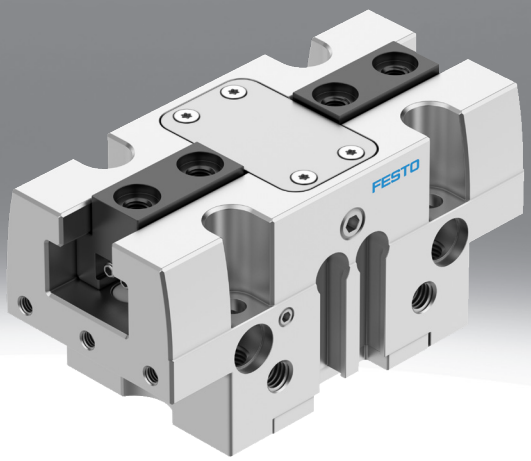
Parallel gripper HPPR



Characteristics

At a glance Link hppr

The robust pneumatic parallel gripper HPRR 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-optimized Parallel gripper for high forces and torques
- Suitable for external and internal gripping
- Ground jaws for high precision and absorption of maximum 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. Throughout the entire value chain, they help you size your system correctly, tap into unimagined productivity reserves or generate additional productivity. In every phase of your project, from initial contact to modernization of your machine, you will come across a number of tools that will prove beneficial to you.

Gripper selection:
- This tool helps you find 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. There, it is possible to display precise values.

Position sensing

[A]	For proximity sensor

With the help of proximity switches, position detection allows for any position to be sensed.

Gripping force backup

[NC]	Closing



Closed by spring force in depressurized state

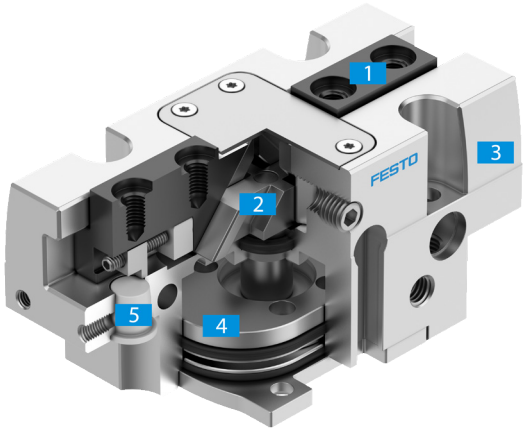
[NO]	Opening



Opened by spring force in depressurized state

Characteristics

Overview



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

Type code

001	Series	
HPPR	Parallel gripper	

002	Gripper property	
	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	
	Without	
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	
Complete 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 jaw	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
Structural design	Inclined plane Positively driven motion sequence											
Guide	Heavy-duty guide											
Actuator system	Pneumatic											
Mode of operation	Double-acting											
Gripping force backup	Without Closing	Without 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									
Sealing air pneumatic connection	M3						M5					
Pneumatic gripper repetition accuracy [2]	<0.01 mm				<0.02 mm				<0.025 mm			
Max. operating frequency of pneumatic gripper	3 Hz										2 Hz	
Position sensing	Via proximity switch											
Type of mounting	With internal thread and centering sleeve Via through-hole and centering sleeve With through-hole and dowel pin With internal thread and dowel pin											
Mounting position	Any											

1) Applies to unthrottled operation

2) Under constant exposure to operating conditions, end position variation 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 for sealing air	0 ... 0.05 MPa					
Operating pressure for sealing air	0 ... 0.5 bar					
Operating pressure for sealing 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 for sealing air	0 ... 0.05 MPa					
Operating pressure for sealing air	0 ... 0.5 bar					
Operating pressure for sealing air	0 ... 7.25 psi					

Datasheet

Operating and environmental conditions

Size	12	16	20	25	32	40
Operating medium	Compressed air as per ISO 8573-1:2010 [7:4:4]					
Information on operating and pilot media	Operation with oil lubrication possible (required for further use)					
Ambient temperature [1]	5 ... 90°C					
Degree of protection	IP40					
Shock resistance	Shock test with severity level 2 as per FN 942017-5 and EN 60068-2-27					
Vibration resistance	Transport application test with severity level 2 as per FN 942017-4 and EN 60068-2-6					
Relubrication interval for guidance elements	5 MioCyc					
Corrosion resistance class (CRC) [2]	1 - Low corrosion stress					

1) Note operating range of proximity switches

2) Further information, visit www.festo.com/x/topic/kbk

Weights - HPPR-12 ... 16

Size	12					16					
Complete stroke	2 mm		4 mm			3 mm			6 mm		
Gripping force backup	Without	Closing	Without	Closing	Opening	Without	Closing	Opening	Without	Closing	Opening
Product weight	54 g	67 g	54 g	67 g	68 g	79 g	95 g		78 g	93 g	

Weights - HPPR-20 ... 25

Size	20						25					
Complete stroke	4 mm			8 mm			6 mm			12 mm		
Gripping force backup	Without	Closing	Opening	Without	Closing	Opening	Without	Closing	Opening	Without	Closing	Opening
Product weight	129 g	148 g		126 g	145 g		255 g	332 g		245 g	323 g	

Weights - HPPR-32 ... 40

Size	32						40					
Complete stroke	8 mm			16 mm			10 mm			20 mm		
Gripping force backup	Without	Closing	Opening	Without	Closing	Opening	Without	Closing	Opening	Without	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

Size	12	16	20	25	32	40
Housing material	Anodized aluminum					
End plate material	Wrought aluminum alloy, anodized					
Cover cap material	high-alloy stainless steel					
Gripper jaw material	high-alloy stainless steel					
Gripper finger material	Wrought aluminum alloy, anodized					
Piston rod material	High-alloy steel					
Material of piston	Wrought aluminum alloy, anodized					
Piston seal material	HNBR					
Material of spring	high-alloy stainless steel			Spring steel high-alloy stainless steel	high-alloy stainless steel	
Material of screws	Steel, chemically nickel-plated					
O-ring material	FPM		FPM HNBR	FPM		
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	
Complete stroke	2 mm	4 mm	3 mm	6 mm
Theoretical total gripping force at 0 mm, 0.6 MPa (6 bar, 87 psi) close	<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
Close theoretical gripping force per Gripper jaw at 0 mm, 0.6 MPa (6 bar, 87 psi)	<53 N	<29 N	<100 N	<58 N
Theoretical opening gripping force per Gripper jaw at 0 mm, 0.6 MPa (6 bar, 87 psi)	<64 N	<35 N	<113 N	<65 N
Gripping force per gripper jaw at 6 bar, closing	98 N	54 N	190 N	106 N
Gripping force per gripper jaw at 6 bar, opening	120 N	66 N	214 N	120 N
Gripping force per gripper jaw at 6 bar, closing	49 N	27 N	95 N	53 N
Gripping force per gripper jaw at 6 bar, opening	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	
Complete stroke	4 mm	8 mm	6 mm	12 mm
Theoretical total gripping force at 0 mm, 0.6 MPa (6 bar, 87 psi) close	<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
Close theoretical gripping force per Gripper jaw at 0 mm, 0.6 MPa (6 bar, 87 psi)	<190 N	<98 N	<311 N	<152 N
Theoretical opening gripping force per Gripper jaw at 0 mm, 0.6 MPa (6 bar, 87 psi)	<206 N	<105 N	<333 N	<163 N
Gripping force per gripper jaw at 6 bar, closing	354 N	176 N	596 N	296 N
Gripping force per gripper jaw at 6 bar, opening	378 N	188 N	644 N	318 N
Gripping force per gripper jaw at 6 bar, closing	177 N	88 N	298 N	148 N
Gripping force per gripper jaw at 6 bar, opening	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	
Complete stroke	8 mm	16 mm	10 mm	20 mm
Theoretical total gripping force at 0 mm, 0.6 MPa (6 bar, 87 psi) close	<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
Close theoretical gripping force per Gripper jaw at 0 mm, 0.6 MPa (6 bar, 87 psi)	<520 N	<250 N	<699 N	<404 N
Theoretical opening gripping force per Gripper jaw at 0 mm, 0.6 MPa (6 bar, 87 psi)	<557 N	<268 N	<748 N	<432 N
Gripping force per gripper jaw at 6 bar, closing	994 N	482 N	1,360 N	786 N
Gripping force per gripper jaw at 6 bar, opening	1,064 N	516 N	1,456 N	840 N
Gripping force per gripper jaw at 6 bar, closing	497 N	241 N	680 N	393 N
Gripping force per gripper jaw at 6 bar, opening	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			
Complete 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) close	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
Close theoretical gripping force per Gripper jaw at 0 mm, 0.6 MPa (6 bar, 87 psi)	70 ... 83 N	38 ... 46 N	12 ... 20 N	128 ... 149 N	51 ... 72 N	75 ... 88 N	28 ... 41 N
Theoretical opening gripping force per Gripper jaw at 0 mm, 0.6 MPa (6 bar, 87 psi)	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	
Gripping force per gripper jaw at 6 bar, closing	130 ... 156 N	72 ... 88 N	20 ... 36 N	246 ... 288 N	92 ... 134 N	140 ... 166 N	46 ... 72 N
Gripping force per gripper jaw at 6 bar, opening	56 ... 82 N	30 ... 46 N	82 ... 98 N	116 ... 158 N	270 ... 312 N	60 ... 86 N	154 ... 180 N
Gripping force per gripper jaw at 6 bar, closing	65 ... 78 N	36 ... 44 N	10 ... 18 N	123 ... 144 N	46 ... 67 N	70 ... 83 N	23 ... 36 N
Gripping force per gripper jaw at 6 bar, opening	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 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			
Complete 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) close	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
Close theoretical gripping force per Gripper jaw at 0 mm, 0.6 MPa (6 bar, 87 psi)	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 opening gripping force per Gripper jaw at 0 mm, 0.6 MPa (6 bar, 87 psi)	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	
Gripping force per gripper jaw at 6 bar, closing	458 ... 534 N	174 ... 250 N	228 ... 268 N	84 ... 124 N	812 ... 964 N	228 ... 380 N	402 ... 478 N	112 ... 190 N
Gripping force per gripper jaw at 6 bar, opening	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
Gripping force per gripper jaw at 6 bar, closing	229 ... 267 N	87 ... 125 N	114 ... 134 N	42 ... 62 N	406 ... 482 N	114 ... 190 N	201 ... 239 N	56 ... 95 N
Gripping force per gripper jaw at 6 bar, opening	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 stroke with integrated compression spring							

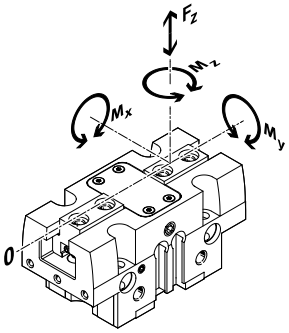
Forces with gripping force retention – HPPR-32 ... 40-...-NO/NC-...

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

Size	32				40			
Complete 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) close	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
Close theoretical gripping force per Gripper jaw at 0 mm, 0.6 MPa (6 bar, 87 psi)	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 opening gripping force per Gripper jaw at 0 mm, 0.6 MPa (6 bar, 87 psi)	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	
Gripping force per gripper jaw at 6 bar, closing	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
Gripping force per gripper jaw at 6 bar, opening	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
Gripping force per gripper jaw at 6 bar, closing	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
Gripping force per gripper jaw at 6 bar, opening	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 stroke with integrated compression spring							

Datasheet

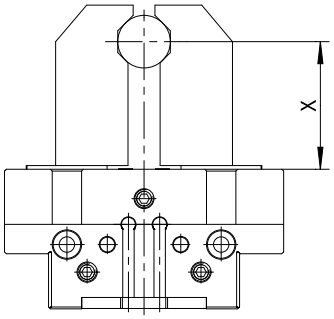
Load values at the gripper jaws



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.

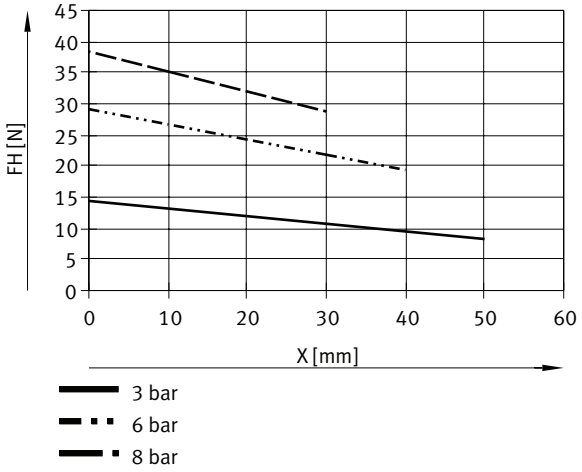
Size	12	16	20	25	32	40
Maximum force on gripper jaw Fz, static	80 N	200 N	700 N	1,200 N	1,800 N	2,500 N
Maximum torque on gripper jaw, Mx static	7 Nm	10 Nm	15 Nm	50 Nm	80 Nm	100 Nm
Maximum torque on gripper jaw, My static	10 Nm	12 Nm	15 Nm	45 Nm	60 Nm	90 Nm
Maximum torque on gripper jaw, Mz static	5 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



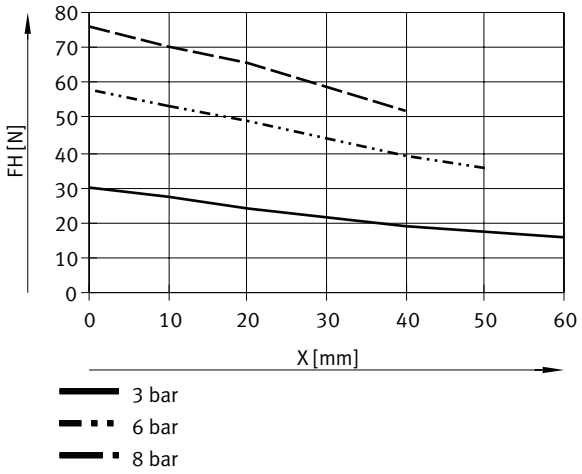
The gripping forces as a function of the operating pressure and of lever arm can be determined from the following diagrams.
The gripping torque is not constant across the opening angle.

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

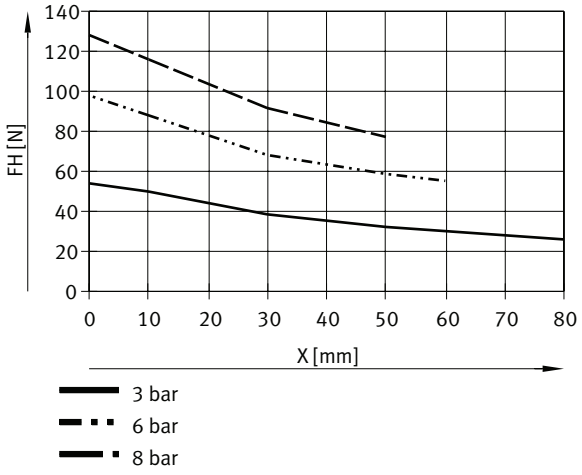


Datasheet

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



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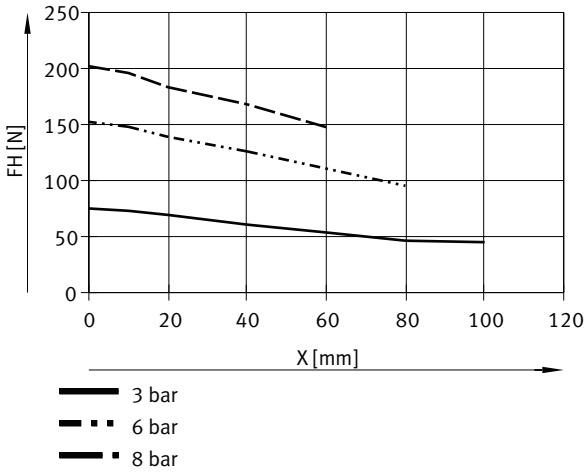
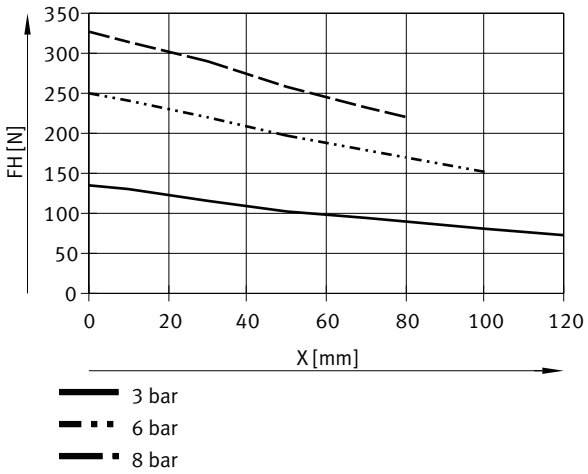
Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - External gripping (closing), without gripping force retention, standard gripping force – HPPR-25

