 3	VS 3	8	-	4.5	3.6	M3	4	5	Al	1
	1-290-20-00	VSA 20	VN O	VS O	13	3	7.5	6	G1/8	2	5	CuZn	10
	1-290-25-00	VSA 30	VN 1 / VN 2 / VN 3	VS 1 / VS 2 / VS 3	7	2	6.2	4.2	M5	2	5	CuZn	3
	1-290-30-00	VSA 40	VN 2 / VN 3	VS 2 / VS 3	7	2	6.6	5.7	M5	4.2	5	CuZn	3
	1-290-35-00	VSA 50	VN 1	VS 1	13	3	9	5	G1/8	4.5	5	CuZn	36
	1-290-40-00	VSA 60	VN 1 / VN 2	VS 1 / VS 2	13	4	10	6.5	G1/8	6.65	5	CuZn	10
	1-290-45-00	VSA 70	VN 2 / VN 3	VS 2 / VS 3	13	3	6.7	5.7	G1/8	4.2	5	CuZn	10
	1-290-50-00	VSA 80	VN 1 / VN 2	VS 1 / VS 2	13	5	14	9	G1/8	7	5	CuZn	11
	1-290-55-00	VSA 90	VN 2 / VN 3	VS 2 / VS 3	13	5	13	9	G1/8	13	5	CuZn	13
	1-290-60-00	VSA 100	VN 3	VS 3	17	6	18	13	G1/4	19	5	CuZn	33
	1-290-65-00	VSA 110	VN 1 / VN 2	VS 1 / VS 2	17	5		M10x1.25	G1/4	10	5	CuZn	19
	1-290-70-00	VSA 130	VN O	VS O	17	6	13.5	12	G1/4	7	5	CuZn	23

- 000** Quick Change System
- 050** Profile-Channel Nut
- 100** Clamps
- 115** Tubular Clamps
- 120** Profile Connectors
- 190** Accessories-Profile
- 200** Vacuum Cup-Connectors
- 220** Vacuum Cups
- 224** Vacuum Cups-Special
- 230** Manifold
- 290** Adapter
- 300** Gripper Arms
- 400** Grippers
- 450** Gripper Fingers
- 600** Nipper Bodies
- 610** Nipper Blades
- 700** Special Elements
- 800** Electric and Sensors
- 850** Pneumatic
- 990** Other PA-Forming

AVS / Adapter for VAS-SBR

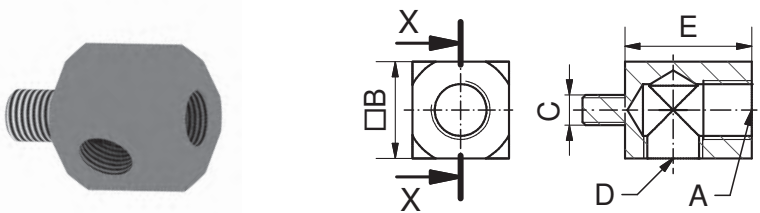


Remarks:

- adapter for suction cup VSN SBR
- installed in relative Vacuum Cups VAS SBR

Part No.	Description	SWA [mm]	B [mm]	C [mm]	D [mm]	E ["]	Material	Weight [g]
1-290-33-00	AVS 40	14	21	18	3.2	G1/8	CuZn/POM	14
1-290-47-00	AVS 70	17	42.5	32	14	G1/4	CuZn/POM	52

AVI / Adapter, female



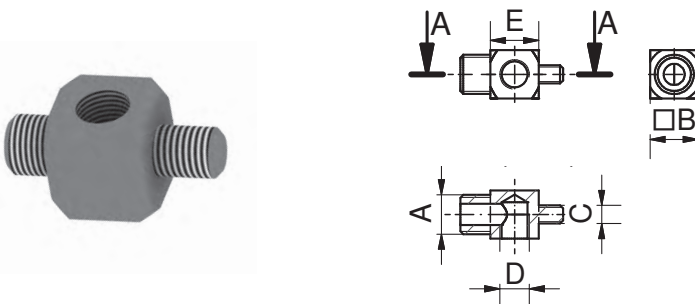
Remarks:

Drawing:

- A for mounting vacuum cups
C for mounting on short stroke cylinder KHZ

Part No.	Description	A [mm] ["]	B [mm]	C [mm]	D [mm]	E [mm]	Material	Weight [g]
1-290-73-00	AVI 5-5-5	M5	8	M5	M5	12	Steel/zinc plated	5
1-290-75-00	AVI 3-5-5	M5	8	M3	M5	12	Steel/zinc plated	4
1-290-76-00	AVI M5-1/8-1/8	G1/8	16	M5	G1/8	21	Steel/zinc plated	30
1-290-77-00	AVI 8-1/8-1/8	G1/8	16	M8	G1/8	21	Aluminum	12
1-290-79-00	AVI 8-1/4-1/8	G1/4	16	M8	G1/8	26	Aluminum	12

AVA / Adapter, male



Remarks:

Drawing:

- A for mounting vacuum cups
C for mounting on short stroke cylinder KHZ

Part No.	Description	A ["]	B [mm]	C [mm]	D ["]	E [mm]	Material	Weight [g]
1-290-81-00	AVA 6-1/8-1/8	G1/8	16	M6	G1/8	16	Aluminum	10
1-290-83-00	AVA 8-1/8-1/8	G1/8	16	M8	G1/8	16	Aluminum	10
1-290-85-00	AVA 6-1/4-1/8	G1/4	16	M6	G1/8	16	Aluminum	32
1-290-87-00	AVA 8-1/4-1/8	G1/4	16	M8	G1/8	16	Aluminum	11

VSA 2K / Adapter for 2-Component Suction and Vacuum Cups

Remarks:

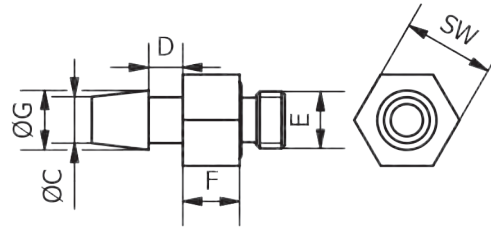
- adapter for suction cups VN 2K
- can be used with VN 2 2K and VN 3 2K (see table)

Scope of Delivery:

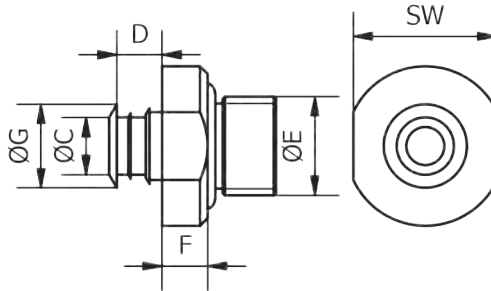
- every adapter comes with a seal ring

Note *1:

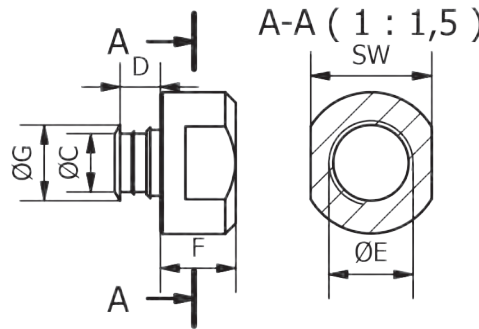
Adapters have to be reduced from G3/8 to G1/4 to work with ASS components. Use PDN 3/8-1/4, category 850.



1-290-90-00



1-290-91-00
1-290-92-00



1-290-93-00

Part No.	Description	SW [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	Material
1-290-90-00	VSA 2K 15 M	8	4	3	M5	5	5.2	Aluminium
1-290-91-00	VSA 2K 20 M	13	7.5	4.5	1/8"	4	8	Aluminium
1-290-92-00	VSA 2K 40 M	19	9	6	1/4"	6	11	Aluminium
1-290-93-00	VSA 2K 50 F	24	11.5	8	3/8"	15	15	Aluminium

Part No.	Description	Connection	fits for Suction Cup	used in Vacuum Cup	Weight [g]
1-290-90-00	VSA 2K 15 M	M5	VN 2-15-2K	VS 2-15-2K5	1
1-290-91-00	VSA 2K 20 M	G 1/8	VN 2-20-2K VN 3-20-2K VN 3-30-2K	VS 2-20-2K8 VS 3-20-2K8 VS 3-30-2K8	2
1-290-92-00	VSA 2K 40 M	G 1/4	VN 2-30-2K VN 2-40-2K VN 3-40-2K	VS 2-30-2K4 VS 2-40-2K4 VS 3-40-2K4	7
1-290-93-00	VSA 2K 50 F	G 3/8*1	VN 2-50-2K VN 3-50-2K	VS 2-50-2K3-8 VS 3-50-2K3-8	17

000
Quick Change
System

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special
Elements

800
Electric and
Sensors

850
Pneumatic

VSE / Vacuum Cup Inserts



Application examples::
Left figure shows the application in the first bellow. If the application requires a stronger seal by the lip, the VSE also can be inserted into the second bellow (right figure).

Remarks:

- ▶ **Application: prevents buckling, e.g. with warm plastic components or tempered FVK organo sheets**
- insert for vacuum cups
- temperature range from -50° to + 260° Celsius in long-term use
- PEEK = Polyetheretherketone
- temperature-resistant, thermoplastic material
- optimal in combination with our HE vacuum cups (HE = High Temperature Elastomer)
- easy to use
- easy to install in compatible vacuum cups
- pictures may differ

Part No.	Description	compatible to Vacuum Cup/Suction Cup	Material	Weight [g]
1-291-10-00	VSE 2-10 PEEK	VN 2-10-HE VS 2-10-HE5	Polyetheretherketone	<1
1-291-20-00	VSE 3-10 PEEK	VN 3-10-HE VS 3-10-HE5 VS 3-10-HE8	Polyetheretherketone	<1
1-291-30-00	VSE 3-15 PEEK	VN 3-15-HE VS 3-15-HE5 VS 3-15-HE8	Polyetheretherketone	<1
1-291-40-00	VSE 2-15 PEEK	VN 2-15-HE VS 2-15-HE5 VS 2-15-HE8 VN 3-18-HE	Polyetheretherketone	<1
1-291-50-00	VSE 2-18 PEEK	VN 2-18-HE VS 2-18-HE5 VS 2-18-HE8	Polyetheretherketone	<1
1-291-60-00	VSE 3-20 PEEK	VN 3-20-HE VS 3-20-HE5 VS 3-20-HE8	Polyetheretherketone	1
1-291-70-00	VSE 2-23/3-25 PEEK	VN 2-23-HE VS 2-23-HE5 VS 2-23-HE8 VN 3-25-HE VS 3-25-HE5 VS 3-25-HE8	Polyetheretherketone	3
1-291-80-00	VSE 2/3-30 PEEK	VN 2-30-HE VS 2-30-HE8 VN 3-30-HE VS 3-30-HE8	Polyetheretherketone	5

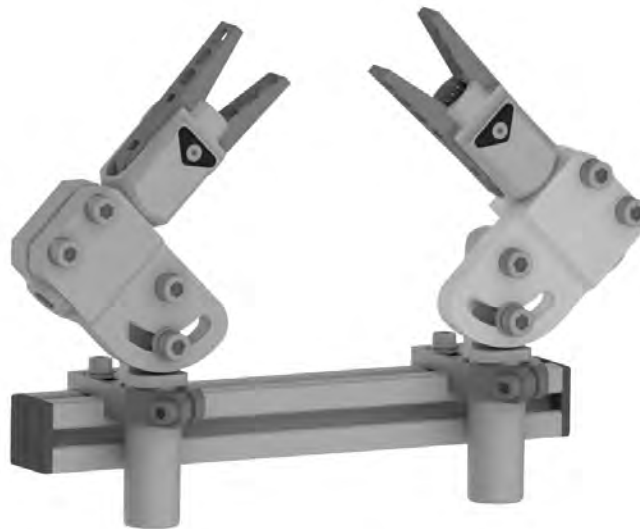
App. example WKA



App. example GLA / GLA-V



Application example GLA-V / GLA-VM



App. ex. GSE / GSE-U / GGE



App. ex. GAF / GAF U / GGS



000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

000
Quick Change
System

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special
Elements

800
Electric and
Sensors

850
Pneumatic

990
Other
PA-Forming

300 | Gripper Arms

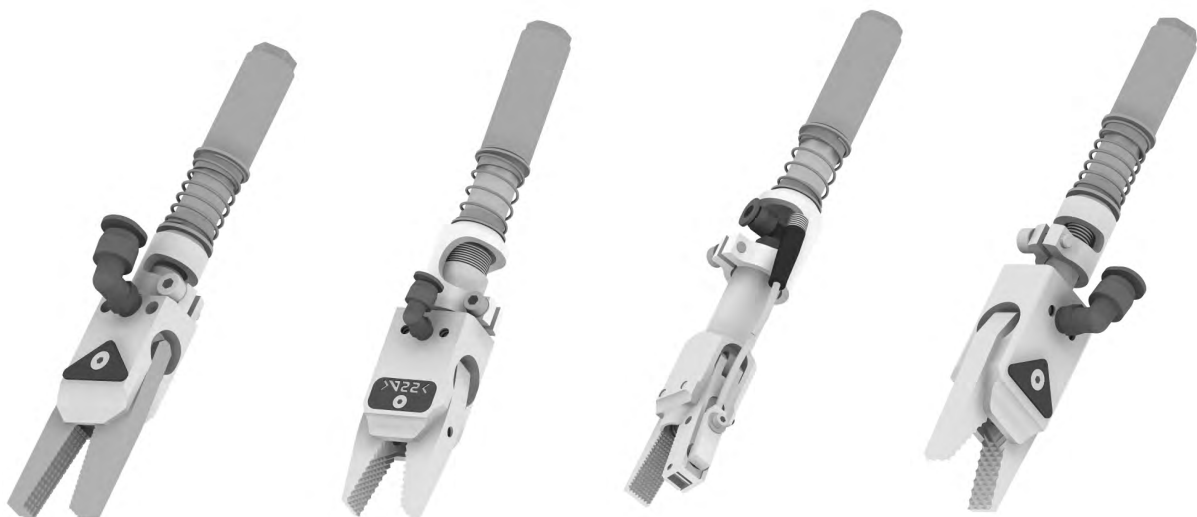
Application example GKG



Application example GGG 90

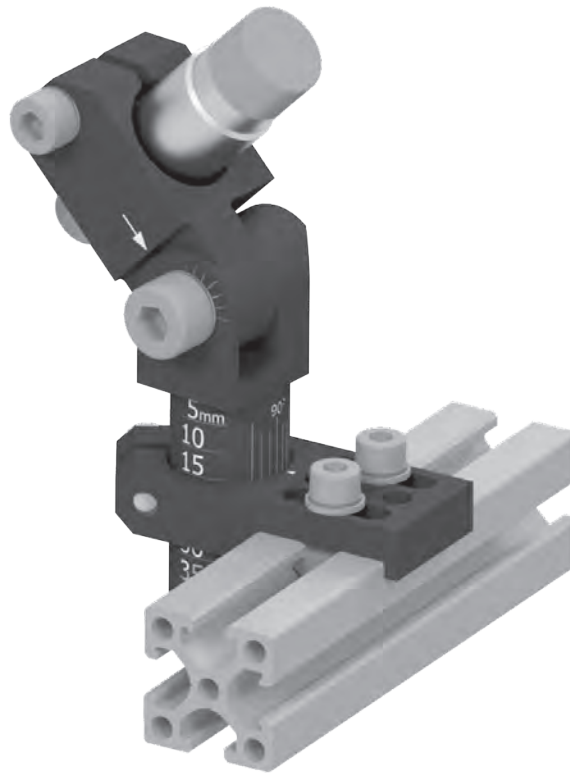


Application examples GGG



Application example Blue Scale

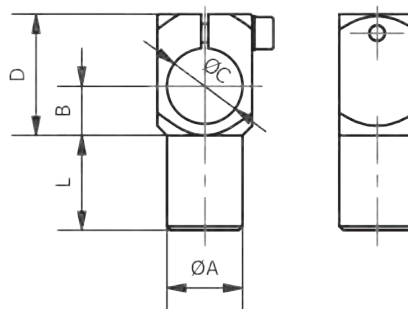
The combination of several Blue Scale elements (here WST BS and GLA-V BS) enables the most exact settings on the profile and e.g. is particularly suitable when using sensors.



SKS / Short Angle Arm

Remarks:

- **Application: e.g. for easy mounting of cylindrical components ob short distance**
- easy to handle
- various mounting options
- secure connection by cylinder screw



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	L [mm]	Material	Weight [g]
1-320-39-00	SKS 10-10	10	7	10	19	15	Aluminium	8
1-320-42-00	SKS 14-14	14	10	14	26	20	Aluminium	19
1-320-45-00	SKS 20-20	20	13	20	32	25	Aluminium	36
1-320-46-00	SKS 20-30	20	18	30	44	34	Aluminium	72
1-320-48-00	SKS 30-30	30	19	30	44	40	Aluminium	130

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

WKA / Angle Arm

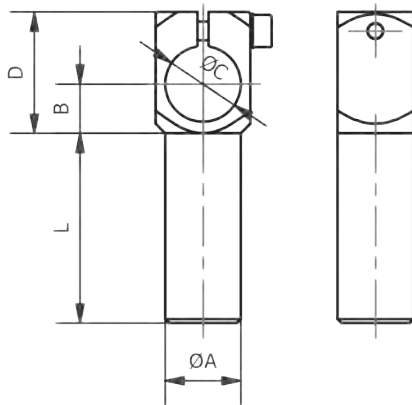
WKA



WKA BS



BLUE SCALE



Remarks:

Type WKA

- ▶ **Application:** e.g. for easy mounting of cylindrical components
- easy to handle
- various mounting options
- secure connection by cylinder screw
- WKA 20-14-100 including integrated set screw with tip for additional fixing

Type WKA BS „Blue Scale“

- ▶ **Application:** for exact mounting and replicable positioning of angles etc.
- see above
- blue anodized
- with length- and angle-scales for exact positioning
- more Blue Scale parts are available for WST, GLA and GLA V

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	L [mm]	Material	Weight [g]
1-320-03-00	WKA 10-10-30	10	7	10	19	30	Aluminium	10
1-320-06-00	WKA 10-10-60	10	7	10	19	60	Aluminium	13
1-320-09-00	WKA 10-10-90	10	7	10	19	90	Aluminium	16
1-320-12-00	WKA 14-14-40	14	10	14	26	40	Aluminium	22
1-320-15-00	WKA 14-14-80	14	10	14	26	80	Aluminium	31
1-320-18-00	WKA 14-14-120	14	10	14	26	120	Aluminium	41
1-320-19-00	WKA 20-14-100	20	13	14	32	100	Aluminium	68
1-320-21-00	WKA 20-20-50	20	13	20	32	50	Aluminium	46
1-320-22-00	WKA 20-20-50 BS	20	13	20	32	50	Aluminium	46
1-320-24-00	WKA 20-20-100	20	13	20	32	100	Aluminium	61
1-320-25-00	WKA 20-20-100 BS	20	13	20	32	100	Aluminium	61
1-320-27-00	WKA 20-20-150	20	13	20	32	150	Aluminium	80
1-320-28-00	WKA 20-20-150 BS	20	13	20	32	150	Aluminium	80
1-320-30-00	WKA 30-30-80	30	19	30	44	80	Aluminium	176
1-320-33-00	WKA 30-30-140	30	19	30	44	140	Aluminium	276
1-320-36-00	WKA 30-30-200	30	19	30	44	200	Aluminium	348

New

New

New

New

GLA / Elbow Gripper Arm

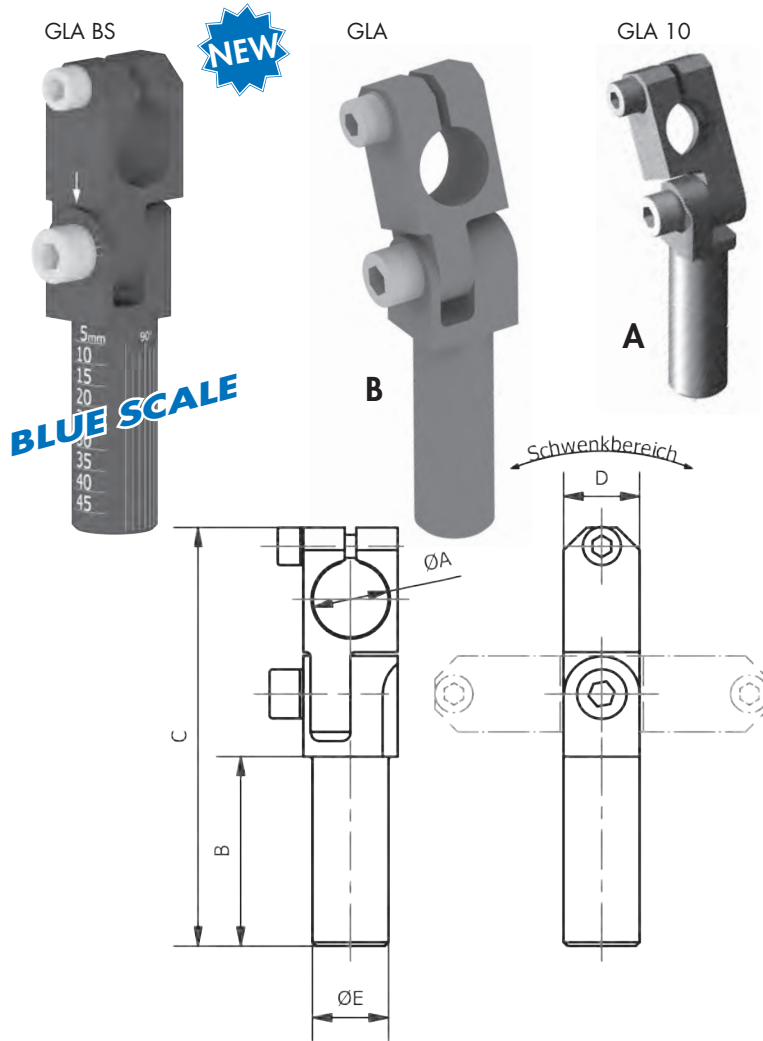
Remarks:

Type GLA

- ▶ **Application:** e.g. for clamping grippers or vacuum cups at an angle
- swivel locking mechanism improved from on $\varnothing 14$
- swivel locking mechanism is stronger and holds the clamp head keeping in place
- gripper arm made of anodized aluminium
- high degree of flexibility +/- 90°
 - » image A shows size 10 series
 - » image B from on $\varnothing 14$ series

Type GLA BS „Blue Scale“

- ▶ **Application:** for exact mounting and replicable positioning of angles etc.
- » see above
- » blue anodized
- » with length- and angle-scales for exact positioning
- » more Blue Scale parts are available for WST, WKA and GLA V



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Swivel area [°]	Material	Weight [g]
1-325-03-00	GLA10-10-30	10	30	64	10	10	+/-90	Al	17
1-325-06-00	GLA10-10-60	10	60	94	10	10	+/-90	Al	20
1-325-09-00	GLA10-10-90	10	90	124	10	10	+/-90	Al	23
1-325-12-00	GLA14-14-40	14	40	86	14	14	+/-90	Al	39
1-325-15-00	GLA14-14-80	14	80	126	14	14	+/-90	Al	48
1-325-18-00	GLA14-14-120	14	120	166	14	14	+/-90	Al	58
1-325-21-00	GLA20-20-50	20	50	110,5	20	20	+/-90	Al	92
New 1-325-22-00	GLA 20-20-50 BS	20	50	110,5	20	20	+/-90	Al	92
1-325-24-00	GLA20-20-100	20	100	160,5	20	20	+/-90	Al	107
New 1-325-25-00	GLA 20-20-100 BS	20	100	160,5	20	20	+/-90	Al	107
1-325-27-00	GLA20-20-150	20	150	210,5	20	20	+/-90	Al	126
New 1-325-28-00	GLA 20-20-150 BS	20	150	210,5	20	20	+/-90	Al	126
1-325-30-00	GLA20-30-50	30	50	125,5	28	20	+/-90	Al	149
1-325-33-00	GLA20-30-100	30	100	175,5	28	20	+/-90	Al	163
1-325-36-00	GLA20-30-150	30	150	225,5	28	20	+/-90	Al	183
1-325-39-00	GLA30-30-80	30	80	161,5	30	30	+/-90	Al	295
1-325-42-00	GLA30-30-140	30	140	221,5	30	30	+/-90	Al	338
1-325-45-00	GLA30-30-200	30	200	281,5	30	30	+/-90	Al	432

000 Quick Change System

050 Profile-Channel Nut

100 Clamps

115 Tubular Clamps

120 Profile Connectors

190 Accessories-Profile

200 Vacuum Cup-Connectors

220 Vacuum Cups

224 Vacuum Cups-Special

230 Manifold

290 Adapter

300 Gripper Arms

400 Grippers

450 Gripper Fingers

600 Nipper Bodies

610 Nipper Blades

700 Special Elements

800 Electric and Sensors

850 Pneumatic

990 Other PA-Forming

GLA V / Elbow Gripper Arm, heavy duty



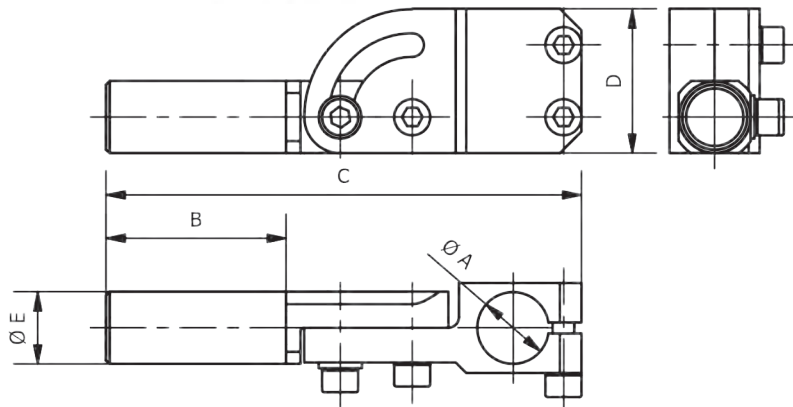
Remarks:

Type GLA V

- ▶ **Application:** e.g. for clamping grippers or vacuum cups at an angle
- reinforced version with extra high clamping force
- angle adjustment and clamping by 2 screws
- high flexibility: swivel range +/- 90°
- for high load

Type GLA V BS „Blue Scale“

- ▶ **Application:** for exact mounting and replicable positioning of angles etc.
- » see above
- » blue anodized
- » with length- and angle-scales for exact positioning
- » more Blue Scale parts are available for WST, WKA and GLA



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Swivel area [°]	Material	Weight [g]
1-325-53-00	GLA V 10-10-30	10	30	74	20	10	0-90	Aluminium	27
1-325-56-00	GLA V 10-10-60	10	60	104	20	10	0-90	Aluminium	30
1-325-59-00	GLA V 10-10-90	10	90	134	20	10	0-90	Aluminium	33
1-325-62-00	GLA V 14-14-40	14	40	99	28	14	0-90	Aluminium	63
1-325-65-00	GLA V 14-14-80	14	80	139	28	14	0-90	Aluminium	72
1-325-68-00	GLA V 14-14-120	14	120	179	28	14	0-90	Aluminium	82
1-325-71-00	GLA V 20-20-50	20	50	129	40	20	0-90	Aluminium	154
1-325-72-00	GLA V 20-20-50 BS	20	50	129	40	20	0-90	Aluminium	154
1-325-74-00	GLA V 20-20-100	20	100	179	40	20	0-90	Aluminium	169
1-325-75-00	GLA V 20-20-100 BS	20	100	179	40	20	0-90	Aluminium	169
1-325-77-00	GLA V 20-20-150	20	150	229	40	20	0-90	Aluminium	190
1-325-78-00	GLA V 20-20-150 BS	20	150	229	40	20	0-90	Aluminium	190
1-325-89-00	GLA V 30-30-80	30	80	190	60	30	0-90	Aluminium	493
1-325-92-00	GLA V 30-30-140	30	140	250	60	30	0-90	Aluminium	568
1-325-95-00	GLA V 30-30-200	30	200	310	60	30	0-90	Aluminium	627

New

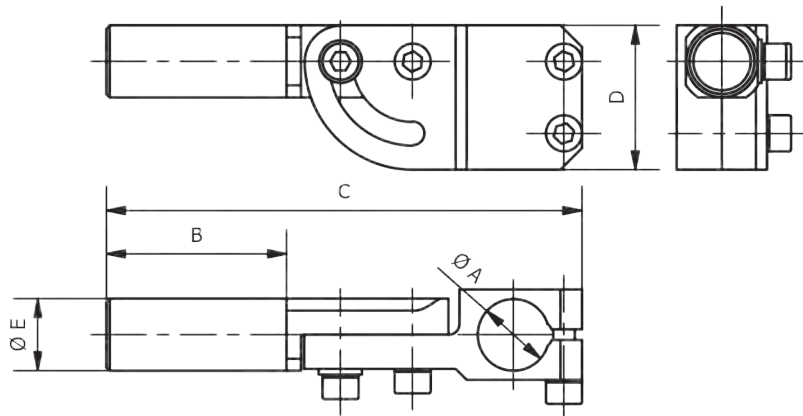
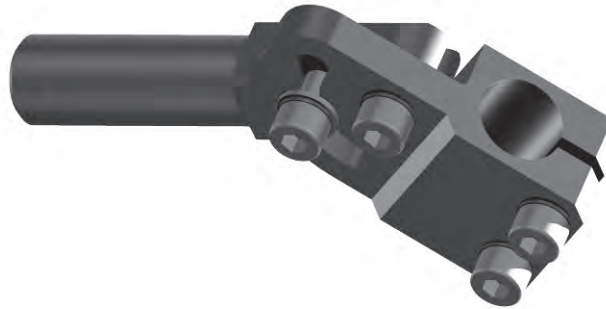
New

New

GLA-VM/ Elbow Gripper Arm, heavy duty, mirrored

Remarks:

- ▶ **Application:** In combination with the GLA-V it is easily possible to build mirror-imaged robot hands.
- increases the ease of installation
- mirrored design of the GLA V
- allows better setting options in a robot hand
- clamping diameter as standard Elbow Gripper Arm
- angle adjustment and clamping by 2 screws
- for high load



Application example shows the combination of GLA V and the mirrored version, the GLA VM.

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Swivel area [°]	Material	Weight [g]
1-327-53-00	GLA VM 10-10-30	10	30	74	20	10	0-90	Aluminium	26
1-327-56-00	GLA VM 10-10-60	10	60	104	20	10	0-90	Aluminium	30
1-327-59-00	GLA VM 10-10-90	10	90	134	20	10	0-90	Aluminium	33
1-327-62-00	GLA VM 14-14-40	14	40	99	28	14	0-90	Aluminium	63
1-327-65-00	GLA VM 14-14-80	14	80	139	28	14	0-90	Aluminium	72
1-327-68-00	GLA VM 14-14-120	14	120	179	28	14	0-90	Aluminium	82
1-327-71-00	GLA VM 20-20-50	20	50	129	40	20	0-90	Aluminium	153
1-327-74-00	GLA VM 20-20-100	20	100	179	40	20	0-90	Aluminium	168
1-327-77-00	GLA VM 20-20-150	20	150	229	40	20	0-90	Aluminium	190
1-327-89-00	GLA VM 30-30-80	30	80	190	60	30	0-90	Aluminium	490
1-327-92-00	GLA VM 30-30-140	30	140	250	60	30	0-90	Aluminium	567
1-327-95-00	GLA VM 30-30-200	30	200	310	60	30	0-90	Aluminium	628

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

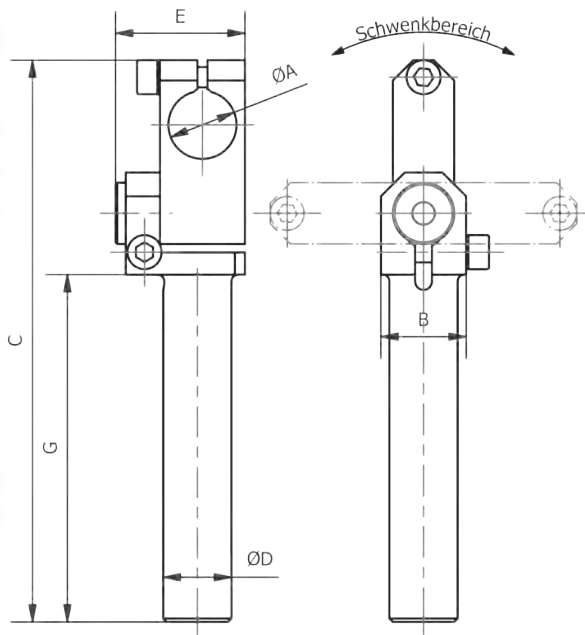
610
Nipper Blades

700
Special Elements

800
Electric and Sensors

850
Pneumatic

GGW / Gripper Arm, +/-90 degree

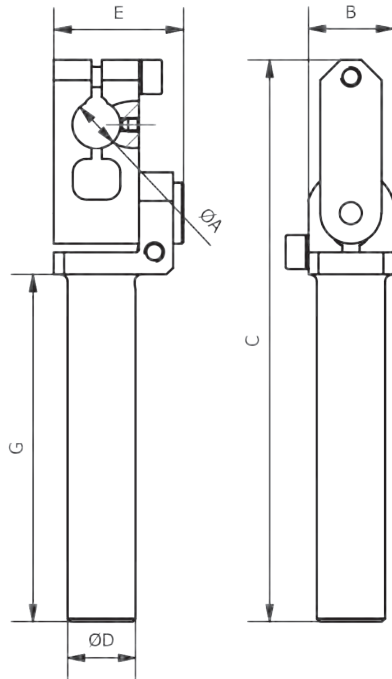


Remarks:

- ▶ **Application:** e.g. for clamping grippers or vacuum cups at a special angle
- head can be swiveled by +/- 90°
- swivelable head can be tightened by a separated screw
- GGW 20-14-100 including integrated set screw with tip for additional fixing



1-316-35-00



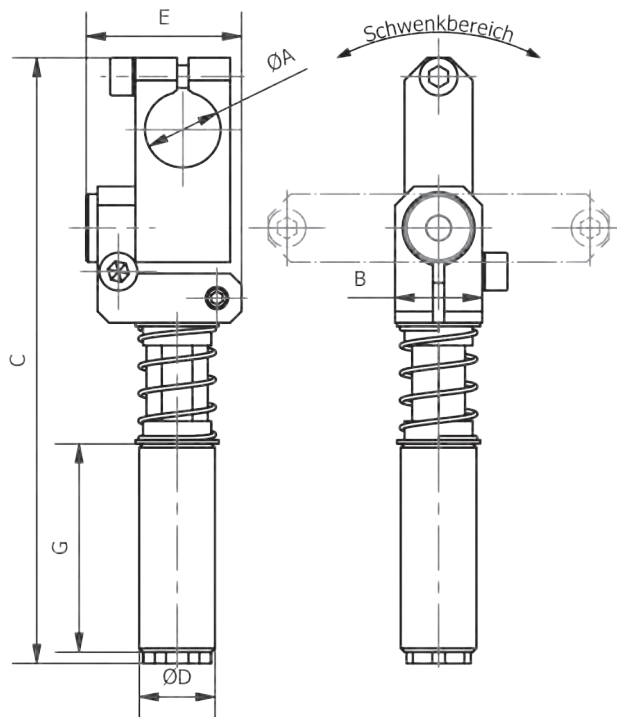
Part No.	Description	Ø A [mm]	B [mm]	C [mm]	Ø D [mm]	E [mm]	G [mm]	Material	Weight [g]
1-316-03-00	GGW 10-10-30	10	15	67	10	23	30	Aluminium	20
1-316-06-00	GGW 10-10-60	10	15	97	10	23	60	Aluminium	24
1-316-09-00	GGW 10-10-90	10	15	127	10	23	90	Aluminium	27
1-316-21-00	GGW 14-14-40	14	20	88	14	30	40	Aluminium	46
1-316-24-00	GGW 14-14-80	14	20	130	14	30	80	Aluminium	55
1-316-27-00	GGW 14-14-120	14	20	168	14	30	120	Aluminium	63
1-316-35-00	GGW 20-14-100	14	25	165	20	38	102	Aluminium	111
1-316-39-00	GGW 20-20-50	20	25	114	20	38	50	Aluminium	96
1-316-42-00	GGW 20-20-100	20	25	165	20	38	100	Aluminium	112
1-316-45-00	GGW 20-20-150	20	25	214	20	38	150	Aluminium	127

New

GGW / Gripper Arm, spring comp., lock. against rotation, +/-90°

Remarks:

- ▶ **Application:** e.g. for clamping a grippers at a special angle
- head can be swiveled by +/- 90°
- swivelable head can be tightened by a separated screw
- spring loaded to compensate ejector travel
- locked against rotation



Part No.	Description	Ø A [mm]	B [mm]	C [mm]	Ø D [mm]	E [mm]	Spring travel F [mm]	G [mm]	Material	Weight [g]
1-362-03-00	GGW 10-10-10	10	14	87	10	24	10	25	Al/CuZn	44
1-362-09-00	GGW 14-14-15	14	18	114	15	33	15	32	Al/CuZn	79
New 1-362-15-00	GGW 14-14-40	14	18	139	14	33	40	32	Al/CuZn	83
1-362-21-00	GGW 20-20-20	20	23	160	20	41	20	55	Al/CuZn	193
New 1-362-22-00	GGW 20-10-20	10	23	160	20	41	20	55	Al/CuZn	204
New 1-362-27-00	GGW 20-20-50	20	23	190	20	41	50	55	Al/CuZn	200
New 1-362-28-00	GGW 20-10-50	10	23	190	20	41	50	55	Al/CuZn	234

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special Elements

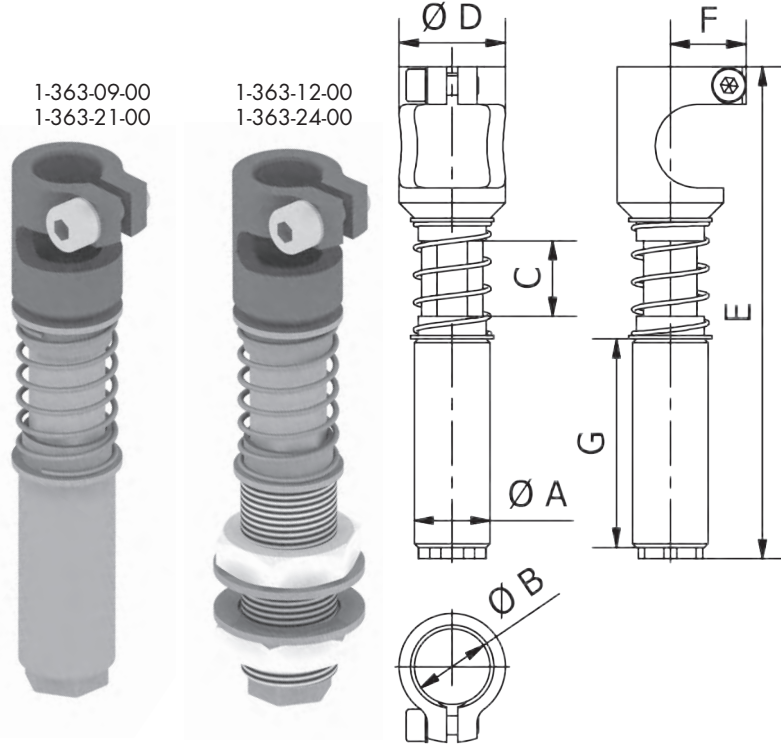
800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

300 | Gripper Arms

GGG / Gripper Arm, spring comp., locked against rot., for GRZ

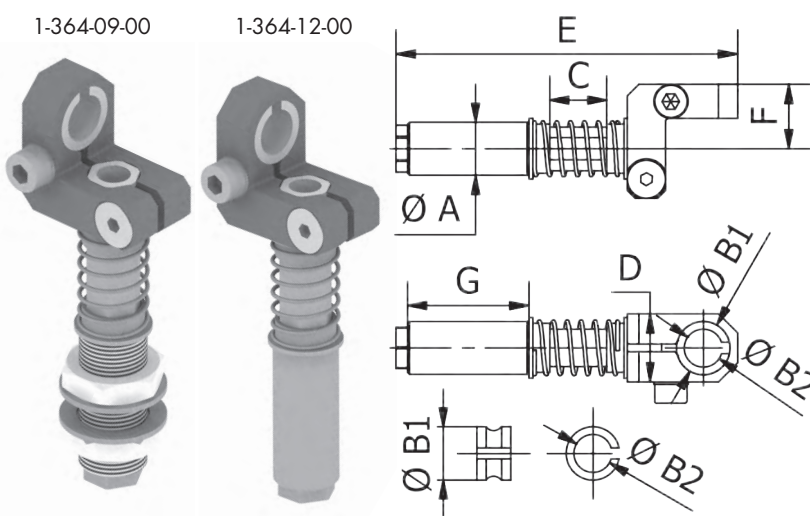


Remarks:

- **Application:** e.g. for mounting grippers GRZ in x-axis (ejection direction)
- GGG 14 compatible to:
 - GRZ 10-12 series
 - GRZ 14 with adapter AD 10 GRZ 14
- GGG 20 compatible to:
 - GRZ 20-16 series
 - GRZ 20-20

Part No.	Description	A [mm]	B [mm]	C Spring travel [mm]	D [mm]	E [mm]	F [mm]	G [mm]	Weight [g]
1-363-09-00	GGG 14-10-15	14	10	15	16	82,5	12,5	32	43
1-363-12-00	GGG M14-10-15	M14x1	10	15	16	82,5	12,5	32	54
1-363-21-00	GGG 20-20-20	20	20	20	28	130	20	55	134
1-363-24-00	GGG M20-20-20	M20x1,5	20	20	28	130	20	55	156

GGG 90 / Gripper Arm, spring comp., lock against rot., for GRZ, 90°



Remarks:

- **Application:** e.g. for mounting grippers GRZ in an angle of 90°
- GGG 90 14 compatible to:
 - GRZ 10-12 series
 - GRZ 14 with adapter AD 10 GRZ 14

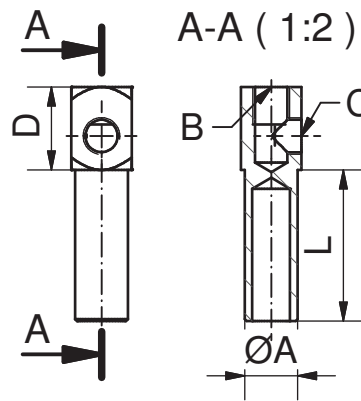
Attention: GGK is needed for application with high moments of force!

Part No.	Description	A [mm]	B1 [mm]	B2 [mm]	C Spring travel [mm]	D [mm]	E [mm]	F [mm]	G [mm]	Weight [g]
1-364-09-00	GGG 90 14-10-15	14	14	10	15	18	90	17	32	56
1-364-12-00	GGG 90 M14-10-15	M14x1	14	10	15	18	90	17	32	67

GSE / Gripper Arm for Suction Cups with air connection

Remarks:

- ▶ **Application: for mounting vacuum cups to the robot hand**
- vacuum connection sidewise
- position of the vacuum cup can be infinitely adjusted in depth
- also available with external thread on request



Part No.	Description	A [mm]	B [mm] ["]	C [mm] ["]	D [mm]	L [mm]	Weight [g]
1-310-03-00	GSE 10-M5-M5-30	10	M5	M5	16	30	7
1-310-06-00	GSE 10-M5-M5-60	10	M5	M5	16	60	10
1-310-09-00	GSE 10-M5-M5-90	10	M5	M5	16	90	14
1-310-21-00	GSE 10-1/8-M5-30	10	G1/8	M5	16	30	9
1-310-24-00	GSE 10-1/8-M5-60	10	G1/8	M5	16	60	12
1-310-27-00	GSE 10-1/8-M5-90	10	G1/8	M5	16	90	16
1-310-40-00	GSE 14-1/8-1/8-40	14	G1/8	G1/8	22	40	20
1-310-43-00	GSE 14-1/8-1/8-80	14	G1/8	G1/8	22	80	28
1-310-46-00	GSE 14-1/8-1/8-120	14	G1/8	G1/8	22	120	38
1-310-60-00	GSE 20-1/4-1/8-50	20	G1/4	G1/8	23	50	36
1-310-63-00	GSE 20-1/4-1/8-100	20	G1/4	G1/8	23	100	51
1-310-66-00	GSE 20-1/4-1/8-150	20	G1/4	G1/8	23	150	69
1-310-78-00	GSE 30-1/4-1/4-80	30	G1/4	G1/4	30	80	122
1-310-81-00	GSE 30-1/4-1/4-140	30	G1/4	G1/4	30	120	169
1-310-84-00	GSE 30-1/4-1/4-200	30	G1/4	G1/4	30	200	254

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

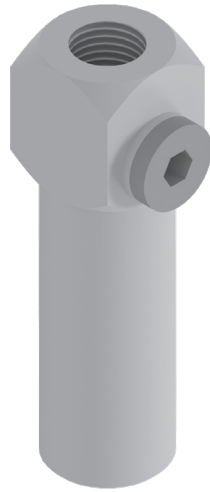
700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

GSE U / Gripper Arm for Vacuum Cups, with air duct



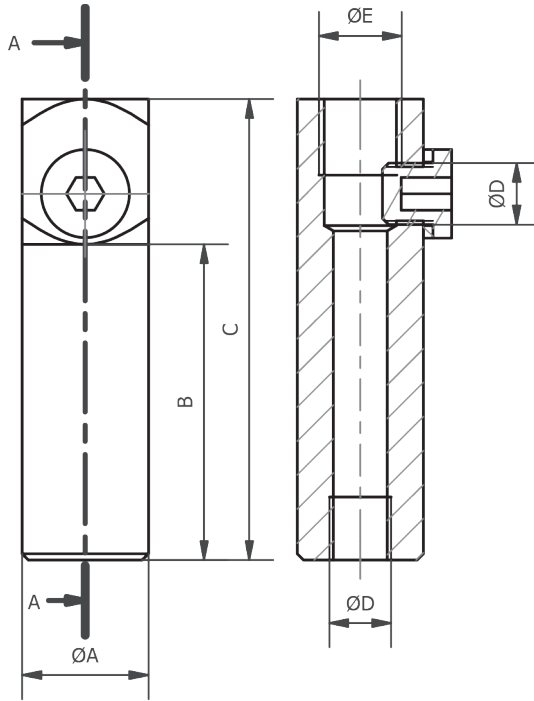
Remarks:

► **Application:** for mounting vacuum cups to the robot hand

- vacuum connection sidewise or air duct
- also available with external thread on request

Scope of delivery:

- sealing screw included

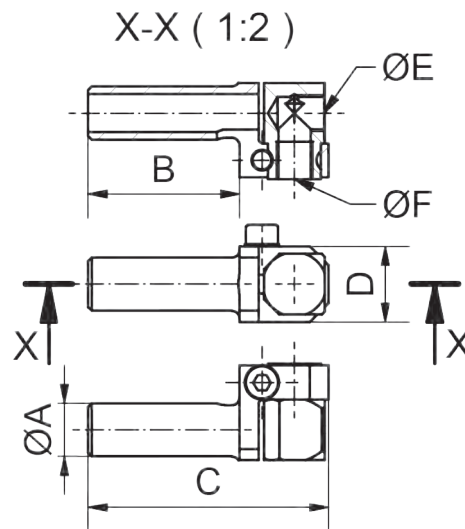


Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Material	Weight [g]
1-311-00-00	GSE U 10-M5-M5-30	10	30	46	M5	M5	Aluminium	11
1-311-01-00	GSE U 10-M5-M5-60	10	60	76	M5	M5	Aluminium	16
1-311-02-00	GSE U 10-M5-M5-90	10	90	106	M5	M5	Aluminium	21
1-311-03-00	GSE U 10-1/8-M5-30	10	30	45	M5	G1/8	Aluminium	13
1-311-04-00	GSE U 10-1/8-M5-60	10	60	75	M5	G1/8	Aluminium	18
1-311-05-00	GSE U 10-1/8-M5-90	10	90	105	M5	G1/8	Aluminium	23
1-311-06-00	GSE U 14-1/8-1/8-40	14	40	62	G1/8	G1/8	Aluminium	27
1-311-07-00	GSE U 14-1/8-1/8-80	14	80	102	G1/8	G1/8	Aluminium	37
1-311-08-00	GSE U 14-1/8-1/8-120	14	120	142	G1/8	G1/8	Aluminium	48
1-311-09-00	GSE U 20-1/4-1/8-50	20	50	73	G1/8	G1/4	Aluminium	59
1-311-10-00	GSE U 20-1/4-1/8-100	20	100	123	G1/8	G1/4	Aluminium	94
1-311-11-00	GSE U 20-1/4-1/8-150	20	150	173	G1/8	G1/4	Aluminium	130

GGE / Swivel Head Gripper Arm for Vacuum Cups

Remarks:

- ▶ **Application: for mounting vacuum cups at an angle**
- swivel head can be clamped separately by cylinder screw
- air connection (F) on the side



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm] ["]	F [mm] ["]	Material	Weight [g]
1-315-03-00	GGE 10-M5-M5-30	10	30	48	15	M5	M5	Al	14
1-315-06-00	GGE 10-M5-M5-60	10	60	78	15	M5	M5	Al	17
1-315-09-00	GGE 10-M5-M5-90	10	90	108	15	M5	M5	Al	21
1-315-21-00	GGE 14-1/8-1/8-40	14	40	65	20	G1/8	G1/8	Al	30
1-315-24-00	GGE 14-1/8-1/8-80	14	80	105	20	G1/8	G1/8	Al	39
1-315-27-00	GGE 14-1/8-1/8-120	14	120	145	20	G1/8	G1/8	Al	47
1-315-39-00	GGE 20-1/4-1/4-50	20	50	82	25	G1/4	G1/4	Al	61
1-315-42-00	GGE 20-1/4-1/4-100	20	100	132	25	G1/4	G1/4	Al	76
1-315-45-00	GGE 20-1/4-1/4-150	20	150	182	25	G1/4	G1/4	Al	92

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

GAF / GAF M / Spring Compensated Gripper Arm for Vacuum Cups



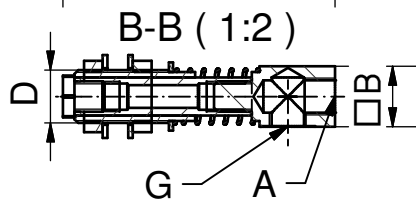
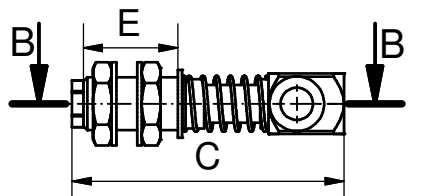
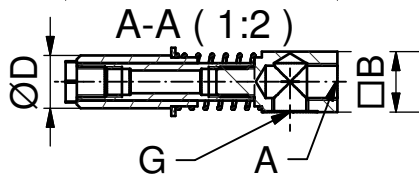
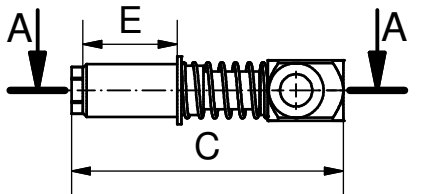
1-355-06-00
1-355-12-00
1-355-13-00
1-355-21-00
1-355-22-00

1-355-03-00
1-355-09-00
1-355-10-00
1-355-15-00
1-355-16-00

Remarks:

► **Application: for mounting vacuum cups in the robot hand**

- vacuum connection can only be mounted sidewise
- for rotationally symmetrical vacuum cups
- vacuum cup can rotate relative to the clamping piece
- for best positioning of vacuum cups to the part to be removed
- spring travel to compensate for the ejector stroke
- gripper arm is guided with rotation enabled
- high quality stainless steel spring



Part No.	Description	A [mm] ["]	B [mm]	C [mm]	D [mm]	E [mm]	G [mm] ["]	Spring travel [mm]	Material	Weight [g]
1-355-03-00	GAF 10-M5-M5-10	M5	10	58	10	25	M5	10	St/CuZn	18
1-355-06-00	GAF M10-M5-M5-10	M5	10	58	M10x1	25	M5	10	St/CuZn	23
1-355-09-00	GAF 14-1/8-1/8-15	G1/8	16	72	14	25	G1/8	15	Al/CuZn	38
1-355-10-00	GAF 14-1/8-1/8-40	G1/8	16	97	14	25	G1/8	40	Al/CuZn	42
1-355-12-00	GAF M14-1/8-1/8-15	G1/8	16	72	M14x1	25	G1/8	15	Al/CuZn	51
1-355-13-00	GAF M14-1/8-1/8-40	G1/8	16	97	M14x1	25	G1/8	40	Al/CuZn	54
1-355-15-00	GAF 20-1/4-1/8-20	G1/4	20	109	20	50	G1/8	20	Al/CuZn	111
1-355-16-00	GAF 20-1/4-1/8-50	G1/4	20	139	20	50	G1/8	50	Al/CuZn	115
1-355-21-00	GAF M20-1/4-1/8-20	G1/4	20	109	M20x1.5	50	G1/8	20	Al/CuZn	133
1-355-22-00	GAF M20-1/4-1/8-50	G1/4	20	139	M20x1.5	50	G1/8	50	Al/CuZn	140

GAF U / Spring Comp. Gripper Arm for Vacuum Cups, with air duct

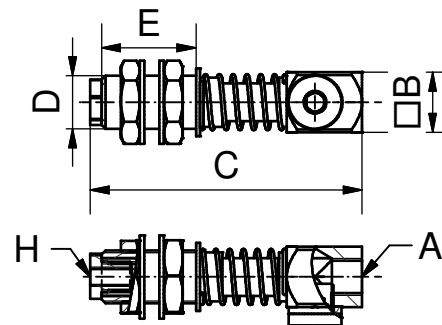
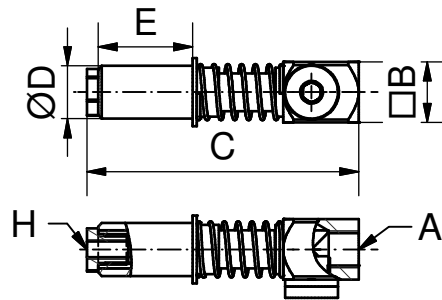
Remarks:

- **Application: for mounting vacuum cups in the robot hand**
- vacuum connection can be mounted sidewise or at the end of the gripper arm
- for rotationally symmetrical vacuum cups
- vacuum cup can rotate relative to the clamping piece
- for best positioning of vacuum cups to the part to be removed
- spring travel to compensate for the ejector stroke
- gripper arm is guided with rotation enabled
- high quality stainless steel spring

1-356-09-00
1-356-11-00
1-356-12-00
1-356-13-00
1-356-14-00



1-356-00-00
1-356-02-00
1-356-03-00
1-356-04-00
1-356-05-00



Part No.	Description	A [mm] ["]	B [mm]	C [mm]	D [mm]	E [mm]	H [mm]	Spring travel [mm]	Material	Weight [g]
1-356-00-00	GAF U 10-M5-M5-10	M5	10	63	10	25	M5	10	St/CuZn	21
1-356-09-00	GAF U M10-M5-M5-10	M5	10	63	M10x1	25	M5	10	St/CuZn	25
1-356-02-00	GAF U 14-1/8-1/8-15	G1/8	16	72	14	25	M5	15	Al/CuZn	44
1-356-03-00	GAF U 14-1/8-1/8-40	G1/8	16	97	14	25	M5	40	Al/CuZn	48
1-356-11-00	GAF U M 14-1/8-1/8-15	G1/8	16	72	M14x1	25	M5	15	Al/CuZn	57
1-356-12-00	GAF U M 14-1/8-1/8-40	G1/8	16	97	M14x1	25	M5	40	Al/CuZn	62
1-356-04-00	GAF U 20-1/4-1/8-20	G1/4	20	109	20	50	G1/8	20	Al/CuZn	115
1-356-05-00	GAF U 20-1/4-1/8-50	G1/4	20	139	20	50	G1/8	50	Al/CuZn	123
1-356-13-00	GAF U M 20-1/4-1/8-20	G1/4	20	109	M20x1,5	50	G1/8	20	Al/CuZn	138
1-356-14-00	GAF U M 20-1/4-1/8-50	G1/4	20	139	M20x1,5	50	G1/8	50	Al/CuZn	145

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

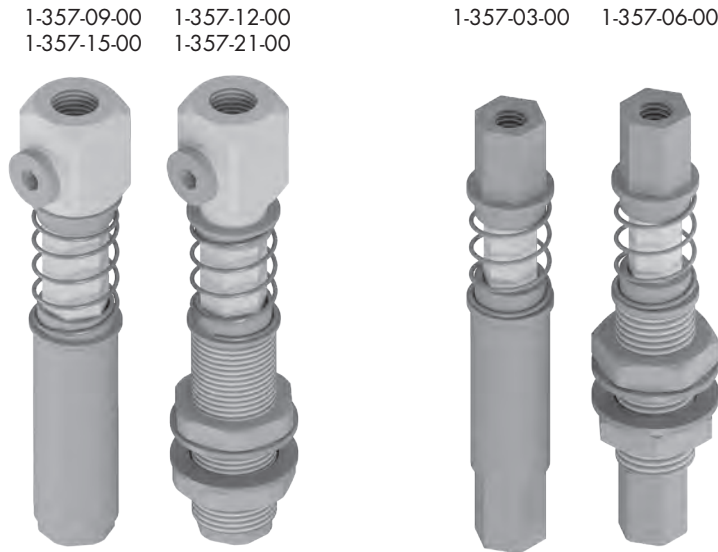
700
Special Elements

800
Electric and Sensors

850
Pneumatic

300 | Gripper Arms

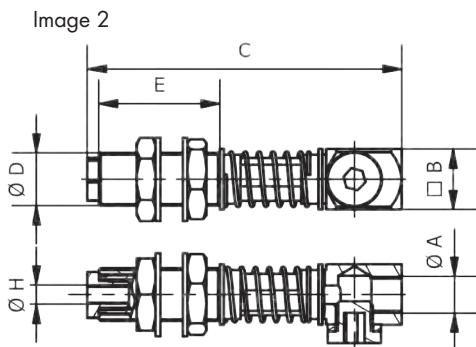
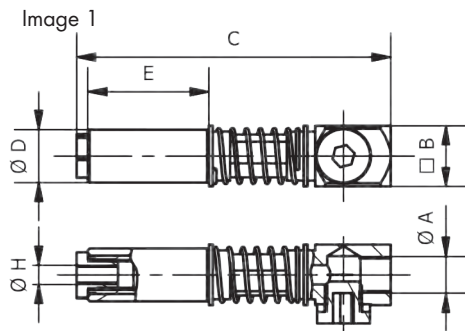
GFV U / Gripper Arm, spring comp., lock. ag. rotation, w. air duct



Remarks:

► **Application: for connecting vacuum cups in the robot hand**

- suitable for oval vacuum cups
- locked against rotation by hexagonal guide
- high quality stainless steel spring
- vacuum connection can be mounted either on the side or at the end of the gripper arm
- » Exception:
GFV U 10 (both versions) only air feedthrough possible (Image 2)

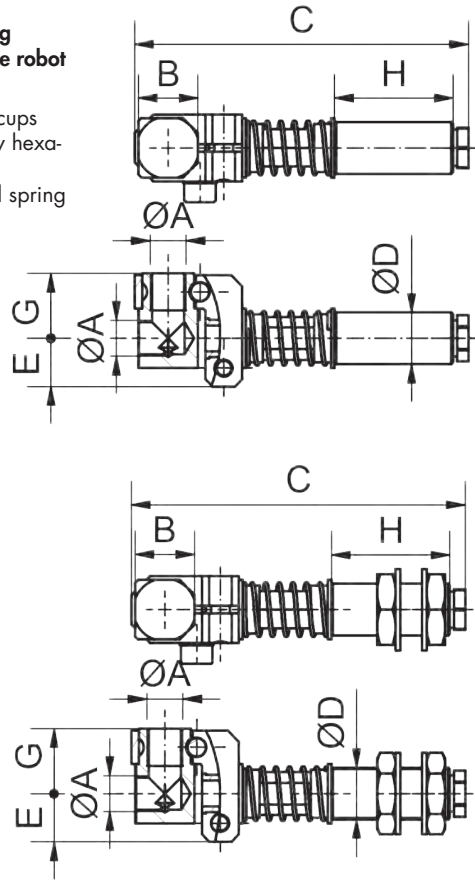


Part No.	Description	A [mm] ["]	B [mm]	C [mm]	D [mm]	E [mm]	H [mm] ["]	Spring travel [mm]	Material	Weight [g]
1-357-03-00	GFV U 10-M5-M5-10	M5	10	59	10	25	M5	10	Al/St/CuZn	23
1-357-06-00	GFV U M10-M5-M5-10	M5	10	59	M10x1	25	M5	10	Al/St/CuZn	28
1-357-09-00	GFV U 14-1-8-1-8-15	G1/8	16	83	14	32	M5	15	Al/CuZn	50
1-357-12-00	GFV U M14-1-8-1-8-15	G1/8	16	83	M14x1	32	M5	15	Al/CuZn	62
1-357-15-00	GFV U20-1-4-1-8-20	G1/4	20	121	20	55	G1/8	20	Al/CuZn	127
1-357-21-00	GFV UM20-1-4-1-8-20	G1/4	20	121	M20x1,5	55	G1/8	20	Al/CuZn	147

GGs / Gripper Arm, spring comp., lock. ag. rot., for Vacuum Cups

Remarks:

- ▶ **Application:** for connecting angled vacuum cups to the robot hand
- suitable for oval vacuum cups
- locked against rotation by hexagonal guide
- high quality stainless steel spring



1-360-03-00
1-360-09-00
1-360-15-00
1-360-21-00
1-360-27-00



1-360-06-00
1-360-12-00
1-360-18-00
1-360-24-00
1-360-30-00



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
1-360-03-00	GGs 10-M5-M5-10	M5	12	70	10	5.5
1-360-06-00	GGs M10-M5-M5-10	M5	12	70	M10x1	5.5
1-360-09-00	GGs 14-1/8-1/8-15	G1/8	16	90	14	8
1-360-12-00	GGs M14-1/8-1/8-15	G1/8	16	90	M14x1	8
1-360-15-00	GGs 14-1/8-1/8-40	G1/8	16	114	14	8
1-360-18-00	GGs M14-1/8-1/8-40	G1/8	16	114	M14x1	8
1-360-21-00	GGs 20-1/4-1/4-20	G1/4	20	126	20	10
1-360-24-00	GGs M20-1/4-1/4-20	G1/4	20	126	M20x1.5	10
1-360-27-00	GGs 20-1/4-1/4-50	G1/4	20	156	20	10
1-360-30-00	GGs M20-1/4-1/4-50	G1/4	20	156	M20x1.5	10

Part No.	Description	Suspension [mm]	G [mm]	H [mm]	Material	Weight [g]
1-360-03-00	GGs 10-M5-M5-10	10	13	25	Al/St/CuZn	38
1-360-06-00	GGs M10-M5-M5-10	10	13	25	Al/St/CuZn	43
1-360-09-00	GGs 14-1/8-1/8-15	15	17.5	32	Al/CuZn	63
1-360-12-00	GGs M14-1/8-1/8-15	15	17.5	32	Al/CuZn	75
1-360-15-00	GGs 14-1/8-1/8-40	40	17.5	32	Al/CuZn	67
1-360-18-00	GGs M14-1/8-1/8-40	40	17.5	32	Al/CuZn	78
1-360-21-00	GGs 20-1/4-1/4-20	20	21.5	55	Al/CuZn	158
1-360-24-00	GGs M20-1/4-1/4-20	20	21.5	55	Al/CuZn	179
1-360-27-00	GGs 20-1/4-1/4-50	50	21.5	55	Al/CuZn	165
1-360-30-00	GGs M20-1/4-1/4-50	50	21.5	55	Al/CuZn	186

000
Quick Change
System

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special
Elements

800
Electric and
Sensors

850
Pneumatic

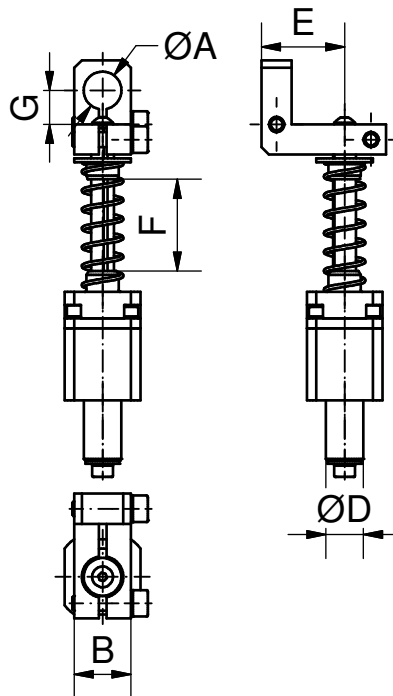
GGG SF / Stacking Guide Sensor



Remarks:

- ▶ GGS SF has been replaced by Stacking Guide SF 20 and Stacking Guide Specific SFP, see category 700
- SF 20 / Stacking Guide (Part No. 1-771-00-00)
- SFP 20 / Stacking Guide Specific, normally opened (Part No. 1-770-00-00)
- SFP 20 NC / Stacking Guide Specific, normally closed (Part No. 1-772-00-00)

GGK / Gripper Arm, spring compensated, with a Linear Guidance



Remarks:

- linear guidance locked against rotation
- extremely precise
- linear guidance can absorb lateral forces and moments
- ideal for mounting grippers
- suitable holder for vacuum cups with additional support by ZTB and gripper GRZ
- » see application examples

Current delivery time on request!

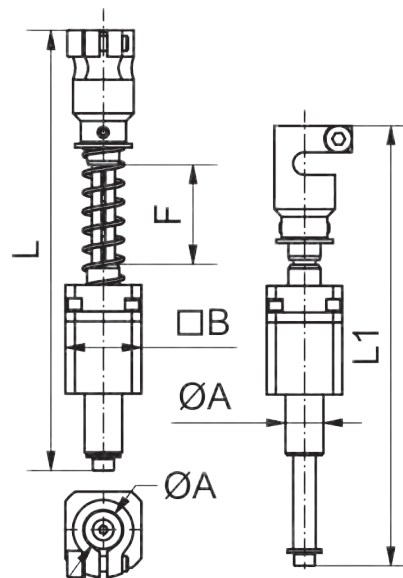
Part No.	Description	A [mm]	B [mm]	D [mm]	E [mm]	Spring travel [mm]	G [mm]	Weight [g]
1-361-01-00	GGK 10-25	10	15	10	19	25	9	72
1-361-03-00	GGK 10-50	10	15	10	19	50	9	97
1-361-21-00	GGK 20-30	20	25	20	26	30	16.5	217
1-361-22-00	GGK 20-60	20	25	20	26	60	16.5	312

GGK A / Gripper Arm, linear guidance, spring comp., lock.ag.rot., axial

Remarks:

- clamping axial
- linear guidance locked against rotation
- extremely precise
- linear guidance can absorb lateral forces and moments
- ideal for mounting grippers
- » see application examples

Current delivery time on request!



Part No.	Description	A [mm]	B [mm]	F [mm]	L [mm]	L1 [mm]	Weight [g]
1-361-31-00	GGK A 10-25	10	20	25	116	116	68
1-361-33-00	GGK A 10-50	10	20	50	164	164	93
1-361-35-00	GGK A 20-30	20	30	30	168	138	214
1-361-36-00	GGK A 20-60	20	30	60	229	196	305
1-361-37-00	GGK A 20-90	20	30	90	269	239	333

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

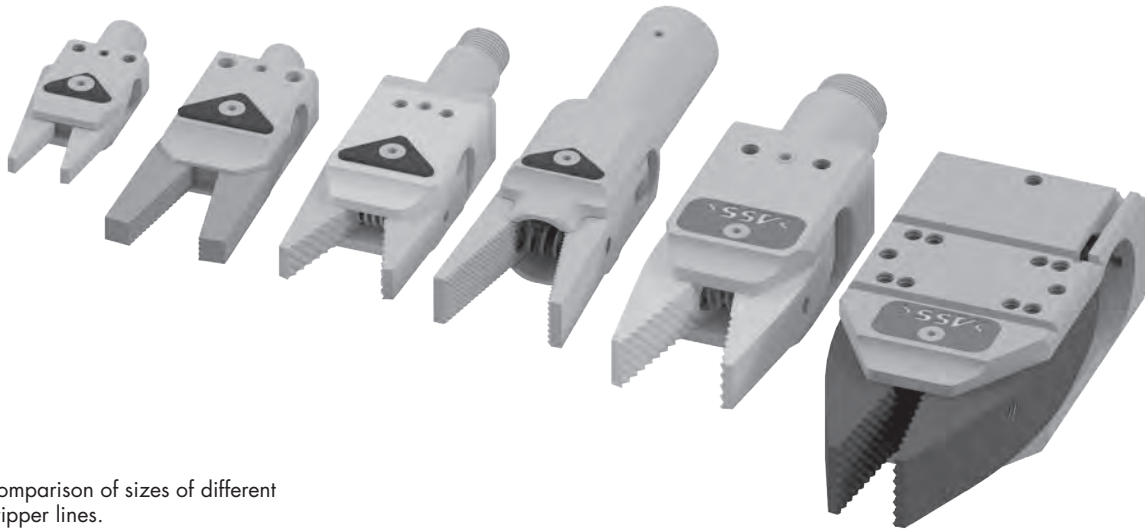
700
Special Elements

800
Electric and Sensors

850
Pneumatic

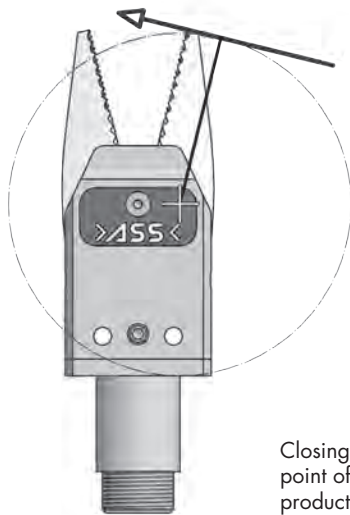
990
Other PA-Forming

Application example Gripper Sizes



Comparison of sizes of different gripper lines.

Application example GRZ Closing Force



Closing force measured at point of jaws at 6 bar (see product tables).

Overview Closing Force:

Standard gripper versions of the different sizes in comparison, measured at an operating pressure of 6 bar.

Gripper	Closing Force max. [N]
GRZ 06-06	6
GRZ 10-08 CM	19
GRZ 10-12	28
GRZ 14 R	75
GRZ 20-16	65
GRZ 20-20 R	100
GRZ 25 R	350
GRZ 32	350

Application example Easy to change Gripper Jaws

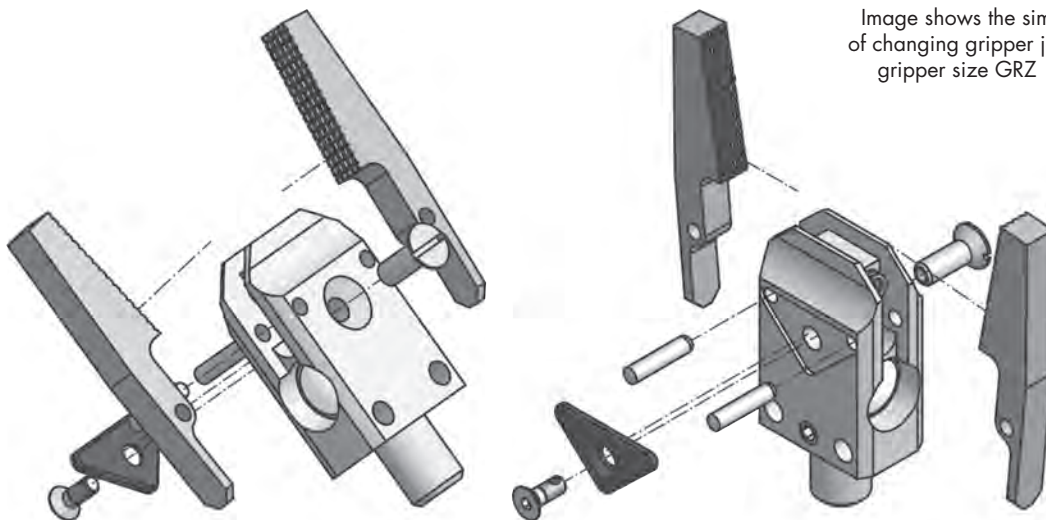
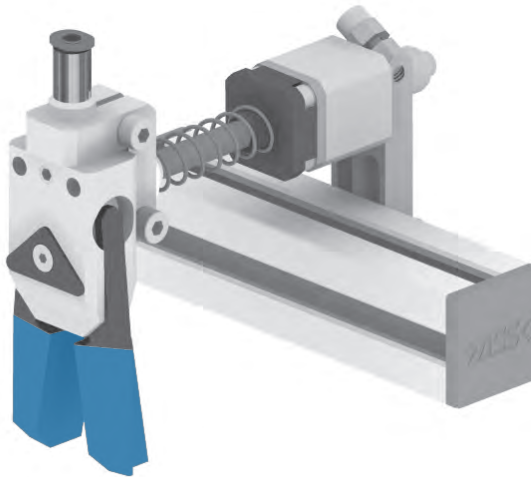
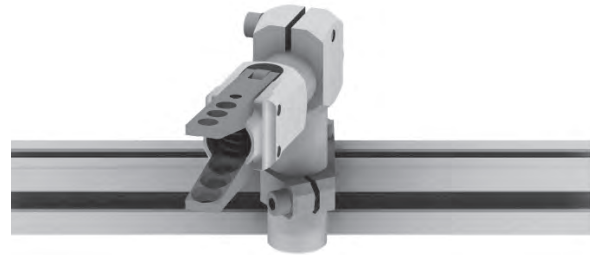


Image shows the simplicity of changing gripper jaws at gripper size GRZ 10-12.

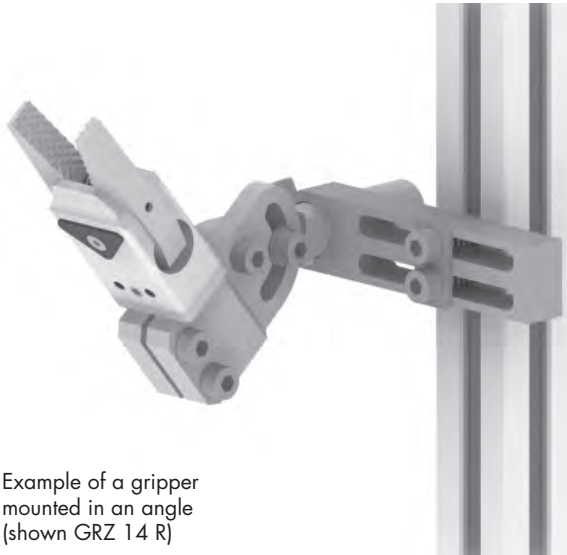
Application examples for mounting Grippers



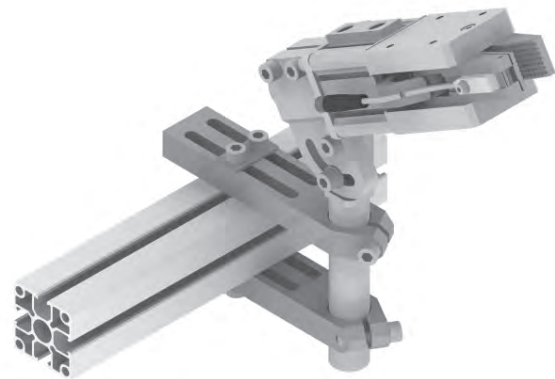
Example of a spring-loaded gripper (shown GRZ 10-12 AH EP)



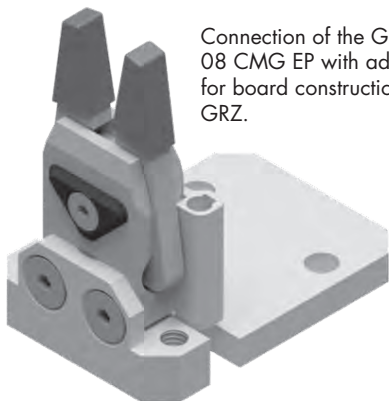
Example of a gripper mounted in 90° angle (shown GRZ 20-16)



Example of a gripper mounted in an angle (shown GRZ 14 R)



Example of a gripper mounted with two clamps for a strong hold (shown GRZ 32 CS)



Connection of the GRZ 10-08 CMG EP with adapter for board construction AGP GRZ.



Example of a possible connection of a GRZ 10-12 RB CS to board construction via the AGP GRZ adapter.

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

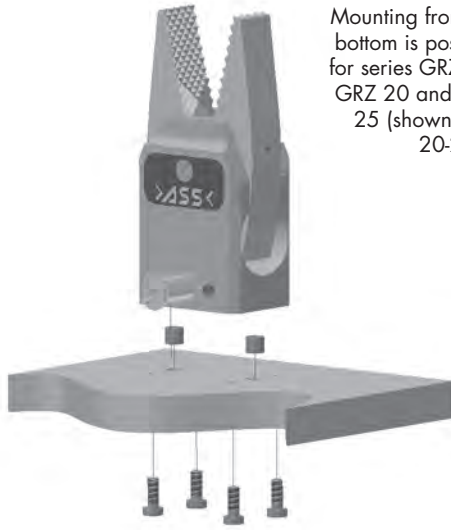
700
Special Elements

800
Electric and Sensors

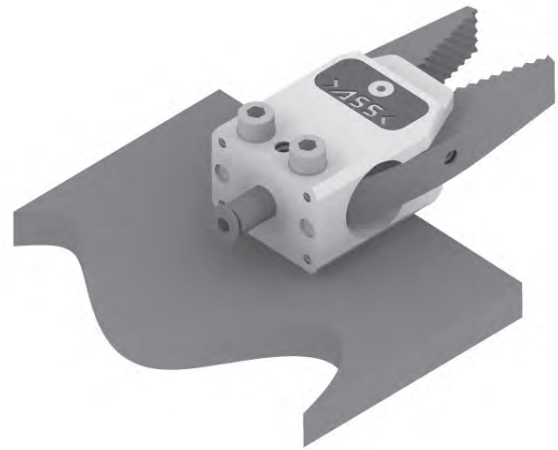
850
Pneumatic

990
Other PA-Forming

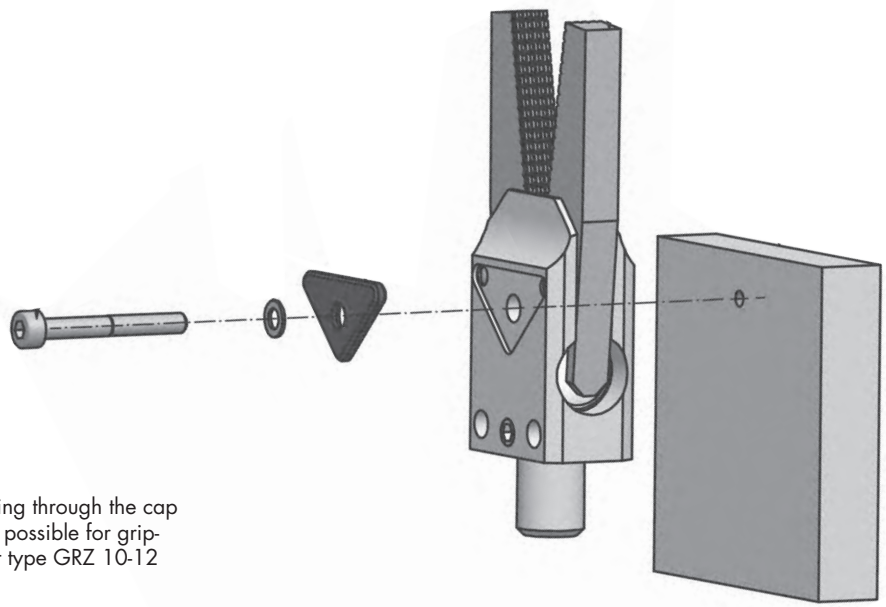
Application examples for mounting Grippers



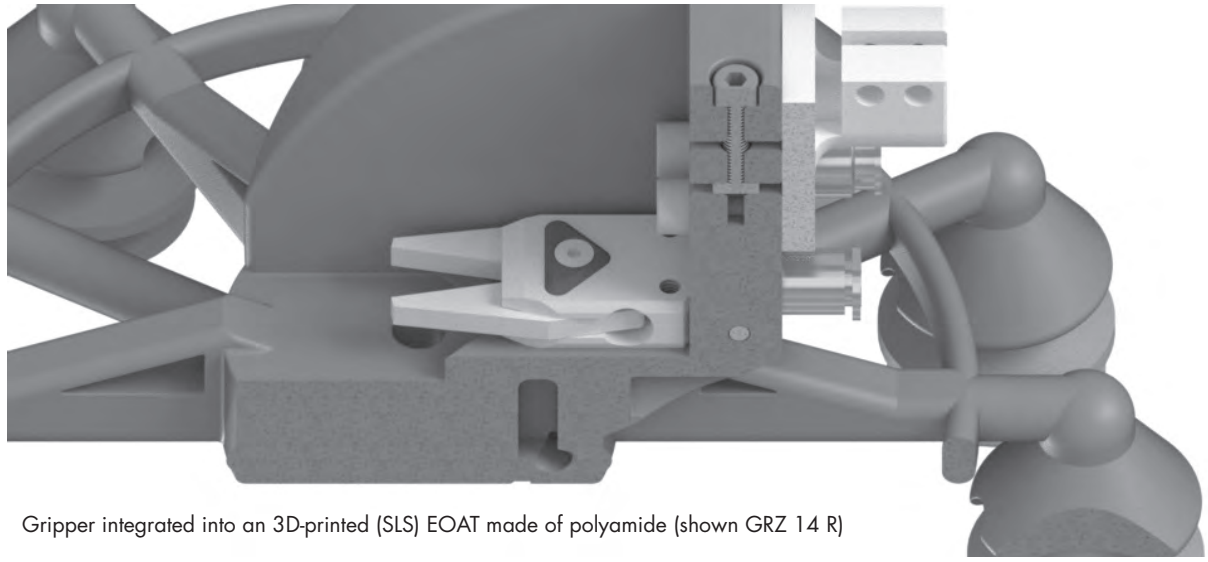
Mounting from the bottom is possible for series GRZ 14, GRZ 20 and GRZ 25 (shown GRZ 20-20 R)



Mounting through the gripper body is possible for all grippers up to series GRZ 25 (shown GRZ 20-20 R)



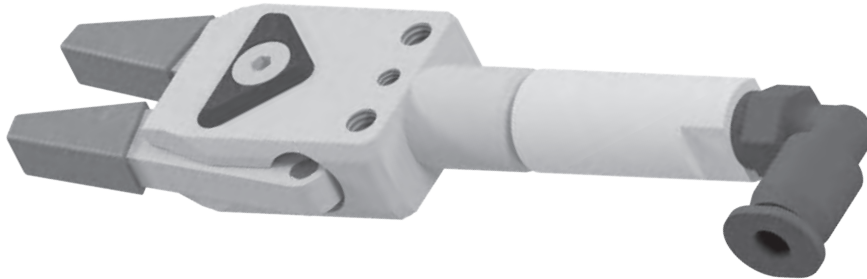
Mounting through the cap is only possible for grippers at type GRZ 10-12



Gripper integrated into an 3D-printed (SLS) EOAT made of polyamide (shown GRZ 14 R)

Application examples Air Connection

With VL U extended GRZ 10-08 with integrated air duct.



A direct air connection through the adapter AD-GRZ U is possible for gripper series GRZ 14 and GRZ 20 (shown GRZ 20 with saw jaws)



Air connection mounted sideways (shown GRZ 10-08 CM)



An air connection indirectly through the adapter AD-GRZ U is possible for the gripper series GRZ 14, GRZ 20 and GRZ 25 (shown GRZ 14 R)

Application example monitoring at GRZ 10-08



GRZ 10-08 CMG EP with attached Sensor Bracket SH GRZ 10-08 and Sensor MFS T2

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

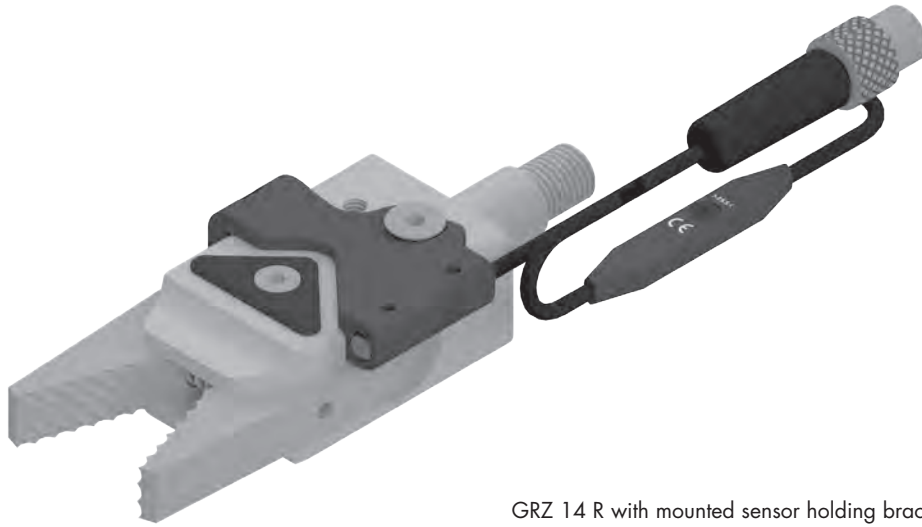
700
Special Elements

800
Electric and Sensors

850
Pneumatic

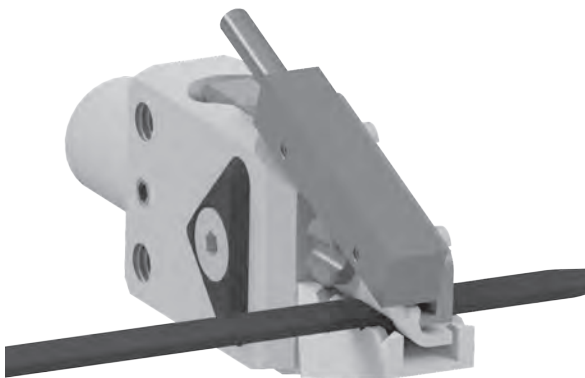
990
Other PA-Forming

Application example monitoring at GRZ 14



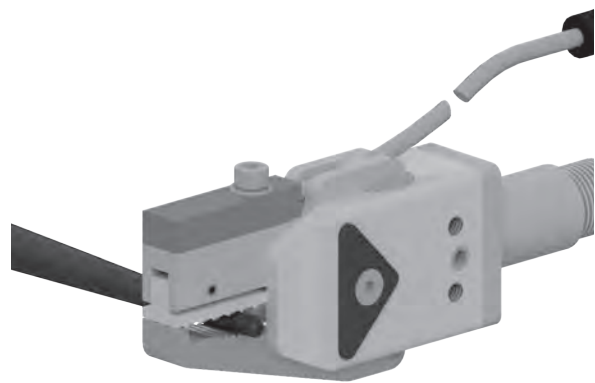
GRZ 14 R with mounted sensor holding bracket and sensor.

App. example GRZ 10-08 C WK



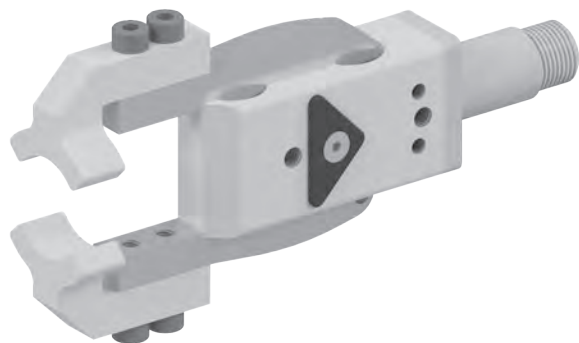
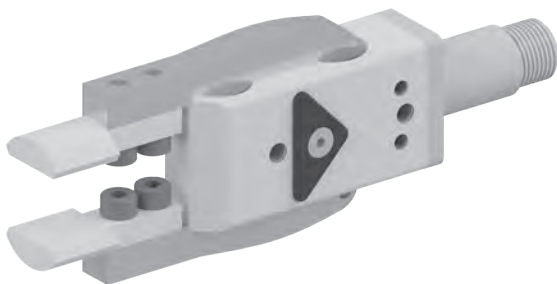
Grippers GRZ...WK with sensor are particularly suitable for gripping soft and rubber-like sprues (shown GRZ 10-08 C WK).

App. example GRZ PS,CS,I



Grippers GRZ...PS with parrot jaws are for gripping conical sprues (shown GRZ 14 PS,CS,I).

Application examples GRZ 14 D A



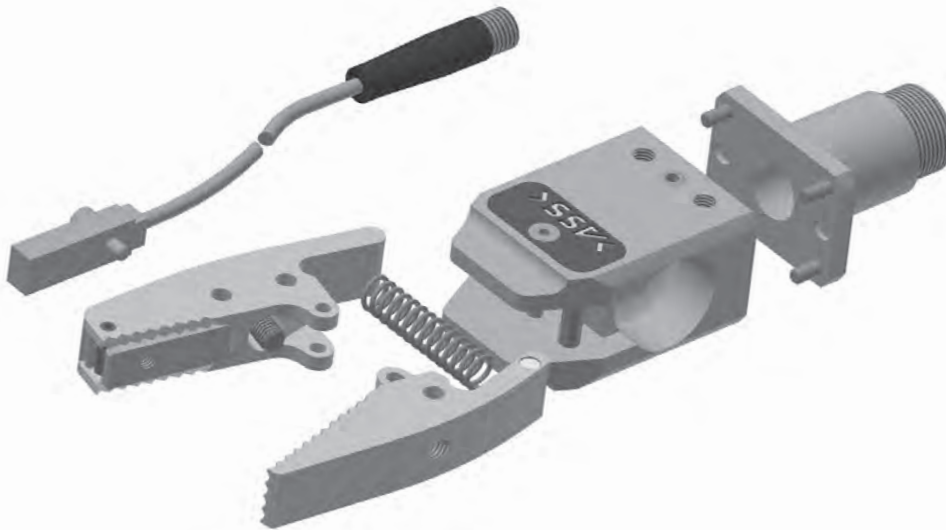
The double acting gripper GRZ 14 D A can be used for gripping from the inside (figure left) and gripping from the outside (figure right).

Application example GRZ 10-12 HT

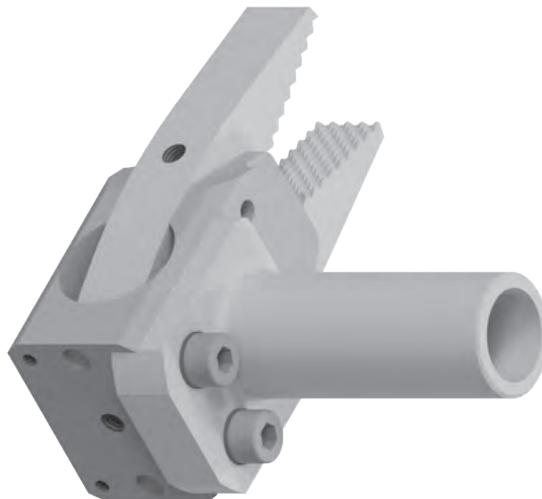


The heat-resistant gripper GRZ 10-12 HT can be used for gripping heated materials such as FRP materials.

Application example individual GRZ 20-20



Application example AD 20 GRZ 20 S



GRZ 20-20 R mounted sidewise with adapter AD 20 GRZ 20 S

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

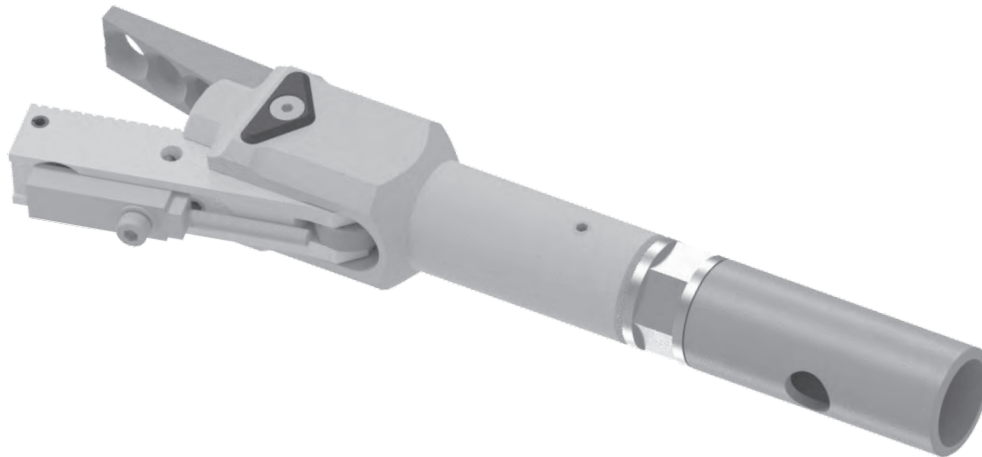
700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

Application example GRZ AD 20-16



Extention tube VLR 20 mounted on gripper GRZ 20-16 by Adapter GRZ AD 20-16.

