



Hand in hand for tomorrow



Product data sheet

Round cell gripper RCG

Round cell gripper for handling battery cells with Ø 46 mm

The round cell gripper RCG is a pneumatically controlled magnetic system with which a battery cell can be picked up and set down magnetically.

Field of application

Handling of round battery cells. For example, as a multiple gripping unit for packaging battery cells after cell production or for further processing into battery modules or complete battery packs: cell to module or cell to pack.

Advantages – Your benefits

Compact overall dimension the individual gripper enables maximum packing density of battery cells

Maximum process reliability through sensory workpiece and status detection

Avoidance of workpiece loss thanks to the integrated gripping force maintenance, even in the event of energy loss

Protection of the battery cell through an insulating separating layer between gripper and battery cell

Short project implementation times the standard RCG gripper is perfectly matched to round cells



Sizes
Quantity: 1

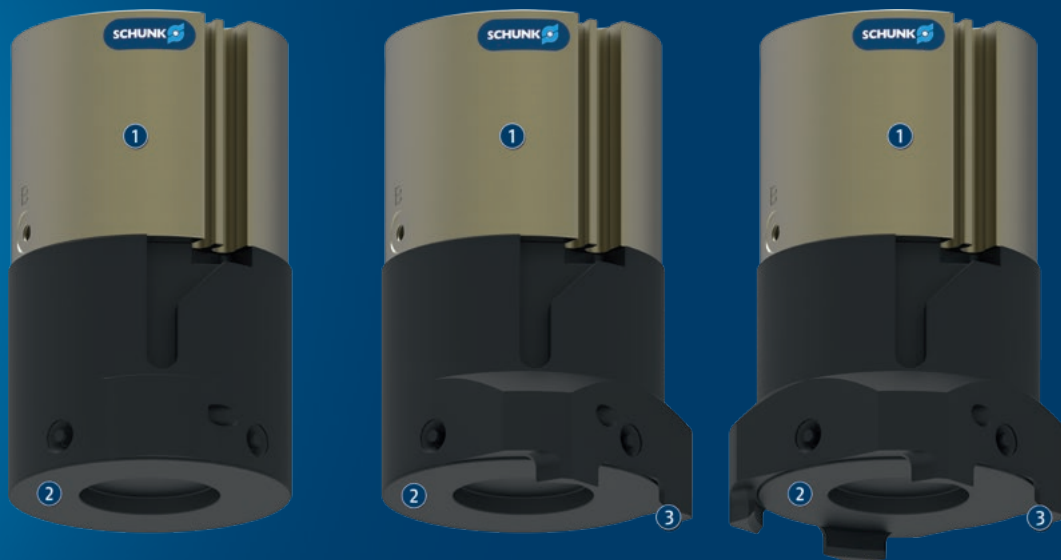


Weight
0.25 kg

Functional description

The battery cell is held by a strong permanent magnet inside the round cell gripper. The permanent magnet is activated pneumatically by the change of its position in the piston chamber. The permanent magnet is moved

towards or away from the workpiece via a pneumatic piston, thereby "activating" or "deactivating" it.



- ① **Pneumatic drive**
with C-slot for piston stroke monitoring system
- ② **Electrically decoupled contact surface**
to protect the charged battery cell that is in flat contact

- ③ **Centerings**
The centerings in versions -2 and -4 are used to compensate for placement tolerances when picking up the battery cells.

Detailed functional description

Workpiece detection



Workpiece detection via component presence monitoring with an inductive proximity switch.

Piston stroke monitoring



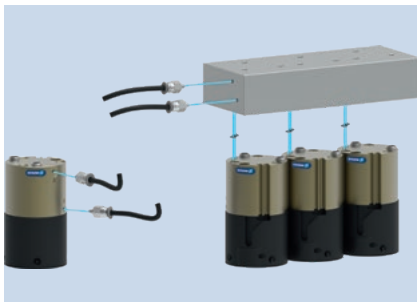
The status detection "magnet activated" or "magnet deactivated" is ensured via the piston stroke monitoring system with solenoid switches.

