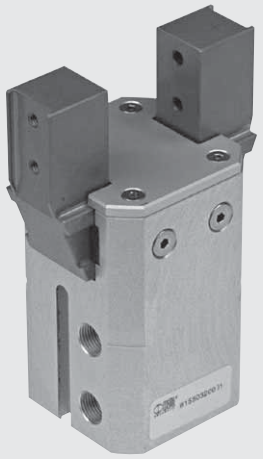
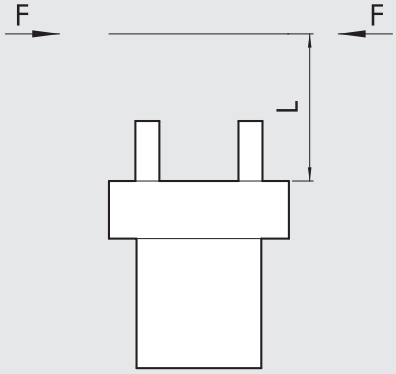
GRIPPER WITH TWO PARALLEL JAWS SERIES P1

- Dual-acting parallel gripper for internal and external clamping.
- Anodized aluminium alloy body and tempered steel jaws.
- Bottom or side fixing.
- All sizes come with magnets and sensor slots.



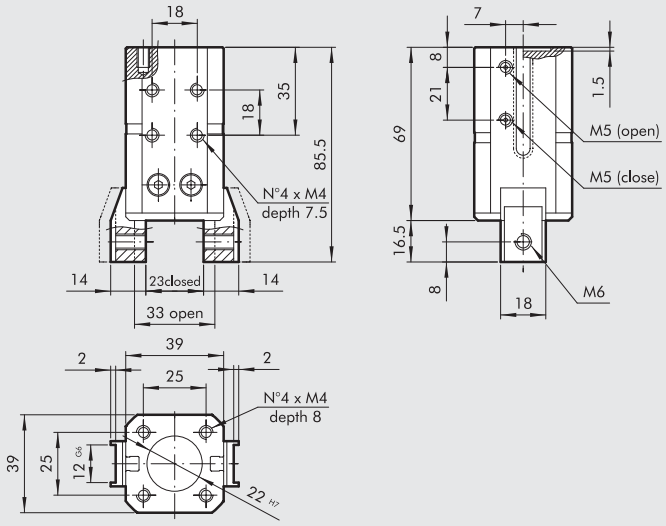
TECHNICAL DATA		P1-20	P1-32
Operating pressure	bar	2 to 8	
	MPa	0.2 to 0.8	
	psi	29 to 116	
Temperature range	°C	5 to 70	
Fluid		20 µm filtered, lubricated or unlubricated air; lubrification if used, it must be continuous	
Bores	mm	20	32
Clamping force at 6.3 bar 20 mm from the top surface during opening and closing	N	70	170
Single jaw stroke	mm	5	5
Weight	kg	0.50	0.70

TABLE OF CLAMPING FORCES FOR VARIOUS POINTS OF APPLICATION

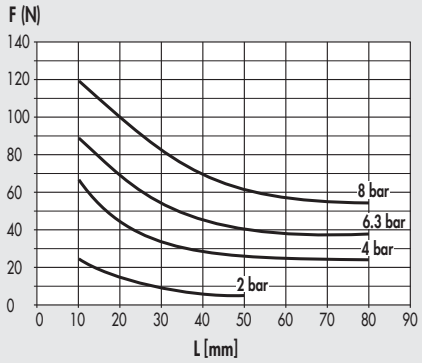


METAL WORK PNEUMATIC

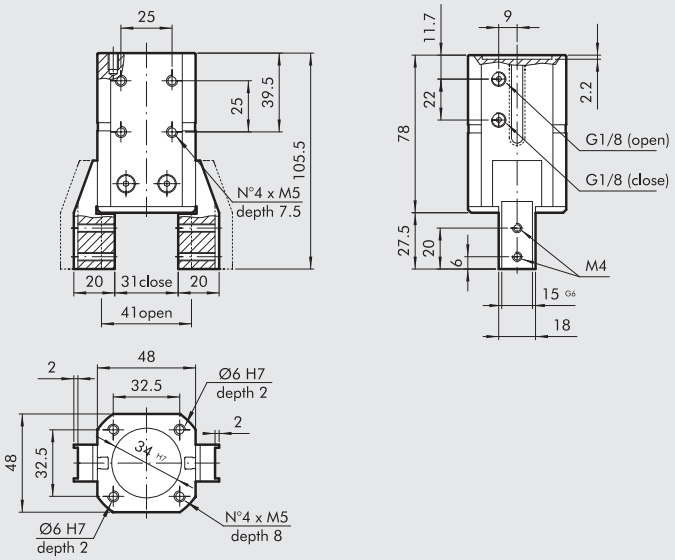
DIMENSIONS OF GRIPPER P1-20



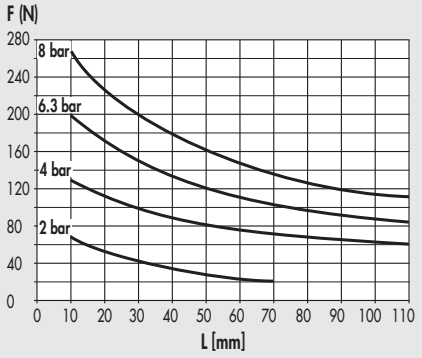
Code	Description
W1550200001	Gripper with 2 parallel jaws P1-20



DIMENSIONS OF GRIPPER P1-32



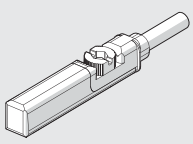
Code	Description
W1550320001	Gripper with 2 parallel jaws P1-32



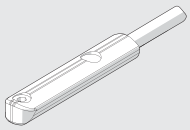
ACCESSORIES

RETRACTABLE SENSOR

SENSOR, SQUARE TYPE
Latest generation,
secure fixing



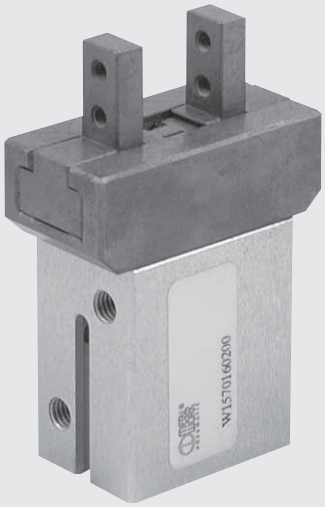
SENSOR, OVAL TYPE
Traditional



For codes and technical data, see **chapter A6**.

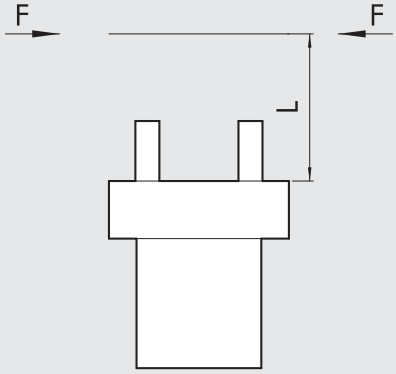
GRIPPER WITH TWO PARALLEL JAWS SERIES P2

Double-acting system with clamping in both directions.
All the grippers come with magnet and sensor slots.

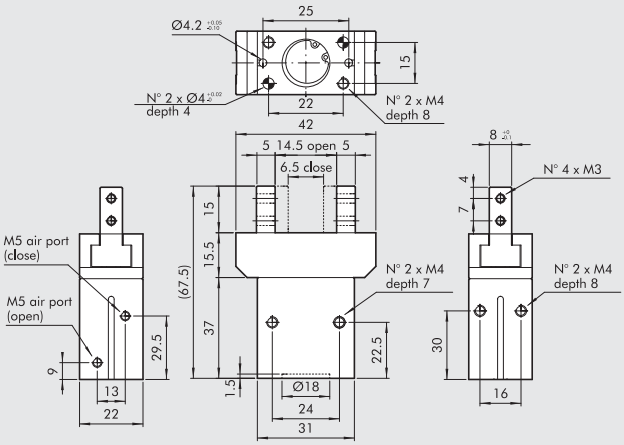


TECHNICAL DATA		P2 -16	P2-20	P2- 25
Operating pressure	bar	2 to 8		
	MPa	0.2 to 0.8		
	psi	29 to 116		
Operating temperature	°C	-10 to +80		
Maximum operating frequency	cycles/s	2		
Fluid		20 µm filtered, lubricated or unlubricated air; lubrification if used, it must be continuous		
Size		16	20	25
Bore	mm	16	20	25
Single jaw stroke	mm	4	5	7
Clamping force at 6.3 bar 20 mm from the top surface	N	45	100	135
during opening and closing				
Weight	kg	0.2	0.4	0.75

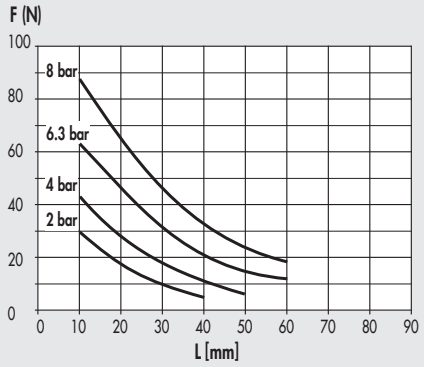
TABLE OF CLAMPING FORCES FOR VARIOUS POINTS OF APPLICATION



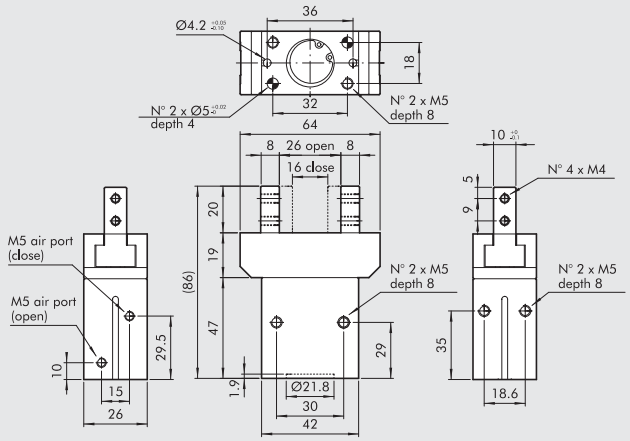
DIMENSIONS OF GRIPPER P2-16



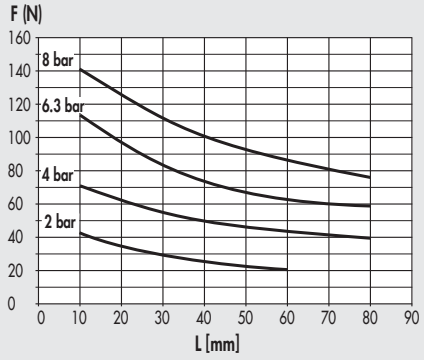
Code	Description
W1570160200	Gripper with 2 parallel jaws P2-16



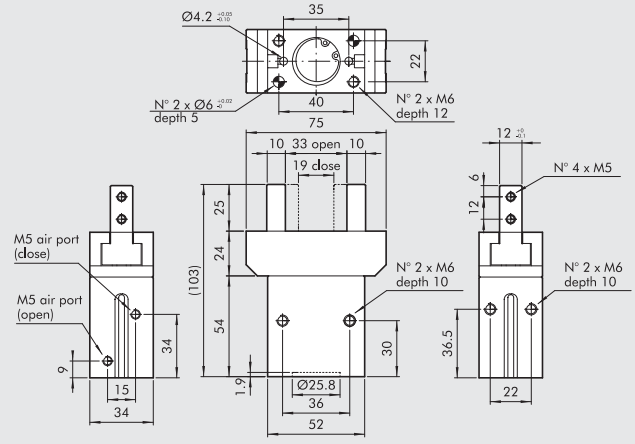
DIMENSIONS OF GRIPPER P2-20



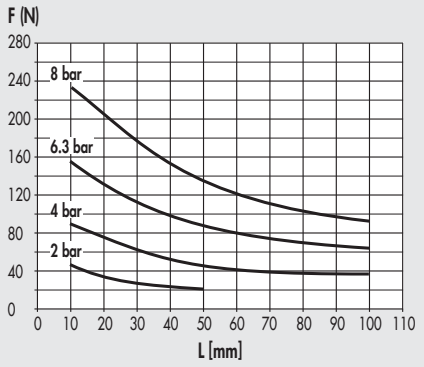
Code	Description
W1570200200	Gripper with 2 parallel jaws P2-20



DIMENSIONS OF GRIPPER P2-25

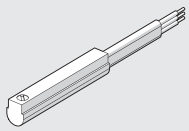


Code	Description
W1570250200	Gripper with 2 parallel jaws P2-25



ACCESSORIES

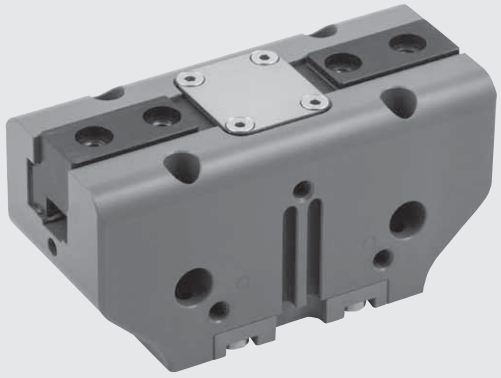
SENSOR Ø 4



For codes and technical data, see **chapter A6**.