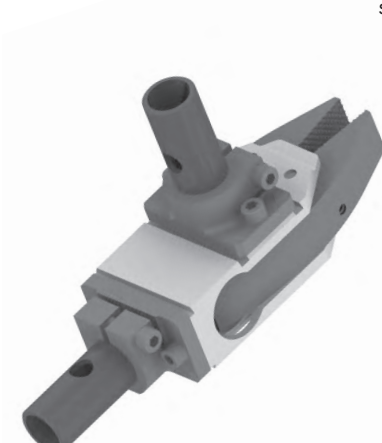
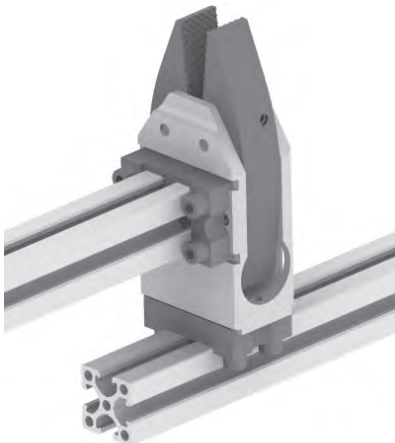
Application example GRZ 25



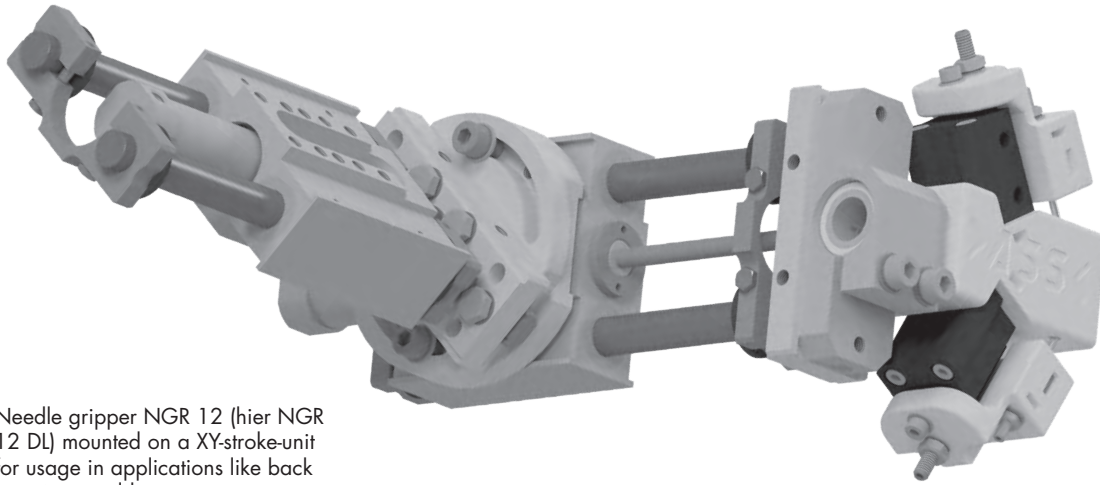
GRZ 25 with mounted sensor.

Application examples GRZ 25

Examples show various ways to connect gripper GRZ 25. Lift side shows adaption by AP HEU, middle shows AP PGR and the figure on the right side shows AE HEU.

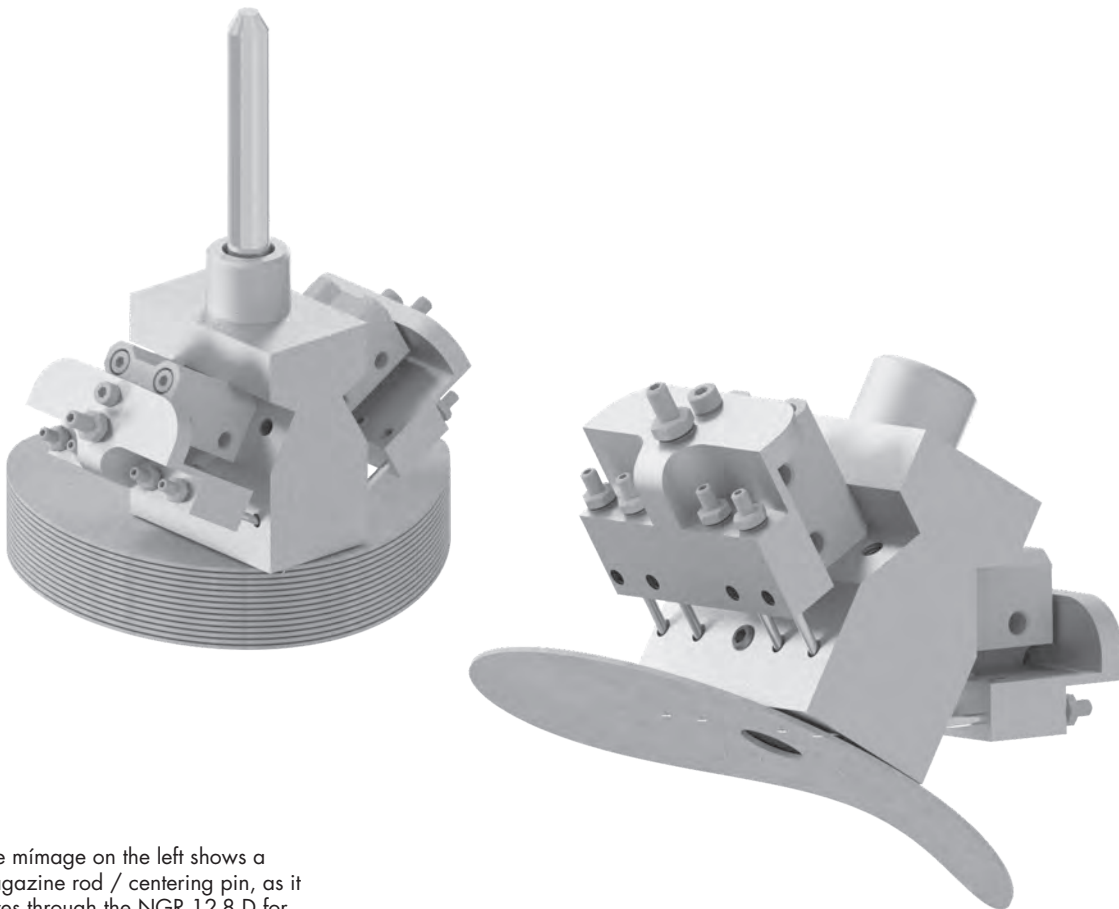


Application examples NGR 12 D and NGR 12 DL



Needle gripper NGR 12 (hier NGR 12 DL) mounted on a XY-stroke-unit for usage in applications like back injection moulding.

Application example NGR 12-8 D



The mímage on the left shows a magazine rod / centering pin, as it dives through the NGR 12-8 D for gripping positional accuracy.

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special Elements

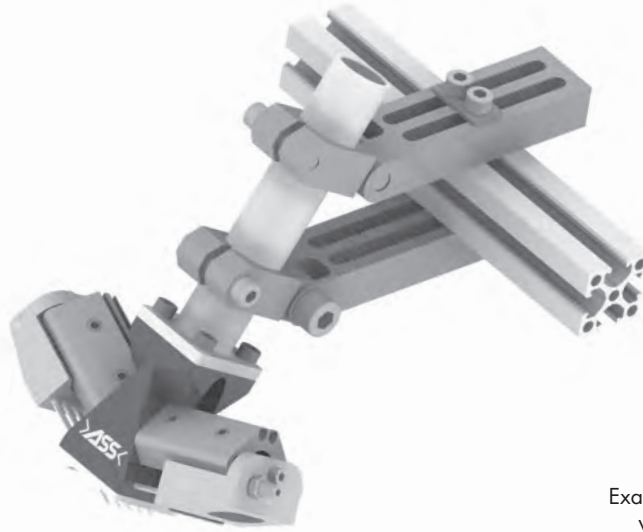
800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

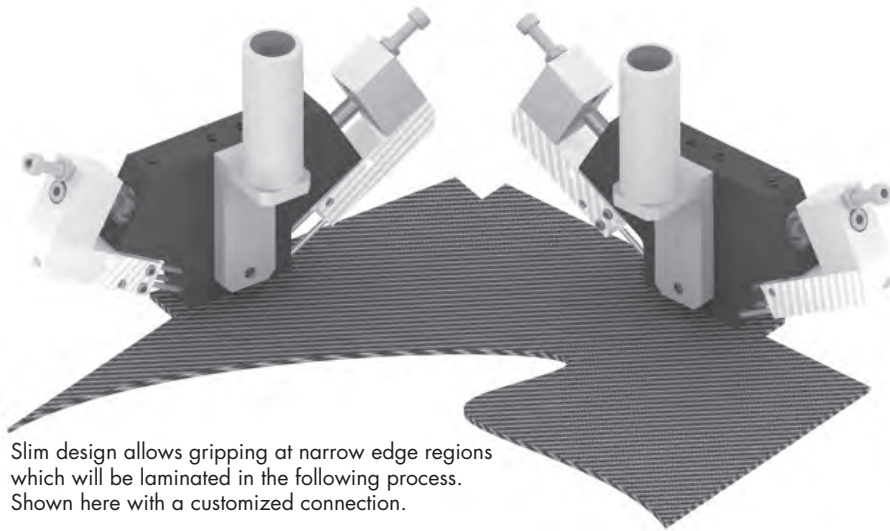
400 | Grippers

Application example NGR 12-10 D



Example of a NGR 12-10 D mounted with two clamps for a strong hold.

Application example NGR 12-10 DS

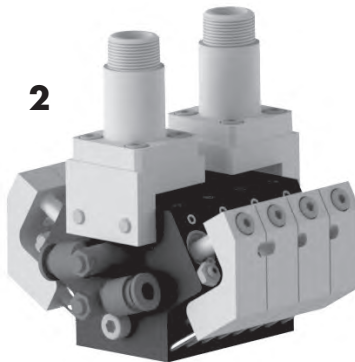


Slim design allows gripping at narrow edge regions which will be laminated in the following process. Shown here with a customized connection.

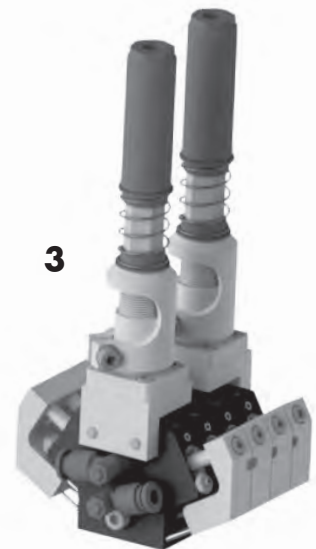
1



2

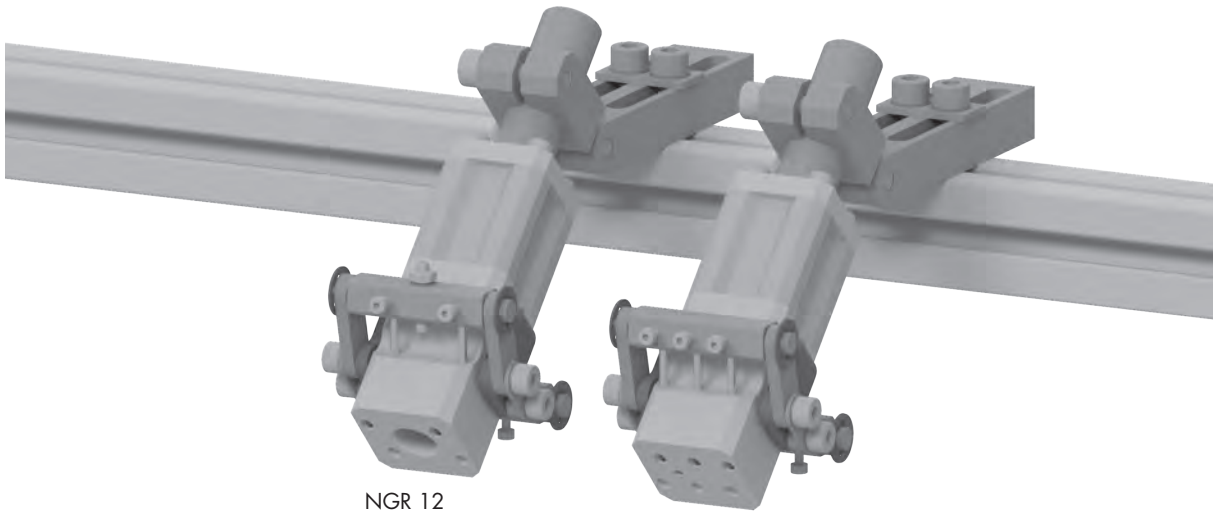


3



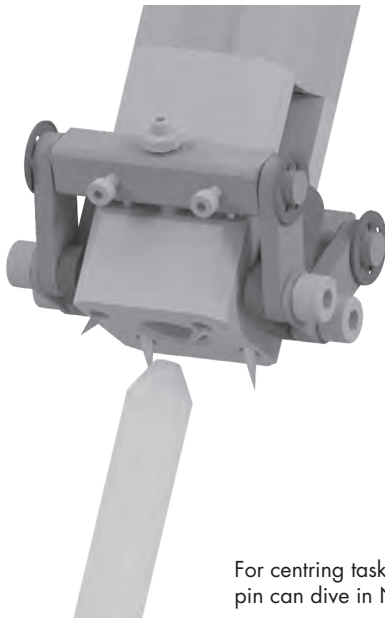
- 1: needle gripper package
- 2: needle gripper package with mounted connections for the Robot-Hand-Kit
- 3: combination of needle grippers with spring compensated grippers

Application examples NGR 12 and NGR 12-6

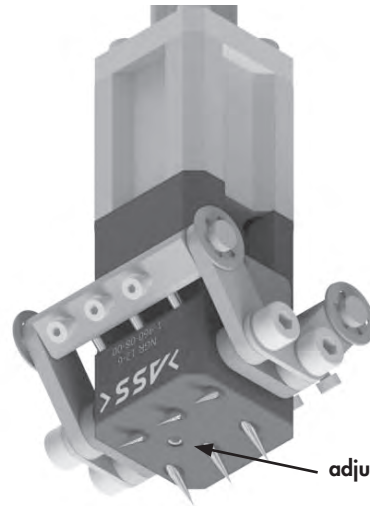


NGR 12

NGR 12-6



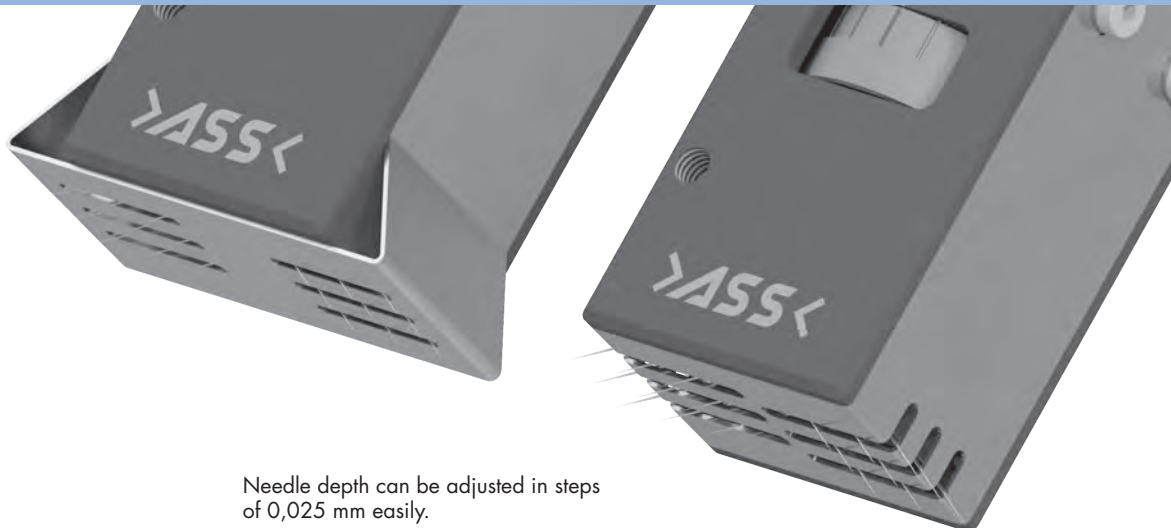
For centring tasks centring pin can dive in NGR 12.



adjusting screw

Penetration depth of needles can be continuously adjusted by adjusting screw.

Application examples NGR 16-18 EZ



Needle depth can be adjusted in steps of 0,025 mm easily.

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special Elements

800
Electric and Sensors

850
Pneumatic

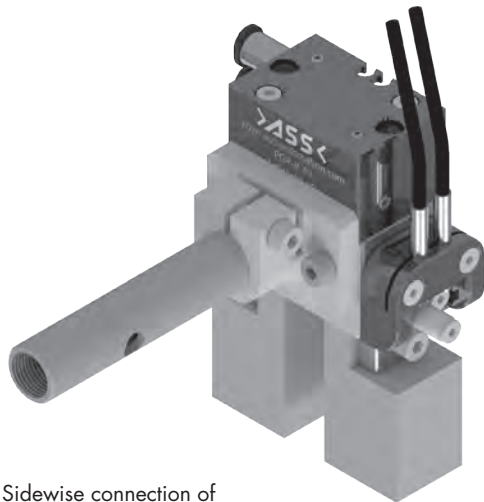
990
Other PA-Forming

Application example NGR X 16-10

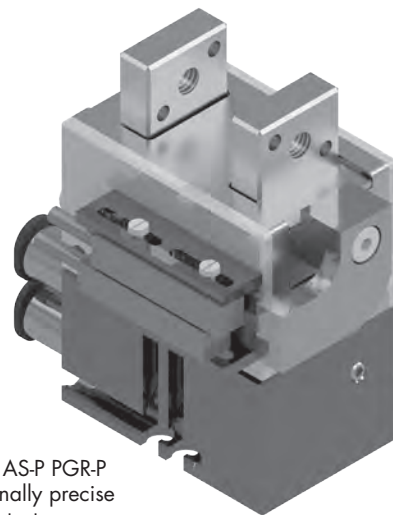
Contrarious mounted needle grippers NGR X 16-10 am X Profil for secure gripping of limp materials such as textiles.



Application examples PGR-P

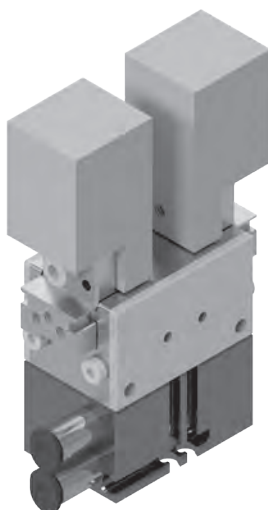


Sidewise connection of the parallel gripper PGR-P.



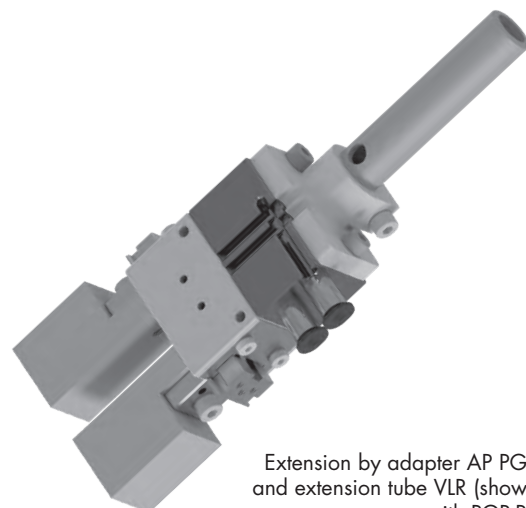
Add-on kit AS-P PGR-P for additionally precise monitoring tasks.

Application example GB PGR



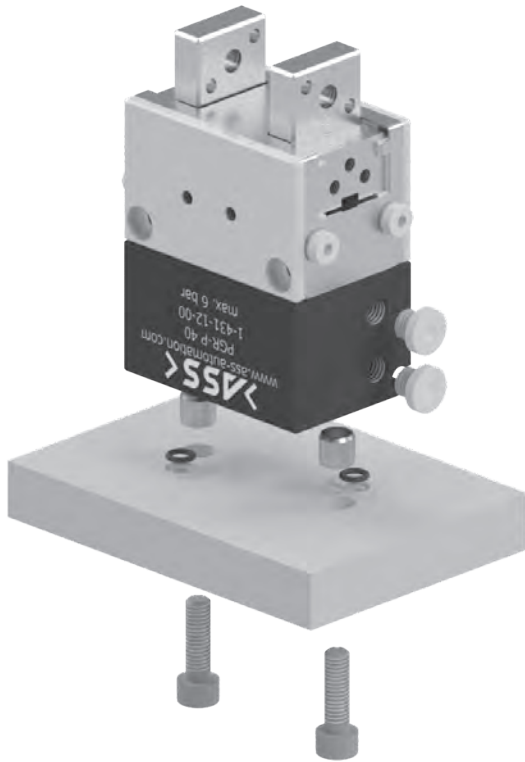
Unmachined jaws attached to a parallel gripper (shown PGR-P).

Application example AP PGR



Extension by adapter AP PGR and extension tube VLR (shown with PGR-P).

Application examples PGR-P



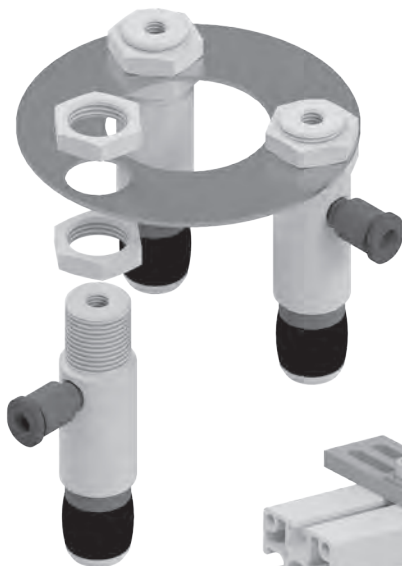
The direct connection is used for pressure supply without trouble-prone tubing. The pressure medium is instead guided through holes in the mounting plate.

App. example IGP / IGP EP

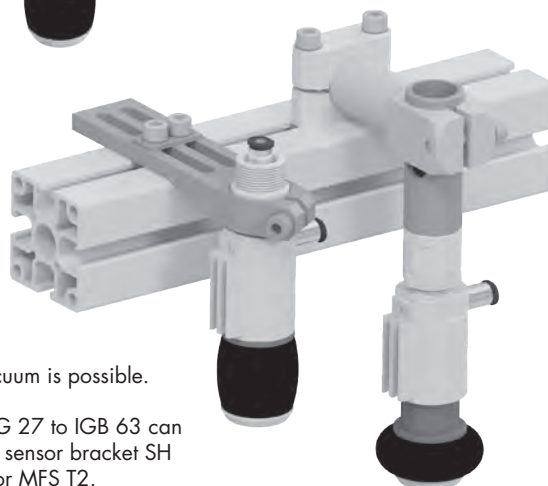


The ID Grippers IGP and IGP EP are characterized by their low weight. The IGP EP (shown here) additionally is provided with an EP coating and is particularly suitable for sensitive products.

Application example IGB



The left figure shows the IGB mounted directly to a plate, the lower figure shows the connection by using the adapter AD IGB and the right figure shows the practical application of the ID gripper IGB.



Partial present control by vacuum is possible.

The end positions of sizes IGB 27 to IGB 63 can optionally be monitored with sensor bracket SH IGB and magnetic field sensor MFS T2.



000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

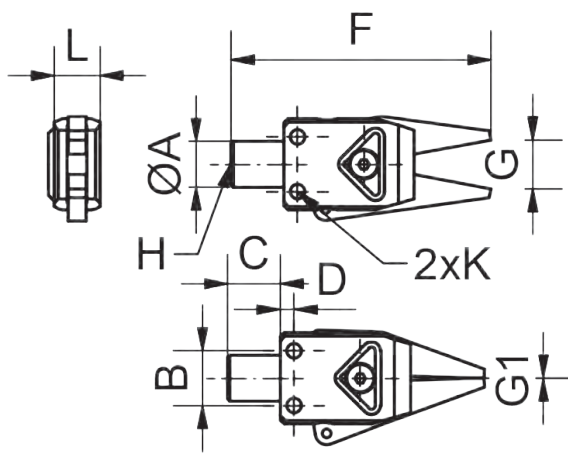
700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

GRZ 10-08 / Gripper Size 10-08



Remarks:

► **Application: miniature size gripper, see table for properties of the jaw geometries**

- single-acting gripper
- two pistons, Ø 8mm
- » closing force measured at point of jaws at 6 bar
- » maximum air pressure is 6 bar, use dry and filtered air only

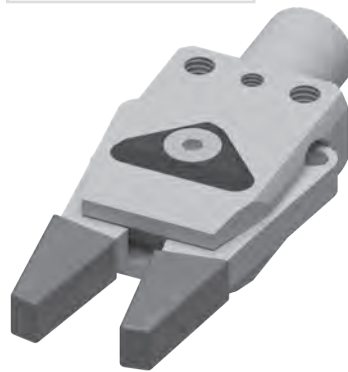
Accessories for example:

- Sensor Bracket SH GRZ 10-08
- extension with air duct VL U
- adapter for board mounting AGP GRZ

GRZ 10-08 CM



GRZ 10-08 CMG EP



GRZ 10-08 C
GRZ 10-08 C NPN



GRZ 10-08 C WK
GRZ 10-08 C WK NPN



GRZ 10-08 CF EP
GRZ 10-08 CF EP NPN



GRZ 10-08 CF
GRZ 10-08 CF NPN



GRZ 10-08 / Gripper Size 10-08 (Continuation)

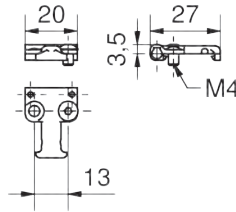
Description	A [mm]	B [mm]	C [mm]	D [mm]	F [mm]	H	K	L [mm]	Closing force max. [N]
GRZ 10-08...	10	12	11.5	3	57	M5	M4	10	19

Part No.	Description	Jaw Type	Application / Remarks
1-408-14-00	GRZ 10-08 CM	chequered	• optionally equipped sensor mounting bracket and initiator
1-408-30-00	GRZ 10-08 CMG EP	smooth, with EP coating Shore 90	• smooth gripping for more traction and friction • optionally equipped sensor mounting bracket and initiator
1-408-17-00	GRZ 10-08 C	with sensor PNP	• gripper with direct part-present-control • direct query, inductive, PNP, NO, 3-pole, 2m, cable
1-408-18-00	GRZ 10-08 C NPN	with sensor NPN	• gripper with direct part-present-control • direct query, inductive, NPN, NO, 3-pole, 2m, cable
1-408-19-00	GRZ 10-08 C WK	with sensor PNP / soft materials contour	• especially for part-present-control of soft materials • direct query, inductive, PNP, NO, 3-pole, 2m, cable
New	1-408-20-00	GRZ 10-08 C WK NPN	with sensor NPN / soft materials contour • especially for part-present-control of soft materials • direct query, inductive, NPN, NO, 3-pole, 2m, cable
New	1-408-21-00	GRZ 10-08 CF EP	with sensor PNP / smooth, with EP coating Shore 90 • gripper with direct part-present-control • with flat shift fork • smooth gripping for more traction and friction • direct query, inductive, PNP, NO, 3-pole, 2m, cable
New	1-408-22-00	GRZ 10-08 CF EP NPN	with sensor NPN / smooth, with EP coating Shore 90 • gripper with direct part-present-control • with flat shift fork • smooth gripping for more traction and friction • direct query, inductive, NPN, NO, 3-pole, 2m, cable
New	1-408-25-00	GRZ 10-08 CF	with sensor PNP • gripper with direct part-present-control • with flat shift fork • direct query, inductive, PNP, NO, 3-pole, 2m, cable
New	1-408-26-00	GRZ 10-08 CF NPN	with sensor NPN • gripper with direct part-present-control • with flat shift fork • direct query, inductive, NPN, NO, 3-pole, 2m, cable

Part No.	Description	Jaws made of...	G [mm]	G1 [mm]	Weight [g]	
1-408-14-00	GRZ 10-08 CM	hardcoated Aluminium	10	0	17	
1-408-30-00	GRZ 10-08 CMG EP	hardcoated Aluminium, EP coating Shore 90, colour blue	10	0	18	
1-408-17-00	GRZ 10-08 C	hardcoated Aluminium	10	1	49	
1-408-18-00	GRZ 10-08 C NPN	hardcoated Aluminium	10	1	44	
1-408-19-00	GRZ 10-08 C WK	hardcoated Aluminium, Steel	7.5	0	51	
New	1-408-20-00	GRZ 10-08 C WK NPN	hardcoated Aluminium, Steel	7.5	0	51
New	1-408-21-00	GRZ 10-08 CF EP	hardcoated Aluminium, EP coating Shore 90, colour blue	10	1	49
New	1-408-22-00	GRZ 10-08 CF EP NPN	hardcoated Aluminium, EP coating Shore 90, colour blue	10	1	49
New	1-408-25-00	GRZ 10-08 CF	hardcoated Aluminium	10	1	49
New	1-408-26-00	GRZ 10-08 CF NPN	hardcoated Aluminium	10	1	49

400 | Grippers

SH GRZ 10-08 / Sensor Bracket

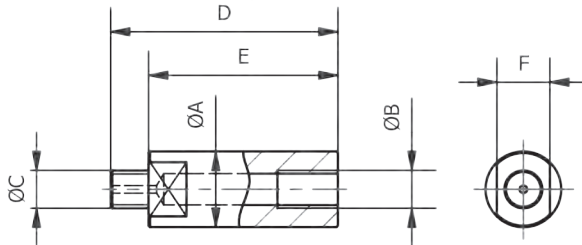


Remarks:

- **Application:** allows easy installation of a sensor
- 1 or 2 switching points can be monitored in combination with the sensor
- gripping jaw area unchanged
- suitable for Sensor MFS T 2 3,7

Part No.	Description	Adaptable with	Material	Weight [g]
1-408-80-00	SH GRZ 10-08	GRZ 10-08 CMG / CMG EP	Polyamide	2

VL U / Extension with air duct for GRZ 10



Remarks:

- **Application:** Extension for all grippers GRZ 10-08 and GRZ 10-12
- easy to handle
- with air duct
- small and compact design
- » see application example

Part No.	Description	A [mm]	B	C	D [mm]	E [mm]	F [mm]	Material	Weight [g]
1-408-70-00	VL-U-25-GRZ-10	10	M5	M5	30	25	7	Aluminium	5

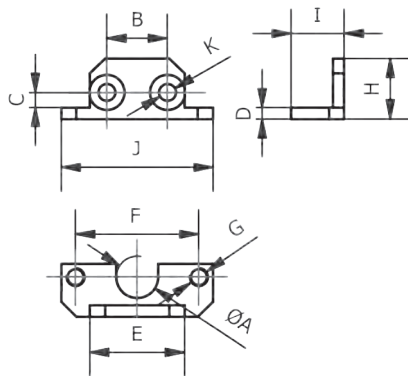
AGP GRZ / Adapter for of GRZ Board Mounting



AGP GRZ 10-08



AGP GRZ 10-12



Remarks:

- **Application:** Adapter for mounting GRZ grippers on boards
- » see application examples

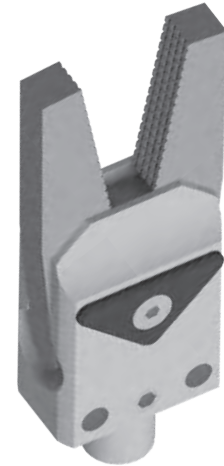
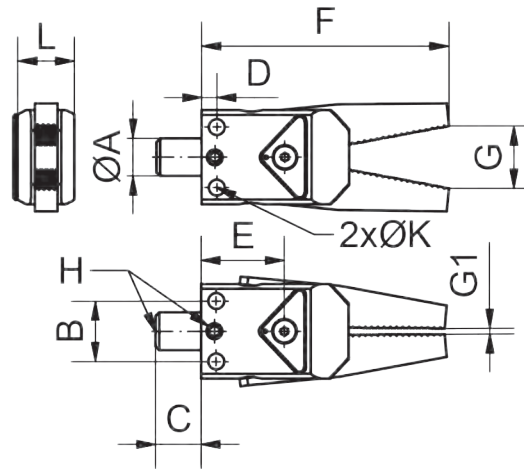
Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G	H [mm]
1-408-90-00	AGP GRZ 10-08	11	12	3	3	22,5	27.5	M5	12.5
1-412-90-00	AGP GRZ 10-12	11	16	4	3	25	32.5	M5	16

Part No.	Description	I [mm]	J [mm]	K [mm]	Material	Weight [g]
1-408-90-00	AGP GRZ 10-08	10	35	4.5	Aluminium	3
1-412-90-00	AGP GRZ 10-12	14	40	4.5	Aluminium	13

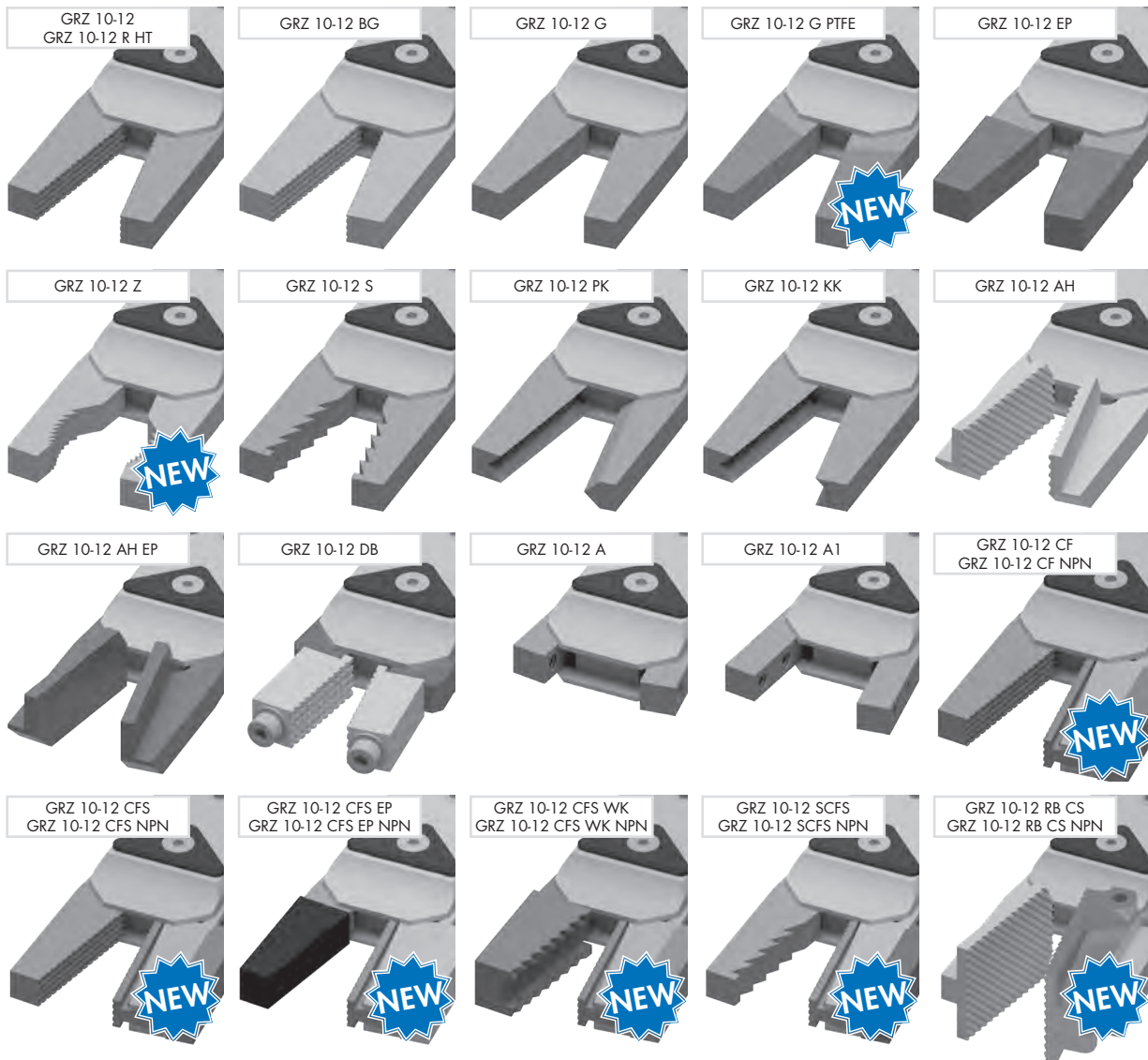
GRZ 10-12 / Gripper Size 10-12

Remarks:

- ▶ **Application: single-acting, compact gripper, see table for properties of the jaw geometries**
- parts can not get stuck behind jaws (except AH, AH EP, DB, A, A1, BSCS)
- two pistons \varnothing 12mm
 - » closing force measured at point of jaws at 6 bar
 - » maximum air pressure is 6 bar, use dry and filtered air only



Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	H	K [mm]	L [mm]
GRZ 10-12...	10	16	12	4	22	M5	4.2	15



▶ Continuation on the following page

000 Quick Change System

050 Profile-Channel Nut

100 Clamps

115 Tubular Clamps

120 Profile Connectors

190 Accessories-Profile

200 Vacuum Cup-Connectors

220 Vacuum Cups

224 Vacuum Cups-Special

230 Manifold

290 Adapter

300 Gripper Arms

400 Grippers

450 Gripper Fingers

600 Nipper Bodies

610 Nipper Blades

700 Special Elements

800 Electric and Sensors

850 Pneumatic

990 Other PA-Forming

GRZ 10-12 / Gripper Size 10-12 (Continuation)

Part No.	Description	Jaw Type	Application / Remarks
1-412-03-00	GRZ 10-12	chequered	<ul style="list-style-type: none"> standard version
1-412-05-00	GRZ 10-12 BG	chequered, hardened, shutting	<ul style="list-style-type: none"> for small diamaters or plates shutting version
1-412-60-00	GRZ 10-12 G	smooth	<ul style="list-style-type: none"> for reducing marking
New 1-412-61-00	GRZ 10-12 G PTFE	smooth, with PTFE coating	<ul style="list-style-type: none"> for sticky sprues or materials
1-412-65-00	GRZ 10-12 EP	smooth, with EP coating Shore 90	<ul style="list-style-type: none"> smooth gripping with more friction covers all applications of smooth jaws
1-412-66-00	GRZ 10-12 R HT	heat-resistant, chequered	<ul style="list-style-type: none"> long term usage up to 150°C air temperature higher temperatures have to be tested individually, please contact your responsible contact
1-412-35-00	GRZ 10-12 S	saw jaws	<ul style="list-style-type: none"> for demolding stucking sprues
New 1-412-46-00	GRZ 10-12 Z	toothed	<ul style="list-style-type: none"> for semicircular sprues or bridges
1-412-12-00	GRZ 10-12 PK	prism / v-groove	<ul style="list-style-type: none"> for cone-shaped sprues
1-412-13-00	GRZ 10-12 KK	v-groove	<ul style="list-style-type: none"> for gripping sprues axial
1-412-34-00	GRZ 10-12 AH	wide jaws	<ul style="list-style-type: none"> for large-area gripping
1-412-39-00	GRZ 10-12 AH EP	wide jaws, with EP coating Shore 90	<ul style="list-style-type: none"> for large-area gripping smooth gripping with more friction
1-412-30-00	GRZ 10-12 DB	swiveling	<ul style="list-style-type: none"> for gripping conical sprues automatically fitting to the conicity due to swiveling jaws
1-412-06-00	GRZ 10-12 A	for customized jaws	<ul style="list-style-type: none"> for adapting customized jaws each jaw with 2 holes M4, hole pitch 8 mm angle open 15°, angle closed -6°
1-412-09-00	GRZ 10-12 A1	for customized jaws	<ul style="list-style-type: none"> for adapting customized jaws each jaw with 3 holes M4, hole pitch 8 mm angle open 15°, angle closed -6°
1-412-16-00	GRZ 10-12 CF	with sensor PNP / chequered	<ul style="list-style-type: none"> direct query, inductive, PNP, NO, 3-pole, 3m, cable
New 1-412-17-00	GRZ 10-12 CF NPN	with sensor NPN / chequered	<ul style="list-style-type: none"> direct query, inductive, NPN, NO, 3-pole, 3m, cable
1-412-20-00	GRZ 10-12 CFS	with sensor PNP / chequered	<ul style="list-style-type: none"> direct query, inductive, PNP, NO, 3-pole, 0.16m, plug M8 + 2m extension cable
New 1-412-23-00	GRZ 10-12 CFS NPN	with sensor NPN / chequered	<ul style="list-style-type: none"> direct query, inductive, NPN, NO, 3-pole, 0.16m, plug M8 + 2m extension cable
New 1-412-22-00	GRZ 10-12 CFS EP	with sensor PNP / with EP coating Shore 90	<ul style="list-style-type: none"> smooth gripping with more friction direct query, inductive, PNP, NO, 3-pole, 0.16m, plug M8 + 2m extension cable
New 1-412-27-00	GRZ 10-12 CFS EP NPN	with sensor NPN / with EP coating Shore 90	<ul style="list-style-type: none"> smooth gripping with more friction direct query, inductive, NPN, NO, 3-pole, 0.16m, plug M8 + 2m extension cable
1-412-25-00	GRZ 10-12 CFS WK	with sensor PNP / contour for soft materials	<ul style="list-style-type: none"> especially for part-present-control of soft materials and for gripping small diameters or straps direct query, inductive, PNP, NO, 3-pole, 0.16m, plug M8 + 2m extension cable
New 1-412-26-00	GRZ 10-12 CFS WK NPN	with sensor NPN / contour for soft materials	<ul style="list-style-type: none"> especially for part-present-control of soft materials and for gripping small diameters or straps direct query, inductive, NPN, NO, 3-pole, 0.16m, plug M8 + 2m extension cable
1-412-40-00	GRZ 10-12 SCFS	with sensor PNP / saw jaw	<ul style="list-style-type: none"> for demolding stucking sprues direct query, inductive, PNP, NO, 3-pole, 0.16m, plug M8 + 2m extension cable
New 1-412-45-00	GRZ 10-12 SCFS NPN	with sensor NPN / saw jaw	<ul style="list-style-type: none"> for demolding stucking sprues direct query, inductive, NPN, NO, 3-pole, 0.16m, plug M8 + 2m extension cable
New 1-412-43-00	GRZ 10-12 RB CS	with sensor PNP, extra wide / chequered, extra wide	<ul style="list-style-type: none"> extra wide jaws for large-area gripping direct query, inductive, PNP, NO, 3-pole, 0.16m, plug M8 + 2m extension cable
New 1-412-44-00	GRZ 10-12 RB CS NPN	with sensor NPN, extra wide / chequered, extra wide	<ul style="list-style-type: none"> extra wide jaws for large-area gripping direct query, inductive, NPN, NO, 3-pole, 0.16m, plug M8 + 2m extension cable

Jaws made of...	F [mm]	G [mm]	G1 [mm]	Closing force max. [N]	Weight [g]
zinc-plated Steel	65	16.5	1.5	28	58
zinc-plated Steel, hardened	65	14.5	0	28	60
zinc-plated Steel	65	16.5	1.5	28	60
zinc-plated Steel	65	16.5	1.5	28	66
zinc-plated Steel, EP coating Shore 90, colour blue	65	16.5	1.5	28	60
zinc-plated Steel	65	16.5	1.5	28	68
zinc-plated Steel	65	16.5	1.5	28	58
zinc-plated Steel	65	16.5	1.5	28	63
zinc-plated Steel	65	16.5	2	28	56
zinc-plated Steel	65	16.5	2.5	28	56
zinc-plated Steel	70	17.5	1	25	68
zinc-plated Steel, EP coating Shore 90, colour blue	70	17.5	1	25	73
zinc-plated Steel	60/64	10.5	2.5	28	61
zinc-plated Steel	42	closing force and opening width depends on customized jaws			40
zinc-plated Steel	52	closing force and opening width depends on customized jaws			44
zinc-plated Steel	64	15	1	28	90
zinc-plated Steel	64	15	1	28	90
zinc-plated Steel	64	15	1	28	108
zinc-plated Steel	64	15	1	28	108
zinc-plated Steel, EP coating Shore 90, colour blue	65	15	1	28	122
zinc-plated Steel, EP coating Shore 90, colour blue	65	15	1	28	122
zinc-plated Steel	65	14	1	28	116
zinc-plated Steel	65	14	1	28	116
zinc-plated Steel	65	16.5	1	28	108
zinc-plated Steel	65	16.5	1	28	108
zinc-plated Steel, hardcoated Aluminium	70	16.5	1	28	75
zinc-plated Steel, hardcoated Aluminium	70	16.5	1	28	75

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

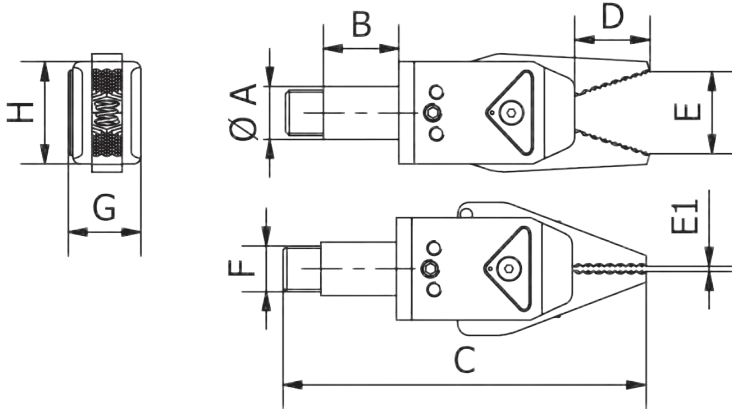
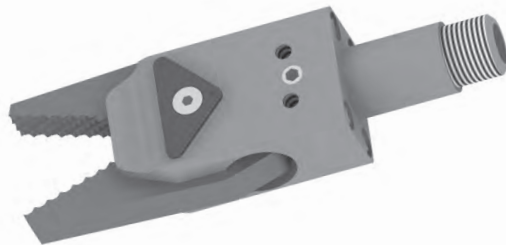
610
Nipper Blades

700
Special Elements

800
Electric and Sensors

850
Pneumatic

GRZ 14 R / Gripper with Chequered Jaws



Remarks:

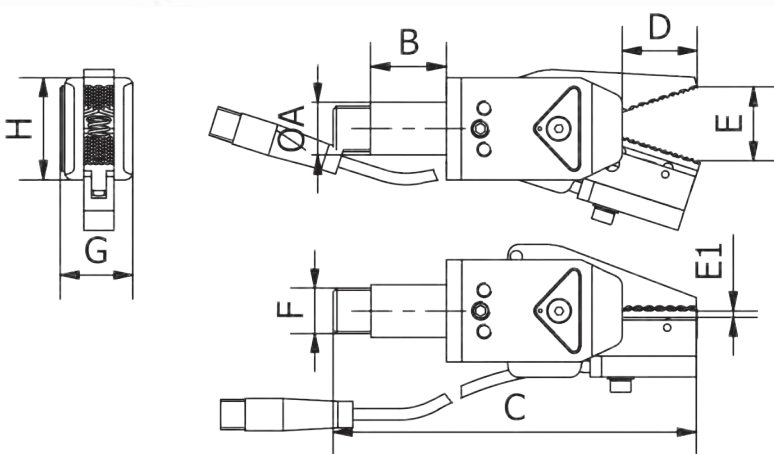
- ▶ **Application: smaller size with greater closing force**
- jaws made of hardcoated Aluminium
- consistent development of the GRZ series
- optimized connections
- easy to change jaws
- air connection M5 optional in adapter or laterally
- single acting
- optionally equipped with a sensor bracket and initiator
- » closing force measured at point of jaws at 6 bar
- » maximum air pressure is 6 bar, use dry and filtered air only

Accessories e.g.:

- Extension Tube VLR
- Sensor Bracket SH GRZ 14
- all Gripper Jaws Size 14

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	E1 [mm]	F [mm]	G [mm]	H [mm]	Closing force max. [N]	Weight [g]
1-414-00-00	GRZ 14 R	14	20	96	19.5	22	0	M12x1	19	27	75	64

GRZ 14 R,CS,I / Gripper with Chequered Jaws and Sensor with Plug



Remarks:

- ▶ **Application: smaller size with sensor and greater closing force**
- jaws made of hardcoated Aluminium
- direct query, inductive, PNP, NO, 3-pole, 0.16m, M8 connector
- NPN version available as separate Gripper Jaws
- air connection M5 optional in adapter or laterally
- single acting
- » closing force measured at point of jaws at 6 bar
- » maximum air pressure is 6 bar, use dry and filtered air only

Accessories e.g.:

- Extension Tube VLR

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	E1 [mm]	F [mm]	G [mm]	H [mm]	Closing force max. [N]	Weight [g]
1-414-20-00	GRZ 14 R,CS,I	14	20	96	19.5	22	2	M12x1	19	27	75	73

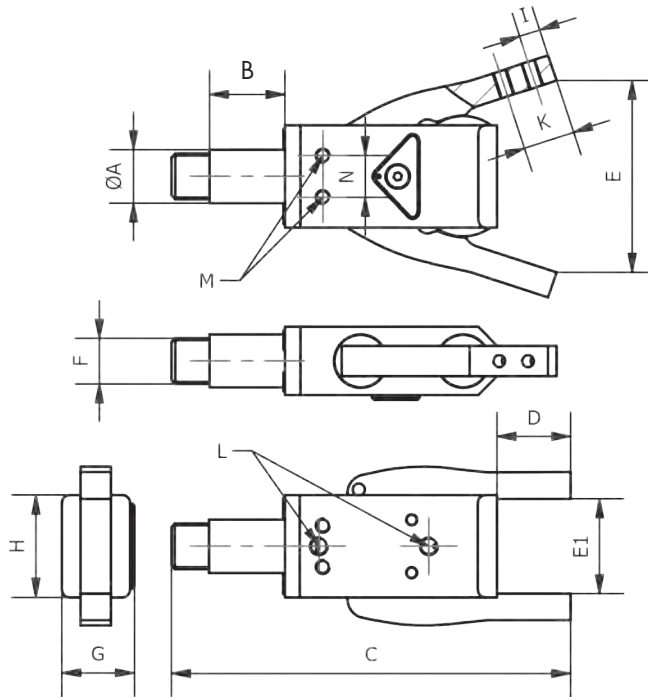
GRZ 14 D A / Gripper, double acting

Remarks:

- ▶ **Application: for adapting workpiece-specific jaws and for individual applications can also be used as inner gripper**
- double-acting gripper
- angle opened 36°, angle closed 0°
- optionally equipped with a sensor bracket and initiator
- » closing and opening force measured at point of jaws at 6 bar
- » maximum air pressure is 6 bar, use dry and filtered air only

Accessories e.g.:

- Extension Tube VLR



Part No.	Description	Closing force max. [N]	Opening force max. [N]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	E1 [mm]
1-414-50-00	GRZ 14 D A	75	75	14	20	106	19.5	23	48

Part No.	Description	F [mm]	G [mm]	G1 [mm]	H [mm]	K [mm]	Air Connection	M [mm]	N [mm]	Weight [g]
1-414-50-00	GRZ 14 D A	M12x1	19	27	5,6	13,6	2xM5	2xM4	11	79

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

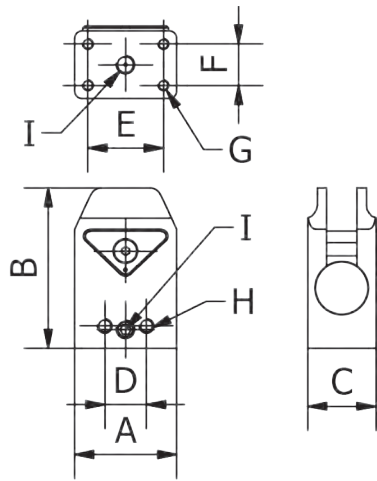
700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

GRZ 14 Body



Remarks:

► **Application:** for creating individual grippers of the GRZ 14 series

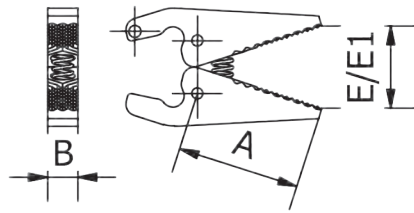
- made of anodized Aluminium
- 2 pistons, Ø 14
- choose gripper jaws and accessories to customize your GRZ gripper
- all components easy to assemble
- single-acting body
- optionally equipped with a sensor holder and initiator

Accessories e.g.:

- Sensor Bracket SH GRZ 14
- Adapter AS GRZ 14
- all Gripper Jaws Size 14

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]	Weight [g]
1-414-80-00	GRZ 14 Body	27	42.5	19	11	20	11	M3	M4	M5	34

GRZ 14 Gripper Jaws / Gripper Jaws Size 14



Remarks:

► **Application:** gripper jaws for creating individual GRZ 14, see table for properties of the jaw geometries

- Jaw pairs without integrated query can be optionally equipped with a sensor bracket and initiator
- gripper jaws made of hardcoated Aluminium

GRZ 14 BP R

GRZ 14 BP S

GRZ 14 BP PU

GRZ 14 BP EP

GRZ 14 BP A

GRZ 14 BP R,CS,I
GRZ 14 BP R,CS,I NPN

GRZ 14 BP EP,CS,I
GRZ 14 BP EP,CS,I NPN

GRZ 14 BP PS,CS,I
GRZ 14 BP PS,CS,I NPN

GRZ 14 BP S,CS,I
GRZ 14 BP S,CS,I NPN

GRZ 14 Gripper Jaws / Gripper Jaws Size 14 (Continuation)

Part No.	Description	Application / Remarks
1-414-81-00	GRZ 14 Gripper Jaw R	<ul style="list-style-type: none"> standard version
1-414-86-00	GRZ 14 Gripper Jaw S	<ul style="list-style-type: none"> for demolding sticking sprues
1-414-90-00	GRZ 14 Gripper Jaw PU	<ul style="list-style-type: none"> 22 mm PU pads for avoiding marking smooth gripping with more friction
1-414-91-00	GRZ 14 Gripper Jaw EP	<ul style="list-style-type: none"> for avoiding marking smooth gripping with more friction for more information about EP coating, see category 990
1-414-84-00	GRZ 14 Gripper Jaw A	<ul style="list-style-type: none"> for adapting customized jaws hole pitch 8 mm angle opened 35.5 °, angle closed 0 ° closing force and opening width depends on customized jaws
1-414-82-00	GRZ 14 Gripper Jaw R,CS,I	<ul style="list-style-type: none"> direct query, inductive, PNP, NO, 3-pole, 0.16m, plug M8
New 1-414-83-00	GRZ 14 Gripper Jaw R,CS,I NPN	<ul style="list-style-type: none"> direct query, inductive, NPN, NO, 3-pole, 0.16m, plug M8
New 1-414-92-00	GRZ 14 Gripper Jaw EP,CS,I	<ul style="list-style-type: none"> smooth gripping with more friction direct query, inductive, PNP, NO, 3-pole, 0.16m, plug M8
New 1-414-97-00	GRZ 14 Gripper Jaw EP,CS,I NPN	<ul style="list-style-type: none"> smooth gripping with more friction direct query, inductive, NPN, NO, 3-pole, 0.16m, plug M8
New 1-414-95-00	GRZ 14 Gripper Jaw PS,CS,I	<ul style="list-style-type: none"> contour jaws for semi-circular and large sprues direct query, inductive, PNP, NO, 3-pole, 0.16m, plug M8
New 1-414-96-00	GRZ 14 Gripper Jaw PS,CS,I NPN	<ul style="list-style-type: none"> contour jaw for semi-circular and large sprues direct query, inductive, NPN, NO, 3-pole, 0.16m, plug M8
1-414-94-00	GRZ 14 Gripper Jaw S,CS,I	<ul style="list-style-type: none"> for demolding sticking sprues direct query, inductive, PNP, NO, 3-pole, 0.16m, plug M8
New 1-414-93-00	GRZ 14 Gripper Jaw S,CS,I, NPN	<ul style="list-style-type: none"> for demolding sticking sprues direct query, inductive, NPN, NO, 3-pole, 0.16m, plug M8

Part No.	Description	Jaw Type	A [mm]	B [mm]	E [mm]	E1 [mm]	Weight [g]
1-414-81-00	GRZ 14 Gripper Jaw R	chequered	33	8	22	0	19
1-414-86-00	GRZ 14 Gripper Jaw S	saw jaws	33	8	22	0	18
1-414-90-00	GRZ 14 Gripper Jaw PU	with Polyurethane Pads	33	8	17	0	18
1-414-91-00	GRZ 14 Gripper Jaw EP	smooth, with EP coating Shore 90, colour blue	33	8	22	0	19
1-414-84-00	GRZ 14 Gripper Jaw A	for customized jaws, each jaw with 2 holes M5	32.5	8	-	-	17
1-414-82-00	GRZ 14 Gripper Jaw R,CS,I	with sensor PNP / chequered	32.5	8	22	2	27
New 1-414-83-00	GRZ 14 Gripper Jaw R,CS,I NPN	with sensor NPN / chequered	32.5	8	22	2	27
New 1-414-92-00	GRZ 14 Gripper Jaw EP,CS,I	with sensor PNP / with EP coating Shore 90, colour blue	32.5	8	22	2	30
New 1-414-97-00	GRZ 14 Gripper Jaw EP,CS,I NPN	with sensor NPN / with EP coating Shore 90, colour blue	32.5	8	22	2	30
New 1-414-95-00	GRZ 14 Gripper Jaw PS,CS,I	with sensor PNP / contour jaw	32.5	8	20	0	27
New 1-414-96-00	GRZ 14 Gripper Jaw PS,CS,I NPN	with sensor NPN / contour jaw	32.5	8	20	0	27
1-414-94-00	GRZ 14 Gripper Jaw S,CS,I	with sensor PNP / saw jaw	32.5	8	22	2	27
New 1-414-93-00	GRZ 14 Gripper Jaw S,CS,I NPN	with sensor NPN / saw jaw	32.5	8	22	2	27

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

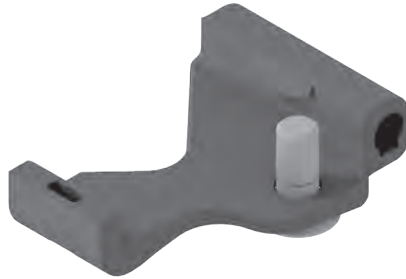
700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

SH GRZ 14 / Sensor Mounting Bracket

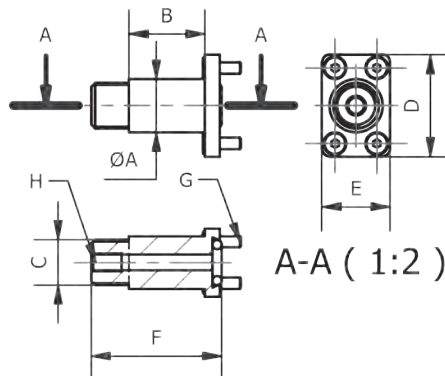
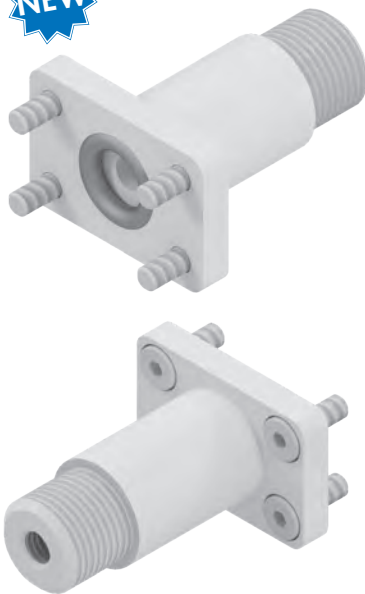


Remarks:

- **Application: allows easy mounting of a sensor**
- two positions can be monitored (open/closed)
- space saving
- gripping jaw area unchanged
- 2 switching points „teachable“

Part No.	Description	fits for Sensor	Material	Weight [g]
1-414-04-00	SH GRZ 14	MFS T2 3,7 (Part No. 1-808-30-00)	Polyamide	4

AD GRZ 14 U / Adapter with Air Duct



Remarks:

- **Application: adapts GRZ 14 to GRZ 14-14 or GRZ 14-10**
- with integrated air duct

Scope of Delivery:

- seal ring and screws included

Accessories e.g.:

- Extension Tube VLR

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	Weight [g]
1-414-11-00	AD 14 GRZ 14 U	14	20	M12x1	27	18	34	M3	M5	14
1-414-13-00	AD 10 GRZ 14 U	10	15	M8x1	27	18	29	M3	M5	12

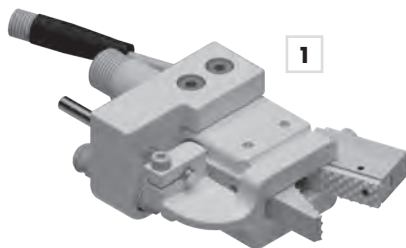
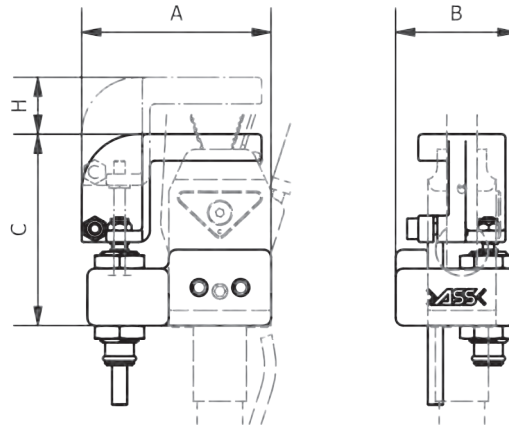
AAE / Sprue Shifter for gripper GRZ

Remarks:

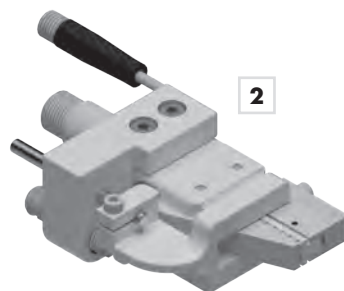
► **Application: Supports shifting of soft materials from the gripper**

- easy to add
- stroke 15 mm
- single acting
- lightweight
- controlled seperately
- available for various GRZ on demand
- application example shows AAE with GRZ 14

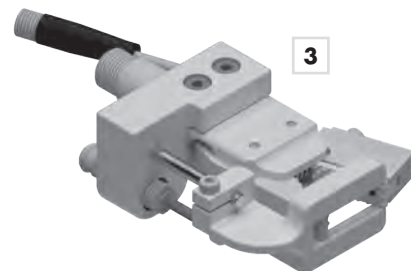
- 1 GRZ open / AAE initial
- 2 GRZ closed / AAE initial
- 3 GRZ open / AAE moved



1



2



3

Part No.	Description	A [mm]	B [mm]	C [mm]	H [mm]	suitable for	Material	Weight [g]
1-414-15-00	AAE GRZ 14	50	32	50	15	GRZ 14	Polyamide	47

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special Elements

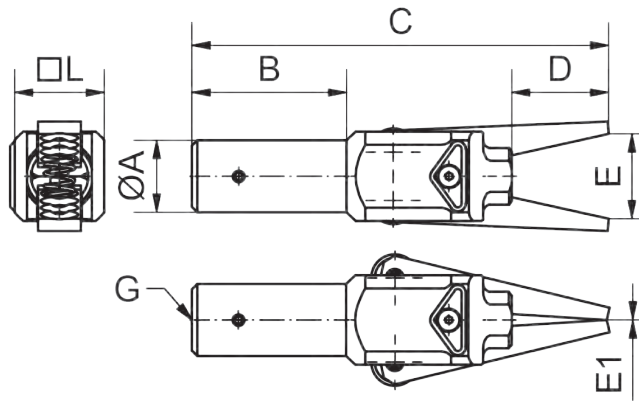
800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

400 | Grippers

GRZ 20-16 / Gripper Size 20-16



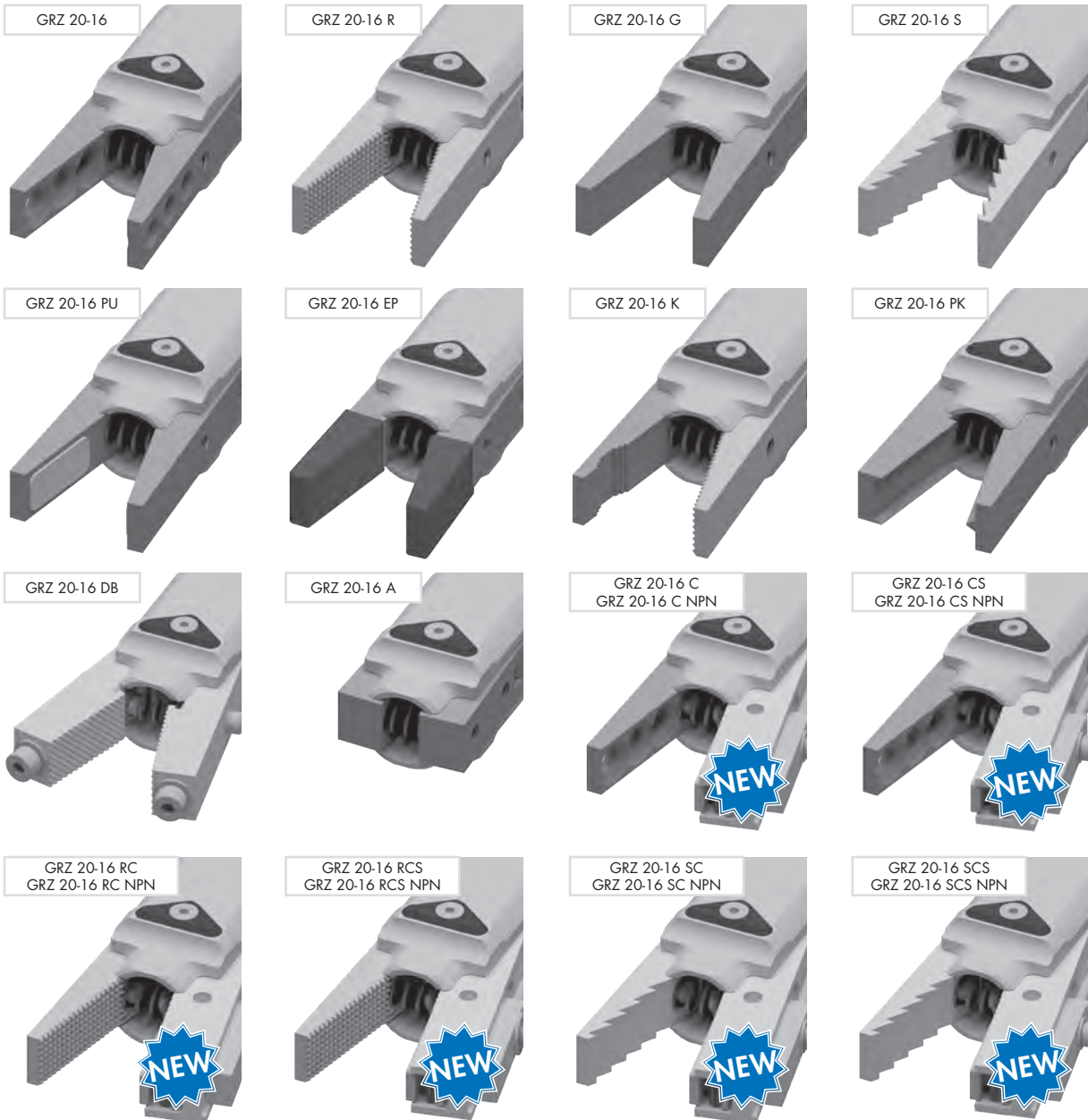
Remarks:

- ▶ **Application:** single-acting gripper, see table for properties of the jaw geometries
- piston diameter 16 mm
- » closing force measured at point of jaws at 6 bar
- » maximum air pressure is 6 bar, use dry and filtered air only
- * dimensions divergent for GRZ 20-16 DB: C=120; D=25
GRZ 20-16 A: C=90; D= depending on used adapter

Accessories e.g.:

- Adapter AD 20-16

Description	A [mm]	B [mm]	C* [mm]	D* [mm]	G ["]	L [mm]	Closing Force max. [N]*
GRZ 20-16...	20	43	116	27	G1/8	25	65

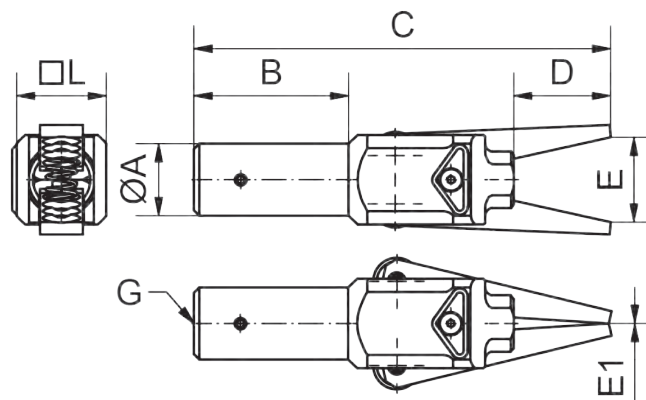


GRZ 20-16 / Gripper Size 20-16 (Continuation)

Part No.	Description	Jaw Type	Application / Remarks
1-415-03-00	GRZ 20-16	perforated	<ul style="list-style-type: none"> standard version
1-415-06-00	GRZ 20-16 R	chequered	<ul style="list-style-type: none"> for gripping small diameters or plates
1-415-60-00	GRZ 20-16 G	smooth	<ul style="list-style-type: none"> for avoiding marking
1-415-40-00	GRZ 20-16 S	saw jaws	<ul style="list-style-type: none"> for demolding sticking sprues
1-415-30-00	GRZ 20-16 PU	PU pads	<ul style="list-style-type: none"> smooth gripping with more friction
1-415-61-00	GRZ 20-16 EP	smooth, with EP coating Shore 90	<ul style="list-style-type: none"> smooth gripping with more friction covers all applications of smooth jaws
1-415-70-00	GRZ 20-16 K	chequered / chamfered	<ul style="list-style-type: none"> sprue centers in chamfered jaw
1-415-12-00	GRZ 20-16 PK	prism / v-groove	<ul style="list-style-type: none"> for cone-shaped sprues
1-415-50-00	GRZ 20-16 DB	swiveling	<ul style="list-style-type: none"> for gripping conical sprues automatically fitting to the conicity due to swiveling jaws
1-415-09-00	GRZ 20-16 A	for customized jaws, each jaw with 2 holes M5	<ul style="list-style-type: none"> for adapting customized jaws hole pitch 16 mm, angle open 4.8°, angle closed -27.3° closing force and opening width depends on customized jaws
1-415-15-00	GRZ 20-16 C	with sensor PNP / perforated	<ul style="list-style-type: none"> direct query, inductive, PNP, NO, 3-pole, 3m, cable
New 1-415-16-00	GRZ 20-16 C NPN	with sensor NPN / perforated	<ul style="list-style-type: none"> direct query, inductive, NPN, NO, 3-pole, 3m, cable
1-415-18-00	GRZ 20-16 CS	with sensor PNP / perforated	<ul style="list-style-type: none"> direct query, inductive, PNP, NO, 3-pole, 0.16m, plug M8 + 2m extension cable
New 1-415-24-00	GRZ 20-16 CS NPN	with sensor NPN / perforated	<ul style="list-style-type: none"> direct query, inductive, NPN, NO, 3-pole, 0.16m, plug M8 + 2m extension cable
1-415-07-00	GRZ 20-16 RC	with sensor PNP / chequered	<ul style="list-style-type: none"> weight reduced version optimized query direct query, inductive, PNP, NO, 3-pole, 3m, cable
New 1-415-21-00	GRZ 20-16 RC NPN	with sensor NPN / chequered	<ul style="list-style-type: none"> weight reduced version optimized query direct query, inductive, NPN, NO, 3-pole, 3m, cable
1-415-08-00	GRZ 20-16 RCS	with sensor PNP / chequered	<ul style="list-style-type: none"> weight reduced version optimized query direct query, inductive, PNP, NO, 3-pole, 0.16m, plug M8 + 2m extension cable
New 1-415-27-00	GRZ 20-16 RCS NPN	with sensor NPN / chequered	<ul style="list-style-type: none"> weight reduced version optimized query direct query, inductive, NPN, NO, 3-pole, 0.16m, plug M8 + 2m extension cable
1-415-41-00	GRZ 20-16 SC	with sensor PNP / saw jaw	<ul style="list-style-type: none"> for demolding sticking sprues direct query, inductive, PNP, NO, 3-pole, 3m, cable
New 1-415-43-00	GRZ 20-16 SC NPN	with sensor NPN / saw jaw	<ul style="list-style-type: none"> for demolding sticking sprues direct query, inductive, NPN, NO, 3-pole, 3m, cable
1-415-42-00	GRZ 20-16 SCS	with sensor PNP / saw jaw	<ul style="list-style-type: none"> for demolding sticking sprues direct query, inductive, PNP, NO, 3-pole, 0.16m, plug M8 + 2m extension cable
New 1-415-44-00	GRZ 20-16 SCS NPN	with sensor NPN / saw jaw	<ul style="list-style-type: none"> for demolding sticking sprues direct query, inductive, NPN, NO, 3-pole, 0.16m, plug M8 + 2m extension cable

► Continuation on the following page

GRZ 20-16 / Gripper Size 20-16 (Continuation)



Remarks:

- » closing force measured at point of jaws at 6 bar
- * dimensions divergent for GRZ 20-16 DB: C=120; D=25
GRZ 20-16 A: C=90; D= depending on used adapter

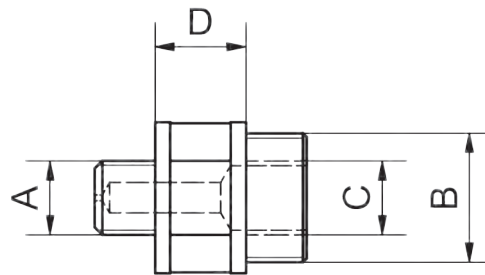
Description	A [mm]	B [mm]	C* [mm]	D* [mm]	G ["]	L [mm]	Closing Force max. [N]*
GRZ 20-16...	20	43	116	27	G1/8	25	65

Part No.	Description	Jaws made of...	E [mm]	E1 [mm]	Weight [g]	
1-415-03-00	GRZ 20-16	zinc-plated Steel	23.5	0	136	
1-415-06-00	GRZ 20-16 R	hardcoated Aluminium	22.5	0	99	
1-415-60-00	GRZ 20-16 G	zinc-plated Steel	23.5	0	149	
1-415-40-00	GRZ 20-16 S	zinc-plated Steel	23	0	143	
1-415-30-00	GRZ 20-16 PU	zinc-plated Steel, with PU Pads	20	0	143	
1-415-61-00	GRZ 20-16 EP	zinc-plated Steel, with EP coating Shore 90, colour blue	23.5	0	151	
1-415-70-00	GRZ 20-16 K	hardcoated Aluminium (chequered jaw) / zinc-plated Steel (contour jaw)	23.5	0	122	
1-415-12-00	GRZ 20-16 PK	zinc-plated Steel	23.5	0	151	
1-415-50-00	GRZ 20-16 DB	Steel, stainless	23	3,5	176	
1-415-09-00	GRZ 20-16 A	zinc-plated Steel	27	-	122	
1-415-15-00	GRZ 20-16 C	hardcoated Aluminium (sensor jaw) / zinc-plated Steel (regular jaw)	22.5	3	160	
1-415-16-00	GRZ 20-16 C NPN	hardcoated Aluminium (sensor jaw) / zinc-plated Steel (regular jaw)	22.5	3	160	New
1-415-18-00	GRZ 20-16 CS	hardcoated Aluminium (sensor jaw) / zinc-plated Steel (regular jaw)	22.5	3	178	
1-415-24-00	GRZ 20-16 CS NPN	hardcoated Aluminium (sensor jaw) / zinc-plated Steel (regular jaw)	22.5	3	178	New
1-415-07-00	GRZ 20-16 RC	hardcoated Aluminium	22.5	3	142	
1-415-21-00	GRZ 20-16 RC NPN	hardcoated Aluminium	22.5	3	142	New
1-415-08-00	GRZ 20-16 RCS	hardcoated Aluminium	22.5	3	159	
1-415-27-00	GRZ 20-16 RCS NPN	hardcoated Aluminium	22.5	3	159	New
1-415-41-00	GRZ 20-16 SC	hardcoated Aluminium (sensor jaw) / zinc-plated Steel (saw jaw)	23	3	164	
1-415-43-00	GRZ 20-16 SC NPN	hardcoated Aluminium (sensor jaw) / zinc-plated Steel (saw jaw)	23	3	164	New
1-415-42-00	GRZ 20-16 SCS	hardcoated Aluminium (sensor jaw) / zinc-plated Steel (saw jaw)	23	3	182	
1-415-44-00	GRZ 20-16 SCS NPN	hardcoated Aluminium (sensor jaw) / zinc-plated Steel (saw jaw)	23	3	182	New

GRZ AD 20-16 / Gripper Extension Adapter

Remarks:

- ▶ **Application:** allows coaxial connection of extension tube VLR 20 to grippers GRZ 20-16
- optimized version
- air connection is inside the VLR so that the hose can be routed inside
- easy to mount to any standard gripper GRZ 20-16
- air connection G1/8" female thread
- 1/8" thread on the gripper side must be sealed with liquid sealant

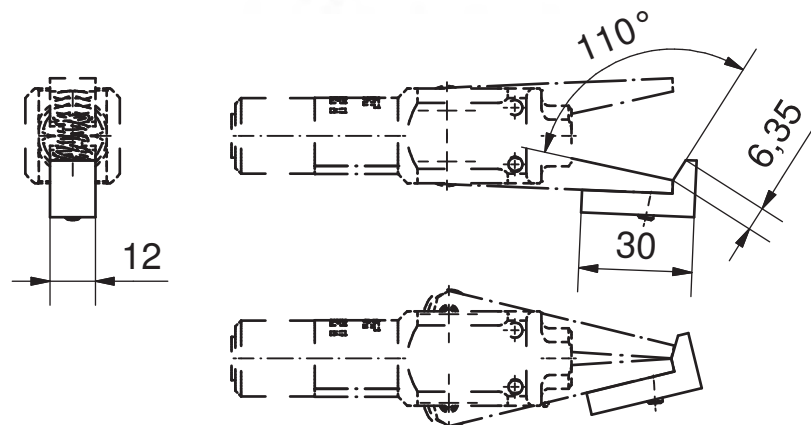


Part No.	Description	A ["]	B [mm]	C ["]	D [mm]	Weight [g]
1-415-03-04-1	GRZ AD 20-16	G1/8	M 17 X 1	G1/8	6	22

GRZ-20-16 HW / Jaw Hook for GRZ 20-16

Remarks:

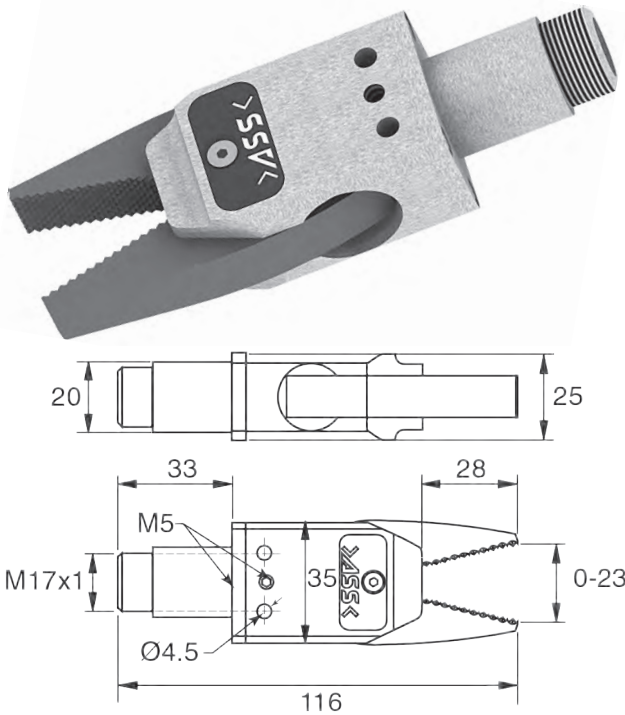
- Jaw Hook for grippers GRZ 20-16 standard version
- can be mounted at any time
- for form locking gripping
-



Part No.	Description
1-415-14-00	GRZ 20-16 HW

400 | Grippers

GRZ 20-20 R / Gripper with hard coated Aluminium Jaws



Remarks:

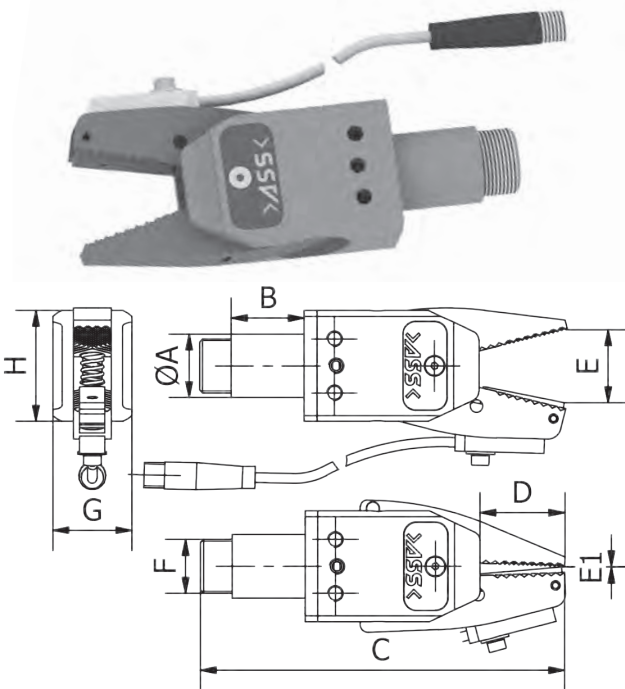
- ▶ **Application: universal gripper with highest closing force in its class (clamping Ø 20mm)**
- 2 pistons with diameter 20mm
- gripper jaws close centric, synchronized jaw movement, no floating position
- great flexibility regarding mounting options
- optionally equipped with a sensor bracket and initiator
- indirect query via the gripper jaw position possible (magnet is embedded in gripper jaw)
- body made of anodized aluminum
- jaws made of hardcoated aluminum
- flexible in jaw selection (easy to change jaws)
- compatible with all gripper jaws GRZ 20
- single-acting
- air connection M5
- » closing force measured at point of jaws at 6 bar
- » maximum air pressure is 6 bar, use dry and filtered air only

Accessories e.g.:

- Sensor Bracket SH GRZ 20

Part No.	Description	Closing force max. [N]	Condition of Jaws	Weight [g]
1-417-00-00	GRZ 20-20 R	100	chequered	132

GRZ 20-20 R,CS,I / Gripper with Sensor, inductive



Remarks:

- ▶ **Application: universal gripper with sensor and with highest closing force in its class (clamping Ø 20mm)**
- 2 pistons with diameter 20mm
- gripper jaws close centric, synchronized jaw movement, no floating position
- great flexibility regarding mounting options
- direct query, inductive, PNP, NO, 3-pole, 0.16m, plug M8
- NPN version available as separate Gripper Jaws
- body made of anodized aluminum
- jaws made of hardcoated aluminum
- flexible in jaw selection (easy to change jaws)
- single-acting
- air connection M5
- » closing force measured at point of jaws at 6 bar
- » maximum air pressure is 6 bar, use dry and filtered air only

Accessories e.g.:

- Connector KG/KW

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	E1 [mm]	F [mm]	G [mm]	H [mm]	Closing force max. [N]	Weight [g]
1-417-30-00	GRZ 20 R,CS,I	20	23	115	27	23	2	M17x1	25	35	100	146

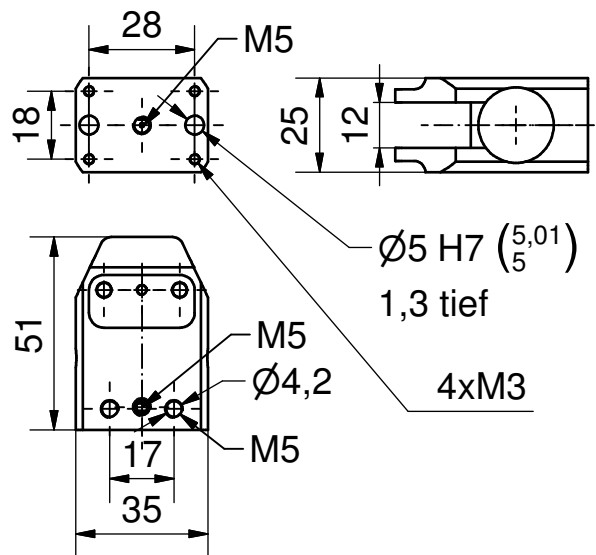
GRZ 20 / Body

Remarks:

- ▶ **Application: for customizing gripper GRZ 20**
- made of anodized Aluminium
- 2 pistons with diameter 20mm
- all components easy to assemble
- single-acting body

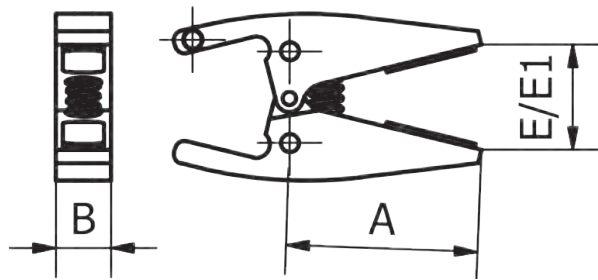
Accessories e.g.:

- Adapter GRZ AD 14
- Adapter GRZ AD 20
- Sensor Bracket SH GRZ 20
- all Gripper Jaws Size 20



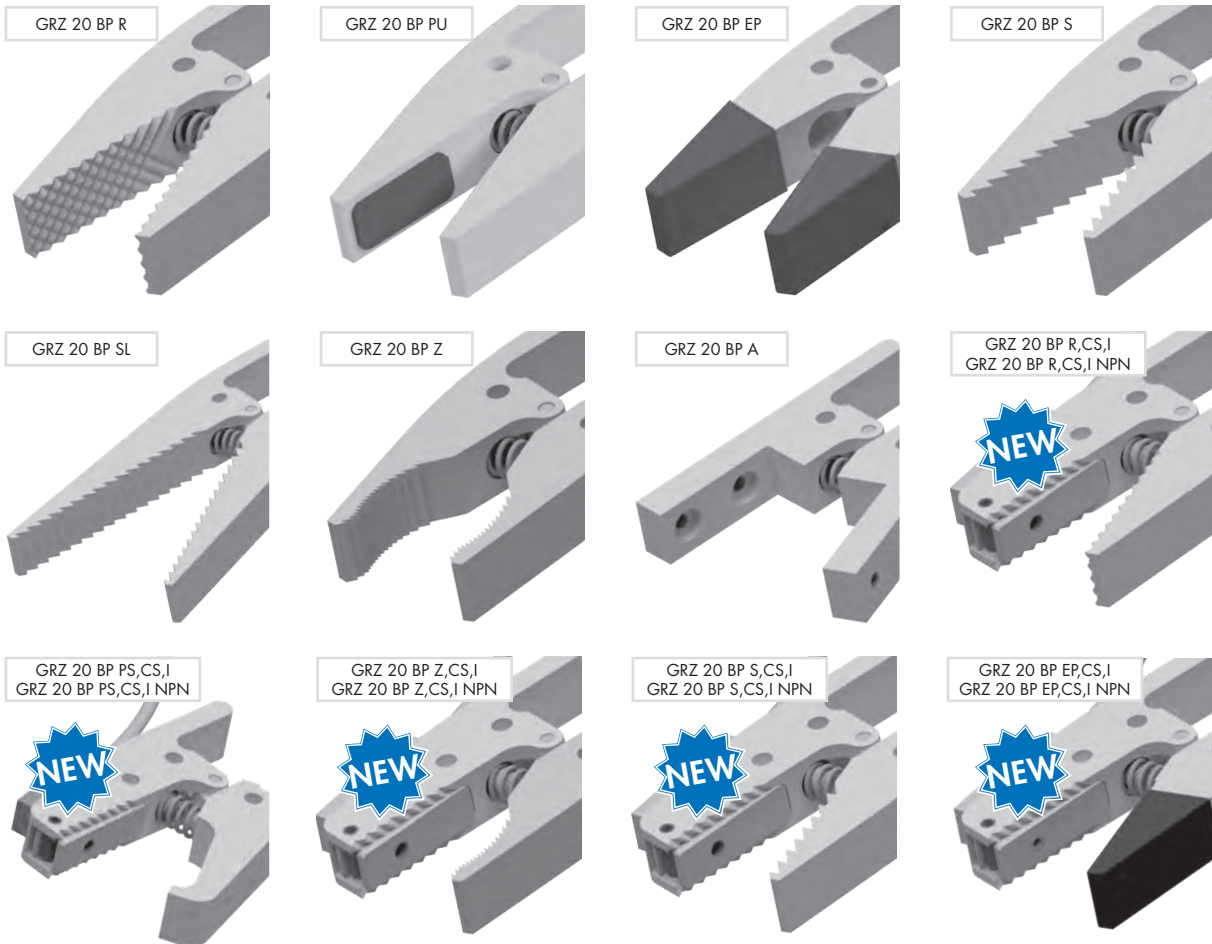
Part No.	Description	Material	Weight [g]
1-417-80-00	GRZ 20 Body	Aluminium	68

GRZ 20 Gripper Jaws / Gripper Jaws Size 20



Remarks:

- **Application:** Gripper Jaws for creating individual GRZ 20-20, see table for properties of the jaw geometries
- gripper jaws without integrated query optionally can be equipped with a sensor bracket and initiator
- jaw material: hardcoated Aluminium



Part No.	Description	A [mm]	B [mm]	E [mm]	E1 [mm]	Weight [g]	
1-417-81-00	GRZ 20 Gripper Jaws R	42	12	23	0	39	
1-417-90-00	GRZ 20 Gripper Jaws PU	42	12	23	0	39	
1-417-98-00	GRZ 20 Gripper Jaws EP	42	12	23	0	40	
1-417-86-00	GRZ 20 Gripper Jaws S	42	12	22	0	38	
1-417-87-00	GRZ 20 Gripper Jaws SL	70	12	41	3	61	
1-417-85-00	GRZ 20 Gripper Jaws Z	42	12	21	0	36	
1-417-84-00	GRZ 20 Gripper Jaws A	41	12	-	-	40	
1-417-91-00	GRZ 20 Gripper Jaws R,CS,I	41	12	20	2	53	
1-417-95-00	GRZ 20 Gripper Jaws R,CS,I NPN	41	12	20	2	53	New
1-417-92-00	GRZ 20 Gripper Jaws PS,CS,I	42	12	26	1	53	New
1-417-99-00	GRZ 20 Gripper Jaws PS,CS,I NPN	42	12	26	1	53	New

GRZ 20 Gripper Jaws / Gripper Jaws Size 20 (Continuation)

Part No.	Description	A [mm]	B [mm]	E [mm]	E1 [mm]	Weight [g]
	GRZ 20 Gripper Jaws Z,CS,I	41	12	20	2	52
New	GRZ 20 Gripper Jaws Z,CS,I NPN	41	12	20	2	52
	GRZ 20 Gripper Jaws S,CS,I	41	12	20	2	52
New	GRZ 20 Gripper Jaws S,CS,I NPN	41	12	20	2	52
	GRZ 20 Gripper Jaws EP,CS,I	41	12	20	1	53
New	GRZ 20 Gripper Jaws EP,CS,I NPN	41	12	20	1	53