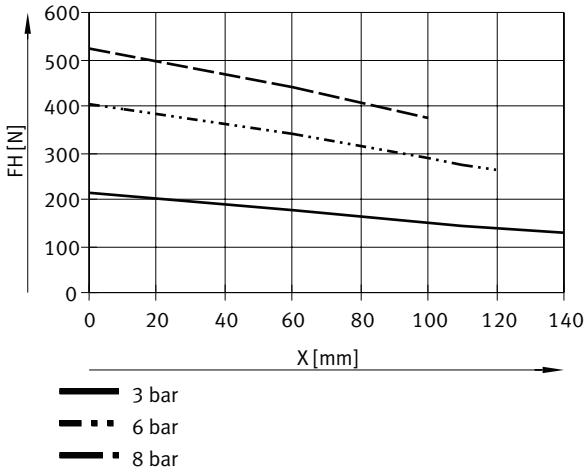


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - External gripping (closing), without gripping force retention, standard gripping force – HPPR-32

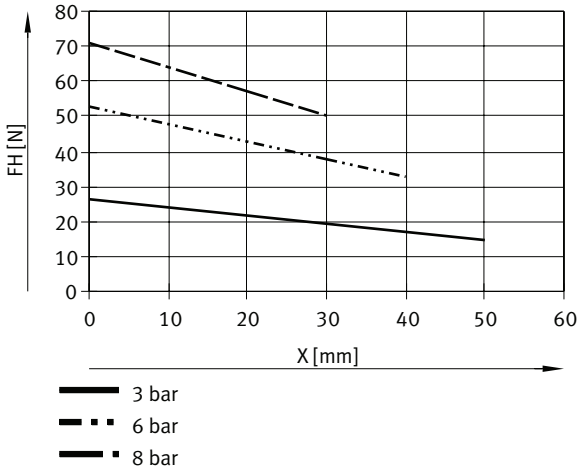


Datasheet

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

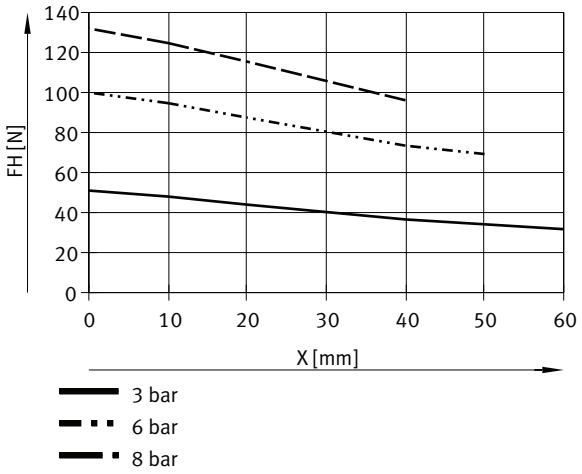


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - External gripping (closing), without gripping force retention, high gripping force – HPPR-F-12

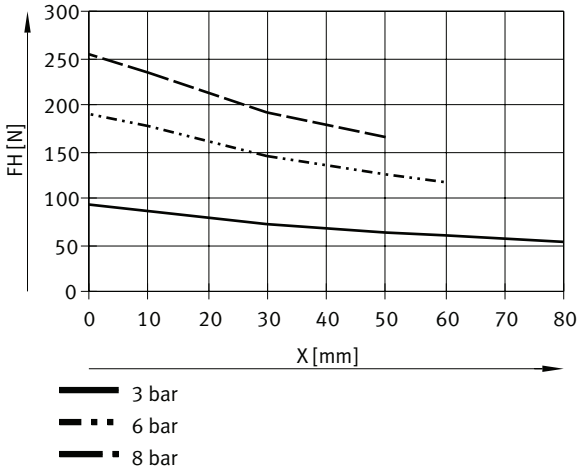


Datasheet

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

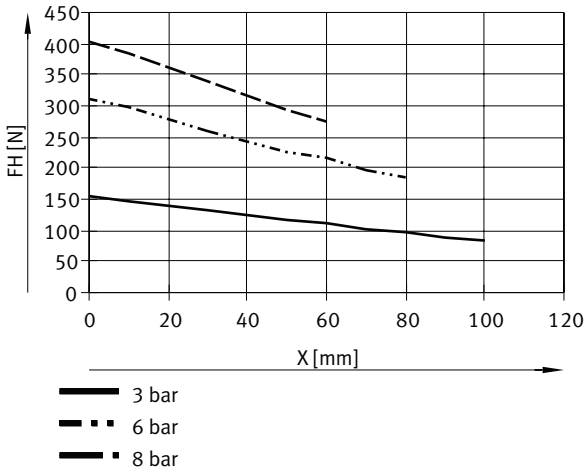


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - External gripping (closing), without gripping force retention, high gripping force – HPPR-F-20

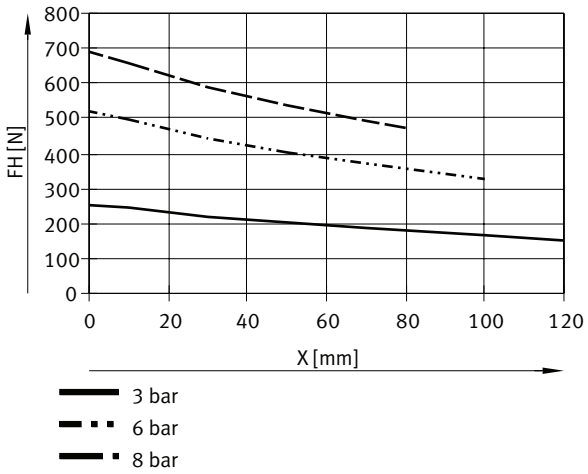


Datasheet

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

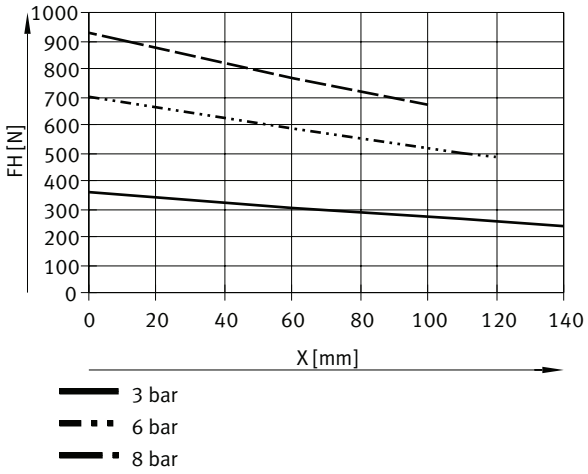


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - External gripping (closing), without gripping force retention, high gripping force – HPPR-F-32

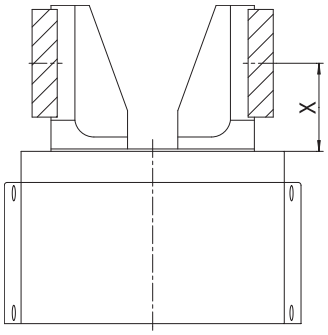


Datasheet

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

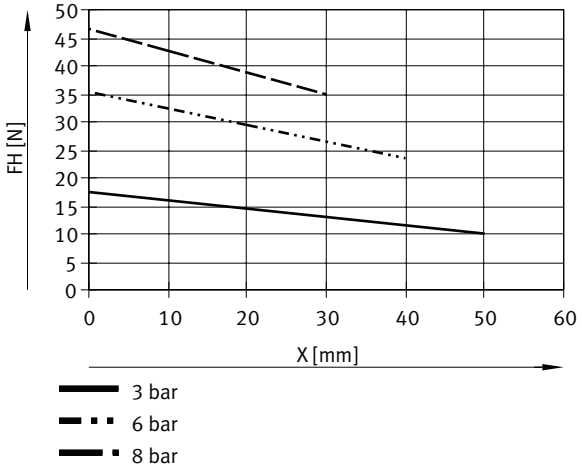


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), without gripping force retention



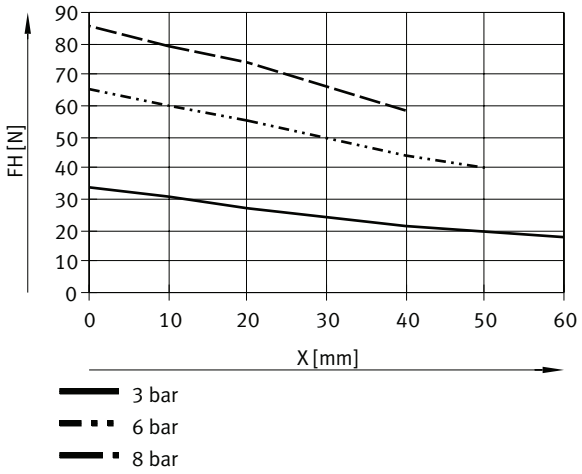
The gripping forces as a function of the operating pressure and of lever arm can be determined from the following diagrams.
The gripping torque is not constant across the opening angle.

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

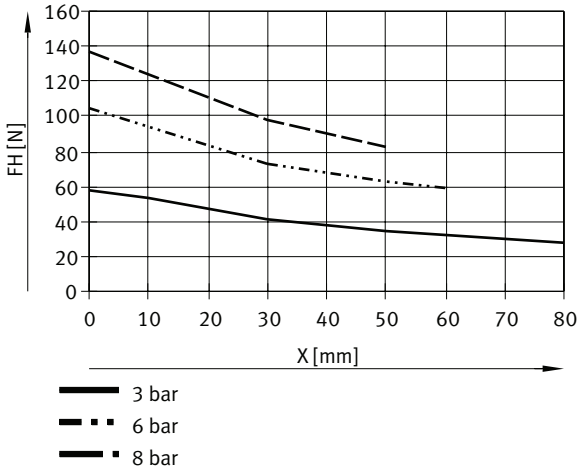


Datasheet

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



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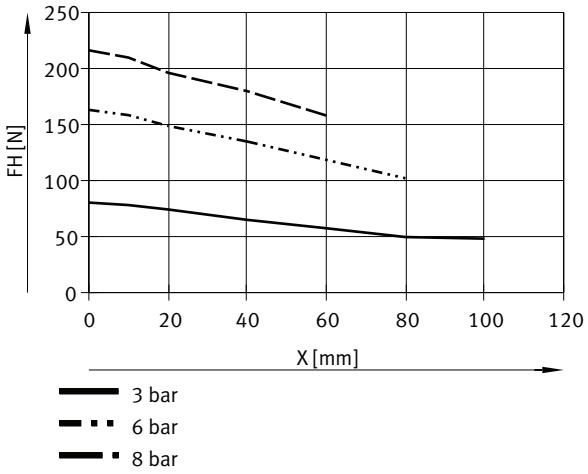
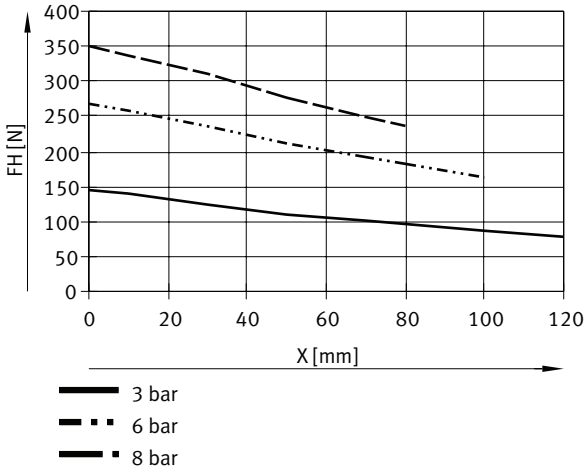
Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - Internal gripping (opening), without gripping force retention, standard gripping force – HPPR-25

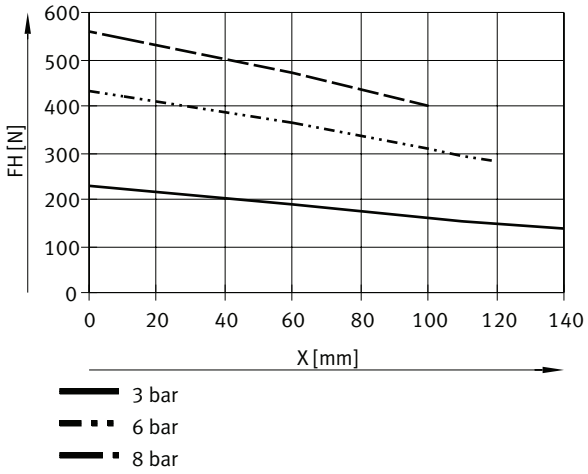


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - Internal gripping (opening), without gripping force retention, standard gripping force – HPPR-32

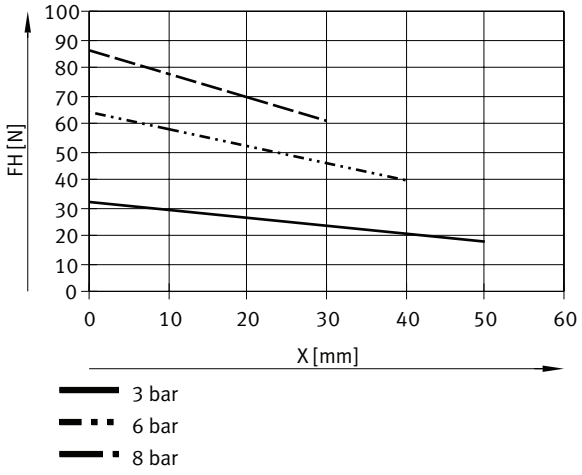


Datasheet

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-40

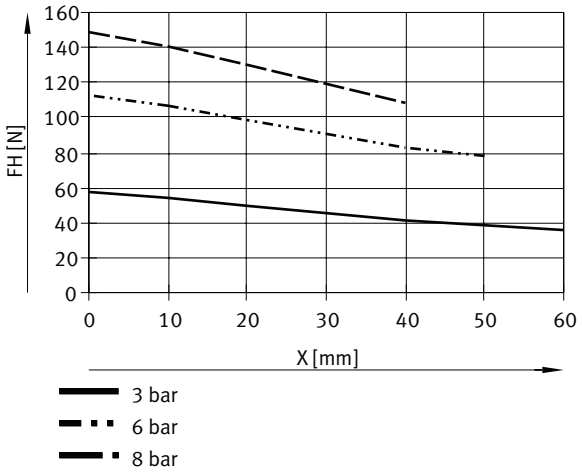


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - Internal gripping (opening), without gripping force retention, high gripping force – HPPR-F-12

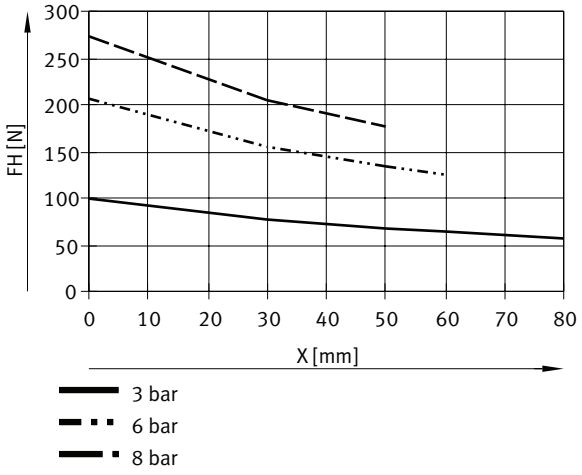


Datasheet

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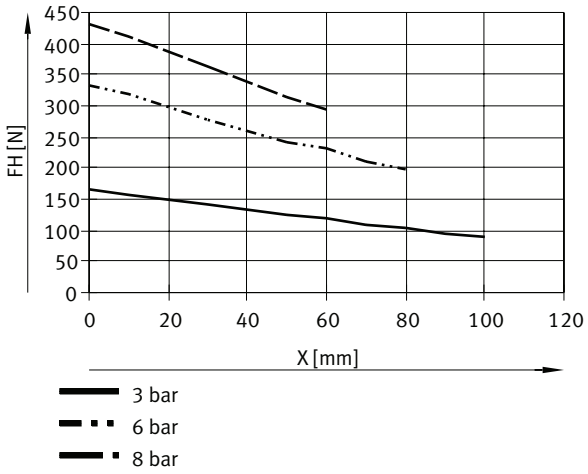
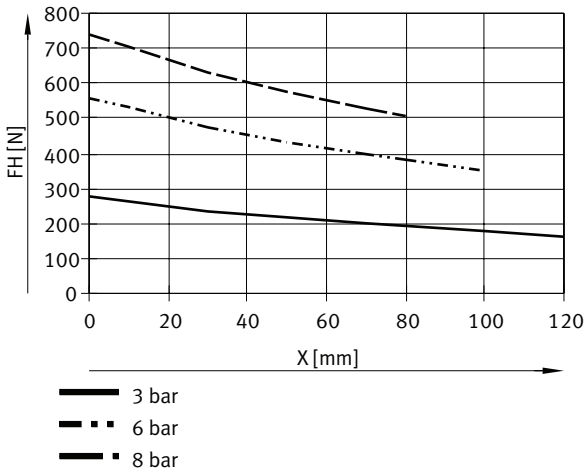
Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - Internal gripping (opening), without gripping force retention, high gripping force – HPPR-F-25

