GRIPPER WITH THREE PARALLEL JAWS, SERIES P12

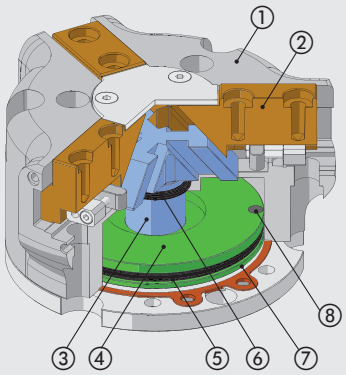
Parallel double-acting three-jaw gripper, with either internal or external clamping.
Also available in the double-acting with spring version, normally open (NO) for internal grip and normally closed (NC) for external grip.
Aluminum alloy body coated with surface hardening treatment; jaws made of wear-resistant 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		
			DA	NO	NC	DA	NO	NC	DA	NO	NC	DA	NO	NC	DA	NO	NC	DA	NO	NC
Minimum operating pressure		bar	2			2			2						2					
		MPa	0.2			0.2			0.2						0.2					
		psi	29			29			29						29					
Maximum operating pressure		bar	8			8			8						8					
		MPa	0.8			0.8			0.8						0.8					
		psi	116			116			116						116					
Temperature range		°C	-10 to 80			-10 to 80			-10 to 80						-10 to 80					
Fluid			20 µm filtered, lubricated or unlubricated air; lubrification if used, it must be continuous																	
Gripping force at 6.3 bar *	opening	N	130	151	-	310	353	-	435	518	-	860	1026	-	840	999	-	1450	1767	-
	closing	N	117	-	138	279	-	322	392	-	475	774	-	940	756	-	915	1305	-	1622
Minimum gripping force produced by the spring *		N	-	21	21	-	43	43	-	83	83	-	166	166	-	159	159	-	317	317
Recommended workpiece weight		kg	1.3			2.9			4.5			9			9			20		
Stroke of each jaw		mm	2.5			6			8			4			10			5		
Minimum time	opening	s	0.05	0.05	0.1	0.05	0.05	0.1	0.05	0.05	0.1	0.05	0.05	0.1	0.05	0.05	0.1	0.05	0.05	0.1
	closing	s	0.05	0.1	0.05	0.05	0.1	0.05	0.05	0.1	0.05	0.05	0.1	0.05	0.05	0.1	0.05	0.05	0.1	0.05
Repeatability		mm	0.01			0.01			0.01						0.01					
Moment of inertia as regards the piston axis		kg cm²	0.33	0.38	0.38	1.57	2.96	2.96	6.5	8.64	8.64	6.5	8.64	8.64	19	26.13	26.13	19	26.13	26.13
Weight		kg	0.12	0.14	0.14	0.28	0.49	0.49	0.75	0.86	0.86	0.75	0.86	0.86	1.4	1.66	1.66	1.4	1.66	1.66

DA: Double-acting; NO: Double acting with spring, normally open; NC: Double acting with spring, normally closed.
* Referred to a single jaw 20 mm from the upper surface. The total force is obtained by multiplying the reported value by 3.