Gripping force maintenance



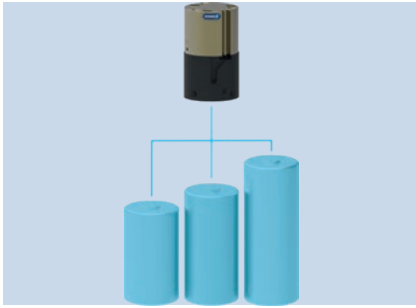
Gripping force maintenance in the event of a compressed air failure is provided by the principle of the permanent magnet. The magnetic holding force holds the battery cell securely, avoiding workpiece loss, and ensures maximum process reliability.

Pneumatic connections for the power supply



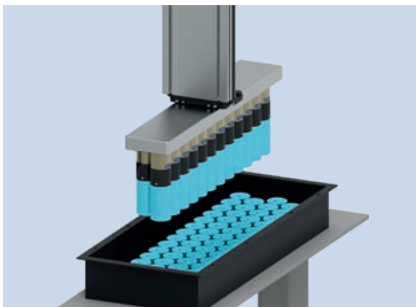
Optional main air connections on the side or direct bottom-sided air connections for space-saving integration of several individual grippers in one gripping system.

Round cells 46x



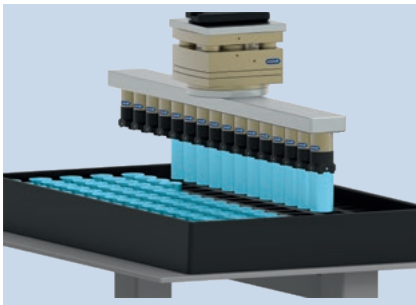
The magnetic gripper RCG 46 can securely handle all common formats of Ø 46 mm round cells.

Multiple gripper unit



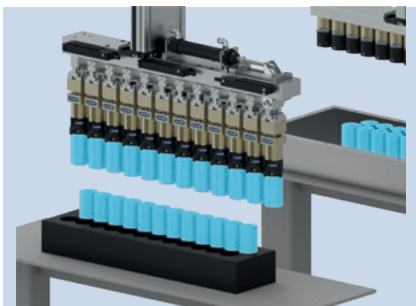
The round cell gripper RCG can be set up as an individual multiple gripper unit in order to realize the specific cell spacing depending on the application. Whether one, two, ... or even several hundred individual grippers.

End-of-line



The possibility of individual control for each round cell gripper RCG means that individual battery cells can be ejected in the process sequence, e.g. in the end-of-line testing process.

Cell spacing unit



Cell spacing units also offer the option of changing the distance between several battery cells during the pick-&-place process. The number of cells to be gripped and the cell spacings are individually adapted to the application.

General notes about the series

Actuation: pneumatic, with filtered compressed air as per ISO 8573-1:2010 [7:4:4].

