



CUSTOMISED SOLUTIONS



HANDLING SYSTEMS
HOT FORM SHEET METAL

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IPR - Intelligent Peripheries for Robots GmbH - was founded with the objective to develop and manufacture top quality assembly and robot accessories. Our product range features for example compliance wrists, alignment devices, grippers, tool changers, load limiters and force-torque sensors. It is our endeavor to offer rational and economical solution to our customer. An efficient R&D-department and modern manufacturing processes guarantee the high precision and top quality of our products.

At our company headquarter in Schwaigern, Germany - we design, manufacture and assemble our standard components and special applications. A team of highly skilled and motivated specialists work on solutions for customers demands.



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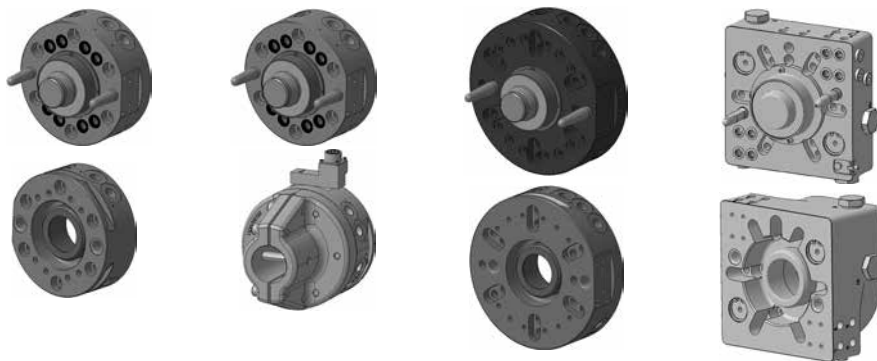
The application „hot forming of sheet metal“ needs a special technology for handling processes. The up to 1000°C hot sheet metal parts must be handled with special isolated heat resistant gripping tools.

Even for picking up the formed 200-250°C hot parts is a need for special grippers. The same requirements are necessary for sensing the grippers and the part.

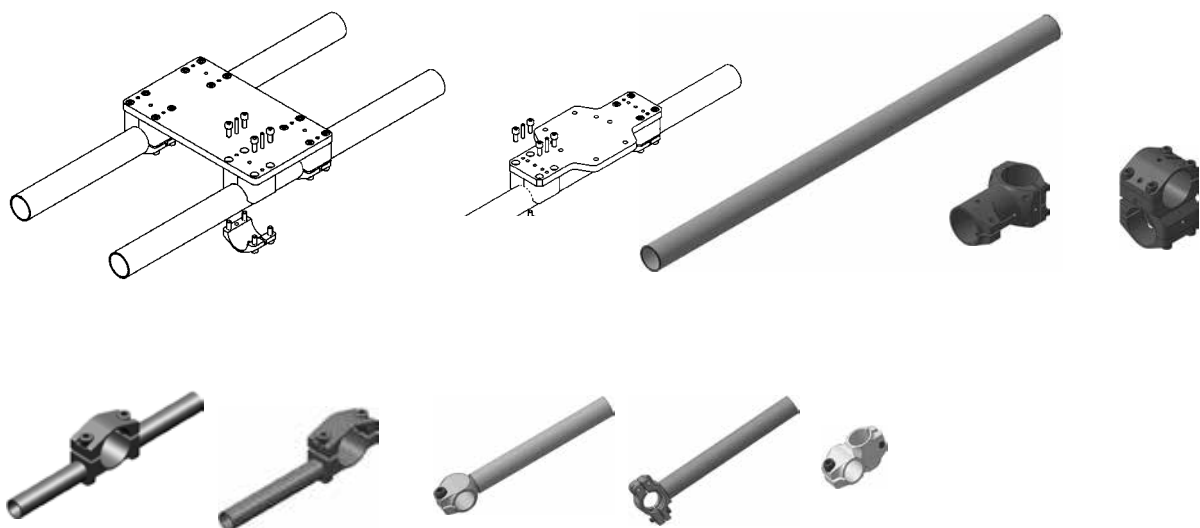
IPR developed a complete system for this type of application. With it all handling systems can safe and easily be build. Because of the modularity necessary changes can be adapted very simple. The components are tested under hardest conditions and are absolutely reliable.

The modular handling systems consist of the components below:

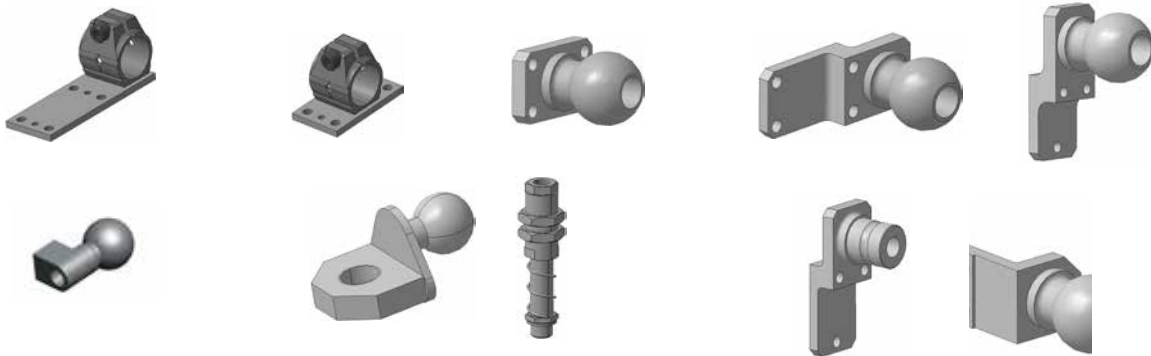
1. Automatical hand exchanger



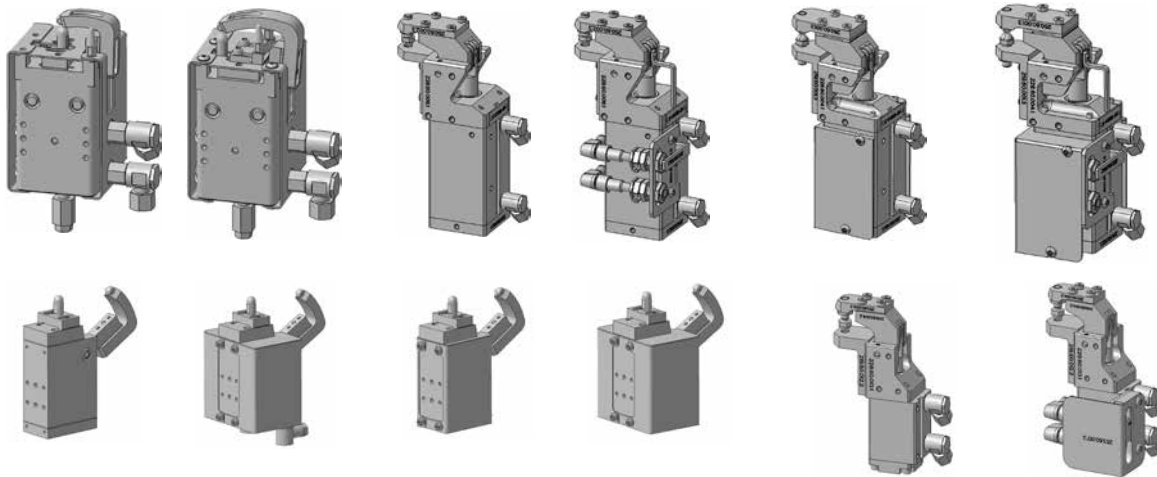
2. Components for gripper frames



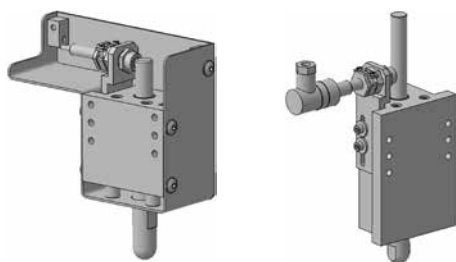
3. End effector holder



4. Grippers for cold and hot sheet metal



5. Electrical Sensors



6. Installation accessories

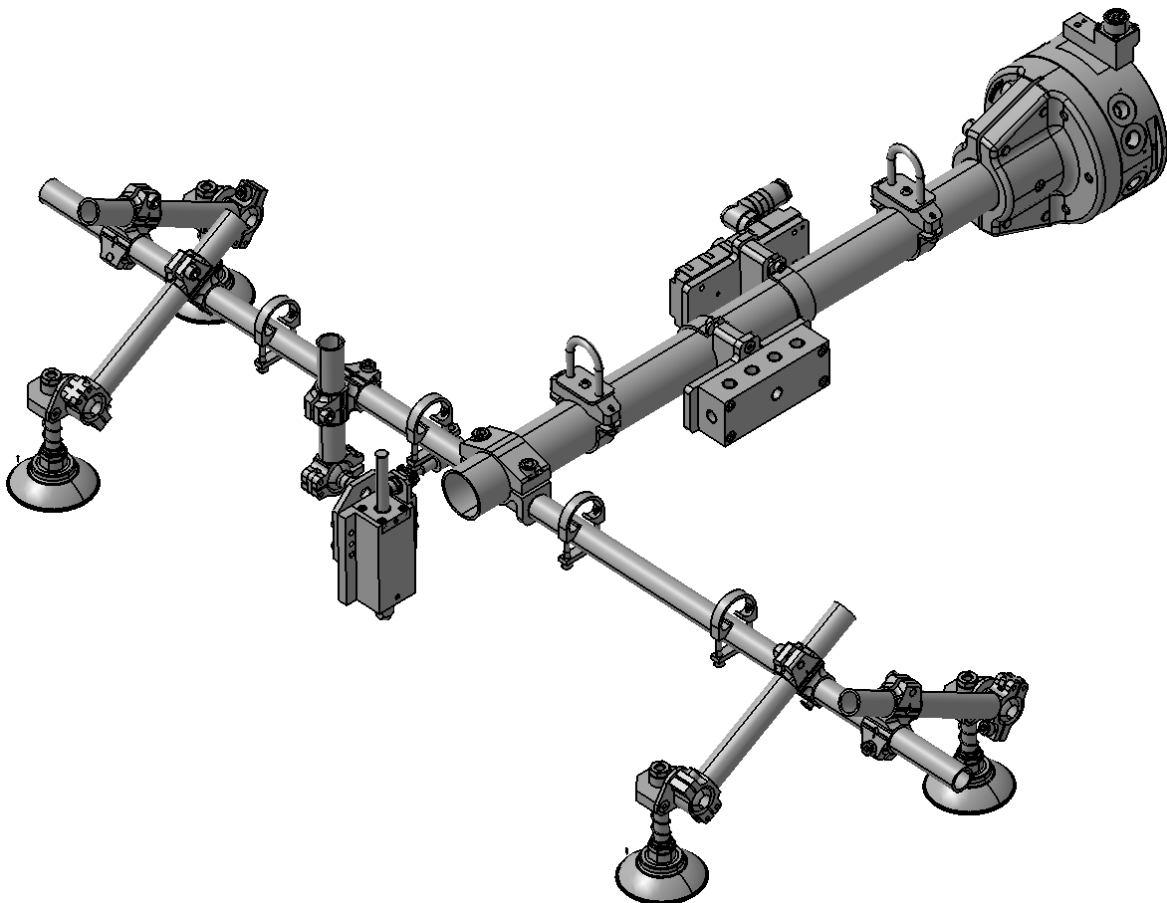


Vacuum gripper for sheet metal:

The gripper shown below is an example for picking up cold sheet metal from the stack and place it on the oven line.

The sheet metal is picked up by suction cups. For compensation of height tolerances the suction cups are spring-loaded mounted. The height of the stack is detected while the gripper is moved to the gripping point by a spring-loaded sensor.

If needed, additional sensors and a double sheet detection sensor can be installed.

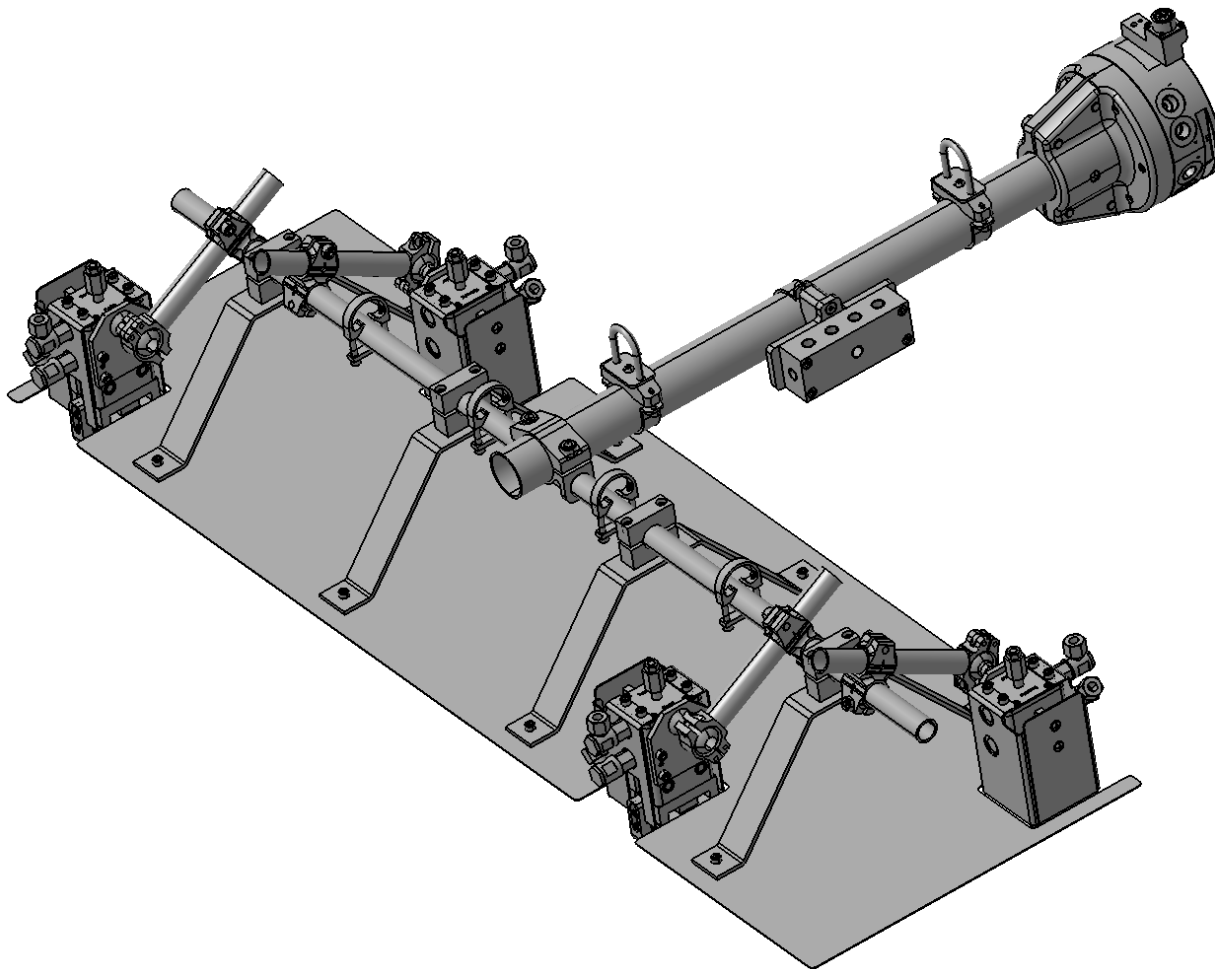


Gripper for hot parts:

The gripper shown below is an example for pick up the 1000°C hot sheet metal from the oven line and place them into the forming press.

The sheet metal is mechanically gripped with heat resistant angular grippers. For heat protection of the installation and reduction of temperature losses the sheet metal is covered by a screen made of stainless steel. The heat protection screen can normally be dispensed.

Because of the extremely high temperature electrical sensors are preferably not installed.

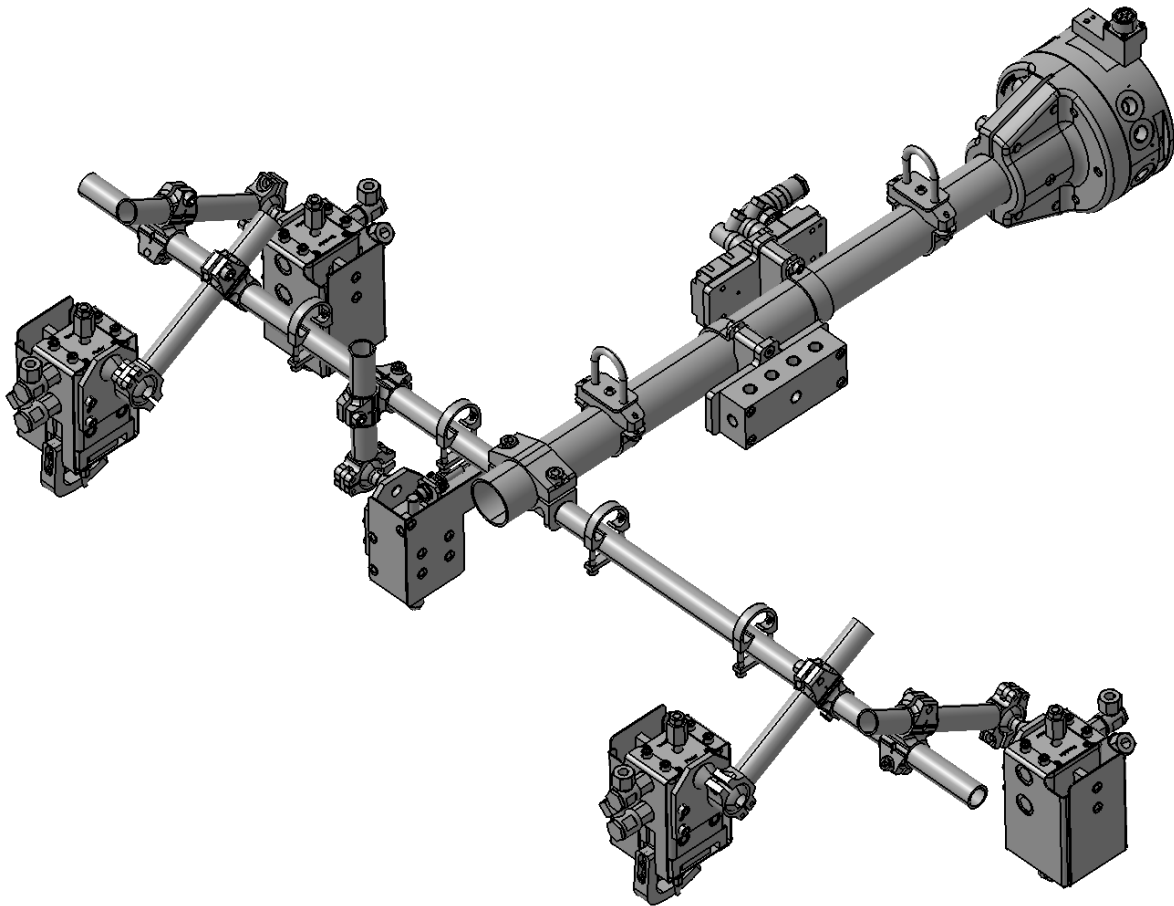


Gripper for warm and cold parts:

The gripper shown below is an example for picking up the 200°C - 400°C warm formed parts out of the forming press and for subsequent handling operations.

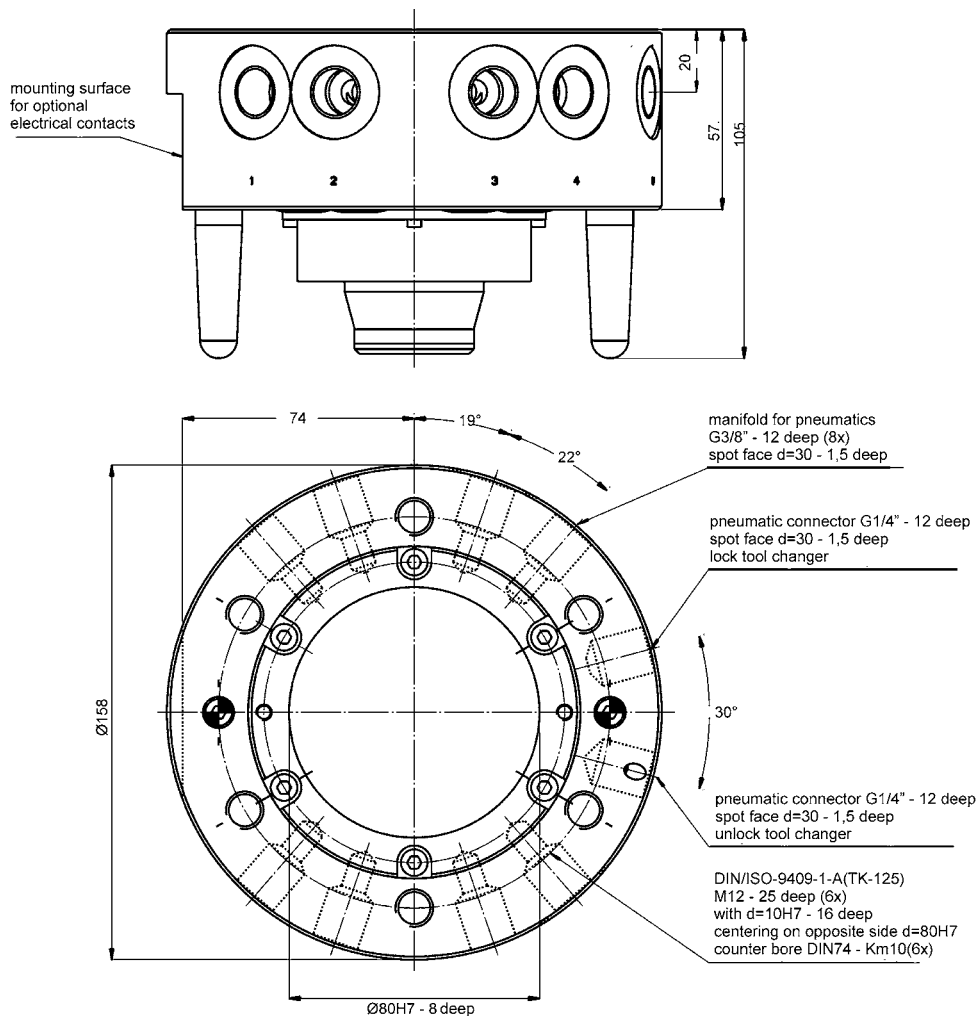
The part is picked up with heat-resistant angular grippers. A heat protection screen is no longer necessary. The part will be detected by heat-resistant and spring-loaded sensors. The gripper positions are detected by heat-resistant sensors.

Depending on the line layout the part will be placed on pictures or will be proceeded to subsequent processes. For further handlings a heat-resistant version may not be necessary because of the lower temperatures.



