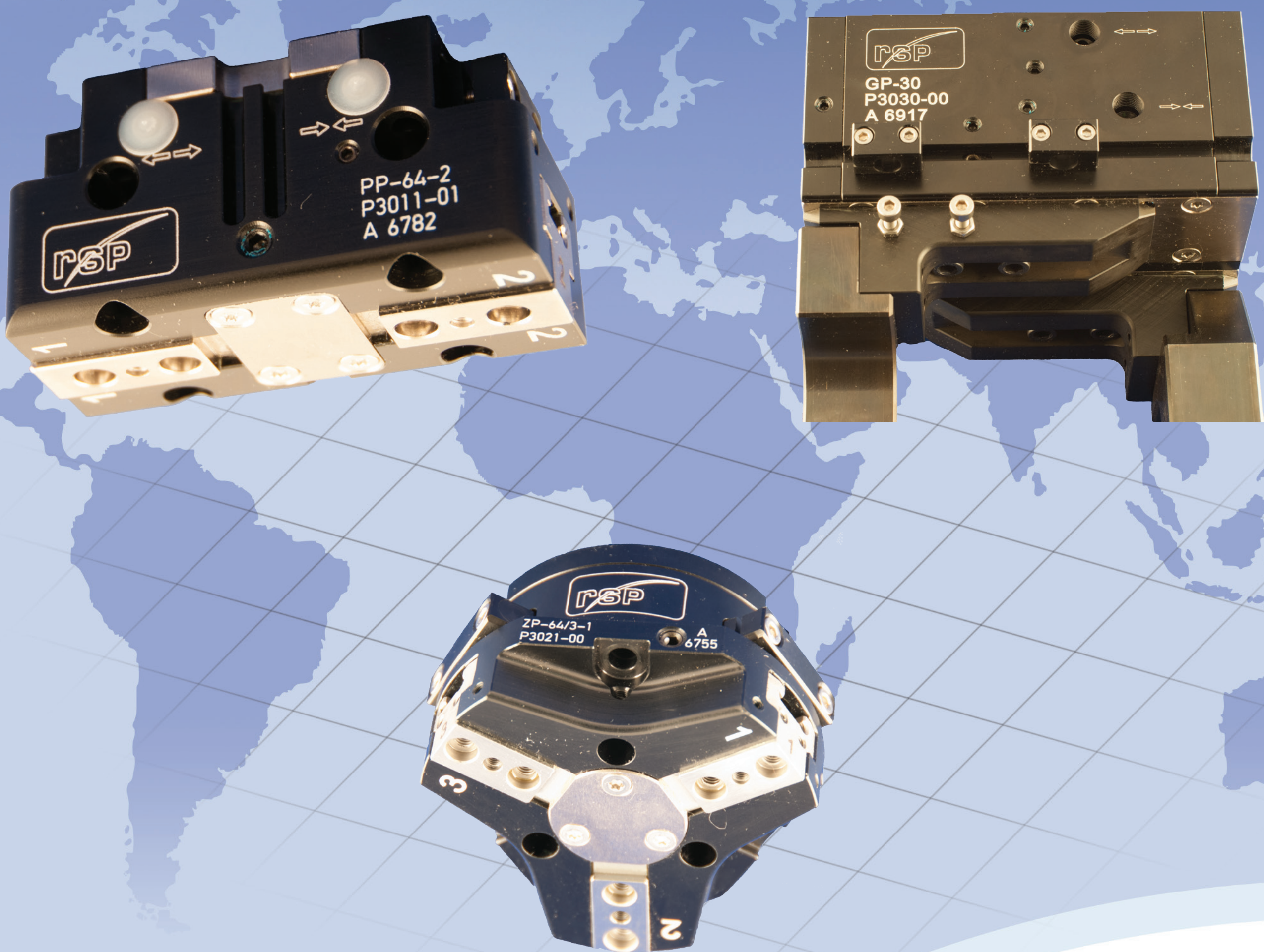
Gripping Technology 2013



rsp robot system products

Robot System Products® has been the industry leader in high-performance robotic peripheral products for over 30 years. Our guiding principle is to provide the highest quality, most reliable and affordable robot tooling products on the market. Our commitment to outstanding customer service and strong retailer partnerships is unmatched.

Robot System Products constantly explores emerging technologies to market robotic peripherals that combine leading edge design with performance innovation for production with robots 24 hour per day, 7 days a week, all year long. It is this dedication that has made RSP the most recognized and reputable robot peripheral products brand in the world.

Robot System Products has a wide range of standard robot peripheral products:

- Tool changers
- Swivels
- Swivels with tool changer
- Grippers
- Hose Packages
- Valve units
- Complete function package
- Vacuum gripping tools
- Deburring tool system

RSP products are available for all major robot brands and come with complete documentation. 3D-models for computer simulation are available for download at www.robotsystemproducts.com.

CONTENTS

Parallel gripper PP

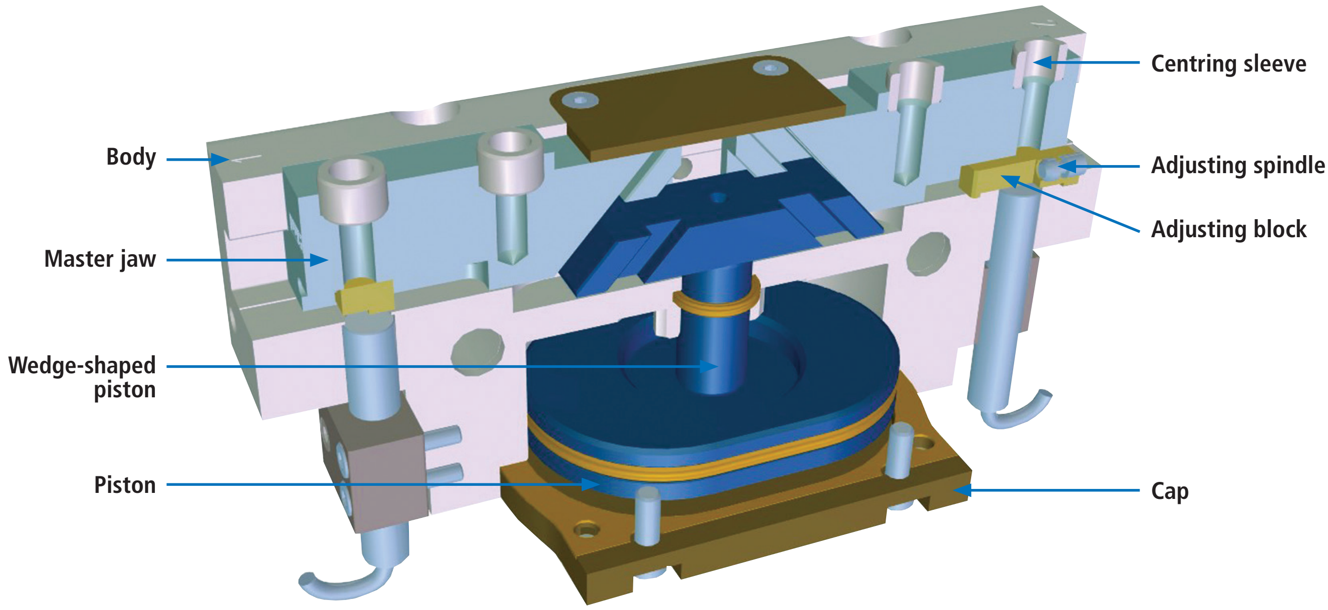
Design Parallel gripper PP

1	Long jaw stroke, normal gripping force
2	Normal jaw stroke, high gripping force
GA	Integrated springs as gripping force safety device for exterior tension, thus increased gripping force
GI	Integrated springs as gripping force safety device for interior tension, thus increased gripping force

2-jaw parallel gripper PP pneumatic control

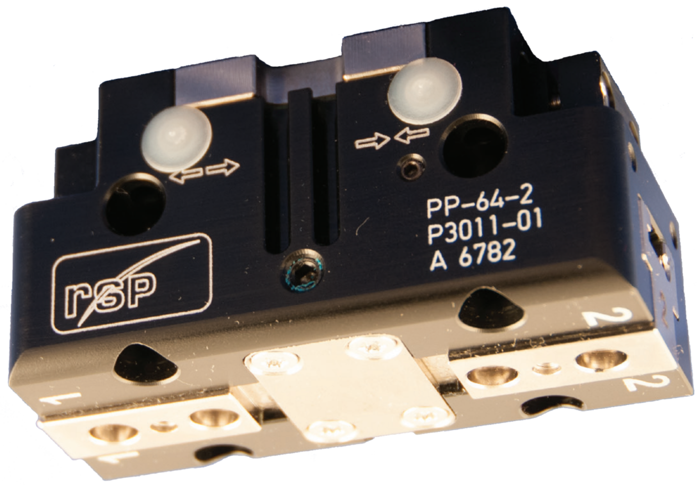
Operating principle of a parallel gripper

Mode of operation



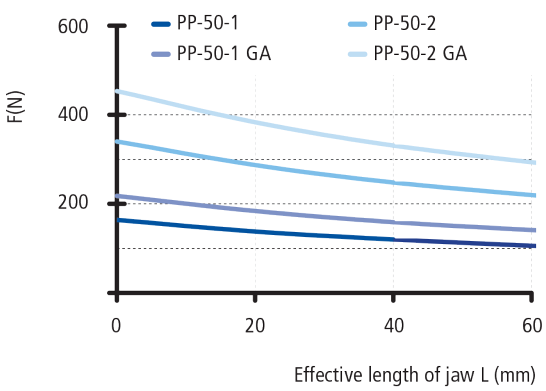
- Tried and tested T-groove for gripping at max. loads
- Fast and efficient gripping
- Centric gripping of round and angular workpieces
- Universal application due to different types of jaws
- Ideal for series production
- All sizes available with 2 different stroke lengths
- Gripping pressure controlled by change of pressure
- Constant clamping force at a constant pressure and thus high clamping precision
- Compact and ergonomic design
- Sealed air connection to prevent contamination
- Gripper can be mounted on two sides of the gripper
- Optional inductive or magnetic position sensors
- Screw connection or direct connection for compressed air
- Gripping force safety device that is specific for either exterior or interior gripping
- Simple interface master jaw / top jaw with only 2 centring sleeves

Precision parallel gripper PP-50

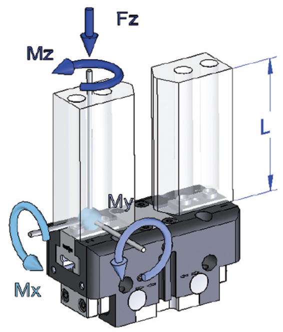


Clamping force diagram - exterior gripping

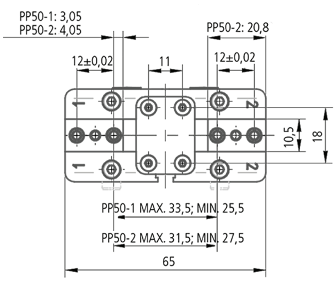
Total gripping force F(N) at 6 bar



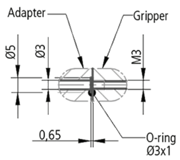
Max. load on gripper and jaw

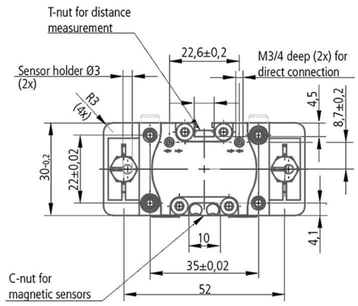


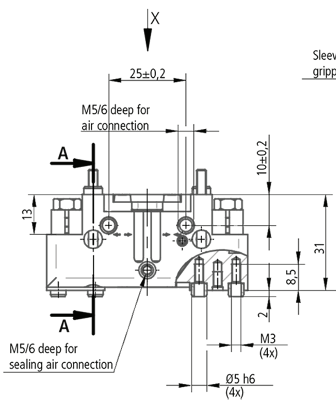
Max. moment	Mx:	max. 20 Nm
Max. moment	My:	max. 25 Nm
Max. moment	Mz:	max. 10 Nm
Max. pressure load	Fz:	max. 500 N



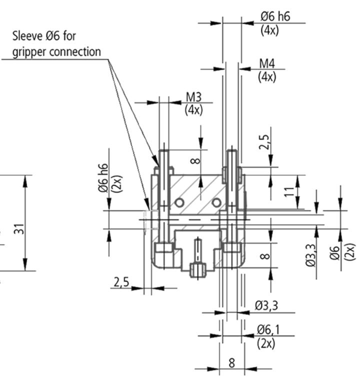
Tubeless direct connection

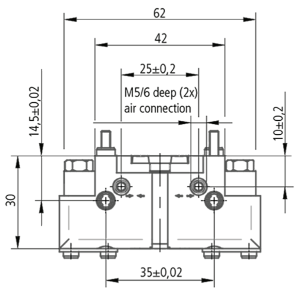




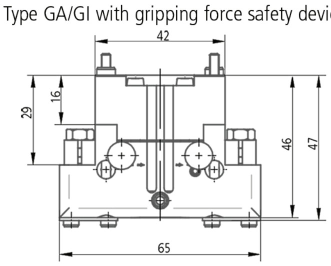


Section A-A





Type GA/GI with gripping force safety device



Type	PP-50-1	PP-50-2	PP-50-1/GA	PP-50-2/GA	PP-50-1/GI	PP-50-2/GI
Article Number	P3010-00	P3010-01	P3010-02	P3010-03	P3010-04	P3010-05
Weight (kg)	0,19	0,19	0,23	0,23	0,23	0,23
Total stroke (mm)	8	4	8	4	8	4
Gripping force at 6 bar	180 N	350 N	215 N	415 N	235 N	450 N
Max gripping force (N)	180	350	180	350	180	350
Recommended work-piece weight (kg)	0,7	1,45	0,7	1,45	0,7	1,45
Gripping force maintained by safety device	-	-	35 N	65 N	35 N	65 N
Operating pressure min/max without spring	2 - 8 bar	2 - 8 bar	-	-	-	-
Operating pressure min/max with spring	-	-	4 - 7 bar	4 - 7 bar	4 - 7 bar	4 - 7 bar
Clamping time (s)	0,02	0,02	0,02	0,02	0,03	0,03
Opening time (s)	0,02	0,02	0,03	0,03	0,02	0,02
Air consumption per cycle (cm^3)	5,0	5,0	5,0	5,0	5,0	5,0
Max allowable length of jaw (mm)	64	64	64	64	64	64
	Pneumatic					
Operating pressure	3 - 10 bar					
Cylinder	double-acting					
Dynamic seals	NBR seals with interior lubrication					
	Required valves					
Double-acting	5 paths, 2 positions					
Single-action (options GA or GI)	3 paths, 2 positions					
	Air quality					
Air filtration	40 µ or better					
Air lubrication	not necessary*					
Humidity	low (dry)					
	Operating temperatures					
NBR seals (standard)	-30°C to +80°C					
FKM seals (optional)	-20°C to +150°C					
	Maintenance / Expected service life					
With normal use	5 million cycles					
With preventive maintenance	10 million cycles					
Seal set available	Yes					

* Preventive maintenance considerably increases service life

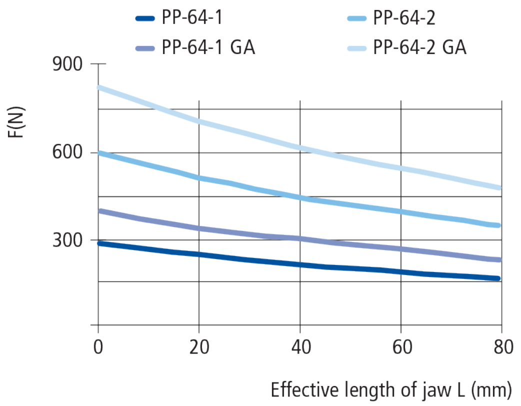
Options	Article Number	Description
PP-AB-ST-50	P3040-0S	Jaw blank (set) steel*
PP-AB-AL-50	P3040-0A	Jaw blank (set) aluminium**
SAD-PP-50	P3053-10	Protective cover
DSV-G1/8	P3053-00	Pressure maintenance
DLV-M5	P3053-01	Compressed air connection M5
INS-Ø3x27	P3053-05	Inductive proximity switch Ø3x27
MFS-03	P3053-08	Magnetic field sensors 03

***Jaw dimensions see page 52**

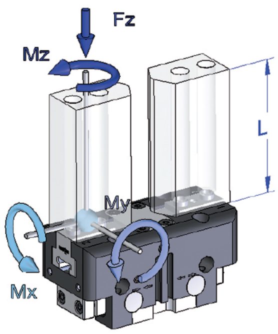
****Jaw dimensions see page 53**

Precision parallel gripper PP-64

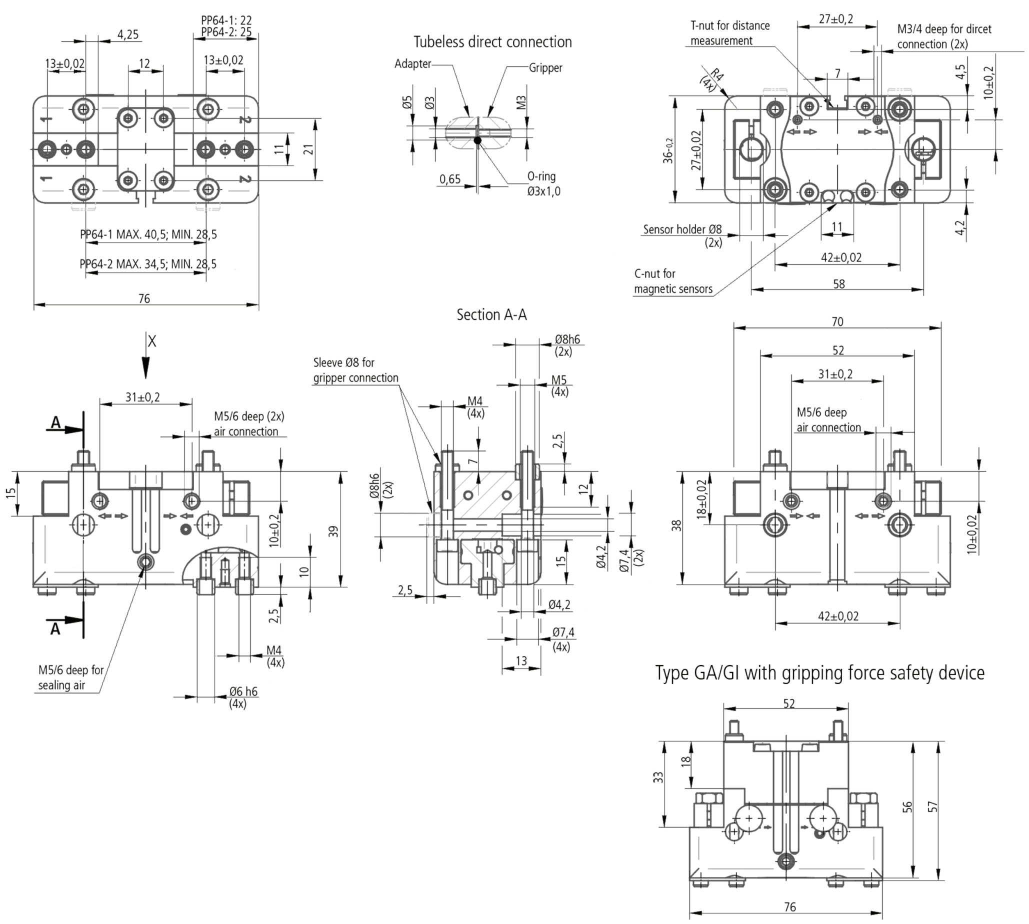
Clamping force diagram - exterior gripping



Max. load on gripper and jaw



Max. moment	Mx:	max. 40 Nm
Max. moment	My:	max. 60 Nm
Max. moment	Mz:	max. 40 Nm
Max. pressure load	Fz:	max. 1100 N



Type	PP-64-1	PP-64-2	PP-64-1/GA	PP-64-2/GA	PP-64-1/GI	PP-64-2/GI
Article Number	P3011-00	P3011-01	P3011-02	P3011-03	P3011-04	P3011-05
Weight (kg)	0,3	0,3	0,4	0,4	0,4	0,4
Total stroke (mm)	12	6	12	6	12	6
Gripping force at 6 bar	300 N	600 N	400 N	800 N	450 N	850 N
Max gripping force (N)	300	600	300	600	300	600
Recommended work-piece weight (kg)	1,5	3,0	1,5	3,0	1,5	3,0
Gripping force maintained by safety device	-	-	100 N	200 N	100 N	200 N
Operating pres-sure min/max without spring	2 - 8 bar	2 - 8 bar	-	-	-	-
Operating pressure min/max with spring	-	-	4 - 7 bar	4 - 7 bar	4 - 7 bar	4 - 7 bar
Clamping time (s)	0,03	0,03	0,02	0,02	0,04	0,04
Opening time (s)	0,03	0,03	0,04	0,04	0,02	0,02
Air consumption per cycle (cm^3)	10	10	10	10	10	10
Max allowable length of jaw (mm)	90	85	85	80	85	80
	Pneumatic					
Operating pressure	3 - 10 bar					
Cylinder	double-acting					
Dynamic seals	NBR seals with interior lubrication					
	Required valves					
Double-acting	5 paths, 2 positions					
Single-action (options GA or GI)	3 paths, 2 positions					
	Air quality					
Air filtration	40 µ or better					
Air lubrication	not necessary*					
Humidity	low (dry)					
	Operating temperatures					
NBR seals (standard)	-30°C to +80°C					
FKM seals (optional)	-20°C to +150°C					
	Maintenance / Expected service life					
With normal use	5 million cycles					
With preventive maintenance	10 million cycles					
Seal set available	Yes					

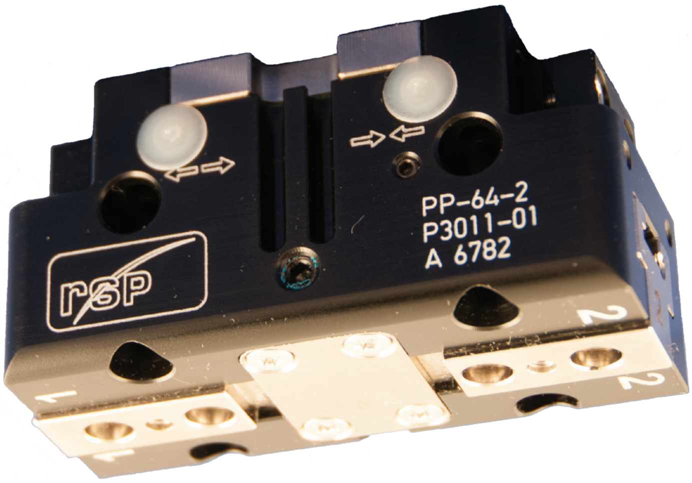
* Preventive maintenance considerably increases service life

Options	Article Number	Description
PP-AB-ST-64	P3041-0S	Jaw blank (set) steel*
PP-AB-AL-64	P3041-0A	Jaw blank (set) aluminium**
SAD-PP-64	P3053-11	Protective cover
DSV-G1/8	P3053-00	Pressure maintenance valve
DLV-M5	P3053-01	Compressed air connection M5
INS-M8x1x30,5	P3053-06	Inductive proximity switch
MFS-03	P3053-08	Magnetic field sensors 03

