Special grippers





Magnetic grippers

> Secure handling of sheet metal and ferromagnetic workpieces with and without recesses

MG series

> Combination of electronic and permanent magnet
> High cycle times for thin and / or alloyed metal sheets thanks to negligible residual magnetism after switching off the magnetic force
> Holding force up to 700 N
> No compressed air required
> Very energy-efficient, as a short electrical pulse is only required for product release

> See page 219



Bernoulli vacuum cups - SX-B and SX-B-PK

> Non-contact, deformation-resistant transport of thin and sensitive products
> No ejector, requires compressed air only
> Suitable for porous products thanks to high volume flow
> Series for direct contact with food (approval in accordance with FDA/EC1935/2004)

> See page 220



Vacuum tweezers

> Compressed air or vacuum operated pick-up tool for the assembly of small parts
> Delivery includes set of miniature vacuum cups

> See page 224

Special grippers





Modular grippers

> Customised gripper tools made of Polyamide
> Easy adaption to robots
> Integrated media channels to minimise piping complexity
> Food grade material

> See page 225



Needle grippers - slim design, with sensor

> Internal lift guiding for extra slim design
> Sensor for monitoring gripper action via piston position (needles extracted / retracted)

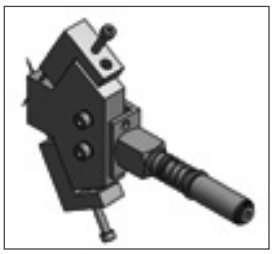
> See page 226



Needle grippers

> For materials that are non-dimensionally stable or difficult to handle with vacuum
> Alignment to material thickness via adjustable lift
> Double-acting, enables short duty cycles

> See page 228



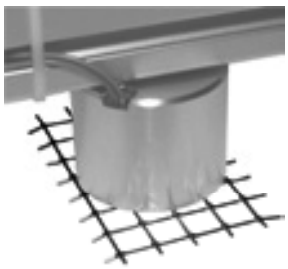
Mounting brackets for needle gripper

> Installation on SLine and MLine extrusion systems or on spring-loaded suction fingers

> See page 236

Magnetic grippers - electrical controlled





Product description

> Safe handling of sheet metal or ferromagnetic workpieces with or without recesses
> Very high holding force thanks to high-performance electromagnet / permanent magnet
> Short cycle times for thin and / or alloyed metal sheets thanks to negligible residual magnetism after switching off the magnetic force
> No compressed air required
> Very energy-efficient as a short electrical pulse is only required for product release
> Robust design

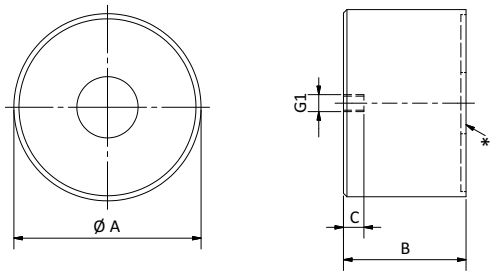
Notes

> Indicated holding forces are valid for direct placement, without air gap, on the flat holding surface

Technical data

Item no.	Principle of operation	Rated power [W]	Gripping force [N]	Residual gripping force [N]	Operating voltage of the switch-off coil [V]	Power-on time [ED]	Protection class	Max. operating temperature [°C]	Weight [g]	Suitable mounting brackets
MG35	Electrical	4.6	160	< 1	24	25 % ED at < 2 min.	IP65	0 - 70	200	270.448
MG55	Electrical	9	420	< 1	24	25 % ED at < 2 min.	IP65	0 - 70	500	270.449
MG70	Electrical	13.3	720	< 1	24	25 % ED at < 2 min.	IP65	0 - 70	900	270.450

Dimensions



* = Holding surface

Item no.	G1	Ø A [mm]	B [mm]	C [mm]
MG35	M4	35	30	5
MG55	M5	55	36	6
MG70	M8	70	45	8

Bernoulli vacuum cups SX-B



Housing made of anodised aluminium



Product description

> Integrated vacuum generation on the Bernoulli principle
> Non-contact, deformation-resistant transport of thin and sensitive products
> Suitable for porous products thanks to high volume flow at low vacuum level
> Easy to install, system flexibly expandable through lateral compressed air inlets
> Long life cycle due to maintenance-free operation

Notes

> Only operate with unoiled, dry compressed air

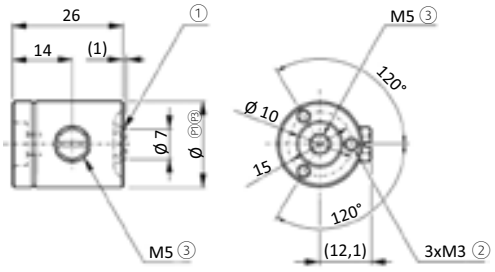
Ordering notes

> With 65.530 and 65.540, the pads can be removed for contact-free applications
> Silicone pads (pads SI) are included in scope of delivery