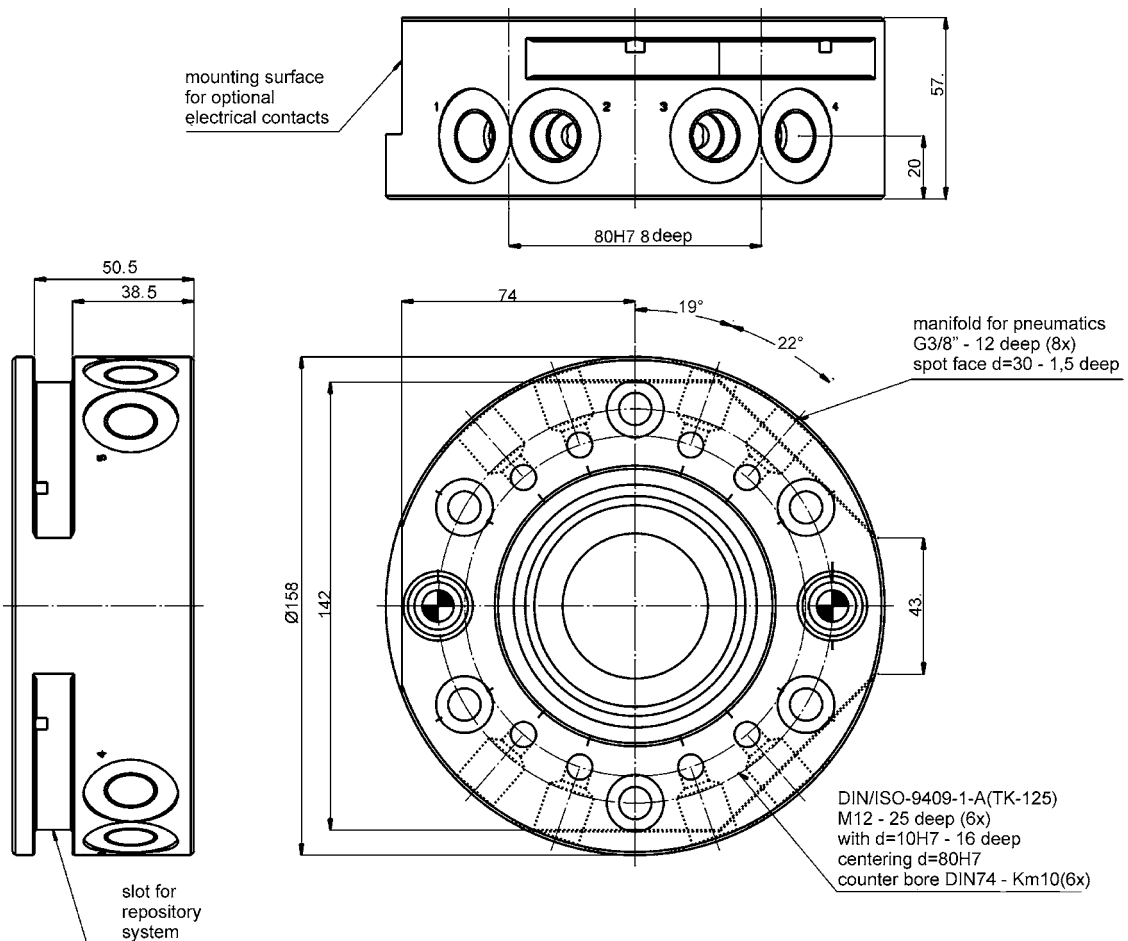
Technical Data

Modell	TK-125-R
Part-No.	15030157
Recommended max. Payload	150 kg
Distance Center of Gravity less than	500 mm
Weight (without options)	3,55 kg
Cylinder Bore	57,56 mm
Air Consumption each Cycle	0,59 l
Max. Tensile F_z (static load) at $p=6\text{bar}$	30.000 N
Max. Compressive F_D (static load)	70.000 N
Max. Moment M_x, M_y (static load) at $p=6\text{bar}$	2.000 Nm
Max. Moment M_z (static load) at $p=6\text{bar}$	2.000 Nm
Repeatability x-, y-, z-Axes	0,05 mm
Join Force in Join Direction (against spring loaded ball cover)	110 N
Max. permissible Axis Deviation x/y	+/- 1,6 mm
Max. Distance between R and T Side when locking	3 mm
Locking Stroke	47,5 mm
Energie Transmission pneumatic	8 x G3/4"
Energie Transmission elektric optional available:	
Electrical Contact IP65-Mil 12pin/24pin/38pin	30V/3A
Electrical Contact IP65-PG 12pin/24pin	30V/3A
Electrical Contact IP65-Mil 8pin	400V/22A



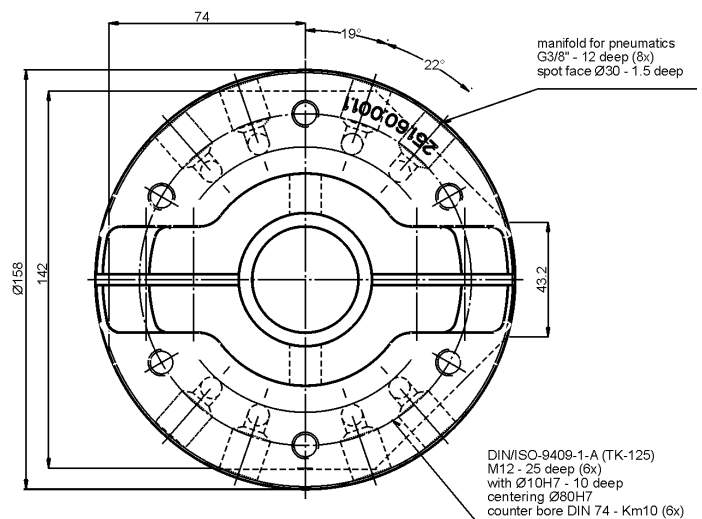
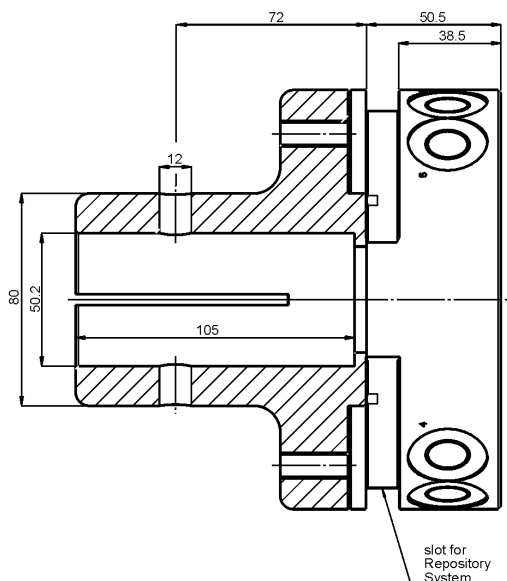
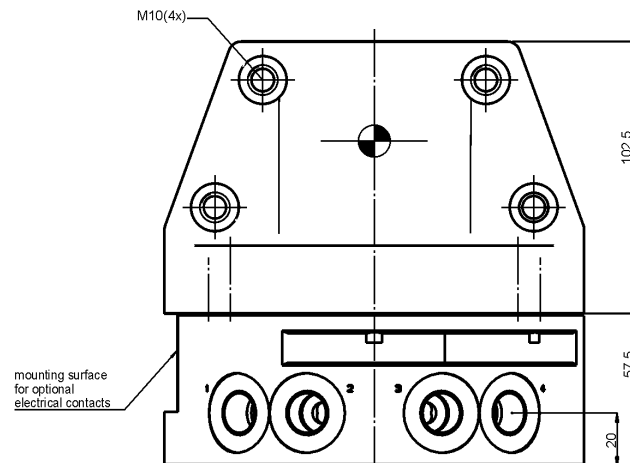
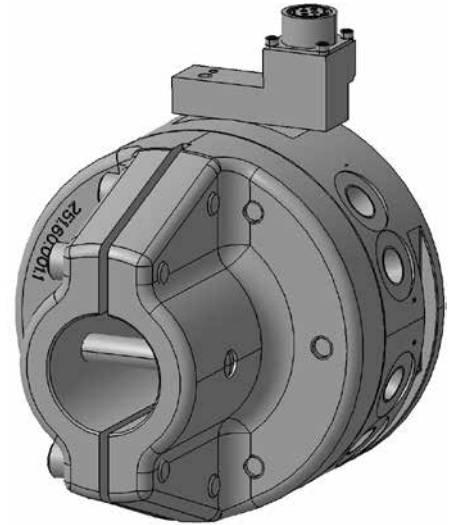
Technical Data

Modell	TK-125-T
Part-No.	15030158
Recommended max. Payload	150 kg
Distance Center of Gravity less than	500 mm
Weight (without options)	2,25 kg
Cylinder Bore	-
Air Consumption each Cycle	-
Max. Tensile F_z (static load) at $p=6\text{bar}$	30.000 N
Max. Compressive F_D (static load)	70.000 N
Max. Moment M_x, M_y (static load) at $p=6\text{bar}$	2.000 Nm
Max. Moment M_z (static load) at $p=6\text{bar}$	2.000 Nm
Repeatability x-, y-, z-Axes	0,05 mm
Join Force in Join Direction (against spring loaded ball cover)	110 N
Max. permissible Axis Deviation x/y	+/- 1,6 mm
Max. Distance between R and T Side when locking	3 mm
Locking Stroke	47,5 mm
Energie Transmission pneumatic	8 x G3/4"
Energie Transmission elektric optional available:	
Electrical Contact IP65-Mil 12pin/24pin/38pin	30V/3A
Electrical Contact IP65-PG 12pin/24pin	30V/3A
Electrical Contact IP65-Mil 8pin	400V/22A



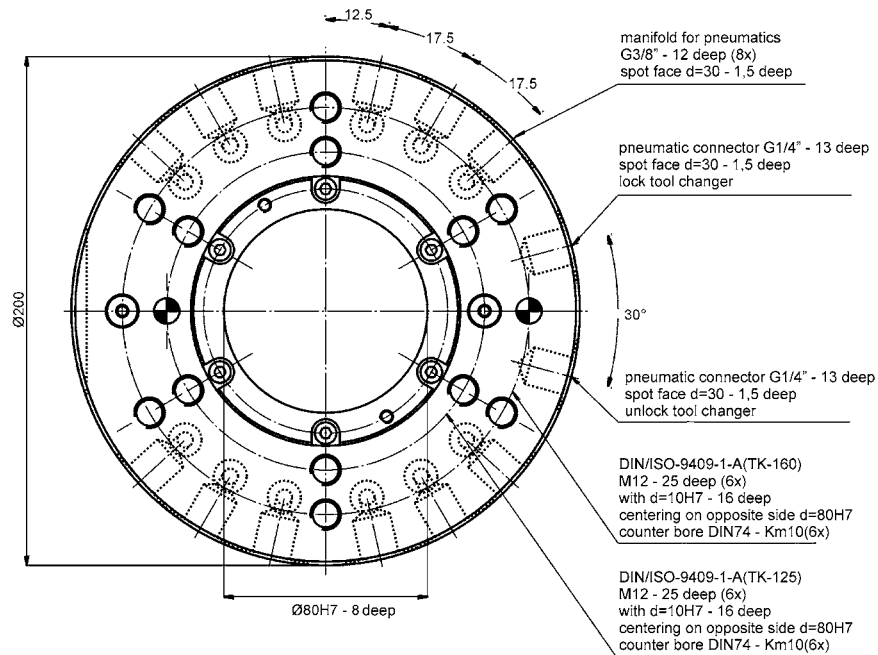
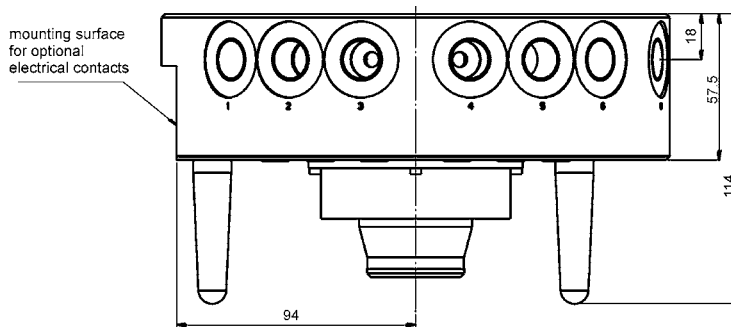
Technical Data

Modell	TK-125-TPW
Part-No.	15030491
Recommended max. Payload	150 kg
Distance Center of Gravity less than	500 mm
Weight (without options)	7,55 kg
Cylinder Bore	-
Air Consumption each Cycle	-
Max. Tensile F_z (static load) at $p=6\text{bar}$	30.000 N
Max. Compressive F_D (static load)	70.000 N
Max. Moment M_x, M_y (static load) at $p=6\text{bar}$	2.000 Nm
Max. Moment M_z (static load) at $p=6\text{bar}$	2.000 Nm
Repeatability x-, y-, z-Axes	0,05 mm
Join Force in Join Direction (against spring loaded ball cover)	110 N
Max. permissible Axis Deviation x/y	1,6 mm
Max. Distance between R and T Side when locking	3 mm
Locking Stroke	47,5 mm
Energie Transmission pneumatic	8 x G3/4"
Energie Transmission elektric optional available:	
Electrical Contact IP65-Mil 12pin/24pin/38pin	30V/3A
Electrical Contact IP65-PG 12pin/24pin	30V/3A
Electrical Contact IP65-Mil 8pin	400V/22A



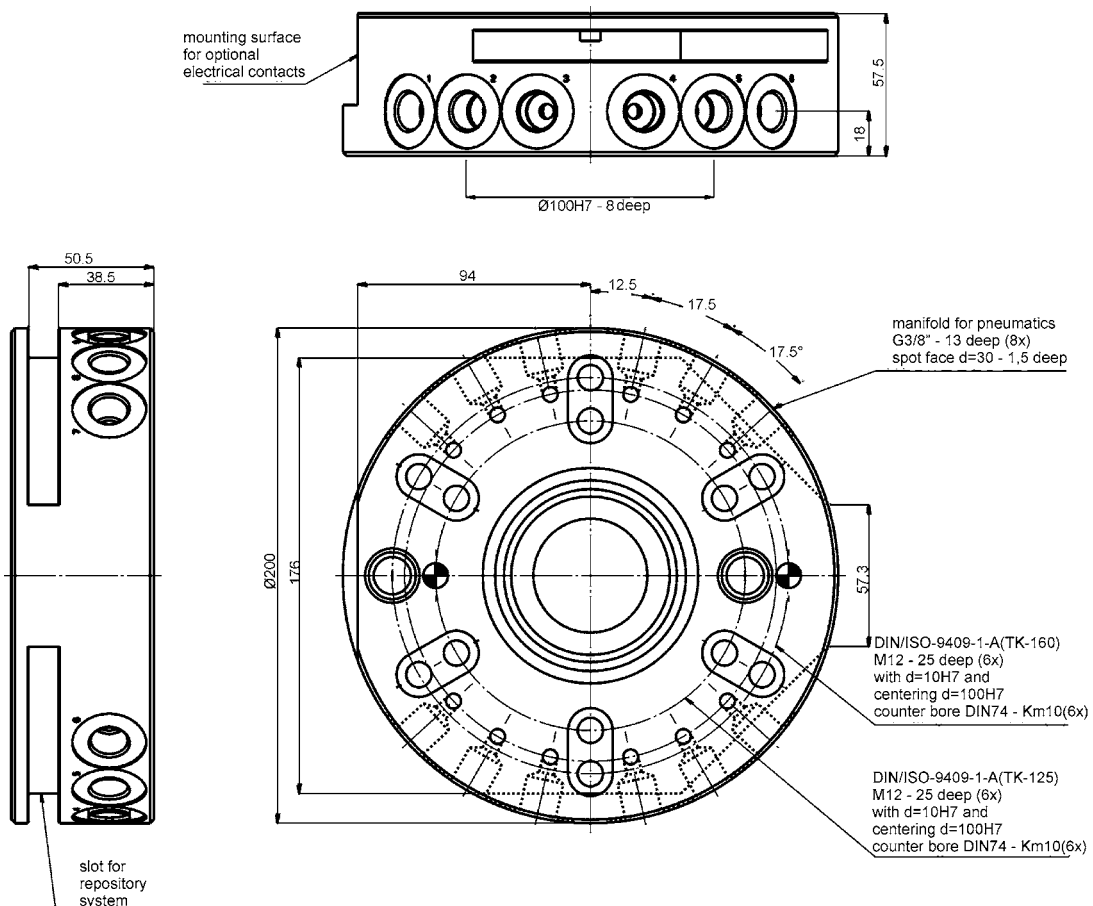
Technical Data

Modell	TK-160-R
Part-No.	15030106
Recommended max. Payload	250 kg
Distance Center of Gravity less than	500 mm
Weight (without options)	5,3 kg
Cylinder Bore	57,56 mm
Air Consumption each Cycle	0,59 l
Max. Tensile F_z (static load) at $p=6\text{bar}$	35.500 N
Max. Compressive F_D (static load)	70.000 N
Max. Moment M_x, M_y (static load) at $p=6\text{bar}$	2.825 Nm
Max. Moment M_z (static load) at $p=6\text{bar}$	2.000 Nm
Repeatability x-, y-, z-Axes	0,05 mm
Join Force in Join Direction (against spring loaded ball cover)	110 N
Max. permissible Axis Deviation x/y	+/- 2 mm
Max. Distance between R and T Side when locking	3 mm
Locking Stroke	56,5 mm
Energie Transmission pneumatic	12 x G3/8"
Energie Transmission elektric optional available:	
Electrical Contact IP65-Mil 12pin/24pin/38pin	30V/3A
Electrical Contact IP65-PG 12pin/24pin	30V/3A
Electrical Contact IP65-Mil 8pin	400V/22A



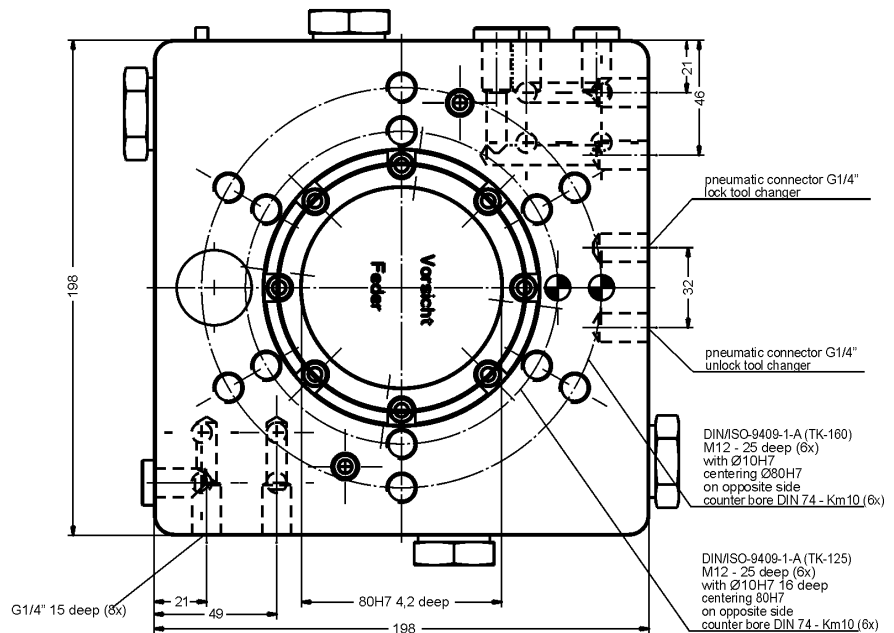
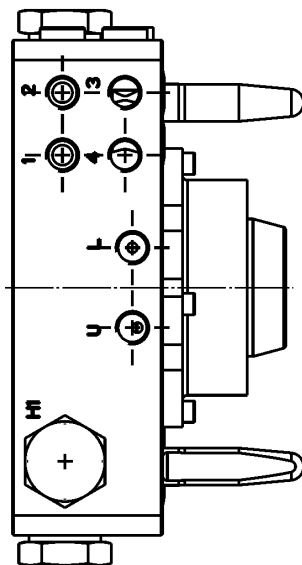
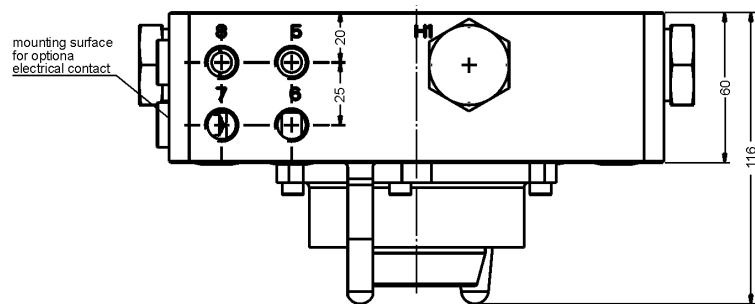
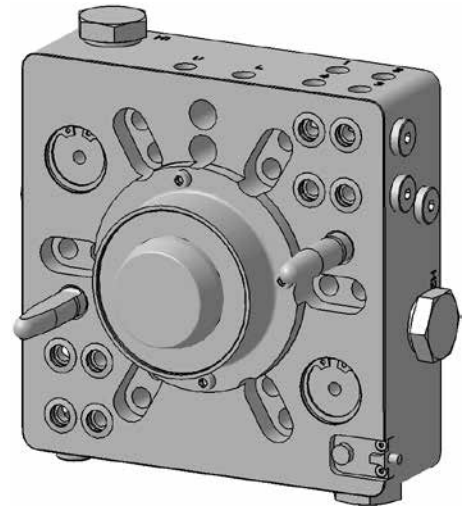
Technical Data

Modell	TK-160-T
Part-No.	15030109
Recommended max. Payload	250 kg
Distance Center of Gravity less than	500 mm
Weight (without options)	4,15 kg
Cylinder Bore	-
Air Consumption each Cycle	-
Max. Tensile F_z (static load) at $p=6\text{bar}$	35.500 N
Max. Compressive F_D (static load)	70.000 N
Max. Moment M_x, M_y (static load) at $p=6\text{bar}$	2.825 Nm
Max. Moment M_z (static load) at $p=6\text{bar}$	2.000 Nm
Repeatability x-, y-, z-Axes	0,05 mm
Join Force in Join Direction (against spring loaded ball cover)	110 N
Max. permissible Axis Deviation x/y	+/- 2 mm
Max. Distance between R and T Side when locking	3 mm
Locking Stroke	56,5 mm
Energie Transmission pneumatic	12 x G3/8"
Energie Transmission electric optional available:	
Electrical Contact IP65-Mil 12pin/24pin/38pin	30V/3A
Electrical Contact IP65-PG 12pin/24pin	30V/3A
Electrical Contact IP65-Mil 8pin	400V/22A



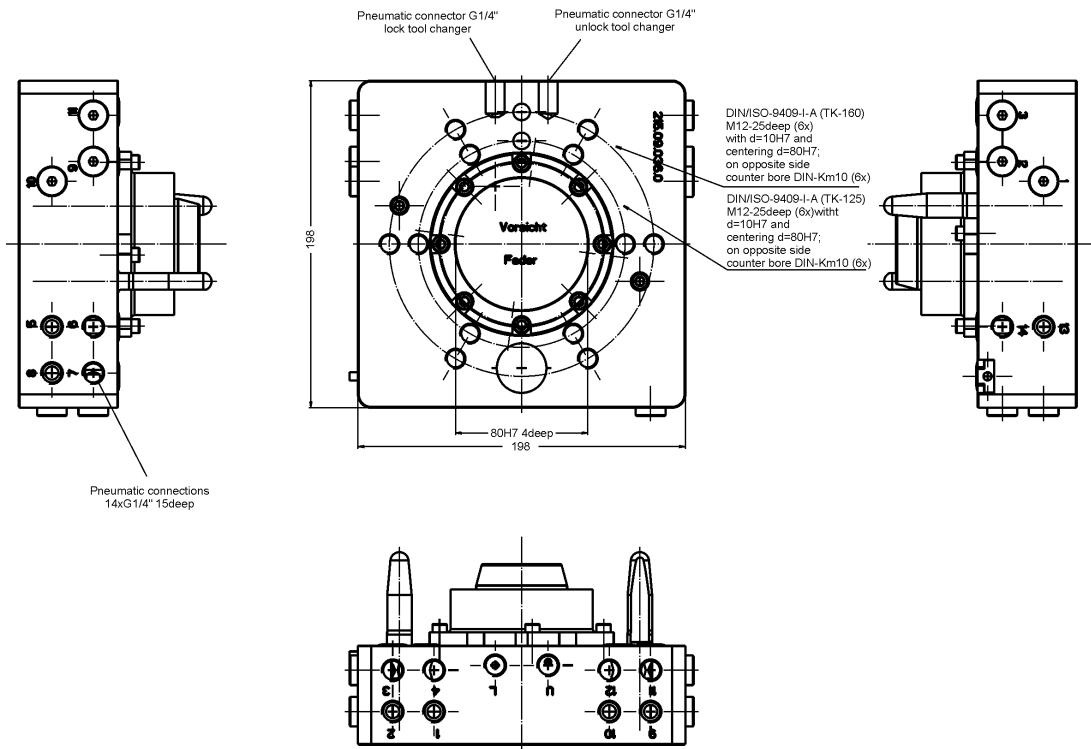
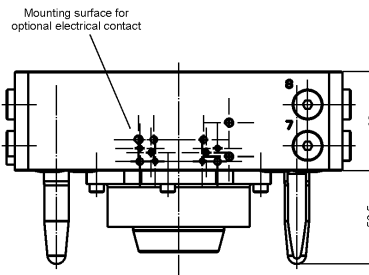
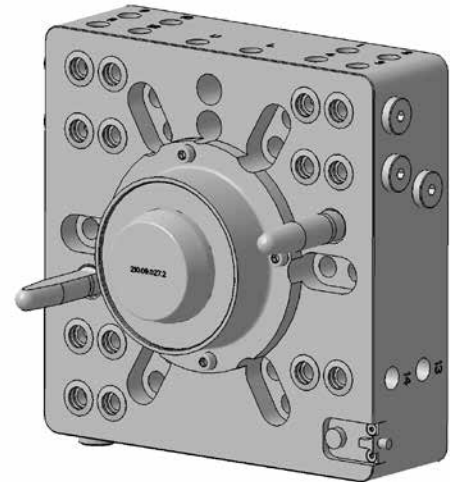
Technical Data

Modell	TK-160Q-R
Part-No.	15030366
Recommended max. Payload	250 kg
Distance Center of Gravity less than	500 mm
Weight (without options)	7,8 kg
Cylinder Bore	57,56 mm
Air Consumption each Cycle	0,59 l
Max. Tensile F_z (static load) at $p=6\text{bar}$	35.500 N
Max. Compressive F_D (static load)	70.000 N
Max. Moment M_x, M_y (static load) at $p=6\text{bar}$	2.825 Nm
Max. Moment M_z (static load) at $p=6\text{bar}$	2.000 Nm
Repeatability x-, y-, z-Axes	0,05 mm
Join Force in Join Direction (against spring loaded ball cover)	110 N
Max. permissible Axis Deviation x/y	+/- 2 mm
Max. Distance between R and T Side when locking	3 mm
Locking Stroke	56,5 mm
Energie Transmission pneumatic	8 x G1/4"
Energie Transmission elektric optional available:	
Electrical Contact IP65-Mil 12pin/24pin/38pin	30V/3A
Electrical Contact IP65-PG 12pin/24pin	30V/3A
Electrical Contact IP65-Mil 8pin	400V/22A