***Jaw dimensions see page 52**

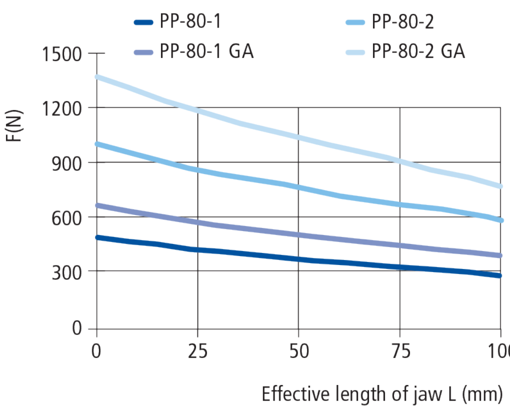
****Jaw dimensions see page 53**

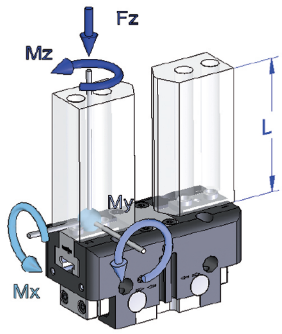
Precision parallel gripper PP-80



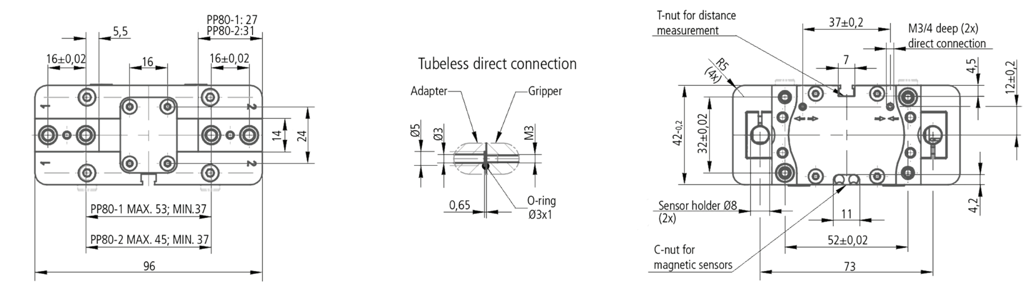
Clamping force diagram - exterior gripping	Max. load on gripper and jaw

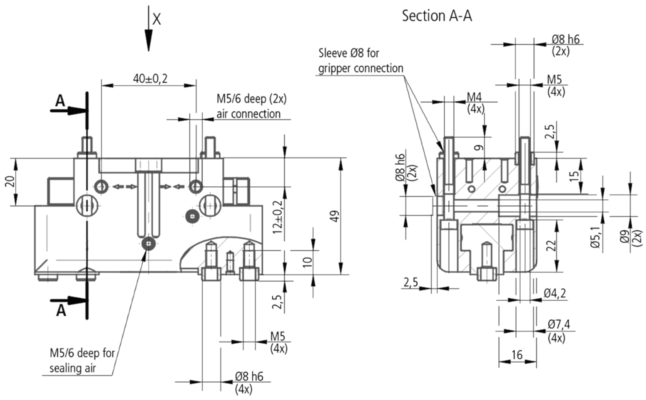
Total gripping force F(N) at 6 bar

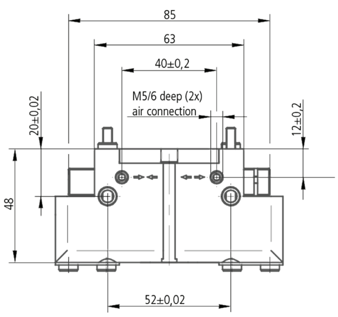




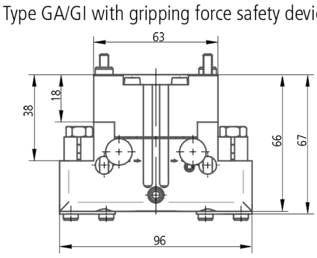
Max. moment	Mx:	max. 60 Nm
Max. moment	My:	max. 95 Nm
Max. moment	Mz:	max. 55 Nm
Max. pressure load	Fz:	max. 1500 N







Type GA/GI with gripping force safety device



Type	PP-80-1	PP-80-2	PP-80-1/GA	PP-80-2/GA	PP-80-1/GI	PP-80-2/GI
Article Number	P3012-00	P3012-01	P3012-02	P3012-03	P3012-04	P3012-05
Weight (kg)	0,6	0,6	0,7	0,7	0,7	0,7
Total stroke (mm)	16	8	16	8	16	8
Gripping force at 6 bar	450 N	860 N	610 N	1160 N	650 N	1260 N
Max gripping force (N)	450	860	450	860	450	860
Recommended work-piece weight (kg)	2,2	4,3	2,2	4,3	2,2	4,3
Gripping force maintained by safety device	-	-	160 N	300 N	160 N	300 N
Operating pres-sure min/max without spring	2 - 8 bar	2 - 8 bar	-	-	-	-
Operating pressure min/max with spring	-	-	4 - 7 bar	4 - 7 bar	4 - 7 bar	4 - 7 bar
Clamping time (s)	0,04	0,04	0,03	0,03	0,05	0,05
Opening time (s)	0,04	0,04	0,05	0,05	0,03	0,03
Air consumption per cycle (cm³)	21	21	21	21	21	21
Max allowable length of jaw (mm)	110	105	105	100	105	100
	Pneumatic					
Operating pressure	3 - 10 bar					
Cylinder	double-acting					
Dynamic seals	NBR seals with interior lubrication					
	Required valves					
Double-acting	5 paths, 2 positions					
Single-action (options GA or GI)	3 paths, 2 positions					
	Air quality					
Air filtration	40 µ or better					
Air lubrication	not necessary*					
Humidity	low (dry)					
	Operating temperatures					
NBR seals (standard)	-30°C to +80°C					
FKM seals (optional)	-20°C to +150°C					
	Maintenance / Expected service life					
With normal use	5 million cycles					
With preventive maintenance	10 million cycles					
Seal set available	Yes					

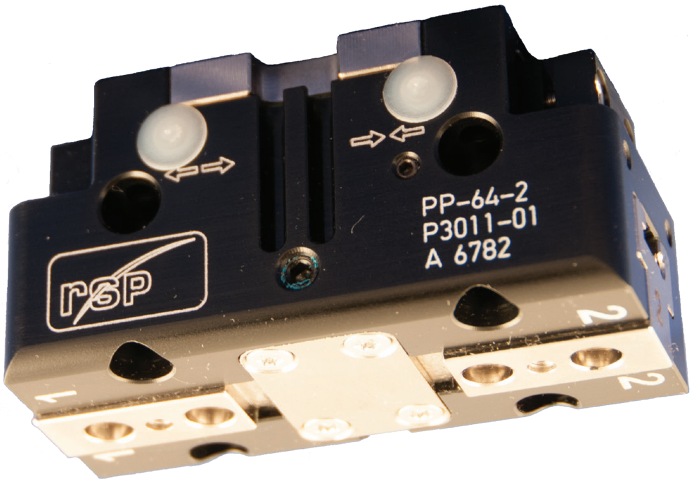
* Preventive maintenance considerably increases service life

Options	Article Number	
PP-AB-ST-80	P3042-0S	Jaw blank (set) steel*
PP-AB-AL-80	P3042-0A	Jaw blank (set) aluminium**
SAD-PP-80	P3053-12	Protective cover
DSV-G1/8	P3053-00	Pressure maintenance
DLV-M5	P3053-01	Compressed air connection M5
INS-M8x1x30,5	P3053-06	Inductive proximity switch
MFS-03	P3053-08	Magnetic field sensors 03

***Jaw dimensions see page 52**

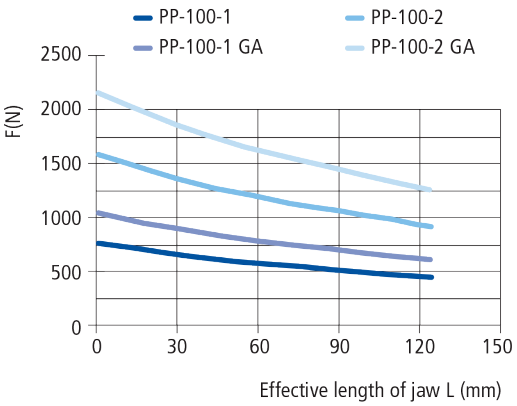
****Jaw dimensions see page 53**

Precision parallel gripper PP-100

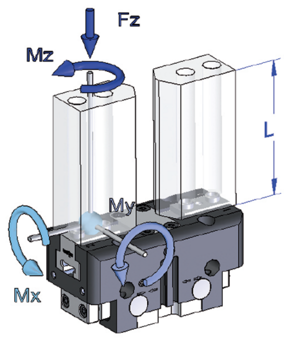


Clamping force diagram - exterior gripping

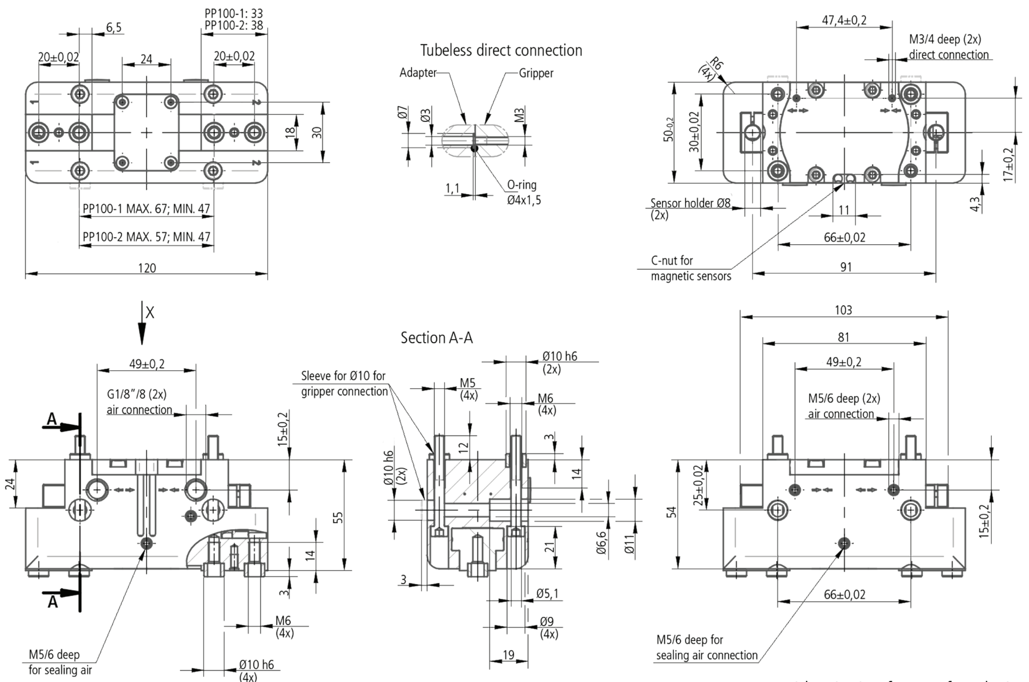
Total gripping force F(N) at 6 bar



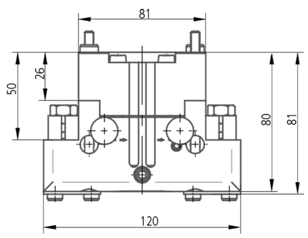
Max. load on gripper and jaw



Max. moment	Mx:	max. 80 Nm
Max. moment	My:	max. 115 Nm
Max. moment	Mz:	max. 70 Nm
Max. pressure load	Fz:	max. 2000 N



Type GA/GI with gripping force safety device



Type	PP-100-1	PP-100-2	PP-100-1/GA	PP-100-2/GA	PP-100-1/GI	PP-100-2/GI
Article Number	3013-00	P3013-01	P3013-02	P3013-03	P3013-04	P3013-05
Weight (kg)	0,9	0,9	1,1	1,1	1,1	1,1
Total stroke (mm)	20	10	20	10	20	10
Gripping force at 6 bar	700 N	1400 N	960 N	1850 N	1000 N	1900 N
Max gripping force (N)	700	1400	700	1400	700	1400
Recommended work-piece weight (kg)	3,5	7,0	3,5	7,0	3,5	7,0
Gripping force maintained by safety device	-	-	260 N	500 N	260 N	450 N
Operating pres-sure min/max without spring	2 - 8 bar	2 - 8 bar	-	-	-	-
Operating pressure min/max with spring	-	-	4 - 7 bar	4 - 7 bar	4 - 7 bar	4 - 7 bar
Clamping time (s)	0,07	0,07	0,05	0,05	0,09	0,09
Opening time (s)	0,07	0,07	0,09	0,09	0,05	0,05
Air consumption per cycle (cm³)	40	40	40	40	40	40
Max allowable length of jaw (mm)	145	135	135	125	135	125
	Pneumatic					
Operating pressure	3 - 10 bar					
Cylinder	double-acting					
Dynamic seals	NBR seals with interior lubrication					
	Required valves					
Double-acting	5 paths, 2 positions					
Single-action (options GA or GI)	3 paths, 2 positions					
	Air quality					
Air filtration	40 µ or better					
Air lubrication	not necessary*					
Humidity	low (dry)					
	Operating temperatures					
NBR seals (standard)	-30°C to +80°C					
FKM seals (optional)	-20°C to +150°C					
	Maintenance / Expected service life					
With normal use	5 million cycles					
With preventive maintenance	10 million cycles					
Seal set available	Yes					

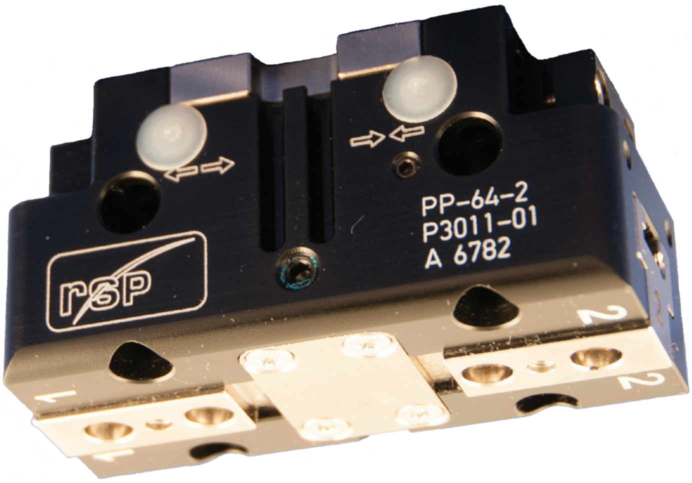
* Preventive maintenance considerably increases service life

Options	Article Number	Description
PP-AB-ST-100	P3043-0S	Jaw blank (set) steel*
PP-AB-AL-100	P3043-0A	Jaw blank (set) aluminium**
SAD-PP-100	P3053-13	Protective cover
DSV-G1/8	P3053-00	Pressure maintenance
DLV-1/8	P3053-03	Compressed air connection 1/8
INS-M8x1x30,5	P3053-06	Inductive proximity switch
MFS-03	P3053-08	Magnetic field sensors 03

*Jaw dimensions see page 52

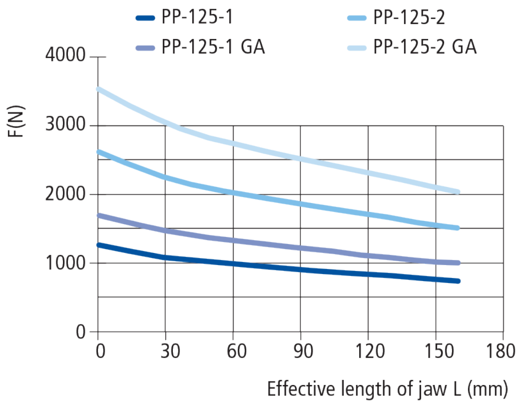
**Jaw dimensions see page 53

Precision parallel gripper PP-125

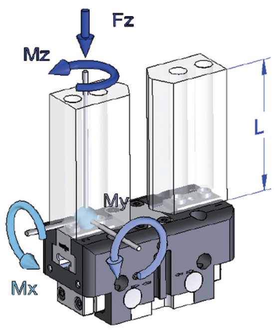


Clamping force diagram - exterior gripping

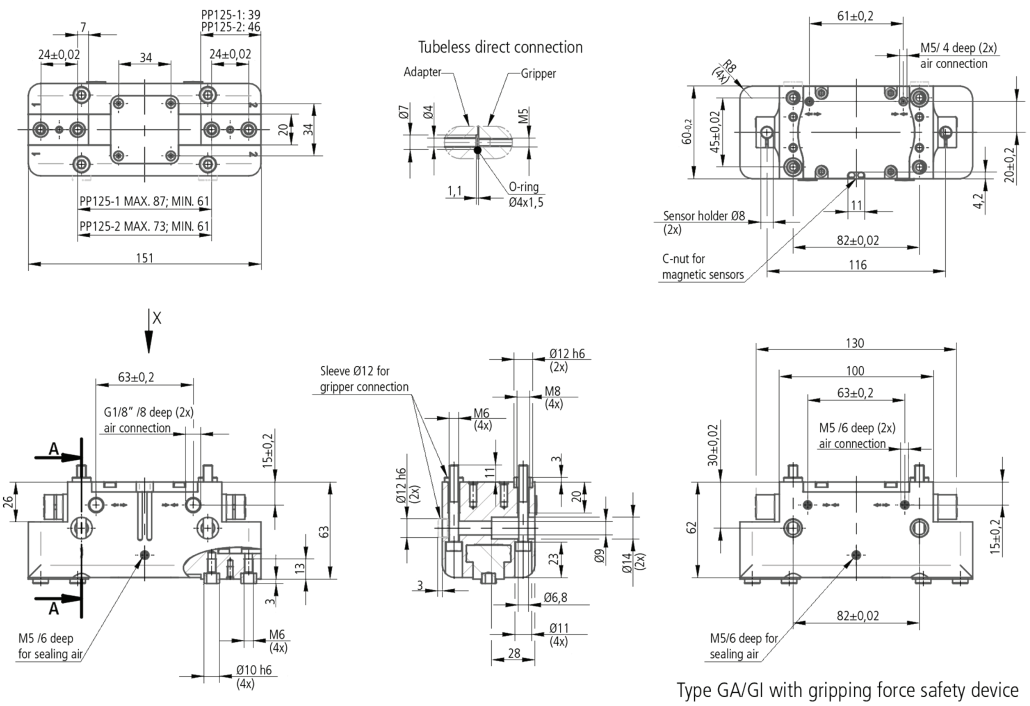
Total gripping force F(N) at 6 bar



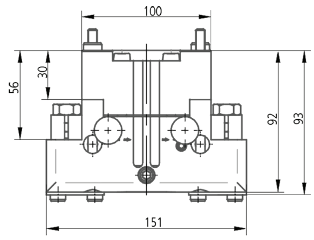
Max. load on gripper and jaw



Max. moment	Mx:	max. 120 Nm
Max. moment	My:	max. 145 Nm
Max. moment	Mz:	max. 100 Nm
Max. pressure load	Fz:	max. 2800 N



Type GA/GI with gripping force safety device



Type	PP-125-1	PP-125-2	PP-125-1/GA	PP-125-2/GA	PP-125-1/GI	PP-125-2/GI
Article Number	P3014-00	P3014-01	P3014-02	P3014-03	P3014-04	P3014-05
Weight (kg)	1,5	1,5	1,9	1,9	1,9	1,9
Total stroke (mm)	26	12	26	12	26	12
Gripping force at 6 bar	1200 N	2400 N	1550 N	3450 N	1600 N	3200 N
Max gripping force (N)	1200	2400	1200	2400	1200	2400
Recommended work-piece weight (kg)	6,0	12,0	6,0	12,0	6,0	12,0
Gripping force maintained by safety device	-	-	350 N	750 N	350 N	750 N
Operating pres-sure min/max without spring	2 - 8 bar	2 - 8 bar	-	-	-	-
Operating pressure min/max with spring	-	-	4 - 7 bar	4 - 7 bar	4 - 7 bar	4 - 7 bar
Clamping time (s)	0,1	0,1	0,08	0,08	0,12	0,12
Opening time (s)	0,1	0,1	0,12	0,12	0,08	0,08
Air consumption per cycle (cm^3)	80	80	80	80	80	80
Max allowable length of jaw (mm)	180	170	170	160	170	160
	Pneumatic					
Operating pressure	3 - 10 bar					
Cylinder	double-acting					
Dynamic seals	NBR seals with interior lubrication					
	Required valves					
Double-acting	5 paths, 2 positions					
Single-action (options GA or GI)	3 paths, 2 positions					
	Air quality					
Air filtration	40 µ or better					
Air lubrication	not necessary*					
Humidity	low (dry)					
	Operating temperatures					
NBR seals (standard)	-30°C to +80°C					
FKM seals (optional)	-20°C to +150°C					
	Maintenance / Expected service life					
With normal use	5 million cycles					
With preventive maintenance	10 million cycles					
Seal set available	Yes					

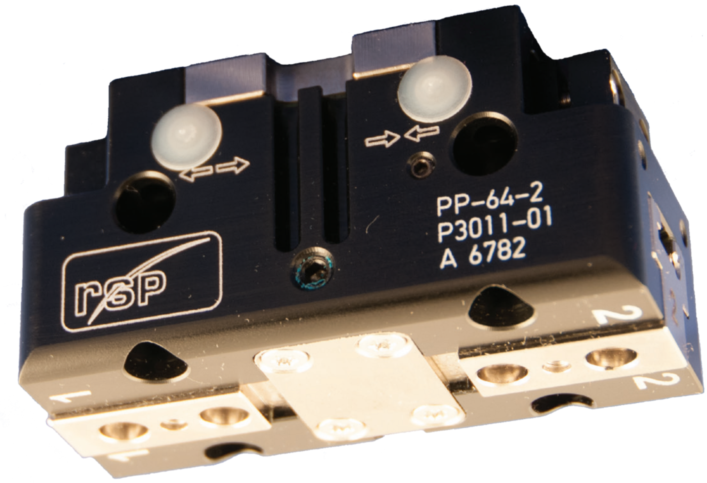
* Preventive maintenance considerably increases service life

Options	Article Number	Description
PP-AB-ST-125	P3044-0S	Jaw blank (set) steel*
PP-AB-AL-125	P3044-0A	Jaw blank (set) aluminium**
SAD-PP-125	P3053-14	Protective cover
DSV-G1/8	P3053-00	Pressure maintenance valve
DLV-1/8	P3053-03	Compressed air connection 1/8
INS-M8x1x46,5	P3053-07	Inductive proximity switch
MFS-03	P3053-08	Magnetic field sensors 03

***Jaw dimensions see page 52**

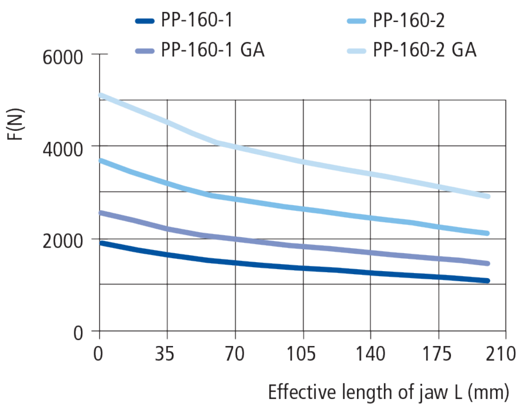
****Jaw dimensions see page 53**

Precision parallel gripper PP-160

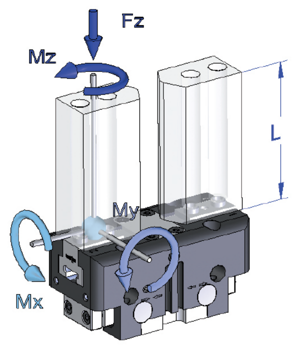


Clamping force diagram - exterior gripping

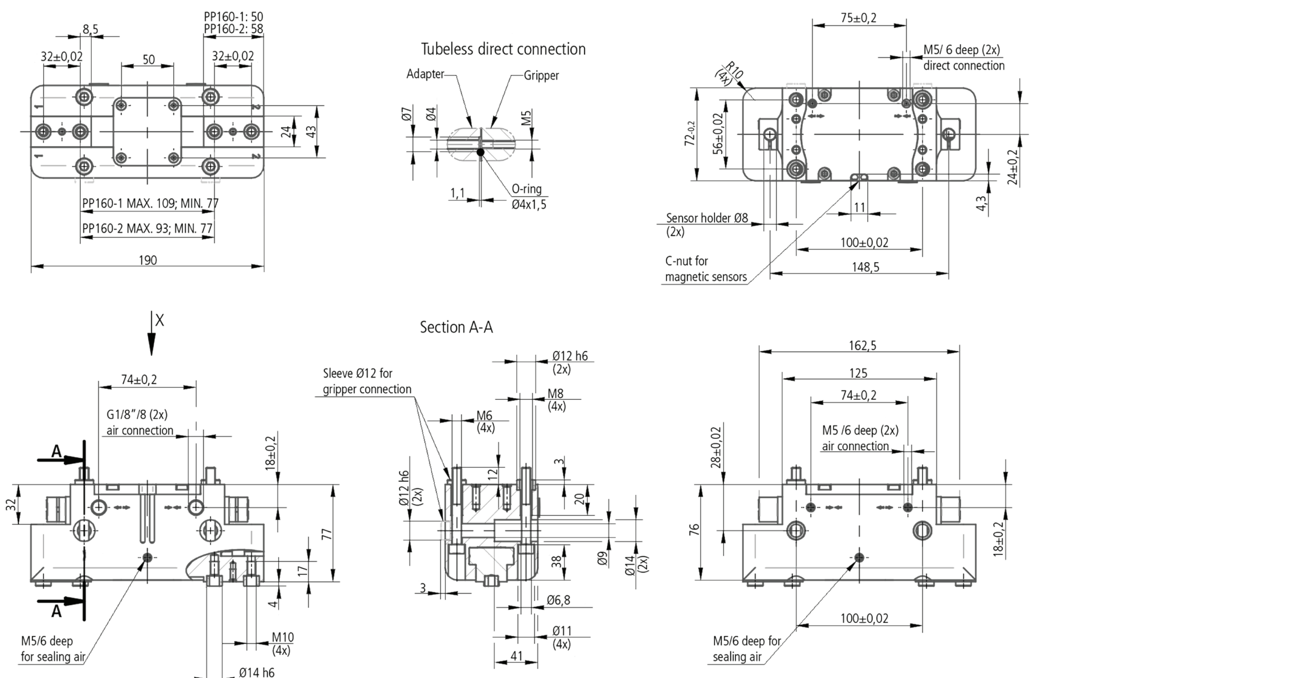
Total gripping force F(N) at 6 bar



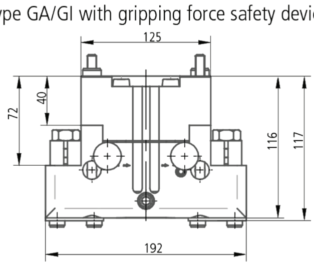
Max. load on gripper and jaw



Max. moment	Mx:	max. 170 Nm
Max. moment	My:	max. 180 Nm
Max. moment	Mz:	max. 130 Nm
Max. pressure load	Fz:	max. 4300 N