GRIPPER WITH TWO PARALLEL JAWS, SERIES P3

Parallel double-acting two-jaw gripper, with either internal or external clamping.
Aluminum alloy body coated with surface hardening treatment; jaws made of wear-resistant coated steel.
The jaw-guiding system and precision in coupling with the body make the gripper extremely stable.
The ceramic-coated body reduces friction and wear, and enhances the movement of the jaws on the body.
All sizes are available in the version with standard stroke and clamping force, while only some in the version with reduced stroke but with higher clamping torque.
The gripper is equipped with a magnet and grooves for sensors.
A version designed to house inductive sensors is also available (**the inductive sensors are not supplied by Metal Work**).
Pneumatic supply is available on both sides.



TECHNICAL DATA		P3-40	P3-64	P3-80		P3-100	
				Standard	Increased force	Standard	Increased force
Operating pressure	bar	2 to 8					
	MPa	0.2 to 0.8					
	psi	29 to 116					
Temperature range	°C	-10 to 80					
Fluid		20 µm filtered, lubricated or unlubricated air; lubrification if used, it must be continuous					
Clamping force of a single jaw at 6.3 bar, 20 mm from the upper surface, on opening and closing	N	75	125	265	445	360	790
Maximum movable weight	kg	0.65	1.3	2.5	5	3.5	7
Stroke of each jaw	mm	2.5	6	8	4	10	5
Minimum opening/closing time	s	0.05					
Repeatability	mm	0.01					
Moment of inertia as regards the piston axis	kg cm²	1.8	4	4.5		12	
Max. admissible static loads:							
- Fa	N	250	1100	1500		2000	
- Mx	Nm	10	40	90		80	
- My	Nm	5	60	55		115	
- Mz	Nm	12	40	55		70	
Weight	kg	0.12	0.35	0.5		0.9	

COMPONENTS

① BODY: hard-anodised aluminium
② JAWS: nitrided steel
③ PISTON ROD + GUIDE: nitrided steel
④ PISTON: hard-anodised aluminium
⑤ PISTON GASKET: NBR
⑥ PISTON ROD GASKET: NBR / polyurethane
⑦ BASE GASKET: reinforced SBR / NBR
⑧ MAGNET: neodymium

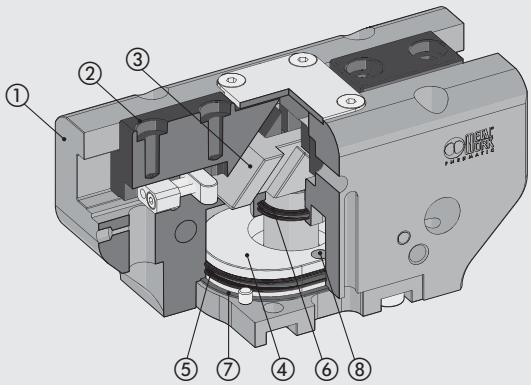
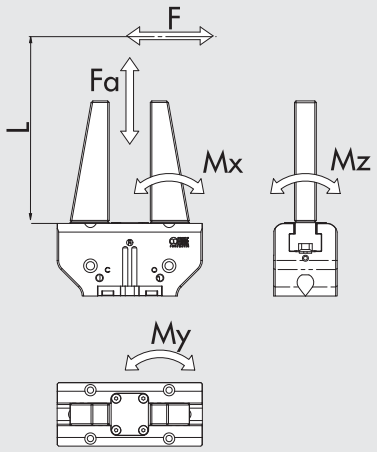


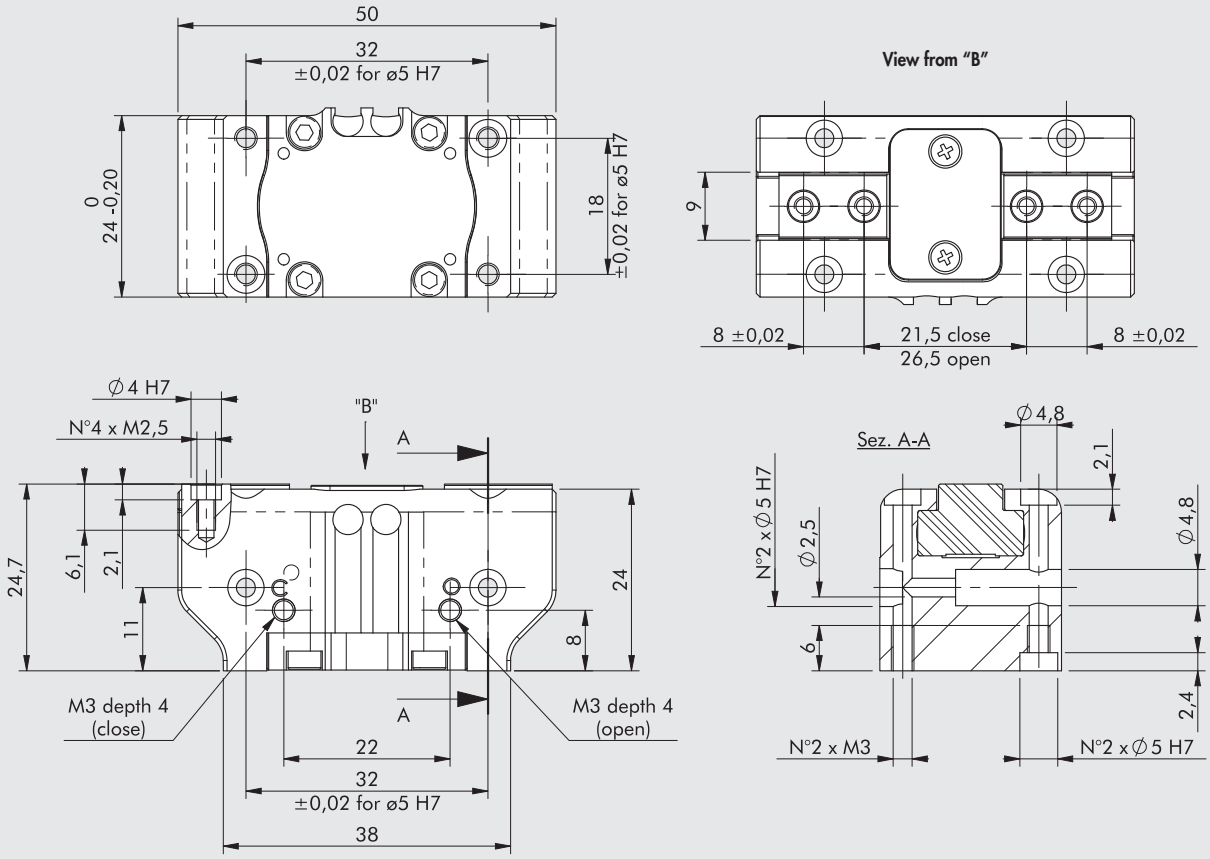
DIAGRAM OF FORCES AND MOMENTS

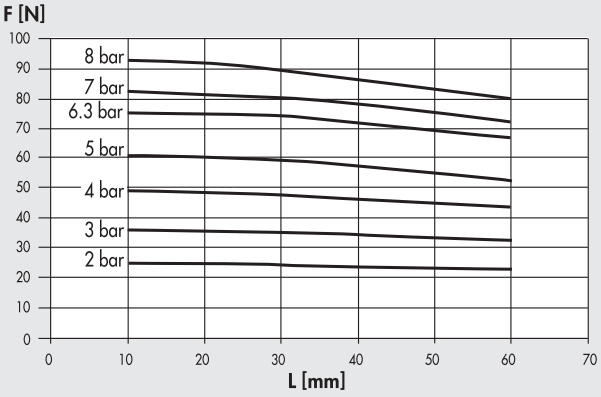


F	Clamping force for each jaw
Fa	Maximum static axial force
Mx, My, Mz	Maximum static moments

