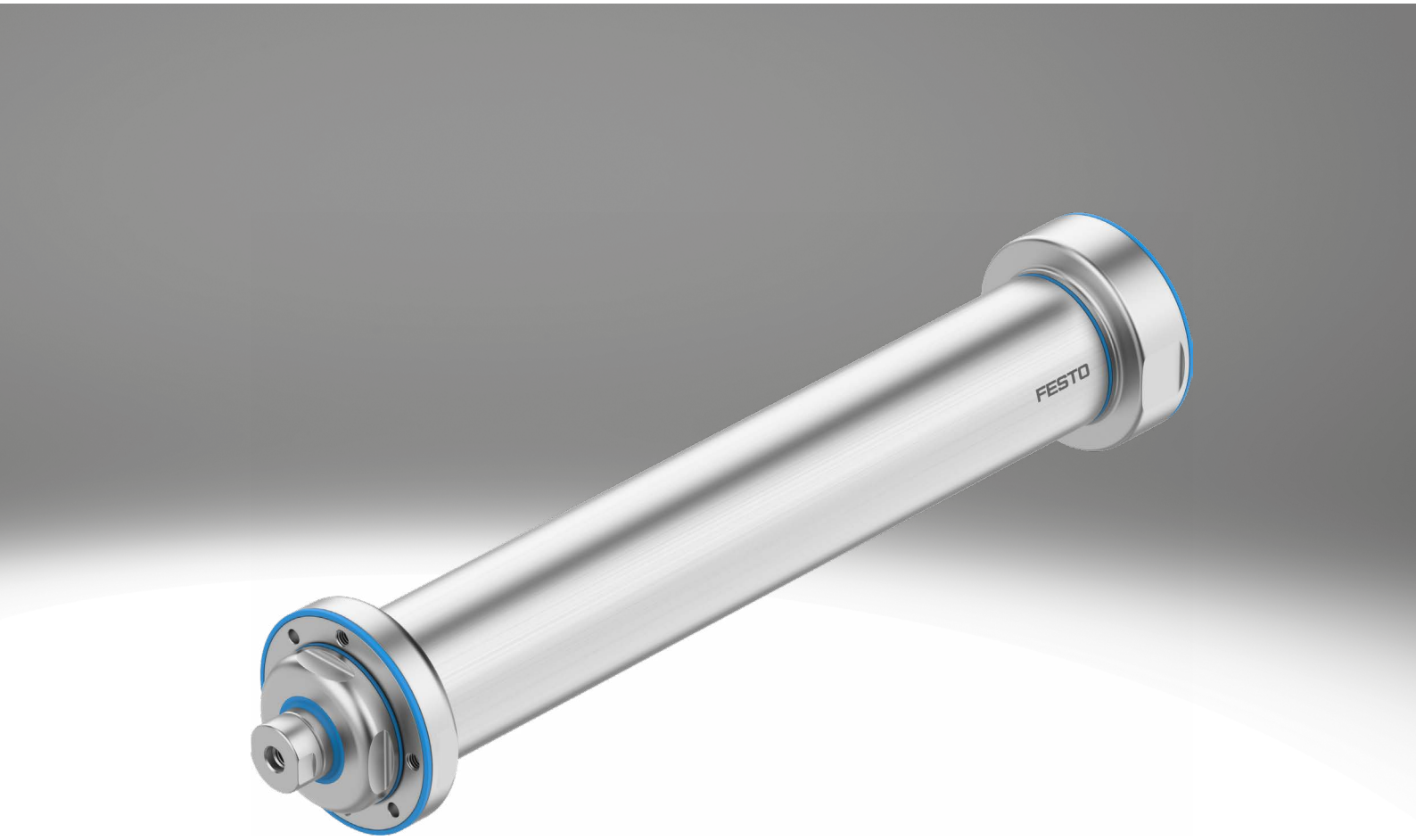
Electric cylinders EPRF



Key features

At a glance

The stainless steel electric cylinder EPRF-BS in a clean design is the ideal solution for the most demanding environmental conditions. Hygienic, sturdy and compact – perfect for the food, pharmaceutical and packaging industries.

- Hygienic series for the most demanding environmental conditions
- Six mounting options providing maximum flexibility for mechanical installation
- Stainless steel housing made of 1.4404 / 316L with degree of protection IP69K
- Suitable for contact with food
- Clean design that is easy to maintain
- Maximum corrosion resistance for long service life
- NSF-H1 grease for hygiene-critical applications
- Motor mounting kits for parallel and axial motor mounting directions

Engineering tools More information ➔ electric-motion-sizing

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

Electric Motion Sizing

- Create the optimum drive package quickly and reliably. Electric Motion Sizing calculates suitable combinations of electric axis, electric motor and servo drive using just a few application details. It provides you with all the relevant data including the bill of materials and documentation for the selected combination. This avoids design errors and results in significantly improved energy efficiency for the system. A smooth connection to the Festo Automation Suite also makes commissioning easier for you.

Graphs More information ➔ elgd-bs

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

Drive system

[BS]	Ball screw

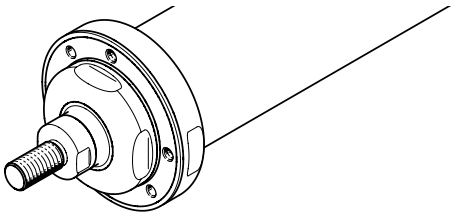
- For applications requiring precision
- High reliability and long service life
- For high loads

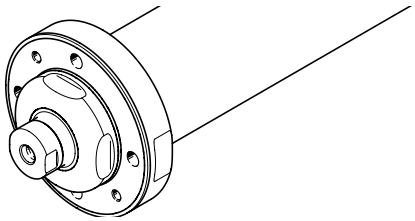
Screw pitch

- The screw pitch describes the distance travelled by the ball screw nut per revolution of the ball screw in millimetres.
- Thanks to the different screw pitches, it is possible to choose the smallest possible motor for the required speed and feed force.

Piston rod thread type

[ ]	Male thread
[F]	Female thread

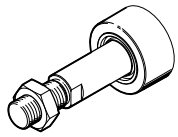




Key features

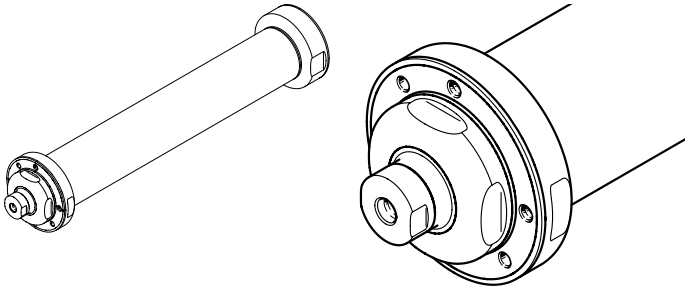
Piston rod extension

[...E] 1 ...200 mm

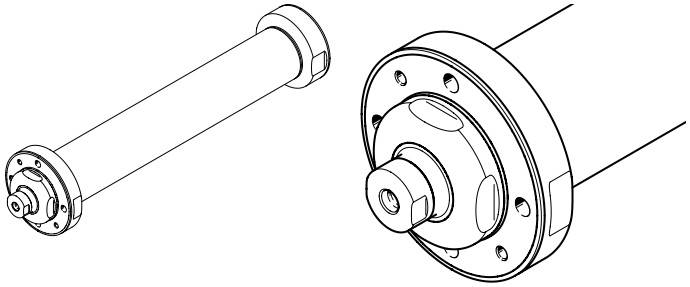


Type of mounting

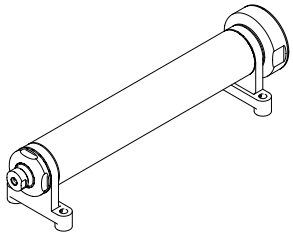
[M1] Flange mounting with thread



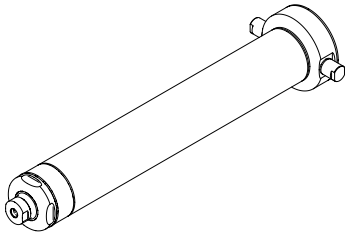
[M2] Flange mounting with through-hole



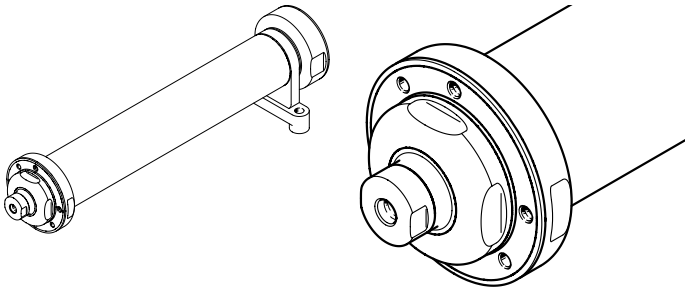
[M3] Foot mounting



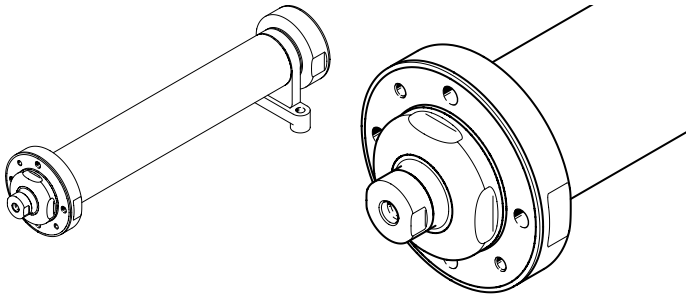
[M4] Trunnion mounting at rear



[M5] Flange mounting with thread plus rear foot mounting

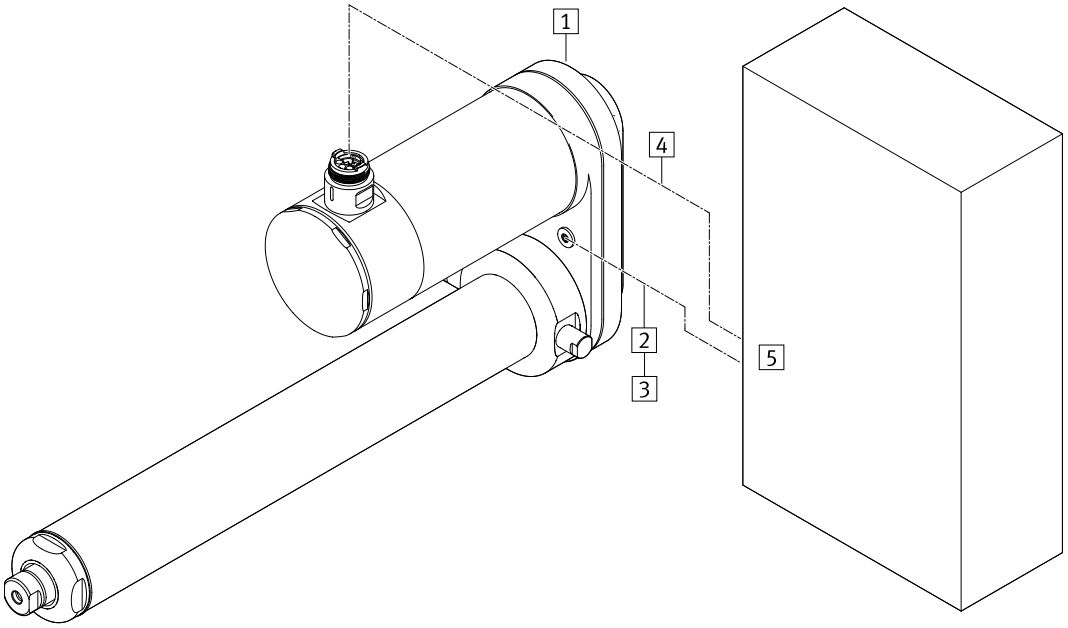


[M6] Flange mounting with through-hole plus rear foot mounting



Key features

Application example



An indispensable measure for pressure compensation and preventing condensation

Air is exchanged between the interior of the cylinder and the environment via a pressure compensation hole in the motor mounting kits [1]. This prevents negative pressure or excess pressure from building up inside the cylinder. Connecting plastic tubing [2] to a push-in fitting [3] prevents unwanted media from being drawn in. The plastic tubing must be routed to an area that is not in the food environment. This area could be the control cabinet [5], for example. The motor cable [4], which also contains plastic tubing, is also routed here. Both tubes are left open, allowing air to circulate. Excess pressure or negative pressure must not be connected.