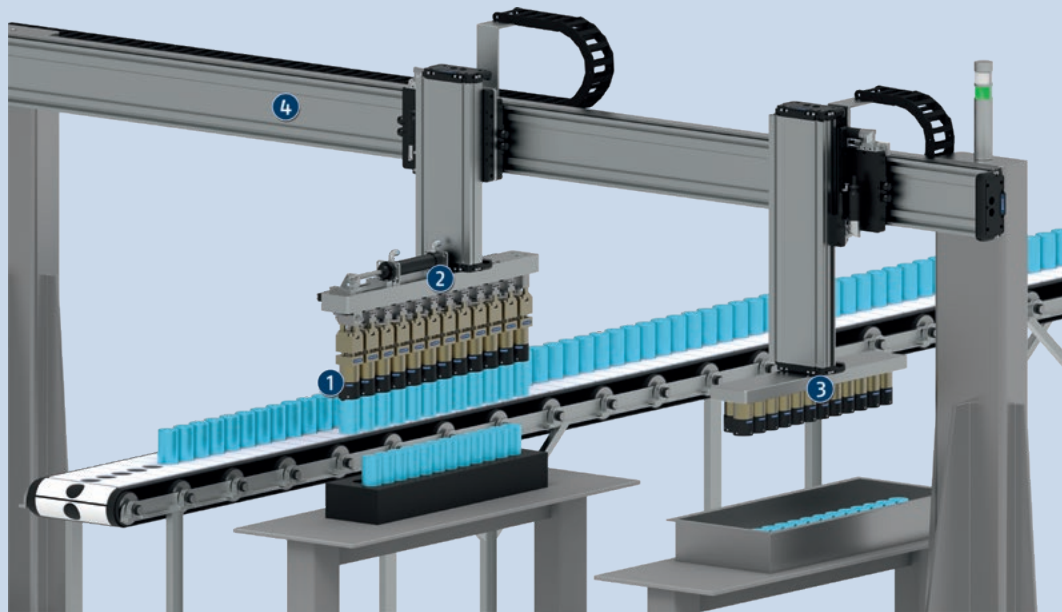
Warranty: 12 months

Service life characteristics: on request

Scope of delivery: Centering sleeves, O-rings for direct connection, locking screws

Gripping force maintenance: is provided by the principle of the permanent magnet in the event of compressed air failure.

Residual magnetic force: When the magnet is deactivated, the residual magnetic force is <1 N and enables process-secure stacking of battery cells.



Application example

The RCG 46 round cell gripper enables the handling of battery cells with a diameter of $\varnothing$ 46 mm without interfering contours. In combination with application-specific gripping units, all process steps in the assembly of battery modules and packs can be implemented.

- ① Round cell gripper RCG
- ② Application-specific gripping unit incl. tolerance compensation unit and cell spacing unit
- ③ Application-specific gripping unit
- ④ Linear direct axis SLD