Part No.	Description	Jaw Type	Application / Remarks
	GRZ 20 Gripper Jaws R	chequered	<ul style="list-style-type: none"> standard version
	GRZ 20 Gripper Jaws PU	Polyurethane pads	<ul style="list-style-type: none"> smooth gripping with more friction
	GRZ 20 Gripper Jaws EP	smooth, with EP coating Shore 90, colour blue	<ul style="list-style-type: none"> smooth gripping with more friction covers all applications of smooth jaws for more about EP coating, see category 990
	GRZ 20 Gripper Jaws S	saw jaws	<ul style="list-style-type: none"> for demolding stucking sprues
	GRZ 20 Gripper Jaws SL	saw jaws, long jaws	<ul style="list-style-type: none"> for demolding stucking sprues extra long jaws
	GRZ 20 Gripper Jaws Z	teethed, chamfered	<ul style="list-style-type: none"> for halfround sprues or stiffening ribs
	GRZ 20 Gripper Jaws A	for customized jaws, each jaw with 2 holes M5	<ul style="list-style-type: none"> for adapting customized jaws hole pitch 15 mm angle opened 27.6°, angle closed -4.5° closing force and opening width depends on customized jaws
	GRZ 20 Gripper Jaws R,CS,I	with sensor PNP / chequered	<ul style="list-style-type: none"> direct query, inductive, PNP, NO, 3-pole, 0.16m, plug M8
New	GRZ 20 Gripper Jaws R,CS,I NPN	with sensor NPN / chequered	<ul style="list-style-type: none"> direct query, inductive, NPN, NO, 3-pole, 0.16m, plug M8
New	GRZ 20 Gripper Jaws PS,CS,I	with sensor PNP / contour jaw	<ul style="list-style-type: none"> contour jaw for semi-circular and large sprues direct query, inductive, PNP, NO, 3-pole, 0.16m, plug M8
New	GRZ 20 Gripper Jaws PS,CS,I NPN	with sensor NPN / contour jaw	<ul style="list-style-type: none"> contour jaw for semi-circular and large sprues direct query, inductive, NPN, NO, 3-pole, 0.16m, plug M8
	GRZ 20 Gripper Jaws Z,CS,I	with sensor PNP / teethed, chamfered	<ul style="list-style-type: none"> for semicircular sprues or bridges direct query, inductive, PNP, NO, 3-pole, 0.16m, plug M8
New	GRZ 20 Gripper Jaws Z,CS,I NPN	with sensor NPN / teethed, chamfered	<ul style="list-style-type: none"> for semicircular sprues or bridges direct query, inductive, NPN, NO, 3-pole, 0.16m, plug M8
	GRZ 20 Gripper Jaws S,CS,I	with sensor PNP / saw jaw	<ul style="list-style-type: none"> for demolding stucking sprues direct query, inductive, PNP, NO, 3-pole, 0.16m, plug M8
New	GRZ 20 Gripper Jaws S,CS,I NPN	with sensor NPN / saw jaw	<ul style="list-style-type: none"> for demolding stucking sprues direct query, inductive, NPN, NO, 3-pole, 0.16m, plug M8
	GRZ 20 Gripper Jaws EP,CS,I	with sensor PNP / with EP coating Shore 90, colour blue	<ul style="list-style-type: none"> smooth gripping with more friction for more information about EP coating, see category 990 direct query, inductive, PNP, NO, 3-pole, 0.16m, plug M8
New	GRZ 20 Gripper Jaws EP,CS,I NPN	with sensor NPN / with EP coating Shore 90, colour blue	<ul style="list-style-type: none"> smooth gripping with more friction for more information about EP coating, see category 990 direct query, inductive, NPN, NO, 3-pole, 0.16m, plug M8

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

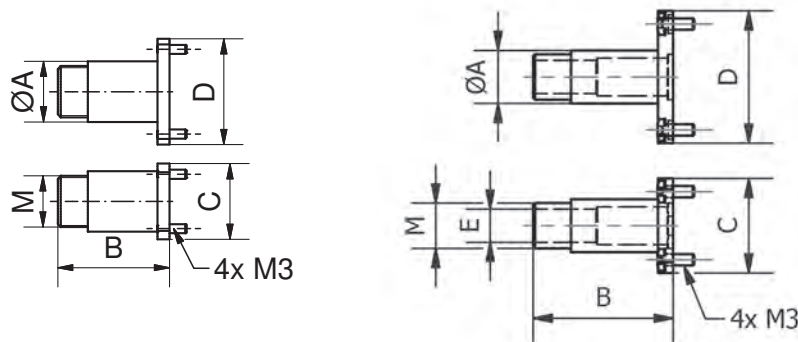
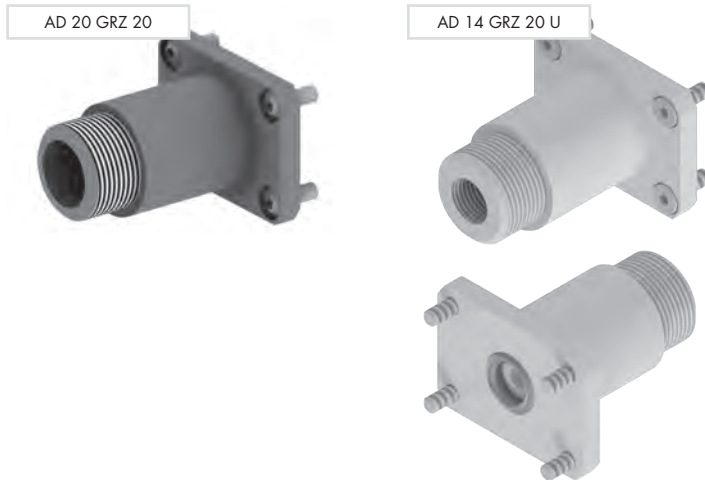
700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

AD 20 GRZ 20 / AD 14 GRZ 20 U / Adapter

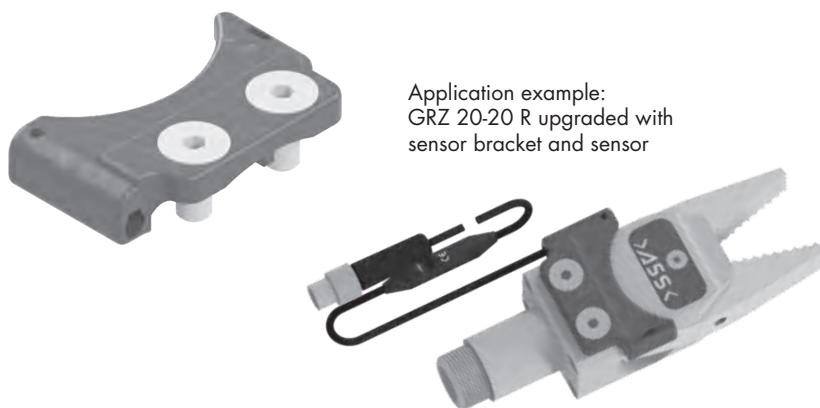


Remarks:

- ▶ **Application:** adapts the GRZ 20 to GRZ 20-14 or GRZ 20-20
- AD 14 GRZ 20
 - with integrated air duct
 - compatible to all versions of VLR 14
 - Scope of Delivery: seal ring and screws included
- AD 20 GRZ 20
 - without air duct
 - compatible to all versions of VLR 20
 - Scope of Delivery: screws included

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E Air Connection	M	Material	Weight [g]
1-417-07-00	AD 14 GRZ 20 U	14	37	25	35	M5	M12x1	Aluminium	22
1-417-02-00	AD 20 GRZ 20	20	37	25	35	G1/8	M17x1	Aluminium	25

SH GRZ 20 / Sensor Bracket



Remarks:

- every GRZ 20 Gripper Jaws contains magnets
- this Sensor Bracket is for mounting sensor MFS T2 3,7 for monitoring 2 basic positions

Accessories e.g.:

- Sensor MFS T2 3,7 (Part No. 1-808-30-00)

Part No.	Description	Material	Weight [g]
1-417-04-00	SH GRZ 20	Polyamide	7

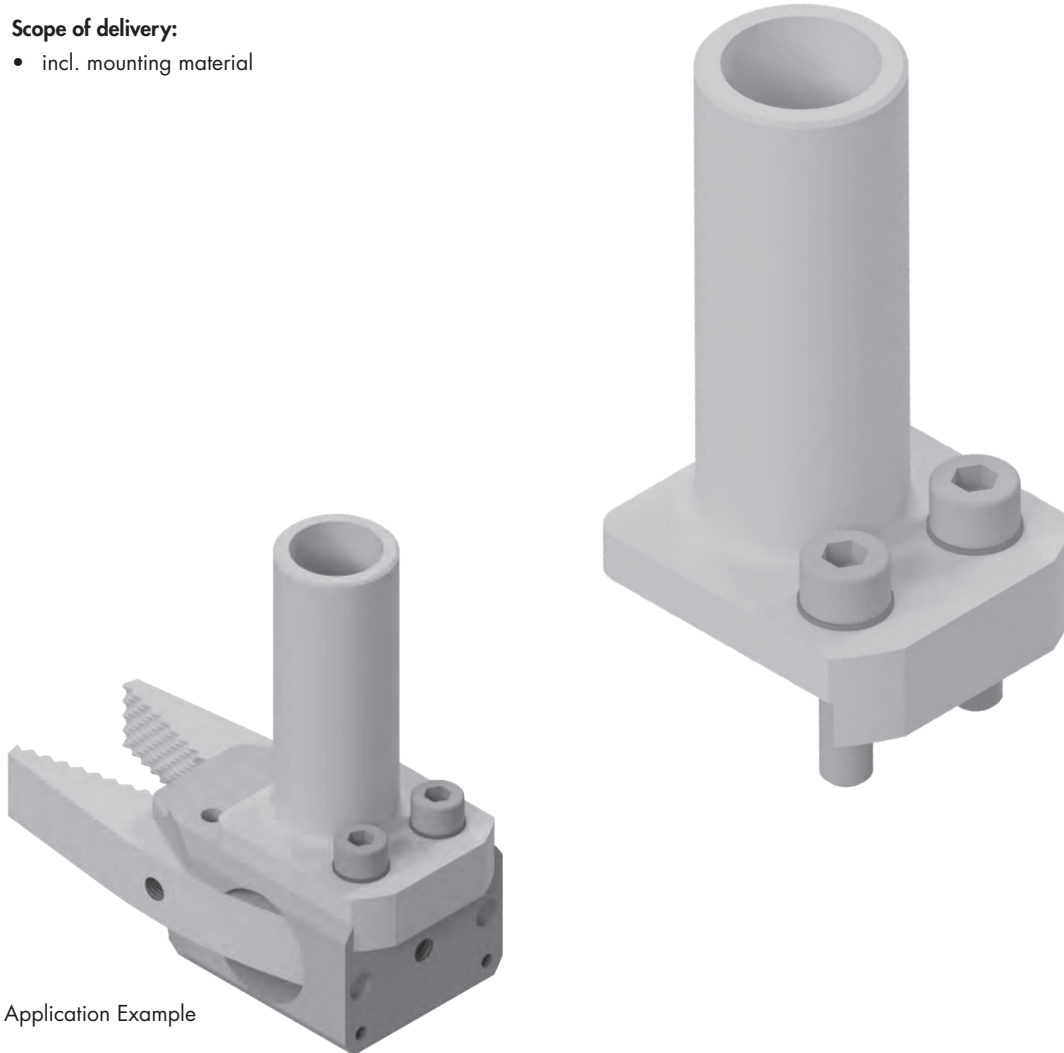
AD GRZ 20 S / Adapter, sidewise connection

Remarks:

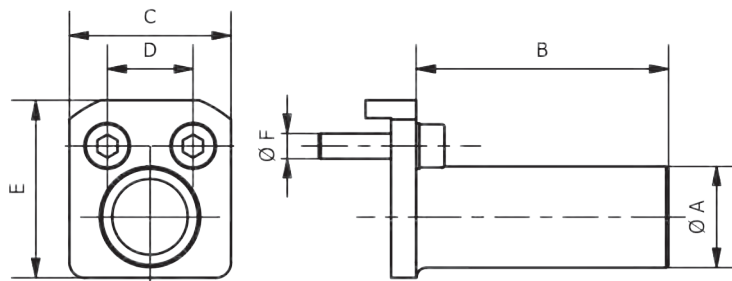
- ▶ **Application:** for grippers of the GRZ 20 series sidewise
- allows various applications

Scope of delivery:

- incl. mounting material



Application Example



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	Material	Weight [g]
1-417-09-00	AD 20 GRZ 20 S	20	50	32	17	35	M5	Aluminium	41

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

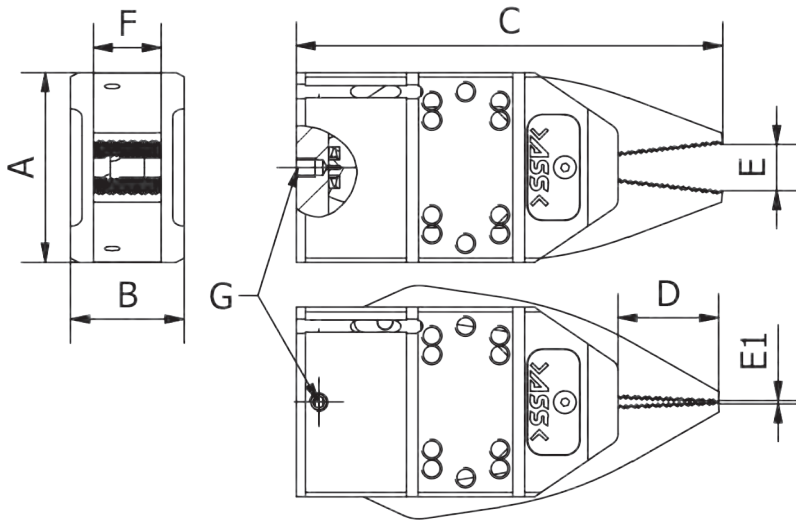
700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

GRZ 25 / Grippers Size 25



GRZ 25 R

GRZ 25 R,CS,I



Remarks:

► **Application: strong gripper with the same high closing force as GRZ 32 in a more compact design**

- single-acting gripper
- C-groove is integrated in the gripper body
- 2 pistons, Ø 25 mm
- easy to change jaws
- » closing force measured at point of jaws at 6 bar
- » maximum air pressure is 6 bar, use dry and filtered air only

Accessories e.g.:

- Sensor MFS T2 3,7 (Part No. 1-808-30-00)
- Adapter AP PGR 50
- Adapter AP HEU 16

Part No.	Description	Jaw Type	Application / Remarks	Jaws made of...
1-421-00-00	GRZ 25 R	chequered	<ul style="list-style-type: none"> • standard version • optional query, C-groove is integrated in the gripper body 	anodized Aluminium
1-421-30-00	GRZ 25 R,CS,I	with sensor PNP / chequered	<ul style="list-style-type: none"> • direct query, inductive, PNP, NO, 3-pole, 0.16m, plug M8 • NPN version available as separate Gripper Jaws 	anodized Aluminium

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	E1 [mm]	F [mm]	G [mm]	Closing force max. [N]	Weight [g]
1-421-00-00	GRZ 25 R	50	30	112	27	12	0	18	M5	350	290
1-421-30-00	GRZ 25 R,CS,I	50	30	112	27	11	1	18	M5	350	306

GRZ 25 Body

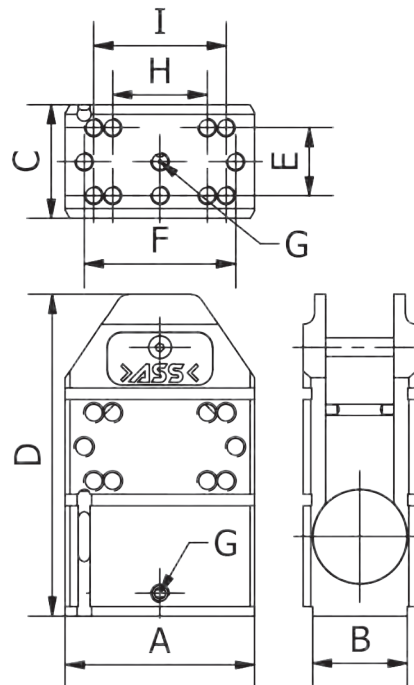
Remarks:

► **Application: for customizing gripper GRZ 25**

- single-acting
- made of anodized Aluminium
- 2 pistons, Ø 25
- all components easy to assemble
- single-acting gripper body
- C-groove is integrated in the gripper body

Accessories e.g.:

- all GRZ 25 Gripper Jaws
- Sensor MFS T2 3,7 (Part No. 1-808-30-00)
- Adapter AP PGR 50
- Adapter AP HEU 16



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]	Weight [g]
1-421-80-00	GRZ 25 Body	50	25	30	85	18	40	M5	25	25	177

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

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Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

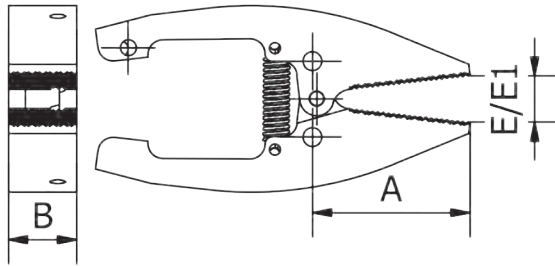
700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

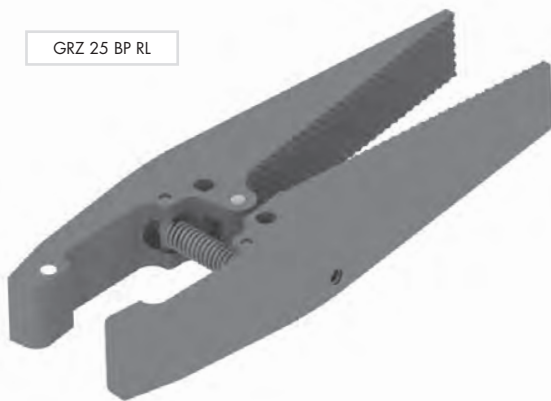
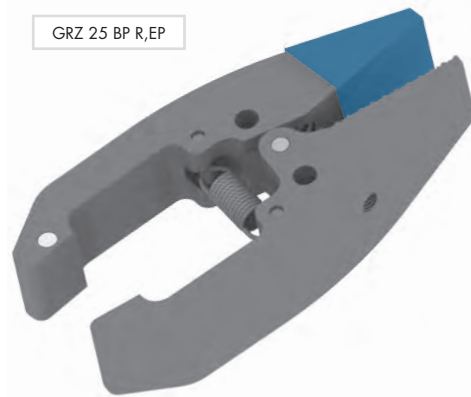
GRZ 25 Gripper Jaws / Gripper Jaws Size 25



Remarks:

► **Application: Gripper Jaws for creating individual GRZ 25, see table for properties of the jaw geometries**

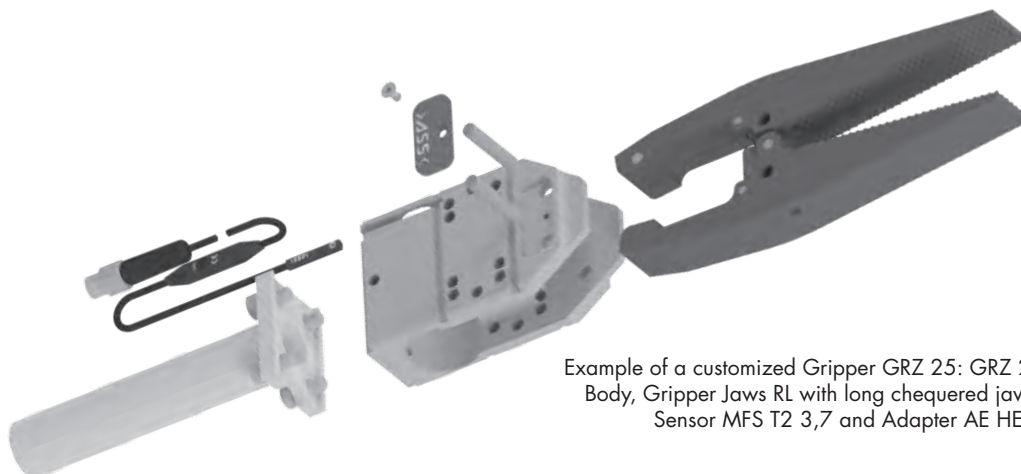
- jaws made of anodized Aluminium
- integrated permanent magnet
- indirect query of jaws possible



GRZ 25 Gripper Jaws / Gripper Jaws Size 25 (Continuation)

Part No.	Description	Application / Remarks
1-421-81-00	GRZ 25 Gripper Jaws R	<ul style="list-style-type: none"> standard version optional query, C-groove is integrated in the gripper body
1-421-84-00	GRZ 25 Gripper Jaws R,EP	<ul style="list-style-type: none"> smooth gripping with more friction for more information about EP coating, see category 990 optional query, C-groove is integrated in the gripper body
1-421-90-00	GRZ 25 Gripper Jaws RL	<ul style="list-style-type: none"> standard version with extra long jaws optional query, C-groove is integrated in the gripper body
1-421-91-00	GRZ 25 Gripper Jaws R,CS,I	<ul style="list-style-type: none"> direct query, inductive, PNP, NO, 3-pole, 0.16m, plug M8
New 1-421-94-00	GRZ 25 Gripper Jaws R,CS,I NPN	<ul style="list-style-type: none"> direct query, inductive, NPN, NO, 3-pole, 0.16m, plug M8
1-421-93-00	GRZ 25 Gripper Jaws EP,CS,I	<ul style="list-style-type: none"> smooth gripping with more friction for more information about EP coating, see category 990 direct query, inductive, PNP, NO, 3-pole, 0.16m, plug M8
New 1-421-95-00	GRZ 25 Gripper Jaws EP,CS,I NPN	<ul style="list-style-type: none"> smooth gripping with more friction for more information about EP coating, see category 990 direct query, inductive, NPN, NO, 3-pole, 0.16m, plug M8

Part No.	Description	Jaw Type	A [mm]	B [mm]	E [mm]	E1 [mm]	Weight [g]
1-421-81-00	GRZ 25 Gripper Jaws R	chequered	42	18	12	0	114
1-421-84-00	GRZ 25 Gripper Jaws R,EP	chequered / with EP coating Shore 90, colour blue	42	18	12	0	119
1-421-90-00	GRZ 25 Gripper Jaws RL	chequered, long jaws	89	18	28	0	174
1-421-91-00	GRZ 25 Gripper Jaws R,CS,I	with sensor PNP / chequered	42	18	11	1	130
New 1-421-94-00	GRZ 25 Gripper Jaws R,CS,I NPN	with sensor NPN / chequered	42	18	11	1	130
1-421-93-00	GRZ 25 Gripper Jaws EP,CS,I	with sensor PNP / with EP coating Shore 90, colour blue	41	18	11	1	131
New 1-421-95-00	GRZ 25 Gripper Jaws EP,CS,I NPN	with sensor NPN / with EP coating Shore 90, colour blue	41	18	11	1	131



Example of a customized Gripper GRZ 25: GRZ 25 Body, Gripper Jaws RL with long chequered jaws, Sensor MFS T2 3,7 and Adapter AE HEU.

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special Elements

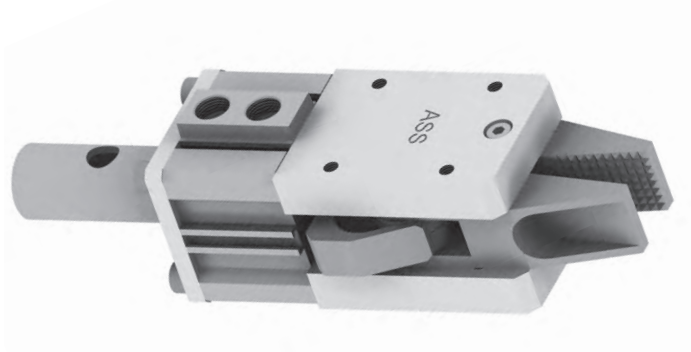
800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

400 | Grippers

GRZ 32 / Grippers Size 32



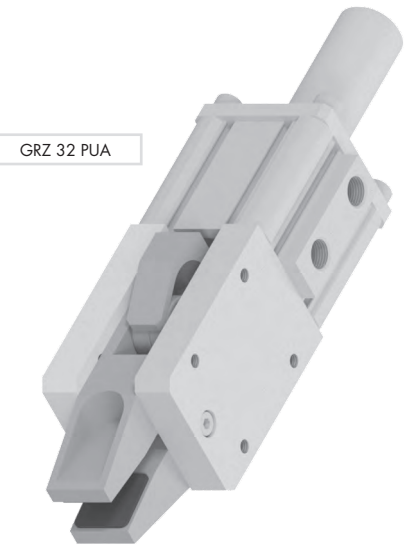
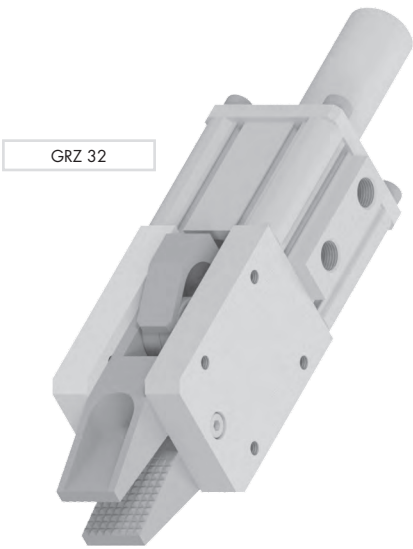
Remarks:

► **Application: strong, double-acting gripper , see table for properties of the jaw geometries**

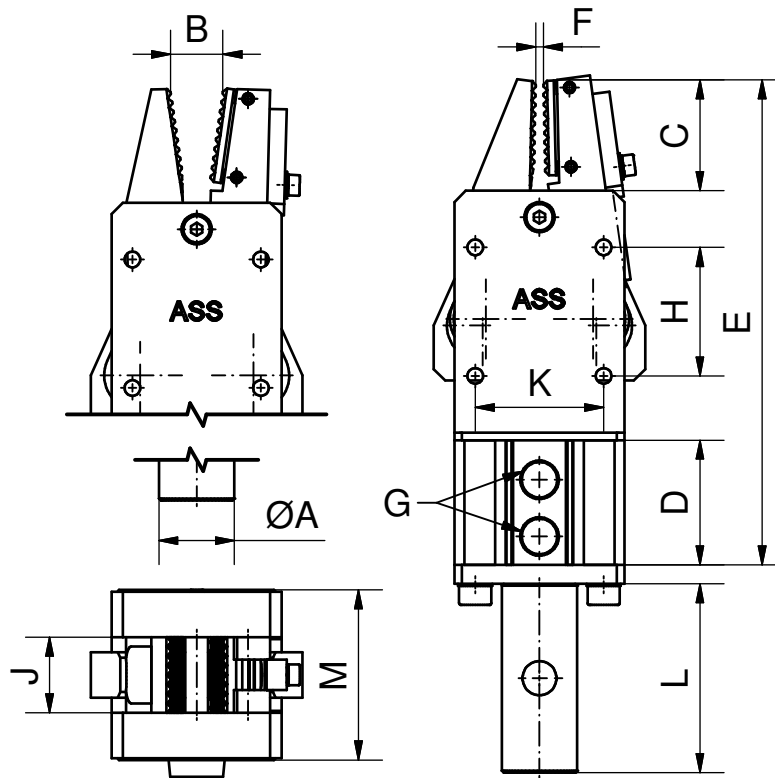
- piston Ø 32 mm
- cylinder can be monitored
- best usage with profiles X and JU
- » closing force measured at point of jaws at 6 bar
- » maximum air pressure is 6 bar, use dry and filtered air only

Accessories for example:

- Sensor ICS 8 (Part No. 1-808-36-00)



GRZ 32 / Grippers Size 32 (Continuation)



Description	A [mm]	C [mm]	D [mm]	G ["]	H [mm]	J [mm]	K [mm]	L [mm]	M [mm]	Closing force max. [N]
GRZ 32...	20	30	33	1/8	34	20	34	50	44	350

Part No.	Description	Jaw Type	Application / Remarks
1-420-03-00	GRZ 32	chequered	<ul style="list-style-type: none"> e.g. for gripping tasks where a high closing force is required optional query, C-groove is integrated
1-420-06-00	GRZ 32 C	with sensor PNP / chequered	<ul style="list-style-type: none"> direct query, inductive, PNP, NO, 3-pole, 3m, cable jaw with large-scale query
New 1-420-15-00	GRZ 32 C NPN	with sensor NPN / chequered	<ul style="list-style-type: none"> direct query, inductive, NPN, NO, 3-pole, 3m, cable jaw with large-scale query
1-420-09-00	GRZ 32 CS	with sensor PNP / chequered	<ul style="list-style-type: none"> direct query, inductive, PNP, NO, 3-pole, 0.16m, plug M8 + 2m extension cable jaw with large-scale query
New 1-420-08-00	GRZ 32 CS NPN	with sensor NPN / chequered	<ul style="list-style-type: none"> direct query, inductive, NPN, NO, 3-pole, 0.16m, plug M8 + 2m extension cable jaw with large-scale query
1-420-10-00	GRZ 32 PUA	Polyurethane pads	<ul style="list-style-type: none"> smooth gripping with more friction optional query, C-groove is integrated

Part No.	Description	Jaws made of...	E [mm]	B [mm]	F [mm]	Weight [g]
1-420-03-00	GRZ 32	zinc-plated Steel	127	12	1	628
1-420-06-00	GRZ 32 C	zinc-plated Steel	129	11	1	686
New 1-420-15-00	GRZ 32 C NPN	zinc-plated Steel	129	11	1	686
1-420-09-00	GRZ 32 CS	zinc-plated Steel	127	11	1	705
New 1-420-08-00	GRZ 32 CS NPN	zinc-plated Steel	127	11	1	705
1-420-10-00	GRZ 32 PUA	zinc-plated Steel / with PU Pads	129	9.3	0	670

000 Quick Change System

050 Profile-Channel Nut

100 Clamps

115 Tubular Clamps

120 Profile Connectors

190 Accessories-Profile

200 Vacuum Cup-Connectors

220 Vacuum Cups

224 Vacuum Cups-Special

230 Manifold

290 Adapter

300 Gripper Arms

400 Grippers

450 Gripper Fingers

600 Nipper Bodies

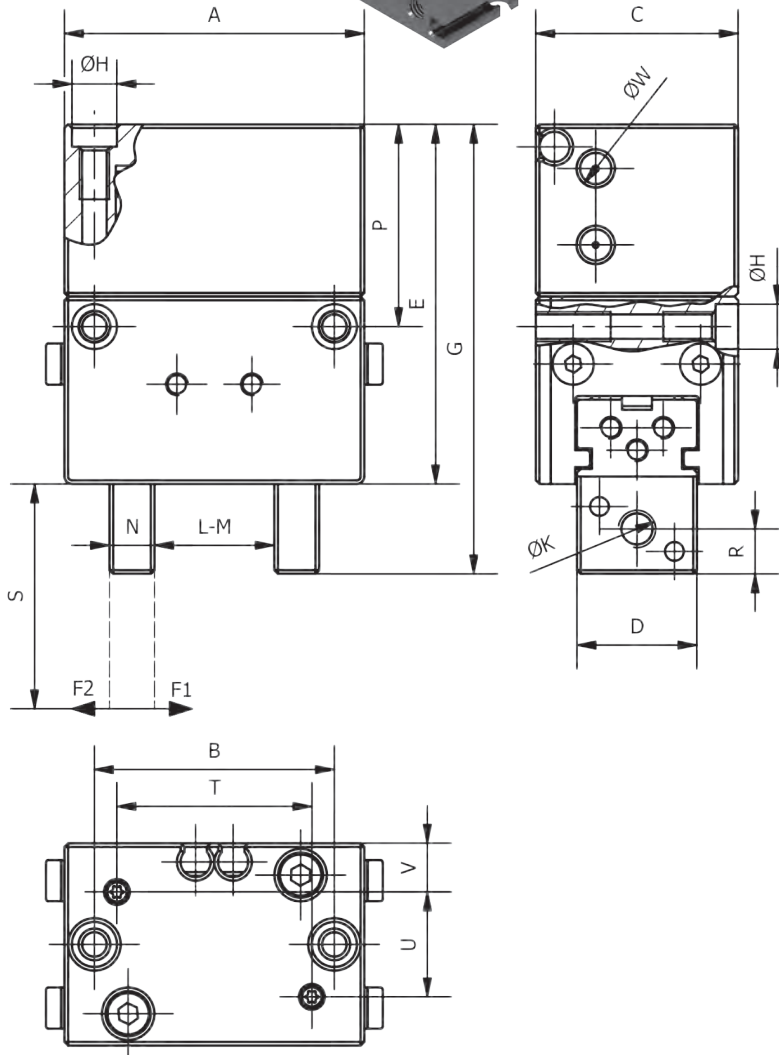
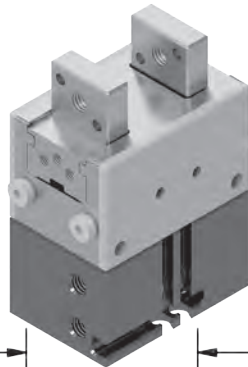
610 Nipper Blades

700 Special Elements

800 Electric and Sensors

850 Pneumatic

PGR-P / Parallel Gripper, pneumatic



Remarks:

► **Application:** e.g. for precise gripping or inserting applications

- load-bearing and low-play T-slot guide for safe and precise handling with high load ratings
 - drive concept for maximum gripping force
 - housing made of high-strength aluminum alloy for minimum weight and high stiffness
 - double acting: can be used as external or internal gripper
 - small construction volume for minimal contours
 - centering possibilities on the gripping jaws
 - versatile adaptations for flexible assembling
 - power supply on two gripper sides possible; also hoseless direct connection possible
 - integrated permanent magnet for sensing end position (see accessories)
 - precise sensing of jaw position by adapting induction field sensors (see accessories)
- » maximum air pressure is 6 bar, use dry and filtered air only

Drawing:

PGR-P Opening:
 A1 main connection
 A2 direct connection M3
PGR-P Closing:
 B1 main connection
 B2 direct connection M3

Scope of Delivery:

- 1x PGR-P
- 2x centering sleeve
- 2x air connections
- 2x plug
- 2x o-rings
- 1x sensor bracket with mounting material (Sensor IRK 4 not included)

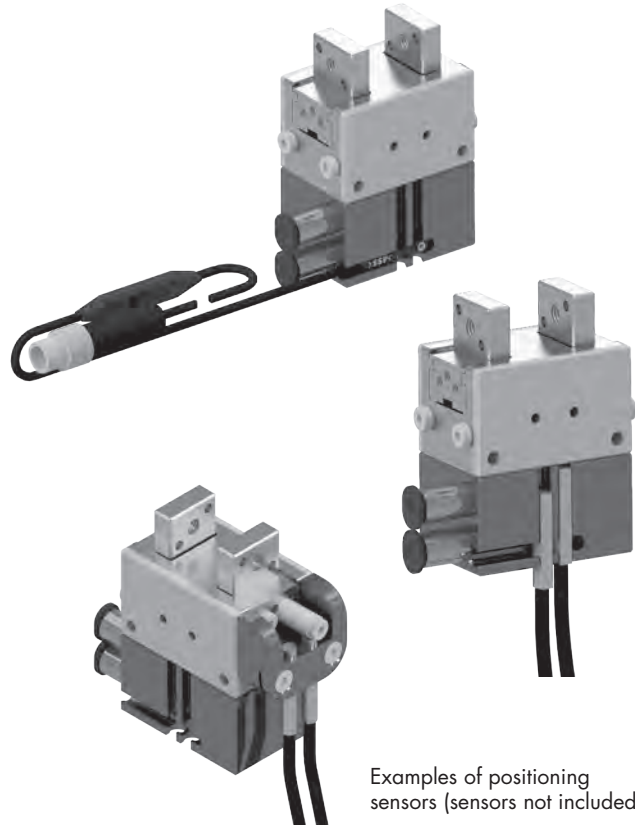
Part No.	Description	Closing force F1 max. [N]	Opening force F2 max. [N]	Air connection	Stroke per jaw [mm]	Hose connection	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	G [mm]	
1-431-09-00	PGR-P 32	70	80	M5	4	4/3	32	25	23	12	38.8	49	New
1-431-12-00	PGR-P 40	140	155	M5	6	4/3	40	32	27	16	48	60	
1-431-15-00	PGR-P 50	180	210	M5	8	6/4	50	40	31	18	57.5	71.5	New
1-431-18-00	PGR-P 64	310	340	M5	10	6/4	64	52	36	20	67	82.9	New

Part No.	Description	H [mm]	K [mm]	L [mm]	M [mm]	N [mm]	P [mm]	R [mm]	S [mm]	T [mm]	U [mm]	V [mm]	W [mm]	Weight [g]	
1-431-09-00	PGR-P 32	M4	M5	22	14	5	22.5	5	40	20	8.5	3	M5	100	New
1-431-12-00	PGR-P 40	M4	M5	28	16	6	27	6	50	26	14	6.5	M5	184	
1-431-15-00	PGR-P 50	M5	M6	34	18	8	31	7	64	33	16	7.5	M5	310	New
1-431-18-00	PGR-P 64	M5	M8	44	24	10	32.5	8	80	47	16	10	M5	530	New

PGR-P / Parallel Gripper, pneumatic (Continuation)

Accessories e.g.:

- GB-PGR - Unmachined Jaws (blanks) for Parallel Gripper
- KUG - Glue and Polyurethane Pad: PU on the gripping surface increases the friction (category 990)
- AP PGR - adaptation of the parallel gripper to the respective extension tube
- MFS T2 - magnetic field sensor with 2 switching points „teachable“ for the end position sensing of the piston rod, easy to mount via the integrated C-slots (Part No. 1-808-30-00)
- ICS 8 - 3-pole magnetic field sensor for end position sensing of the piston rod, easy to install via the integrated C-slots, basic and working position requires one sensor each (Part No. 1-808-36-00)
- IRK 4 - induction field sensors for the end position detection of the gripper jaws, basic and working position requires one sensor each, sensor bracket in the scope of delivery (Part No. 1-808-02-00)
- ASP PGR-P - Sensor Bracket Precise mounting kit: complete set for querying the exact jaw position using induction field sensors



Examples of positioning sensors (sensors not included)

AS-P PGR-P / Sensor Bracket Precise for PGR-P

Remarks:

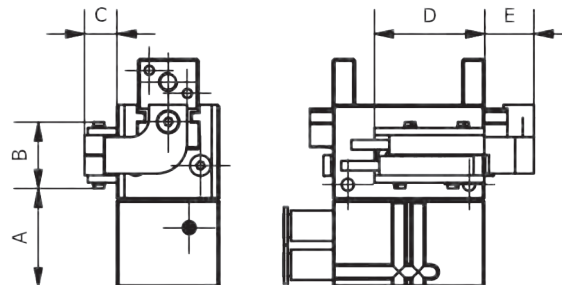
- precise sensing of jaw position by adaptive induction field sensors

Scope of Delivery:

- 1x sensor bracket
- 1x cam switch
- screws

Accessories:

- Sensor IE AL K (Part No. 1-808-38-00)



	Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Weight [g]
New	1-431-09-20	AS-P PGR-P 32	18.8	17.5	8.5	25	11	13
	1-431-12-20	AS-P PGR-P 40	26	17.5	8.5	29	13	18
New	1-431-15-20	AS-P PGR-P 50	33.5	17.5	8.5	34	19	28
New	1-431-18-20	AS-P PGR-P 64	40.8	17.5	8.5	31	21	33

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

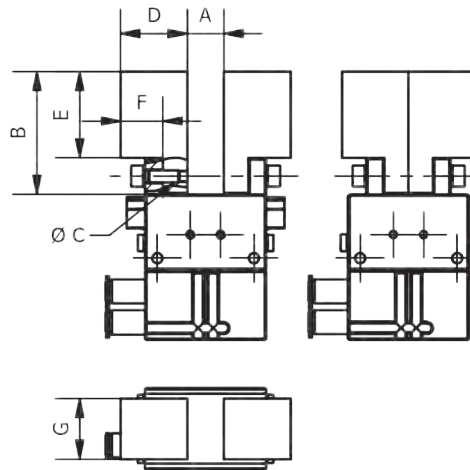
610
Nipper Blades

700
Special Elements

800
Electric and Sensors

850
Pneumatic

GB PGR / Unmachined Jaws for Parallel Gripper



Remarks:

► **Application:** blank jaws for customizing PGR-P jaws

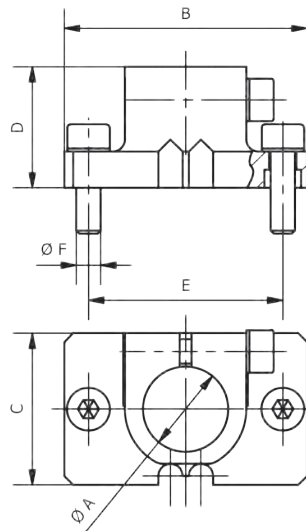
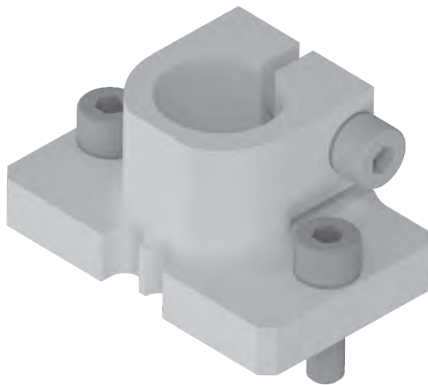
- fits for PGR-P and PGR-plus
- made of Aluminium, smooth surface
- » sold in pairs

Accessories e.g.:

- PU Pad + Glue KUG

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	Material	Weight [g]
1-430-03-01	GB PGR 20	4	20,5	M3	13	12,4	8,5	11	Aluminium	15
1-430-06-01	GB PGR 25	6	25,5	M3	15	17,4	9,5	12	Aluminium	24
1-430-09-01	GB PGR 32	8	32,5	M4	19	22,4	12	16	Aluminium	49
1-430-12-01	GB PGR 40	12	40,5	M4	22	28,4	14	20	Aluminium	85
1-430-15-01	GB PGR 50	16	50,5	M5	27	36,4	18	22	Aluminium	145
1-430-18-01	GB PGR 64	20	64,5	M6	34	48,4	22	24	Aluminium	261

AP PGR / Mounting Bracket for Parallel Gripper PGR



Remarks:

► **Application:** adapts Parallel Gripper on VLR extension tubes

- can be used with or without bushings
- suitable for PGR-P and PGR-plus

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	Material	Weight [g]
1-435-03-00	AP PGR 20	10	20	18	15	15	M2,5	Aluminium	10
1-435-06-00	AP PGR 25	10	26	18	15	20	M3	Aluminium	11
1-435-09-00	AP PGR 32	14	32	22	17	25	M4	Aluminium	18
1-435-12-00	AP PGR 40	14	40	25	17	32	M4	Aluminium	28
1-435-15-00	AP PGR 50	20	50	30	20	40	M5	Aluminium	53
1-435-18-00	AP PGR 64	20	64	35	20	52	M5	Aluminium	94

PGR / Parallel Gripper

Remarks:

- for precise gripping or inserting applications
- PGR-plus: monitoring of two end-positions with MFS T2
- double-acting
- Sensor IRK 4

Scope of Delivery:

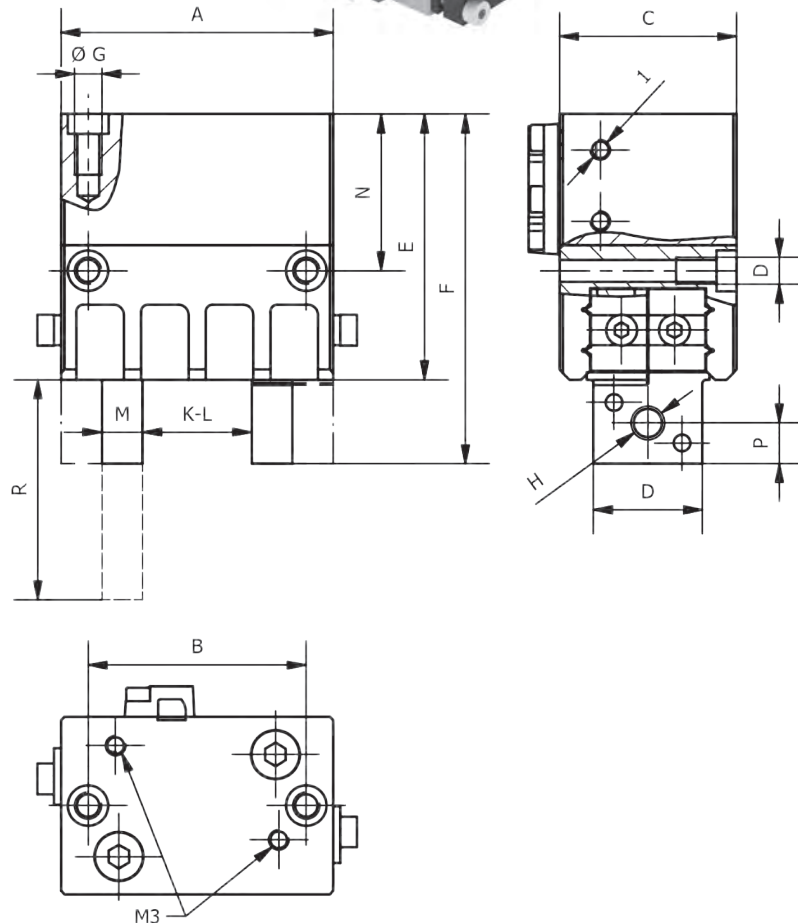
- PGR / parallel gripper without jaws
- incl. mounting material
- air connector (see table)

Drawing:

- 1 air port
- R max. jaw length

Accessories:

- Blank Jaws AP-PGR
- PU Pad + Glue KUG
- Adapter AP PGR
- Sensor IRK 4
for PGR-plus 32/40/50/64
- Sensor IRK 4.4
for PGR-plus 20/25



Part No.	Description	Closing force max. [N]	Opening force max. [N]	Air connection	Stroke [mm]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]
1-430-03-00-1	PGR-plus 20	34	30	M3	2x2	20	15	16	9	25	33
1-430-06-00-1	PGR-plus 25	38	32	M3	2x3	26	20	18	10	26	34
1-430-09-00-1	PGR-plus 32	80	70	M5	2x4	32	25	22	12	33	43
1-430-12-00-1	PGR-plus 40	135	110	M5	2x6	40	32	26	16	39	51
1-430-15-00-1	PGR-plus 50	215	195	M5	2x8	50	40	30	18	46	60
1-430-18-00-1	PGR-plus 64	300	280	M5	2x10	64	52	35	20	54	70

Part No.	Description	G [mm]	H [mm]	K [mm]	L [mm]	M [mm]	N [mm]	P [mm]	R [mm]	Tube Connector	Weight [g]
1-430-03-00-1	PGR-plus 20	M2,5	M4	13	9	3,5	14,4	4	25	3/0.5	40
1-430-06-00-1	PGR-plus 25	M3	M4	17	11	4	16,2	4	32	3/0.5	61
1-430-09-00-1	PGR-plus 32	M4	M5	22	14	5	19,7	5	40	4/3	209
1-430-12-00-1	PGR-plus 40	M4	M5	28	16	6	23	6	50	4/3	189
1-430-15-00-1	PGR-plus 50	M5	M6	34	18	8	27,2	7	64	6/4	314
1-430-18-00-1	PGR-plus 64	M5	M8	44	24	10	30	8	80	6/4	544

000
Quick Change
System

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

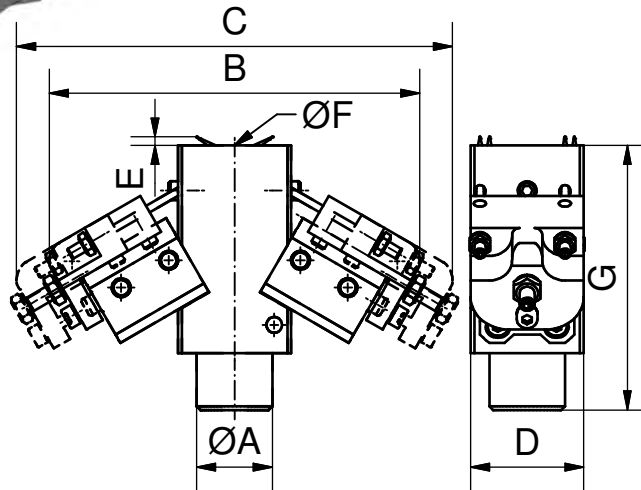
700
Special
Elements

800
Electric and
Sensors

850
Pneumatic

990
Other
PA-Forming

NGR 12 D / Needle Gripper with Through Hole



Remarks:

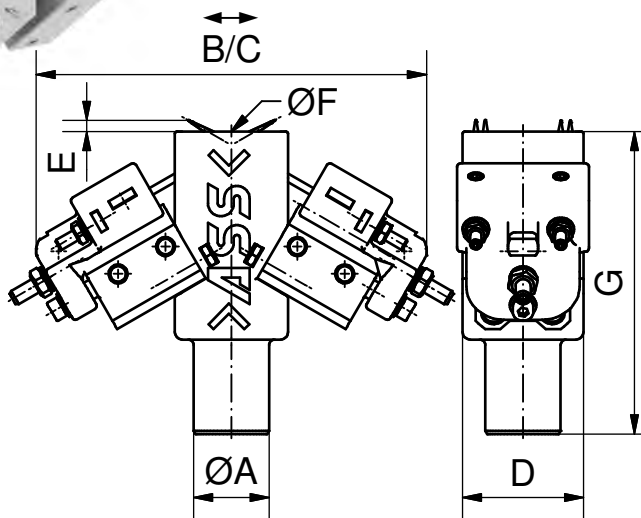
- ▶ **Application: Standard Needle Gripper with 4 needles at which the magazine bar or centring pin can completely submerge**
- suitable for handling textiles, fabrics or other limp materials that can be penetrated
- two double-acting cylinders
- piston diameter 12 mm
- body made of Aluminium
- » maximum air pressure is 6 bar, use dry and filtered air only

Drawing:

E penetration depth, the diameter of the needles is 2 mm
 B and C minimum dimension (cylinder retracted) and maximum dimension (cylinder extended)

Part No.	Description	Air connection	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	Weight [g]
1-460-09-00	NGR 12 D	M5	20	98	116	30	0-2.5	11.5	70	262

NGR 12 DL / Needle Gripper with Through Hole, Light Weight Version



Remarks:

- ▶ **Application: Light Weight Needle Gripper with 4 needles at which the magazine bar or centring pin can completely submerge**
- identical function as NGR 12 D
- 37% weight reduction compared to NGR 12 D
- partitions made of Polyamide
- suitable for handling textiles, fabrics or other limp materials that can be penetrated
- two double-acting cylinders
- piston diameter 12 mm
- body made of Aluminium
- » maximum air pressure is 6 bar, use dry and filtered air only

Drawing:

E penetration depth, the diameter of the needles is 2 mm
 B and C minimum dimension (cylinder retracted) and maximum dimension (cylinder extended)

Part No.	Description	Air connection	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	Weight [g]
1-460-12-00	NGR 12 DL	M5	20	121	103	32	2.5	11.5	80	169

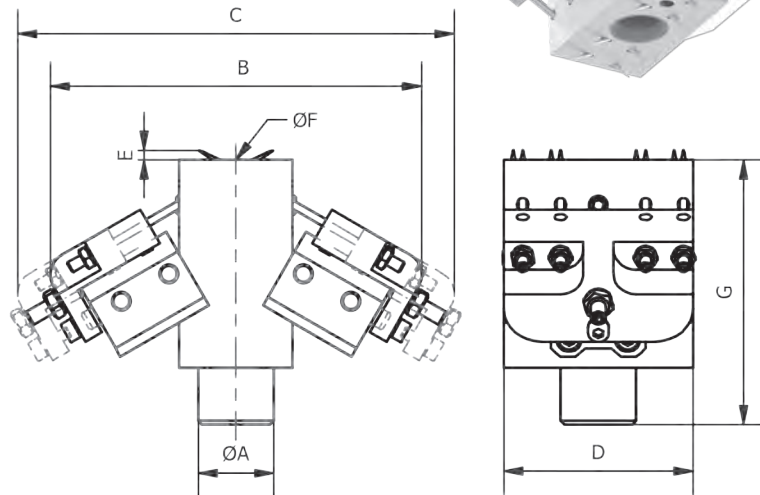
NGR 12-8 D / Needle Gripper, 8 Needles, with Through Hole

Remarks:

- **Application: Needle Gripper with 8 needles for more contact area at which the magazine bar or centring pin can completely submerge**
- suitable for handling textiles, fabrics or other limp materials that can be penetrated
- two double-acting cylinders
- piston diameter 12 mm
- body made of Aluminium
- » maximum air pressure is 6 bar, use dry and filtered air only

Drawing:

- E penetration depth, the diameter of the needles is 2 mm
- B and C minimum dimension (cylinder retracted) and maximum dimension (cylinder extended)



Artikelnummer	Bezeichnung	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	Luftanschluss	Gewicht [g]
1-460-14-00	NGR 12-8 D	20	98	116	50	0-2.5	11.5	70	M5	349

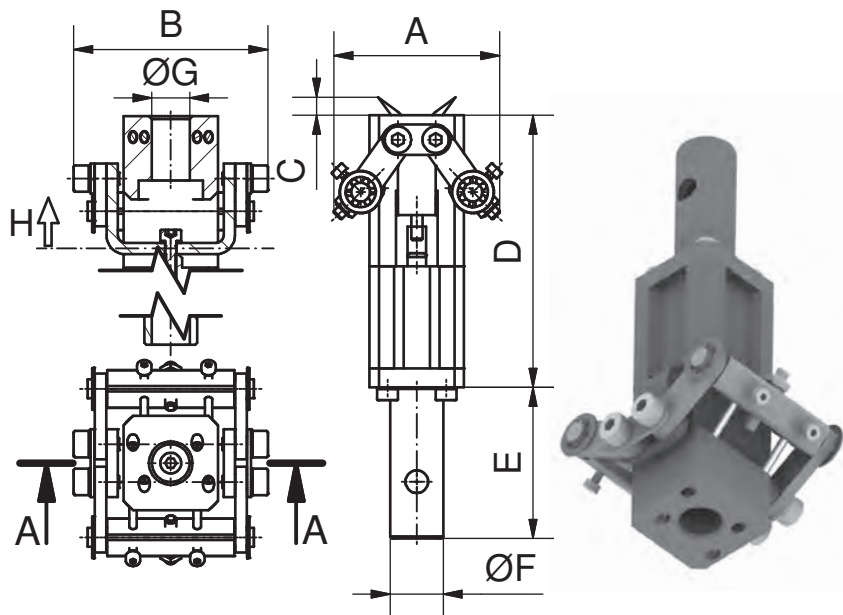
NGR 12 / Needle Gripper

Remarks:

- **Application: Needle Gripper with 4 needles at which the magazine bar or centring pin can immerse**
- maximum immersion depth 20 mm
- suitable for handling textiles, fabrics or other limp materials that can be penetrated
- double-acting cylinder
- piston diameter 12 mm
- » maximum air pressure is 6 bar, use dry and filtered air only

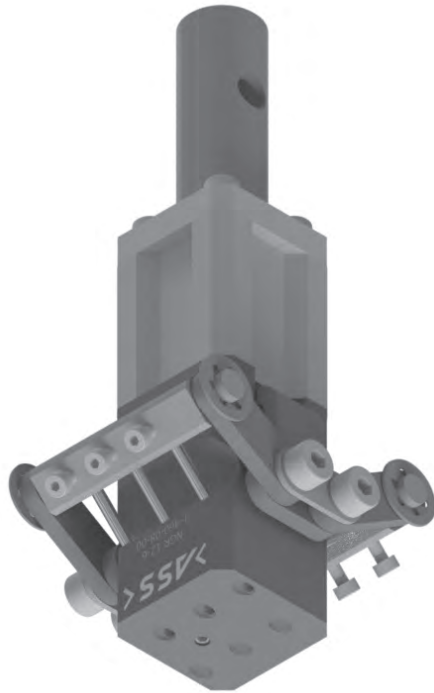
Drawing:

- A extracted / retracted needles
- C penetration depth, the diameter of the needles is 2 mm



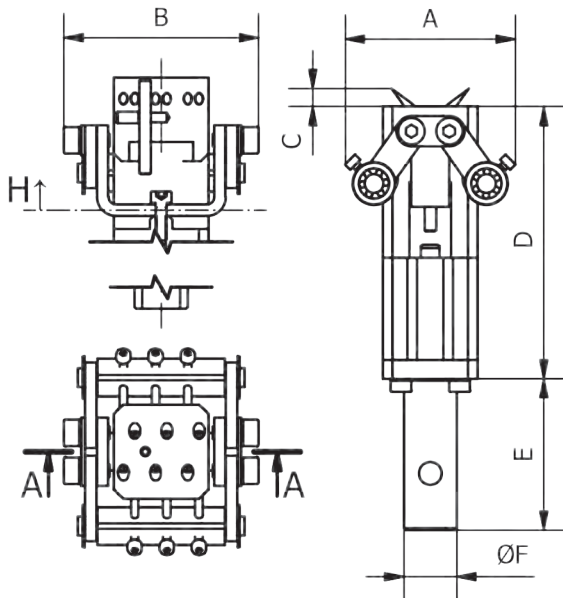
Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	Stroke H [mm]	Air connection	Weight [g]
1-460-06-00	NGR 12	48/58	52	0-4	72	40	14	10	10	M5	186

NGR 12-6 / Needle Gripper with 6 Needles, adjustable



Remarks:

- ▶ **Application: infinitely adjustable Needle Gripper with 6 needles**
- penetration depth infinitely adjustable via adjusting screw
- easy to use
- 6 needles for a secure hold
- double-acting cylinder
- » maximum air pressure is 6 bar, use dry and filtered air only



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	Stroke H [mm]	Air connection	Weight [g]
1-460-08-00	NGR 12-6	48/58	52	0-4	72	40	14	10	10	M5	190

NGR 16-18 EZ / Needle Gripper, compact, adjustable

Remarks:

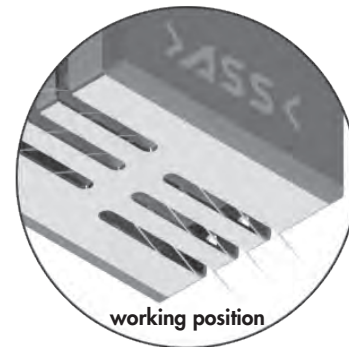
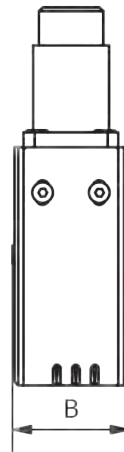
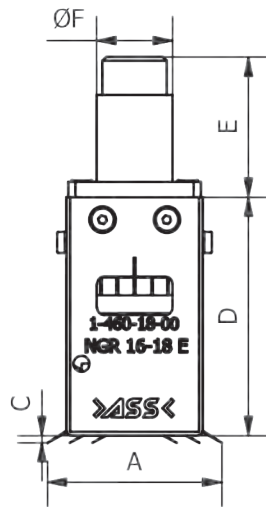
- ▶ **Application: suitable for separating thin and limp materials without forcing through or the needles to grip several layers**
- 6 extra-thin needles with a diameter of 0.7 mm for a secure hold
- needle depth is adjustable from 0-1.8 mm (1.75 mm when using additional cover) in 0.025mm steps by thumb wheel
- successfully completed endurance test with more than 2 million cycles
- fitted for a blow-off tube to release cloth
- easy to change needle package
- single-acting
 - » sensor option for needle position
 - » maximum air pressure is 6 bar, use dry and filtered air only

Scope of Delivery:

- additional cover for thin and limp materials

Accessories.g.:

- Sensor MFS T2 3,7 (Art.-Nr. 1-808-30-00)



Example of the additional cover for thin and limp materials.



Part No.	Description	Needles	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	Air connection	Weight [g]
1-460-19-00	NGR 16-18 EZ	18	36/46	31	0-2	63	37	20	M5	256

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

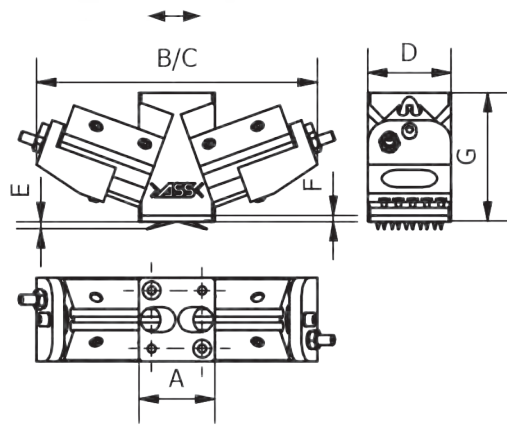
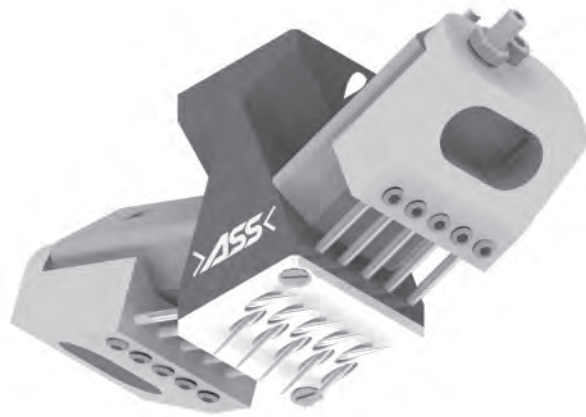
700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

NGR 12-10 D / Needle Gripper with covered Contact Area



Remarks:

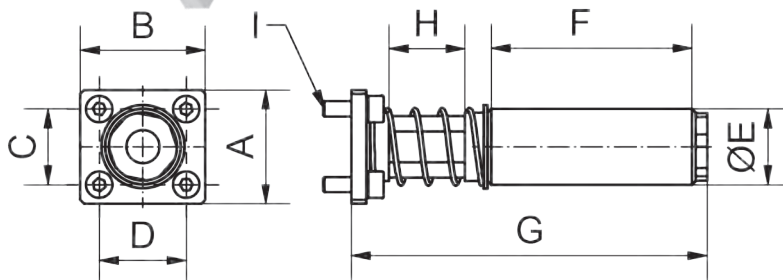
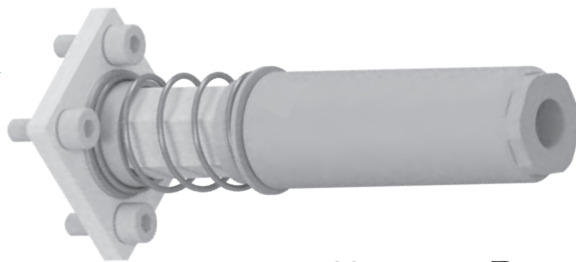
- ▶ **Application:** special Needle Gripper with 10 needles designed for handling fibre-reinforced composites (Organo-Sheets) and similar adhesive materials
- specially designed contact surface for stripping off bonds
- contact surface made of PTFE
- easy exchangeable contact surface
- different connections possible
- double-acting
- stroke positions can be monitored
- stepless adjustment of the penetration depth
- 2x5 needles with 2mm diameter each
- » maximum air pressure is 6 bar, use dry and filtered air only

Accessories e.g.:

- Draw Tube 20x100 NGR 12-10 D
- Sensor ICS 8

Part No.	Description	Connection	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	Weight [g]
1-460-10-00	NGR 12-10 D	M5	30	130	112	33	2.8	2.5	51	252

GG-20-NGR / Spring compensated Gripper Arm for NGR 12-10 D



Remarks:

- spring compensated gripper arm for NGR 12-10 D
- integrates NGR 12-10 D to the Robot Hand Kit (EOAT)

Scope of Delivery:

- incl. mounting material

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]	Weight [g]
1-460-10-11	GG-20-NGR 12-10 D	30	33	20	23	20	53	94	20	M4	118
1-460-10-12	GG-50-NGR 12-10 D	30	33	20	23	20	53	124	50	M4	125

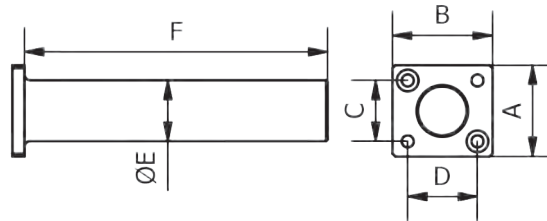
Draw Tube 20x100 NGR 12-10 D

Remarks:

- special draw tube for NGR 12-10 D
- integrates NGR 12-10 D to the Robot Hand Kit (EOAT)

Scope of Delivery:

- incl. mounting material



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	Weight [g]
1-460-10-10	Draw Tube 20x100 NGR 12-10 D	30	33	20	23	20	100	38

NGR 12-6 DS A / Needle Gripper, slim, adjustable, PTFE coated needles

Remarks:

► **Application: special Needle Gripper for border areas or when needle packages are required**

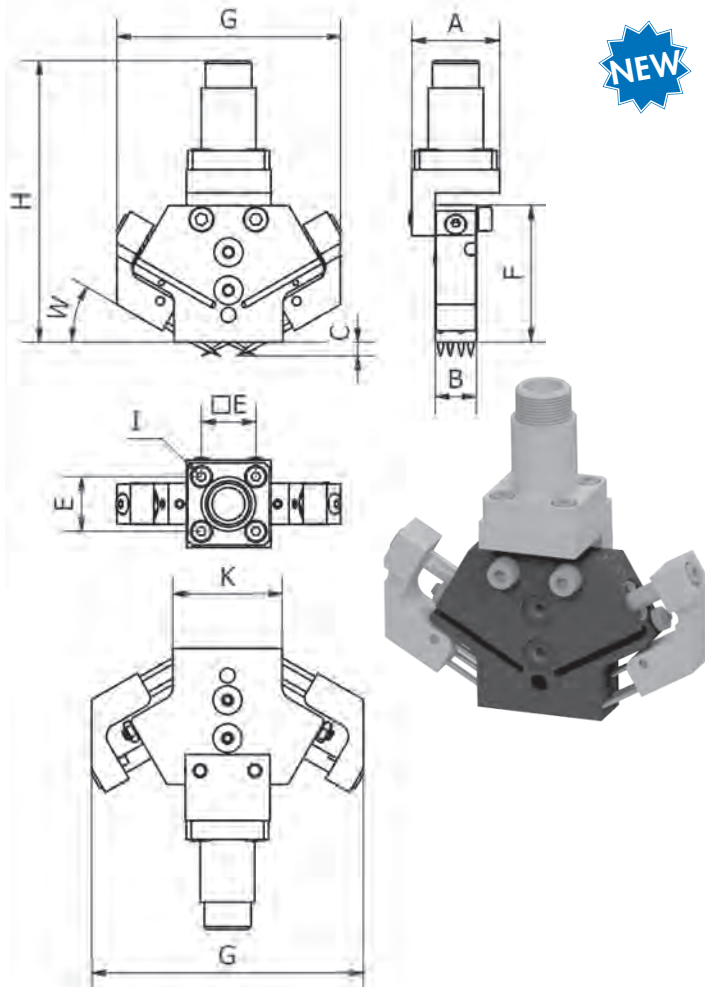
- slim design with only 15 mm
- Version DSA TP with changeable PTFE contact plate
- 2x 3 PTFE coated needles
- cohesive needle fixation
- seamless screwing to needle gripper packages with 6, 12, 18, 24 and more needles possible
- air connections can be summarized with needle gripper packages
- needle packages can be completely exchanged
- penetration depth infinitely adjustable
- fabrics are only penetrated in areas which are subsequently laminated
- basic and working position of the needle packages can be monitored
- double-acting
- air connection 2xM5
 - » maximum air pressure is 6 bar, use dry and filtered air only
 - » see application examples

Scope of Delivery:

- thread connection
- adapter for linking to the Robot-Hand-Kit

Accessories e.g.:

- Sensor MFS T2 3,7 (Part No. 1-808-30-00)



Part No.	Description	A [mm]	B [mm]	C [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]	K [mm]	W [°]	Weight [g]
1-460-70-00	NGR 12-6 DS A	31	15	5	20	50	82/100	103	M4	40	30	224
New 9-07-460-157-0	NGR 12-06 DS A TP	31	15	5	20	50	82/100	103	M4	40	30	222

NGR 20-6-25 D / NGR for SMC (Sheet Molding Compound) Parts



Remarks:

► **Application: e.g. for gripping fleeces, several limp layers, voluminous or sticky materials**

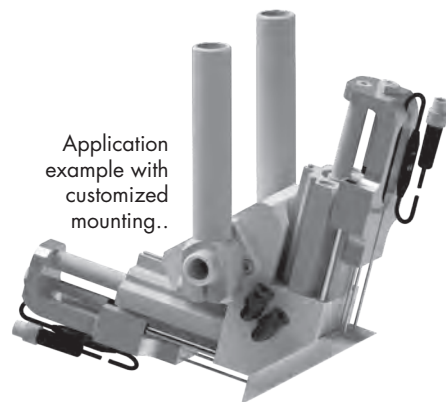
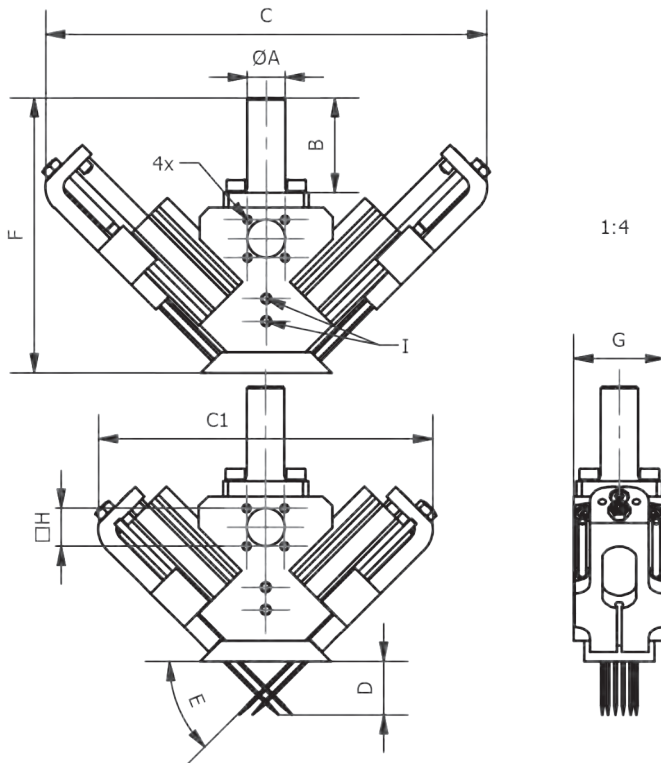
- piston diameter 20 mm
- 6 crossed needles with a diameter of 1.5 mm
- penetration depth up to 25 mm
- double-acting cylinders
- specially designed PTFE contact surface for stripping off bonds
- contact surface made of PTFE: non-sticky and insulating
- strokes can be adjusted continuously
- basic and working position can be monitored
- a cable suitable for the cable must be used
- body made of anodised Aluminium
- » maximum air pressure is 6 bar, use dry and filtered air only

Drawing:

E penetration depth of the needles
C and C1 minimum dimension (cylinder retracted) and maximum dimension (cylinder extended)

Accessories e.g.:

- Sensor MFS T2 3,7 (Part No. 1-808-30-00)

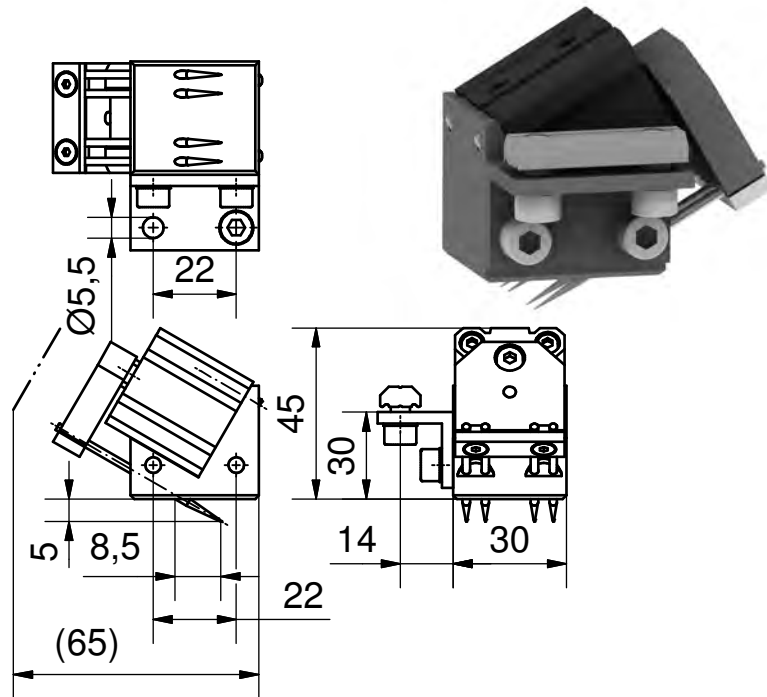


Part No.	Description	A [mm]	B [mm]	C [mm]	C1 [mm]	D [mm]	E [°]	F [mm]	G [mm]	H [mm]	I	Weight [g]
1-460-25-00	NGR 20-6-25 D	20	50	233	177	0-25	45	145	48	20	M5	1145

NGR X 16-10 / Needle Gripper for X-Profile

Remarks:

- ▶ **Application: Needle Gripper for mounting directly to the X-Profile**
- double-acting cylinder
- piston diameter 16mm
- stroke 10mm
- for secure gripping of fabrics, two needle grippers should be used, working in the opposite direction
- » maximum air pressure is 6 bar, use dry and filtered air only

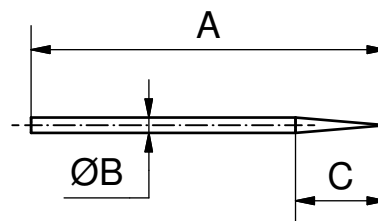


Part No.	Description	Air connection	Weight [g]	Compatible to profile
1-460-03-00	NGR X 16-10	M5	153	X

Spare Needles for Needle Gripper

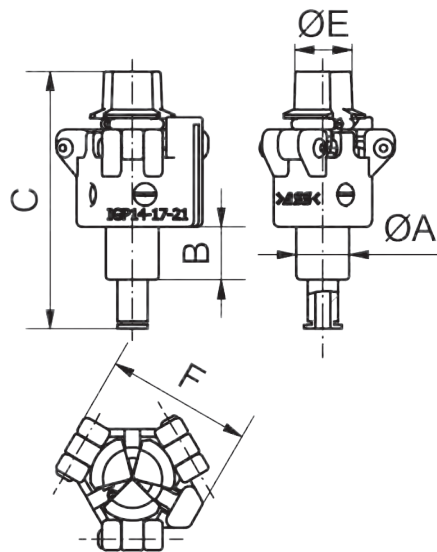
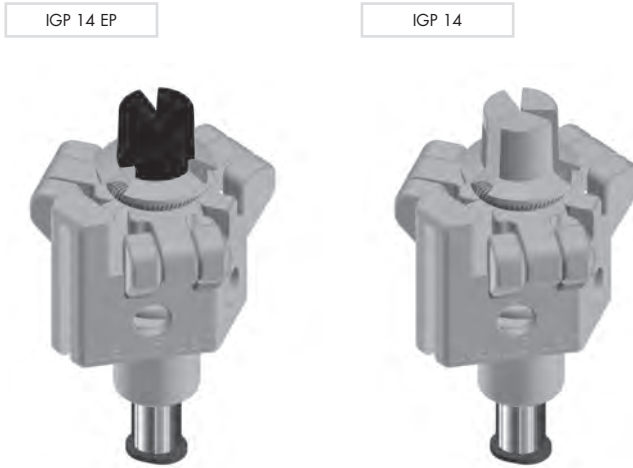
Remarks:

- spare needles for needle grippers, see table
- sold in units of 10 pieces



Part No.	Description	A [mm]	B [mm]	C [mm]	use for	Weight [g]	Sold in pc.
1-460-06-09	Needle 37	37	2.0	10	NGR 12	1	10
1-460-03-06	Needle 50	50	2.0	10	NGR 12 D / -DL and NGR X 16-10	1	10

IGP 14 / ID Gripper



Remarks:

► **Application: e.g. for gripping in the interior of sensitive components, clamping diameter 14 mm**

- compact design
- single-acting
- gentle gripping
- extreme light weight
- made of Polyamide
- optional monitoring of basic or working position
- operating Temperature -40 °C up to +80 °C
- air connection diameter 4/3
- » maximum air pressure is 6 bar, use dry and filtered air only

► **ID Gripper IGP 14 EP suitable for very sensible parts and covers all applications of the regular ID Gripper IGP 14**

- » EP coated jaws:
 - EP: Elastomere Polyurethane
 - very gentle gripping
 - coating consists of a high strength, slip and abrasion resistant Elastomere Polyurethane
 - Shore A Hardness (+/- 5): 60
 - Colour Black
- » for more information about EP coating see category 990

Accessories e.g.:

- use only with filter FSL 4 (Part No. 1-852-26-00)
- Sensor ICS 8 (Part No. 1-808-36-00)

Part No.	Description	EP Coating Shore 60 A	A [mm]	B [mm]	C [mm]	Ø E [mm] Grip Area	F [mm]	Suggested payload max. [g]	Weight [g]
1-472-00-00-1	IGP 14-8-12	-	14	14	68	8-12	37	100	20
1-472-01-00-1	IGP 14-11-15	-	14	14	68	11-15	37	100	19
1-472-02-00-1	IGP 14-14-18	-	14	14	68	14-18	37	100	21
1-472-03-00-1	IGP 14-17-21	-	14	14	68	17-21	37	100	22
1-472-04-00-1	IGP 14-20-24	-	14	14	68	20-24	37	100	22
1-472-05-00-1	IGP 14-23-27	-	14	14	68	23-27	37	100	23
1-473-00-00	IGP 14-10-14 EP	x	14	14	68	10-14	37	100	20
1-473-01-00	IGP 14-13-17 EP	x	14	14	68	13-17	37	100	20
1-473-02-00	IGP 14-16-20 EP	x	14	14	68	16-20	37	100	20
1-473-03-00	IGP 14-19-23 EP	x	14	14	68	19-23	37	100	22
1-473-04-00	IGP 14-22-26 EP	x	14	14	68	22-26	37	100	23
1-473-05-00	IGP 14-25-29 EP	x	14	14	68	25-29	37	100	23

IGP 20 / ID Gripper

► **Application: e.g. for gripping in the interior of sensitive components, clamping diameter 20 mm**

- single-acting
- gentle gripping
- extreme light weight
- made of Polyamide
- optional monitoring of basic or working position
- operating Temperature -40 °C up to +80 °C
- air connection diameter 4/3
- » maximum air pressure is 6 bar, use dry and filtered air only

► **ID Gripper IGP 20 EP suitable for very sensible parts and covers all applications of the regular ID Gripper IGP 20**

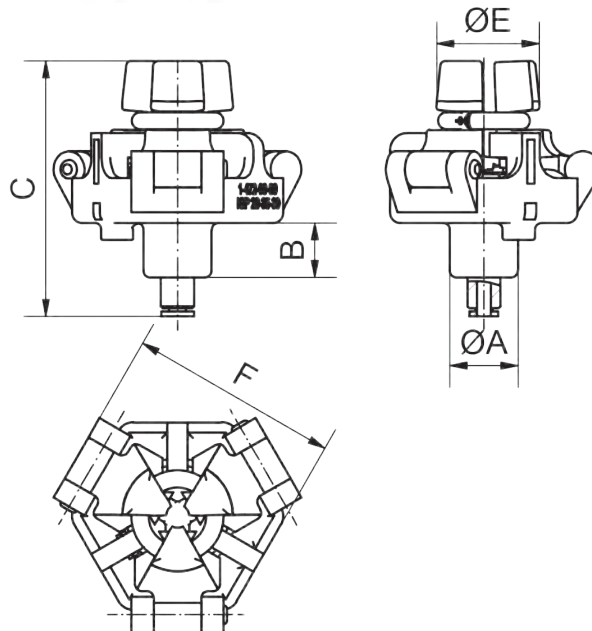
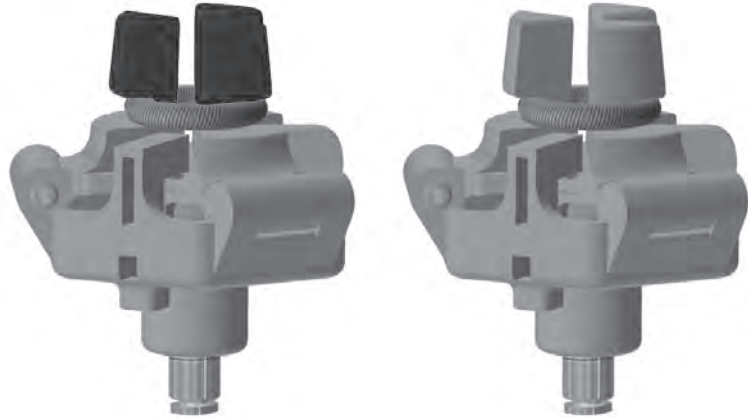
- » EP coated jaws:
 - EP: Elastomere Polyurethane
 - very gentle gripping
 - coating consists of a high strength, slip and abrasion resistant Elastomere Polyurethane
 - Shore A Hardness (+/- 5): 60
 - Colour Black
- » for more information about EP coating see category 990

Accessories e.g.:

- use only with filter FSL 4 (Part No. 1-852-26-00)
- Sensor ICS 8 (Part No. 1-808-36-00)

IGP 20 EP

IGP 20



Part No.	Description	EP Coating Shore 60 A	A [mm]	B [mm]	C [mm]	Ø E [mm] Grip Area	F [mm]	Suggested payload max. [g]	Weight [g]
1-472-06-00-1	IGP 20-26-30	-	20	16	72	26-30	58.5	100	58
1-472-07-00-1	IGP 20-29-33	-	20	16	72	29-33	58.5	100	58
1-472-08-00-1	IGP 20-32-36	-	20	16	72	32-36	58.5	100	60
1-472-09-00-1	IGP 20-35-39	-	20	16	72	35-39	58.5	100	61
1-472-10-00-1	IGP 20-38-42	-	20	16	72	38-42	58.5	100	62
1-472-11-00-1	IGP 20-41-45	-	20	16	72	41-45	58.5	100	61
1-472-12-00-1	IGP 20-44-48	x	20	16	72	44-48	58.5	100	65
1-473-06-00	IGP 20-28-32 EP	x	20	16	72	28-32	58.5	100	59
1-473-07-00	IGP 20-31-35 EP	x	20	16	72	31-35	58.5	100	60
1-473-08-00	IGP 20-34-38 EP	x	20	16	72	34-38	58.5	100	61
1-473-09-00	IGP 20-37-41 EP	x	20	16	72	37-41	58.5	100	62
1-473-10-00	IGP 20-40-44 EP	x	20	16	72	40-44	58.5	100	63
1-473-11-00	IGP 20-43-47 EP	x	20	16	72	43-47	58.5	100	63
1-473-12-00	IGP 20-46-50 EP	x	20	16	72	46-50	58.5	100	65

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

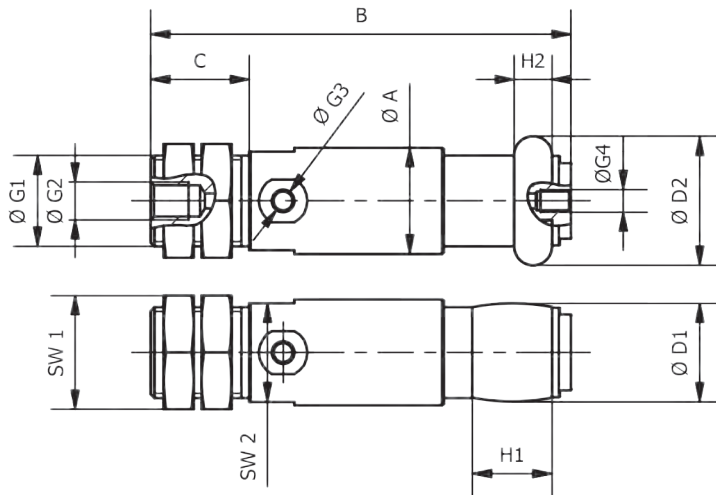
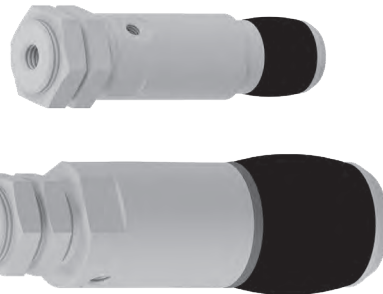
700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

IGB / ID Gripper, Bellow



Remarks:

► **Application: for gripping from the inside**

- adapted to the Robot-Hand-Kit by Adapter AD IGB
- compact size
- single-acting
- gripping diameters from 8 mm to 85 mm
- secure gripping
- » maximum air pressure is 6 bar, use dry and filtered air only

Drawing:

- G2 part-present-control by vacuum possible
- G3 air connection

Accessories:

- Adapter AD IGB
- Exchange Bellows
- Sensor Bracket SH IGB
- Sensor MFS T2 3,7 (Part No. 1-808-30-00)
- 3-pole sensor on demand

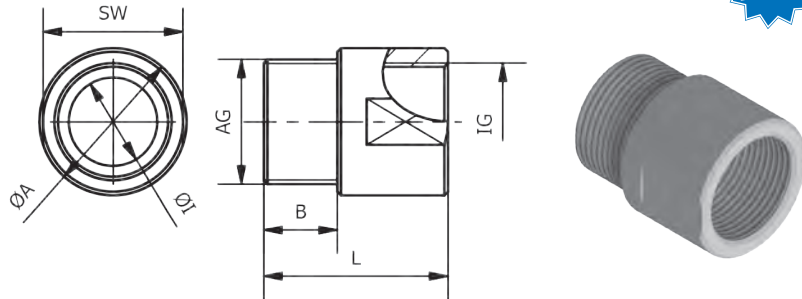
Part No.	Description	A [mm]	B [mm] +/-1	C [mm]	D1 [mm] +/-1	D2 [mm] +/-1	G1 [mm]	G2 [mm] ["]	G3 [mm] ["]	G4 [mm] ["]
1-474-00-00	IGB 8 8-11	14	52.7	13	8	11	M10x1	M5	M3	M2
1-474-00-01	IGB 10 10,5-14	14	54.2	13	10.5	14	M10x1	M5	M3	M2
1-474-00-02	IGB 12 13-17	14	55.5	13	13	17	M12x1	M5	M3	M3
1-474-00-03	IGB 14 15-19,5	14	55.8	13	15	19.5	M12x1	M5	M3	M3
1-474-00-04	IGB 18 19,5-25	18	65	14	19.5	25	M12x1	M5	M5	M3
1-474-00-05	IGB 22 24-31,5	21.5	75.5	15	24	31.5	M14x1	M5	M5	M3
1-474-00-06	IGB 27 28-37	25	88	18	28	37	M16x1	M5	M5	M5
1-474-00-07	IGB 33 34-45	30	109	25	34	45	M22x1.5	G 1/8	M5	G 1/8
1-474-00-08	IGB 41 42-54	40	126.5	25	42	54	M22x1.5	G 1/8	M5	G 1/8
1-474-00-09	IGB 51 54-68	50	159	32	54	68	M26x1.5	G 1/8	G 1/8	G 1/8
1-474-00-10	IGB 63 66-85	60	189	32	66	85	M26x1.5	G 1/8	G 1/8	G 1/8

Part No.	Description	H1 [mm] +/-0.5	H2 [mm] +/-0.5	SW1 [mm]	SW2 [mm]	perm. Magnet	Material Bellow	Material Gripper	Weight [g]
1-474-00-00	IGB 8 8-11	7	3	13	13		EPDM	Aluminium	14
1-474-00-01	IGB 10 10,5-14	8.5	4	13	13		EPDM	Aluminium	15
1-474-00-02	IGB 12 13-17	10.5	5	15	13		EPDM	Aluminium	18
1-474-00-03	IGB 14 15-19,5	13	6	15	13		EPDM	Aluminium	19
1-474-00-04	IGB 18 19,5-25	16.5	9	15	16		EPDM	Aluminium	87
1-474-00-05	IGB 22 24-31,5	21	11	17	19		EPDM	Aluminium	107
1-474-00-06	IGB 27 28-37	26	14	19	22	x	EPDM	Aluminium	76
1-474-00-07	IGB 33 34-45	32.5	18	27	28	x	EPDM	Aluminium	145
1-474-00-08	IGB 41 42-54	39.5	24	27	36	x	EPDM	Aluminium	253
1-474-00-09	IGB 51 54-68	48	30	32	45	x	EPDM	Aluminium	499
1-474-00-10	IGB 63 66-85	61	36	32	54	x	EPDM	Aluminium	804

AD IGB / Adapter for IGB

Remarks:

- adapts ID Gripper IGB to the robot-hand-kit
- clamping diameter suitable for Robot Hand Kit (EOAT)
- » see application examples

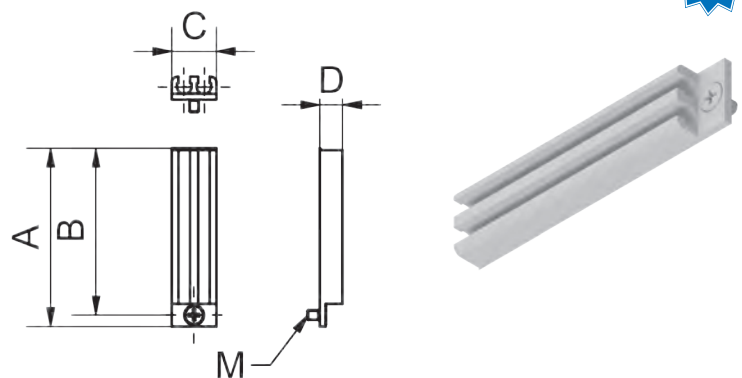


Part No.	Description	ØA [mm]	B [mm]	ØI [mm]	AG [mm]	IG [mm]	L [mm]	SW [mm]	suitable for	Material	Weight [g]
1-474-50-00	AD 14 IGB M10x1	14	10	8	M12x1	M10x1	35	13	IGB 8... IGB 10...	Al	7
1-474-51-00	AD 14 IGB M12x1	14	10	8	M12x1	M12x1	35	13	IGB 12... IGB 14... IGB 18...	Al	5
1-474-52-00	AD 20 IGB M14x1	20	10	13	M17x1	M14x1	25	17	IGB 22...	Al	9
1-474-53-00	AD 20 IGB M16x1	20	10	12	M17x1	M16x1	25	19	IGB 27...	Al	8
1-474-54-00	AD 30 IGB M22x1,5	30	10	20,5	M27x1	M22x1,5	35	27	IGB 33... IGB 41...	Al	29
1-474-55-00	AD 30 IGB M26x1,5	30	10	20	M27x1	M26x1,5	40	27	IGB 51... IGB 63...	Al	24

SH IGB / Sensor Bracket for IGB

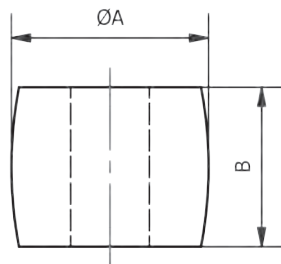
Remarks:

- this Sensor Bracket is for mounting sensor MFS T2 3,7 for monitoring 2 positions
- » see application example



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	M [mm]	Weight [g]
1-474-16-00	SH IGB 27 28-37	34.5	31.5	12	6	2.5	4
1-474-17-00	SH IGB 33 34-45	41	38	12	6	2.5	5
1-474-18-00	SH IGB 41 42-54	47	44	12	6	2.5	5
1-474-19-00	SH IGB 51 54-68	55.5	52.5	12	6	2.5	6
1-474-20-00	SH IGB 63 66-85	61	58	12	6	2.5	7

Exchange Bellows for ID Gripper IGB



Remarks:

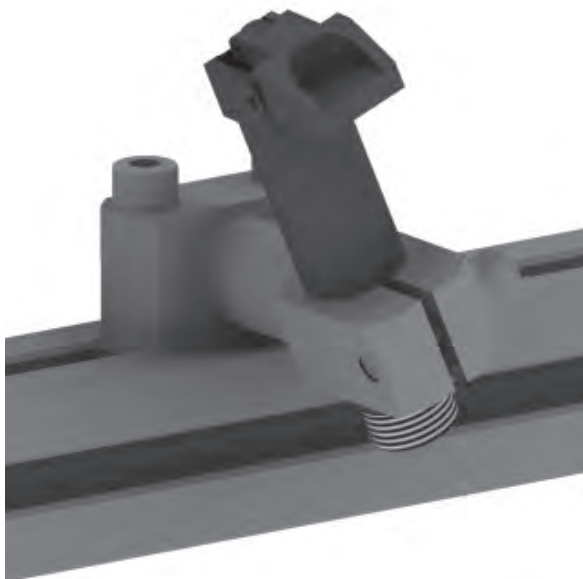
- Replacement bellows and material variants for ID Gripper IGB
- Temperature ranges:
 - EPDM -30 to +120 ° C
 - Silicone -40 to +150 ° C

Part No.	Description	ØA [mm]	B [mm]	suitable for	Material
1-474-70-00	Balg 8 EPDM	8	7	IGB 8 8-11	EPDM
1-474-70-01	Balg 10 EPDM	10.5	8.8	IGB 10 10,5-14	EPDM
1-474-70-02	Balg 12 EPDM	13	10.5	IGB 12 13-17	EPDM
1-474-70-03	Balg 14 EPDM	15	13	IGB 14 15-19,5	EPDM
1-474-70-04	Balg 18 EPDM	19.5	16.5	IGB 18 19,5-25	EPDM
1-474-70-05	Balg 22 EPDM	24	21	IGB 22 24-31,5	EPDM
1-474-70-06	Balg 27 EPDM	28	26	IGB 27 28-37	EPDM
1-474-70-07	Balg 33 EPDM	34	32.5	IGB 33 34-45	EPDM
1-474-70-08	Balg 41 EPDM	42	39.5	IGB 41 42-54	EPDM
1-474-70-09	Balg 51 EPDM	54	48	IGB 51 54-68	EPDM
1-474-70-10	Balg 63 EPDM	66	61	IGB 63 66-85	EPDM
1-474-71-00	Balg 8 Silikon	8	7	IGB 8 8-11	Silicone
1-474-71-01	Balg 10 Silikon	10.5	8.8	IGB 10 10,5-14	Silicone
1-474-71-02	Balg 12 Silikon	13	10.5	IGB 12 13-17	Silicone
1-474-71-03	Balg 14 Silikon	15	13	IGB 14 15-19,5	Silicone
1-474-71-04	Balg 18 Silikon	19.5	16.5	IGB 18 19,5-25	Silicone
1-474-71-05	Balg 22 Silikon	24	21	IGB 22 24-31,5	Silicone
1-474-71-06	Balg 27 Silikon	28	26	IGB 27 28-37	Silicone
1-474-71-07	Balg 33 Silikon	34	32.5	IGB 33 34-45	Silicone
1-474-71-08	Balg 41 Silikon	42	39.5	IGB 41 42-54	Silicone
1-474-71-09	Balg 51 Silikon	54	48	IGB 51 54-68	Silicone
1-474-71-10	Balg 63 Silikon	66	61	IGB 63 66-85	Silicone

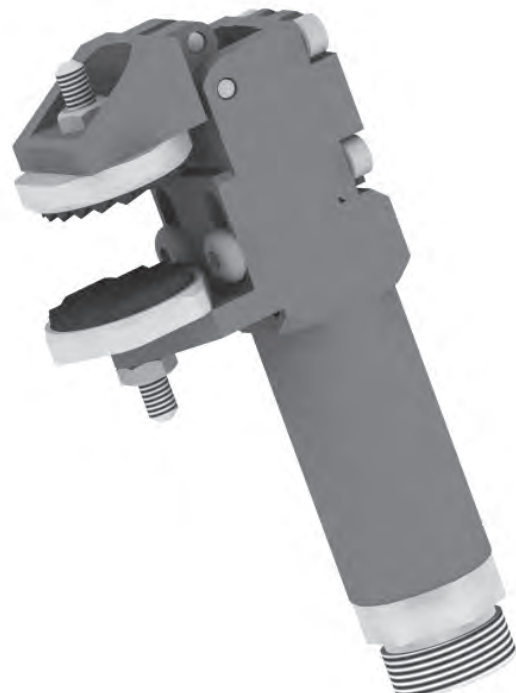
Application Example of Sizes and Variants of Gripper Fingers



App. example GRF 14-95 VA



Application example GFD 90



000
Quick Change
System

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special
Elements

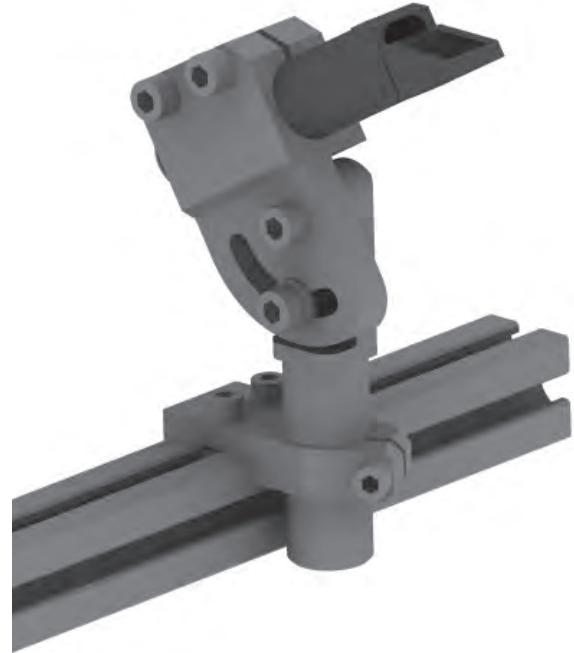
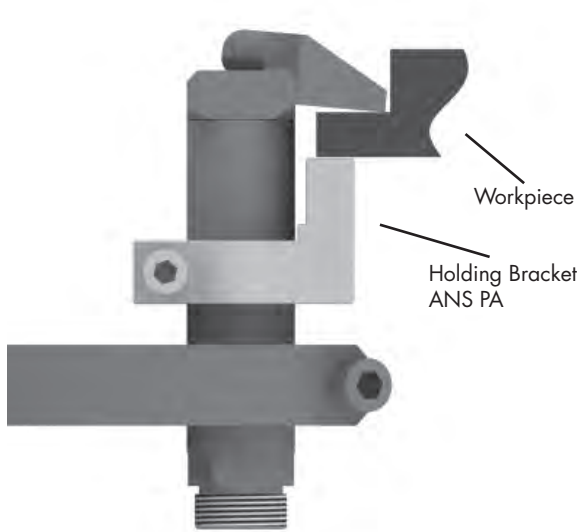
800
Electric and
Sensors

850
Pneumatic

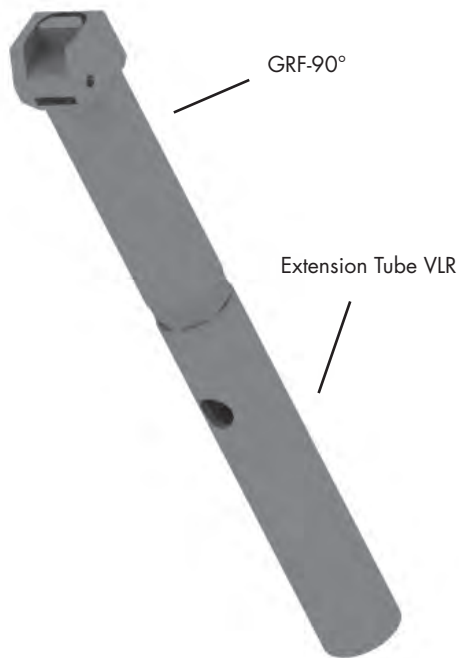
990
Other
PA-Forming

450 | Gripper Fingers

Application example GRF 95°



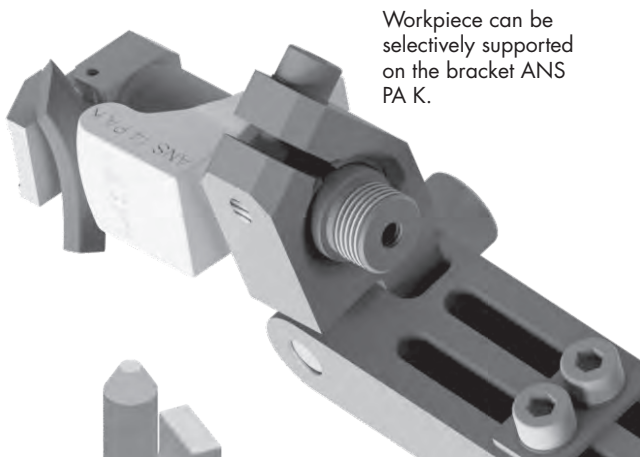
Application example GRF 90°



Application example ZTS



Application examples Holding Brackets ANS



Workpiece can be selectively supported on the bracket ANS PA K.