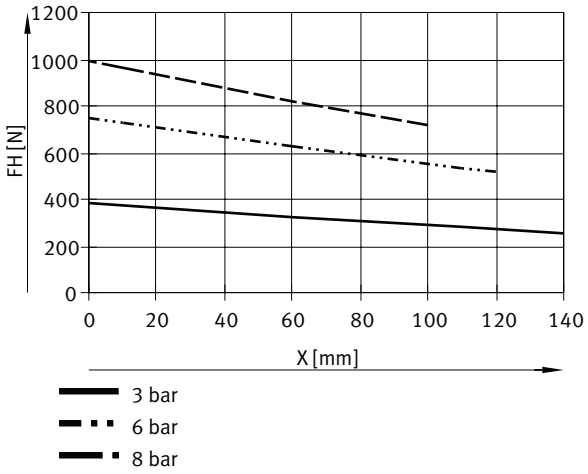


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - Internal gripping (opening), without gripping force retention, high gripping force – HPPR-F-32

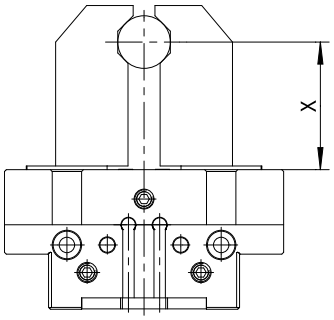


Datasheet

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

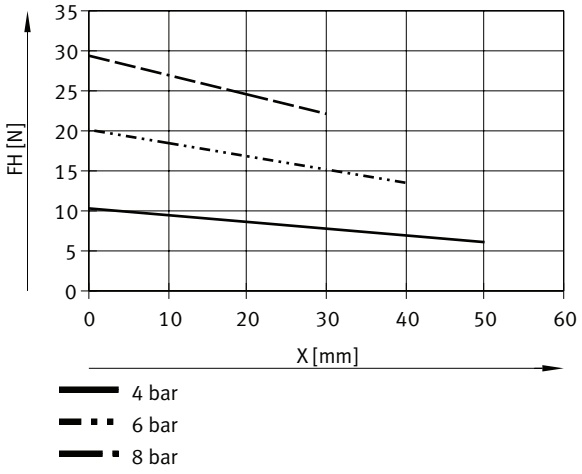


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – External gripping (closing), with gripping force retention



The gripping forces as a function of the operating pressure and of lever arm can be determined from the following diagrams.
The gripping force during 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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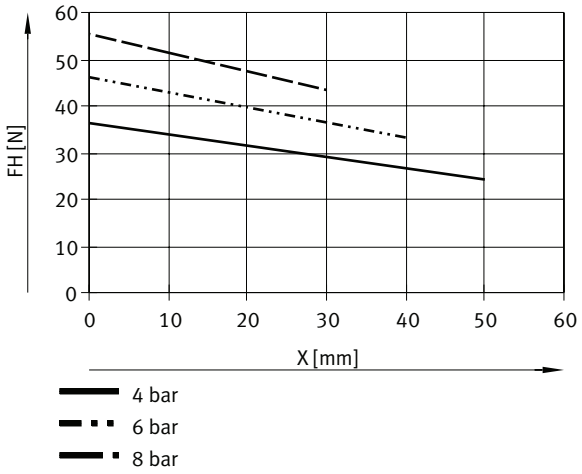
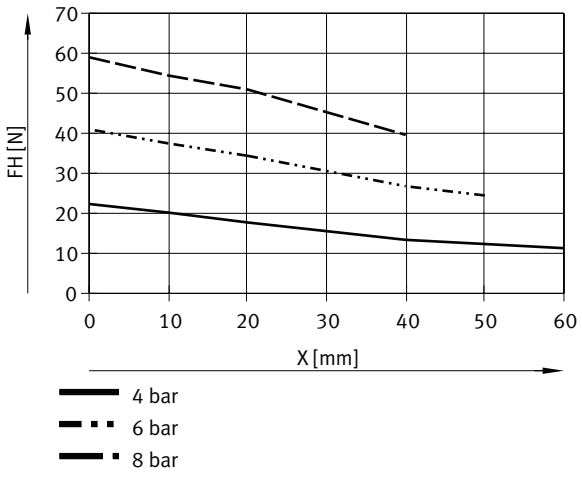
Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - External gripping (closing), with gripping force retention, standard gripping force – HPPR-12-4-...-NC-...

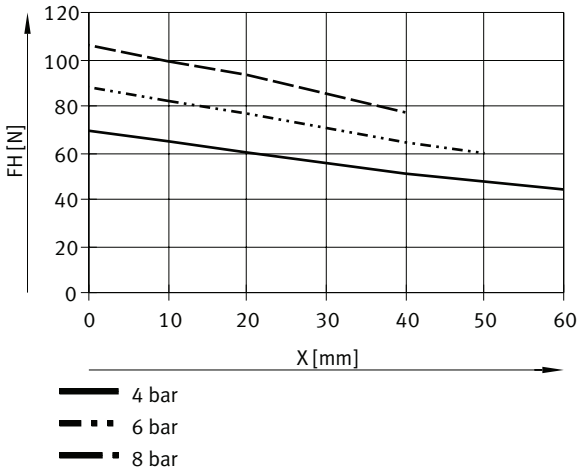


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - External gripping (closing), with gripping force retention, standard gripping force – HPPR-16-6-...-NO-...

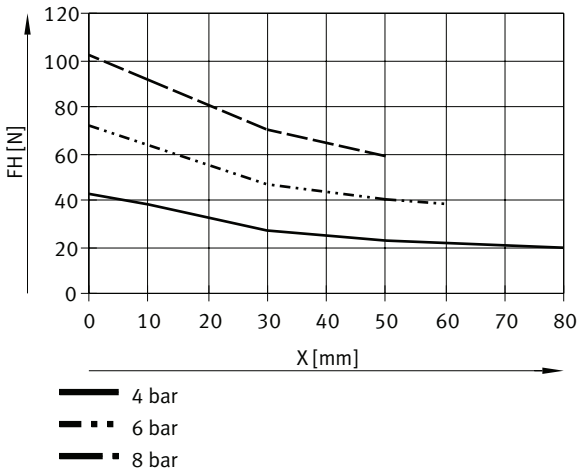


Datasheet

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-...

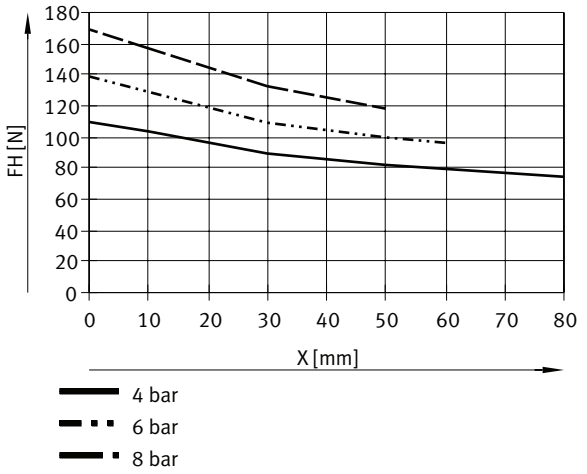


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - External gripping (closing), with gripping force retention, standard gripping force – HPPR-20-8-...-NO-...

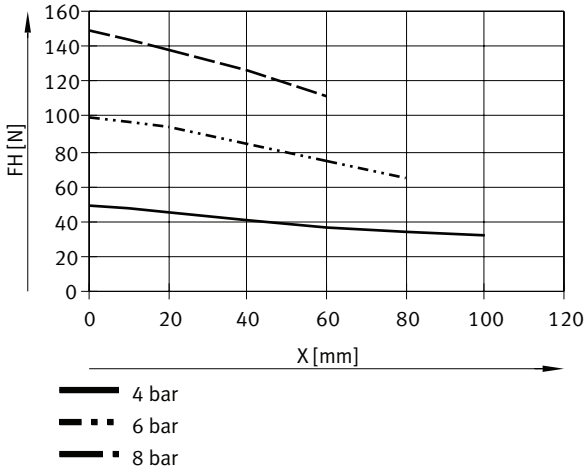


Datasheet

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-...

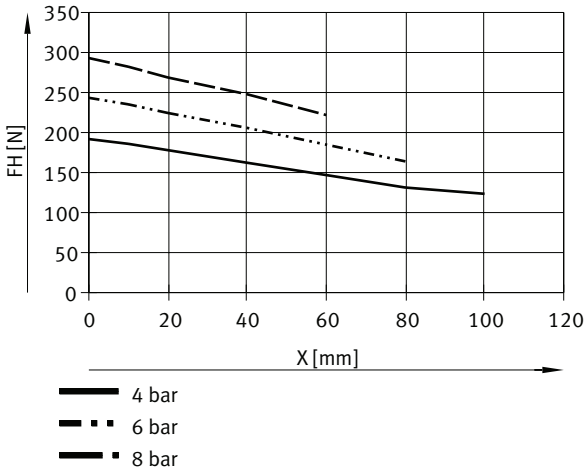


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - External gripping (closing), with gripping force retention, standard gripping force – HPPR-25-12-...-NO-...

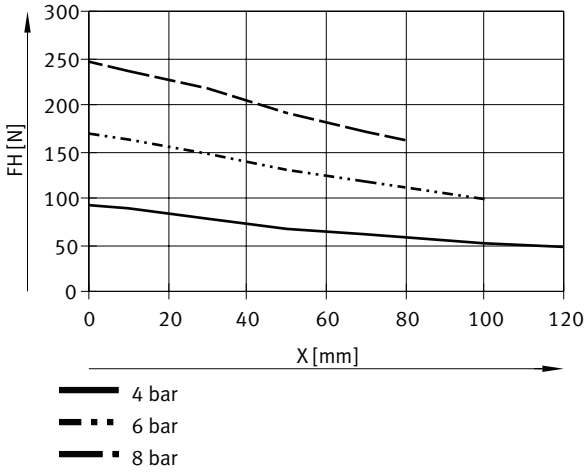


Datasheet

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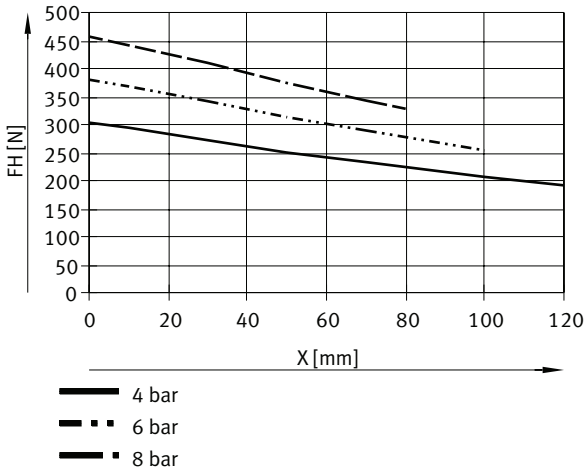
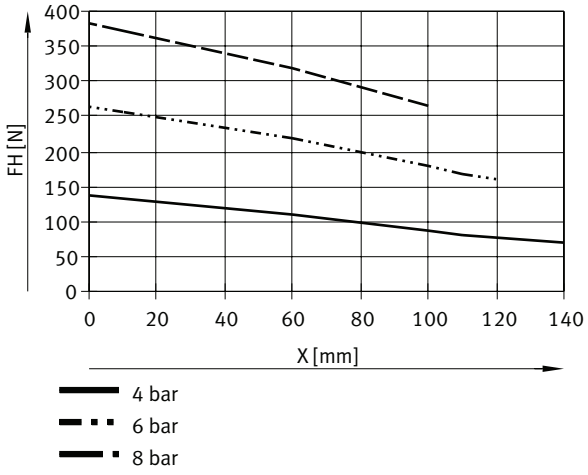
Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - External gripping (closing), with gripping force retention, standard gripping force – HPPR-32-16-...-NC-...



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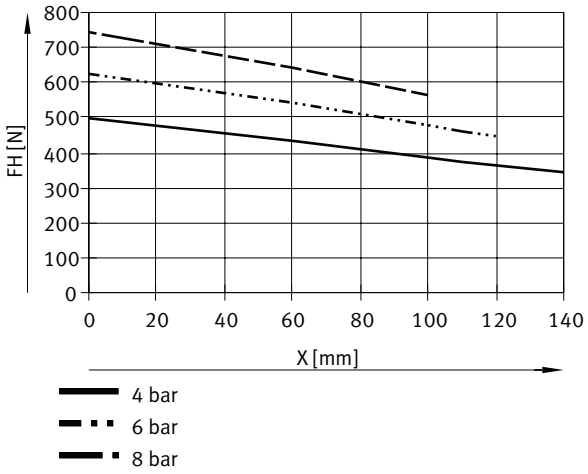
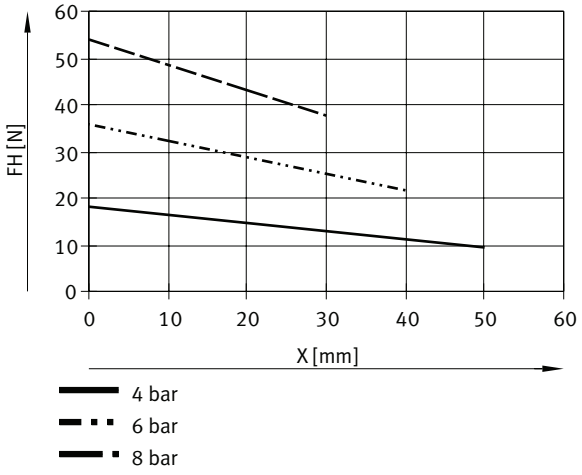
Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - External gripping (closing), with gripping force retention, standard gripping force – HPPR-40-20-...-NC-...

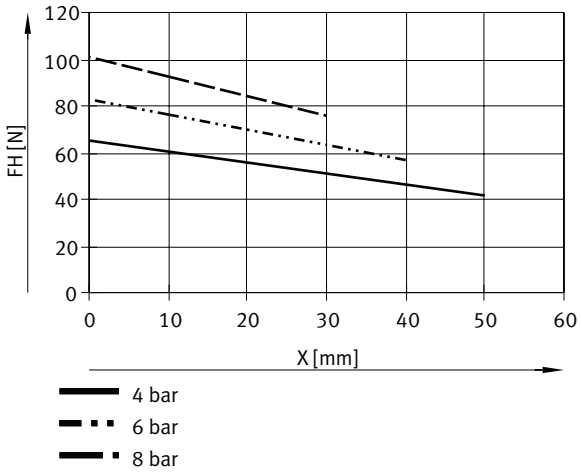


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - External gripping (closing), with gripping force retention, high gripping force – HPPR-F-12-2-...-NO-...