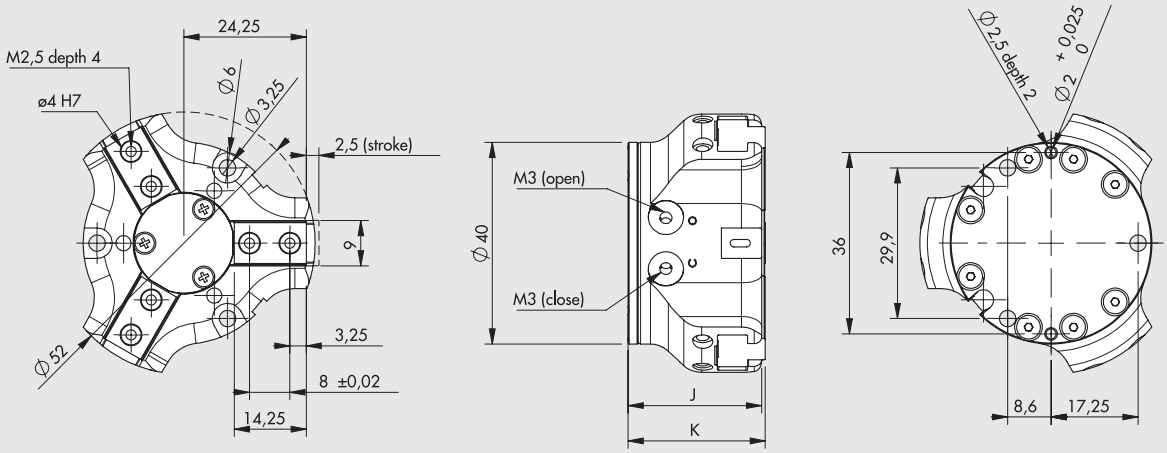
COMPONENTS

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

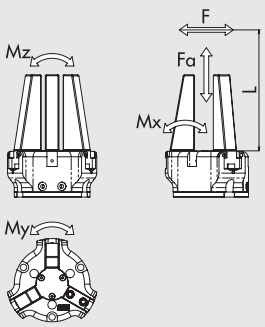


METAL WORK PNEUMATIC

GRIPPER P12-40



	K	J
DA	27.2	26.5
NO /NC	35.2	34.5



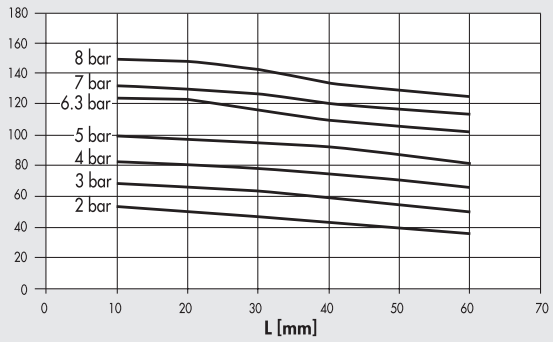
Fa	250 N
Mx	12 Nm
My	5 Nm
Mz	10 Nm

F	gripping force for each jaw
Fa	maximum admissible static axial force
Mx, My, Mz	maximum admissible static moments

P12-40 GRAPHS OF GRIPPING FORCE AS A FUNCTION OF DISTANCE "L"

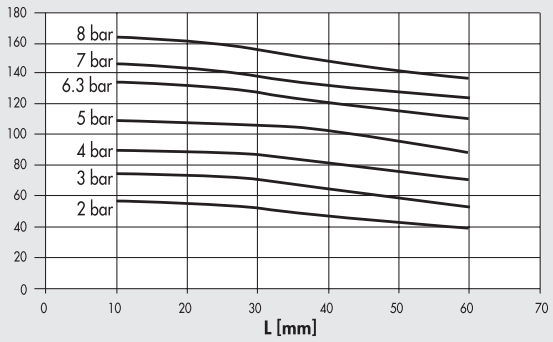
External grip*** (closing jaws)

Version DA



Internal grip*** (opening jaws)

Version DA

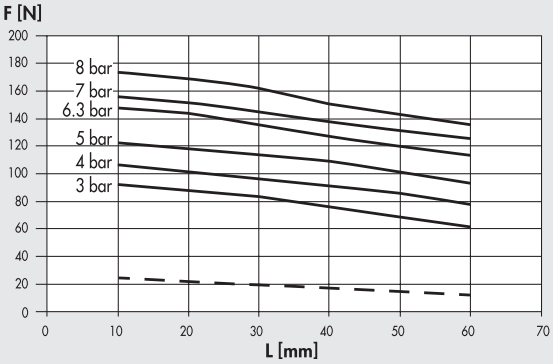


*** Referred to a single jaw. The total force is obtained by multiplying the value by 3.

P12-40 GRAPHS OF GRIPPING FORCE AS A FUNCTION OF DISTANCE "L"

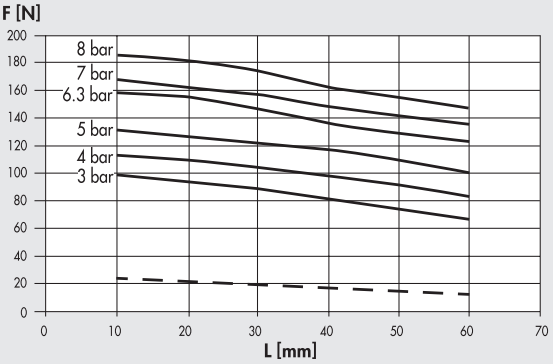
External grip*** (closing jaws)

Version NC



Internal grip*** (opening jaws)

Version NO



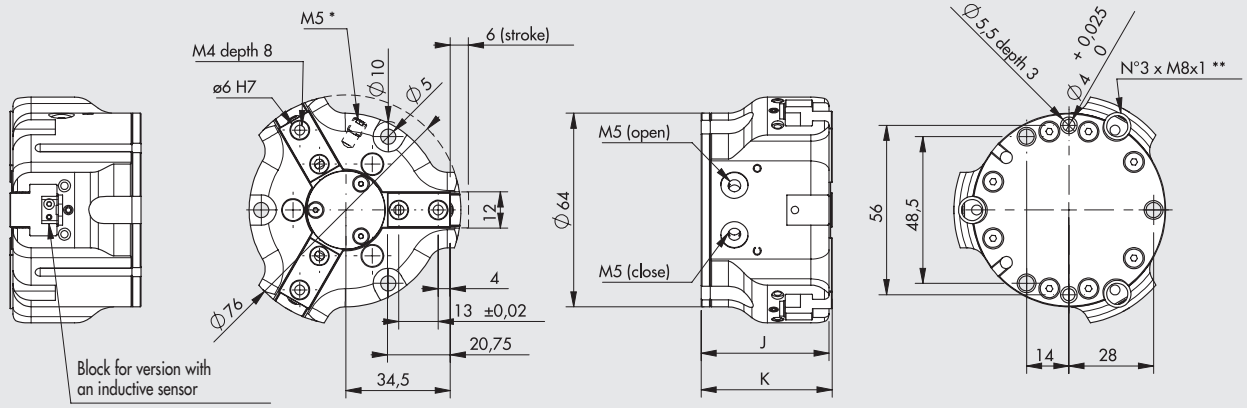
*** Referred to a single jaw. The total force is obtained by multiplying the value by 3.

