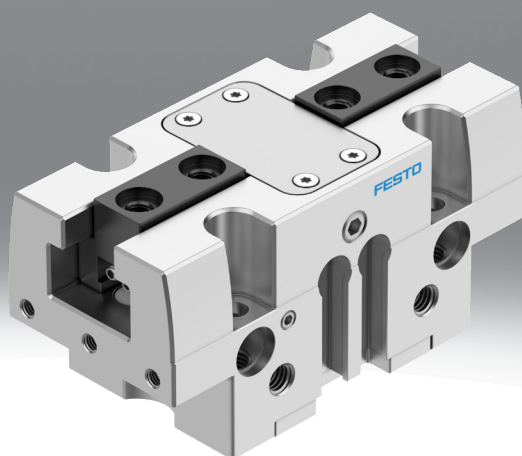


Parallel gripper HPPR

FESTO



Characteristics

At a glance

Link [hppr](#)

The robust pneumatic parallel gripper HPPR is suitable for demanding tasks, for example in general and machine tool construction as well as in battery production and the food industry. Variants with high force, spring support or different seals complete the portfolio.

- Space-optimised parallel gripper for high forces and torques
- Suitable for external and internal gripping
- Ground-in jaws for high precision and absorbing extremely high torques and process forces
- Gripper jaw guide protected against dust by sealing air

Engineering tools

Link [engineering tools](#)



Save time with engineering tools: Smart engineering for the optimal solution. Our goal is to increase your productivity. Our engineering tools play an integral part in achieving this goal. They help you size your system correctly, tap into unimagined productivity reserves and generate additional productivity along the entire value chain. In every phase of your project, from the initial contact to the modernisation of your machine, you will come across a number of different tools that will be of use to you.

Gripper selection:

- This tool helps you to select the right grippers by simply entering the exact parameters for your application

Diagrams

Link [hppr](#)



The diagrams shown in this document are also available online. These can be used to display precise values.

Position sensing

[A] For proximity sensor

By using proximity switches, any position can be detected.

Gripping force backup

[NC] Closing



Closed by spring force in depressurised state

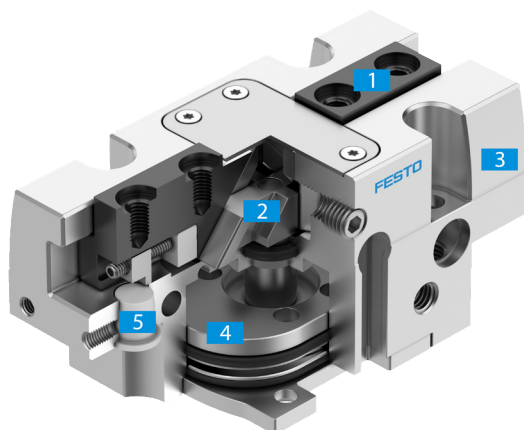
[NO] Opening



Opened by spring force in depressurised state

Characteristics

Overview



- [1] Gripper jaw
- [2] Wedge with forced-guided motion
- [3] Housing
- [4] Piston with magnet
- [5] Holder for proximity switch and position transmitter

Type code

001	Series	
HPPR	Parallel gripper	
002	Gripper characteristic	
	Standard	
F	High gripping force	
003	Size [mm]	
12	12	
16	16	
20	20	
25	25	
32	32	
40	40	

004	Complete stroke [mm]	
2	2	
3	3	
4	4	
6	6	
8	8	
10	10	
12	12	
16	16	
20	20	
005	Position sensing	
A	For proximity sensor	
006	Gripping force backup	
	None	
NC	Closing	
NO	Opening	
007	Special material properties	
F1A	Recommended for production plants for manufacturing lithium-ion batteries, F1A	

Datasheet

General technical data													
Size	12		16		20		25		32		40		
Total stroke	2 mm	4 mm	3 mm	6 mm	4 mm	8 mm	6 mm	12 mm	8 mm	16 mm	10 mm	20 mm	
Stroke per gripper jaws	1 mm	2 mm	1.5 mm	3 mm	2 mm	4 mm	3 mm	6 mm	4 mm	8 mm	5 mm	10 mm	
Design	Wedge-shaped drive Force pilot operated motion sequence												
Guide	Heavy-duty guide												
Drive system	Pneumatic												
Mode of operation	Double-acting												
Gripping force backup	None Closing	None Closing Opening											
Gripper function	Parallel												
Number of gripper jaws	2												
Max. mass per external gripper finger ¹⁾	30 g		40 g		50 g		110 g		180 g		310 g		
Pneumatic connection	M3		M3 M5										
Pneumatic connection, blocked air	M3						M5						
Repetition accuracy, gripper ²⁾	<0.01 mm				<0.02 mm				<0.025 mm				
Max. operating frequency of gripper	3 Hz											2 Hz	
Position detection	Via proximity switch												
Type of mounting	Via female thread and centring sleeve Via through-hole and centring sleeve Via through-hole and dowel pin Via female thread and dowel pin												
Mounting position	Any												

1) Applies to unthrottled operation

2) Under constant exposure to operating conditions, end-position drift occurs in the direction of movement of the gripper jaws, at 100 consecutive strokes

Operating pressure						
Size	12	16	20	25	32	40
Operating pressure	0.3 ... 0.8 MPa					
Operating pressure	3 ... 8 bar					
Operating pressure	43.5 ... 116 psi					
Operating pressure of blocked air	0 ... 0.05 MPa					
Operating pressure of blocked air	0 ... 0.5 bar					
Operating pressure of blocked air	0 ... 7.25 psi					

Operating pressure – HPPR-...-NO/NC-...						
Size	12	16	20	25	32	40
Operating pressure	0.4 ... 0.8 MPa					
Operating pressure	4 ... 8 bar					
Operating pressure	58 ... 116 psi					
Operating pressure of blocked air	0 ... 0.05 MPa					
Operating pressure of blocked air	0 ... 0.5 bar					
Operating pressure of blocked air	0 ... 7.25 psi					

Datasheet

Operating and environmental conditions

Size	12	16	20	25	32	40
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]					
Note on operating and pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)					
Ambient temperature ¹⁾	5 ... 90°C					
Degree of protection	IP40					
Shock resistance	Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27					
Vibration resistance	Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6					
Lubrication interval for guide components	5 MioCyc					
Corrosion resistance class CRC ²⁾	1 - Low corrosion stress					

1) Note the operating range of the proximity switches

2) More information: www.festo.com/x/topic/crc

Weight – HPPR-12 ... 16

Size	12					16						
Total stroke	2 mm		4 mm			3 mm				6 mm		
Gripping force backup	None	Closing	None	Closing	Opening	None	Closing	Opening	None	Closing	Opening	Opening
Product weight	54 g	67 g	54 g	67 g	68 g	79 g	95 g		78 g	93 g		

Weight – HPPR-20 ... 25

Size	20						25					
Total stroke	4 mm			8 mm			6 mm			12 mm		
Gripping force backup	None	Closing	Opening	None	Closing	Opening	None	Closing	Opening	None	Closing	Opening
Product weight	129 g	148 g		126 g	145 g		255 g	332 g		245 g	323 g	

Weight – HPPR-32 ... 40

Size	32						40					
Total stroke	8 mm			16 mm			10 mm			20 mm		
Gripping force backup	None	Closing	Opening	None	Closing	Opening	None	Closing	Opening	None	Closing	Opening
Product weight	485 g	593 g	592 g	467 g	574 g		811 g	1,038 g	1,043 g	778 g	1,005 g	1,010 g

Materials

Materials	Size	12	16	20	25	32	40
Material housing	Anodised aluminium						
Material end plate	Anodised wrought aluminium alloy						
Material cover cap	High-alloy stainless steel						
Material gripper jaws	High-alloy stainless steel						
Gripper finger material	Wrought aluminium alloy, anodised						
Material piston rod	High-alloy steel						
Material piston	Wrought aluminium alloy, anodised						
Material piston seal	HNBR						
Material spring	High-alloy stainless steel				Spring steel High-alloy stainless steel	High-alloy stainless steel	
Material screws	Steel, chemically nickel-plated						
Material o-ring	Fluoro rubber			Fluoro rubber HNBR	Fluoro rubber		
Note on materials	RoHS compliant						
LABS (PWIS) conformity	VDMA24364-B1/B2-L						
Suitability for the production of Li-ion batteries	Suitable for battery production with reduced Cu/Zn/Ni values (F1a)						

Datasheet

Forces, without gripping force retention – HPPR-12 ... 16

Theoretical gripping force for a lever arm of 0 mm / measured gripping force at 10 mm

Size	12		16	
Total stroke	2 mm	4 mm	3 mm	6 mm
Theoretical total gripping force at 0 mm, 0.6 MPa (6 bar, 87 psi), closing	<106 N	<58 N	<200 N	<116 N
Theoretical total gripping force at 0 mm, 0.6 MPa (6 bar, 87 psi) open	<128 N	<70 N	<226 N	<130 N
Theoretical gripping force per gripper jaw at 0 mm, 0.6 MPa (6 bar, 87 psi), closing	<53 N	<29 N	<100 N	<58 N
Theoretical gripping force per gripper jaw at 0 mm, 0.6 MPa (6 bar, 87 psi), closing	<64 N	<35 N	<113 N	<65 N
Total gripping force, closing, 0.6 MPa (6 bar, 87 psi)	98 N	54 N	190 N	106 N
Total gripping force, opening, 0.6 MPa (6 bar, 87 psi)	120 N	66 N	214 N	120 N
Gripper force per gripper jaw, closing, 0.6 MPa (6 bar, 87 psi)	49 N	27 N	95 N	53 N
Gripper force per gripper jaw, opening, 0.6 MPa (6 bar, 87 psi)	60 N	33 N	107 N	60 N

Forces, without gripping force retention – HPPR-20 ... 25

Theoretical gripping force for a lever arm of 0 mm / measured gripping force at 10 mm

Size	20		25	
Total stroke	4 mm	8 mm	6 mm	12 mm
Theoretical total gripping force at 0 mm, 0.6 MPa (6 bar, 87 psi), closing	<380 N	<196 N	<622 N	<304 N
Theoretical total gripping force at 0 mm, 0.6 MPa (6 bar, 87 psi) open	<412 N	<210 N	<666 N	<326 N
Theoretical gripping force per gripper jaw at 0 mm, 0.6 MPa (6 bar, 87 psi), closing	<190 N	<98 N	<311 N	<152 N
Theoretical gripping force per gripper jaw at 0 mm, 0.6 MPa (6 bar, 87 psi), closing	<206 N	<105 N	<333 N	<163 N
Total gripping force, closing, 0.6 MPa (6 bar, 87 psi)	354 N	176 N	596 N	296 N
Total gripping force, opening, 0.6 MPa (6 bar, 87 psi)	378 N	188 N	644 N	318 N
Gripper force per gripper jaw, closing, 0.6 MPa (6 bar, 87 psi)	177 N	88 N	298 N	148 N
Gripper force per gripper jaw, opening, 0.6 MPa (6 bar, 87 psi)	189 N	94 N	322 N	159 N

Datasheet

Forces, without gripping force retention – HPPR-32 ... 40

Theoretical gripping force for a lever arm of 0 mm / measured gripping force at 10 mm

Size	32		40	
Total stroke	8 mm	16 mm	10 mm	20 mm
Theoretical total gripping force at 0 mm, 0.6 MPa (6 bar, 87 psi), closing	<1040 N	<500 N	<1398 N	<808 N
Theoretical total gripping force at 0 mm, 0.6 MPa (6 bar, 87 psi) open	<1114 N	<536 N	<1496 N	<864 N
Theoretical gripping force per gripper jaw at 0 mm, 0.6 MPa (6 bar, 87 psi), closing	<520 N	<250 N	<699 N	<404 N
Theoretical gripping force per gripper jaw at 0 mm, 0.6 MPa (6 bar, 87 psi), closing	<557 N	<268 N	<748 N	<432 N
Total gripping force, closing, 0.6MPa (6bar, 87 psi)	994 N	482 N	1,360 N	786 N
Total gripping force, opening, 0.6MPa (6bar, 87 psi)	1,064 N	516 N	1,456 N	840 N
Gripper force per gripper jaw, closing, 0.6 MPa (6 bar, 87 psi)	497 N	241 N	680 N	393 N
Gripper force per gripper jaw, opening, 0.6 MPa (6 bar, 87 psi)	532 N	258 N	728 N	420 N

Forces, with gripping force retention – HPPR-12 ... 16-...-NO/NC-...

Theoretical gripping force for a lever arm of 0 mm / measured gripping force at 10 mm

Size	12			16			
Total stroke	2 mm	4 mm		3 mm		6 mm	
Gripping force backup	Closing		Opening	Closing	Opening	Closing	Opening
Theoretical total gripping force at 0 mm, 0.6 MPa (6 bar, 87 psi), closing	140 ... 166 N	76 ... 92 N	24 ... 40 N	256 ... 298 N	102 ... 144 N	150 ... 176 N	56 ... 82 N
Theoretical total gripping force at 0 mm, 0.6 MPa (6 bar, 87 psi) open	68 ... 94 N	36 ... 52 N	88 ... 104 N	128 ... 170 N	282 ... 324 N	70 ... 96 N	164 ... 190 N
Theoretical gripping force per gripper jaw at 0 mm, 0.6 MPa (6 bar, 87 psi), closing	70 ... 83 N	38 ... 46 N	12 ... 20 N	128 ... 149 N	51 ... 72 N	75 ... 88 N	28 ... 41 N
Theoretical gripping force per gripper jaw at 0 mm, 0.6 MPa (6 bar, 87 psi), closing	34 ... 47 N	18 ... 26 N	44 ... 52 N	64 ... 85 N	141 ... 162 N	35 ... 48 N	82 ... 95 N
Theoretical spring force per gripper jaw, closing	17 ... 30 N	9 ... 17 N		28 ... 49 N		17 ... 30 N	
Total gripping force, closing, 0.6MPa (6bar, 87 psi)	130 ... 156 N	72 ... 88 N	20 ... 36 N	246 ... 288 N	92 ... 134 N	140 ... 166 N	46 ... 72 N
Total gripping force, opening, 0.6MPa (6bar, 87 psi)	56 ... 82 N	30 ... 46 N	82 ... 98 N	116 ... 158 N	270 ... 312 N	60 ... 86 N	154 ... 180 N
Gripper force per gripper jaw, closing, 0.6 MPa (6 bar, 87 psi)	65 ... 78 N	36 ... 44 N	10 ... 18 N	123 ... 144 N	46 ... 67 N	70 ... 83 N	23 ... 36 N
Gripper force per gripper jaw, opening, 0.6 MPa (6 bar, 87 psi)	28 ... 41 N	15 ... 23 N	41 ... 49 N	58 ... 79 N	135 ... 156 N	30 ... 43 N	77 ... 90 N
Note on gripping force	Dependent on the stroke With integrated compression spring						

Datasheet

Forces, with gripping force retention – HPPR-20 ... 25-...-NO/NC-...

Theoretical gripping force for a lever arm of 0 mm / measured gripping force at 10 mm

Size	20				25			
Total stroke	4 mm		8 mm		6 mm		12 mm	
Gripping force backup	Closing	Opening	Closing	Opening	Closing	Opening	Closing	Opening
Theoretical total gripping force at 0 mm, 0.6 MPa (6 bar, 87 psi), closing	484 ... 560 N	200 ... 276 N	248 ... 288 N	104 ... 144 N	838 ... 990 N	254 ... 406 N	412 ... 486 N	122 ... 198 N
Theoretical total gripping force at 0 mm, 0.6 MPa (6 bar, 87 psi) open	232 ... 308 N	516 ... 592 N	118 ... 158 N	262 ... 302 N	298 ... 450 N	882 ... 1,034 N	144 ... 220 N	432 ... 508 N
Theoretical gripping force per gripper jaw at 0 mm, 0.6 MPa (6 bar, 87 psi), closing	242 ... 280 N	100 ... 138 N	124 ... 144 N	52 ... 72 N	419 ... 495 N	127 ... 203 N	206 ... 243 N	61 ... 99 N
Theoretical gripping force per gripper jaw at 0 mm, 0.6 MPa (6 bar, 87 psi), closing	116 ... 154 N	258 ... 296 N	59 ... 79 N	131 ... 151 N	149 ... 225 N	441 ... 517 N	72 ... 110 N	216 ... 254 N
Theoretical spring force per gripper jaw, closing	52 ... 90 N		26 ... 46 N		108 ... 184 N		53 ... 91 N	
Total gripping force, closing, 0.6MPa (6bar, 87 psi)	458 ... 534 N	174 ... 250 N	228 ... 268 N	84 ... 124 N	812 ... 964 N	228 ... 380 N	402 ... 478 N	112 ... 190 N
Total gripping force, opening, 0.6MPa (6bar, 87 psi)	198 ... 274 N	482 ... 558 N	96 ... 136 N	240 ... 280 N	271 ... 422 N	854 ... 1,005 N	134 ... 210 N	422 ... 498 N
Gripper force per gripper jaw, closing, 0.6 MPa (6 bar, 87 psi)	229 ... 267 N	87 ... 125 N	114 ... 134 N	42 ... 62 N	406 ... 482 N	114 ... 190 N	201 ... 239 N	56 ... 95 N
Gripper force per gripper jaw, opening, 0.6 MPa (6 bar, 87 psi)	99 ... 137 N	241 ... 279 N	48 ... 68 N	120 ... 140 N	135 ... 211 N	427 ... 503 N	67 ... 105 N	211 ... 249 N
Note on gripping force	Dependent on the stroke With integrated compression spring							

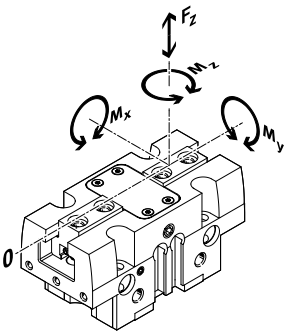
Forces, with gripping force retention – HPPR-32 ... 40-...-NO/NC-...

Theoretical gripping force for a lever arm of 0 mm / measured gripping force at 10 mm

Size	32				40			
Total stroke	8 mm		16 mm		10 mm		20 mm	
Gripping force backup	Closing	Opening	Closing	Opening	Closing	Opening	Closing	Opening
Theoretical total gripping force at 0 mm, 0.6 MPa (6 bar, 87 psi), closing	1,378 ... 1,578 N	502 ... 702 N	662 ... 760 N	240 ... 338 N	1,896 ... 2,186 N	610 ... 900 N	1,088 ... 1,250 N	366 ... 528 N
Theoretical total gripping force at 0 mm, 0.6 MPa (6 bar, 87 psi) open	576 ... 776 N	1,452 ... 1,652 N	276 ... 374 N	698 ... 796 N	708 ... 998 N	1,994 ... 2,284 N	422 ... 584 N	1,144 ... 1,306 N
Theoretical gripping force per gripper jaw at 0 mm, 0.6 MPa (6 bar, 87 psi), closing	689 ... 789 N	251 ... 351 N	331 ... 380 N	120 ... 169 N	948 ... 1,093 N	305 ... 450 N	544 ... 625 N	183 ... 264 N
Theoretical gripping force per gripper jaw at 0 mm, 0.6 MPa (6 bar, 87 psi), closing	288 ... 388 N	726 ... 826 N	138 ... 187 N	349 ... 398 N	354 ... 499 N	997 ... 1,142 N	211 ... 292 N	572 ... 653 N
Theoretical spring force per gripper jaw, closing	169 ... 269 N		81 ... 130 N		249 ... 394 N		140 ... 221 N	
Total gripping force, closing, 0.6MPa (6bar, 87 psi)	1,332 ... 1,532 N	456 ... 656 N	644 ... 742 N	222 ... 320 N	1,858 ... 2,148 N	572 ... 862 N	1,066 ... 1,228 N	344 ... 506 N
Total gripping force, opening, 0.6MPa (6bar, 87 psi)	526 ... 726 N	1,402 ... 1,602 N	256 ... 354 N	678 ... 776 N	668 ... 958 N	1,954 ... 2,244 N	398 ... 560 N	1,120 ... 1,282 N
Gripper force per gripper jaw, closing, 0.6 MPa (6 bar, 87 psi)	666 ... 766 N	228 ... 328 N	322 ... 371 N	111 ... 160 N	929 ... 1,074 N	286 ... 431 N	533 ... 614 N	172 ... 253 N
Gripper force per gripper jaw, opening, 0.6 MPa (6 bar, 87 psi)	263 ... 363 N	701 ... 801 N	128 ... 177 N	339 ... 388 N	334 ... 479 N	977 ... 1,122 N	199 ... 280 N	560 ... 641 N
Note on gripping force	Dependent on the stroke With integrated compression spring							

Datasheet

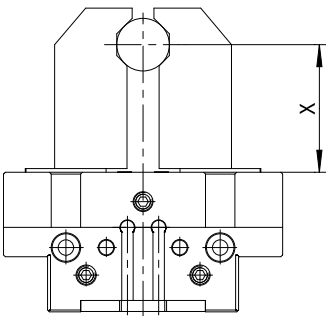
Characteristic load values at the gripper jaws



The indicated permissible forces and torques apply to a single gripper jaw. They include the lever arm, additional applied loads created by the workpiece or external gripper fingers and acceleration forces occurring during movement. The zero coordinate line (gripper jaw guide) must be taken into account when calculating torques.