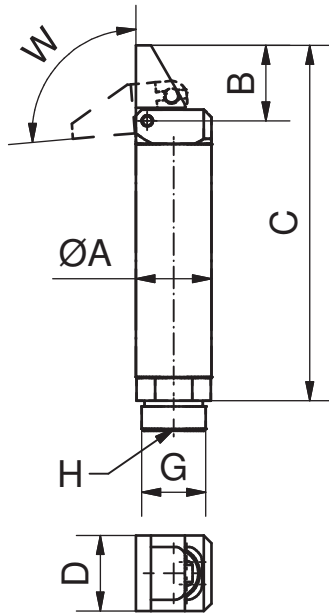
Workpieces can be supported by holding bracket ANS 10 PA combined with Centering Pin ZTB.



Gripper Finger GRF 95 EP combined with Gripper Holding Bracket ANS PA EP

450 | Gripper Fingers

GRF 95° / Gripper Finger



Remarks:

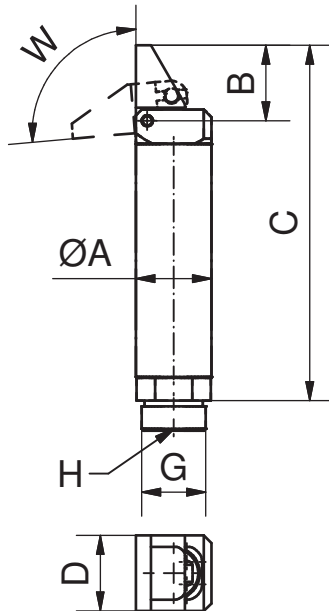
- ▶ **Application: e.g. recommended if parts stick**
- 95° gripping angle
- end positions can be monitored optionally
- extendable with extension tube VLR
- single acting
- table: H = air port
- » closing force measured at 6 bar
- » maximum air pressure is 6 bar, use dry and filtered air only

Accessories e.g.:

- Holding Bracket ANS
- Sensor Mounting Bracket GRF SH AL
- Sensor MFS T2 3,7 (Part No. 1808-30-00)
- Sensor Mounting Bracket GRF SH MFS
- Sensor ICS 8 (Art.-Nr. 1-808-36-00)
- Extension Tube VLR

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	G [mm]	H ["]	W [°]	Closing force max. [N]	Weight [g]
1-451-03-00	GRF 14-95 VA	14	15	64	14	M 12x1	M5	95	12.5	23
1-450-06-00-1	GRF 20-95 VA	20	20	100	20	M17x1	G1/8	95	45	64
1-450-23-00-1	GRF 30-95 VA	30	29	137	30	M27x1	G1/8	95	140	204

GRF 95° EP / Gripper Finger with EP covering



Remarks:

- ▶ **Application: e.g. recommended if parts stick and a gentle grip is needed**
- 95° gripping angle
- for detailed information about the EP Coating please take a look at category 990
- more details see GRF 95° above
- table: H = air port
- end positions can be monitored optionally extendable with extension tube VLR
- single acting/spring return
- » closing force measured at 6 bar
- » maximum air pressure is 6 bar, use dry and filtered air only

Accessories e.g.:

- see GRF 95° above

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	G [mm]	H ["]	W [°]	Closing force max. [N]	Weight [g]
1-451-04-00	GRF 14-95 VA EP	14	15	64	14	M 12x1	M5	95	12,5	23
1-450-07-00-1	GRF 20-95 VA EP	20	20	100	20	M17x1	G1/8	95	45	65
1-450-22-00-1	GRF 30-95 VA EP	30	29	137	30	M27x1	G1/8	95	140	206

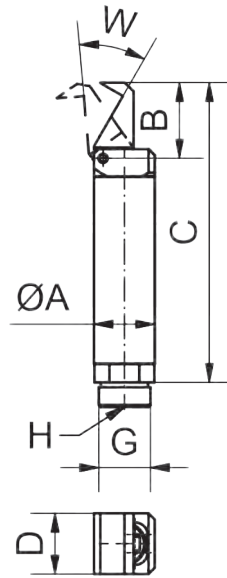
GRF 35° / Gripper Finger

Remarks:

- **Application: e.g. recommended if parts stick**
- 35° gripping angle
- end positions can be monitored optionally
- extendable with extension tube VLR
- single acting
- table: H = air port
- » closing force measured at 6 bar
- » maximum air pressure is 6 bar, use dry and filtered air only

Accessories e.g.:

- Holding Bracket ANS
- Sensor Mounting Bracket GRF SH AL
- Sensor MFS T2 3,7 (Part No. 1808-30-00)
- Sensor Mounting Bracket GRF SH MFS
- Sensor ICS 8 (Art.-Nr. 1-808-36-00)
- Extension Tube VLR



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	G [mm]	W [°]	H ["]	Closing force max. [N]	Weight [g]
1-451-06-00	GRF 14-35 VA	14	15	64	14	M12x1	35	M5	45	23
1-450-03-00-1	GRF 20-35 VA	20	25	105	20	M17x1	35	G1/8	120	65
1-450-20-00-1	GRF 30-35 VA	30	35	143	30	M27x1	35	G1/8	240	201

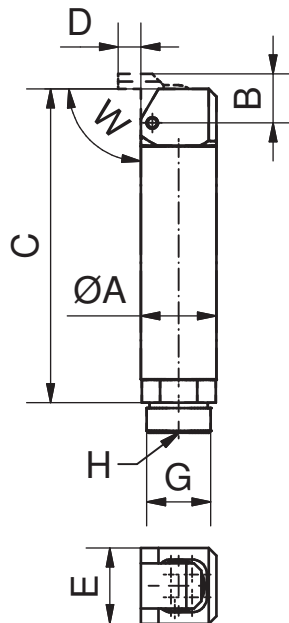
GRF 90° / Gripper Finger

Remarks:

- **Application: e.g. recommended if parts stick**
- 90° gripping angle
- end positions can be monitored optionally
- extendable with extension tube VLR
- single acting
- table: H = air port
- » closing force measured at 6 bar
- » maximum air pressure is 6 bar, use dry and filtered air only

Accessories e.g.:

- Holding Bracket ANS
- Sensor Mounting Bracket GRF SH AL
- Sensor MFS T2 3,7 (Part No. 1808-30-00)
- Sensor Mounting Bracket GRF SH MFS
- Sensor ICS 8 (Art.-Nr. 1-808-36-00)
- Extension Tube VLR



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	G [mm]	W min. [°]	H ["]	Closing force max. [N]	Weight [g]
1-451-09-00	GRF 14-90 VA	14	9	58	6	14	M12x1	90	M5	40	21
1-450-15-00-1	GRF 20-90 VA	20	13	89	6	20	M17x1	90	G1/8	100	62
1-450-29-00-1	GRF 30-90 VA	30	20	123.5	11	30	M27x1	90	G1/8	230	202

000
Quick Change
System

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special
Elements

800
Electric and
Sensors

850
Pneumatic

990
Other
PA-Forming

450 | Gripper Fingers

GRF 35° / Gripper Finger

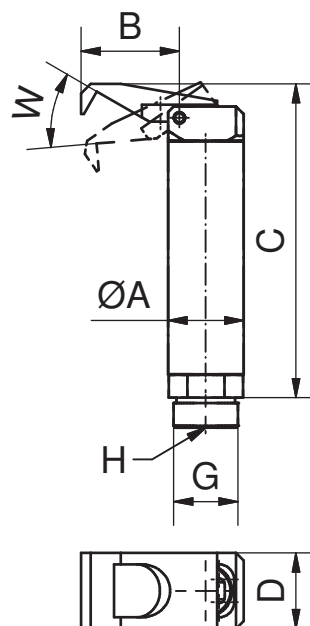
Remarks:

► **Application: e.g. recommended if parts stick**

- horizontal finger-design
- end positions can be monitored optionally
- extendable with extension tube VLR
- single acting
- table: H = air port
- » closing force measured at 6 bar
- » maximum air pressure is 6 bar, use dry and filtered air only

Accessories e.g.:

- Holding Bracket ANS
- Sensor Mounting Bracket GRF SH AL
- Sensor MFS T2 3,7 (Part No. 1808-30-00)
- Sensor Mounting Bracket GRF SH MFS
- Sensor ICS 8 (Art.-Nr. 1-808-36-00)
- Extension Tube VLR



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	G [mm]	W [°]	H ["]	Closing force max. [N]	Weight [g]
1-450-12-00-1	GRW 20-35 VA	20	26	89	20	M17x1	35	G1/8	50	64
1-450-26-00-1	GRW 30-35 VA	30	34	123	30	M27x1	35	G1/8	160	199

450 | Gripper Fingers

GFD 90 / Double Action, Cam Locking Gripper Finger



Remarks:

Version GFD:

- ▶ **Integrated self-locking: gripper finger snaps into the closed position (90 °)**
- double-acting gripper finger
- gripper finger opens when unlocking is subjected to air pressure
- end positions can be monitored
- adjustable holding bracket included
- » closing force measured at 6 bar
- » maximum air pressure is 6 bar, use dry and filtered air only

Version GFD FS:

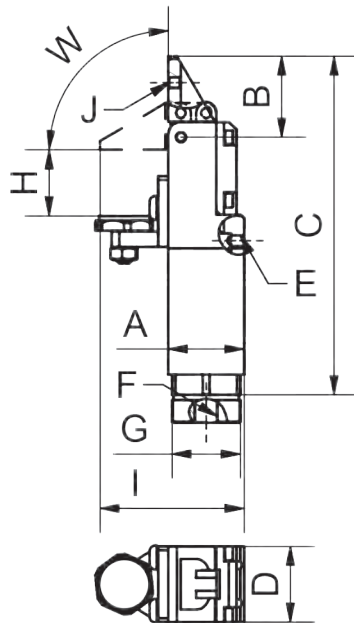
- ▶ **In case of complete pressure loss, a minimum closing force is mechanically ensured. The GFD FS automatically closes into self-propelled position by spring.**
- FS = closing by spring
- gripper finger opens when unlocking is subjected to air pressure
- end positions can be monitored
- adjustable holding bracket included
- » closing force measured at 6 bar
- » maximum air pressure is 6 bar, use dry and filtered air only

Drawing:

- E Gripper finger opening
- F Gripper finger closing

Accessories e.g.:

- Sensor MFS T2 3,7 (Part No. 1808-30-00)
- Extension Tube VLR



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F ["]	G [mm]	H [mm]	I [mm]	J [mm]	W [°]	Closing force max. [N]	Weight [g]
1-450-10-00	GFD 20-90	20	23	109	20	M5	G1/8 M17x1	0-34	40	M4	90	110	112	
1-450-24-00	GFD 30-90	30	32	134	30	M5	G1/8 M27x1	0-46	57	M5	90	160	286	
1-450-31-00	GFD 20-90 FS	20	23	105	20	M5	G1/8 M17x1	0-34	40	M4	90	130	122	
1-450-32-00	GFD 30-90 FS	30	32	134	30	M5	G1/8 M27x1	0-46	57	M5	90	185	299	

QGR 20 / Crosswise Gripper



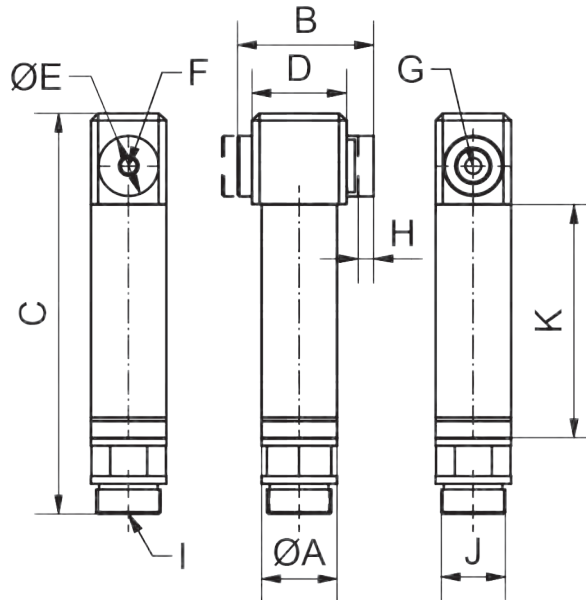
Remarks:

► **Application: e.g. for gripping or fixing sidewise**

- Pressure Force: 80 N
- single acting
- in combination with pressure plates DPL for frictional gripping
- space-saving stroke for vacuum cups (see application example)
- threads can be reduced by reducing nipple RNK
- space-saving, compact design
- flexible usage
- small, compact design
- for various applications
- » maximum air pressure is 6 bar, use dry and filtered air only
- » see application examples

Accessories e.g.:

- Pressure Plates DST
- Vacuum Cups VS
- Reducing Nipple RNK



Application examples with vacuum cup VS2 (left side) and pressure plate DST (right side).



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	Stroke H [mm]	I [mm]	J [mm]	K [mm]	Weight [g]
1-455-20-00	QGR 20	20	38	93.5	27	14	G1/8	G1/8	4	M5	M17x1	61	102

000 Quick Change System

050 Profile-Channel Nut

100 Clamps

115 Tubular Clamps

120 Profile Connectors

190 Accessories-Profile

200 Vacuum Cup-Connectors

220 Vacuum Cups

224 Vacuum Cups-Special

230 Manifold

290 Adapter

300 Gripper Arms

400 Grippers

450 Gripper Fingers

600 Nipper Bodies

610 Nipper Blades

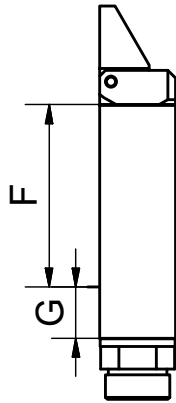
700 Special Elements

800 Electric and Sensors

850 Pneumatic

GRF SH AL and GRF SH ICS / Positioning of Sensor Clamp

GRF SH AL



Remarks:

- for positioning of the sensor mounting brackets see table

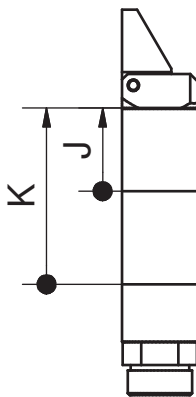
GRF SH AL (Sensor MFS T2)

- F no mounting position
- G mounting position

GRF SH ICS (Sensor ICS)

- K basic position
- J operating position

GRF SH ICS

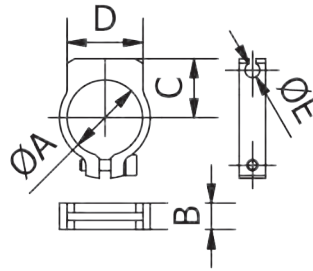


Part No. (GRF)	Description	F [mm]	G [mm]	J [mm]	K [mm]
1-451-03-00	GRF 14-95 VA	37	7	28	38
1-451-06-00	GRF 14-35 VA	37	7	33	38
1-451-09-00	GRF 14-90 VA	37	7	28	38
1-450-03-00-1	GRF 20-35 VA	39	23	33	38
1-450-06-00-1	GRF 20-95 VA	48	23	34	47
1-450-12-00-1	GRW 20-35 VA	39	23	33	38
1-450-15-00-1	GRF 20-90 VA	48	14	34	47
1-450-20-00-1	GRF 30-35 VA	60	32	51	59
1-450-23-00-1	GRF 30-95 VA	75	17	52	74
1-450-26-00-1	GRW 30-35 VA	60	32	51	79
1-450-29-00-1	GRF 30-90 VA	75	17	52	74

GRF SH AL / Sensor Mounting Bracket, made of Aluminium

Remarks:

- for mounting a magnetic field sensor MFS T2 on the gripper finger (2 switching points teachable)
- simple, robust clamping on the GRF
- compact design
- positioning in dimension G, see previous page



Accessories e.g.:

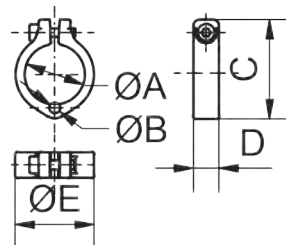
- Sensor MFS T2 3,7 (Part No. 1808-30-00)

Part No.	Description	fits for sensor	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Material	Weight [g]
1-451-56-00	GRF SH 14 AL	MFS T2 3,7	14	7	12	18	4	Aluminium	4
1-450-57-00	GRF SH 20 AL	MFS T2 3,7	20	7	15,5	20	4	Aluminium	5
1-450-58-00	GRF SH 30 AL	MFS T2 3,7	30	7	20	20	4	Aluminium	7

GRF SH MFS + ICS / Sensor Mounting Bracket

Remarks:

- for mounting a magnetic field sensor ICS on the gripper finger
- for querying one end position of the gripper finger
- by tightening the screw sensor mounting bracket and sensor itself are clamped on the finger
- positioning freely adjustable



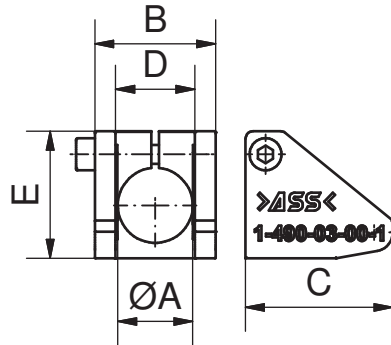
Accessories e.g.:

- Sensor ICS 8 (Part No. 1-808-36-00)

Part No.	Description	for sensor	for gripper fingers	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Material	Weight [g]
1-451-54-00	GRF-SH14-ICS	ICS 8	GRF...14	14	4,1	29	8,5	20	Polyamide	3
1-450-59-00	GRF-SH20-ICS	ICS 8	GRF.../GRW20	20	4,1	35	8,5	26	Polyamide	3
1-450-60-00	GRF-SH30-ICS	ICS 8	GRF.../GRW30	30	4,1	45	8,5	36	Polyamide	4

450 | Gripper Fingers

ZTS PA / Gripper Finger Guide (for GRF ...)

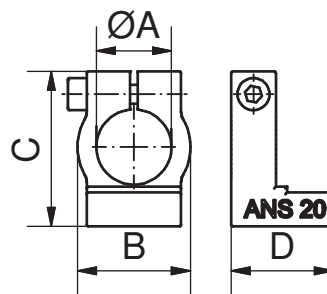


Remarks:

- ▶ **Application:** the guide is placed over the gripper finger for protecting the part during retrieval
- suitable in combination with Gripper Finger GRF 95°

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Material	Weight [g]
1-490-03-00-1	ZTS 20 PA	20	32	39	21	34	Polyamide	20
1-490-06-00-1	ZTS 30 PA	30	45	65	32	45	Polyamide	60

ANS PA / Gripper Holding Bracket



Remarks:

- ▶ **Application:** workpieces can be supported by holding bracket

ANS 10 PA

- for usage with Centering Pin ZTB
- centered article can be placed on the bracket

ANS 14/20/30 PA

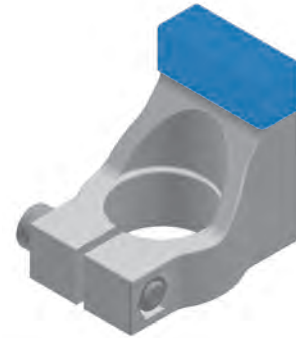
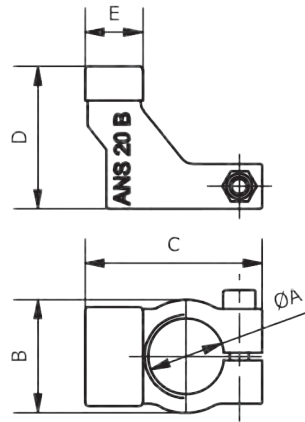
- for usage with Gripper Fingers GRF
- GRF in working position pushes workpiece against the bracket and fixes it

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	Material	Weight [g]
1-490-02-00	ANS 10 PA	10	20	31	25.5	Polyamid	5
1-490-20-00-1	ANS 14 PA	14	24	33	10	Polyamide	5
1-490-09-00-1	ANS 20 PA	20	30	41	27	Polyamide	17
1-490-12-00-1	ANS 30 PA	30	40	45	27	Polyamide	20

New

ANS 20 PA EP / Gripper Holding Bracket, with EP coating

- ▶ **Application: workpieces can be gently supported on the holding bracket**
- maximizes the coated contact surfaces in combination with GRF 95 ° EP and GRF 95 ° EP P
- closed finger presses the article against the holding bracket
- allows gentle gripping of the workpiece
- with EP coating shore hardness 90, blue
- » for detailed information about the EP Coating please take a look at category 990
- » see application example

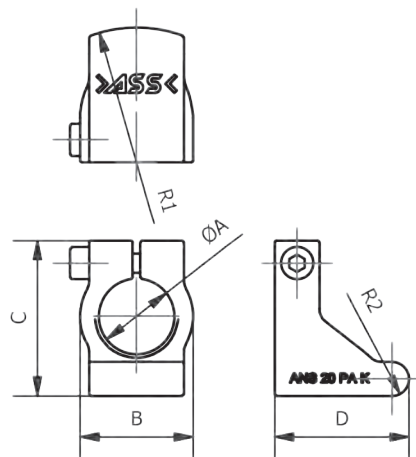


Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Material	Weight [g]
1-490-50-00	ANS 14 PA EP S	14	20	34	26	9	Polyamid/ EP	7
1-490-51-00	ANS 20 PA EP S	20	30	42	38	10	Polyamid/ EP	21
1-490-52-00	ANS 20 PA EP B	20	30	47	38	15	Polyamid/ EP	23
1-490-53-00	ANS 30 PA EP B	30	44	65	38	23	Polyamid/ EP	39

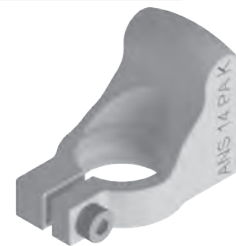
ANS PA K / Gripper Holding Bracket, convex

Remarks:

- ▶ **Anwendung: curved workpieces can be selectively supported on the holding bracket**
- allows gentle gripping of the workpiece
- closed finger presses the article against the holding bracket
- » for detailed information about the EP Coating please take a look at category 990
- » see application example



ANS ... PA K



ANS ... PA K EP



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	R1 [mm]	R2 [mm]	Material	Weight [g]
1-490-70-00	ANS 14 PA K	14	20	33	24,5	20	4	Polyamide	7
1-490-71-00	ANS 20 PA K	20	30	41	35,5	35,5	4,5	Polyamide	17
1-490-75-00	ANS 14 PA K EP	14	20	33	24,5	20	4	Polyamide / EP	7
1-490-76-00	ANS 20 PA K EP	20	30	41	35,5	35,5	4,5	Polyamide / EP	17

600 | Nipper Bodies

Application example ASN HP



Application example ASN SB



Application examples ASZ AH



Application example ASZ KA



Application example ASZ HS



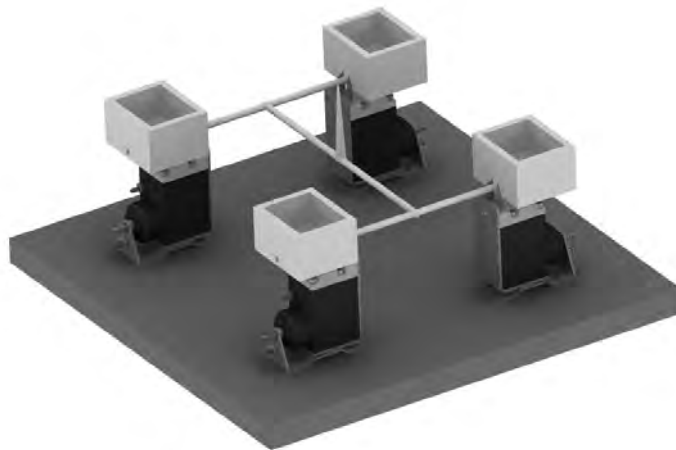
Application example ASN KS



Application example ASN KF



Application example ASN-SE



Application example ASN Sensor



000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special Elements

800
Electric and Sensors

850
Pneumatic

Instructions for use ASN 10; 20; 30; 50; HR



Caution – Prevent anybody from touching the cutter and blade.

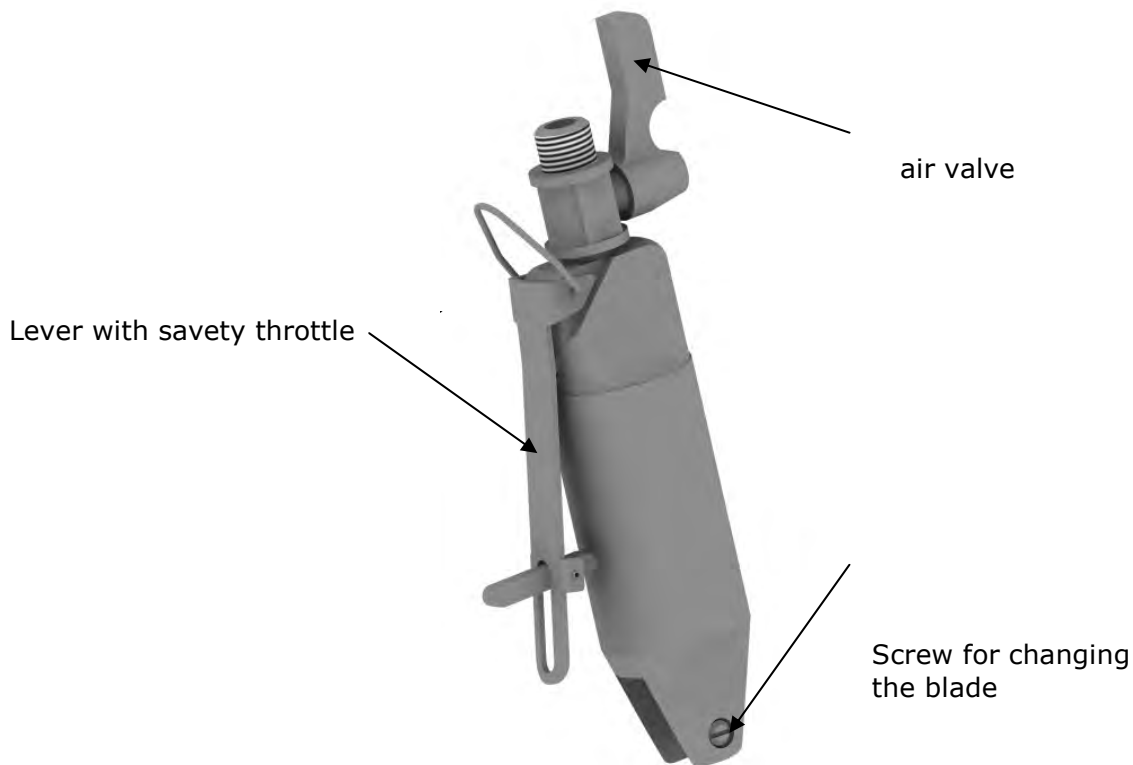


When replacing blades, stop the air supply or disconnect the air hose.



To operate this device, eye and ear protection is mandatory.

Max. operation pressure: 6bar



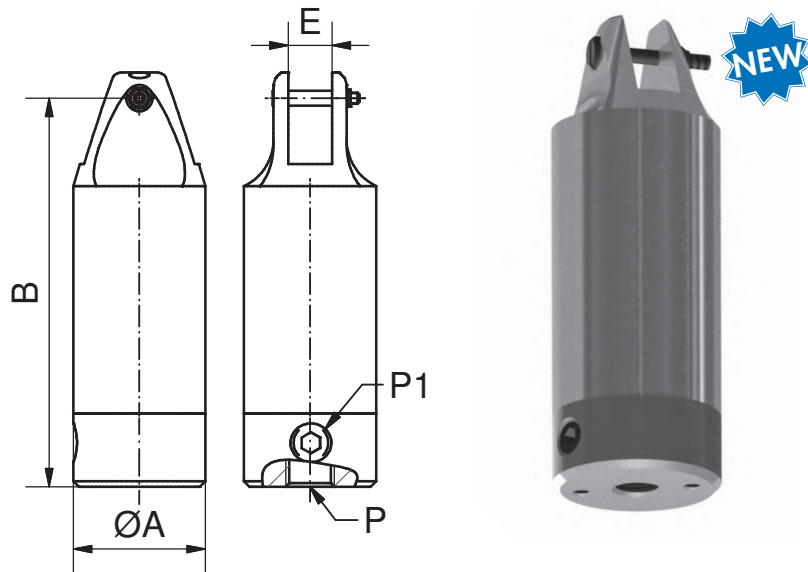
ASN AR / Automatic-Round-Single Action

Remarks:

- single action
- ASN ... AR
A automatic
R round
- » Attention! Observe operating instructions!
- » The applied cutting force depends on the nipper blade!
- » Maximum air pressure is 6 bar, use dry and filtered air only!

Scope of Delivery:

- sold without nipper blades
- ASN 50 AR without side air port



Part No.	Description	Closing force max. [N]	A [mm]	B [mm]	E [mm]	P ["]	P1 ["]	Weight [g]
New 1-655-03-00	ASN 3 AR	294	23	103	7	Rc 1/8	Rc 1/8	70
1-655-10-00	ASN 10 AR	588	36	106	12	G1/4	G1/8	157
1-655-65-00	ASN 20 AR	1372	45	119.5	12	G1/4	G1/8	280
1-660-15-00	ASN 30 AR	2744	56	154.5	17	G1/4	G1/8	521
1-660-55-00	ASN 50 AR	4704	75	164	17	G1/4	-	1000

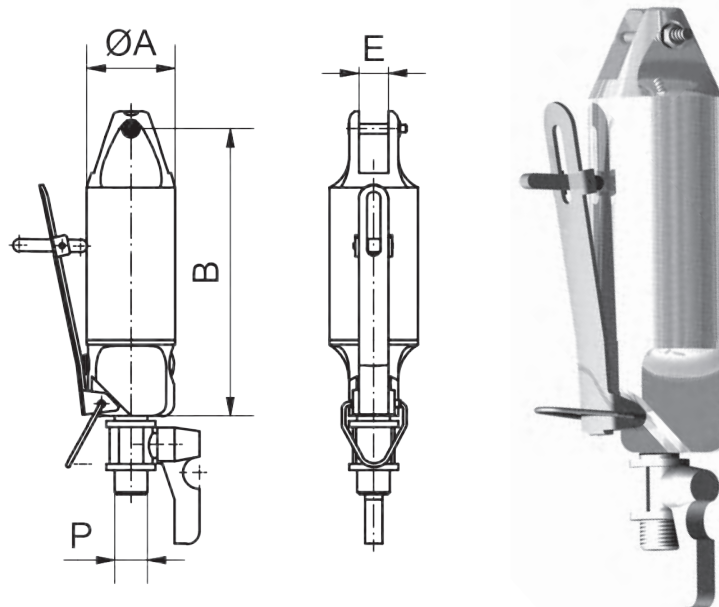
ASN HR / Manual-Round

Remarks:

- single action
- ASN ... HR
H manual
R round
- » Attention! Observe operating instructions!
- » The applied cutting force depends on the nipper blade!
- » Maximum air pressure is 6 bar, use dry and filtered air only!

Scope of Delivery:

- sold without nipper blades



Part No.	Description	Closing force max. [N]	A [mm]	B [mm]	E [mm]	P ["]	Weight [g]
1-655-05-00	ASN 10 HR	588	36	117	12	G1/4	255
1-655-55-00	ASN 20 HR	1372	45	138.5	12	G1/4	427
1-660-05-00	ASN 30 HR	2744	56	174.5	17	G1/4	682
1-660-45-00	ASN 50 HR	4704	75	186	17	G1/4	1136

000
Quick Change
System

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

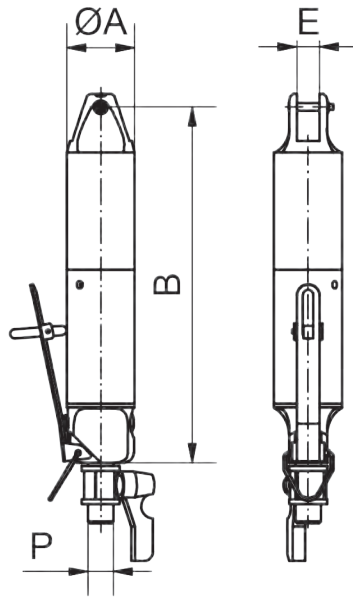
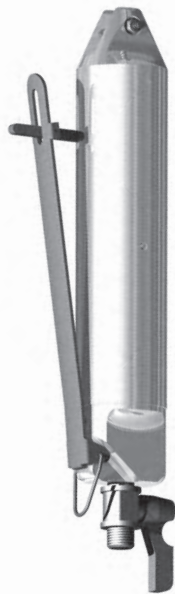
700
Special
Elements

800
Electric and
Sensors

850
Pneumatic

600 | Nipper Bodies

ASN HRK / Manual-Round with Power Booster



Remarks:

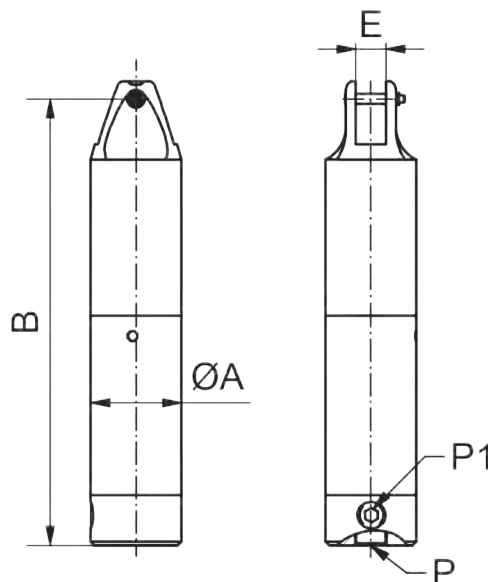
- ASN ... HRK
H manual
R round
K power booster
- single-acting
- nipper Body complete (housing with power booster)
- » Attention! Observe operating instructions!
- » The applied cutting force depends on the nipper blade!
- » Maximum air pressure is 6 bar, use dry and filtered air only!

Scope of Delivery:

- sold without nipper blades

Part No.	Description	Closing force max. [N]	A [mm]	B [mm]	E [mm]	P ["]	Weight [g]
1-655-07-00	ASN 10 HRK	980	36	188	12	G1/4	364
1-655-60-00	ASN 20 HRK	2254	45	225.5	12	G1/4	641
1-660-10-00	ASN 30 HRK	4410	56	266.5	17	G1/4	1015
1-660-50-00	ASN 50 HRK	7742	75	319	17	G1/4	1909

ASN ARK / Automatic-Round-Power Booster



Remarks:

- ASN ... ARK
A automatic
R round
K power booster
- nipper Body complete (housing with power booster)
- single-acting
- » Attention! Observe operating instructions!
- » The applied cutting force depends on the nipper blade!
- » Maximum air pressure is 6 bar, use dry and filtered air only!

Scope of Delivery:

- sold without nipper blades

Part No.	Description	Closing force max. [N]	A [mm]	B [mm]	E [mm]	P ["]	P1 ["]	Weight [g]
1-655-15-00	ASN 10 ARK	980	36	177	12	G1/4	G1/8	266
1-655-70-00	ASN 20 ARK	2254	45	206.5	12	G1/4	G1/8	490
1-660-20-00	ASN 30 ARK	4410	56	246.5	17	G1/4	G1/8	851
1-660-60-00	ASN 50 ARK	7742	75	297	17	G1/4	-	1810

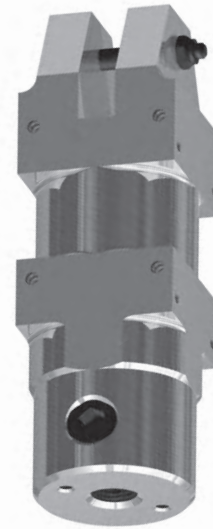
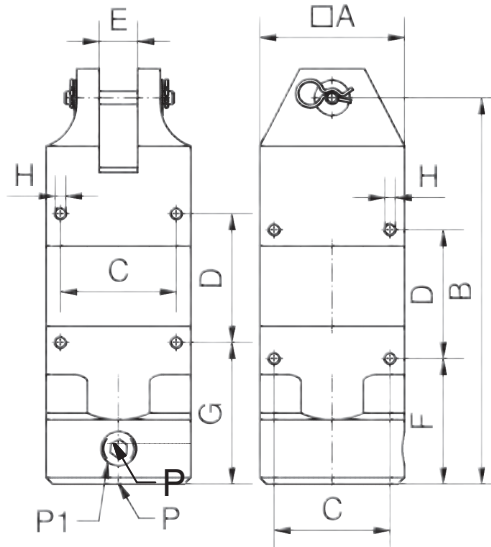
ASN AQ / Automatic – Square

Remarks:

- ASN ... AQ
A automatic
Q square
- single-acting
- body has threads for mounting (H)
- » Attention! Observe operating instructions!
- » The applied cutting force depends on the nipper blade!
- » Maximum air pressure is 6 bar, use dry and filtered air only!

Scope of Delivery:

- sold without nipper blades



Part No.	Description	Closing force max. [N]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	P ["]	P1 ["]	Weight [g]
1-650-15-00	ASN 3 AQ	294	23	103	19	40	7	40	45	M3	G1/8	G1/8	95
1-650-35-00	ASN 5 AQ	392	30	87	24	30	7	34	39	M3	G1/8	G1/8	138
1-650-55-00	ASN 7 AQ	490	36	106	28	30	9	38	43	M4	G1/8	G1/8	211
1-655-30-00	ASN 10 AQ	588	36	106	28	30	12	38	43	M4	G1/4	G1/8	208
1-655-80-00	ASN 20 AQ	1372	45	120	36	40	12	39	44	M4	G1/4	G1/8	370

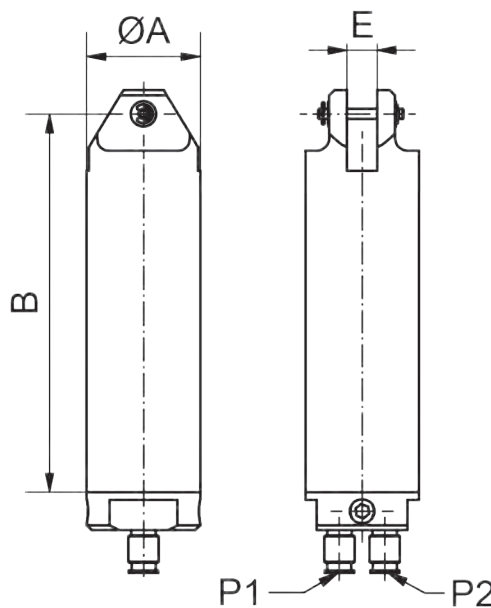
ASN ARD / Automatic-Round-Double Action

Remarks:

- ASN ... ARD
A automatic
R round
D double action
- double-acting
- more force compared to single action cutter (no internal spring)
- adjustable cutting speed when used with a flow control in exhaust port
- » Attention! Observe operating instructions!
- » The applied cutting force depends on the nipper blade!
- » Maximum air pressure is 6 bar, use dry and filtered air only!

Scope of Delivery:

- sold without nipper blades



Part No.	Description	Closing force max. [N]	A [mm]	B [mm]	E [mm]	P1/P2 [Ømm]	Weight [g]
1-655-25-00	ASN 10 ARD	588	36	146	9	6	289
1-655-75-00	ASN 20 ARD	1372	45	165	12	6	480
1-660-25-00	ASN 30 ARD	2744	56	216	17	6	916

000
Quick Change
System

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

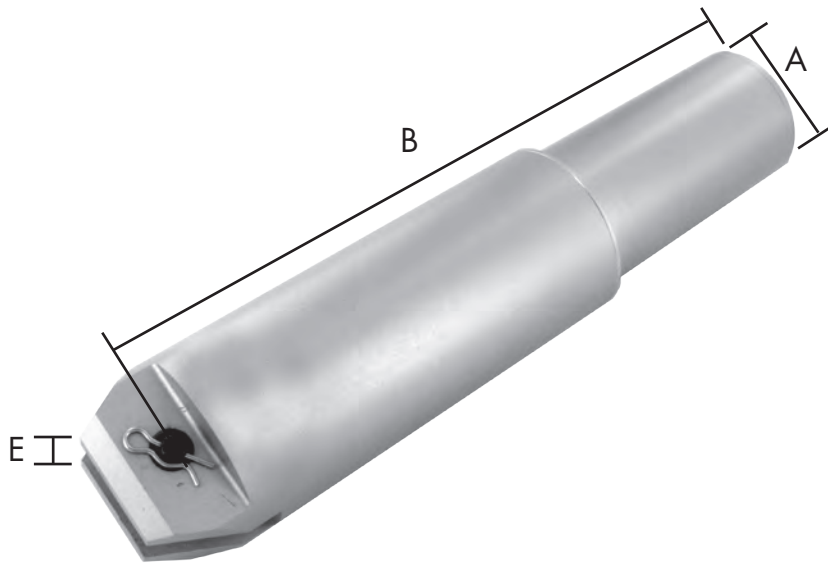
700
Special
Elements

800
Electric and
Sensors

850
Pneumatic

600 | Nipper Bodies

ASN ARKS / Nipper Body Automatic-Round-Power Boost-Durable

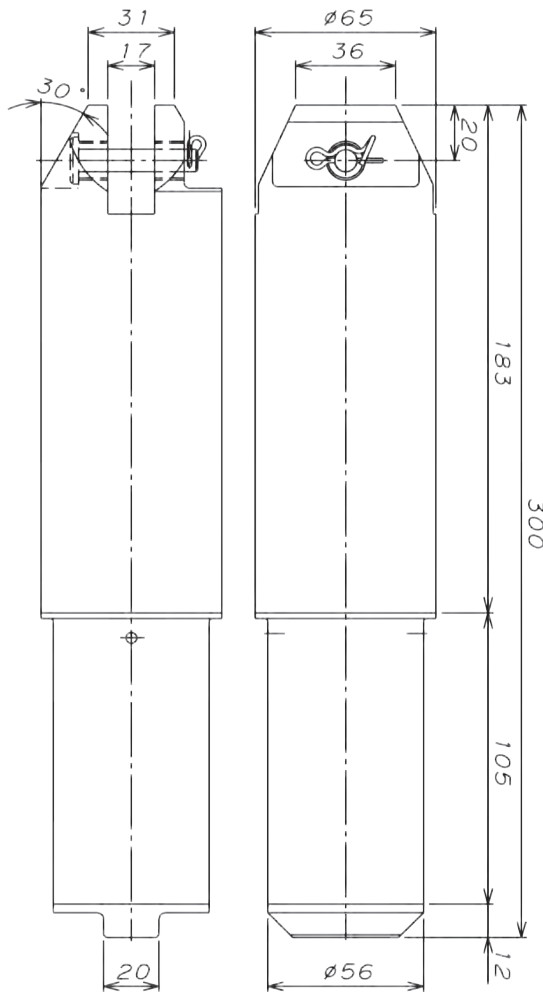


Remarks:

- ASN...ARKS
 - A automatic
 - R round
 - K power boost
 - S durable
- efficient design
- maximum power development
- cutting force of up to 6400 N
- operating pressure 0.6 MPa
- housing made of Aluminium
- for plastics and metal industry
- single-acting nipper body
 - » Attention! Observe operating instructions!
 - » The applied cutting force depends on the nipper blade!
 - » Maximum air pressure is 6 bar, use dry and filtered air only!

Scope of Delivery:

- sold without nipper blades



Part No.	Description	Closing force max. [N]	A [mm]	B [mm]	E [mm]	Weight [g]
1-661-00-00	ASN ARKS	6400	56	280	17	1141

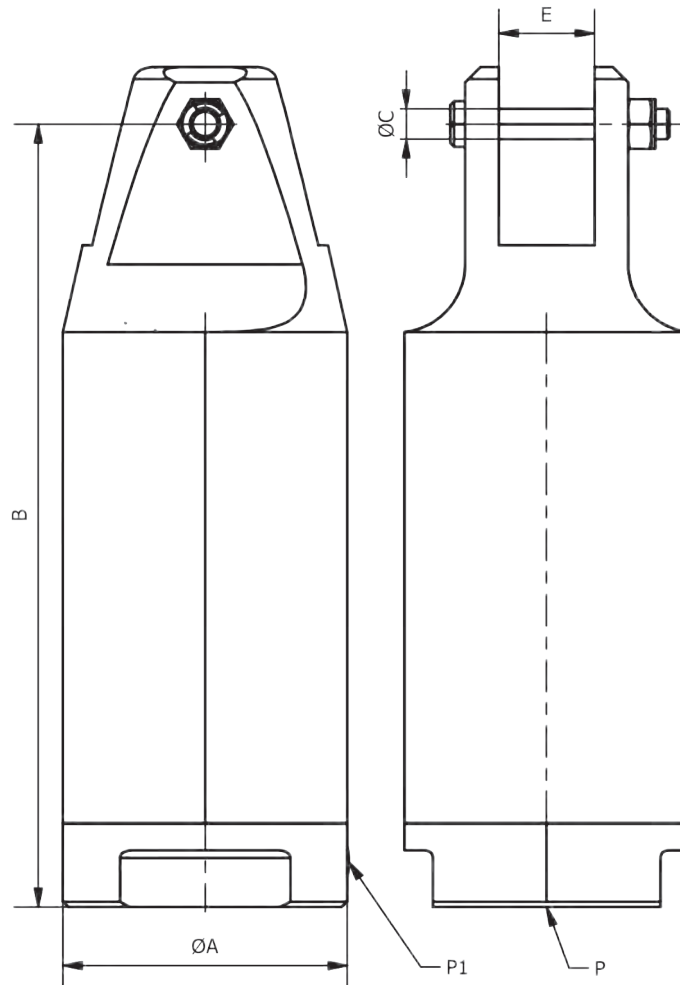
ASN AR VS / Nipper Body Automatic-Round-Strengthened

Remarks:

- ASN...AR VS
 - A automatic
 - R round
 - S strengthened
- cutting force over 4700 N
- bolt diameter 8mm; in comparison ASN 50 AR has 5mm
- housing made of Aluminium
- for plastics and metal industry
- single-acting nipper body
- » Attention! Observe operating instructions!
- » The applied cutting force depends on the nipper blade!
- » Maximum air pressure is 6 bar, use dry and filtered air only!

Scope of Delivery:

- sold without nipper blades



Part No.	Description	Closing force max. [N]	A [mm]	B [mm]	C [mm]	E [mm]	P ["]	P1 ["]	Weight [g]
1-660-56-00	ASN 50 AR VS	4.704	75	207	8	25	G1/4	G1/4	1186

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

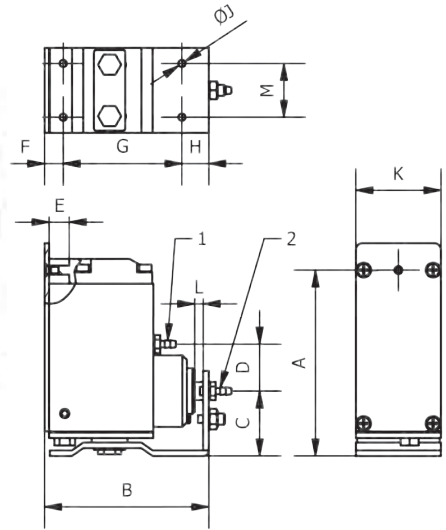
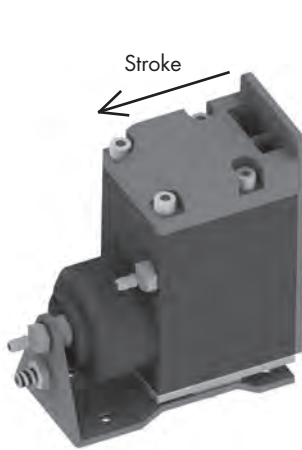
700
Special Elements

800
Electric and Sensors

850
Pneumatic

600 | Nipper Bodies

ASN SE / Nipper Bodies 90° with Stroke



Remarks:

- ASN...SE
S stationary
E single action
- with stroke
- continuous adjustment
» Attention! Observe operating instructions!
- » The applied cutting force depends on the nipper blade!
- » Maximum air pressure is 6 bar, use dry and filtered air only!

Drawing:

- 1 air connection nipper
- 2 air connection stroke

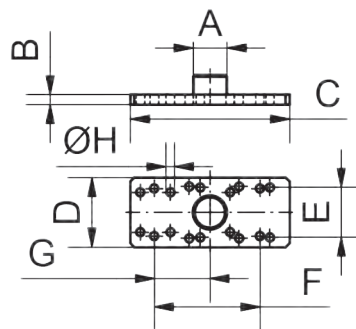
Scope of Delivery:

- sold without nipper blades

Part No.	Description	Closing force max. [N]	Pneuma. Hose Connection	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]
1-662-05-00	ASN 3 SE	147	4/3	63	62	23	15	7	9.5
1-662-10-00	ASN 5 SE	196	4/3	66	64	25	20	7	7
1-662-25-00	ASN 10 SE	515	4/3	83	73	29	21	9	8
1-662-60-00	ASN 20 SE	930	6/4	96	103	33	22	12	10

Part No.	Description	G [mm]	H [mm]	J [mm]	K [mm]	Stroke L [mm]	M [mm]	Weight [g]
1-662-05-00	ASN 3 SE	43	10	M3	19	0-3	14	226
1-662-10-00	ASN 5 SE	45	12	M4	32	0-3	20	252
1-662-25-00	ASN 10 SE	53	12	M4	38	0-3	24	503
1-662-60-00	ASN 20 SE	80	13	M5	44	0-8	28	879

ASN HP / Mounting Bracket for ASN SE



Remarks:

- use with VLR extension tube
» see application example

Accessories:

- Extension Tube VLR

Part No.	Description	for sprue cutter	Compatible to profile	A [mm]	Connection
1-640-58-00	ASN HP 14	ASN 3 SE	X	M12x1	VLR 14
1-640-61-00	ASN HP 20	ASN 5 SE/ASN 10 SE	X, JU	M17x1	VLR 20
1-640-64-00	ASN HP 30	ASN 20 SE	X, JU	M27x1	VLR 30

Part No.	Description	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	Weight [g]
1-640-58-00	ASN HP 14	4	60	30	14	43	23.5	3.4	21
1-640-61-00	ASN HP 20	5	80	35	20/24	45/53	35/28	4.2	41
1-640-64-00	ASN HP 30	5	100	40	28	80	41.5	5.5	69

ASZ AH / Sprue Gripper for Nipper Bodies ASZ and ASN

Remarks:

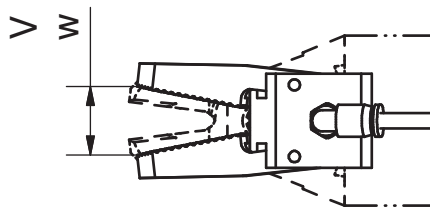
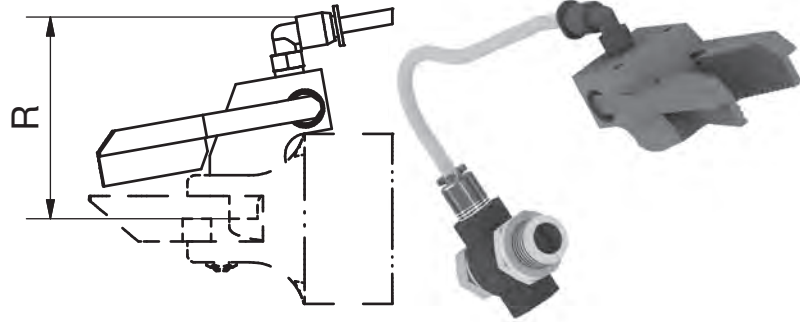
- for assembling with sprue cutters
- spring return/single action
- can be actuated from the same valve as the sprue cutter
 - » Maximum air pressure is 6 bar, use dry and filtered air only!
 - » see application example

Scope of Delivery:

- sold separately from sprue cutter ASZ... and ASN...
- for assembling with ASN HR a Thread Coupling PMM 1/4 is needed

Accessories:

- Thread Coupling PMM 1/4 (Part No. 1-858-42-00)

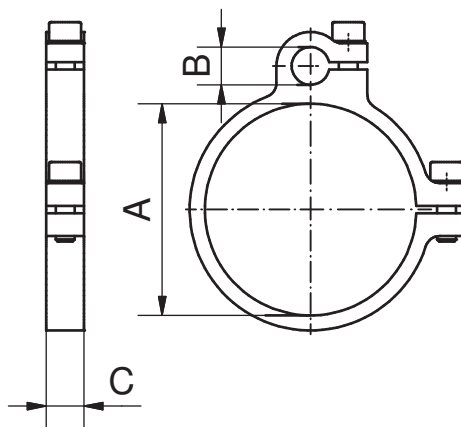


Part No.	Description	R [mm]	V max. [mm]	W min. [mm]	for sprue cutter	Weight [g]
1-640-03-00	ASZ 20 AH	54.6	18	1	ASN 20 AR or HR	128
1-640-06-00	ASZ 30-50 AH	48.3	20	1	ASN30/50 AR or HR	124

ASZ KA / Combination Clamp for Sprue Gripper + Nipper ASZ / ASN

Remarks:

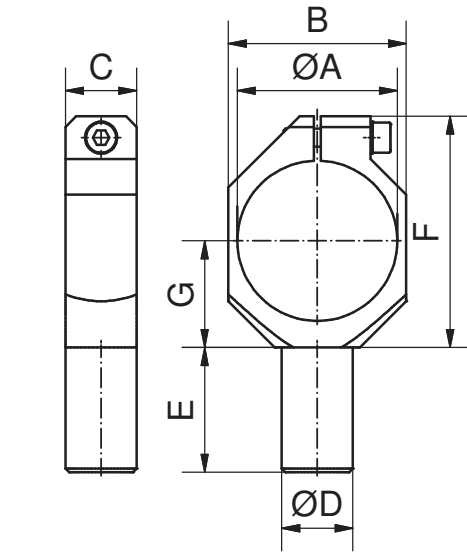
- use in combination with GRZ 10-08 or GRZ 10-12 gripper
- various mounting options for gripper GRZ
 - » see application example



Part No.	Description	for sprue cutter	A [mm]	B [mm]	C [mm]	Weight [g]
1-640-10-00	ASZ 10 KA	ASN 10	36	10	10	29
1-640-13-00	ASZ 20 KA	ASN 20	45	10	10	33
1-640-16-00	ASZ 30 KA	ASN 30	56	10	10	36
1-640-19-00	ASZ 50 KA	ASN 50	75	10	10	41

600 | Nipper Bodies

ASZ KS / Mounting Bracket for Nipper Bodies ASN



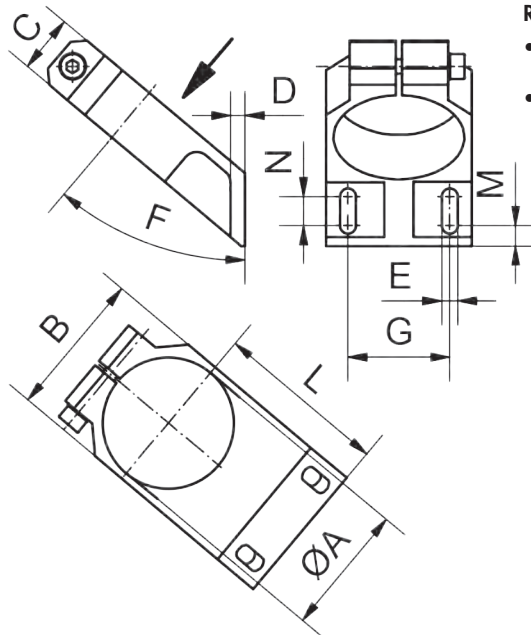
Remarks:

- for mounting round nipper bodies
- » see application example

Part No.	Description	for sprue cutter	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	Weight [g]
1-640-30-00	ASZ 3 KS	ASN 3	23	27	8	6	15	33	15	8
1-640-31-00	ASZ 10 KS	ASN 10	36	40	15	14	25	51	22	30
1-640-34-00	ASZ 20 KS	ASN 20	45	50	20	20	35	65	30	74
1-640-37-00	ASZ 30 KS	ASN 30	56	60	20	20	40	75	35	83
1-640-40-00	ASZ 50 KS	ASN 50	75	85	20	20	55	95	45	153

New

ASZ HS / Mounting Bracket for Nipper Body ASN



Remarks:

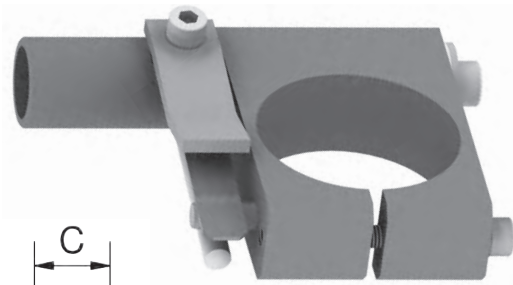
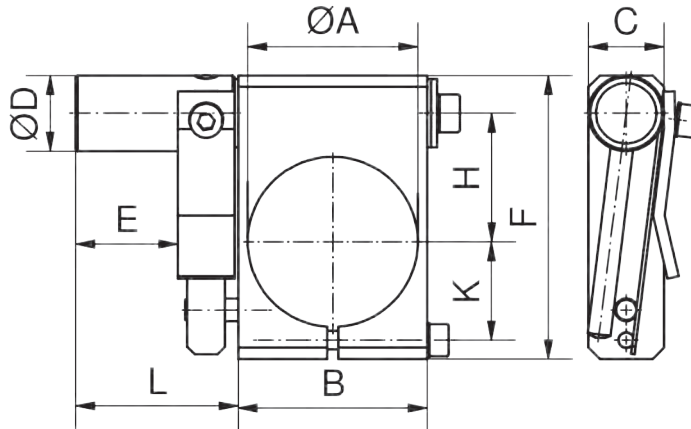
- for mounting a nipper body in an 40° respectively 30° angle
- fine adjustment is possible

Part No.	Description	for sprue cutter	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [°]	G [mm]	M [mm]	N [mm]	L [mm]	Weight [g]
1-640-22-00	ASZ 20 HS	ASN20	45	50	20	5	5.5	40	35	7	10	59	89
1-640-25-00	ASZ 30 HS	ASN30	56	60	25	5	5.5	30	45	6	12	84	161
1-640-28-00	ASZ 50 HS	ASN50	75	85	25	5	6.6	30	70	6	12	99	285

ASZ KF / Spring Loaded Mounting Bracket for ASN

Remarks:

- spring compensated mounting bracket
- allows robot to push part against the nipper (blade)

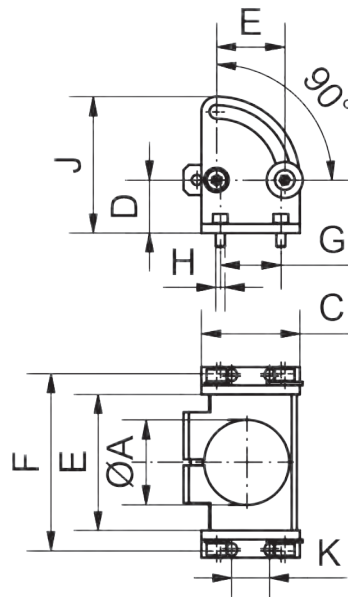


Part No.	Description	for sprue cutter	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	H [mm]	K [mm]	L [mm]	Weight [g]
1-640-43-00	ASZ 20 KF	ASN20	45	50	20	20	27	75	34	26	43	242
1-640-46-00	ASZ 30 KF	ASN30	56	60	20	20	35	86	38	33	50.5	361
1-640-49-00	ASZ 50 KF	ASN50	75	85	20	20	45	106	48	42	61	506

ASN SB / Swivel Bracket for Nipper Body

Remarks:

- directly screwed onto plate or profile
- nippers are clamped and can be steplessly swiveled in the range of 90°
- by turning the nipper 180° in the Swivel Bracket, the nipper blades can be positioned at any angle



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	K [mm]	J [mm]	Weight [g]
1-640-70-00	ASN SB 10	36	56	55	35	35	74	40	M5	25	80	237
1-640-71-00	ASN SB 20	45	73	60	35	40	95	40	M6	25	85	351
1-640-72-00	ASN SB 30	56	90	65	35	45	114	40	M6	25	90	487
1-640-73-00	ASN SB 50	75	100	85	47	65	85/135	40	M6	-	122	902

000
Quick Change
System

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

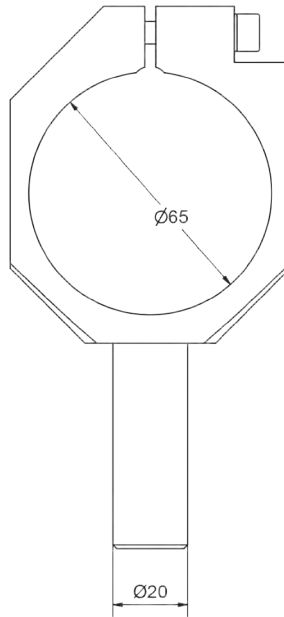
700
Special
Elements

800
Electric and
Sensors

850
Pneumatic

600 | Nipper Bodies

ASN ARKS KS / Mounting Bracket for Nipper Body ASN ARKS

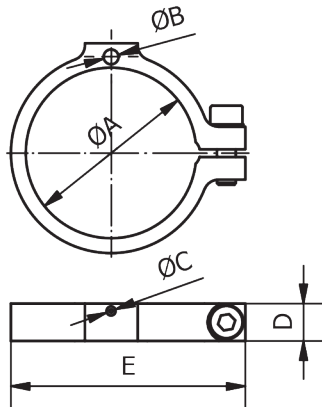


Remarks:

- mounting adapter for easy connecting and flexible usage of ASN ARKS

Part No.	Description	Compatible to	Material	Weight [g]
1-640-38-00	ASN ARKS KS	ASN ARKS	Aluminium	157

ASN SH / Sensor Mounting Bracket for Nipper Bodies



Remarks:

- enables the integration of sensors at nippers bodies with magnetic blades for sensing the open and closed position of the nipper blade
- more safety for degating
- sensors can be added easily

Accessories:

- Sensor MFS T2 3,7 (Part No. 1808-30-00)

Part No.	Description	compatible to	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Weight [g]
1-640-75-00	ASN SH 10	ASN 10	36	4	2,5	10	53	20
1-640-76-00	ASN SH 20	ASN 20	45	4	2,5	10	62	24
1-640-77-00	ASN SH 30	ASN 30	56	4	2,5	10	73	25
1-640-78-00	ASN SH 50	ASN 50	75	4	2,5	10	88	33

ASN G / Stationary Cutting Unit „Guillotine“

Remarks:

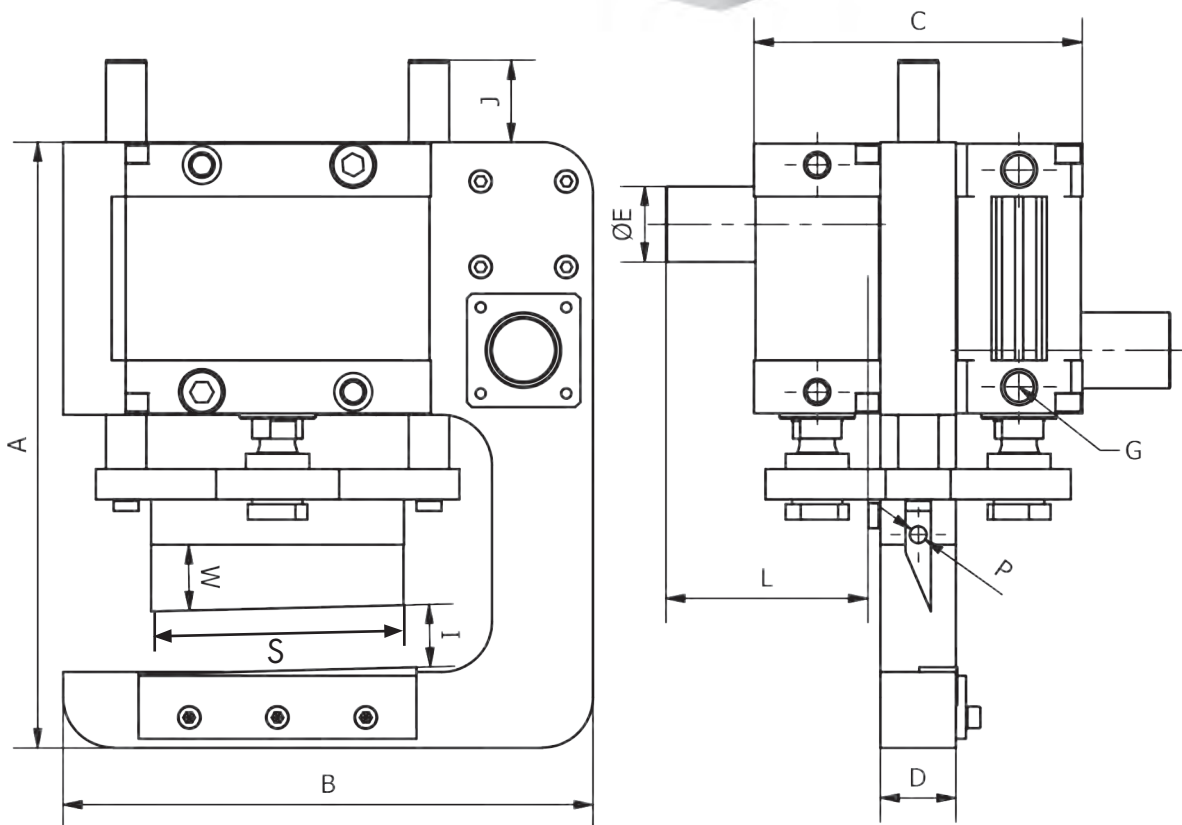
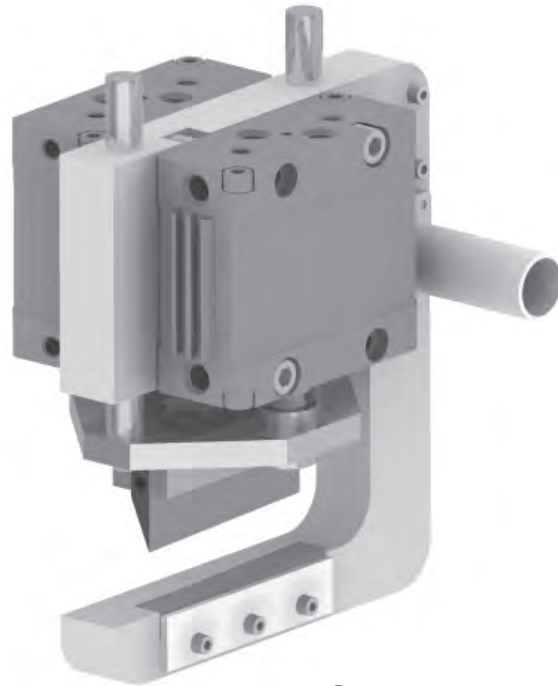
- cutting unit using the „Guillotine“ principle
- max. operating pressure 10 bar / 1,0 MPa
- max. closing force 6,234 N (at 10 bar)
- blade with teflon-coating
- heatable blade
- blade and anvil easy to change
- double-acting
- delivery time on demand

On demand:

- with direct and/or indirect sensing

Accessories:

- standard heating cartridge as available on the market (\varnothing 6,5)
- T-Nut Sensor



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [N] 6 bar	G ["]	Stroke [mm]	I [mm]	J [mm]
1-700-01-00	ASN G 63-25	240	210	130	30	30	3741	1/4	25	25	32.5

Part No.	Description	Blade S [mm]	Piston Ø [mm]	L [mm]	P Ø [mm]	W [°]	Weight [g]
1-700-01-00	ASN G 63-25	100	63	80	6,5	1.5	12580

000
Quick Change
System

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special
Elements

800
Electric and
Sensors

850
Pneumatic

990
Other
PA-Forming

Cutting ability* Ø [mm]

Part No.	Description	W Ø [mm]	H Ø [mm]
1-671-03-00	SES 3-15-11-S	2	-
1-671-03-51	SES 3-15-11-H	2	-
1-671-05-00	SES5-15-11-S	2	-
1-671-05-51	SES5-15-11-H	2	-
1-671-07-00	SES7-40-10S	3	2
1-671-07-01	SES7-30-11S	3	2
1-671-07-51	SES7-30-11H	3	2
1-671-10-01	SES10-15-16S	4	2,6
1-671-10-03	SES10-15-35S	3,5	2
1-671-10-05	SES10-40-13S	4	2,6
1-671-10-51	SES10-40-13 H	4	2,6
1-671-20-00	SES20-40-13S	7	5
1-671-20-01	SES20-23-25S	6,5	4,5
1-671-20-02	SES20-15-16S	7	5
1-671-20-03	SES20-15-35S	6,5	4,5
1-671-20-04	SES20-40-32S	6	4
1-671-20-51	SES20-40-13 H	7	5
1-671-30-01	SES30/50-30-25S	10	6,5
1-671-30-02	SES30/50-30-50S	8	5
1-671-30-03	SES30/50-15-38S	10	6,5
1-671-30-04	SES30/50-60-32S	8	5
1-671-30-05	SES30/50-30-44S	8	5
1-671-30-51	SES30/50-30-23H	10	6,5
1-672-20-00	SEW20-90-18-45S	6,5	4,5
1-672-20-01	SEW20-90-18-62S	5	3
1-672-20-02	SEW20-90-16-40S	6,5	4,5
1-672-20-03	SEW20-90-34-50S	5	3
1-672-30-00	SEW30/50-90-35-50S	8	5
1-672-30-01	SEW30/50-90-41-65S	8	5
1-672-30-51	SEW30/50-90-25-50H	8	5
1-673-03-00	SEG3-0-12S	2	-
1-673-05-00	SEG5-0-12S	2	-
1-673-20-00	SEG20-0-18S	7	5
1-673-30-00	SEG30/50-0-41S	8	5
1-673-30-01	SEG30/50-0-43S	7	4,5
1-673-30-03	SEG30/50-0-37S	8	5
1-673-91-00	SEG-ASNSE3-0-11S	1,5	1
1-673-91-01	SEG-ASNSE5-0-12S	2,5	1,5
1-673-91-02	SEG-ASNSE10-0-12S	3,5	2,3
1-673-91-03	SEG-ASNSE20-0-20S	5	3,4
1-674-07-00	SEK7-14-9S	3	2
1-674-10-00	SEK10-15-12S	4	3
1-674-20-00	SEK20-15-12S	7	5
1-674-30-00	SEK30/50-70-17S	5,5	3,5
1-674-30-01	SEK30/50-28-17S	10	6,5
1-675-30-00	SEZ30/50-0-32S	5	3

Explanation report

The cutting ability is affected by a lot of factors:

- the shear strength of the plastic
- the temperature of the plastic
- the geometry of the cutting area
- for fiber-reinforced plastics, the amount and the attitude of the fiber

All these factors also have an affect on the durability of the cutting edge!

All the datas of these scale are only bench marks. Practically results can deviate positive and negative from this data.

* = designed for sprues up to Ø (see table)

- Column W:
Plastic (soft) Elastic modulus < 2500 N/mm²
- Column H:
Plastic (hard) Elastic modulus > 2500 N/mm²

Remark for Carbide Nippers:

Advantage: high wear resistance

Disadvantage: sensitive for shocks

SES / Nipper Blades Standard

Remarks:

„SES3-15-11S“

- SE cutter blade
- S standard
- 3 for sprue cutters ASN 3
- 15 angle
- 11 cutting length
- S steel alloy
- H carbide

All cutter blades' cutting edge is on the outside, with the exceptions of:

1-671-20-04, SES 20-40-32 S and 1-671-30-05, SES 30/50-30-44 S which feature an inverted cutting surface

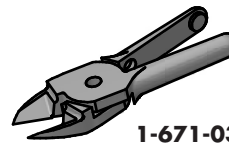
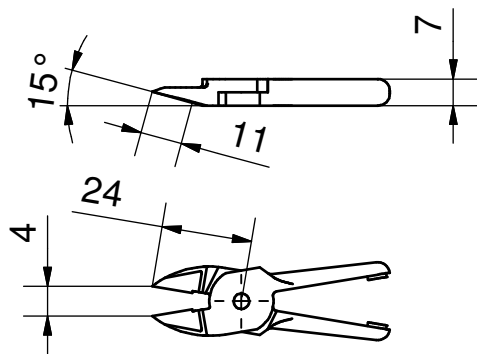
Remarks for the compatible types of Nipper Bodies ASN:

- HR hand operated round
- AR automatic round
- HRK hand operated round with power boost
- ARK automatic round with power boost
- AQ automatic square

Opening size of the Nipper Blades SES30/50...:

The first value is for use with an ASN 30 and the value in brackets for use with an ASN 50.