– – – Minimum gripping force generated by the spring alone (NO and NC versions only). Actual force varies with stroke.

Code	Description
W1560400300	Gripper with 3 parallel jaws P12-40
W1560402300	Gripper with 3 parallel jaws P12-40 NO
W1560403300	Gripper with 3 parallel jaws P12-40 NC

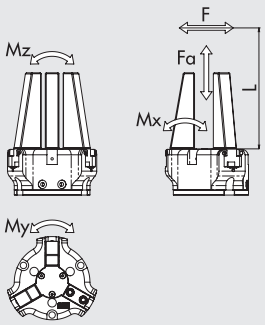
METAL WORK PNEUMATIC

GRIPPER P12-64



* Discharge pressurization connection
** Inductive sensor slot

	K	J
DA	42.3	43.3
NO /NC	55.8	56.8



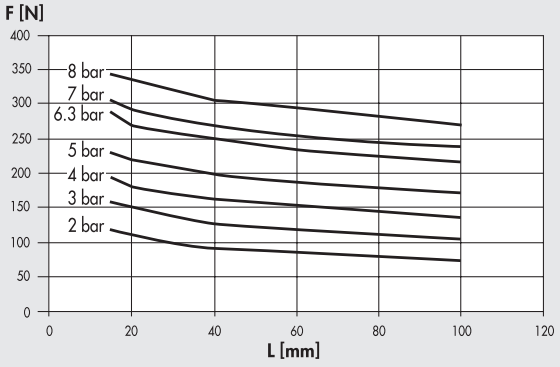
Fa	1100 N
Mx	60 Nm
My	40 Nm
Mz	40 Nm

F	gripping force for each jaw
Fa	maximum admissible static axial force
Mx, My, Mz	maximum admissible static moments

P12-64 GRAPHS OF GRIPPING FORCE AS A FUNCTION OF DISTANCE "L"

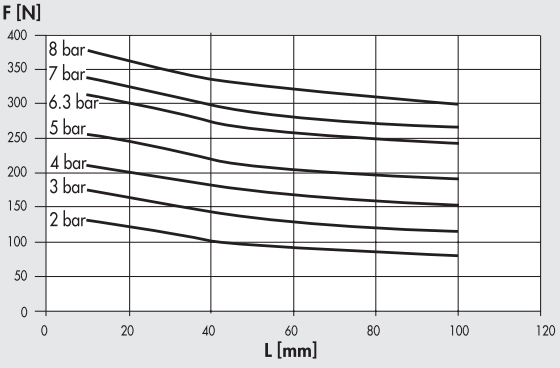
External grip*** (closing jaws)

Version DA



Internal grip*** (opening jaws)

Version DA

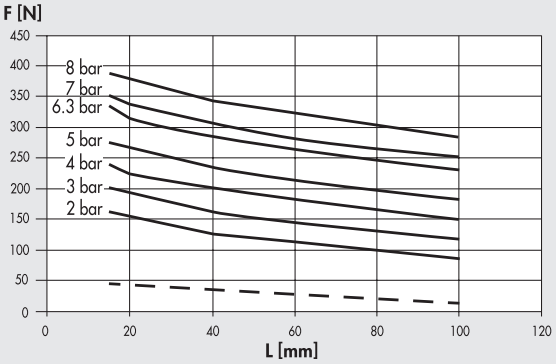


*** Referred to a single jaw. The total force is obtained by multiplying the value by 3.

P12-64 GRAPHS OF GRIPPING FORCE AS A FUNCTION OF DISTANCE "L"

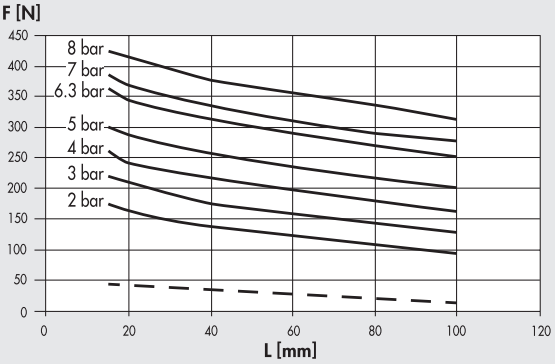
External grip*** (closing jaws)

Version NC



Internal grip*** (opening jaws)