Technical data

Item no.	Model	Operating pressure [bar]	Holding force at 5 bar [N]	Air consumption at 5 bar [Nl/min]	Ambient air temperature [°C]	Weight [g]	Accessories
65.510	SX-B-20	1 - 7	0.9	100	5 - 60	50	Pads NBR 78.509 Pads SI 78.510
65.520	SX-B-30	1 - 7	1.3	100	5 - 60	70	Pads NBR 78.509 Pads SI 78.510
65.530	SX-B-40	1 - 7	2	110	5 - 60	120	Pads NBR 78.511 Pads SI 78.512
65.540	SX-B-60	1 - 7	6	210	5 - 60	260	Pads NBR 78.511 Pads SI 78.512

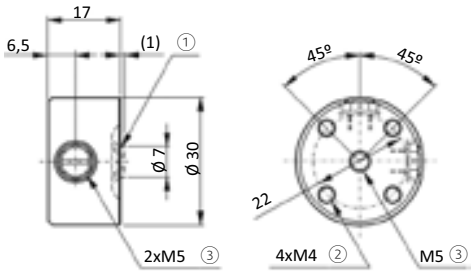
Dimensions



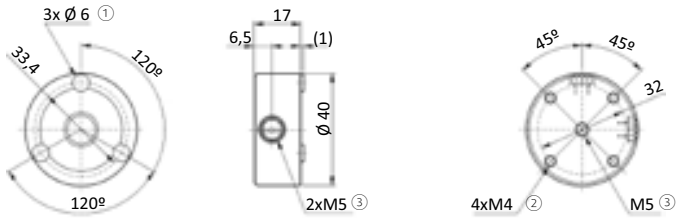
65.510

① = Pads ② = Depth 5 mm ③ = Compressed air connection

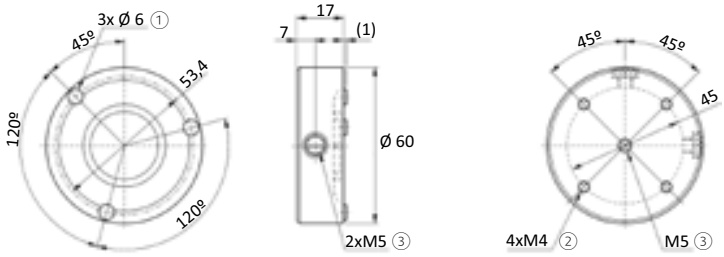
Dimensions



65.520



65.530

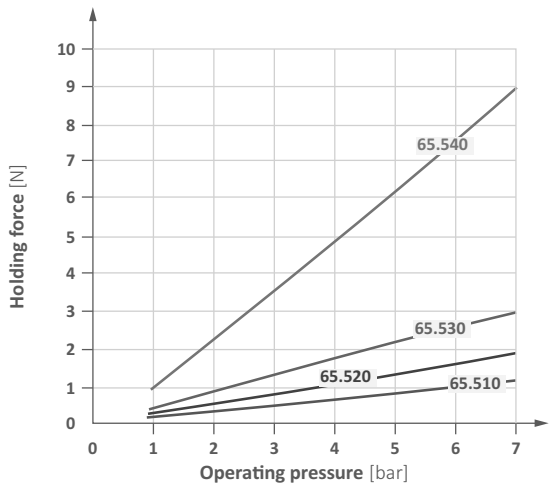


65.540

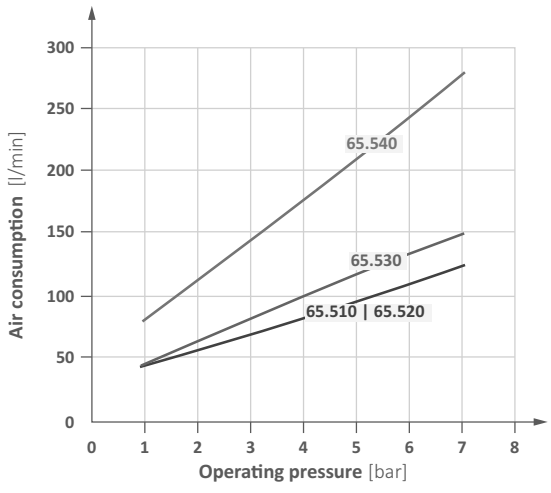
① = Pads ② = Depth 5 mm ③ = Compressed air connection