METAL WORK PNEUMATIC

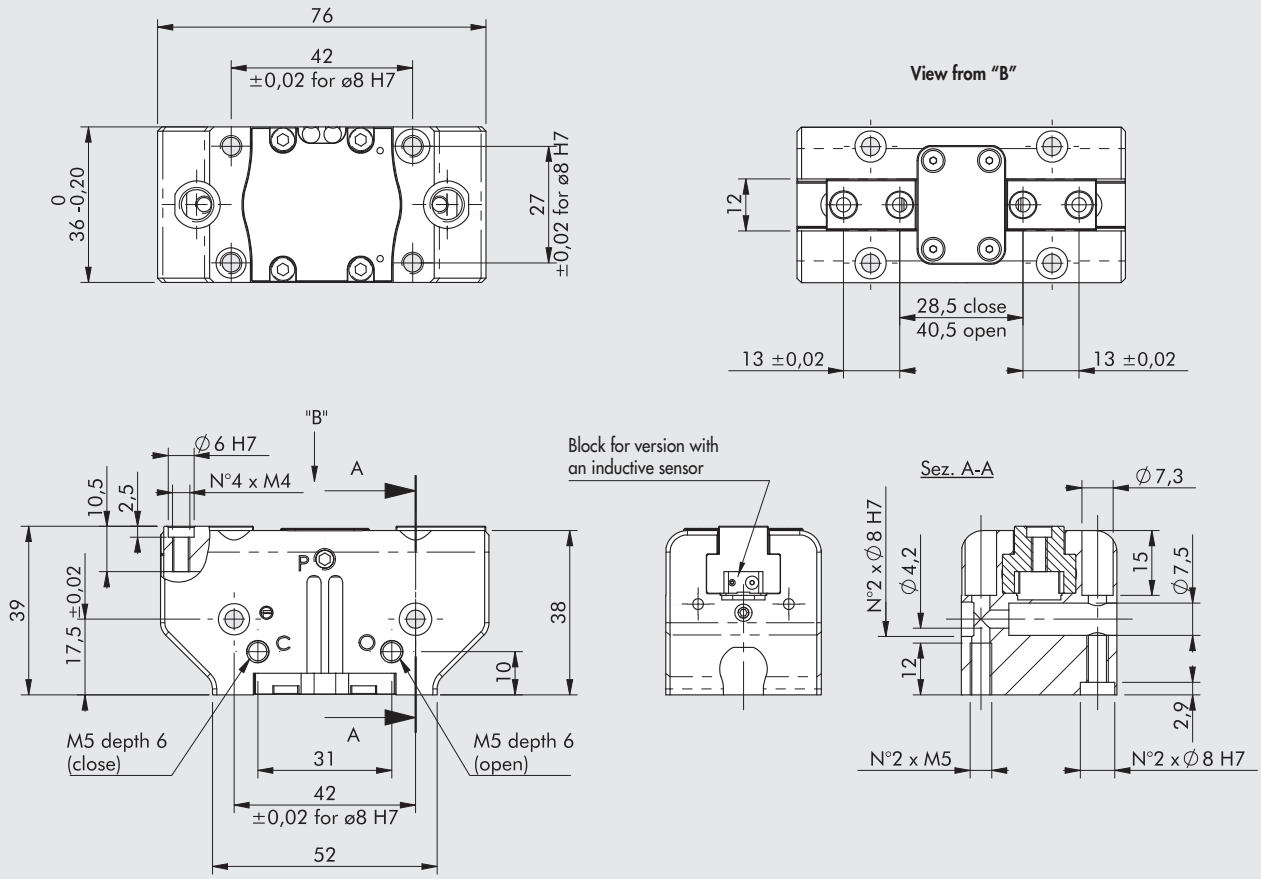
DIMENSIONS OF GRIPPER P3-40

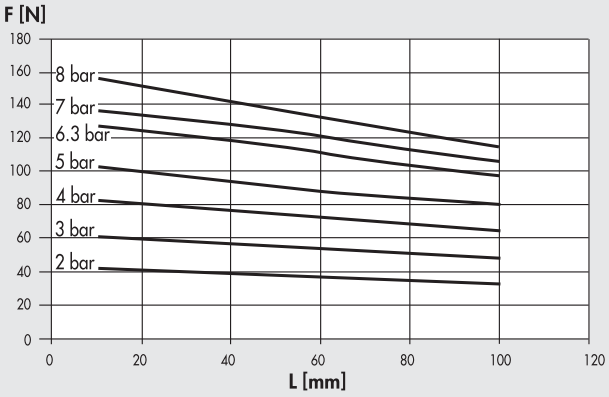




Code	Description
W1560400200	Gripper with 2 parallel jaws P3-40

DIMENSIONS OF GRIPPER P3-64

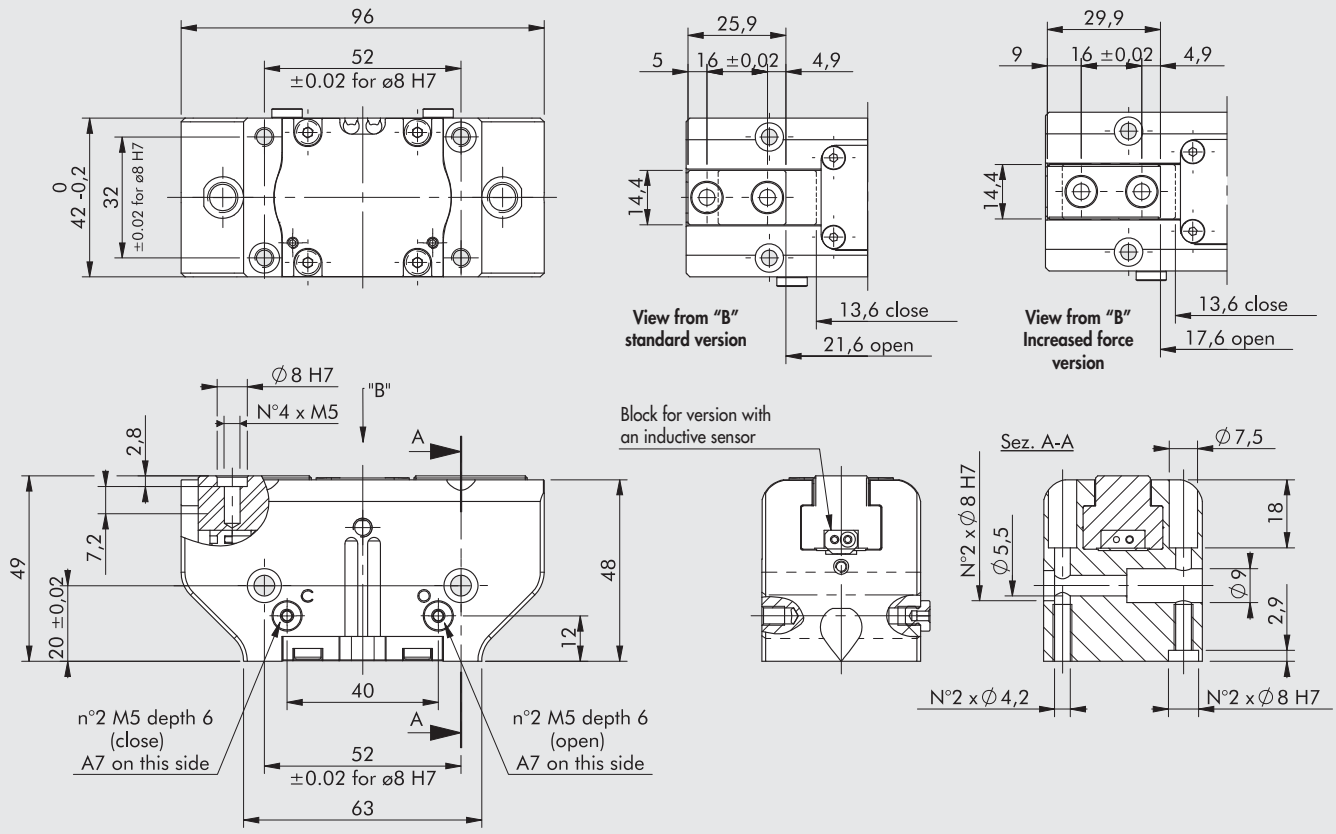




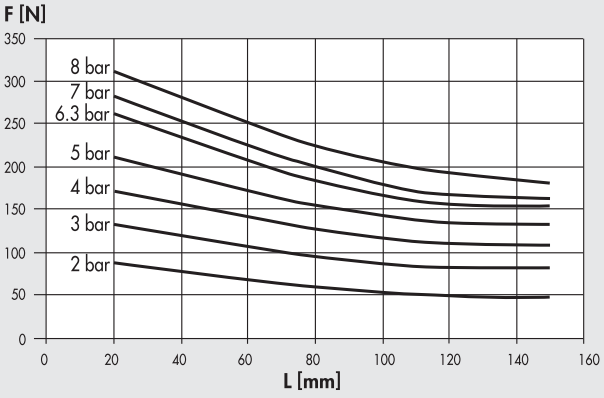
Code	Description
W1560640200	Gripper with 2 parallel jaws P3-64
W1560640201	Gripper with 2 parallel jaws P3-64 for inductive sensors

METAL WORK PNEUMATIC

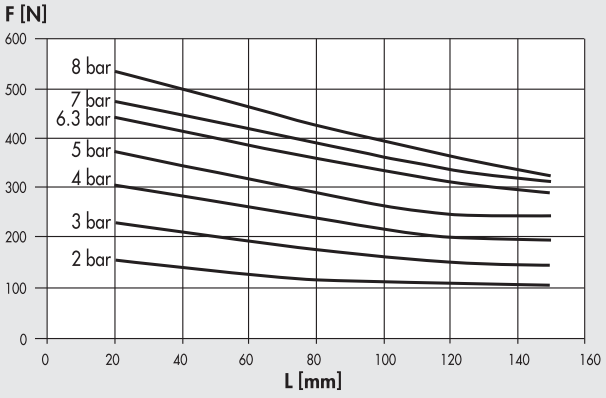
DIMENSIONS OF GRIPPER P3-80



Standard version

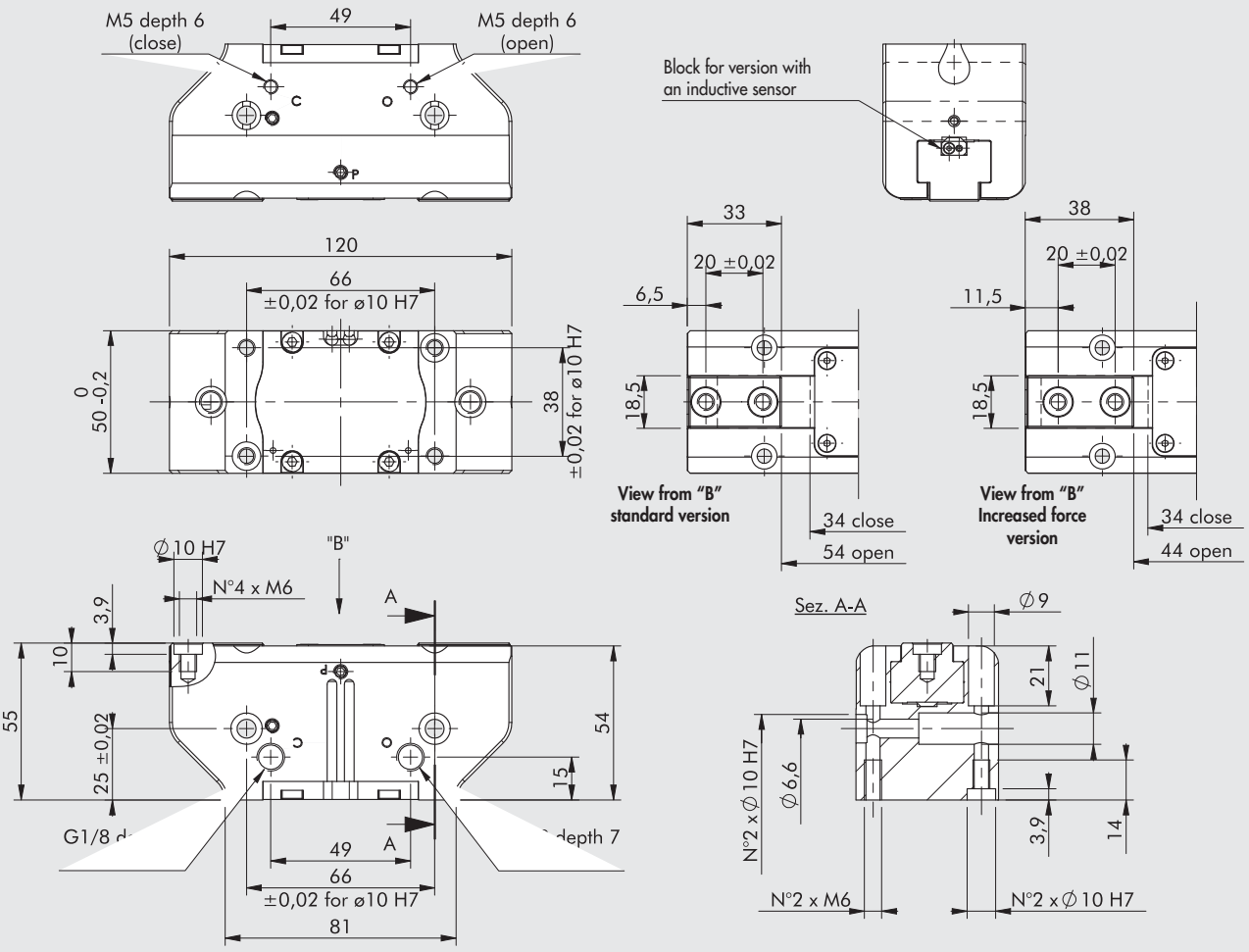


Increased force version

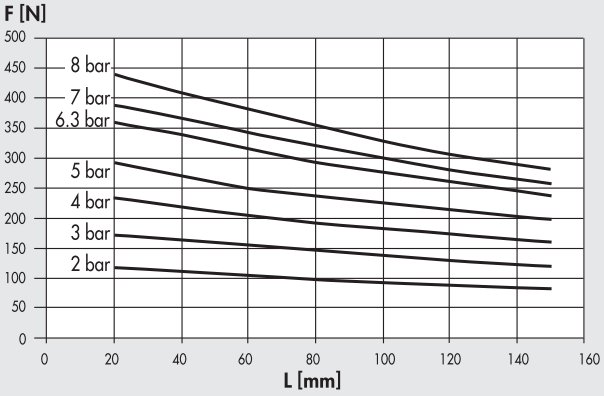


Code	Description
W1560800200	Gripper with 2 parallel jaws P3-80
W1560800201	Gripper with 2 parallel jaws P3-80 for inductive sensors
W1560800220	Gripper with 2 parallel jaws P3-80 increased force
W1560800221	Gripper with 2 parallel jaws P3-80 increased force for inductive sensors