Version NO



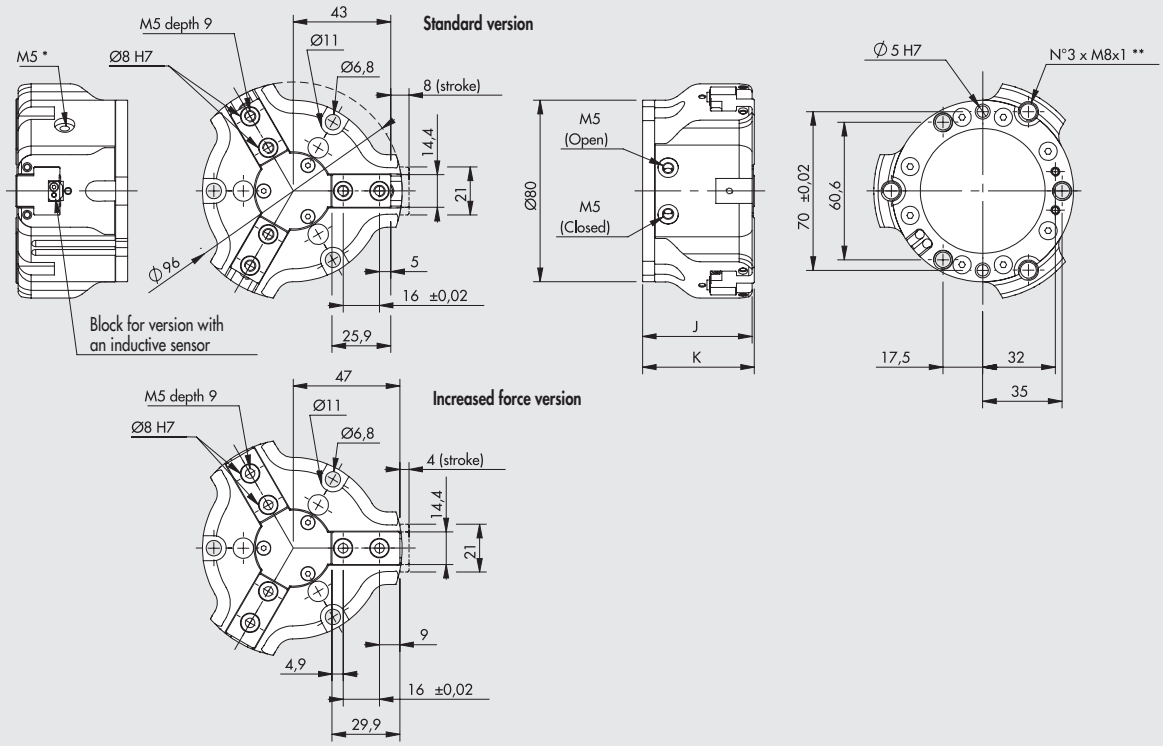
*** Referred to a single jaw. The total force is obtained by multiplying the value by 3.

– – – Minimum gripping force generated by the spring alone (NO and NC versions only). Actual force varies with stroke.

Code	Description
W1560640300	Gripper with 3 parallel jaws P12-64
W1560640301	Gripper with 3 parallel jaws P12-64 for inductive sensors
W1560642300	Gripper with 3 parallel jaws P12-64 NO
W1560642301	Gripper with 3 parallel jaws P12-64 NO for inductive sensors
W1560643300	Gripper with 3 parallel jaws P12-64 NC
W1560643301	Gripper with 3 parallel jaws P12-64 NC for inductive sensors

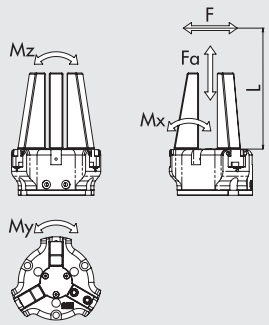
METAL WORK PNEUMATIC

GRIPPER P12-80



* Discharge pressurization connection
** Inductive sensor slot

	K	J
DA	49.3	48.3
NO /NC	67	66



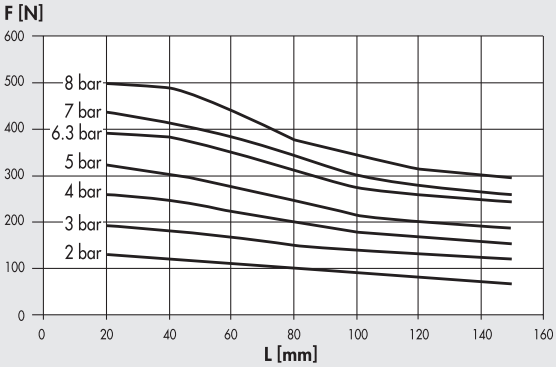
Fa	1500 N
Mx	90 Nm
My	55 Nm
Mz	55 Nm

F	gripping force for each jaw
Fa	maximum admissible static axial force
Mx, My, Mz	maximum admissible static moments

P12-80 GRAPHS OF GRIPPING FORCE AS A FUNCTION OF DISTANCE "L"

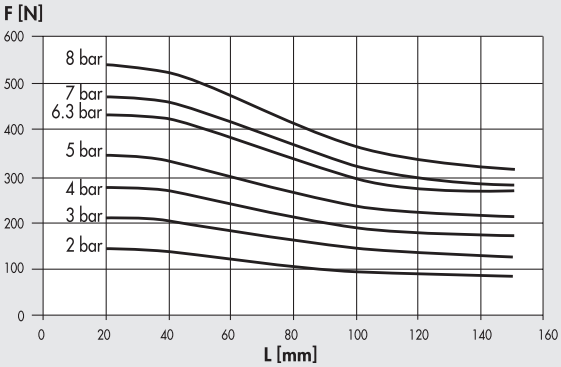
External grip*** (closing jaws)