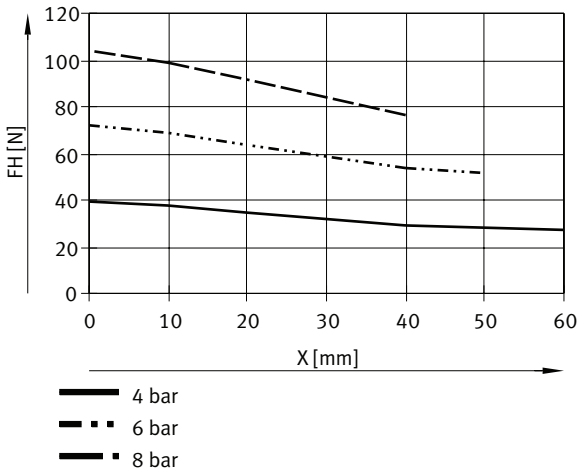


Datasheet

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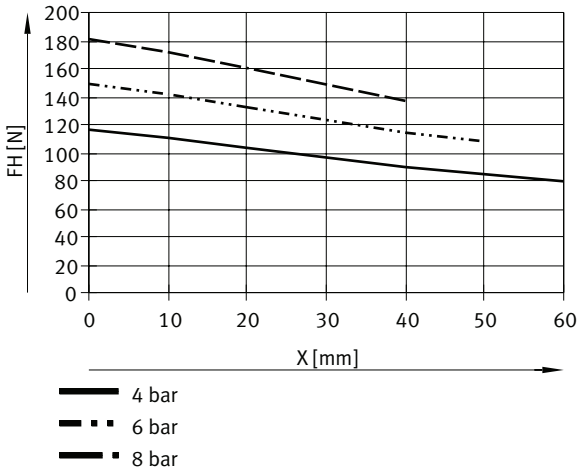
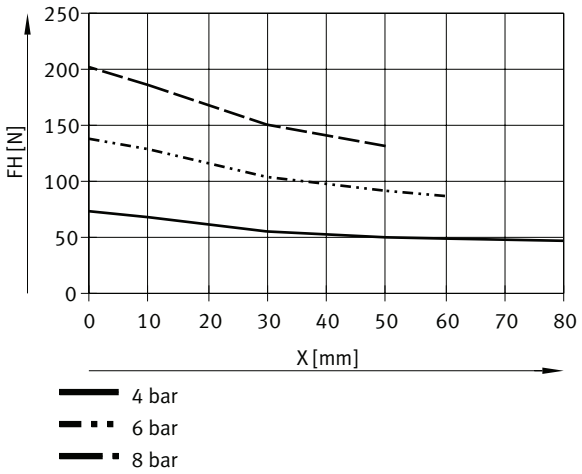
Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - External gripping (closing), with gripping force retention, high gripping force – HPPR-F-16-3-...-NC-...



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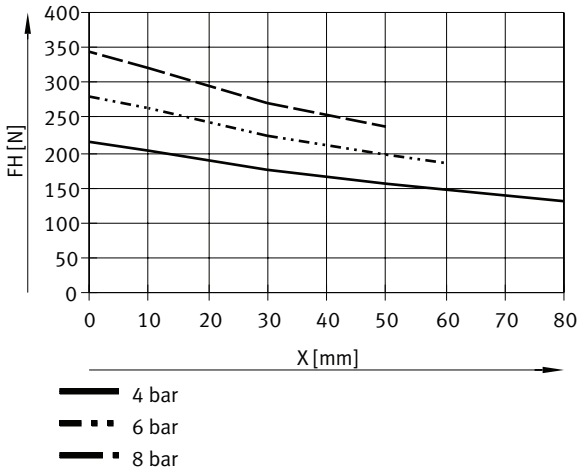
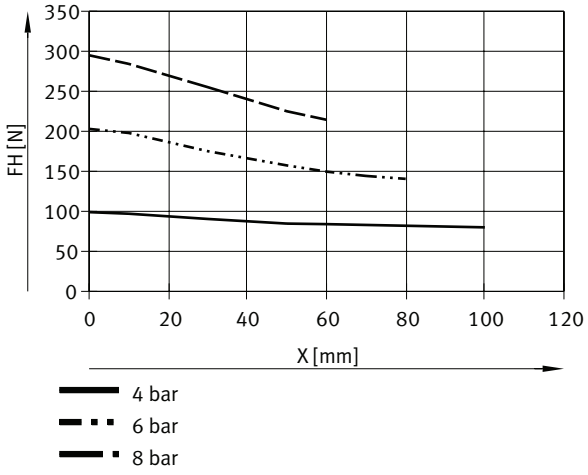
Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - External gripping (closing), with gripping force retention, high gripping force – HPPR-F-20-4-...-NC-...

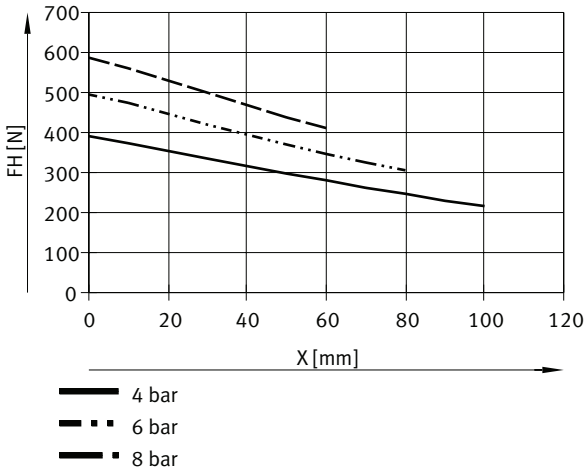


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - External gripping (closing), with gripping force retention, high gripping force – HPPR-F-25-6-...-NO-...

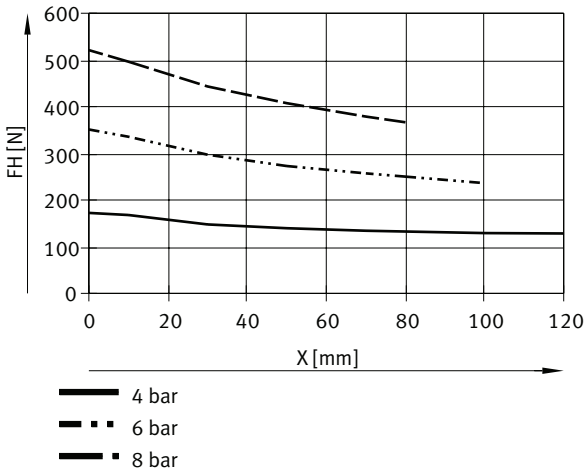


Datasheet

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-...

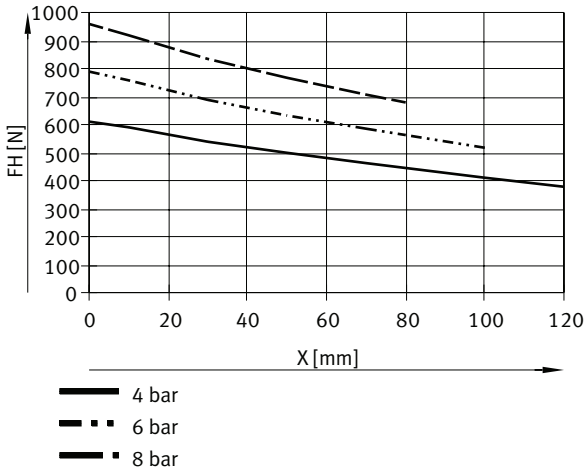


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - External gripping (closing), with gripping force retention, high gripping force – HPPR-F-32-8-...-NO-...

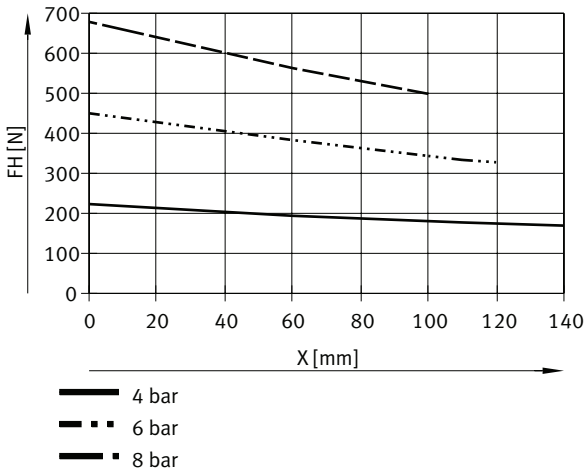


Datasheet

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-...

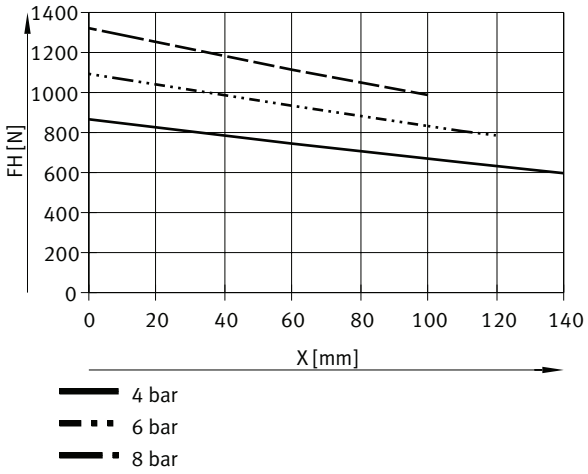


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - External gripping (closing), with gripping force retention, high gripping force – HPPR-F-40-10-...-NO-...

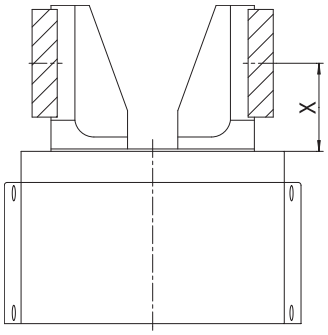


Datasheet

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-...

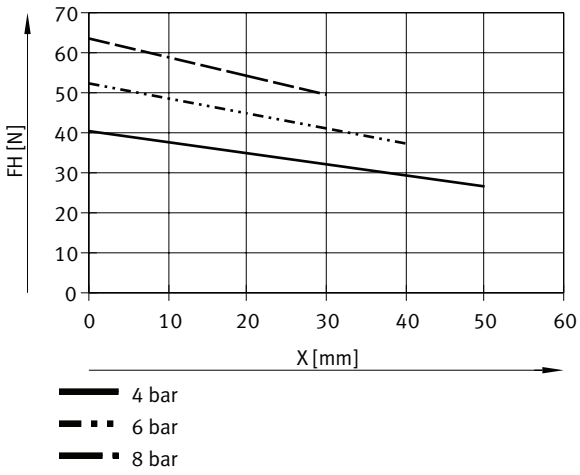


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x – Internal gripping (opening), with gripping force retention



The gripping forces as a function of the operating pressure and of lever arm can be determined from the following diagrams.
The gripping force during 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 (open), with gripping force retention, standard gripping force – HPPR-12-4-...-NO-...



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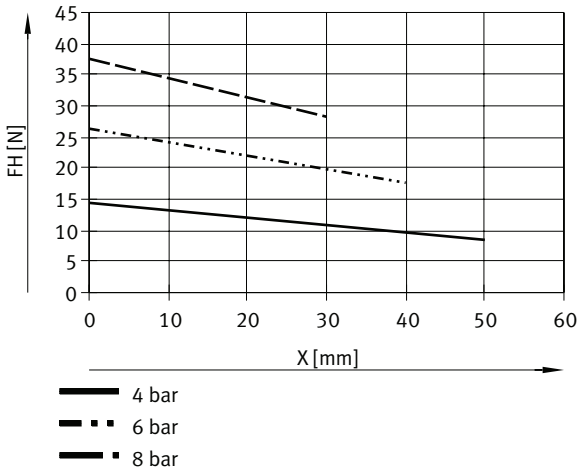
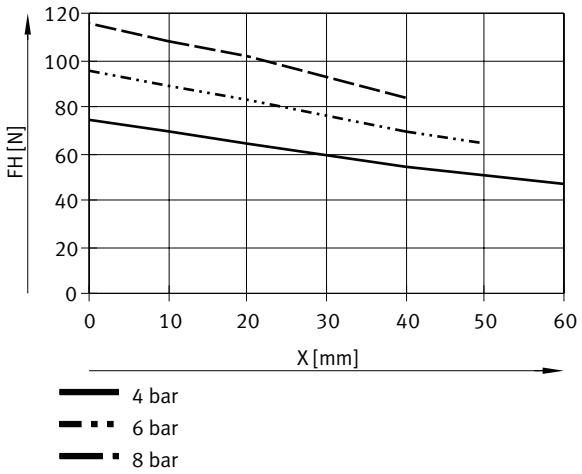
Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - Internal gripping (open), with gripping force retention, standard gripping force – HPPR-12-4-...-NC-...

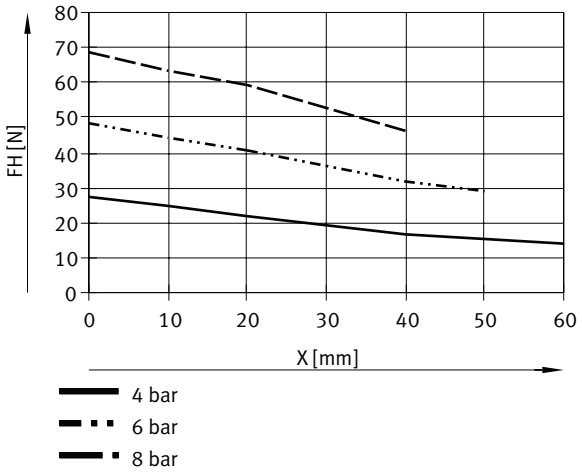


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - Internal gripping (open), with gripping force retention, standard gripping force – HPPR-16-6-...-NO-...

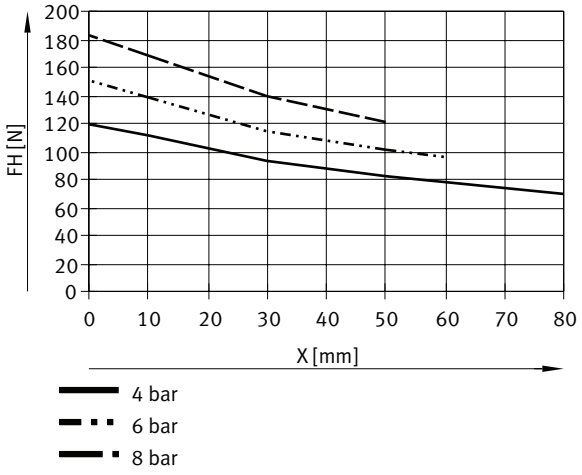


Datasheet

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-...

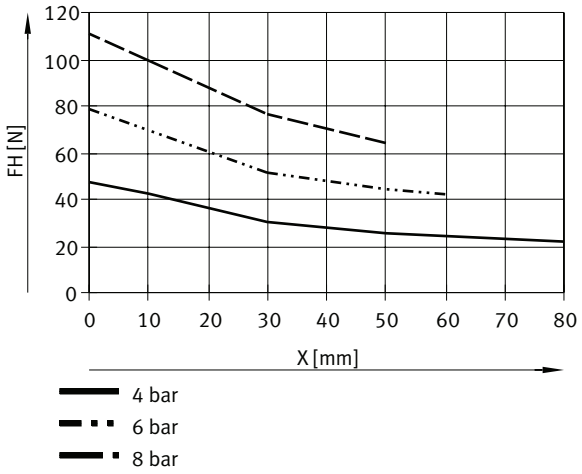


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - Internal gripping (open), with gripping force retention, standard gripping force – HPPR-20-8-...-NO-...

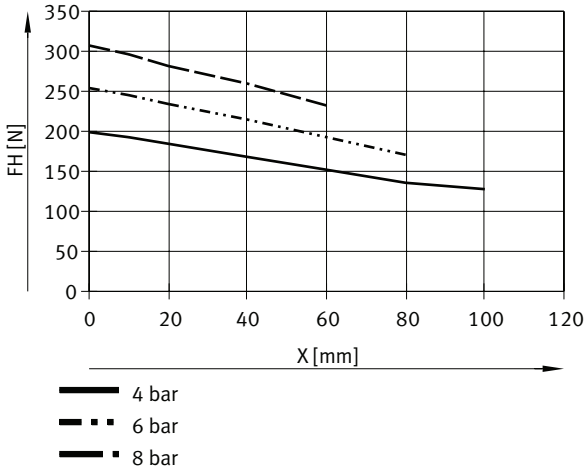


Datasheet

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



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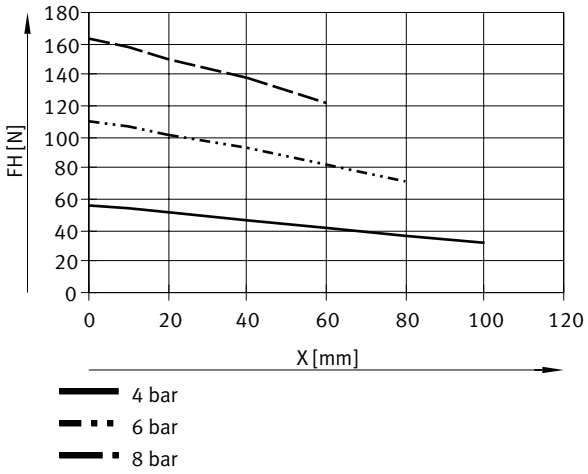
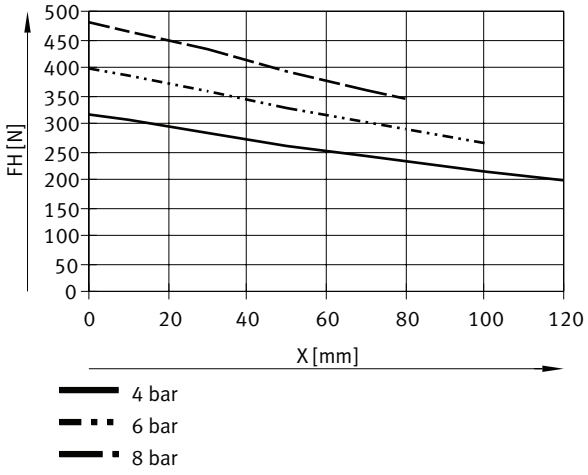
Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - Internal gripping (open), with gripping force retention, standard gripping force – HPPR-25-12-...-NC-...