Stainless steel push-in fittings type NPQR are recommended; see www.festo.com/catalogue/npqr
For further information, see www.festo.com/catalogue/eamm

Type codes

001	Series	
EPRF	Electric cylinder	

002	Drive system	
BS	Ball screw drive	

003	Size	
36	36	
45	45	
55	55	
75	75	
86	86	

004	Stroke [mm]	
50	50	
100	100	
150	150	
200	200	
250	250	
300	300	
400	400	
500	500	
600	600	
700	700	
800	800	
900	900	
1000	1000	
...	25 ... 1000	

005	Ball screw pitch	
5P	5 mm	
8P	8 mm	
10P	10 mm	
15P	15 mm	
16P	16 mm	
25P	25 mm	
32P	32 mm	

006	Piston rod thread type	
	Male thread	
F	Female thread	

007	Piston rod extension	
	None	
...E	1 ... 200 mm	

008	Type of mounting	
M1	Flange mounting with thread	
M2	Flange mounting with through-hole	
M3	Foot mounting	
M4	Rear trunnion mounting	
M5	Flange mounting with thread plus rear foot mounting	
M6	Flange mounting with through-hole plus rear foot mounting	

Datasheet

General technical data					
Size	36	45	55	75	86
Design	Electric cylinder with ball screw				
Screw type	Ball screw				
Piston rod thread	M6		M8	M10	M12
Piston rod end	Female thread				
Stroke	25 ... 250 mm	25 ... 800 mm		50 ... 1000 mm	
Stroke reserve	0 mm				
Protection against rotation/ guide	With plain-bearing guide				
Position sensing	None				
Type of mounting	With female thread				
Mounting position	Any				

Mechanical data – ball screw						
Size	36	45		55		
Screw pitch	8 mm/U	5 mm/U	10 mm/U	5 mm/U	10 mm/U	16 mm/U
Screw diameter	8 mm	12 mm		16 mm		
Guide value payload, horizontal	24 kg	120 kg		300 kg		
Guide value payload, vertical	12 kg	60 kg		150 kg		
Max. feed force Fx	380 N	1,000 N		3,000 N		2,200 N
Max. radial force on the drive shaft	75 N	115 N		175 N		
Max. driving torque	0.6 Nm	0.97 Nm	1.9 Nm	2.65 Nm	5.21 Nm	6.05 Nm
No-load driving torque	0.118 Nm	0.128 Nm	1.185 Nm	0.181 Nm	0.377 Nm	0.470 Nm
Max. speed	600 mm/s	500 mm/s	1,000 mm/s	250 mm/s	500 mm/s	1,000 mm/s
Max. acceleration	15 m/s²	5 m/s²	15 m/s²	5 m/s²	15 m/s²	
Repetition accuracy	±0.02 mm					
Max. rotational speed	4,750 rpm	6,000 rpm		3,000 rpm		3,750 rpm
Reversing backlash1)	100 µm					
Max. angle of rotation of the piston rod +/- 2)	0.7 deg					

1) When new

2) When new

Mechanical data – ball screw						
Size	75			86		
Screw pitch	5 mm/U	10 mm/U	25 mm/U	5 mm/U	15 mm/U	32 mm/U
Screw diameter	25 mm			32 mm		
Guide value payload, horizontal	600 kg			1,000 kg		
Guide value payload, vertical	300 kg			500 kg		
Max. feed force Fx	7,500 N		4,500 N	12,500 N		6,000 N
Max. radial force on the drive shaft	700 N			900 N		
Max. driving torque	6.83 Nm	13.25 Nm	19 Nm	11.86 Nm	32.28 Nm	32.82 Nm
No-load driving torque	0.494 Nm	0.516 Nm	0.975 Nm	0.797 Nm	1.087 Nm	1.484 Nm
Max. speed	250 mm/s	500 mm/s	1,000 mm/s	150 mm/s	500 mm/s	1,000 mm/s
Max. acceleration	5 m/s²	15 m/s²		5 m/s²	15 m/s²	
Repetition accuracy	±0.02 mm					
Max. rotational speed	3,000 rpm		2,400 rpm	1,800 rpm	2,000 rpm	1,875 rpm
Reversing backlash1)	100 µm					
Max. angle of rotation of the piston rod +/- 2)	0.5 deg					

1) When new

2) When new

Datasheet

Operating and environmental conditions

Ambient temperature	-10 ... 60 °C
Storage temperature	-20 ... 60 °C
Relative humidity	0 - 95%, non-condensing
Degree of protection	IP69K
Suitable for use with food	see declaration of conformity
Vibration resistant	Transport application test with severity level 1 to FN 942017-4 and EN 60068-2-6
Shock resistance	Shock test with severity level 1 to FN 942017-5 and EN 60068-2-27
Corrosion resistance class CRC 1)	4 - Particularly high corrosion stress
Maintenance interval	Lifetime lubrication

1) More information www.festo.com/x/topic/crc

Mass moments of inertia

$J_A = J_O + J_H \cdot l + J_L \cdot m$

The mass moment of inertia J of the electric cylinder is calculated as follows.
l = working stroke
m = moving payload

Size	36	45		55		
Screw pitch	8 mm/U	5 mm/U	10 mm/U	5 mm/U	10 mm/U	16 mm/U
Mass moment of inertia JO	0.0038 kgcm²	0.0171 kgcm²	0.0175 kgcm²	0.0575 kgcm²	0.0576 kgcm²	0.0605 kgcm²
Mass moment of inertia JH per metre of stroke	0.0259 kgcm²	0.1142 kgcm²	0.1217 kgcm²	0.3367 kgcm²	0.3386 kgcm²	0.3798 kgcm²
Mass moment of inertia JL per kg of payload	0.0163 kgcm²	0.0063 kgcm²	0.0253 kgcm²	0.0063 kgcm²	0.0253 kgcm²	0.0649 kgcm²

Size	75			86		
Screw pitch	5 mm/U	10 mm/U	25 mm/U	5 mm/U	15 mm/U	32 mm/U
Mass moment of inertia JO	0.4976 kgcm²	0.5098 kgcm²	0.5039 kgcm²	1.3936 kgcm²	1.4303 kgcm²	1.4369 kgcm²
Mass moment of inertia JH per metre of stroke	2.2633 kgcm²	2.2453 kgcm²	2.2416 kgcm²	6.3610 kgcm²	6.6645 kgcm²	6.7192 kgcm²
Mass moment of inertia JL per kg of payload	0.0063 kgcm²	0.0253 kgcm²	0.1583 kgcm²	0.063 kgcm²	0.057 kgcm²	0.2594 kgcm²

Materials

Housing material	High-alloy stainless steel
Cover material	High-alloy stainless steel
Piston rod material	High-alloy stainless steel
Ball screw material	Roller bearing steel
Ball screw nut material	Steel
Cylinder barrel material	High-alloy stainless steel
Cover cap material	High-alloy stainless steel
Dynamic seals material	TPE-U(PU)
Sealing material	TPE-U(PU)
Note on materials	RoHs-compliant
LABS (PWIS) conformity	VDMA24364-Zone III

Datasheet

Weight

Size	36						45					
Type of mounting	M1	M2	M3	M4	M5	M6	M1	M2	M3	M4	M5	M6
Basic weight with 0 mm stroke	930 g	1,078 g	965 g	815 g	1,018 g	1,166 g	1,309 g	1,461 g	1,230 g	1,091 g	1,406 g	1,559 g
Additional weight per 10 mm stroke	24.7 g						37.7 g					
Moving mass with 0 mm stroke	151 g						230 g					
Additional moving mass per 10 mm stroke	7 g						9.1 g					

Size	55						75					
Type of mounting	M1	M2	M3	M4	M5	M6	M1	M2	M3	M4	M5	M6
Basic weight with 0 mm stroke	1,988 g	2,164 g	2,228 g	1,760 g	2,254 g	2,430 g	4,881 g	5,215 g	5,556 g	4,320 g	5,563 g	5,896 g
Additional weight per 10 mm stroke	51.4 g						84.5 g					
Moving mass with 0 mm stroke	529 g						1,267 g					
Additional moving mass per 10 mm stroke	11.1 g						15.1 g					

Size	86					
Type of mounting	M1	M2	M3	M4	M5	M6
Basic weight with 0 mm stroke	7,141 g	7,904 g	7,878 g	6,280 g	8,084 g	8,816 g
Additional weight per 10 mm stroke	104.3 g					
Moving mass with 0 mm stroke	2,408 g					
Additional moving mass per 10 mm stroke	23.3 g					

Homing

Homing can be carried out as follows:

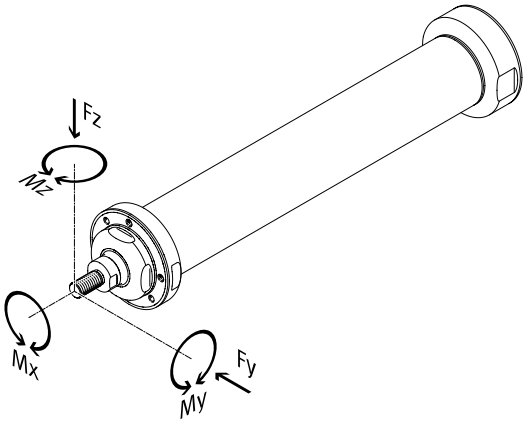
- Against a fixed stop

The following values must be observed:

Size	36	45	55	75	86
Impact energy in the end positions	8mJ	24mJ	72mJ	150mJ	250mJ
Max. homing speed	0.01 m/s				

Datasheet

Max. permissible loads on the piston rod



Size	36	45		55		
Screw pitch	8 mm/U	5 mm/U	10 mm/U	5 mm/U	10 mm/U	16 mm/U
Reference service life	2,500 km	5,000 km				
Max. feed force Fx	380 N	1,000 N		3,000 N		2,200 N
Max. torque Mx	0 Nm					
Max. torque My	4.9 Nm	7 Nm		18.8 Nm		
Max. torque Mz	4.9 Nm	7 Nm		18.8 Nm		

Size	75			86		
Screw pitch	5 mm/U	10 mm/U	25 mm/U	5 mm/U	15 mm/U	32 mm/U
Reference service life	5,000 km					
Max. feed force Fx	7,500 N		4,500 N	12,500 N		6,000 N
Max. torque Mx	0 Nm					
Max. torque My	31.2 Nm			79.2 Nm		
Max. torque Mz	31.2 Nm			79.2 Nm		

Calculating the load comparison factor

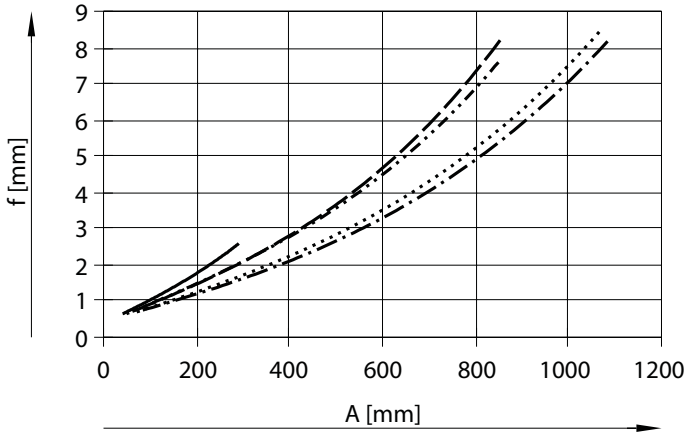
$$f_v = \frac{|F_{y1}|}{F_{y2}} + \frac{|F_{z1}|}{F_{z2}} + \frac{|M_{x1}|}{M_{x2}} + \frac{|M_{y1}|}{M_{y2}} + \frac{|M_{z1}|}{M_{z2}} \leq 1$$

If the axis is subjected to several of the indicated forces and torques at the same time, the following equation must be satisfied in addition to the indicated maximum loads.