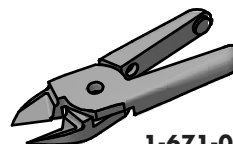
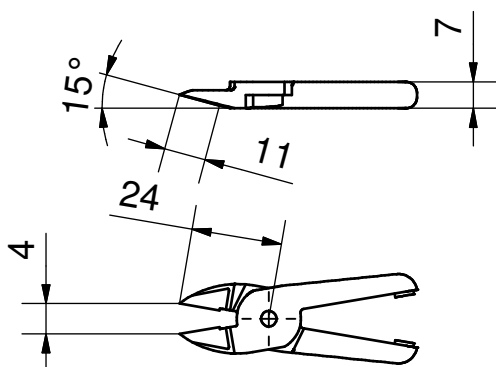
SES-3 / Nipper Blades Standard for ASN 3



1-671-03-00
1-671-03-51

Part No.	Description	compatible with	Material	Weight [g]	Part No. for exchange spring
1-671-03-00	SES3-15-11S	ASN 3...	Steel alloy	28	1-690-90-00
1-671-03-51	SES3-15-11H	ASN 3...	Carbide	30	1-690-90-00

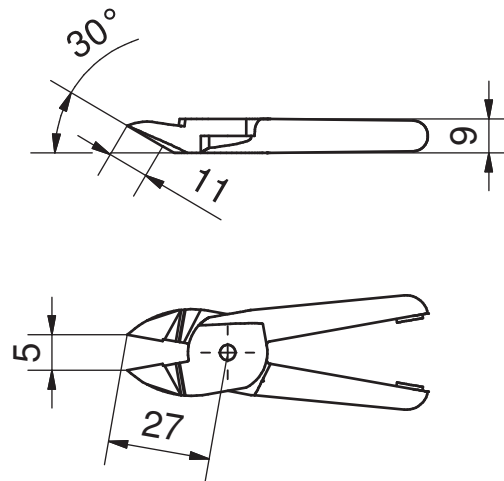
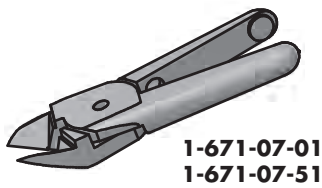
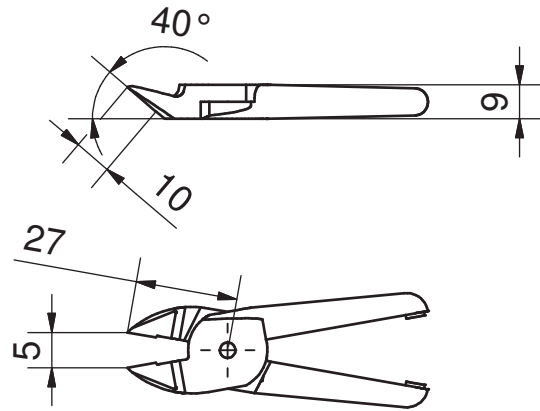
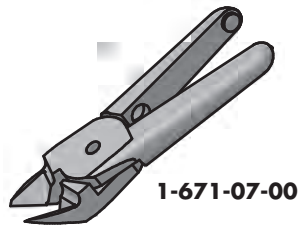
SES-5 / Nipper Blades Standard for ASN 5



1-671-05-00
1-671-05-51

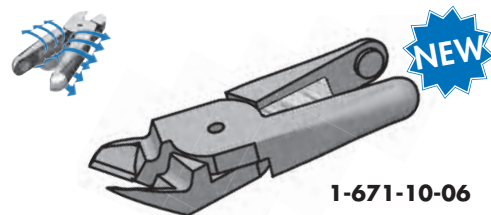
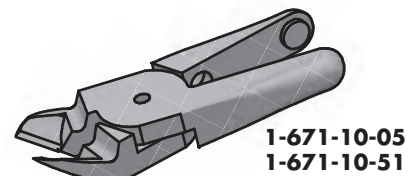
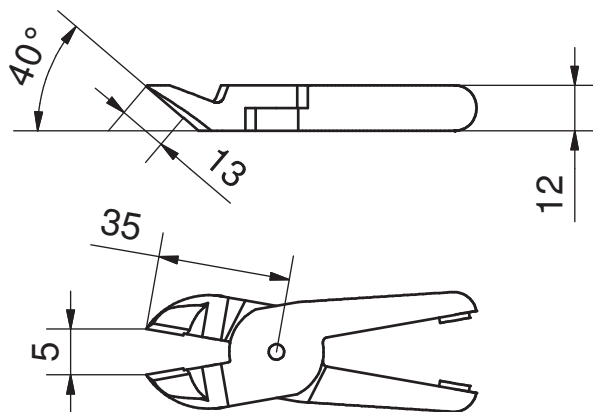
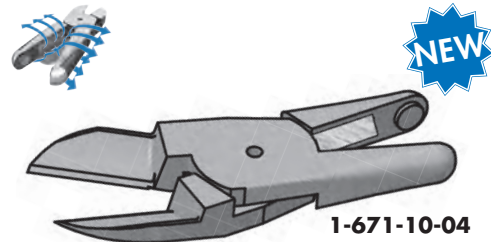
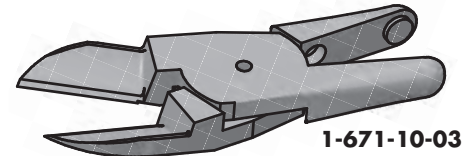
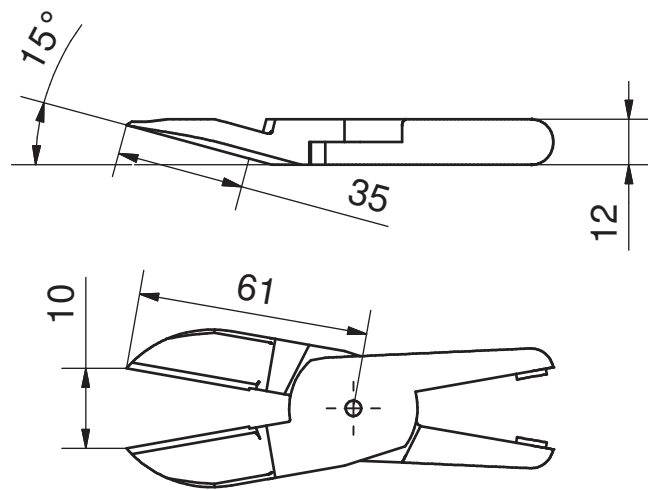
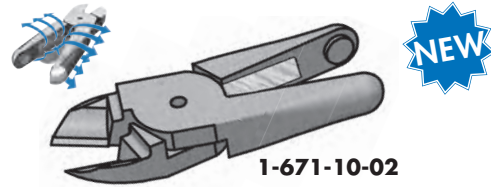
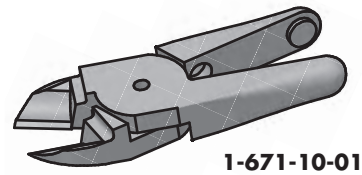
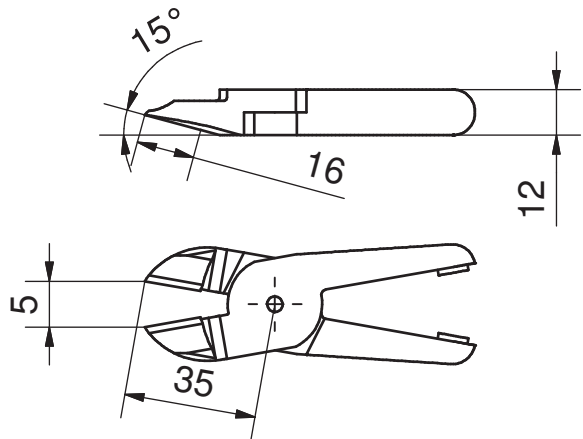
Part No.	Description	compatible with	Material	Weight [g]	Part No. for exchange spring
1-671-05-00	SES5-15-11S	ASN 5 AQ	Steel alloy	32	1-690-90-00
1-671-05-51	SES5-15-11H	ASN 5 AQ	Carbide	34	1-690-90-00

SES-7 / Nipper Blades Standard for ASN 7



Part No.	Description	compatible with	Material	Weight [g]	Part No. for exchange spring
1-671-07-00	SES7-40-10S	ASN 7 AQ	Steel alloy	72	1-690-90-01
1-671-07-01	SES7-30-11S	ASN 7 AQ	Steel alloy	71	1-690-90-01
1-671-07-51	SES7-30-11H	ASN 7 AQ	Carbide	73	1-690-90-01

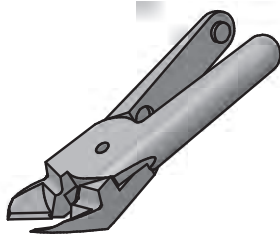
SES-10 / Nipper Blades Standard for ASN 10



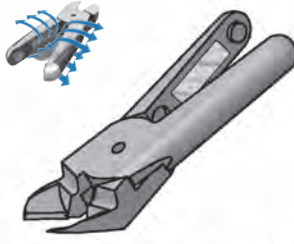
Part No.	Description	compatible with	Material	Weight [g]	Part No. for exchange spring
1-671-10-01	SES10-15-16S	ASN 10...	Steel alloy	114	1-690-90-02
New 1-671-10-02	SES10-15-16S Magnet	ASN 10...	Steel alloy	114	Magnet return
1-671-10-03	SES10-15-35S	ASN 10...	Steel alloy	155	1-690-90-02
New 1-671-10-04	SES10-15-35S Magnet	ASN 10...	Steel alloy	155	Magnet return
1-671-10-05	SES10-40-13S	ASN 10...	Steel alloy	116	1-690-90-02
New 1-671-10-06	SES10-40-13S Magnet	ASN 10...	Steel alloy	116	Magnet return
1-671-10-51	SES10-40-13 H	ASN 10...	Carbide	121	1-690-90-02

610 | Nipper Blades

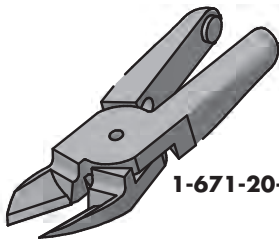
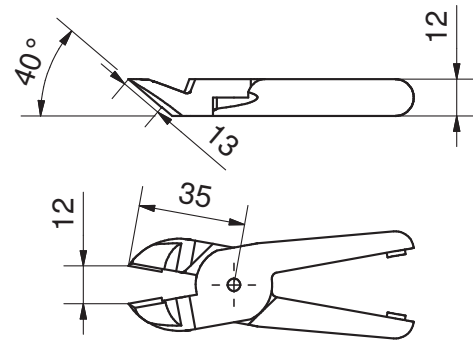
SES-20 / Nipper Blades Standard for ASN 20



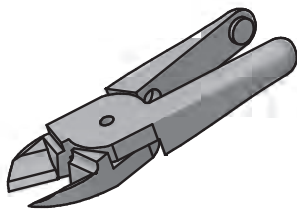
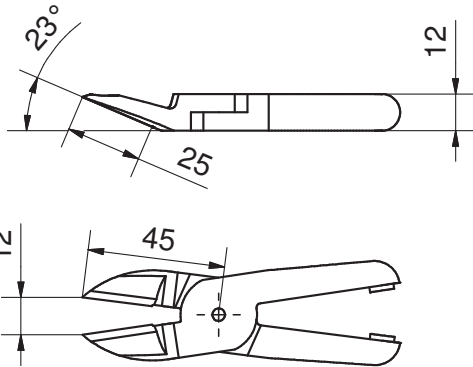
1-671-20-00
1-671-20-51



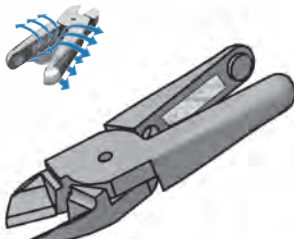
1-671-20-10



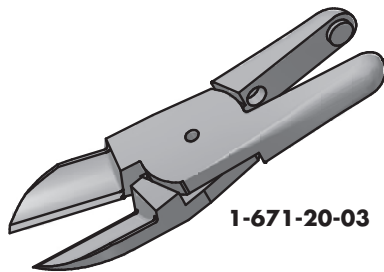
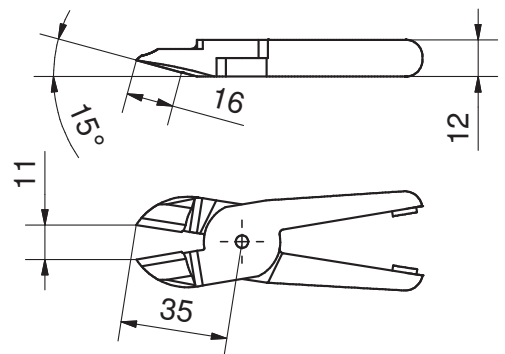
1-671-20-01



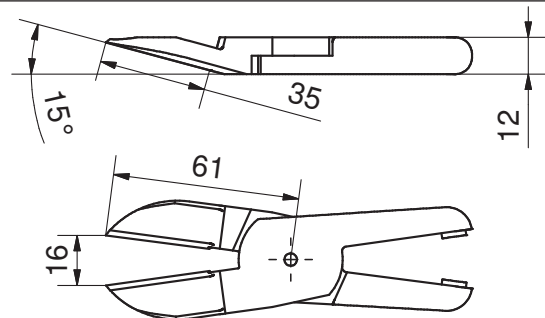
1-671-20-02



1-671-20-12

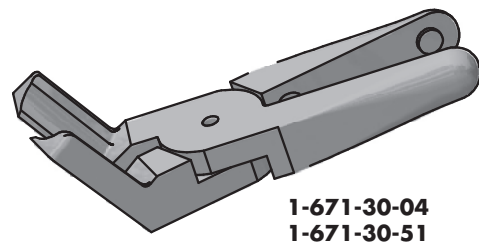
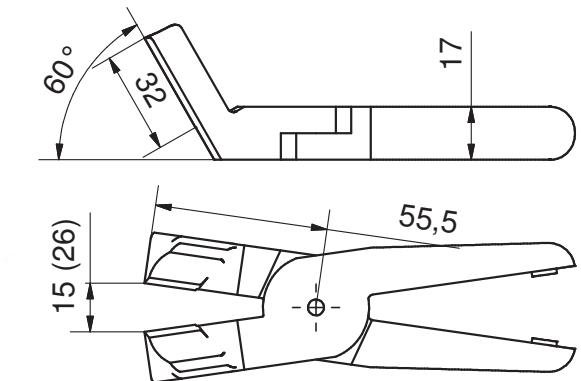
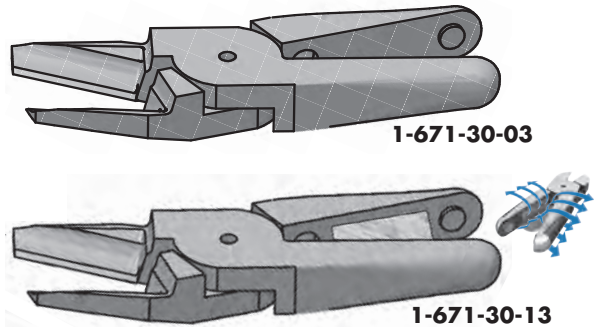
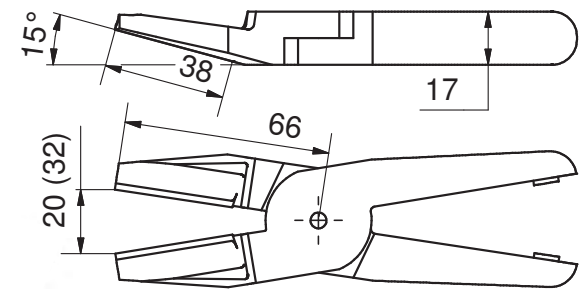
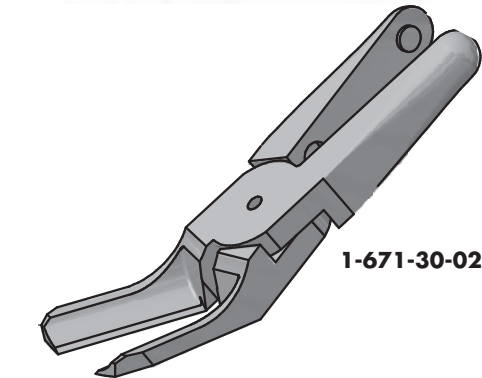
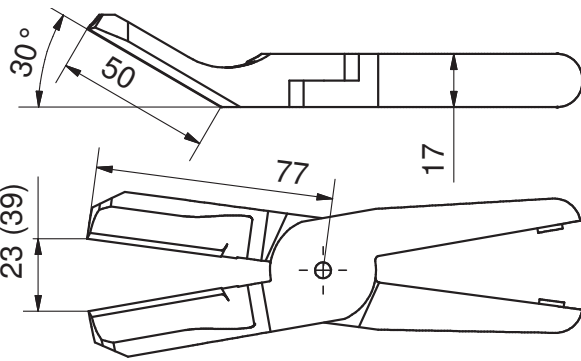
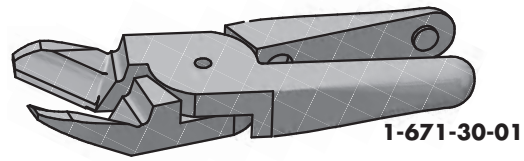
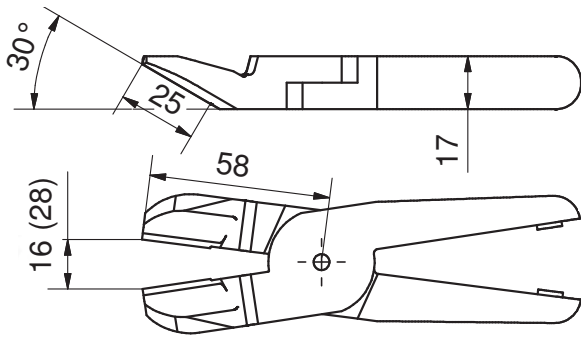


1-671-20-03



Part No.	Description	compatible with	Material	Weight [g]	Part No. for exchange spring
1-671-20-00	SES20-40-13S	ASN 20...	Steel alloy	121	1-690-90-02
1-671-20-10	SES20-40-13S Magnet	ASN 20...	Steel alloy	121	Magnet return
1-671-20-01	SES20-23-25S	ASN 20...	Steel alloy	128	1-690-90-02
1-671-20-02	SES20-15-16S	ASN 20...	Steel alloy	121	1-690-90-02
1-671-20-12	SES20-15-16S Magnet	ASN 20...	Steel alloy	116	Magnet return
1-671-20-03	SES20-15-35S	ASN 20...	Steel alloy	182	1-690-90-02
1-671-20-51	SES20-40-13H	ASN 20...	Carbide	124	1-690-90-02

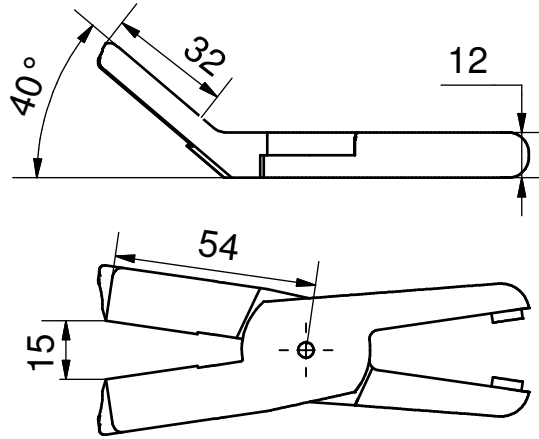
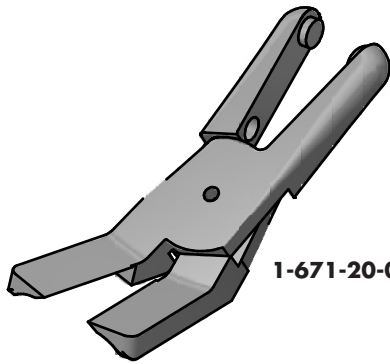
SES-30-50 / Nipper Blades Standard for ASN 30-50



Part No.	Description	compatible with	Material	Weight [g]	Part No. exchange spring
1-671-30-01	SES30/50-30-25S	ASN 30/ASN 50...	Steel alloy	365	1-690-90-03
1-671-30-11	SES30/50-30-25S Magnet	ASN 30/ASN 50...	Steel alloy	369	Magnet return
1-671-30-02	SES30/50-30-50S	ASN 30/ASN 50...	Steel alloy	372	1-690-90-03
1-671-30-03	SES30/50-15-38S	ASN 30/ASN 50...	Steel alloy	355	1-690-90-03
1-671-30-13	SES30/50-15-38S Magnet	ASN 30/ASN 50...	Steel alloy	283	Magnet return
1-671-30-04	SES30/50-60-32S	ASN 30/ASN 50...	Steel alloy	409	1-690-90-03
1-671-30-51	SES30/50-30-23H	ASN 30/ASN 50...	Carbide	365	1-690-90-03

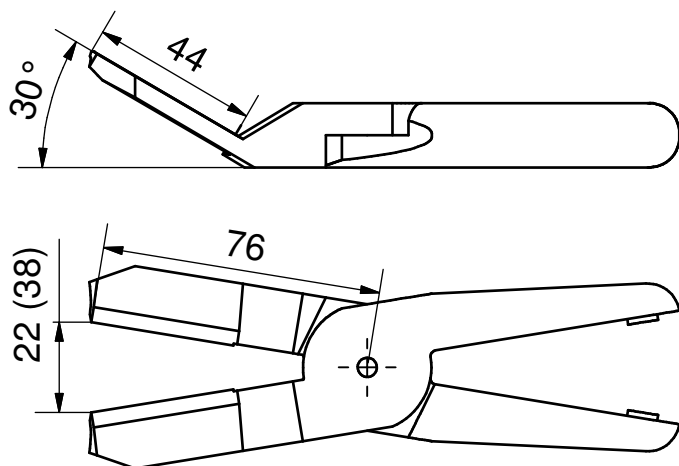
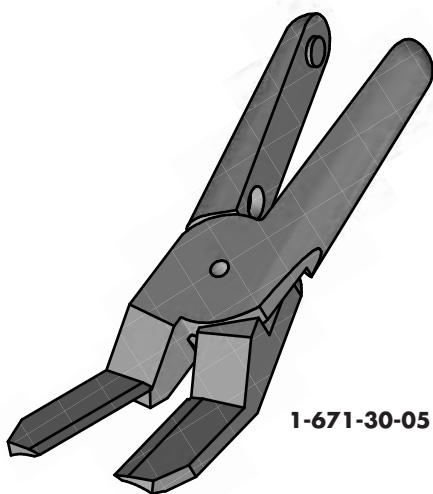
610 | Nipper Blades

SES 20 / Nipper Blades with Inverted Cutting Edge



Part No.	Description	compatible with	Material	Weight [g]	Part No. for exchange spring
1-671-20-04	SES 20-40-32 S	ASN 20...	Steel alloy	193	1-690-90-02

SES-30-50 / Nipper Blades with Inverted Cutting Edge



Part No.	Description	compatible with	Material	Weight [g]	Part No. for exchange spring
1-671-30-05	SES30/50-30-44S	ASN 30/ASN 50...	Steel alloy	386	1-690-90-03

SEW / Nipper Blades, 90° Angle

Remarks:

„SEW20-90-18-45S“

SE	cutter blade
W	form W - angle
20	for sprue cutter ASN 20...
90	angle
18	cutting surface
45	extension
S	steel alloy
H	carbide

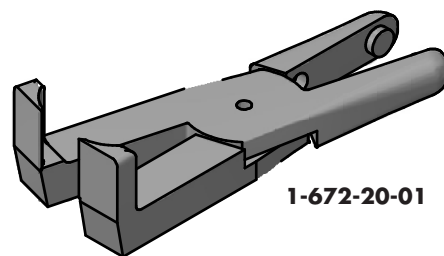
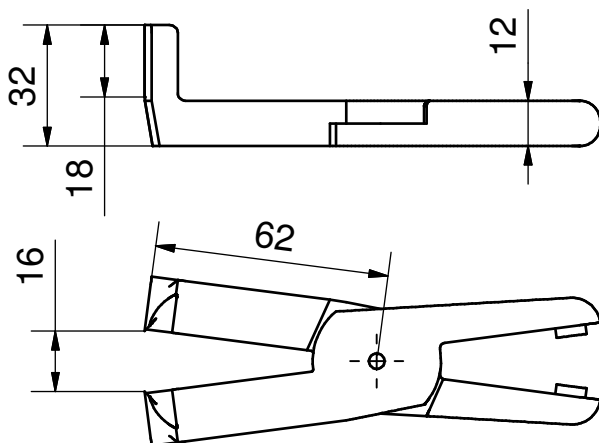
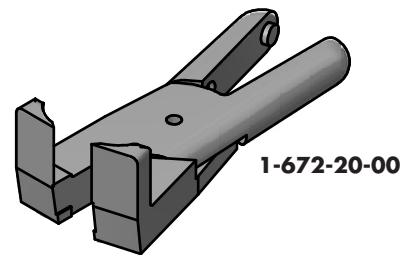
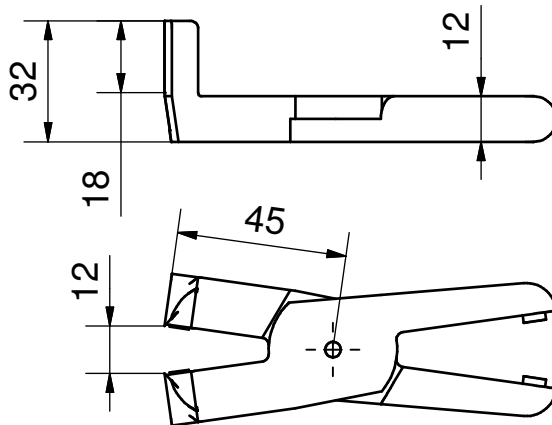
Remarks for the compatible types of Nipper Bodies ASN:

HR	hand operated round
AR	automatic round
HRK	hand operated round with power boost
ARK	automatic round with power boost
AQ	automatic square

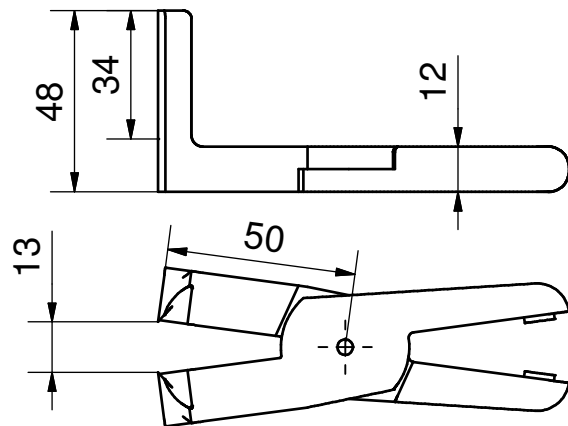
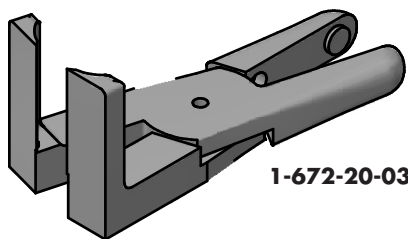
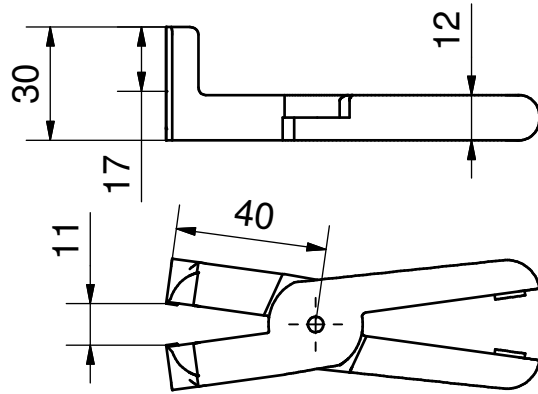
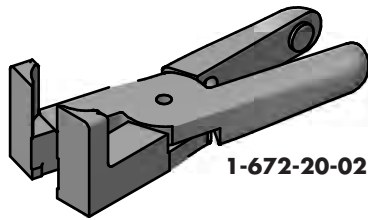
Opening size of the Nipper Blades SEW30/50...:

The first value is for use with an ASN 30 and the value in brackets for use with an ASN 50.

SEW-20 / Nipper Blades with 90° Angle for ASN 20

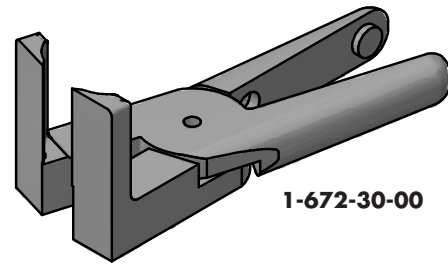
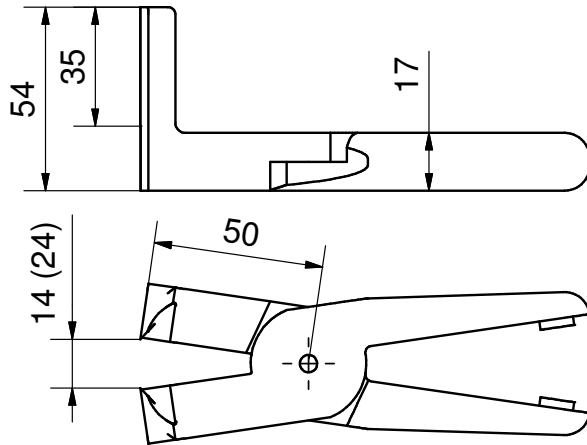


SEW-20 / Nipper Blades with 90° Angle for ASN 20 (Continuation)

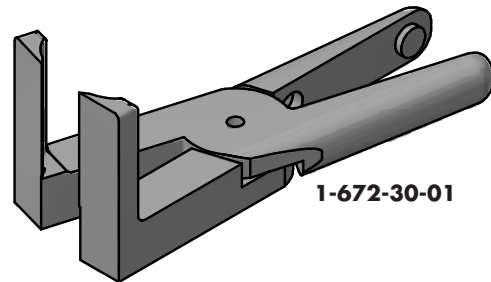
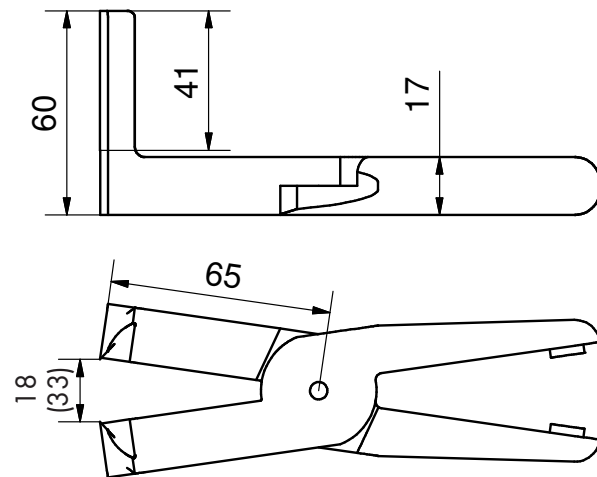


Part No.	Description	compatible with	Material	Weight [g]	Part No. for exchange spring
1-672-20-00	SEW20-90-18-45S	ASN 20...	Steel alloy	224	1-690-90-02
1-672-20-01	SEW20-90-18-62S	ASN 20...	Steel alloy	271	1-690-90-02
1-672-20-02	SEW20-90-16-40S	ASN 20...	Steel alloy	184	1-690-90-02
1-672-20-03	SEW20-90-34-50S	ASN 20...	Steel alloy	257	1-690-90-02

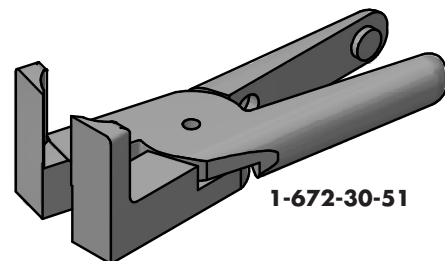
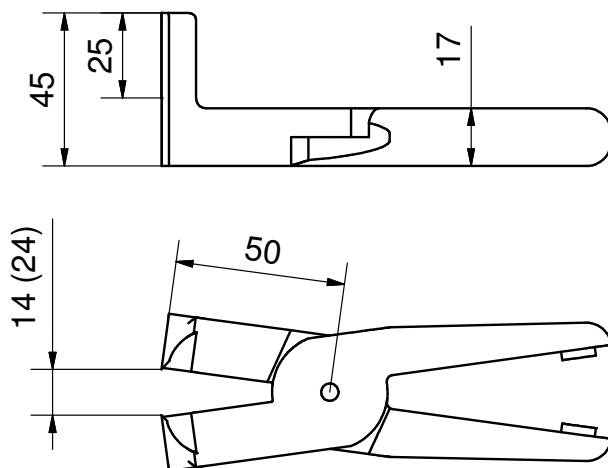
SEW-30-50 / Nipper Blades with 90° Angle for ASN 30-50



1-672-30-00



1-672-30-01



1-672-30-51

Part No.	Description	compatible with	Part No. for exchange spring	Material	Weight [g]
1-672-30-00	SEW30/50-90-35-50S	ASN 30/ASN 50...	1-690-90-03	Steel alloy	470
1-672-30-01	SEW30/50-90-41-65S	ASN 30/ASN 50...	1-690-90-03	Steel alloy	536
1-672-30-51	SEW30/50-90-25-50H	ASN 30/ASN 50...	1-690-90-03	Carbide	468

610 | Nipper Blades

SEK / Nipper Blades, „Pinch“

Remarks:

„SEK7-14-9S“

- SE cutter blade
- K pinch
- 7 for sprue cutter ASN 07...
- 14 undercut
- 9 cutting surface (B)
- S steel alloy
- H Carbide

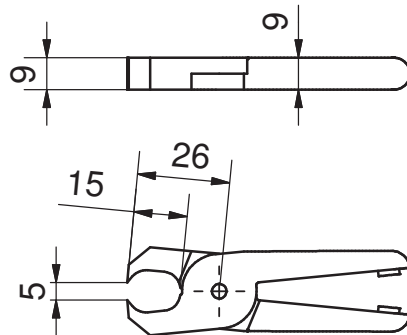
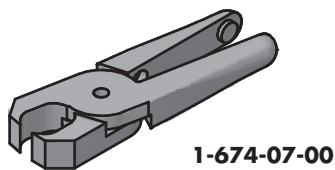
Remarks for the compatible types of Nipper Bodies ASN:

- HR hand operated round
- AR automatic round
- HRK hand operated round with power boost
- ARK automatic round with power boost
- AQ automatic square

Opening size of the Nipper Blades SESKO/50...:

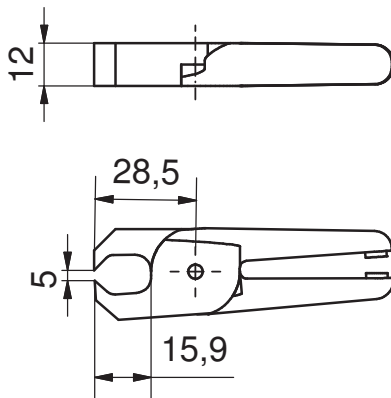
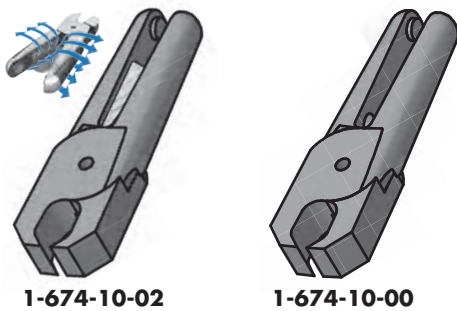
The first value is for use with an ASN 30 and the value in brackets for use with an ASN 50.

SEK-7 / Nipper Blades „Pinch“ for ASN 7



Part No.	Description	compatible with	Part No. for exchange spring	Material	Weight [g]
1-674-07-00	SEK7-14-9S	ASN 7...	1-690-90-01	Steel alloy	75

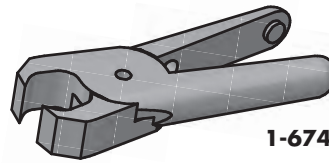
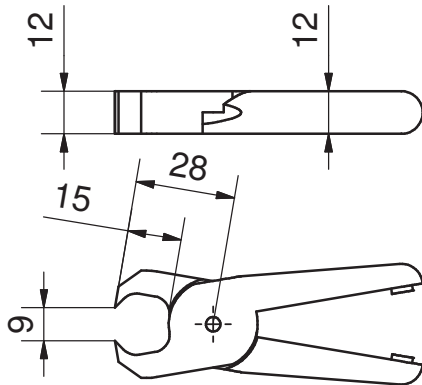
SEK-10 / Nipper Blades „Pinch“ for ASN 10



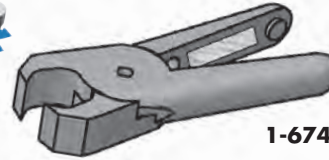
Part No.	Description	compatible with	Part No. for exchange spring	Material	Weight [g]
1-674-10-00	SEK10-15-12S	ASN 10...	1-690-90-01	Steel alloy	115
1-674-10-02	SEK10-15-12S Magnet	ASN 10...	Magnet return	Steel alloy	115

New

SEK-20 / Nipper Blades „Pinch“ for ASN 20



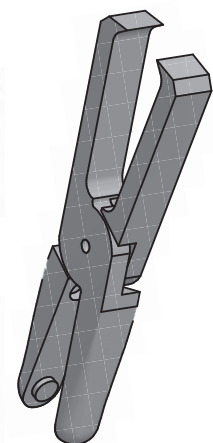
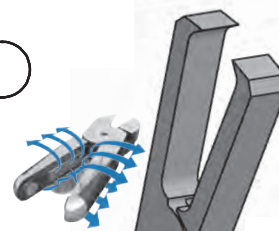
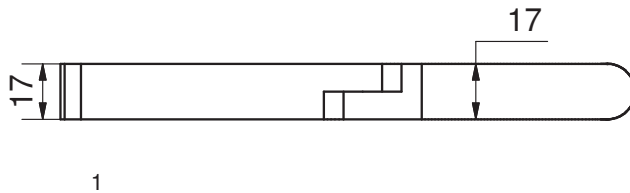
1-674-20-00



1-674-20-10

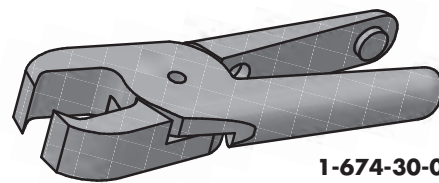
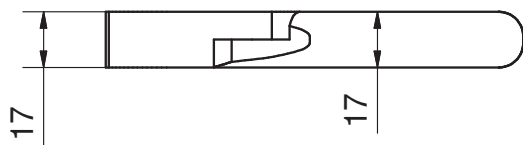
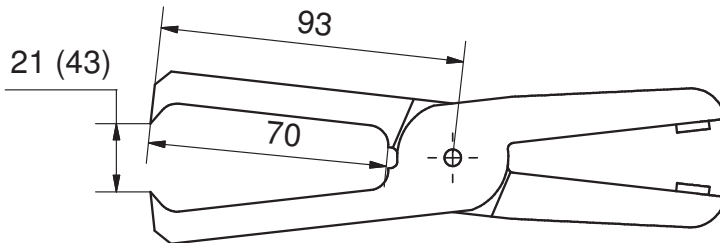
Part No.	Description	compatible with	Part No. for exchange spring	Material	Weight [g]
1-674-20-00	SEK20-15-12S	ASN 20...	1-690-90-02	Steel alloy	122
1-674-20-10	SEK20-15-12S Magnet	ASN 20...	Magnet return	Steel alloy	128

SEK-30-50 / Nipper Blades „Pinch“ for ASN 30-50

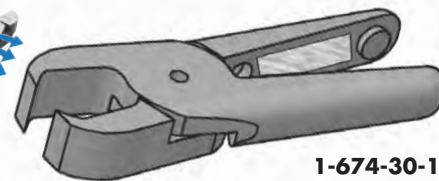
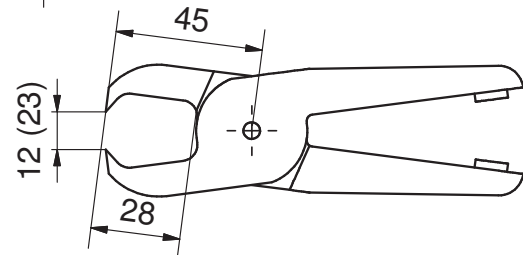


1-674-30-10

1-674-30-00



1-674-30-01



1-674-30-11

Part No.	Description	compatible with	Part No. for exchange spring	Material	Weight [g]
1-674-30-00	SEK30/50-70-17S	ASN 30/ASN 50...	1-690-90-03	Steel alloy	508
1-674-30-10	SEK30/50-70-17S Magnet	ASN 30/ASN 50...	Magnet return	Steel alloy	509
1-674-30-01	SEK30/50-28-17S	ASN 30/ASN 50...	1-690-90-03	Steel alloy	333
1-674-30-11	SEK30/50-28-17S Magnet	ASN 30/ASN 50...	Magnet return	Steel alloy	335

SEZ / Z-Form

Remarks:

„SEZ30/50-0-32S“

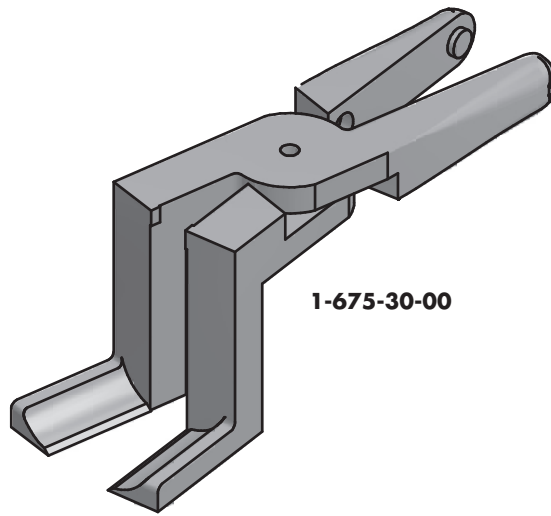
- SE cutter blade
- Z Z-form
- 30/50 for sprue cutter ASN 30/ASN 50...
- 0 angle
- 34 cutting surface
- S steel alloy
- H carbide

Remarks for the compatible types of Nipper Bodies ASN:

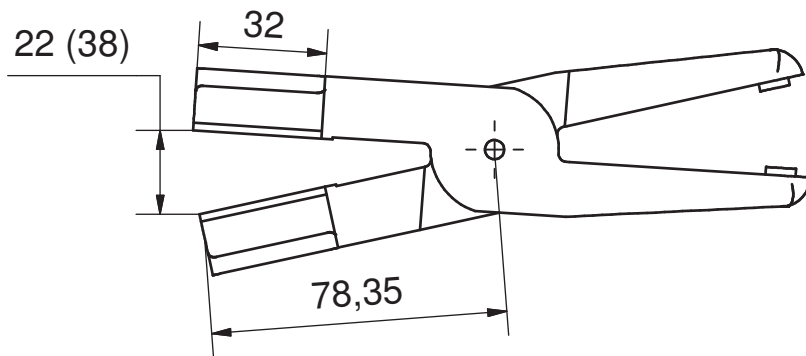
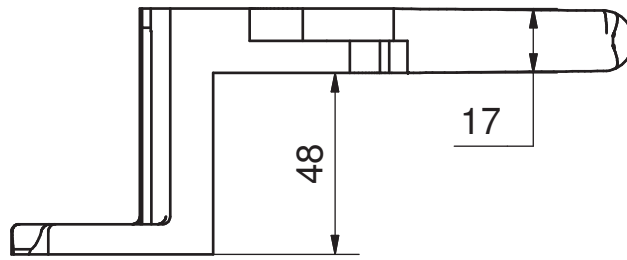
- HR hand operated round
- AR automatic round
- HRK hand operated round with power boost
- ARK automatic round with power boost
- AQ automatic square

Opening size of the Nipper Blades SEZ30/50...:

The first value is for use with an ASN 30 and the value in brackets for use with an ASN 50.



1-675-30-00



Part No.	Description	compatible with	Part No. for exchange spring	Material	Weight [g]
1-675-30-00	SEZ30/50-0-32S	ASN 30/ASN 50...	1-690-90-03	Steel alloy	588

SEG / Nipper Blades, Straight Form

Remarks:

„SEG20-0-18S“

- SE cutter blade
- G straight form
- 20 for sprue cutter ASN 20...
- 0 angle
- 18 cutting surface (B)
- S steel alloy
- H carbide

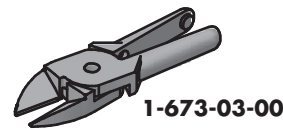
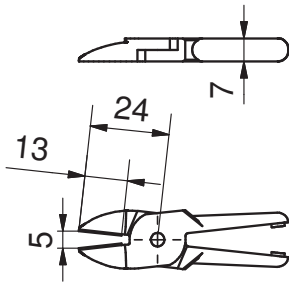
Remarks for the compatible types of Nipper Bodies ASN:

- HR hand operated round
- AR automatic round
- HRK hand operated round with power boost
- ARK automatic round with power boost
- AQ automatic square

Opening size of the Nipper Blades SEG30/50...:

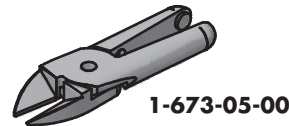
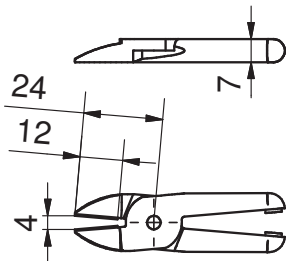
The first value is for use with an ASN 30 and the value in brackets for use with an ASN 50.

SEG-3 / Nipper Blades, Straight Form for ASN 3



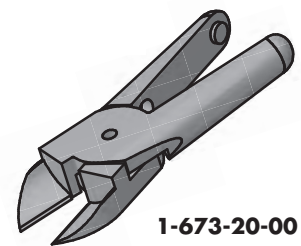
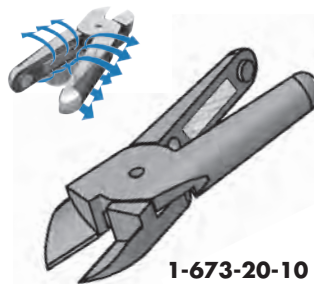
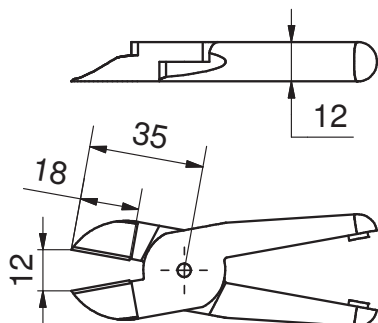
Part No.	Description	compatible with	Part No. for exchange spring	Material	Weight [g]
1-673-03-00	SEG3-0-12S	ASN 3...	1-690-90-00	Steel alloy	28

SEG-5 / Nipper Blades, Straight Form for ASN 5



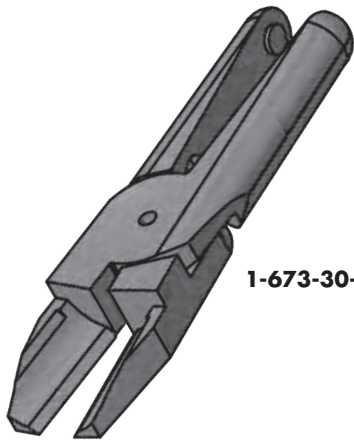
Part No.	Description	compatible with	Part No. for exchange spring	Material	Weight [g]
1-673-05-00	SEG5-0-12S	ASN 5 AQ	1-690-90-00	Steel alloy	32

SEG-20 / Nipper Blades, Straight Form for ASN 20



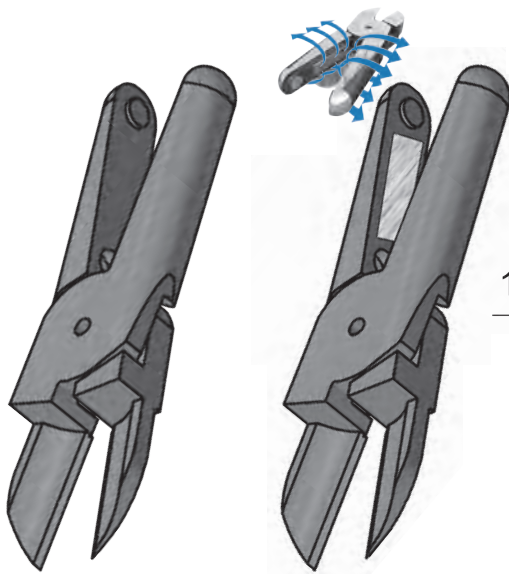
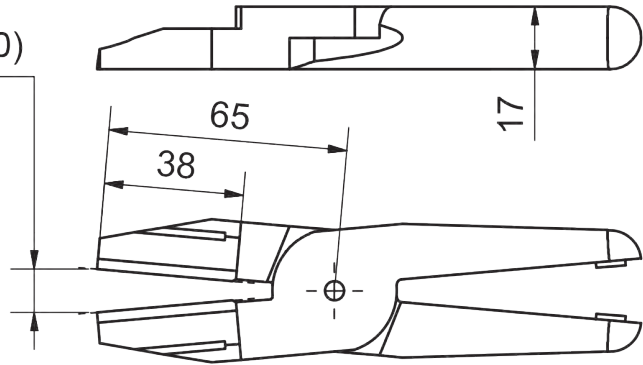
Part No.	Description	compatible with	Part No. for exchange spring	Material	Weight [g]
1-673-20-00	SEG20-0-18S	ASN 20...	1-690-90-02	Steel alloy	118
1-673-20-10	SEG20-0-18S Magnet	ASN 20...	Magnet return	Steel alloy	116

SEG-30-50 / Nipper Blades, Straight Form for ASN 30-50



1-673-30-03

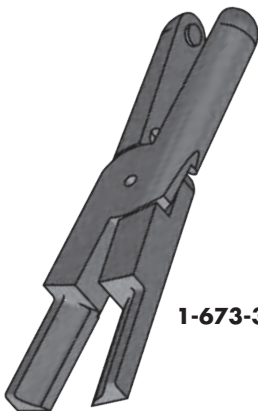
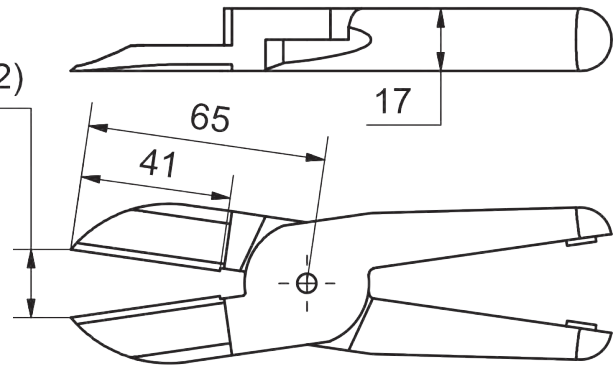
18 (30)



1-673-30-00

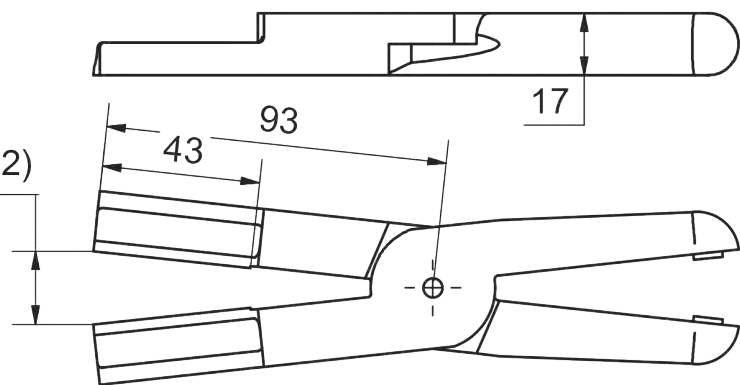
1-673-30-10

19 (32)



1-673-30-01

20 (42)

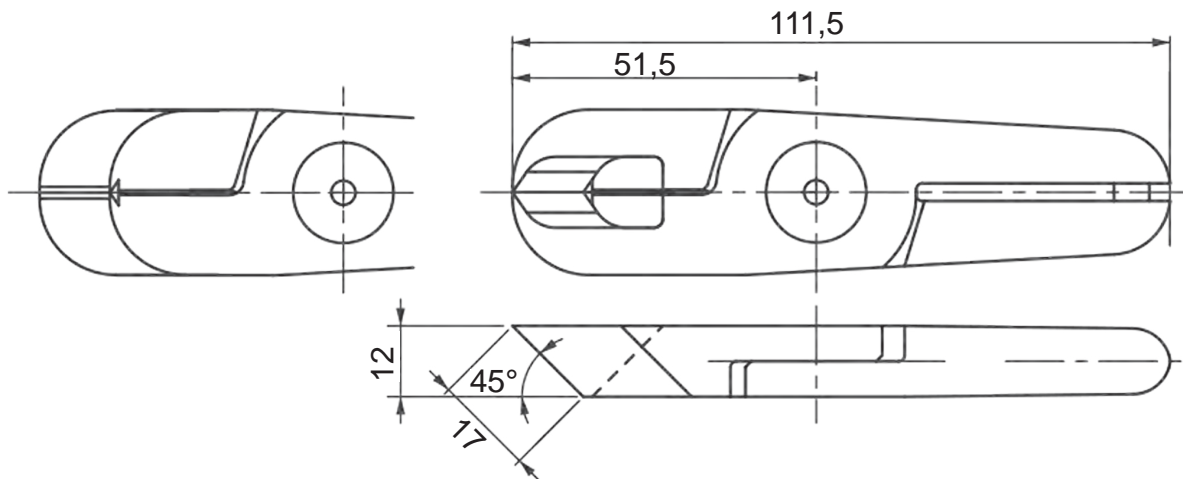
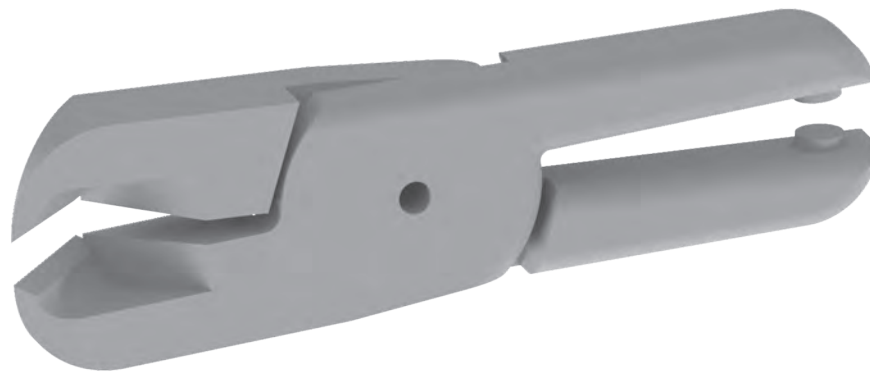


Part No.	Description	compatible with	Weight [g]	Part No. for exchange spring	Material
1-673-30-03	SEG30/50-0-37S	ASN 30/ASN 50...	395	1-690-90-03	Steel alloy
1-673-30-00	SEG30/50-0-41S	ASN 30/ASN 50...	338	1-690-90-03	Steel alloy
1-673-30-10	SEG30/50-0-41S Magnet	ASN 30/ASN 50...	338	Magnet return	Steel alloy
1-673-30-01	SEG30/50-0-43S	ASN 30/ASN 50...	497	1-690-90-03	Steel alloy

SEK 20-45-17 / Nipper Blade, Special Design, „Pinch“ 45°

Remarks:

- ▶ **Application:** Special Nipper Blade e.g. for pinching tasks
- suitable for Nipper Body ASN 20
- ▶ **Delivery time and price on request!**



Part No.	Description	compatible with	Material	Weight [g]
1-674-20-04	SEK20-45-17	ASN 20	Steel alloy	200

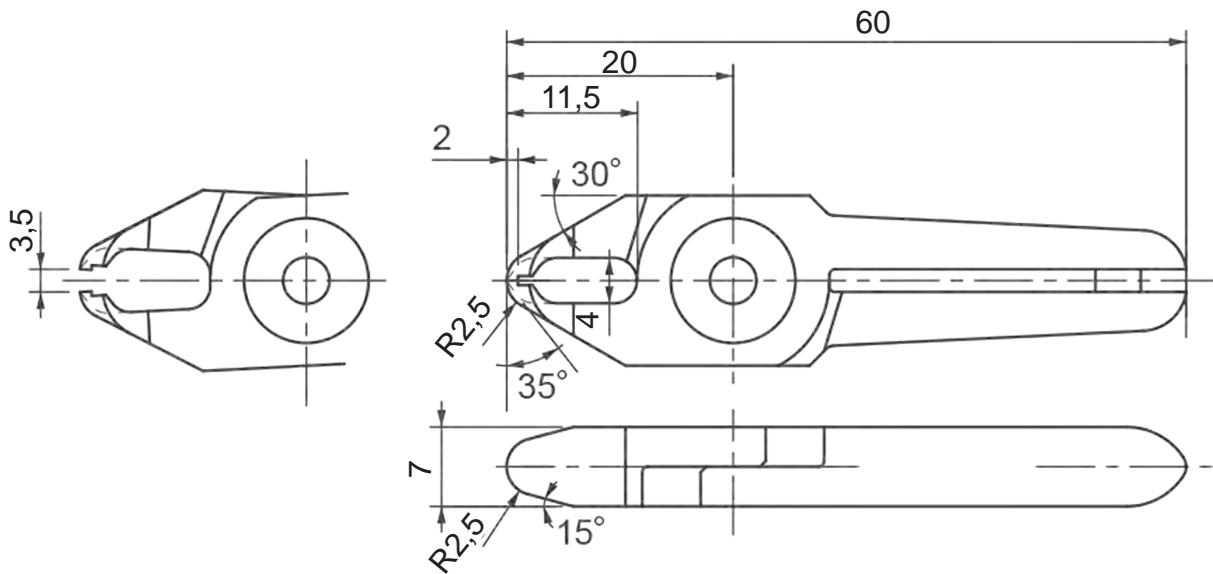
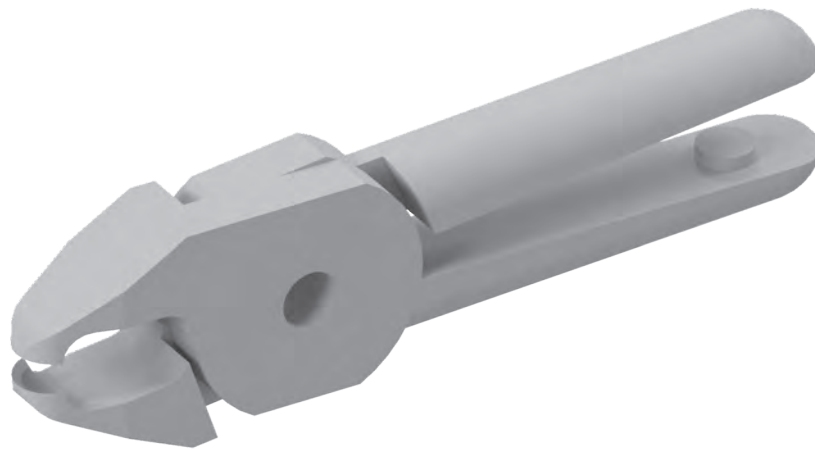
610 | Nipper Blades

SER 3-11,5-R2,5 / Nipper Blade, Special Design, Radius



Remarks:

- ▶ **Application:** Special Nipper Blade e.g. for marking products
- suitable for Nipper Body ASN 3
- ▶ **Delivery time and price on request!**



Part No.	Description	compatible with	Material	Weight [g]
1-676-03-00	SER3-11,5-R2,5	ASN 3	Steel alloy	34

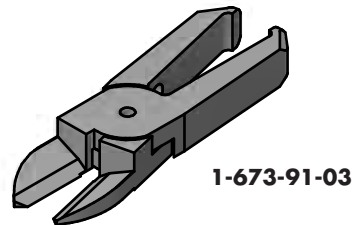
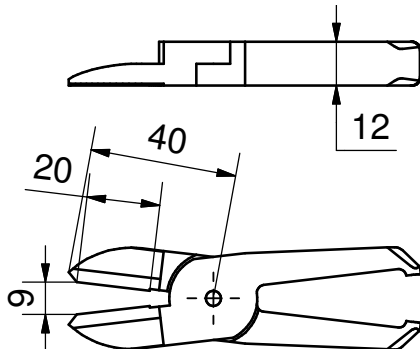
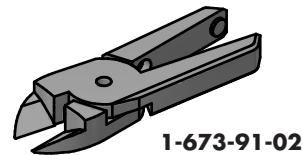
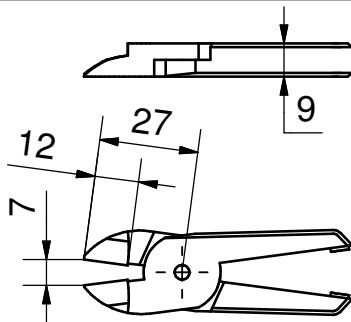
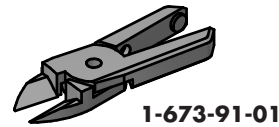
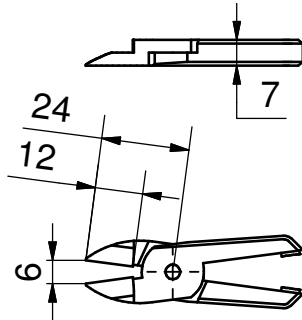
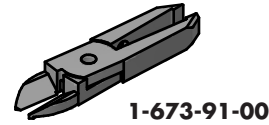
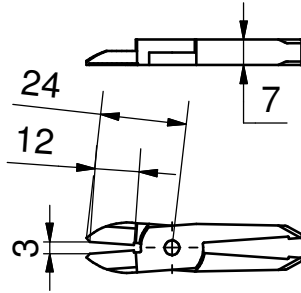
SEG ASN SE / Nipper Blades Straight for ASN SE

Remarks:

Nipper Blades only for usage with Nipper Bodies ASN SE!

"SEG-ASNSE3-0-11S"

SE cutter blade
G straight form
ASN SE for sprue cutter ASN SE
3 size
0 angle
11 cutting surface (B)
S steel alloy
H carbide



Part No.	Description	compatible with	Part No. for exchange spring	Material	Weight [g]
1-673-91-00	SEG-ASNSE3-0-11S	ASN SE 3	1-690-90-05	Steel alloy	21
1-673-91-01	SEG-ASNSE5-0-12S	ASN SE 5	1-690-90-00	Steel alloy	30
1-673-91-02	SEG-ASNSE10-0-12S	ASN SE 10	1-690-90-01	Steel alloy	62
1-673-91-03	SEG-ASNSE20-0-20S	ASN SE 20	1-690-90-06	Steel alloy	122

610 | Nipper Blades

SEG-ASN-ARD / Nipper Blades Straight Form for ASN ARD

Remarks:

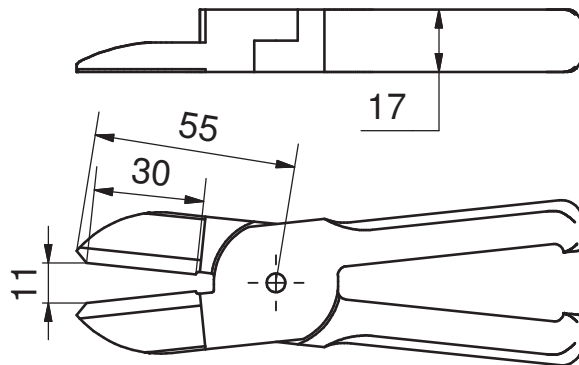
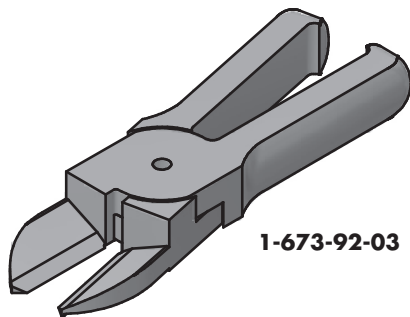
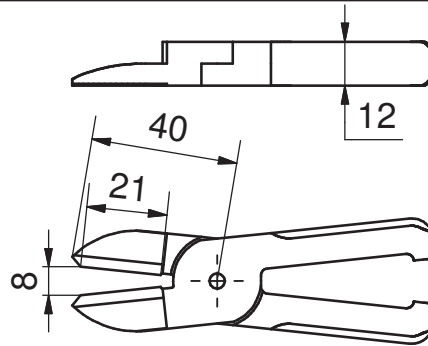
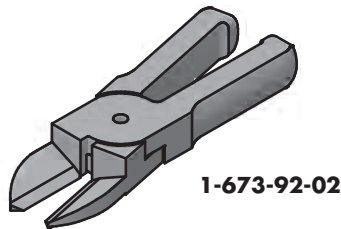
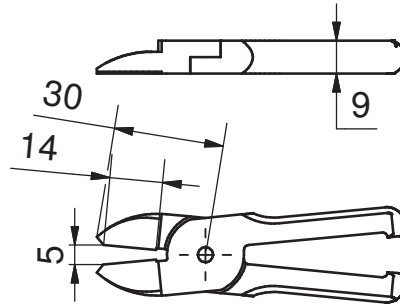
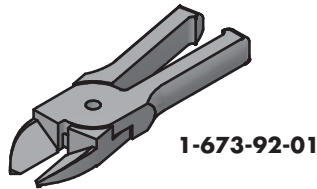
Nipper Blades only for usage with Nipper Bodies ASN-ARD!

Example „SEG-ASNARD10-0-14S“

SE cutter blade
G straight form

ASN ARD
10
0
14
S
H

for Sprue Cutter ASN ARD
size
angle
cutting surface (B)
steel alloy
carbide



Part No.	Description	compatible with	Material	Weight [g]
1-673-92-01	SEG-ASNARD10-0-14S	ASN 10 ARD	Steel alloy	76
1-673-92-02	SEG-ASNARD20-0-21S	ASN 20 ARD	Steel alloy	140
1-673-92-03	SEG-ASNARD30-0-29S	ASN 30 ARD	Steel alloy	369

SEF / Spare Springs for Cutter Blades

Part No.	Description	Wire thickness [mm]	Length (non compressed) [mm]
1-690-90-00	SEF 0-45x3-7x13	0.45	13
1-690-90-01	SEF 0-7x5-1x18	0.7	18
1-690-90-02	SEF 0-7x5-6x22-05	0.7	22.5
1-690-90-03	SEF 1x8x28	1	28
1-690-90-04	SEF 1x8-6x31	1	31
1-690-90-05	SEF0-5x3-8x14	0.5	14
1-690-90-06	SEF 0-8x5-5x23	0.8	23
1-690-90-07	SEF 1-2x9x29-5	1.2	29.5
1-690-90-08	SEF 1-2x9x37	1.2	37

New
New

SE... ARKS / Nipper Blades for ASN ARKS

Remarks:

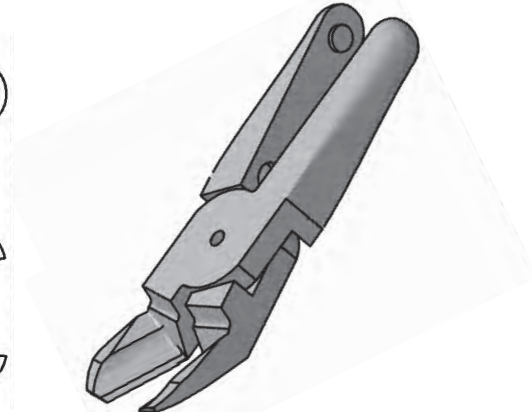
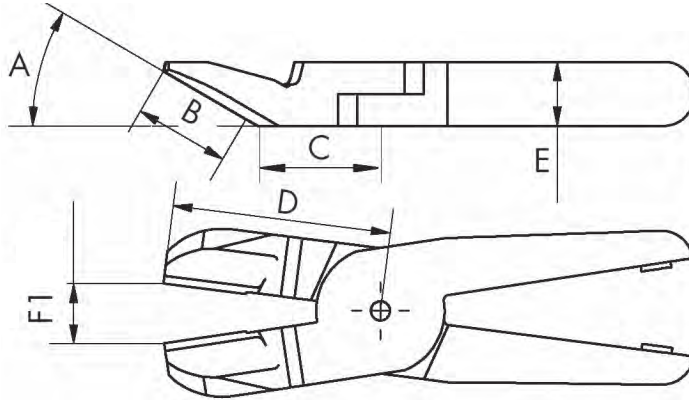
Nipper Blades only for usage with Nipper Bodies ASN ARKS

Part No. for exchange spring for blade type ARKS:
1-690-90-07

Example „SES-ARKS30-30-50S“

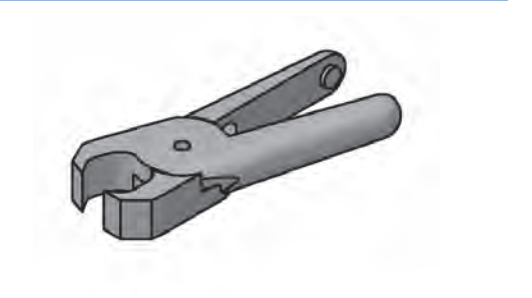
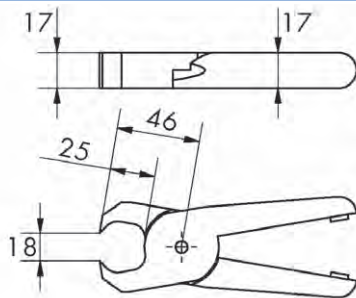
SE cutter blade
S/G/K standard / straight / pinch
ARKS for sprue cutter ASN ARKS
30 angle
30 length of cutter blade
S steel alloy

SES-ARKS / Nipper Blades Standard for ASN ARKS



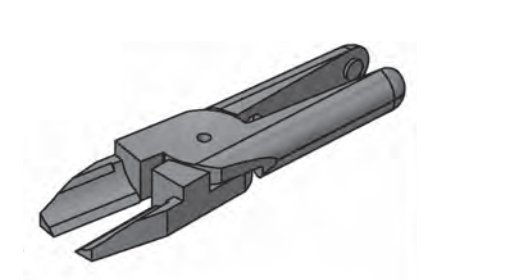
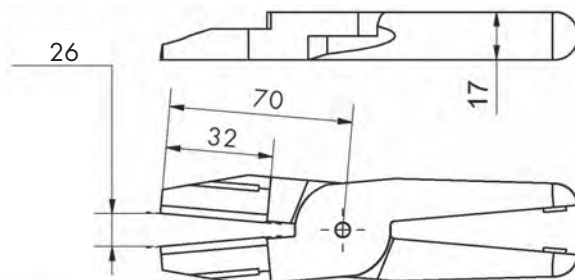
Part No.	Description	A [°]	B [mm]	C [mm]	D [mm]	E [mm]	F1 [mm]	compatible with	Material
1-661-01-00	SES-ARKS-30-30-50S	30	30	50	74	17	30	ASN ARKS	Steel alloy
1-661-02-00	SES-ARKS-30-30-30S	30	30	34	58	17	22	ASN ARKS	Steel alloy

SEK-ARKS / Nipper Blades „Pinch“ with Magnet for ASN ARKS



Part No.	Description	compatible with	Material
1-661-03-00	SEK-ARKS-25-17S	ASN ARKS	Steel alloy

SEG-ARKS / Nipper Blades, Straight Form for ASN ARKS



Part No.	Description	compatible with	Material
1-661-04-00	SEG-ARKS-0-32S	ASN ARKS	Steel alloy

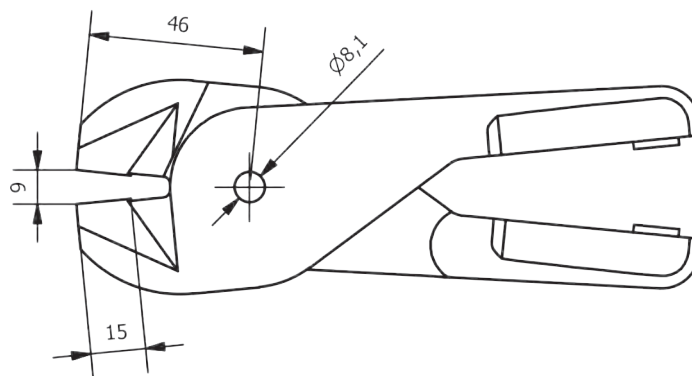
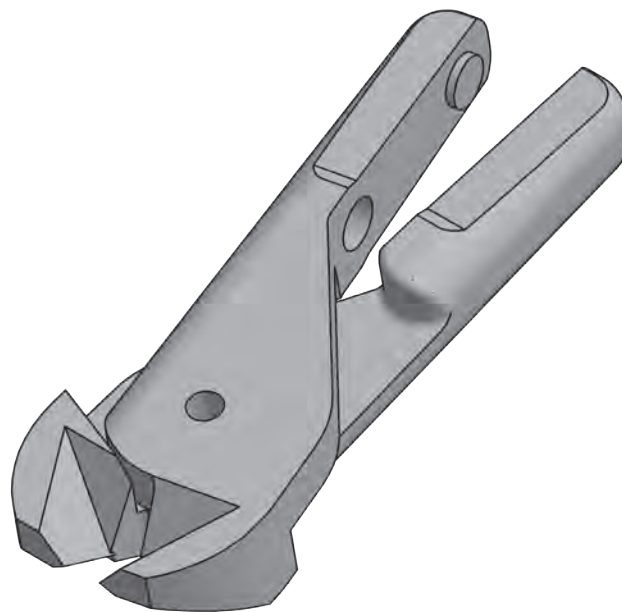
SEG-ASN-ARD / Nipper Blades for ASN 50 AR VS

Remarks:

Nipper Blades only for Nipper Type ASN 50 AR VS!

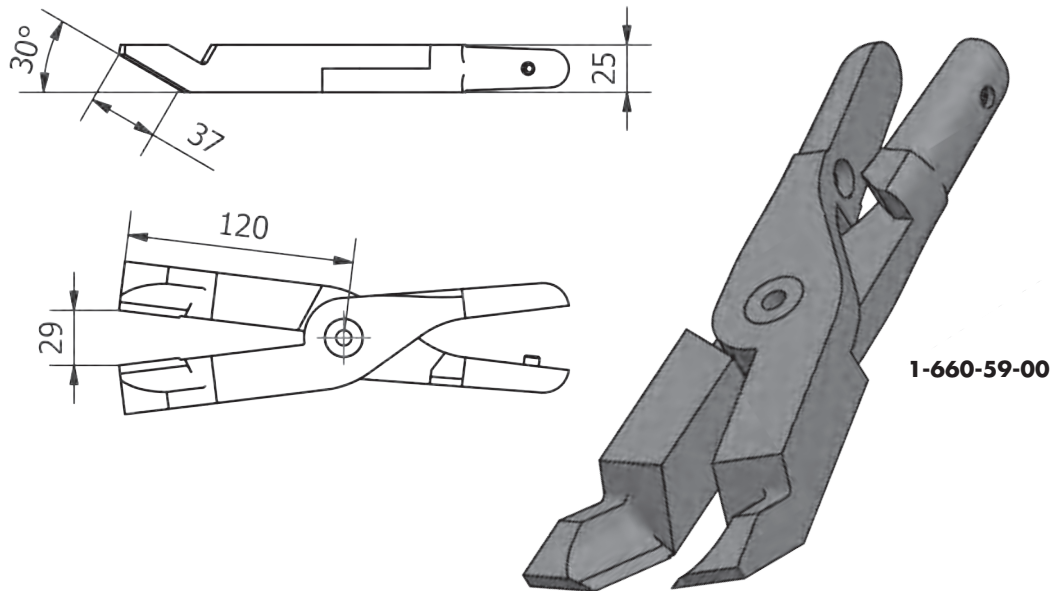
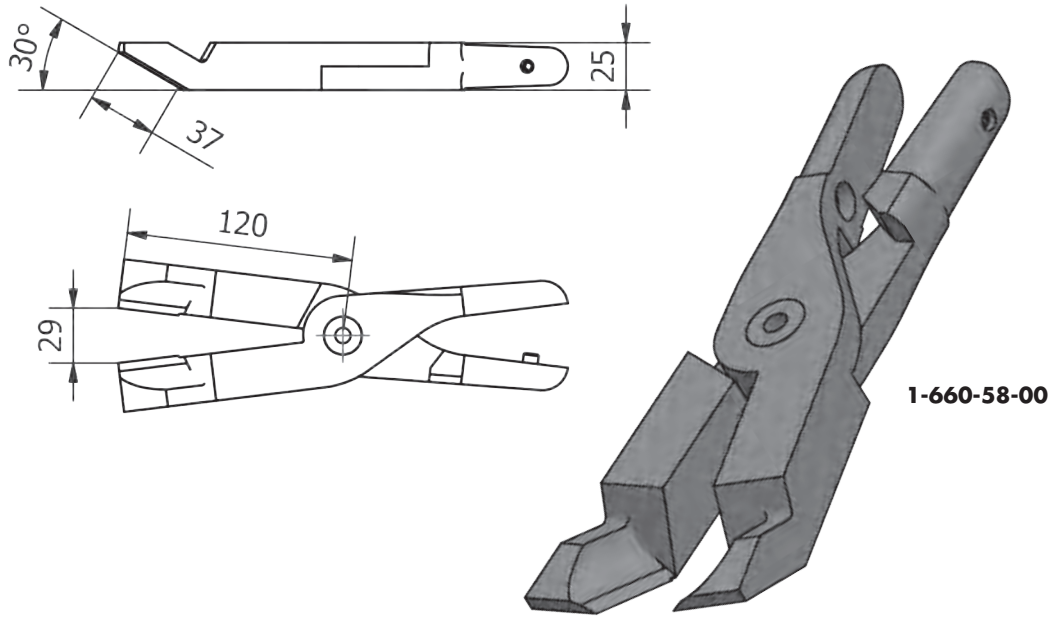
Part No. for exchange spring for blade type AR VS: 1-690-90-08

- SES 50-35-15H
Special nipper blade for metal wire
- Cutting ability:
Copper wire max. \varnothing 5,5mm
Steel wire (not hardened) max. \varnothing 4,5mm
- SES 50-30-37H and SES 50-30-37S
Nipper blade for Plastics or metal
- Cutting Ability:
Copper wire max. \varnothing 5,5mm
Steel wire (not hardened) max. \varnothing 4,5mm



Part No.	Description	compatible with	Material	Weight [g]
1-660-57-00	SES 50-35-15H	ASN 50 AR VS	Carbide	941

Nipper Blades for ASN 50 AR VS (Continuation)



Part No.	Description	compatible with	Material	Weight [g]
1-660-58-00	SES 50-30-37H	ASN 50 AR VS	Carbide	1548
1-660-59-00	SES 50-30-37S	ASN 50 AR VS	Steel alloy	1508

610 | Nipper Blades

SK / Nipper Blade Protectors



Remarks:

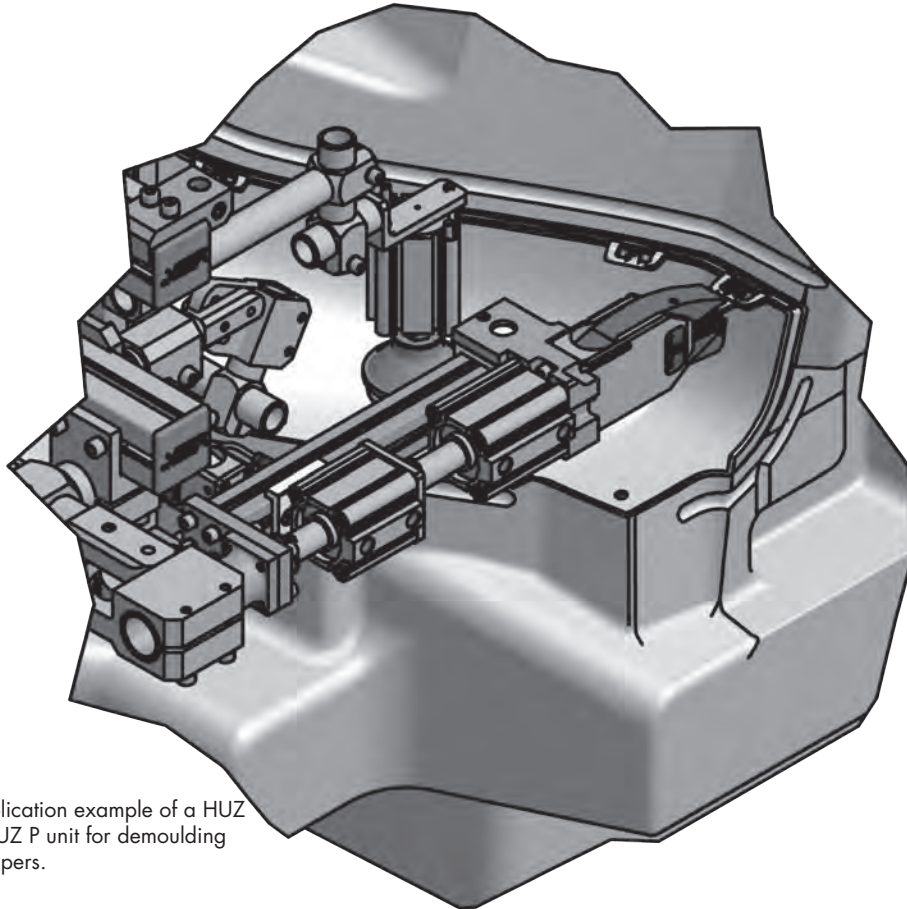
- ▶ **Application: protects against injury during set up and maintenance**
- fits easily on nipper blade
- material: Polyamide
- colour: Red
- » special or custom protectors on demand
- » production time: approx. 4 weeks
- » see application example

Nipper Blades		Suitable Blade Protectors SK
Part No.	Description	Part No.
1-671-03-00	SES3-15-11S	9-07-901-328-0
1-671-03-51	SES3-15-11H	9-07-901-328-0
1-671-10-01	SES10-15-16S	9-07-901-315-0
1-671-10-02	SES10-15-16S Magnet	9-07-901-315-0
1-671-10-03	SES10-15-35S	9-07-901-313-0
1-671-10-04	SES10-15-35S Magnet	9-07-901-313-0
1-671-10-05	SES10-40-13S	9-07-901-318-0
1-671-10-06	SES10-40-13S Magnet	9-07-901-318-0
1-671-10-51	SES10-40-13H	9-07-901-318-0
1-671-20-00	SES20-40-13S	9-07-901-219-0
1-671-20-01	SES20-23-25S	9-07-901-315-0
1-671-20-03	SES20-15-35S	9-07-901-313-0
1-671-20-04	SES20-40-32S	9-07-901-326-0
1-672-20-01	SEW20-90-18-62S	9-07-901-319-0
1-672-20-03	SEW20-90-34-50S	9-07-901-326-0
1-672-30-00	SEW30/50-90-35-50S	9-07-901-321-0
1-672-30-01	SEW30/50-90-41-65S	9-07-901-322-0
1-672-30-51	SEW30/50-90-25-50H	9-07-901-317-0
1-674-07-00	SEK7-14-9S	9-07-901-330-0
1-674-10-00	SEK10-15-12S	9-07-901-315-0
1-674-10-02	SEK10-15-12S Magnet	9-07-901-315-0
1-674-20-00	SEK20-15-12S	9-07-901-315-0
1-674-30-00	SEK30/50-70-17S	9-07-901-329-0
1-674-30-10	SEK30/50-70-17S Magnet	9-07-901-329-0
1-674-30-01	SEK30/50-28-17S	9-07-901-329-0
1-674-30-11	SEK30/50-28-17S Magnet	9-07-901-329-0
1-673-20-00	SEG20-0-18S	9-07-901-219-0
1-673-20-10	SEG20-0-18S Magnet	9-07-901-219-0
1-673-30-00	SEG30/50-0-41S	9-07-901-323-0
1-673-30-10	SEG30/50-0-41S Magnet	9-07-901-323-0

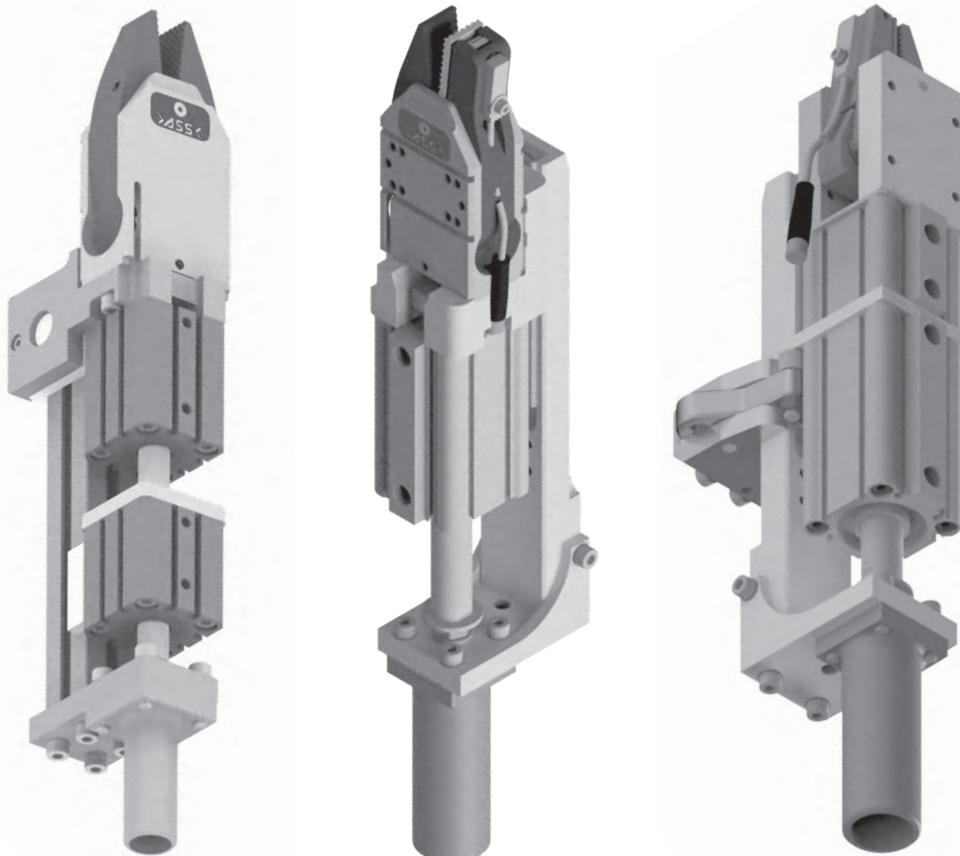
Blade Protectors SK on demand for following Nipper Blades:

Part No.	Description
1-671-05-00	SES5-15-11S
1-671-05-51	SES5-15-11H
1-671-07-00	SES7-40-10S
1-671-07-01	SES7-30-11S
1-671-07-51	SES7-30-11H
1-671-20-10	SES20-40-13S Magnet
1-671-20-02	SES20-15-16S
1-671-20-12	SES20-15-16S Magnet
1-671-20-51	SES20-40-13H
1-671-30-01	SES30/50-30-25S
1-671-30-11	SES30/50-30-25S Magnet
1-671-30-02	SES30/50-30-50S
1-671-30-03	SES30/50-15-38S
1-671-30-13	SES30/50-15-38S Magnet
1-671-30-04	SES30/50-60-32S
1-671-30-51	SES30/50-30-23H
1-671-30-05	SES30/50-30-44S
1-672-20-00	SEW20-90-18-45S
1-672-20-02	SEW20-90-16-40S
1-674-20-10	SEK20-15-12S Magnet
1-675-30-00	SEZ30/50-0-32S
1-673-03-00	SEG3-0-12S
1-673-05-00	SEG5-0-12S
1-673-30-03	SEG30/50-0-37S
1-673-30-01	SEG30/50-0-43S
1-676-03-00	SER3-11,5-R2,5
1-674-20-04	SEK20-45-17
1-673-91-00	SEG-ASNSE3-0-11S
1-673-91-01	SEG-ASNSE5-0-12S
1-673-91-02	SEG-ASNSE10-0-12S
1-673-91-03	SEG-ASNSE20-0-20S
1-673-92-01	SEG-ASN-ARD10-0-14S
1-673-92-02	SEG-ASN-ARD20-0-21S
1-673-92-03	SEG-ASN-ARD30-0-29S
1-661-01-00	SES-ARKS-30-30-50S
1-661-02-00	SES-ARKS-30-30-30S
1-661-03-00	SEK-ARKS-25-17S
1-661-04-00	SEG-ARKS-0-32S
1-660-57-00	SES 50-35-15H
1-660-58-00	SES 50-30-37H
1-660-59-00	SES 50-30-37S

Application examples HUZ / HUZ-P / ZSM-HUZ PZ



Application example of a HUZ / HUZ P unit for demoulding bumpers.



Different versions and sizes of HUZ units (from the left): HUZ 25 D with double stroke, HUZ-P 25 CS with single stroke and monitoring, Stopover ZSM-HUS PZ mounted on HUZ-P 25 CS

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

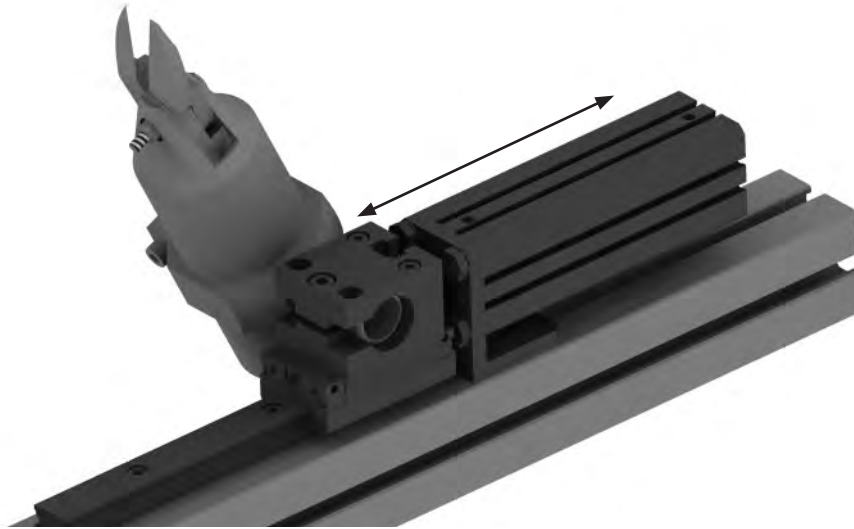
700
Special Elements

800
Electric and Sensors

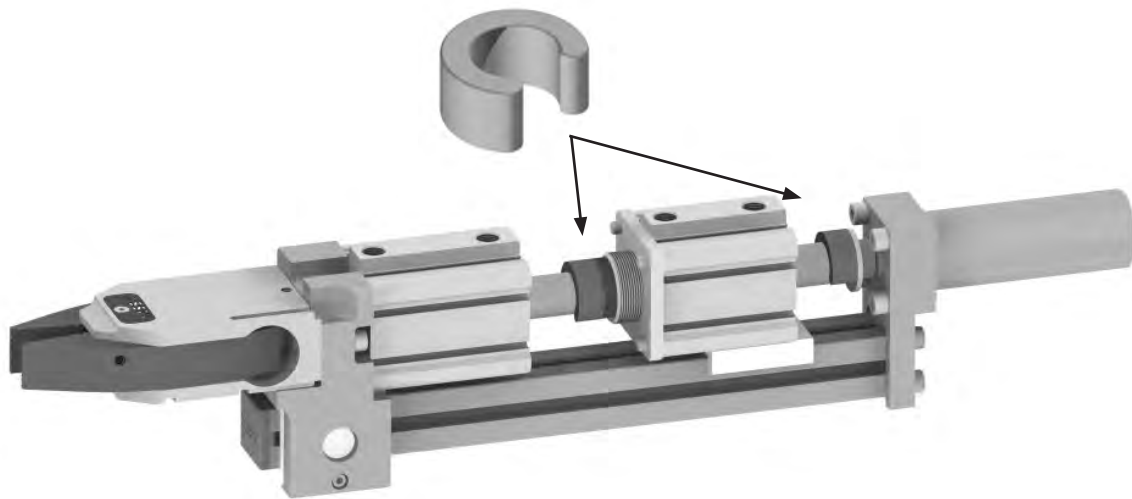
850
Pneumatic

990
Other PA-Forming

Application example HUE

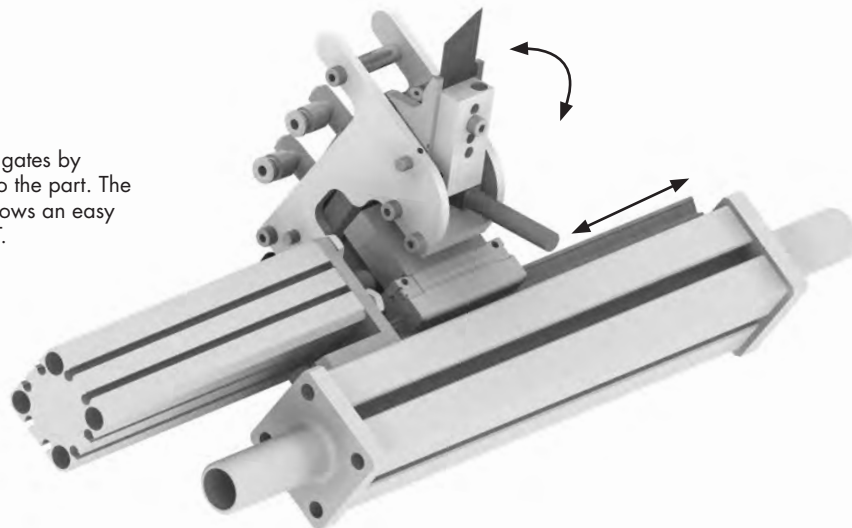


Application example DB

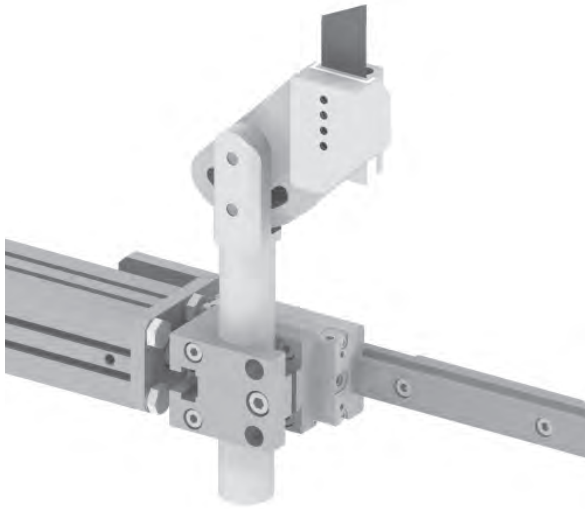


Application example KHR-S and DKZ JU

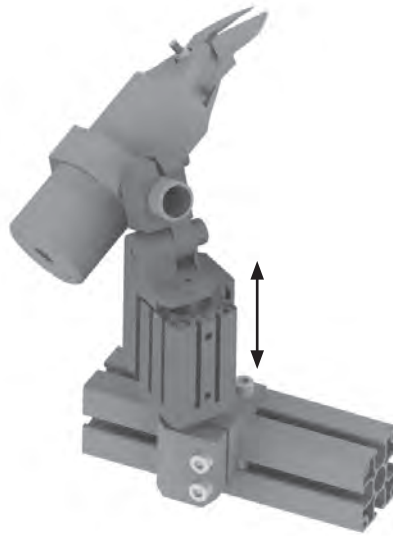
Precise cutting of film gates by swivelling the blade to the part. The mounting bar DKZ allows an easy mounting to the EOAT.



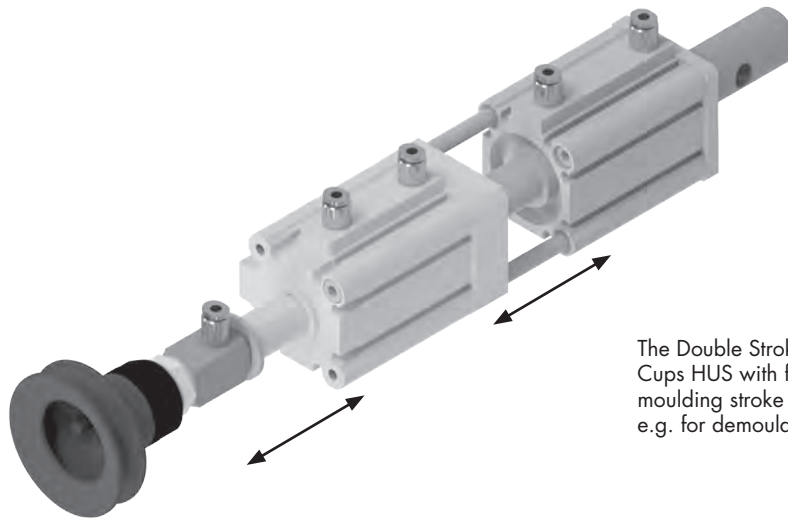
Application example KHR



Application example ZHG/ZHD



Application example HUS



The Double Stroke Unit for Vacuum Cups HUS with feeding and de-moulding stroke gives a strong hold e.g. for demoulding bumpers.

Application example DPL



Application example ZTB



000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special Elements

800
Electric and Sensors

850
Pneumatic

Application example SZD



Application example KHZ + DPL



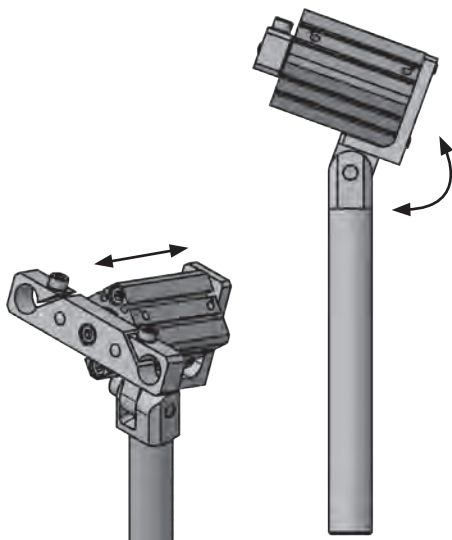
Application example ADZ



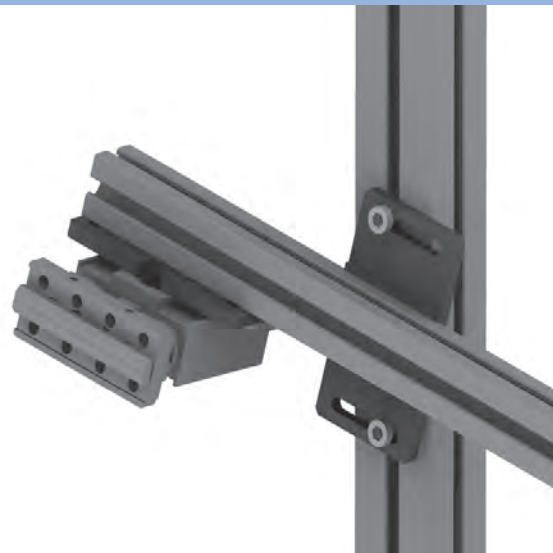
Application example GAZ



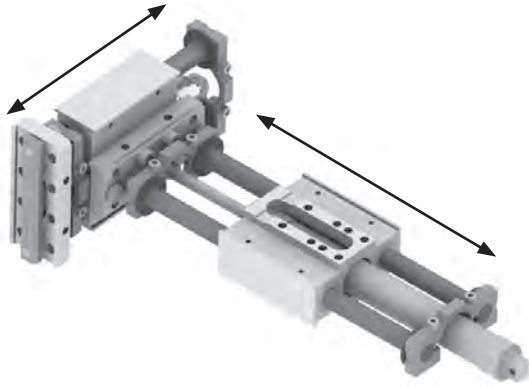
Application example GAZ S



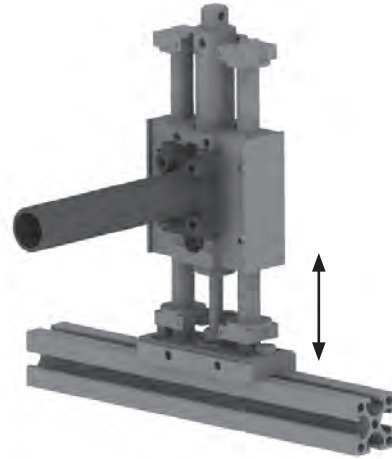
Application example GP-HEU



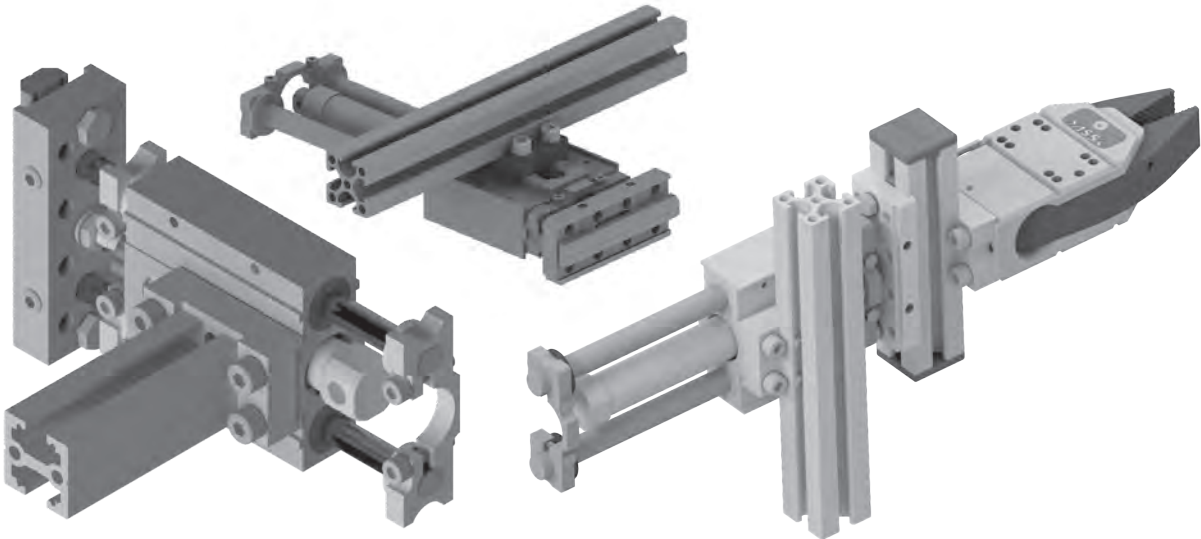
Application example HEU



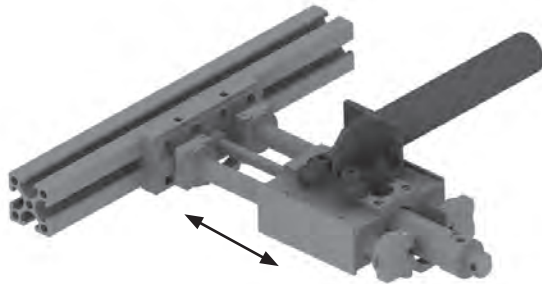
Application example AE-HEU



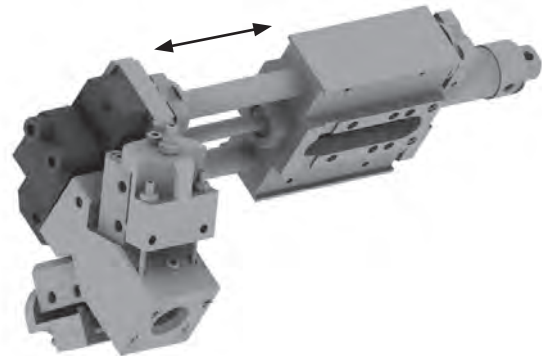
Application examples AP-HEU



Application example AU-HEU



Application example KN-HEU



000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special Elements

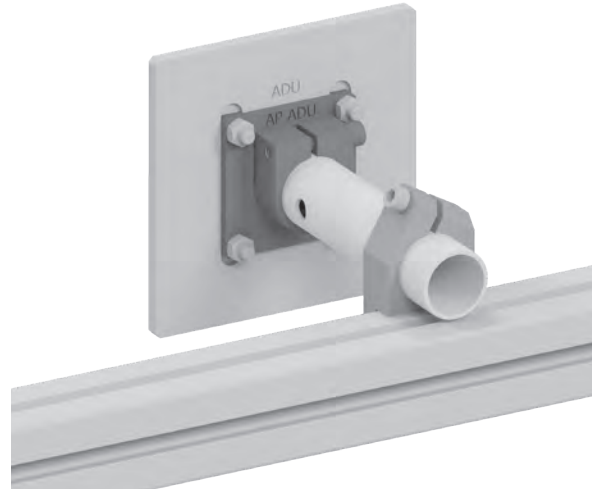
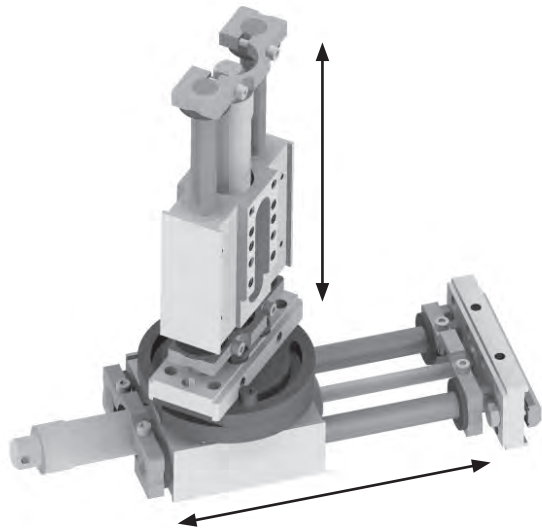
800
Electric and Sensors

850
Pneumatic

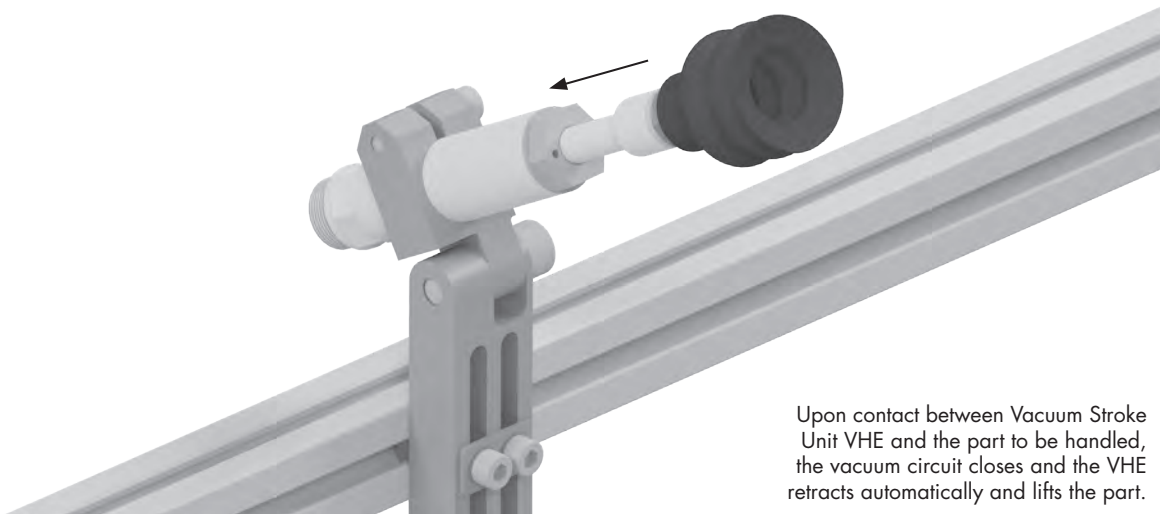
990
Other PA-Forming

Application example HEU A XY

App. example ADU / AP ADU



Application example VHE 20



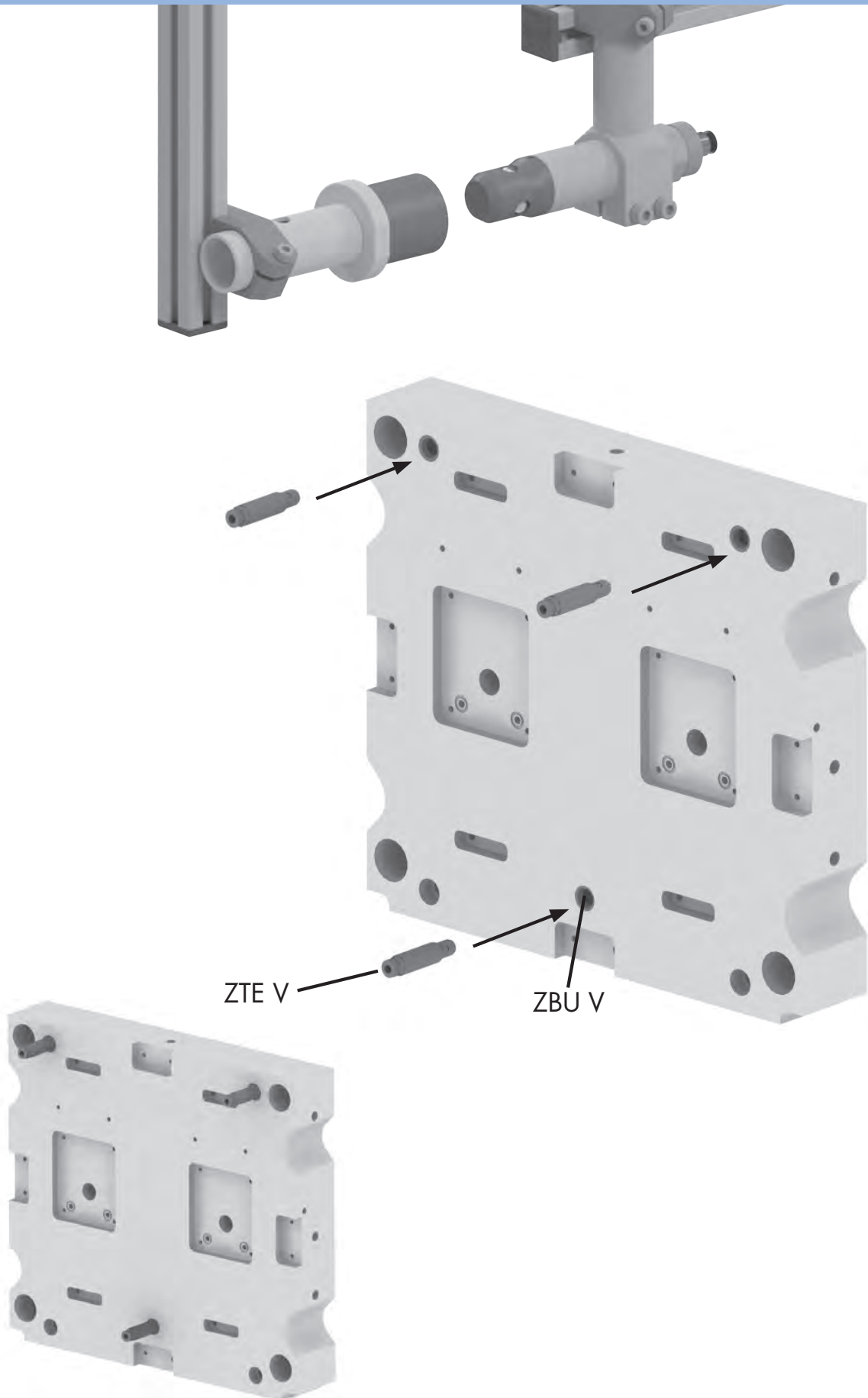
Upon contact between Vacuum Stroke Unit VHE and the part to be handled, the vacuum circuit closes and the VHE retracts automatically and lifts the part.