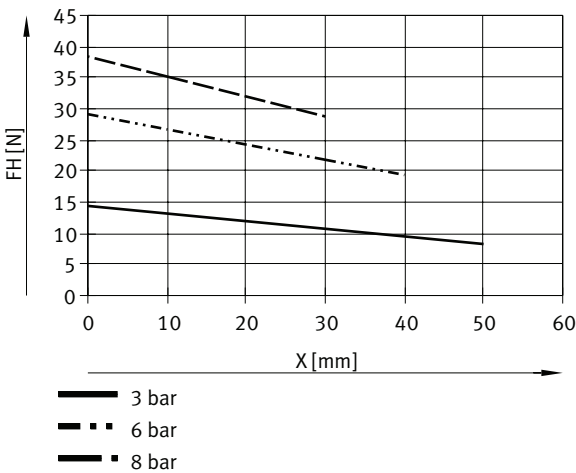
Size	12	16	20	25	32	40
Max. force on gripper jaw F_z static	80 N	200 N	700 N	1,200 N	1,800 N	2,500 N
Max. torque at gripper M_x static	7 Nm	10 Nm	15 Nm	50 Nm	80 Nm	100 Nm
Max. torque at gripper M_y static	10 Nm	12 Nm	15 Nm	45 Nm	60 Nm	90 Nm
Max. torque at gripper M_z static	5 Nm	6 Nm	8 Nm	35 Nm	50 Nm	75 Nm

Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), without gripping force retention



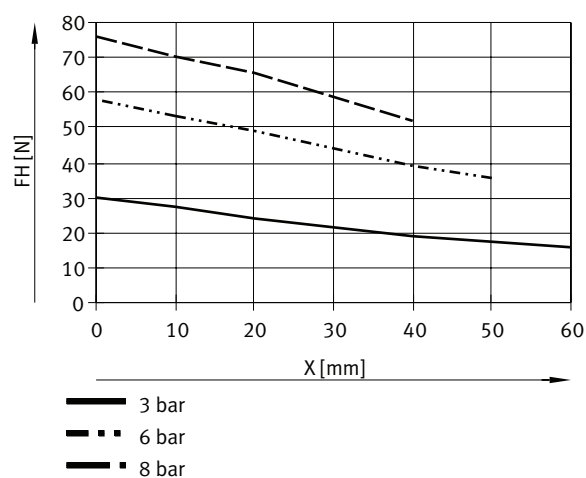
The gripping forces as a function of operating pressure and lever arm can be determined from the following diagrams.
The gripping torque is not constant across the opening angle.

Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), without gripping force retention, standard gripping force – HPPR-12

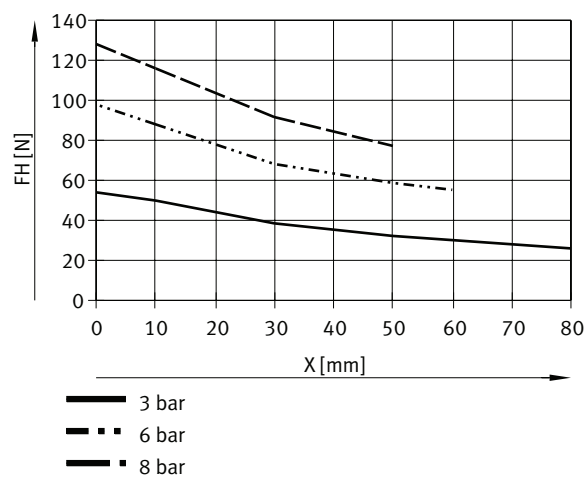


Datasheet

Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), without gripping force retention, standard gripping force – HPPR-16

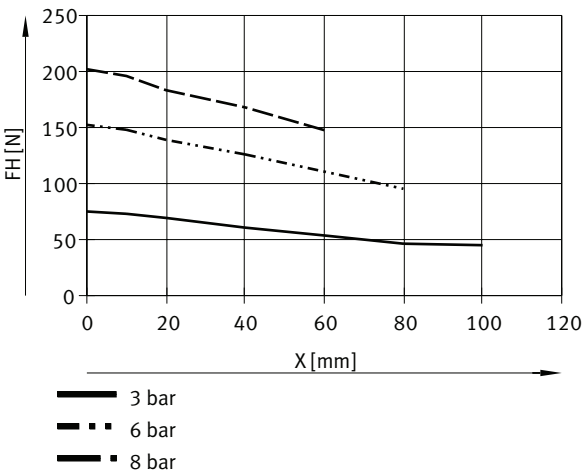


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), without gripping force retention, standard gripping force – HPPR-20

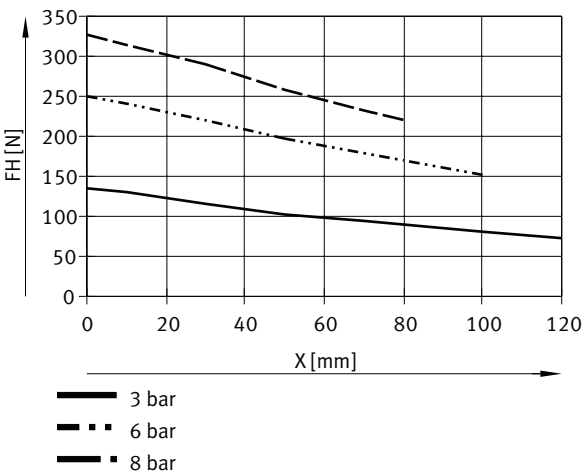


Datasheet

Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), without gripping force retention, standard gripping force – HPPR-25

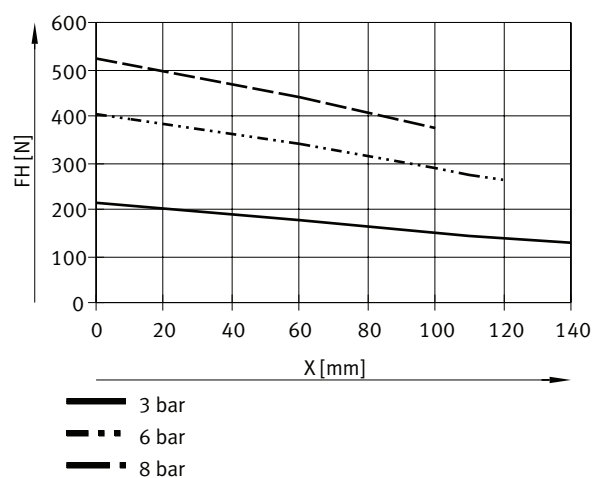


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), without gripping force retention, standard gripping force – HPPR-32

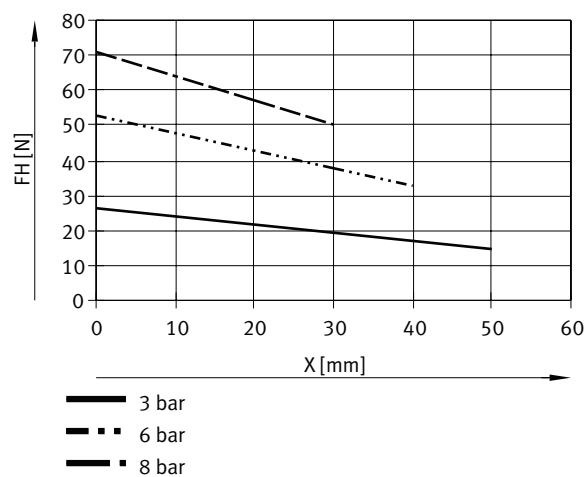


Datasheet

Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), without gripping force retention, standard gripping force – HPPR-40

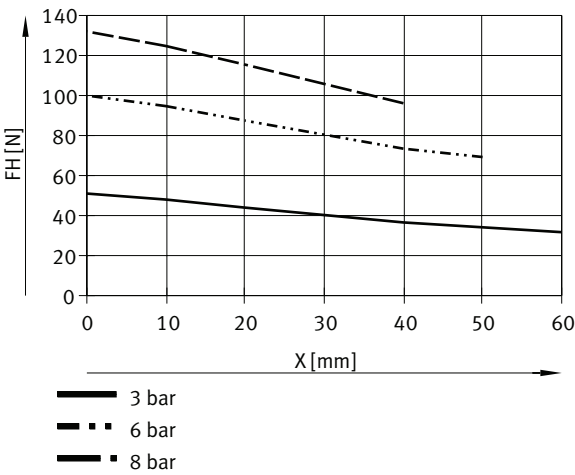


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), without gripping force retention, high gripping force – HPPR-F-12

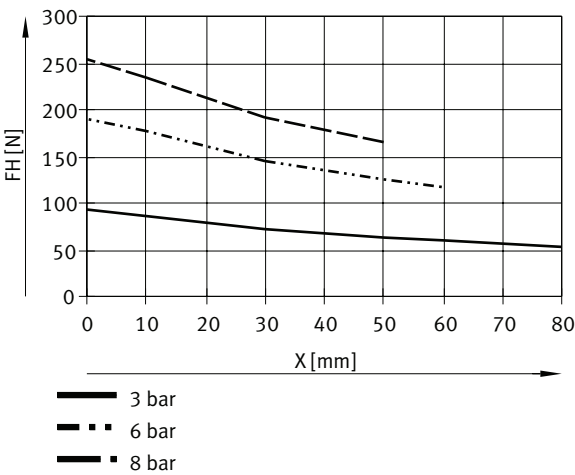


Datasheet

Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), without gripping force retention, high gripping force – HPPR-F-16

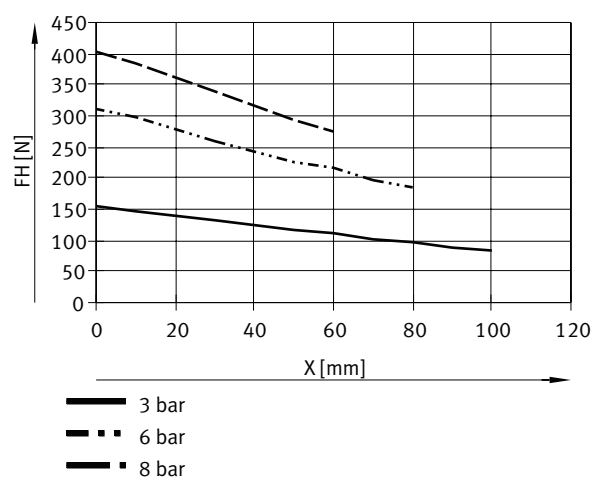


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), without gripping force retention, high gripping force – HPPR-F-20

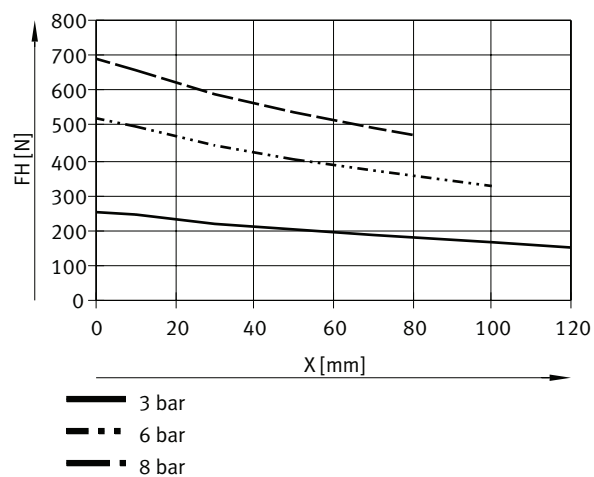


Datasheet

Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), without gripping force retention, high gripping force – HPPR-F-25

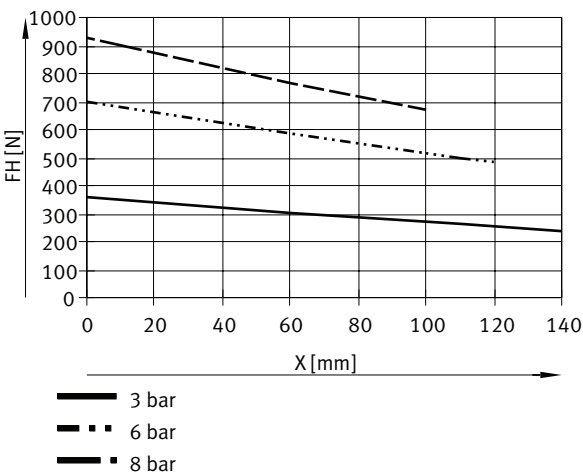


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), without gripping force retention, high gripping force – HPPR-F-32

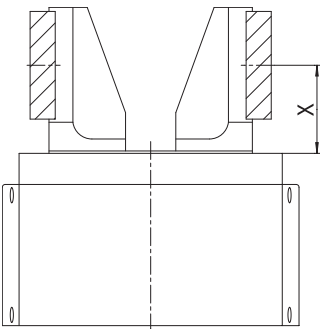


Datasheet

Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), without gripping force retention, high gripping force – HPPR-F-40

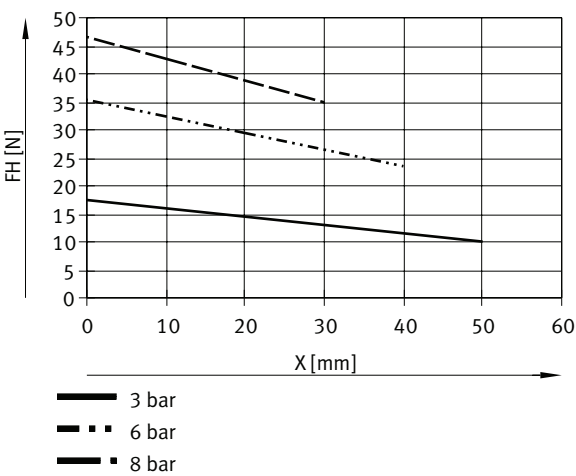


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), without gripping force retention



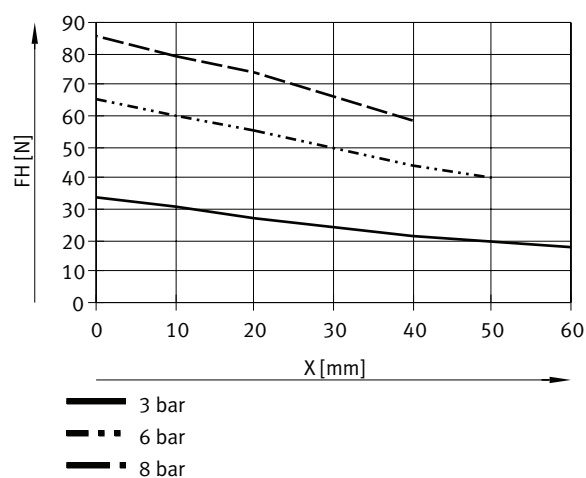
The gripping forces as a function of operating pressure and lever arm can be determined from the following diagrams.
The gripping torque is not constant across the opening angle.

Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), without gripping force retention, standard gripping force – HPPR-12

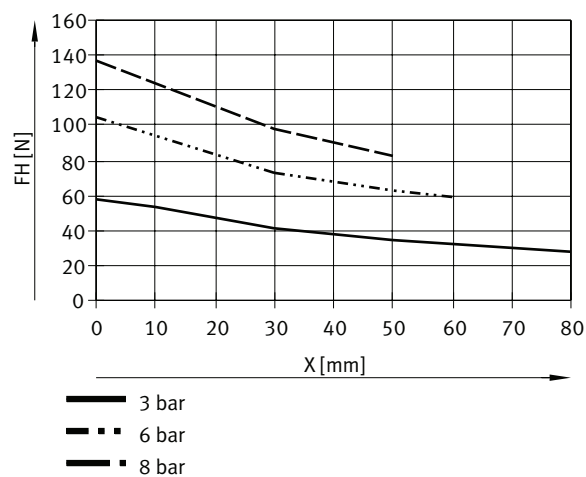


Datasheet

Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), without gripping force retention, standard gripping force – HPPR-16

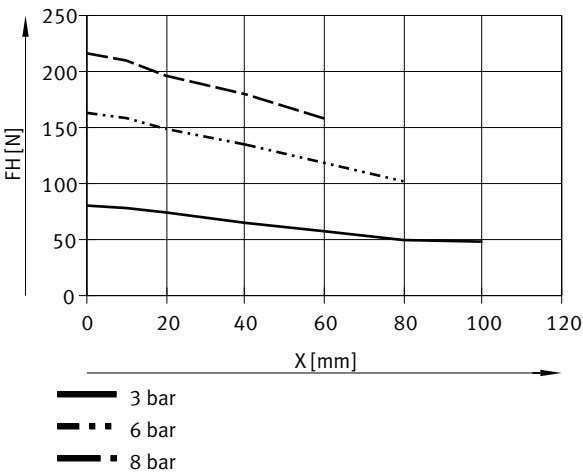


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), without gripping force retention, standard gripping force – HPPR-20

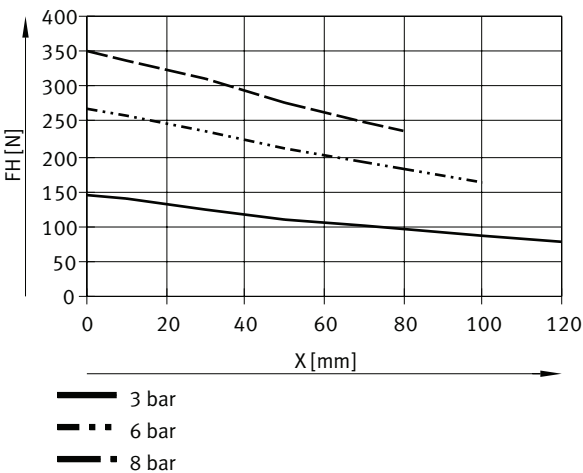


Datasheet

Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), without gripping force retention, standard gripping force – HPPR-25

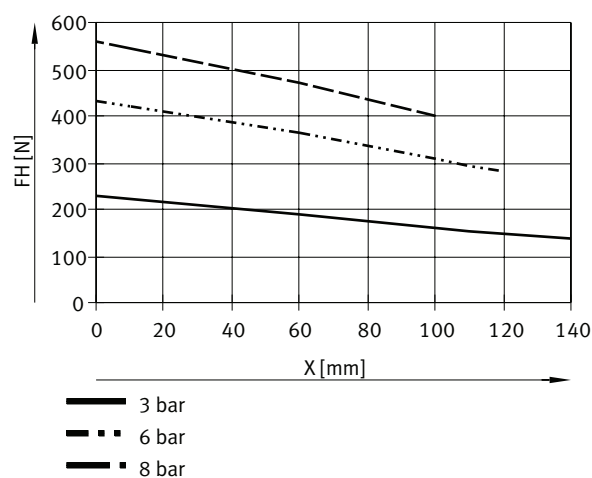


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), without gripping force retention, standard gripping force – HPPR-32