F1 / M1 = dynamic value
F2 / M2 = maximum value

Datasheet

Piston rod deflection f as a function of cantilever load A and lateral force F



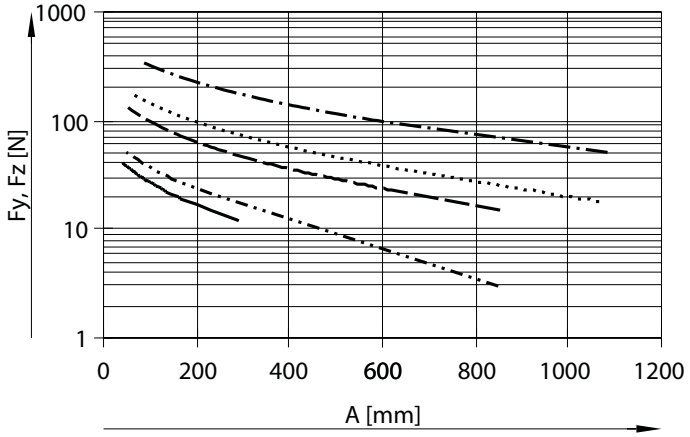
- EPRF-BS-36 (F=15 N)
- EPRF-BS-45 (F=8 N)
- EPRF-BS-55 (F=21 N)
- EPRF-BS-75 (F=28 N)
- EPRF-BS-86 (F=69 N)

Piston rod deflection f as a function of cantilever load A and lateral force F

$$f_1 = \frac{F_1}{F_2} \cdot f_2$$

f1 = piston rod deflection caused by lateral force [mm]
F1 = lateral force [N]
F2 = standardised lateral force [N] (constant force as per graph)
F2 = piston rod deflection caused by lateral force [N] (reading from graph)

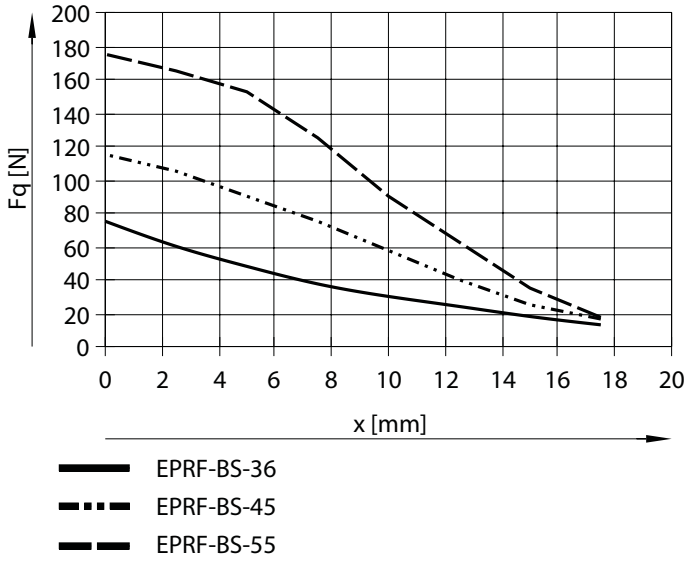
Transverse force F on the piston rod as a function of projection A



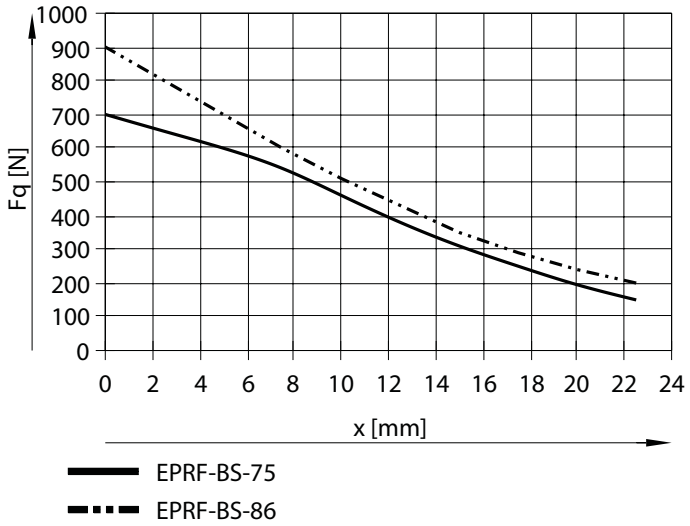
- EPRF-BS-36
- EPRF-BS-45
- EPRF-BS-55
- EPRF-BS-75
- EPRF-BS-86

Datasheet

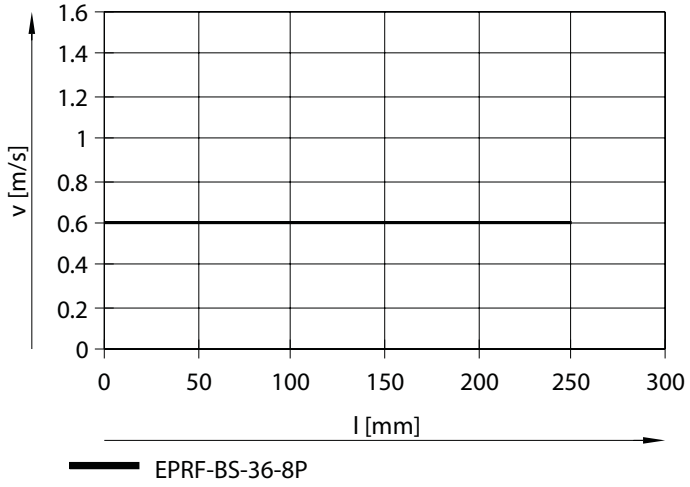
Transverse force F on the drive shaft as a function of stroke length l for size 36/45/55



Transverse force F on the drive shaft as a function of stroke length l for size 75/86

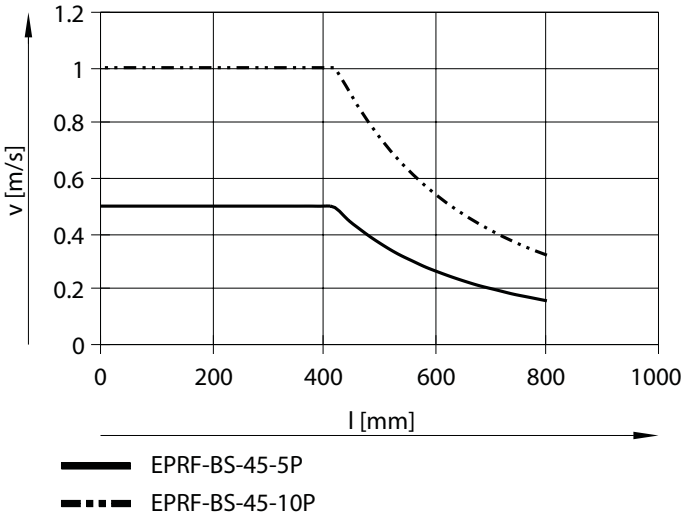


Feed speed v as a function of stroke length l for size 36

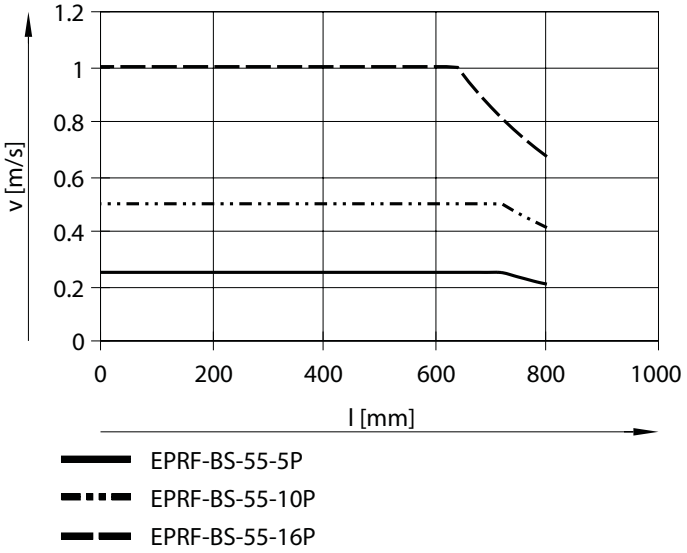


Datasheet

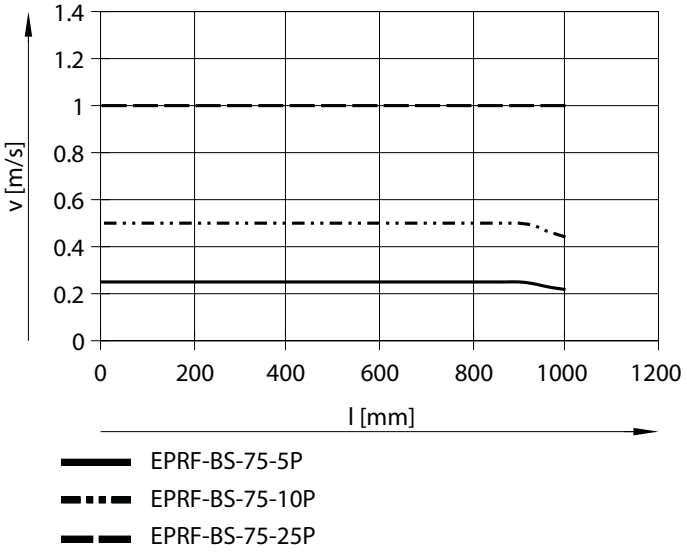
Feed speed v as a function of stroke length l for size 45



Feed speed v as a function of stroke length l for size 55

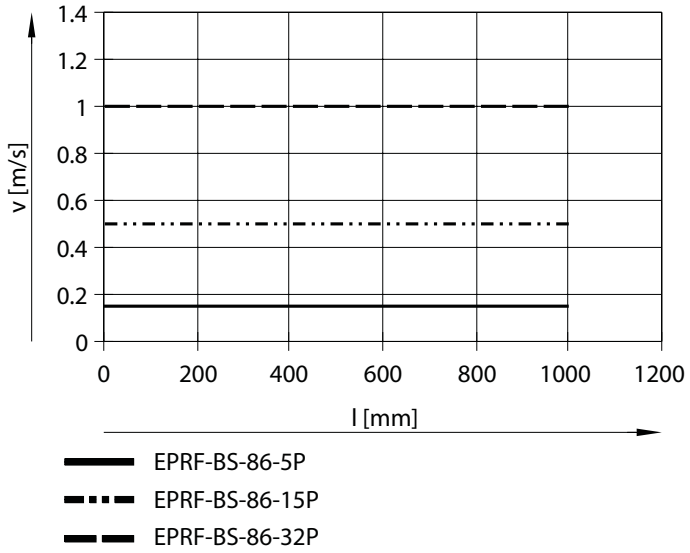


Feed speed v as a function of stroke length l for size 75



Datasheet

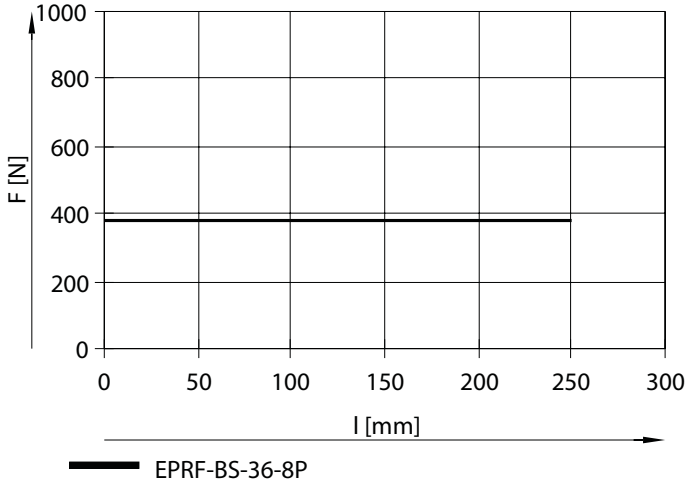
Feed speed v as a function of stroke length l for size 86



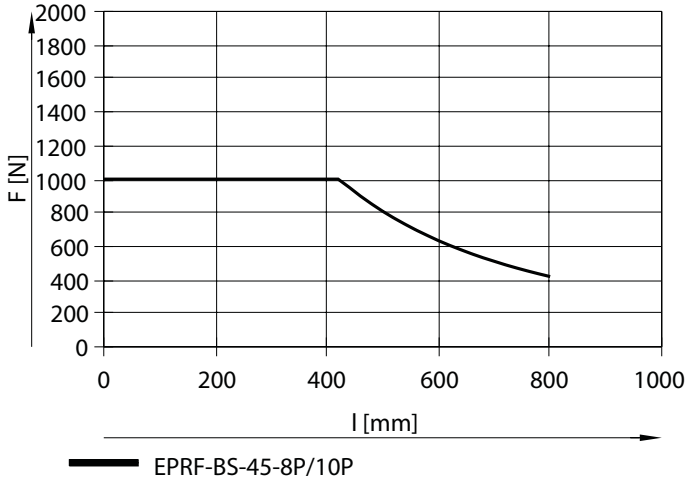
Max. compressive force F as a function of piston rod length l

The compressive force must be limited depending on the stroke because of possible buckling.
The tensile force is not affected by this.