Application example SF

Application example SFP



Application example ZTE



000
Quick Change
System

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

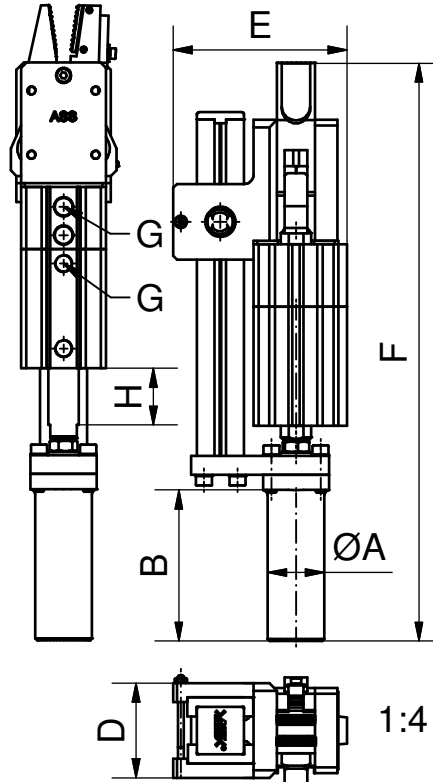
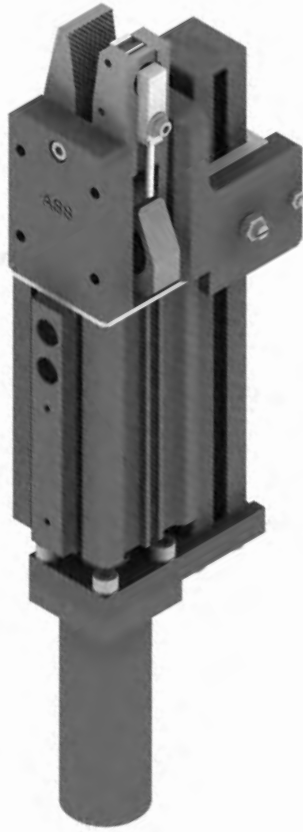
610
Nipper Blades

700
Special
Elements

800
Electric and
Sensors

850
Pneumatic

HUZ / Gripper with Stroke



Remarks:

- ▶ **Application: strong double-acting gripper on stroke for demolding tasks**
- double-acting gripper
- end positions of cylinders can be monitored
 - » closing force measured at the point of the jaws at 6 bar
 - » maximum air pressure is 6 bar, use dry and filtered air only

Variants:

- C part present sensor IEK 8
- CS part present sensor IES 8

Accessories e.g.:

- Sensor ICS 8 for monitoring cylinder (Part No. 1-808-36-00)
- Stroke Reducer DB

Part No.	Description	closing force max. [N]	All pistons Ø [mm]	Part present	Part present with plug	Stroke H [mm]
1-740-12-00	HUZ 32-30	350	32			30
1-740-15-00	HUZ 32-30 C	350	32	x		30
1-740-18-00	HUZ 32-30 CS	350	32		x	30
1-740-21-00	HUZ 32-40	350	32			40
1-740-24-00	HUZ 32-40 C	350	32	x		40
1-740-27-00	HUZ 32-40 CS	350	32		x	40

Part No.	Description	A [mm]	B [mm]	D [mm]	E [mm]	F Default position [mm]	G ["]	Weight [g]
1-740-12-00	HUZ 32-30	30	80	50	92	304	G1/8	1334
1-740-15-00	HUZ 32-30 C	30	80	50	92	307	G1/8	1397
1-740-18-00	HUZ 32-30 CS	30	80	50	92	307	G1/8	1364
1-740-21-00	HUZ 32-40	30	80	50	92	314	G1/8	1389
1-740-24-00	HUZ 32-40 C	30	80	50	92	317	G1/8	1505
1-740-27-00	HUZ 32-40 CS	30	80	50	92	317	G1/8	1473

HUZ D / Gripper with Double Stroke

Remarks:

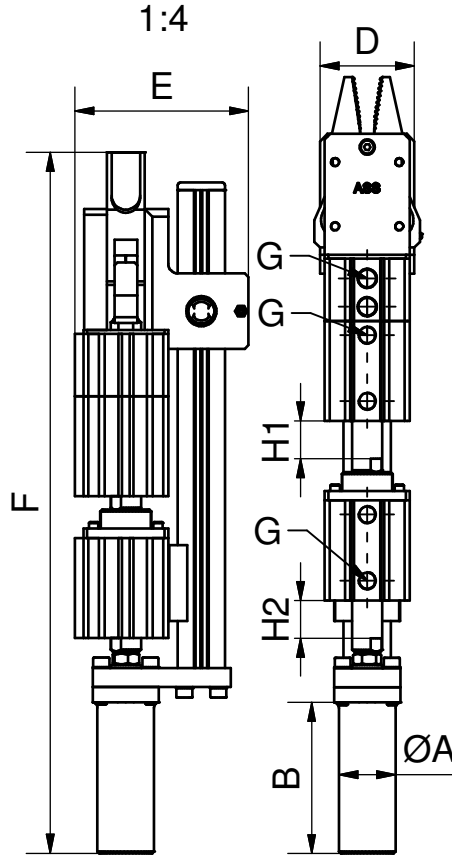
- ▶ **Application: strong double-acting gripper on double-stroke (feeding and demoulding stroke), e.g. for demoulding bumpers**
- double-acting gripper
- end positions of cylinders can be monitored
- » closing force measured at the point of the jaws at 6 bar
- » maximum air pressure is 6 bar, use dry and filtered air only

Variants:

- C part present sensor IEK 8
- CS part present sensor IES 8

Accessories e.g.:

- Sensor ICS 8 for monitoring cylinder (Part No. 1-808-36-00)
- Stroke Reducer DB



Part No.	Description	closing force max. [N]	All pistons Ø [mm]	Part present	Part present with plug	Stroke H1 [mm]	Stroke H2 [mm]
1-740-54-00	HUZ 32-20-10 C	350	32	x		20	10
1-740-57-00	HUZ 32-20-10 CS	350	32		x	20	10
1-740-64-00	HUZ 32-20-20 C	350	32	x		20	20
1-740-67-00	HUZ 32-20-20 CS	350	32		x	20	20
1-740-74-00	HUZ 32-20-30 C	350	32	x		20	30
1-740-77-00	HUZ 32-20-30 CS	350	32		x	20	30

Part No.	Description	A [mm]	B [mm]	D [mm]	E [mm]	F Default position [mm]	G ["]	Weight [g]
1-740-54-00	HUZ 32-20-10 C	30	80	50	92	361	G1/8	1770
1-740-57-00	HUZ 32-20-10 CS	30	80	50	92	361	G1/8	1648
1-740-64-00	HUZ 32-20-20 C	30	80	50	92	371	G1/8	1731
1-740-67-00	HUZ 32-20-20 CS	30	80	50	92	371	G1/8	1756
1-740-74-00	HUZ 32-20-30 C	30	80	50	92	381	G1/8	1788
1-740-77-00	HUZ 32-20-30 CS	30	80	50	92	381	G1/8	1762

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

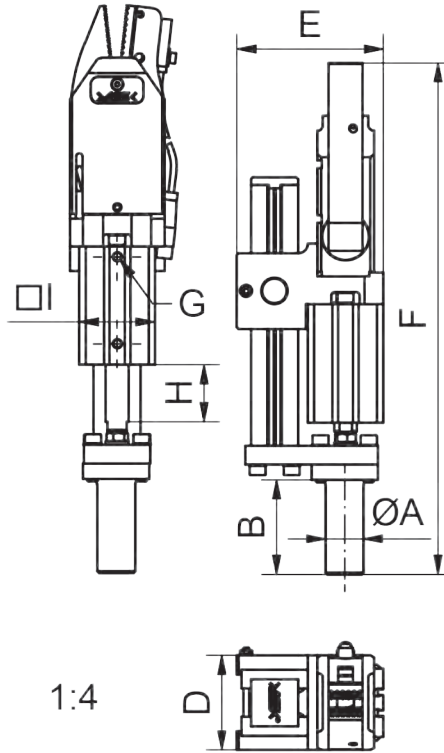
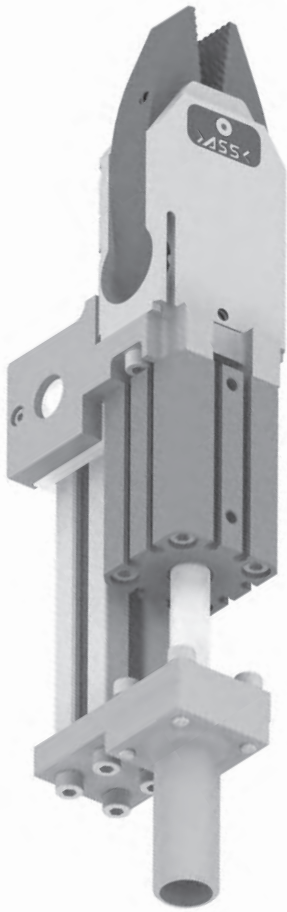
610
Nipper Blades

700
Special Elements

800
Electric and Sensors

850
Pneumatic

HUZ 25 / GRZ 25 with Stroke



Remarks:

► **Application: strong gripper GRZ 25 on stroke for demoulding tasks**

- compact and lightweight design
- end positions of cylinders can be monitored
- single-acting gripper
- end position of gripper jaws can be monitored
- » closing force measured at the point of the jaws at 6 bar
- » maximum air pressure is 6 bar, use dry and filtered air only

Variants:

- CS part present sensor IES 8
- Option clamping Ø 20mm

Accessories e.g.:

- Sensor ICS 8 for monitoring cylinder (Part No. 1-808-36-00)
- Sensor MFS T2 for monitoring GRZ 25 (Part No. 1-808-30-00)
- Stroke Reducer DB
- Gripper Jaws for GRZ 25

Part No.	Description	closing force max. [N]				Piston Ø [mm]	Part present sensor with plug	Stroke H [mm]
1-741-30-00	HUZ 25-30 with option	350				25		30
1-741-31-00-1	HUZ 25-30 CS with option	350				25	x	30
1-742-30-00	HUZ 25 32-30 with option	350				32		30
1-742-31-00-1	HUZ 25 32-30 CS with option	350				32	x	30

Part No.	Description	A [mm]	B [mm]	D [mm]	E [mm]	F Default position [mm]	G ["] [mm]	I [mm]	Weight [g]
1-741-30-00	HUZ 25-30 with option	20	50	50	77,5	270	M5	40	960
1-741-31-00-1	HUZ 25-30 CS with option	20	50	50	77,5	270	M5	40	992
1-742-30-00	HUZ 25 32-30 with option	20	50	50	82,5	282	G1/8	45	1074
1-742-31-00-1	HUZ 25 32-30 CS with option	20	50	50	82,5	282	G1/8	45	1086

HUZ 25 D / GRZ 25 with Double Stroke

Remarks:

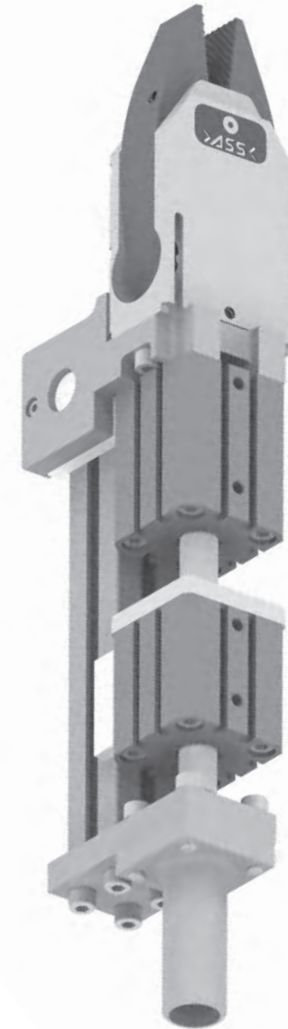
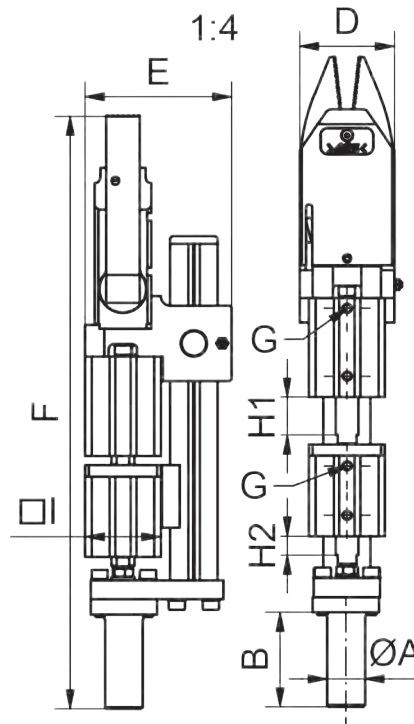
- ▶ **Application: strong gripper GRZ 25 on double-stroke (feeding and demoulding stroke), e.g. for demoulding bumpers**
- compact and lightweight design
- end positions of cylinders can be monitored
- single-acting gripper
- end position of gripper jaws can be monitored
- » closing force measured at the point of the jaws at 6 bar
- » maximum air pressure is 6 bar, use dry and filtered air only

Variants:

- CS part present sensor IES 8
- Option clamping Ø 20mm

Accessories e.g.:

- Sensor ICS 8 for monitoring cylinder (Part No. 1-808-36-00)
- Sensor MFS T2 for monitoring GRZ 25 (Part No. 1-808-30-00)
- Stroke Reducer DB
- Gripper Jaws for GRZ 25



Part No.	Description	closing force max. [N]	Piston Ø H1 [mm]	Piston Ø H2	Part present with plug	Stroke H1 [mm]	Stroke H2 [mm]
1-741-32-00	HUZ 25-20-10 with option	350	25	25		20	10
1-741-33-00-1	HUZ 25-20-10 CS with option	350	25	25	x	20	10
1-742-32-00	HUZ 25 32-30-10 with option	350	32	32		30	10
1-742-33-00-1	HUZ 25 32-30-10 CS with option	350	32	32	x	30	10
1-742-34-00	HUZ 25 32-30-20	350	32	32		30	20

Part No.	Description	A [mm]	B [mm]	D [mm]	E [mm]	F Default position [mm]	G ["] [mm]	I [mm]	Weight [g]
1-741-32-00	HUZ 25-20-10 with option	20	50	50	77,5	313	M5	40	1213
1-741-33-00-1	HUZ 25-20-10 CS with option	20	50	50	77,5	313	M5	40	1186
1-742-32-00	HUZ 25 32-30-10 with option	20	50	50	82,5	345	G1/8	45	1428
1-742-33-00-1	HUZ 25 32-30-10 CS with option	20	50	50	82,5	345	G1/8	45	1433
1-742-34-00	HUZ 25 32-30-20	30	80	50	82,5	387	G1/8	45	1505

000 Quick Change System

050 Profile-Channel Nut

100 Clamps

115 Tubular Clamps

120 Profile Connectors

190 Accessories-Profile

200 Vacuum Cup-Connectors

220 Vacuum Cups

224 Vacuum Cups-Special

230 Manifold

290 Adapter

300 Gripper Arms

400 Grippers

450 Gripper Fingers

600 Nipper Bodies

610 Nipper Blades

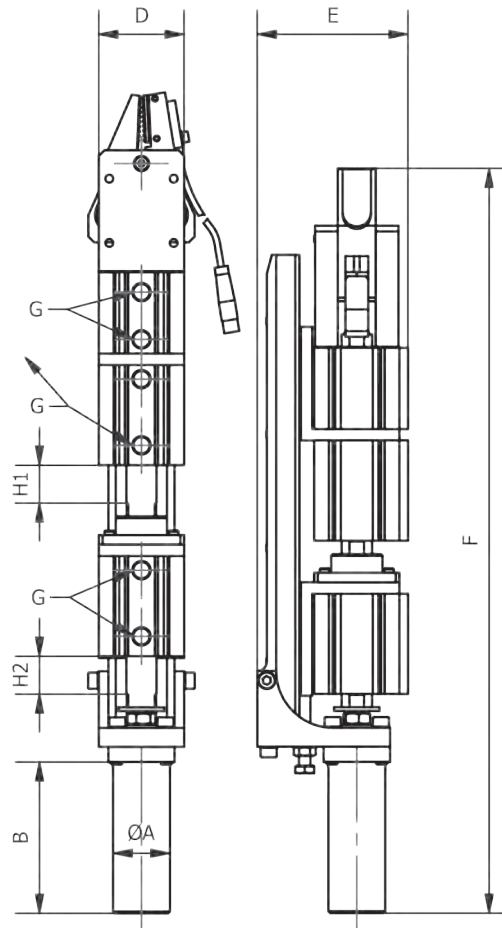
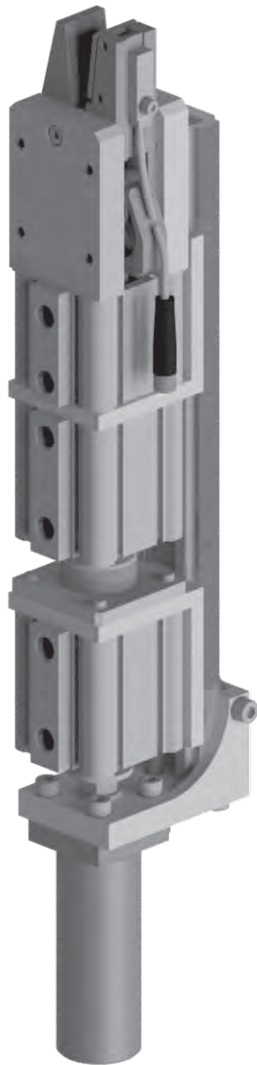
700 Special Elements

800 Electric and Sensors

850 Pneumatic

990 Other PA-Forming

HUZ-P D / Gripper with Double Stroke, Precision Slide



Remarks:

► **Application: strong double-acting gripper on double-stroke (feeding and demoulding stroke) with precision slide, e.g. for demoulding bumpers**

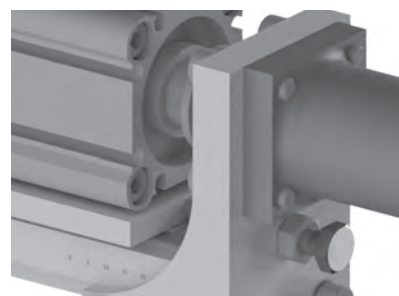
- new sliding guide
- free from floating due to spring-loaded sliding elements
- wear is compensated by spring
- double-acting gripper
- end positions of cylinders can be monitored
 - » closing force measured at the point of the jaws at 6 bar
 - » maximum air pressure is 6 bar, use dry and filtered air only

Variants:

- C part present sensor IEK 8
- CS part present sensor IES 8

Accessories e.g.:

- Sensor ICS 8 for monitoring cylinder (Part No. 1-808-36-00)
- Stroke Reducer DB



Demoulding stroke can be adjusted stepless. Scale reduces setup time and optimizes reproducibility.

Part No.	Description	Closing force max. [N]	Pistons Ø [mm]	Part present control with plug	Stroke H1 [mm]	Stroke H2 [mm]
1-739-67-00	HUZ-P 32-20-20 CS	350	32	x	20	20

Part No.	Description	A [mm]	B [mm]	D [mm]	E [mm]	F Default position [mm]	G ["]	Weight [g]
1-739-67-00	HUZ-P 32-20-20 CS	30	80	45	80	390	G1/8	1933

HUZ-P 25 D / Gripper with Double Stroke, Precision Slide

Remarks:

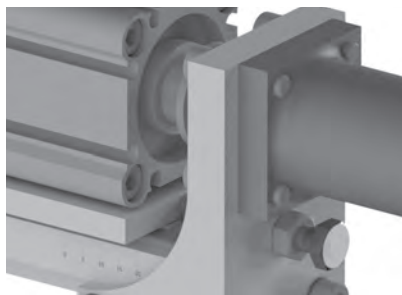
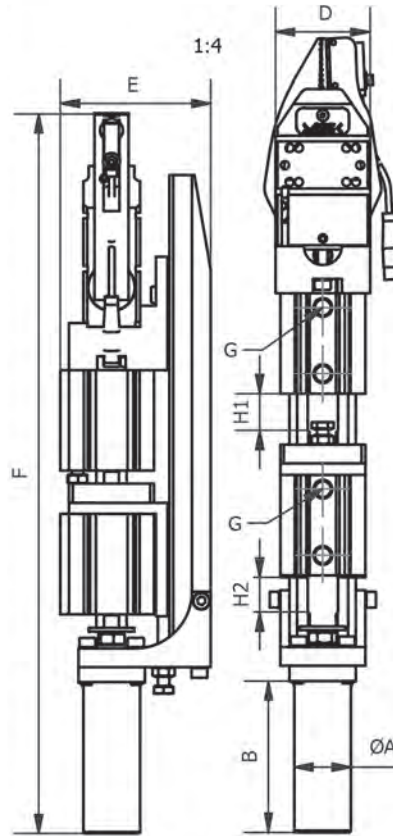
- ▶ **Application: strong gripper GRZ 25 on double-stroke (feeding and demoulding stroke) with precision slide, e.g. for demoulding bumpers**
- new sliding guide
- free from floating due to spring-loaded sliding elements
- wear is compensated by spring
- compact and lightweight design
- end positions of cylinders can be monitored
- single-acting gripper
- end position of gripper jaws can be monitored
- » closing force measured at the point of the jaws at 6 bar
- » maximum air pressure is 6 bar, use dry and filtered air only

Variants:

CS part present sensor IES 8

Accessories e.g.:

- Sensor ICS 8 for monitoring cylinder (Part No. 1-808-36-00)
- Sensor MFS T2 for monitoring GRZ 25 (Part No. 1-808-30-00)
- Stroke Reducer DB
- Gripper Jaws for GRZ 25



Demoulding stroke can be adjusted stepless. Scale reduces setup time and optimizes reproducibility.

Part No.	Description	Closing force max. [N]	Pistons Ø [mm]	Part present control with plug	Stroke H1 [mm]	Stroke H2 [mm]
1-739-01-00	HUZ-P 25 32-20-20 CS	350	32	x	20	20

Part No.	Description	A [mm]	B [mm]	D [mm]	E [mm]	F Default position [mm]	G ["]	Weight [g]
1-739-01-00	HUZ-P 25 32-20-20 CS	30	80	50	80	380	G1/8	1145

000 Quick Change System

050 Profile-Channel Nut

100 Clamps

115 Tubular Clamps

120 Profile Connectors

190 Accessories-Profile

200 Vacuum Cup-Connectors

220 Vacuum Cups

224 Vacuum Cups-Special

230 Manifold

290 Adapter

300 Gripper Arms

400 Grippers

450 Gripper Fingers

600 Nipper Bodies

610 Nipper Blades

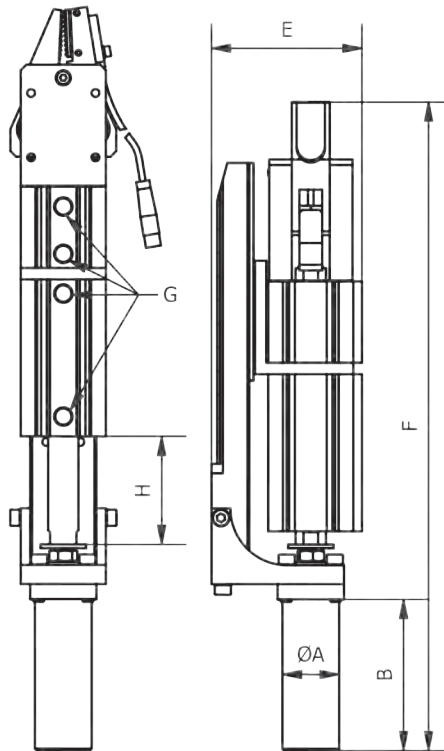
700 Special Elements

800 Electric and Sensors

850 Pneumatic

990 Other PA-Forming

HUZ P / Gripper with Stroke, Precision Slide



Remarks:

► **Application: strong double-acting gripper on stroke with precision slide for demoulding tasks**

- can be easily upgraded with Stopover ZSM: HUZ-P becomes HUZ-PZ
- new sliding guide
- free from floating due to spring-loaded sliding elements
- wear is compensated by spring
- double-acting gripper
- end positions of cylinders can be monitored
- » closing force measured at the point of the jaws at 6 bar
- » maximum air pressure is 6 bar, use dry and filtered air only

Variants:

- C part present sensor IEK 8
- CS part present sensor IES 8

Accessories e.g.:

- Sensor ICS 8 for monitoring cylinder (Part No. 1-808-36-00)
- Stroke Reducer DB
- Stopover ZSM

Part No.	Description	Closing force max. [N]	Pistons Ø [mm]	Stroke H [mm]	A [mm]	B [mm]	D [mm]	E [mm]
1-739-22-00	HUZ-P 32-50	350	32	50	30	80	56	80
1-739-23-00	HUZ-P 32-50 C	350	32	50	30	80	56	80
1-739-24-00	HUZ-P 32-50 CS	350	32	50	30	80	56	80

Part No.	Description	F Default position [mm]	G [""] [mm]	Part present control	Part present control with plug	Weight [g]
1-739-22-00	HUZ-P 32-50	345	G1/8			1676
1-739-23-00	HUZ-P 32-50 C	345	G1/8	x		1744
1-739-24-00	HUZ-P 32-50 CS	345	G1/8		x	1707

HUZ P 25 / Gripper with Stroke, Precision Slide

Remarks:

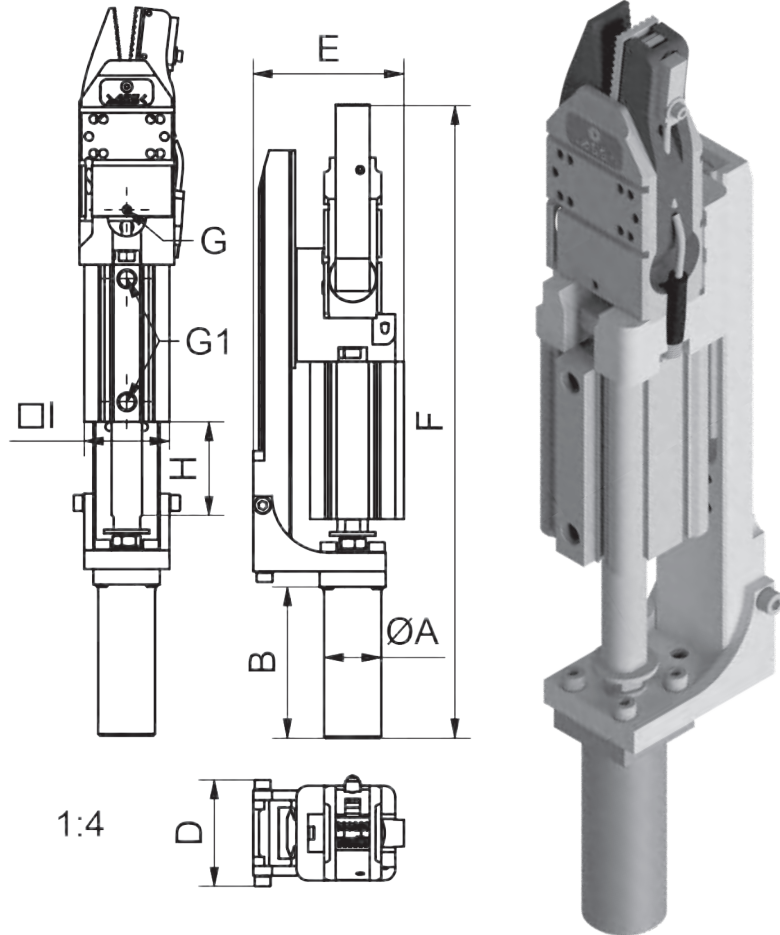
- ▶ **Application: strong gripper GRZ 25 on stroke with precision slide for demoulding tasks**
- can be easily upgraded with Stopover ZSM: HUZ-P becomes HUZ-PZ
- new sliding guide
- free from floating due to spring-loaded sliding elements
- wear is compensated by spring
- compact and lightweight design
- end positions of cylinders can be monitored
- single-acting gripper
- end position of gripper jaws can be monitored
- » closing force measured at the point of the jaws at 6 bar
- » maximum air pressure is 6 bar, use dry and filtered air only

Variants:

CS part present sensor IES 8

Accessories e.g.:

- Sensor ICS 8 for monitoring cylinder (Part No. 1-808-36-00)
- Sensor MFS T2 for monitoring GRZ 25 (Part No. 1-808-30-00)
- Stroke Reducer DB
- Stopover ZSM
- Gripper Jaws for GRZ 25



Part No.	Description	Closing force max. [N]	Pistons Ø [mm]	Stroke H [mm]	A [mm]	B [mm]	D [mm]	E [mm]
1-739-02-00	HUZ-P 25 32-50	350	32	50	30	80	56	79,5
1-739-03-00	HUZ-P 25 32-50 CS	350	32	50	30	80	56	79,5

Part No.	Description	F Default position [mm]	G [mm]	G1 ["]	I [mm]	Part present control with plug	Weight [g]
1-739-02-00	HUZ-P 25 32-50	334	M5	G1/8	45		1178
1-739-03-00	HUZ-P 25 32-50 CS	334	M5	G1/8	45	x	1190

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

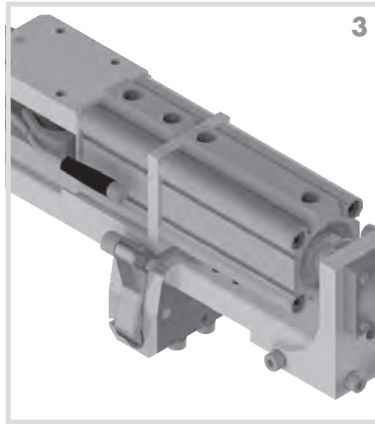
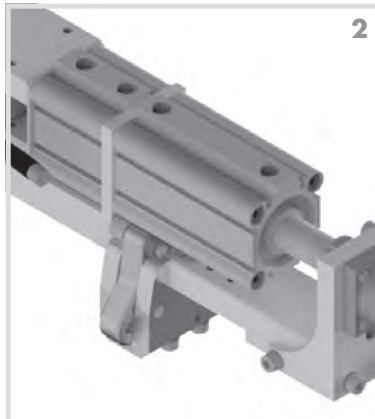
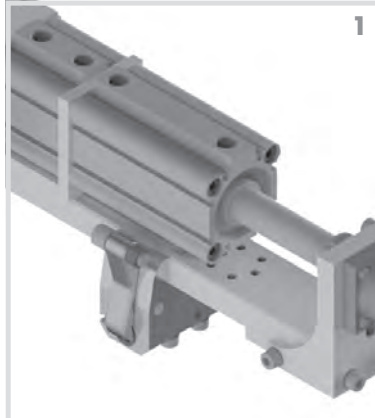
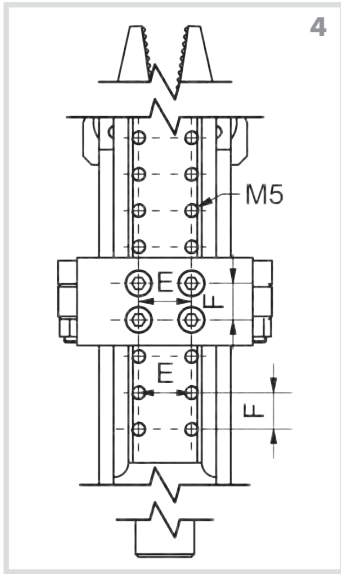
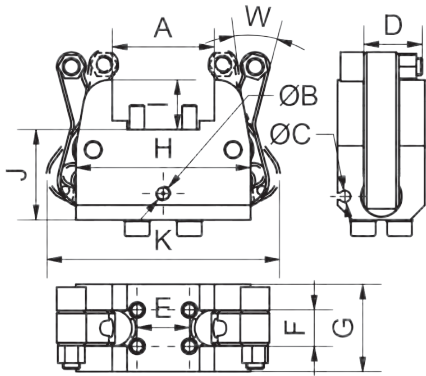
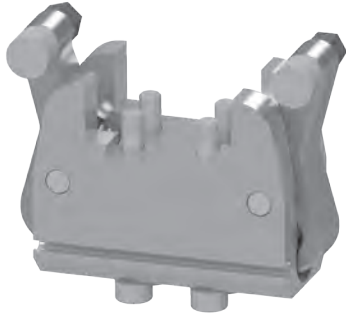
700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

ZSM-HUZ PZ / Stopover for HUZ-P



Remarks:

► **Application: ZSM allows easy retrofitting with a second stroke: HUZ-P becomes HUZ-PZ.**

- feeding stroke 50 mm
- demoulding stroke: 0-50 mm infinitely adjustable
- Stopover ZSM can be easily mounted
- Mounting in 12.5mm grid, see Figure 4
- stepless fine adjustment
- integrated C-slot for monitoring end position
- low-wear rubber buffers dampen the demoulding stroke
- » maximum air pressure is 6 bar, use dry and filtered air only

Procedure:

- *Fig. 3: Basic position*
 - delivery stroke, ZSM and GRZ in basic position
- *Fig. 1: Gripping the part*
 - delivery stroke in working position
 - ZSM in basic position
 - GRZ closed
- *Fig. 2: Demoulding stroke*
 - ZSM in working position
 - GRZ closed
 - delivery stroke in basic position, basic position is not achieved = intermediate position
- *Fig. 1: Laying down the part*
 - delivery stroke in working position
 - ZSM in basic position
 - GRZ open
- *Fig. 3: Basic position*
 - delivery stroke, ZSM and GRZ in basic position

Accessories e.g.:

- Sensor ICS 8 for monitoring cylinder (Part No. 1-808-36-00)
- Sensor MFS T2 for monitoring ZSM (Part No. 1-808-30-00)

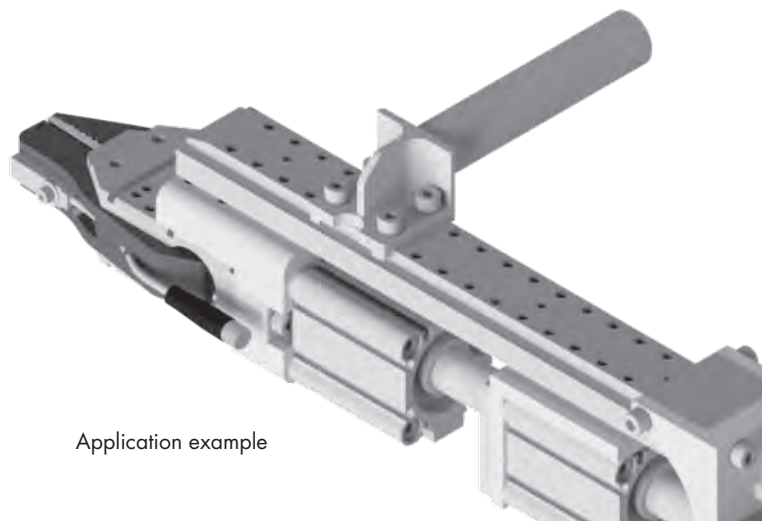
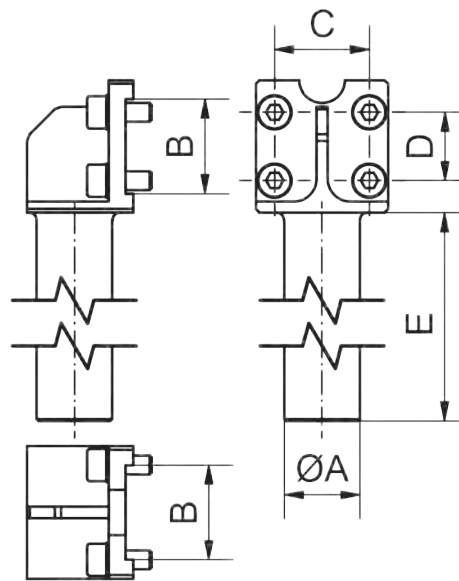
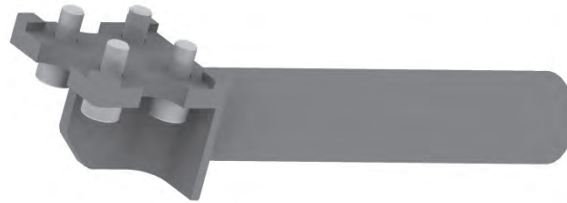
Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]
1-739-00-00	ZSM-HUZ PZ	35	M5	4	20	18	12,5	30	60
Part No.	Description	I [mm]	J [mm]	W [°]	compatible to	Weight [g]			
1-739-00-00	ZSM-HUZ PZ	17	31	22	HUZ-P 25 HUZ-P 32	277			

AU HUZ-P / Adapter für HUZ-P



Remarks:

- ▶ **Application: adapter can be mounted form-fitting at 90° to the precision sliding guide of the HUZ-P series**
- clamping diameter is compatible with the Robot Hand Kit (EOAT) and offers various application possibilities
- » see application example



Application example

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Material	Weight [g]
1-753-04-00	AU 20-100 HUZ-P	20	25	25	18	100	Aluminium	79

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

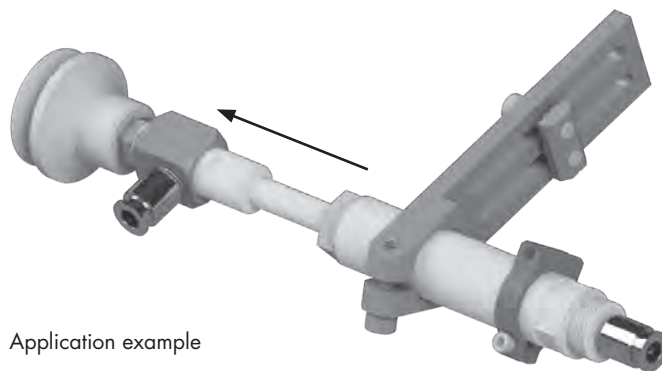
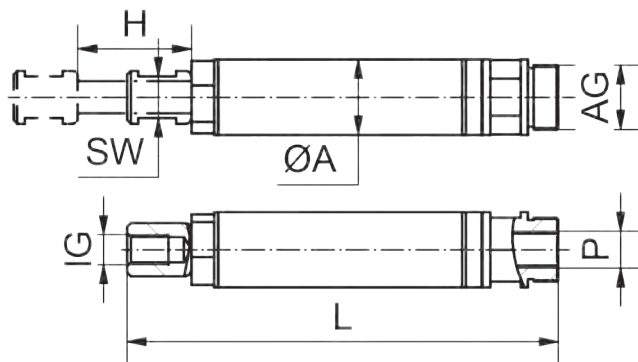
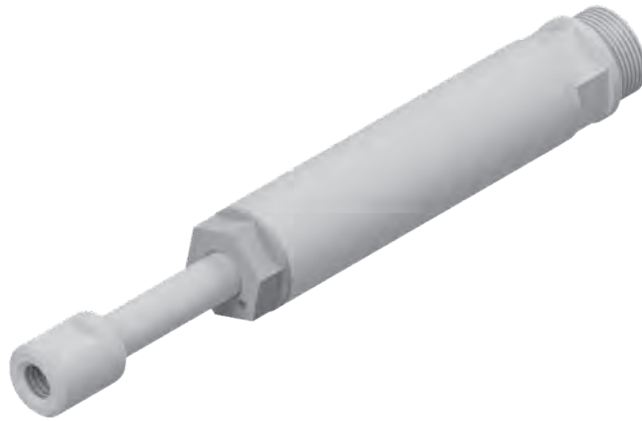
700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

ZHS / Stroke unit for vacuum cups



Application example

Remarks:

► **Application:** for gripping sidewise, e.g. for diagonal feeding of vacuum cups

- single-acting cylinder:
 - air pressure - moving forward
 - spring - moving backwards
- required accessories:
 - Adapter with female thread:
 - AVI 8-1/8-1/8 (Part No. 1-290-77-00) for vacuum cups with 1/8" connection thread
 - or
 - AVI 8-1/4-1/8 (Part No. 1-290-79-00) for vacuum cups with 1/4" connection thread
- » maximum air pressure is 6 bar, use dry and filtered air only

Scope of delivery:

- adaptors and vacuum cups not included

Accessories e.g.:

- Sensor MFS T2 3,7 (Part No. 1-808-30-00)
- Sensor Bracket GFR SH 20 AL
- Sensor ICS 8 (Part No. 1-808-36-00)
- Sensor Bracket GRF-SH20-ICS

Part No.	Description	A [mm]	Hub H [mm]	L [mm]	IG [mm]	AG [mm]	P ["]	SW [mm]	Weight [g]
1-776-00-00	ZHS 20-30	20	30	114	M8	M17x1	G1/8	11	62

HUS / Double Stroke Unit for Vacuum Cups

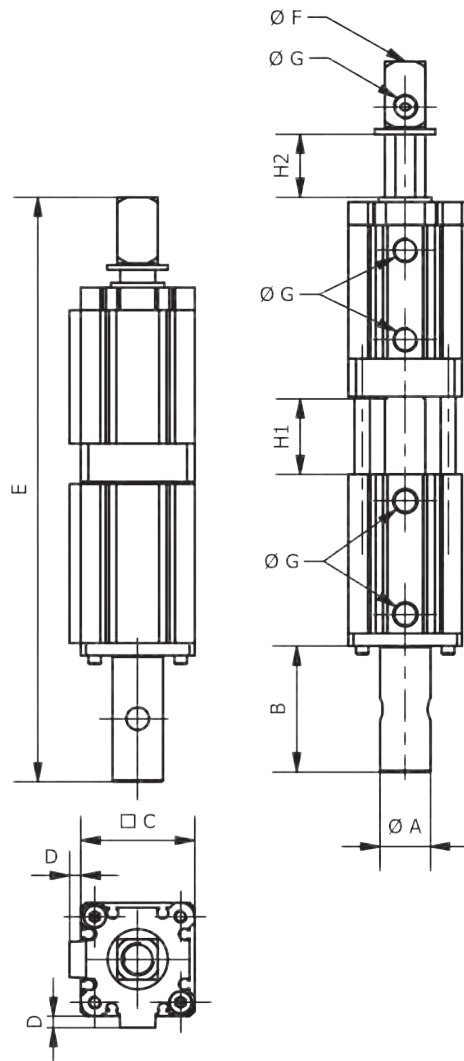
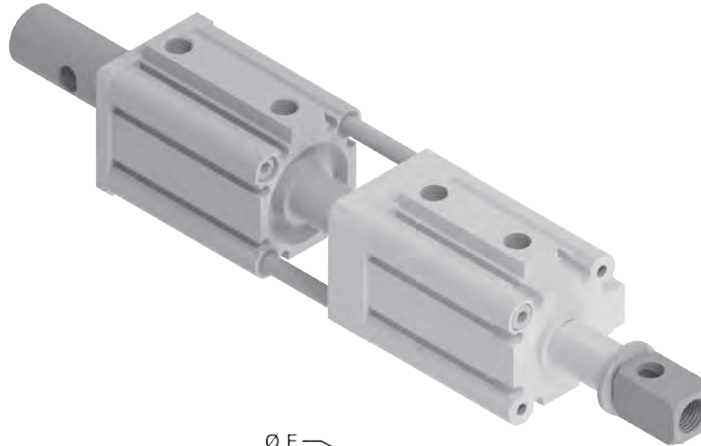
Remarks:

► **Application: Double Stroke Unit for Vacuum Cups with feeding and demoulding stroke, e.g. for demoulding bumpers**

- locked against rotation
- end positions of cylinders can be monitored
- » maximum air pressure is 6 bar, use dry and filtered air only

Accessories e.g.:

- Vacuum and Special Vacuum Cups (chapter 200 and 224)
- Sensor ICS 8 for monitoring cylinder (Part No. 1-808-36-00)



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E Default Position [mm]	F ["]	G ["]
1-749-01-00	HUS 32-30-20	20	50	45	4,5	232	G 1/4	G 1/8
Part No.	Description	Piston Ø [mm]	Stroke H1 [mm]	Stroke H2 [mm]	Weight [g]			
1-749-01-00	HUS 32-30-20	32	30	20	803			

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

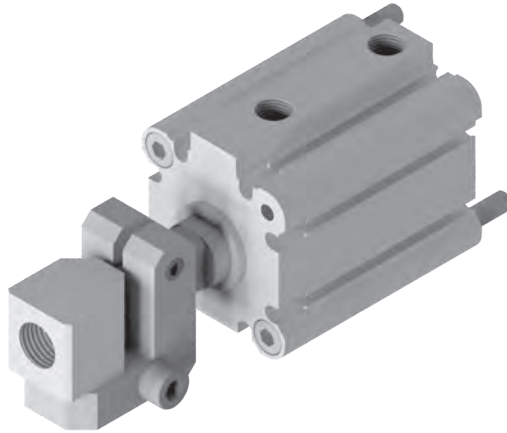
700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

G-HUS 32-20 / Stroke Unit for Vacuum Cups, locked against rotation



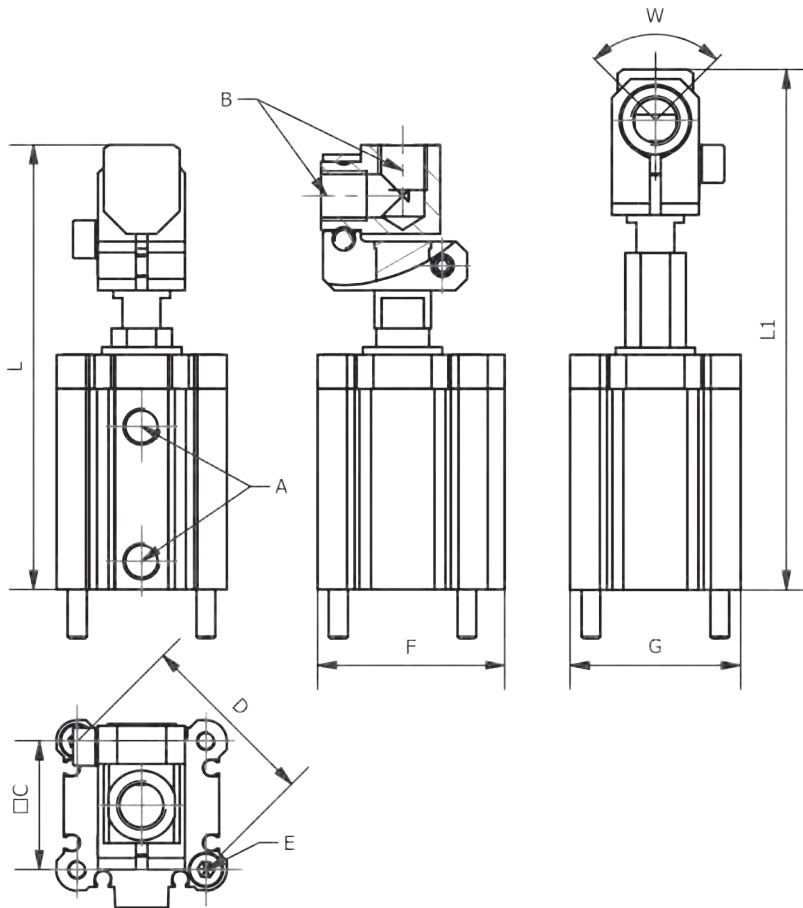
Remarks:

► **Application: Stroke Unit for oval suction cups and/or angled vacuum cups**

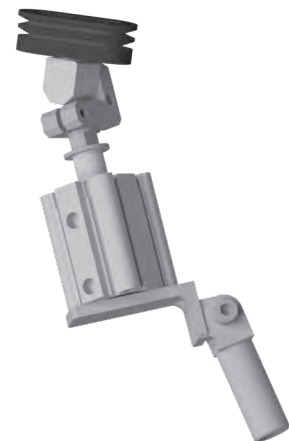
- flexibal positioning of vacuum cups
- cylinder locked against rotation
- end positions of cylinders can be monitored
- threads for vacuum suction and suction line can be reduced with reducing nipple RNK
» maximum air pressure is 6 bar, use dry and filtered air only

Accessories e.g.:

- Gripper Arm for Short Stroke Cylinder GAZ and GAZ S
- Adapter ADZ
- Sensor ICS 8 for monitoring cylinder (Part No. 1-808-36-00)
- Stroke Reducer DB



Application example



Part No.	Description	A ["]	B ["]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]
1-749-50-00	G-HUS 32-20	G 1/8	G 1/4	34	48	M5	49,5	45
Part No.	Description	Piston Ø [mm]	Stroke [mm]	L [mm]	L1 [mm]	W [°]	Weight [g]	
1-749-50-00	G-HUS 32-20	32	20	117,5	137,5	+/- 90	314	

HUE / Slide Unit

Remarks:

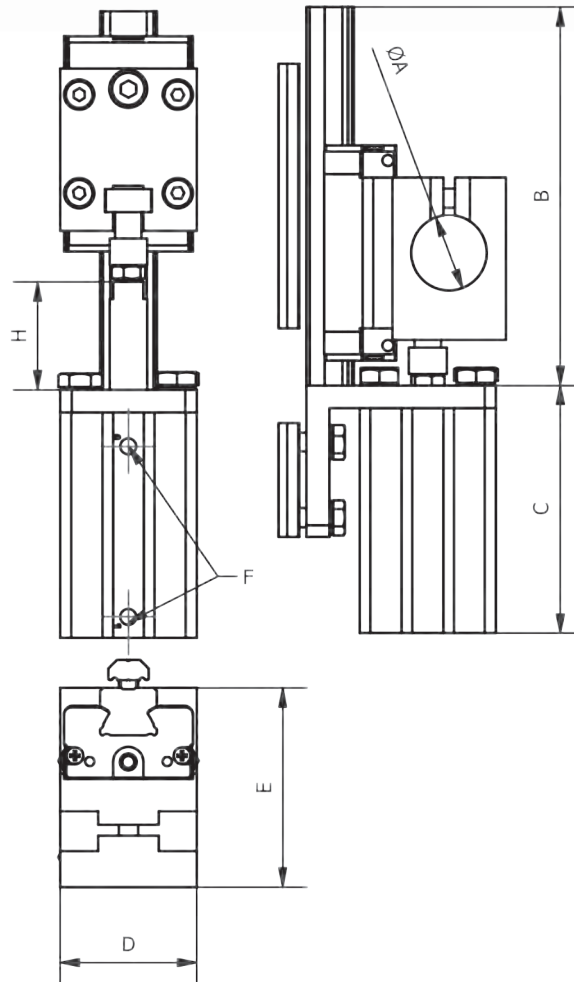
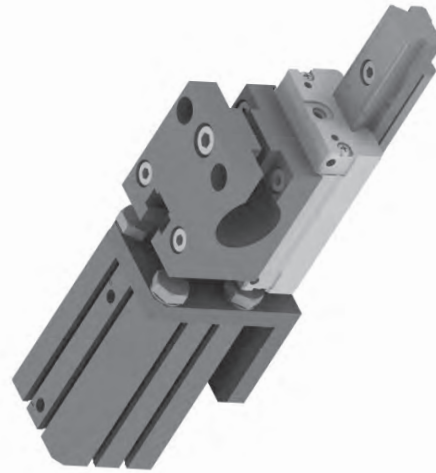
- ▶ **Application:** e.g. for compacting plastic parts or for pushing active elements (such as nippers, gripper fingers, grippers etc.) against the plastic part
- sliding unit easy to mount on profile
- mounting material fits for profile systems
- clamping diameter 20 mm
- air connections: M5
- precise and resilient linear ball guide
- can absorb lateral forces and moments
- double-acting cylinder
- end positions of cylinders can be monitored

Scope of delivery:

- incl. mounting material

Accessories e.g.:

- Sensor ICS 8 for monitoring cylinder (Part No. 1-808-36-00)
- Stroke Reducer DB



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	Piston Ø [mm]	Stroke H [mm]	Weight [g]
1-745-11-00	HUE 20-30-20	20	100	65.5	36	52.5	M5	20	30	689
1-745-10-00	HUE 20-50-20	20	120	85.5	36	52.5	M5	20	50	719
1-745-12-00	HUE 20-75-20	20	145	122	36	52.5	M5	20	75	859
1-745-13-00	HUE 20-100-20	20	170	147	36	52.5	M5	20	100	961
1-745-14-00	HUE 20-125-20	20	195	172	36	52.5	M5	20	125	1074

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

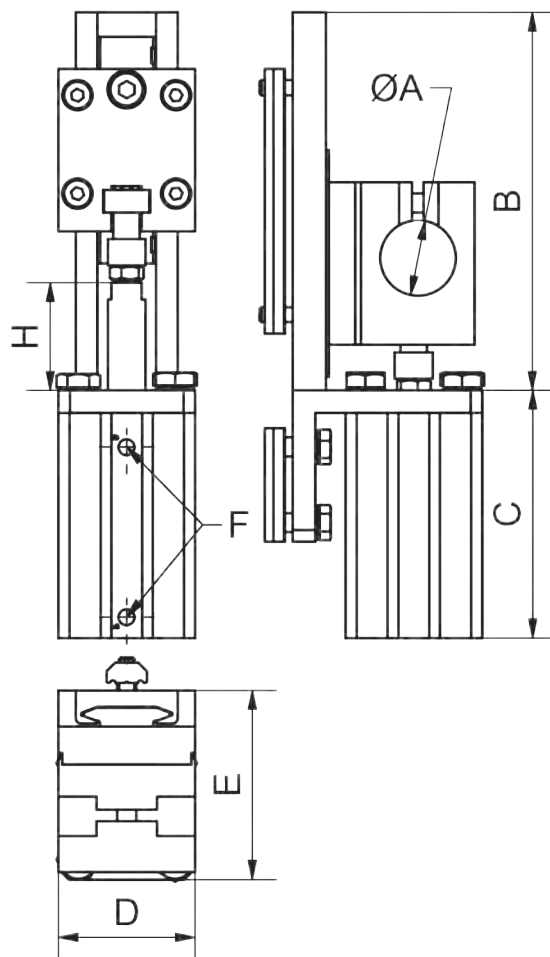
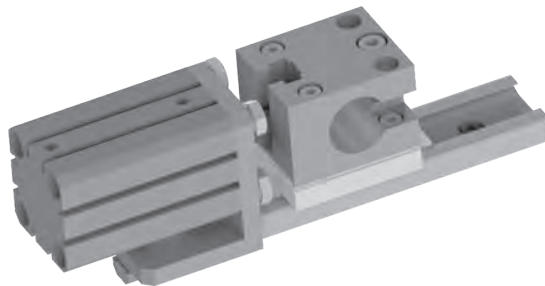
700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

HUE G / Slide Unit with Sliding Guide



Remarks:

- ▶ **Application:** e.g. for compacting plastic parts or for pushing active elements (such as nippers, gripper fingers, grippers etc.) against the plastic part
- new sliding guide
- lightweight alternative to HUE
- free from floating due to spring-loaded sliding elements
- wear is compensated by spring
- end positions of cylinders can be monitored
- mounting material fits for profile systems
- clamping diameter 20 mm
- can absorb lateral forces and moments
- double-acting cylinder
- » maximum air pressure is 6 bar, use dry and filtered air only

Scope of delivery:

- incl. mounting material

Accessories e.g.:

- Sensor ICS 8 for monitoring cylinder (Part No. 1-808-36-00)
- Stroke Reducer DB

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	Piston Ø [mm]	Stroke H [mm]	Weight [g]
1-745-20-00	HUE G 20-30-20	20	100	65,5	36	50	M5	20	30	455
1-745-21-00	HUE G 20-50-20	20	120	85,5	36	50	M5	20	50	515
1-745-22-00	HUE G 20-75-20	20	150	122	36	50	M5	20	75	620
1-745-23-00	HUE G 20-100-20	20	175	147	36	50	M5	20	100	695
1-745-24-00	HUE G 20-125-20	20	200	172	36	50	M5	20	125	765

HUE X / Slide Unit



Remarks:

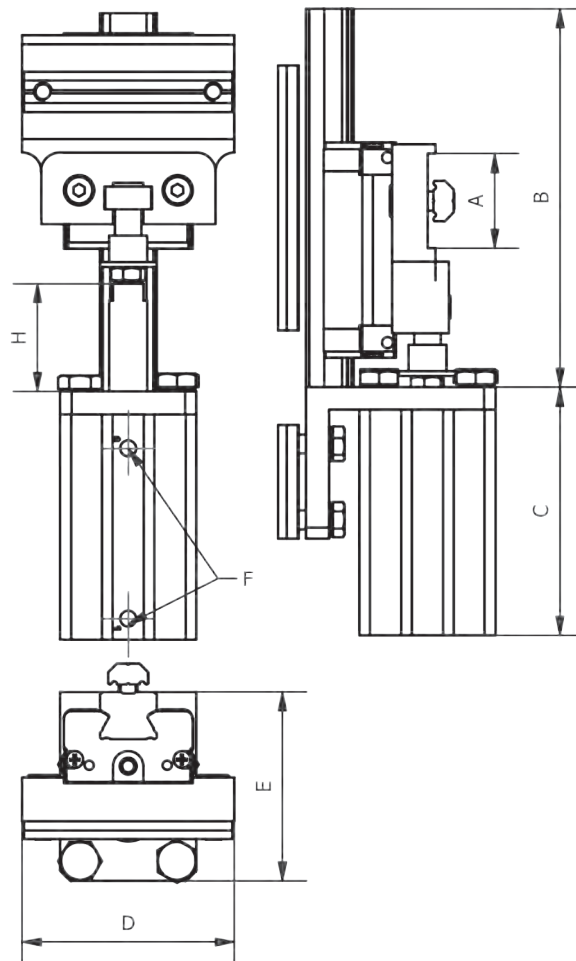
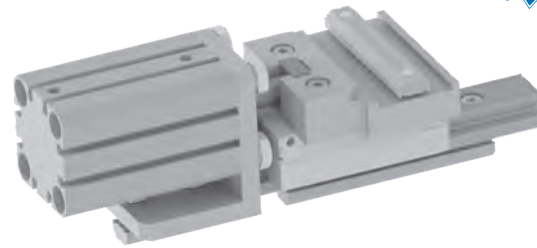
- ▶ **Application:** e.g. for compacting plastic parts or for pushing active elements (such as nippers, gripper fingers, grippers etc.) against the plastic part
- form fitting connection to X 25 profile
- sliding unit easy to mount on profile
- mounting material fits for profile systems
- air connections: M5
- precise and resilient linear ball guide
- can absorb lateral forces and moments
- double-acting cylinder
- end positions of cylinders can be monitored

Scope of delivery:

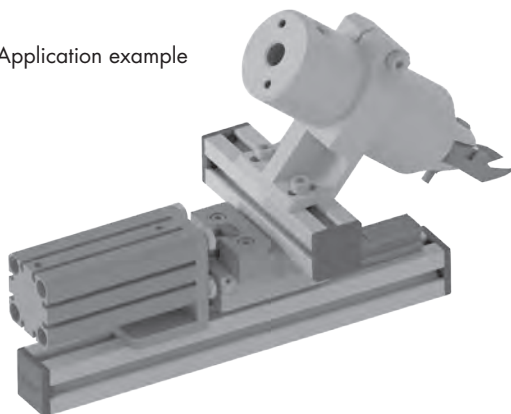
- incl. mounting material

Accessories e.g.:

- Sensor ICS 8 for monitoring cylinder (Part No. 1-808-36-00)
- Stroke Reducer DB



Application example



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	Piston Ø [mm]	Stroke H [mm]	Weight [g]
1-745-50-00	HUE X 25-30-20	25	100	65,5	56	50	M5	20	30	656
1-745-51-00	HUE X 25-50-20	25	120	65,5	56	50	M5	20	50	740
1-745-52-00	HUE X 25-75-20	25	145	65,5	56	50	M5	20	75	869
1-745-53-00	HUE X 25-100-20	25	170	65,5	56	50	M5	20	100	967
1-745-54-00	HUE X 25-125-20	25	195	65,5	56	50	M5	20	125	1089

000
Quick Change
System

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

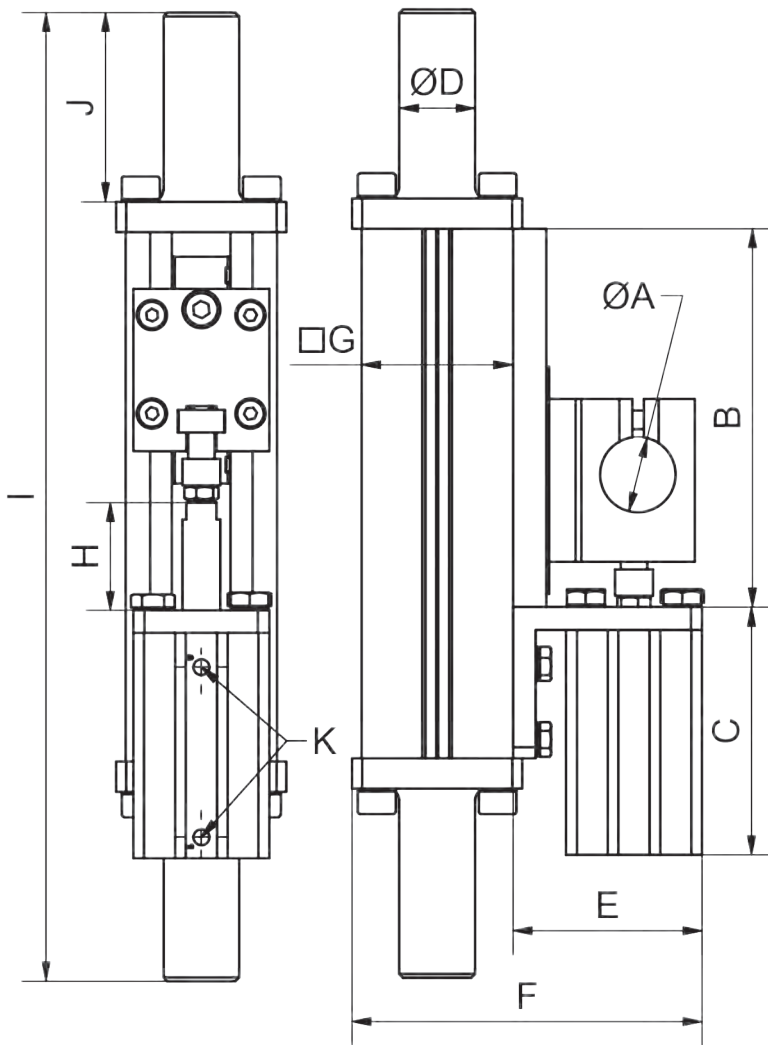
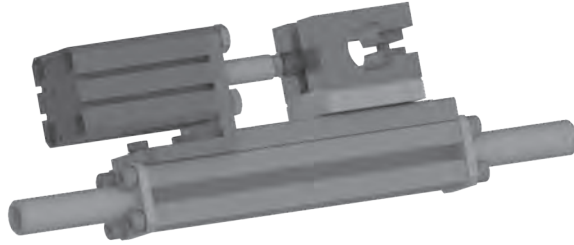
610
Nipper Blades

700
Special
Elements

800
Electric and
Sensors

850
Pneumatic

HUE G Profile / Slide Unit with Sliding Guide on Profile



Remarks:

- ▶ **Application:** e.g. for compacting plastic parts or for pushing active elements (such as nippers, gripper fingers, grippers etc.) against the plastic part
- flexible mounting options
- new sliding guide
- free from floating due to spring-loaded sliding elements
- wear is compensated by spring
- end positions of cylinders can be monitored
- mounting material fits for profile systems
- clamping diameter suitable for the Robot Hand Kit
- can absorb lateral forces and moments
- double-acting cylinder
- can be combined individually with other elements from the Robot Hand Kit such as HUE, DKZ
- » maximum air pressure is 6 bar, use dry and filtered air only

Scope of delivery:

- incl. mounting material

Accessories e.g.:

- Sensor ICS 8 for monitoring cylinder (Part No. 1-808-36-00)
- Stroke Reducer DB

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]
1-745-30-00	HUE G 20-30-20-X-25-25-14	20	100	65,5	14	50	76,5	25	248	50
1-745-31-00	HUE G 20-30-20-JU-40-40-20	20	100	65,5	20	50	92,5	40	256	50

Part No.	Description	J [mm]	K [mm]	Stroke H [mm]	Piston Ø [mm]	Weight [g]
1-745-30-00	HUE G 20-30-20-X-25-25-14	M5	X 25/25	30	20	611
1-745-31-00	HUE G 20-30-20-JU-40-40-20	M5	JU 40/40	30	20	857

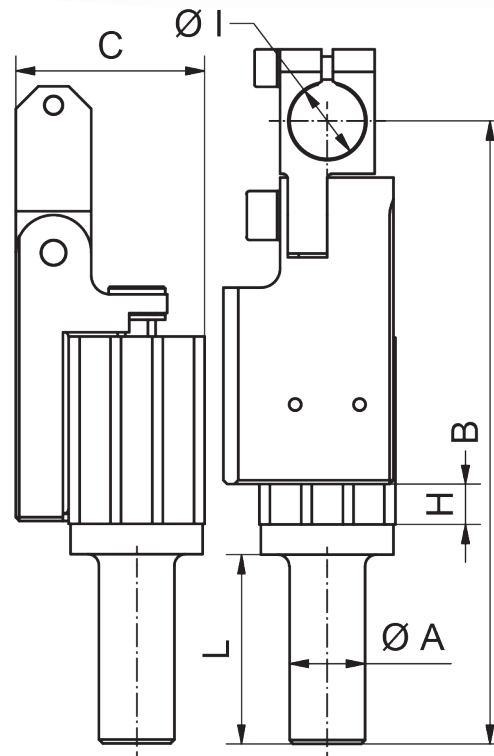
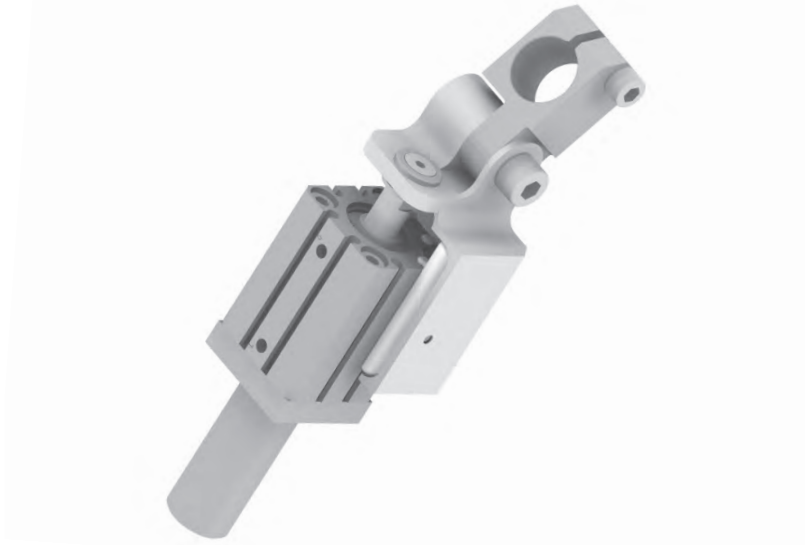
ZHG / Cutter Slide

Remarks:

- ▶ **Application: e.g. in combination with nippers**
- articulated arm infinitely adjustable
- two variants available:
 - single-acting - ZHG
 - double-acting - ZHD
- weight and cost optimized solution
- end positions of cylinders can be monitored

Accessories e.g.:

- Sensor ICS 8 for monitoring cylinder (Part No. 1-808-36-00)



ZHG / Cutter Slide

Part No.	Description	A [mm]	B [mm]	C [mm]	L [mm]	I [mm]	Piston Ø [mm]	Run-in	Getting out	Stroke H [mm]	Weight [g]
1-748-11-00	ZHG 20-10	20	155	50	50	20	20	compr. air	spring load	10	380
1-748-12-00	ZHG 20-20	20	165	50	50	20	20	compr. air	spring load	20	422
1-748-03-00	ZHG 14-12-10	14	122	31,5	40	14	12	compr. air	spring load	10	147

ZHD / Cutter Slide, double acting

Part No.	Description	A [mm]	B [mm]	C [mm]	L [mm]	I [mm]	Piston Ø [mm]	Run-in	Getting out	Stroke H [mm]	Weight [g]
1-748-21-00	ZHD 20-10	20	155	50	50	20	20	compr. air	compr. air	10	378
1-748-22-00	ZHD 20-20	20	165	50	50	20	20	compr. air	compr. air	20	420
1-748-04-00	ZHD 14-12-10	14	122	31,5	40	14	12	compr. air	compr. air	10	146

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

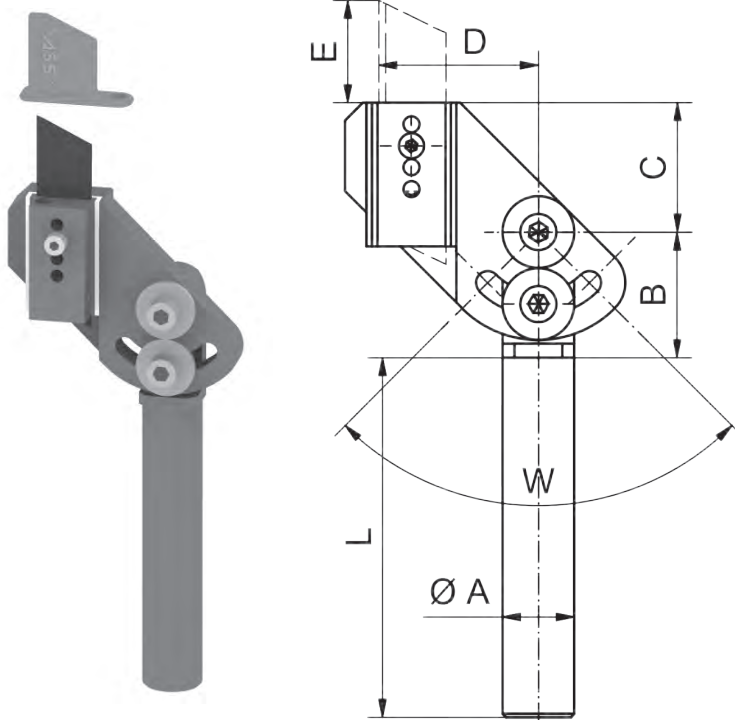
700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

KHR / Blade Holder



Remarks:

► **Application:** for precise separation of film gates

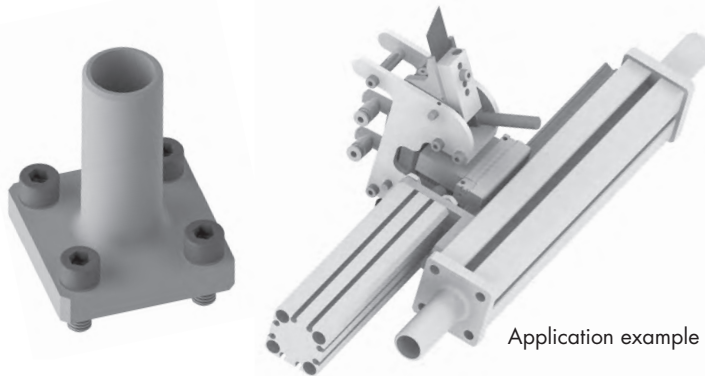
- compact design
- easy to combine with other components
- blade angle is adjustable
- blade can be heated optionally
- heatable to 130°C

Scope of delivery:

- 5 blades
- blade cover

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	W [°]	L [mm]	Weight [g]
1-744-00-00	KHR 20-100	20	35	36	45	16.5 - 34.5	+/- 45	100	244

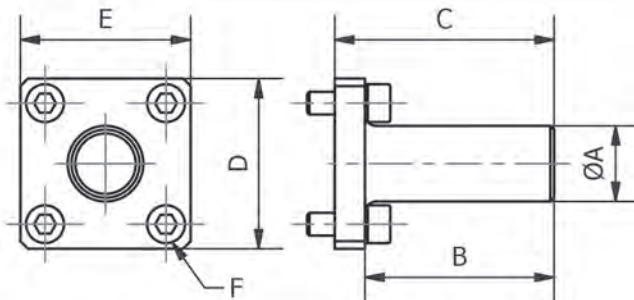
DKZ / Mounting Bar, central



Remarks:

► **Application:** allows a more flexible integration of swivelling blade holder KHR-S

- can be easily mounted at the ends of profiles
- » see application example



Part No.	Description	A Ø [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	Material	Weight [g]
1-110-45-00	DKZ X 14-50	14	50	54	28	28	M5	Aluminium	32
1-110-50-00	DKZ JU 20-50	20	50	58	45	45	M6	Aluminium	84

KHR-S / Blade Holder, swivelling

Remarks:

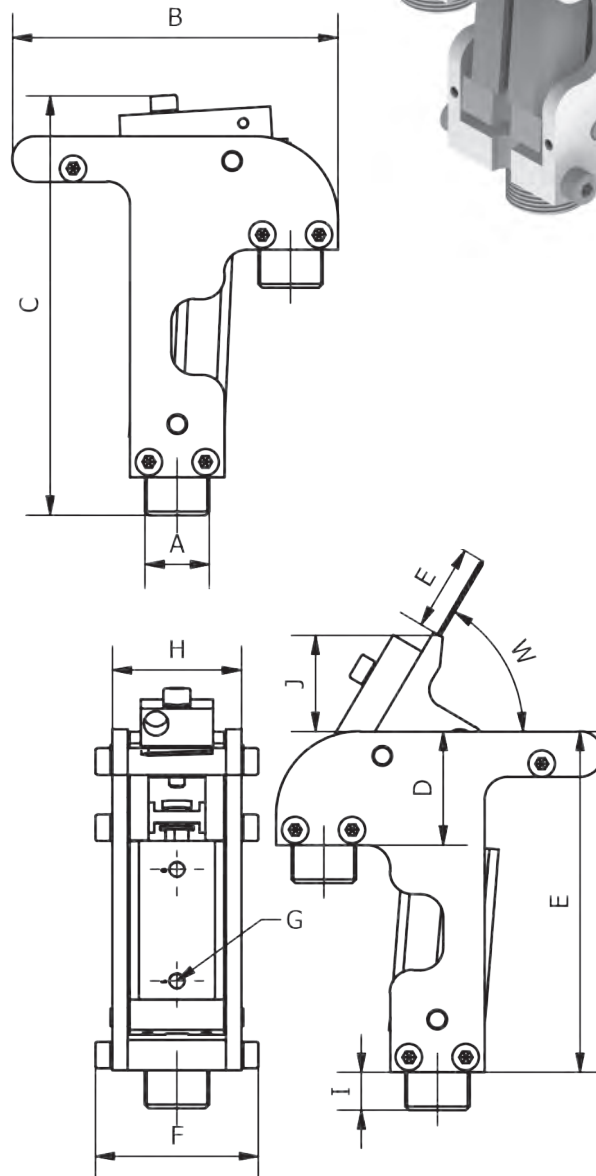
- ▶ **Application: for precise separation of film gates - the blade is pressed on the part**
- two positions can be monitored
- double-acting, piston Ø 12 mm
- optionally: blade can be heated by commercially available heating cartridge (Ø 6,5mm)
 - » maximum air pressure is 6 bar, use dry and filtered air only
 - » see application example

Scope of delivery:

- 5 blades
- blade cover

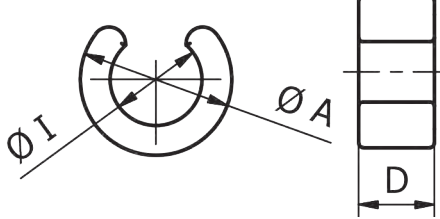
Accessories e.g.:

- Sensor MFS T2 (Part No. 1-808-30-00)



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]	J [mm]	W [°]	Weight [g]
1-744-50-00	KHR-S 20-60	M17x1	86	111	30	90	43	M5	34	10	25	60	383

DB / Stroke Reducer

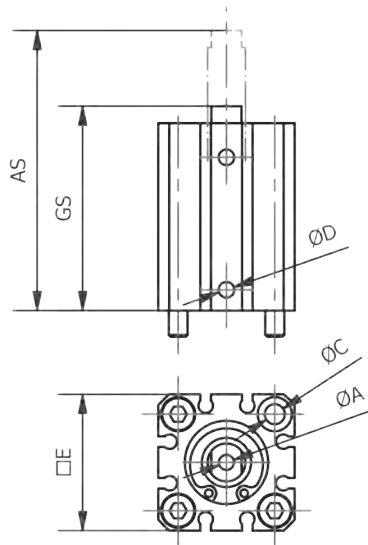


Remarks:

- **Application:** for reducing the stroke of the HUZ, SZD or KHZ units
- » see application example

Part No.	Description	compatible to compact cylinder Ø	Ø I [mm] Piston	A [mm]	D [mm]	Material	Weight [g]
1-701-01-00	DB 5-32	32	16	24	5	POM/PA	1
1-701-02-00	DB 10-32	32	16	24	10	POM/PA	2
1-701-03-00	DB 15-32	32	16	24	15	POM/PA	3
1-701-04-00	DB 5-25	25	12	20	5	POM/PA	1
1-701-05-00	DB 10-25	25	12	20	10	POM/PA	2
1-701-06-00	DB 15-25	25	12	20	15	POM/PA	2
1-701-07-00	DB 5-20	20	10	18	5	PA	1
1-701-08-00	DB 10-20	20	10	18	10	PA	2
1-701-09-00	DB 15-20	20	10	18	15	PA	2

KHZ / Short Stroke Cylinder



Remarks:

- **Application:** universally applicable, double-acting Short Stroke Cylinder
- end positions of cylinders can be monitored
- » maximum air pressure is 6 bar, use dry and filtered air only

Drawing:

D air connection

Scope of delivery:

- with screws and locking washers

Accessories e.g.:

- Sensor ICS 8 for monitoring cylinder (Part No. 1-808-36-00)
- Gripper Arms for Short Stroke Cylinder GAZ and GAZ S

Part No.	Description	Piston Ø [mm]	A [mm]	B [mm]	C [mm]	D [mm] ["]	E [mm]	GS [mm]	AS [mm]	Stroke [mm]	Sensor	Weight [g]
1-710-09-00	KHZ 12-5 DA	12	M3	21.9	3.5	M5	25	25.5	30.5	5	ICS 8	44
1-710-12-00	KHZ 12-10 DA	12	M3	21.9	3.5	M5	25	30.5	40.5	10	ICS 8	51
1-710-39-00	KHZ 20-5 DA	20	M5	36.1	5.5	M5	36	39	44	5	ICS 8	119
1-710-42-00	KHZ 20-10 DA	20	M5	36.1	5.5	M5	36	44	54	10	ICS 8	134
1-710-45-00	KHZ 20-20 DA	20	M5	36.1	5.5	M5	36	54	74	20	ICS 8	167
1-710-48-00	KHZ 20-30 DA	20	M5	36.1	5.5	M5	36	64	94	30	ICS 8	197
1-710-69-00	KHZ 32-5 DA	32	M8	48.1	5.5	G1/8	45	45	50	5	ICS 8	213
1-710-72-00	KHZ 32-10 DA	32	M8	48.1	5.5	G1/8	45	50	60	10	ICS 8	227
1-710-75-00	KHZ 32-20 DA	32	M8	48.1	5.5	G1/8	45	60	80	20	ICS 8	271
1-710-78-00	KHZ 32-30 DA	32	M8	48.1	5.5	G1/8	45	70	100	30	ICS 8	315
1-710-82-00	KHZ 32-50 DA	32	M8	48.1	5.5	G1/8	45	70	120	50	ICS 8	407

SZD / Special Cylinder

Remarks:

► **Application: double-acting Special Short Stroke Cylinder with yoke plate for gripper arms for vacuum cups, such as GSE, GGE, etc.**

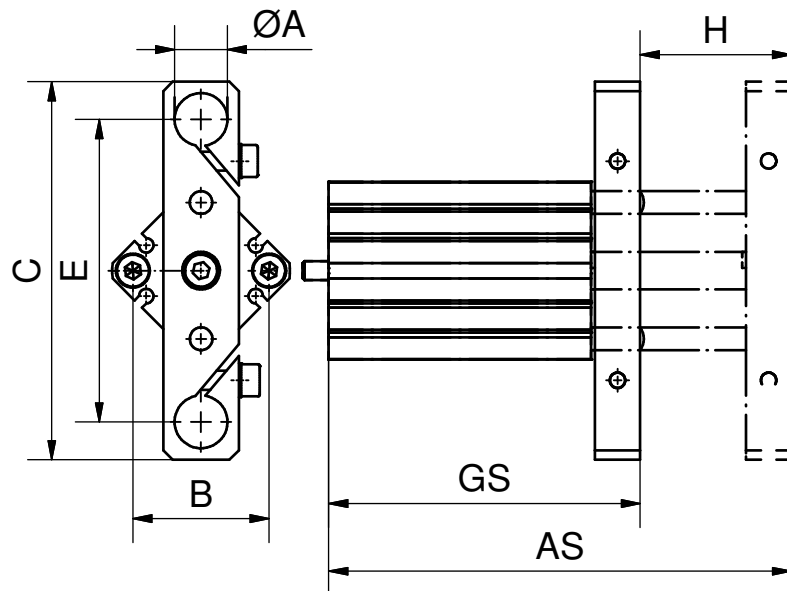
- special designs of the yoke plate (dimensions A and E) on request
- double-acting cylinder
- end positions of cylinders can be monitored
- » maximum air pressure is 6 bar, use dry and filtered air only
- » see application example

Scope of delivery:

- with screws and locking washers

Accessories e.g.:

- Sensor ICS 8 for monitoring cylinder (Part No. 1-808-36-00)
- Gripper Arms for Short Stroke Cylinder GAZ and GAZ S



Part No.	Description	Piston Ø [mm]	A [mm]	B [mm]	C [mm]	E [mm]	GS [mm]	AS [mm]	Stroke H [mm]	Air connection	Weight [g]
1-715-03-00	SZD 12-10-55A	12	10	21.9	70	55	41	51	10	M5	80
1-715-06-00	SZD 12-20-55A	12	10	21.9	70	55	51	71	20	M5	95
1-715-30-00	SZD 20-10-80A	20	14	36.1	100	80	52.5	62.5	10	M5	209
1-715-33-00	SZD 20-20-80A	20	14	36.1	100	80	62.5	82.5	20	M5	240
1-715-36-00	SZD 20-30-80A	20	14	36.1	100	80	72.5	102.5	30	M5	274
1-715-39-00	SZD 20-40-80A	20	14	36.1	100	80	82.5	122.5	40	M5	306
1-715-42-00	SZD 20-50-80A	20	14	36.1	100	80	92.5	142.5	50	M5	337
1-715-60-00	SZD 32-10-120A	32	20	48.1	145	120	59	69	10	G1/8	373
1-715-63-00	SZD 32-20-120A	32	20	48.1	145	120	69	89	20	G1/8	416
1-715-66-00	SZD 32-30-120A	32	20	48.1	145	120	79	109	30	G1/8	461
1-715-69-00	SZD 32-40-120A	32	20	48.1	145	120	89	129	40	G1/8	508
1-715-72-00	SZD 32-50-120A	32	20	48.1	145	120	99	149	50	G1/8	554

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

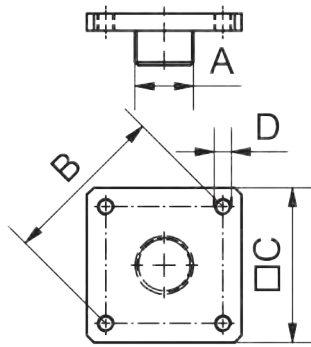
700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

ADZ / Adapter for Short Stroke Cylinder KHZ and SZD



Remarks:

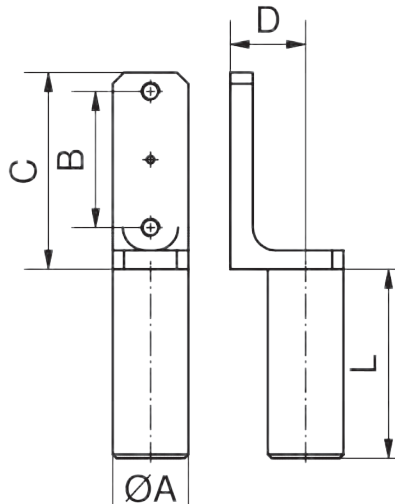
- Application: adapts short stroke cylinders KHZ and SZD on extension tube VLR

Accessories e.g.:

- Extension Tube VLR

Part No.	Description	compatible with VLR	compatible with KHZ	A [mm]	B [mm]	C [mm]	D [mm]	Material	Weight [g]
1-725-03-00	ADZ 14-12	VLR 14	KHZ/SZD 12	M12x1	21.9	25	M3	Aluminium	11
1-725-06-00	ADZ 20-20	VLR 20	KHZ/SZD 20	M17x1	36.1	35	M5	Aluminium	22
1-725-09-00	ADZ 20-32	VLR 20	KHZ/SZD 32	M17x1	48.1	45	M5	Aluminium	33
1-725-12-00	ADZ 30-32	VLR 30	KHZ/SZD 32	M27x1	48.1	45	M5	Aluminium	42

GAZ / Gripper Arm for Short Stroke Cylinder KHZ and SZD



Remarks:

- Application: for mounting short stroke cylinders KHZ and SZD

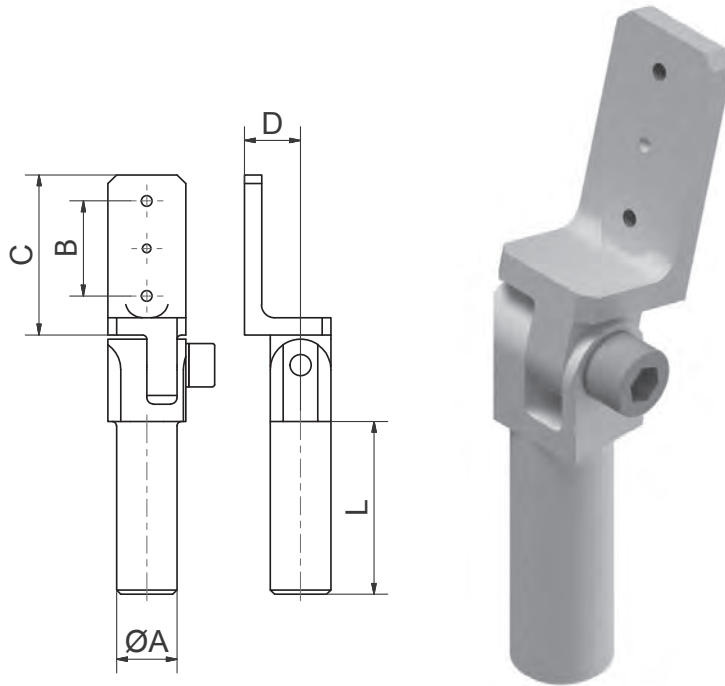
- cylinder mounted with 2 screws to the GAZ
- clamping diameter offers several mounting methods
- made of anodized Aluminium

Part No.	Description	compatible with	A [mm]	B [mm]	C [mm]	D [mm]	L [mm]	Material	Weight [g]
1-720-03-00	GAZ 12-10-30	KHZ/SZD12	10	22	37	12.5	30	Aluminium	12
1-720-06-00	GAZ 12-10-60	KHZ/SZD12	10	22	37	12.5	60	Aluminium	17
1-720-09-00	GAZ 12-10-90	KHZ/SZD12	10	22	37	12.5	90	Aluminium	22
1-720-12-00	GAZ 12-14-40	KHZ/SZD12	14	22	37	12.5	40	Aluminium	16
1-720-15-00	GAZ 12-14-80	KHZ/SZD12	14	22	37	12.5	80	Aluminium	24
1-720-18-00	GAZ 12-14-120	KHZ/SZD12	14	22	37	12.5	120	Aluminium	32
1-720-21-00	GAZ 20-20-50	KHZ/SZD20	20	36	52	20	50	Aluminium	35
1-720-24-00	GAZ 20-20-100	KHZ/SZD20	20	36	52	20	100	Aluminium	50
1-720-27-00	GAZ 20-20-150	KHZ/SZD20	20	36	52	20	150	Aluminium	67
1-720-30-00	GAZ 32-20-50	KHZ/SZD32	20	48.1	66	20	50	Aluminium	43
1-720-33-00	GAZ 32-20-100	KHZ/SZD32	20	48.1	66	20	100	Aluminium	60
1-720-36-00	GAZ 32-20-150	KHZ/SZD32	20	48.1	66	20	150	Aluminium	72

GAZ S / Gripper Arm for Short Stroke Cylinder with Swivel

Remarks:

- ▶ **Application: for mounting short stroke cylinders KHZ and SZD in an angle**
- for usage with Short Stroke Cylinder KHZ and Special Cylinder SZD
- infinitely adjustable angle of +/- 90°
- strong clamping prevents adjustment while mounting
- clamping diameter offers several mounting methods
- made of anodized Aluminium
- » see application example



Part No.	Description	Compatibel to cylinder	A [mm]	B [mm]	C [mm]
1-720-04-00	GAZ S 12-10-30	KHZ/SZD12	10	22	37
1-720-07-00	GAZ S 12-10-60	KHZ/SZD12	10	22	37
1-720-10-00	GAZ S 12-10-90	KHZ/SZD12	10	22	37
1-720-13-00	GAZ S 12-14-40	KHZ/SZD12	14	22	37
1-720-16-00	GAZ S 12-14-80	KHZ/SZD12	14	22	37
1-720-19-00	GAZ S 12-14-120	KHZ/SZD12	14	22	37
1-720-22-00	GAZ S 20-20-50	KHZ/SZD20	20	36	52
1-720-25-00	GAZ S 20-20-100	KHZ/SZD20	20	36	52
1-720-28-00	GAZ S 20-20-150	KHZ/SZD20	20	36	52
1-720-31-00	GAZ S 32-20-50	KHZ/SZD32	20	48	66
1-720-34-00	GAZ S 32-20-100	KHZ/SZD32	20	48	66
1-720-37-00	GAZ S 32-20-150	KHZ/SZD32	20	48	66

Part No.	Description	D [mm]	L [mm]	Swivel Area	Material	Weight [g]
1-720-04-00	GAZ S 12-10-30	15	30	+/- 90°	Aluminium	19
1-720-07-00	GAZ S 12-10-60	15	60	+/- 90°	Aluminium	22
1-720-10-00	GAZ S 12-10-90	15	90	+/- 90°	Aluminium	26
1-720-13-00	GAZ S 12-14-40	13	40	+/- 90°	Aluminium	36
1-720-16-00	GAZ S 12-14-80	13	80	+/- 90°	Aluminium	44
1-720-19-00	GAZ S 12-14-120	13	120	+/- 90°	Aluminium	55
1-720-22-00	GAZ S 20-20-50	20	50	+/- 90°	Aluminium	92
1-720-25-00	GAZ S 20-20-100	20	100	+/- 90°	Aluminium	107
1-720-28-00	GAZ S 20-20-150	20	150	+/- 90°	Aluminium	126
1-720-31-00	GAZ S 32-20-50	20	50	+/- 90°	Aluminium	98
1-720-34-00	GAZ S 32-20-100	20	100	+/- 90°	Aluminium	112
1-720-37-00	GAZ S 32-20-150	20	150	+/- 90°	Aluminium	132

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special Elements

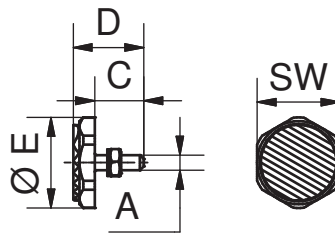
800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

700 | Special Elements

DPL / Pressure Plate for Short Stroke Cylinder

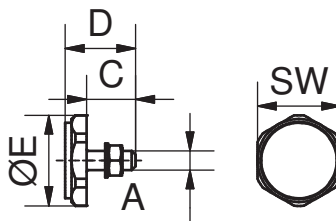


Remarks:

- a ribbed rubber pad is glued on the Pressure Plates
- Exception: DPL 12-3 is completely made of steel and galvanized

Part No.	Description	A [mm]	SW [mm]	C [mm]	D [mm]	E [mm]	Weight [g]
1-790-03-00	DPL 12-3	M 3		9	12.3	12	3
1-790-06-00	DPL 25-3	M 3	22	7	11.7	25	8
1-790-09-00	DPL 25-4	M 4	22	13	18.5	25	12
1-790-12-00	DPL 25-5	M 5	22	13	18.5	25	13
1-790-16-00	DPL 25-6	M 6	22	13	18.5	25	15

DPL PU / Pressure Plate for Short Stroke Cylinder

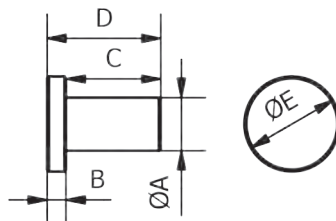


Remarks:

- Pressure Plates are covered with polyurethane pads
- PU pads increase friction and also are dimensionally stable
- EPDM is heat resistant up to 150°C

Part No.	Description	A [mm]	SW [mm]	C [mm]	D [mm]	E [mm]	Weight [g]
1-790-08-00	DPL 25-3 PU	M 3	22	7	11.9	25	8
1-790-10-00	DPL 25-4 PU	M 4	22	13	18.7	25	12
1-790-15-00	DPL 25-5 PU	M 5	22	13	18.7	25	13
1-790-17-00	DPL 25-6 PU	M 6	22	13	18.7	25	15
1-790-07-00	DPL 25-3 EPDM	M3	22	7	11.9	25	9

DST / Pressure Plate



Remarks:

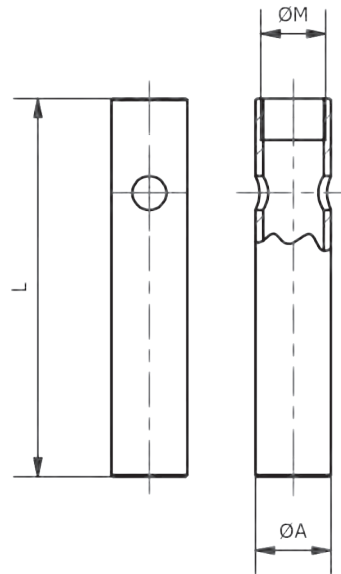
- EP Coating: low-marking, see category 990
- Flock: ideal for parts to be painted (visible face)
- PTFE: reduces friction and temperature resistant up to 260°C

Part No.	Description	Material	Coating	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Weight [g]
1-790-61-00	DST 14-25 ALU EP	Aluminium	EP	14	5	25	30	25	13
1-790-62-00	DST 14-25 ALU BF	Aluminium	Flock	14	5	25	30	25	13
1-790-64-00	DST 14-25 ABS EP	ABS	EP	14	5	25	30	25	5
1-790-65-00	DST 14-25 ABS BF	ABS	Flock	14	5	25	30	25	5
1-790-69-00	DST 14-25 PTFE	PTFE	-	14	5	25	30	25	10

VLR / Extension Tubes

Remarks:

- ▶ **Application: for extending various components of the Robot Hand Kit (EOAT)**
- Extension Tubes VLR are suitable for e.g.:
 - gripper fingers GRF, GFD, GRF P
 - adapters ADZ, AP-PGR, AD IGB AD-GRZ 20 U
 - ZTB centering pin
 - and many other components
- clamping diameter compatible with the Robot Hand Kit (EOAT) for flexible applications
- it is recommended to glue the VLR



Part No.	Description	A [mm]	M [mm]	L [mm]	Material	Weight [g]
1-735-03-00	VLR 10-30	10	M8x1	30	Aluminium	3
1-735-06-00	VLR 10-60	10	M8x1	60	Aluminium	7
1-735-09-00	VLR 10-90	10	M8x1	90	Aluminium	12
1-735-12-00	VLR 14-40	14	M12x1	40	Aluminium	7
1-735-15-00	VLR 14-80	14	M12x1	80	Aluminium	15
1-735-18-00	VLR 14-120	14	M12x1	120	Aluminium	23
1-735-21-00	VLR 20-50	20	M17x1	50	Aluminium	16
1-735-24-00	VLR 20-100	20	M17x1	100	Aluminium	34
1-735-27-00	VLR 20-150	20	M17x1	150	Aluminium	52
1-735-30-00	VLR 30-80	30	M27x1	80	Aluminium	47
1-735-33-00	VLR 30-140	30	M27x1	140	Aluminium	85
1-735-36-00	VLR 30-200	30	M27x1	200	Aluminium	124

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special Elements

800
Electric and Sensors

850
Pneumatic

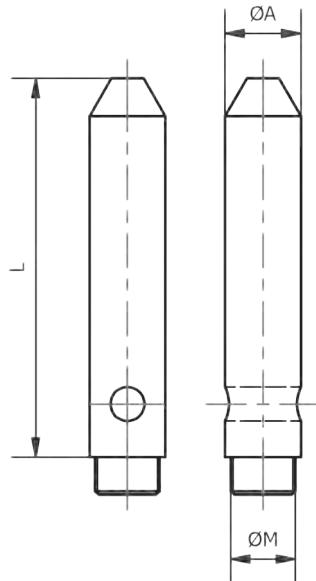
990
Other PA-Forming

ZTB / Centering Pin



Remarks:

- **Application:** for example for simple centering tasks
- can be tightened by the cross hole using a screwdriver
- thread G allows the ZTB to connect to a VLR extension tube



Part No.	Description	A [mm]	M [mm]	L [mm]	compatible with	Material	Weight [g]
1-790-20-00	ZTB 10-60	10	M8x1	60	VLR 10	POM	7
1-790-23-00	ZTB 14-80	14	M12x1	80	VLR 14	POM	17
1-790-29-00	ZTB 20-100	20	M17x1	100	VLR 20	POM	43
1-790-35-00	ZTB 30-100	30	M27x1	100	VLR 30	POM	100

HEU 10 / Stroke Unit with Piston-Ø 10 mm

Remarks:

► **Application:** for delivery of various components - numerous mounting accessories allow various applications such as positioning textiles or demoulding parts

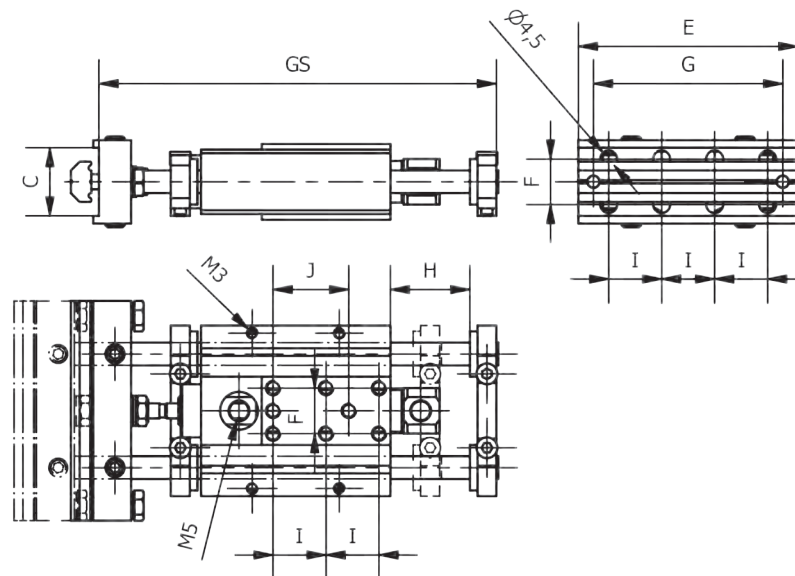
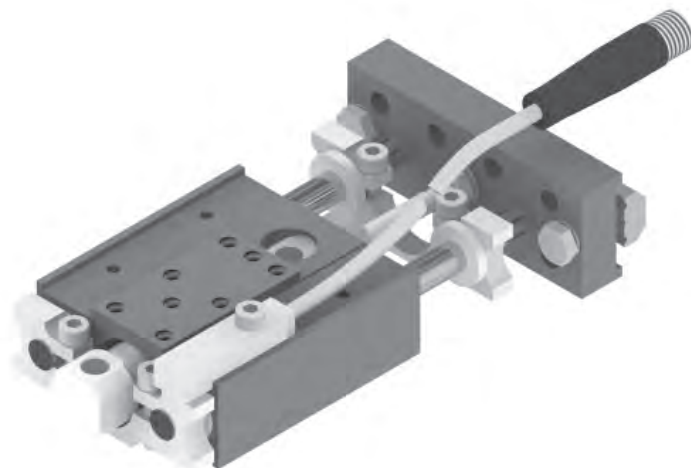
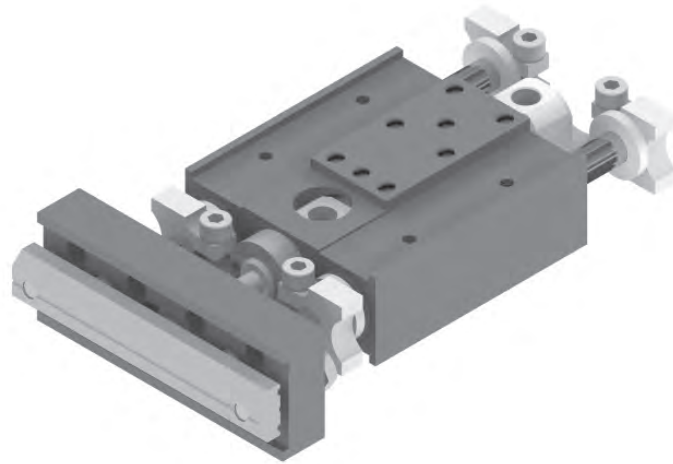
- pneumatic Stroke Unit with piston diameter 10 mm (double-acting)
- one cylinder and two guides
- Stroke Unit can absorb lateral forces and moments
- stroke infinitely adjustable
- » maximum air pressure is 6 bar, use dry and filtered air only

Monitoring:

- monitoring of end positions (inductive) with IEK 8 or IES 8
- » see below picture

Accessories e.g.:

- L Profile
- Mounting Bar DKS L 10-60
- Adapter A3 HEU 10



Part No.	Description	Piston Ø [mm]	GS [mm]	Stroke H [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	I [mm]	J [mm]	Weight [g]
1-752-60-00	HEU 10-15	10	98	0-15	18	22	58	12	50	14	20	229
1-752-61-00	HEU 10-60	10	143	0-60	18	22	58	12	50	14	20	264

HEU / Stroke Unit with Piston-Ø 16 mm



Remarks:

► **Application:** for delivery of various components - numerous mounting accessories allow various applications such as positioning textiles or demoulding parts

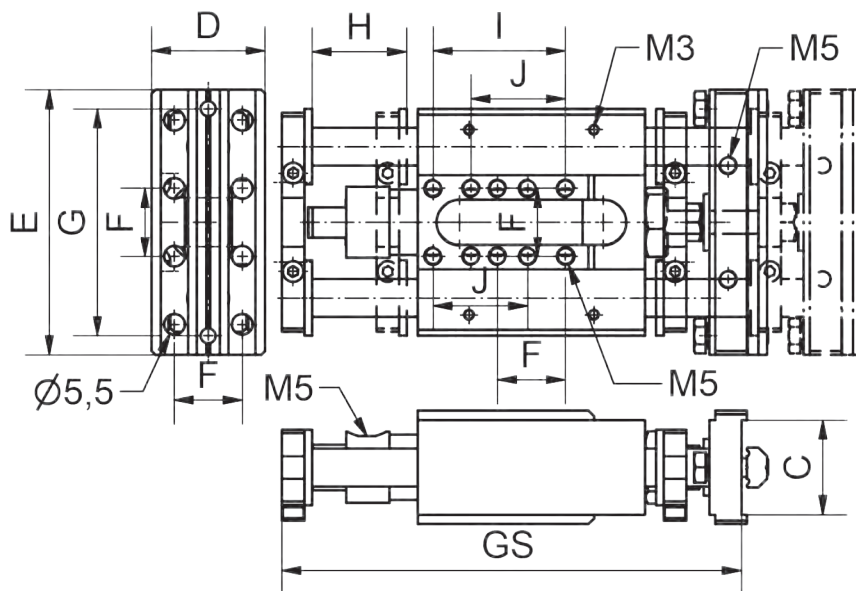
- pneumatic Stroke Unit with piston diameter 16 mm (double-acting)
- one cylinder and two guides
- Stroke Unit can absorb lateral forces and moments
- stroke infinitely adjustable
- » maximum air pressure is 6 bar, use dry and filtered air only

Monitoring:

- monitoring of end positions (inductive) with IEK 8 or IES 8
- » see below picture

Accessories e.g.:

- X-Profile
- GP-HEU 16 - adapter plate HEU
- KN-HEU 16 - adapter for 20 mm clamps
- AE-HEU 16 - adapter HEU
- AU-HEU 16 - adapter HEU
- AP-HEU 16 - adapter HEU



Part No.	Description	Piston Ø [mm]	GS [mm]	Stroke H [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	I [mm]	J [mm]	Weight [g]
1-752-01-00	HEU 16-25	16	122	0-25	25	30	70	18	60	35	25	485
1-752-00-00	HEU 16-50	16	146.5	0-50	25	30	70	18	60	35	25	526
1-752-02-00	HEU 16-80	16	176.5	0-80	25	30	70	18	60	35	25	576
1-752-03-00	HEU 16-100	16	196.5	0-100	25	30	70	18	60	35	25	608
1-752-06-00	HEU 16-125	16	221.5	0-125	25	30	70	18	60	35	25	651
1-752-09-00	HEU 16-160	16	256.5	0-160	25	30	70	18	60	35	25	710
1-752-12-00	HEU 16-200	16	296.5	0-200	25	30	70	18	60	35	25	775

HEU L 16 / Stroke Unit Light Weight with Piston-Ø 16 mm

Remarks:

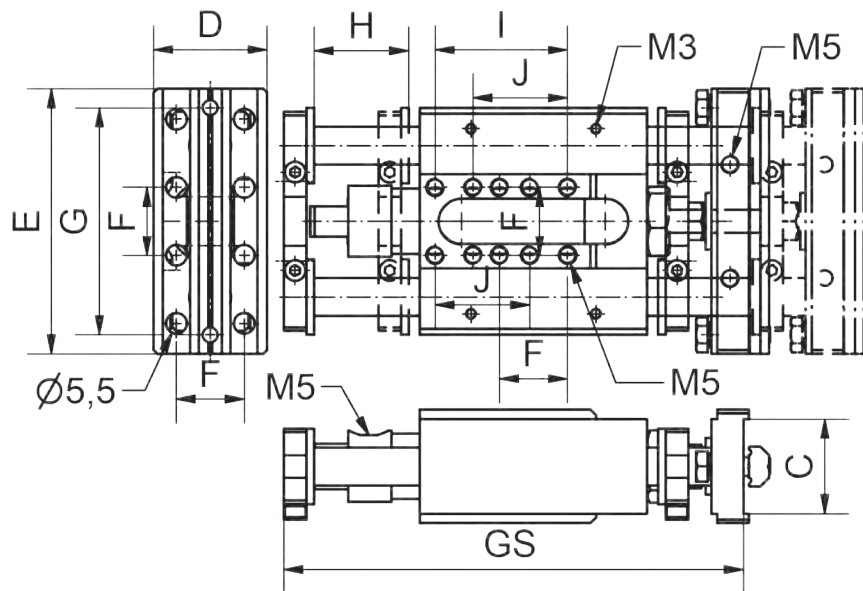
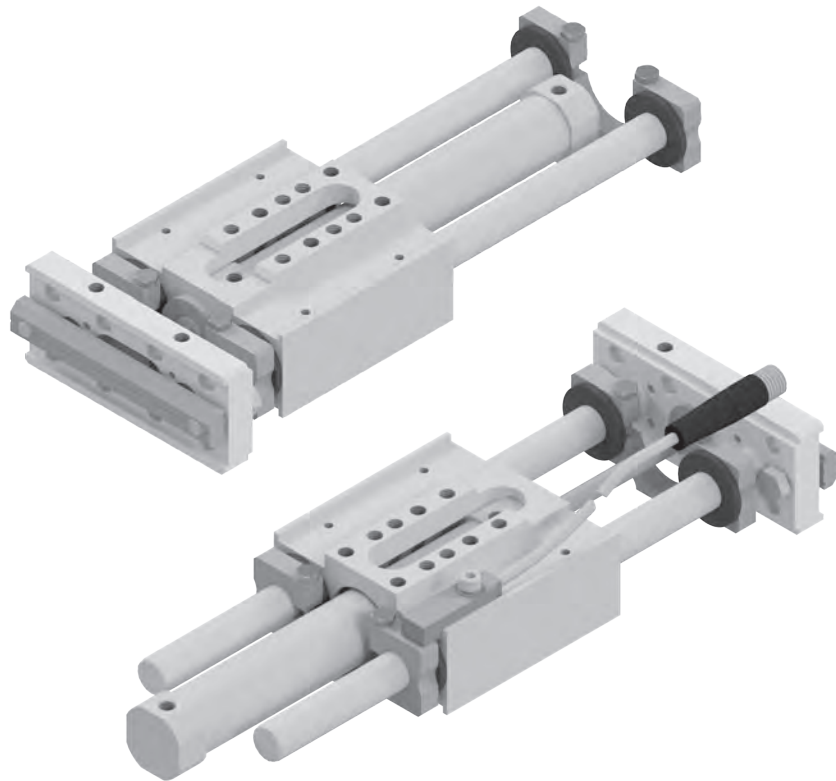
- ▶ **Application:** for delivery of various components - numerous mounting accessories allow various applications such as positioning textiles or demoulding parts
- weight reduction through Aluminium shafts and linear plastic bearings
- 30% lighter than standard stroke units (HEU) with steel shaft
- same dimensions as the HEU
- pneumatic Stroke Unit with piston diameter 16 mm (double-acting)
- one cylinder and two guides
- Stroke Unit can absorb lateral forces and moments
- stroke infinitely adjustable
 - » maximum air pressure is 6 bar, use dry and filtered air only

Monitoring:

- monitoring of end positions (inductive) with IEK 8 or IES 8

Accessories e.g.:

- X-Profile
- GP-HEU 16 - adapter plate HEU
- KN-HEU 16 - adapter for 20 mm clamps
- AE-HEU 16 - adapter HEU
- AU-HEU 16 - adapter HEU
- AP-HEU 16 - adapter HEU



Part No.	Description	Piston Ø [mm]	GS [mm]	Stroke H [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	I [mm]	J [mm]	Weight [g]
1-752-40-00	HEU L 16-25	16	122	0-25	25	30	70	18	60	35	25	368
1-752-43-00	HEU L 16-50	16	146.5	0-50	25	30	70	18	60	35	25	391
1-752-46-00	HEU L 16-80	16	176.5	0-80	25	30	70	18	60	35	25	414
1-752-49-00	HEU L 16-100	16	196.5	0-100	25	30	70	18	60	35	25	435

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

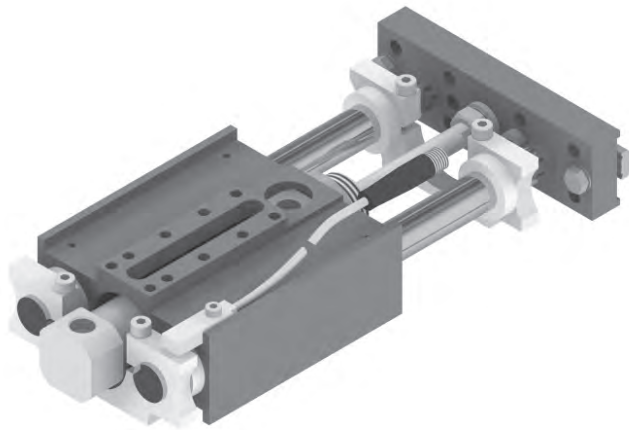
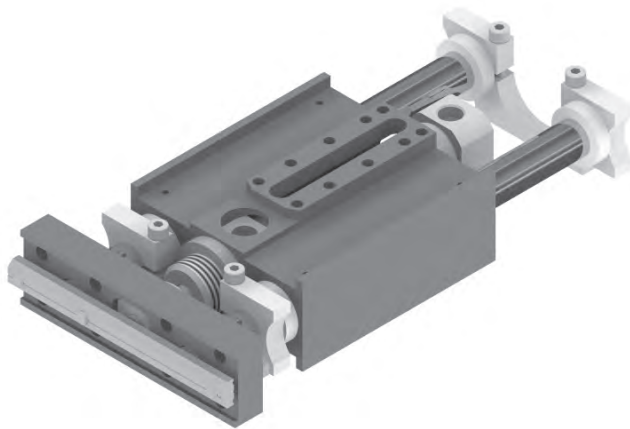
700
Special Elements

800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

HEU 20 / Stroke Unit with Piston-Ø 20 mm



Remarks:

► **Application:** for delivery of various components - numerous mounting accessories allow various applications such as positioning textiles or demoulding parts

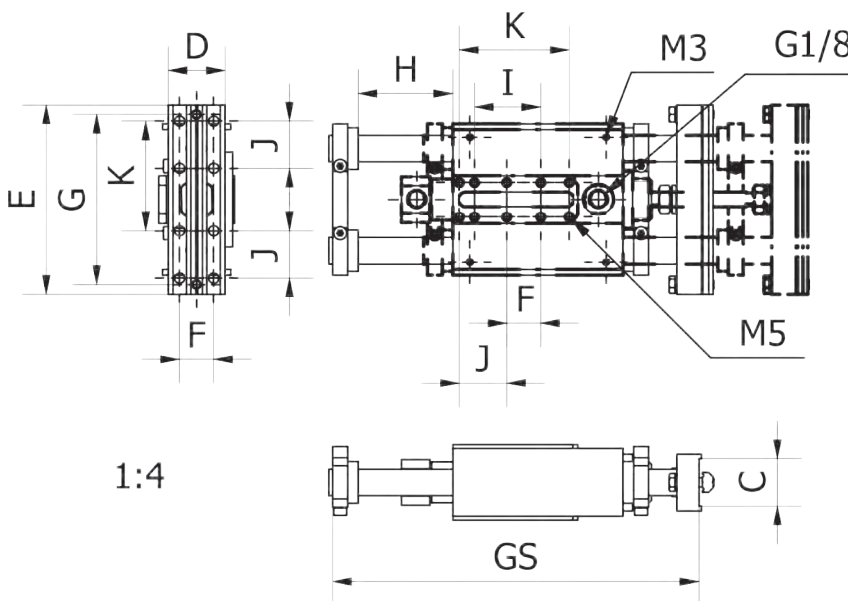
- pneumatic Stroke Unit with piston diameter 20 mm (double-acting)
- one cylinder and two guides
- Stroke Unit can absorb lateral forces and moments
- stroke infinitely adjustable
- » maximum air pressure is 6 bar, use dry and filtered air only

Monitoring:

- monitoring of end positions (inductive) with IEK 8 or IES 8
- » see below picture

Accessories e.g.:

- X-Profile
- GP-HEU 16 - adapter plate HEU
- KN-HEU 16 - adapter for clamps
- AE-HEU 16 - adapter HEU
- AU-HEU 16 - adapter HEU
- AP-HEU 16 - adapter HEU



Part No.	Description	Piston Ø [mm]	GS [mm]	Stroke H [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	I [mm]	J [mm]	K [mm]	Weight [g]
1-752-70-00	HEU 20-50	20	193,5	0-50	25	30	100	18	90	35	25	58	1284
1-752-71-00	HEU 20-100	20	243,5	0-100	25	30	100	18	90	35	25	58	1421

HEU 25 / Stroke Unit with Piston-Ø 25 mm

Remarks:

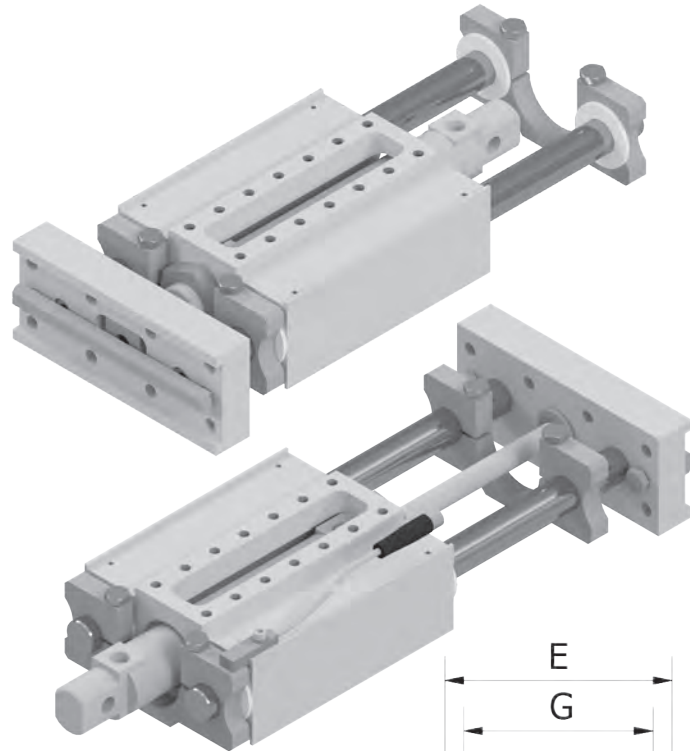
- **Application:** for delivery of various components - numerous mounting accessories allow various applications such as positioning textiles or demoulding parts
- pneumatic Stroke Unit with piston diameter 25 mm (double-acting)
- one cylinder and two guides
- Stroke Unit can absorb lateral forces and moments
- stroke infinitely adjustable
- » maximum air pressure is 6 bar, use dry and filtered air only

Monitoring:

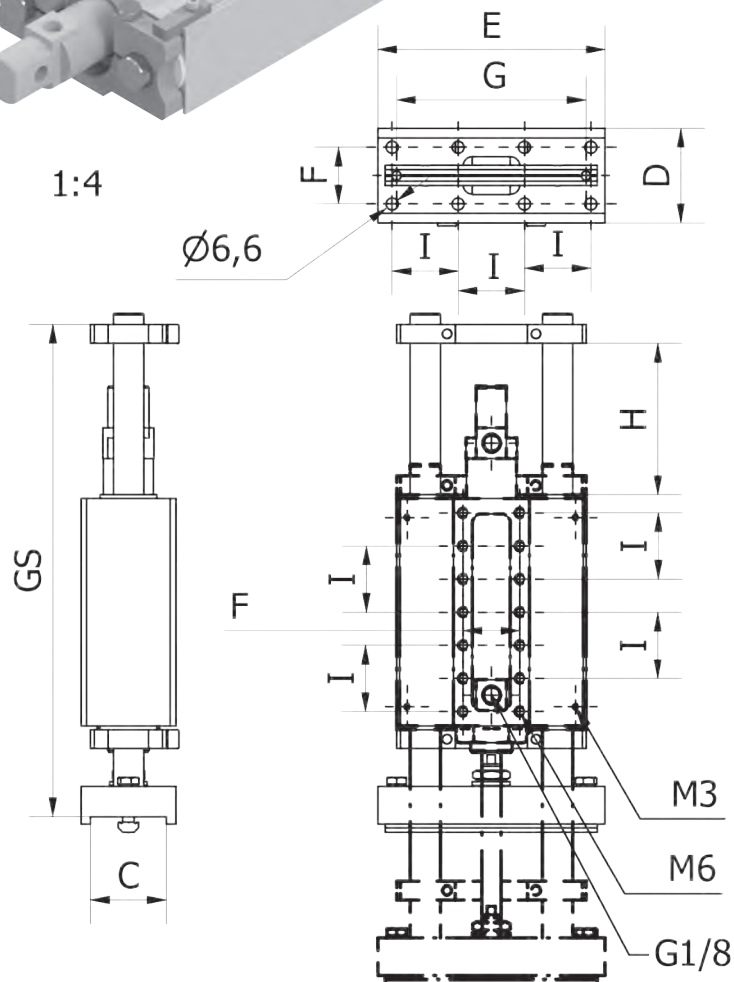
- monitoring of end positions (inductive) with IEK 8 or IES 8
- » see below picture

Accessories e.g.:

- JU-Profile
- GP-HEU 25 - adapter plate HEU
- AE-HEU 25
- AU-HEU 25
- AP-HEU 25

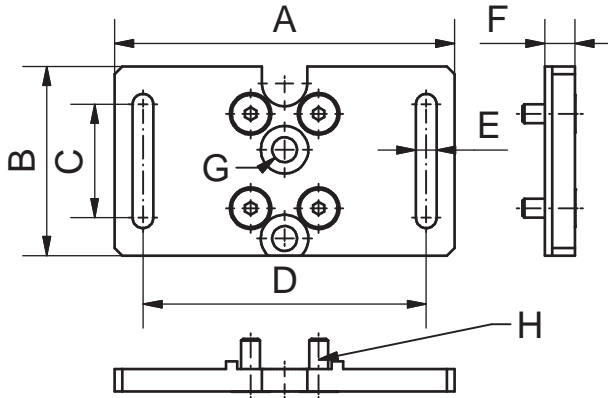
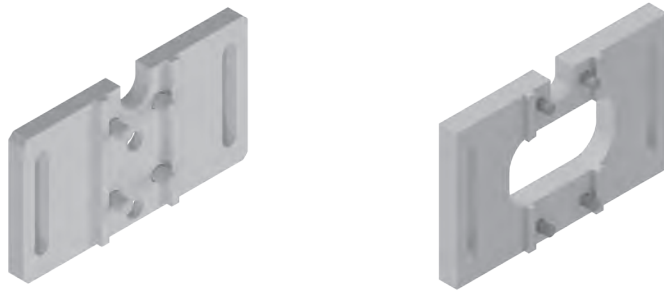


1:4



Part No.	Description	Piston Ø [mm]	GS [mm]	Stroke H [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	I [mm]	Weight [g]
1-752-20-00	HEU 25-80	25	260	0-80	40	50	120	30	100	35	2683
1-752-21-00	HEU 25-100	25	280	0-100	40	50	120	30	100	35	2767
1-752-22-00	HEU 25-160	25	340	0-160	40	50	120	30	100	35	3027
1-752-24-00	HEU 25-200	25	380	0-200	40	50	120	30	100	35	3195

GP HEU / Adapter Plate for Stroke Unit



Part No.	Description	A	B	C	D	E	F	G	H	Material	Weight [g]
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		
1-753-06-00	GP HEU 16	90	50	30	75	5.5	8	6.6	M5x14	Aluminium	73
1-753-27-00	GP HEU 25	140	90	60	120	6.6	15	6.6	M6x14	Aluminium	312

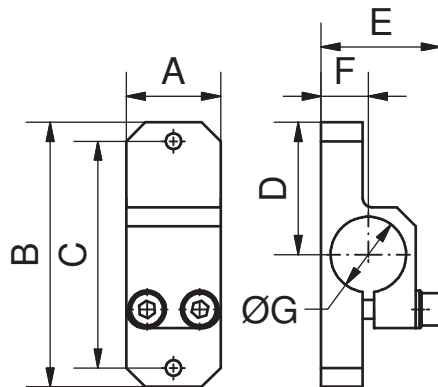
Remarks:

- ▶ **Application:** this adapter plate connects stroke units HEU directly to profiles
- » see application examples for mounting example

Scope of delivery:

- incl. mounting material

KN HEU / Mounting Adapter for Needle Gripper on Stroke Units



Part No.	Description	A	B	C	D	E	F	G	Material	Weight [g]
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		
1-753-08-00	KN HEU 16	25	70	60	35	31.6	12.5	20	Aluminium	67

Remarks:

- ▶ **Application:** e.g. for mounting other components such as needle grippers to the HEU stroke units
- can be mounted directly to the stroke unit
- » see application examples for mounting example

Scope of delivery:

- incl. mounting material

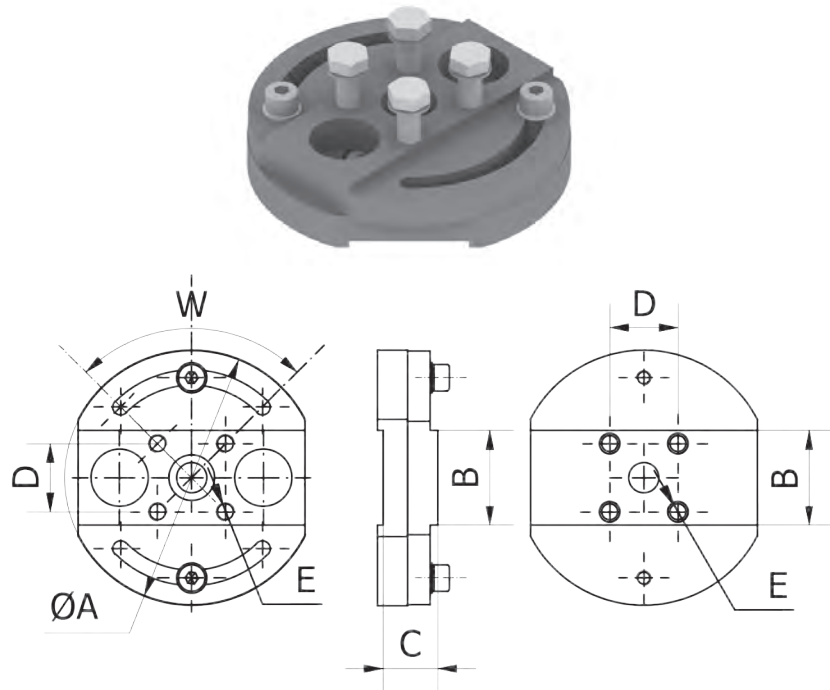
HEU 16 A XY / Adapter for XY-Stroke Unit

Remarks:

- **Application:** e.g. for even more flexibility in pick-and-place robot hands (material injection)
- easy to assemble and space-saving design
- two HEU 16 can be adapted to an XY stroke unit
- angle of the X-stroke can be infinitely adjusted by an integrated centering $\pm 45^\circ$
- both stroke units are connected positively and form locking to the adapter
- » see application examples for mounting example

Scope of delivery:

- incl. mounting material



Artikelnr.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	W [°]	Weight [g]
1-753-12-00	HEU 16 A XY	67	25	14,5	18	M5	± 45	159

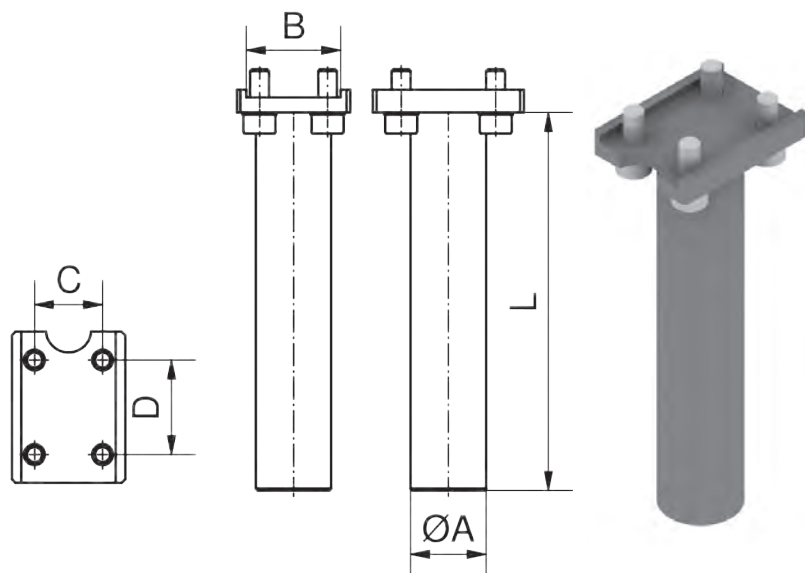
AE HEU / Mounting Adapter for HEU Stroke Unit

Remarks:

- **Application:** e.g. for flexible mounting of stroke units
- adapter is mounted form-fitting on the body of the HEU and offers various adjustment options
- this adapter fits all HEU and HEU L stroke units
- » see application examples for mounting example

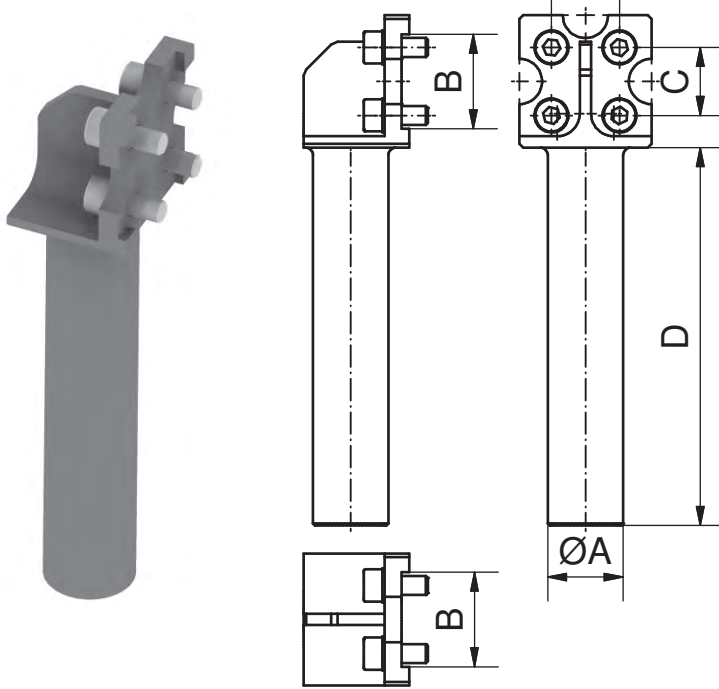
Scope of delivery:

- incl. mounting material



Artikelnr.	Description	A [mm]	B [mm]	C [mm]	D [mm]	L [mm]	Material	Weight [g]
1-753-03-00	AE 20 - 100 HEU 16	20	25	18	25	100	Aluminium	65
1-753-23-00	AE 30 - 80 HEU 25	30	40	30	35	80	Aluminium	133

AU HEU / Mounting Adapter for HEU Stroke Unit



Remarks:

► **Application:** e.g. for flexible mounting of HEU Stroke Units

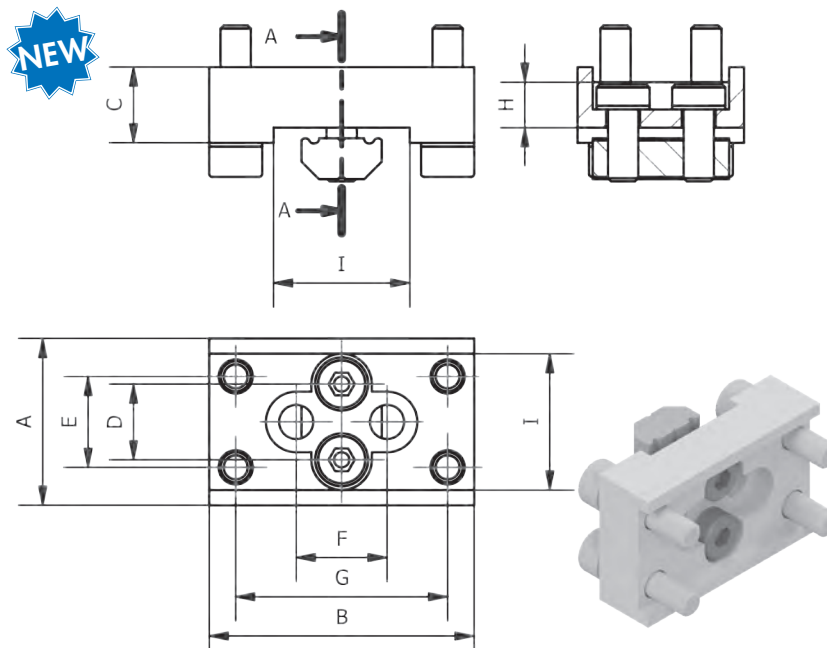
- Adapter can be mounted lengthwise or crosswise (90 °) to the axis of the stroke unit with form locking
- clamping diameter 20mm allows several mounting options
- » see application examples for mounting example

Scope of delivery:

- incl. mounting material

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	Material	Weight [g]
1-753-00-00	AU 20 - 100 HEU 16	20	25	18	100	Aluminium	72
1-753-22-00	AU 30 - 80 HEU 25	30	40	30	80	Aluminium	324

AP HEU / Mounting Adapter for Stroke Units to a Profiles



Remarks:

► **Application:** adapter allows direct connection of stroke units to profiles

- force-fit and form locking connection on profile and stroke unit
- made of aluminium
- » see application examples for mounting example

Scope of delivery:

- incl. mounting material

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]	Dimension I form locking to profile	Weight [g]
1-753-40-00	AP HEU 10	22	35	10	10	12	10	28	6	18	L 18-10 or L 18-18	23
1-753-10-00	AP HEU 16	30	45	12	10	18	18	35	8	25	X 25-25 or X 50-25	64
1-753-20-00	AP HEU 25	30	120	20	-	30	32	105	11	25	X 25-25 or X 50-25	314

New

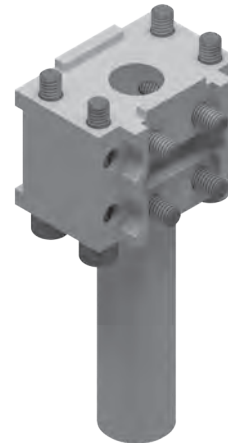
A3 HEU 10 / Mounting Adapter for HEU 10 with 3 Mounting Options

Remarks:

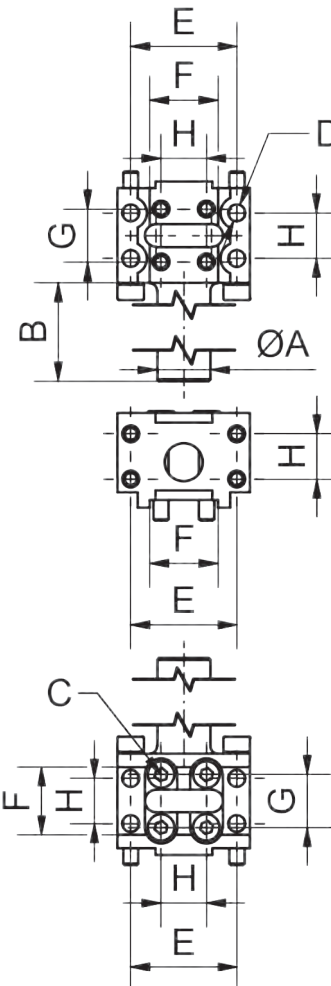
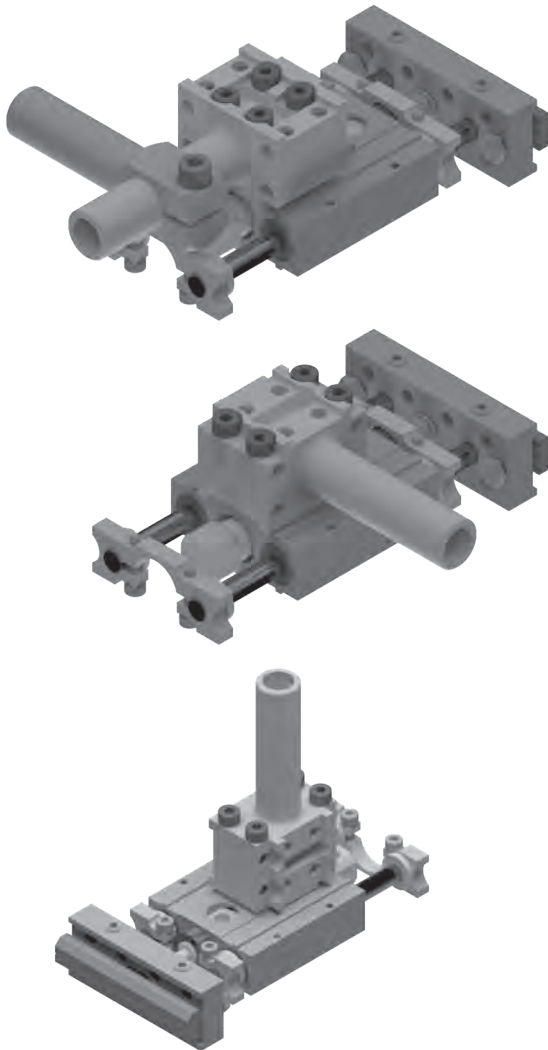
- ▶ **Application: for more flexible assembly options of stroke units HEU 10**
- clamping can be placed in all three axes, see application examples
- clamping diameter 20mm allows several mounting options
- » see application examples for mounting example

Scope of delivery:

- incl. mounting material



Application examples



Part No.	Description	A Ø [mm]	B [mm]	C [mm]	D Ø [mm]	E [mm]	F [mm]	G [mm]	H [mm]	Material	Weight [g]
1-753-41-00	A3 HEU 10	14	50	M4	4,5	28	18	14	12	Aluminium	74

000 Quick Change System

050 Profile-Channel Nut

100 Clamps

115 Tubular Clamps

120 Profile Connectors

190 Accessories-Profile

200 Vacuum Cup-Connectors

220 Vacuum Cups

224 Vacuum Cups-Special

230 Manifold

290 Adapter

300 Gripper Arms

400 Grippers

450 Gripper Fingers

600 Nipper Bodies

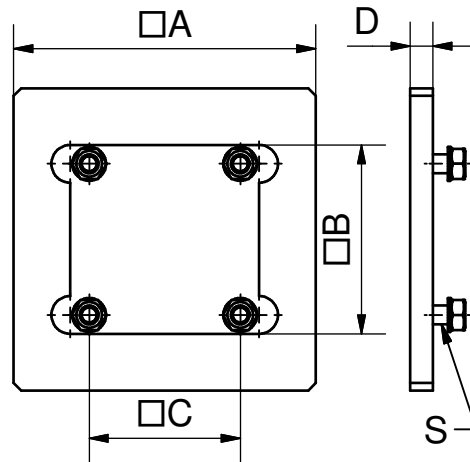
610 Nipper Blades

700 Special Elements

800 Electric and Sensors

850 Pneumatic

ADU / Universal Mounting Bracket



Remarks:

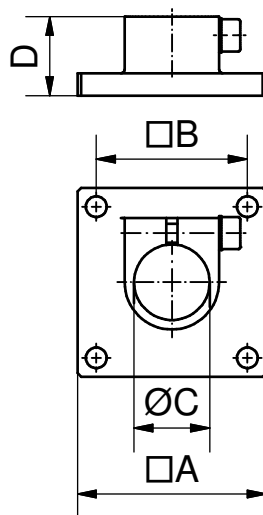
- ▶ Application: active elements (e.g. stroke units, rotating units, grippers, etc.) can be mounted and integrated into the EOAT
- » see application examples

Accessories e.g.:

- Adapter AP ADU

Part No.	Description	A [mm]	B [mm]	C [mm]	S	D [mm]	Material	Weight [g]
1-437-00-00	ADU 60	60	40	30	M4x12	5	Aluminium	49
1-437-03-00	ADU 80	80	50	40	M5x14	6	Aluminium	106
1-437-06-00	ADU 120	120	60	50	M6x16	6	Aluminium	232

AP ADU / Flange for Adapter Plate ADU



Remarks:

- ▶ Application: with this flange plate e.g. the adapter plate ADU can be connected to an extension tube VLR
- » see application examples

Accessories e.g.:

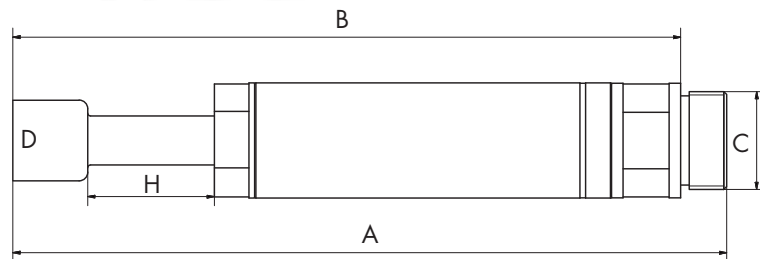
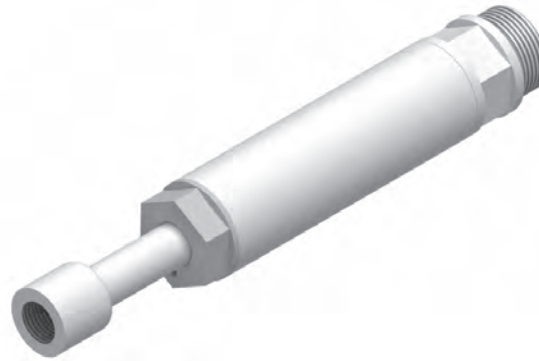
- Adapter Plate ADU
- Extension Tube VLR

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	Material	Weight [g]
1-436-80-00	AP ADU 60	40	30	14	17	Aluminium	24
1-436-83-00	AP ADU 80	50	40	20	21	Aluminium	50
1-436-86-00	AP ADU 120	60	50	30	25	Aluminium	83

VHE 20 / Vacuum-Stroke Unit

Remarks:

- ▶ **Application:** e.g. for extracting of layers
- two functions:
 1. suction
 2. back stroke
- just one vacuum circle needed
- clamp diameter 20mm
- spring-loaded slipping forward
- return stroke by pressure difference
- holding force is depending on vacuum and diameter of vacuum cup
- return stroke depends on the vacuum level
 - » maximum air pressure is 6 bar, use dry and filtered air only
 - » see application example



Part No.	Description	A [mm]	B [mm]	C [mm]	D Air Connection	Stroke H [mm]	Material	Weight [g]
1-775-00-00	VHE 20	124	116	M17x1	1/8"	20	20	48

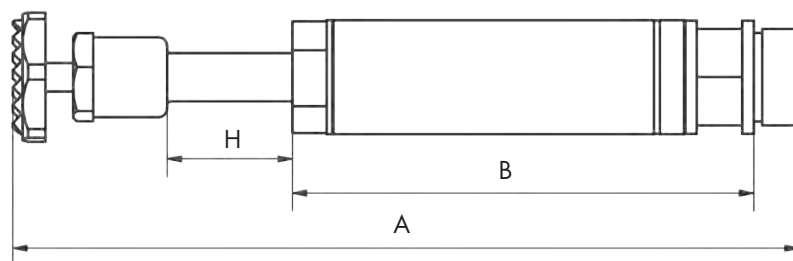
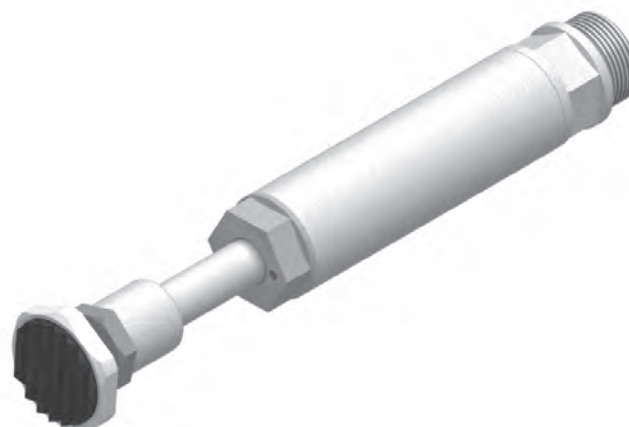
SF 20 / Stacking Guide

Remarks:

- ▶ **Application:** e.g. for „probing“ on tool (ejector side) or magazine
- increases the security of the robot hand
- for precise work
- easy to use
- clamping diameter 20mm
 - » maximum air pressure is 6 bar, use dry and filtered air only

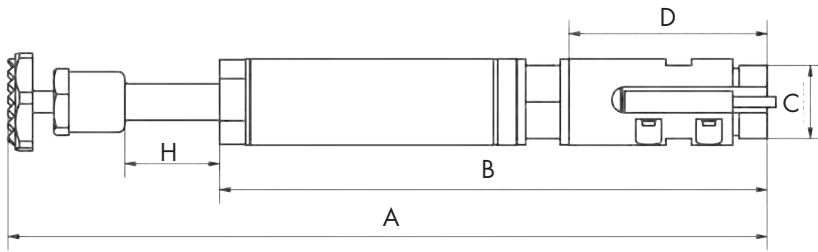
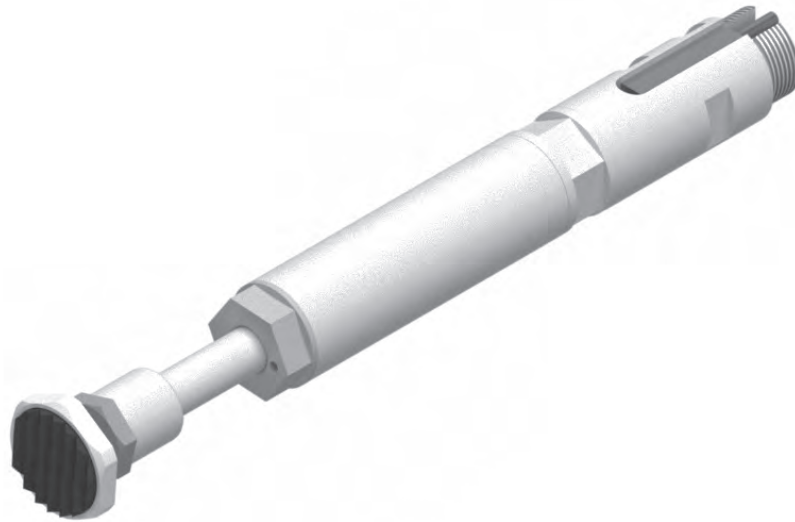
Accessories:

- Sensor MFS T2 (Part No. 1808-30-00)
- Sensor Bracket GRF SH 20 AL



Part No.	Description	A [mm]	B [mm]	Stroke H [mm]	Material	Weight [g]
1-771-00-00	SF 20	138	81	20	20	68

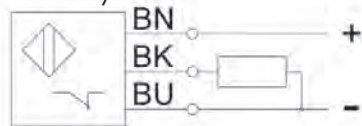
SFP / Stacking Guide Specific



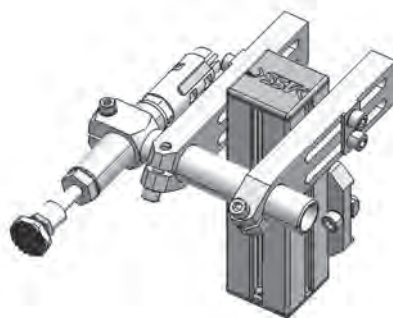
Normally opened:



Normally closed:



Application example:
Stacking Guide with additional sensors



Application example:
Robot hand with integrated Stacking
Guide

Bemerkungen:

- ▶ Application: e.g. for monitored „probing“ on tool (ejector side) or magazine
- inductive monitoring
- increases the safety of the robot hand
- sensor (3-pin, with 2m cable) included
- two versions available:
 - PNP normally closed: SFP 20 NC
 - NPN normally opened: SFP 20
- for precise work
- easy to use
- clamp diameter 20mm
- up to three positions can be monitored:
 - 1x via inductive sensor (included)
 - 2x via magnetic field sensor (see accessories)
- » endurance test: two million cycles completed without any error
- » see application example

Accessories:

- Sensor MFS T2 (Part No. 1-808-30-00)
- Sensor Bracket GRF SH 20 AL

Part No.	Description	A [mm]	B [mm]	C	D [mm]	Stroke H [mm]	Electrical contacts	Weight [g]
1-770-00-00	SFP 20	176	127	M17x1	46	20	normally opened	129
1-772-00-00	SFP 20 NC	176	127	M17x1	46	20	normally closed	129

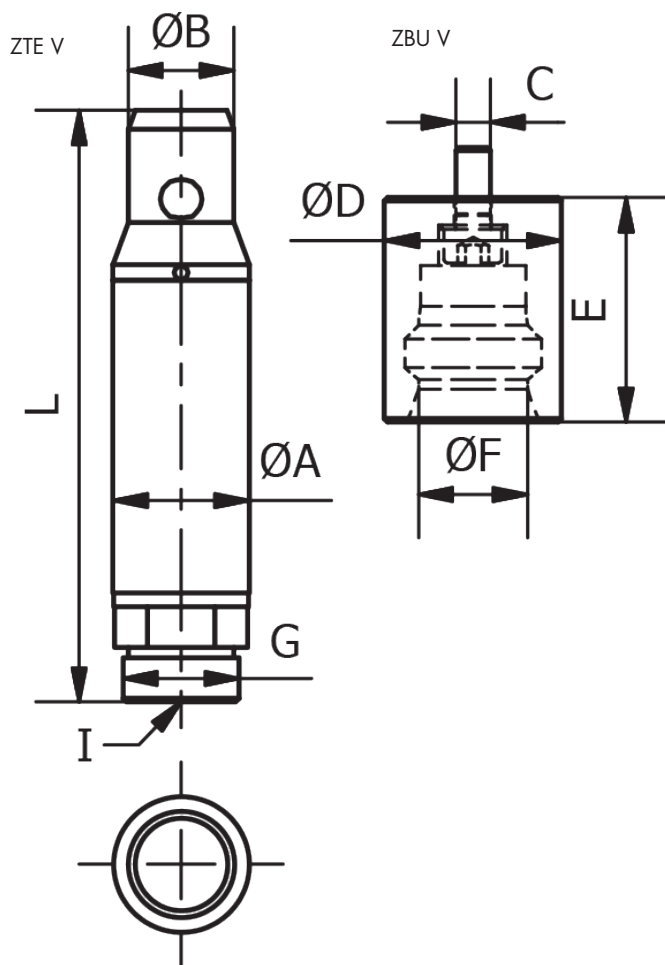
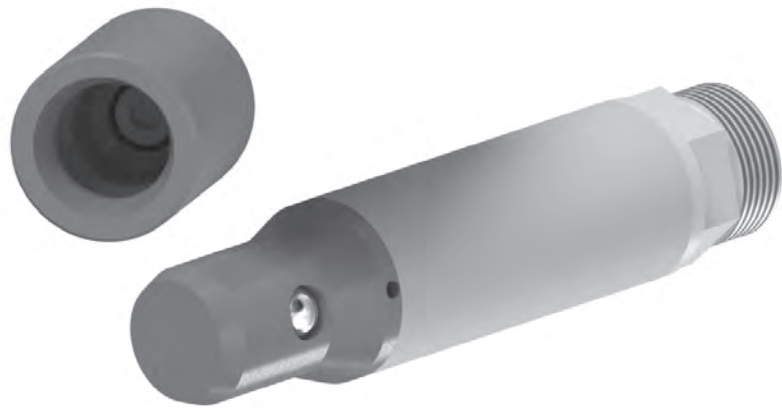
ZTE V / Docking Finger, Pneumatic

Remarks:

- ▶ **Application: e.g. for safe and positionally accurate centering of the EOAT in the tool**
- for absolute accuracy
- high holding force
- powerful, pneumatic centering unit (ZTE V + ZBU V)
- compact design
- use H7-tolerance for inserting ZBU V into tool
- with a teachable sensor, the locked and unlocked position can be monitored
- single-acting
- » maximum air pressure is 6 bar, use dry and filtered air only
- » see application example

Accessories:

- Docking Connector ZBU V
- Sensor MFS T2 (Part No. 1-808-30-00)
- Sensor Bracket GRF SH AL



ZTE V / Docking Finger

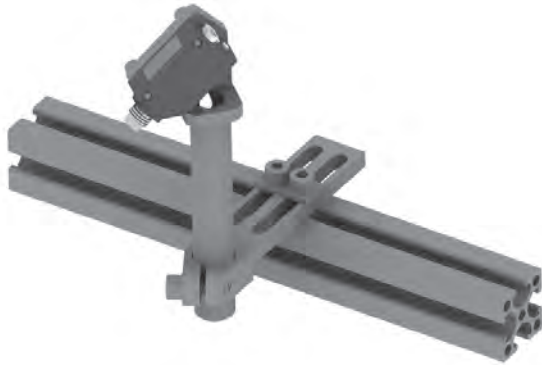
Part No.	Description	A [mm]	B [mm]	L [mm]	I ["]	G [mm]	holding force at 6 bar [N]	Weight [g]
1-747-20-00	ZTE 20 V	20	15.5	91	G1/8	M17x1	750	81
1-747-30-00	ZTE 30 V	30	25.5	133.5	G1/8	M27x1	1500	314

ZBU V / Docking Connector

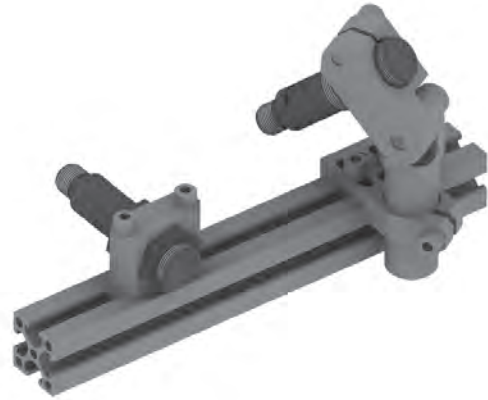
Part No.	Description	C [mm]	D [mm]	E [mm]	F [mm]	Weight [g]
1-747-21-00	ZBU 20 V	M5	26h7	33	16	91
1-747-31-00	ZBU 30 V	M6	40h7	43,5	26	267

800 | Electric and Sensors

App. example GGE-F + LES-6



Application example LRS-18



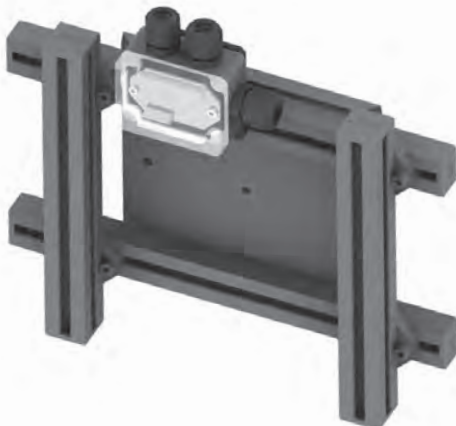
Application example SH



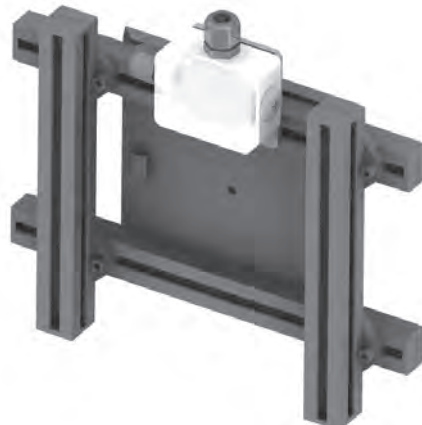
App. example SEO-10 + GEO-10



Application example KK



Application example RPLG



LES 6 / Photoelectric Sensor - Compact

Remarks:

- optical part present control
- with plug connection
- connection M12 4-pin
- NPN version on demand

Drawing:

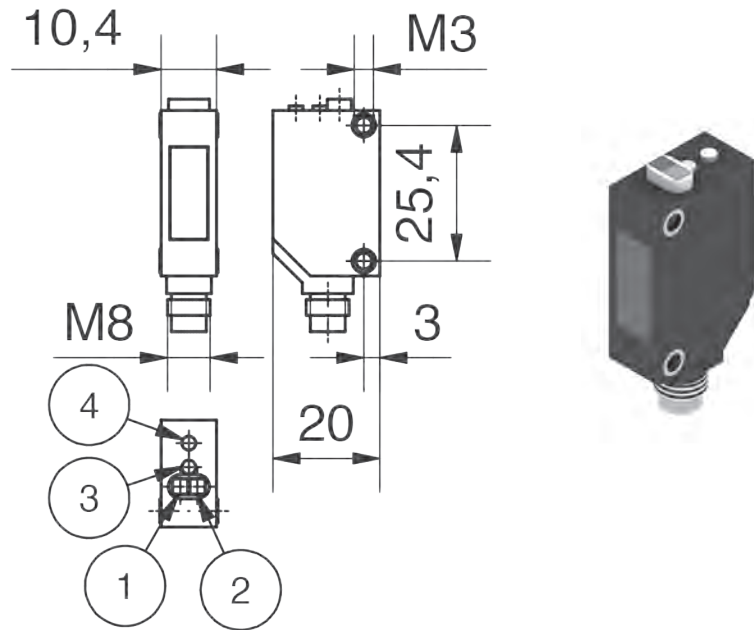
- 1 status (orange)
- 2 ready (green)
- 3 sensitivity adjustment
- 4 switch light/dark

Scope of Delivery:

- without cable

Accessories e.g.:

- Gripper Arms for Sensor GGE 14 F
- connector with cable KG 8-4
- elbow connector KW 8-4



Part No.	Description	U [V] DC	I [mA] DC	Range [mm]	Output	Weight [g]
1-802-02-00-1	LES 6	10-36	200	20-1000	PNP	21

LRS 18 / Photoelectric Sensor - Cylindric

Remarks:

- optical part present control
- mounting diameter 20mm
- connection M12 4-pin

Drawing:

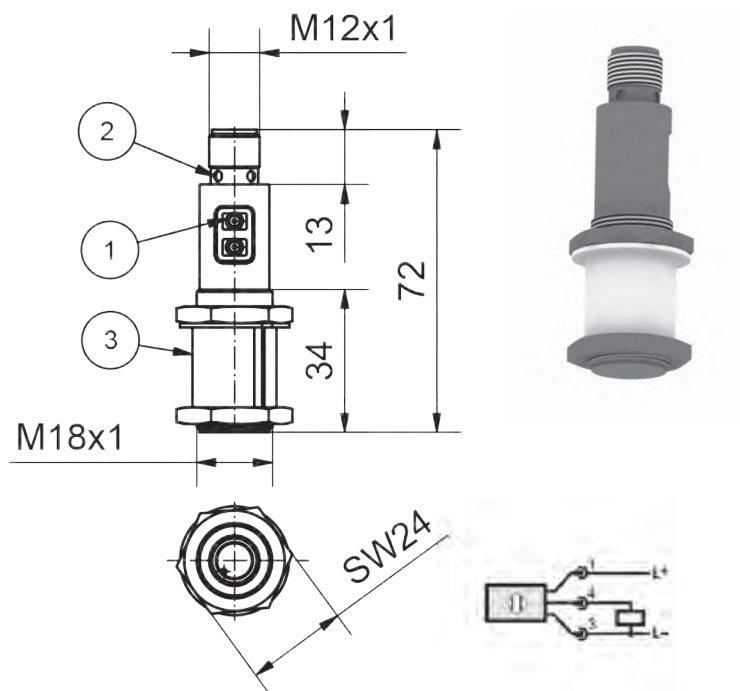
- 1 LED program button
- 2 LED 4x90 detection
- 3 sleeve (RMB sleeve Ø 20 mm Part No. 1-1116-00-05)

Scope of Delivery:

- without cable

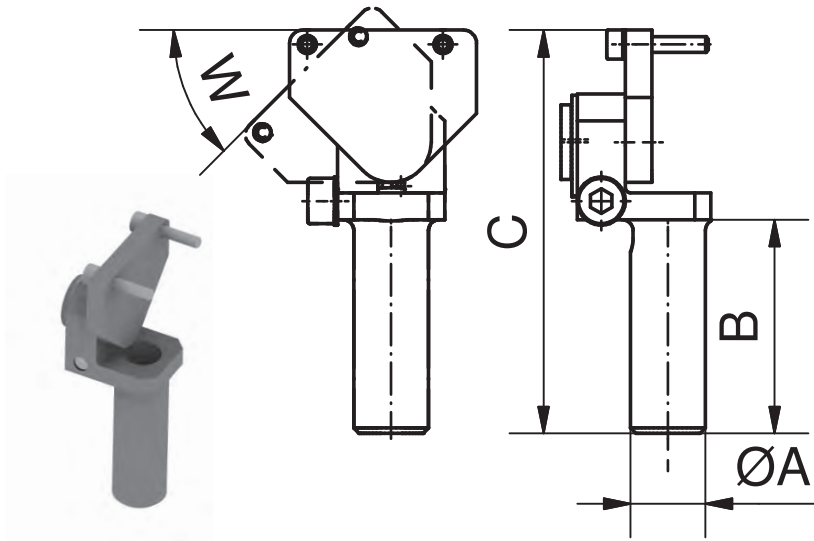
Accessories e.g.:

- connector with cable KG 18
- elbow connector KW 18



Part No.	Description	U [V] DC	I [mA] DC	Range [mm]	Output	Switch type	Weight [g]
1-802-04-00	LRS 18	10-36	200	2-800	PNP or NPN	Light or Dark	48

GGE 14...F / Gripper Arm for Photoelectric Sensor LES – 6



Remarks:

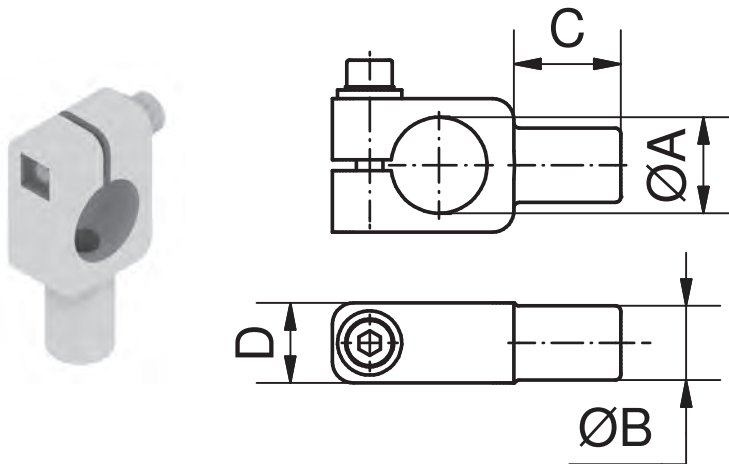
- sensor can be adjusted continuously, at any angle W, see table

Scope of Delivery:

- including screws and lock washers
- LES 6 not included

Part No.	Description	A [mm]	B [mm]	C [mm]	W [°]	Material	Weight [g]
1-315-60-00	GGE 14-40 F	14	40	75.5	+/- 45	Aluminium	38
1-315-63-00	GGE 14-80 F	14	80	117.5	+/- 45	Aluminium	46
1-315-66-00	GGE 14-120 F	14	120	155.5	+/- 45	Aluminium	54

SH / Sensor Bracket for round sensors



Remarks:

- made with of Polyamide
- » custom design on request

Part No.	Description	for sensor Ø [mm]	A [mm]	B [mm]	C [mm]	D [mm]	Material	Weight [g]
1-804-02-00	SH4-10	4	4	10	16	12	Polyamide	6
1-804-03-00	SH5-10	5	5	10	16	12	Polyamide	6
1-804-04-00	SH6.5-10	6.5	6.5	10	16	12	Polyamide	6
1-804-05-00	SH8-10	8	8	10	16	12	Polyamide	7
1-804-06-00	SH12-10	12	12	10	16	13	Polyamide	10
1-804-07-00	SH18-14	18	18	14	20	15	Polyamide	16
1-804-08-00	SH20-14	20	20	14	20	15	Polyamide	20
1-804-09-00	SH30-20	30	30	20	26	20	Polyamide	36

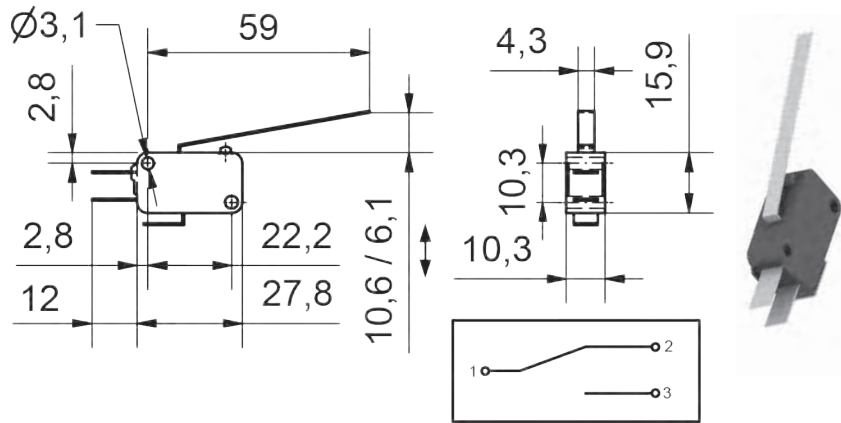
SEO 5 / Mechanical Switch without Cable

Remarks:

- changeover switch with switching flag
- 3 plug connections for cable lugs

Scope of Delivery:

- switch without cable



Part No.	Description	U [V] DC	I [A] DC	Weight [g]
1-806-02-00	SEO 5	24	1	7

SEO 10 / Mechanical Switch without Cable

Remarks:

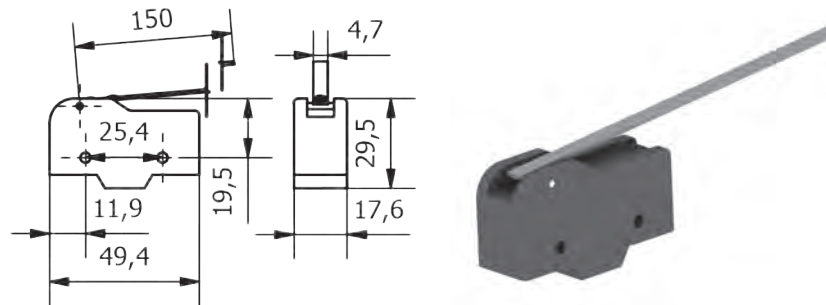
- changeover switch with switching flag
- 3 screw connections

Scope of Delivery:

- switch without cable

Accessories e.g.:

- housing GEO 10



Part No.	Description	U [V] DC	I [A] DC	Weight [g]
1-806-04-00	SEO 10	24	1A	40

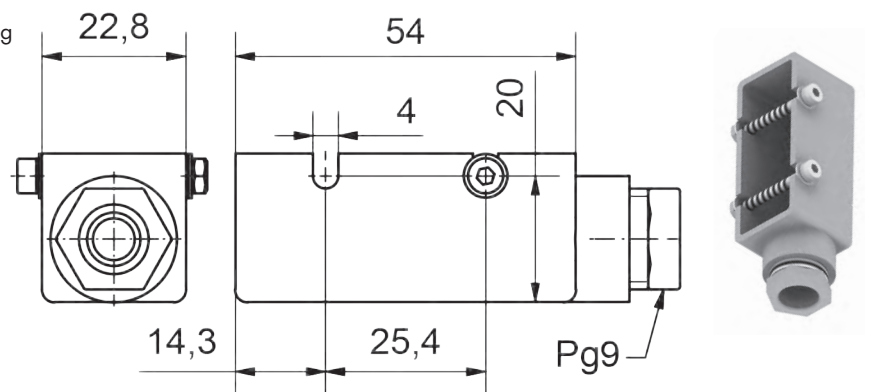
GEO 10 / Housing for Mechanical Switch SEO 10

Remarks:

- SEO 10 can be mounted using the GEO 10 housing » see application examples

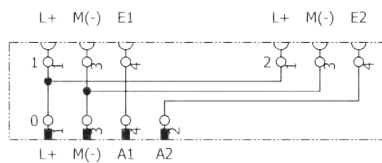
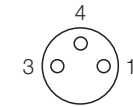
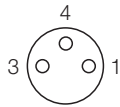
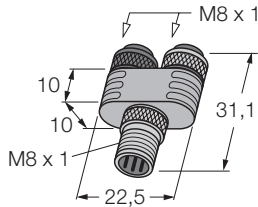
Scope of Delivery:

- including screws



Part No.	Description	Weight [g]
1-806-06-00	GEO 10	19

VTY / Splitter Y-Form

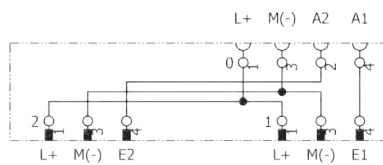


Remarks:

- 2 way splitter in Y-form, screw-on
- 1x male, 4-pins, M8x1 (plug with external thread), straight
- 2x female, 3-pins, M8x1 (union nut with internal thread), straight
- space saving
- up to 12 inputs in 1 EVM 8-6-4
- » see application example

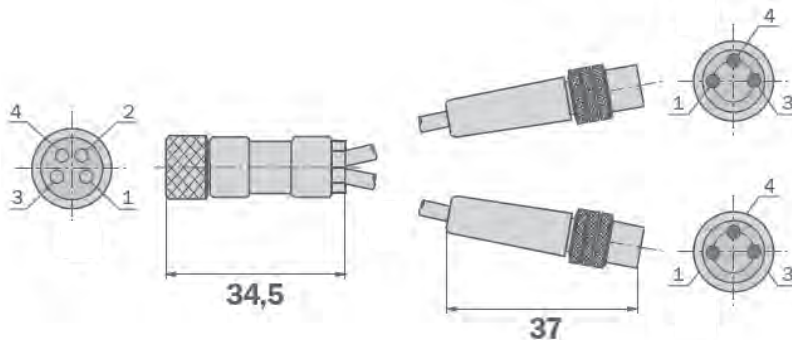
Part No.	Description	Wire	Thread	compatible with	Weight [g]
1-803-15-00	VTY-4-3-3	4-2x3	M8x1	EVM-8-6-4	10

ASY / Adapter Y-Form



Remarks:

- Y-adapter with one female socket connector (4 pins) and two male plug connectors (3 pins)
- 1x M8 4-pin female, socket
- 2x M8 3-pin male, plug
- the signals of a sensor (4-pin) with two output signals can be divided into two individual signals (3-pin), e.g. MFS T2 3.7



Part No.	Description	Cable length [mm]	Thread	Number of pins female	Number of pins male	Weight [g]
1-803-16-00	ASY-3-3-4	250	M8	1x4	2x3	30

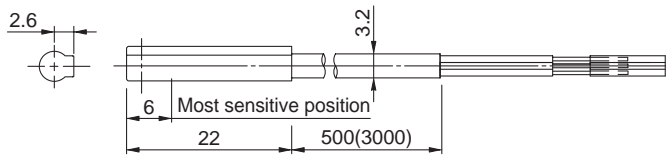
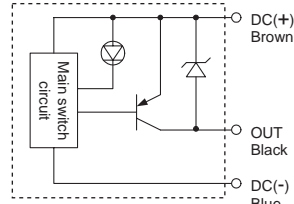
ICS 8 / Sensor, C-Nut, Plug, M8

Remarks:

- 3-pin proximity switch for monitoring an end-position at short stroke cylinders
- suitable for C-nut
- connection M8 3-pin
- suitable for e.g.:
 - Short Stroke Cylinder KHZ
 - Special Cylinder SZD
 - Grippers with Stroke HUZ / HUP P
 - Sliding Units HUE

Accessories e.g.:

- connector KG 8-3



Part No.	Description	U [V] DC	function	Cable length [m]	Output	Weight [g]
1-808-36-00	ICS 8	4,5 - 28	Closer	0,5	PNP	11
1-808-37-00	ICS 8 NPN	4,5 - 28	Closer	0,5	NPN	11

IEK 8 / IES 8 / Sensor

Remarks:

- inductive proximity switch
- sensor is used e.g. for standard monitoring on ASS grippers (GRZ 20-16, GRZ 32, GRZ 10-12) and stroke units (HEU / HEU-L)
- PNP and NPN switching available
- Initiator can be fixed with an M3 screw
- connection M8 3-pin

Drawing:

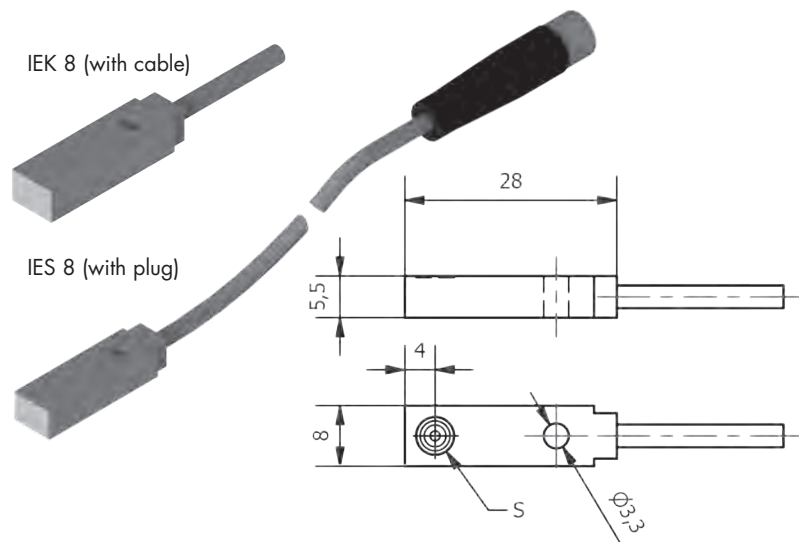
- S sensor

Scope of delivery:

- M3 hexagon socket screw not included

IEK 8 (with cable)

IES 8 (with plug)



Part No.	Description	Cable length [mm]	Plug	Output	U [V] DC	I [mA] DC	Number of pins	Weight [g]
1-808-12-00	IEK 8 PNP	3000		PNP	10-30	150	3	32
1-808-14-00	IEK 8 NPN	3000		NPN	10-30	150	3	32
1-808-16-00	IES 8 PNP	160	x	PNP	10-30	150	3	6
1-808-18-00	IES 8 NPN	160	x	NPN	10-30	150	3	6

000
Quick Change
System

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

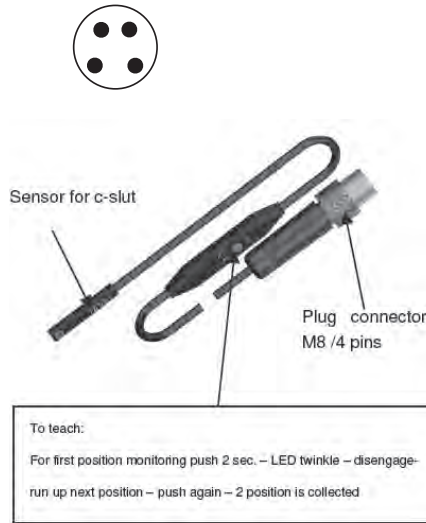
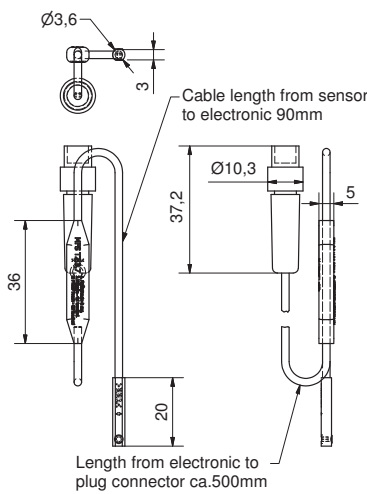
610
Nipper Blades

700
Special
Elements

800
Electric and
Sensors

850
Pneumatic

MFS T2 3,7 / Sensor with two Acting Points „Teachable“



Remarks:

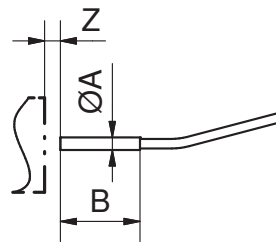
- 2 teach points / acquisition of 2 end positions
- depending on magnetic field, stroke up to 50 mm ascertainable
- compact configuration
- easy clamping with stud screw
- for roundslot-cylinders, gripper fingers and other actuators

Accessories e.g.:

- Connector KG 8-4
- Sensor Bracket GRF SH
- Adapter ASY

Part No.	Description	Ambient temperature [°C]	Output	U [V] DC	I [mA] DC	Number of pins	Weight [g]
1-808-30-00	MFS T2 3,7	-20 up to +75	PNP	12-30	100	4	11

IRK 4 / Proximity Switch for Parallel Gripper PGR-P and PGR

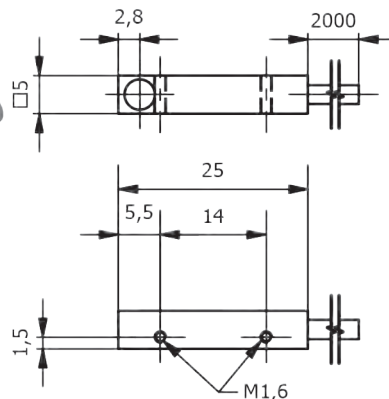
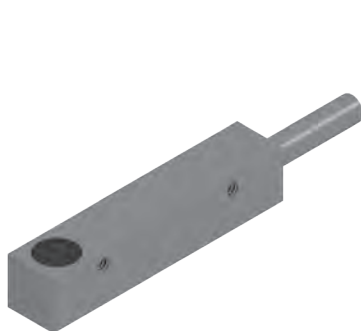


Remarks:

- inductive proximity switch with a 0.8mm range
- it senses the open/close positions of gripper jaws
- » IRK 4 suitable for:
 - PGR-P/PGR 32, 40, 50, 64
- » IRK 4.4 suitable for:
 - PGR 20, 25
- » see chapter 400

Part No.	Description	A [mm]	B [mm]	Z [mm]	U [V] DC	Switching function	Cable length [m]	Pins	Output	Weight [g]
1-808-02-00	IRK 4	4	25	0.8	24	Closer	2	3	PNP	30
1-808-03-00	IRK 4.4	4	15,2	1,0	24	Closer	2	3	PNP	21

IE AL K / Proximity Switch



Remarks:

- inductive proximity switch with a 0.8mm range
- e.g. is used for monitoring tasks with parallel grippers (PGR-P) and Stacking Guide (SFP)
- particularly compact rectangular design for usage in confined spaces
- compact design
- good visibility of signals
- high switching frequency

Scope of Delivery:

- 1x sensor
- 2x slotted screw M1.6x10

Part No.	Description	I [mA] DC	U [V] DC	Switching function	Cable length [m]	Pins	Output	Weight [g]
1-808-38-00	IE AL K	100	10-30	Closer	2	3	PNP	28
1-808-39-00	IE AL K NPN	100	10-30	Closer	2	3	NPN	28

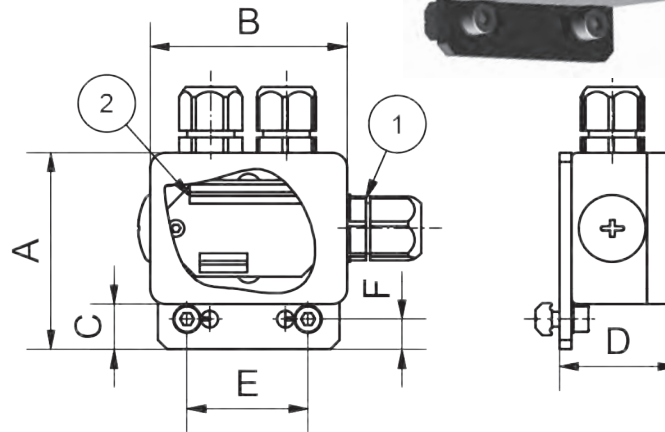
KK / Junction Box

Remarks:

- this compact junction box is for connecting up to 4 sensors in a series or individually (observe manufacturer instructions of the sensor!)
- PNP switching, also suitable for NPN
- for NPN, simply swap the supply voltage (+/-)

Drawing:

- 1 screwed connections
- 2 serial terminals

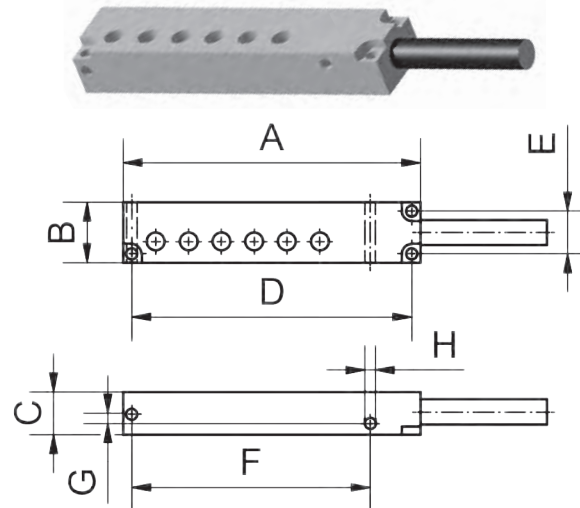


Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	Number of electric terminals	Number of insertion	Weight [g]
1-805-20-00	KK 1	65	65	16	38.9	40	10	9	3	140

EVM / Bus Module

Remarks:

- passive distributor
- 4, 6, 8, 10 or 12 inputs
- for connecting initiators or part controls
- flexible cable
- with M8 3-pin connections
- » Expection: EVM 8-6-4 M8 4-pin



Part No.	Description	Number of inputs	3-pin	4-pin	Cable length [m]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	Weight [g]
1-808-20-00	EVM 8-4	4	x		10	92	24	17	85	17	68.5	4.1	4.3	624
1-808-22-00	EVM 8-6	6	x		10	118	24	17	111	17	94.6	4.1	4.3	787
1-808-24-00	EVM 8-8	8	x		10	144	24	17	138	17	121.5	4.1	4.3	872
1-808-26-00	EVM 8-10	10	x		10	170	24	17	163	17	146.5	4.1	4.3	963
1-808-28-00	EVM 8-12	12	x		10	196	24	17	189	17	172	4.1	4.3	1031
1-808-42-00	EVM 8-6-4	6		x	5	118	24	17	110	17	93.5	4.1	4.3	776

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special Elements

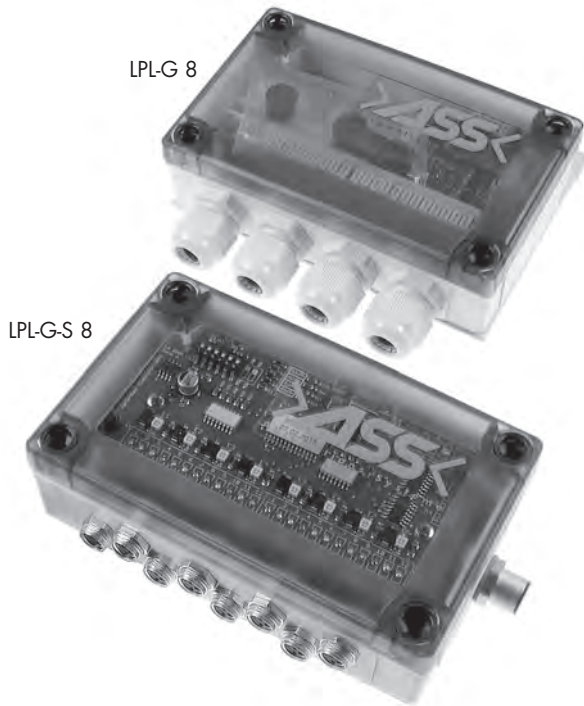
800
Electric and Sensors

850
Pneumatic

990
Other PA-Forming

800 | Electric and Sensors

LPL / Logical Board, LPL-G(-S) / Logical Board with Enclosure



Remarks:

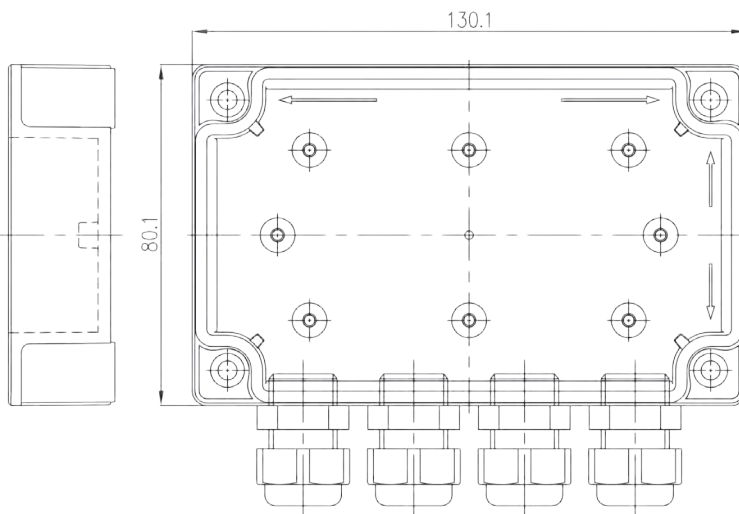
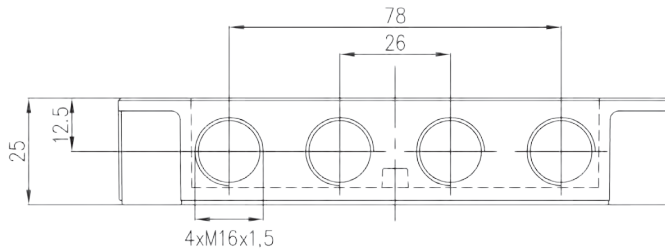
► **Application: Logical Board for summarizing input signals**

- up to 8 inputs and 4 outputs can be assigned
 - inputs can be controlled with +24V driven (for initiators with PNP output) or 0V (for initiators with NPN output)
 - outputs can be used as PNP output (active + 24V, otherwise open) or NPN output (active 0V, otherwise open)
 - the state of the inputs and outputs as well as the normal state of the board are indicated by LEDs; this allows a permanent overview of the operation state of the system
 - by default, there are 4 functions programmed and selectable via DIP switch (other functions on request)
- » see following page

Accessories e.g.:

- connector KG 12-8

4 x M16 cable glands mounted



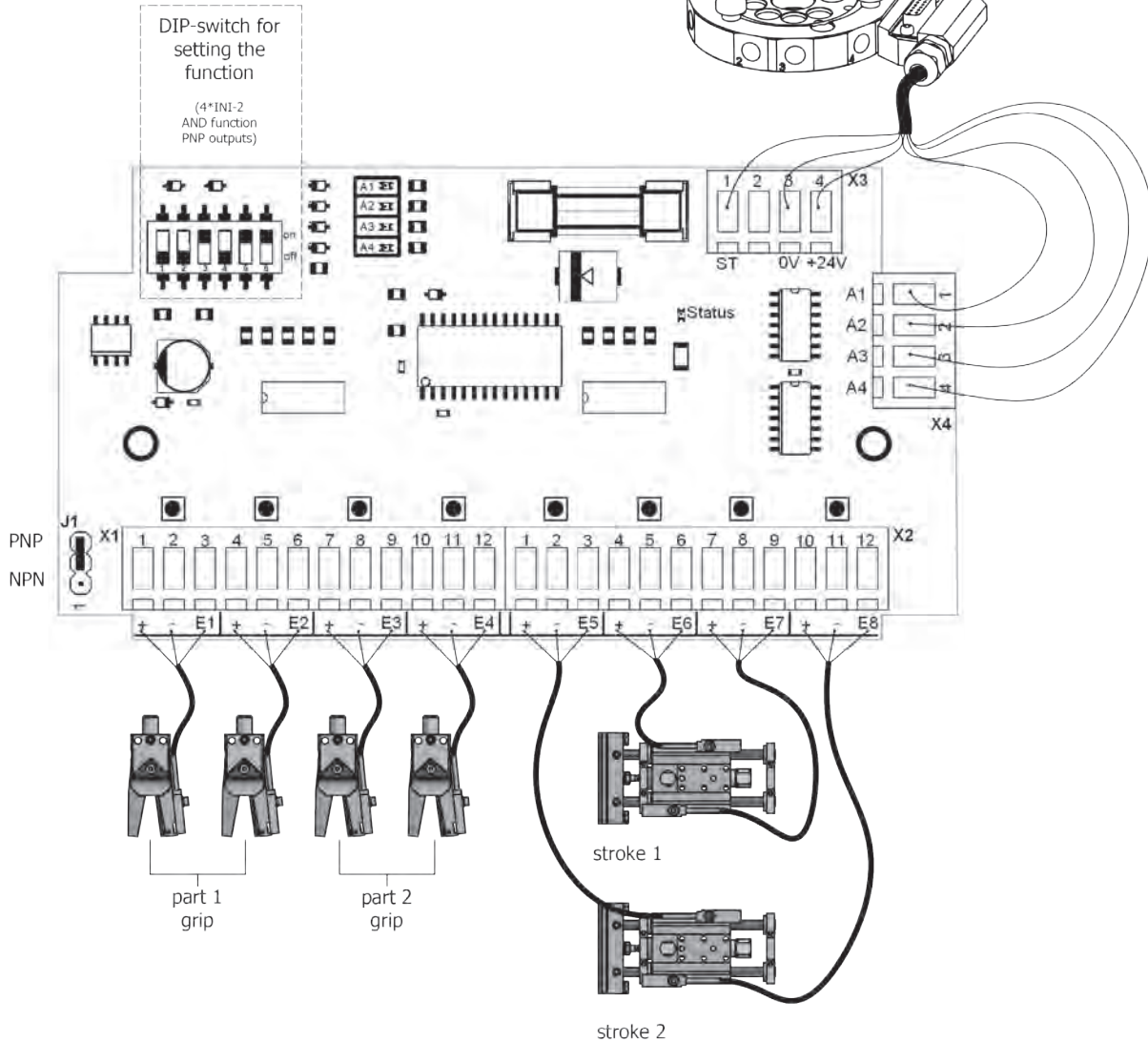
Part No.	Description	Type	Weight [g]
1-805-17-00	LPL 8	Logical Board	45
1-805-18-00	LPL-G 8	Logical Board with Enclosure	378
1-805-19-00	LPL-G-S 8	Logical Board with Enclosure and Plugs	392

Application example LPL

Output:

- A1**= PNP NO, part 1 gripped (E1, E2 series connection*)
- A2**= PNP NO, part 2 gripped (E3, E4 series connection*)
- A3**= PNP NO, stroke 1 and 2 extended (E5, E6 series connection*)
- A4**= PNP NO, stroke 1 and 2 retracted (E7, E8 series connection*)

* AND function



► Programm 1x8

Input	Logical Function*	Output
1-8	AND	1 u. 2
1-8	OR	3 u. 4
1-8	NOR	3 u. 4

► Programm 1x6 and 1x2

Input	Logical Function*	Output
1-6	AND	1
7-8	AND	2
1-6	OR/NOR	3
7-8		4

► Programm 2x4

Input	Logical Function*	Output
1-4	AND	1
5-8	AND	2
1-4	OR/NOR	3
5-8		4

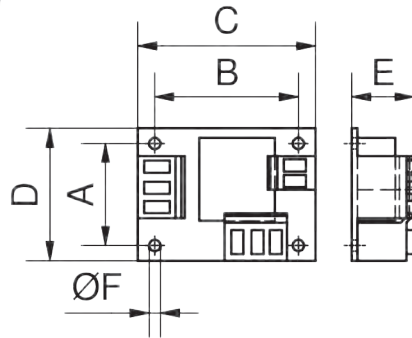
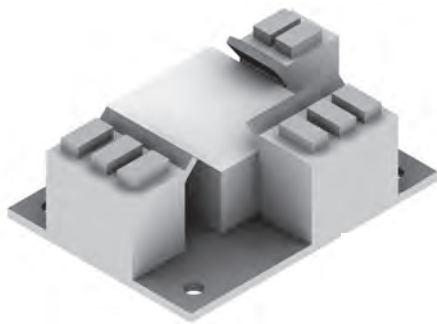
► Programm 4x2

Input	Logical Function*	Output
1-2	AND/OR	1
3-4		2
5-6		3
7-8		4

* = selectable via dip switch

The inputs and outputs can be used as PNP or NPN by switching a dip-switch.