Version DA



Internal grip*** (opening jaws)

Version DA

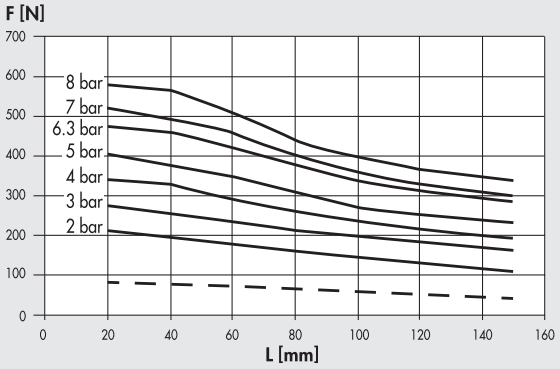


*** Referred to a single jaw. The total force is obtained by multiplying the value by 3.

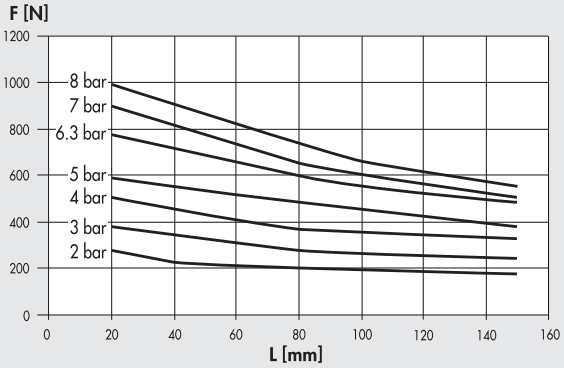
P12-80 GRAPHS OF GRIPPING FORCE AS A FUNCTION OF DISTANCE "L"

External grip*** (closing jaws)

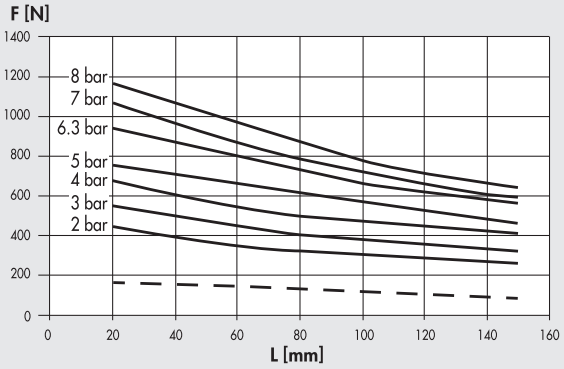
Version NC



DA version increased force

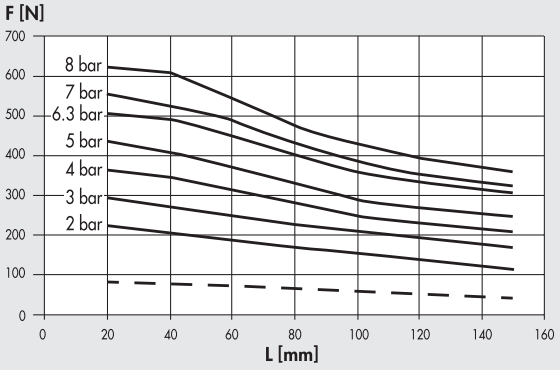


NC version increased force

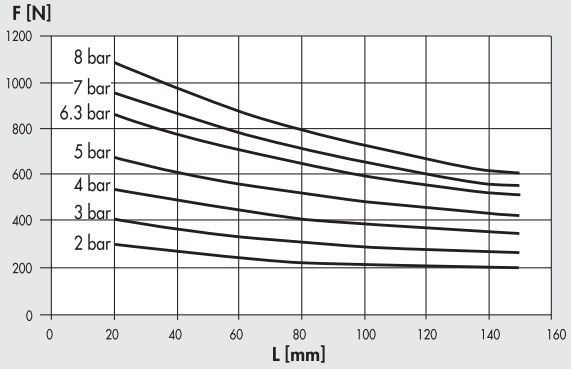


Internal grip*** (opening jaws)