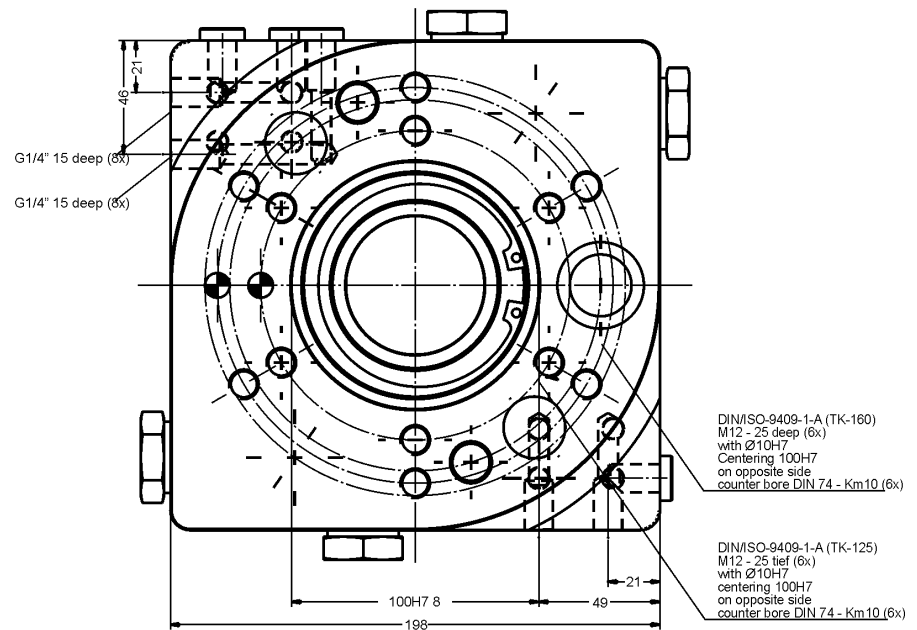
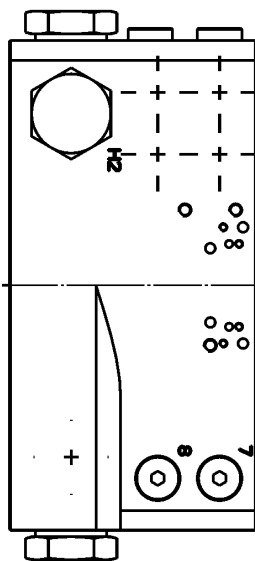
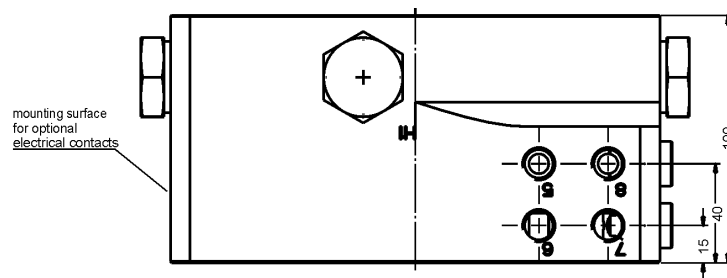
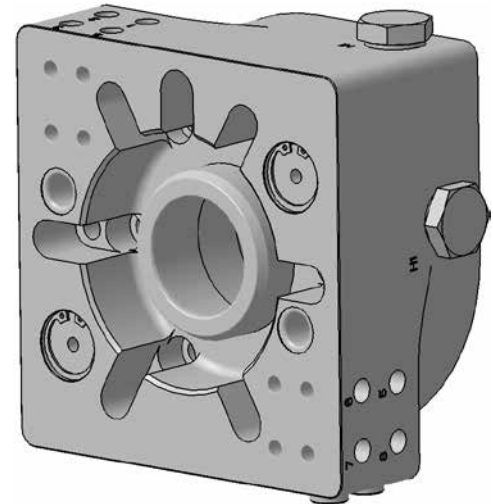
Technical Data

Modell	TK-160Q-R-Sonder
Part-No.	15030526
Recommended max. Payload	250 kg
Distance Center of Gravity less than	500 mm
Weight (without options)	7,8 kg
Cylinder Bore	57,56 mm
Air Consumption each Cycle	0,59 l
Max. Tensile F_z (static load) at $p=6\text{bar}$	35.500 N
Max. Compressive F_D (static load)	70.000 N
Max. Moment M_x, M_y (static load) at $p=6\text{bar}$	2.825 Nm
Max. Moment M_z (static load) at $p=6\text{bar}$	2.000 Nm
Repeatability x-, y-, z-Axes	0,05 mm
Join Force in Join Direction (against spring loaded ball cover)	110 N
Max. permissible Axis Deviation x/y	+/- 2 mm
Max. Distance between R and T Side when locking	3 mm
Locking Stroke	56,5 mm
Energie Transmission pneumatic	14 x G1/4"
Energie Transmission elektric optional available:	
Electrical Contact IP65-Mil 12pin/24pin/38pin	30V/3A
Electrical Contact IP65-PG 12pin/24pin	30V/3A
Electrical Contact IP65-Mil 8pin	400V/22A



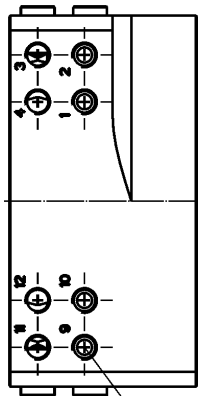
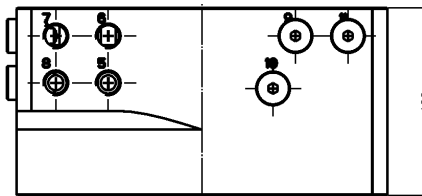
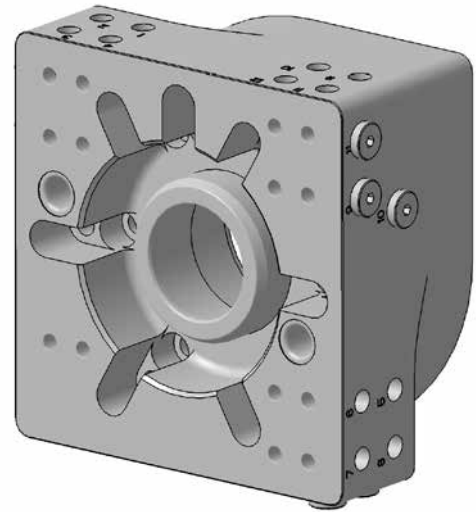
Technical Data

Modell	TK-160Q-T
Part-No.	15030368
Recommended max. Payload	250 kg
Distance Center of Gravity less than	500 mm
Weight (without options)	7,8 kg
Cylinder Bore	-
Air Consumption each Cycle	-
Max. Tensile F_z (static load) at $p=6\text{bar}$	35.500 N
Max. Compressive F_D (static load)	70.000 N
Max. Moment M_x, M_y (static load) at $p=6\text{bar}$	2.825 Nm
Max. Moment M_z (static load) at $p=6\text{bar}$	2.000 Nm
Repeatability x-, y-, z-Axes	0,05 mm
Join Force in Join Direction (against spring loaded ball cover)	110 N
Max. permissible Axis Deviation x/y	+/- 2 mm
Max. Distance between R and T Side when locking	3 mm
Locking Stroke	56,5 mm
Energie Transmission pneumatic	8 x G1/4"
Energie Transmission elektric optional available:	
Electrical Contact IP65-Mil 12pin/24pin/38pin	30V/3A
Electrical Contact IP65-PG 12pin/24pin	30V/3A
Electrical Contact IP65-Mil 8pin	400V/22A

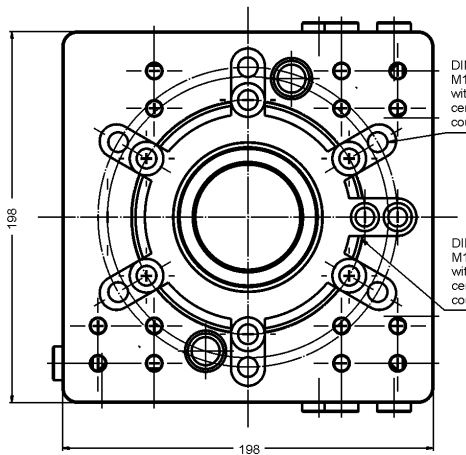


Technical Data

Modell	TK-160Q-T-Sonder
Part-No.	15030527
Recommended max. Payload	250 kg
Distance Center of Gravity less than	500 mm
Weight (without options)	7,8 kg
Cylinder Bore	-
Air Consumption each Cycle	-
Max. Tensile F_z (static load) at $p=6\text{bar}$	35.500 N
Max. Compressive F_D (static load)	70.000 N
Max. Moment M_x, M_y (static load) at $p=6\text{bar}$	2.825 Nm
Max. Moment M_z (static load) at $p=6\text{bar}$	2.000 Nm
Repeatability x-, y-, z-Axes	0,05 mm
Join Force in Join Direction (against spring loaded ball cover)	110 N
Max. permissible Axis Deviation x/y	+/- 2 mm
Max. Distance between R and T Side when locking	3 mm
Locking Stroke	56,5 mm
Energie Transmission pneumatic	14 x G1/4"
Energie Transmission elektric optional available:	
Electrical Contact IP65-Mil 12pin/24pin/38pin	30V/3A
Electrical Contact IP65-PG 12pin/24pin	30V/3A
Electrical Contact IP65-Mil 8pin	400V/22A



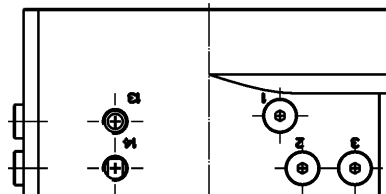
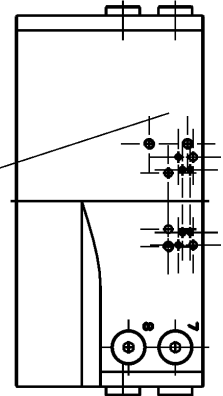
Pneumatic connections
14xG1/4" 15deep



DIN/ISO-9409-I-A (TK-160)
M12-25deep (6x)
with d=10H7 and
centering d=100H7;
counter bore DIN-Km10 (6x)

Mounting surface for
optional electrical
contacts

DIN/ISO-9409-I-A (TK-125)
M12-25deep (6x)
with d=10H7 and
centering d=100H7;
counter bore DIN-Km10 (6x)

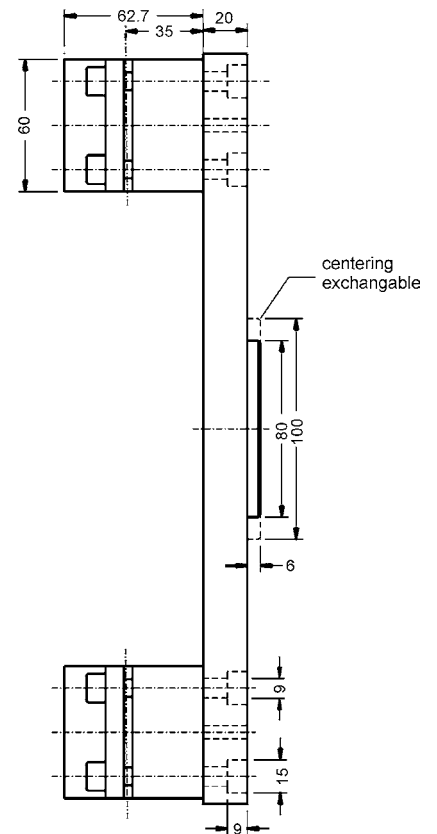
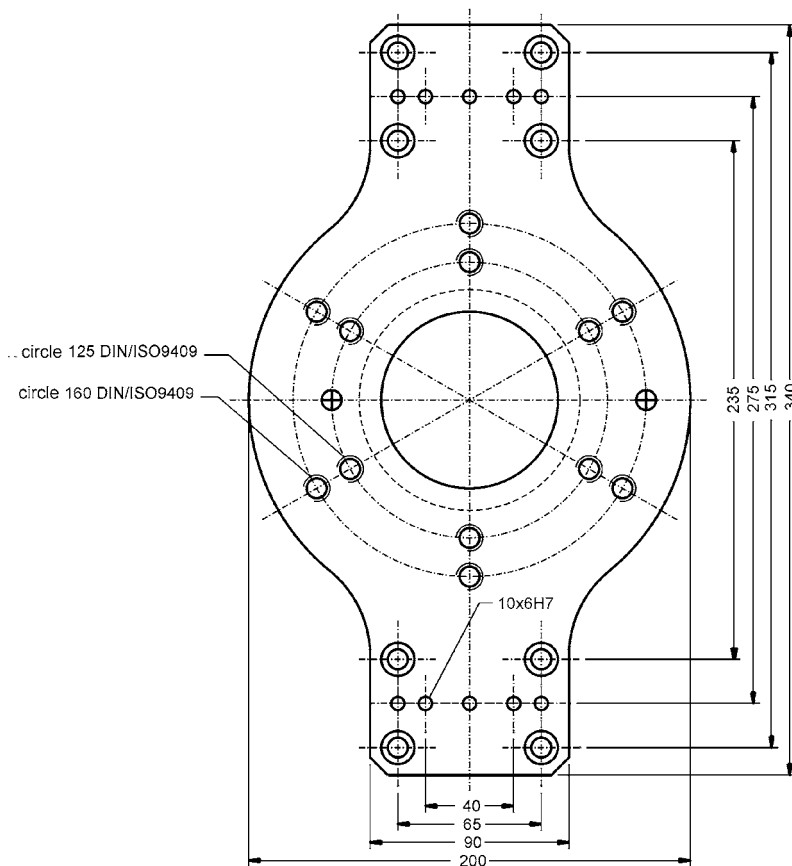
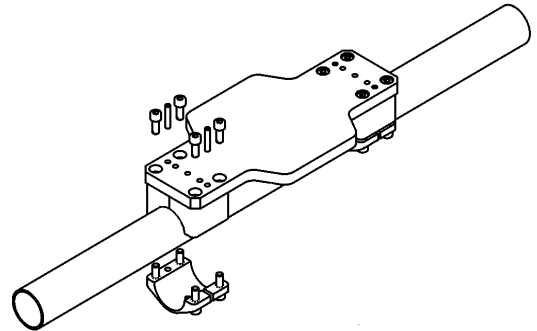


Technical Data

Model	HF-AP01-125/160
Material	AL F52 natural
Material Clamp Cab	ST52
Weight	3,67 kg

possible drilling templates:
ISO-Circle 125 und 160
or
template on demand

Part-No.. 15320019

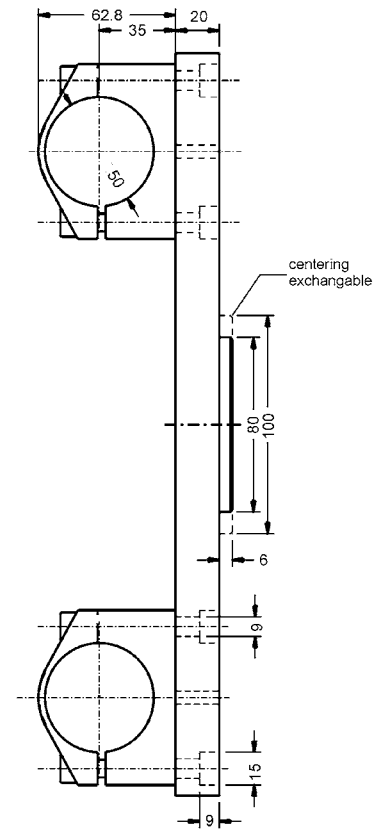
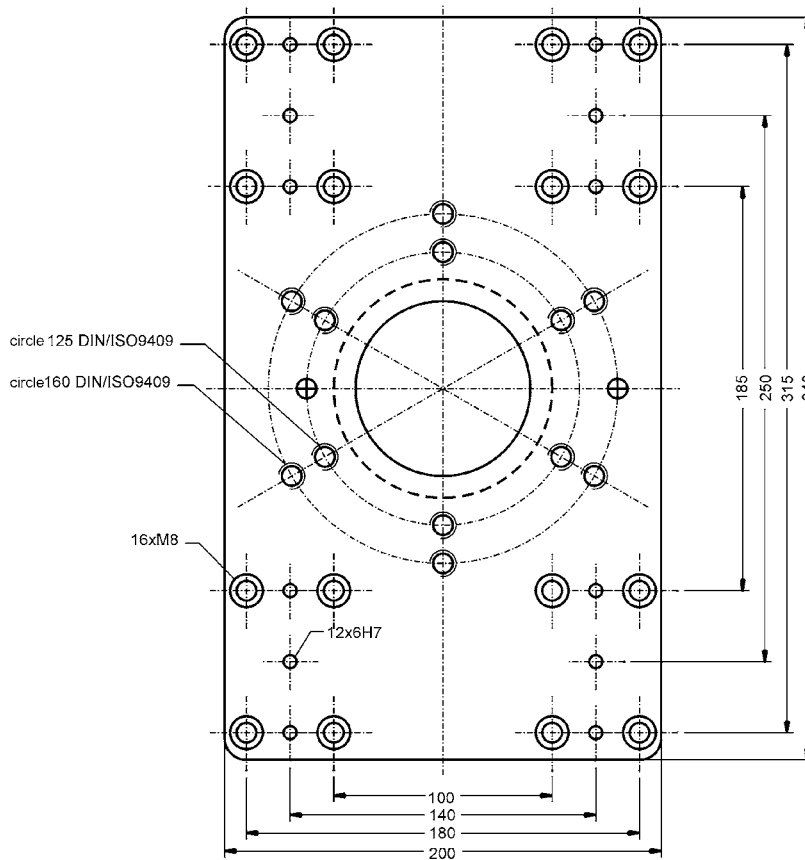
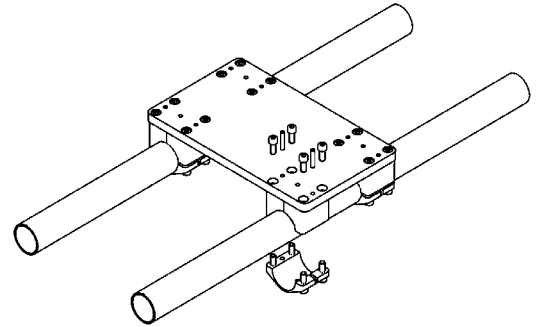


Technical Data

Model	HF-AP01-125/160
Material	AL F52 natur
Material Clamp Cab	ST52
Weight	6,4 kg

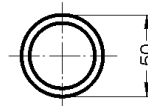
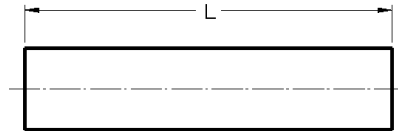
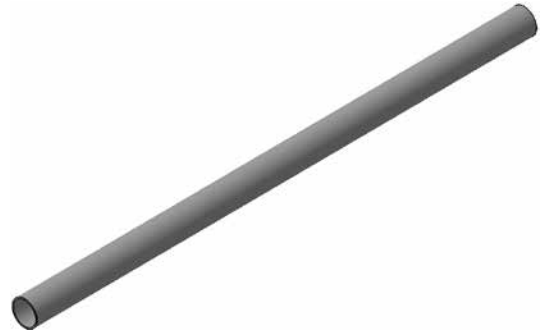
possible drilling templates:
ISO-Circle 125 und 160
or
template on demand

Part-No.. 15320020



Technical Data

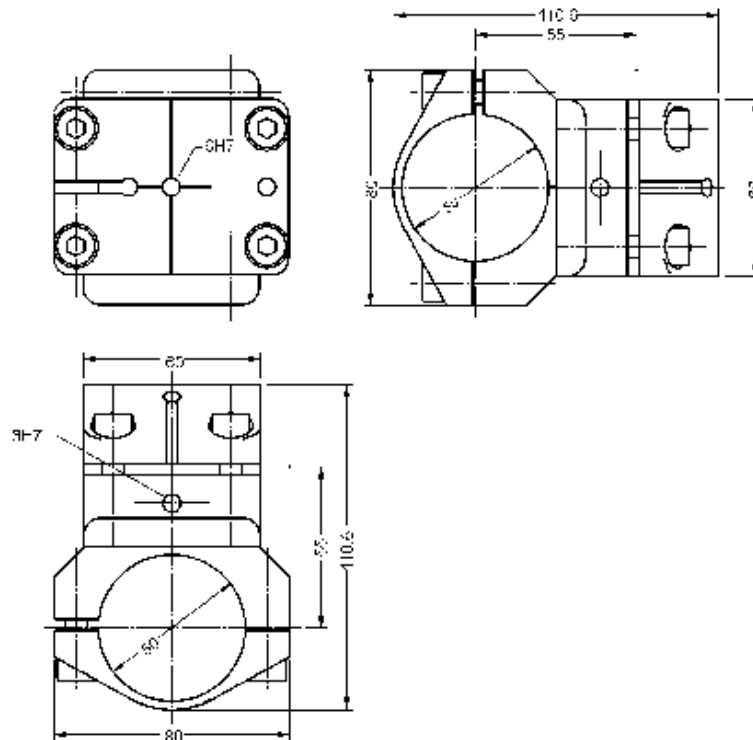
Model	HF-TR50-“L“
Material	ST52
Surface	bronzed
Weight	2,93 kg/m
Standard Length “L“:	
L=500 mm	Part-No. 13500135
L=750 mm	Part-No. 13500136
L=1000 mm	Part-No. 13500137
L=1250 mm	Part-No. 13500138
L=1500 mm	Part-No. 13500139
L=1750 mm	Part-No. 13500140
L=2000 mm	Part-No. 13500141
or	
L=Length on demand	



Technical Data

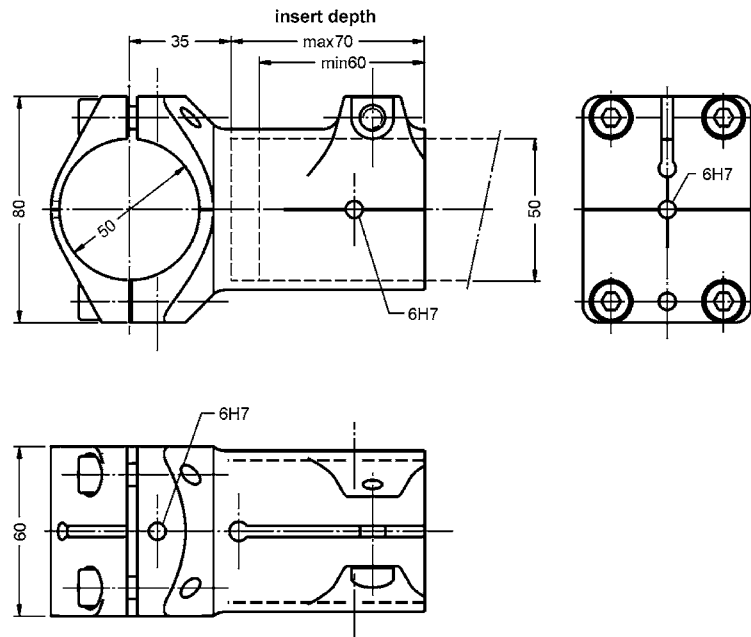
Model
Part-No.
Material
Material Clamp Cab
Weight

HF-K50-90°
15320021
AL F52 natural
ST52
0,9 kg



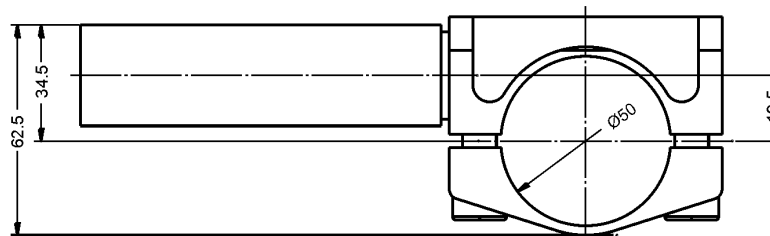
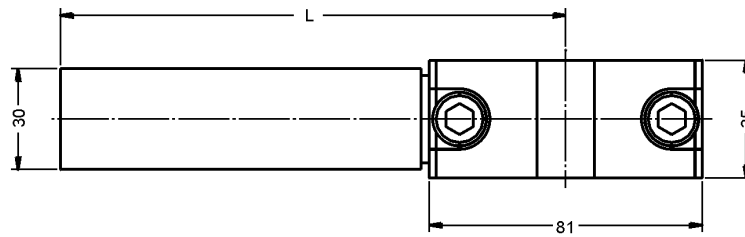
Technical Data

Model	HF-T50
Part-No.	15320022
Material	AL F52 natur
Material Clamp Cab	ST52
Weight	0,65 kg



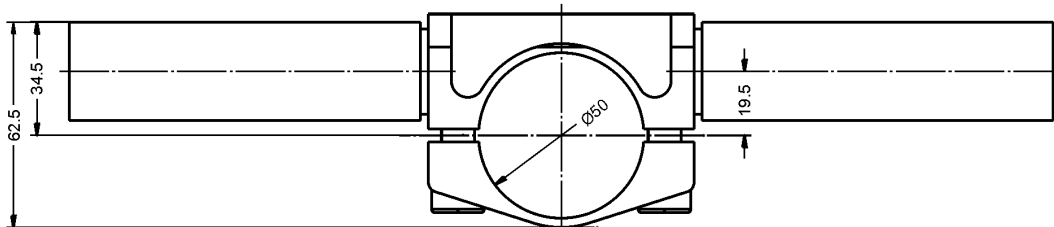
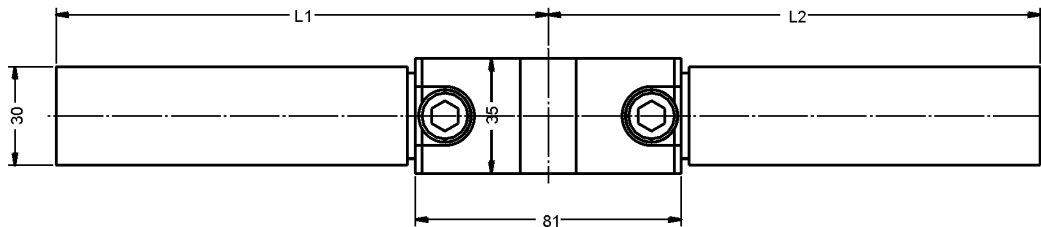
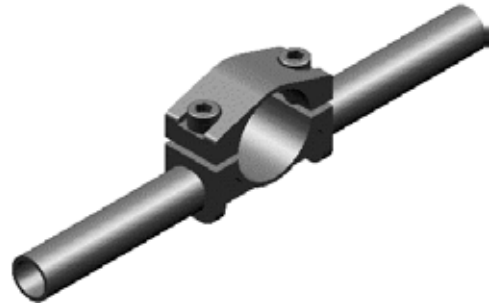
Technical Data