RCG 46

Round cell gripper

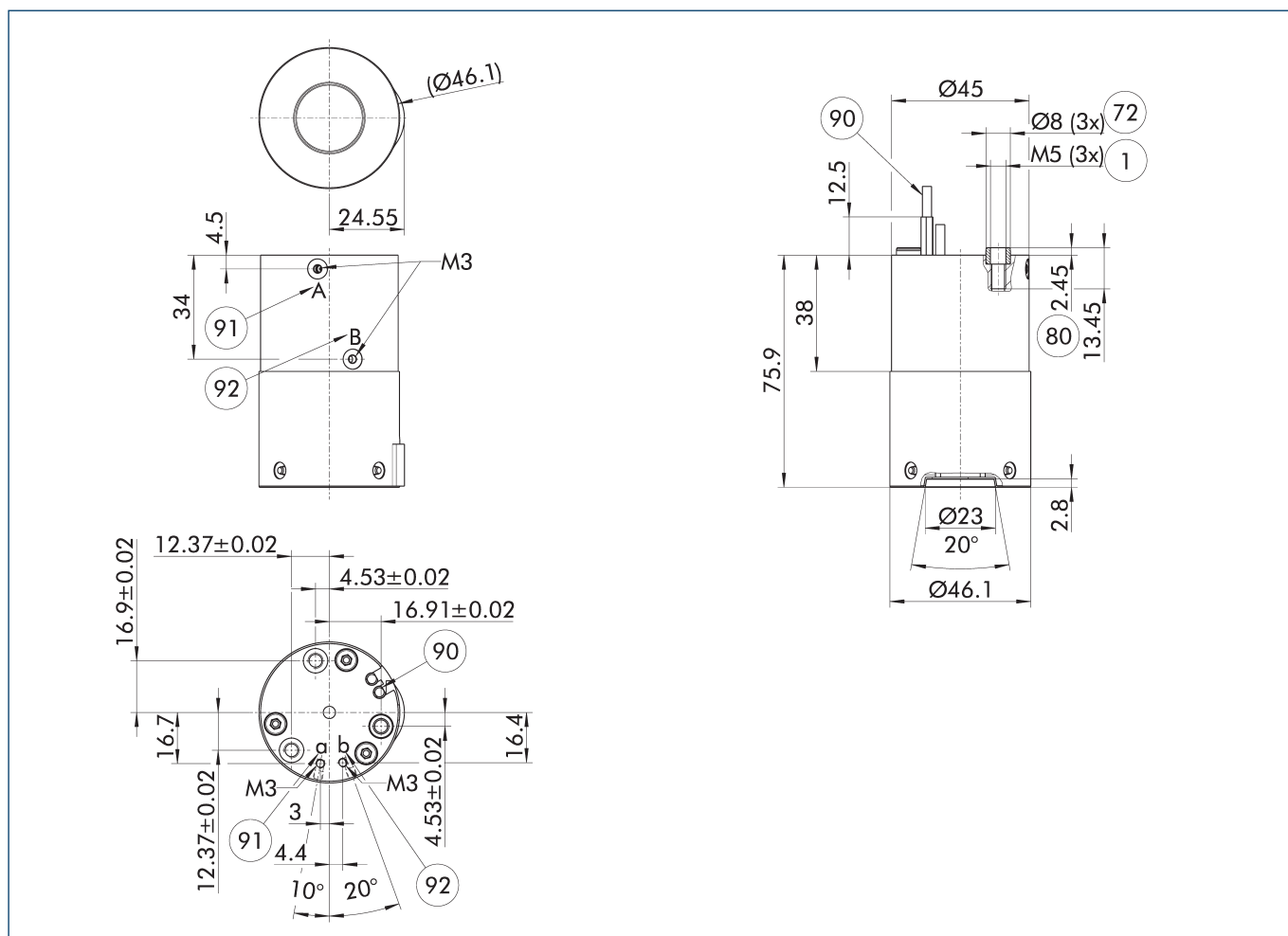


Technical data

Description		RCG 46-0	RCG 46-2	RCG 46-4
ID		1556170	1556157	1551638
General operating data				
Magnetic holding force*	[N]	≥70	≥70	≥70
Actuation method		pneumatic	pneumatic	pneumatic
Min./max. operating pressure	[bar]	3/8	3/8	3/8
Cylinder volume per double stroke	[cm ³]	19.4	19.4	19.4
Workpiece detection		yes	yes	yes
Piston stroke monitoring		yes	yes	yes
Gripping force maintenance		yes	yes	yes
Switching time	[s]	0.05	0.05	0.05
Min./max. ambient temperature	[°C]	0/50	0/50	0/50
Weight	[kg]	0.25	0.25	0.25

* *The magnetic holding force is measured with the round cell in contact with the gripper (Hilumin material, wall thickness 0.8 mm)