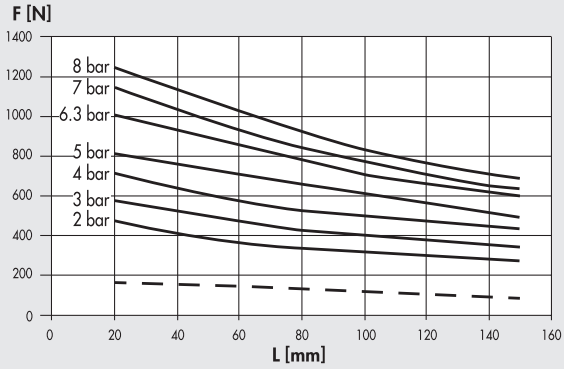
Version NO



DA version increased force



NO version increased force



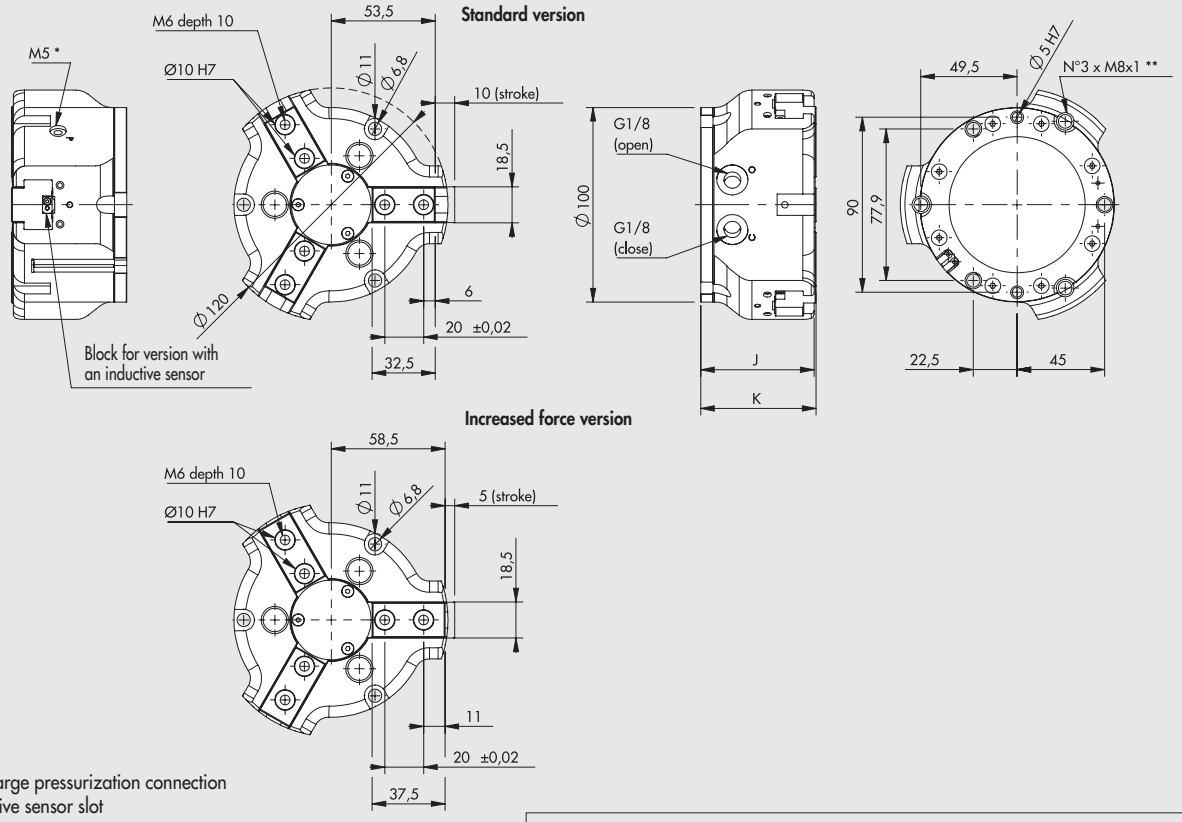
*** Referred to a single jaw. The total force is obtained by multiplying the value by 3.

— — — Minimum gripping force generated by the spring alone (NO and NC versions only). Actual force varies with stroke.

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
W1560802300	Gripper with 3 parallel jaws P12-80 NO
W1560802301	Gripper with 3 parallel jaws P12-80 NO for inductive sensors
W1560802320	Gripper with 3 parallel jaws P12-80 NO increased force
W1560802321	Gripper with 3 parallel jaws P12-80 NO increased force for inductive sensors
W1560803300	Gripper with 3 parallel jaws P12-80 NC
W1560803301	Gripper with 3 parallel jaws P12-80 NC for inductive sensors
W1560803320	Gripper with 3 parallel jaws P12-80 NC increased force
W1560803321	Gripper with 3 parallel jaws P12-80 NC increased force for inductive sensors

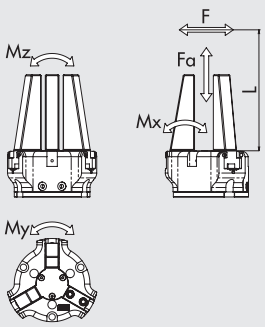
METAL WORK PNEUMATIC

GRIPPER P12-100



* Discharge pressurization connection
** Inductive sensor slot

	K	J
DA	59.3	58.3
NO /NC	79.3	78.3



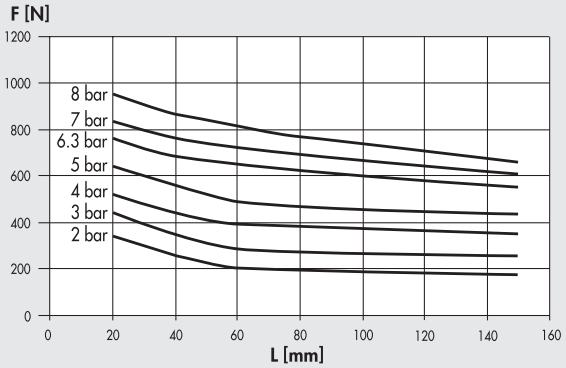
Fa	2000 N
Mx	115 Nm
My	70 Nm
Mz	80 Nm

F	gripping force for each jaw
Fa	maximum admissible static axial force
Mx, My, Mz	maximum admissible static moments