Max. compressive force F as a function of piston rod length l for size 36

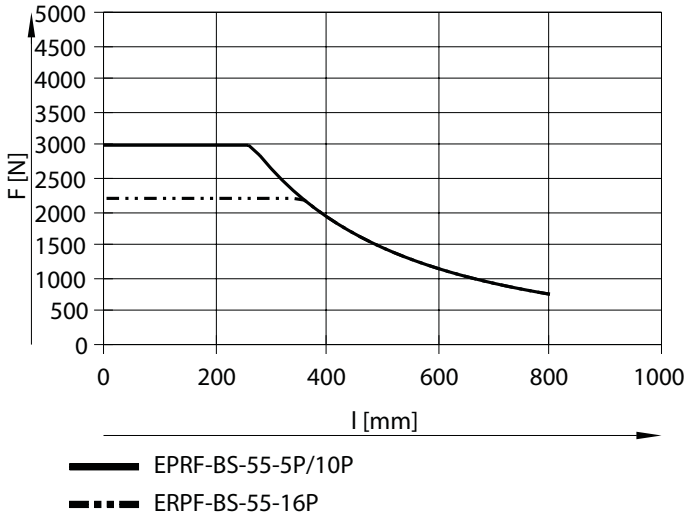


Max. compressive force F as a function of piston rod length l for size 45

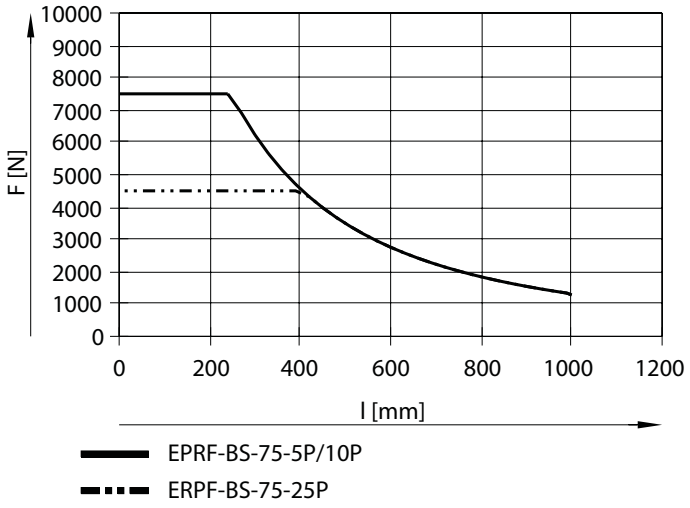


Datasheet

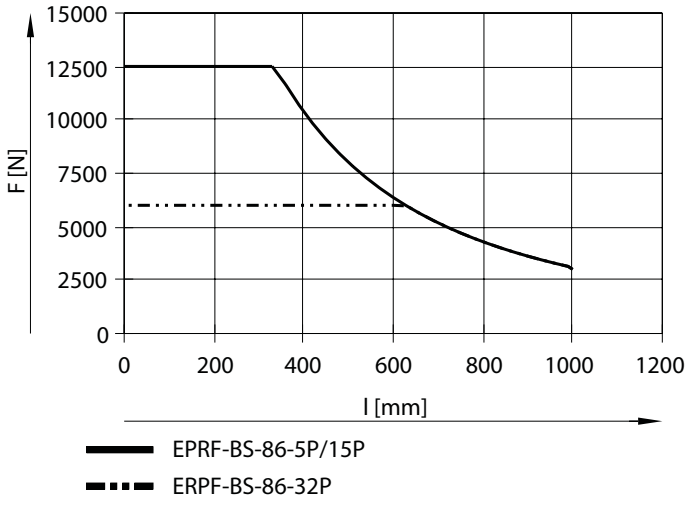
Max. compressive force F as a function of piston rod length l for size 55



Max. compressive force F as a function of piston rod length l for size 75

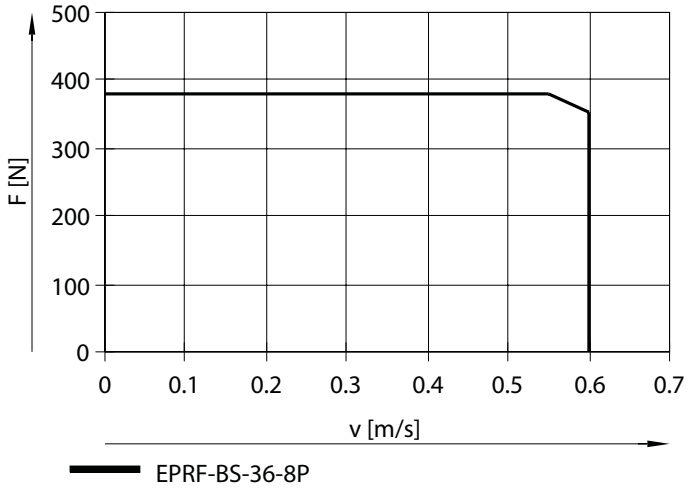


Max. compressive force F as a function of piston rod length l for size 86

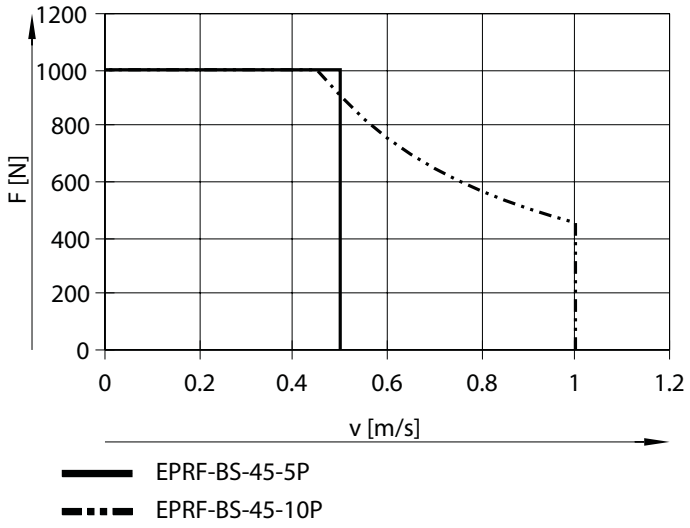


Datasheet

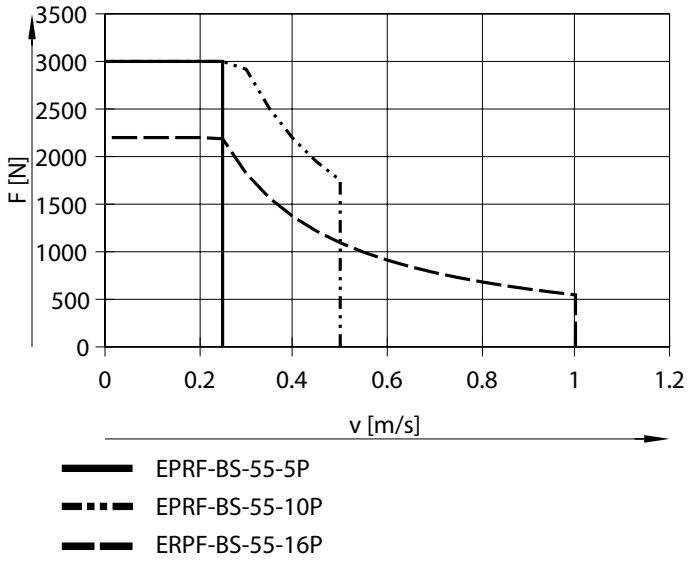
Max. feed force F as a function of feed speed v for size 36



Max. feed force F as a function of feed speed v for size 45

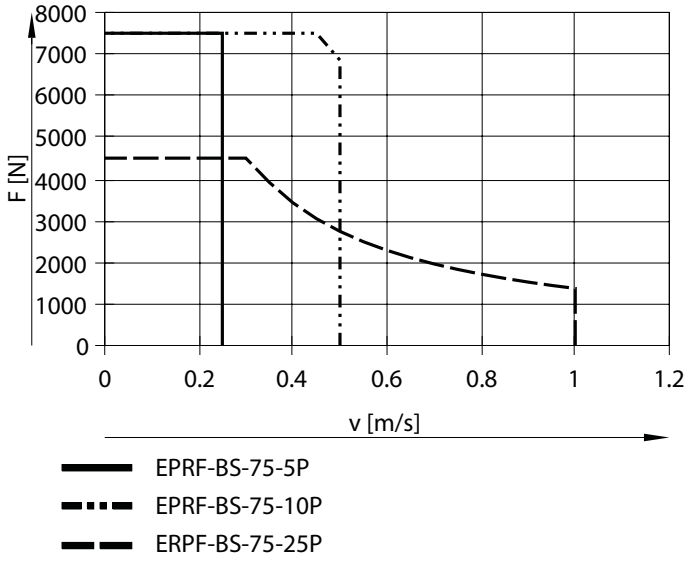


Max. feed force F as a function of feed speed v for size 55

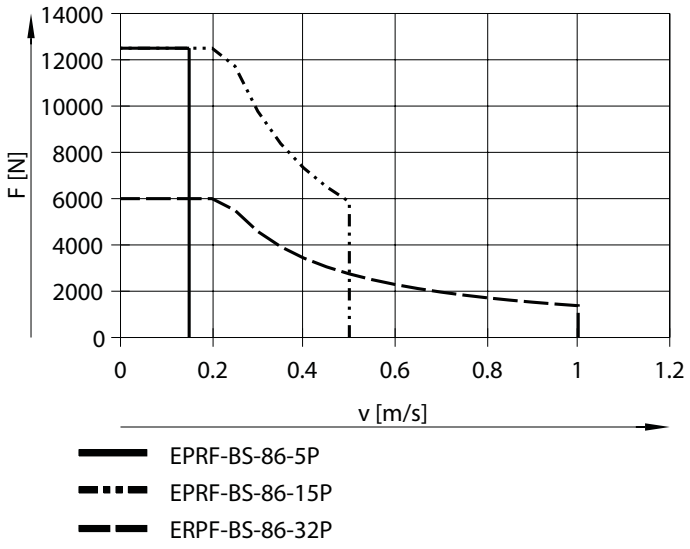


Datasheet

Max. feed force F as a function of feed speed v for size 75



Max. feed force F as a function of feed speed v for size 86



Datasheet

Calculating the mean feed force F (to DIN 69051-4)

$$F_{xm=}\sqrt[3]{\sum F_x^3 \cdot \frac{v_x}{v_{xm}} \cdot \frac{q}{100}} =$$

$$F_{xm=}\sqrt[3]{F_{x1}^3 \cdot \frac{v_{x1}}{v_{xm}} \cdot \frac{q_1}{100} + F_{x2}^3 \cdot \frac{v_{x2}}{v_{xm}} \cdot \frac{q_2}{100} + F_{x3}^3 \cdot \frac{v_{x3}}{v_{xm}} \cdot \frac{q_3}{100} + \cdots}$$