Diagrams

> Holding force as a function of operating pressure



> Air consumption as a function of operating pressure



Bernoulli vacuum cups SX-B-PK

SUITABLE FOR FOODSTUFFS



Body and blind screws made of Polyetheretherketone (PEEK), nozzle made of stainless steel

Product description

> Integrated vacuum generation on the Bernoulli principle
> No ejector, requires compressed air only
> Non-contact, deformation-resistant transport of thin and sensitive products
> Suitable for direct contact with food products (Approval by FDA/EC1935/2004)
> Suitable for porous products thanks to high volume flow at low vacuum level
> Easy to install, system flexibly expandable through lateral compressed air inlets
> Long life cycle due to maintenance-free operation

Notes

> Only operated with oil-free, dry compressed air

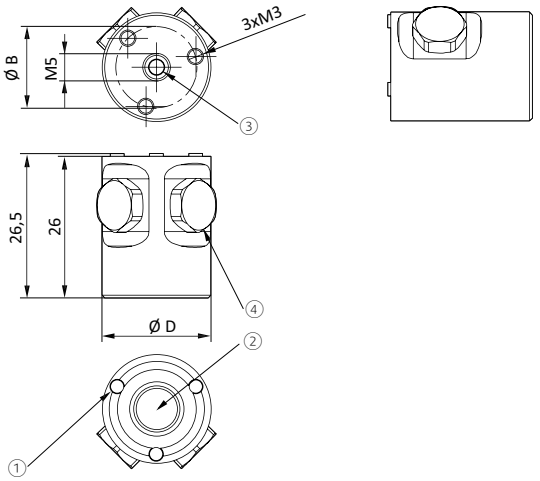
Technical data

Item no.	Model	Operating pressure [bar]	Holding force at 5 bar [N]	Air consumption at 5 bar [Nl/min]	Max. Particle size [µm]	Medium	Ambient air temperature [°C]	Weight [g]	Suitable silicone pads
65.510-PK	SX-B-PK-20	1 - 7	2.5	150	40	Compressed air	5 - 60	10	78.510
65.520-PK	SX-B-PK-30	1 - 7	3	150	40	Compressed air	5 - 60	20	78.510
65.530-PK	SX-B-PK-40	1 - 7	5.5	150	40	Compressed air	5 - 60	30	78.512
65.540-PK	SX-B-PK-60	1 - 7	12	220	40	Compressed air	5 - 60	70	78.512

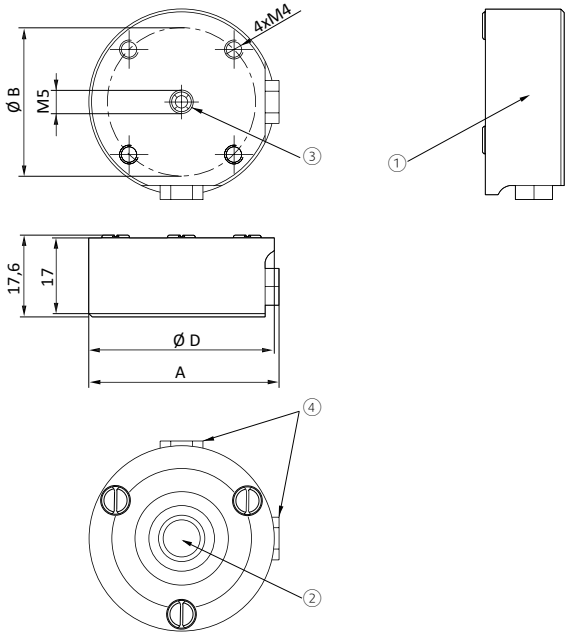
Technical specifications

> Highly resistant against diverse chemicals used in the food industry
> Suitable for all conventional CIP (Cleaning-In-Place) and SIP (Sterilisation-In-Place) processes
> Hygienic product design enables quick and easy cleaning
> Materials:
- Housing: Polyetheretherketone
- Pad: Silicone caoutchouc
- Nozzle: Stainless steel
- Seals: Fluorocaoutchouc
- Blanking screw: Polyetheretherketone

Dimensions



MR.65.510-PK



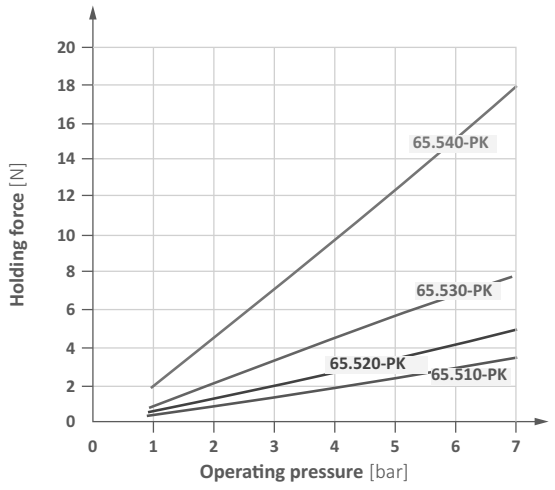
MR.65.520-PK | MR.65.530-PK | MR.65.540-PK