P12-100 GRAPHS OF GRIPPING FORCE AS A FUNCTION OF DISTANCE "L"

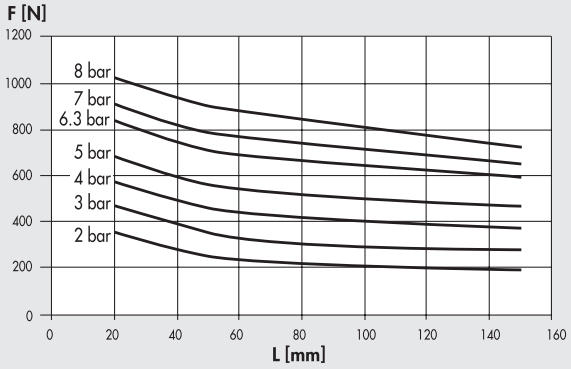
External grip*** (closing jaws)

Version DA



Internal grip*** (opening jaws)

Version DA

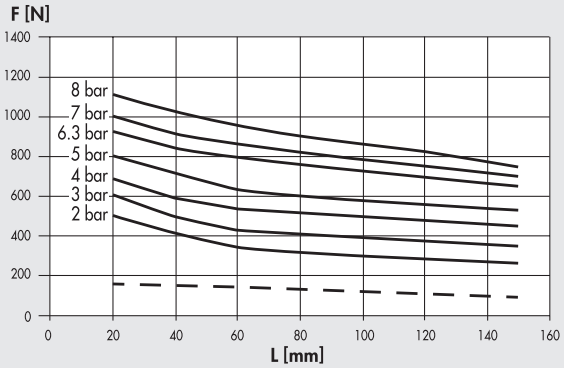


*** Referred to a single jaw. The total force is obtained by multiplying the value by 3.

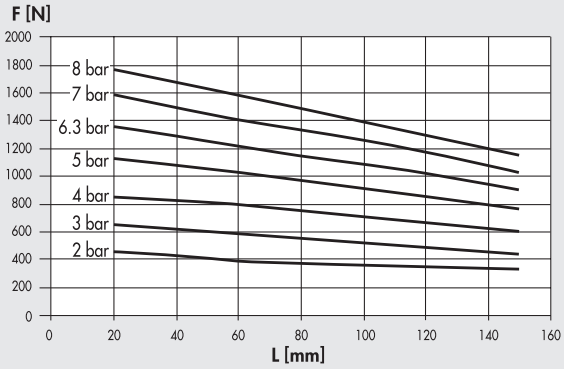
P12-100 GRAPHS OF GRIPPING FORCE AS A FUNCTION OF DISTANCE "L"

External grip*** (closing jaws)

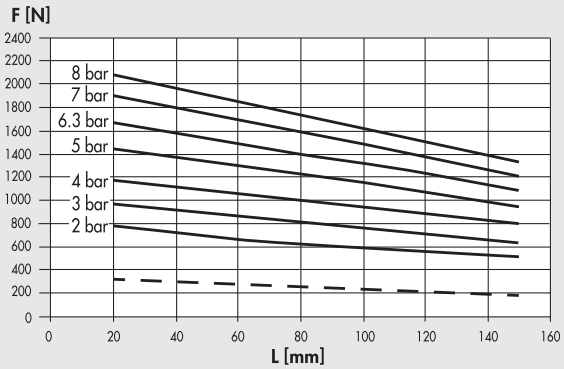
Version NC



DA version increased force

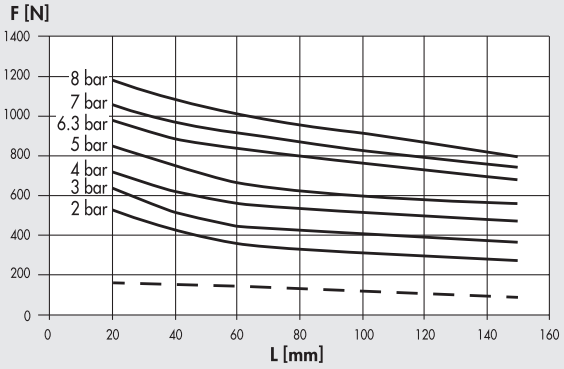


NC version increased force

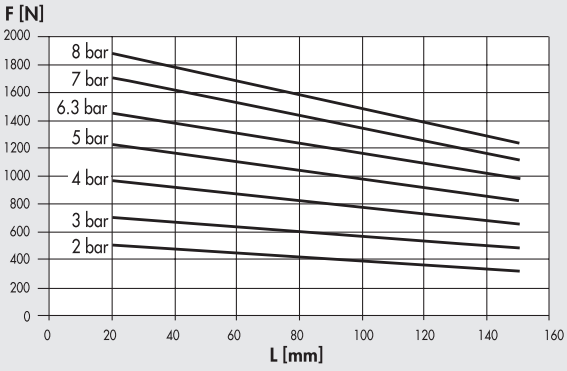


Internal grip*** (opening jaws)