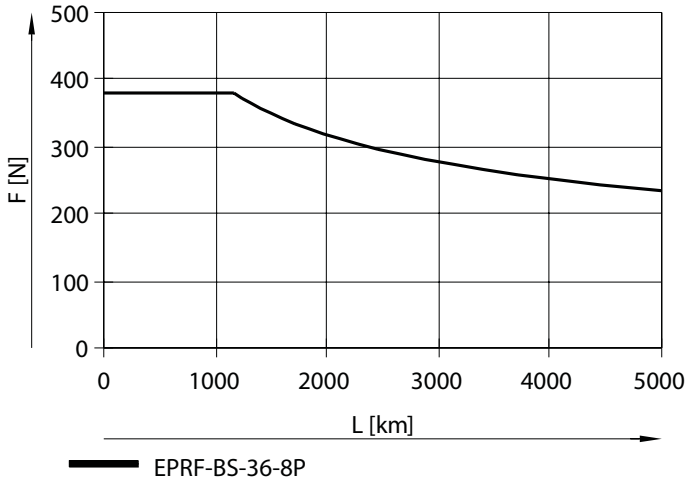
The peak feed force value must not exceed the maximum feed force within a movement cycle. The peak value is generally achieved in vertical operation during the acceleration phase of the upwards stroke. If the maximum feed force is exceeded, this can increase wear and thus shorten the service life of the ball screw. The maximum speed must likewise not be exceeded:
During operation, the continuous feed force may be briefly exceeded up to the maximum feed force. However, the continuous feed force must be adhered to when averaged out over a movement cycle.

Mean feed speed v (according to DIN 69051-4)

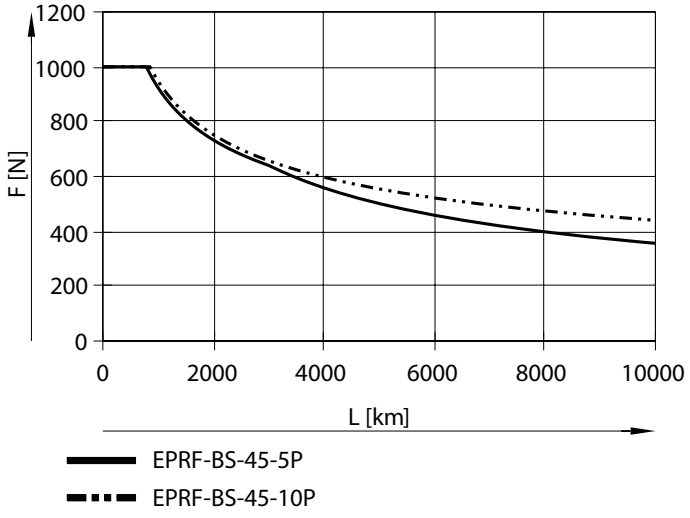
$$v_{xm} = \boxtimes \quad v_x \cdot \frac{q}{100} = v_{x1} \cdot \frac{q_1}{100} + v_{x2} \cdot \frac{q_2}{100} + v_{x3} \cdot \frac{q_3}{100} + \cdots$$

Fx = feed force
Fxm = average feed force
q = time fraction
vx = feed speed
vxm = average feed rate

Mean feed force F as a function of running performance L, at an operating coefficient of 1.0 and room temperature for size 36

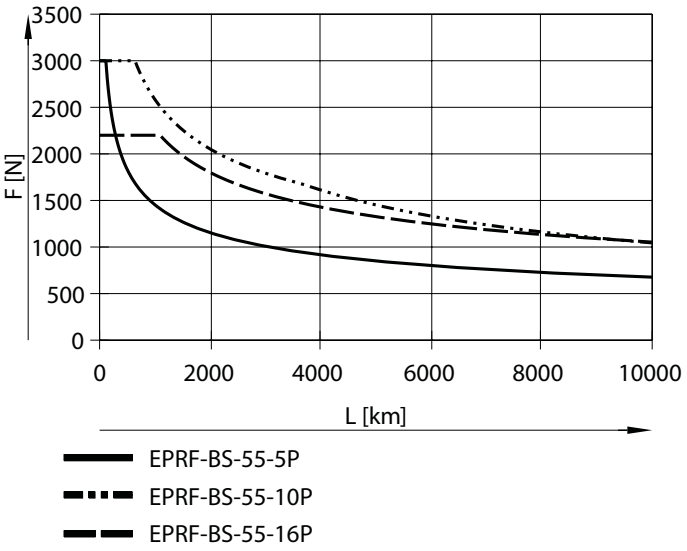


Mean feed force F as a function of running performance L, at an operating coefficient of 1.0 and room temperature for size 45



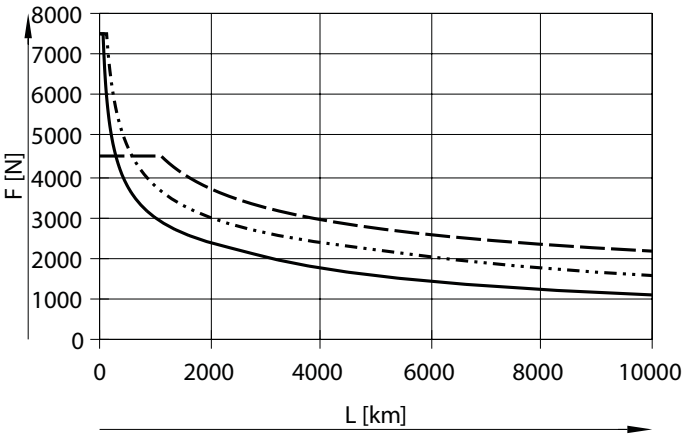
Datasheet

Mean feed force F as a function of running performance L, at an operating coefficient of 1.0 and room temperature for size 55



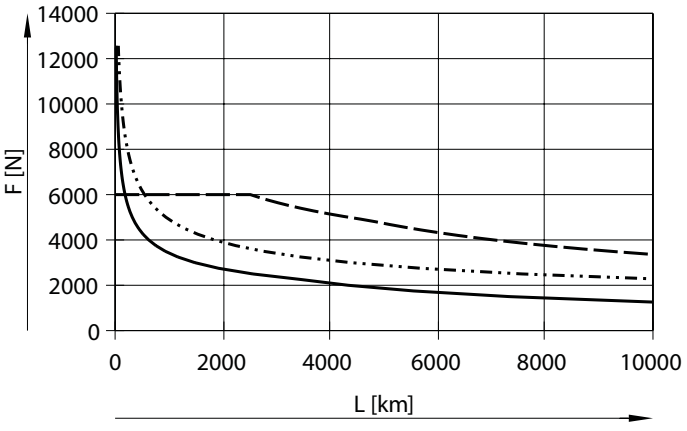
EPRF-BS-55-5P
EPRF-BS-55-10P
EPRF-BS-55-16P

Mean feed force F as a function of running performance L, at an operating coefficient of 1.0 and room temperature for size 75



EPRF-BS-75-5P
EPRF-BS-75-10P
EPRF-BS-75-25P

Mean feed force F as a function of running performance L, at an operating coefficient of 1.0 and room temperature for size 86



EPRF-BS-86-5P
EPRF-BS-86-15P
EPRF-BS-86-32P

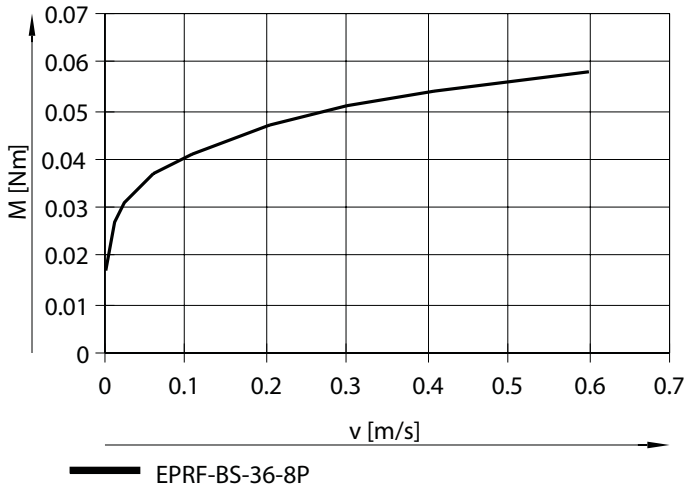
Datasheet

Service life taking into account the operating coefficient

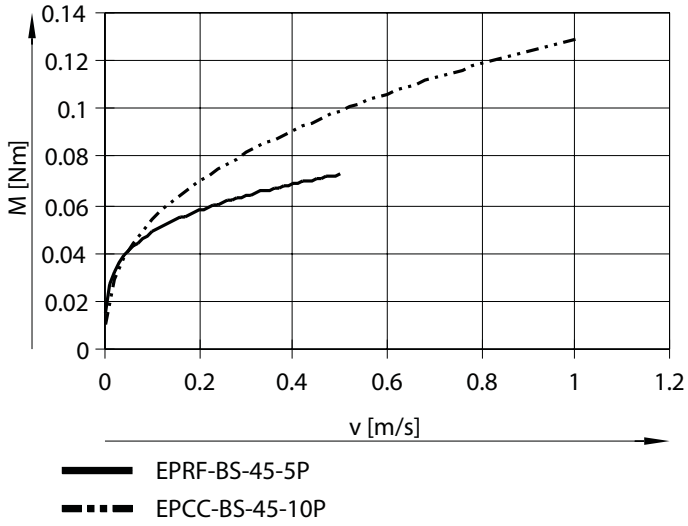
$$L_1 = \frac{L}{f_B^3}$$

Operating coefficient fb
1.0 ... 1.2 (for measuring machine)
1.2 ... 1.4 (for handling technology, robotics)
1.4 ... 1.6 (for press-fitting operations)
1.6 ... 2.0 (for construction, agriculture)
L1 = service life with operating coefficient fB
L = service life with fB=1.0
fB = operating coefficient
This refers to stress due to impact, temperature, contamination, shock and vibrations that affect the cylinder or piston rod.