① = Silicone rubber pads ② = Nozzle ③ = Compressed air connection ④ = Alternative compressed air connection

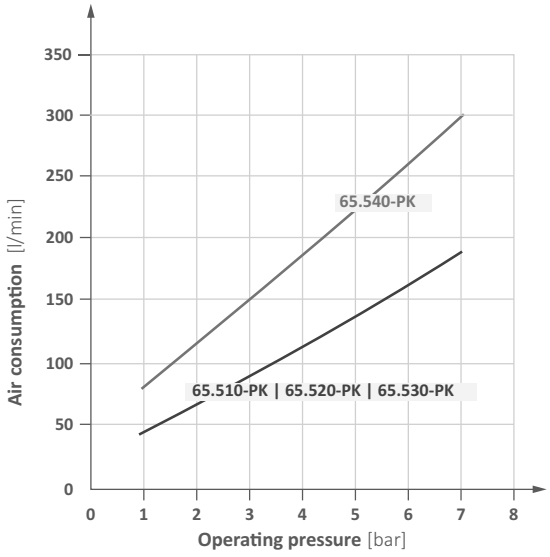
Item no.	**A** [mm]	**Ø B** [mm]	**Ø D** [mm]
MR.65.510-PK	--	15	20
MR.65.520-PK	31	22	30
MR.65.530-PK	41	32	40
MR.65.540-PK	61	45	60

Diagrams

> Holding force as a function of operating pressure



> Air consumption as a function operating pressure



Vacuum tweezers



Product description

> Compressed air- or vacuum-operated special tool for assembly of small parts
> VTA-Set:
Vacuum tweezers with built-in ejector, without valve and with air vent. To pick up the object, close the air vent with the fingertip and release to place the object.
> VTB-Set:
Vacuum tweezers with built-in ejector, compressed air valve and built-in silencer - hence, very low-noise. The built-in compressed air valve is used to switch on the vacuum only when needed.
> VTA-Set-1:
Vacuum tweezers without ejector and with air vent. To pick up the object, close the air vent with the fingertip and release to place the object.

Ordering notes

The sets contains:
> Vacuum tweezers, spiral tubing, one of each size vacuum cup (Silicone) Ø 2, 4, 6 and 8 mm
> Curved adapter for vacuum cups Ø 2 and 4 mm
> Curved adapter for vacuum cups Ø 6 and 8 mm

Technical data

Item no.	Operating principle	Operating pressure [bar]	Nominal supply pressure [bar]	Final vacuum [%]	Operating temperature [°C]	Weight [g]	Accessories
VTA-Set	compressed air	1.5 - 7	5	90	0 - 60	22	Adapter straight for vacuum cups Ø 2, 4 mm VPZ-2-S Adapter straight for vacuum cups Ø 6, 8 mm VPZ-6-S Spare cup NBR Ø 2, 4, 6, 8 mm VT-NBR-Set Mounting bracket EIL.05-HO
VTB-Set	Operated with compressed air	1.5 - 7	5	90	0 - 60	16	Adapter for vacuum cups - bended Ø 2, 4 mm VPZ-2 Adapter for vacuum cups - bended Ø 6, 8 mm VPZ-6 Spare cup NBR Ø 2, 4, 6, 8 mm VT-NBR-Set Mounting bracket EIL.05-HO
VTA-Set-1 *	Vacuum-operated	--	--	--	0 - 60	22	Adapter for vacuum cups - bended Ø 2, 4 mm VPZ-2 Adapter for vacuum cups - bended Ø 6, 8 mm VPZ-6 Spare cup NBR Ø 2, 4, 6, 8 mm VT-NBR-Set Mounting bracket EIL.05-HO

*= Values depend on vacuum generator

Modular grippers



SUITABLE FOR FOODSTUFFS



Customised design example

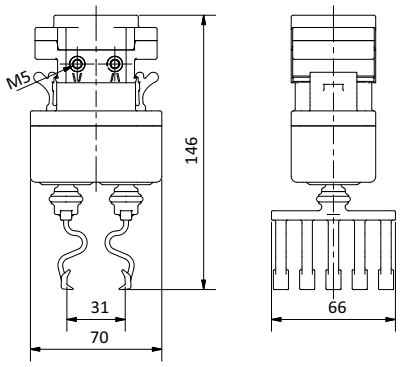
Product description

> Grippers are customised to the workpiece
> Connection to robots such as Delta Robots
> Single-acting or double-acting
> All components made of FDA compliant material
> Material: Polyamide-based high-performance plastic