Model	HF-SR50/30-01-“L“
Material	ST52
Surface	bronzed
Weight	0,35 kg + 1,7kg/m Pipe Length
Standard Length “L“:	
L=200 mm	Part-No. 15320023
L=400 mm	Part-No. 15320024
L=600 mm	Part-No. 15320025
L=800 mm	Part-No. 15320026
L=1000 mm	Part-No. 15320027
or	
L=Length on demand	



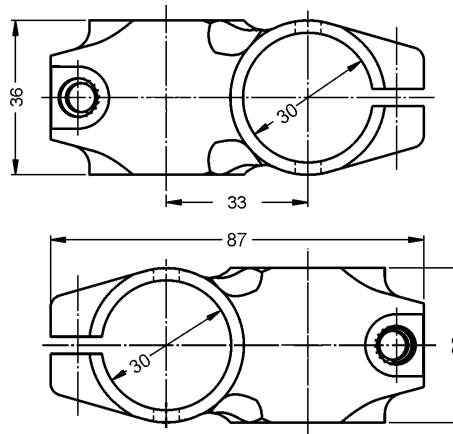
Technical Data

Model	HF-SR50/30-02-“L1-L2“
Material	ST52
Surface	bronzed
Weight	0,2 kg + 1,7kg/m Pipe Length
Standard Length “L“:	
L=200 mm	Part-No. 15320028
L=400 mm	Part-No. 15320029
L=600 mm	Part-No. 15320030
L=800 mm	Part-No. 15320031
L=1000 mm	Part-No. 15320032
or	
L=Length on demand	



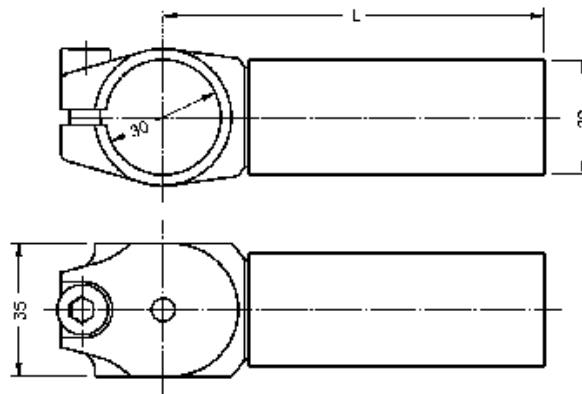
Technical Data

Model	HF-K30-90°
Part-No.	15320033
Material	ST52
Surface	bronzed
Weight	0,28 kg



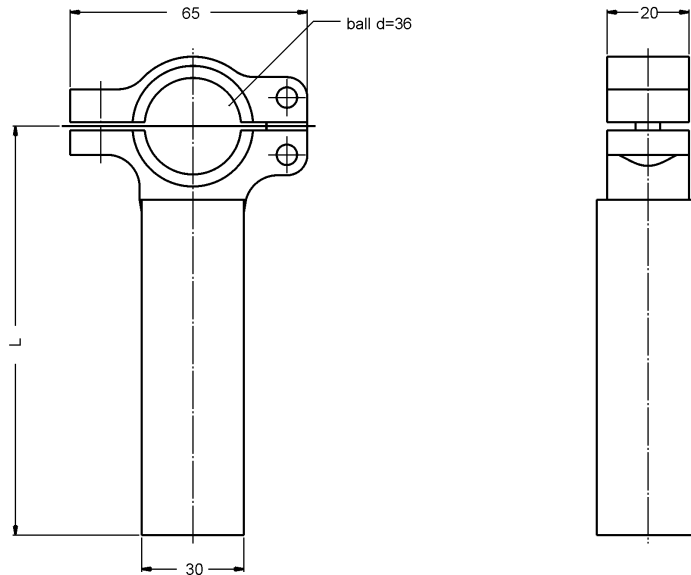
Technical Data

Model	HF-T30-01-“L“
Material	ST52
Surface	bronzed
Weight	0,19 kg + 1,7kg/m Pipe Length
Standard Length “L“:	
L=100 mm	Part-No. 15320034
L=200 mm	Part-No. 15320035
L=300 mm	Part-No. 15320036
L=400 mm	Part-No. 15320037
or	
L=Length on demand	



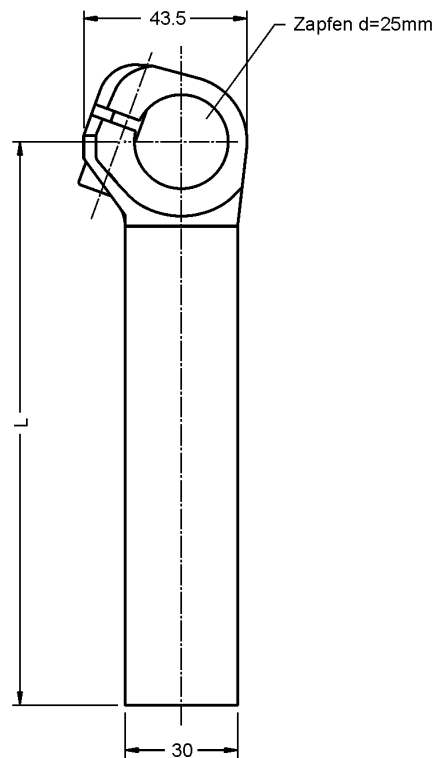
Technical Data

Model	HF-RK30-36-“L“
Material	ST52
Surface	bronzed
Weight	0,18 kg + 1,7kg/m Pipe Length
Standard Length “L“:	
L=100 mm	Part-No. 15320038
L=200 mm	Part-No. 15320039
L=300 mm	Part-No. 15320040
L=400 mm	Part-No. 15320041
or	
L=Length on demand	



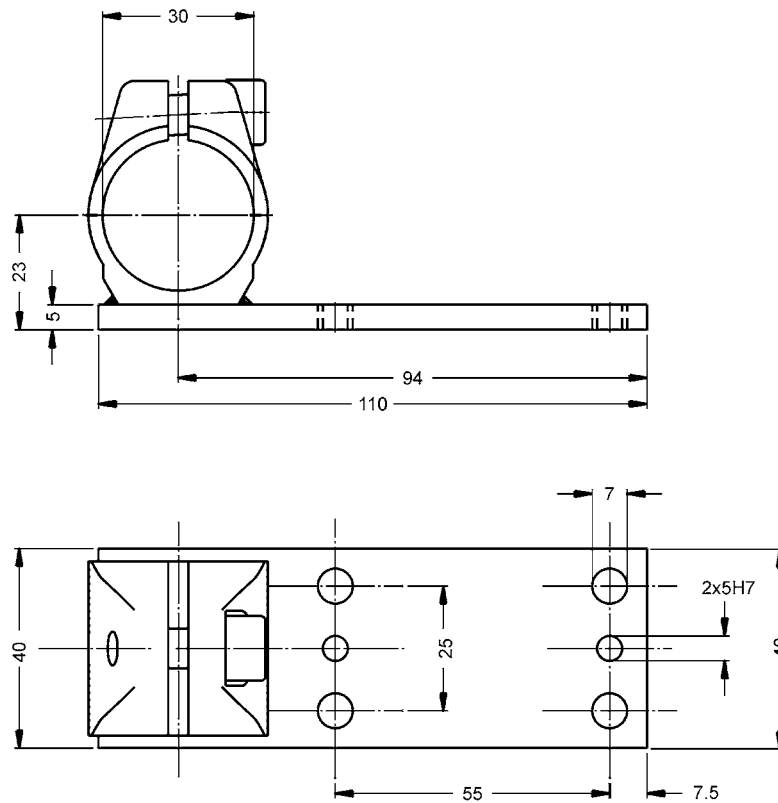
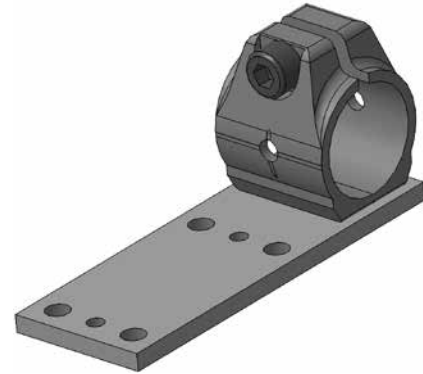
Technical Data

Model	HF-RZ30-25-“L“
Material	ST52
Surface	bronzed
Weight	0,1 kg + 1,7kg/m Pipe Length
Standard Length “L“:	
L=100 mm	Part-No. 11440230
L=200 mm	Part-No. 11440178
L=300 mm	Part-No. 11440222
L=400 mm	Part-No. 11440223
or	
L=Length on demand	



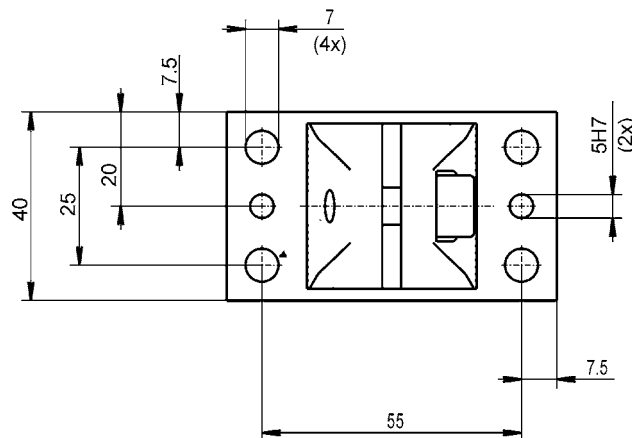
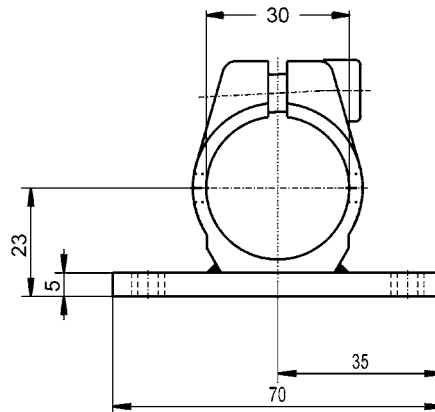
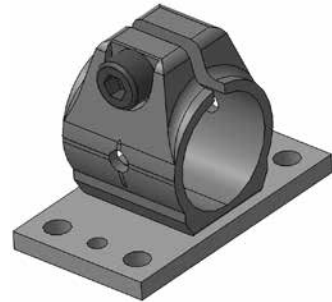
Technical Data

Model	HF-HK01
Part-No.	15320042
Material	ST52
Surface	bronzed
Weight	0,35 kg



Technical Data

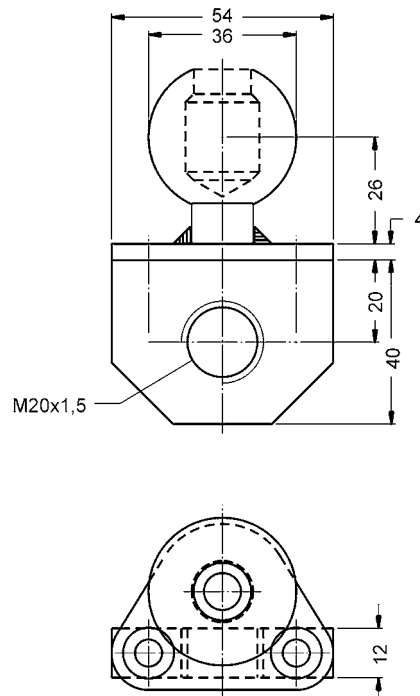
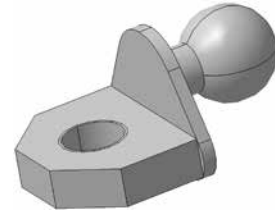
Model	HF-HK02
Part-No.	15320043
Material	ST52
Surface	bronzed
Weight	0,3 kg



Technical Data

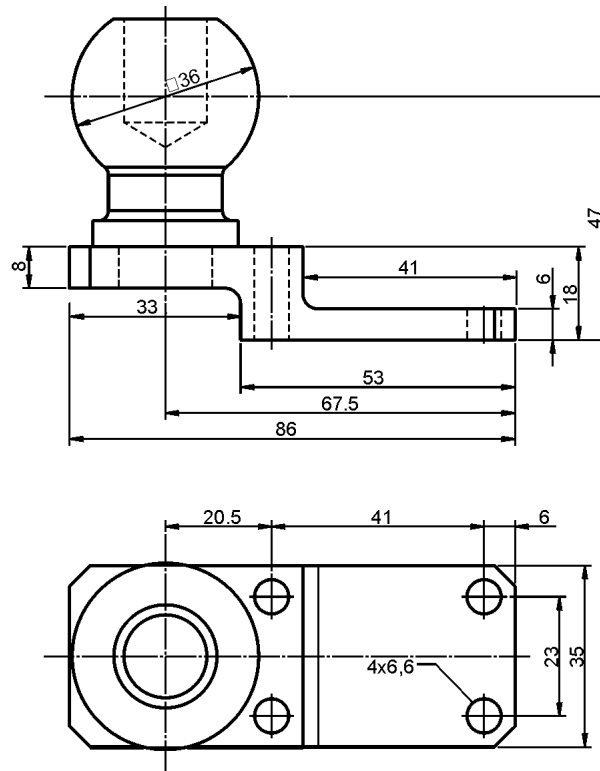
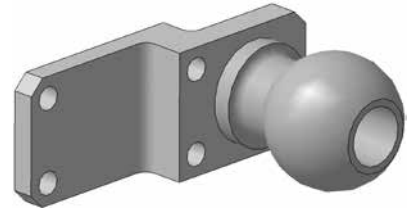
Model
Part-No.
Material Plate
Ball and Bearing
Weight

HF-HK04
15320045
ST52 bronzed
AL F52 natural
0,2 kg



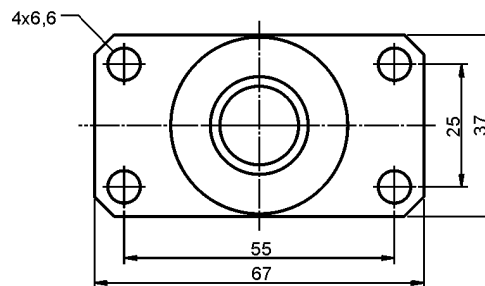
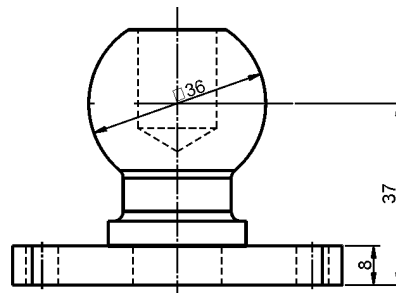
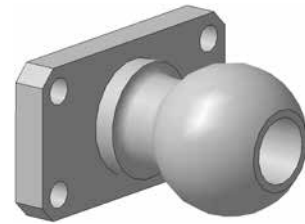
Technical Data

Model	HF-HK05
Part-No.	11440168
Material	ST52
Surface	bronzed
Weight	0,28 kg



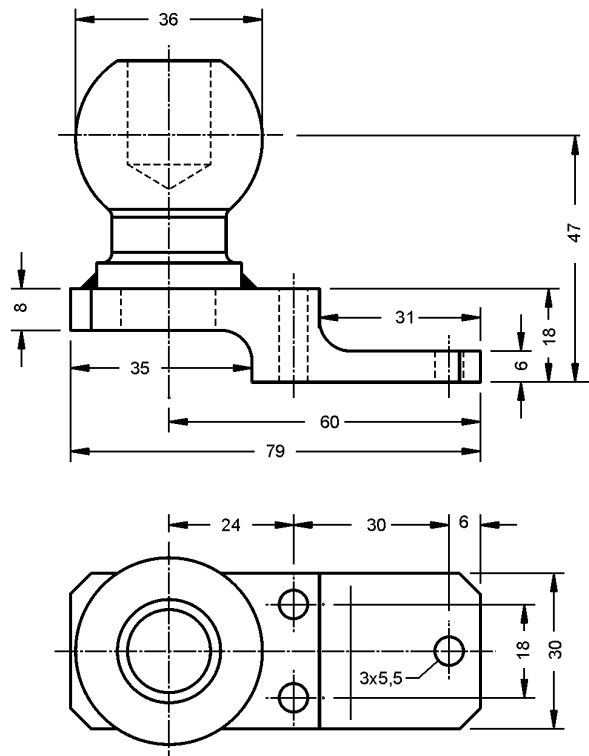
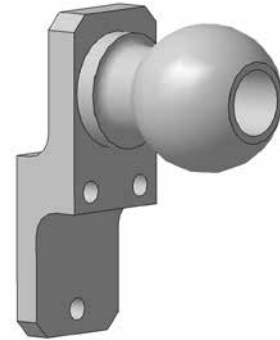
Technical Data

Model	HF-HK06
Part-No.	11440216
Material	ST52
Surface	bronzed
Weight	0,22 kg



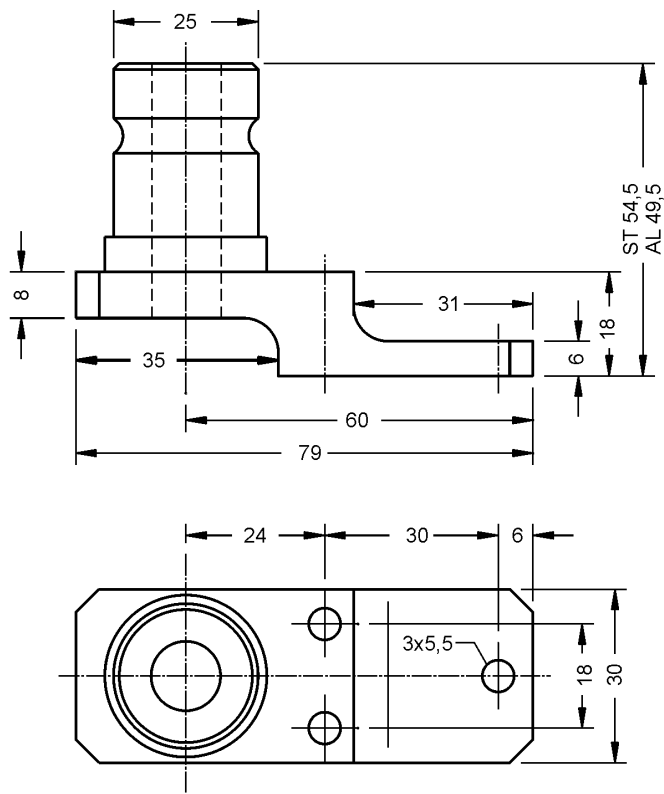
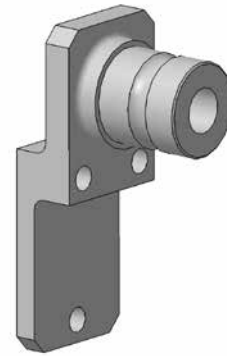
Technical Data

Model	HF-HK07
Part-No.	11440253
Material	ST52
Surface	bronzed
Weight	0,36 kg



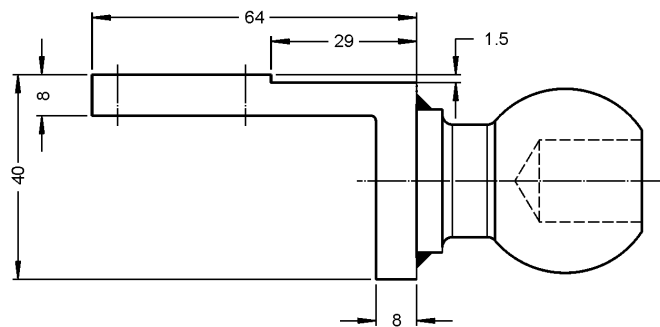
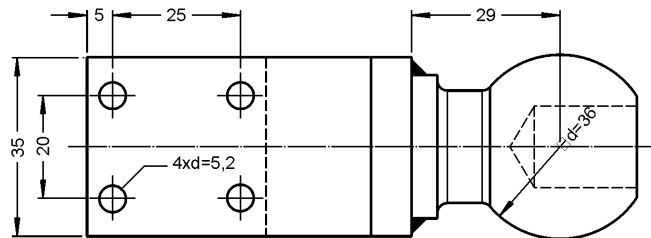
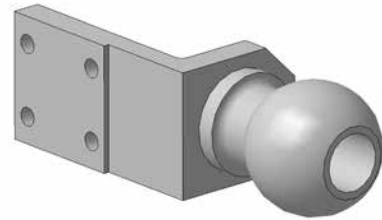
Technical Data

Model	HF-HK07-1
Part-No.	11440254
Material	ST52
Surface	bronzed
Weight	0,270 kg
Model	HF-HK07-1-AL
Part-No.	11440255
Material	Aluminium F52
Surface	natur
Weight	0,090 kg



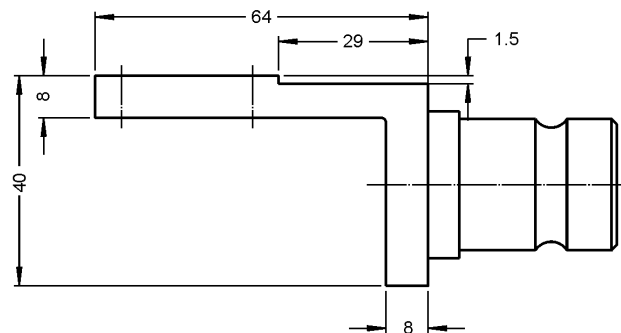
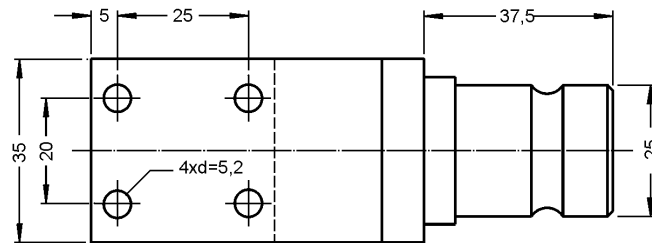
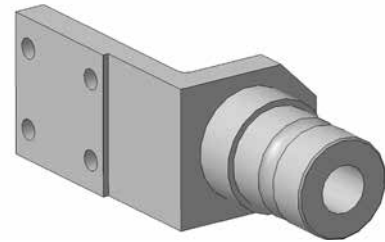
Technical Data

Model	HF-HK08
Part-No.	11440306
Material	ST52
Surface	bronzed
Weight	0,390 kg



Technical Data

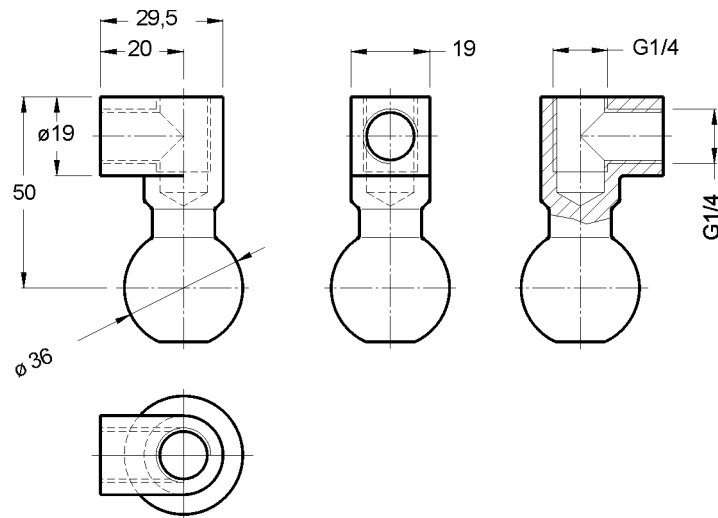
Model	HF-HK08-1
Part-No.	11440308
Material	ST52
Surface	bronzed
Weight	0,300 kg



Technical Data

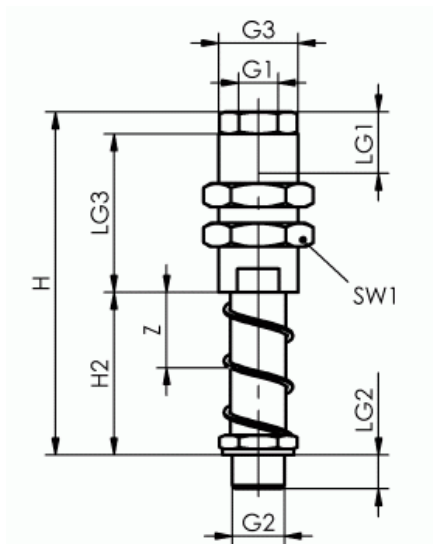
Model
Part-No.
Material
Connections
Weight