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



Datasheet

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

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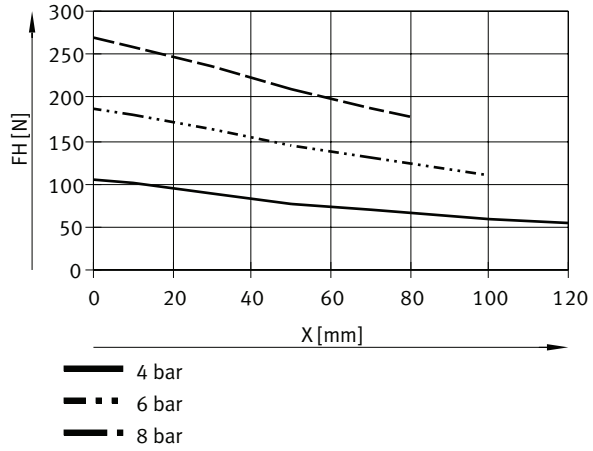
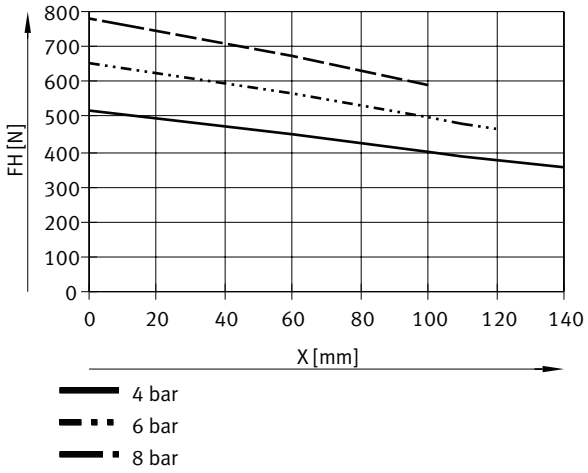
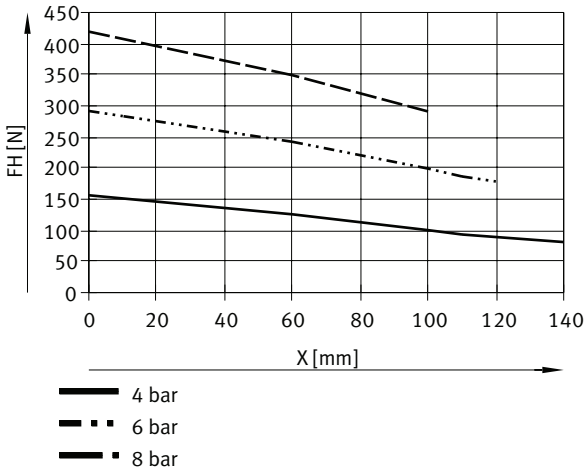


Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - Internal gripping (open), with gripping force retention, standard gripping force – HPPR-40-20-...-NO-...

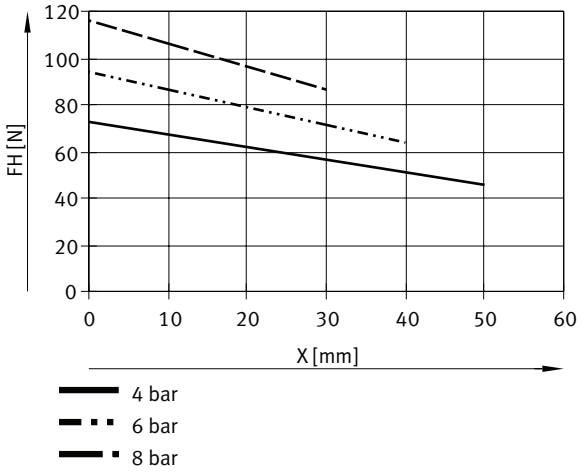


Datasheet

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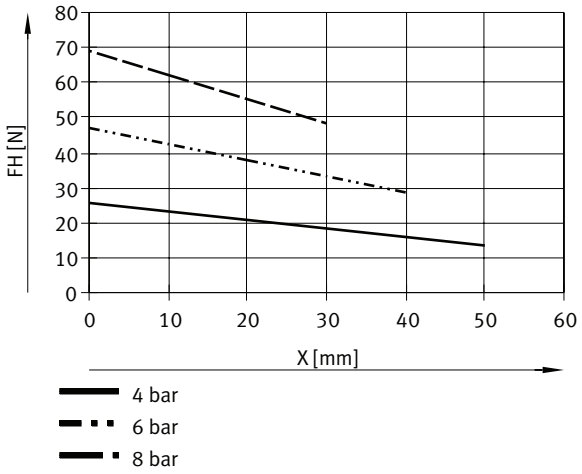
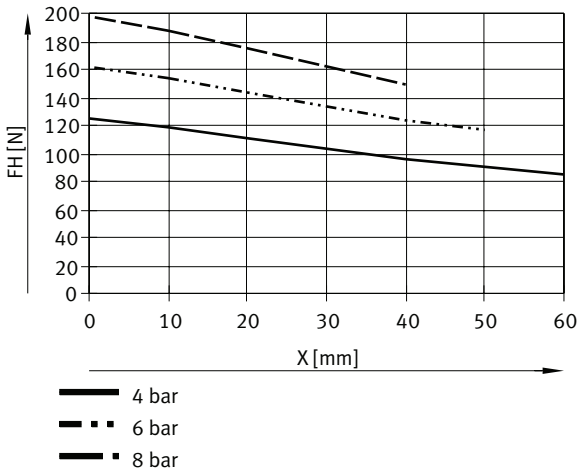
Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - Internal gripping (opening), with gripping force retention, high gripping force – HPPR-F-12-2-...-NC-...



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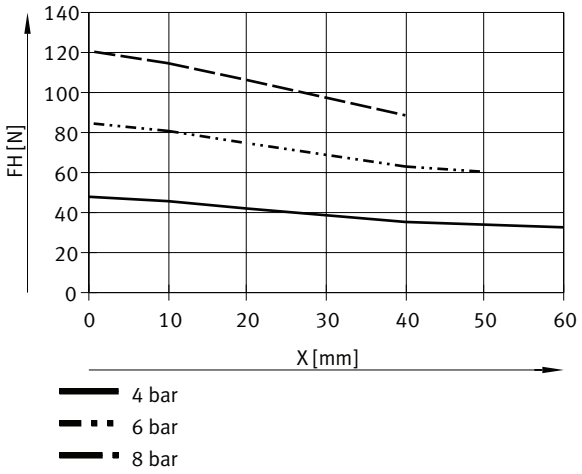
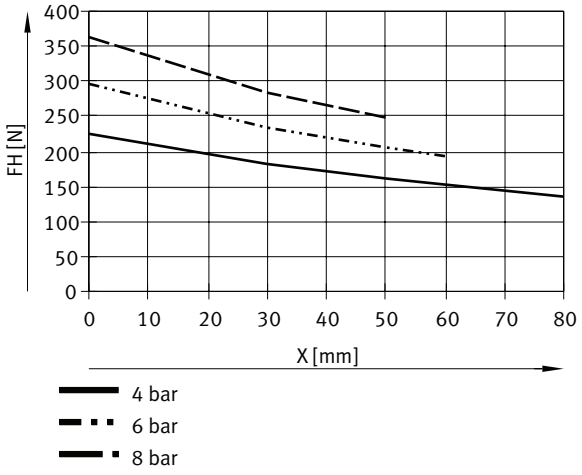
Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - Internal gripping (opening), with gripping force retention, high gripping force – HPPR-F-16-3-...-NC-...



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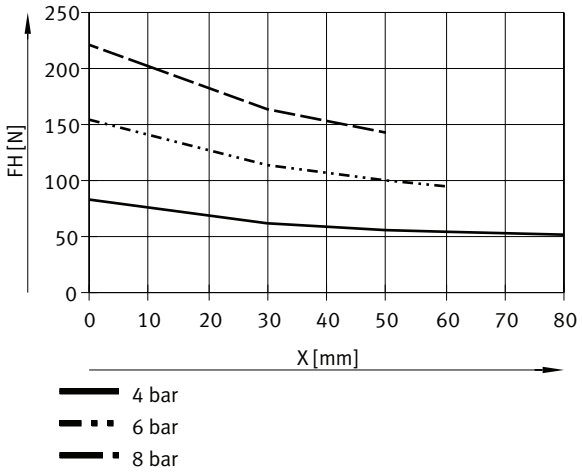
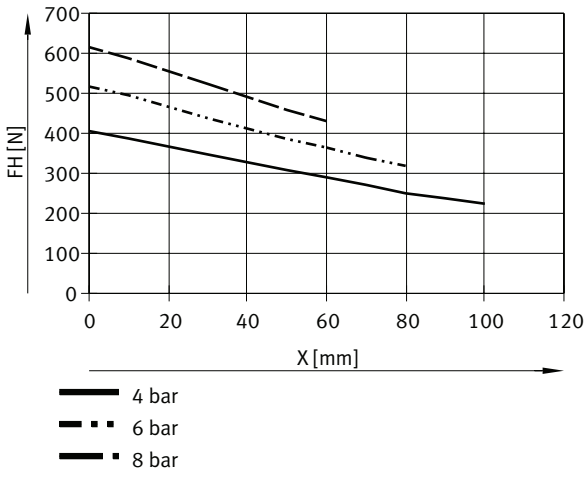
Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - Internal gripping (opening), with gripping force retention, high gripping force – HPPR-F-20-4-...-NC-...



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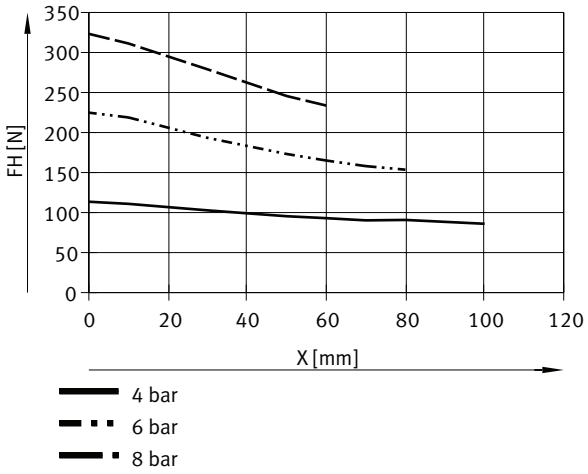
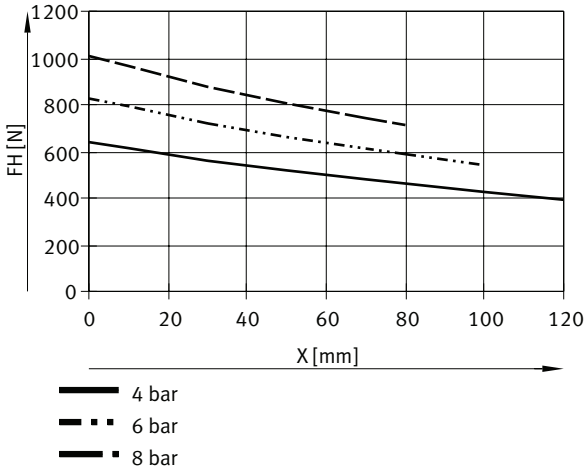
Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - Internal gripping (opening), with gripping force retention, high gripping force – HPPR-F-25-6-...-NC-...



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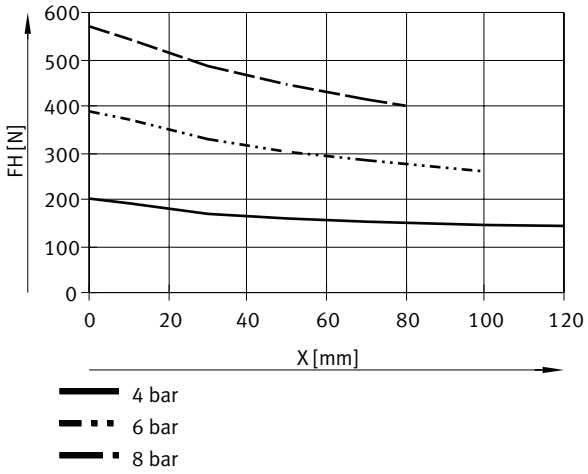
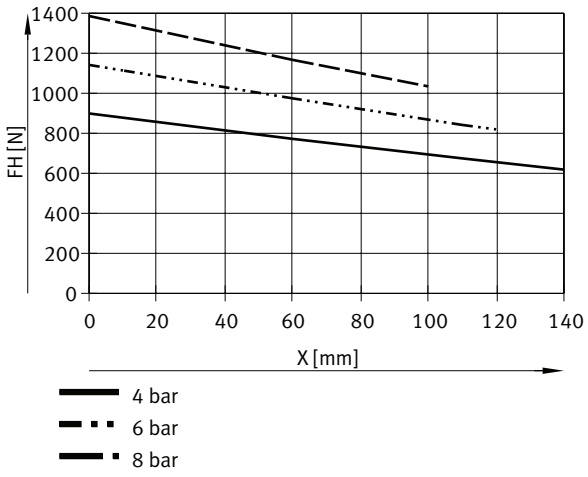
Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - Internal gripping (opening), with gripping force retention, high gripping force – HPPR-F-32-8-...-NC-...



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-...



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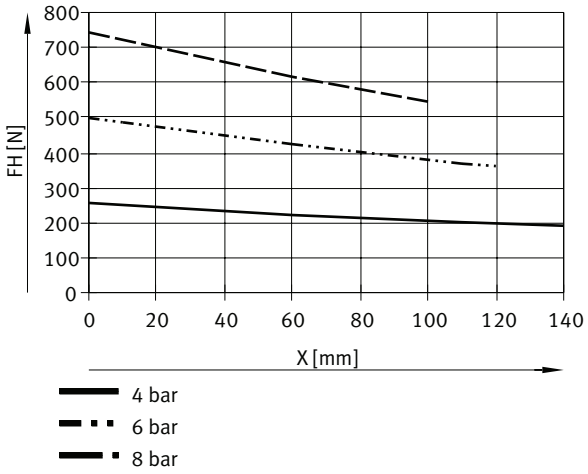
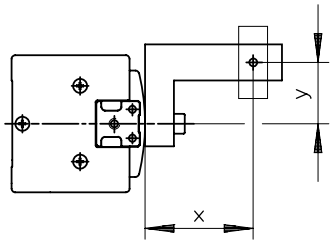
Gripping force FH per gripper jaw as a function of operating pressure/lever arm x - Internal gripping (opening), with gripping force retention, high gripping force – HPPR-F-40-10-...-NC-...