Ordering notes

> The product examples displayed are based on customer specifications
> We would be pleased to develop your customised solution

Dimensions



Examples of application

> Modular gripper for cans - the gripper design follows the contours of the handling item, to enable rapid acceleration



> Modular gripper with integrated ejector EMM and Varioflex® bellows vacuum cups for height compensation



Needle grippers GR04.740B

NEW

SLIM DESIGN DUE TO INTERNAL LIFT GUIDING



Product description

> Gripper for materials that are non-dimensionally stable or difficult to handle with vacuum
> Alignment to material thickness via adjustable lift
> Double-acting, enables short duty cycles, separate compressed air connections for extraction / retraction of needles
> Internal lift guiding for extra slim design
> Sensor for monitoring gripper action via piston position (needles extracted / retracted)

Notes

> Lift corresponds to maximum entry depth of needles

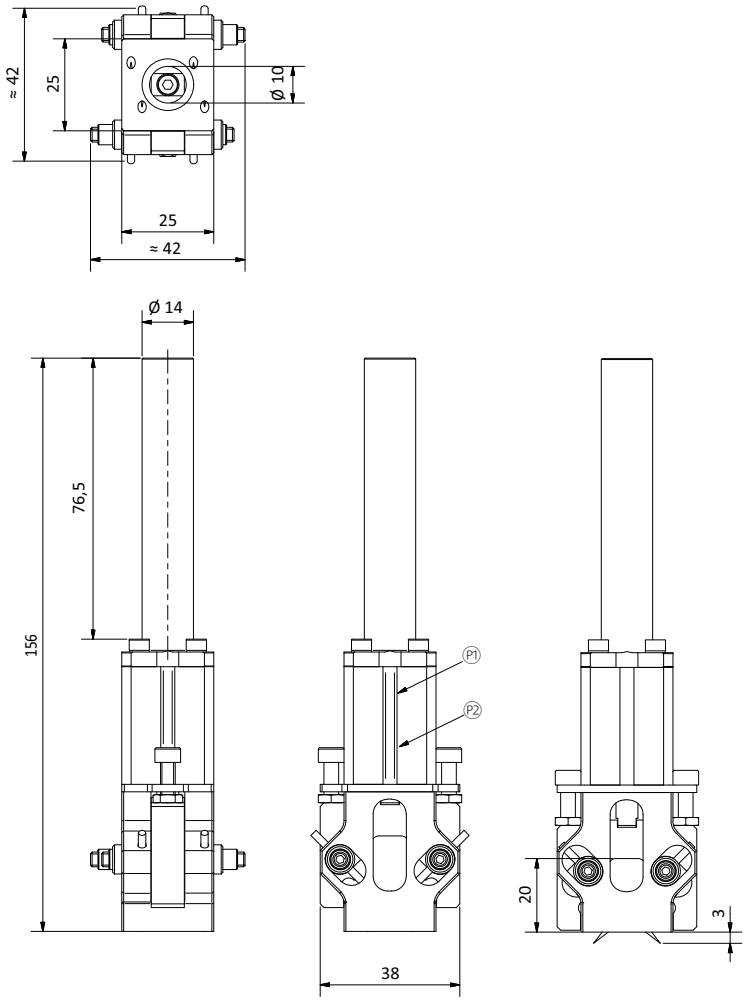
Ordering notes

> Sensors and spare needle sets with 10 needles each, available as accessories
> PNP and NPN sensors:
- C-nut (cable: 90°): GR04.202P, GR04.202N
- C-nut (cable: straight, short design): GR04.280P, GR04.280N

Technical data

Item no.	**GR04.740B**
Principle of operation	Double-acting
Lift [mm]	0 - 3
Number of needles [Pcs.]	4
Needle diameter [mm]	2
Infeed angle [°]	45
Operating pressure [bar]	2 - 8
Operating temperature [°C]	-10 - 60
Weight [g]	226
Accessories	Spare needle kit GR04.740-30N Sensor GR04.280N (p.374) Sensor GR04.280P (p.374) Sensor GR04.202N (p.374) Sensor GR04.202P (p.374)

Dimensions



P1 = Compressed air connection M5 needles extended P2 = Compressed air connection M5 needles retracted