HF-SA01
13520784
AL F52 natur
G 1/4"
0,65 kg



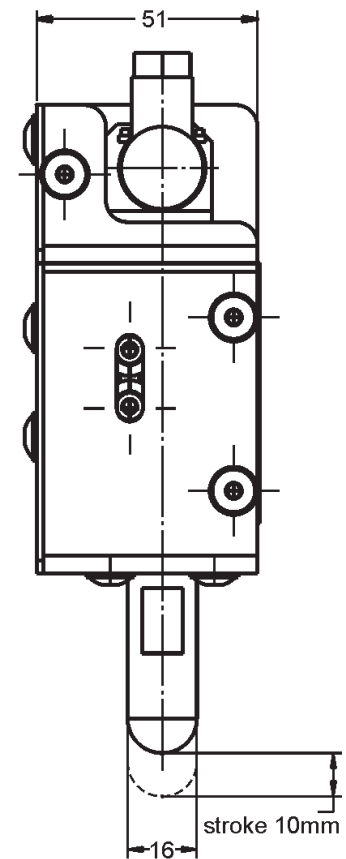
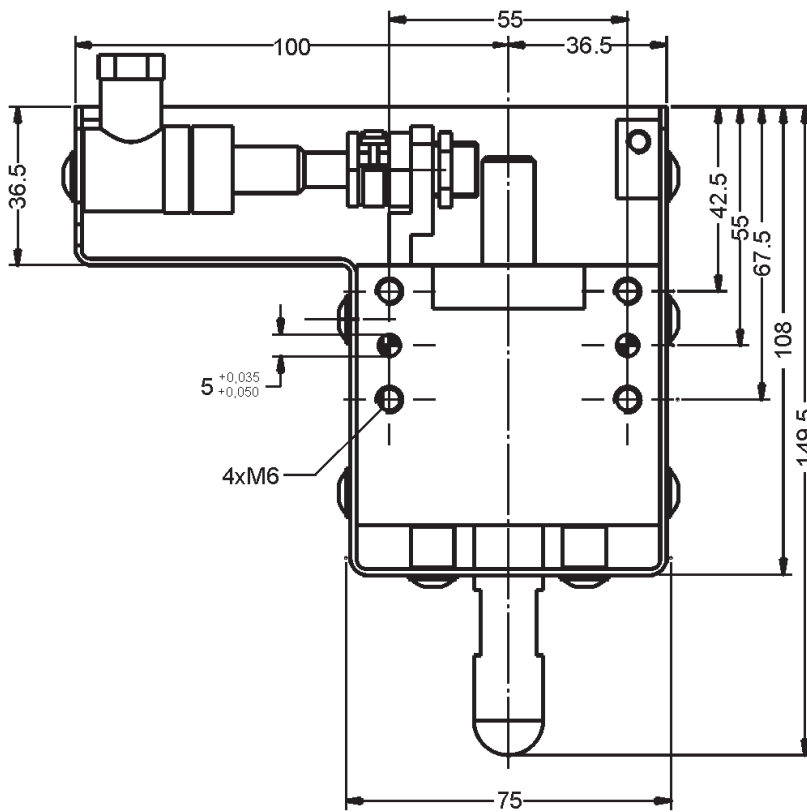
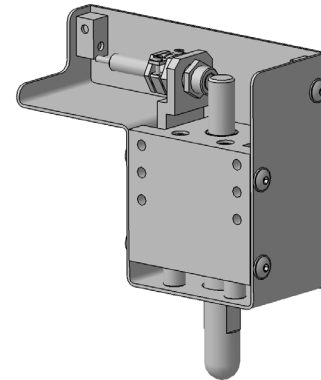
Technical Data

Model	HF-SA02
Part-No.	11130073
Stroke Z	25 mm
Air Connection G1	G1/8"Inside
Connection Suction Cup G2	G1/4"Outside
Mounting G3	M20x1,5
Total Length H	95 mm
Weight	0,145 kg



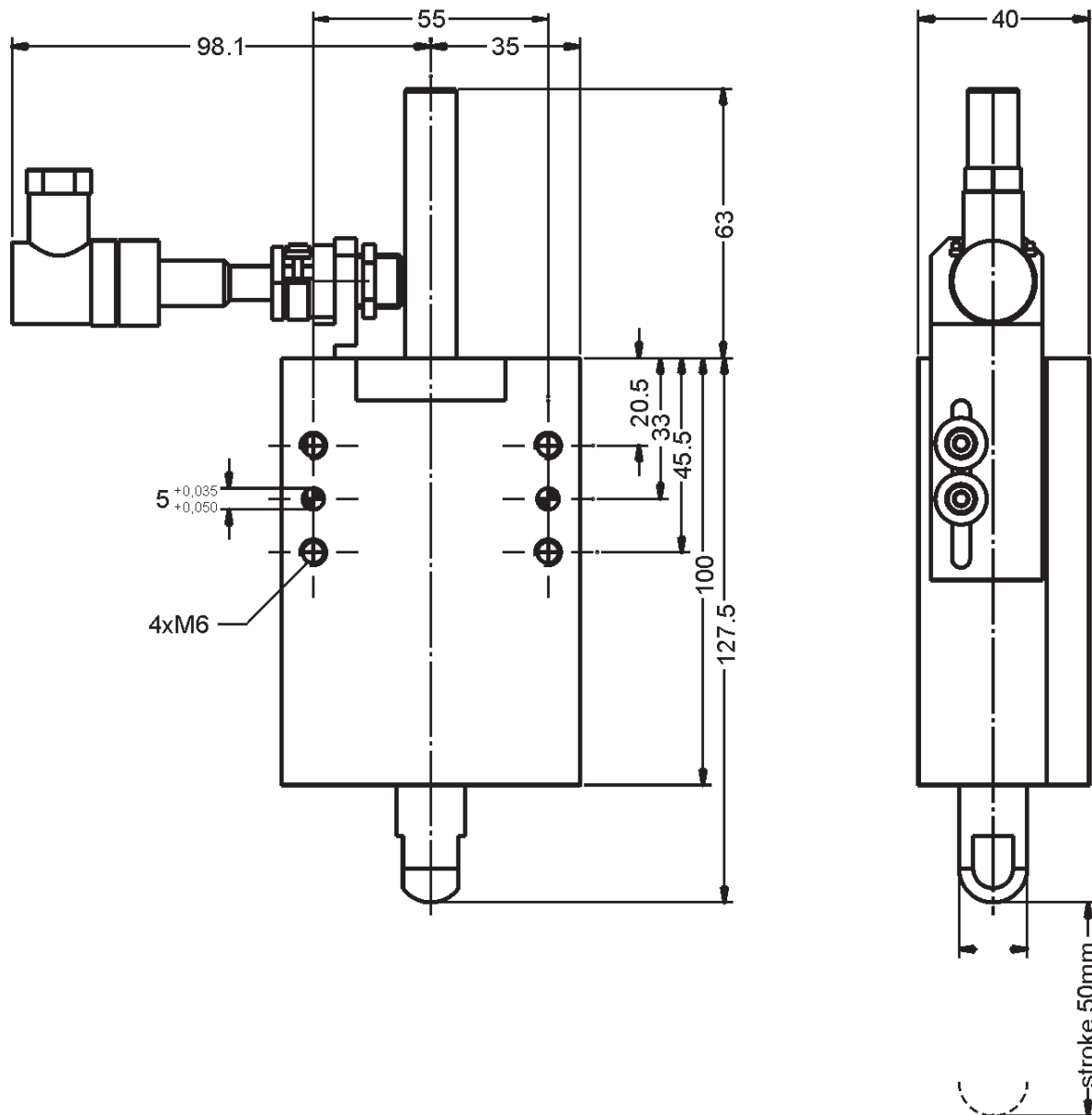
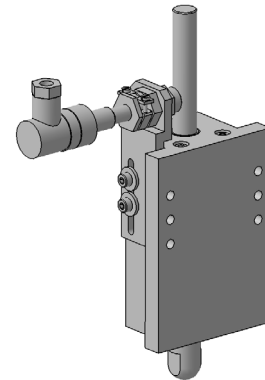
Technical Data

Model Standard Version	HF-BA01-1
Part-No.	15210669
Model high Temperature Version (Part up to 200°C)	HF-BA01-2
Part-No.	15210670
Stroke	10 mm
Sensor Detecting Area	appr. 2 - 10 mm
Weight	0,8 kg



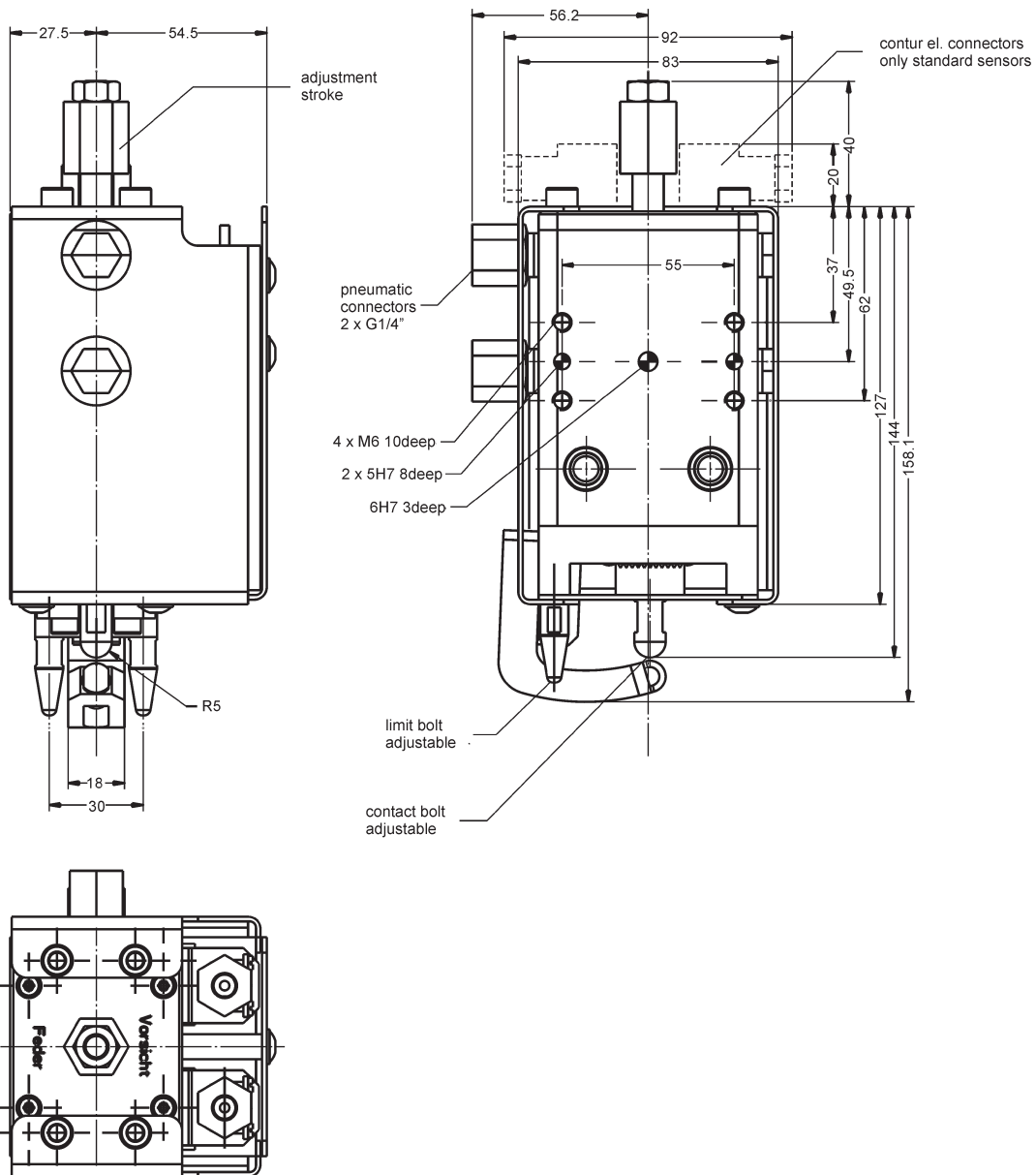
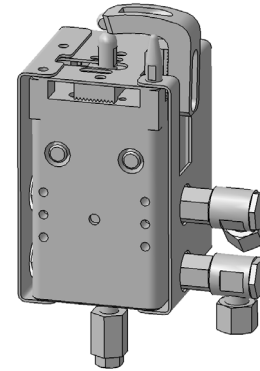
Technical Data

Model	HF-BA02-1
Part-No.	15210669
Stroke	50 mm
Sensor Detecting Area	appr. 2 - 50 mm
Weight	0,8 kg



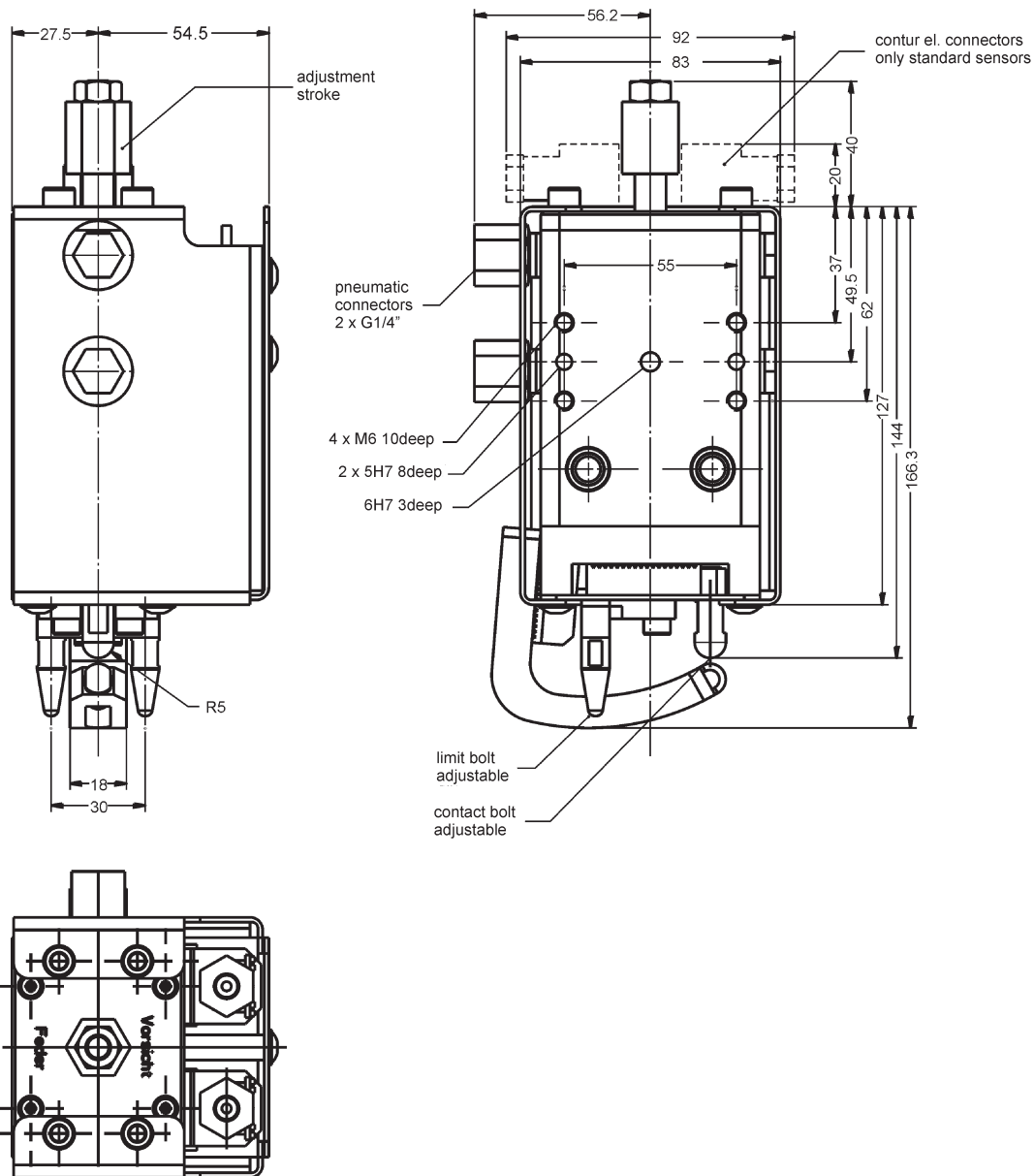
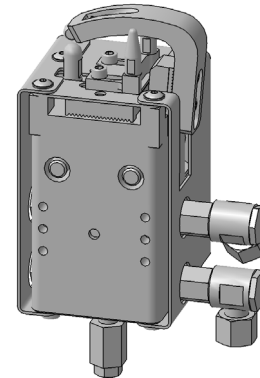
Technical Data

Model short finger without sensors	HF-WG01-1
Part-No.	15000358
Model short finger with Standard sensors	HF-WG01-2
Part-No.	15000356
Model short finger with high Temperature sensors	HF-WG01-3
Part-No.	15000357
Stroke (adjustable)	0 - 60°
Cylinder Bore	45 mm
Cylinder volume	32,6 cm ³
Air Consumption each Cycle	0,43 l
Actuation Time open/close at P=6 bar	0,25 s
Weight without Sensors	2,4 kg
Weight incl. Sensors	2,6 kg
Gripping force at 6 bar	155 N



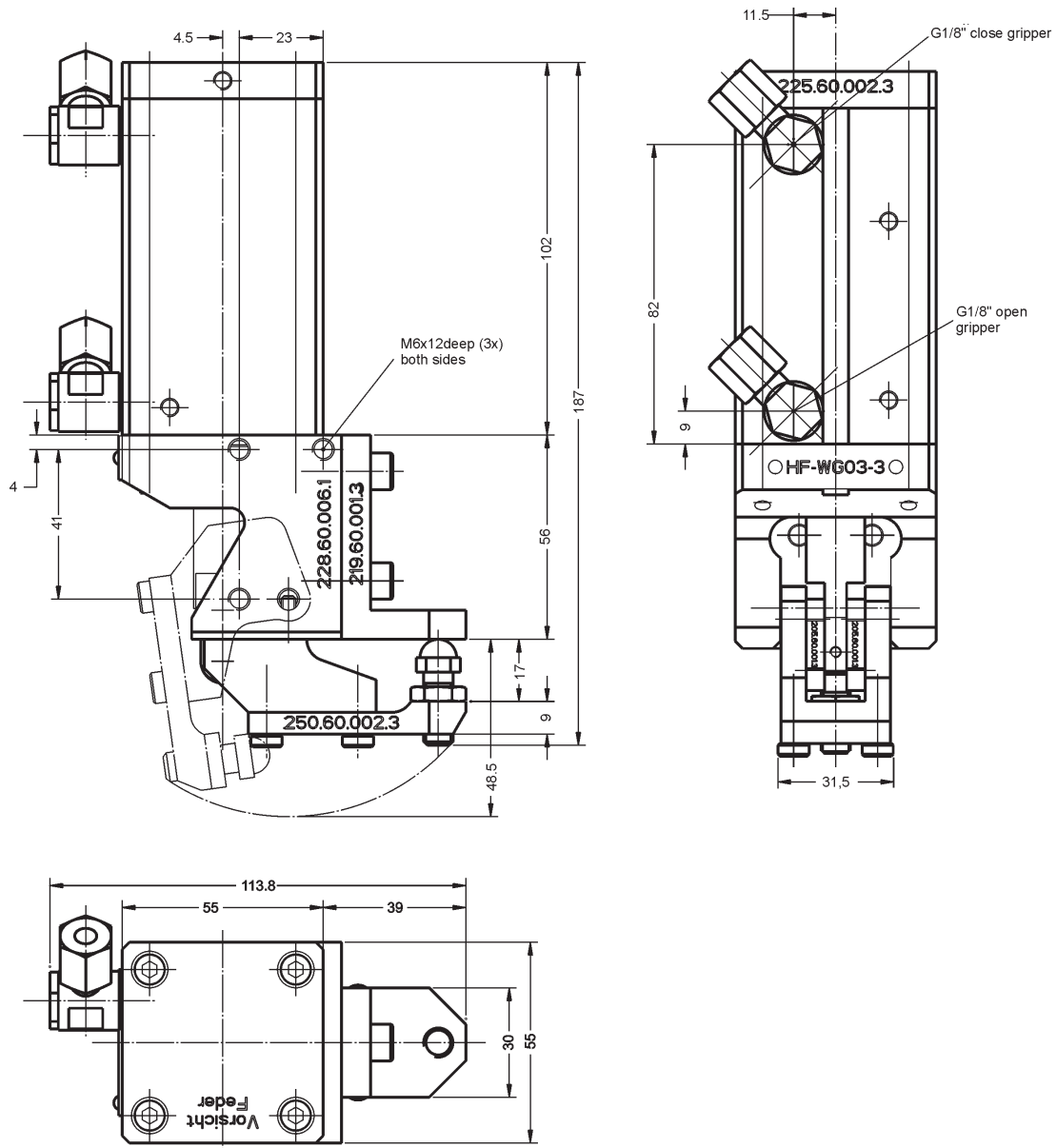
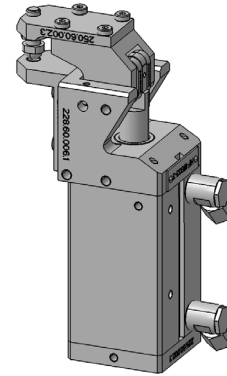
Technical Data

Model long finger without sensors	HF-WG02-1
Part-No.	15000361
Model long finger with Standard sensors	HF-WG02-2
Part-No.	15000359
Model long finger with high Temperature sensors	HF-WG02-3
Part-No.	15000360
Stroke (adjustable)	0 - 60°
Cylinder Bore	45 mm
Cylinder volume	32,6 cm ³
Air Consumption each Cycle	0,43 l
Actuation Time open/close at P=6 bar	0,25 s
Weight without Sensors	2,4 kg
Weight incl. Sensors	2,6 kg
Gripping force at 6 bar	155 N



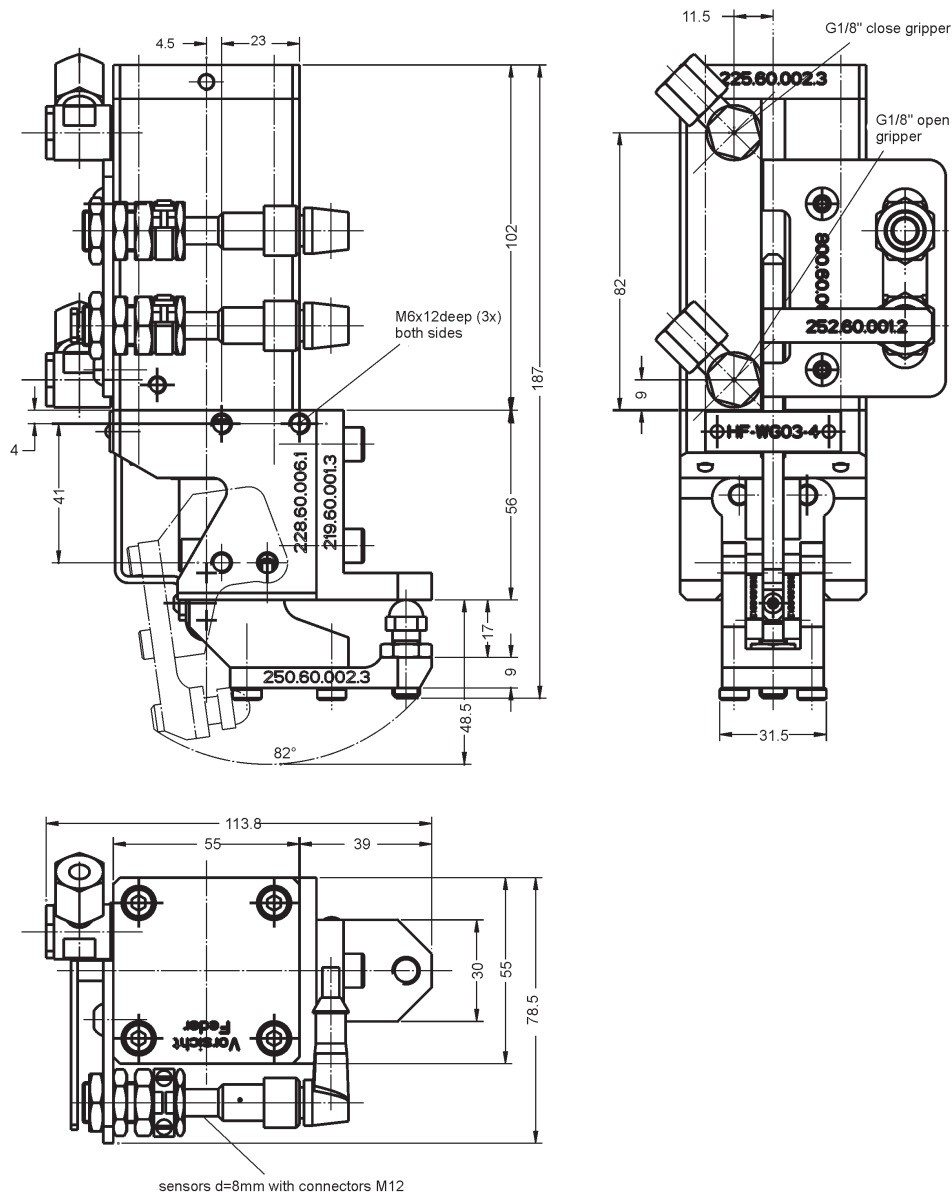
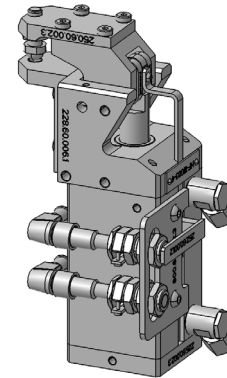
Technical Data

Model	HF-WG03-3
Part-No.	15000511
Stroke	82°
Cylinder Bore	40 mm
Air Consumption each Cycle	0,55 l
Actuation Time open/close at P=6 bar	0,5/0,25 s
Weight	1,6 kg
Gripping force at 6 bar	377 N
Springloaded version	-