Type GA/GI with gripping force safety device



Type	PP-160-1	PP-160-2	PP-160-1/GA	PP-160-2/GA	PP-160-1/GI	PP-160-2/GI
Article Number	P3015-00	P3015-01	P3015-02	P3015-03	P3015-04	P3015-05
Weight (kg)	2,8	2,8	3,6	3,6	3,6	3,6
Total stroke (mm)	32	16	32	16	32	16
Gripping force at 6 bar	1200 N	2400 N	1550 N	3450 N	1600 N	3200 N
Max gripping force (N)	1850	3400	1850	3400	1850	3400
Recommended work-piece weight (kg)	9,0	17,0	9,0	17,0	9,0	17,0
Gripping force maintained by safety device	-	-	550 N	1100 N	550 N	1100 N
Operating pres-sure min/max without spring	2 - 8 bar	2 - 8 bar	-	-	-	-
Operating pressure min/max with spring	-	-	4 - 7 bar	4 - 7 bar	4 - 7 bar	4 - 7 bar
Clamping time (s)	0,15	0,15	0,12	0,12	0,25	0,25
Opening time (s)	0,15	0,15	0,25	0,25	0,12	0,12
Air consumption per cycle (cm³)	160	160	160	160	160	160
Max allowable length of jaw (mm)	220	210	210	200	210	200
	Pneumatic					
Operating pressure	3 - 10 bar					
Cylinder	double-acting					
Dynamic seals	NBR seals with interior lubrication					
	Required valves					
Double-acting	5 paths, 2 positions					
Single-action (options GA or GI)	3 paths, 2 positions					
	Air quality					
Air filtration	40 µ or better					
Air lubrication	not necessary*					
Humidity	low (dry)					
	Operating temperatures					
NBR seals (standard)	-30°C to +80°C					
FKM seals (optional)	-20°C to +150°C					
	Maintenance / Expected service life					
With normal use	5 million cycles					
With preventive maintenance	10 million cycles					
Seal set available	Yes					

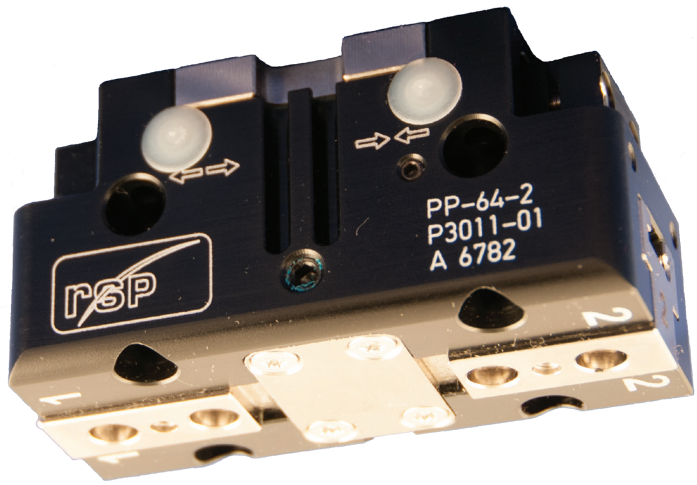
* Preventive maintenance considerably increases service life

Options	Article Number	Description
PP-AB-ST-160	P3045-0S	Jaw blank (set) steel*
PP-AB-AL-160	P3045-0A	Jaw blank (set) aluminium**
SAD-PP-160	P3053-15	Protective cover
DSV-G1/8	P3053-00	Pressure maintenance valve
DLV-1/8	P3053-03	Compressed air connection 1/8
INS-M8x1x46,5	P3053-07	Inductive proximity switch
MFS-03	P3053-08	Magnetic field sensors 03

***Jaw dimensions see page 52**

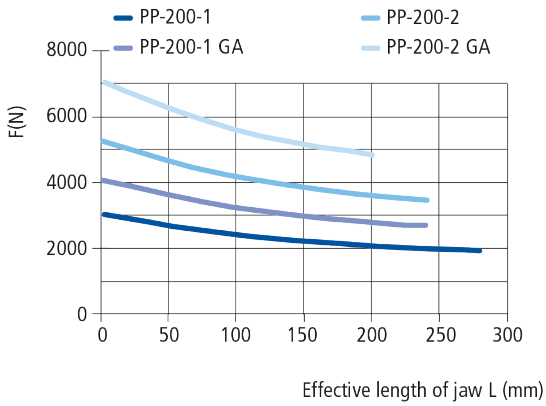
****Jaw dimensions see page 53**

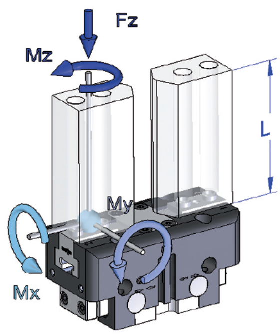
Precision parallel gripper PP-200



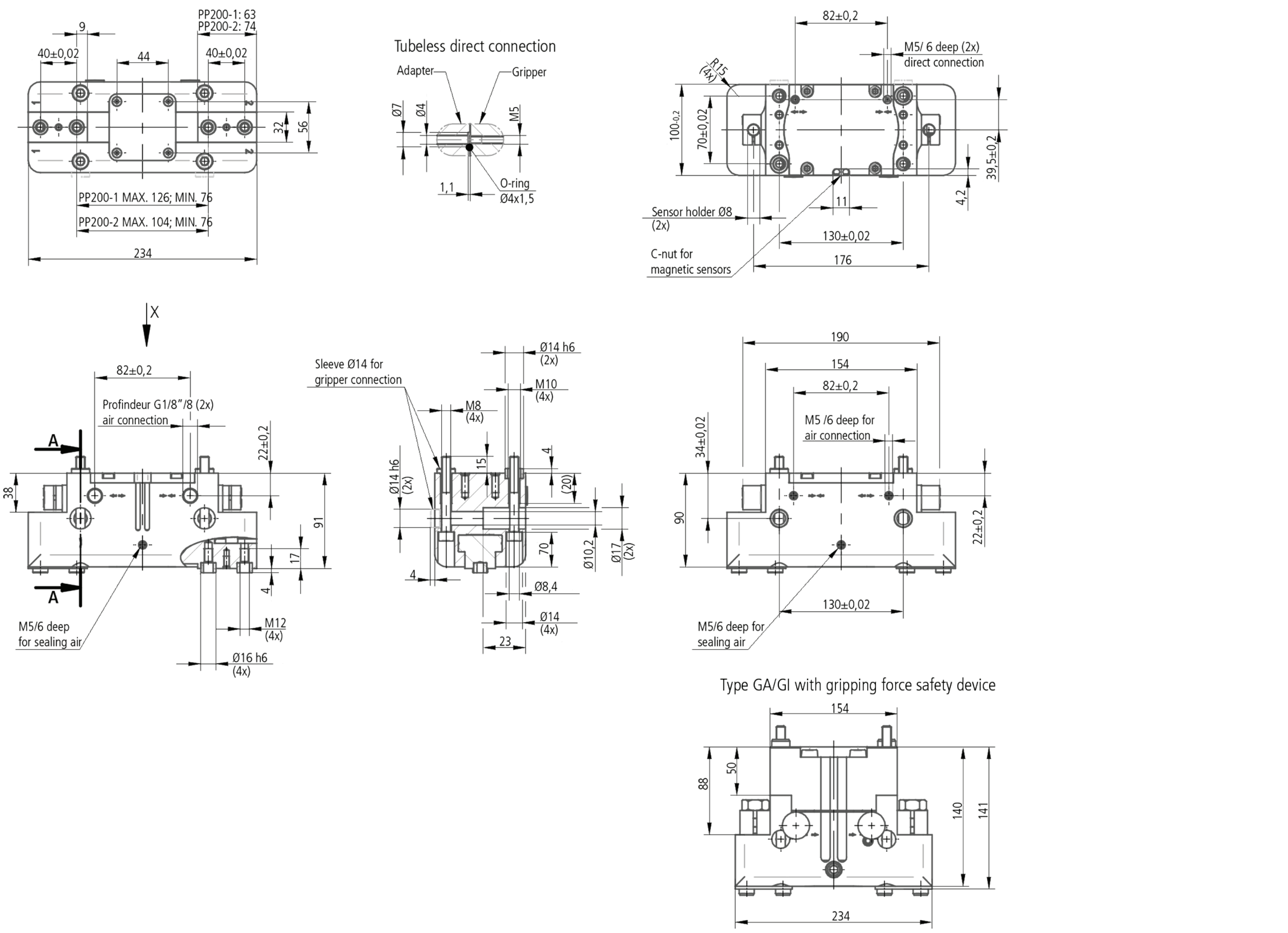
Clamping force diagram - exterior gripping	Max. load on gripper and jaw

Total gripping force F(N) at 6 bar





Max. moment	Mx:	max. 180 Nm
Max. moment	My:	max. 200 Nm
Max. moment	Mz:	max. 140 Nm
Max. pressure load	Fz:	max. 5000 N



Type	PP-200-1	PP-200-2	PP-200-1/GA	PP-200-2/GA	PP-200-1/GI	PP-200-2/GI
Article Number	P3016-00	P3016-01	P3016-02	P3016-03	P3016-04	P3016-05
Weight (kg)	5,5	5,5	7,5	7,5	7,5	7,5
Total stroke (mm)	50	28	50	28	50	28
Gripping force at 6 bar	2800 N	4800 N	3700 N	6300 N	3850 N	6600 N
Max gripping force (N)	2800	4800	2800	4800	2800	4800
Recommended work-piece weight (kg)	14,0	24,0	14,0	24,0	14,0	24,0
Gripping force maintained by safety device	-	-	900 N	1500 N	900 N	1500 N
Operating pres-sure min/max without spring	2 - 8 bar	2 - 8 bar	-	-	-	-
Operating pressure min/max with spring	-	-	4 - 7 bar	4 - 7 bar	4 - 7 bar	4 - 7 bar
Clamping time (s)	0,35	0,35	0,3	0,3	0,6	0,6
Opening time (s)	0,35	0,35	0,6	0,6	0,3	0,3
Air consumption per cycle (cm^3)	390	390	390	390	390	390
Max allowable length of jaw (mm)	280	240	240	200	240	200
	Pneumatic					
Operating pressure	3 - 10 bar					
Cylinder	double-acting					
Dynamic seals	NBR seals with interior lubrication					
	Required valves					
Double-acting	5 paths, 2 positions					
Single-action (options GA or GI)	3 paths, 2 positions					
	Air quality					
Air filtration	40 µ or better					
Air lubrication	not necessary*					
Humidity	low (dry)					
	Operating temperatures					
NBR seals (standard)	-30°C to +80°C					
FKM seals (optional)	-20°C to +150°C					
	Maintenance / Expected service life					
With normal use	5 million cycles					
With preventive maintenance	10 million cycles					
Seal set available	Yes					

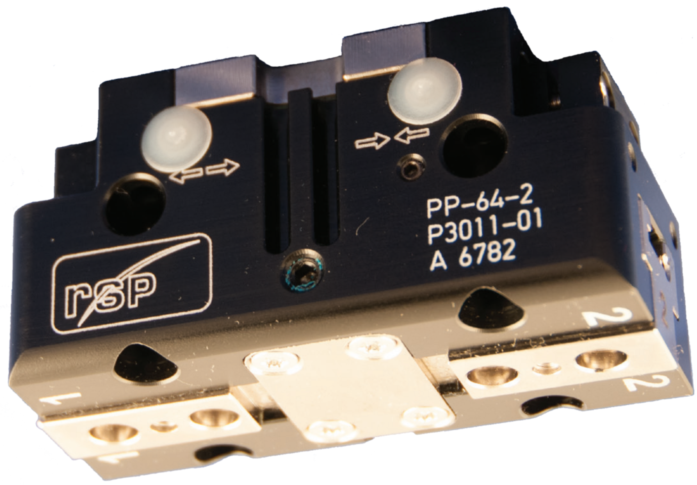
* Preventive maintenance considerably increases service life

Options	Article Number	Description
PP-AB-ST-200	P3046-0S	Jaw blank (set) steel*
PP-AB-AL-200	P3046-0A	Jaw blank (set) aluminium**
SAD-PP-200	P3053-16	Protective cover
DSV-G1/8	P3053-00	Pressure maintenance valve
DLV-1/8	P3053-03	Compressed air connection 1/8
INS-M8x1x46,5	P3053-07	Inductive proximity switch
MFS-03	P3053-08	Magnetic field sensors 03

***Jaw dimensions see page 52**

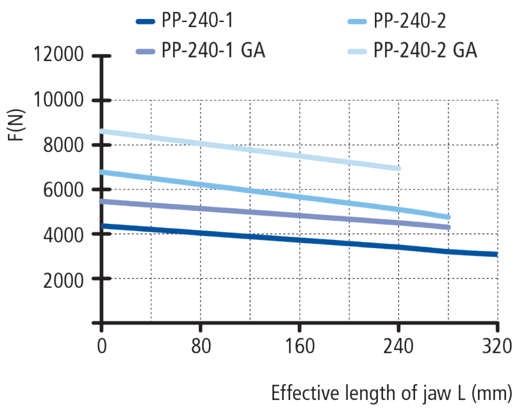
****Jaw dimensions see page 53**

Precision parallel gripper PP-240

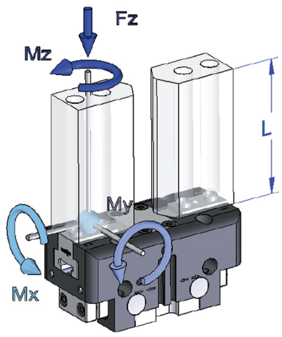


Clamping force diagram - exterior gripping

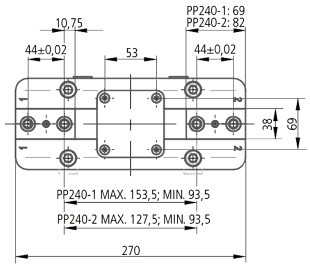
Total gripping force F(N) at 6 bar



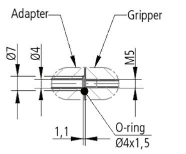
Max. load on gripper and jaw

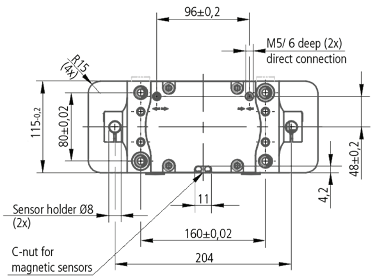


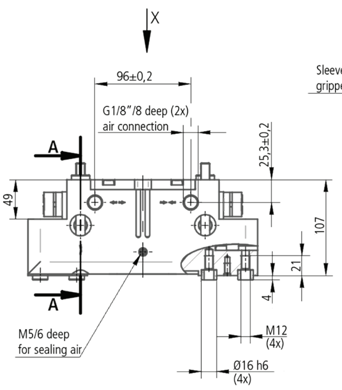
Max. moment	Mx:	max. 260 Nm
Max. moment	My:	max. 250 Nm
Max. moment	Mz:	max. 160 Nm
Max. pressure load	Fz:	max. 6200 N

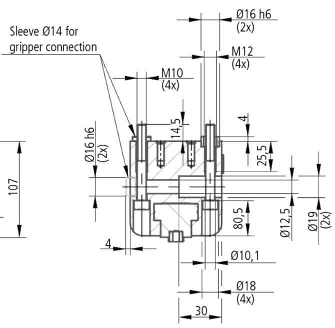


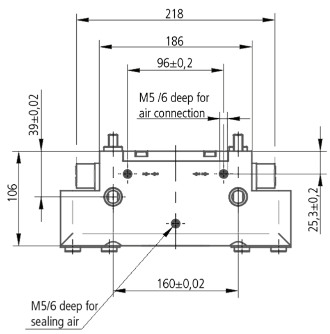
Tubeless direct connection



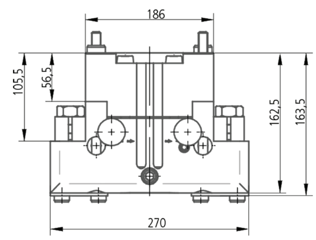








Type GA/GI with gripping force safety device



Type	PP-240-1	PP-240-2	PP-240-1/GA	PP-240-2/GA	PP-240-1/GI	PP-240-2/GI
Article Number	P3017-00	P3017-01	P3017-02	P3017-03	P3017-04	P3017-05
Weight (kg)	9,0	9,0	12,0	12,0	12,0	12,0
Total stroke (mm)	60	34	60	34	60	34
Gripping force at 6 bar	2800 N	4800 N	3700 N	6300 N	3850 N	6600 N
Max gripping force (N)	4200	7000	4200	7000	4200	7000
Recommended work-piece weight (kg)	21,0	35,0	21,0	35,0	21,0	35,0
Gripping force maintained by safety device	-	-	1000 N	1600 N	1000 N	1600 N
Operating pressure min/max without spring	2 - 8 bar	2 - 8 bar	-	-	-	-
Operating pressure min/max with spring	-	-	4 - 7 bar	4 - 7 bar	4 - 7 bar	4 - 7 bar
Clamping time (s)	0,45	0,45	0,35	0,35	0,65	0,65
Opening time (s)	0,45	0,45	0,65	0,65	0,35	0,35
Air consumption per cycle (cm^3)	650	650	650	650	650	650
Max allowable length of jaw (mm)	320	280	280	240	280	240
	Pneumatic					
Operating pressure	3 - 10 bar					
Cylinder	double-acting					
Dynamic seals	NBR seals with interior lubrication					
	Required valves					
Double-acting	5 paths, 2 positions					
Single-action (options GA or GI)	3 paths, 2 positions					
	Air quality					
Air filtration	40 µ or better					
Air lubrication	not necessary*					
Humidity	low (dry)					
	Operating temperatures					
NBR seals (standard)	-30°C to +80°C					
FKM seals (optional)	-20°C to +150°C					
	Maintenance / Expected service life					
With normal use	5 million cycles					
With preventive maintenance	10 million cycles					
Seal set available	Yes					

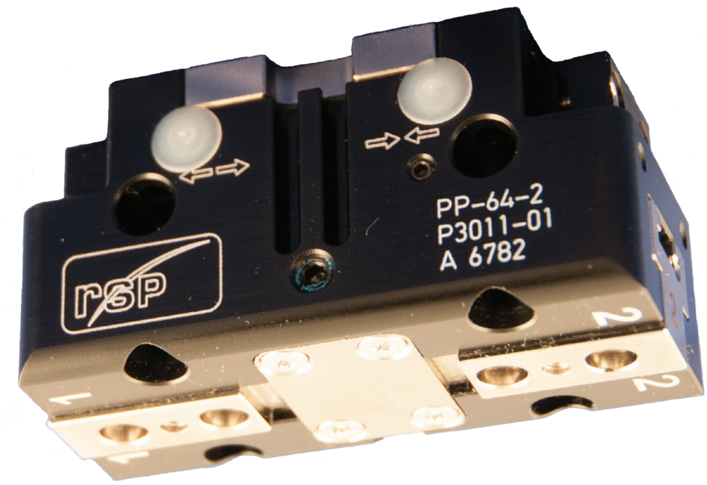
* Preventive maintenance considerably increases service life

Options	Article Number	Description
PP-AB-ST-240	P3047-0S	Jaw blank (set) steel*
PP-AB-AL-240	P3047-0A	Jaw blank (set) aluminium**
SAD-PP-240	P3053-17	Protective cover
DSV-G1/8	P3053-00	Pressure maintenance valve
DLV-1/8	P3053-03	Compressed air connection 1/8
INS-M8x1x46,5	P3053-07	Inductive proximity switch
MFS-03	P3053-08	Magnetic field sensors 03

***Jaw dimensions see page 52**

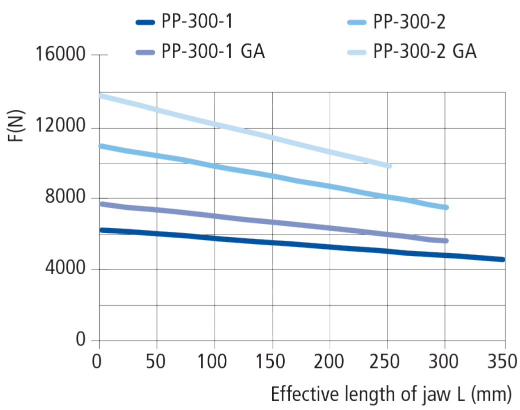
****Jaw dimensions see page 53**

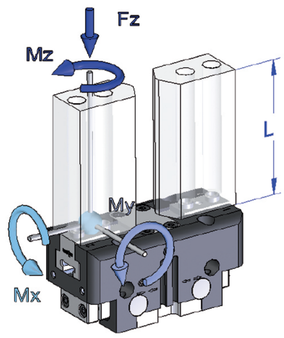
Precision parallel gripper PP-300



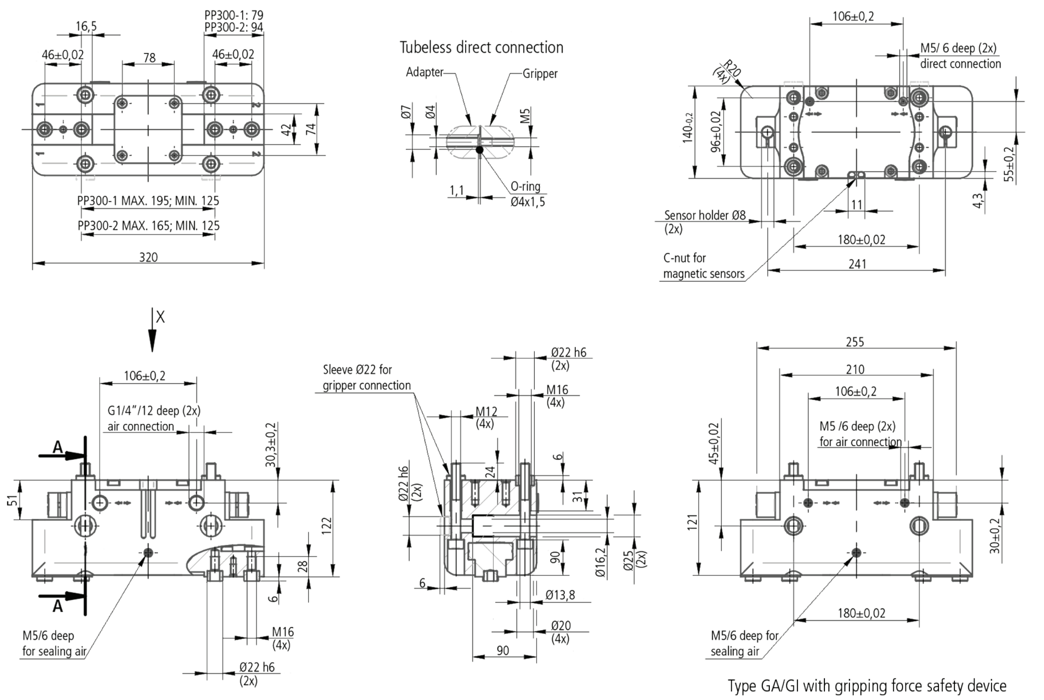
Clamping force diagram - exterior gripping	Max. load on gripper and jaw