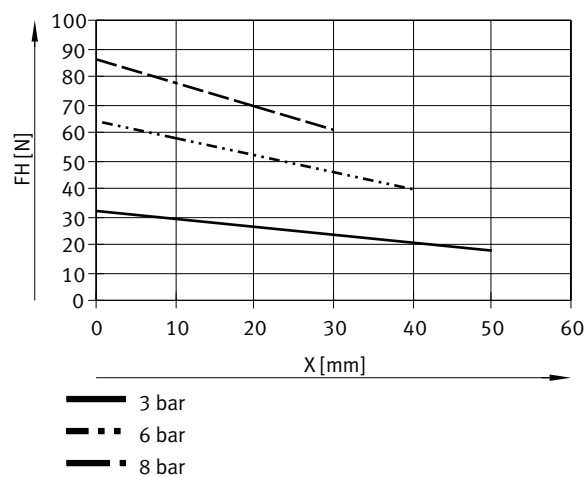


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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), without gripping force retention, standard gripping force – HPPR-40

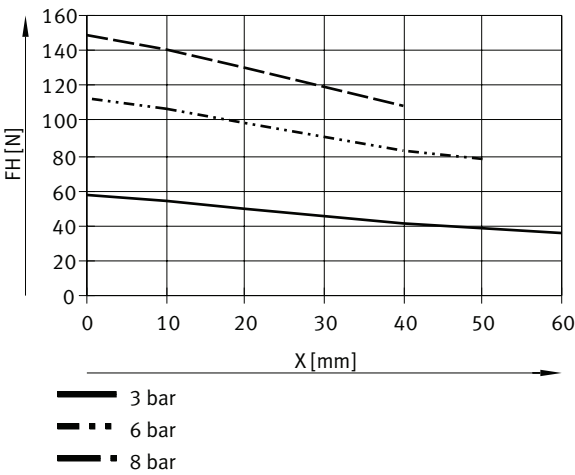


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), without gripping force retention, high gripping force – HPPR-F-12

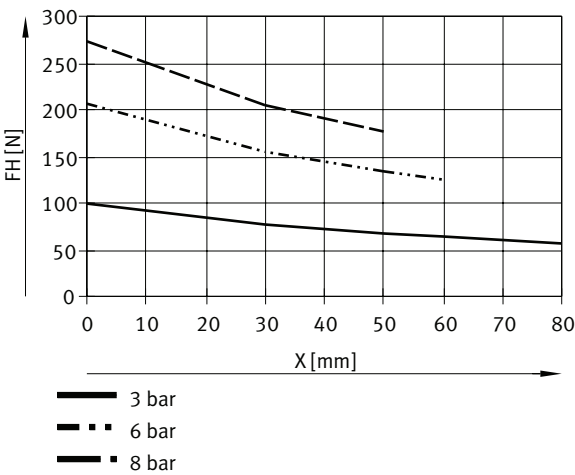


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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), without gripping force retention, high gripping force – HPPR-F-16

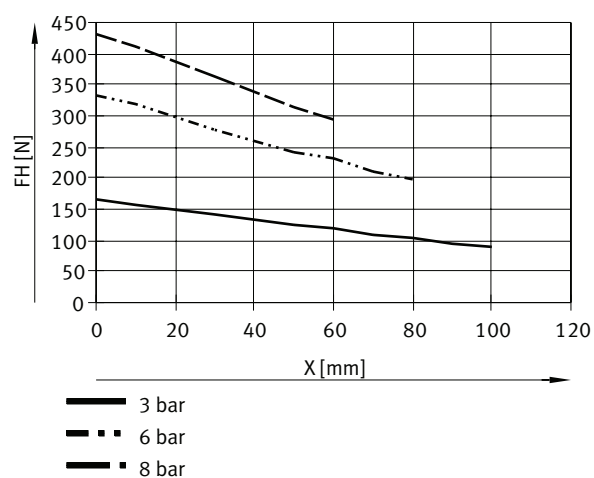


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), without gripping force retention, high gripping force – HPPR-F-20

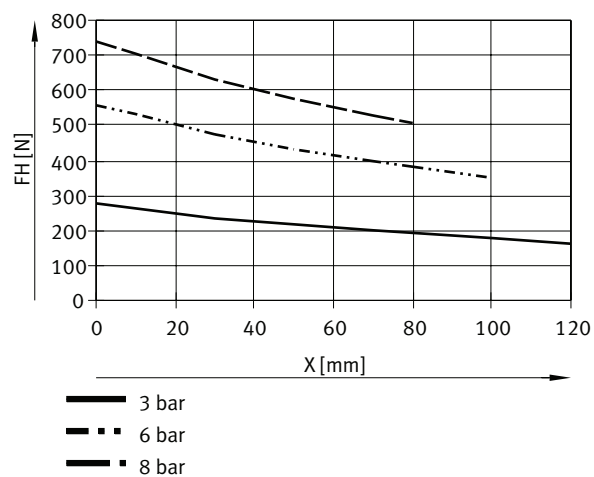


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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), without gripping force retention, high gripping force – HPPR-F-25

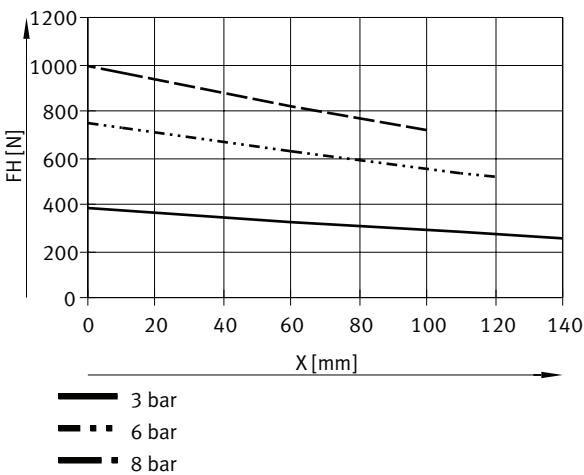


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), without gripping force retention, high gripping force – HPPR-F-32

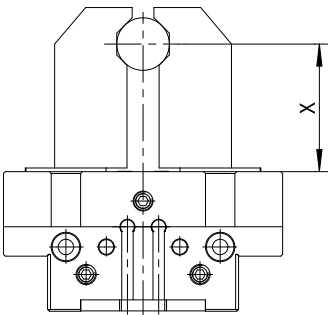


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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), without gripping force retention, high gripping force – HPPR-F-40

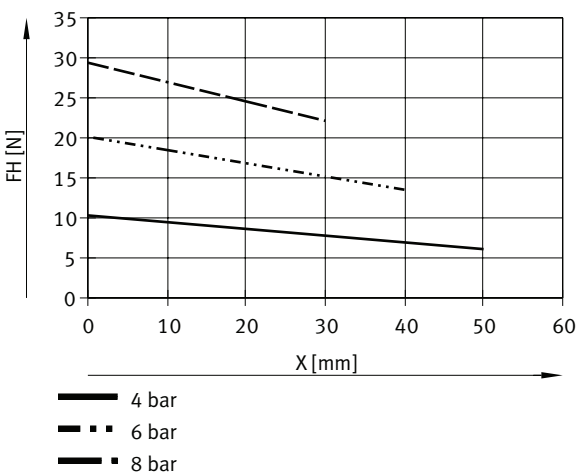


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), with gripping force retention



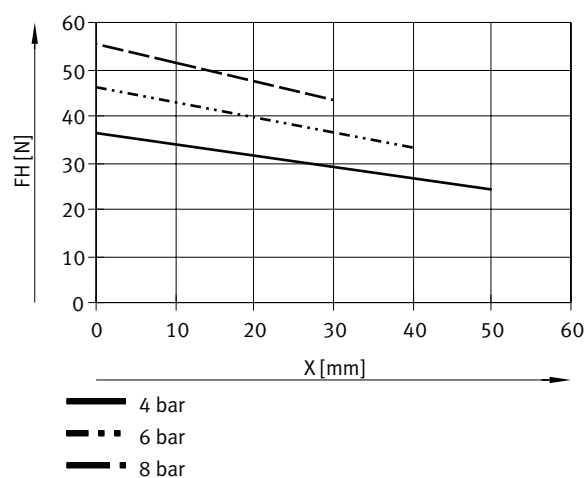
The gripping forces as a function of operating pressure and lever arm can be determined from the following diagrams.
The gripping force for external gripping (closing) was measured with the gripper fully open.
The gripping torque is not constant across the opening angle.

Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), with gripping force retention, standard gripping force – HPPR-12-4-...-NO-...

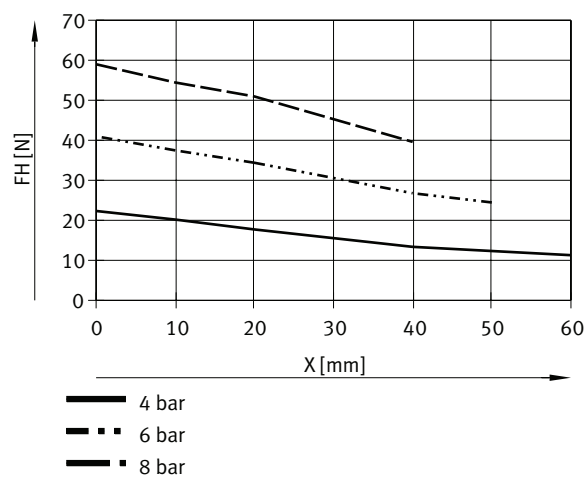


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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), with gripping force retention, standard gripping force – HPPR-12-4-...-NC-...

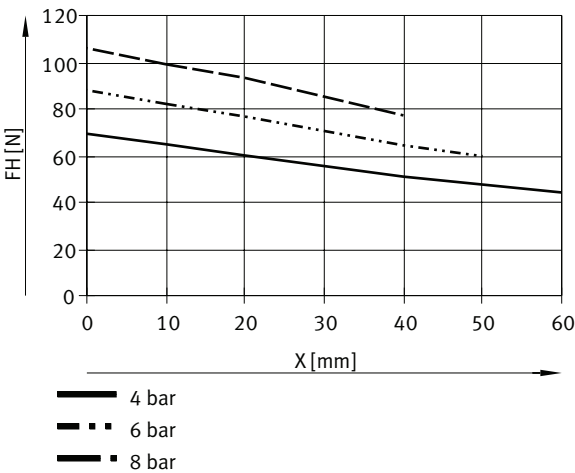


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), with gripping force retention, standard gripping force – HPPR-16-6-...-NO-...

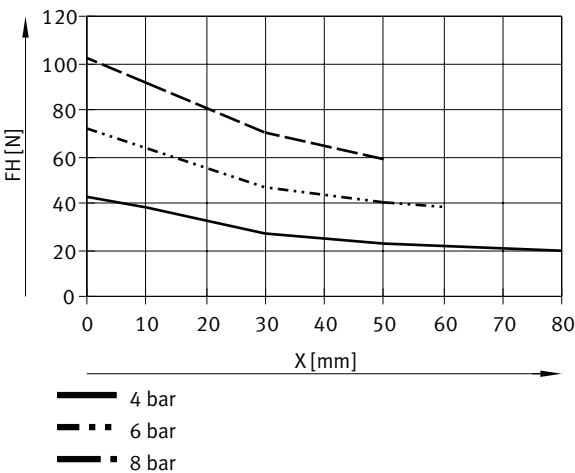


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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), with gripping force retention, standard gripping force – HPPR-16-6-...-NC-...

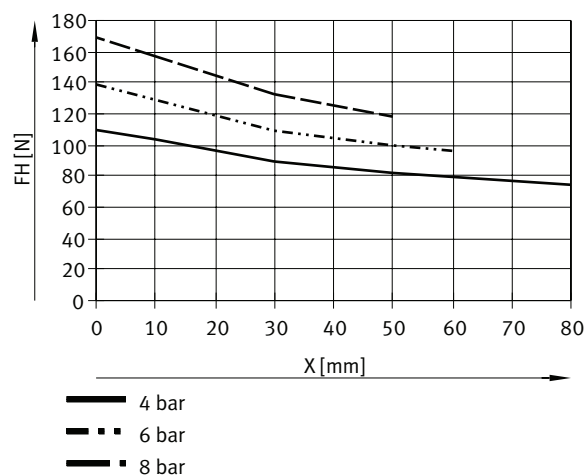


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), with gripping force retention, standard gripping force – HPPR-20-8-...-NO-...

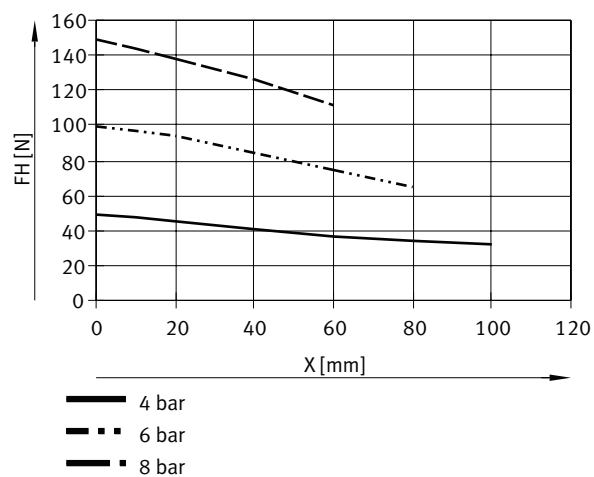


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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), with gripping force retention, standard gripping force – HPPR-20-8-...-NC-...

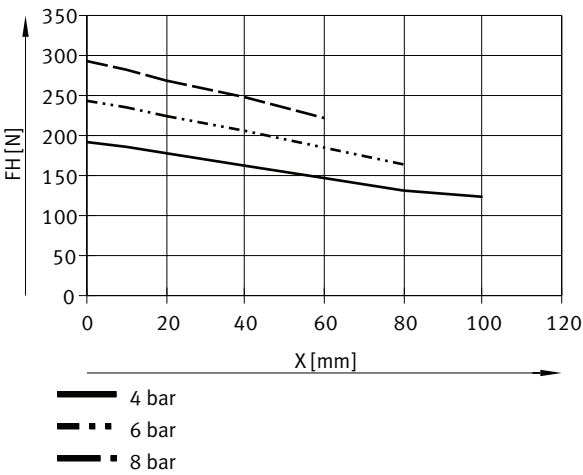


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), with gripping force retention, standard gripping force – HPPR-25-12-...-NO-...

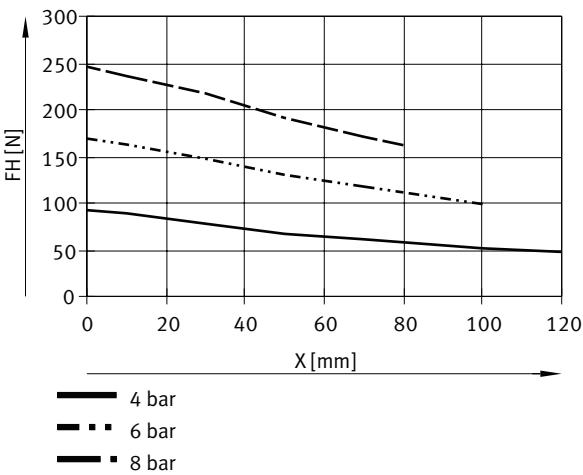


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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), with gripping force retention, standard gripping force – HPPR-25-12-...-NC-...

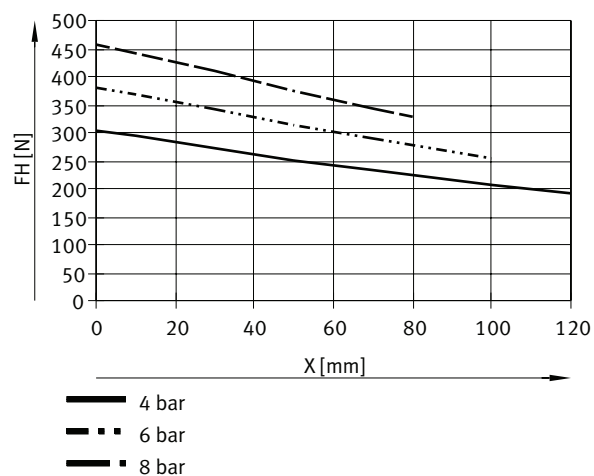


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), with gripping force retention, standard gripping force – HPPR-32-16-...-NO-...

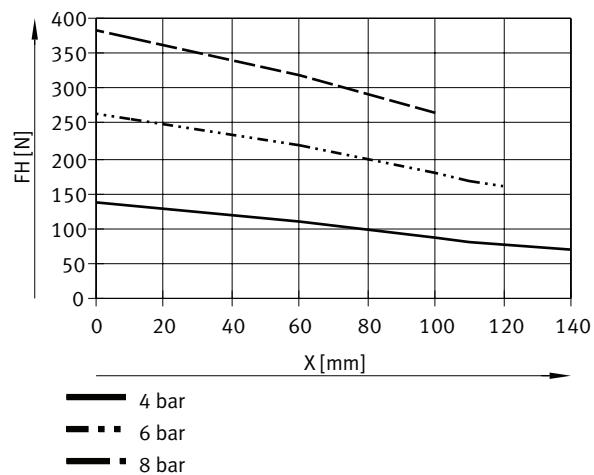


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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), with gripping force retention, standard gripping force – HPPR-32-16-...-NC-...

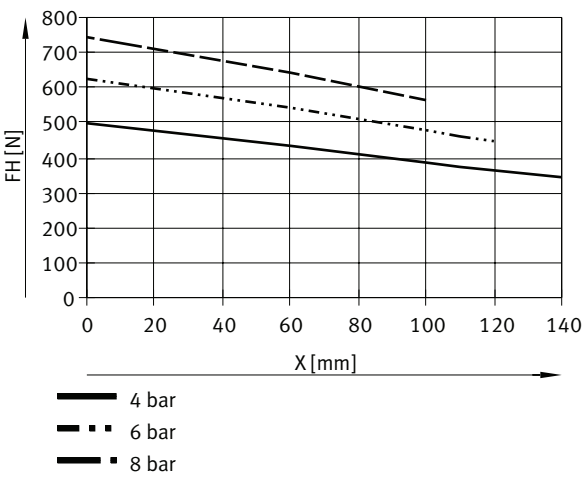


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), with gripping force retention, standard gripping force – HPPR-40-20-...-NO-...

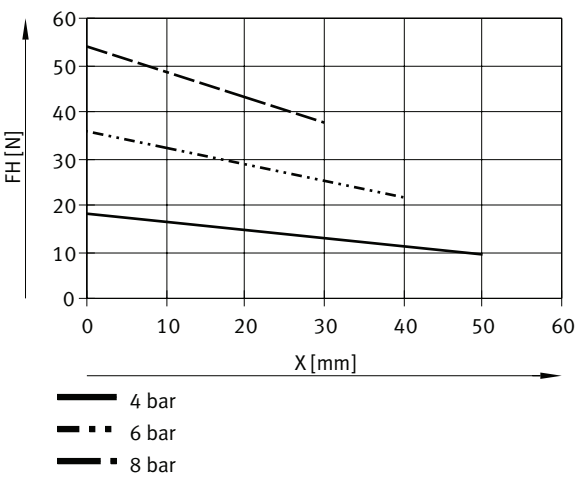


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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), with gripping force retention, standard gripping force – HPPR-40-20-...-NC-...