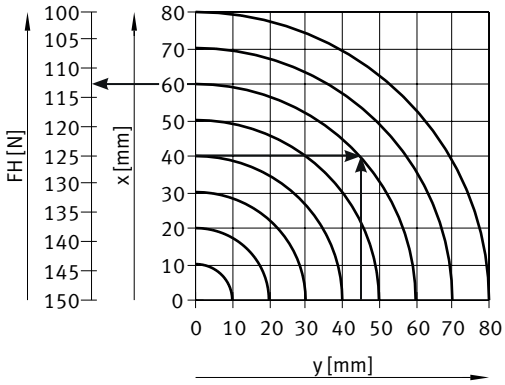


Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y



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-center 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

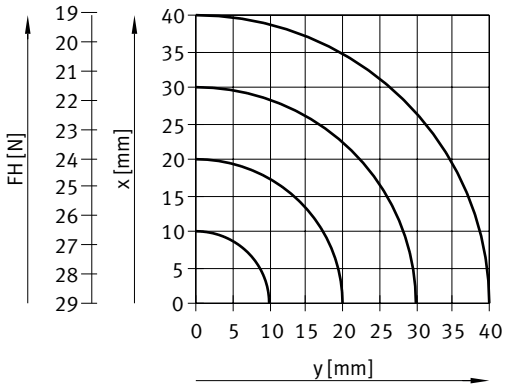
To be determined:
Gripping force at 0.6 MPa (6 bar, 87 psi)

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

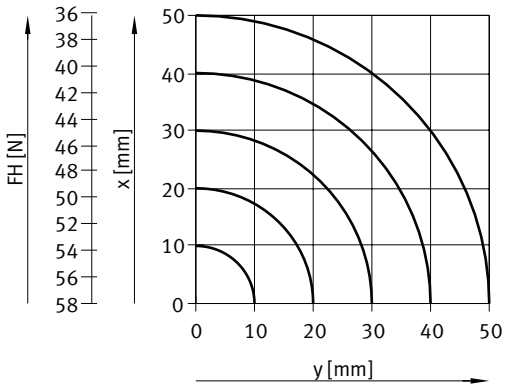
Result:
Gripping force = approx. 113 N

Datasheet

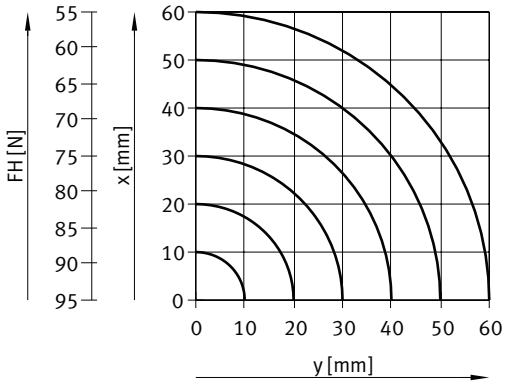
Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – External gripping (closing), standard gripping force – HPPR-12



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-16

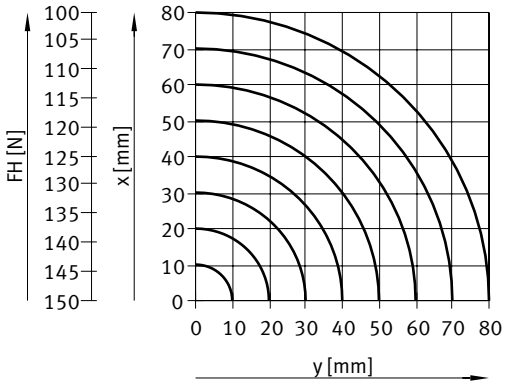


Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – External gripping (closing), standard gripping force – HPPR-20

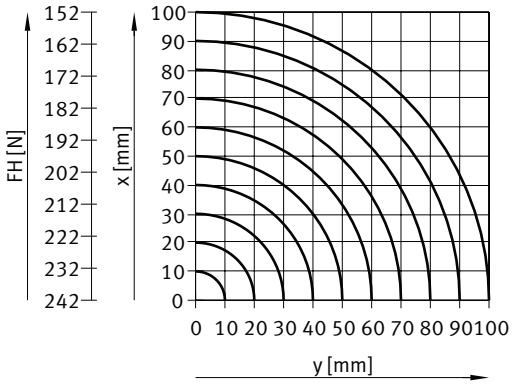


Datasheet

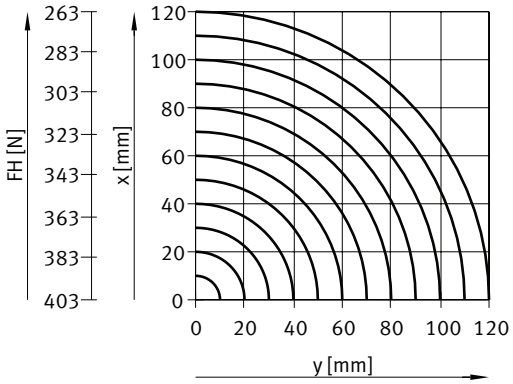
Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – External gripping (closing), standard gripping force – HPPR-25



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

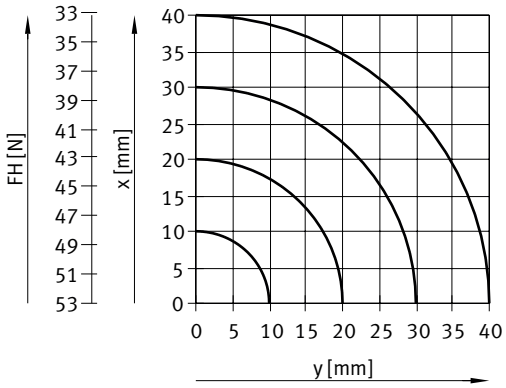


Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – External gripping (closing), standard gripping force – HPPR-40

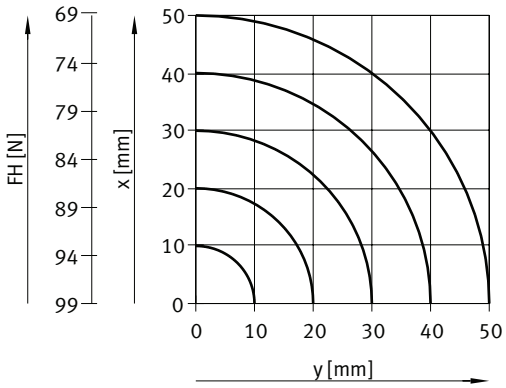


Datasheet

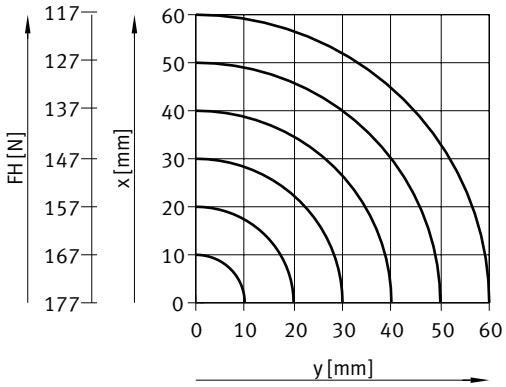
Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – External gripping (closing), high gripping force – HP-PR-F-12



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-16

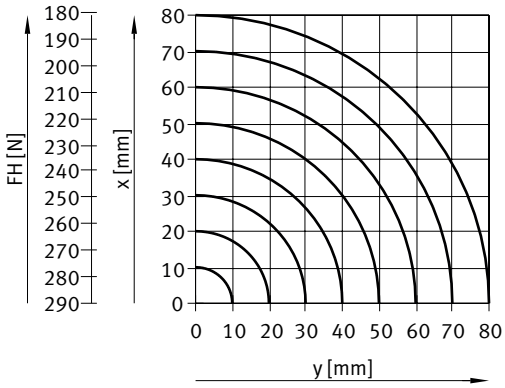


Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – External gripping (closing), high gripping force – HP-PR-F-20

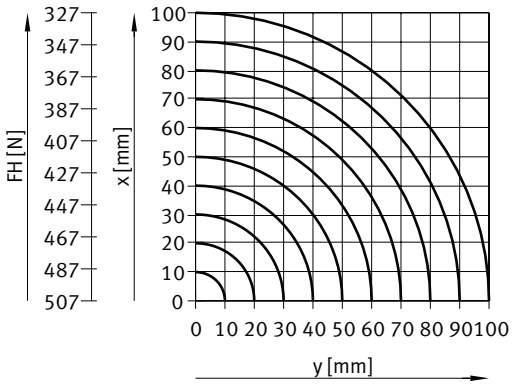


Datasheet

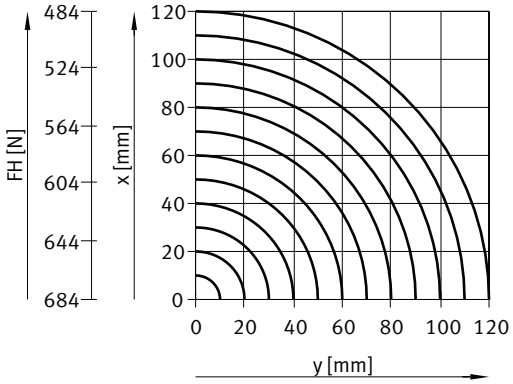
Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – External gripping (closing), high gripping force – HP-PR-F-25



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

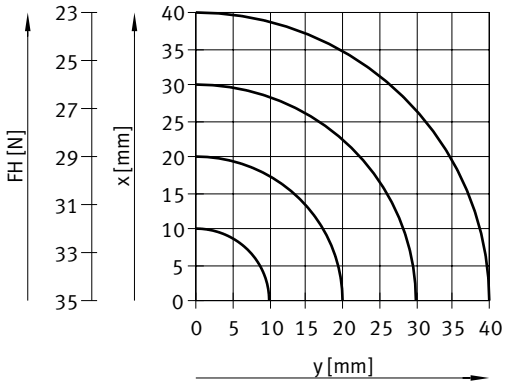


Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – External gripping (closing), high gripping force – HP-PR-F-40

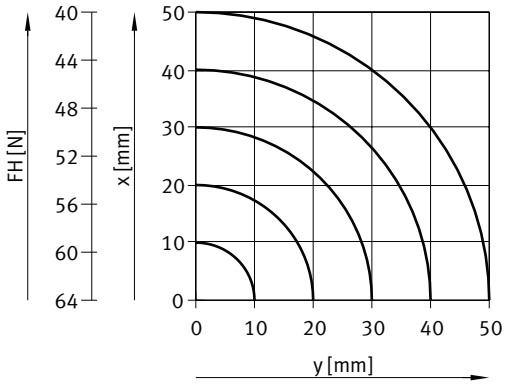


Datasheet

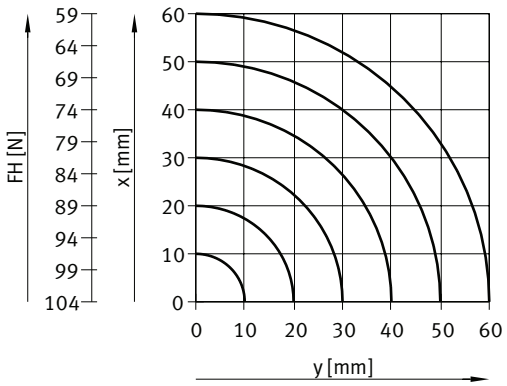
Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – Internal gripping (opening), standard gripping force – HPPR-12



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

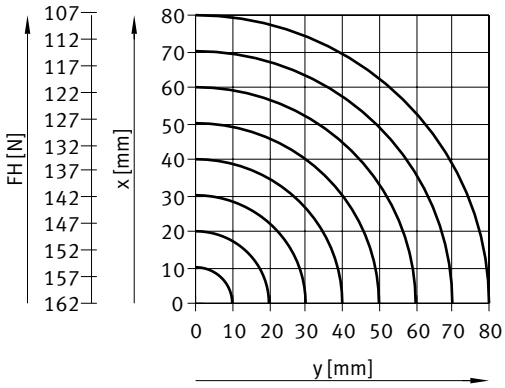


Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – Internal gripping (opening), standard gripping force – HPPR-20

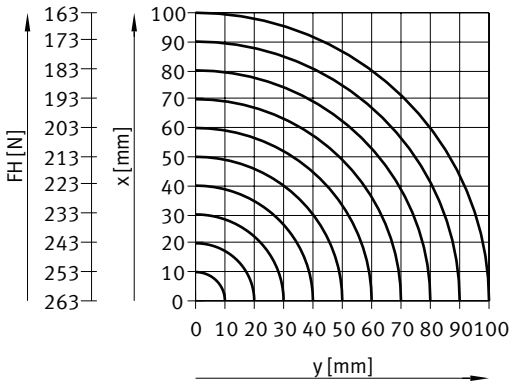


Datasheet

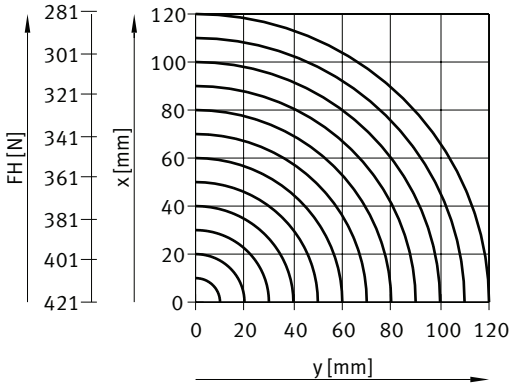
Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – Internal gripping (opening), standard gripping force – HPPR-25



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

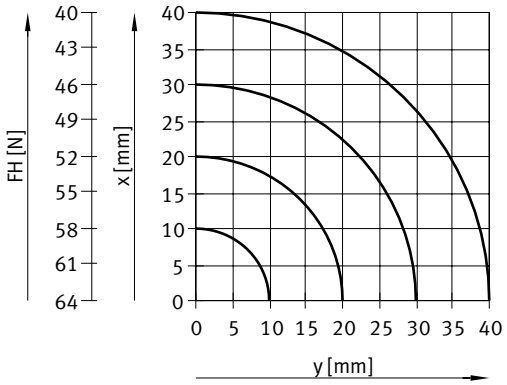


Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – Internal gripping (opening), standard gripping force – HPPR-40

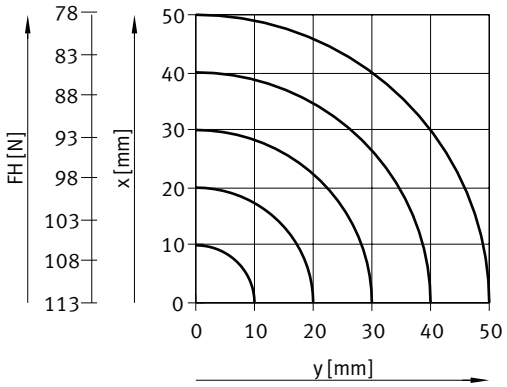


Datasheet

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



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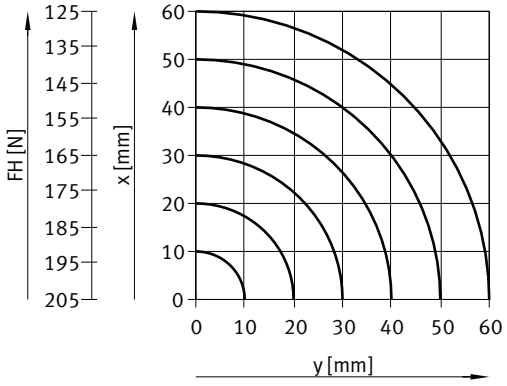

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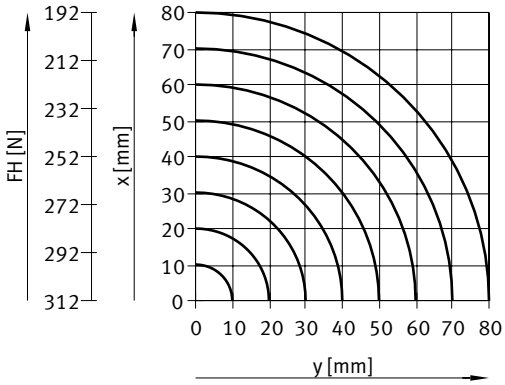
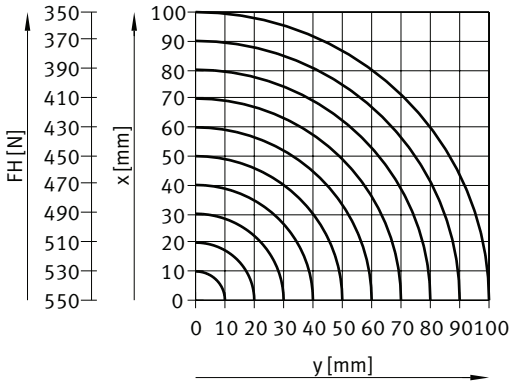
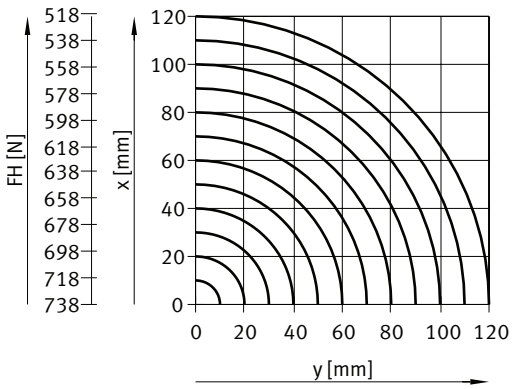
Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – Internal gripping (opening), high gripping force – HP-PR-F-25



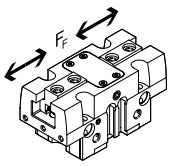
Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x/eccentricity y – Internal gripping (opening), high gripping force – HP-PR-F-32



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



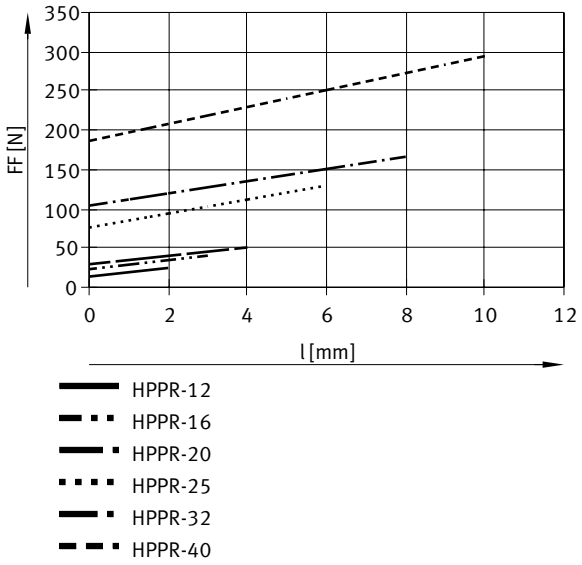
Spring force FF as a function of size/gripper jaw stroke l, with gripping force retention – HPPR-...-NO/NC-...