Main view RCG 46-0

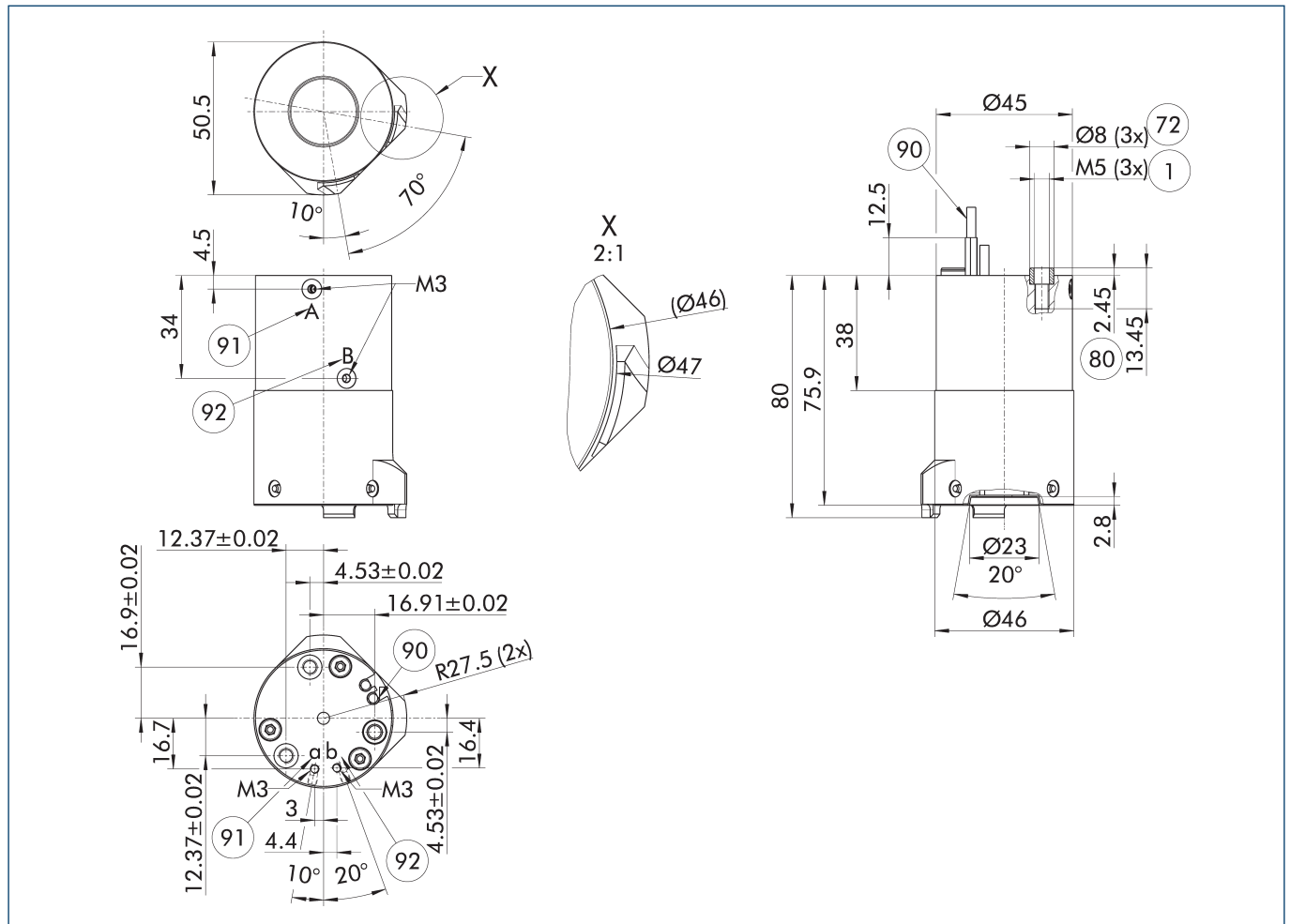


- | | |
|---|---|
| ① Gripper connection | ⑨⑩ Sensor MMS 22.. |
| ⑦② Fit for centering sleeves | ⑨① A,a Main/direct connection gripper activated |
| ⑧③ Depth of the centering sleeve hole in the counter part | ⑨② B,b Main/direct connection gripper activated |