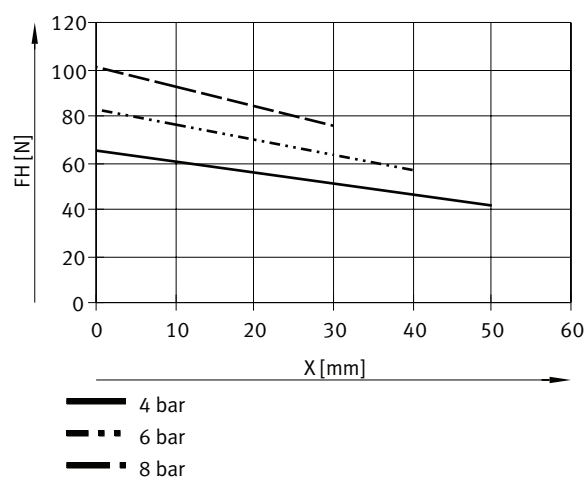


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), with gripping force retention, high gripping force – HPPR-F-12-2-...-NO-...

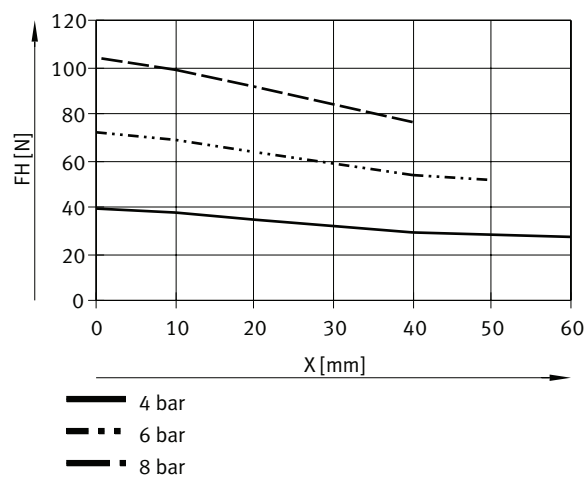


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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), with gripping force retention, high gripping force – HPPR-F-12-2-...-NC-...

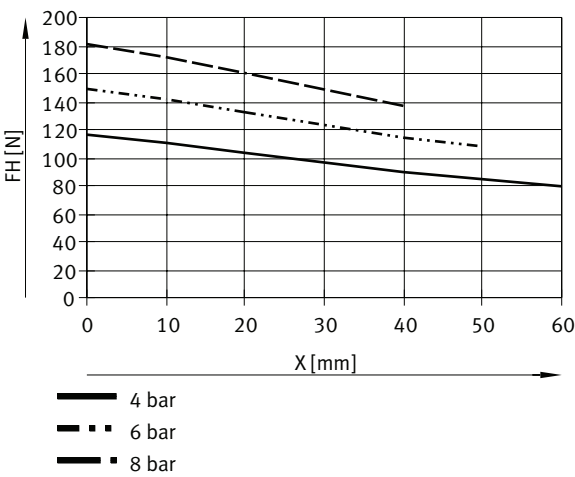


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), with gripping force retention, high gripping force – HPPR-F-16-3-...-NO-...

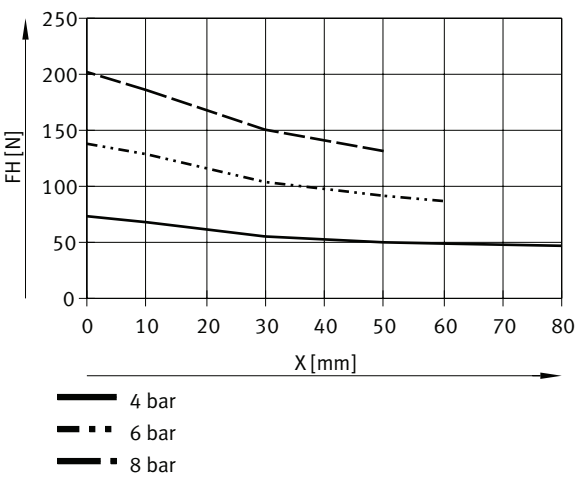


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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), with gripping force retention, high gripping force – HPPR-F-16-3-...-NC-...

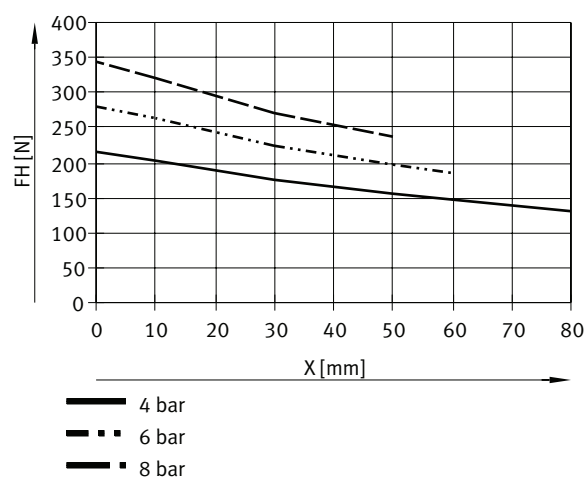


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), with gripping force retention, high gripping force – HPPR-F-20-4-...-NO-...

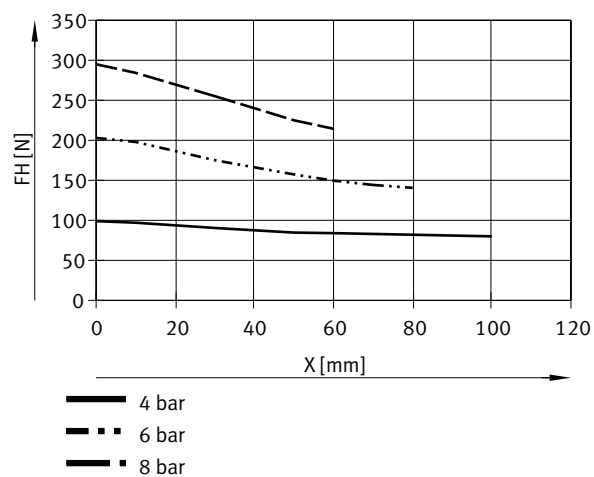


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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), with gripping force retention, high gripping force – HPPR-F-20-4-...-NC-...

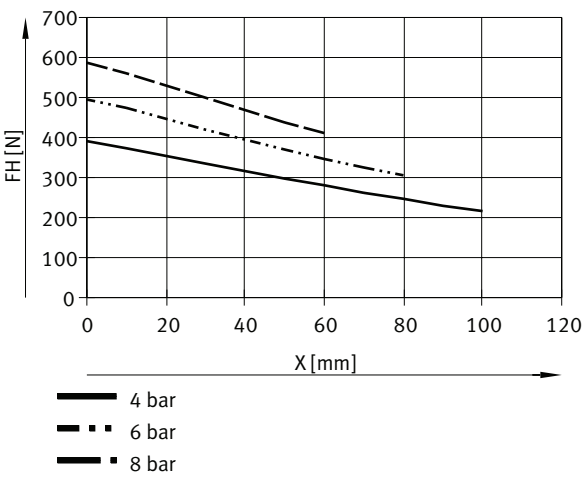


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), with gripping force retention, high gripping force – HPPR-F-25-6-...-NO-...

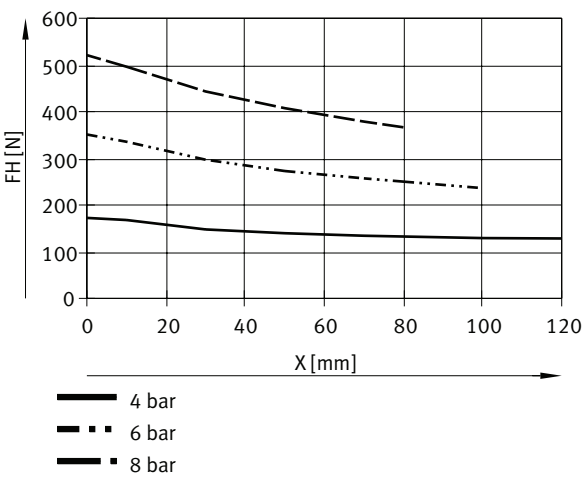


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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), with gripping force retention, high gripping force – HPPR-F-25-6-...-NC-...

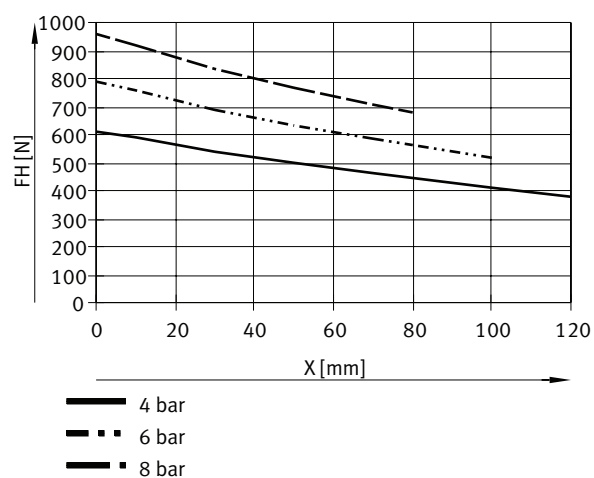


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), with gripping force retention, high gripping force – HPPR-F-32-8-...-NO-...

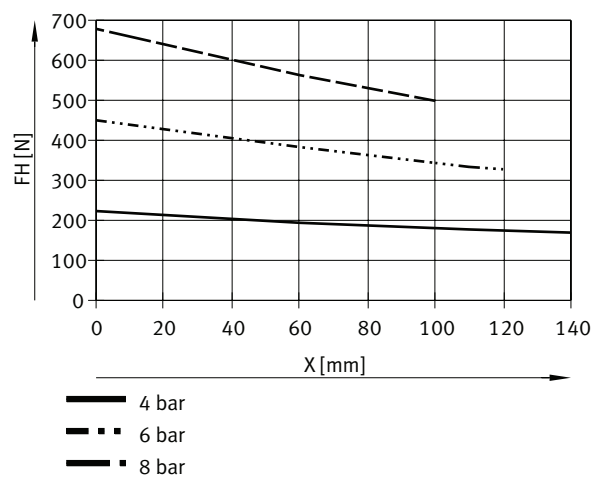


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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), with gripping force retention, high gripping force – HPPR-F-32-8-...-NC-...

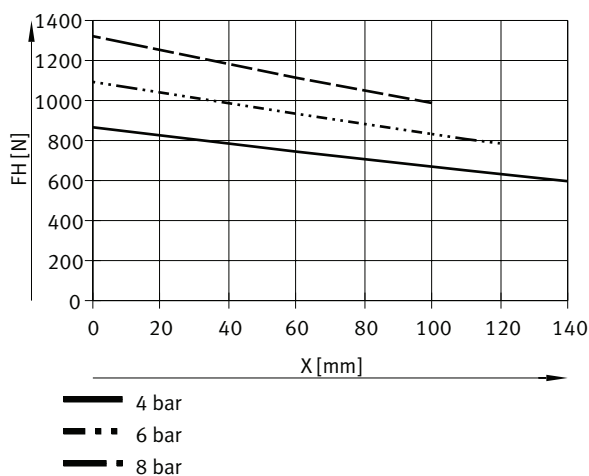


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), with gripping force retention, high gripping force – HPPR-F-40-10-...-NO-...

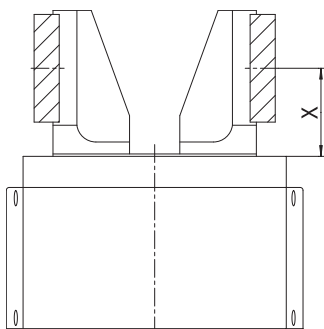


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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), with gripping force retention, high gripping force – HPPR-F-40-10-...-NC-...



Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), with gripping force retention

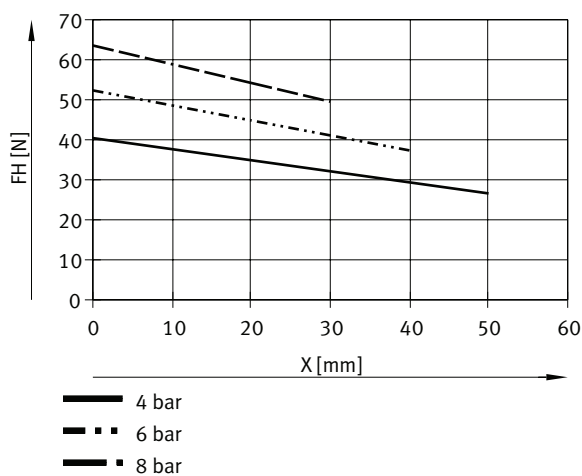


The gripping forces as a function of operating pressure and lever arm can be determined from the following diagrams.

The gripping force for internal gripping (opening) was measured with the gripper fully closed.

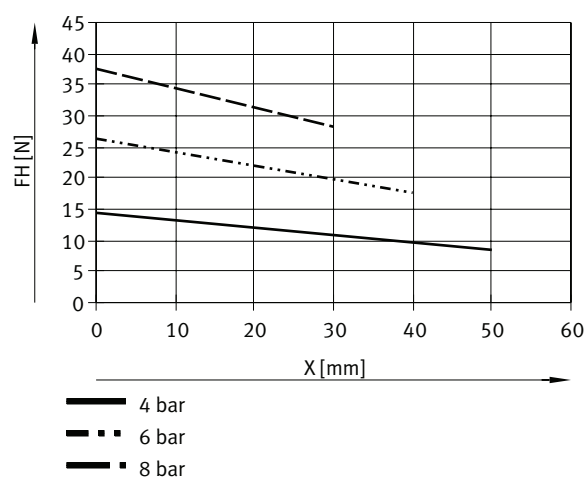
The gripping torque is not constant across the opening angle.

Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), with gripping force retention, standard gripping force – HPPR-12-4-...-NO-...

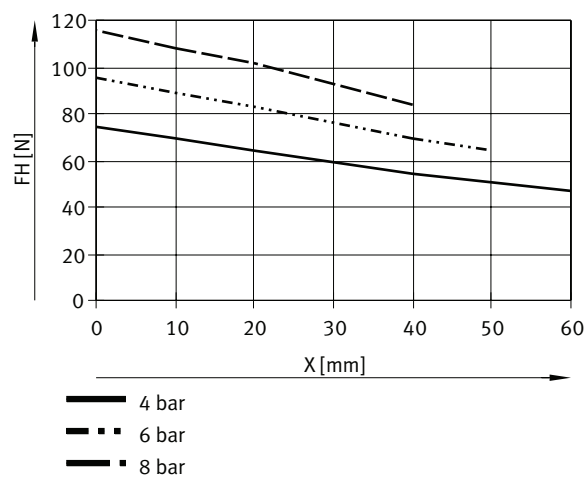


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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), with gripping force retention, standard gripping force – HPPR-12-4-...-NC-...

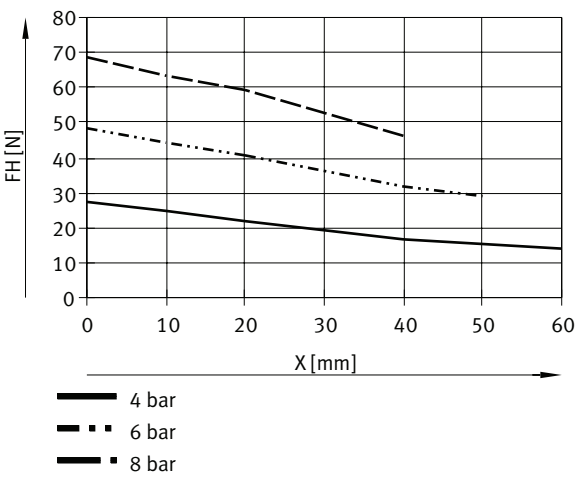


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), with gripping force retention, standard gripping force – HPPR-16-6-...-NO-...

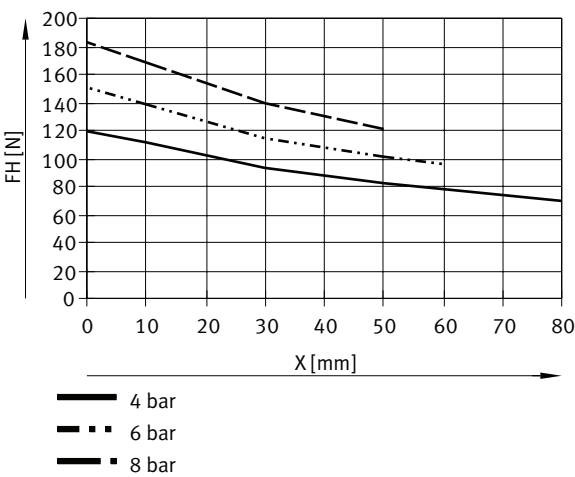


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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), with gripping force retention, standard gripping force – HPPR-16-6...-NC-...

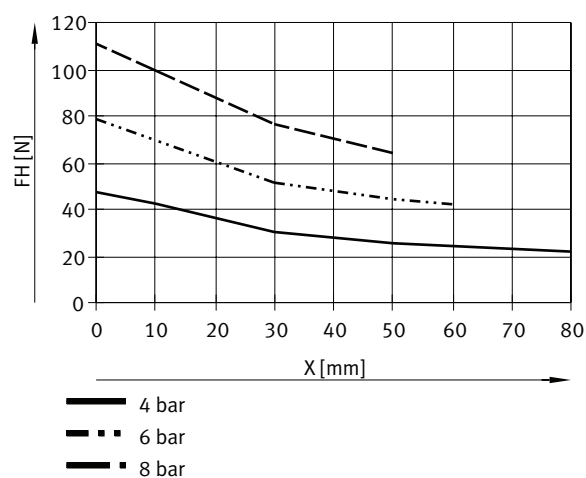


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), with gripping force retention, standard gripping force – HPPR-20-8-...-NO-...

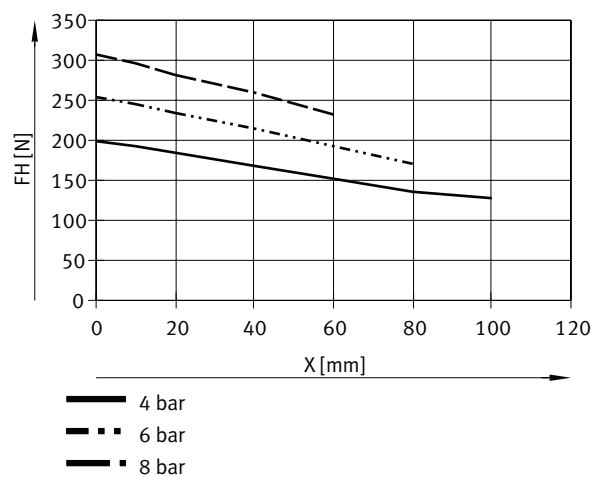


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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), with gripping force retention, standard gripping force – HPPR-20-8-...-NC-...

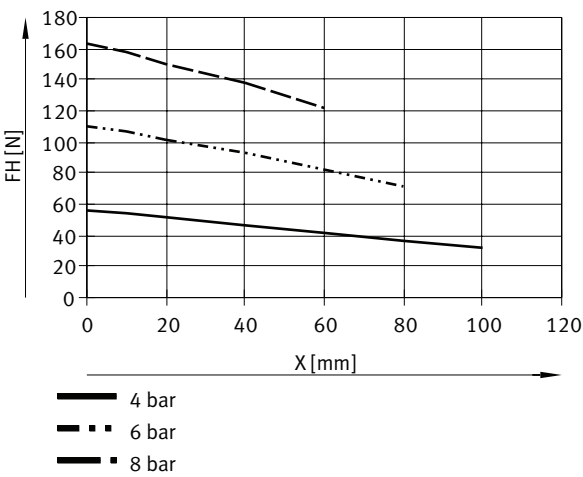


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), with gripping force retention, standard gripping force – HPPR-25-12-...-NO-...