Needle grippers GR04.700 and GR04.730



MR04.700

SMALL NEEDLE DIAMETER FOR LOW ENTRY DEPTH, BLOW-OFF FUNCTION FOR FAST PRODUCT RELEASE



MR04.730

Product description

> Grippers with flat entry angle enables handling of thin or flat parts
> Knurled screw for lift adjustment to textile thickness
> GR04.700: Double-acting enables short duty cycles: Separate compressed air connections for extraction / retraction of needles, additional compressed air inlet (A) for fast product release
> GR04.730: Single-acting, compressed air connection for needle extraction, reset via return spring

Notes

> Lift corresponds to maximum entry depth of needles

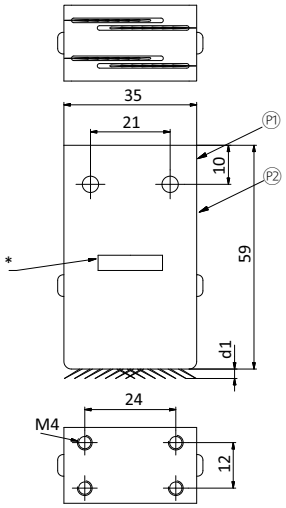
Ordering notes

> Spare needle plates available as accessories

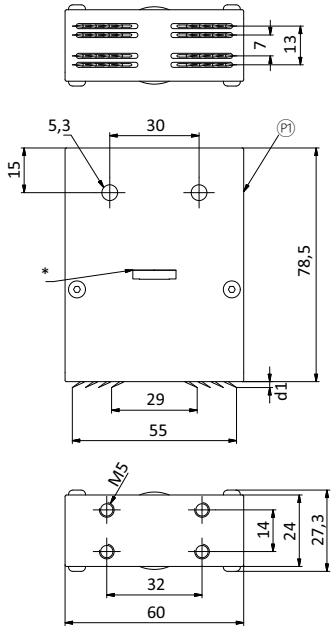
Technical data

Item no.	MR04.700-20	MR04.700-25	MR04.730-20
Principle of operation	Double-acting	Double-acting	Single-acting
Lift [mm]	0 - 2	0 - 2.5	0 - 2
Number of needles [Pcs.]	32	32	32
Needle diameter [mm]	0.7	0.7	0.7
Infeed angle [°]	45	45	45
Operating pressure [bar]	4 - 7	4 - 7	7
Operating temperature [°C]	-10 - 60	-10 - 60	-10 - 60
Weight [g]	114	114	250
Accessories	Spare needle kit MR04.700-20N Mounting bracket MR07.040 (p.236)	Spare needle kit MR04.700-25N Mounting bracket MR07.040 (p.236)	Spare needle kit MR04.730-20N Mounting bracket MR07.041 (p.236)

Dimensions



MR04.700-20 | MR04.700-25



MR04.730-20

* = Lift adjustment with knurled screw P1 = Compressed air connection M5 needles extended
P2 = Compressed air connection M5 needles retracted

Item no.	MR04.700-20	MR04.700-25	MR04.730-20
Ø d1 [mm]	2	2.5	0 - 2

Needle grippers MR04.710 and MR04.720



MR04.710

LIFT ADJUSTABLE TO MATERIAL THICKNESS



MR04.720 with spring load

Product description

> Grippers for materials that are non-dimensionally stable or difficult to handle with vacuum
> Central bore hole to allow insertion of gripper into stack rails for pick and place
> Lift limitation adjustable to material thickness
> Needles centrally crossed for firm grip
> Double-acting enables short duty cycles: Separate compressed air connections for extraction / retraction of needles