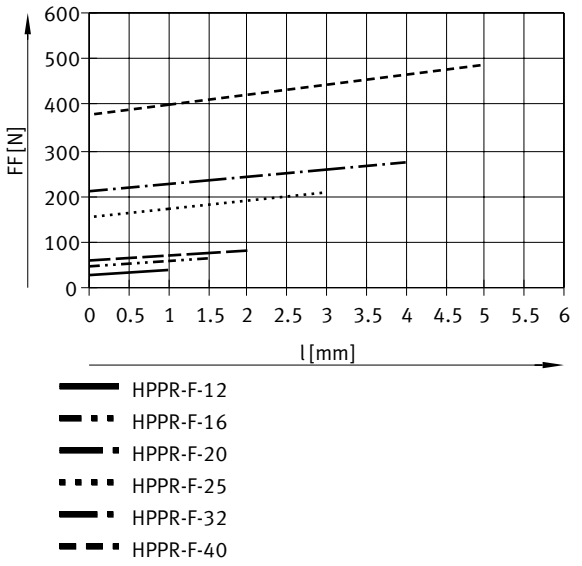
The spring forces FF can be determined from the following diagram as a function of the gripper jaw stroke l.

Datasheet

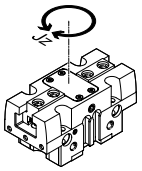
Spring force FF as a function of size/gripper jaw stroke l, with gripping force retention, standard gripping force – HPPR-...-NO/NC-...



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, with no load.

Size	12					16					
Complete stroke	2 mm		4 mm			3 mm			6 mm		
Gripping force backup	Without	Closing	Without	Closing	Opening	Without	Closing	Opening	Without	Closing	Opening
Mass moment of inertia	0.087 kg-cm²	0.106 kg-cm²	0.084 kg-cm²	0.103 kg-cm²	0.108 kg-cm²	0.168 kg-cm²	0.193 kg-cm²	0.2 kgcm²	0.158 kg-cm²	0.184 kg-cm²	0.197 kg-cm²

Datasheet

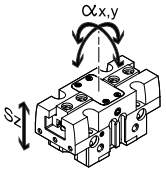
Mass moments of inertia – HPPR-20 ... 25

Size	20						25					
Complete stroke	4 mm			8 mm			6 mm			12 mm		
Gripping force backup	Without	Closing	Opening	Without	Closing	Opening	Without	Closing	Opening	Without	Closing	Opening
Mass moment of inertia	0.426 kg-cm²	0.47 kg-cm²	0.499 kg-cm²	0.399 kg-cm²	0.443 kg-cm²	0.496 kg-cm²	1.252 kg-cm²	1.508 kg-cm²	1.619 kg-cm²	1.151 kg-cm²	1.406 kg-cm²	1.602 kg-cm²

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

Size	32						40					
Complete stroke	8 mm			16 mm			10 mm			20 mm		
Gripping force backup	Without	Closing	Opening	Without	Closing	Opening	Without	Closing	Opening	Without	Closing	Opening
Mass moment of inertia	3.685 kg-cm²	11.213 kgcm²	12.248 kgcm²	3.381 kg-cm²	3.915 kg-cm²	4.56 kg-cm²	9.492 kg-cm²	11.213 kgcm²	12.248 kgcm²	8.573 kg-cm²	10.294 kgcm²	12.118 kgcm²

Gripper jaw backlash

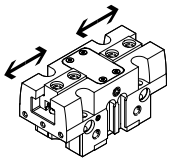


The plain-bearing guide used in the grippers means that there is backlash between the gripper jaws and the housing. The values listed in the table apply in new condition.

Size	12	16	20	25	32	40
Max. gripper jaw backlash Sz [1]	<0.02 mm					
Max. gripper jaw angular play 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.
For higher masses than the specified unthrottled maximum mass per external gripper finger, the grippers must be throttled. Opening and closing times then have to be set accordingly.

Size	12					16					
Complete stroke	2 mm		4 mm			3 mm			6 mm		
Gripping force backup	Without	Closing	Without	Closing	Opening	Without	Closing	Opening	Without	Closing	Opening
Min. opening time at 6 bar	6 ms	9 ms	7 ms	10 ms	7 ms		11 ms	7 ms	8 ms	14 ms	8 ms
Min. closing time at 6 bar	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

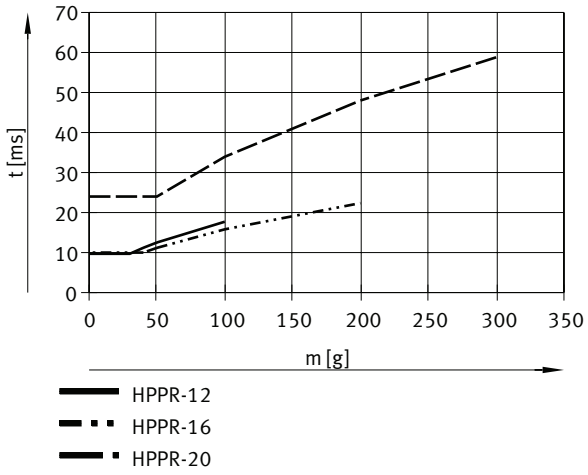
Size	20						25					
Complete stroke	4 mm			8 mm			6 mm			12 mm		
Gripping force backup	Without	Closing	Opening	Without	Closing	Opening	Without	Closing	Opening	Without	Closing	Opening
Min. opening time at 6 bar	20 ms	18 ms	11 ms	20 ms	19 ms	12 ms	21 ms	36 ms	18 ms	22 ms	38 ms	22 ms
Min. closing time at 6 bar	23 ms	13 ms	19 ms	24 ms	14 ms	20 ms	19 ms	23 ms	39 ms	20 ms	24 ms	45 ms

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

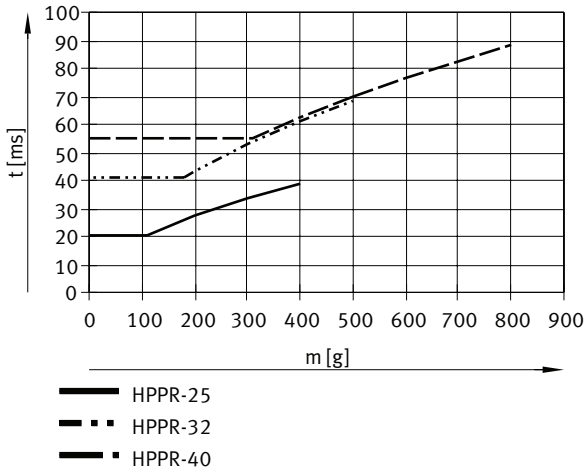
Size	32						40					
Complete stroke	8 mm			16 mm			10 mm			20 mm		
Gripping force backup	Without	Closing	Opening	Without	Closing	Opening	Without	Closing	Opening	Without	Closing	Opening
Min. opening time at 6 bar	31 ms	41 ms	27 ms	33 ms	42 ms	33 ms	52 ms	98 ms	54 ms	52 ms	99 ms	55 ms
Min. closing time at 6 bar	38 ms	30 ms	50 ms	41 ms	31 ms	53 ms	56 ms	57 ms	99 ms	55 ms	59 ms	105 ms

Datasheet

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

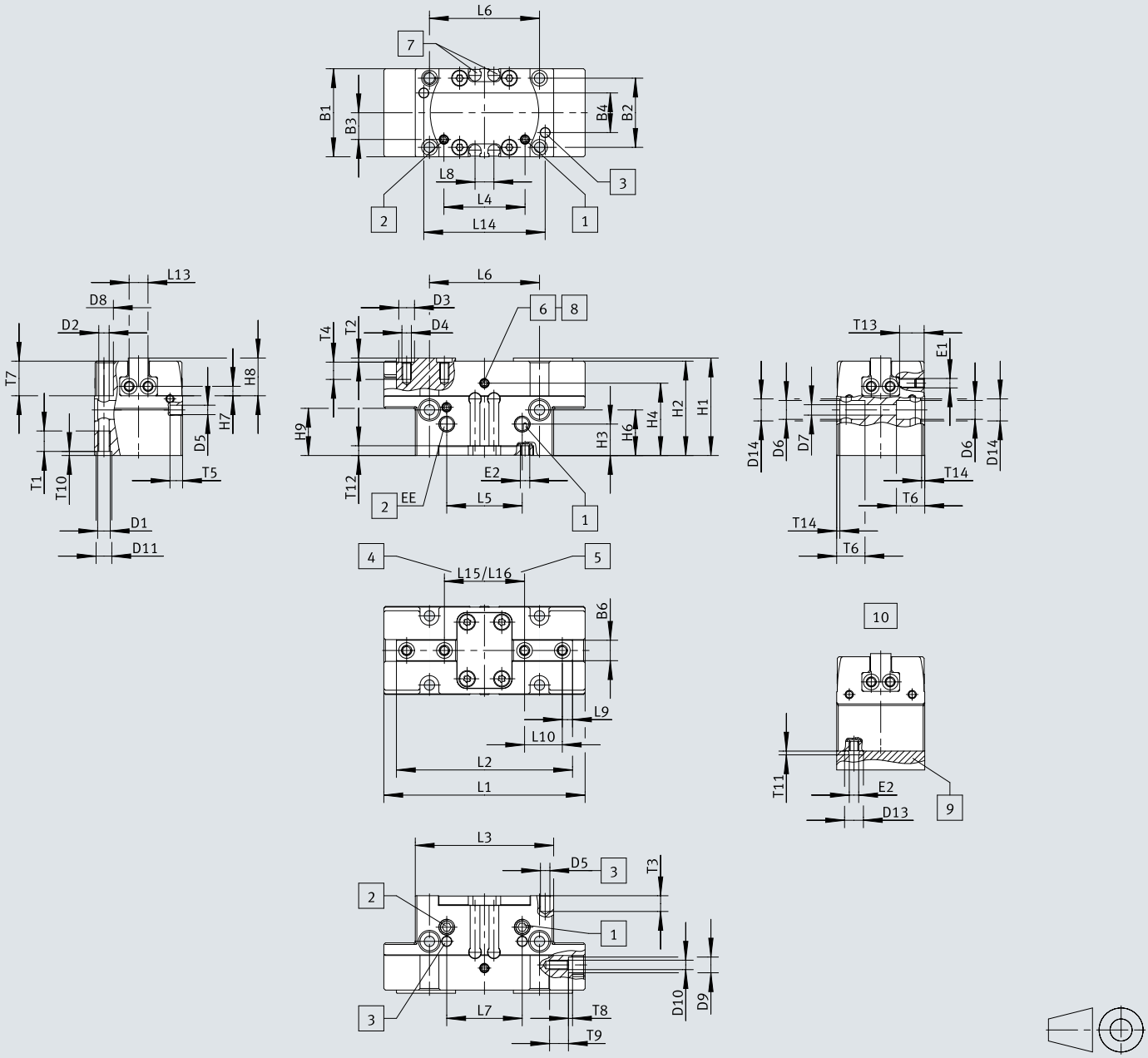


Opening and closing times as a function of the gripper finger mass – HPPR-25 ... 40



Dimensions

Dimensions – Parallel gripper HPPR-12 ... 20 Download CAD data www.festo.com



[1] Open the compressed air connection. Can be installed at the front, rear, or bottom (the rear and bottom connections are sealed when the unit is shipped).
[2] Close the compressed air connection. Can be installed at the front, rear, or bottom (the rear and bottom connections are sealed when the unit is shipped).
[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 (supplied sealed)
[9] O-ring: Ø 3x1.5
[10] Compressed air supply underneath

Dimensions

	B1 ±0,05	B2	B3 ±0,1	B4 ±0,02	B6 +0,5	D1	D2 ø	D3 ø H8	D4	D5 ø H8	D6 ø ±0,1	D7 ø +0,1	D8 ø +0,3	D9 ø 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 ø H8	D13 ø	D14 ø 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

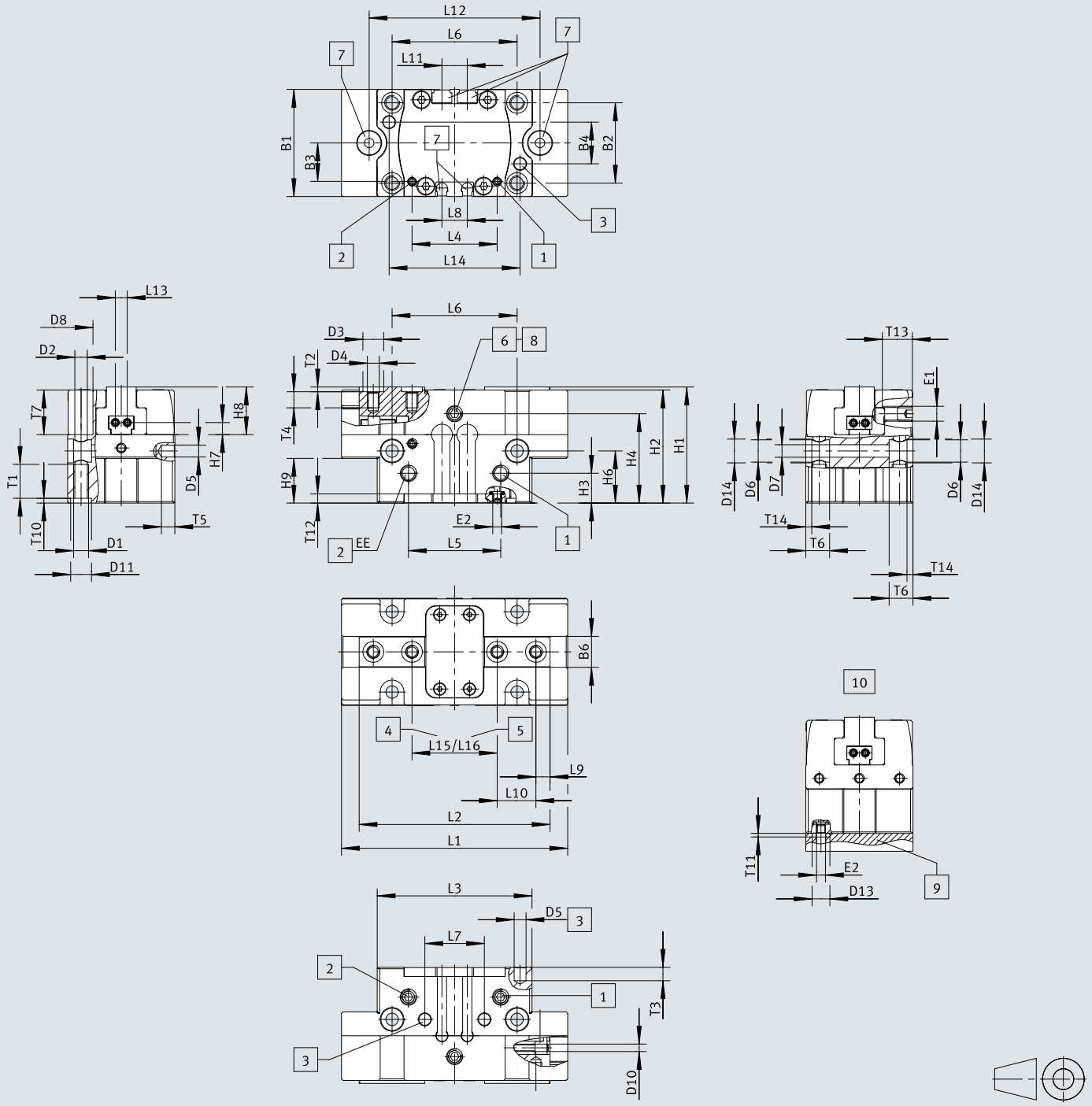
	H6		H7	H8	H9		L1	L2		L3	L4	L5	L6	L7
		[NO/NC]			±0,1	[NO/NC] ±0,1	+0,1		[F]	±0,1	±0,1	±0,1		
HPPR-12	13,5	20,4	2	7	12	18,9	41	37	39	36	21	20	29	17
HPPR-16	17,5	25,5	2,25	8,5	15	23	50	44	47	36	23	20	29	20
HPPR-20	14,5	21,5	3	12	15	22	64	56	60	44	25,8	24	35	24