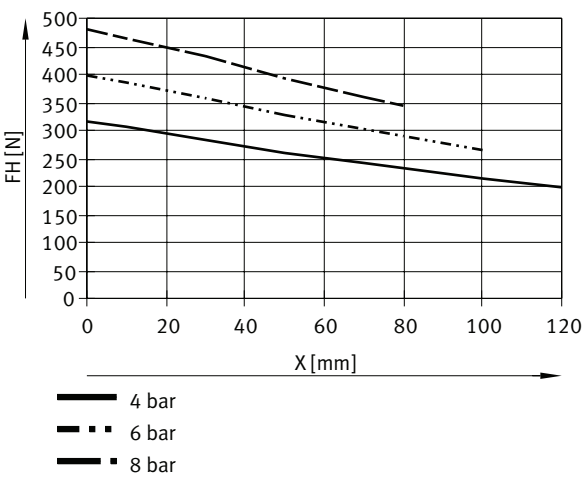


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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), with gripping force retention, standard gripping force – HPPR-25-12-...-NC-...



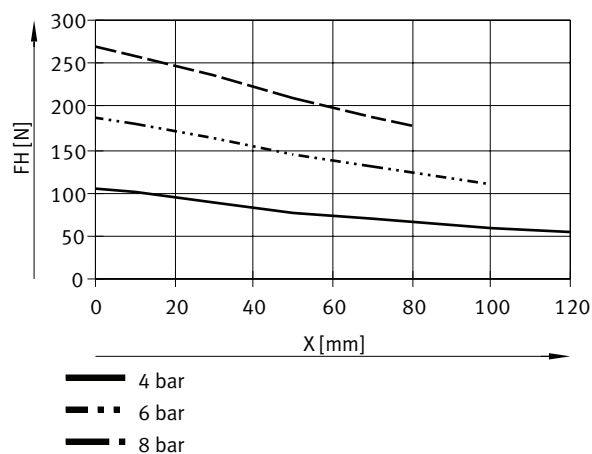
Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), with gripping force retention, standard gripping force – HPPR-32-16-...-NO-...



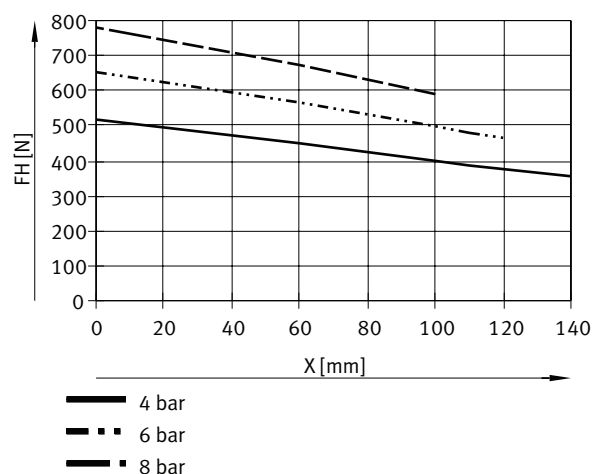
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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), with gripping force retention, standard gripping force – HPPR-32-16-...-NC-...

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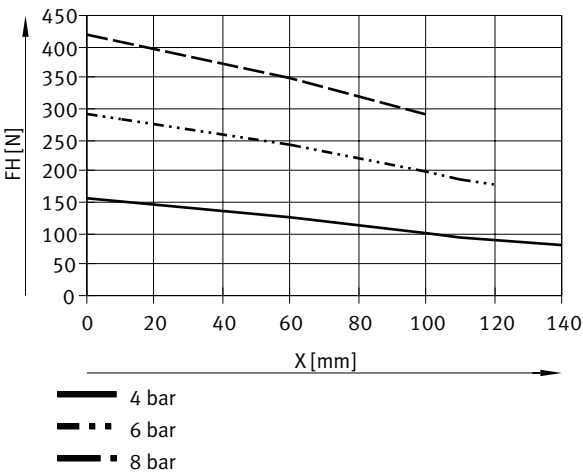


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), with gripping force retention, standard gripping force – HPPR-40-20-...-NO-...

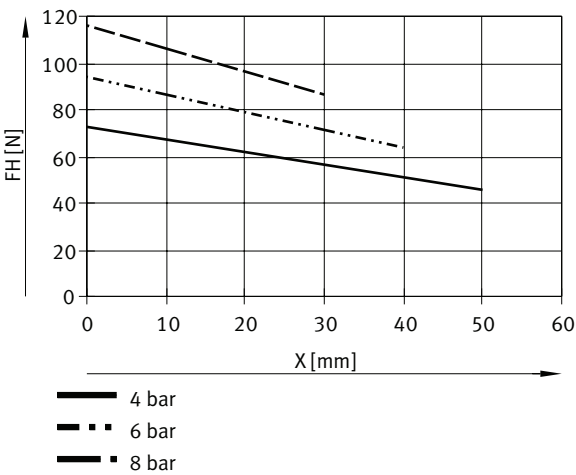


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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), with gripping force retention, standard gripping force – HPPR-40-20-...-NC-...

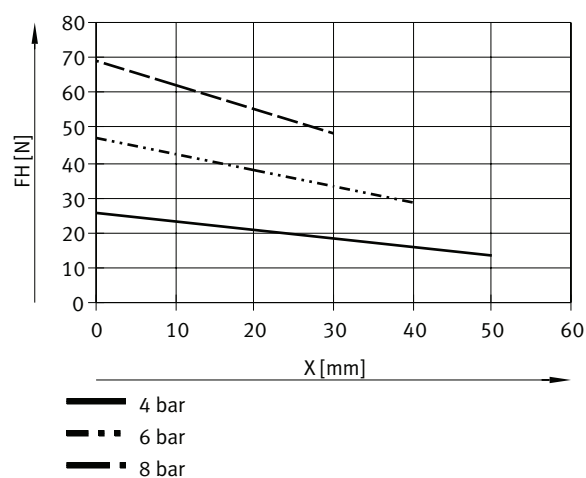


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), with gripping force retention, high gripping force – HPPR-F-12-2-...-NO-...

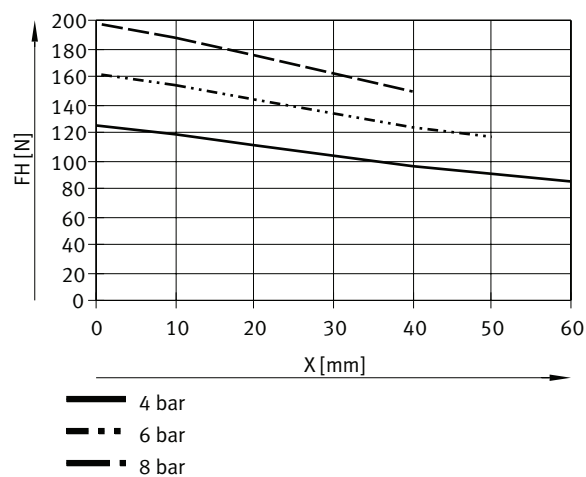


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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), with gripping force retention, high gripping force – HPPR-F-12-2-...-NC-...

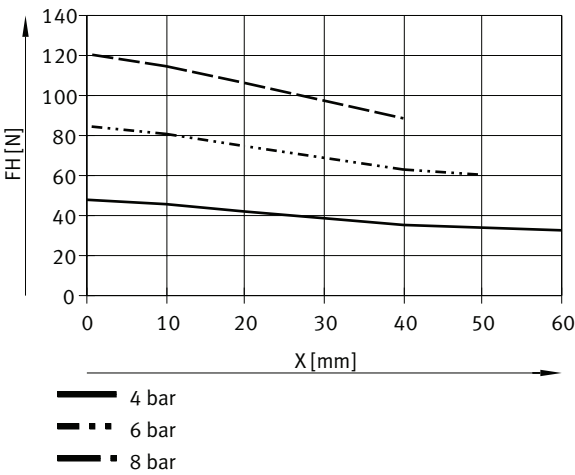


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), with gripping force retention, high gripping force – HPPR-F-16-3-...-NO-...

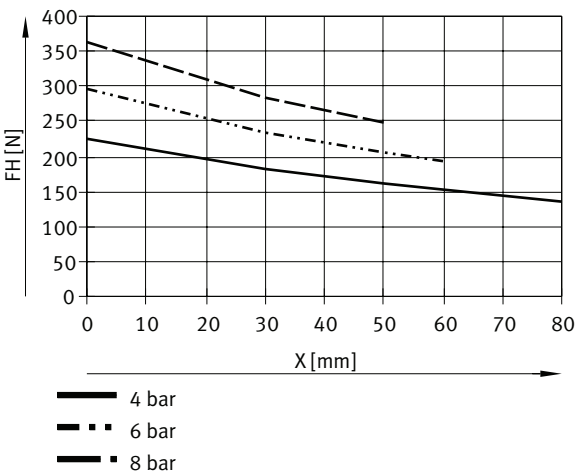


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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), with gripping force retention, high gripping force – HPPR-F-16-3-...-NC-...

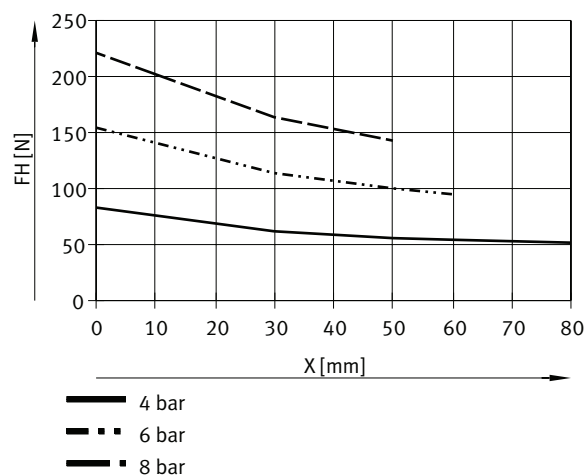


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), with gripping force retention, high gripping force – HPPR-F-20-4-...-NO-...

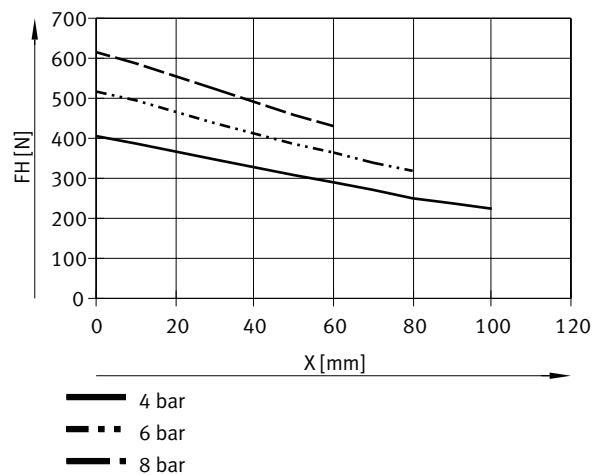


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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), with gripping force retention, high gripping force – HPPR-F-20-4-...-NC-...

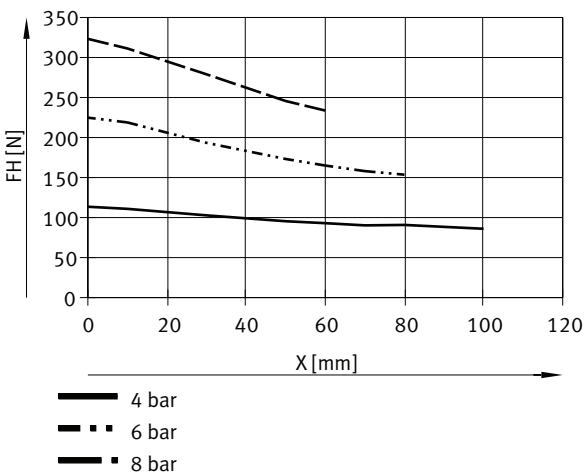


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), with gripping force retention, high gripping force – HPPR-F-25-6-...-NO-...

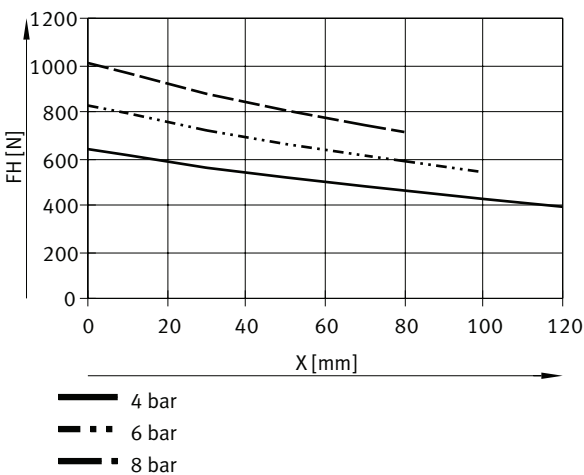


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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), with gripping force retention, high gripping force – HPPR-F-25-6-...-NC-...

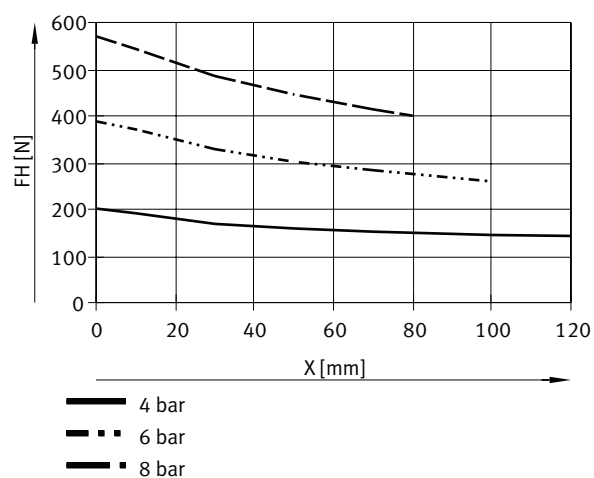


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), with gripping force retention, high gripping force – HPPR-F-32-8-...-NO-...

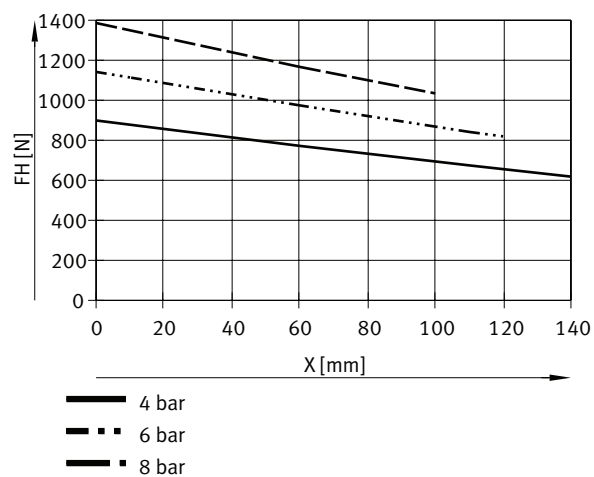


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Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), with gripping force retention, high gripping force – HPPR-F-32-8-...-NC-...

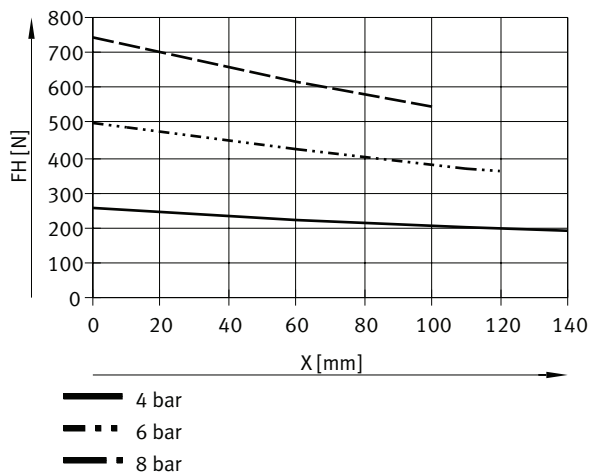


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), with gripping force retention, high gripping force – HPPR-F-40-10-...-NO-...

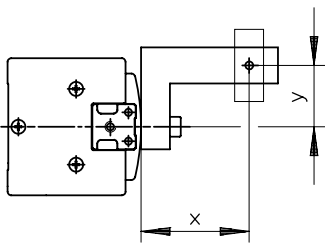


Datasheet

Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), with gripping force retention, high gripping force – HPPR-F-40-10-...-NC-...

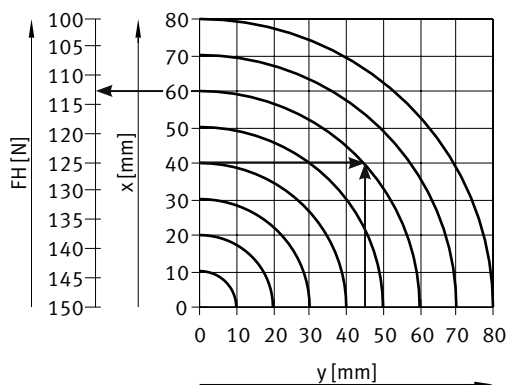


Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/ eccentricity y



Using the following diagrams, gripping forces at 0.6 MPa (6 bar, 87 psi) as a function of eccentric application of force and the maximum permissible off-centre point of force application can be determined for the various sizes.

Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – Calculation example



Where:

HPPR-25-12-A-...