Frictional torque M as a function of feed speed v for size 36

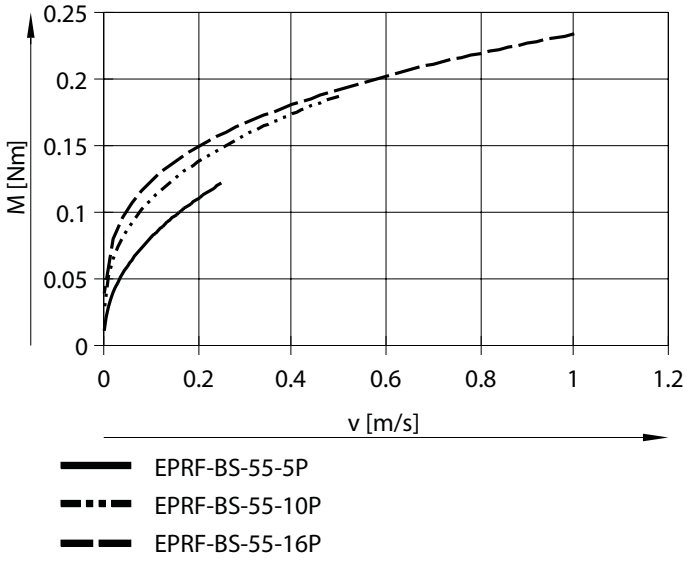


Frictional torque M as a function of feed speed v for size 45



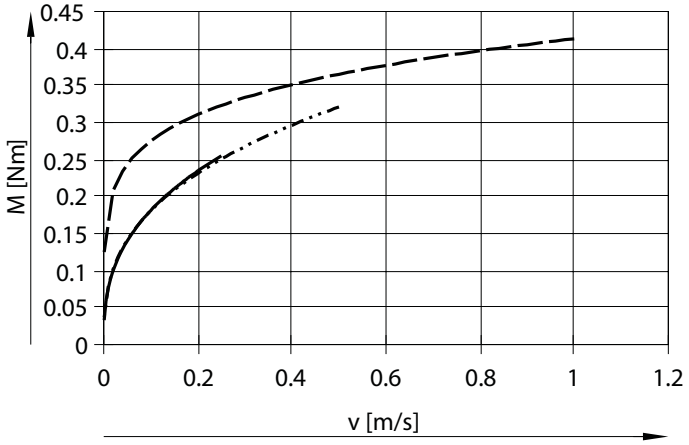
Datasheet

Frictional torque M as a function of feed speed v for size 55



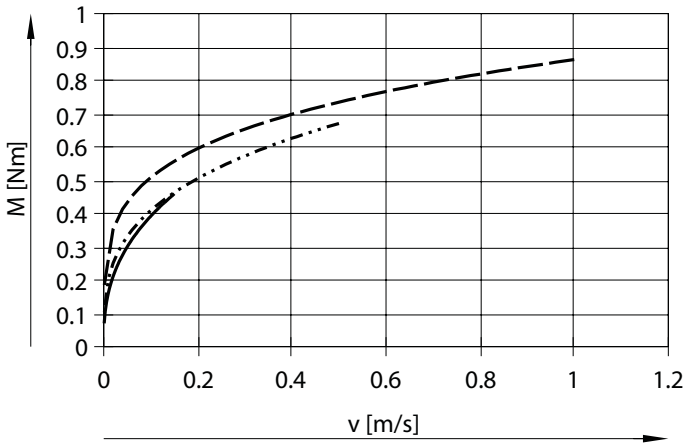
EPRF-BS-55-5P
EPRF-BS-55-10P
EPRF-BS-55-16P

Frictional torque M as a function of feed speed v for size 75



EPRF-BS-75-5P
EPRF-BS-75-10P
EPRF-BS-75-25P

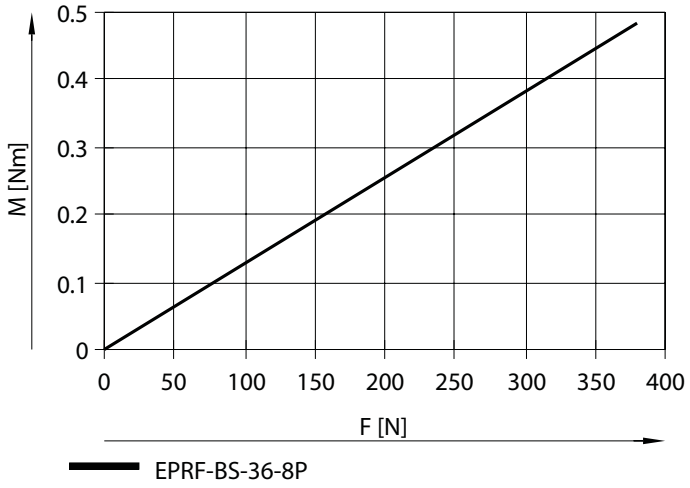
Frictional torque M as a function of feed speed v for size 86



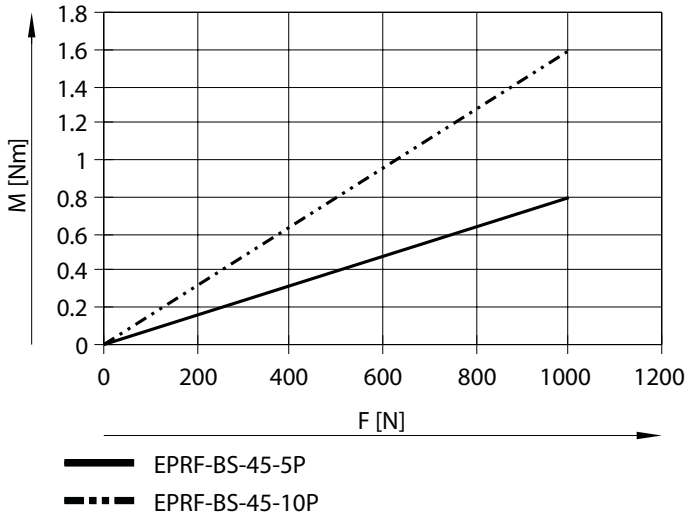
EPRF-BS-86-5P
EPRF-BS-86-15P
EPRF-BS-86-32P

Datasheet

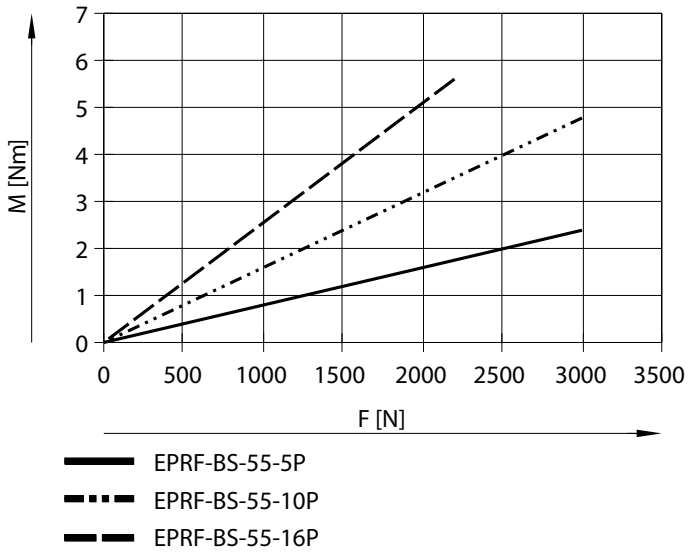
Effective torque M as a function of feed force F for size 36



Effective torque M as a function of feed force F for size 45

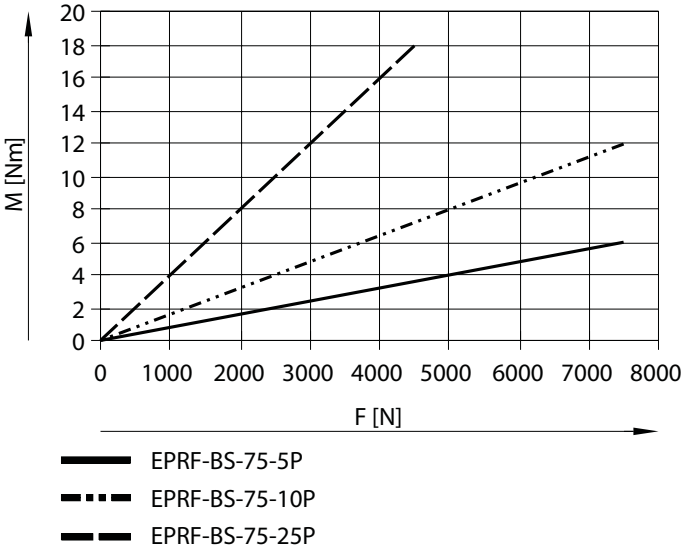


Effective torque M as a function of feed force F for size 55

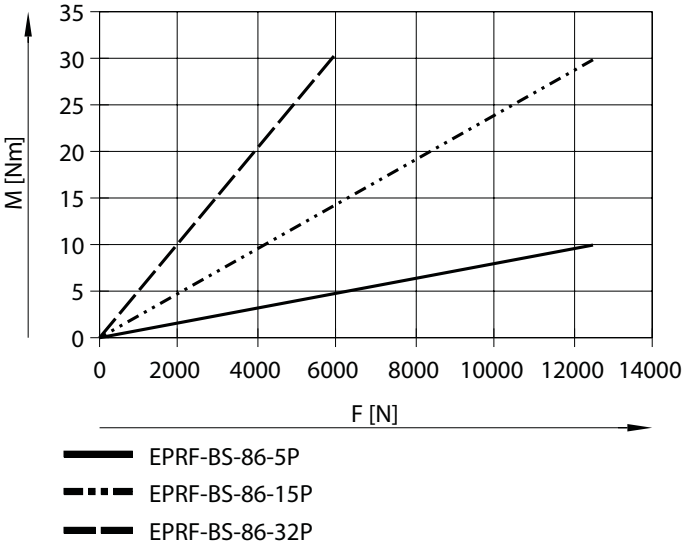


Datasheet

Effective torque M as a function of feed force F for size 75

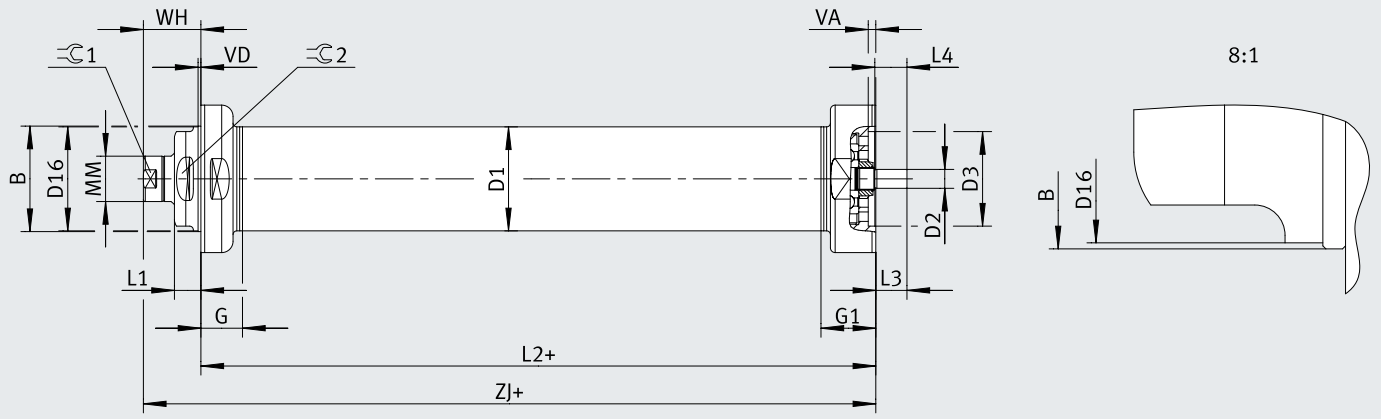


Effective torque M as a function of feed force F for size 86



Datasheet

Dimensions – EPRF-... Download CAD data ➔ www.festo.com



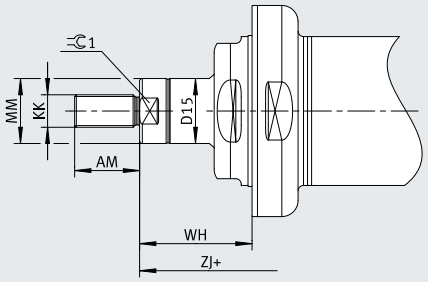
+ = plus stroke length

	B ø	D1 ø	D2 ø	D3 ø H7	D16 ø -0.1	G	G1	L1 ±0.1	L2 ±0.7	L3
EPRF-BS-36	37	36	$6_{+0.006/-0.004}$	42	36	20	24	10.5	119	15.5+1/-0.8
EPRF-BS-45	45.7	45	8h7	42	45	22	26	13.5	130	16.4+0.9/-1.1
EPRF-BS-55	55.8	55	10h7	50	55	22	29	14	157	16.6+0.9/-1.7
EPRF-BS-75	75.8	75	16h7	68	75	25	38	20	211	23.2+1.2/-0.9
EPRF-BS-86	87.3	86	19h7	80	86	32	43	25	253	28+1.2/-0.9