Notes

> Needles can be individually replaced

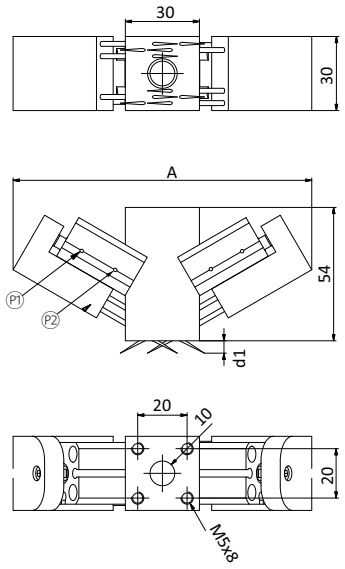
Ordering notes

> Spare needle sets, each containing 10 pieces available

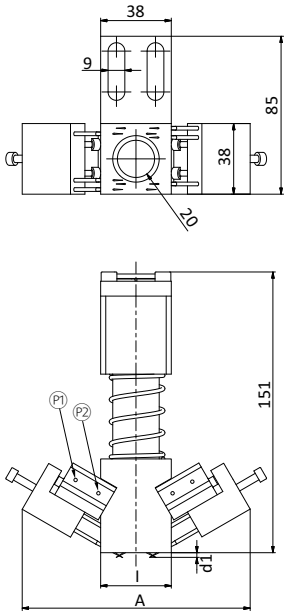
Technical data

Item no.	MR04.710-25	MR04.710-50	MR04.710-75	MR04.710-100	MR04.720-25	MR04.720-50
Principle of operation	Double-acting	Double-acting	Double-acting	Double-acting	Double-acting	Double-acting
Lift [mm]	0 - 2.5	0 - 5	0 - 7.5	0 - 10	0 - 2.5	0 - 5
Number of needles [Pcs.]	10	10	10	10	10	10
Needle diameter [mm]	2	2	2	2	2	2
Infeed angle [°]	45	45	45	45	45	45
Operating pressure [bar]	2 - 8	2 - 8	2 - 8	2 - 8	2 - 8	2 - 8
Max. operating temperature [°C]	-10 - 60	-10 - 60	-10 - 60	-10 - 60	-10 - 60	-10 - 60
Weight [g]	240	255	301	311	492	512
Accessories	Spare needle kit MR04.710-50N Mounting bracket MR07.040 (p.236)	Spare needle kit MR04.710-50N Mounting bracket MR07.040 (p.236)	Spare needle kit MR04.710-75AN Spare needle kit GR04.710-75N Mounting bracket MR07.040 (p.236)	Spare needle kit MR04.710-75AN Spare needle kit GR04.710-75N Mounting bracket MR07.040 (p.236)	Spare needle kit MR04.720-25N	Spare needle kit MR04.720-25N

Dimensions



GR04.710-25 | GR04.710-50 | GR04.710-75 | GR04.710-100



GR04.720-25 | GR04.720-50

Ⓟ1 = Compressed air connection M5 needles extended Ⓟ2 = Compressed air connection M5 needles retracted

Item no.	MR04.710-25	MR04.710-50	MR04.710-75	MR04.710-100	MR04.720-25	MR04.720-50
A [mm]	108 - 116.5	120 - 138	128 - 154	138.5 - 173	123 - 131.5	131.5 - 149
d1 [mm]	0 - 2.5	0 - 5	0 - 7.5	0 - 10	0 - 2.5	0 - 5

Needle grippers MR04.715



RETRACTION OF NEEDLES CAN BE CONTROLLED SEPARATELY FOR BOTH SIDES

Product description

> Grippers for workpieces or materials that are non-dimensionally stable or difficult to handle with vacuum
> Narrow design
> Lift can be adjusted to material thickness
> Double-acting enables short duty cycles: Separate compressed air connections for extraction / retraction of needles on the face-side, alternatively one connection / each for separate extraction, one connection for central retraction

Notes

> Needles can be individually replaced

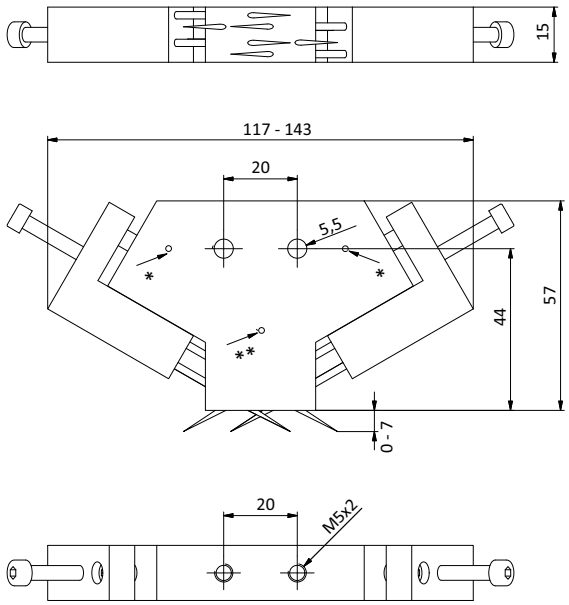
Ordering notes

> Spare needle sets, each containing 10 pieces available

Technical data

Item no.	**MR04.715-70**
Principle of operation	Double-acting
Lift [mm]	0 - 7
Number of needles [Pcs.]	6
Needle diameter [mm]	2
Infeed angle [°]	45
Operating pressure [bar]	2 - 8
Operating temperature [°C]	-10 - 60
Weight [g]	195
Accessories	Mounting bracket MR07.042 (p.237) Spare needle kit MR04.715-70N

Dimensions



* = Bore holes M3 for separate extration of needles per side ** = Bore hole M3 for central retraction of needles