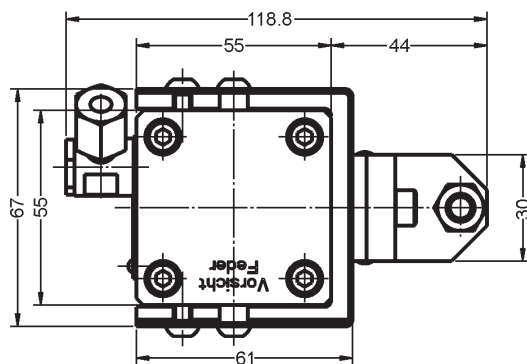
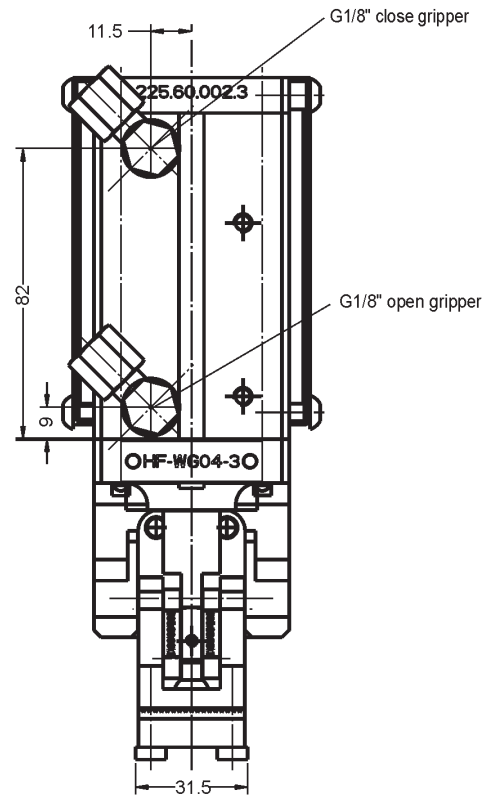
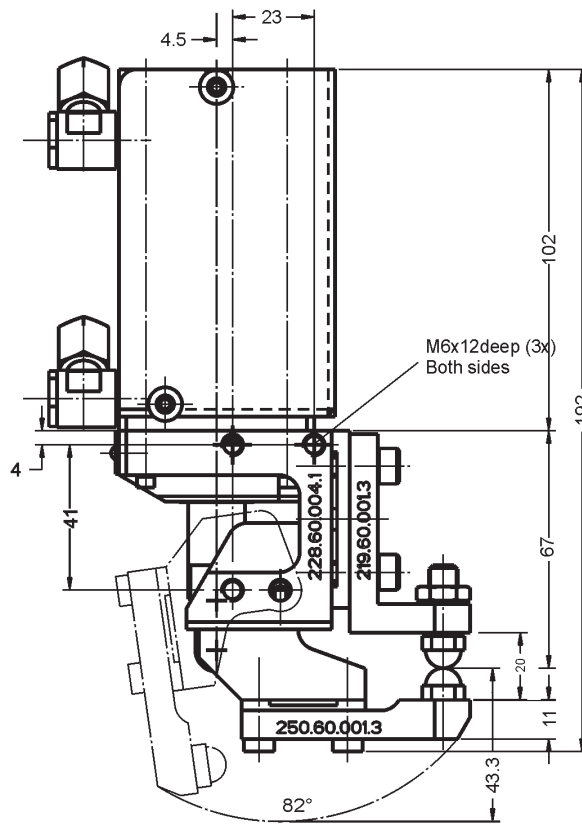
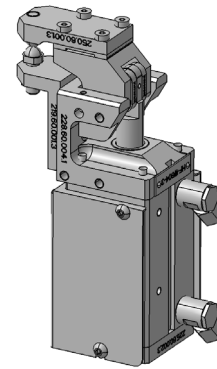
Technical Data

Model	HF-WG03-4
Part-No.	15000512
Stroke	82°
Cylinder Bore	40 mm
Air Consumption each Cycle	0,55 l
Actuation Time open/close at P=6 bar	0,5/0,25 s
Weight	1,8 kg
Gripping force at 6 bar	377 N
Springloaded version	-



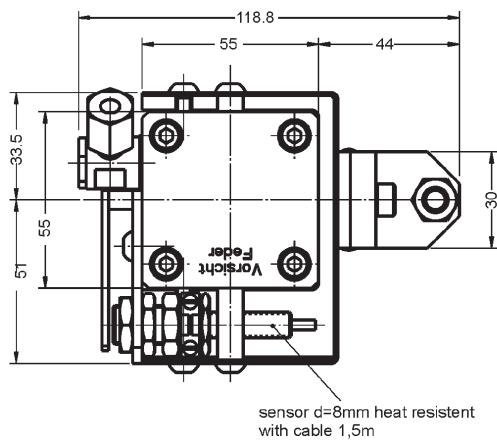
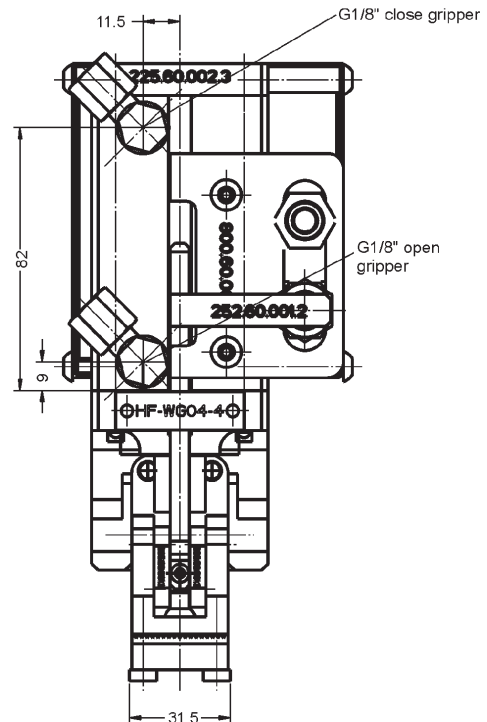
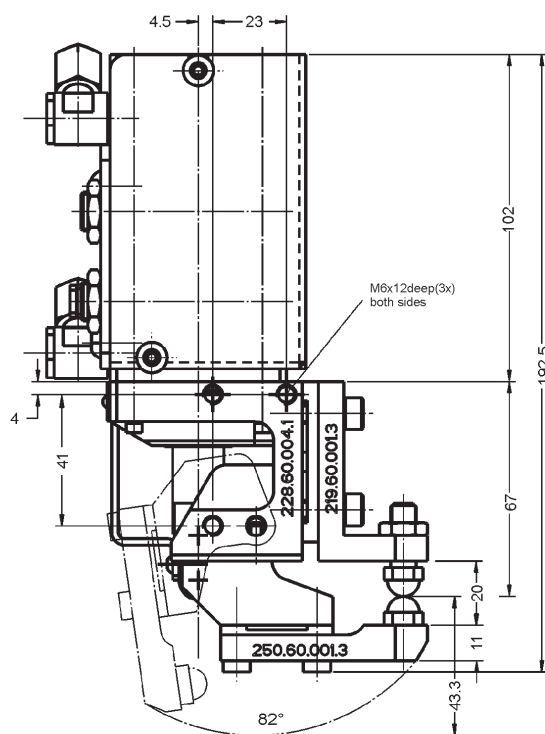
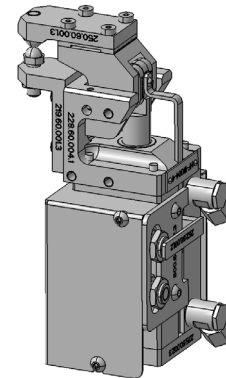
Technical Data

Model	HF-WG04-3
Part-No.	15000521
Stroke	82°
Cylinder Bore	40 mm
Air Consumption each Cycle	0,55 l
Actuation Time open/close at P=6 bar	0,5/0,25 s
Weight	1,8 kg
Gripping force at 6 bar	336 N
Springloaded version	-



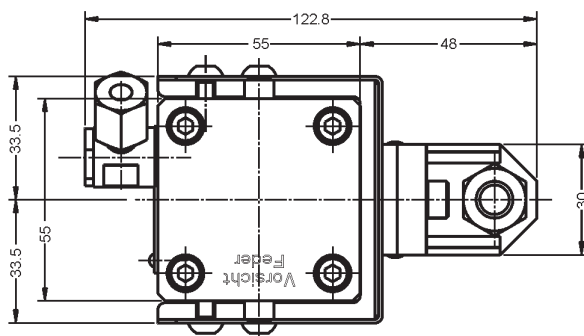
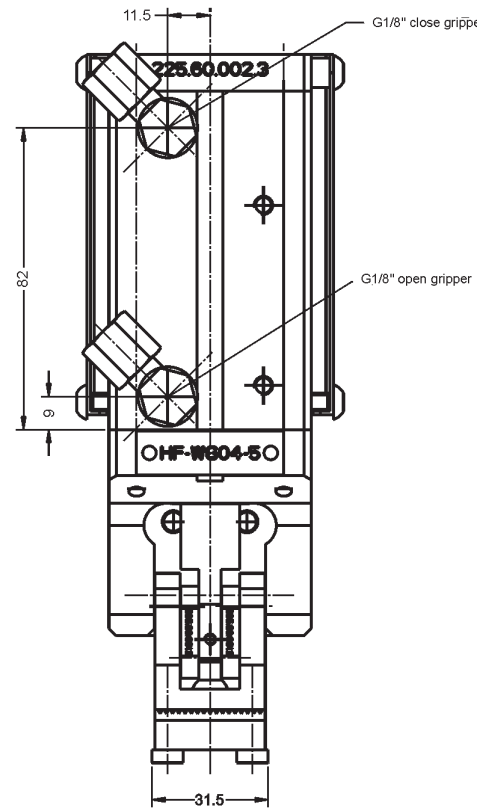
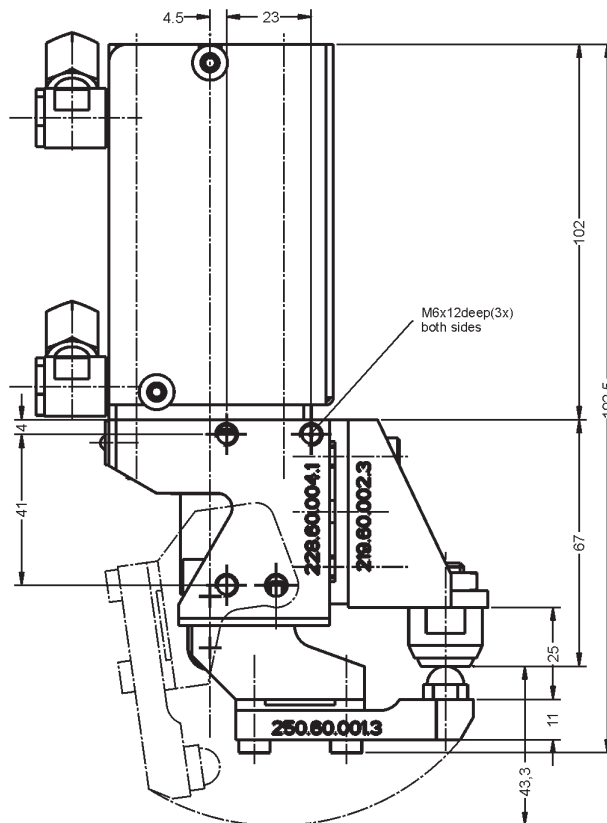
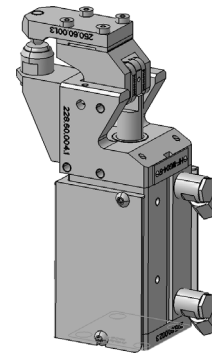
Technical Data

Model	HF-WG04-4
Part-No.	15000522
Stroke	82°
Cylinder Bore	40 mm
Air Consumption each Cycle	0,55 l
Actuation Time open/close at P=6 bar	0,5/0,25 s
Weight	2,0 kg
Gripping force at 6 bar	336 N
Springloaded version	-



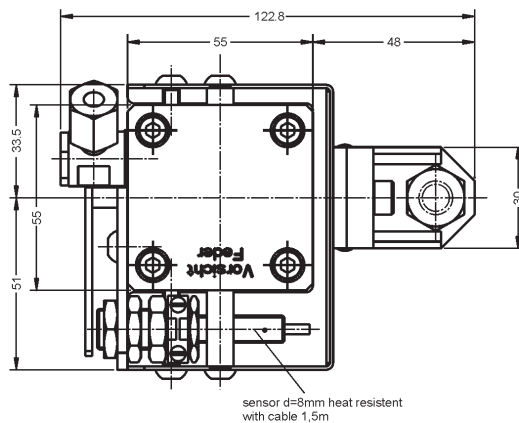
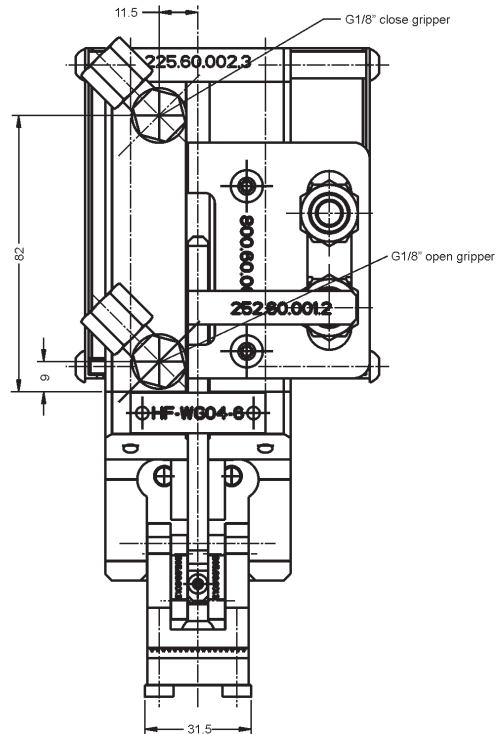
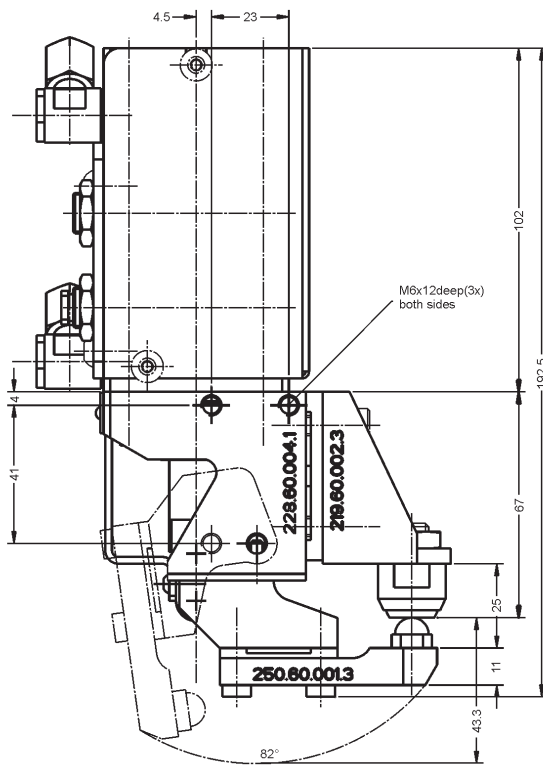
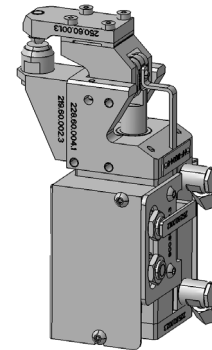
Technical Data

Model	HF-WG04-5
Part-No.	15000531
Stroke	82°
Cylinder Bore	40 mm
Air Consumption each Cycle	0,55 l
Actuation Time open/close at P=6 bar	0,5/0,25 s
Weight	1,8 kg
Gripping force at 6 bar	336 N
Springloaded version	-
Swinging support	-



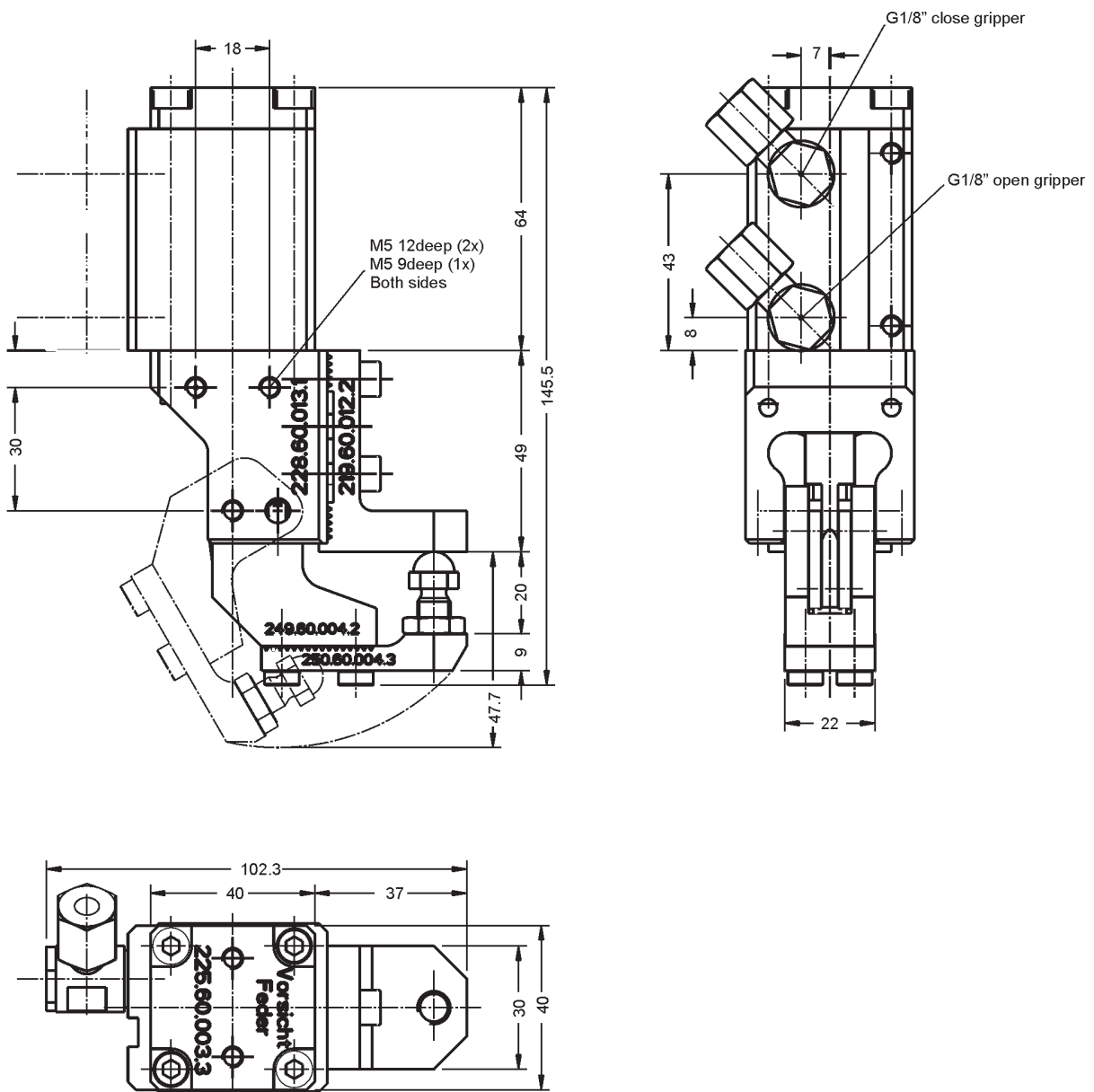
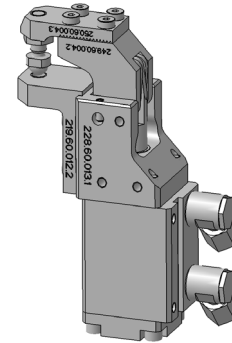
Technical Data

Model	HF-WG04-6
Part-No.	15000532
Stroke	82°
Cylinder Bore	40 mm
Air Consumption each Cycle	0,55 l
Actuation Time open/close at P=6 bar	0,5/0,25 s
Weight	2,0 kg
Gripping force at 6 bar	336 N
Springloaded version	-
Swinging support	-



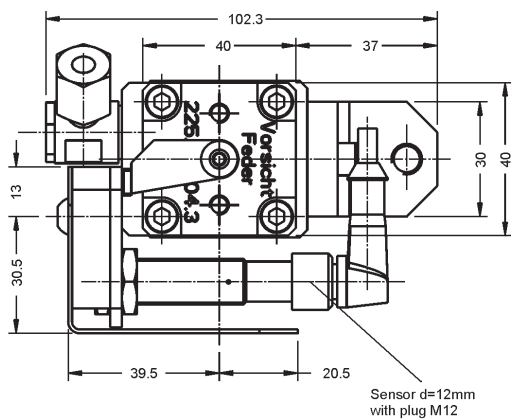
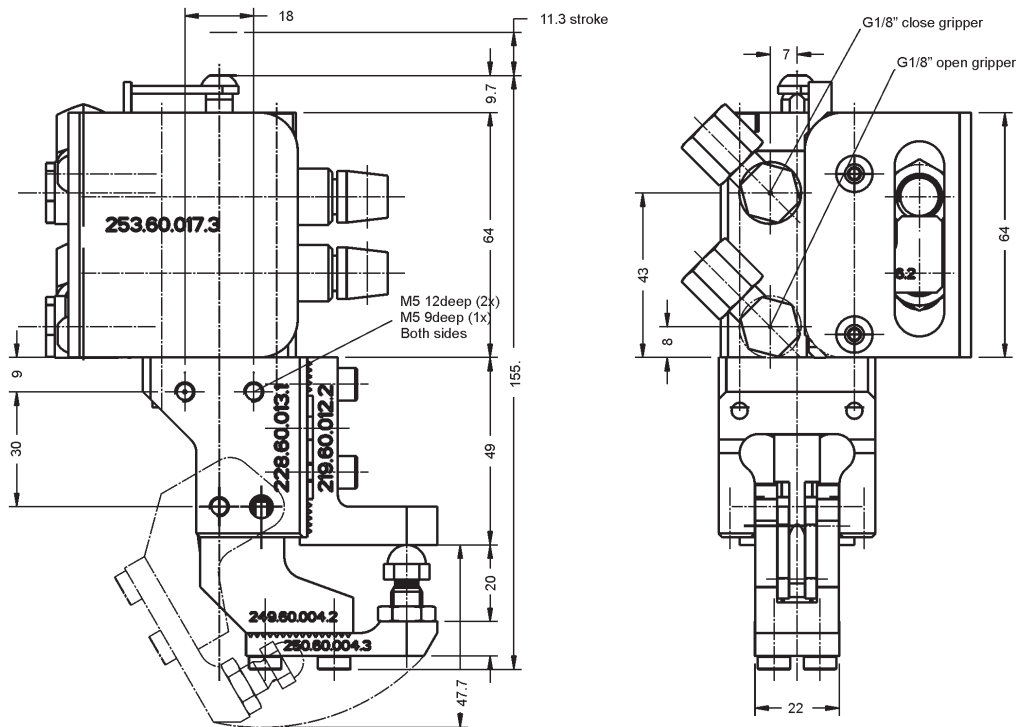
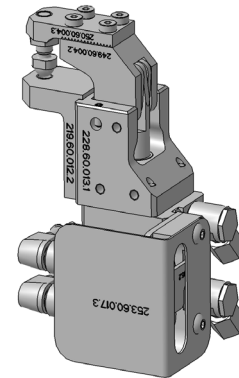
Technical Data

Model	HF-WG05-1
Part-No.	15211731
Stroke	60°
Cylinder Bore	32 mm
Air Consumption each Cycle	0,13 l
Actuation Time open/close at P=6 bar	0,4/0,25 s
Weight	0,8 kg
Gripping force at 6 bar	148 N
Springloaded version	-



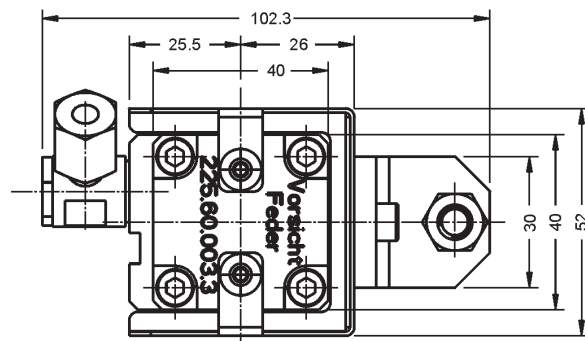
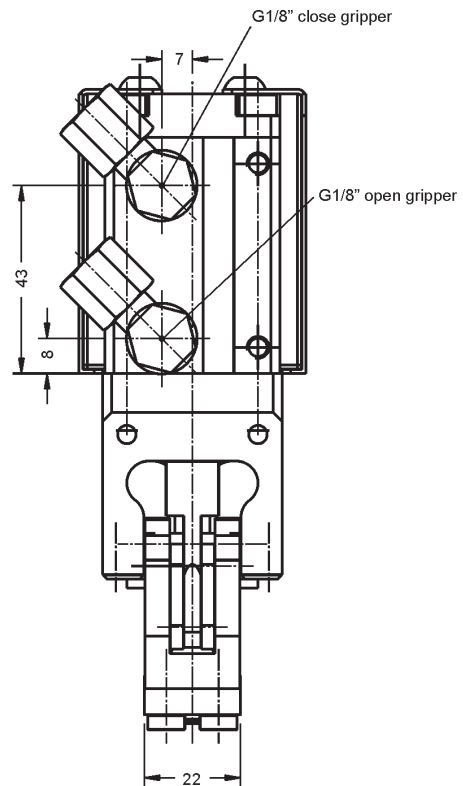
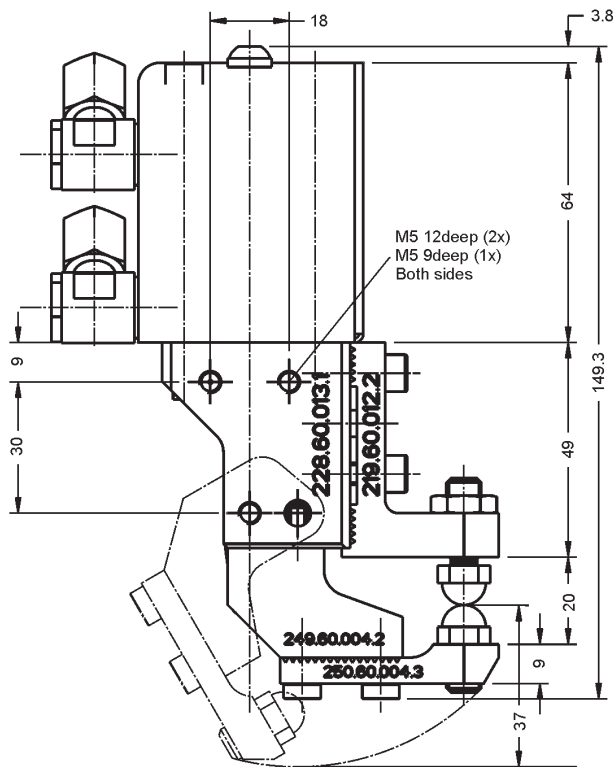
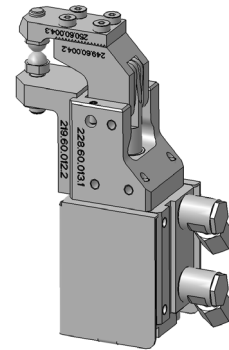
Technical Data