	L4 ±0.2	MM -0.1	VA	VD	WH ±2	ZJ+ ±1.9	⌯1	⌯2
EPRF-BS-36	15	16	3.5	1.5	25	144	13	32
EPRF-BS-45	17.5	20	4	1.5	27.5	157.5	17	41
EPRF-BS-55	17	24	4	1.5	29	186	22	50
EPRF-BS-75	23	32	4	1.5	34.5	245.5	27	65
EPRF-BS-86	31	40	4	1.5	44.5	297.5	36	75

Datasheet

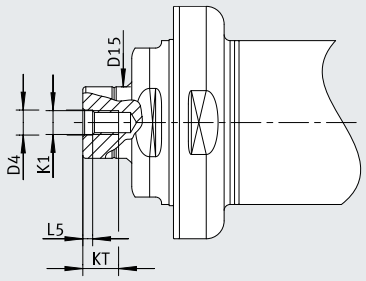
Dimensions – EPRF-... (Male thread) Download CAD data ➔ www.festo.com



+ = plus stroke length

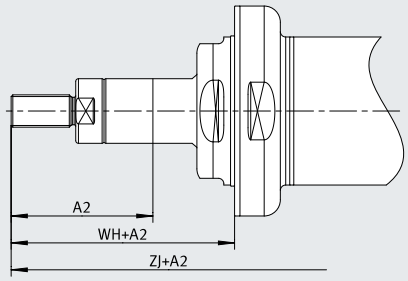
	AM -0.5	D15 ⌀	KK	MM -0.1	WH ±2	ZJ ±1,9	⌀C1
EPRF-BS-36	16	$16_{-0.06}$	M8	16	25	144	13
EPRF-BS-45	22	$20_{-0.06}$	M10x1.25	20	27,5	157,5	17
EPRF-BS-55	24	$24_{-0.07}$	M12x1.25	24	29	186	22
EPRF-BS-75	32	$32_{-0.08}$	M16x1.5	32	34,5	245,5	27
EPRF-BS-86	40	$40_{-0.08}$	M20x1.5	40	44,5	297,5	36

Dimensions – EPRF-...-F (female thread) Download CAD data ➔ www.festo.com



	D4 ⌀ +0.2	D15 ⌀	K1	KT min.	L5 ±0.2
EPRF-BS-36	6.4	$16_{-0.06}$	M6	12	2.6
EPRF-BS-45	6.4	$20_{-0.06}$	M6	12	2.6
EPRF-BS-55	8.4	$24_{-0.07}$	M8	12	3.3
EPRF-BS-75	10.5	$32_{-0.08}$	M10	16	4.7
EPRF-BS-86	13	$40_{-0.08}$	M12	20	6.1

Dimensions – EPRF-...-E (piston rod extension) Download CAD data ➔ www.festo.com

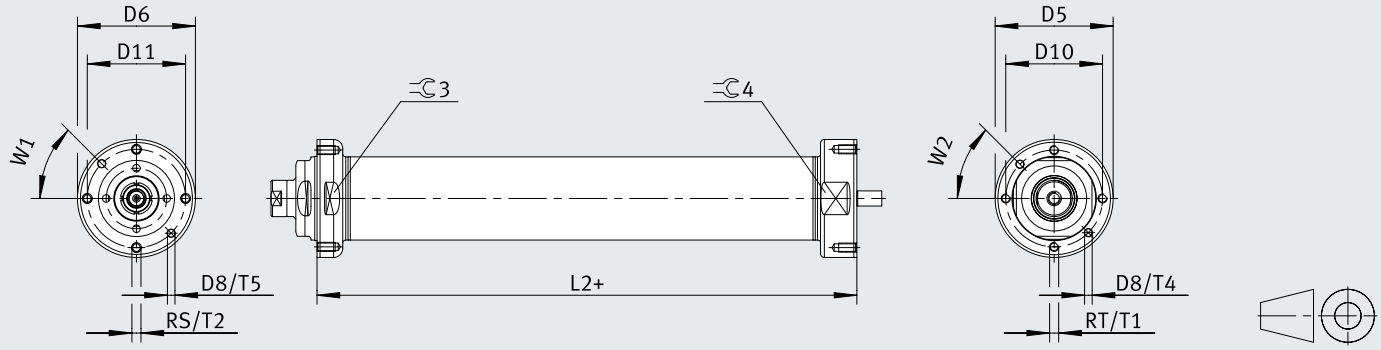


+ = plus stroke length

	A2 max.	WH ±2	ZJ ±1,9
EPRF-BS-36	200	25	144
EPRF-BS-45	200	27.5	157,5
EPRF-BS-55	200	29	186
EPRF-BS-75	200	34.5	245,5
EPRF-BS-86	200	44.5	297,5

Datasheet

Dimensions – EPRF-...-M1 (flange mounting with thread) Download CAD data ➔ www.festo.com



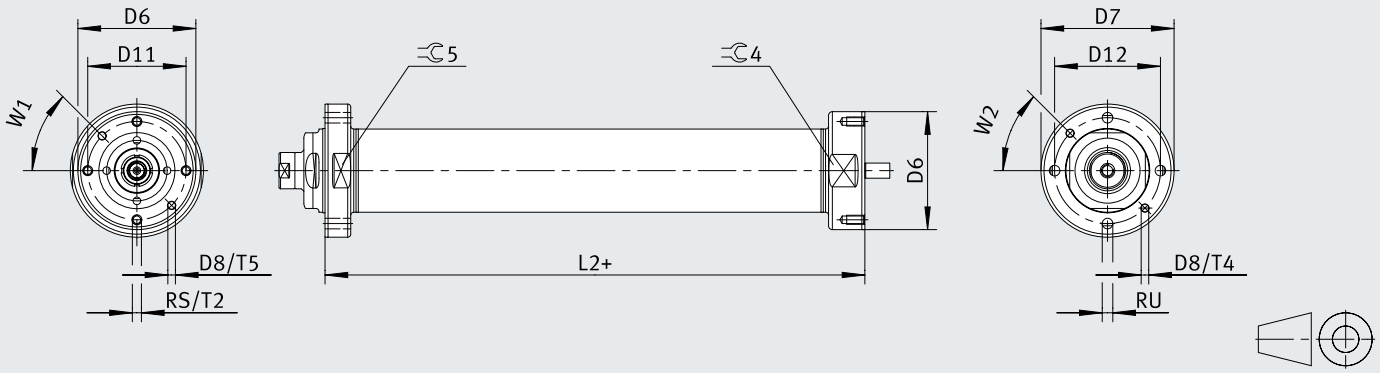
+ = plus stroke length

	D5 ø	D6 ø	D8 ø	D10 ø	D11 ø	L2 ±0.7	RS	RT
EPRF-BS-36	55	68	5	44	53	119	M5	M5
EPRF-BS-45	68	68	5	53	53	130	M5	M6
EPRF-BS-55	78	78	5	64	65	157	M6	M6
EPRF-BS-75	108	108	8	88	87	211	M8	M8
EPRF-BS-86	120	120	10	100	95	253	M10	M10

	T1	T2	T4	T5	W1	W2	=⊂3	=⊂4
EPRF-BS-36	10	10	5.5	5	45°	45°	50	65
EPRF-BS-45	12	10	5.5	5			65	65
EPRF-BS-55	12	12	5.5	5			75	75
EPRF-BS-75	12	16	6.5	6			100	100
EPRF-BS-86	17	20.5	8	8			115	115

Datasheet

Dimensions – EPRF-...-M2 (flange mounting with through hole) Download CAD data ➔ www.festo.com



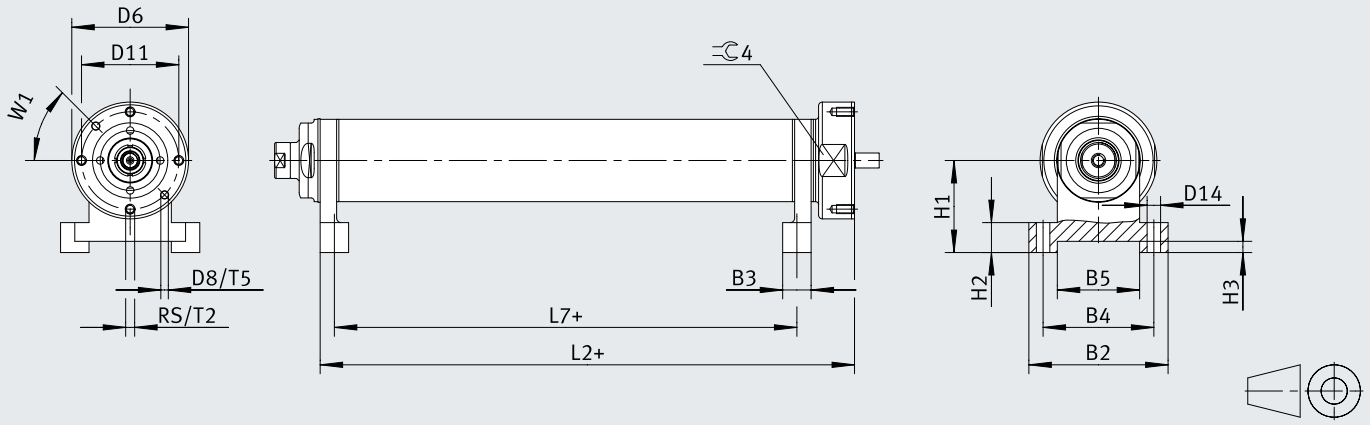
+ = plus stroke length

	D6 ø	D7 ø	D8 ø	D11 ø	D12 ø	L2 ±0.7	RS	RU ø
EPRF-BS-36	68	68	5	53	52	119	M5	5.5
EPRF-BS-45	68	78	5	53	61	130	M5	7
EPRF-BS-55	78	88	5	65	71.5	157	M6	6.6
EPRF-BS-75	108	120	8	87	96.5	211	M8	9
EPRF-BS-86	120	138	10	95	111	253	M10	11

	T2	T4	T5	W1	W2	⌯4	⌯5
EPRF-BS-36	10	5.5	5	45°	45°	65	65
EPRF-BS-45	10	5.5	5			65	75
EPRF-BS-55	12	5.5	5			75	85
EPRF-BS-75	16	6.5	6			100	114
EPRF-BS-86	20.5	8	8			115	133

Datasheet

Dimensions – EPRF-...-M3 (foot mounting) Download CAD data ➔ www.festo.com



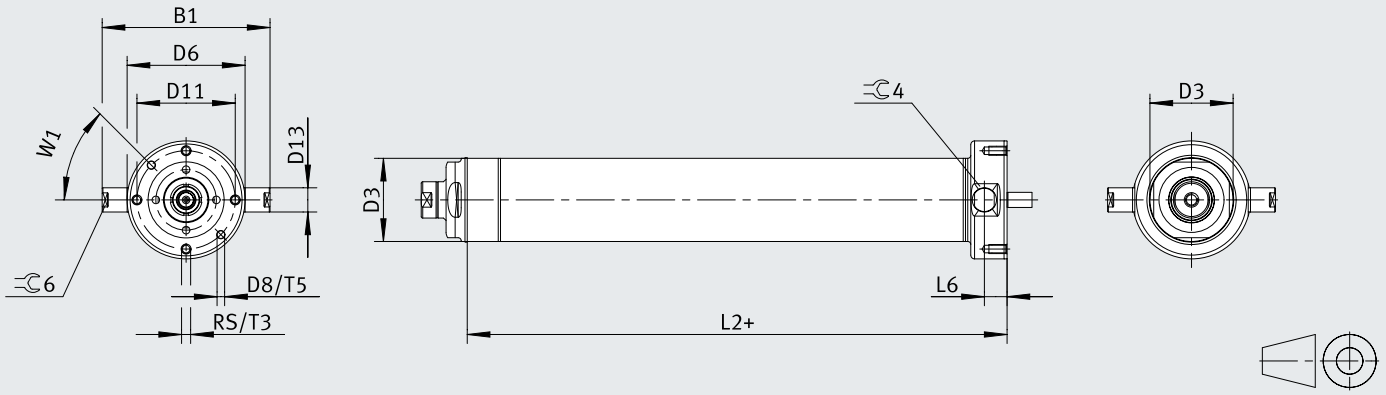
+ = plus stroke length

	B2	B3	B4 ±0.3	B5	D6 ø	D8 ø	D11 ø	D14 ø	H1
EPRF-BS-36	62	13	49	36	68	5	53	5.5	42
EPRF-BS-45	71	13	58	45	68	5	53	6.6	43.5
EPRF-BS-55	93	19	74	55	78	5	65	9	61.5
EPRF-BS-75	131	27	104	77	108	8	87	13.5	76.5
EPRF-BS-86	153	33	120	87	120	10	95	17.5	82