Lever arm x = 40 mm

Eccentricity y = 45 mm

To be determined:

Gripping force at 0.6 MPa (6 bar, 87 psi)

Procedure:

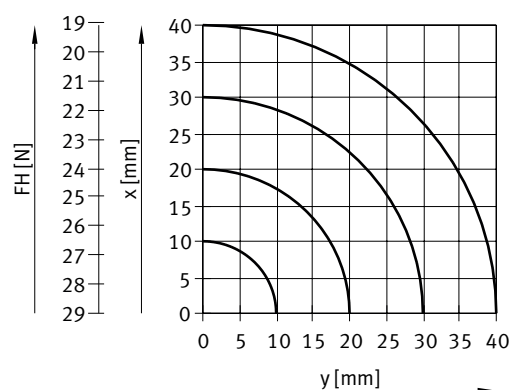
- Determine the intersection xy between lever arm x and eccentricity y in the diagram for HPPR-25-12-A-...
- Draw an arc (with centre at origin) through the intersection xy
- Determine the intersection between the arc and X-axis
- Reading the gripping force

Results:

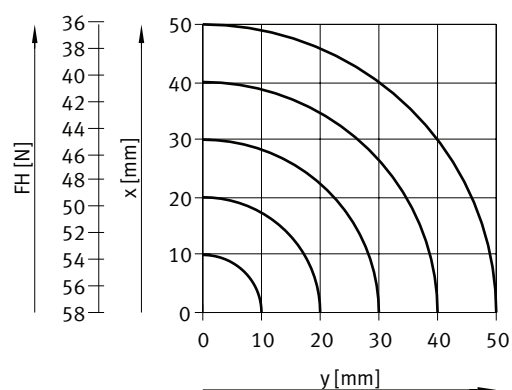
Gripping force = approx. 113 N

Datasheet

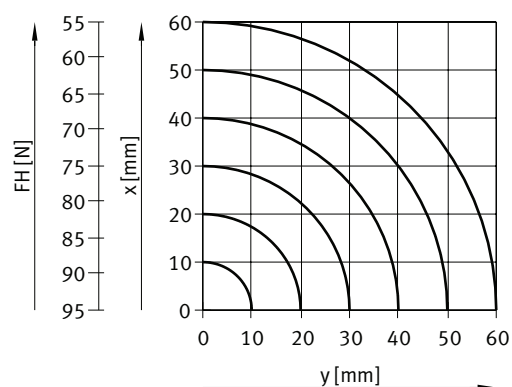
Gripping force F_H per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x /eccentricity y – External gripping (closing), standard gripping force – HPPR-12



Gripping force F_H per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x /eccentricity y – External gripping (closing), standard gripping force – HPPR-16

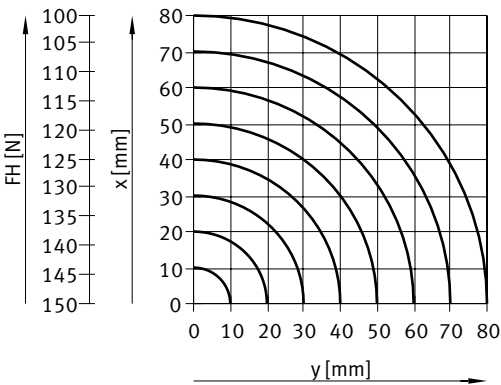


Gripping force F_H per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x /eccentricity y – External gripping (closing), standard gripping force – HPPR-20

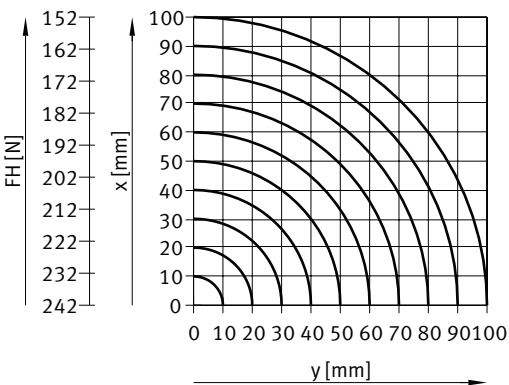


Datasheet

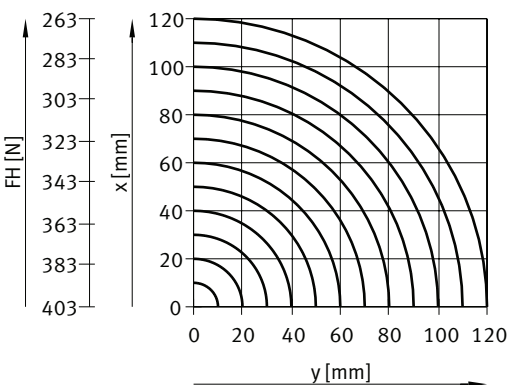
Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – External gripping (closing), standard gripping force – HPPR-25



Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – External gripping (closing), standard gripping force – HPPR-32

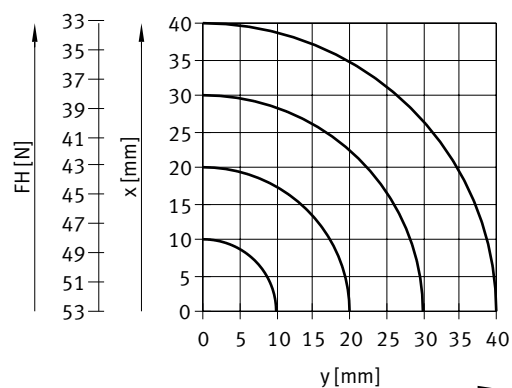


Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – External gripping (closing), standard gripping force – HPPR-40

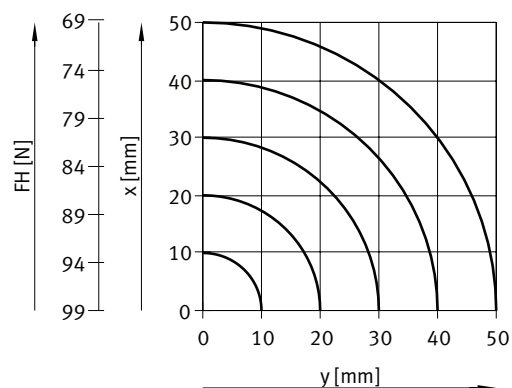


Datasheet

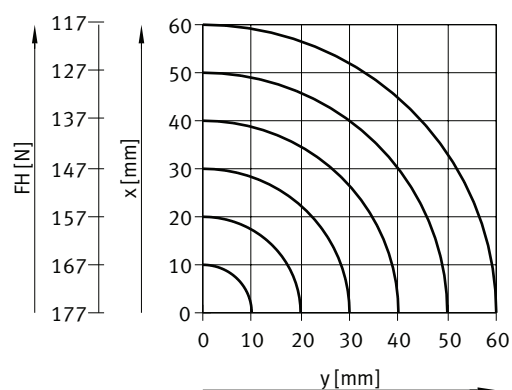
Gripping force F_H per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x /eccentricity y – External gripping (closing), high gripping force – HP-PR-F-12



Gripping force F_H per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x /eccentricity y – External gripping (closing), high gripping force – HP-PR-F-16

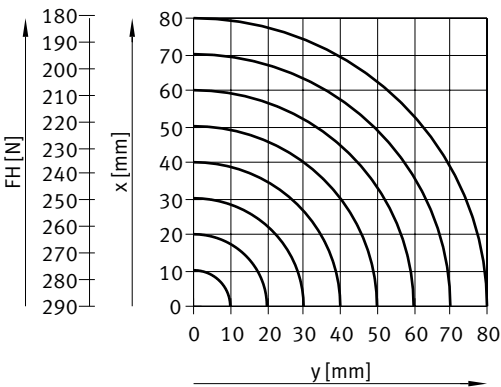


Gripping force F_H per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x /eccentricity y – External gripping (closing), high gripping force – HP-PR-F-20

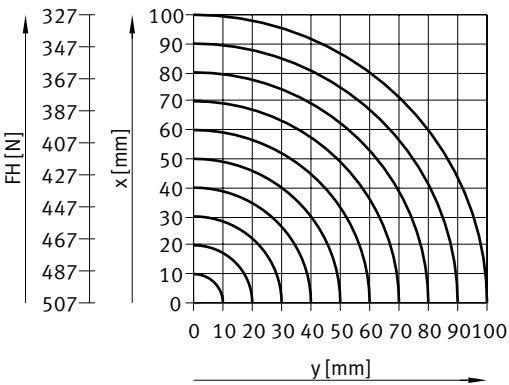


Datasheet

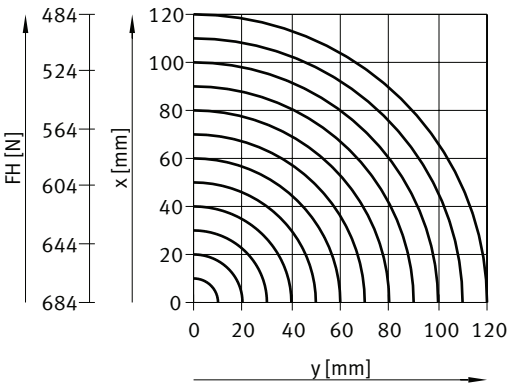
Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – External gripping (closing), high gripping force – HP-PR-F-25



Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – External gripping (closing), high gripping force – HP-PR-F-32

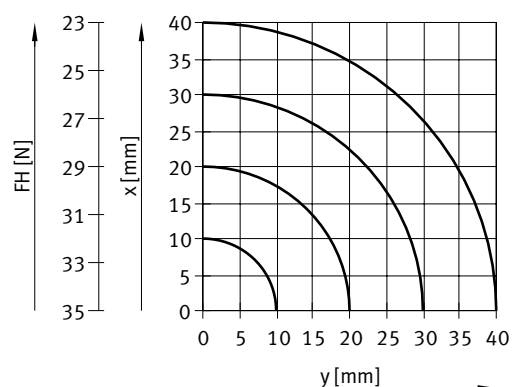


Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – External gripping (closing), high gripping force – HP-PR-F-40

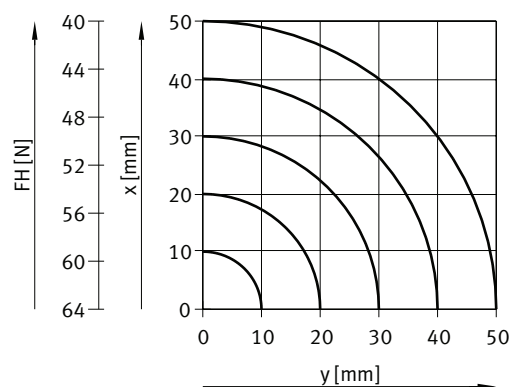


Datasheet

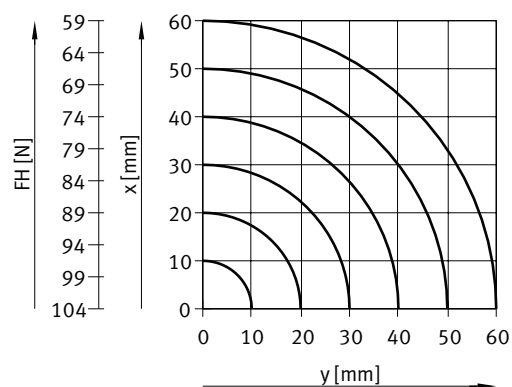
Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – Internal gripping (opening), standard gripping force – HPPR-12



Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – Internal gripping (opening), standard gripping force – HPPR-16

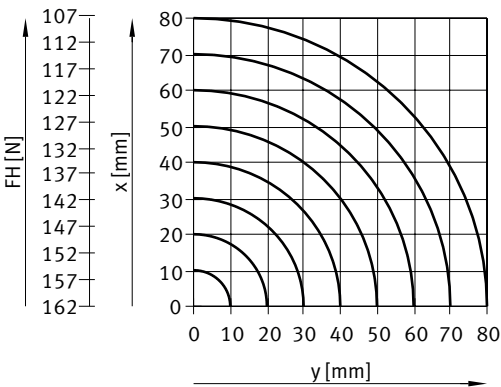


Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – Internal gripping (opening), standard gripping force – HPPR-20

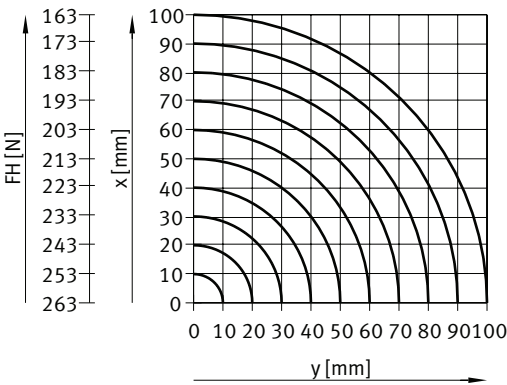


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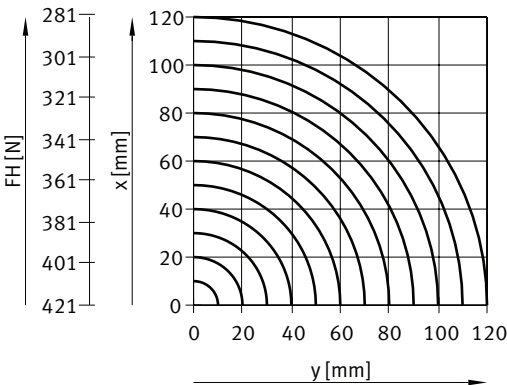
Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – Internal gripping (opening), standard gripping force – HPPR-25



Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – Internal gripping (opening), standard gripping force – HPPR-32

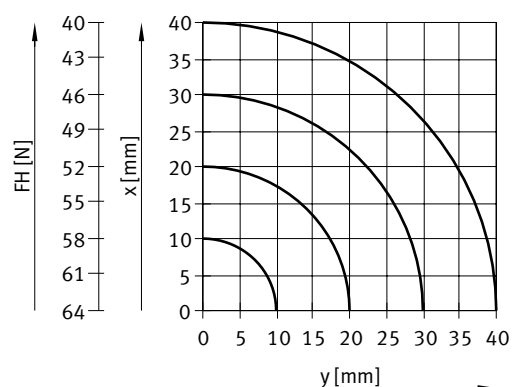


Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – Internal gripping (opening), standard gripping force – HPPR-40

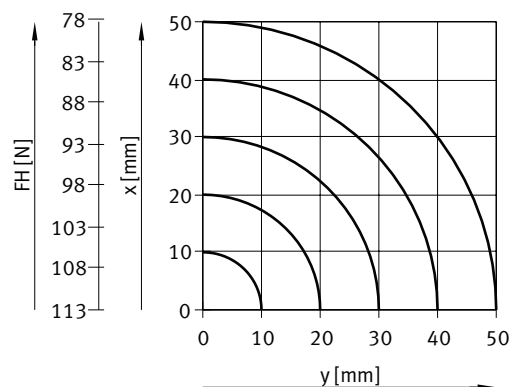


Datasheet

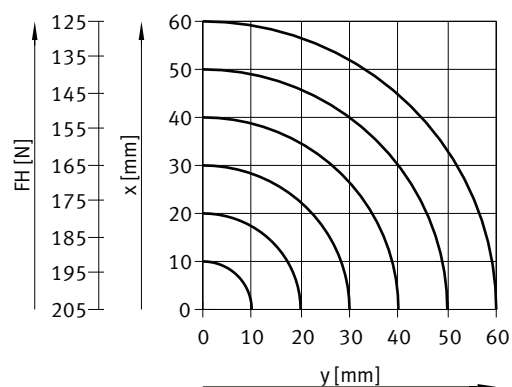
Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – Internal gripping (opening), high gripping force – HP-PR-F-12



Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – Internal gripping (opening), high gripping force – HP-PR-F-16

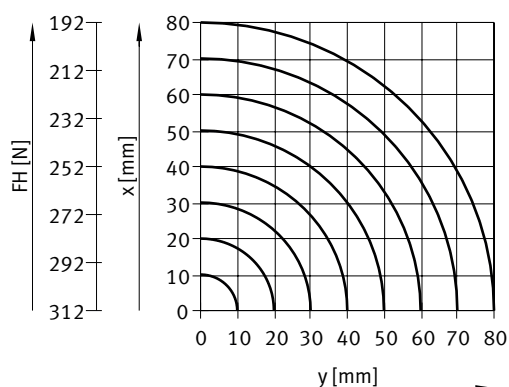


Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – Internal gripping (opening), high gripping force – HP-PR-F-20

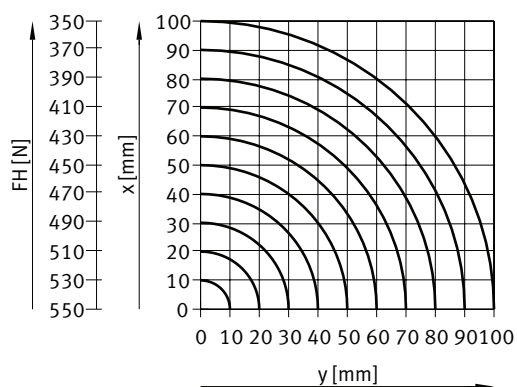


Datasheet

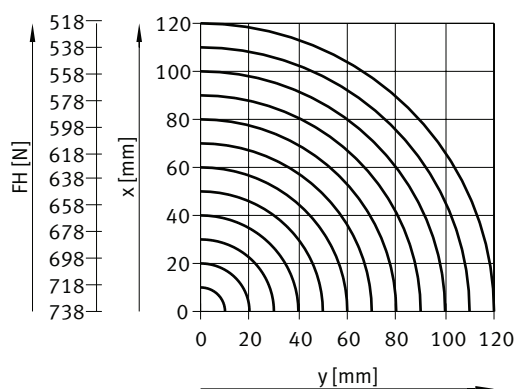
Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – Internal gripping (opening), high gripping force – HP-PR-F-25



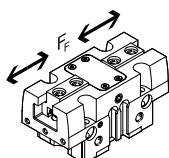
Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – Internal gripping (opening), high gripping force – HP-PR-F-32



Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – Internal gripping (opening), high gripping force – HP-PR-F-40



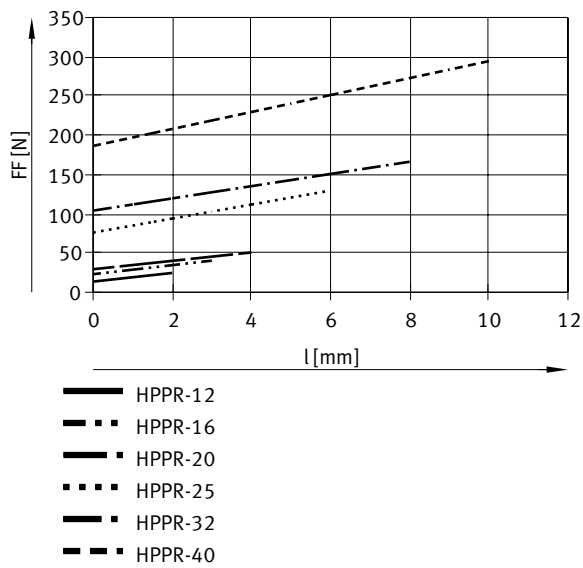
Spring force FF as a function of size/gripper jaw stroke l, with gripping force retention – HPPR-...-NO/NC-...



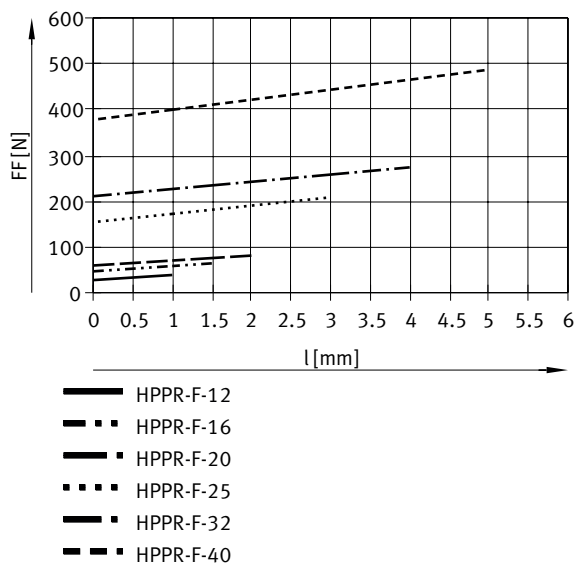
The spring forces FF as a function of the gripper jaw stroke l can be determined from the following graph.

Datasheet

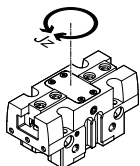
Spring force FF as a function of size/gripper jaw stroke l, with gripping force retention, standard gripping force – HPPR-...-NO/NC-...



Spring force FF as a function of size/gripper jaw stroke l, with gripping force retention, high gripping force – HPPR-F-...-NO/NC-...



Mass moments of inertia – HPPR-12 ... 16



Mass moment of inertia of the grippers in relation to the central axis, without external gripper fingers, without load.

Size	12					16					
	2 mm		4 mm			3 mm			6 mm		
Gripping force backup	None	Closing	None	Closing	Opening	None	Closing	Opening	None	Closing	Opening
Mass moment of inertia	0.087 kg-cm ²	0.106 kg-cm ²	0.084 kg-cm ²	0.103 kg-cm ²	0.108 kg-cm ²	0.168 kg-cm ²	0.193 kg-cm ²	0.2 kg-cm ²	0.158 kg-cm ²	0.184 kg-cm ²	0.197 kg-cm ²

Datasheet

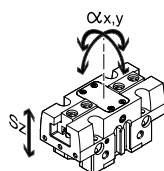
Mass moments of inertia – HPPR-20 ... 25

Size	20						25					
Total stroke	4 mm			8 mm			6 mm			12 mm		
Gripping force backup	None	Closing	Opening	None	Closing	Opening	None	Closing	Opening	None	Closing	Opening
Mass moment of inertia	0.426 kg-cm ²	0.47 kg-cm ²	0.499 kg-cm ²	0.399 kg-cm ²	0.443 kg-cm ²	0.496 kg-cm ²	1.252 kg-cm ²	1.508 kg-cm ²	1.619 kg-cm ²	1.151 kg-cm ²	1.406 kg-cm ²	1.602 kg-cm ²

Mass moments of inertia – HPPR-32 ... 40

Size	32						40					
Total stroke	8 mm			16 mm			10 mm			20 mm		
Gripping force backup	None	Closing	Opening	None	Closing	Opening	None	Closing	Opening	None	Closing	Opening
Mass moment of inertia	3.685 kg-cm ²	11.213 kgcm ²	12.248 kgcm ²	3.381 kg-cm ²	3.915 kg-cm ²	4.56 kg-cm ²	9.492 kg-cm ²	11.213 kgcm ²	12.248 kgcm ²	8.573 kg-cm ²	10.294 kgcm ²	12.118 kgcm ²

Gripper jaw backlash



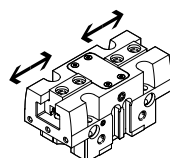
The plain-bearing guide used in the grippers means that there is backlash between the gripper jaws and the housing. The values listed in the table apply in new condition.