Needle grippers MR04.725



ESPECIALLY SUITED FOR HANDLING HEAVIER WORKPIECES

Product description

> Grippers for materials that are non-dimensionally stable or difficult to handle with vacuum
> Lift can be adjusted to material thickness
> Double-acting enables short duty cycles: Separate compressed air connections for extraction / retraction of needles

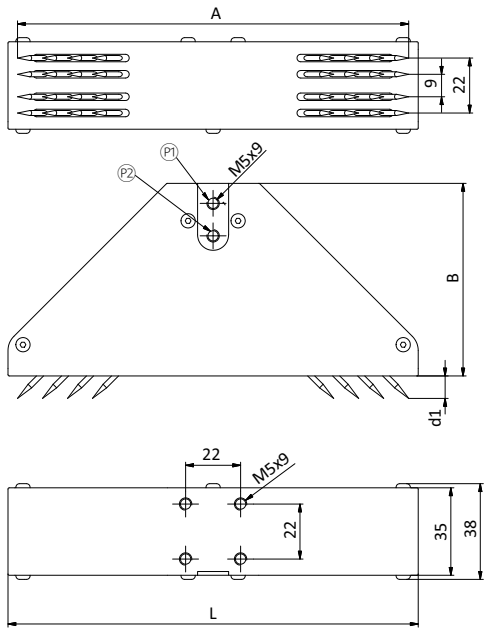
Ordering notes

> Spare needle plates, available

Technical data

Item no.	GR04.725-60	GR04.725-90
Principle of operation	Double-acting	Double-acting
Lift [mm]	6	9
Number of needles [Pcs.]	32	32
Needle diameter [mm]	2	2
Infeed angle [°]	45	45
Max. gripping force [N]	360	360
Operating pressure [bar]	2 - 8	2 - 8
Operating temperature [°C]	-10 - 60	-10 - 60
Weight [g]	450	480
Accessories	Mounting bracket GR07.041 (p.236) Spare needle kit GR04.725-60N	Mounting bracket GR07.041 (p.236) Spare needle kit GR04.725-90N

Dimensions

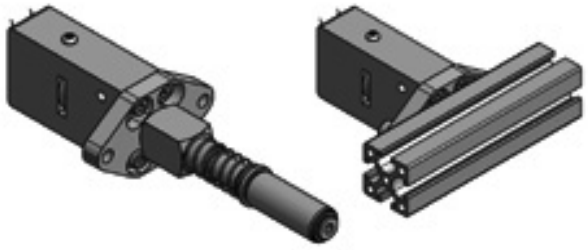


P1 = Compressed air connection M5 needles extended P2 = Compressed air connection M5 needles retracted

Item no.	MR04.725-60	MR04.725-90
A [mm]	135	150
B [mm]	70	77
d1 [mm]	0 - 6	0 - 9
L [mm]	150	164

Mounting plates for needle gripper





Installation example for needle gripper MR04.700 on spring-loaded suction finger or SLine extrusion system

Product description

> Mounts needle grippers on the SLine and MLine extrusion systems or spring-loaded suction fingers

Notes

> Two bore holes for DIN 912-M5, for mounting on extrusion

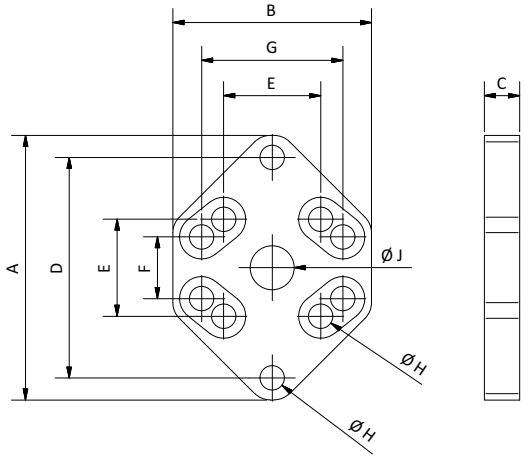
Ordering notes

> Slot nuts and screws included in scope of delivery

Technical data

Item no.	Suitable for	Weight [g]	Suitable suction fingers
MR07.040	MR04.700, MR04.710	21	MR03.090A (p.104) MR03.091A (p.104) MR03.130A MR03.131A
MR07.041	MR04.725, MR04.730	27	MR03.090A (p.104) MR03.091A (p.104) MR03.130A MR03.131A

Dimensions



Item no.	**A** [mm]	**B** [mm]	**C** [mm]	**D** [mm]	**E** [mm]	**F** [mm]	**G** [mm]	**Ø H** [mm]	**Ø J** [mm]
MR07.040	60	35	8	50	20	12	24	5.5	10
MR07.041	60	45	8	50	22	14	32	5.5	10