	H2	H3	L2 ±0.7	L7 ±0.5	RS	T2	T5	W1	⌯4
EPRF-BS-36	15	7.5	119	82	M5	10	5	45°	65
EPRF-BS-45	15	7.5	130	91	M5	10	5		65
EPRF-BS-55	20	7.5	157	109	M6	12	5		75
EPRF-BS-75	30	10	211	146	M8	16	6		100
EPRF-BS-86	30	12.5	253	177	M10	20.5	8		115

Datasheet

Dimensions – EPRF-...-M4 (trunnion mounting at rear) Download CAD data ➔ www.festo.com



+ = plus stroke length

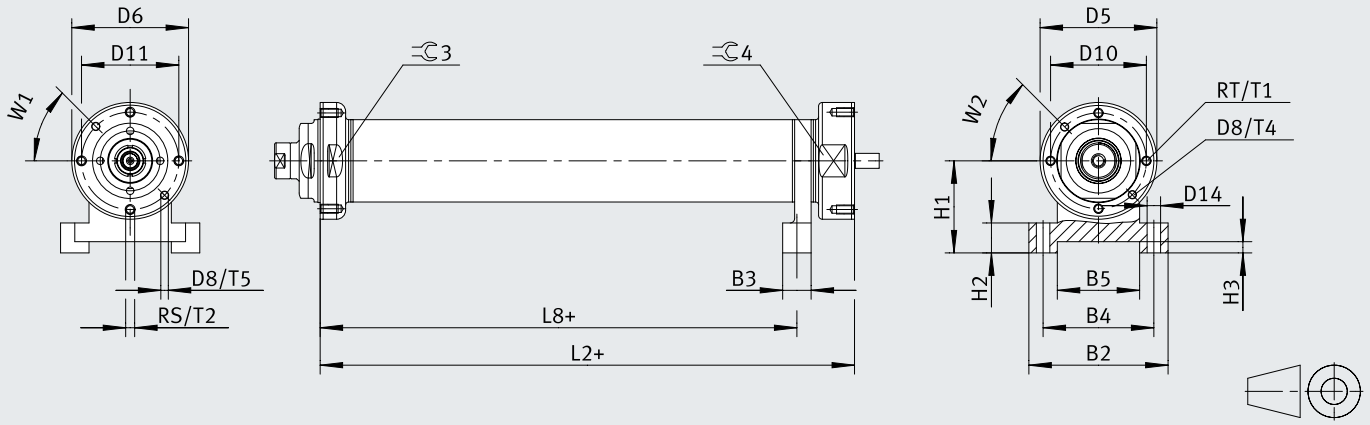
	B1 ø	D3 ø H7	D6 ø	D8 ø	D11 ø	D13 ø e10	L2 ±0.7
EPRF-BS-36	93	42	68	5	53	12	119
EPRF-BS-45	93	42	68	5	53	12	130
EPRF-BS-55	111	50	78	5	65	16	157
EPRF-BS-75	144	68	108	8	87	20	211
EPRF-BS-86	163	80	120	10	95	24	253

	L6	RS	T3	T5	W1	⌭4	⌭6
EPRF-BS-36	12.5	M5	9.5	5	45°	65	10
EPRF-BS-45	14	M5	10	5		65	10
EPRF-BS-55	15	M6	11	5		75	13
EPRF-BS-75	21	M8	16	6		100	17
EPRF-BS-86	25	M10	17	8		115	21

Datasheet

Dimensions – EPRF-...-M5 (flange mounting with thread plus rear foot mounting)

Download CAD data ➔ www.festo.com



+ = plus stroke length

	B2	B3	B4 ±0.3	B5	D5 Ø	D6 Ø	D8 Ø	D10 Ø	D11 Ø
EPRF-BS-36	55	68	5	44	55	68	5	44	53
EPRF-BS-45	68	68	5	53	68	68	5	53	53
EPRF-BS-55	78	78	5	64	78	78	5	64	65
EPRF-BS-75	108	108	8	88	108	108	8	88	87
EPRF-BS-86	120	120	10	100	120	120	10	100	95

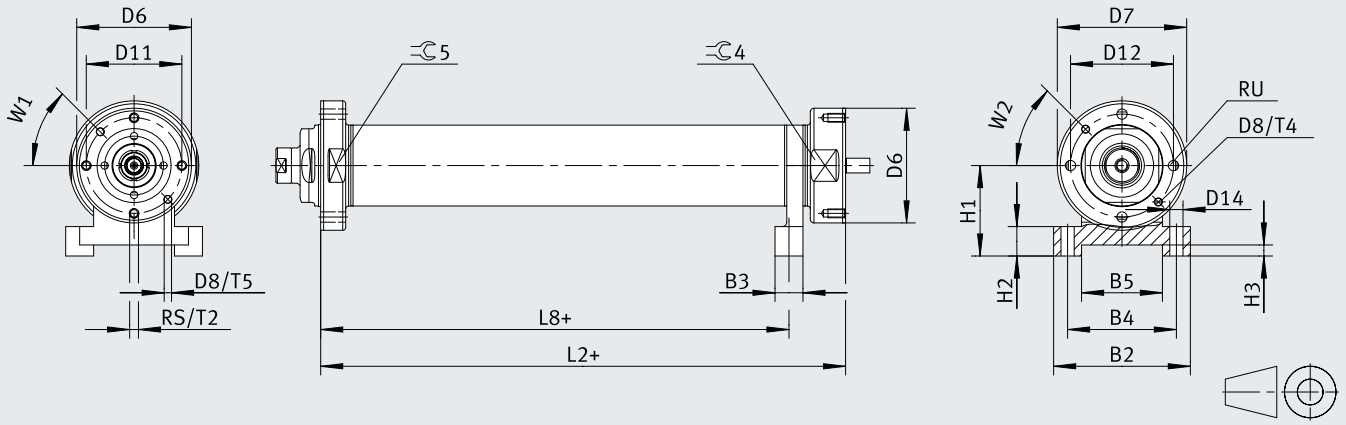
	D14 Ø	H1	H2	H3	L2 ±0.7	L8 ±0.5	RS	RT
EPRF-BS-36	5.5	42	15	7.5	119	88.5	M5	M5
EPRF-BS-45	6.6	43.5	15	7.5	130	97.5	M5	M6
EPRF-BS-55	9	61.5	20	7.5	157	118.5	M6	M6
EPRF-BS-75	13.5	76.5	30	10	211	159.5	M8	M8
EPRF-BS-86	17.5	82	30	12.5	253	193.5	M10	M10

	T1	T2	T4	T5	W1	W2	3	4
EPRF-BS-36	10	10	5.5	5	45°	45°	50	65
EPRF-BS-45	12	10	5.5	5			65	65
EPRF-BS-55	12	12	5.5	5			75	75
EPRF-BS-75	12	16	6.5	6			100	100
EPRF-BS-86	17	20.5	8	8			115	115

Datasheet

Dimensions – EPRF-...-M6 (flange mounting with through-hole plus rear foot mounting)

Download CAD data ➔ www.festo.com



+ = plus stroke length

	B2	B3	B4 ±0.3	B5	D6 ø	D7 ø	D8 ø	D11 ø
EPRF-BS-36	62	13	49	36	68	68	5	53
EPRF-BS-45	71	13	58	45	68	78	5	53
EPRF-BS-55	93	19	74	55	78	88	5	65
EPRF-BS-75	131	27	104	77	108	120	8	87
EPRF-BS-86	153	33	120	87	120	138	10	95

	D12 ø	D14 ø	H1	H2	H3	L2 ±0.7	L8 ±0.5	RS
EPRF-BS-36	52	5.5	42	15	7.5	119	88.5	M5
EPRF-BS-45	61	6.6	43.5	15	7.5	130	97.5	M5
EPRF-BS-55	70	9	61.5	20	7.5	157	118.5	M6
EPRF-BS-75	95	13.5	76.5	30	10	211	159.5	M8
EPRF-BS-86	111	17.5	82	30	12.5	253	193.5	M10

	RU ø	T2	T4	T5	W1	W2	4	5
EPRF-BS-36	5.5	10	5.5	5	45°	45°	65	65
EPRF-BS-45	5.5	10	5.5	5			65	75
EPRF-BS-55	5.5	12	5.5	5			75	85
EPRF-BS-75	6.5	16	6.5	6			100	110
EPRF-BS-86	8	20.5	8	8			115	133

Datasheet

Ordering data

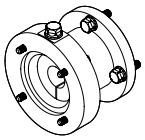
Size	Stroke	Screw pitch	Part no.	Type
36	50 mm	8 mm/rev	**8211879**	**EPRF-BS-36-50-8P-F-M1**
	100 mm		**8211880**	**EPRF-BS-36-100-8P-F-M1**
	200 mm		**8211881**	**EPRF-BS-36-200-8P-F-M1**
45	50 mm	5 mm/rev	**8211883**	**EPRF-BS-45-50-5P-F-M1**
	100 mm		**8211884**	**EPRF-BS-45-100-5P-F-M1**
	200 mm		**8211885**	**EPRF-BS-45-200-5P-F-M1**
	300 mm		**8211886**	**EPRF-BS-45-300-5P-F-M1**
55	50 mm	10 mm/rev	**8224148**	**EPRF-BS-55-50-10P-F-M1**
	100 mm		**8211888**	**EPRF-BS-55-100-10P-F-M1**
	200 mm		**8211889**	**EPRF-BS-55-200-10P-F-M1**
	300 mm		**8211890**	**EPRF-BS-55-300-10P-F-M1**
75	200 mm		**8211892**	**EPRF-BS-75-200-10P-F-M1**
	300 mm		**8211893**	**EPRF-BS-75-300-10P-F-M1**
	400 mm		**8211894**	**EPRF-BS-75-400-10P-F-M1**
86	200 mm	15 mm/rev	**8211896**	**EPRF-BS-86-200-15P-F-M1**
	300 mm		**8211897**	**EPRF-BS-86-300-15P-F-M1**
	400 mm		**8211898**	**EPRF-BS-86-400-15P-F-M1**

Ordering information – Modular product system

	Size	Stroke	Screw pitch	Part no.	Type
	36	25 ... 250 mm	8 mm/rev	**8211882**	**EPRF-BS-36- -**
	45	25 ... 800 mm	5 ... 10 mm/rev	**8211887**	**EPRF-BS-45- -**
	55	25 ... 800 mm	5 ... 16 mm/rev	**8211891**	**EPRF-BS-55- -**
	75	50 ... 1000 mm	5 ... 25 mm/rev	**8211895**	**EPRF-BS-75- -**
	86		5 ... 32 mm/rev	**8211899**	**EPRF-BS-86- -**

Accessories

Permitted axis/motor combinations for axial and parallel kits



Under the following links you will find all information about:
- Axis/motor combinations
- Permitted third-party motors
- Technical data
- Dimensions

For axial kits ➔ Internet: eamm-a
For parallel kits ➔ Internet: eamm-u