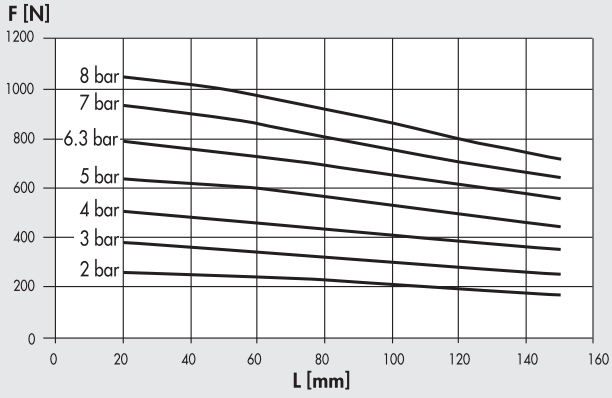
DIMENSIONS OF GRIPPER P3-100



Standard version



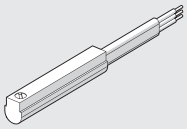
Increased force version



Code	Description
W1561000200	Gripper with 2 parallel jaws P3-100
W1561000201	Gripper with 2 parallel jaws P3-100 for inductive sensors
W1561000220	Gripper with 2 parallel jaws P3-100 increased force
W1561000221	Gripper with 2 parallel jaws P3-100 increased force for inductive sensors

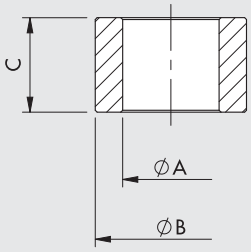
ACCESSORIES

SENSOR Ø 4



For codes and technical data, see **chapter A6**.

CENTRING RING



Code	Size	ØA	ØB f7	C
W1560409201	40	$3^{0}_{-0.1}$	4	$4^{0}_{-0.1}$
W1560649201	64	$4.5^{0}_{-0.1}$	6	$5^{0}_{-0.1}$
W1560809201	80	$5.1^{0}_{-0.1}$	8	$5^{0}_{-0.05}$
W1561009201	100	$6.2^{\pm 0.1}$	10	$6.9^{0}_{-0.1}$

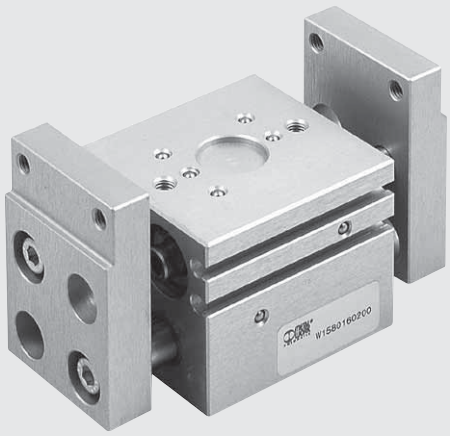
Note: 2-pieces pack

NOTES

NOTES

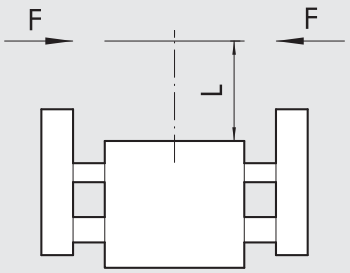
GRIPPER WITH TWO PARALLEL LONG-STROKE JAWS, SERIES P4

These are grippers with 2 parallel long-stroke jaws. The mechanical design makes them suitable for clamping bulky parts. All grippers, except for the smallest ones, can mount a retracting magnetic proximity sensor.

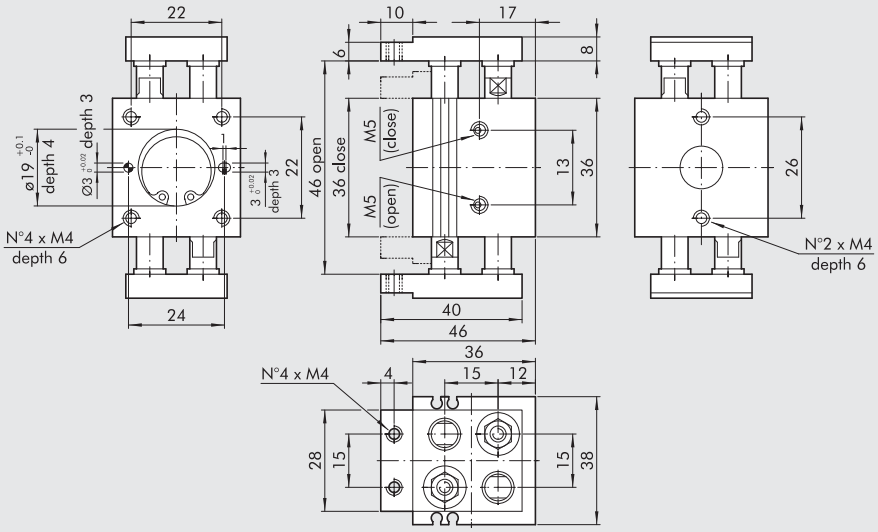


TECHNICAL DATA		P4-10	P4-12	P4-16	P4-25	P4-30
Operating pressure	bar	3 to 7				
	MPa	0.3 to 0.7				
	psi	43 to 101				
Operating temperature	°C	-10 to +80				
Maximum operating frequency	cycles/s	1				
Fluid		20 µm filtered, lubricated or unlubricated air; lubrification if used, it must be continuous				
Bore	mm	2 x 10	2 x 12	2 x 16	2 x 30	2 x 30
Single jaw stroke	mm	5	10	15	30	60
Clamping force at 6.3 bar 20 mm from the top surface during opening and closing	N	30	45	75	280	280
Weight	kg	0.18	0.3	0.5	2.95	3.7

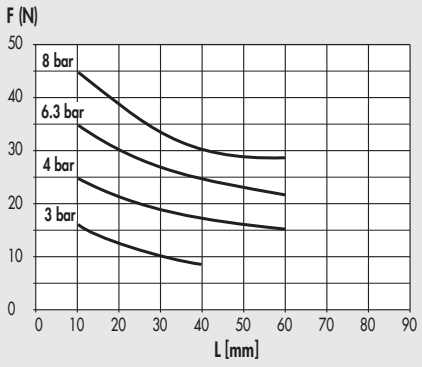
TABLE OF CLAMPING FORCES FOR VARIOUS POINTS OF APPLICATION



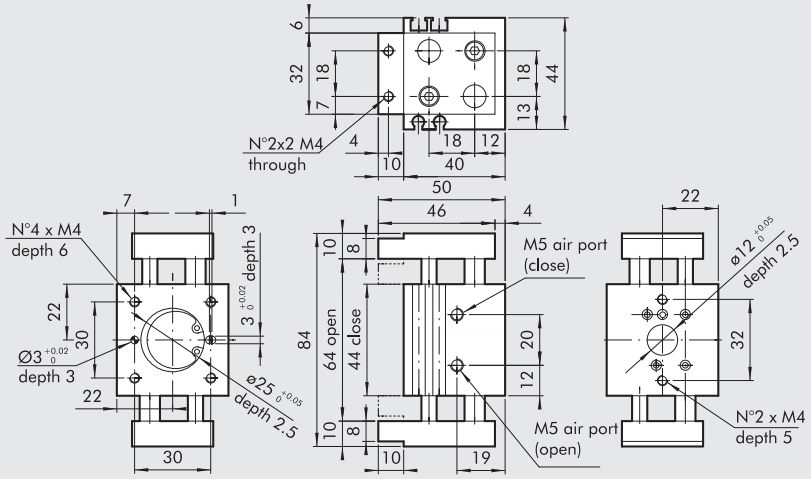
DIMENSIONS OF GRIPPER P4-10



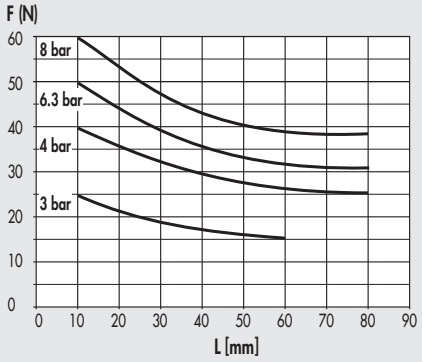
Code	Description
W1580100200	Gripper with 2 parallel long-stroke jaws P4-10



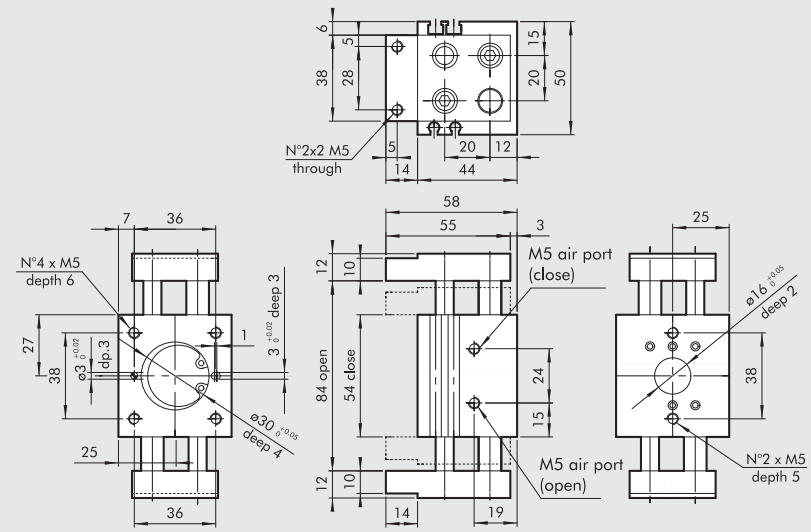
DIMENSIONS OF GRIPPER P4-12



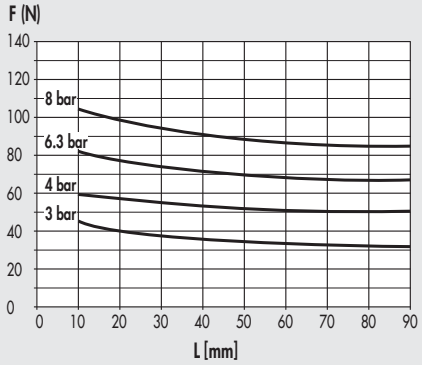
Code	Description
W1580120200	Gripper with 2 parallel long-stroke jaws P4-12