RPL / Relay Board

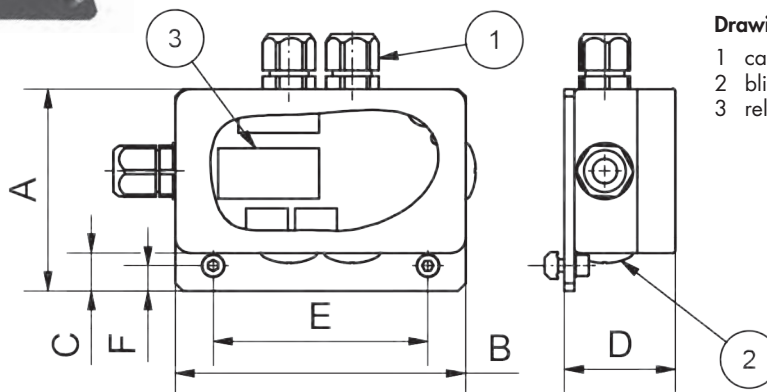
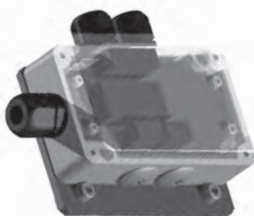


Remarks:

- for summarizing signals
- voltage 22–24V
- PNP switching, also suitable for NPN
- for NPN, simply swap the supply voltage (+/-)

Part No.	Description	Number of inputs	Number of inputs	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	Weight [g]
1-805-02-00	RPL 2	2	1	27	38	47	37	20	3	22
1-805-04-00	RPL 4	4	1	38	48	47	57	20	3	39
1-805-06-00	RPL 6	6	1	38	69	47	80	20	3	57
1-805-08-00	RPL 8	8	1	38	90	47	100	20	3	74

RPLG / Relay Board with Enclosure



Remarks:

- for summarizing signals
- voltage 22–24V
- PNP switching, also suitable for NPN
- for NPN, simply swap the supply voltage (+/-)

Drawing:

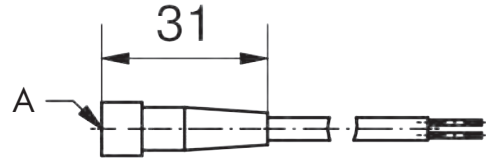
- 1 cable insertion
- 2 blind plug
- 3 relays

Part No.	Description	Number of inputs	Number of cable entries	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	Weight [g]
1-805-10-00	RPLG 2	2	3	65	65	15	40	25	10	148
1-805-12-00	RPLG 4	4	5	80	115	15	44	85	10	318
1-805-14-00	RPLG 6	6	7	80	115	15	44	85	10	346
1-805-16-00	RPLG 8	8	9	80	115	15	44	85	10	359

KG / Connector with Cable 3, 4 or 8 Pin Female

Remarks:

- connector for sensors, see table

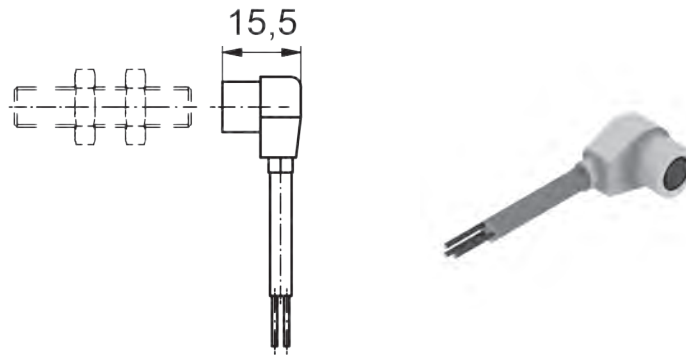


Part No.	Description	Wire	Union Nut A	suitable for	Cable length [m]	Weight [g]
1-803-02-00	KG 8-4	4	M8x1	LES 6/MFS T	5	125
1-803-04-00	KG 8-3	3	M8x1	IES 8/ICS 8/IE AL K	5	107
New 1-803-05-00	KG 12-8	8	M12x1	LPL-G-S-8	5	230
1-808-06-00	KG 18-4	4	M12x1	LRS 18	5	154

KW 18 / Elbow Connector 3 or 4 pin Female with Cable

Remarks:

- connector for sensors, see table



Part No.	Description	Wire	Union Nut	suitable for	Cable length [m]	Weight [g]
1-803-06-00	KW 8-3	3	M8x1	IES 8/ICS 8/IE AL K	5	107
1-803-07-00	KW 8-4	4	M8x1	MFS T/LES 6	5	150
1-808-08-00	KW 18-4	4	M12x1	LRS 18	5	158

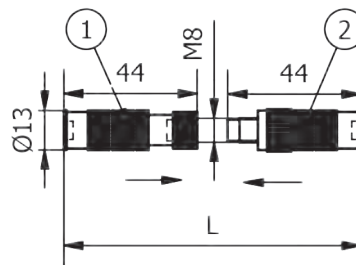
VRS 8 / Plug and Socket Connection 3 and 4 Pin

Remarks:

- allows an easy exchange of sensors
- table: L = installed length

Drawing:

- socket
- plug



Part No.	Description	U [V] DC	I [A] DC	Cable diameter [mm ²]	L [mm]	Weight [g]
1-808-10-00	VRS 8-3	24	1	0.14 - 1.0	82	8
1-808-11-00	VRS 8-4	24	1	0.14 - 1.0	82	8

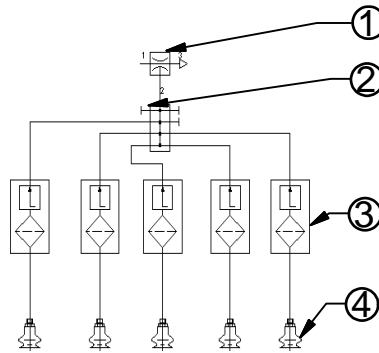
STV / Smart Flow Valve

Remarks:

- when several vacuum cups are used, but not all are used, this flow valve is used
- closes the line of the inactive vacuum suction cup

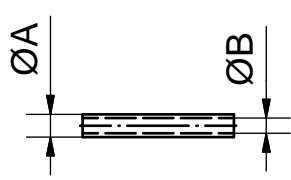
Drawing:

- 1 vacuum generator
- 2 manifold
- 3 smart flow valve
- 4 vacuum cups



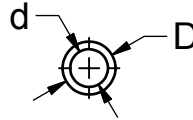
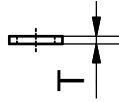
Part No.	Description	A ["]	B ["]	Weight [g]
1-852-20-00	STV 1/8	G1/8	G1/8	9
1-852-22-00	STV 1/4	G1/4	G1/4	15

PSS / Pneumatic Hose



Part No.	Description	Colour	A [mm]	B [mm]	Hose Ø [mm]	Length [m]
1-852-01-00	PSS 3-0,5	silver	3	2	3/0,5	10
1-852-02-00	PSS 4-3	silver	4	2.6	4/3	20
1-852-02-01	PSS 4-3 ro	red	4	2.6	4/3	10
1-852-02-02	PSS 4-3 gr	green	4	2.6	4/3	10
1-852-02-03	PSS 4-3 ge	yellow	4	2.6	4/3	10
1-852-02-04	PSS 4-3 bl	blue	4	2.6	4/3	10
New 1-852-02-06	PSS 4-3 sw	black	4	2,6	4/3	10
1-852-04-01	PSS 6-4 ro	red	6	4	6/4	10
1-852-04-00	PSS 6-4	silver	6	4	6/4	20
1-852-04-02	PSS 6-4 gr	green	6	4	6/4	10
1-852-04-03	PSS 6-4 ge	yellow	6	4	6/4	10
1-852-04-04	PSS 6-4 bl	blue	6	4	6/4	10
New 1-852-04-06	PSS 6-4 sw	black	6	4	6/4	10
1-852-06-00	PSS 8-6	silver	8	6	8/6	20

PDA / Seal Ring



Remarks:

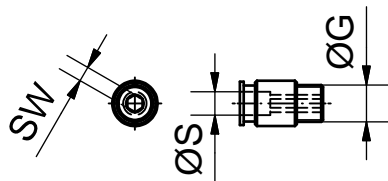
- sold in 100 pcs bags

Part No.	Description	D [mm]	d [mm]	T [mm]	for thread [mm] ["]	Items per unit [pcs]	Material
1-857-10-00	PDA M5	7.5	5	1	M5	100	Aluminum
1-857-12-00	PDA 1/8	14	10	2	1/8	100	Aluminum
1-857-14-00	PDA 1/4	18	13.3	2	1/4	100	Aluminum

STA / Straight Quick Hose Connector

Remarks:

- self-sealing screw thread
- metric size threads have a rubber seal ring
- sold in bags of 10 pcs

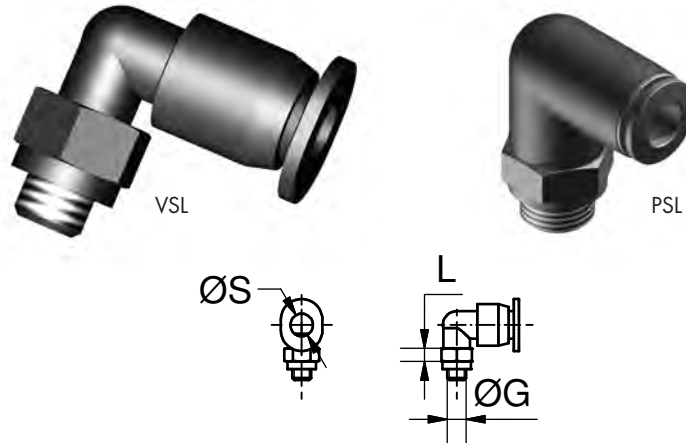


Part No.	Description	compatible with hose	G [mm] ["]	Ø S [mm]	Weight [g]	Items per unit [pcs]
1-852-30-00	STA M3-3-0,5	PSS 3-0,5	M3	3	2	10
1-852-32-00	STA M3 4-3	PSS 4-3	M3	4	2	10
1-852-34-00	STA M5 4-3	PSS 4-3	M5	4	3	10
1-852-36-00	STA M5 6-4	PSS 6-4	M5	6	4	10
1-852-38-00	STA 1/8 4-3	PSS 4-3	R 1/8	4	6	10
1-852-40-00	STA 1/8 6-4	PSS 6-4	R 1/8	6	5	10
1-852-42-00	STA 1/8 8-6	PSS 8-6	R 1/8	8	8	10

VSL, PSL / Quick Hose Connector L-90°

Remarks:

- quick hose connector can rotate 360° when installed
- G threads are self sealing
- connectors with metric thread have a rubber seal ring
- sold in bags of 10 pcs



VSL / Quick Hose Connector L-90°

Part No.	Description	G [mm] ["]	S [mm]	L [mm]	compatible with hose	Weight [g]	Items per unit [pcs]
1-852-44-00	VSL M3 4-3	M3	4	3	4/3	3	10
1-852-46-00	VSL M5 4-3	M5	4	4	4/3	5	10
1-852-48-00	VSL M5 6-4	M5	6	4	6/4	4	10
1-852-50-00	VSL 1/8 4-3	R1/8	4	4	4/3	10	10
1-852-52-00	VSL 1/8 6-4	R1/8	6	4.5	6/4	11	10
1-852-54-00	VSL 1/8 8-6	R1/8	8	4.8	8/6	14	10
1-852-56-00	VSL 1/4 6-4	R1/4	6	4.8	6/4	18	10
1-852-58-00	VSL 1/4 8-6	R1/4	8	4.8	8/6	20	10

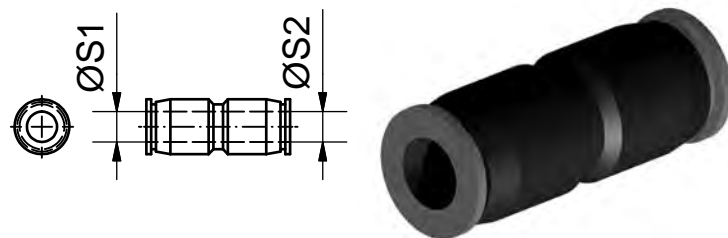
PSL / Quick Hose Connector L-90°

Part No.	Description	G [mm] ["]	S [mm]	L [mm]	compatible with hose	Weight [g]	Items per unit [pcs]
1-852-60-00	PSL 1/8 4-3	R1/8	4	16	4/3	16	10
1-852-62-00	PSL 1/8 6-4	R1/8	6	16	6/4	12	10
1-852-64-00	PSL 1/8 8-6	R1/8	8	20	8/6	16	10
1-852-66-00	PSL 1/4 6-4	R1/4	6	18	6/4	20	10
1-852-68-00	PSL 1/4 8-6	R1/4	8	20	8/6	22	10

STG / Straight Quick Connector

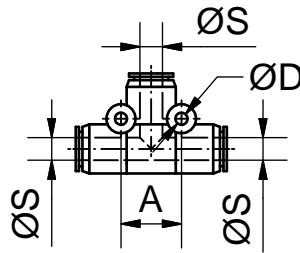
Remarks:

- push-pull-principle
- sold in bags of 10 pcs



Part No.	Description	Ø S1 for hose [mm]	Ø S2 for hose [mm]	Weight [g]	Items per unit [pcs]
1-851-01-01	STG 4	4/3	4/3	2	10
1-851-01-02	STG 6	6/4	6/4	3	10
1-851-01-03	STG 8	8/6	8/6	9	10
1-851-01-04	STG 6-4	6/4	4/3	3	10
1-851-01-05	STG 8-6	8/6	6/4	8	10

STT / T Hose Quick Connector

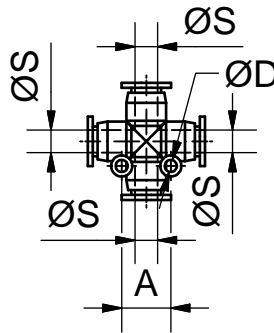


Remarks:

- push-pull-principle
- sold in bags of 10 pcs

Part No.	Description	ØS for hose [mm]	A [mm]	D [mm]	Material	Weight [g]	Items per unit [pcs]
1-851-02-01	STT 4	4/3	11	3.2	CuZn/Kunst.	3	10
1-851-02-02	STT 6	6/4	13	3.2	CuZn/Kunst.	5	10
1-851-02-03	STT 8	8/6	18	3.2	CuZn/Kunst.	15	10

STX / X Hose Quick Connector

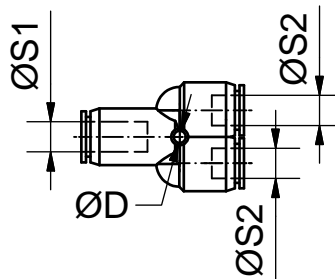


Remarks:

- push-pull-principle
- sold in bags of 10 pcs

Part No.	Description	ØS for hose [mm]	A [mm]	Ø D [mm]	Weight [g]	Items per unit [pcs]
1-851-03-01	STX 4	4/3	11	3.2	4	10
1-851-03-02	STX 6	6/4	13	3.2	7	10
1-851-03-03	STX 8	8/6	18	3.2	20	10

STY / Y Hose Connector



Remarks:

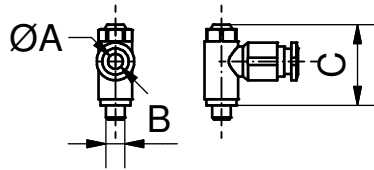
- push-pull-principle
- sold in bags of 10 pcs

Part No.	Description	Ø S1 for Hose	Ø S2 for Hose	Ø D [mm]	Weight [g]	Items per unit [pcs]
1-851-04-01	STY 4	4/3	4/3	3.2	3	10
1-851-04-02	STY 6	6/4	6/4	3.2	5	10
1-851-04-03	STY 8	8/6	8/6	3.2	15	10
1-851-04-04	STY 6-4	6/4	4/3	3.2	10	10
1-851-04-05	STY 8-6	8/6	6/4	3.2	12	10

DRV / One Way Restrictor

Remarks:

- push-pull-principle
- cross-category can be adjusted by a screwdriver
- seals are included
- accessory for: HEU, HEU-L, KHZ, SZD, HUZ

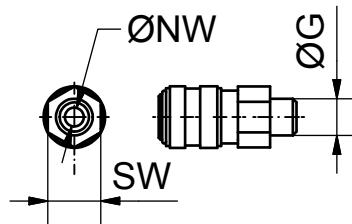


Part No.	Description	A [mm]	B [mm] ["]	C [mm]	Weight [g]
1-851-05-00	DRV-M5-4-3	4	M5	21,5	11
1-851-05-01	DRV-M5-6-4	6	M5	21,5	13
1-851-05-02	DRV-1/8-6-4	6	1/8	31,5	19

PSK / Quick Release Coupling

Remarks:

- accessories for quick change system SWM (see category 000)
- sold in bags of 10 pcs
- seals are included

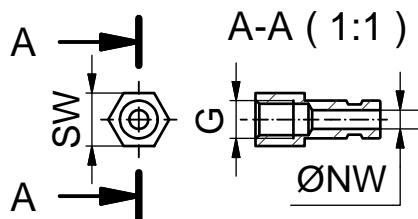


Part No.	Description	Ø G [mm] ["]	SW [mm]	Ø NW [mm]	compatible with	Accessory for SWM	Material	Weight [g]	Items per unit [pcs]
1-862-02-00	PSK M5	M5	9	2.5	STN M5	0+1	CuZn	8	10
1-862-04-00	PSK 1/8	G1/8	14	5	STN 1/8	2	CuZn	26	10
1-862-06-00	PSK 1/4	G1/4	22	7	STN 1/4	3	CuZn	72	10

STN / Plug-In Nipple

Remarks:

- the STN is an accessory to the SWM quick change system
- it fits into the PSK quick release coupling (see category 000)
- the threads must be sealed with teflon tape or liquid thread seal



Part No.	Description	ØG [mm] ["]	NW [mm]	SW [mm]	compatible with	Accessory for SWM	Material	Weight [g]	Items per unit [pcs]
1-862-10-00	STN M5	M 5	2.5	7	PSK M5	0+1	CuZn	3	10
1-862-12-00	STN 1/8	G 1/8	5	14	PSK 1/8	2	CuZn	16	10
1-862-14-00	STN 1/4	G 1/4	7	17	PSK 1/4	3	CuZn	24	10

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

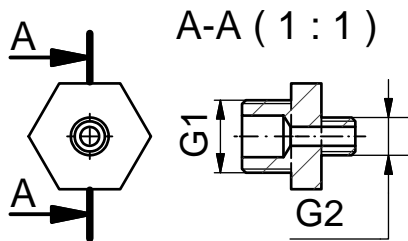
610
Nipper Blades

700
Special Elements

800
Electric and Sensors

850
Pneumatic

PDN / Double Union with Hex

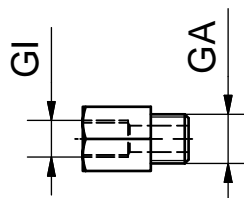


Remarks:

- use of teflon tape or liquid seal is recommended
- sold in bags of 10 pcs

Part No.	Description	G1 [mm] ["]	G2 [mm] ["]	Weight [g]	Items per unit [pcs]	Material
1-858-08-00	PDN M5-M5	M5	M5	2	10	CuZn
1-858-10-00	PDN 1/8-1/8	G1/8	G1/8	11	10	CuZn
1-858-12-00	PDN 1/4-1/4	G1/4	G1/4	20	10	CuZn
1-858-14-00	PDN 1/8-M5	G1/8	M5	8	10	CuZn
1-858-16-00	PDN 1/4-1/8	G1/4	G1/8	19	10	CuZn
1-858-18-00	PDN 3/8-1/4	G3/8	G1/4	29	10	CuZn

RNL / Reducing Union Long



Remarks:

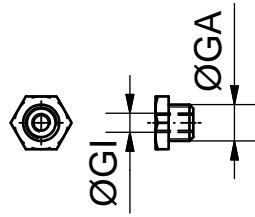
- sold in bags of 10 pcs
- threads must be sealed

Part No.	Description	Ø G1 ["]	Ø GA ["]	Items per unit [pcs]	Material	Weight [g]
1-858-20-00	RNL 1/8-1/8	G1/8	G1/8	10	CuZn	17
1-858-22-00	RNL 1/8-1/4	G1/8	G1/4	10	CuZn	35
1-858-24-00	RNL 1/4-1/4	G1/4	G1/4	10	CuZn	28
1-858-26-00	RNL 1/4-1/8	G1/4	G1/8	10	CuZn	23

RNK / Reducing Union Short

Remarks:

- sold in bags of 10 pcs
- threads must be sealed

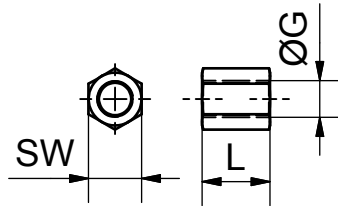


Part No.	Description	GI [mm] ["]	GA [mm] ["]	Weight [g]	Items per unit [pcs]	Material
1-858-28-00	RNK M3-M5	M3	M5	2	10	CuZn
1-858-30-00	RNK M5-1/8	M5	G1/8	7	10	CuZn
1-858-32-00	RNK M5-1/4	M5	G1/4	16	10	CuZn
1-858-34-00	RNK 1/8-1/4	G1/8	G1/4	10	10	CuZn

PMM / Thread Coupling

Remarks:

- sold in bags of 10 pcs
- use of thread seal is recommended
- threads must be sealed

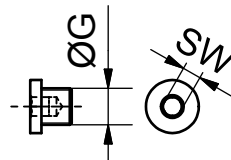


Part No.	Description	L [mm]	SW [mm]	G [mm] ["]	Items per unit [pcs]	Weight [g]	Material
1-858-38-00	PMM M5	9	8	M5	10	3	CuZn
1-858-40-00	PMM 1/8	18	14	G1/8	10	16	CuZn
1-858-42-00	PMM 1/4	26	17	G1/4	10	28	CuZn

PVS / Hex Plug

Remarks:

- use with PDA Seal Ring (see category 850)
- sold in bags of 10 pcs
- threads must be sealed



Part No.	Description	SW [mm]	G ["]	fitting seal	Items per unit [pcs]	Material	Weight [g]
1-858-44-00	PVS M5	8	M5	PDA M5	10	CuZn	2
1-858-46-00	PVS 1/8	5	G1/8	PDA 1/8	10	CuZn	7
1-858-48-00	PVS 1/4	6	G1/4	PDA 1/4	10	CuZn	15

000
Quick Change
System

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

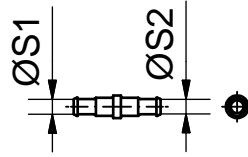
610
Nipper Blades

700
Special
Elements

800
Electric and
Sensors

850
Pneumatic

SVG / Straight Hose Connector

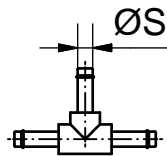


Remarks:

- sold in bags of 10 pcs

Part No.	Description	Ø S1 for Hose	Ø S2 for Hose	Weight [g]	Items per unit [pcs]	Material
1-860-02-00	SVG 4-3-4-3	4/3	4/3	1	10	CuZn
1-860-04-00	SVG 4-3-6-4	4/3	6/4	1	10	CuZn
1-860-06-00	SVG 6-4-6-4	6/4	6/4	1	10	CuZn
1-860-08-00	SVG 6-4-8-6	6/4	8/6	4	10	CuZn
1-860-10-00	SVG 8-6-8-6	8/6	8/6	3	10	CuZn

SVT / T Hose Connector

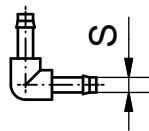


Remarks:

- sold in bags of 10 pcs

Part No.	Description	Ø S for Hose	Weight [g]	Items per unit [pcs]	Material
1-860-12-00	SVT 4-3	4/3	2	10	CuZn
1-860-14-00	SVT 6-4	6/4	3	10	CuZn

SVL / L Hose Connector



Remarks:

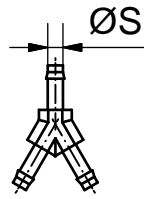
- sold in bags of 10 pcs

Part No.	Description	Ø S for hose	Weight [g]	Items per unit [pcs]	Material
1-860-18-00	SVL 4-3	4/3	1	10	CuZn/plastic
1-860-20-00	SVL 6-4	6/4	2	10	CuZn/plastic

SVY / Y Hose Connector

Remarks:

- sold in bags of 10 pcs

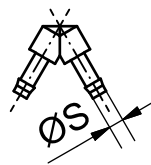


Part No.	Description	Ø S for hose	Weight [g]	Items per unit [pcs]	Material
1-860-24-00	SVY 4-3	4/3	2	10	CuZn/Plastics
1-860-26-00	SVY 6-4	6/4	4	10	CuZn/Plastics

SVV / V Hose Connector

Remarks:

- sold in bags of 10 pcs

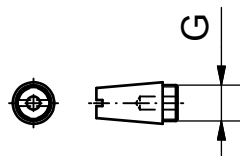


Part No.	Description	Ø S for hose	Weight [g]	Items per unit [pcs]	Material
1-860-30-00	SVV 4-3	4/4	1	10	CuZn
1-860-32-00	SVV 6-4	6/4	2	10	CuZn

PSD / Silencer

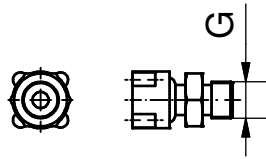
Remarks:

- made of bronze
- sold in bags of 10 pcs
- no seal necessary



Part No.	Description	Ø G [mm] ["]	Weight [g]	Items per unit [pcs]	Material
1-864-02-00	PSD M5	M5	6	10	Bronze
1-864-04-00	PSD 1/8	G1/8	7	10	Bronze
1-864-06-00	PSD 1/4	G1/4	14	10	Bronze

ADS / Exhaust Throttle-Silencer

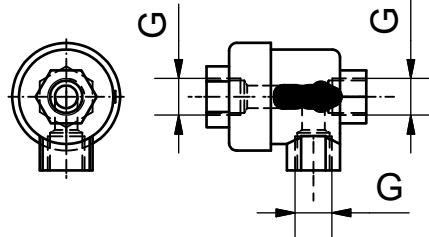


Remarks:

- double nipple silencer made of brass
- ADS 1/8 with WS = 14mm
- ADS 1/4 with WS = 17mm

Part No.	Description	G ["]	Weight [g]
1-864-10-00	ADS 1/8	G1/8	18
1-864-12-00	ADS 1/4	G1/4	28

SEV / Quick Exhaust Valve

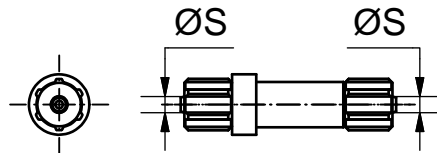


Remarks:

- for example for venting cylinders

Part No.	Description	G ["]	Weight [g]
1-864-16-00	SEV 1/8	G1/8	84
1-864-18-00	SEV 1/4	G1/4	162

FSL / Particle Filter for Vacuum or Pneumatic Lines



Remarks:

- recommended for use with the IGP ID-Gripper

Part No.	Description	ØS for hose [mm]	Weight [g]
1-852-26-00	FSL 4	4/3	6
1-852-27-00	FSL 6	6/4	10

Training in our facility

Bring your sample part and build an robot hand (End-of-Arm-Tool) under the supervision of our application engineers. You will receive a customized training to meet your application needs. After the training you have a finished robot hand ready for setting-up in your injection moulding machine.

The training is for free, you just have to pay the components of the robot hand you take with you.

The training lasts approximately 6-8 hours. It consists a theoretical introduction and hands-on training on our gripper components in combination with your sample part.

For your custom EOAT-Training date please contact us.

Robot gripper installation at your facility

Our service vehicles carry all components needed to build a standard robot hand (End-of-Arm-Tool).

For your individual training please contact us.

KUG / Glue and Polyuretane Pad

Remarks:

- ▶ **Application: for bonding polyurethane to the jaws of parallel grippers (PGR-P), gripper fingers (GRF) or gripping (GRZ)**
- Polyurethane increases the friction between jaw and article and supports a better demoulding
- PU allows gentle and low-pressure gripping
- image can deviate
- » see application example

Scope of Delivery:

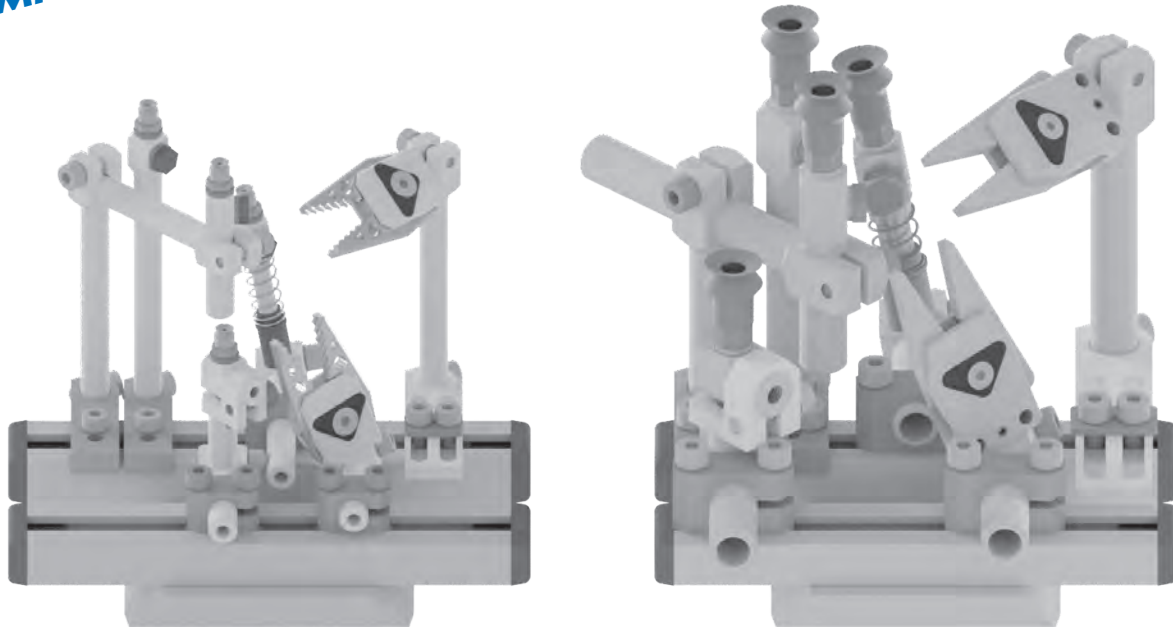
- incl. glue

Application example



Part No.	Description	Dimension polyurethane pad LxWxH [mm]
1-990-04-00	KUG 250-4	250x250x4
1-990-05-00	KUG 250-5	250x250x5

Application Example „Micro Series“ with L-18 Profil

Remarks:

- For use in small injection moulding machines, linear handling machines or other miniature machines where space is limited or only a low handling weight is allowed.

For an example comparison:

- Micro System: 239g, B85xH70xT75 (left side)
- 10mm clamping diameter: 436g, B125xH110xT115 (right side)
- Particularly for setting up a micro gripper the small quick change systems SWM in sizes 0 or 01 and the semi-automatic quick change system SWH 50 are suitable.
- L-profile + GPM => When using a base plate with the L-profile, it is recommended to countersink the screw head in the profile in order to remain the micro components displaceable.

A gripping system for the niche: Micro System for tight spaces and smallest components

More and more small products are being automated due to increasing quality demands. A small space or the maximum manageable weight pose special challenges. The new Micro System from ASS closes the gap.

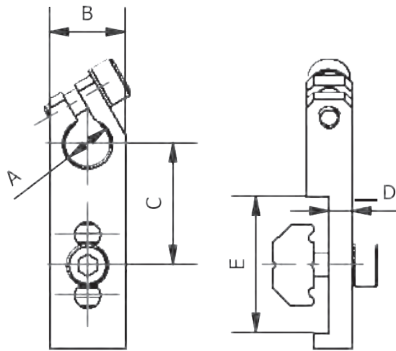
With a clamping diameter of 6 millimeters, the Micro System is significantly smaller and lighter than the smallest system to date with 10 millimeter clamping diameter. The Micro System is used wherever small injection molding machines, linear handling machines and other miniature machines are in use and there is little space in the tool. With the new system it is now possible to handle even smallest components simply and cleanly in the tightest of spaces.

The ASS Robot Hand Kit (EOAT) catalogue already has numerous Micro System gripper components specially designed for small components and tight spaces. It includes grippers GRZ, a micro quick-change system, various angle clamps (WST, WSL, WKA), connecting elements (KVB, KKS), gripper arms in different designs with air feed or spring (GSE, GAF, GGE) as well as a selection of suitable vacuum cups.

WST L 6 U / Universal Angle Clamp „Micro Series“

Remarks:

- ▶ **Application:** has the advantage of many possible applications: can be mounted form fit or adjustable
- just one tool needed: hexagon socket screw key
- mounted directly on profile
- allows compact gripper design

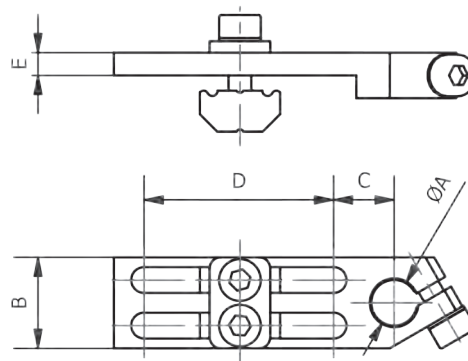


Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Material	Weight [g]
1-103-01-00	WST L 6 U	6	10	16	3	18	Aluminium	7

WSL L 6-25 U / Universal Long Angle Clamp „Micro Series“

Remarks:

- ▶ **Application:** universal Long Angle Clamp e.g. for mounting Gripper GRZ or other components with 6mm connection to profiles
- same allen screw size for clamping and channel nuts
- can be mounted directly on profiles
- allows compact gripper design

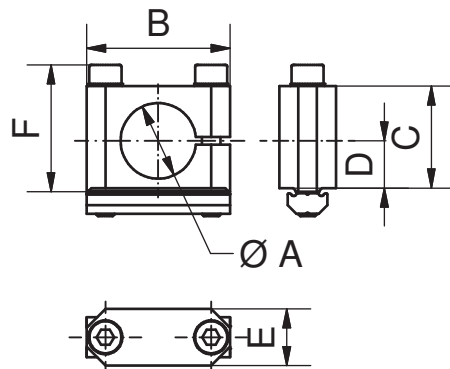


Part No.	Description	ØA [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Material	Weight [g]
1-105-06-00	WSL L 6-25 U	6	12	8	25	3	Aluminium	11

KVB L 6 / Cross Connector „Micro Series“

Remarks:

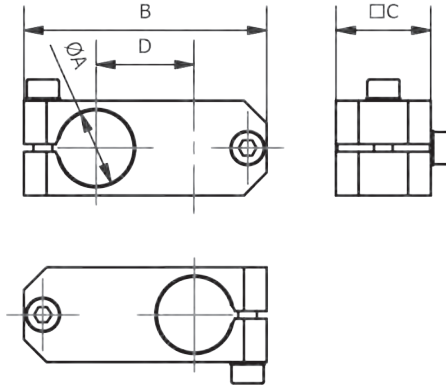
- ▶ **Application:** gripper arms, adapters, etc. with 6mm connection can be clamped at an angle of 90 ° to the profile
- Cross Connector is mounted directly to the profile
- exact positioning through an additional positive connection
- by loosening a screw, various settings can be made without changing the position of the KVB



Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	Material	Weight [g]
1-115-01-00	KVB L 6	6	15	9	4,5	8	12,5	Aluminium	11

KKS 6-6-10 / Cross Connector „Micro Series“

NEW
MICRO



Remarks:

- ▶ **Application:** connects two components with clamping diameter 6mm at a 90° angle
- both clamps can be set independently

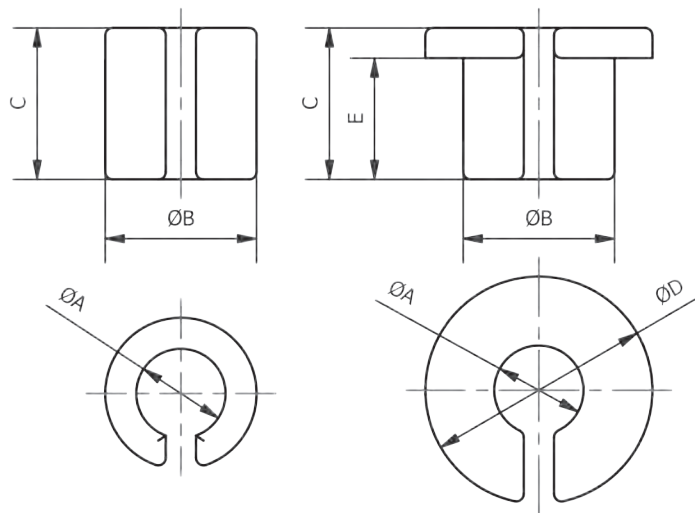
Part No.	Description	ØA [mm]	B [mm]	C [mm]	D [mm]	Material	Weight [g]
1-115-39-00	KKS 6-6-10	6	25	10	10	Aluminium	6

RMB-ROB / Reduction with and without collar „Micro Series“

NEW
MICRO

ROB

RMB



Remarks:

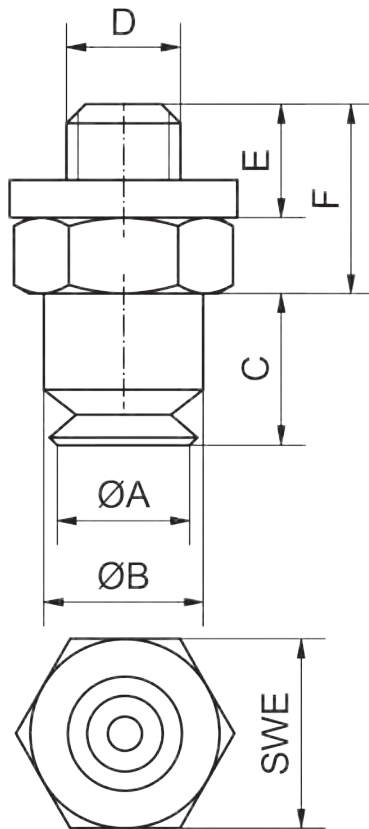
- ▶ **Application:** to connect the Micro Series (6mm clamping diameter) to clamping diameter 10mm

Part No.	Description	ØA [mm]	ØB [mm]	C [mm]	D [mm]	E [mm]	Material	Weight [g]
1-116-00-16	RMB 0610-10	6	10	10	15	8	Polyamide	<1
1-116-00-17	ROB 0610-10	6	10	10	-	-	Polyamide	<1

VS N3 A / VN N3 A / Vacuum Cups Nitril, antistatic „Micro Series“

Remarks:

- **Application: antistatic Vacuum Cups for the Micro Series**
- to avoid electrical charging and rapid discharge
- Versions with 1, 2 and 3 bellows available
- VS ... N3 A: complete vacuum cup: suction cup with mounted adapters
- VN ... N3 A: suction cup without adapter
- VSA ...: Adapter for suckers
- other matching vacuum cups suitable for the Micro Series can be found in category 220 (VS 2, VN 2, VS 3 and VN 3)



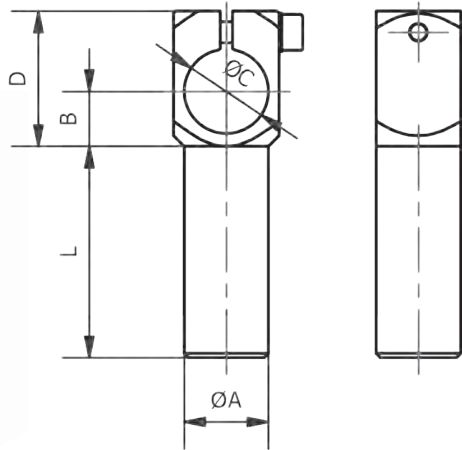
Vacuum Cup VS N3 A, complete (suction cup with adapter)			Suction Cup VN N3 A (suction cup without adapter)		Adapter VSA for suction cup VN	
Part No.	Description		Part No.	Description	Part No.	Description
1	1-226-12-00 VS 1-2 N3 A		1-226-12-01	VN 1-2 N A	1-290-05-00	VSA 5
2	1-226-14-00 VS 1-3,5 N3 A		1-226-14-01	VN 1-3,5 N A	1-290-05-00	VSA 5
3	1-226-15-00 VS 1-5 N3 A		1-226-15-01	VN 1-5 N A	1-290-04-00	VSA 4
4	1-226-26-00 VS 2-6 N3 A		1-226-26-01	VN 2-6 N A	1-290-04-00	VSA 4
5	1-226-27-00 VS 2-11 N3 A		1-226-27-01	VN 2-11 N A	1-290-16-00	VSA 16
6	1-226-35-00 VS 3-5 N3 A		1-226-35-01	VN 3-5 N A	1-290-17-00	VSA 17
7	1-226-37-00 VS 3-7 N3 A		1-226-37-01	VN 3-7 N A	1-290-16-00	VSA 16
8	1-226-39-00 VS 3-9 N3 A		1-226-39-01	VN 3-9 N A	1-290-16-00	VSA 16

	Material	Working Area [mm]	Operating [cm ²]	Holding Force [N]	Push fit	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	SWE [mm]
1	Nitril antistatic	1	0.007	0.05	x	2	4.2	4	M3	3	5	5
2	Nitril antistatic	1	0.007	0.05	x	3.5	4.2	4	M3	3	5	5
3	Nitril antistatic	1.5	0.02	0.1	x	5	7.7	6.5	M3	3	5	5
4	Nitril antistatic	3	0.07	0.4	x	6	7.2	9	M3	3	5	5
5	Nitril antistatic	4.5	0.16	0.9	x	11	10	16	M3	3	5	5
6	Nitril antistatic	2.6	0.05	0.3	x	5	7	14	M3	3	5	5
7	Nitril antistatic	1.8	0.03	0.15	x	7	9	14	M3	3	5	5
8	Nitril antistatic	3.8	0.11	0.7	x	9	9	15	M3	3	5	5

WKA 6-6 / Angle Arm „Micro Series“



NEW
MICRO

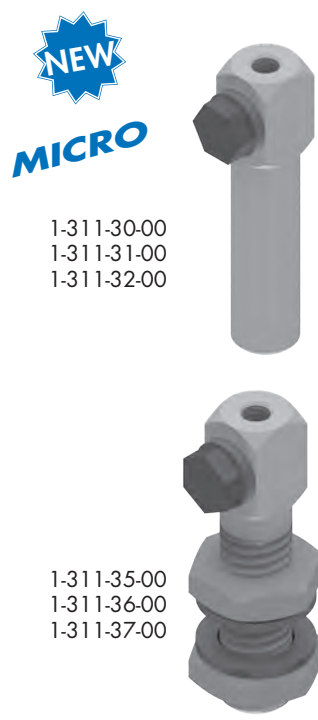


Remarks:

- ▶ **Application:** e.g. for easy mounting of components with clamping diameter 6mm
- easy to handle
- secure connection by cylinder screw

Part No.	Description	A [mm]	B [mm]	C [mm]	D [mm]	L [mm]	Material	Weight [g]
1-320-63-00	WKA 6-6-20	6	4.5	6	12	20	Aluminium	3
1-320-66-00	WKA 6-6-40	6	4.5	6	12	40	Aluminium	4
1-320-69-00	WKA 6-6-60	6	4.5	6	12	60	Aluminium	6

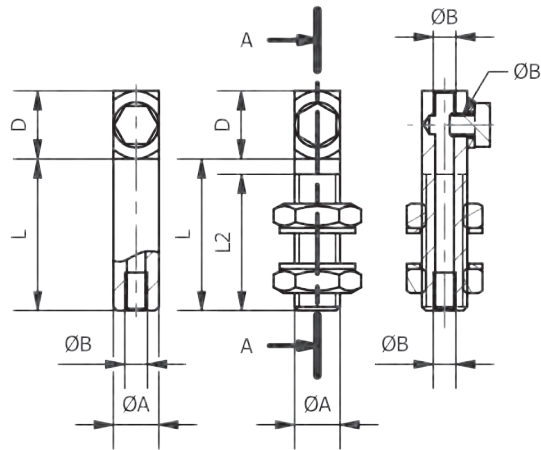
GSE U 6 / Gripper Arm for Suction Cups with air duct „Micro Series“



NEW
MICRO

1-311-30-00
1-311-31-00
1-311-32-00

1-311-35-00
1-311-36-00
1-311-37-00



Remarks:

- ▶ **Application:** for mounting vacuum cups to the micro EOAT
- vacuum connection sidewise or air duct

Scope of delivery:

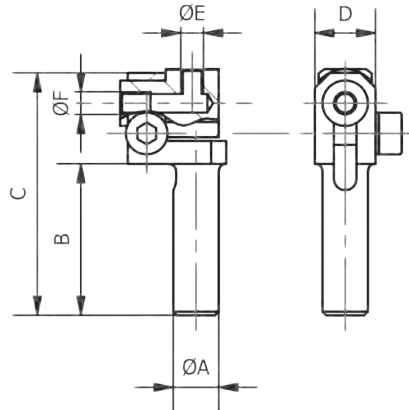
- sealing screw included

Artikelnummer	Bezeichnung	ØA [mm]	B	D [mm]	L [mm]	L2 [mm]	Material	Weight [g]
1-311-30-00	GSE U 6-M3-M3-20	6	M3	9	20	-	Aluminium	3
1-311-31-00	GSE U 6-M3-M3-40	6	M3	9	40	-	Aluminium	4
1-311-32-00	GSE U 6-M3-M3-60	6	M3	9	60	-	Aluminium	6
1-311-35-00	GSE U M6x1-M3-M3-20	M6	M3	9	20	18	Aluminium	5
1-311-36-00	GSE U M6x1-M3-M3-40	M6	M3	9	40	38	Aluminium	6
1-311-37-00	GSE U M6x1-M3-M3-60	M6	M3	9	60	58	Aluminium	7

GGE 6 / Swivel Head Gripper Arm for Vacuum Cups „Micro Series“

Remarks:

- **Application: for mounting vacuum cups at an angle**
- swivel head can be clamped separately by cylinder screw
- air connection (F) on the side



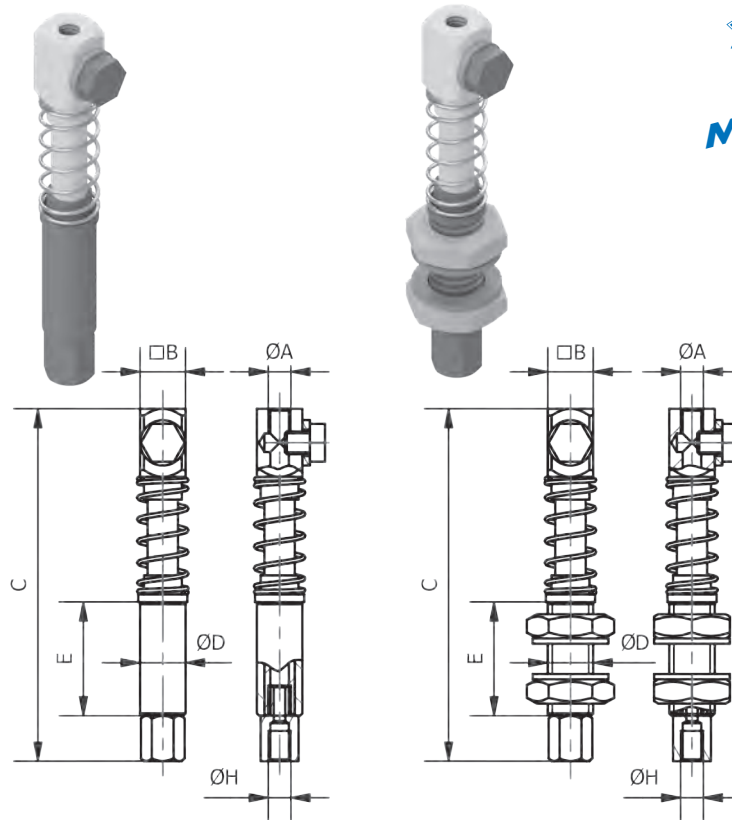
NEW
MICRO

Part No.	Description	ØA [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	Material	Weight [g]
1-315-00-00	GGE 6-M3-M3-20	6	20	32	8	M3	M3	Al	4
1-315-01-00	GGE 6-M3-M3-40	6	40	52	8	M3	M3	Al	6
1-315-02-00	GGE 6-M3-M3-60	6	60	72	8	M3	M3	Al	8

GAF 6 / GAF 6 M / Spring Comp. Gripper Arm f. Vac. Cups „Micro“

Remarks:

- **Application: for mounting vacuum cups in the robot hand**
- vacuum connection can only be mounted sidewise
- for rotationally symmetrical vacuum cups
- vacuum cup can rotate relative to the clamping piece
- for best positioning of vacuum cups to the part to be removed
- spring travel to compensate for the ejector stroke
- gripper arm is guided with rotation enabled
- high quality stainless steel spring



NEW
MICRO

Part No.	Description	ØA [mm]	B [mm]	C [mm]	D [mm]	E [mm]	H [mm]	Spring travel [mm]	Material	Weight [g]
1-355-01-00	GAF U 6-M3-M3-10	M3	6	46.5	6	15	M3	10	Al/CuZn	6
1-355-02-00	GAF U M6-M3-M3-10	M3	6	46.5	M6	15	M3	10	Al/CuZn	9

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

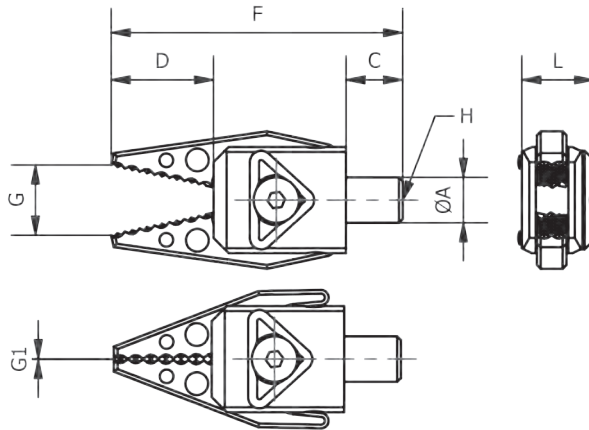
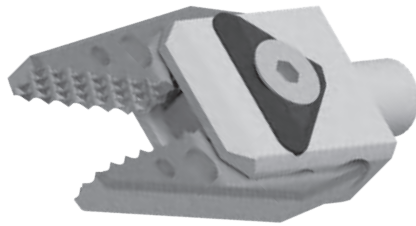
700
Special Elements

800
Electric and Sensors

850
Pneumatic

GRZ 06-06 / Gripper Size 06-06 „Micro Series“

NEW
MICRO



Remarks:

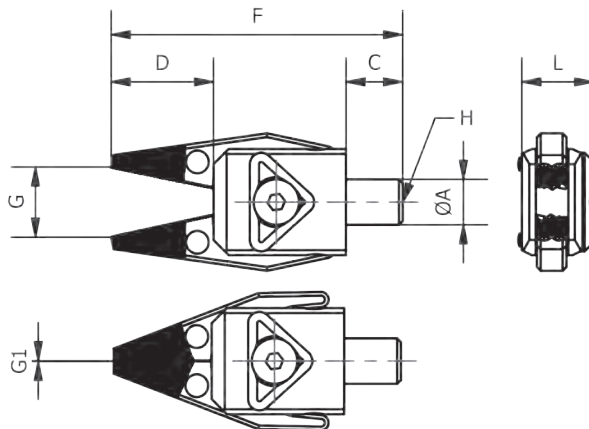
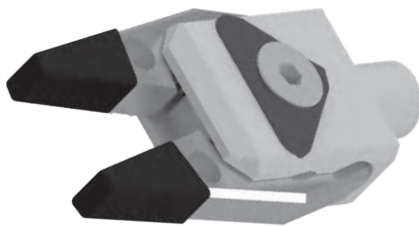
► **Application: micro sized gripper GRZ**

- very lightweight
- very small and compact design
- single-acting gripper
- gripper jaws chequered
- » closing force measured at point of jaws at 6 bar
- » maximum air pressure is 6 bar, use dry and filtered air only

Part No.	Description	ØA [mm]	C [mm]	D [mm]	F [mm]	G [mm]	G1 [mm]	H	L [mm]	Closing force max. [N]	Weight [g]
1-406-00-00	GRZ 06-06	6	7.5	13.5	39	10	0	M3	10	6	6.5

GRZ 06-06 / Gripper Size 06-06 with EP Coating „Micro Series“

MICRO



Remarks:

► **Application: micro sized gripper GRZ with soft EP Coating, Shore 60**

- very smooth gripping with more friction
- very lightweight
- very small and compact design
- single-acting gripper
- gripper jaws with EP coating Shore 60, colour black
- » closing force measured at point of jaws at 6 bar
- » maximum air pressure is 6 bar, use dry and filtered air only

Part No.	Description	ØA [mm]	C [mm]	D [mm]	F [mm]	G [mm]	G1 [mm]	H	L [mm]	Closing force max. [N]	Weight [g]
1-406-02-00	GRZ 06-06 EP	6	7.5	13.5	39	10	0	M3	10	6	6.5

GRZ 10-06 / Gripper Size 10-06 „Micro Series“

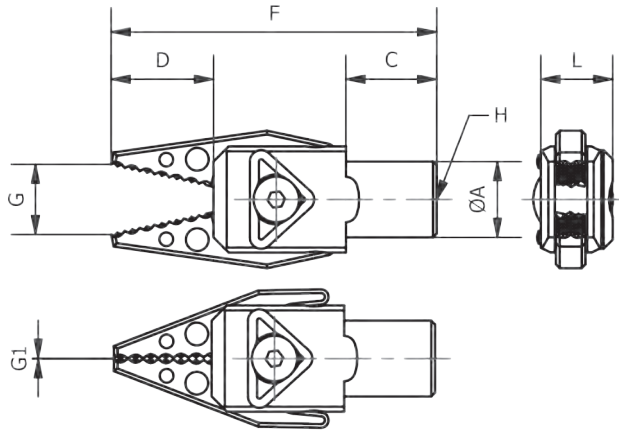
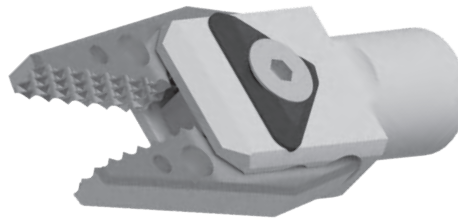
Remarks:

► **Application: micro sized gripper GRZ with clamping diameter 10mm**

- lightweight
- small and compact design
- single-acting gripper
- gripper jaws chequered
- » closing force measured at point of jaws at 6 bar
- » maximum air pressure is 6 bar, use dry and filtered air only

Accessories for example:

- extension with air duct VL U



Part No.	Description	ØA [mm]	C [mm]	D [mm]	F [mm]	G [mm]	G1 [mm]	H	L [mm]	Closing force max. [N]	Weight [g]
1-406-01-00	GRZ 10-06	10	12	13.5	43	10	0	M5	10	6	8

GRZ 06-08 / Gripper Size 06-08 „Micro Series“

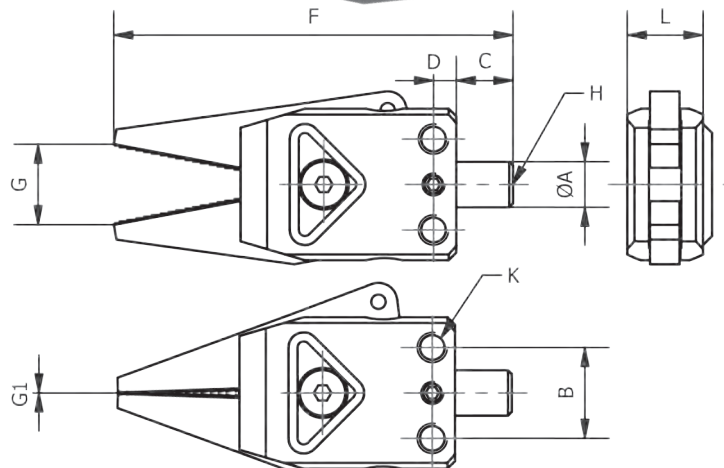
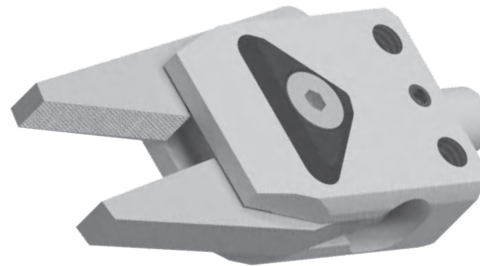
Remarks:

► **Application: gripper GRZ in miniature design suitable for the Micro System, known from the series GRZ 10-08**

- ideal when a higher closing force is required for small robot hands (EOAT)
- lightweight
- small and compact design
- single-acting gripper
- gripper jaws chequered
- two pistons, Ø 8mm
- optionally equipped sensor mounting bracket and initiator
- » closing force measured at point of jaws at 6 bar
- » maximum air pressure is 6 bar, use dry and filtered air only

Accessories for example:

- Sensor Bracket SH GRZ 10-08
- adapter for board mounting AGP GRZ

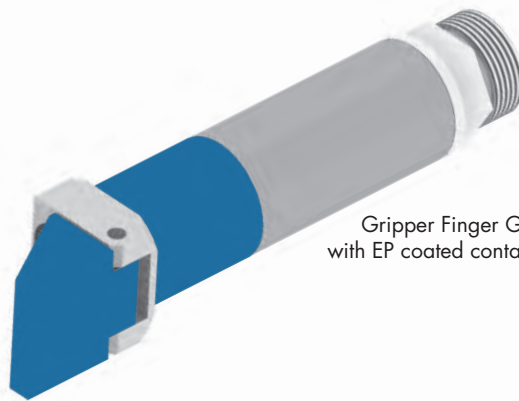


Part No.	Description	ØA [mm]	B [mm]	C [mm]	D [mm]	F [mm]	G [mm]	G1 [mm]	H	K	L [mm]	Closing force max. [N]	Weight [g]
1-408-01-00	GRZ 06-08 CM	6	12	7.5	3	52.8	10	0	M3	M4	10	19	15

EP / Elastomeric Polyurethan Coating



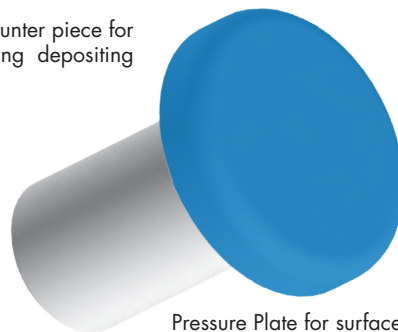
Gripper GRZ with coated jaws



Gripper Finger GRF 95°
with EP coated contact area



Individual counter piece for
protecting parts during depositing



Pressure Plate for surface protecting
while part contact

Remarks:

- EP: Elastomere Polyurethane
- coating consists of a high strength Elastomere Polyurethane
- two types
- Shore A Hardness (+/- 5): 90
 - colour blue
- Shore A Hardness (+/- 5): 60
 - colour black

Material Properties:

- there is a laboratory test certificate for lacque compatibility (LABS) of the EP Coating Shore Hardness 90 (color blue)
- abrasion resistant
- slip resistant
- silicone free
- Tensile Strength: 29 N/mm²
- Fracture Strain: 320%
- Wear Resistance: 3,5 mg (H 22 Rad)

Advantages:

- secure grip
- reducing wear and tear
- electrically insulated
- surface protecting
- non marking
- energy absorbing
- temperature range -50°C to +90°C
- partial or full surface coating available

Suitable for e.g.:

- Gripper jaws
- Gripper Finger
- Contour piece
- Brackets
- any component with part contact

Part No.	Description
ASS Robot Hand Kit (EOAT) Components	about all ASS Robot Hand Kit (EOAT) components can be partly or full-faced coated depending for individual functions
ASS PA-Forming (SLS Laser Sinter)	special components made of Polyamide can be partly or full-faced coated

PA-Forming / 3D Printing made by SLS Laser Sinter

Remarks:

- sintered gripper components in special design can be manufactured on request, for example:
 - jaws for parallel gripper PGR-P (for positive gripping)
 - jaws for grippers GRZ with adapter jaws, so that the article or sprue can be gripped in a form-fitting manner (GRZ 10-12 A, GRZ 10-12 A1, GRZ 14 D A, GRZ 20-16 A)
 - contour pieces for grippers, for exact positioning
 - contour reception for workpiece carriers, cutting stations, etc.
 - complete grippers made of polyamide
 - 3D CAD data of the plastic workpiece can be used to produce precisely contoured parts
 - sintered components can be coated with e.g. the EP coating or flock
- » see application examples

Advantages:

- very low weight
- combination of functions
- integration of internal air ducts or vacuum channels
- integration of functional components, such as movable ID gripper or structures
- time and cost savings
- geometric freedom of design
- multifunctional applications that are not possible with standard components
- combination of mechanical and vacuum gripping with sensors

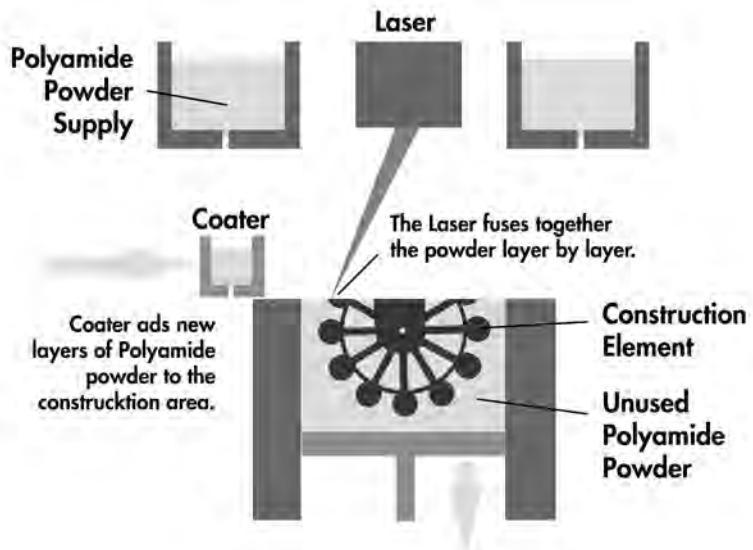
Material:

- Fine Polyamide PA 2200
- PA 2200 is a powder based on Polyamide-12
- Working temperature range -40°C to +80°C, higher temperature for a short time period is possible

PA-Forming / Select Laser Sintering / 3D Printing technology allows our engineers to custom design EOAT components or even complete End-of-Arm-Tooling.

Our engineers design is based upon 3 D CAD data of the part that needs to be handled.

The cost is not influenced by the complexity of the design. The finished gripper will weigh less than any traditional alternative and can include process relevant options like ID gripping and internal channels eliminating the need for pneumatic hose. The material used is Polyamide and has similar properties as Nylon or Delrin.



Schematic representations SLS method

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special Elements

800
Electric and Sensors

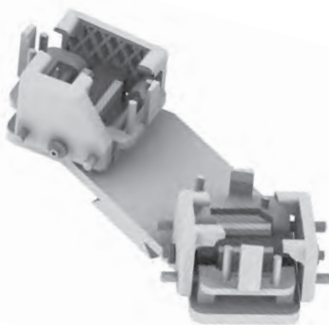
850
Pneumatic

Application examples / 3D Printing



Removing sprues

Individual holding bracket for GRF or VLR possible



EOAT for small parts with individual gripper components



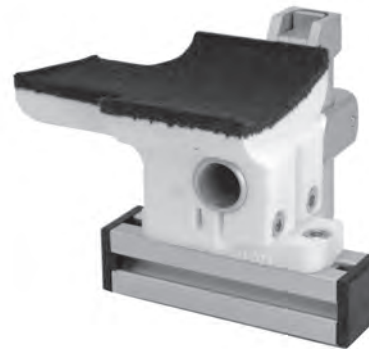
Contour-gripper for exact extraction



Locked contour-gripper



Contour-tray for discarding parts



Flocked counter piece for a very soft discard for sensible parts



EP-coated counter piece for specialised handling



EOAT for foils

Application examples / 3D Printing



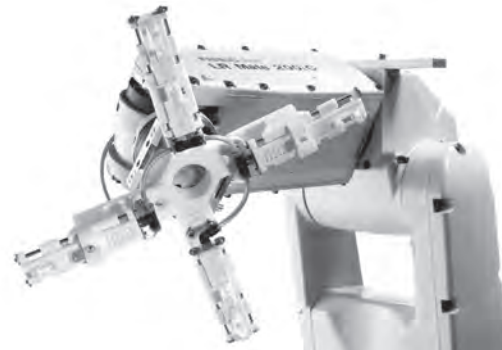
Lightweight Needle Gripper NGR including Polyamide party: reduced weight: 37%



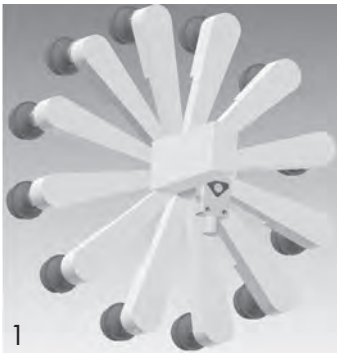
ID Gripper IGP with integrated expansion-bellow



Parallel gripper made of Polyamide



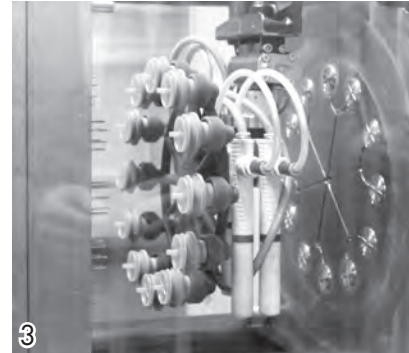
Lightweight EOAT with parallel grippers made of Polyamide



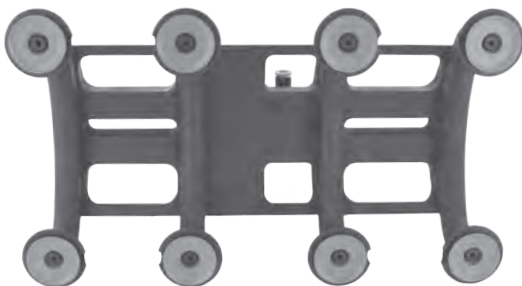
1 First theoretical CAD modell...



2 ...assembled EOAT with Polyamide body, Gripper and Vacuum Cups...



3 ...finished EOAT in injection moulding machine.



Lightweight EOAT with integrated air ducts



Special gripper with integrated movable functions for mobile phones

000
Quick Change
System

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

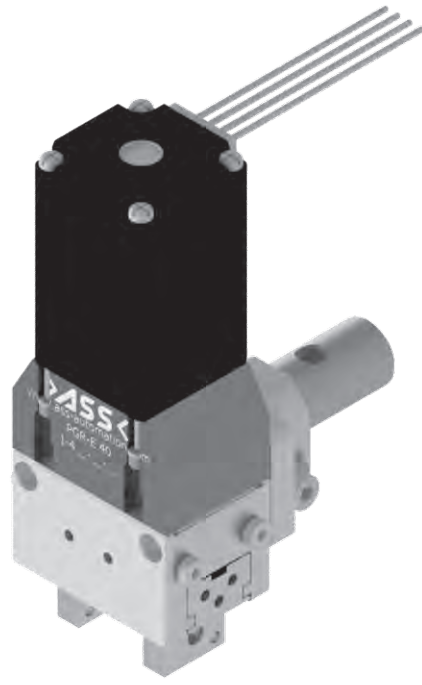
700
Special
Elements

800
Electric and
Sensors

850
Pneumatic



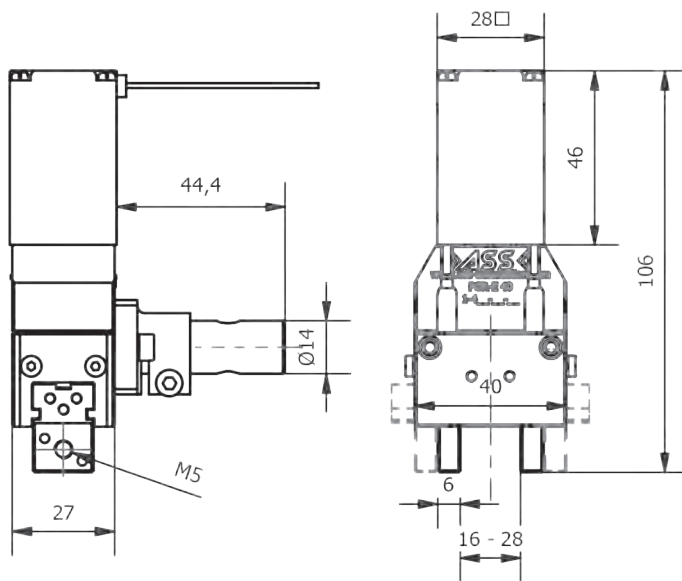
PGR-E / Parallel Gripper, electrical



Remarks:

- ▶ **Application:** electrical Parallel-gripper with up to nine teachable positions
- load-bearing and low-play T-slot guide for safe and precise handling with high load ratings
- drive concept step motor
- housing made of high-strength aluminum alloy for minimum weight and high stiffness
- can be used as external or internal gripper
- centering possibilities on the gripping jaws
- easy to mount
- clamping diameter 14mm
- » external control unit is required

Special component:
Price and current delivery time on request!

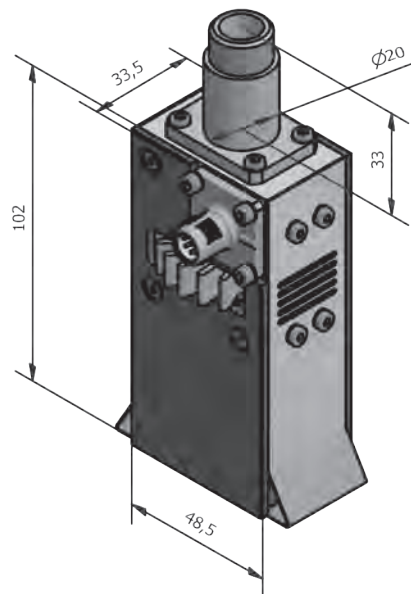


NGR 16-18 EE / Needle Gripper, adjustable, electrical

Remarks:

- ▶ **Application: electrical Needlegrripper with up to nine teachable positions**
- extra-thin needles with a diameter of 0.7 mm
- needle depth is teachable
- easy-exchanging needle package
- sensor option integrated
- easy to mount
- clamping diameter 20mm
- » external control unit is required

Special component:
Price and current delivery time on request!



000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

224
Vacuum Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

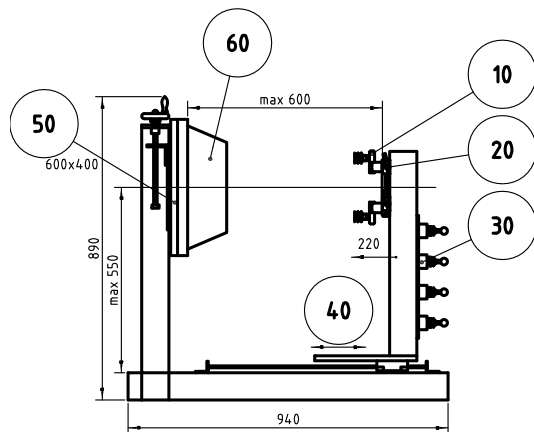
610
Nipper Blades

700
Special Elements

800
Electric and Sensors

850
Pneumatic

Assembly Fixture / Table Top



- 10 - Robot hand
- 20 - Quick change system robot hand
- 30 - Function valve (compressed air and vacuum)
- 40 - Channel unit (stroke 400 mm)
- 50 - clamping plate
- 60 - plastic part

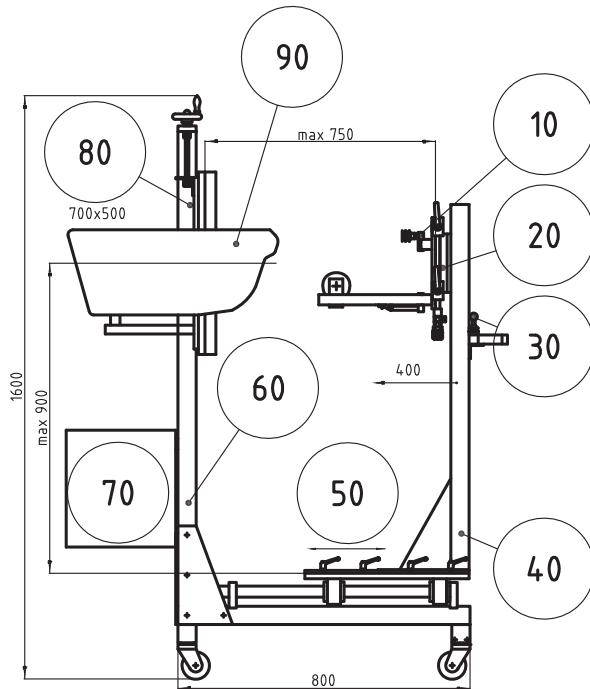
For simple assembly of ASS gripper parts

Procedure

1. mount the plastic parts on the clamping plate in a right position (same way as injection mould)
2. mount the profile on the gripper base plate and push it into the quick change system
3. bring the gripper's movable side to the plastic part
4. assemble all other necessary ASS gripper parts and find out the right position of the elements with moving the base frame to the plastic part several times
5. now check the vacuum and grip functions using the function valves

Part No.	Description
1-082-12-00	Assembly fixture / table top

Assembly Fixture / Mobile



For simple assembly of ASS gripper parts

Procedure

1. mount the plastic parts on the clamping plate in a right position (same way as injection mould)
2. mount the profile on the gripper base plate and push it into the quick change system
3. bring the gripper's movable side to the plastic part
4. assemble all other necessary ASS gripper parts and find out the right position of the elements with moving the base frame to the plastic part several times
5. now check the vacuum and grip functions using the function valves

- 10 - Robot hand
- 20 - Quick change system robot hand
- 30 - Function valve (compressed air and vacuum)
- 40 - movable side
- 50 - Channel unit (stroke 240 mm)
- 60 - fix side
- 70 - filling box
- 80 - clamping plate
- 90 - plastic part

Part No.	Description
1-083-00-00	Assembly fixture / mobile

000
Quick Change System

050
Profile-Channel Nut

100
Clamps

115
Tubular Clamps

120
Profile Connectors

190
Accessories-Profile

200
Vacuum Cup-Connectors

220
Vacuum Cups

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Vacuum Cups-Special

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Gripper Arms

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Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special Elements

800
Electric and Sensors

850
Pneumatic

Starter Kit

Remarks:

- ▶ **Application: for starting to build EOAT based on ASS components**
- ASS Starter Kits are customized regarding your needs



Part No.	Description
Startbox L	Startbox L
Startbox X	Startbox X

Bin Picking

Bin-Picking ...works!

Aim

- ready-to-go system
- user-friendly
- suitable even for small bulk material

Approved on customer's part

- Aluminium-tube for engine cooling
- feasibility study, conception, designing and planning und integration by ASS



KNUR Maschinenbau GmbH



ASS and KNUR form a comprehensive expertise for gripper and automation competence for the plastic injection molding industry and automated, lightweight automotive engineering.

KNUR Maschinenbau GmbH develops and supplies automation solutions for the production of lightweight and plastic parts for the automotive industry. The focus is on fiber reinforced plastics (FRP), in particular carbon fiber reinforced plastic parts (CFRP). In 2014 KNUR was taken over by ASS.

KNUR is a modern, innovative company with about 30 employees in Wörth an der Donau. The new location in Wörth was opened in 2019 and offers space for the development of innovative technologies.

KNUR has been working as an automation specialist, systems integrator and special machine builder for assembly, testing and bonding technology for around 20 years. The focus is on the bonding of components, especially in automotive lightweight construction where carbon fiber composites or a mix of materials are combined. The portfolio ranges from manual or automatic standard machines to the planning, construction and production of customized, highly complex special machines for the automotive industry.

Focus on automation

Demands in production for highly automated manufacturing processes with low set-up and maintenance times are increasing. Automation systems enable our customers to increase manufacturing efficiency and process reliability while at the same time saving costs while ensuring high quality.

KNUR offers solutions from single source for automation tasks: from planning through design and manufacturing to commissioning. KNUR economically and reliably solves your individual tasks from simple process optimization to complex assembly processes. Systems are planned according to the task and also the complete project execution can be taken over. In addition to the technical documentation, qualified employees are at your disposal.

Focus on bonding technology

The bonding technology is becoming increasingly important in lightweight construction, where lightweight components are made of carbon fiber composites or a material mix.

This is particularly in automotive lightweight construction. In order to ensure a high process speed in the production, the safe and precise usage of multi-component adhesives is necessary.

The adhesive technology is a core competence: KNUR plans and manufactures individual adhesive technology systems for all industrial automations from development to series production.

Other core areas include programming and designing and manufacturing fixtures as well as electromobility.

Competence bundling ASS and KNUR

As a 100% affiliated company to ASS, KNUR can has full access to the ASS Robot Hand Kit (EOAT) and the gripper competence and can integrate it into its automation solutions.

Contact:
 KNUR Maschinenbau GmbH
 Gewerbepark B7
 93086 Wörth an der Donau
 Germany
 Telephone +49 9482 80219-0
 Fax +49 9482 80219-90
 info@knur-mb.de
 ww.knur-mb.de



000
Quick Change
System

050
Profile-Channel
Nut

100
Clamps

115
Tubular Clamps

120
Profile
Connectors

190
Accessories-
Profile

200
Vacuum Cup-
Connectors

220
Vacuum Cups

224
Vacuum
Cups-Special

230
Manifold

290
Adapter

300
Gripper Arms

400
Grippers

450
Gripper Fingers

600
Nipper Bodies

610
Nipper Blades

700
Special
Elements

800
Electric and
Sensors

850
Pneumatic

A

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Bin Picking	340
-------------	-----

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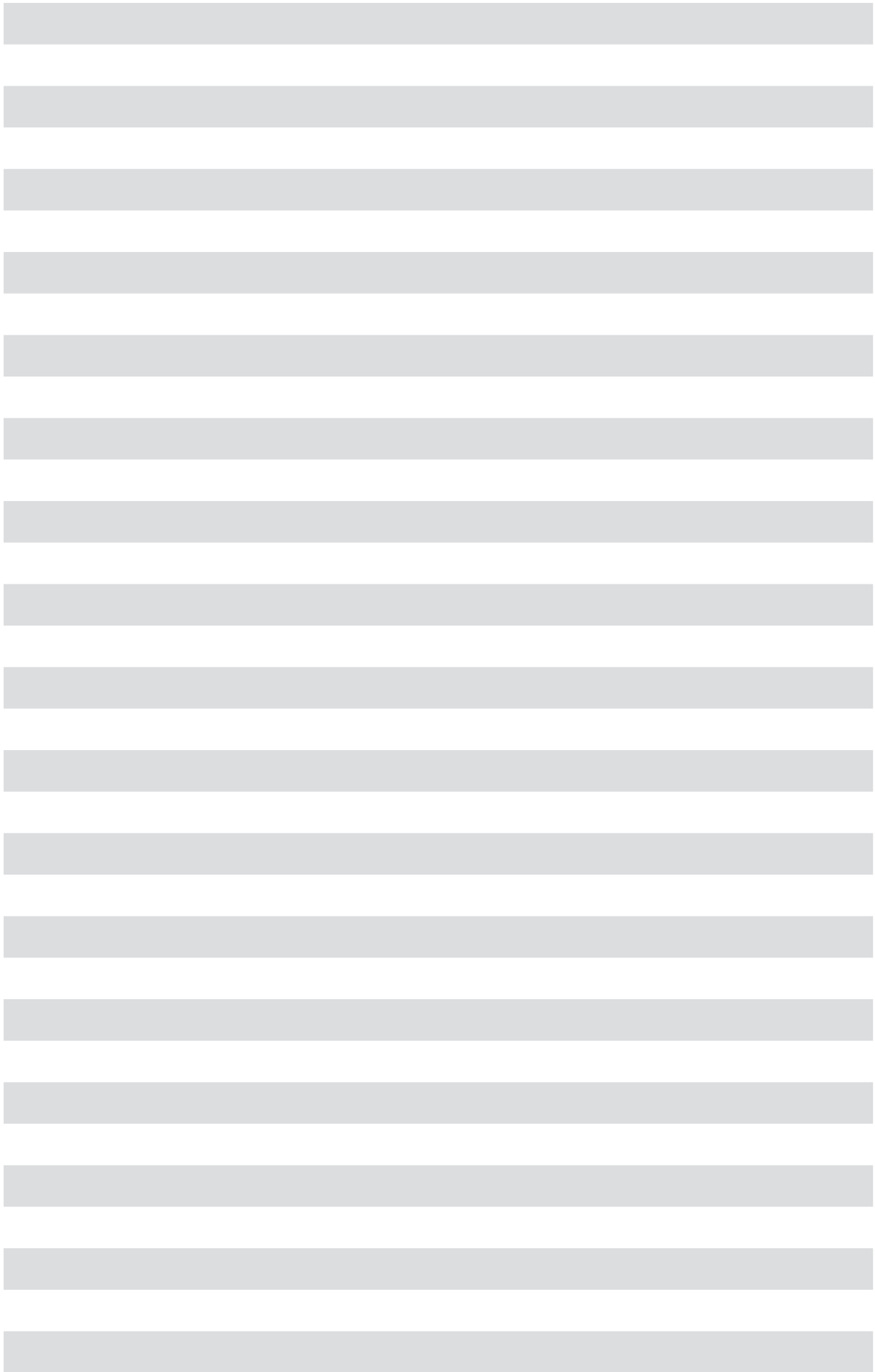
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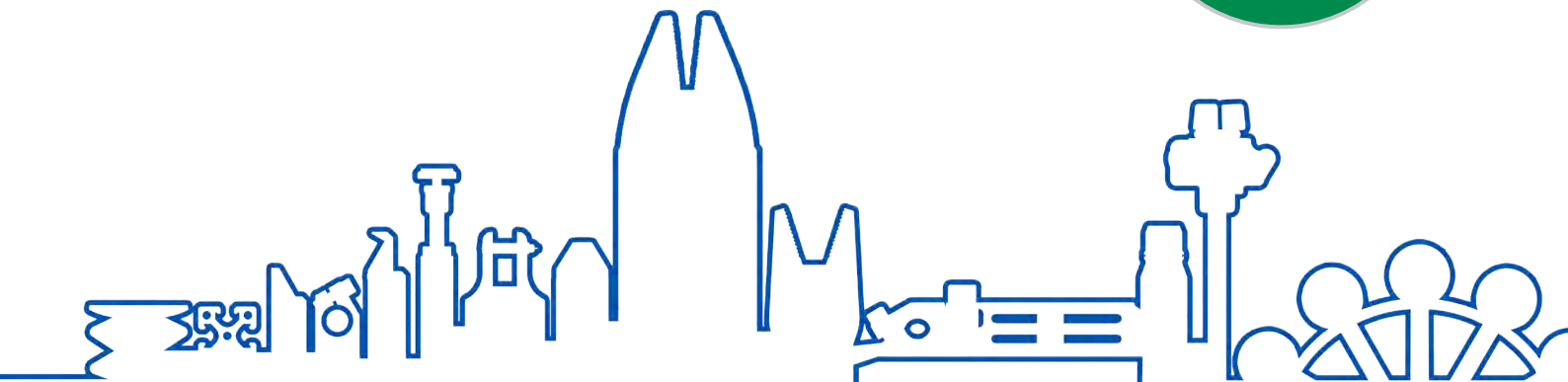
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ROBOTHANDKIT ROBOTICTOOLING AUTOMATIONSYSTEMS



AUTOMATION
SYSTEMS AND
SOLUTION



ASS Maschinenbau GmbH

Klef 2
51491 Overath
Germany
Telephone +49 2206 90547-0
Telefax +49 2206 90547-91
www.ass-automation.com
info@ass-automation.com

www.ass-automation.com