Model	HF-WG05-2
Part-No.	15000539
Stroke	60°
Cylinder Bore	32 mm
Air Consumption each Cycle	0,13 l
Actuation Time open/close at P=6 bar	0,4/0,25 s
Weight	1,1 kg
Gripping force at 6 bar	148 N
Springloaded version	-



Technical Data

Model	HF-WG06-1
Part-No.	15000555
Stroke	60°
Cylinder Bore	32 mm
Air Consumption each Cycle	0,13 l
Actuation Time open/close at P=6 bar	0,4/0,25 s
Weight	0,9 kg
Gripping force at 6 bar	148 N
Springloaded version	

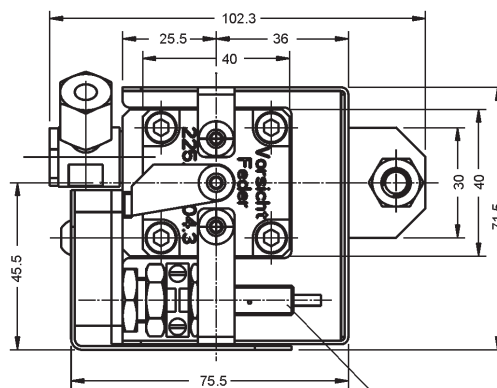
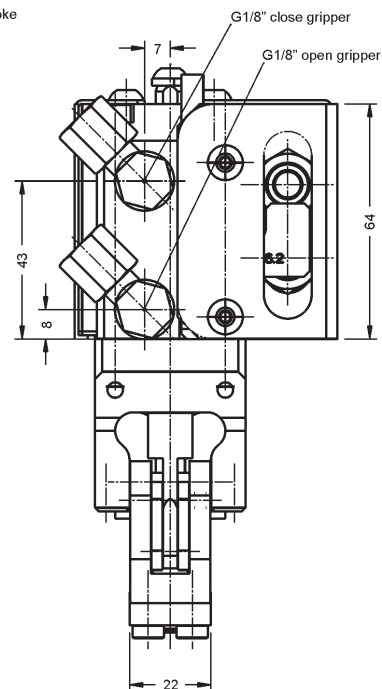
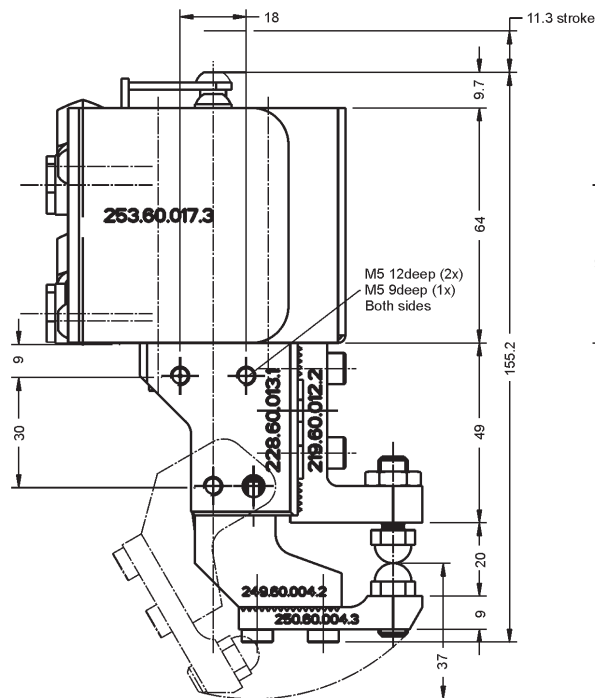
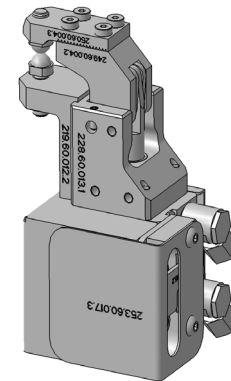


Technical Data

Model	HF-WG06-2
Part-No.	15000556
Stroke	60°
Cylinder Bore	32 mm
Air Consumption each Cycle	0,13 l
Actuation Time open/close at P=6 bar	0,4/0,25 s
Weight	1,2 kg
Gripping force at 6 bar	148 N
Springloaded version	

Attention, sensors separate to order!

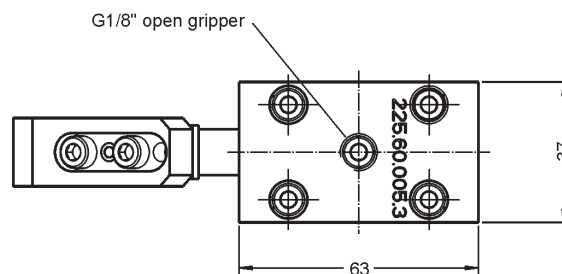
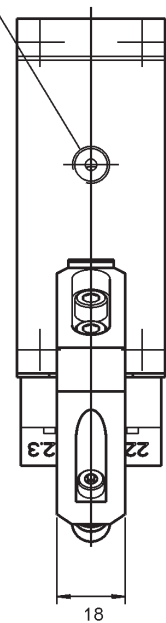
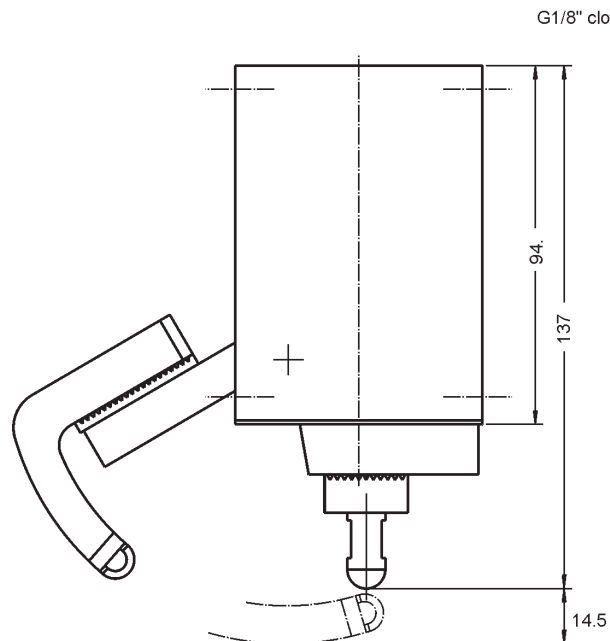
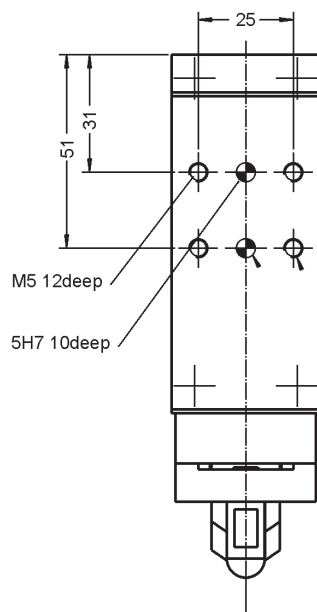
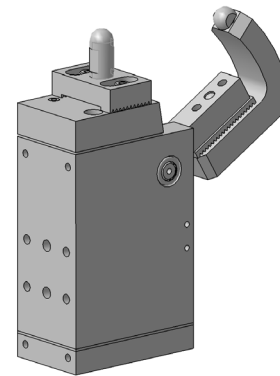
Type M8x1, up to 120°C, with cable 5m, PNP Close Contact
Part-No. 11800100



Sensor M8 heat resistant with cable 1,5m

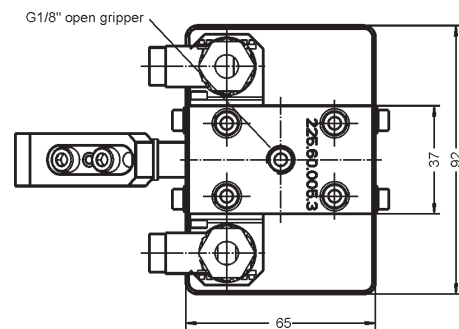
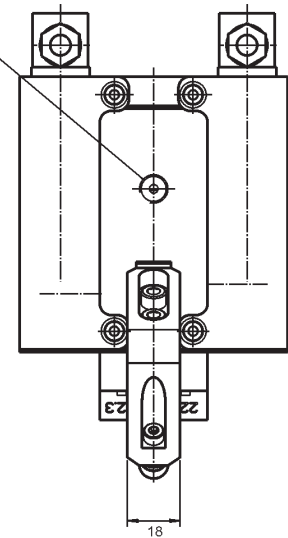
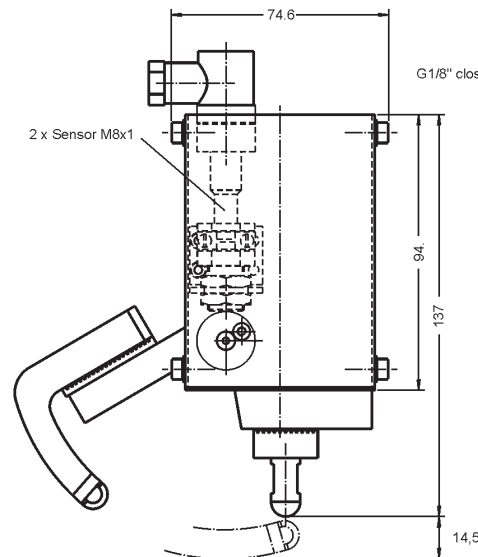
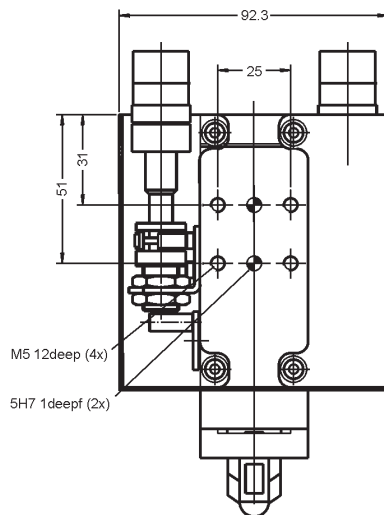
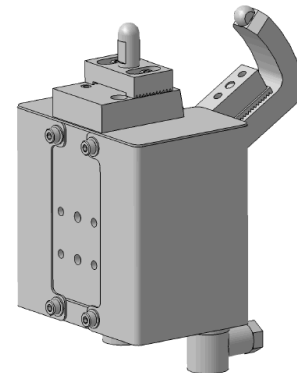
Technical Data

Model	HF-WG07-1
Part-No.	15000604
Stroke	60°
Cylinder Bore	30 mm
Air Consumption each Cycle	0,14 l
Actuation Time open/close at P=6 bar	0,3/0,2 s
Weight	1,0 kg
Gripping force at 6 bar incl. spring	81 N
Gripping force spring only	approx. 102 N



Technical Data

Model	HF-WG07-2
Part-No.	15000601
Stroke	60°
Cylinder Bore	30 mm
Air Consumption each Cycle	0,14 l
Actuation Time open/close at P=6 bar	0,3/0,2 s
Weight	1,15 kg
Gripping force at 6 bar incl. spring	81 N
Gripping force spring only	approx. 102 N

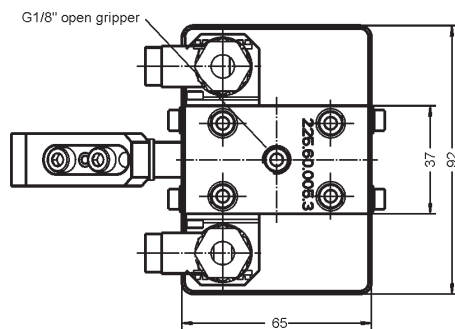
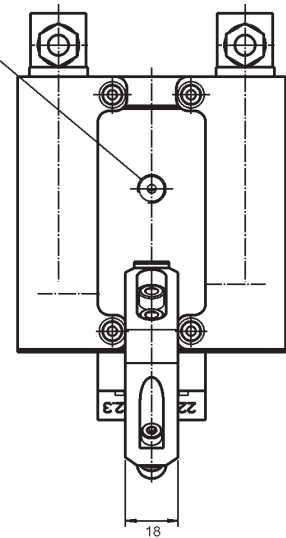
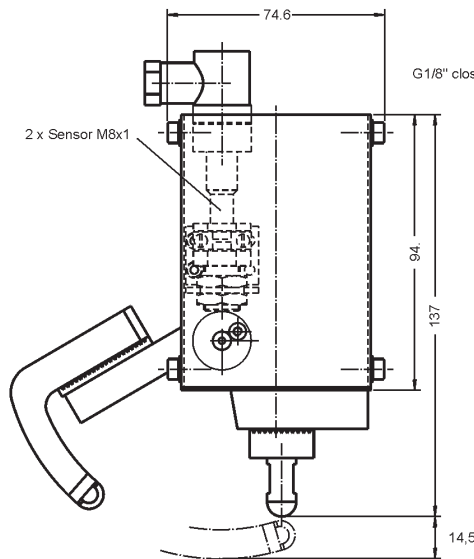
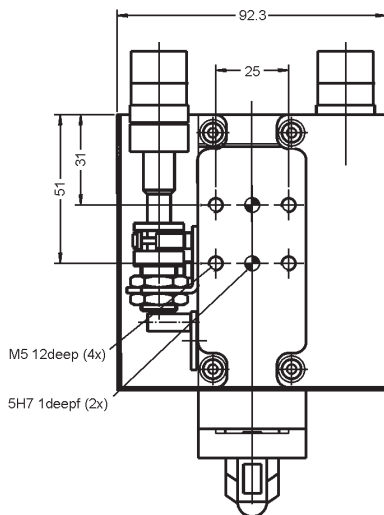
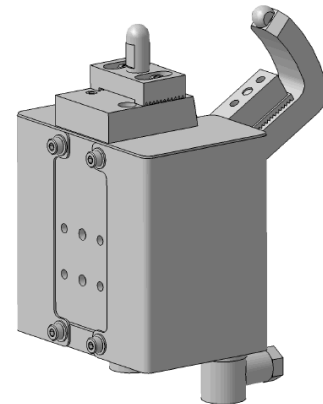


Technical Data

Model	HF-WG07-3
Part-No.	15000600
Stroke	60°
Cylinder Bore	30 mm
Air Consumption each Cycle	0,14 l
Actuation Time open/close at P=6 bar	0,3/0,2 s
Weight	1,4 kg
Gripping force at 6 bar incl. spring	81 N
Gripping force spring only	approx. 102 N

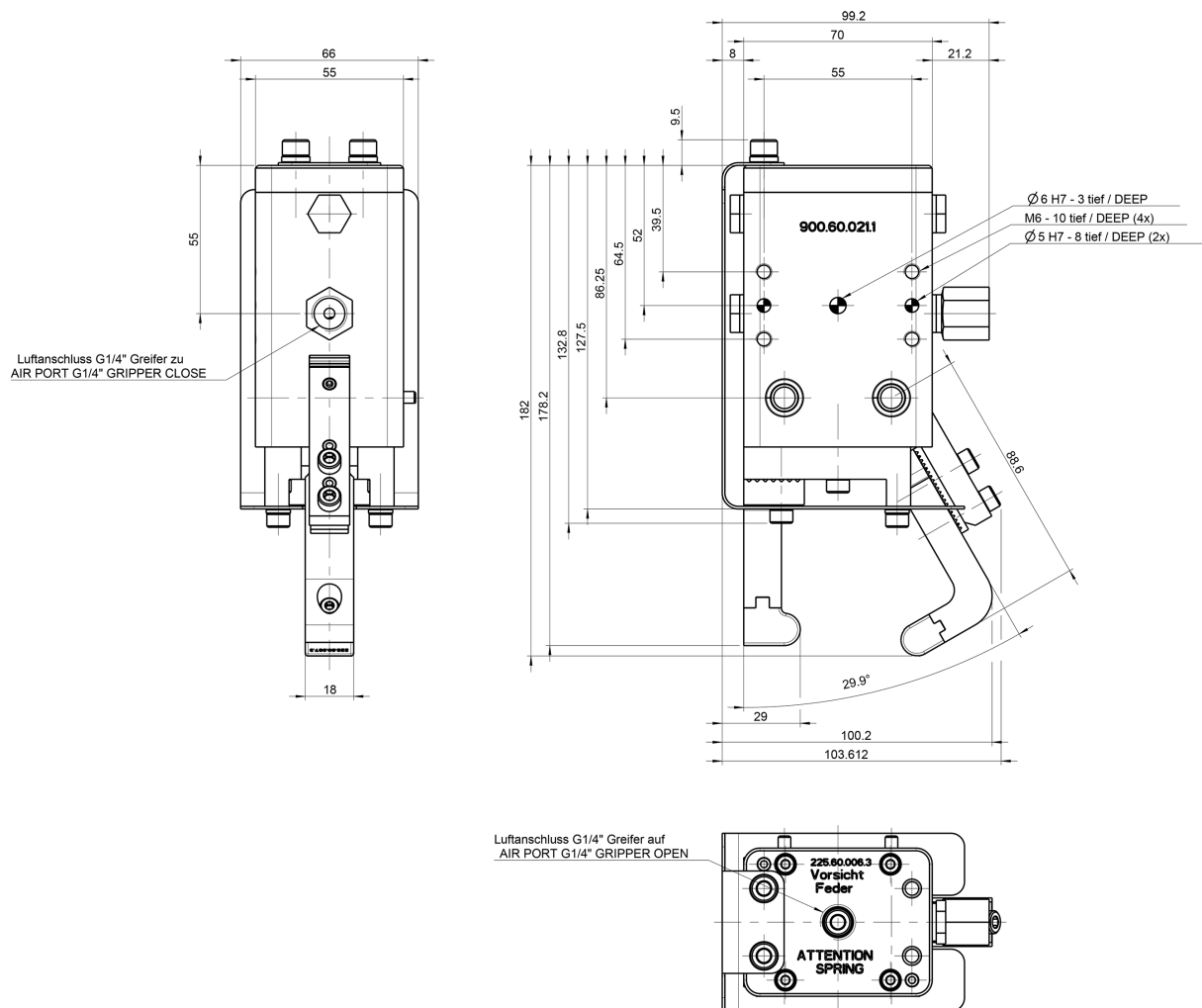
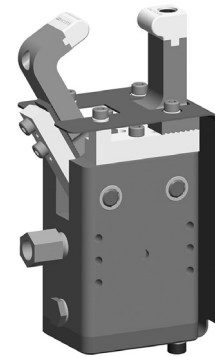
Attention, sensors separate to order!

Type M8x1, up to 70°C, with plug M12x1, PNP Close Contact	
Part-No.	11800099
Type M8x1, up to 120°C, with cable 5m, PNP Close Contact	
Part-No.	11800100



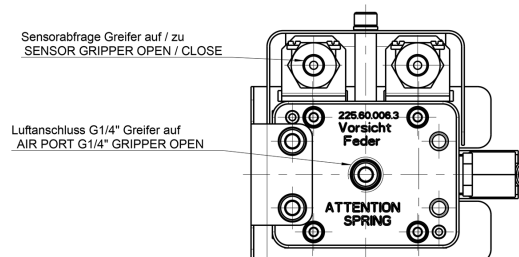
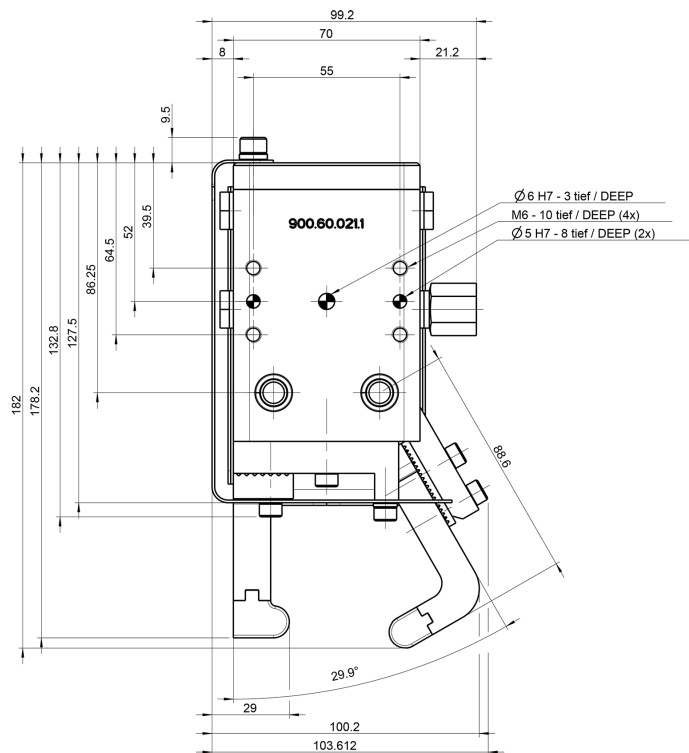
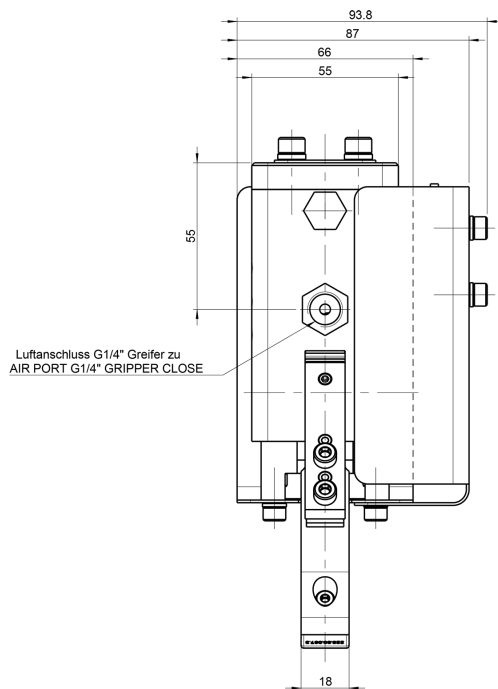
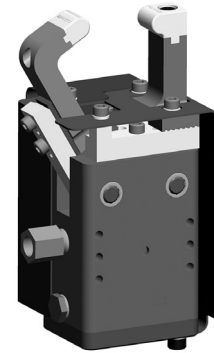
Technical Data

Model	HF-WG08-1
Part-No.	15000620
Stroke	24°
Cylinder Bore	45 mm
Air Consumption each Cycle	0,17 l
Actuation Time open/close at P=6 bar	0,25 s
Weight	1,9 kg
Gripping force at 6 bar incl. spring	123 N
Gripping force spring only	180 N