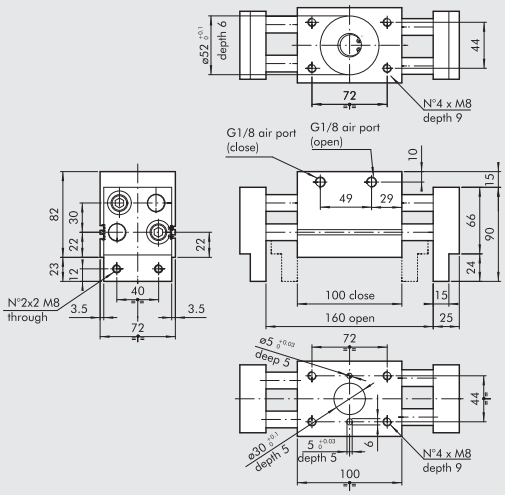
DIMENSIONS OF GRIPPER P4-16



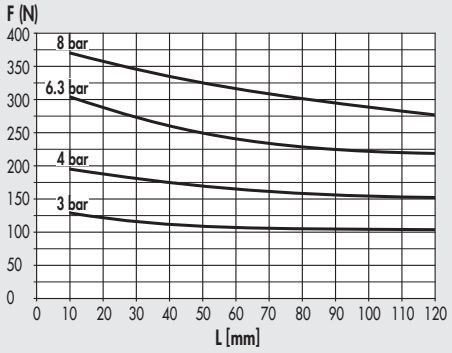
Code	Description
W1580160200	Gripper with 2 parallel long-stroke jaws P4-16



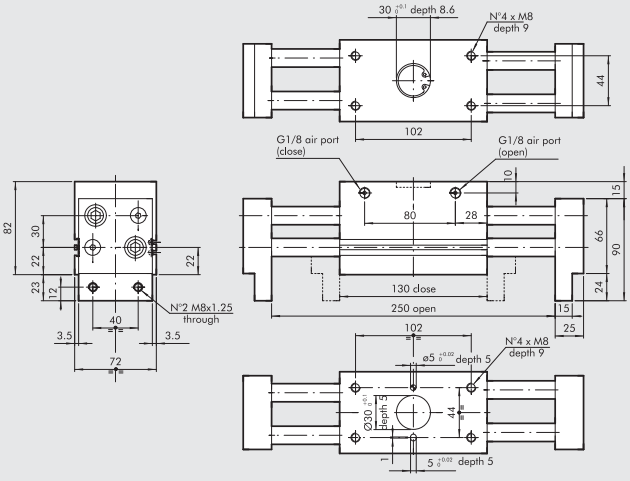
DIMENSIONS OF GRIPPER P4-25



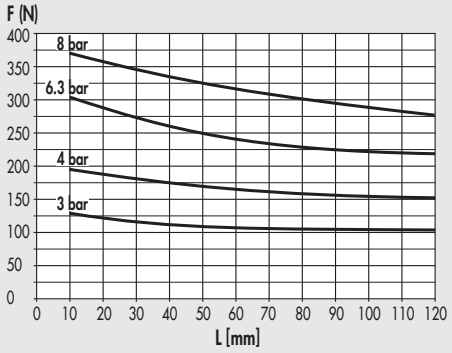
Code	Description
W1580250200	Gripper with 2 parallel long-stroke jaws P4-25



DIMENSIONS OF GRIPPER P4-30

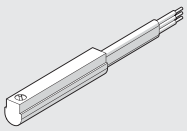


Code	Description
W1580300200	Gripper with 2 parallel long-stroke jaws P4-30



ACCESSORIES

SENSOR Ø 4 FOR P4 10-30

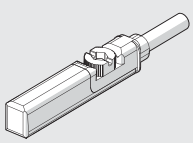


For codes and technical data, see **chapter A6**.

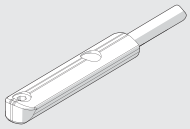
RETRACTABLE SENSOR FOR P4-12-30

For codes and technical data, see **chapter A6**.

SENSOR, SQUARE TYPE
Latest generation, secure fixing

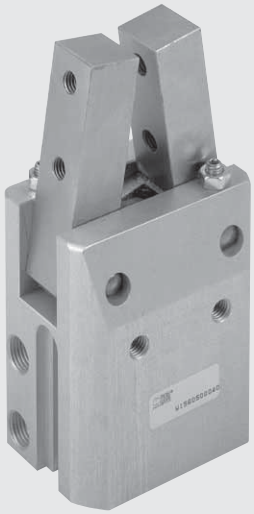


SENSOR, OVAL TYPE
Traditional



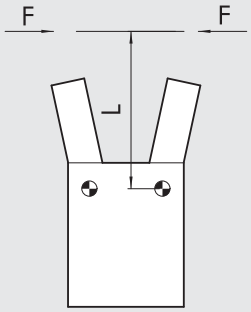
GRIPPER WITH TWO HINGED JAWS – SERIES P7

Bores 16, 20, 32 and 50 mm.
All grippers are magnetic with slots in the body with retracting sensors.

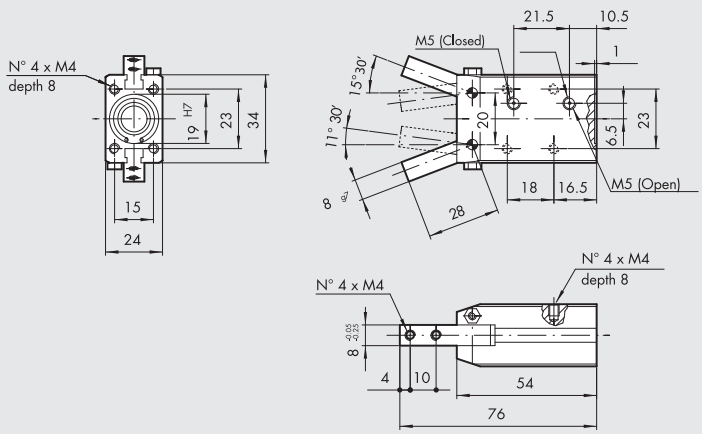


TECHNICAL DATA		P7-16	P7-20	P7-32	P7-50
Operating pressure	bar	2 to 10	2 to 10	2 to 10	2 to 10
	MPa	0.2 to 1	0.2 to 1	0.2 to 1	0.2 to 1
	psi	29 to 145	29 to 145	29 to 145	29 to 145
Fluid		20 µm filtered, lubricated or unlubricated air; lubrification if used, it must be continuous			
Temperature range	°C	-10 to +80			
Maximum opening angle of single jaw		15° 30′	16° 30′	16°	8° 30′
Clamping force at 6.3 bar 20 mm from the centre of rotation of the jaws, during opening and closing	N	27	50	120	380
Weight	kg	0.12	0.19	0.5	1.6

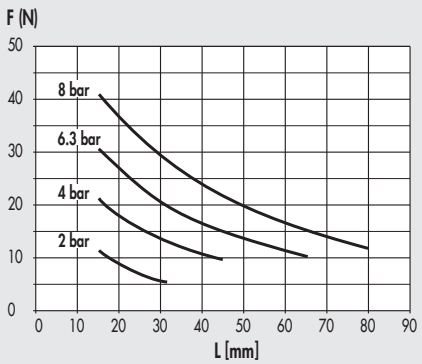
TABLE OF CLAMPING FORCES FOR VARIOUS POINTS OF APPLICATION



DIMENSIONS OF GRIPPER P7-16

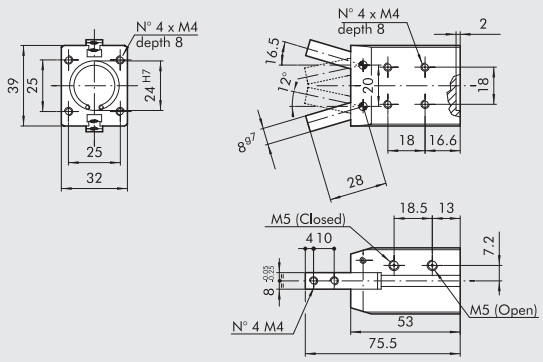


Code	Description
W1590160200	Gripper with 2 hinged jaws P7-16

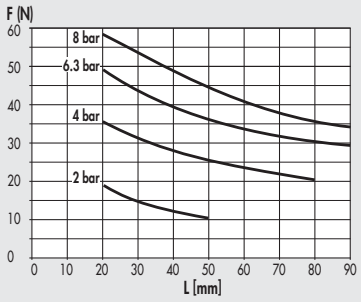


METAL WORK PNEUMATIC

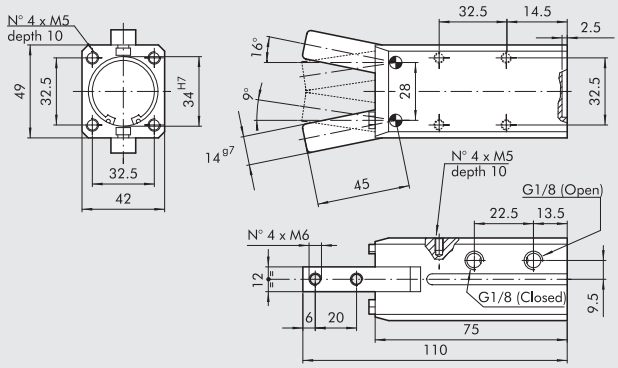
DIMENSIONS OF GRIPPER P7-20



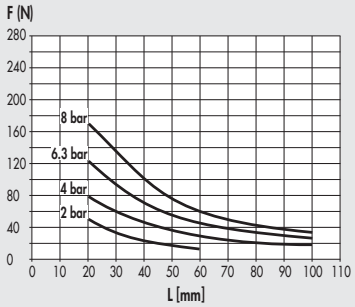
Code	Description
W1590200200	Gripper with 2 hinged jaws P7-20



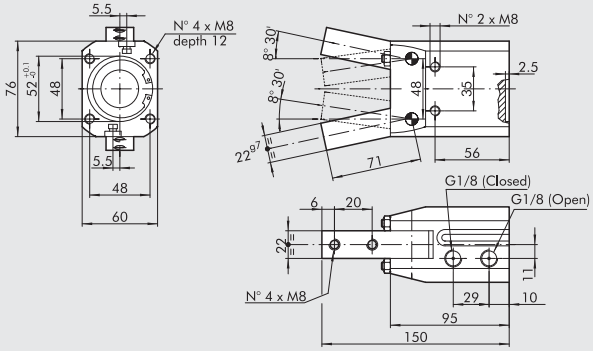
DIMENSIONS OF GRIPPER P7-32



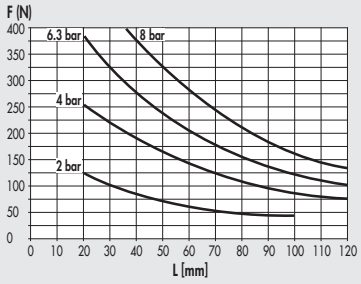
Code	Description
W1590320200	Gripper with 2 hinged jaws P7-32



DIMENSIONS OF GRIPPER P7-50



Code	Description
W1590500200	Gripper with 2 hinged jaws P7-50

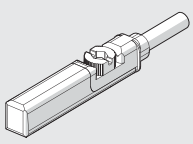


ACCESSORIES

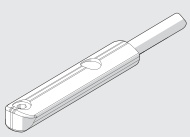
RETRACTABLE SENSOR

For codes and technical data, see **chapter A6**.