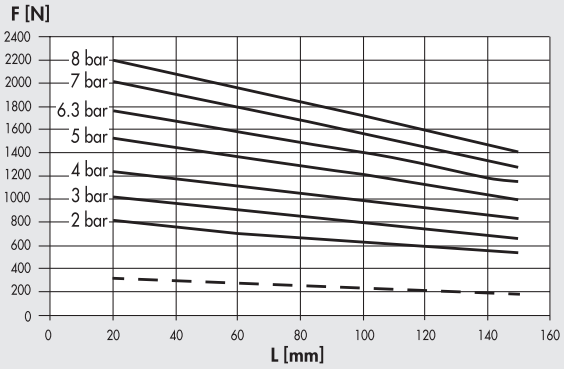
Version NO



DA version increased force



NO version increased force



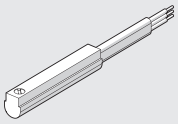
*** Referred to a single jaw. The total force is obtained by multiplying the value by 3.

— — — Minimum gripping force generated by the spring alone (NO and NC versions only). Actual force varies with stroke.

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
W1561002300	Gripper with 3 parallel jaws P12-100 NO
W1561002301	Gripper with 3 parallel jaws P12-100 NO for inductive sensors
W1561002320	Gripper with 3 parallel jaws P12-100 NO increased force
W1561002321	Gripper with 3 parallel jaws P12-100 NO increased force for inductive sensors
W1561003300	Gripper with 3 parallel jaws P12-100 NC
W1561003301	Gripper with 3 parallel jaws P12-100 NC for inductive sensors
W1561003320	Gripper with 3 parallel jaws P12-100 NC increased force
W1561003321	Gripper with 3 parallel jaws P12-100 NC increased force for inductive sensors

ACCESSORIES

SENSOR Ø 4



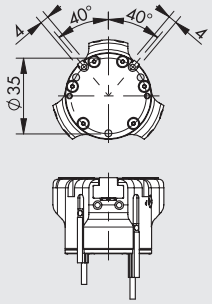
For codes and technical data, see **chapter A6**.

Note: For the NO and NC versions, use only the Hall effect sensor

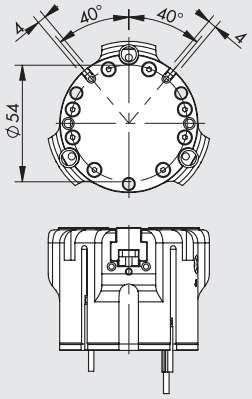
SENSOR MOUNTING IN THE NO AND NC GRIPPERS SLOTS

To accommodate the sensor, a recess must be made in the base on which the gripper will be fixed.

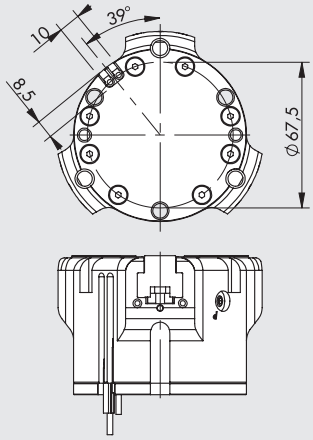
P12-40



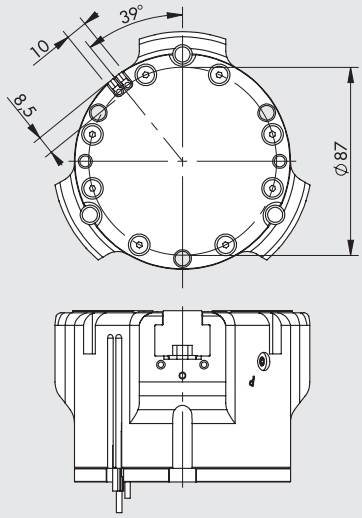
P12-64



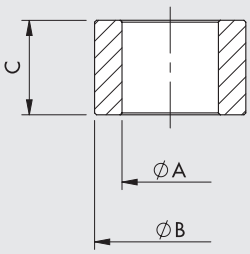
P12-80

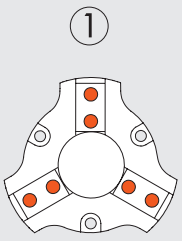


P12-100



CENTRING RING





Code	Size	ØA	ØB f7	C	QUANTITY OF KITS NEEDED ① - Use with jaws
W1560409201	**40**	$3^{0}_{-0.1}$	4	$4^{0}_{-0.1}$	**3** code W1560409201
W1560649201	**64**	$4.5^{0}_{-0.1}$	6	$5^{0}_{-0.1}$	**3** code W1560649201
W1560809201	**80**	$5.1^{0}_{-0.1}$	8	$5^{0}_{-0.05}$	**3** code W1560809201
W1561009201	**100**	$6.2^{\pm 0.1}$	10	$6.9^{0}_{-0.1}$	**3** code W1561009201

Note: 2-pieces pack

NOTES