Total gripping force F(N) at 6 bar

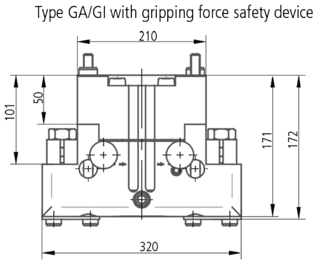




Max. moment	Mx:	max. 400 Nm
Max. moment	My:	max. 400 Nm
Max. moment	Mz:	max. 250 Nm
Max. pressure load	Fz:	max. 8000 N



Type GA/GI with gripping force safety device



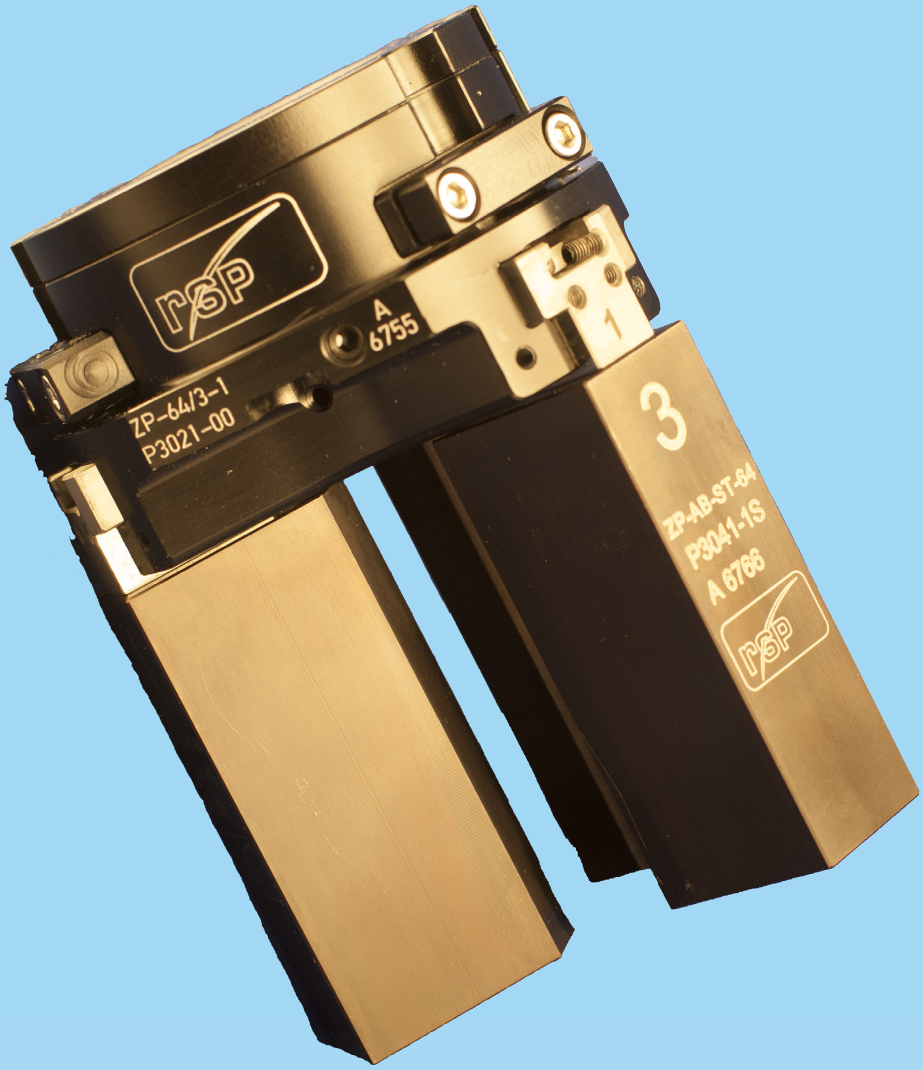
Type	PP-300-1	PP-300-2	PP-300-1/GA	PP-300-2/GA	PP-300-1/GI	PP-300-2/GI
Article Number	P3018-00	P3018-01	P3018-02	P3018-03	P3018-04	P3018-05
Weight (kg)	14,0	14,0	17,0	17,0	17,0	17,0
Total stroke (mm)	70	40	70	40	70	40
Gripping force at 6 bar	6200 N	10300 N	7500 N	12500 N	7500 N	12500 N
Max gripping force (N)	6200	10300	6200	10300	6200	10300
Recommended work-piece weight (kg)	31,0	52,0	31,0	52,0	31,0	52,0
Gripping force maintained by safety device	-	-	1300 N	2200 N	1300 N	2200 N
Operating pres-sure min/max without spring	2 - 8 bar	2 - 8 bar	-	-	-	-
Operating pressure min/max with spring	-	-	4 - 7 bar	4 - 7 bar	4 - 7 bar	4 - 7 bar
Clamping time (s)	0,5	0,5	0,4	0,4	0,7	0,7
Opening time (s)	0,5	0,5	0,7	0,7	0,4	0,4
Air consumption per cycle (cm³)	1040	1040	1040	1040	1040	1040
Max allowable length of jaw (mm)	350	300	300	250	300	250
	Pneumatic					
Operating pressure	3 - 10 bar					
Cylinder	double-acting					
Dynamic seals	NBR seals with interior lubrication					
	Required valves					
Double-acting	5 paths, 2 positions					
Single-action (options GA or GI)	3 paths, 2 positions					
	Air quality					
Air filtration	40 µ or better					
Air lubrication	not necessary*					
Humidity	low (dry)					
	Operating temperatures					
NBR seals (standard)	-30°C to +80°C					
FKM seals (optional)	-20°C to +150°C					
	Maintenance / Expected service life					
With normal use	5 million cycles					
With preventive maintenance	10 million cycles					
Seal set available	Yes					

* Preventive maintenance considerably increases service life

Options	Article Number	Description
PP-AB-ST-300	P3048-0S	Jaw blank (set) steel*
PP-AB-AL-300	P3048-0A	Jaw blank (set) aluminium**
SAD-PP-300	P3053-18	Protective cover
DSV-G1/8	P3053-00	Pressure maintenance valve
DLV-1/4	P3053-02	Compressed air connection 1/4
INS-M8x1x46,5	P3053-07	Inductive proximity switch
MFS-03	P3053-08	Magnetic field sensors 03

***Jaw dimensions see page 52**

****Jaw dimensions see page 53**



Centric gripper ZP

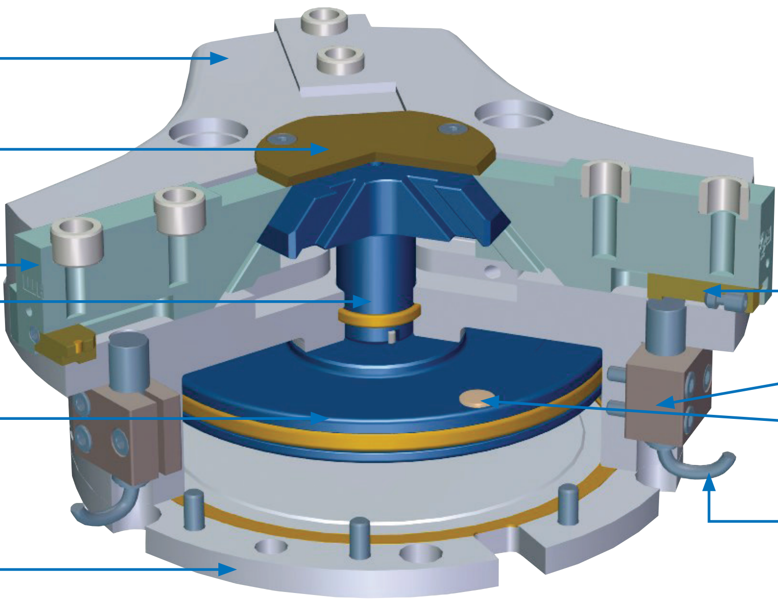
Design Centric gripper ZP

1	Long jaw stroke, normal gripping force
2	Normal jaw stroke, high gripping force
GA	Integrated springs as gripping force safety device for exterior tension, thus increased gripping force
GI	Integrated springs as gripping force safety device for interior tension, thus increased gripping force

3-jaw centric gripper ZP pneumatic control

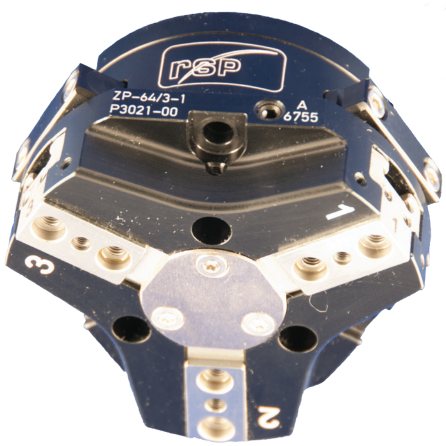
Operating principle of a centric gripper

Mode of operation

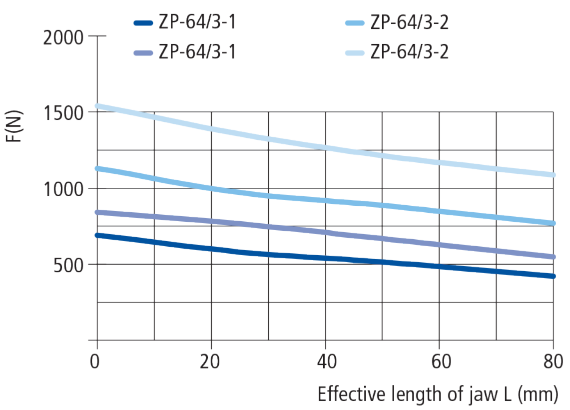


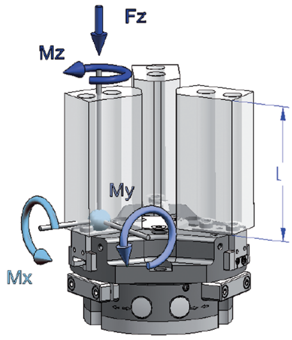
- Tried and tested T-groove gripping guide for master jaw at max. loads
- Fast and efficient gripping
- Centric gripping of round and angular workpieces
- Universal application due to different types of jaws
- Ideal for series production
- All sizes available with 2 different stroke lengths
- Gripping pressure controlled by change of pressure
- Constant clamping force at a constant pressure and thus high clamping precision
- Compact and ergonomic design
- Sealing air connection to prevent contamination
- Gripper can be mounted on one side of the gripper
- Inductive or magnetic position sensors
- Screw connection or direct connection to compressed air
- Gripping force safety device as a special type for exterior or interior gripping
- Simple interface master jaw / top jaw with 2 centring sleeves and 2 screw threads

3-jaw centric gripper ZP-64

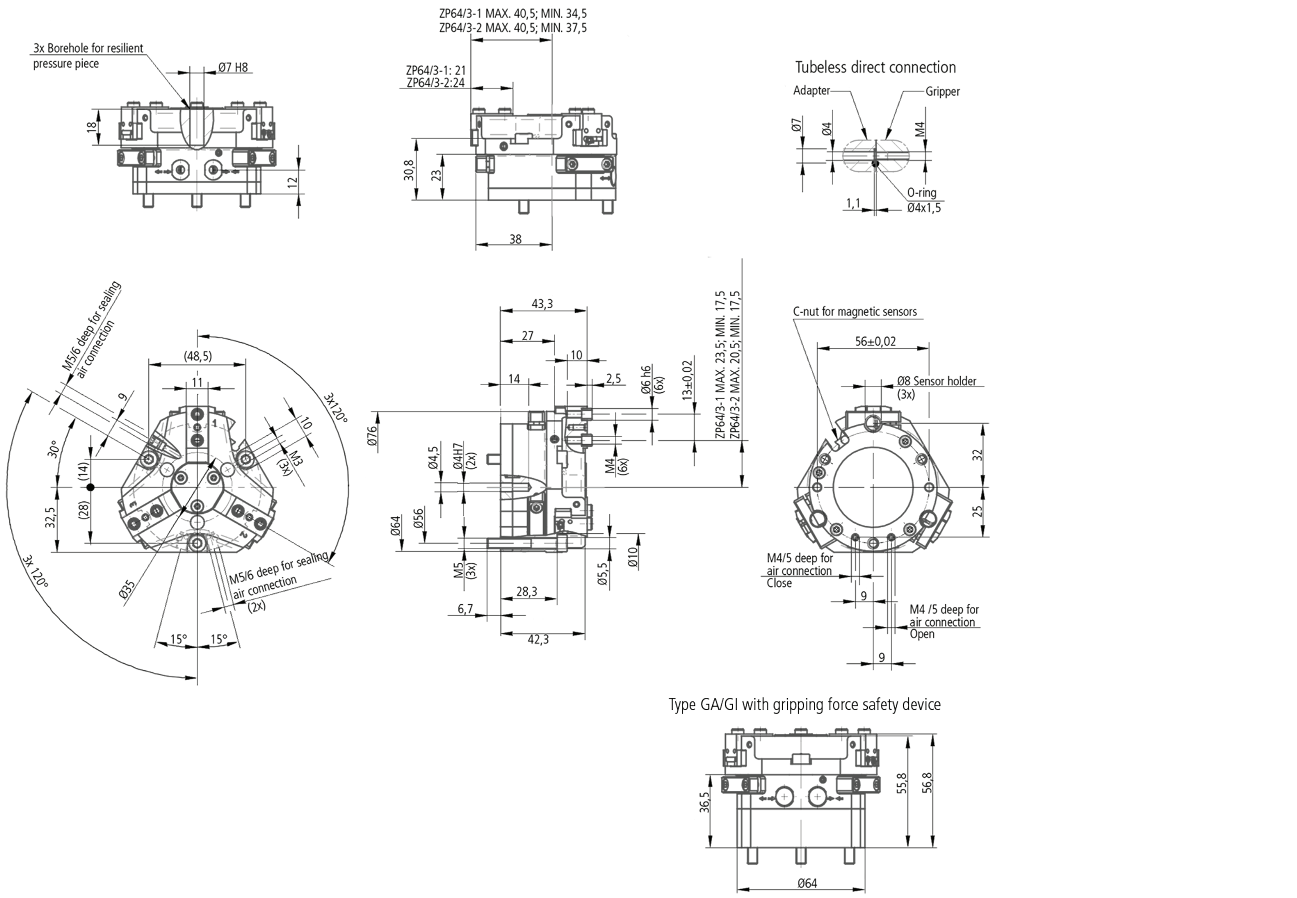


Clamping force diagram - exterior gripping	Max. load on gripper and jaw
Total gripping force F(N) at 6 bar	





Max. moment	Mx:	max. 40 Nm
Max. moment	My:	max. 60 Nm
Max. moment	Mz:	max. 40 Nm
Max. pressure load	Fz:	max. 1100 N



Centric gripper ZP

Type	ZP-64/3-1	ZP-64/3-2	ZP-64/3-1 GA	ZP-64/3-2 GA	ZP-64/3/1 GI	ZP-64/3-2 GI
Article Number	P3021-00	P3021-01	P3021-02	P3021-03	P3021-04	P3021-05
Weight (kg)	0,45	0,45	0,55	0,55	0,55	0,55
Total stroke (mm)	12	6	12	6	12	6
Gripping force at 6 bar	650 N	1200 N	850 N	1600 N	900 N	1700 N
Max gripping force (N)	650	1200	650	1200	650	1200
Recommended work-piece weight (kg)	3,2	6,0	3,2	6,0	3,2	6,0
Gripping force maintained by safety device	-	-	200 N	400 N	200 N	400 N
Operating pres-sure min/max without spring	2 - 8 bar	2 - 8 bar	-	-	-	-
Operating pressure min/max with spring	-	-	4 - 7 bar	4 - 7 bar	4 - 7 bar	4 - 7 bar
Clamping time (s)	0,03	0,03	0,02	0,02	0,04	0,04
Opening time (s)	0,03	0,03	0,04	0,04	0,02	0,02
Air consumption per cycle (cm^3)	25	25	25	25	25	25
Max allowable length of jaw (mm)	90	85	85	80	85	80
	Pneumatic					
Operating pressure	3 - 10 bar					
Cylinder	double-acting					
Dynamic seals	NBR seals with interior lubrication					
	Required valves					
Double-acting	5 paths, 2 positions					
Single-action (options GA or GI)	3 paths, 2 positions					
	Air quality					
Air filtration	40 µ or better					
Air lubrication	not necessary*					
Humidity	low (dry)					
	Operating temperatures					
NBR seals (standard)	-30°C to +80°C					
FKM seals (optional)	-20°C to +150°C					
	Maintenance / Expected service life					
With normal use	5 million cycles					
With preventive maintenance	10 million cycles					
Seal set available	Yes					

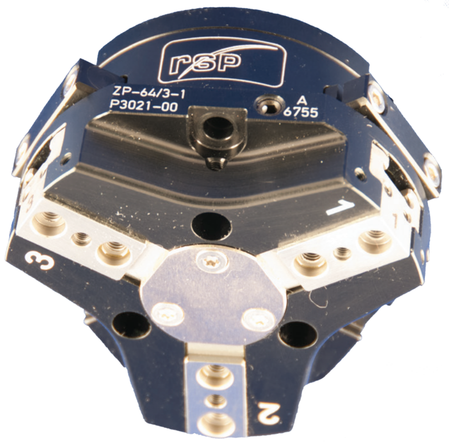
* Preventive maintenance considerably increases service life

Options	Article Number	Description
ZP-AB-ST-64	P3041-1S	Jaw blank (set) steel*
ZP-AB-AL-64	P3041-1A	Jaw blank (set) aluminium**
FAS-ZP-64	P3053-27	Resilient pressure piece
SAD-ZP-64	P3053-19	Protective cover
DSV-G1/8	P3053-00	Pressure maintenance valve
DLV-M5	P3053-01	Compressed air connection M5
INS-M8x1x30,5	P3053-06	Inductive proximity switch
MFS-03	P3053-08	Magnetic field sensors 03

***Jaw dimensions see page 52**

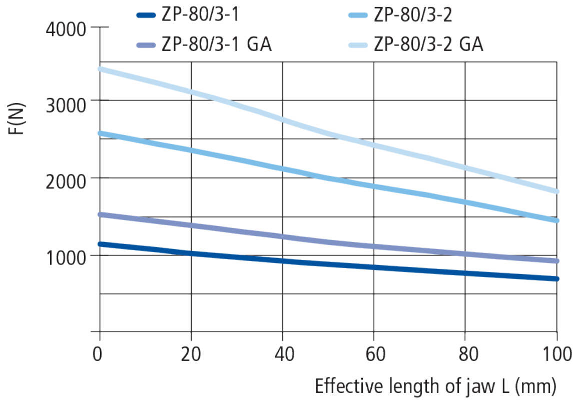
****Jaw dimensions see page 53**

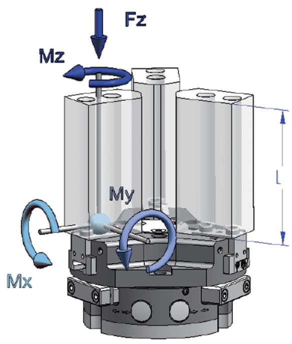
3-jaw centric gripper ZP-80



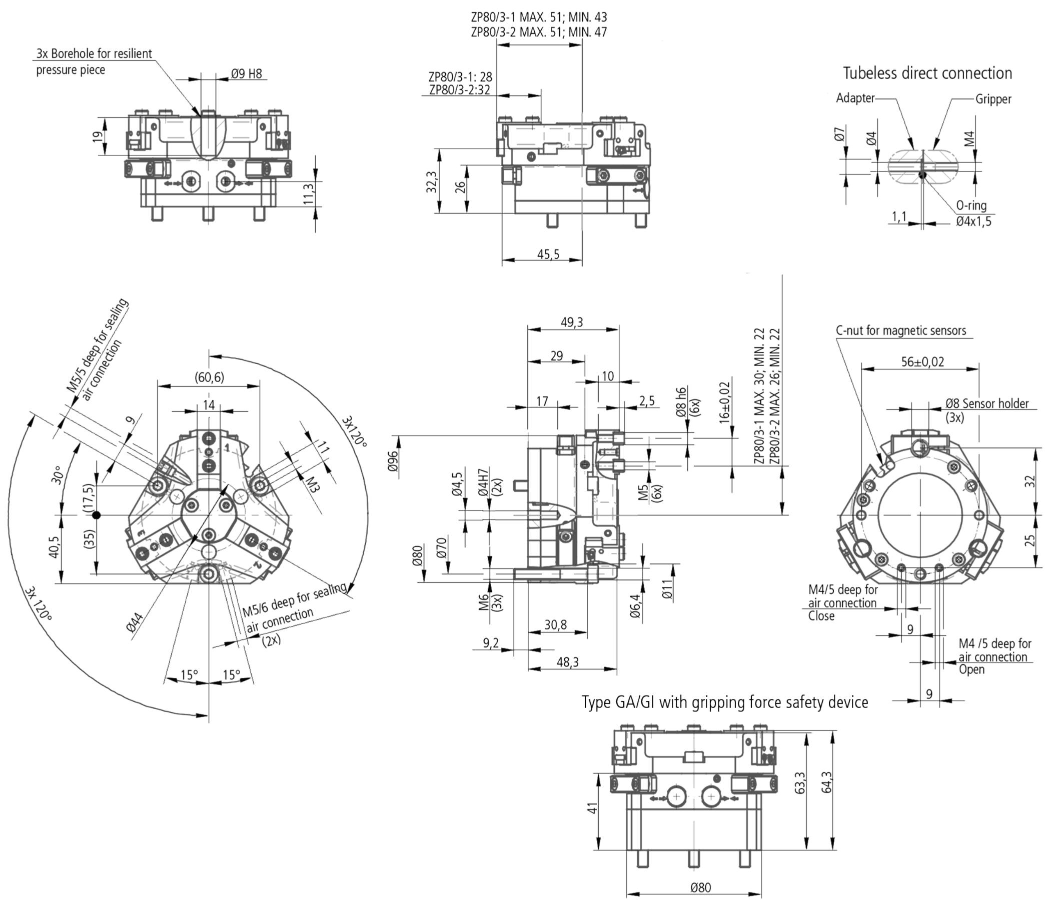
Clamping force diagram - exterior gripping	Max. load on gripper and jaw

Total gripping force F(N) at 6 bar





Max. moment	Mx:	max. 60 Nm
Max. moment	My:	max. 95 Nm
Max. moment	Mz:	max. 55 Nm
Max. pressure load	Fz:	max. 1500 N



Type	ZP-80/3-1	ZP-80/3-2	ZP-80/3-1 GA	ZP-80/3-2 GA	ZP-80/3/1 GI	ZP-80/3-2 GI
Article Number	P3022-00	P3022-01	P3022-02	P3022-03	P3022-04	P3022-05
Weight (kg)	0,8	0,8	1,0	1,0	1,0	1,0
Total stroke (mm)	16	8	16	8	16	8
Gripping force at 6 bar	1200 N	2400 N	1550 N	3100 N	1700 N	3250 N
Max gripping force (N)	1200	2400	1200	2400	1200	2400
Recommended work-piece weight (kg)	6,0	12,0	6,0	12,0	6,0	12,0
Gripping force maintained by safety device	-	-	350 N	700 N	350 N	700 N
Operating pres-sure min/max without spring	2 - 8 bar	2 - 8 bar	-	-	-	-
Operating pressure min/max with spring	-	-	4 - 7 bar	4 - 7 bar	4 - 7 bar	4 - 7 bar
Clamping time (s)	0,05	0,05	0,03	0,03	0,06	0,06
Opening time (s)	0,05	0,05	0,05	0,05	0,04	0,04
Air consumption per cycle (cm^3)	60	60	60	60	60	60
Max allowable length of jaw (mm)	110	105	100	100	105	100
	Pneumatic					
Operating pressure	3 - 10 bar					
Cylinder	double-acting					
Dynamic seals	NBR seals with interior lubrication					
	Required valves					
Double-acting	5 paths, 2 positions					
Single-action (options GA or GI)	3 paths, 2 positions					
	Air quality					
Air filtration	40 µ or better					
Air lubrication	not necessary*					
Humidity	low (dry)					
	Operating temperatures					
NBR seals (standard)	-30°C to +80°C					
FKM seals (optional)	-20°C to +150°C					
	Maintenance / Expected service life					
With normal use	5 million cycles					
With preventive maintenance	10 million cycles					
Seal set available	Yes					