SENSOR, SQUARE TYPE
Latest generation,
secure fixing

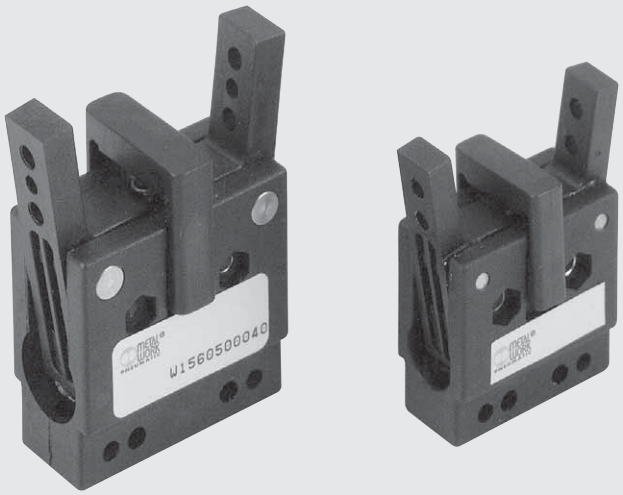


SENSOR, OVAL TYPE
Traditional



TECHNOPOLYMER HINGED GRIPPER SERIES P8

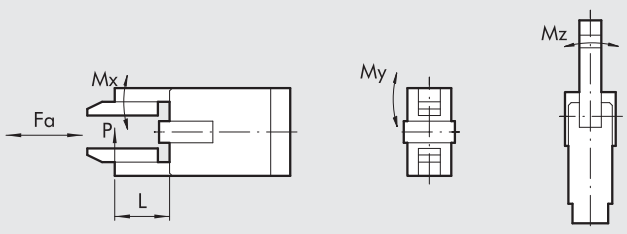
Single-acting hinged grippers, normally open, made entirely of technopolymer. Three sizes with clamping force 25-80 N at 6 bar. This solution makes the entire system lighter.
This gripper is corrosion-resistant and antimagnetic. It comes complete with spring-loaded bracket for pre-loading the piece (force 1.5-6 N) and sensor holders.



TECHNICAL DATA		P8-32	P8-40	P8-50
Operating pressure	bar		4 to 7	
	MPa		0.4 to 0.7	
	bar		58 to 101	
Operating temperature	°C		-10 to +60	
Fluid			20 µm filtered, lubricated or unlubricated air; lubrification if used, it must be continuous	
Life			Over 2 million cycles	
Jaw opening angle			8°	
Clamping force per jaw at 6 bar	N	22.5	48	80
Applicable weight (recommended)	kg	0.2	0.4	0.8
Air consumption per cycle	cm^3	0.5	1	1.8
Opening time	sec	0.04	0.05	0.05
Closing time	sec	0.06	0.08	0.08
Weight of grippers	g	36	45	60
Moment of inertia	kg cm^2	0.04	0.12	0.15
Repeatability	mm	0.1	0.1	0.1

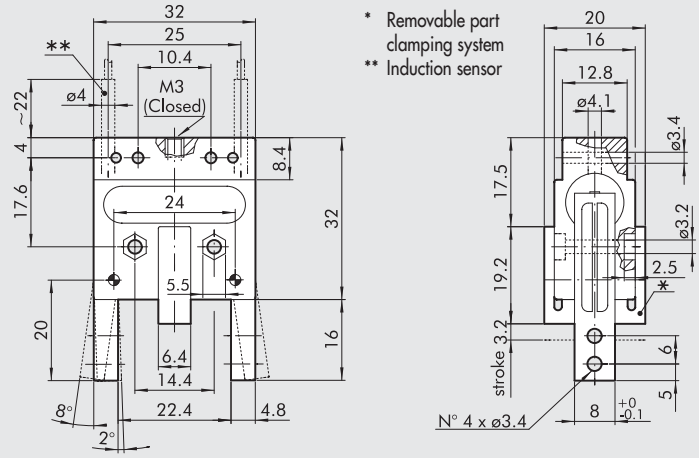
TABLE OF MOMENTS

Gripper	FA (N)	Mx (Ncm)	My (Ncm)	Mz (Ncm)	P (N)
P8 - 32	3	9	10	10	22.5
P8 - 40	5	23	20	20	47.5
P8 - 50	8	49	30	40	80

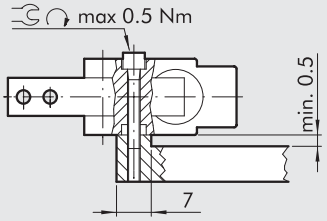


METAL WORK PNEUMATIC

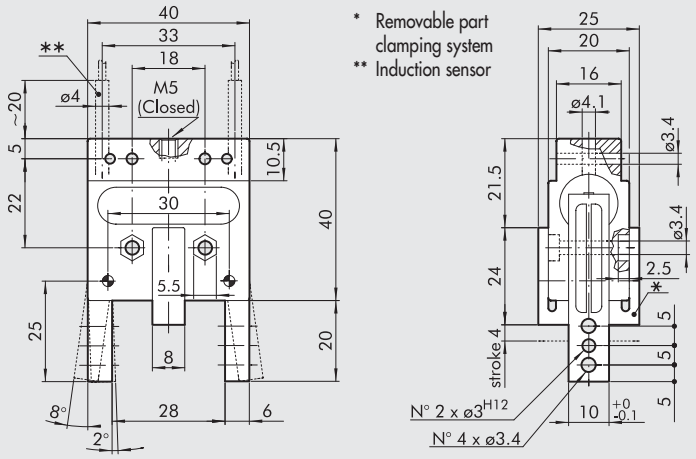
DIMENSIONS OF GRIPPER P8-32



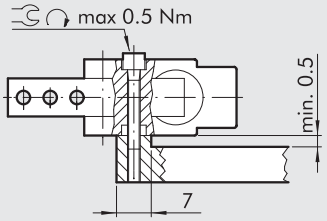
Code	Description
W0710010002	Tecnopolimer hinged grippers P8-32



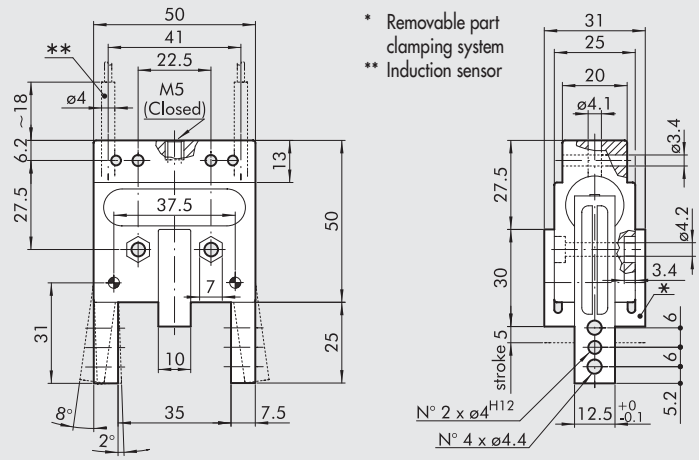
DIMENSIONS OF GRIPPER P8-40



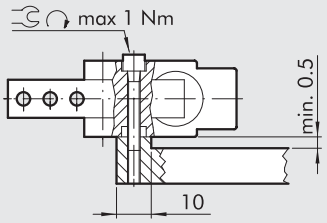
Code	Description
W0710010003	Tecnopolimer hinged grippers P8-40



DIMENSIONS OF GRIPPER P8-50

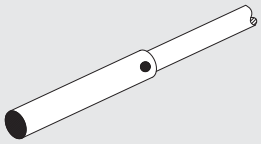


Code	Description
W0710010004	Tecnopolimer hinged grippers P8-50



ACCESSORIES

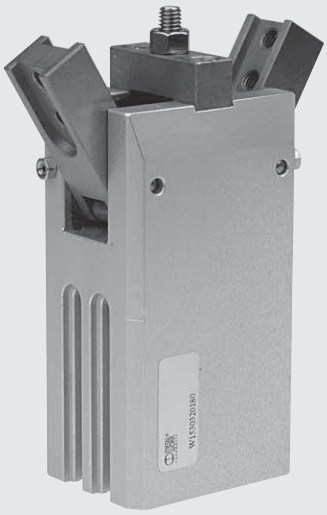
INDUCTION SENSOR



Code	Description
W0950037391	Induction sensor Ø 4 mm PNP-NO-2 m

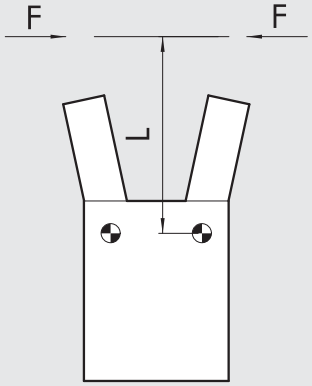
GRIPPER 180° WITH TWO HINGED JAWS - SERIES P9

- Toggle-type pivoted grippers, with adjustable opening angle.
- High clamping forces.
- Body made of hard anodized aluminium, jaws and moving parts made of tempered steel.
- Bottom or side fixing.
- All sizes come with magnets and sensor slots.



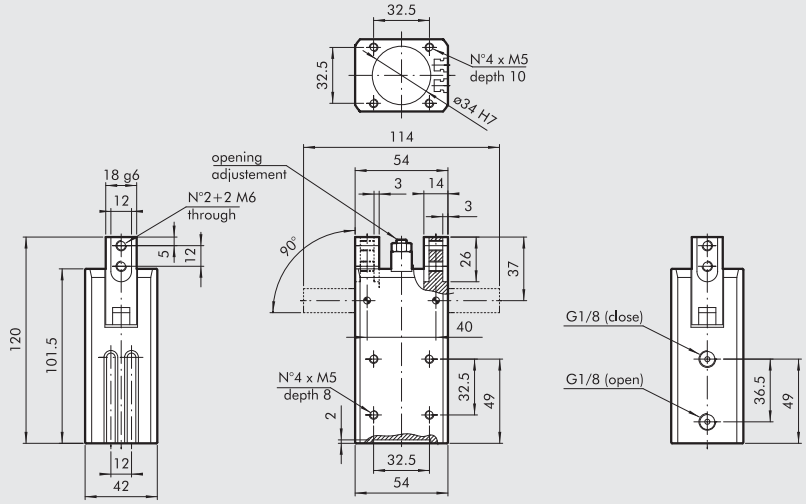
TECHNICAL DATA		P9-32	P9-40
Operating pressure	bar	2 to 8	
	MPa	0.2 to 0.8	
	psi	29 to 116	
Temperature range	°C	-10 to +80	
Fluid		Filtered, lubricated or unlubricated air; lubrification if used, it must be continuous	
Bores	mm	32	40
Jaw opening angle		Adjustable 180°	
Clamping force at 6.3 bar 40 mm from the jaw pivot during opening and closing	N	160	260
Weight	kg	0.85	1.5

TABLE OF CLAMPING FORCES FOR VARIOUS POINTS OF APPLICATION

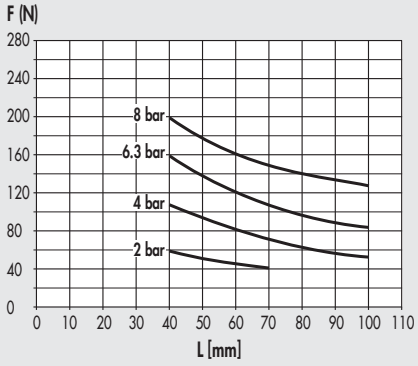


METAL WORK PNEUMATIC

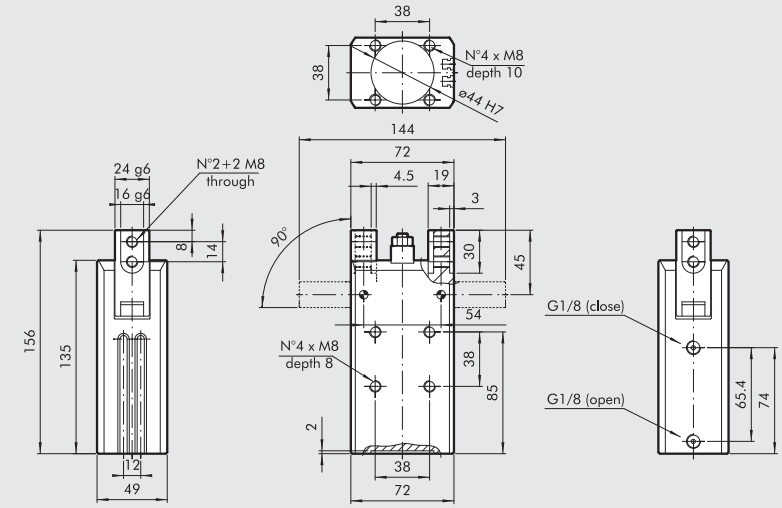
DIMENSIONS OF GRIPPER P9-32



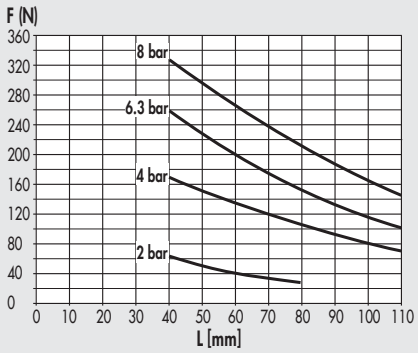
Code	Description
W1530320180	Hinged gripper P9-32