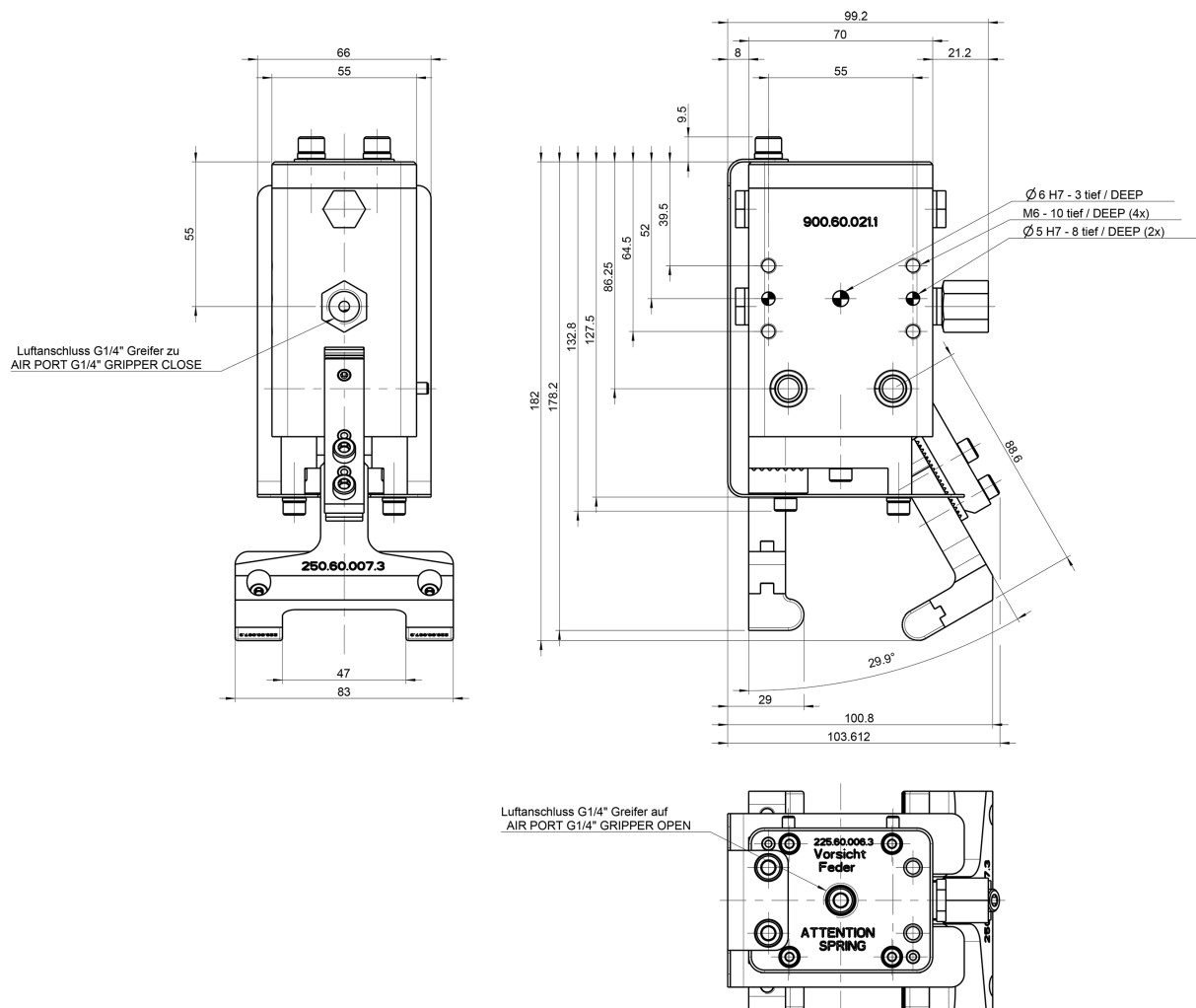
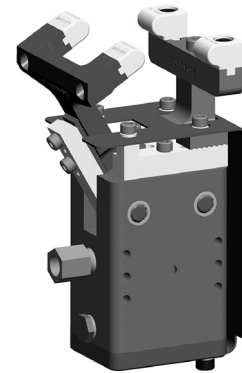
Technical Data

Model	HF-WG08-3
Part-No.	15000662
Stroke	24°
Cylinder Bore	45 mm
Air Consumption each Cycle	0,17 l
Actuation Time open/close at P=6 bar	0,25 s
Weight	2,0 kg
Gripping force at 6 bar incl. spring	123 N
Gripping force spring only	180 N



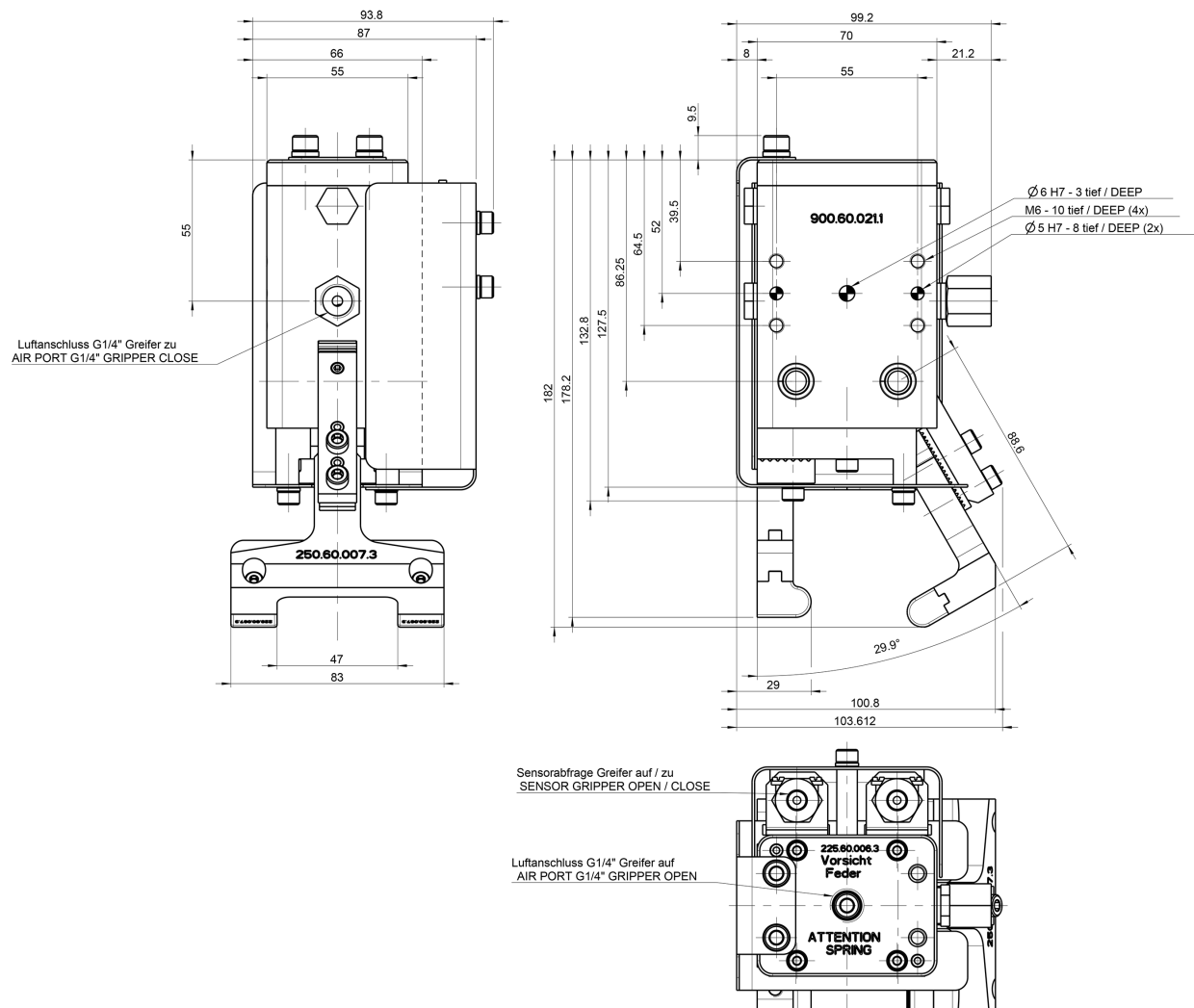
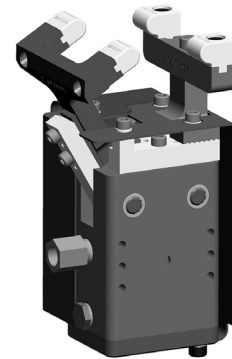
Technical Data

Model	HF-WG09-1
Part-No.	15000636
Stroke	24°
Cylinder Bore	45 mm
Air Consumption each Cycle	0,17 l
Actuation Time open/close at P=6 bar	0,25 s
Weight	2,1 kg
Gripping force at 6 bar incl. spring	123 N
Gripping force spring only	180 N



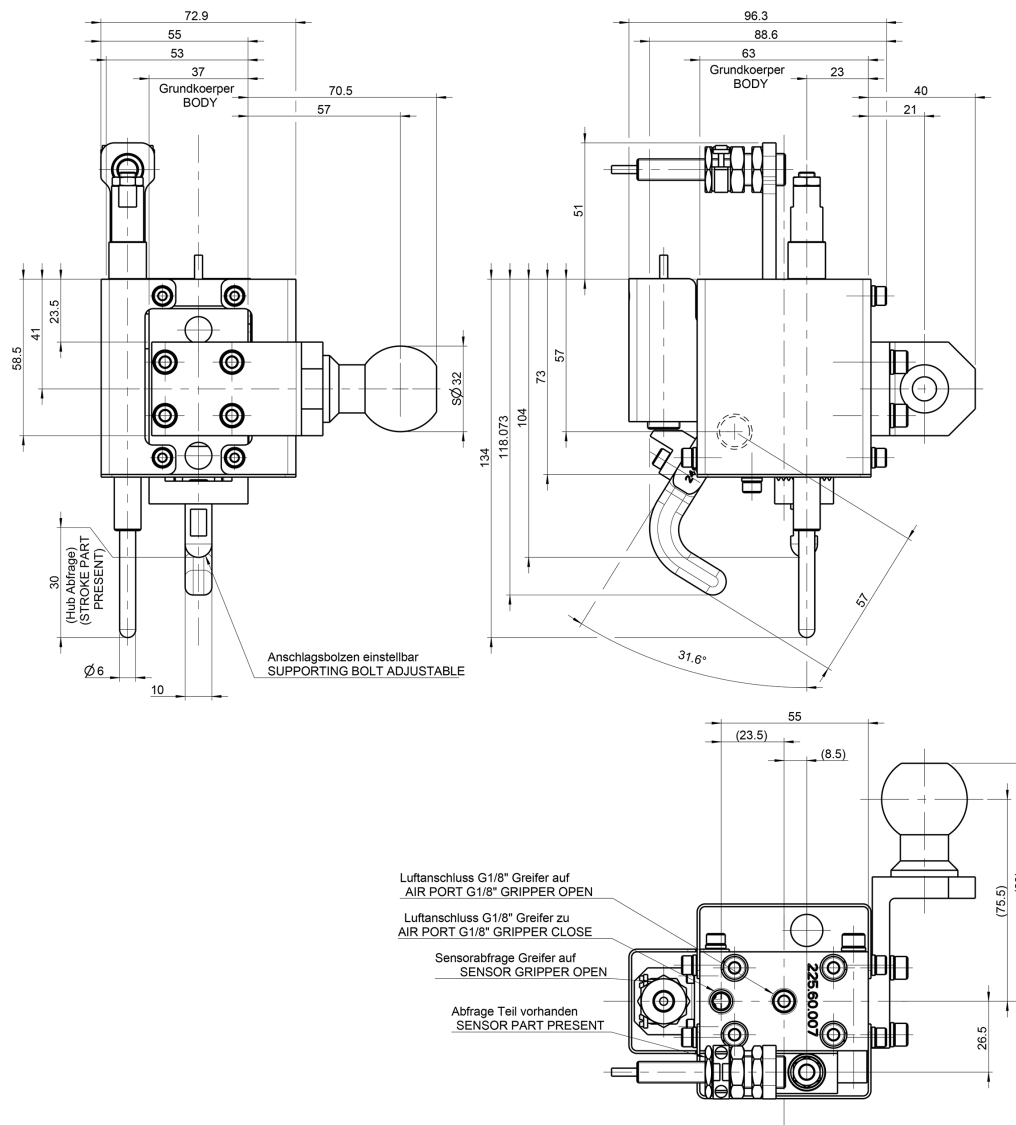
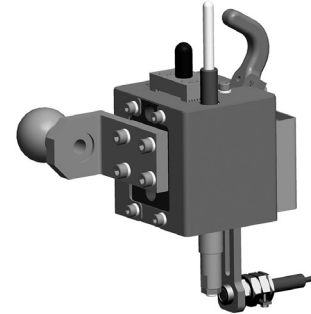
Technical Data

Model	HF-WG09-3
Part-No.	15000664
Stroke	24°
Cylinder Bore	45 mm
Air Consumption each Cycle	0,17 l
Actuation Time open/close at P=6 bar	0,25 s
Weight	2,55 kg
Gripping force at 6 bar incl. spring	123 N
Gripping force spring only	180 N



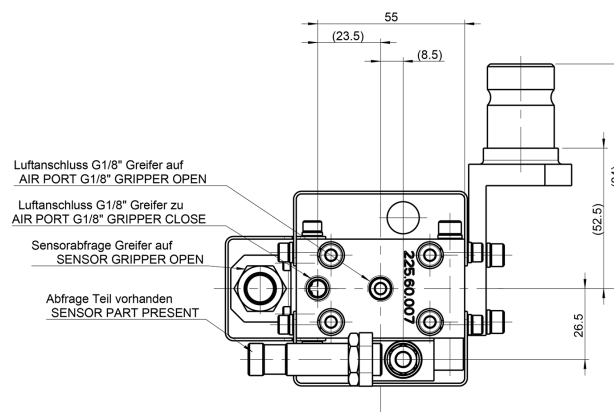
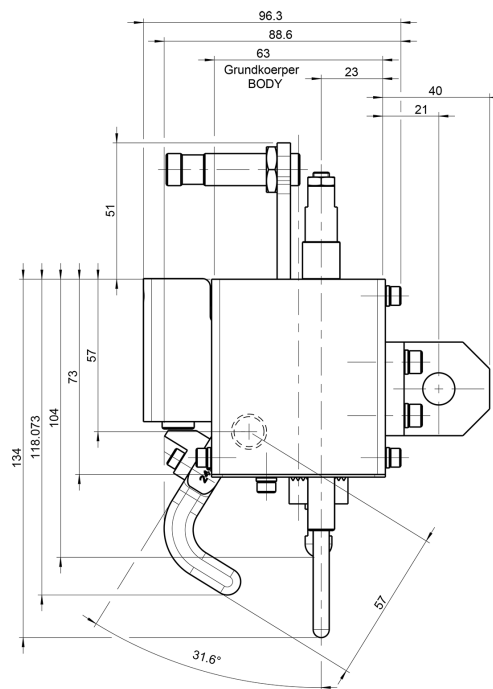
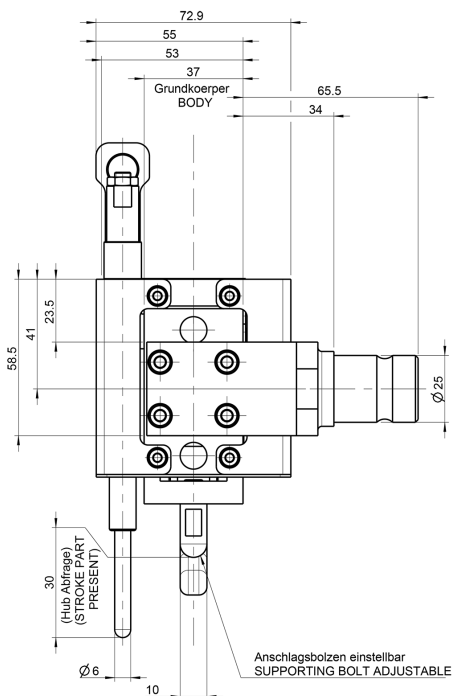
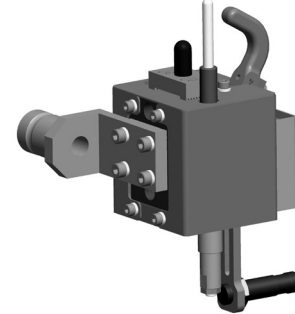
Technical Data

Model	HF-WG14-MB
Part-No.	15000729
Stroke	31,6°
Cylinder Bore	30 mm
Air Consumption each Cycle	0,09 l
Actuation Time open/close at P=6 bar	0,25 - 0,3 s
Weight	1,3 kg
Gripping force at 6 bar incl. spring	77 N
Gripping force spring only	-



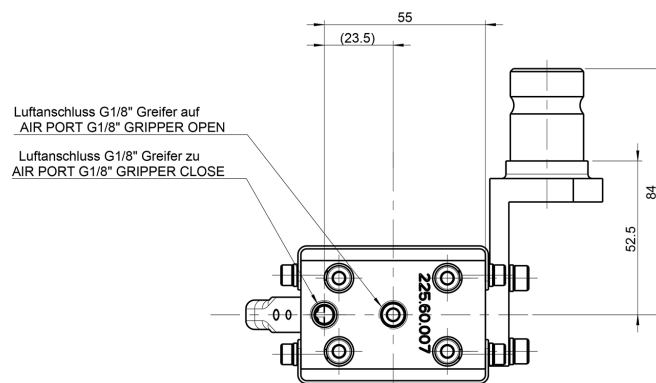
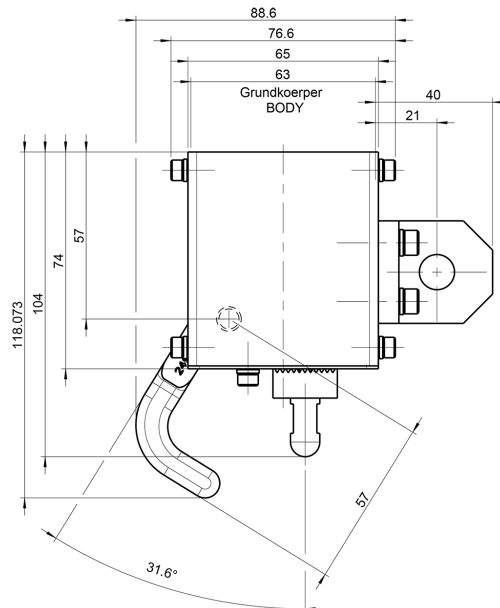
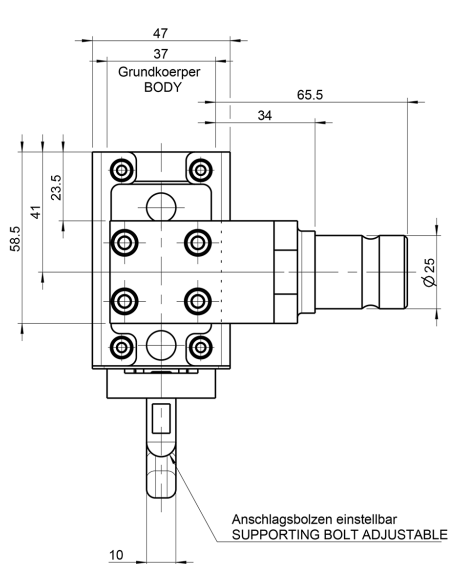
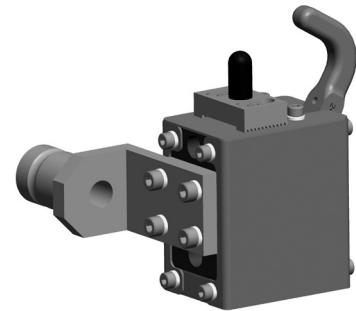
Technical Data

Model	HF-WG14-S1-MB
Part-No.	15000731
Stroke	31,6°
Cylinder Bore	30 mm
Air Consumption each Cycle	0,09 l
Actuation Time open/close at P=6 bar	0,25 - 0,3 s
Weight	1,4 kg
Gripping force at 6 bar incl. spring	77 N
Gripping force spring only	-



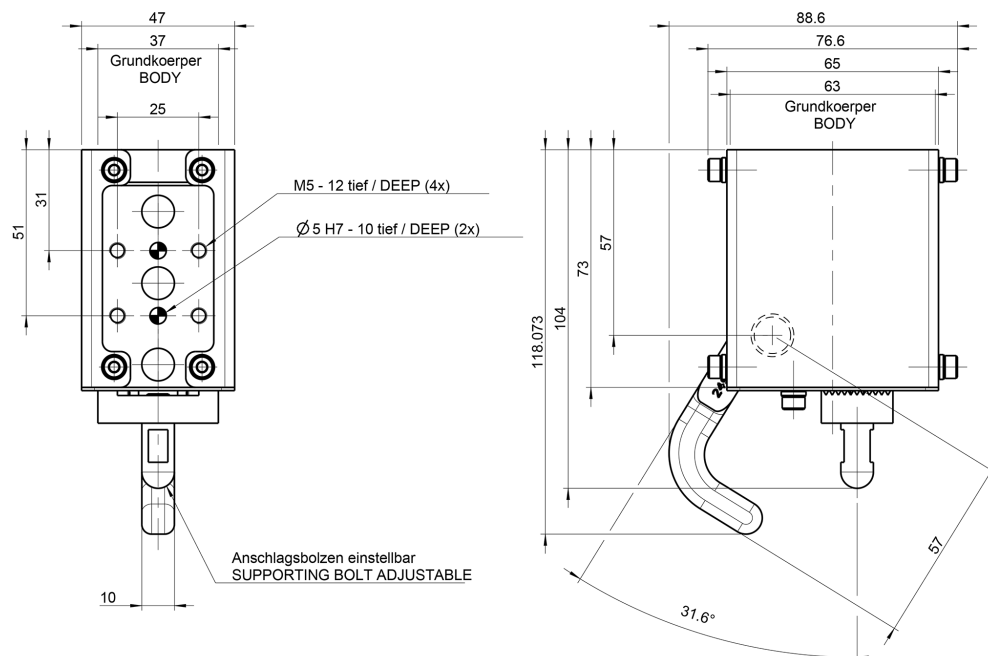
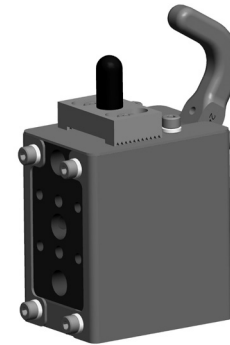
Technical Data

Model	HF-WG14-S2-MB
Part-No.	15000730
Stroke	31,6°
Cylinder Bore	30 mm
Air Consumption each Cycle	0,09 l
Actuation Time open/close at P=6 bar	0,25 - 0,3 s
Weight	1,05 kg
Gripping force at 6 bar incl. spring	77 N
Gripping force spring only	-



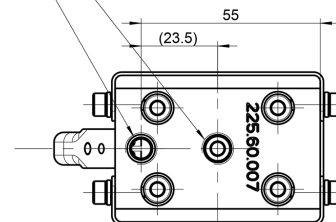
Technical Data

Model	HF-WG14-S3-MB
Part-No.	15000732
Stroke	31,6°
Cylinder Bore	30 mm
Air Consumption each Cycle	0,09 l
Actuation Time open/close at P=6 bar	0,25 - 0,3 s
Weight	0,75 kg
Gripping force at 6 bar incl. spring	77 N
Gripping force spring only	-



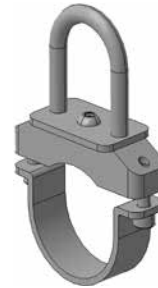
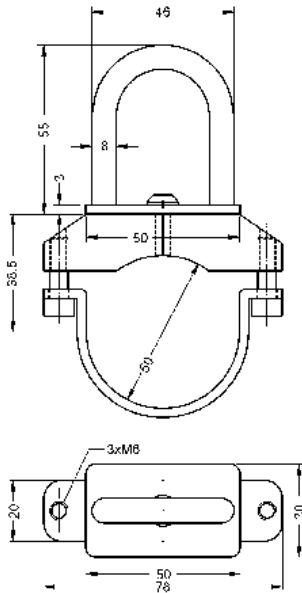
Luftanschluss G1/8" Greifer auf
AIR PORT G1/8" GRIPPER OPEN

Luftanschluss G1/8" Greifer zu
AIR PORT G1/8" GRIPPER CLOSE



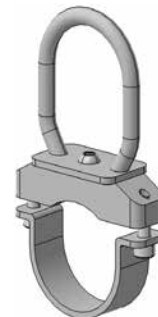
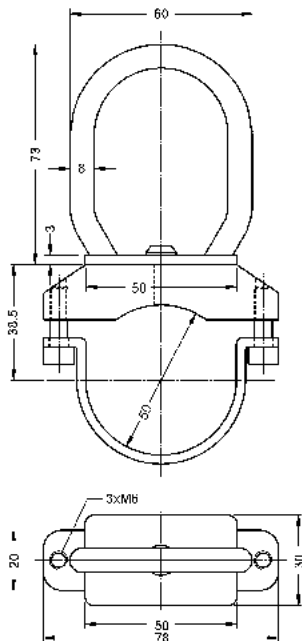
Technical Data

Model	HF-MB50-01
Part-No.	15320046
Material	Clip+Ring ST52/Support AL
Surface	bronziert/natural
Weight	0,225 kg



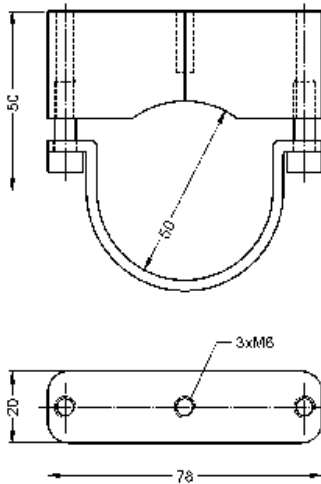
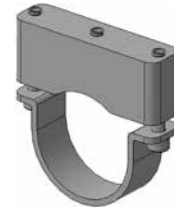
Technical Data

Model	HF-MB50-02
Part-No.	15320047
Material	Clip+Ring ST52/Support AL
Surface	bronziert/natural
Weight	0,245 kg



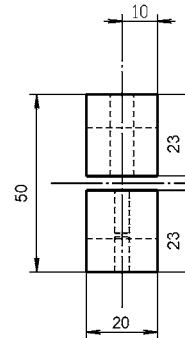
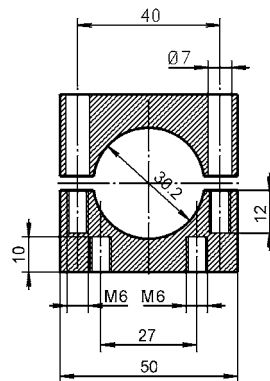
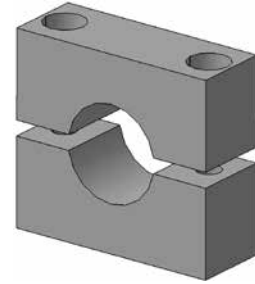
Technical Data

Model	HF-HMP50-01
Part-No.	15320048
Material	Clip ST52/Support AL
Oberfläche	brüniert/natur
Weight	0,2 kg



Technical Data

Model	HF-HHS30
Part-No.	15320049
Material	AL
Surface	natural
Weight	0,08 kg



Technical Data

Model	HF-HI25
Part-No.	15320050
Material	ST37
Weight	0,06 kg