Size	12	16	20	25	32	40
Max. gripper jaw backlash Sz ¹⁾	<0.02 mm					
Max. angular gripper jaw backlash ax, ay ²⁾	<0.3 deg		<0.2 deg			

1) The values only apply when the gripper is open.

2) The values only apply when the gripper is open.

Opening and closing times – HPPR-12 ... 16



The indicated opening and closing times were measured at room temperature at an operating pressure of 0.6 MPa (6 bar, 87 psi) with a horizontally mounted gripper without additional gripper fingers.

The grippers must be throttled for masses that are higher than the specified unthrottled maximum mass per external gripper finger. Opening and closing times must then be adjusted accordingly.

Size	12					16					
Total stroke	2 mm		4 mm			3 mm			6 mm		
Gripping force backup	None	Closing	None	Closing	Opening	None	Closing	Opening	None	Closing	Opening
Min. opening time at 0.6 MPa (6 bar, 87 psi)	6 ms	9 ms	7 ms	10 ms	7 ms	11 ms	7 ms	8 ms	14 ms	8 ms	
Min. closing time at 0.6 MPa (6 bar, 87 psi)	8 ms	7 ms	10 ms	7 ms	14 ms	8 ms	7 ms	14 ms	10 ms	9 ms	18 ms

Opening and closing times – HPPR-20 ... 25

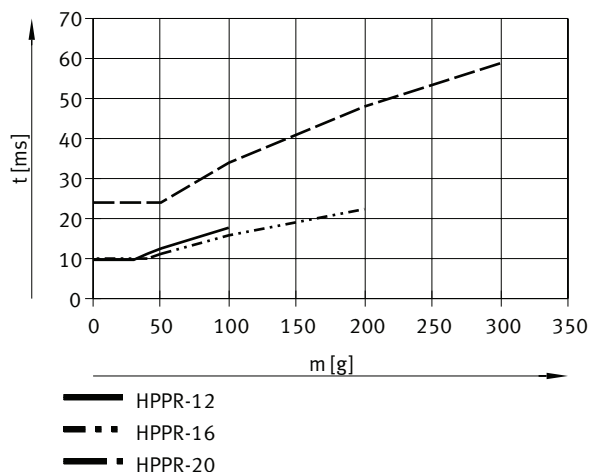
Size	20						25					
Total stroke	4 mm			8 mm			6 mm			12 mm		
Gripping force backup	None	Closing	Opening	None	Closing	Opening	None	Closing	Opening	None	Closing	Opening
Min. opening time at 0.6 MPa (6 bar, 87 psi)	20 ms	18 ms	11 ms	20 ms	19 ms	12 ms	21 ms	36 ms	18 ms	22 ms	38 ms	22 ms
Min. closing time at 0.6 MPa (6 bar, 87 psi)	23 ms	13 ms	19 ms	24 ms	14 ms	20 ms	19 ms	23 ms	39 ms	20 ms	24 ms	45 ms

Datasheet

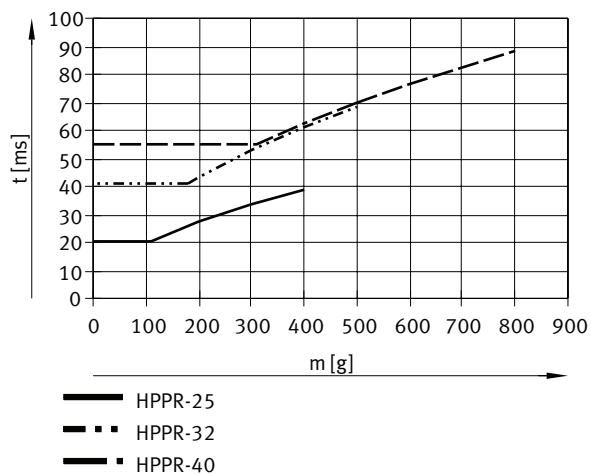
Opening and closing times – HPPR-32 ... 40

Size	32						40					
Total stroke	8 mm			16 mm			10 mm			20 mm		
Gripping force backup	None	Closing	Opening	None	Closing	Opening	None	Closing	Opening	None	Closing	Opening
Min. opening time at 0.6 MPa (6 bar, 87 psi)	31 ms	41 ms	27 ms	33 ms	42 ms	33 ms	52 ms	98 ms	54 ms	52 ms	99 ms	55 ms
Min. closing time at 0.6 MPa (6 bar, 87 psi)	38 ms	30 ms	50 ms	41 ms	31 ms	53 ms	56 ms	57 ms	99 ms	55 ms	59 ms	105 ms

Opening and closing times as a function of the gripper finger mass – HPPR-12 ... 20

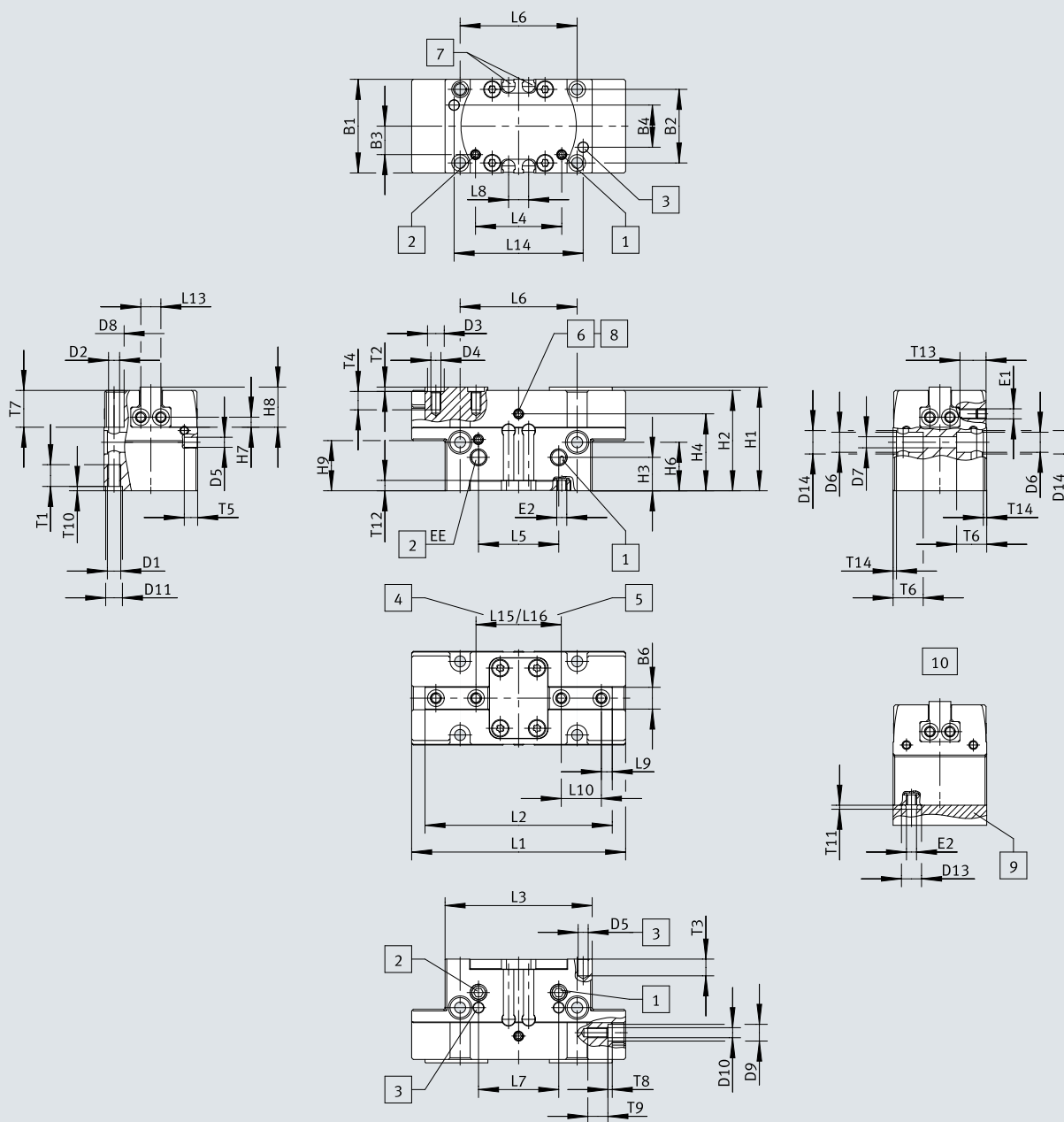


Opening and closing times as a function of the gripper finger mass – HPPR-25 ... 40



Dimensions

Dimensions – Parallel gripper HPPR-12 ... 20

Download CAD data www.festo.com


- [1] Open the compressed air connection. Either at the front, rear or underneath (the connections at the rear and underneath are sealed upon delivery).
- [2] Close the compressed air connection. Either at the front, rear or underneath (the connections at the rear and underneath are sealed upon delivery).
- [3] Drilled hole for dowel pin (not included in the scope of delivery)
- [4] Gripper jaws open
- [5] Gripper jaws closed
- [6] Sealing air connection (sealed on delivery)
- [7] Slot for proximity switch
- [8] Lubrication nipple (sealed on delivery)
- [9] O-ring: $\varnothing 3 \times 1.5$
- [10] Compressed air supply underneath

Dimensions

	B1 ±0,05	B2	B3 ±0,1	B4 ±0,02	B6 +0,5	D1	D2 ∅	D3 ∅ H8	D4	D5 ∅ H8	D6 ∅ ±0,1	D7 ∅ +0,1	D8 ∅ +0,3	D9 ∅ H8
HPPR-12	22	16	2,9	8	4,8	M3	2,6	–	M2	2	4,6	2,6	4,6	–
HPPR-16	24	17	3	9	6	M3	2,6	5	M3	2	4,6	2,6	4,6	–
HPPR-20	28	22	8,5	12,6	6,5	M4	3,3	5	M3	3	6	3,3	6	5

	D10	D11 ∅ H8	D13 ∅	D14 ∅ H8	EE	E1	E2	H1		H2		H3		H4	
								±0,05	[NO/NC] ±0,05	±0,05	[NO/NC] ±0,05	±0,1	[NO/NC] ±0,1		[NO/NC]
HPPR-12	M2	5	6	5	M3	M3	M3	25,3	32,2	24,8	31,7	9	9	20,3	27,2
HPPR-16	M2	5	6	5	M5	M3	M3	29	37	28	36	12	12	23,8	31,8
HPPR-20	M3	5	6	7	M5	M3	M3	31	38	30	37	10	15	23	30

	H6		H7	H8	H9		L1 +0,1	L2		L3 ±0,1	L4 ±0,1	L5 ±0,1	L6	L7
		[NO/NC]			±0,1	[NO/NC] ±0,1			[F]					
HPPR-12	13,5	20,4	2	7	12	18,9	41	37	39	36	21	20	29	17
HPPR-16	17,5	25,5	2,25	8,5	15	23	50	44	47	36	23	20	29	20
HPPR-20	14,5	21,5	3	12	15	22	64	56	60	44	25,8	24	35	24

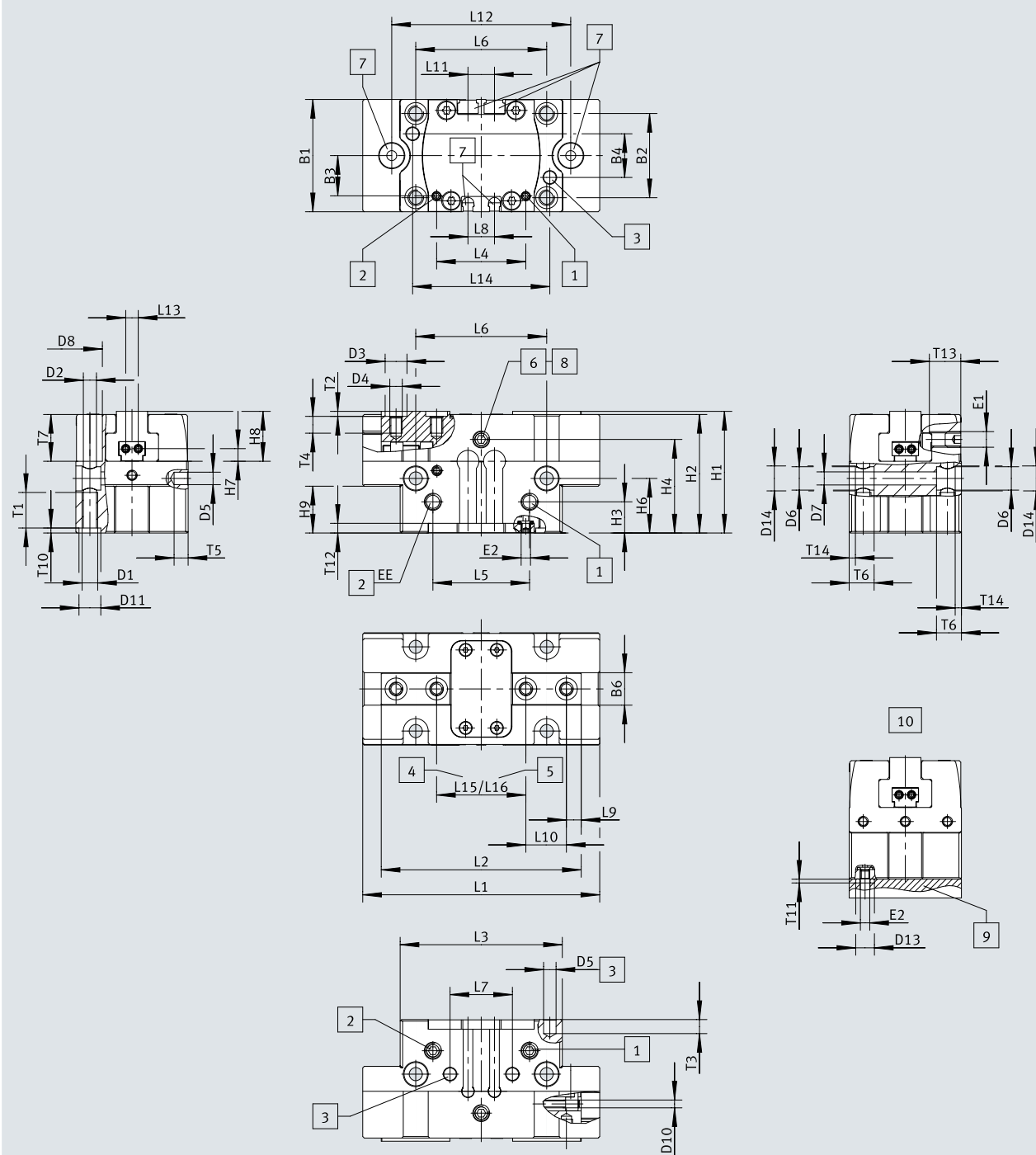
	L8 ±0,1	L9		L10	L13	L14	L15		L16	T1 min.	T2 +0,1	T3 min.	T4 min.	T5 min.
			[F]					[F]						
HPPR-12	8,5	3,1	4,15	5,8	4,4	30	23	21	19	5,5	–	4	4	4
HPPR-16	6	3	4,6	8	6	32,2	28	25	22	5,5	1,3	4	5	4
HPPR-20	6	3,25	5,25	12	6	38,6	33,5	29,5	25,5	6,5	1,3	5	5,5	4

	T6	T7 +0,2	T8 +0,1	T9 min.	T10 +0,1	T11	T12		T13 min.	T14 +0,1
							min.	[NO/NC] min.		
HPPR-12	6	8	–	4	1,3	1,2	3	3	6	1,3
HPPR-16	8	7,2	–	4	1,3	1,2	3	3	5,5	1,3
HPPR-20	9	11	1,3	6	1,3	1,2	3	3	5,5	1

Dimensions

Dimensions – Parallel gripper HPPR-25 ... 40

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- [1] Open the compressed air connection. Either at the front, rear or underneath (the connections at the rear and underneath are sealed upon delivery).
- [2] Close the compressed air connection. Either at the front, rear or underneath (the connections at the rear and underneath are sealed upon delivery).
- [3] Drilled hole for dowel pin (not included in the scope of delivery)
- [4] Gripper jaws open
- [5] Gripper jaws closed
- [6] Sealing air connection (sealed on delivery)
- [7] Slot for proximity switch
- [8] Lubrication nipple (sealed on delivery)
- [9] O-ring: $\varnothing 3 \times 1.5$
- [10] Compressed air supply underneath

Dimensions

	B1 ±0,05	B2	B3 ±0,1	B4 ±0,02	B6 -0,05/ -0,1	D1	D2 ∅	D3 ∅ H8	D4	D5 ∅ H8	D6 ∅ ±0,1	D7 ∅ +0,1	D8 ∅ +0,3
HPPR-25	36	27	13	14	10	M5	4,2	7	M4	4	7,5	4,2	8
HPPR-32	42	32	13,3	18	12	M5	4,2	9	M5	4	9,2	5,3	8
HPPR-40	50	38	17	20	14	M6	5,1	9	M6	5	11	6,4	9

	D10	D11 ∅ H8	D13 ∅	D14 ∅ H8	EE	E1	E2	H1		H2		H3	
									[NO/NC]		[NO/NC]		[NO/NC]
								±0,05	±0,05	±0,05	±0,05	±0,1	±0,1
HPPR-25	M2,5	7	6	8	M5	M5	M3	39	57	38	56	10	20
HPPR-32	M2,5	7	6	10	M5	M5	M3	49	67	48	66	12	30
HPPR-40	M2,5	9	6	12	M5	M5	M3	55	81	54	80	15	36

	H4		H6		H7	H8	H9		L1	L2		L3	L4
		[NO/NC]		[NO/NC]				[NO/NC]			[F]		
							±0,1	±0,1	+0,1			±0,1	±0,1
HPPR-25	30	48	17,5	35,5	4,05	16	15	33	76	64	70	52	28,6
HPPR-32	36	54	20	38	4,05	19	20	38	96	80	88	64	39
HPPR-40	41	67	25	51	4,05	22	24	50	120	100	110	80	47,4

	L5	L6	L7	L8	L9		L10	L11	L12	L13	L14	L15	
						[F]							[F]
	±0,1			±0,1									
HPPR-25	31	42	20	8,5	4,75	7,7	13	8	57,4	4	44	40,5	34,5
HPPR-32	40	52	30	10	5,5	9	16	10	72,6	4	54	53	45
HPPR-40	49	66	38	10	6	11	20	10	88	4	69	67	57

	L16	T1	T2	T3	T4	T5	T6	T7	T10	T11	T12		T13	T14
		min.	+0,1	min.	min.	min.		+0,2	+0,1		min.	[NO/NC] min.	min.	+0,1
HPPR-25	28,5	11,4	1,6	4,5	5,4	4,5	8	15	1,6	1,2	3	3	6,7	2
HPPR-32	37	9,4	2,1	6	8,4	4,5	11	19	1,6	1,2	3	4	6,5	2
HPPR-40	47	10,5	2,1	6	10,5	6	12	20	2,1	1,2	4	4	6,5	2,6

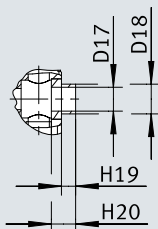
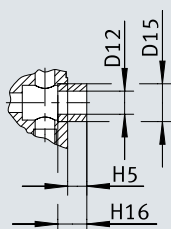
Dimensions

Dimensions – Parallel gripper HPPR with connecting/centring sleeve ZBV/
ZBH (on the side of the gripper)