DIMENSIONS OF GRIPPER P9-40



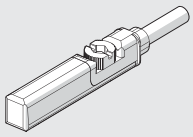
Code	Description
W1530400180	Hinged gripper P9-40



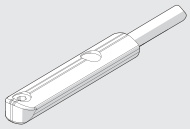
ACCESSORIES

RETRACTABLE SENSOR

SENSOR, SQUARE TYPE
Latest generation,
secure fixing



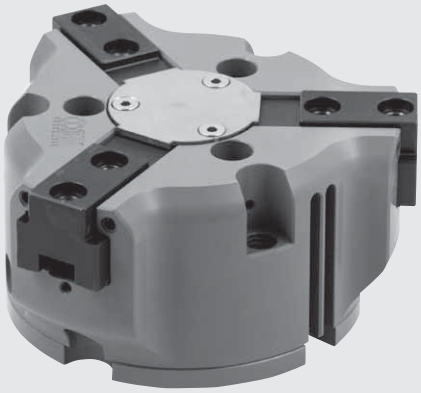
SENSOR, OVAL TYPE
Traditional



For codes and technical data, see **chapter A6**.

GRIPPER WITH THREE PARALLEL JAWS, SERIES P12

Parallel double-acting three-jaw gripper, with either internal or external clamping.
Aluminum alloy body coated with surface hardening treatment; jaws made of wear-resistant coated steel.
The jaw-guiding system and precision in coupling with the body make the gripper extremely stable.
The ceramic-coated body reduces friction and wear, and enhances the movement of the jaws on the body.
All sizes are available in the version with standard stroke and clamping force, while only some in the version with reduced stroke but with higher clamping torque.
The gripper is equipped with a magnet and grooves for sensors.
A version designed to house inductive sensors is also available (**the inductive sensors are not supplied by Metal Work**).



TECHNICAL DATA		P12-40	P12-64	P12-80		P12-100	
				Standard	Increased force	Standard	Increased force
Operating pressure	bar	2 to 8					
	MPa	0.2 to 0.8					
	psi	29 to 116					
Temperature range	°C	-10 to 80					
Fluid		20 µm filtered, lubricated or unlubricated air; lubrification if used, it must be continuous					
Clamping force of a single jaw at 6.3 bar, 20 mm from the upper surface, on opening and closing	N	130	310	435	860	840	1450
Maximum movable weight	kg	1.3	2.9	4.5	9	9	20
Stroke of each jaw	mm	2.5	6	8	4	10	5
Minimum opening/closing time	s	0.05					
Repeatability	mm	0.01					
Moment of inertia as regards the piston axis	kg cm²	2.1	6	6.5		19	
Max. admissible static loads:							
- Fa	N	250	1100	1500		2000	
- Mx	Nm	10	40	90		80	
- My	Nm	5	60	55		115	
- Mz	Nm	12	40	55		70	
Weight	kg	0.2	0.7	0.75		1.4	

COMPONENTS

① BODY: hard-anodised aluminium
② JAWS: nitrided steel
③ PISTON ROD + GUIDE: nitrided steel
④ PISTON: hard-anodised aluminium
⑤ PISTON GASKET: NBR
⑥ PISTON ROD GASKET: NBR / polyurethane
⑦ BASE GASKET: reinforced SBR / NBR
⑧ MAGNET: neodymium

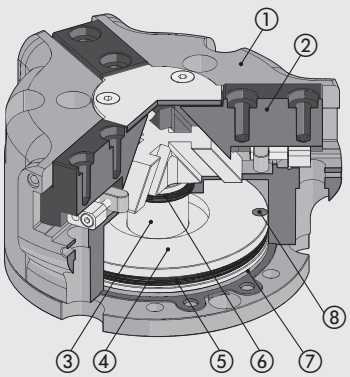
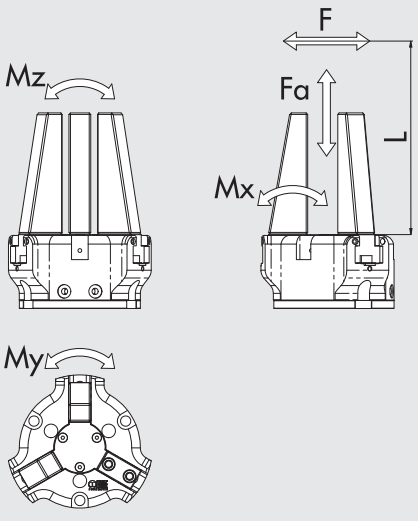


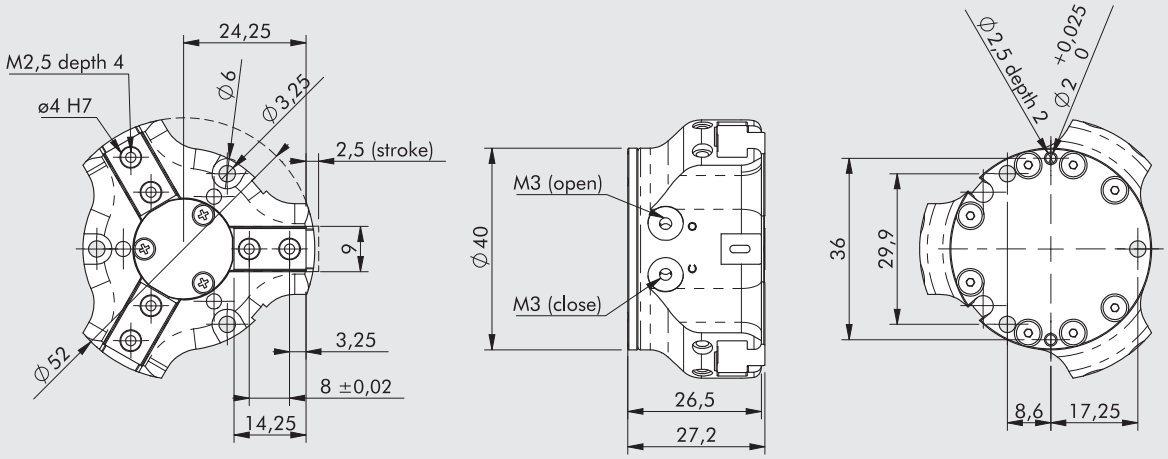
DIAGRAM OF FORCES AND MOMENTS



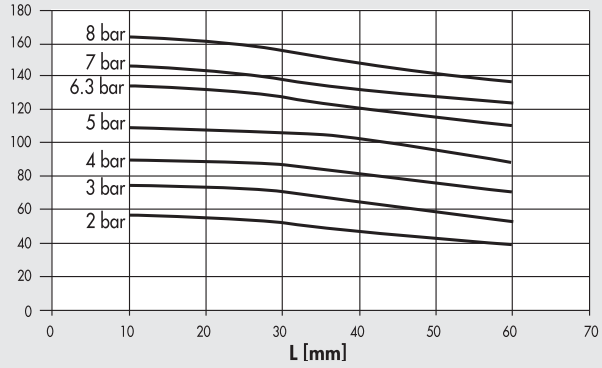
F	Clamping force for each jaw
Fa	Maximum static axial force
Mx, My, Mz	Maximum static moments

METAL WORK PNEUMATIC

DIMENSIONS OF GRIPPER P12-40

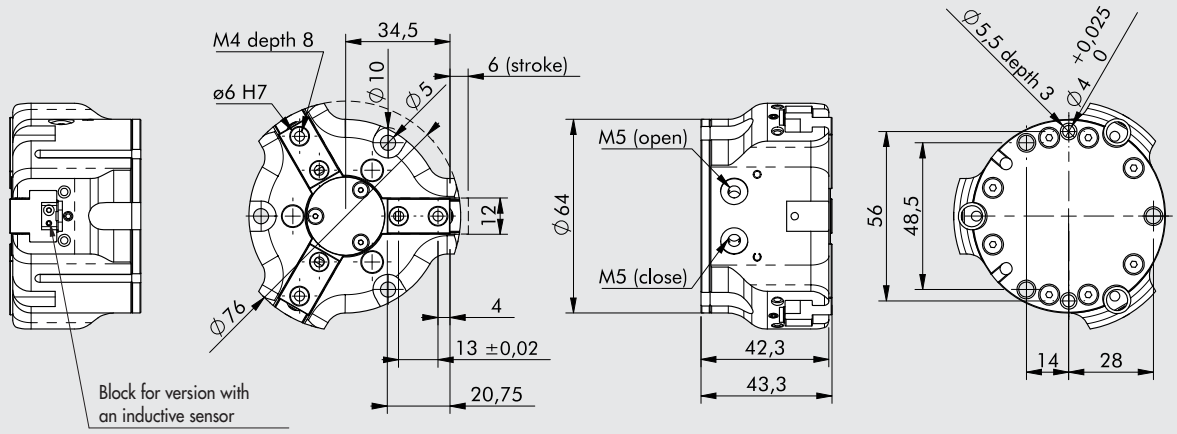


F [N]