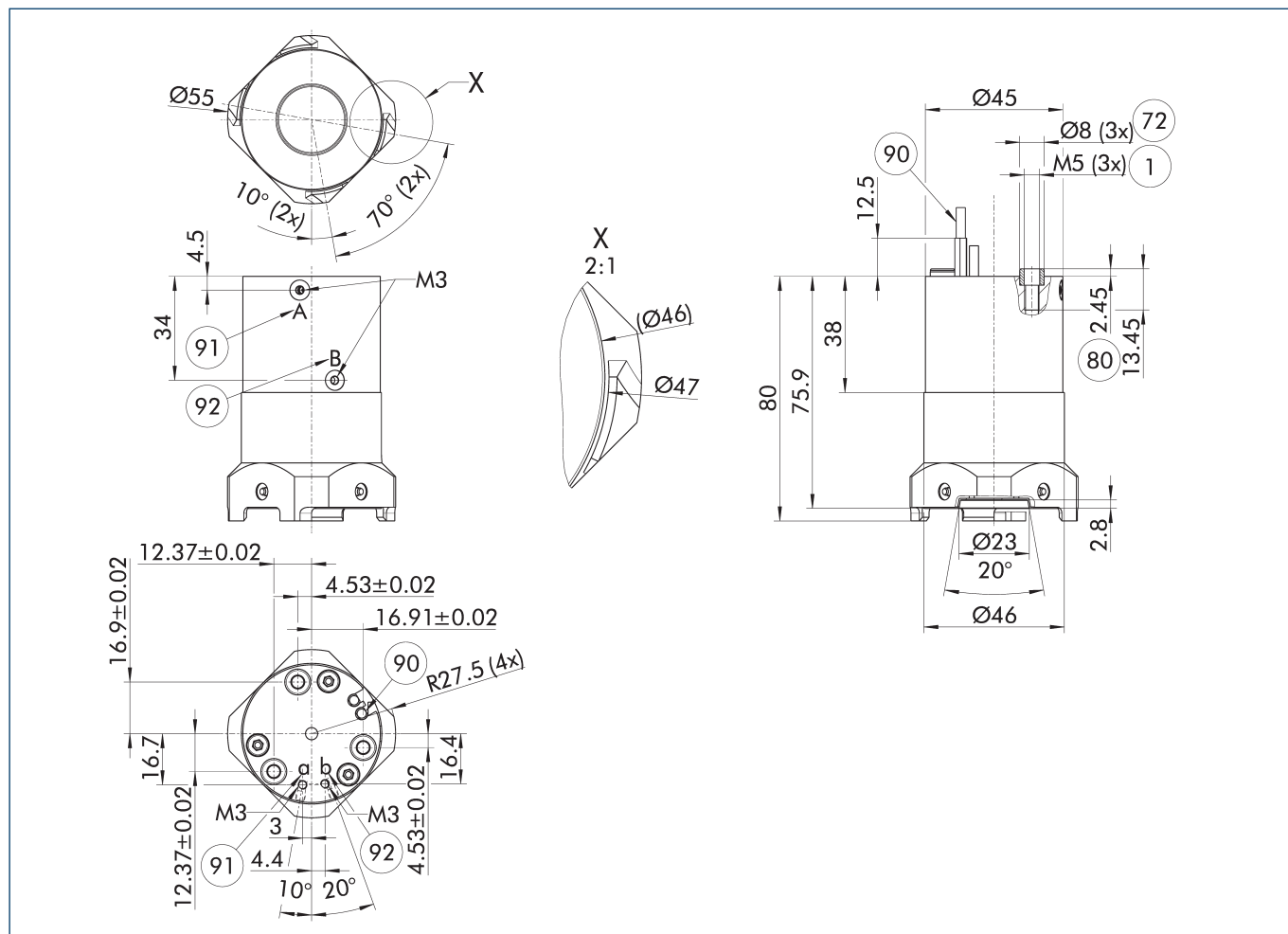
RCG 46

Round cell gripper

Main view RCG 46-2

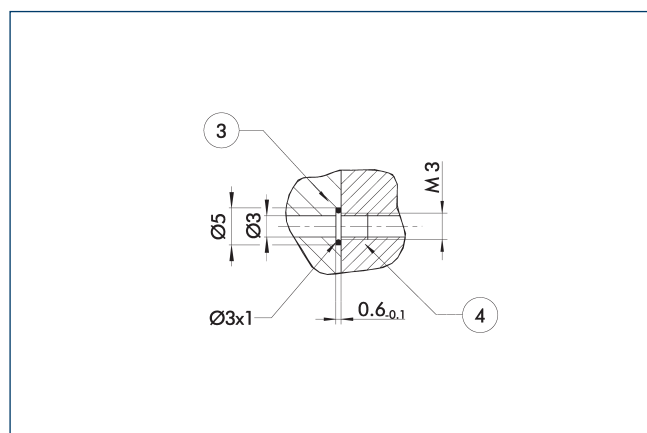


Main view RCG 46-4



- | | |
|---|---|
| ① Gripper connection | ⑨⑩ Sensor MMS 22.. |
| ⑦⑧ Fit for centering sleeves | ⑨① A,a Main/direct connection gripper activated |
| ⑧⑨ Depth of the centering sleeve hole in the counter part | ⑨② B,b Main/direct connection gripper activated |