Download CAD data www.festo.com

HPPR-A-12

HPPR-A-16...80

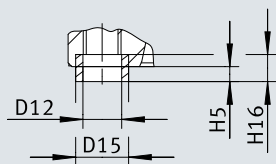


		D12 ø	D15 ø h7	D17 ø	D18 ø h7	H5 0/-0,3	H16	H19 0/-0,3	H20
HPPR-12-...	ZBH-5	3,2	5	3,2	5	1,1	2,4 ^{0/-0,2}	1,1	2,4 ^{0/-0,2}
HPPR-16-...	ZBV-6-5	4 ^{+0,05}	5	4 ^{+0,05}	5	1,1	2,4 ^{0/-0,2}	1,1	2,4 ^{0/-0,2}
HPPR-20-...	ZBV-7-5	3,2	5	3,2	5	1,1	2,4 ^{0/-0,2}	1,1	2,4 ^{0/-0,2}
HPPR-25-...	ZBV-8-7	5,3	7	5,3	7	1,5	3,5 ^{0/-0,4}	1,5	3,5 ^{0/-0,4}
HPPR-32-...	ZBV-10-7	5,3	9	5,3	9	1,9	3,9 ^{±0,1}	1,9	3,9 ^{±0,1}
HPPR-40-...	ZBV-12-9	6,4	9	6,4	9	1,9	3,9 ^{±0,1}	1,9	3,9 ^{±0,1}

Dimensions

Dimensions – Parallel gripper HPPR with centring sleeve ZBH (on the under-side of the gripper)

Download CAD data www.festo.com



		D12 ø	D15 ø h7	H5 0/-0,3	H16 0/-0,2
HPPR-12-...	ZBH-5	3,2	5	1,1	2,4
HPPR-16-...	ZBH-5	3,2	5	1,1	2,4
HPPR-20-...	ZBH-5	3,2	5	1,1	2,4
HPPR-25-...	ZBH-7	5,3	7	1,4	3
HPPR-32-...	ZBH-7	5,3	7	1,4	3
HPPR-40-...	ZBH-9	6,4	9	1,9	4

Ordering data

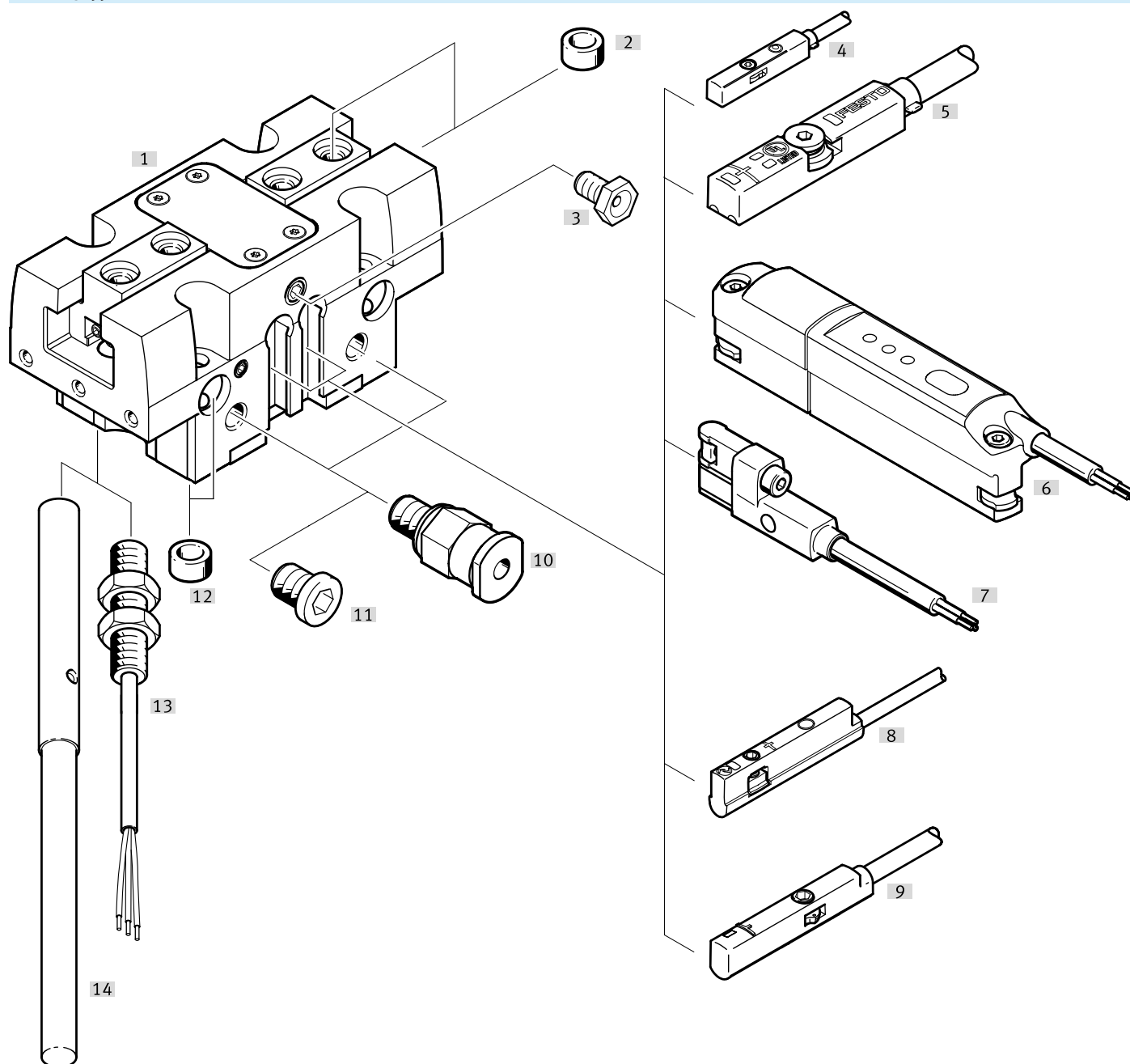
Double-acting, without compression spring					
	Size	Total stroke	Gripper characteristic	Part no.	Type
	12	2 mm	High gripping force	8209483	HPPR-F-12-2-A-F1A
		4 mm	Standard	8209480	HPPR-12-4-A-F1A
	16	3 mm	High gripping force	8222549	HPPR-F-16-3-A-F1A
		6 mm	Standard	8222546	HPPR-16-6-A-F1A
	20	4 mm	High gripping force	8222558	HPPR-F-20-4-A-F1A
		8 mm	Standard	8222555	HPPR-20-8-A-F1A
	25	6 mm	High gripping force	8207047	HPPR-F-25-6-A-F1A
		12 mm	Standard	8207044	HPPR-25-12-A-F1A
	32	8 mm	High gripping force	8222567	HPPR-F-32-8-A-F1A
		16 mm	Standard	8222564	HPPR-32-16-A-F1A
	40	10 mm	High gripping force	8222519	HPPR-F-40-10-A-F1A
		20 mm	Standard	8222516	HPPR-40-20-A-F1A

Single-acting or with gripping force retention, opening					
	Size	Total stroke	Gripper characteristic	Part no.	Type
	12	4 mm	Standard	8209482	HPPR-12-4-A-NO-F1A
	16	3 mm	High gripping force	8222551	HPPR-F-16-3-A-NO-F1A
		6 mm	Standard	8222548	HPPR-16-6-A-NO-F1A
	20	4 mm	High gripping force	8222560	HPPR-F-20-4-A-NO-F1A
		8 mm	Standard	8222557	HPPR-20-8-A-NO-F1A
	25	6 mm	High gripping force	8207049	HPPR-F-25-6-A-NO-F1A
		12 mm	Standard	8207046	HPPR-25-12-A-NO-F1A
	32	8 mm	High gripping force	8222569	HPPR-F-32-8-A-NO-F1A
		16 mm	Standard	8222566	HPPR-32-16-A-NO-F1A
	40	10 mm	High gripping force	8222521	HPPR-F-40-10-A-NO-F1A
		20 mm	Standard	8222518	HPPR-40-20-A-NO-F1A

Single-acting or with gripping force retention, closing					
	Size	Total stroke	Gripper characteristic	Part no.	Type
	12	2 mm	High gripping force	8209484	HPPR-F-12-2-A-NC-F1A
		4 mm	Standard	8209481	HPPR-12-4-A-NC-F1A
	16	3 mm	High gripping force	8222550	HPPR-F-16-3-A-NC-F1A
		6 mm	Standard	8222547	HPPR-16-6-A-NC-F1A
	20	4 mm	High gripping force	8222559	HPPR-F-20-4-A-NC-F1A
		8 mm	Standard	8222556	HPPR-20-8-A-NC-F1A
	25	6 mm	High gripping force	8207048	HPPR-F-25-6-A-NC-F1A
		12 mm	Standard	8207045	HPPR-25-12-A-NC-F1A
	32	8 mm	High gripping force	8222568	HPPR-F-32-8-A-NC-F1A
		16 mm	Standard	8222565	HPPR-32-16-A-NC-F1A
	40	10 mm	High gripping force	8222520	HPPR-F-40-10-A-NC-F1A
		20 mm	Standard	8222517	HPPR-40-20-A-NC-F1A

Peripherals

Parallel gripper HPPR



Accessories		→ Link
Type/order code	Description	
[1] Parallel gripper HPPR	Double-acting drive, sturdy	hppr
[2] Centring pin ZBS/centring sleeve ZBH	- For centring the gripper jaw blanks/gripper fingers on the gripper jaws - For centring the gripper during mounting	67
[3] Lubrication nipple	For relubrication	hppr
[4] Proximity switch SDBT-MSX	- For T-slot - For sensing the piston position in the end positions - Auto teach-in and programmable	68
[5] Position transmitter SMAT-8M	- For T-slot - For sensing the piston position at any point	70
[5] Position transmitter SDAS-MHS	- For T-slot - For sensing the piston position at any point	70
[6] Position transmitter SDAT-MHS	- For T-slot - For sensing the piston position at any point	70
[7] Proximity switch SMT-8G	- For T-slot - For sensing the piston position in the end positions	68

Peripherals

Accessories		→ Link
Type/order code	Description	
[7] Proximity switch SMT-10G	• For round slot • For sensing the piston position in the end positions	68
[8] Position transmitter SDAC-MHS	• For round slot • For sensing the piston position at any point	70
[9] Proximity switch SMT-10M	• For round slot • For sensing the piston position in the end positions	68
[9] Proximity switch SMT-8M	• For T-slot • For sensing the piston position in the end positions	68
[10] Push-in fitting QS	For connecting tubing with standard O.D	qs
[11] Blanking plug B	For sealing the compressed air ports when using the bottom compressed air ports	b
[12] Centring pin ZBS/centring sleeve ZBH	For centring the gripper during mounting	67
[13] Proximity switch SIEN	For sensing the piston position in the end positions	69
[14] Proximity switch SIEH	For sensing the piston position in the end positions	68

Accessories

Centring sleeve ZBH-5						
	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	For sizes 12, 16, 20	Steel	10	1 g	8146543	ZBH-5-B

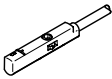
Centring sleeve ZBH-7						
	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	For sizes 25, 32	Steel	10	1 g	8146544	ZBH-7-B

Centring sleeve ZBH-9						
	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	For size 32, 40	Steel	10	2 g	8137184	ZBH-9-B

Centring pin ZBS-2						
	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	For size 12, 16	Steel	10	1 g	525273	ZBS-2

Centring pin ZBS-4						
	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	For sizes 25, 32	High-alloy stainless steel	10	0.5 g	562959	ZBS-4

Centring pin ZBS-5						
	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	For size 40	Steel	1	1 g	150928	ZBS-5

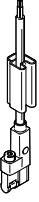
Proximity switch SMT-10M for round slot, magneto-resistive						
	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	Screw-clamped, Insertable in the slot from above	3-wire PNP N/O contact	Open end	2.5 m	551374	SMT-10M-PS-24V-E-2,5-Q-OE
			Plug M8, A-coded	0.3 m	551373	SMT-10M-PS-24V-E-2,5-L-OE
					551375	SMT-10M-PS-24V-E-0,3-L-M8D
					551376	SMT-10M-PS-24V-E-0,3-Q-M8D

Proximity switch SMT-10G for round slot, magneto-resistive						
	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	Clamped in C-slot, Inserted into the slot lengthwise	3-wire NPN N/O contact	Open end	2.5 m	8065030	SMT-10G-NS-24V-E-2,5Q-OE

Accessories

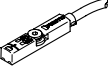
Proximity switch SMT-10G for round slot, magneto-resistive

Link [smt](#)

	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	Clamped in C-slot, Inserted into the slot lengthwise	3-wire NPN N/O contact	Plug M8, A-coded	0.3 m	8065029	SMT-10G-NS-24V-E-0,3Q-M8D
		3-wire PNP N/O contact	Open end	2.5 m	547862	SMT-10G-PS-24V-E-2,5Q-OE
			Plug M8, A-coded	0.3 m	547863	SMT-10G-PS-24V-E-0,3Q-M8D

Proximity switch SMT-8M for T-slot, magneto-resistive

Link [smt](#)

	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	Screw-clamped, Insertable in the slot from above	3-wire NPN N/O contact	Open end	2.5 m	574338	SMT-8M-A-NS-24V-E-2,5-OE
			Plug M8, A-coded	0.3 m	574339	SMT-8M-A-NS-24V-E-0,3-M8D
		3-wire PNP N/C contact	Open end	7.5 m	574340	SMT-8M-A-PO-24V-E-7,5-OE
				2.5 m	574335	SMT-8M-A-PS-24V-E-2,5-OE
		3-wire PNP N/O contact	Plug M8, A-coded	0.3 m	574334	SMT-8M-A-PS-24V-E-0,3-M8D
			Plug M12, A-coded		574337	SMT-8M-A-PS-24V-E-0,3-M12

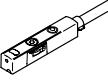
Proximity switch SMT-8G for T-slot, magneto-resistive

Link [smt](#)

	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	Clamped in T-slot, Inserted into the slot lengthwise	3-wire NPN N/O contact	Open end	2.5 m	8065028	SMT-8G-NS-24V-E-2,5Q-OE
			Plug M8, A-coded	0.3 m	8065027	SMT-8G-NS-24V-E-0,3Q-M8D
		3-wire PNP N/O contact	Open end	2.5 m	547859	SMT-8G-PS-24V-E-2,5Q-OE
			Plug M8, A-coded	0.3 m	547860	SMT-8G-PS-24V-E-0,3Q-M8D

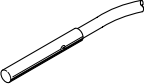
Proximity switch SDBT-MSX for T-slot, magnetic Hall

Link [sdbt](#)

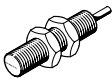
	Switching output	Switching element function	Electrical connection	Cable length	Part no.	Type
	PNP/NPN, switchable	N/O or N/C contact, switchable	Open end	2.5 m	8059121	SDBT-MSX-1L-PU-E-2.5-N-LE
					8059124	SDBT-MSX-1L-NU-E-2.5-N-LE
			Plug M8, A-coded	0.3 m	8059123	SDBT-MSX-1L-NU-E-0.3-N-M8
					8059120	SDBT-MSX-1L-PU-E-0.3-N-M8

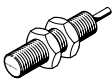
Proximity switch SIEH – 3 mm (round design), inductive

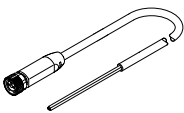
Link [sieh](#)

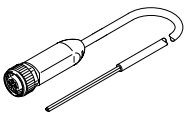
	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	Clamped	PNP	Open end	2.5 m	538264	SIEH-3B-PS-K-L
			Plug M8, A-coded	0.15 m	538263	SIEH-3B-PS-S-L

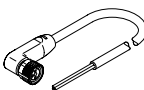
Accessories

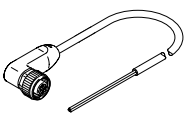
Proximity switch SIEN, with cable, inductive Link sien						
	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	Via lock nut	PNP	Open end	2.5 m	150386	SIEN-M8B-PS-K-L

Proximity switch SIEN, without cable, inductive Link sien					
	Type of mounting	Switching output	Electrical connection	Part no.	Type
	Via lock nut	PNP	Plug M8, A-coded	150387	SIEN-M8B-PS-S-L

Connecting cables NEBA, straight, M8 connection						
	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	M8x1, A-coded, to EN 61076-2-104	Open end	3	2.5 m	8078223	NEBA-M8G3-U-2.5-N-LE3
				5 m	8078224	NEBA-M8G3-U-5-N-LE3

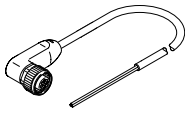
Connecting cables NEBA, straight, M12 connection						
	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	M12x1, A-coded to EN 61076-2-101	Open end	3	2.5 m	8078236	NEBA-M12G5-U-2.5-N-LE3
				5 m	8078237	NEBA-M12G5-U-5-N-LE3

Connecting cables NEBA, angled, M8 connection						
	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	M8x1, A-coded, to EN 61076-2-104	Open end	3	2.5 m	8078230	NEBA-M8W3-U-2.5-N-LE3
				5 m	8078231	NEBA-M8W3-U-5-N-LE3

Connecting cables NEBA, angled, M12 connection						
	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	M12x1, A-coded to EN 61076-2-101	Open end	3	2.5 m	8078245	NEBA-M12W5-U-2.5-N-LE3

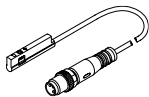
Accessories

Connecting cables NEBA, angled, M12 connection

	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	M12x1, A-coded to EN 61076-2-101	Open end	3	5 m	8078246	NEBA-M12W5-U-5-N-LE3

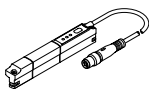
Position transmitter SDAC for round slot, plug-in M8, A-coded – for size 12 ... 40

Link [sdac](#)

	Description	Sensing range	Electrical connection 1, number of connections/cores	Cable length	Part no.	Type
	Operating modes: two adjustable switching outputs; IO-Link®	35 mm	4	0.3 m	8128404	SDAC-MHS-M30-1L-PNLK-PN-E-0.3-M8
				2.5 m	8128405	SDAC-MHS-M30-1L-PNLK-PN-E-2.5-LE

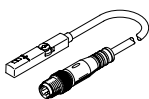
Position transmitter SDAT for T-slot, plug M8, A-coded

Link [sdac](#)

	Sensing range	Analogue output	Electrical connection 1, number of connections/cores	Cable length	Part no.	Type
	0 ... 50.000 mm	4 - 20 mA	4	0.3 m	1531265	SDAT-MHS-M50-1L-SA-E-0.3-M8

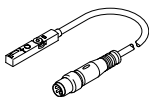
Position transmitter SMAT-8M for T-slot, plug M8, A-coded

Link [smat](#)

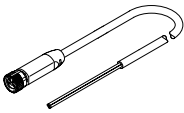
	Sensing range	Analogue output	Electrical connection 1, number of connections/cores	Cable length	Part no.	Type
	52 mm	0 - 10 V	4	0.3 m	553744	SMAT-8M-U-E-0,3-M8D

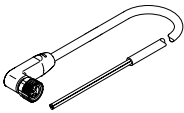
Position transmitter SDAS for T-slot, connector M8, A-coded

Link [sdas](#)

	Description	Sensing range	Electrical connection 1, number of connections/cores	Cable length	Part no.	Type
	Operating modes: two adjustable switching outputs; IO-Link®	52 mm	4	0.3 m	8063974	SDAS-MHS-M40-1L-PNLK-PN-E-0.3-M8
				2.5 m	8063975	SDAS-MHS-M40-1L-PNLK-PN-E-2.5-LE

Accessories

Connecting cables NEBA, straight						
	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	M8x1, A-coded, to EN 61076-2-104	Open end	4	2.5 m	8078227	NEBA-M8G4-U-2.5-N-LE4
				5 m	8078228	NEBA-M8G4-U-5-N-LE4

Connecting cables NEBA, angled						
	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	M8x1, A-coded, to EN 61076-2-104	Open end	4	2.5 m	8078233	NEBA-M8W4-U-2.5-N-LE4
				5 m	8078234	NEBA-M8W4-U-5-N-LE4