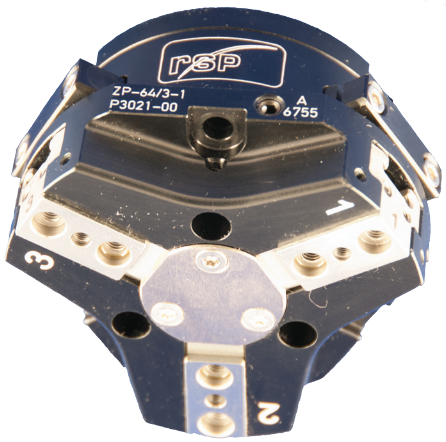
* Preventive maintenance considerably increases service life

Options	Article Number	Description
ZP-AB-ST-80	P3042-1S	Jaw blank (set) steel*
ZP-AB-AL-80	P3042-1A	Jaw blank (set) aluminium**
FAS-ZP-80	P3053-28	Resilient pressure piece
SAD-ZP-80	P3053-20	Protective cover
DSV-G1/8	P3053-00	Pressure maintenance valve
DLV-M5	P3053-01	Compressed air connection M5
INS-M8x1x30,5	P3053-06	Inductive proximity switch
MFS-03	P3053-08	Magnetic field sensors 03

***Jaw dimensions see page 52**

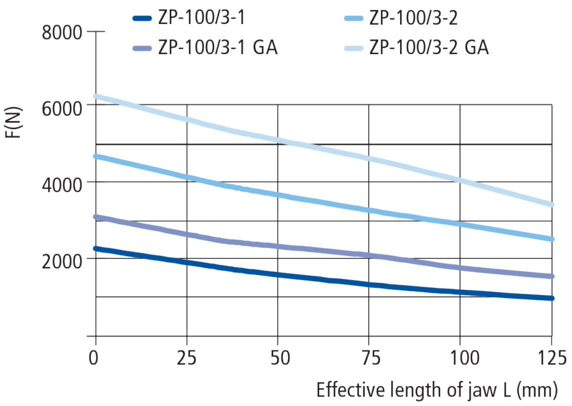
****Jaw dimensions see page 53**

3-jaw centric gripper ZP-100

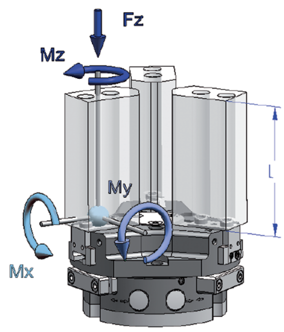


Clamping force diagram - exterior gripping

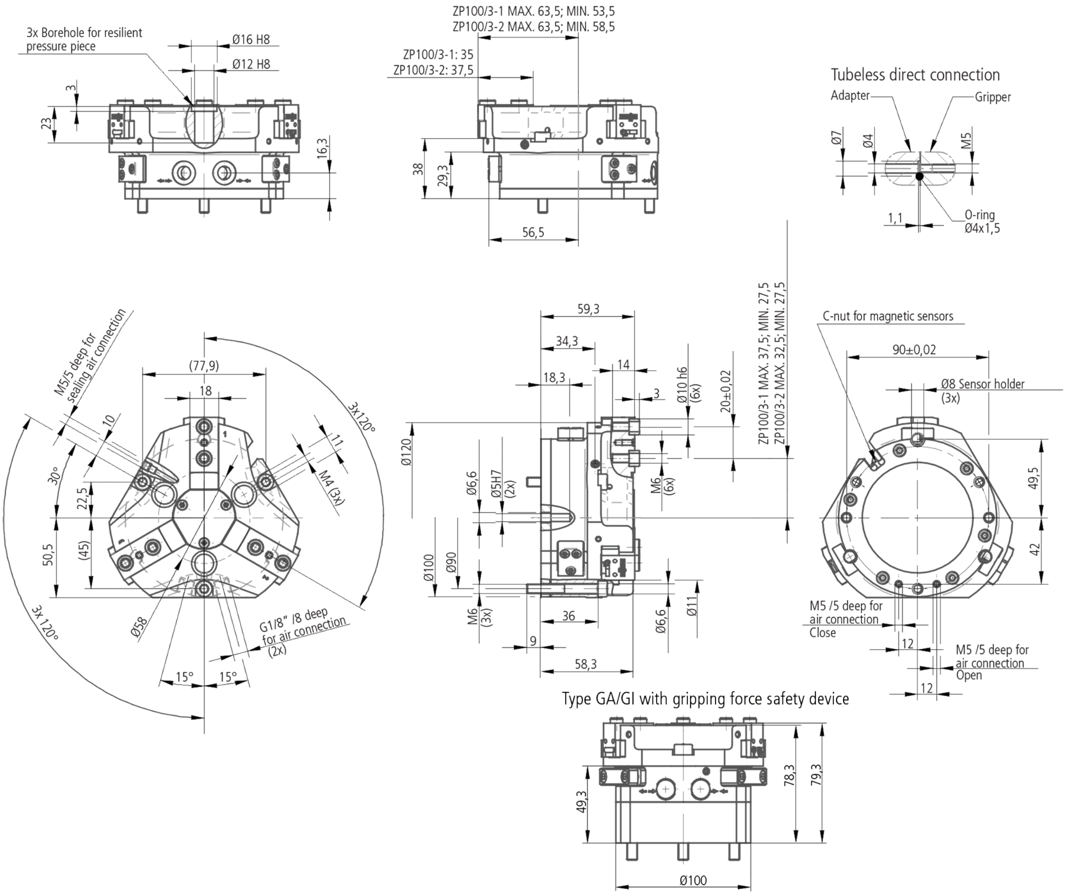
Total gripping force F(N) at 6 bar



Max. load on gripper and jaw



Max. moment	Mx:	max. 80 Nm
Max. moment	My:	max. 115 Nm
Max. moment	Mz:	max. 70 Nm
Max. pressure load	Fz:	max. 2000 N



Type	ZP-100/3-1	ZP-100/3-2	ZP-100/3-1 GA	ZP-100/3-2 GA	ZP-100/3-1 GI	ZP-100/3-2 GI
Article Number	P3023-00	P3023-01	P3023-02	P3023-03	P3023-04	P3023-05
Weight (kg)	1,4	1,4	2,0	2,0	2,0	2,0
Total stroke (mm)	20	10	20	10	20	10
Gripping force at 6 bar	2000 N	4000 N	2650 N	5300 N	2800 N	5620 N
Max gripping force (N)	2000	4000	2000	4000	2000	4000
Recommended work-piece weight (kg)	10,0	20,0	10,0	20,0	10,0	20,0
Gripping force maintained by safety device	-	-	650 N	1300 N	650 N	1300 N
Operating pres-sure min/max without spring	2 - 8 bar	2 - 8 bar	-	-	-	-
Operating pressure min/max with spring	-	-	4 - 7 bar	4 - 7 bar	4 - 7 bar	4 - 7 bar
Clamping time (s)	0,1	0,1	0,1	0,1	0,2	0,2
Opening time (s)	0,1	0,1	0,2	0,2	0,1	0,1
Air consumption per cycle (cm³)	120	120	120	120	120	120
Max allowable length of jaw (mm)	145	135	135	125	135	125
	Pneumatic					
Operating pressure	3 - 10 bar					
Cylinder	double-acting					
Dynamic seals	NBR seals with interior lubrication					
	Required valves					
Double-acting	5 paths, 2 positions					
Single-action (options GA or GI)	3 paths, 2 positions					
	Air quality					
Air filtration	40 µ or better					
Air lubrication	not necessary*					
Humidity	low (dry)					
	Operating temperatures					
NBR seals (standard)	-30°C to +80°C					
FKM seals (optional)	-20°C to +150°C					
	Maintenance / Expected service life					
With normal use	5 million cycles					
With preventive maintenance	10 million cycles					
Seal set available	Yes					

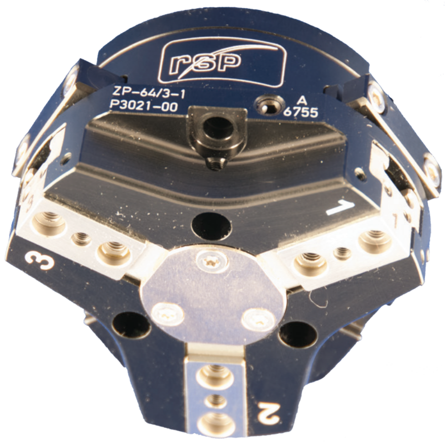
* Preventive maintenance considerably increases service life

Options	Article Number	Description
ZP-AB-ST-100	P3043-1S	Jaw blank (set) steel*
ZP-AB-AL-100	P3043-1A	Jaw blank (set) aluminium**
FAS-ZP-100	P3053-29	Resilient pressure piece
SAD-ZP-100	P3053-21	Protective cover
DSV-G1/8	P3053-00	Pressure maintenance valve
DLV-1/8	P3053-03	Compressed air connection 1/8
INS-M8x1x30,5	P3053-06	Inductive proximity switch
MFS-03	P3053-08	Magnetic field sensors 03

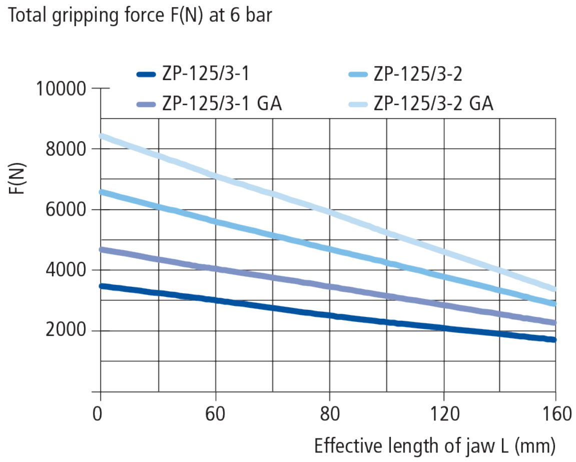
***Jaw dimensions see page 52**

****Jaw dimensions see page 53**

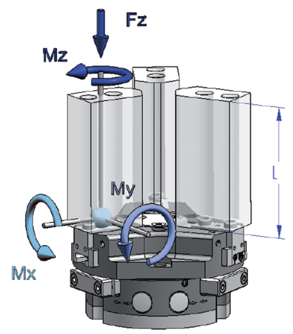
3-jaw centric gripper ZP-125



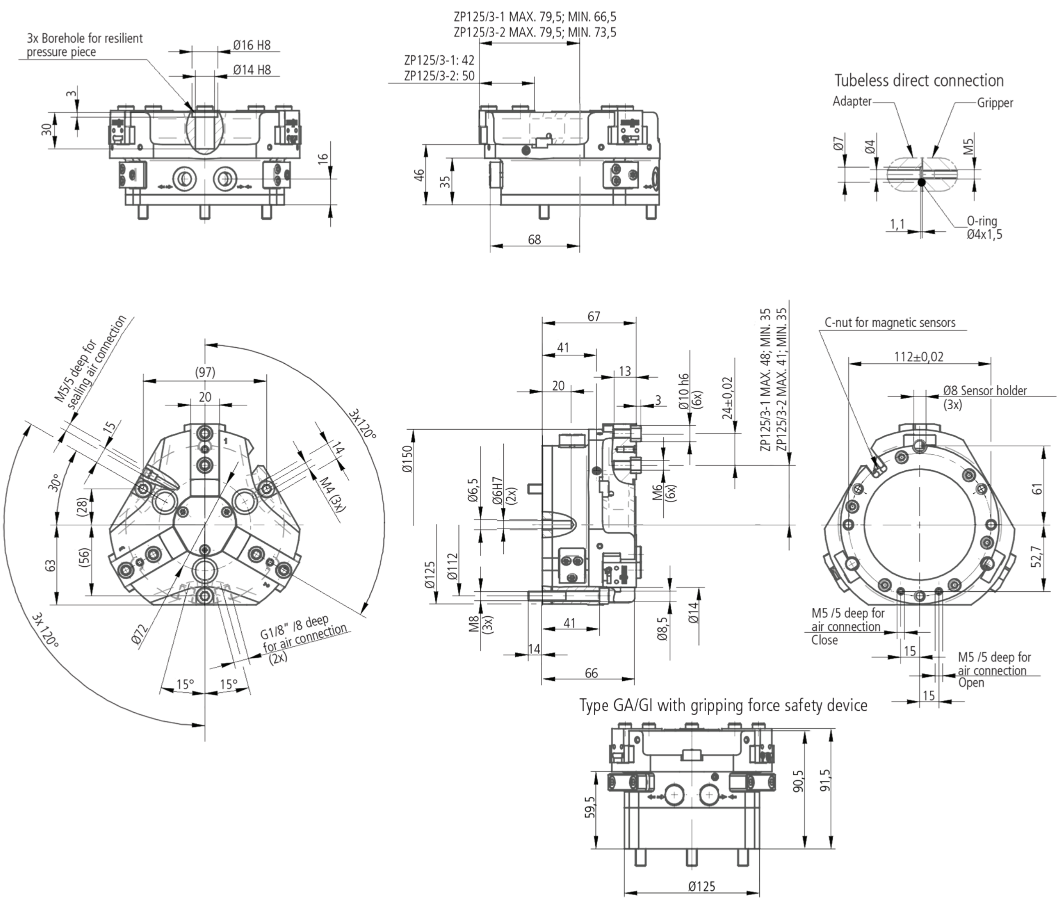
Clamping force diagram - exterior gripping



Max. load on gripper and jaw



Max. moment	Mx:	max. 120 Nm
Max. moment	My:	max. 145 Nm
Max. moment	Mz:	max. 100 Nm
Max. pressure load	Fz:	max. 2800 N



Type	ZP-125/3-1	ZP-125/3-2	ZP-125/3-1 GA	ZP-125/3-2 GA	ZP-125/3-1 GI	ZP-125/3-2 GI
Article Number	P3024-00	P3024-01	P3024-02	P3024-03	P3024-04	P3024-05
Weight (kg)	2,4	2,4	3,2	3,2	3,2	3,2
Total stroke (mm)	26	12	26	12	26	12
Gripping force at 6 bar	3200 N	6000 N	4200 N	7800 N	4400 N	8000 N
Max gripping force (N)	3200	6000	3200	6000	3200	6000
Recommended work-piece weight (kg)	16,0	30,0	16,0	30,0	16,0	30,0
Gripping force maintained by safety device	-	-	650 N	1300 N	650 N	1300 N
Operating pres-sure min/max without spring	2 - 8 bar	2 - 8 bar	2 - 8 b ar	2 - 8 bar	2 - 8 bar	2 - 8 bar
Operating pressure min/max with spring	-	-	4 - 7 bar	4 - 7 bar	4 - 7 bar	4 - 7 bar
Clamping time (s)	0,2	0,2	0,17	0,17	0,35	0,35
Opening time (s)	0,2	0,2	0,35	0,35	0,17	0,17
Air consumption per cycle (cm^3)	230	230	230	230	230	230
Max allowable length of jaw (mm)	180	170	170	160	170	160
	Pneumatic					
Operating pressure	3 - 10 bar					
Cylinder	double-acting					
Dynamic seals	NBR seals with interior lubrication					
	Required valves					
Double-acting	5 paths, 2 positions					
Single-action (options GA or GI)	3 paths, 2 positions					
	Air quality					
Air filtration	40 µ or better					
Air lubrication	not necessary*					
Humidity	low (dry)					
	Operating temperatures					
NBR seals (standard)	-30°C to +80°C					
FKM seals (optional)	-20°C to +150°C					
	Maintenance / Expected service life					
With normal use	5 million cycles					
With preventive maintenance	10 million cycles					
Seal set available	Yes					

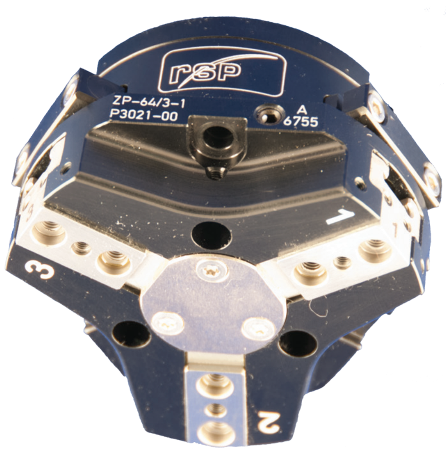
* Preventive maintenance considerably increases service life

Options	Article Number	Description
ZP-AB-ST-125	P3044-1S	Jaw blank (set) steel*
ZP-AB-AL-125	P3044-1A	Jaw blank (set) aluminium**
FAS-ZP-125	P3053-30	Resilient pressure piece
SAD-ZP-125	P3053-22	Protective cover
DSV-G1/8	P3053-00	Pressure maintenance valve
DLV-1/8	P3053-03	Compressed air connection 1/8
INS-M8x1x30,5	P3053-06	Inductive proximity switch
MFS-03	P3053-08	Magnetic field sensors 03

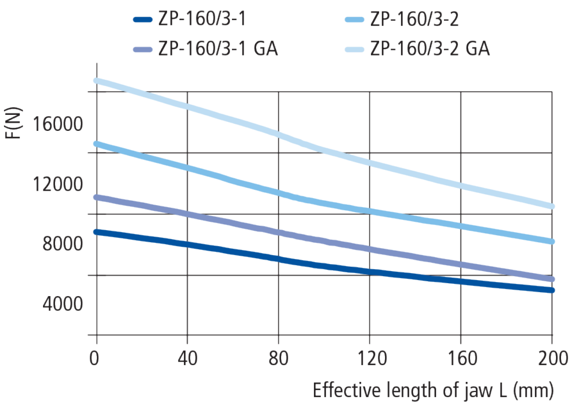
***Jaw dimensions see page 52**

****Jaw dimensions see page 53**

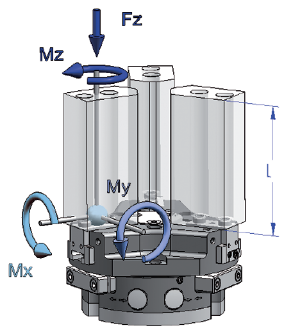
3-jaw centric gripper ZP-160



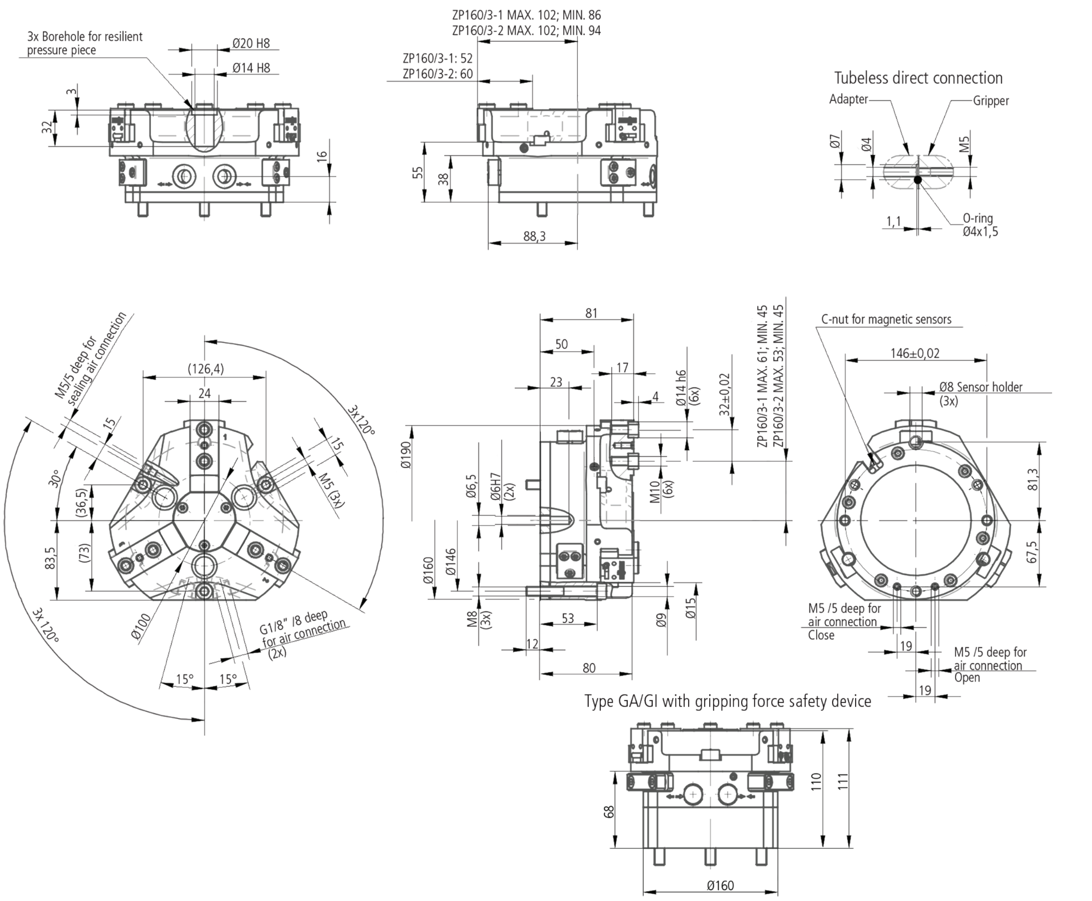
Clamping force diagram - exterior gripping



Max. load on gripper and jaw



Max. moment	Mx:	max. 170 Nm
Max. moment	My:	max. 180 Nm
Max. moment	Mz:	max. 130 Nm
Max. pressure load	Fz:	max. 4300 N



Type	ZP-160/3-1	ZP-160/3-2	ZP-160/3-1 GA	ZP-160/3-2 GA	ZP-160/3-1 GI	ZP-160/3-2 GI
Article Number	P3025-00	P3025-01	P3025-02	P3025-03	P3025-04	P3025-05
Weight (kg)	5,5	5,5	8,0	8,0	8,0	8,0
Total stroke (mm)	32	16	32	16	32	16
Gripping force at 6 bar	6000 N	11000 N	8000 N	15000 N	8500 N	16000 N
Max gripping force (N)	6000	11000	6000	11000	6000	11000
Recommended work-piece weight (kg)	30,0	55,0	30,0	55,0	30,0	55,0
Gripping force maintained by safety device	-	-	2000 N	4000 N	2000 N	4000 N
Operating pres-sure min/max without spring	2 - 8 bar	2 - 8 bar				
Operating pressure min/max with spring	-	-	4 - 7 bar	4 - 7 bar	4 - 7 bar	4 - 7 bar
Clamping time (s)	0,5	0,5	0,4	0,4	0,8	0,8
Opening time (s)	0,5	0,5	0,8	0,8	0,4	0,4
Air consumption per cycle (cm³)	520	520	520	520	520	520
Max allowable length of jaw (mm)	220	210	210	200	200	200
	Pneumatic					
Operating pressure	3 - 10 bar					
Cylinder	double-acting					
Dynamic seals	NBR seals with interior lubrication					
	Required valves					
Double-acting	5 paths, 2 positions					
Single-action (options GA or GI)	3 paths, 2 positions					
	Air quality					
Air filtration	40 µ or better					
Air lubrication	not necessary*					
Humidity	low (dry)					
	Operating temperatures					
NBR seals (standard)	-30°C to +80°C					
FKM seals (optional)	-20°C to +150°C					
	Maintenance / Expected service life					
With normal use	5 million cycles					
With preventive maintenance	10 million cycles					
Seal set available	Yes					