Hose-free direct connection M3



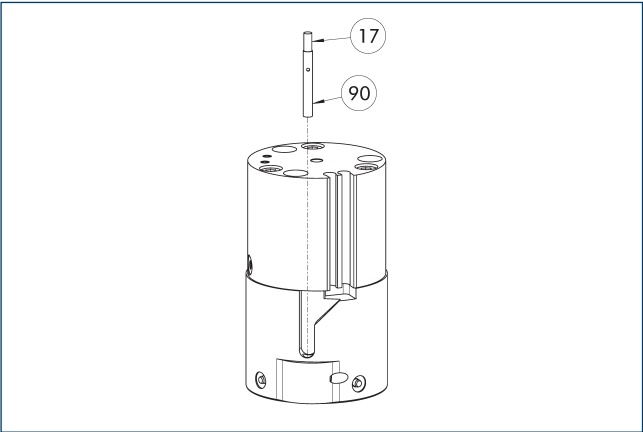
- | | |
|-----------|------------|
| ③ Adapter | ④ Grippers |
|-----------|------------|

The direct connection is used for supplying compressed air without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

RCG 46

Round cell gripper

Inductive proximity switches



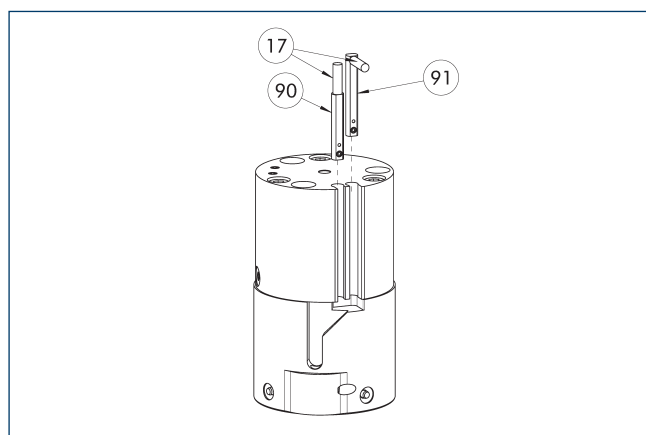
17 Cable outlet

90 Inductive Sensor

Description	ID	
Inductive proximity switches		
P+F NBB1-3M22-E2-0,3M-V3	1566654	

① One sensor per gripper is required for workpiece detection.

Electronic magnetic switch MMS



① Cable outlet

⑨ Sensor MMS 22...-SA

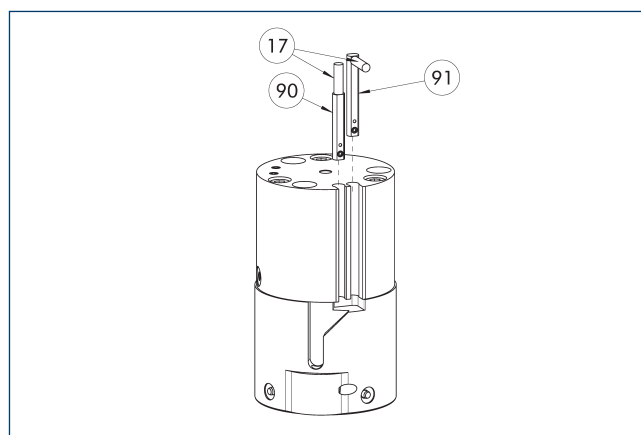
⑨ Sensor MMS 22..

End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Electronic magnetic switch		
MMS 22-S-M8-PNP	0301032	
MMSK 22-S-PNP	0301034	
Electronic magnetic switches with lateral cable outlet		
MMS 22-S-M8-PNP-SA	0301042	
MMSK 22-S-PNP-SA	0301044	
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	●
KA BG08-L 3P-0500-PNP	0301623	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-PNP	0301502	
Clip for connector/socket		
CLI-M8	0301463	
Cable extension		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
Sensor distributor		
V2-M8	0301775	●
V4-M8	0301746	
V8-M8	0301751	

- ① Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

Programmable magnetic switch MMS 22-PI1



① Cable outlet

⑨ Sensor MMS 22 ..-PI1-...-SA

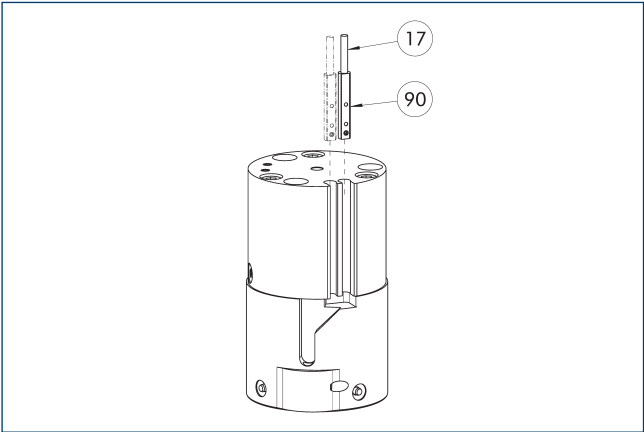
⑨ Sensor MMS 22 PI1-...

Position monitoring with one programmable position per sensor and integrated electronic system in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

Description	ID	
Programmable magnetic switch		
MMS 22-PI1-S-M8-PNP	0301160	
MMSK 22-PI1-S-PNP	0301162	
Programmable magnetic switch with lateral cable outlet		
MMS 22-PI1-S-M8-PNP-SA	0301166	
Programmable magnetic switch with stainless steel housing		
MMS 22-PI1-S-M8-PNP-HD	0301110	
MMSK 22-PI1-S-PNP-HD	0301112	

- ① Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

Programmable magnetic switch MMS 22-PI2



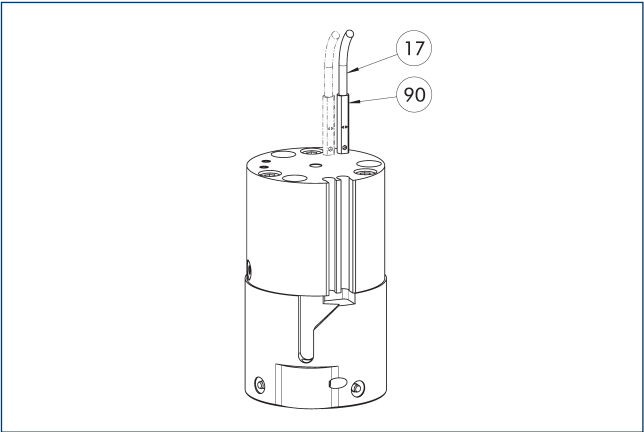
17 Cable outlet 90 MMS 22...-PI2-... sensor

Position monitoring with two programmable positions per sensor and electronics integrated in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

Description	ID	
Programmable magnetic switch		
MMS 22-PI2-S-M8-PNP	0301180	
MMSK 22-PI2-S-PNP	0301182	
Programmable magnetic switch with lateral cable outlet		
MMS 22-PI2-S-M8-PNP-SA	0301186	
MMSK 22-PI2-S-PNP-SA	0301188	
Programmable magnetic switch with stainless steel housing		
MMS 22-PI2-S-M8-PNP-HD	0301130	
MMSK 22-PI2-S-PNP-HD	0301132	

- ① One sensor is required per unit for monitoring two positions. Extension cables and sensor distributors are optionally available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor systems.

MMS-P programmable magnetic switch



17 Cable outlet 90 Sensor MMS 22...-P...

Position monitoring with two programmable positions per sensor. End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Programmable magnetic switch		
MMSK-P 22-S-PNP	0301371	
MMS-P 22-S-M8-PNP	0301370	
Connection cables		
KA GLN0804-LK-00500-A	0307767	●
KA GLN0804-LK-01000-A	0307768	
KA WLN0804-LK-00500-A	0307765	
KA WLN0804-LK-01000-A	0307766	
Clip for connector/socket		
CLI-M8	0301463	
Sensor distributor		
V2-M8-4P-2XM8-3P	0301380	

- ① One sensor is required per unit for monitoring two positions. Extension cables and sensor distributors are optionally available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor systems.



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