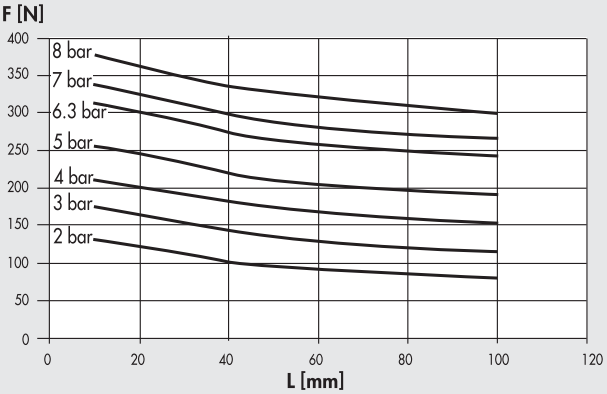


Code	Description
W1560400300	Gripper with 3 parallel jaws P12-40

DIMENSIONS OF GRIPPER P12-64

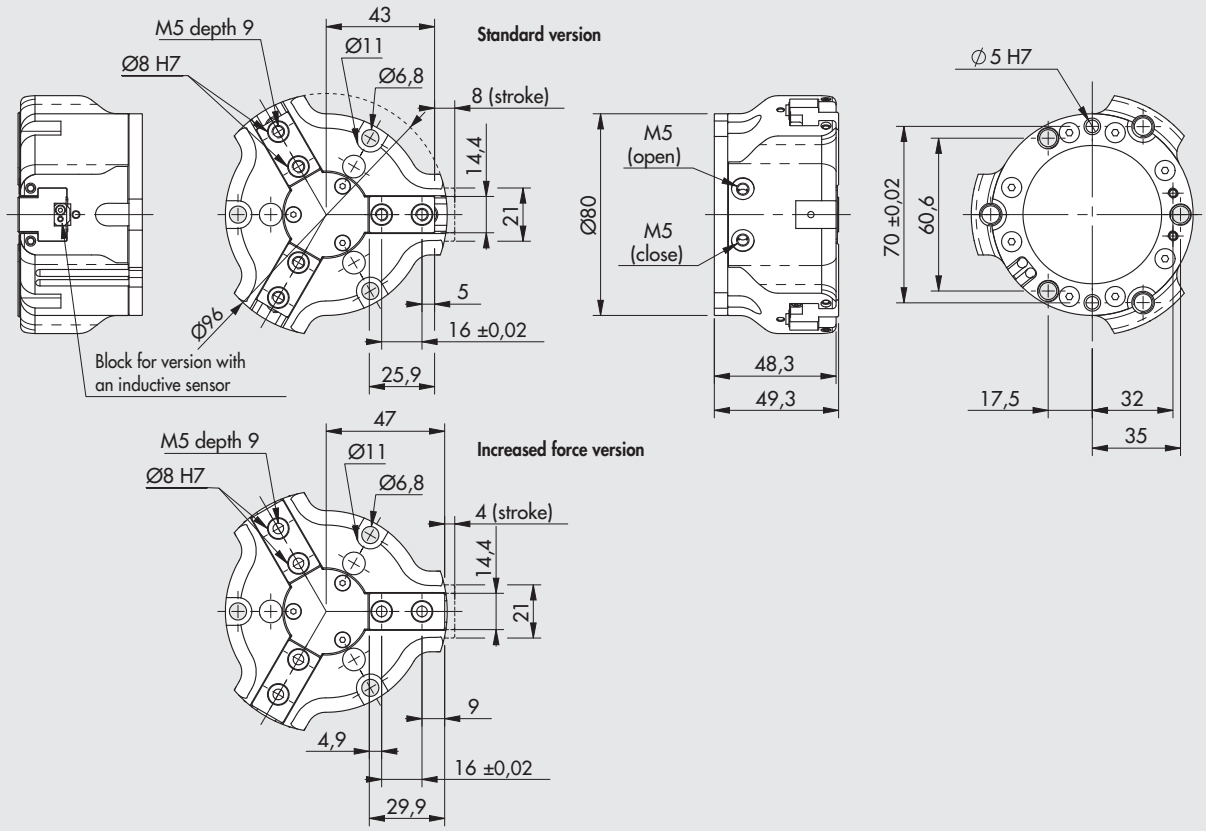


F [N]

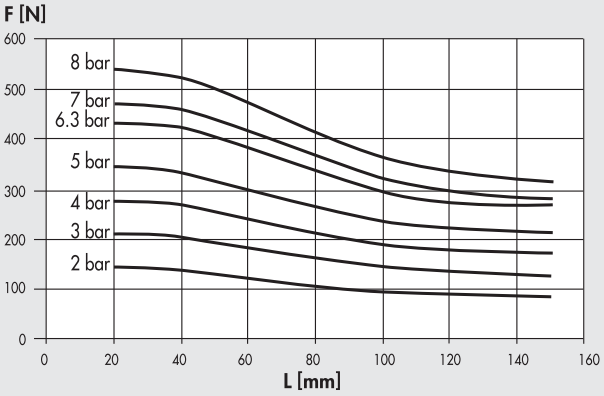


Code	Description
W1560640300	Gripper with 3 parallel jaws P12-64
W1560640301	Gripper with 3 parallel jaws P12-64 for inductive sensors

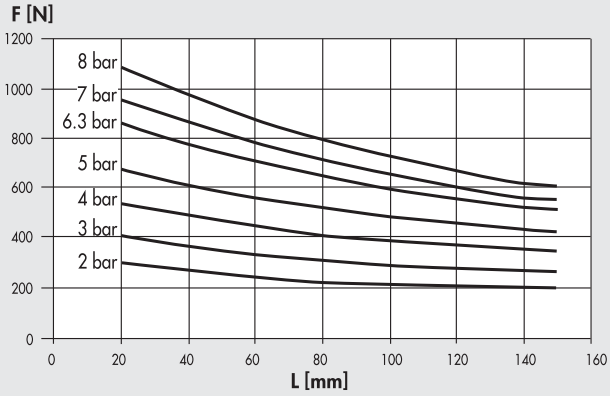
DIMENSIONS OF GRIPPER P12-80



Standard version



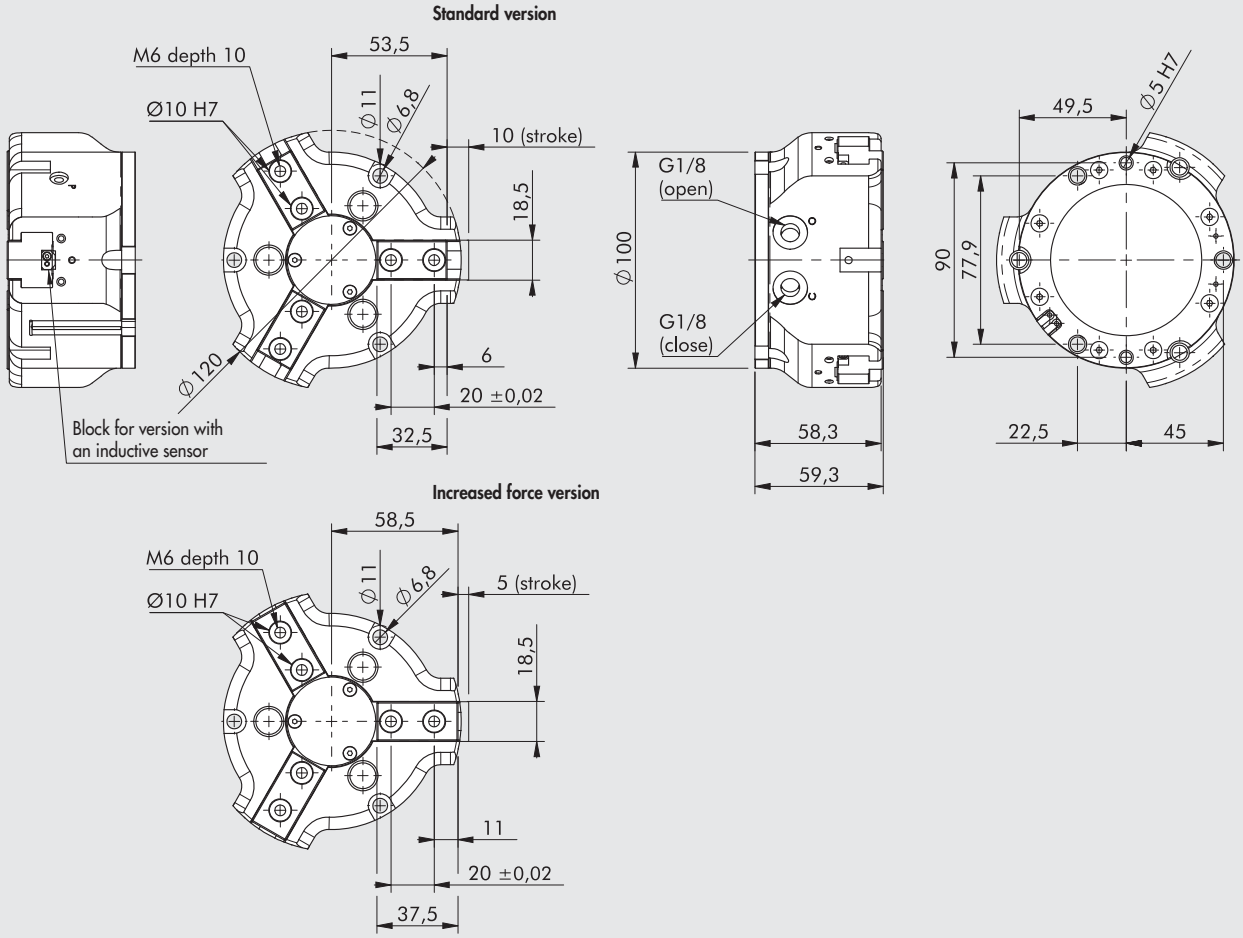
Increased force version



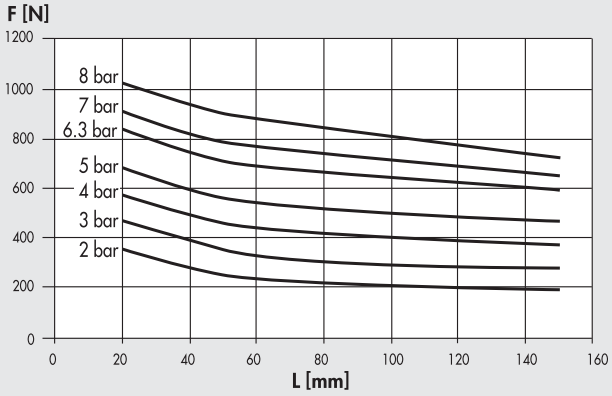
Code	Description
W1560800300	Gripper with 3 parallel jaws P12-80
W1560800301	Gripper with 3 parallel jaws P12-80 for inductive sensors
W1560800320	Gripper with 3 parallel jaws P12-80 increased force
W1560800321	Gripper with 3 parallel jaws P12-80 increased force for inductive sensors

METAL WORK PNEUMATIC

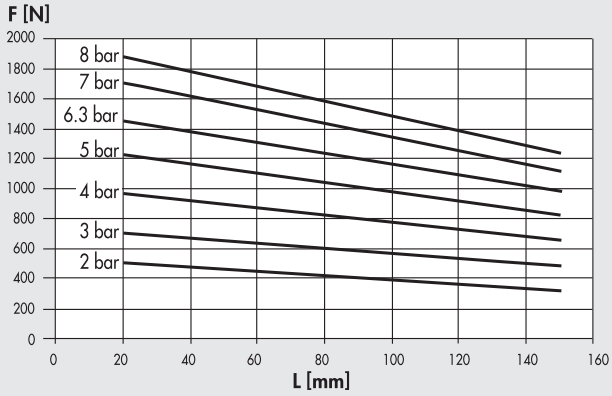
DIMENSIONS OF GRIPPER P12-100



Standard version



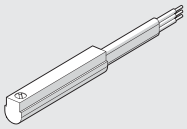
Increased force version



Code	Description
W1561000300	Gripper with 3 parallel jaws P12-100
W1561000301	Gripper with 3 parallel jaws P12-100 for inductive sensors
W1561000320	Gripper with 3 parallel jaws P12-100 increased force
W1561000321	Gripper with 3 parallel jaws P12-100 increased force for inductive sensors

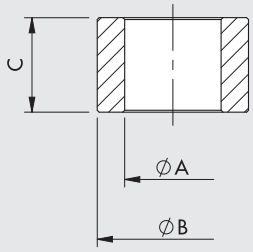
ACCESSORIES

SENSOR Ø 4



For codes and technical data, see **chapter A6**.

CENTRING RING



Code	Size	ØA	ØB f7	C
W1560409201	40	$3^{0}_{-0.1}$	4	$4^{0}_{-0.1}$
W1560649201	64	$4.5^{0}_{-0.1}$	6	$5^{0}_{-0.1}$
W1560809201	80	$5.1^{0}_{-0.1}$	8	$5^{0}_{-0.05}$
W1561009201	100	$6.2^{\pm 0.1}$	10	$6.9^{0}_{-0.1}$

Note: 2-pieces pack

NOTES

METAL WORK PNEUMATIC

NOTES