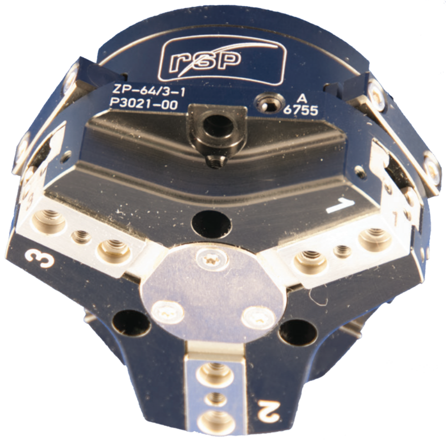
* Preventive maintenance considerably increases service life

Options	Article Number	Description
ZP-AB-ST-160	P3045-1S	Jaw blank (set) steel*
ZP-AB-AL-160	P3045-1A	Jaw blank (set) aluminium**
FAS-ZP-160	P3053-31	Resilient pressure piece
SAD-ZP-160	P3053-23	Protective cover
DSV-G1/8	P3053-00	Pressure maintenance valve
DLV-1/8	P3053-03	Compressed air connection 1/8
INS-M8x1x30,5	P3053-06	Inductive proximity switch
MFS-03	P3053-08	Magnetic field sensors 03

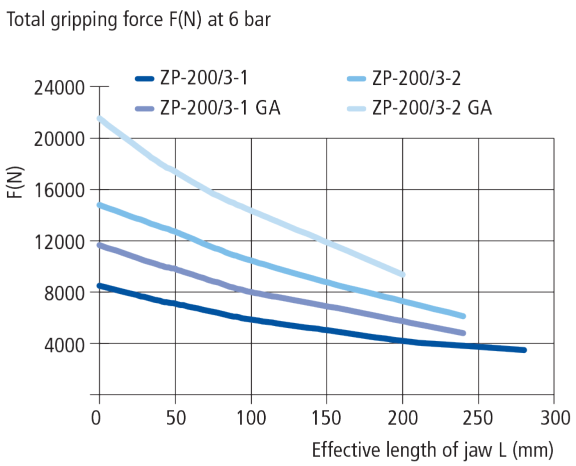
***Jaw dimensions see page 52**

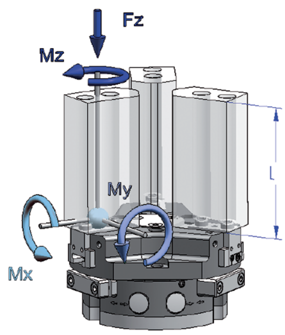
****Jaw dimensions see page 53**

3-jaw centric gripper ZP-200

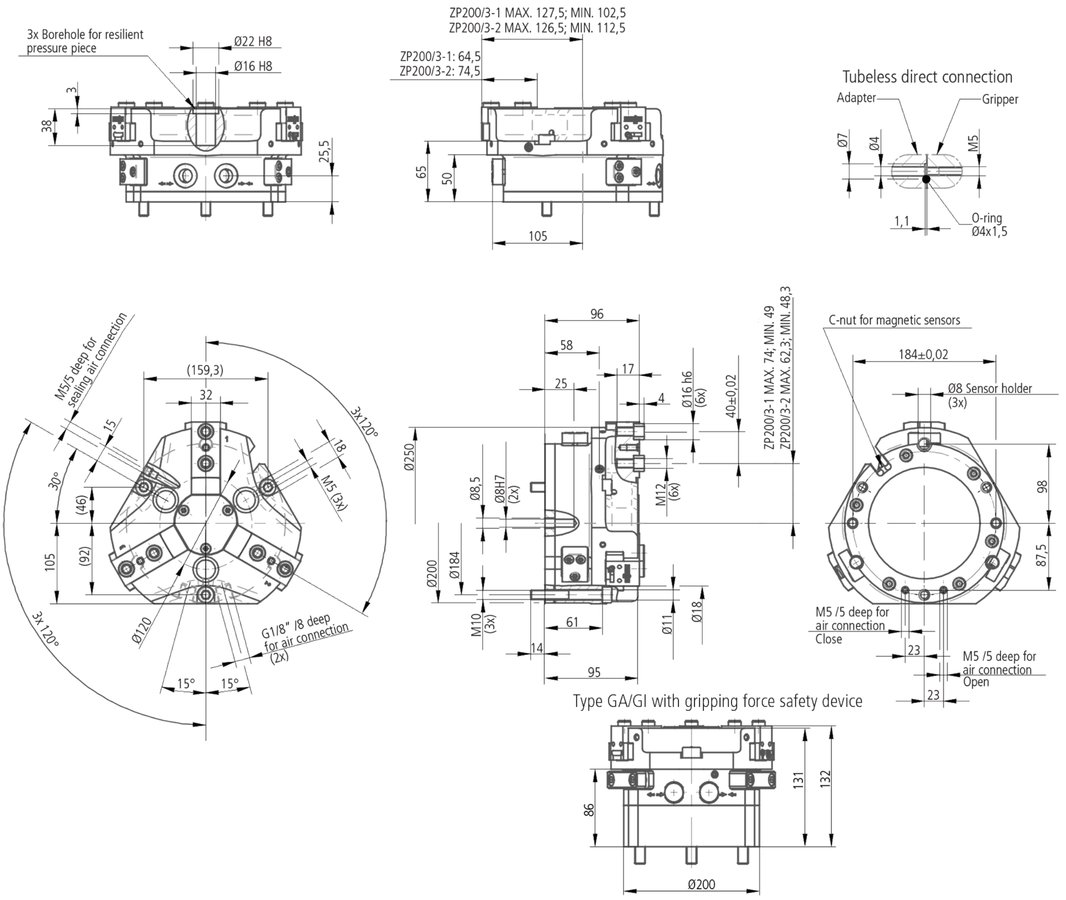


Clamping force diagram - exterior gripping	Max. load on gripper and jaw





Max. moment	Mx:	max. 180 Nm
Max. moment	My:	max. 200 Nm
Max. moment	Mz:	max. 100 Nm
Max. pressure load	Fz:	max. 5000 N



Centric gripper ZP

Type	ZP-200/3-1	ZP-200/3-2	ZP-200/3-1 GA	ZP-200/3-2 GA	ZP-200/3-1 GI	ZP-200/3-2 GI
Article Number	P3026-00	P3026-01	P3026-02	P3026-03	P3026-04	P3026-05
Weight (kg)	10,0	10,0	13,0	13,0	13,0	13,0
Total stroke (mm)	50	28	50	28	50	28
Gripping force at 6 bar	7500 N	12500 N	9300 N	15500 N	9500 N	16200 N
Max gripping force (N)	7500	12500	7500	12500	7500	12500
Recommended work-piece weight (kg)	37,0	62,0	37,0	62,0	37,0	62,0
Gripping force maintained by safety device	-	-	1800 N	3000 N	1800 N	3000 N
Operating pressure min/max without spring	2 - 8 bar	2 - 8 bar				
Operating pressure min/max with spring	-	-	4 - 7 bar	4 - 7 bar	4 - 7 bar	4 - 7 bar
Clamping time (s)	1,2	1,2	1,0	1,0	1,5	1,5
Opening time (s)	1,2	1,2	1,5	1,5	1,0	1,0
Air consumption per cycle (cm³)	1000	1000	1000	1000	1000	1000
Max allowable length of jaw (mm)	280	250	250	200	250	200
	Pneumatic					
Operating pressure	3 - 10 bar					
Cylinder	double-acting					
Dynamic seals	NBR seals with interior lubrication					
	Required valves					
Double-acting	5 paths, 2 positions					
Single-action (options GA or GI)	3 paths, 2 positions					
	Air quality					
Air filtration	40 µ or better					
Air lubrication	not necessary*					
Humidity	low (dry)					
	Operating temperatures					
NBR seals (standard)	-30°C to +80°C					
FKM seals (optional)	-20°C to +150°C					
	Maintenance / Expected service life					
With normal use	5 million cycles					
With preventive maintenance	10 million cycles					
Seal set available	Yes					

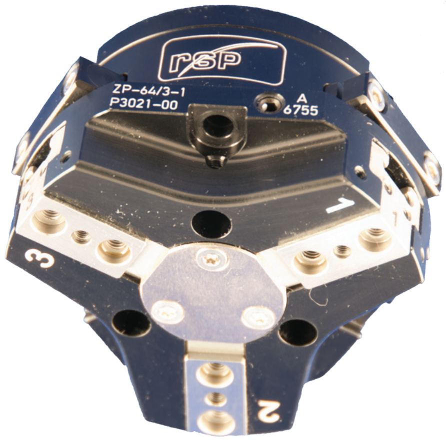
* Preventive maintenance considerably increases service life

Options	Article Number	Description
ZP-AB-ST-200	P3046-1S	Jaw blank (set) steel*
ZP-AB-AL-200	P3046-1A	Jaw blank (set) aluminium**
FAS-ZP-200	P3053-32	Resilient pressure piece
SAD-ZP-200	P3053-24	Protective cover
DSV-G1/8	P3053-00	Pressure maintenance valve
DLV-1/8	P3053-03	Compressed air connection 1/8
INS-M8x1x46,5	P3053-07	Inductive proximity switch
MFS-03	P3053-08	Magnetic field sensors 03

***Jaw dimensions see page 52**

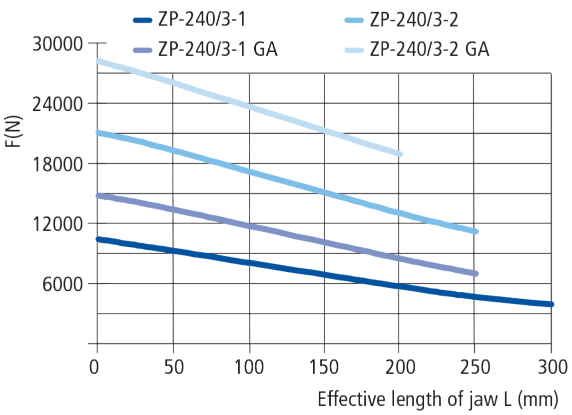
****Jaw dimensions see page 53**

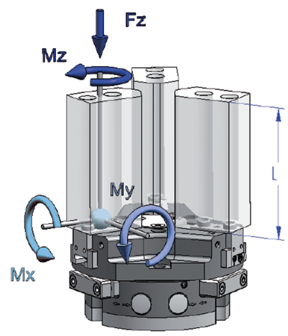
3-jaw centric gripper ZP-240



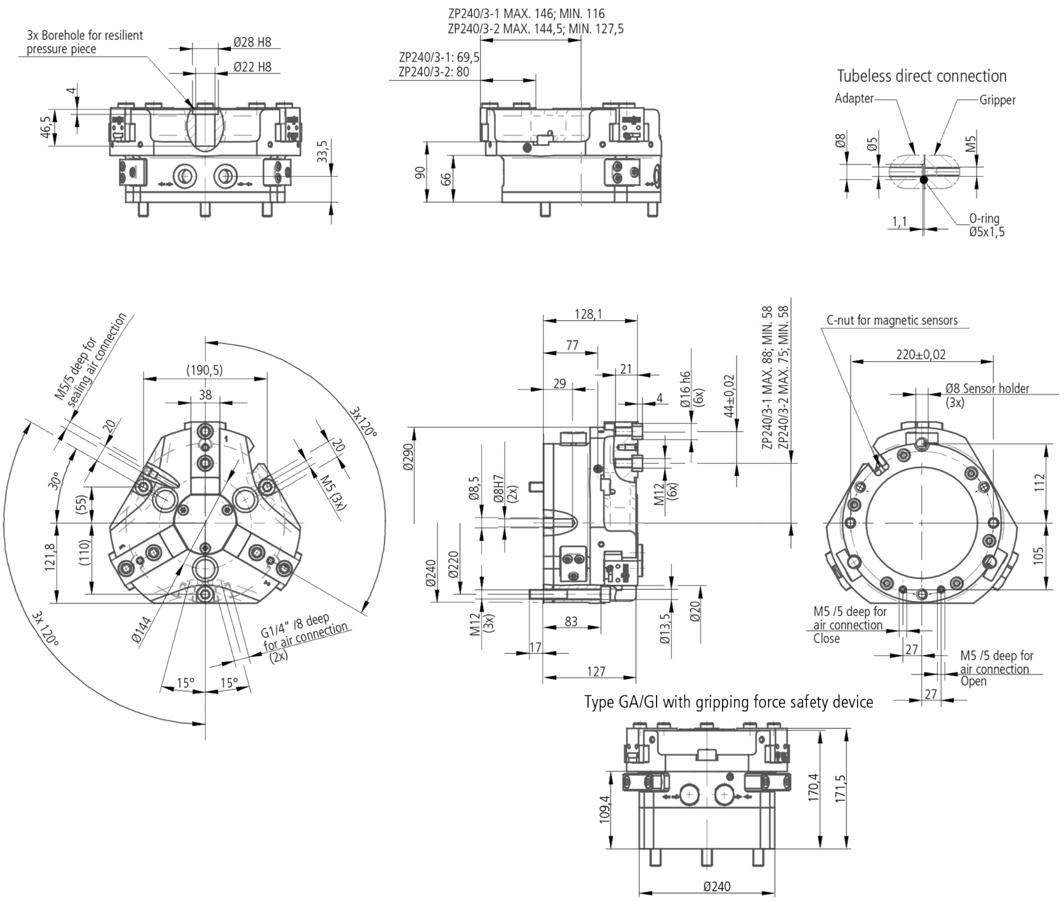
Clamping force diagram - exterior gripping	Max. load on gripper and jaw

Total gripping force F(N) at 6 bar





Max. moment	Mx:	max. 265 Nm
Max. moment	My:	max. 250 Nm
Max. moment	Mz:	max. 160 Nm
Max. pressure load	Fz:	max. 6200 N



Type	ZP-240/3-1	ZP-240/3-2	ZP-240/3-1 GA	ZP-240/3-2 GA	ZP-240/3-1 GI	ZP-240/3-2 GI
Article Number	P3027-00	P3027-01	P3027-02	P3027-03	P3027-04	P3027-05
Weight (kg)	20,0	20,0	24,0	24,0	24,0	24,0
Total stroke (mm)	60	34	60	34	60	34
Gripping force at 6 bar	10500 N	18000 N	14000 N	24000 N	15000 N	25000 N
Max gripping force (N)	10500	18000	10500	18000	10500	18000
Recommended work-piece weight (kg)	53,0	90,0	53,0	90,0	53,0	90,0
Gripping force maintained by safety device	-	-	3500 N	6000 N	3500 N	6000 N
Operating pres-sure min/max without spring	2 - 8 bar	2 - 8 bar				
Operating pressure min/max with spring	-	-	4 - 7 bar	4 - 7 bar	4 - 7 bar	4 - 7 bar
Clamping time (s)	1,3	1,3	1,1	1,1	1,7	1,7
Opening time (s)	1,3	1,3	2,1	2,1	1,1	1,1
Air consumption per cycle (cm^3)	1700	1700	1700	1700	1700	1700
Max allowable length of jaw (mm)	300	250	250	200	250	200
	Pneumatic					
Operating pressure	3 - 10 bar					
Cylinder	double-acting					
Dynamic seals	NBR seals with interior lubrication					
	Required valves					
Double-acting	5 paths, 2 positions					
Single-action (options GA or GI)	3 paths, 2 positions					
	Air quality					
Air filtration	40 µ or better					
Air lubrication	not necessary*					
Humidity	low (dry)					
	Operating temperatures					
NBR seals (standard)	-30°C to +80°C					
FKM seals (optional)	-20°C to +150°C					
	Maintenance / Expected service life					
With normal use	5 million cycles					
With preventive maintenance	10 million cycles					
Seal set available	Yes					

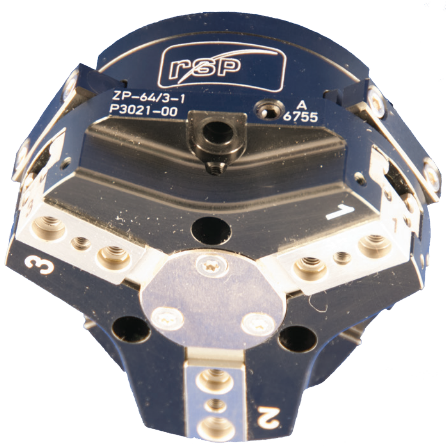
* Preventive maintenance considerably increases service life

Options	Article Number	Description
ZP-AB-ST-240	P3047-1S	Jaw blank (set) steel*
ZP-AB-AL-240	P3047-1A	Jaw blank (set) aluminium**
FAS-ZP-240	P3053-33	Resilient pressure piece
SAD-ZP-240	P3053-25	Protective cover
DSV-G1/8	P3053-00	Pressure maintenance valve
DLV-1/4	P3053-02	Compressed air connection 1/4
INS-M8x1x46,5	P3053-07	Inductive proximity switch
MFS-03	P3053-08	Magnetic field sensors 03

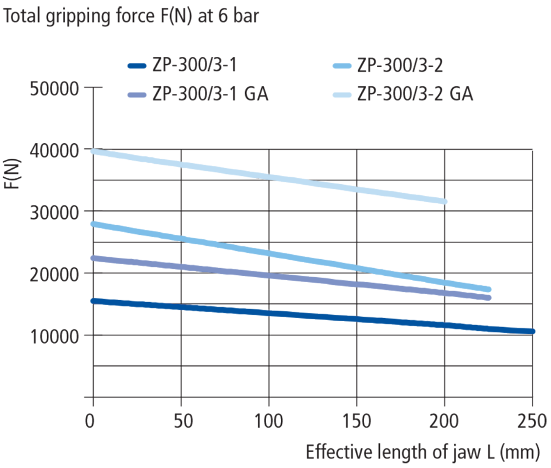
***Jaw dimensions see page 52**

****Jaw dimensions see page 53**

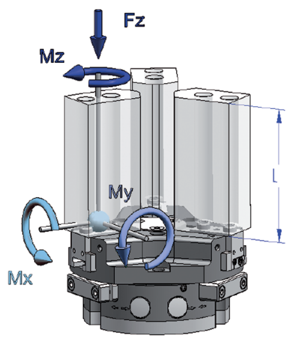
3-jaw centric gripper ZP-300



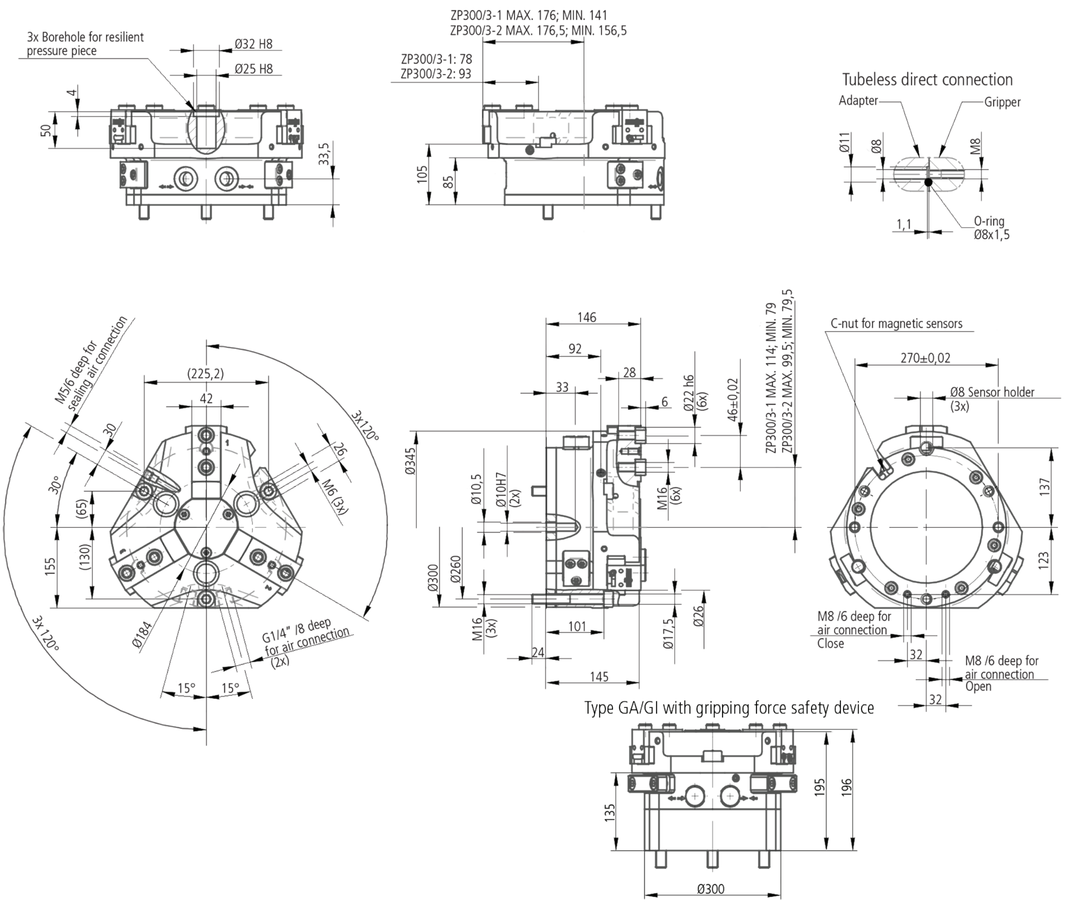
Clamping force diagram - exterior gripping



Max. load on gripper and jaw



Max. moment	Mx:	max. 400 Nm
Max. moment	My:	max. 400 Nm
Max. moment	Mz:	max. 250 Nm
Max. pressure load	Fz:	max. 8000 N



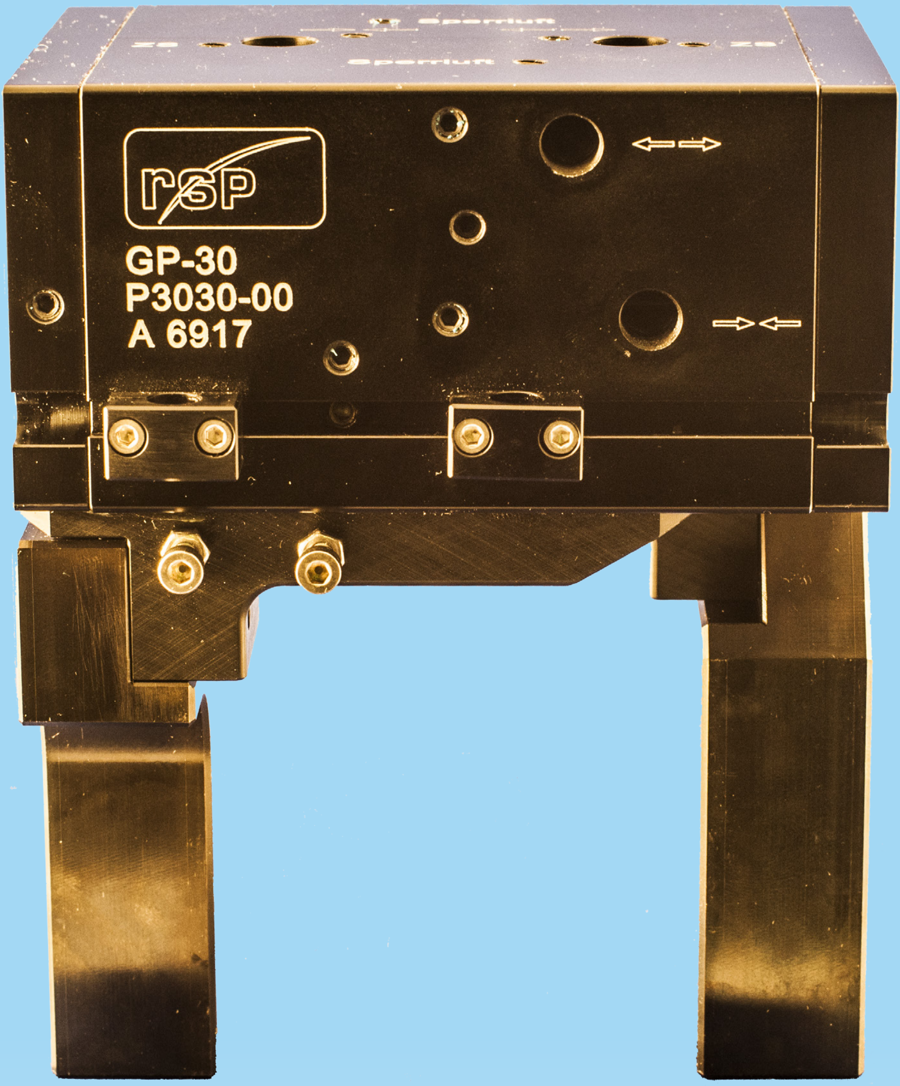
Type	ZP-300/3-1	ZP-300/3-2	ZP-300/3-1 GA	ZP-300/3-2 GA	ZP-300/3-1 GI	ZP-300/3-2 GI
Article Number	P3028-00	P3028-01	P3028-02	P3028-03	P3028-04	P3028-05
Weight (kg)	30,0	30,0	40,0	40,0	40,0	40,0
Total stroke (mm)	70	40	70	40	70	40
Gripping force at 6 bar	16000 N	28000 N	20000 N	37500 N	22500 N	38000 N
Max gripping force (N)	16000	28000	16000	28000	16000	28000
Recommended work-piece weight (kg)	80,0	140,0	80,0	140,0	80,0	140,0
Gripping force maintained by safety device	-	-	6000 N	9500 N	6000 N	9500 N
Operating pres-sure min/max without spring	2 - 8 bar	2 - 8 bar				
Operating pressure min/max with spring	-	-	4 - 7 bar	4 - 7 bar	4 - 7 bar	4 - 7 bar
Clamping time (s)	1,3	1,3	1,2	1,2	2,0	2,0
Opening time (s)	1,3	1,3	2,5	2,5	1,2	1,2
Air consumption per cycle (cm^3)	2700	2700	2700	2700	2700	2700
Max allowable length of jaw (mm)	250	225	225	200	225	200
	Pneumatic					
Operating pressure	3 - 10 bar					
Cylinder	double-acting					
Dynamic seals	NBR seals with interior lubrication					
	Required valves					
Double-acting	5 paths, 2 positions					
Single-action (options GA or GI)	3 paths, 2 positions					
	Air quality					
Air filtration	40 µ or better					
Air lubrication	not necessary*					
Humidity	low (dry)					
	Operating temperatures					
NBR seals (standard)	-30°C to +80°C					
FKM seals (optional)	-20°C to +150°C					
	Maintenance / Expected service life					
With normal use	5 million cycles					
With preventive maintenance	10 million cycles					
Seal set available	Yes					