	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 Download CAD data www.festo.com



[1] Open the compressed air connection. Can be installed at the front, rear, or bottom (the rear and bottom connections are sealed when the unit is shipped).
[2] Close the compressed air connection. Can be installed at the front, rear, or bottom (the rear and bottom connections are sealed when the unit is shipped).
[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 (supplied sealed)
[9] O-ring: Ø 3x1.5
[10] Compressed air supply underneath

Dimensions

	B1 ±0,05	B2	B3 ±0,1	B4 ±0,02	B6 –0,05/ –0,1	D1	D2 ø	D3 ø H8	D4	D5 ø H8	D6 ø ±0,1	D7 ø +0,1	D8 ø +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 ø H8	D13 ø	D14 ø H8	EE	E1	E2	H1		H2		H3	
								±0,05	[NO/NC] ±0,05	±0,05	[NO/NC] ±0,05	±0,1	[NO/NC] ±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]			±0,1	[NO/NC] ±0,1	+0,1		[F]	±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 ±0,1	L6	L7	L8 ±0,1	L9		L10	L11	L12	L13	L14	L15	
						[F]							[F]
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 min.	T2 +0,1	T3 min.	T4 min.	T5 min.	T6	T7 +0,2	T10 +0,1	T11	T12		T13 min.	T14 +0,1
											min.	[NO/NC] min.		
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/centering sleeve ZBV/ ZBH (mounted on the side of the gripper)

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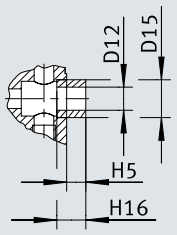
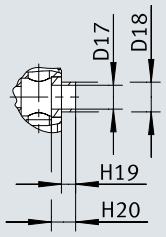
HPPR-A-12



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 $^{\pm 0,1}$	1,9	3,9 $^{\pm 0,1}$
HPPR-40-...	ZBV-12-9	6,4	9	6,4	9	1,9	3,9 $^{\pm 0,1}$	1,9	3,9 $^{\pm 0,1}$

Dimensions

Dimensions – Parallel gripper HPPR with centering sleeve ZBH (at the bottom of the gripper)

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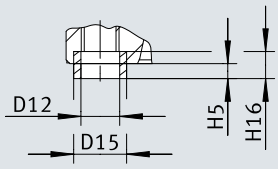


		D12 ø	D15 ø h7	H5 0/–0,3	H16 0/–0,2
HPPR-12-...	ZBH-5	3,2	5	1,1	2,4
HPPR-16-...	ZBH-5	3,2	5	1,1	2,4
HPPR-20-...	ZBH-5	3,2	5	1,1	2,4
HPPR-25-...	ZBH-7	5,3	7	1,4	3
HPPR-32-...	ZBH-7	5,3	7	1,4	3
HPPR-40-...	ZBH-9	6,4	9	1,9	4

Ordering data

double-acting, without compression spring

	Size	Complete stroke	Gripper property	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

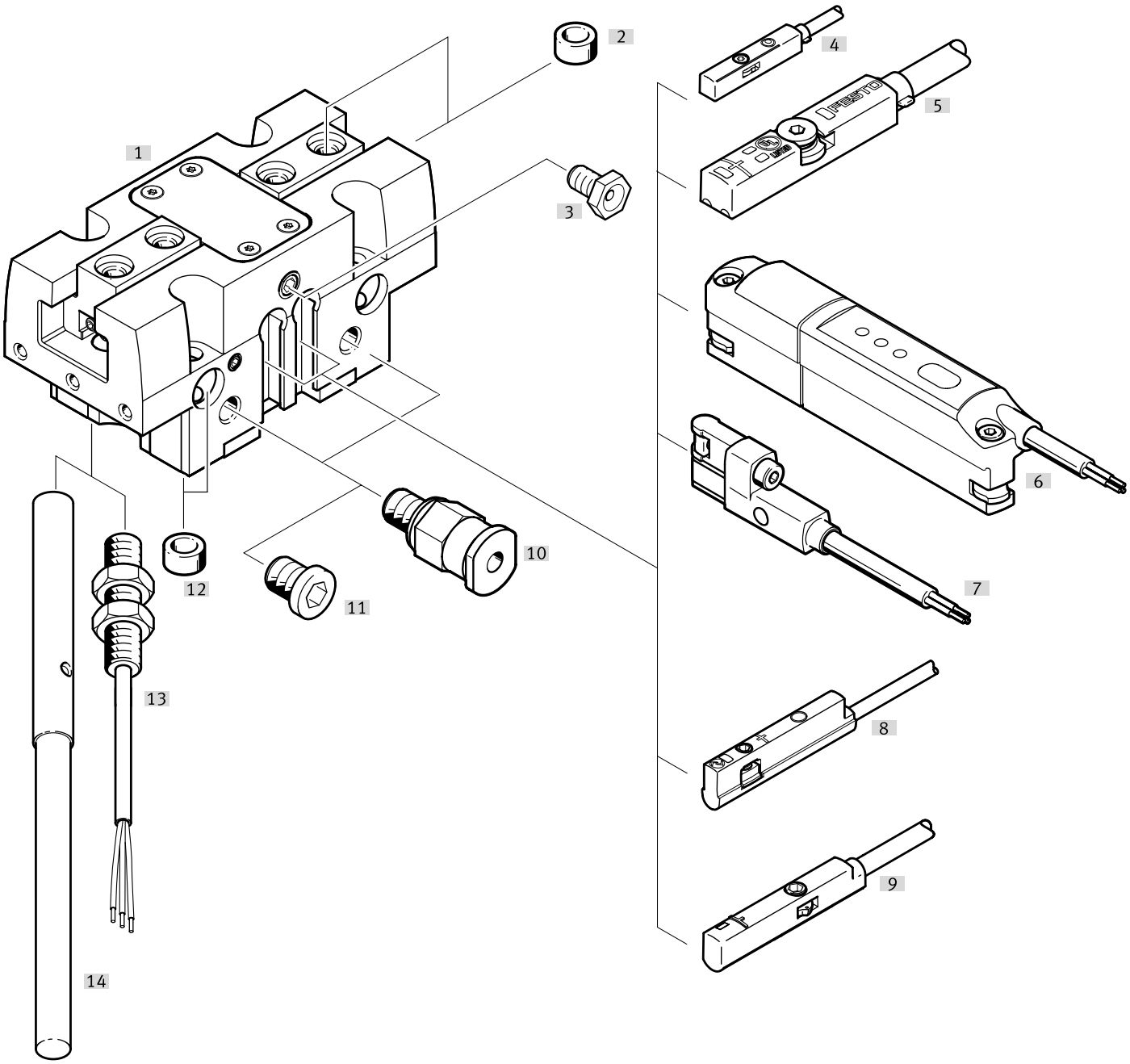
	Size	Complete stroke	Gripper property	Part no.	Type
	12	4 mm	Standard	**8209482**	**HPPR-12-4-A-NO-F1A**
	16	3 mm	High gripping force	**8222551**	**HPPR-F-16-3-A-NO-F1A**
		6 mm	Standard	**8222548**	**HPPR-16-6-A-NO-F1A**
	20	4 mm	High gripping force	**8222560**	**HPPR-F-20-4-A-NO-F1A**
		8 mm	Standard	**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		**8222518**	**HPPR-40-20-A-NO-F1A**

single-acting or with closing gripping force backup

	Size	Complete stroke	Gripper property	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 overview

Parallel gripper HPPR



Accessories			→ Page/Internet
	Type/order code	Description	
[1]	Parallel gripper HPPR	Double-acting actuator, heavy-duty	hppr
[2]	Centering pin/sleeve ZBS/ZBH	• For centering the gripper jaw blanks/gripper fingers on the gripper jaws • For centering the gripper while mounting	67
[3]	Lubrication nipple	For relubrication	hppr
[4]	Proximity switch SDBT-MSX	• For T-slot • For querying the piston position in the end positions • Auto teach-in and programmable	68
[5]	Position transmitter SMAT-8M	• For T-slot • To query the piston position at any point	70
[5]	Position transmitter SDAS-MHS	• For T-slot • To query the piston position at any point	70
[6]	Position transmitter SDAT-MHS	• For T-slot • To query the piston position at any point	70

Peripherals overview

Accessories			→ Page/Internet
	Type/order code	Description	
[7]	Proximity switch SMT-8G	• For T-slot • For querying the piston position in the end positions	68
[7]	Proximity switch SMT-10G	• For round slot • For querying the piston position in the end positions	68
[8]	Position transmitter SDAC-MHS	• For round slot • To query the piston position at any point	70
[9]	Proximity switch SMT-10M	• For round slot • For querying the piston position in the end positions	68
[9]	Proximity switch SMT-8M	• For T-slot • For querying 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 supply ports when using the bottom supply ports	b
[12]	Centering pin/sleeve ZBS/ZBH	For centering the gripper while mounting	67
[13]	Proximity switch SIEN	For querying the piston position in the end positions	69
[14]	Proximity switch SIEH	For querying the piston position in the end positions	68

Accessories

Centering sleeve ZBH-5

	Description	Sleeve material	Pack size	Product weight	Part no.	Type
	for size 12, 16, 20	Steel	10	1 g	**8146543**	**ZBH-5-B**

Centering sleeve ZBH-7

	Description	Sleeve material	Pack size	Product weight	Part no.	Type
	for sizes 25, 32	Steel	10	1 g	**8146544**	**ZBH-7-B**

Centering sleeve ZBH-9

	Description	Sleeve material	Pack size	Product weight	Part no.	Type
	For sizes 32, 40	Steel	10	2 g	**8137184**	**ZBH-9-B**

ZBS-2 centering pin

	Description	Sleeve material	Pack size	Product weight	Part no.	Type
	For sizes 12, 16	Steel	10	1 g	**525273**	**ZBS-2**

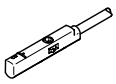
Centering pin ZBS-4

	Description	Sleeve material	Pack size	Product weight	Part no.	Type
	For sizes 25, 32	high-alloy stainless steel	10	0.5 g	**562959**	**ZBS-4**

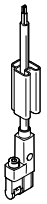
Centering pin ZBS-5

	Description	Sleeve material	Pack size	Product weight	Part no.	Type
	for size 40	Steel	1	1 g	**150928**	**ZBS-5**

Proximity switch SMT-10M for round slot, magnetoresistive Link smt

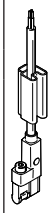
	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	Screwed on, Can be inserted in slot from above	3-wire PNP N/O contact	Open end	2.5 m	**551374**	**SMT-10M-PS-24V-E-2,5-Q-OE**
					551373	**SMT-10M-PS-24V-E-2,5-L-OE**
			Plug M8, A-coded	0.3 m	**551375**	**SMT-10M-PS-24V-E-0,3-L-M8D**
					551376	**SMT-10M-PS-24V-E-0,3-Q-M8D**

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

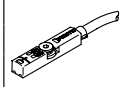
	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	Clamped in T slot, Can be inserted in slot lengthwise	3-wire NPN N/O contact	Open end	2.5 m	**8065030**	**SMT-10G-NS-24V-E-2,5Q-OE**

Accessories

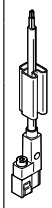
Proximity switch SMT-10G for round slot, magneto-resistive — Link smt

	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	Clamped in T slot, Can be inserted in 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**

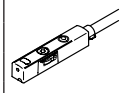
Proximity switch SMT-8M for T-slot, magneto-resistive — Link smt

	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	Screwed on, Can be inserted in 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**
		3-wire PNP N/O contact		2.5 m	**574335**	**SMT-8M-A-PS-24V-E-2,5-OE**
			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**

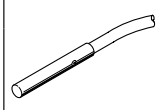
Proximity switch SMT-8G for T-slot, magneto-resistive — Link smt

	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	Clamped in T slot, Can be inserted in 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

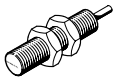
	Switching output	Switching element function	Electrical connection	Cable length	Part no.	Type
	PNP/NPN switchable	N/O-N/C contact, switchable	Open end	2.5 m	**8059121**	**SDBT-MSX-1L-PU-E-2.5-N-LE**
					8059124	**SDBT-MSX-1L-NU-E-2.5-N-LE**
			Plug M8, A-coded	0.3 m	**8059123**	**SDBT-MSX-1L-NU-E-0.3-N-M8**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

Proximity switch SIEH - 3mm (round design), inductive — Link sieh

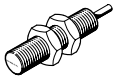
	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	Clamped	PNP	Open end	2.5 m	**538264**	**SIEH-3B-PS-K-L**
			Plug M8, A-coded	0.15 m	**538263**	**SIEH-3B-PS-S-L**

Accessories

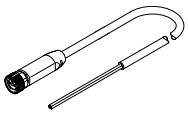
Proximity switch SIEN, with cable, inductive — Link sien

	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	With locknut	PNP	Open end	2.5 m	**150386**	**SIEN-M8B-PS-K-L**

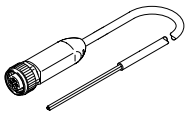
Proximity switch SIEN, without cable, inductive — Link sien

	Type of mounting	Switching output	Electrical connection	Part no.	Type
	With locknut	PNP	Plug M8, A-coded	**150387**	**SIEN-M8B-PS-S-L**

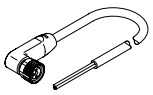
Connecting cables NEBA, straight, M8 connection

	Electrical connection 1, connection technology	Electrical connection 2, connection technology	Electrical connection 2, number of pins/wires	Cable length	Part no.	Type
	M8x1 A-coded as per 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**

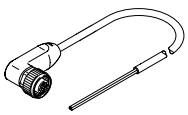
Connecting cables NEBA, straight, M12 connection

	Electrical connection 1, connection technology	Electrical connection 2, connection technology	Electrical connection 2, number of pins/wires	Cable length	Part no.	Type
	M12x1 A-coded as per 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

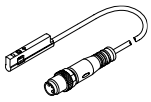
	Electrical connection 1, connection technology	Electrical connection 2, connection technology	Electrical connection 2, number of pins/wires	Cable length	Part no.	Type
	M8x1 A-coded as per EN 61076-2-104	Open end	3	2.5 m	**8078230**	**NEBA-M8W3-U-2.5-N-LE3**
				5 m	**8078231**	**NEBA-M8W3-U-5-N-LE3**

Connecting cables NEBA, angled, M12 connection

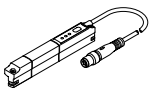
	Electrical connection 1, connection technology	Electrical connection 2, connection technology	Electrical connection 2, number of pins/wires	Cable length	Part no.	Type
	M12x1 A-coded as per EN 61076-2-101	Open end	3	2.5 m	**8078245**	**NEBA-M12W5-U-2.5-N-LE3**
				5 m	**8078246**	**NEBA-M12W5-U-5-N-LE3**

Accessories

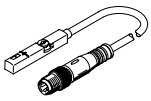
SDAC Position transmitter for Round Groove, Plug M8, A-coded – for size 12 ... 40 Link sdac

	Description	Sensing range	Electrical connection 1, number of pins/wires	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**

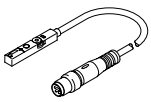
Position transmitter SDAT for T-slot, M8 plug, A-coded Link sdat

	Sensing range	Analog output	Electrical connection 1, number of pins/wires	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**

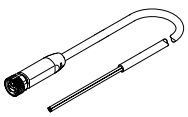
Position transmitter SMAT-8M for T-slot, M8 plug, A-coded Link smat

	Sensing range	Analog output	Electrical connection 1, number of pins/wires	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, M8 plug, A-coded Link sdas

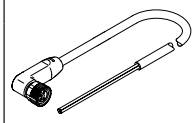
	Description	Sensing range	Electrical connection 1, number of pins/wires	Cable length	Part no.	Type
	Operating modes: two adjustable switching outputs; IO-Link®	52 mm	4	0.3 m	**8063974**	**SDAS-MHS-M40-1L-PNLK-PN-E-0.3-M8**
				2.5 m	**8063975**	**SDAS-MHS-M40-1L-PNLK-PN-E-2.5-LE**

Connecting cables NEBA, straight

	Electrical connection 1, connection technology	Electrical connection 2, connection technology	Electrical connection 2, number of pins/wires	Cable length	Part no.	Type
	M8x1 A-coded as per 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**

Accessories

Connecting cables NEBA, angled

	Electrical connection 1, connection technology	Electrical connection 2, connection technology	Electrical connection 2, number of pins/wires	Cable length	Part no.	Type
	M8x1 A-coded as per 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**