* Preventive maintenance considerably increases service life

Options	Article Number	Description
ZP-AB-ST-300	P3048-1S	Jaw blank (set) steel*
ZP-AB-AL-300	P3048-1A	Jaw blank (set) aluminium**
FAS-ZP-300	P3053-34	Resilient pressure piece
SAD-ZP-300	P3053-26	Protective cover
DSV-G1/8	P3053-00	Pressure maintenance valve
DLV-1/4	P3053-02	Compressed air connection 1/4
INS-M8x1x46,5	P3053-07	Inductive proximity switch
MFS-03	P3053-08	Magnetic field sensors 03

***Jaw dimensions see page 52**

****Jaw dimensions see page 53**



Long stroke gripper GP

Design Long stroke gripper GP

GA Integrated springs as gripping force safety device for exterior tension, thus increased gripping force

GI Integrated springs as gripping force safety device for interior tension, thus increased gripping force

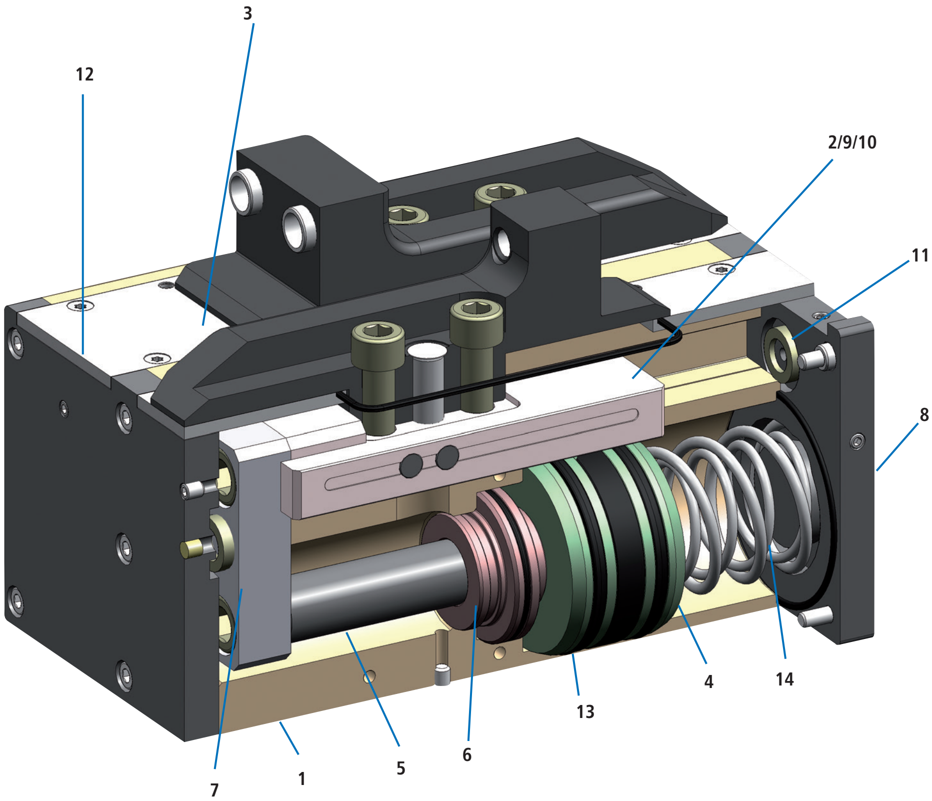
Long stroke gripper GP pneumatic control

Operating principle of a long stroke gripper

Mode of operation

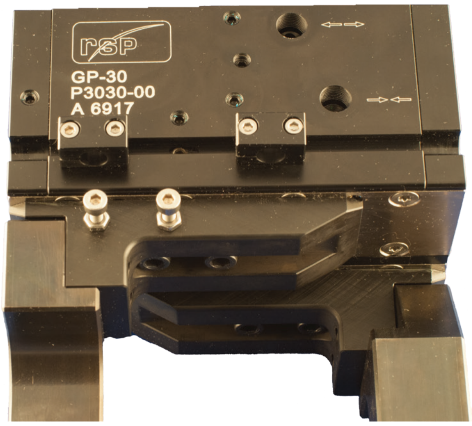
Parts:

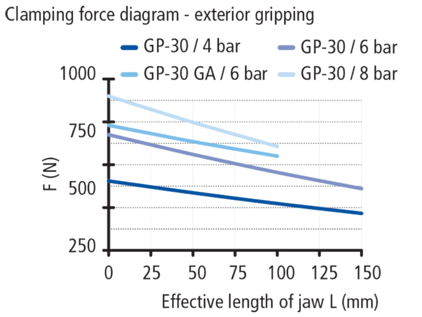
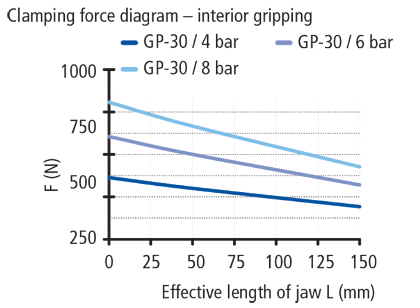
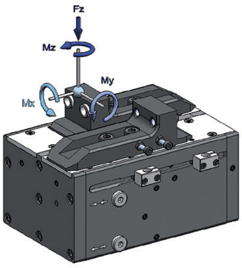
1) Body
2) Steering rack
3) Intermediate jaw
4) Piston disk
5) Piston rod
6) Socket
7) Carrier
8) Cover
9) Gearwheel
10) Gearwheel bearing
11) Damping ring
12) Wiper blade
13) Seals
14) Pressure spring for Type GA/GI



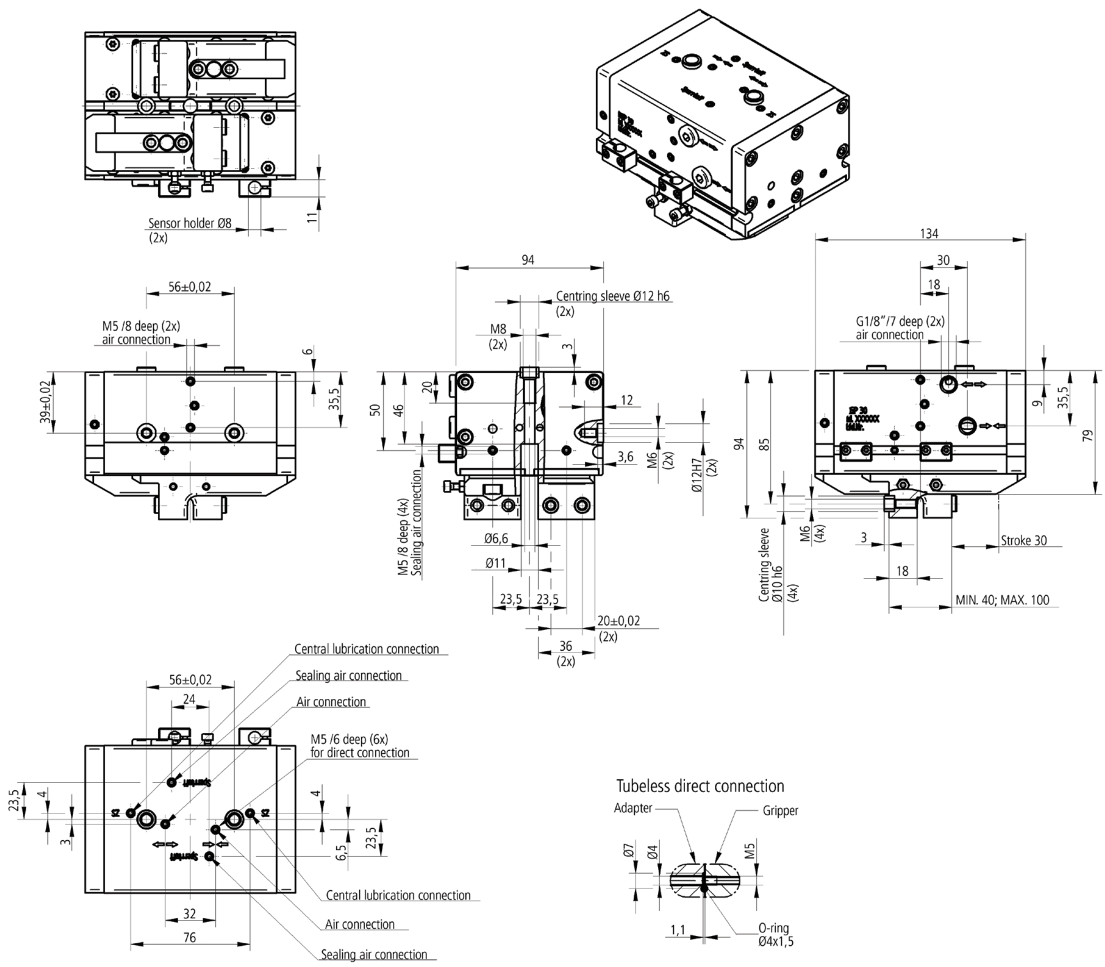
- Gripper body made of high-strength hard-coated aluminium.
- Steering racks, intermediate jaws and gear made of hardened steel.
- Due to a robust flat guidance of steering racks, intermediate jaws absorb large moments
- Suitable for long top jaws.
- Construction allows long jaw strokes.
- Quad-ring extensively sealed off due to wiping between wiper blade and intermediate jaw.
- Gear synchronizes both steering racks for centric gripping.
- Optional, separate delivery of a gripping force safety device for exterior tension (GA) and interior tension (GI) of gripper.
- Tubeless direct connection for central lubrication and sealing air.
- Optional tubeless, direct screw connection for power supply.
- Simple interface: Gripper intermediate jaw / top jaw (centring sleeves).
- Economical production of top jaws,
- Inductive or magnetic positioning sensors.

Long stroke gripper GP-30



Clamping force diagram - exterior gripping	Clamping force diagram - interior gripping	Max. load on gripper and jaw
		

Max. moment	Mx:	max. 30 Nm
Max. moment	My:	max. 95 Nm
Max. moment	Mz:	max. 45 Nm
Max. pressure load	Fz:	max. 1000 N



Long stroke gripper GP

Type	GP30	GP 30-GA
Article Number	P3030-00	P3030-01
Weight (kg)	3,2	3,2
Total stroke (mm)	60	60
Gripping force at 6 bar	630 N	720 N
Max gripping force (N)	630	630
Recommended workpiece weight (kg)	3,0	3,0
Gripping force maintained by safety device	-	90
Operating pressure min/max without spring	2 - 8 bar	-
Operating pressure min/max with spring	-	5 - 6,5 bar
Clamping time (s)	0,3	0,35
Opening time (s)	0,3	0,35
Air consumption per cycle (cm^3)	92	92
Max allowable length of top jaw (mm)	150	100
Max. allowed mass per top jaw (kg)	2	2
	Pneumatic	
Operating pressure	3 - 10 bar	
Cylinder	double-acting	
Dynamic seals	NBR seals with interior lubrication	
	Required valves	
Double-acting	5 paths, 2 positions	
Single-action (options GA or GI)	3 paths, 2 positions	
	Air quality	
Air filtration	40 µ or better	
Air lubrication	not necessary*	
Humidity	low (dry)	
	Operating temperatures	
NBR seals (standard)	-30°C to +80°C	
FKM seals (optional)	-20°C to +150°C	
	Maintenance / Expected service life	
With normal use	5 million cycles	
With preventive maintenance	10 million cycles	
Seal set available	Yes	

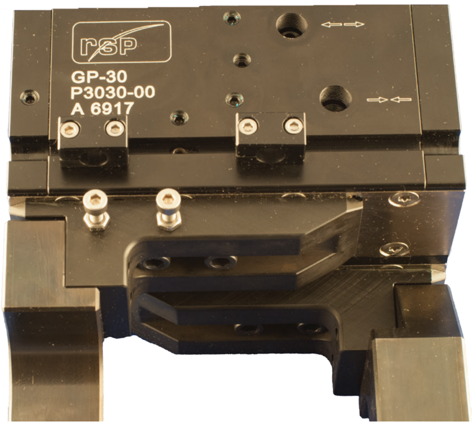
* Preventive maintenance considerably increases service life

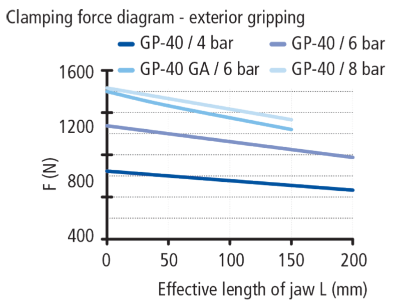
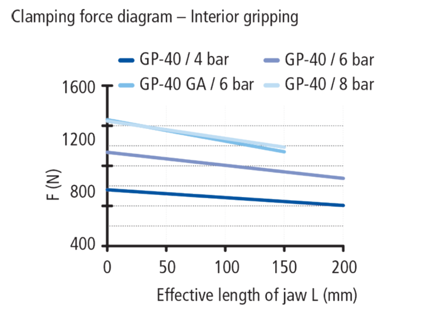
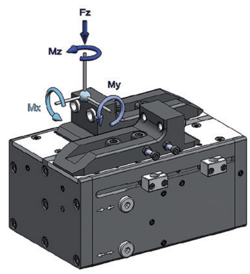
Options	Article Number	Description
GP-ZB-ST-30	P3051-30	Intermediate jaws (set) steel*
GP-AB-ST-30	P3050-30	Jaw blank (set) aluminium**
DSV-G1/8	P3053-00	Pressure maintenance valve
DLV-1/8	P3053-03	Compressed air connection 1/8
INS-M8x1x30,5	P3053-06	Inductive proximity switch
MFS-05	P3053-09	Magnetic field sensors 05

***Jaw dimensions see page 54**

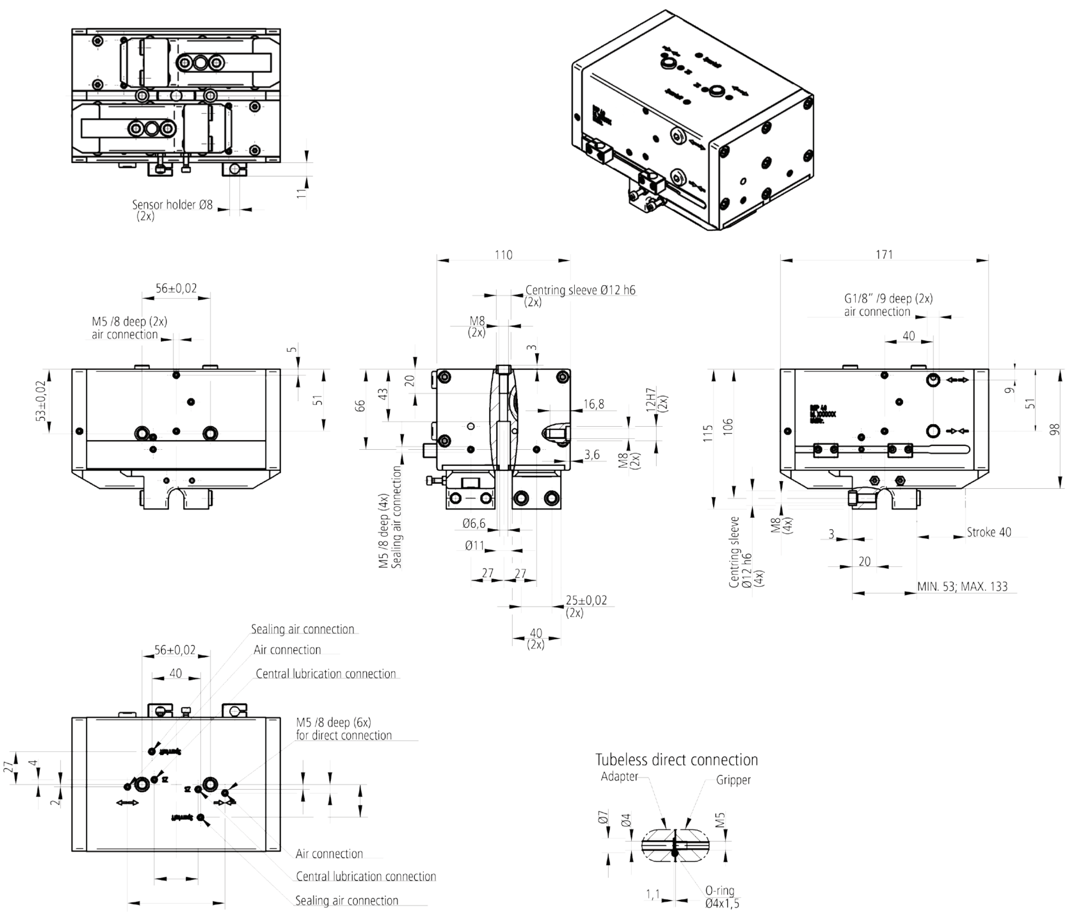
****Jaw dimensions see page 55**

Long stroke gripper GP-40



Clamping force diagram - exterior gripping	Clamping force diagram - interior gripping	Max. load on gripper and jaw
		

Max. moment	Mx:	max. 50 Nm
Max. moment	My:	max. 100 Nm
Max. moment	Mz:	max. 70 Nm
Max. pressure load	Fz:	max. 1100 N



Type	GP40	GP 40-GA	GP 40-GI
Article Number	P3031-00	P3031-01	P3031-02
Weight (kg)	5,6	5,6	5,6
Total stroke (mm)	80	80	80
Gripping force at 6 bar	1260 N	1540 N	1380 N
Max gripping force (N)	1260	1260	1260
Recommended workpiece weight (kg)	6,3	6,3	6,3
Gripping force maintained by safety device	-	150	150
Operating pressure min/max without spring	2 - 8 bar	-	
Operating pressure min/max with spring	-	5 - 6,5 bar	5 - 6,5 bar
Clamping time (s)	0,3	0,3	0,4
Opening time (s)	0,3	0,4	0,3
Air consumption per cycle (cm³)	240	240	240
Max allowable length of top jaw (mm)	200	150	150
Max. allowed mass per top jaw (kg)	3	3	3
	Pneumatic		
Operating pressure	3 - 10 bar		
Cylinder	double-acting		
Dynamic seals	NBR seals with interior lubrication		
	Required valves		
Double-acting	5 paths, 2 positions		
Single-action (options GA or GI)	3 paths, 2 positions		
	Air quality		
Air filtration	40 µ or better		
Air lubrication	not necessary*		
Humidity	low (dry)		
	Operating temperatures		
NBR seals (standard)	-30°C to +80°C		
FKM seals (optional)	-20°C to +150°C		
	Maintenance / Expected service life		
With normal use	5 million cycles		
With preventive maintenance	10 million cycles		
Seal set available	Yes		

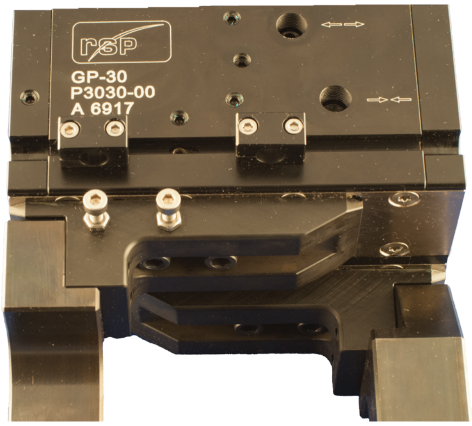
* Preventive maintenance considerably increases service life

Options	Article Number	Description
GP-ZB-ST-40	P3051-40	Intermediate jaws (set) steel*
GP-AB-ST-40	P3050-40	Jaw blank (set) aluminium**
DSV-G1/8	P3053-00	Pressure maintenance valve
DLV-1/8	P3053-03	Compressed air connection 1/8
INS-M8x1x30,5	P3053-06	Inductive proximity switch
MFS-05	P3053-09	Magnetic field sensors 05

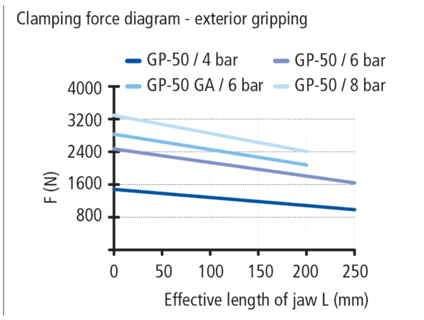
***Jaw dimensions see page 54**

****Jaw dimensions see page 55**

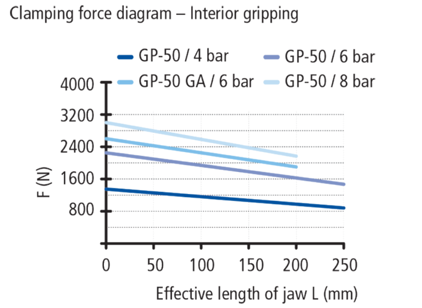
Long stroke gripper GP-50



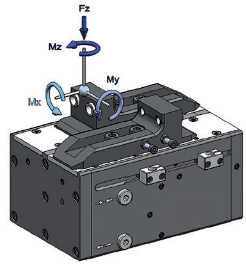
Clamping force diagram - exterior gripping



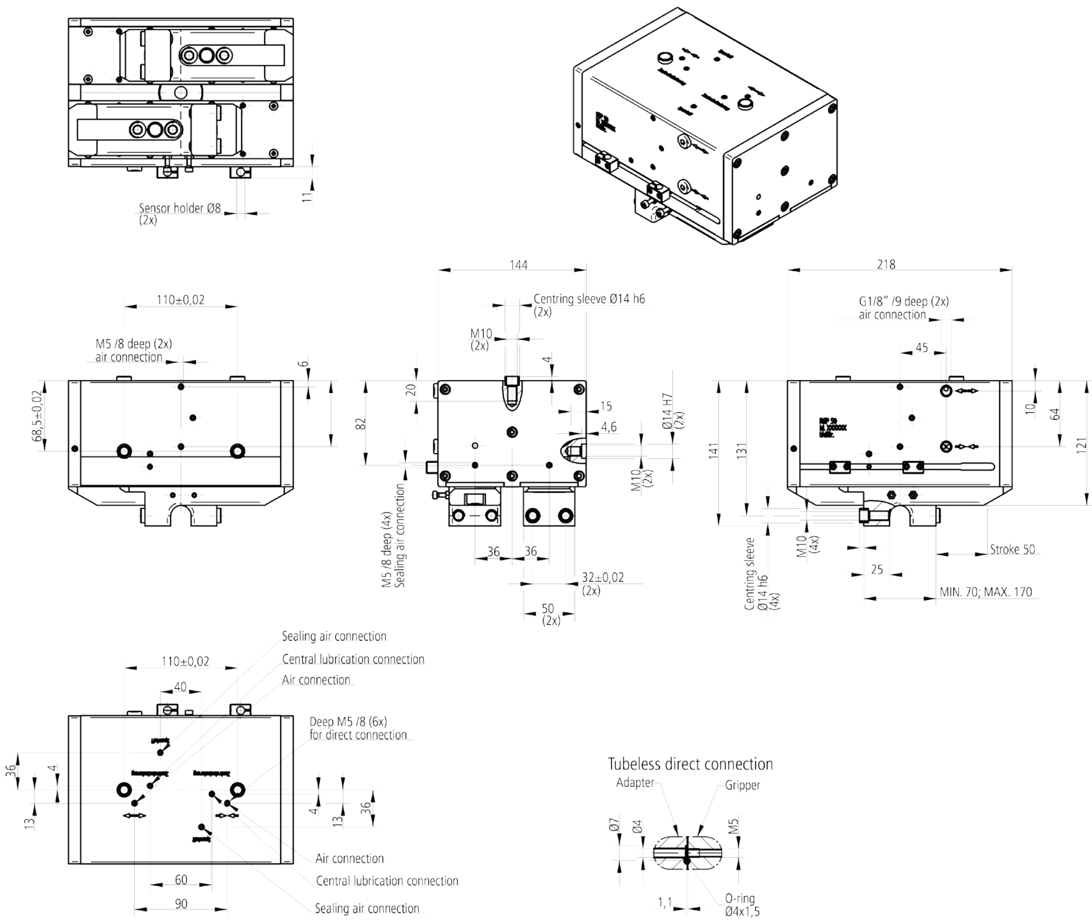
Clamping force diagram - interior gripping



Max. load on gripper and jaw



Max. moment	Mx:	max. 60 Nm
Max. moment	My:	max. 100 Nm
Max. moment	Mz:	max. 80 Nm
Max. pressure load	Fz:	max. 1300 N



Type	GP50	GP 50-GA	GP 50-GI
Article Number	P3032-00	P3032-01	P3032-02
Weight (kg)	11	11	11
Total stroke (mm)	100	100	100
Gripping force at 6 bar	2600 N	2950 N	2680 N
Max gripping force (N)	2600	2600	2600
Recommended workpiece weight (kg)	13	13	13
Gripping force maintained by safety device	-	450	450
Operating pressure min/max without spring	2 - 8 bar	-	
Operating pressure min/max with spring	-	5 - 6,5 bar	5 - 6,5 bar
Clamping time (s)	0,6	0,5	0,7
Opening time (s)	0,7	0,8	0,6
Air consumption per cycle (cm³)	600	600	600
Max allowable length of top jaw (mm)	250	200	200
Max. allowed mass per top jaw (kg)	4	4	4
	Pneumatic		
Operating pressure	3 - 10 bar		
Cylinder	double-acting		
Dynamic seals	NBR seals with interior lubrication		
	Required valves		
Double-acting	5 paths, 2 positions		
Single-action (options GA or GI)	3 paths, 2 positions		
	Air quality		
Air filtration	40 µ or better		
Air lubrication	not necessary*		
Humidity	low (dry)		
	Operating temperatures		
NBR seals (standard)	-30°C to +80°C		
FKM seals (optional)	-20°C to +150°C		
	Maintenance / Expected service life		
With normal use	5 million cycles		
With preventive maintenance	10 million cycles		
Seal set available	Yes		

* Preventive maintenance considerably increases service life

Options	Article Number	Description
GP-ZB-ST-50	P3051-50	Intermediate jaws (set) steel*
GP-AB-ST-50	P3050-50	Jaw blank (set) aluminium**
DSV-G1/8	P3053-00	Pressure maintenance valve
DLV-1/8	P3053-03	Compressed air connection 1/8
INS-M8x1x30,5	P3053-06	Inductive proximity switch
MFS-05	P3053-09	Magnetic field sensors 05

***Jaw dimensions see page 54**

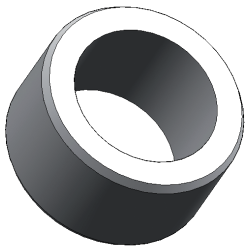
****Jaw dimensions see page 55**

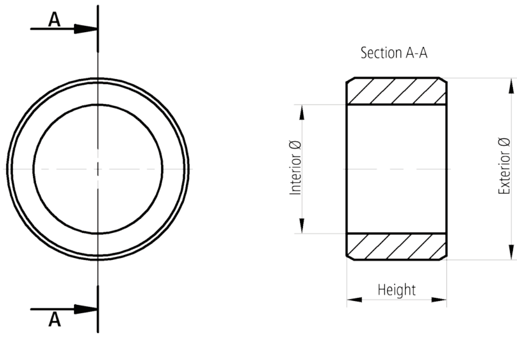
Accessories

Centring sleeves, hardened and polished

Application:
any centring tasks of grippers and swivel units

Advantages:
- simple and space saving centring
- simple assembly
- high precision when changing units

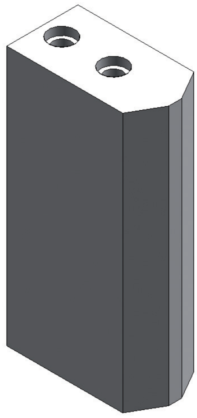


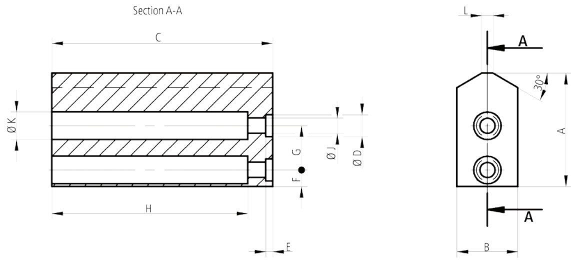


Article Number	Designation mm	Exterior Ø mm	Interior Ø mm	Height mm	Protrusion if centring sleeve mm	Borehold depth for centring sleeve mm
P3052-00	ZH-AD-4	Ø 4_{h6}	Ø 2,5	$3{,}8_{-0,2}$	2,0	$2{,}0^{+0,2}$
P3052-01	ZH-AD-5	Ø 5_{h6}	Ø 3,3	$4{,}3_{-0,2}$	2,0	$2{,}3^{+0,2}$
P3052-02	ZH-AD-6	Ø 6_{h6}	Ø 4,3	$5{,}2_{-0,2}$	2,5	$2{,}7^{+0,2}$
P3052-03	ZH-AD-8	Ø 8_{h6}	Ø 5,3	$5{,}2_{-0,2}$	2,5	$2{,}7^{+0,2}$
P3052-04	ZH-AD-10	Ø 10_{h6}	Ø 6,5	$6{,}6_{-0,2}$	3,0	$3{,}6^{+0,2}$
P3052-05	ZH-AD-12	Ø 12_{h6}	Ø 8,5	$6{,}6_{-0,2}$	3,0	$3{,}6^{+0,2}$
P3052-06	ZH-AD-14	Ø 14_{h6}	Ø 11,0	$8{,}6_{-0,2}$	4,0	$4{,}6^{+0,2}$
P3052-07	ZH-AD-16	Ø 16_{h6}	Ø 13,0	$8{,}6_{-0,2}$	4,0	$4{,}6^{+0,2}$
P3052-08	ZH-AD-22	Ø 22_{h6}	Ø 17,5	$13{,}6_{-0,2}$	6,0	$7{,}6^{+0,2}$
P3052-09	ZH-AD-28	Ø 28_{h6}	Ø 21,0	$17{,}6_{-0,2}$	?	?

Top jaw set AB-ST for PP/ZP

Design steel
Top jaw set AB-ST

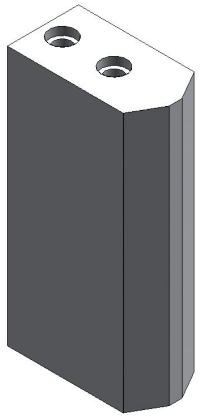


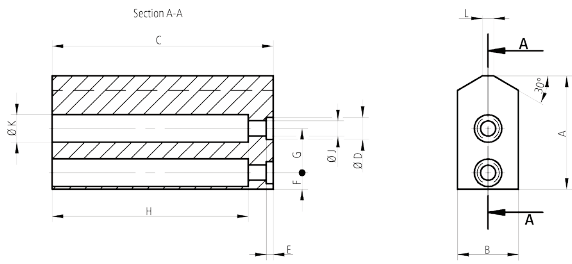


PP / ZP	50	64	80	100	125	160	200	240	300
PP AB steel 2 jaws article number	P3040-0S	P3041-0S	P3042-0S	P3043-0S	P3044-0S	P3045-0S	P3046-0S	P3047-0S	P3048-0S
ZP AB steel 3 jaws article number	P3040-1S	P3041-1S	P3042-1S	P3043-1S	P3044-1S	P3045-1S	P3046-1S	P3047-1S	P3048-1S
A	30	32	41	51	60	80	96	109	130
B	15	20	22	30	35	40	40	50	60
C	50	64	80	100	125	160	200	220	200
D + 0,04/+0,02	5	6	8	10	10	14	16	16	22
E + 0,2	2	2,5	2,5	3	3	4	4	4	6
F±0,1	5	5	6	7	9,5	10	15	15,5	20
G±0,02	12	13	16	20	24	32	40	44	46
H	45	57	71	91	115	146	181	204	177
J	3,4	4,5	5,5	6,6	6,6	11	13,5	13,5	17,5
K	6	8	10	11	11	18	20	20	26
L	2	3	4	5	6	8	13	10	16
Weight of a single top jaw kg	0,15	0,25	0,45	1,0	1,75	3,2	5,0	8,0	10,2

Top jaw set AB-AL for PP/ZP

Design aluminium
Top jaw set AB-AL

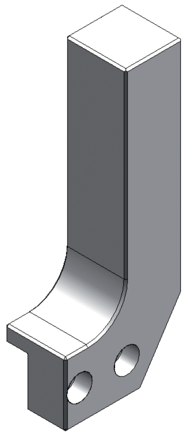


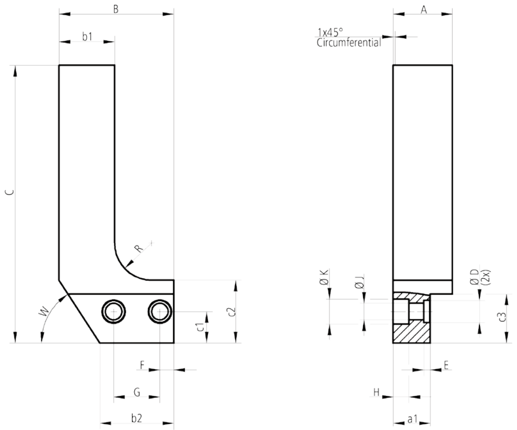


PP / ZP	50	64	80	100	125	160	200	240	300
PP AB aluminium 2 jaws article number	P3040-0A	P3041-0A	P3042-0A	P3043-0A	P3044-0A	P3045-0A	P3046-0A	P3047-0A	P3048-0A
ZP AB aluminium 3 jaws article number	P3040-1A	P3041-1A	P3042-1A	P3043-1A	P3044-1A	P3045-1A	P3046-1A	P3047-1A	P3048-1A
A	30	32	41	51	60	80	96	109	130
B	15	20	25	30	35	40	45	50	60
C	50	64	80	100	125	160	200	220	200
D + 0,04/+0,02	5	6	8	10	10	14	16	16	22
E + 0,2	2	2,5	2,5	3	3	4	4	4	6
F±0,1	5	5	6	7	9,5	10	15	15,5	20
G±0,02	12	13	16	20	24	32	40	44	46
H	43	55	69	88	112	141	176	200	170
J	3,4	4,5	5,5	6,6	6,6	11	13,5	13,5	17,5
K	6	8	10	11	11	18	20	20	26
L	2	3	2	5	6	8	9	10	16
Weight of a single top jaw kg	0,05	0,1	0,18	0,35	0,6	1,2	2,0	2,8	3,5

Top jaw set AB-ST for GP

Design steel
Top jaw set AB-ST

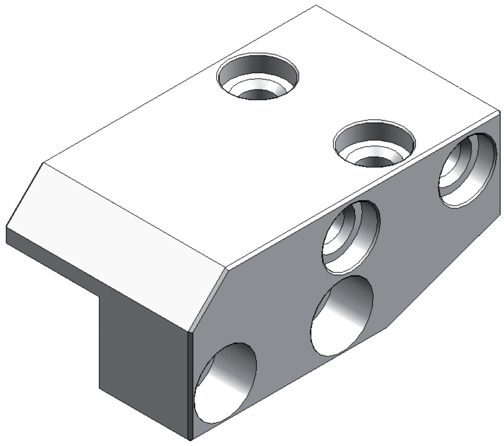


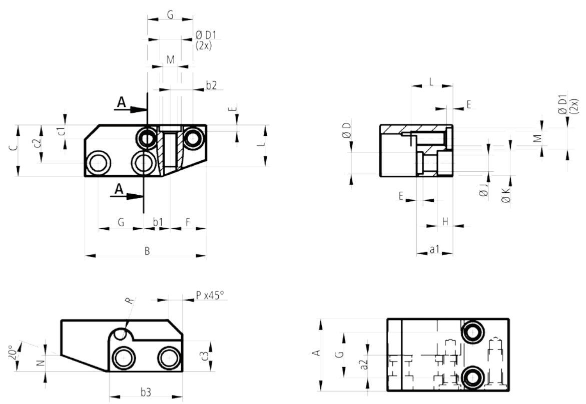


GP	30	40	50
GP AB steel 2 jaws article number	P3050-30	P3050-40	P3050-50
A	28	32	42
a1	18	20	25
B	54	62	80
b1	25	30	38
b2	36	40	50
C	100	150	200
c1	13	17	22
c2	30	34	40
c3	22,5	26,5	32,5
D+0,02/+0,04	10	12	14
E+0,2	3,6	3,6	4,6
F±0,1	8	7,5	9
G±0,02	20	25	32
H	6,8	8,5	11
J	6,6	9	11
K	11	13,5	16,5
R	15	20	25
W	57°	57°	57°
Weight of a single jaw kg	0,6	1,2	2,6

Intermediate jaw set ZB-ST for GP

Design steel
Intermediate jaw set ZB-ST

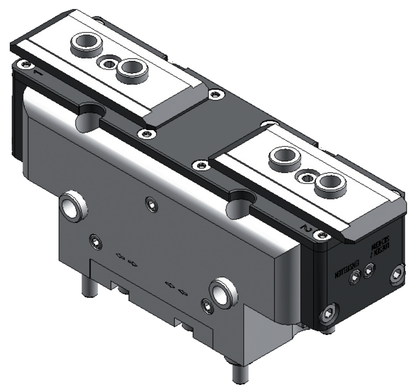


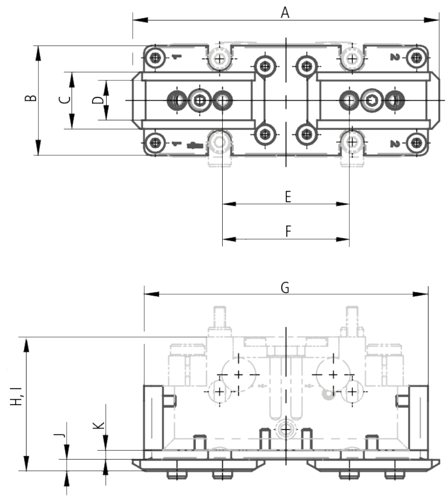


GP	30	40	50
GP ZB steel 2 jaws article number	P3051-30	P3051-40	P3051-50
A	36	40	50
a1	18	20	25
B	10	12,5	16
b1	13,5	14,5	20
b2	10	12,5	16
b3	36,5	40,5	50,5
C	26,5	28,5	35
c1	8	7,5	9
c2	20	21	25
c3	16	17	20,5
D+0,02/+0,04	10	12	14
D1 H7	10	12	14
E+0,2	3,6	3,6	4,6
F±0,1	18	20	25
G±0,02	20	25	32
H	6,8	8,5	11
J	6,6	9	11
K	11	13,5	16,5
L	18	23	28
M	M6	M8	M10
Nx20 °	8	9	12
Px45°	7	8	10
R	5,5	6,5	6,5
Weight of a single intermediate jaw kg	0,3	0,4	0,75
Centrine sleeve article number	P3052-04	P3052-05	P3052-06
Dimension	Ø10	Ø12	Ø14

Protective cover precision parallel gripper

The protective cover is an option to ensure the gripper functions in harsh environments such as foundries or mashing and areas with aggressive coolants.

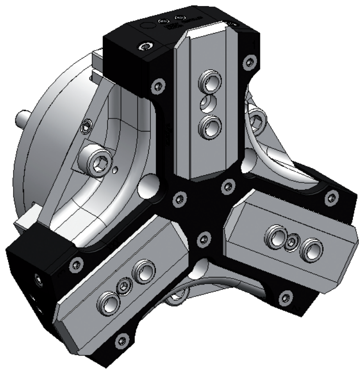


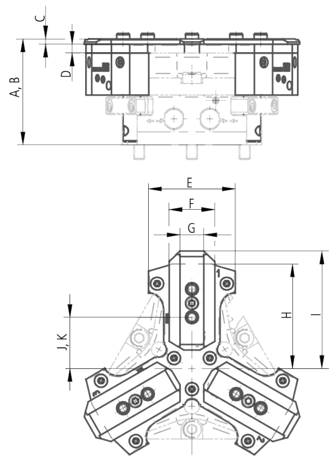


PP	50	64	80	100	125	160	200	240	300
Protective cover article number	P3053-10	P3053-11	P3053-12	P3053-13	P3053-14	P3053-15	P3053-16	P3053-17	P3053-18
Description	SAD-PP-50	SAD-PP-64	SAD-PP80	SAD-PP-100	SAD-PP-125	SAD-PP-160	SAD-PP-200	SAD-PP-240	SAD-PP-300
A MAX (mm)	81	81	124	151	192	238	298	348	404
B	29	29	33	39	45	53	71	86	101
C	15	19	22	27	30	35	45	51	62
D	10,5	11	14	18	20	24	32	38	42
E (PP-1 max; min)	33,5; 25,5	40,5; 28,5	53; 37	67; 47	87; 61	109; 77	126; 76	153,5; 93,5	195; 125
F (PP-2 max; min)	31,5; 27,5	34,5; 28,5	45; 37	57; 47	73; 61	93; 77	104; 76	127,5; 93,5	165; 125
G	75	86	108	137	166	206	248	288	334
H (PP-1/2)	35,5	44,5	54,5	61,5	69,5	85,5	99,5	115,5	135,5
I (PP-1/2 GA/GI)	51,5	62,5	72,5	87,5	99,5	125,5	149,5	172	185,5
J	3	3	3	4	4	5,5	5,5	5,5	9
K	2,5	3,5	3,5	3,5	3,5	4	4	4	5,5

Protective cover 3-jaw centric gripper

The protective cover is an option to ensure the gripper functions in harsh environments such as foundries or mashing and areas with aggressive coolants.

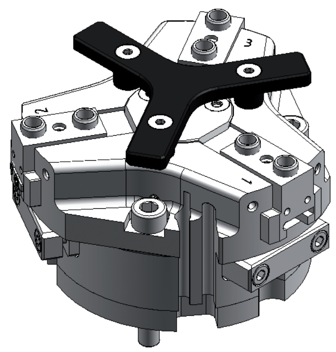


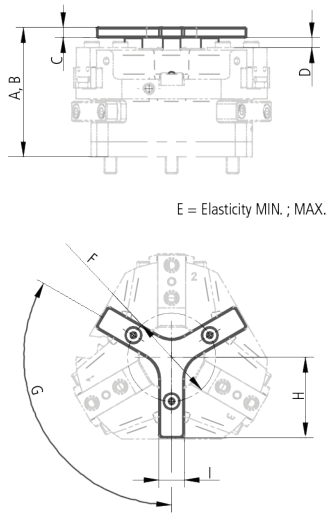


ZP	64	80	100	125	160	200	240	300
Protective cover article number	P3053-19	P3053-20	P3053-21	P3053-22	P3053-23	P3053-24	P3053-25	P3053-26
Description	SAD-ZP-64	SAD-ZP-80	SAD-ZP-100	SAD-ZP-25	SAD-ZP-160	SAD-ZP-200	SAD-ZP-240	SAD-ZP-300
A ZP/3-1/2	48,8	54,8	65,8	73,5	89,5	104,5	136,6	159,5
B ZP/3-1/2 GA/GI	62,3	69,8	85,8	98	119,5	140,5	180	209,5
C	2,5	2,5	3,5	3,5	4	4	4	5
D	4	4	4	4	5,5	5,5	5,6	9,5
E	40	44	51	60	82	94	94	132
F	21	24	28	28	33	47	47	51
G	11	14	18	20	24	32	38	42
H	48	59,5	74,4	88,5	112,5	138	159	188
I (max.)	54	65	80	99	125,3	159,5	182,5	219
J ZP/3-1 MAX; MIN	23,5; 17,5	30; 22	37,5; 27,5	48; 35	61; 45	74; 49	88; 58	114; 79
K ZP/3-2 MAX; MIN	20,5; 17,5	26; 22	32,5; 27,5	41; 35	53; 45	62,3; 48,3	75; 58	99,5; 79,5

Resilient pressure piece

The ejection triangle is an option in order to fix the workpiece precisely. As soon as the jaws open, the workpiece is being ejected.





ZP	64	80	100	125	160	200	240	300
Resilient pressure piece article number	P3053-27	P3053-28	P3053-29	P3053-30	P3053-31	P3053-32	P3053-33	P3053-34
Description	FAS-ZP-64	FAS-ZP-80	FAS-ZP-100	FAS-ZP-125	FAS-ZP-160	FAS-ZP-200	FAS-ZP-240	FAS-ZP-300
A ZP/3-1/2	51,3	57,8	68,8	77,5	92	107	140,5	162
B ZP/3-1/2 GA/GI	64,8	72,8	88,8	102	122	143	183,9	212
C	4	4	4	4	5	6	6	6
D (Stroke)	4	4,5	5	6	6	6	7,5	8
E Elasticy min; max	11 N; 18 N	19 N; 29 N	45 N; 67 N	120 N; 150 N	202 N; 346 N	238 N; 308 N	302 N; 454 N	360 N; 488 N
F Ø	35	44	58	72	100	120	144	184
G	3x120 °	3x120 °	3x120 °	3x120 °	3x120 °	3x120 °	3x120 °	3x120 °
H	32	40	50	62,5	80	100	130	160
I	10	12	12	15	20	25	27	30

Accessories

	Article No.		Description
	P3053-00	Pressure retension valve	DSV-G1/8
	P3053-01 P3503-02 P3503-03	Compressed air connection M5 Compressed air connection 1/4 Compressed air connection 1/8	DLV-M5 DLV-1/4 DLV-1/8
	P3053-05 P3053-06 P3503-07	Inductive proximity switch Inductive proximity switch M8x1x30,5 Inductive proximity switch M8x1x46,5	INS-Ø3x27 INS-M8x1x30,5 INS-M8x1x46,5
	P3503-08 P3053-09	Magnetic field sensors 03 Magnetic field sensors 05	MFS-03 MFS-05

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Ordering from RSP is easy! There are a few steps you should consider before you place an order:

- The size of the payload and robot when selecting the product.
- The robot model name and arm length, model year if available

If you already are a RSP customer go to step 4

1, Contact person phone number and e-mail address.

2, Company name, address, phone/fax number and email.

3, Organisation and tax number (VAT inside Europe)

4, Fill out the part number, description, price and amount in your order form.

5, Fill out the PO number, date, required delivery date and delivery address if it's different.

6, If available, state the quotation number. Otherwise the current price list is used.

7, Fax the order to +46 21 81 66 01 or e-mail to order@robsyspro.com

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