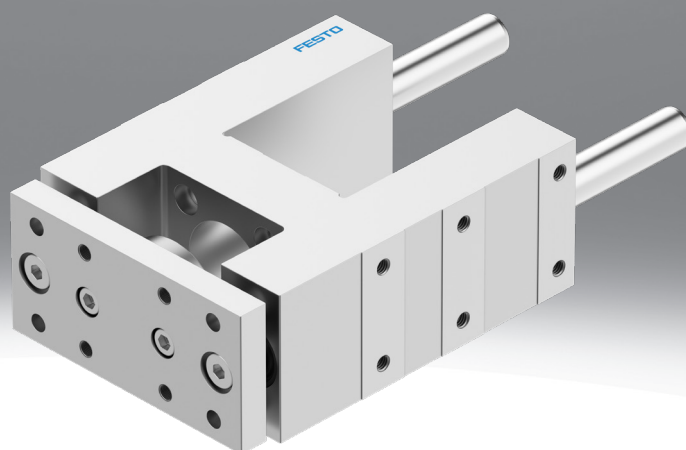


Guide unit, metric FENG

FESTO



Characteristics

At a glance

[Link](#)  [feng](#)

Guide units FENG protect ISOcylinders DSBC, DSBG and DNC against torsion when these are subjected to high torque loads. They offer a high level of guide precision for workpiece handling and other applications.

There are two guide variants to choose from:

- [GF] Plain-bearing guide
- [KF] Recirculating ball bearing guide

Position sensing:

- By using proximity switches, any position can be detected.
- For standards-based cylinders DNC, a mounting kit is required to sense the front end position. The rear end position can be sensed directly via the sensor slot.

Diagrams

[Link](#)  [feng](#)



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

Type code

001	Series	
FENG	Guide unit for standards-based cylinder to ISO 15552	

002	Size	
32	32 mm	
40	40 mm	
50	50 mm	
63	63 mm	
80	80 mm	
100	100 mm	

003	Stroke range [mm]	
...	10 ... 500	

004	Guide	
GF	Plain bearing	
KF	Recirculating ball bearing guide	

Datasheet

General technical data

Size	32 mm		40 mm		50 mm		63 mm		80 mm		100 mm	
Guide	Plain-bearing guide	Recirculating ball bearing guide	Plain-bearing guide	Recirculating ball bearing guide	Plain-bearing guide	Recirculating ball bearing guide	Plain-bearing guide	Recirculating ball bearing guide	Plain-bearing guide	Recirculating ball bearing guide	Plain-bearing guide	Recirculating ball bearing guide
Stroke	10 ... 500 mm											
Design	Guidance											
Displacement force	30 N	15 N	30 N	15 N	50 N	15 N	50 N	15 N	70 N	40 N	70 N	40 N
Type of mounting	Via female thread											
Mounting position	optional											
Ambient temperature	-20 ... 80°C											

Weight

Size	32 mm		40 mm		50 mm		63 mm		80 mm		100 mm	
Guide	Plain bearing	Recirculating ball bearing guide	Plain bearing	Recirculating ball bearing guide	Plain bearing	Recirculating ball bearing guide	Plain bearing	Recirculating ball bearing guide	Plain bearing	Recirculating ball bearing guide	Plain bearing	Recirculating ball bearing guide
Basic weight for 0 mm stroke	1,570 g	1,530 g	2,480 g	2,370 g	4,190 g	4,030 g	5,540 g	5,410 g	10,720 g	10,430 g	13,420 g	12,990 g
Additional weight per 10 mm stroke	17 g	18 g	31 g	32 g	48 g	49 g	48 g	49 g	76 g	77 g	76 g	77 g
Moving mass for 0 mm stroke	478 g	483 g	782 g	792 g	1,414 g	1,430 g	1,720 g	1,739 g	4,955 g	4,990 g	5,935 g	5,970 g
Additional moving mass per 10 mm stroke	17 g	18 g	31 g	32 g	48 g	49 g	48 g	49 g	76 g	77 g	76 g	77 g

Centre of gravity of the moving mass

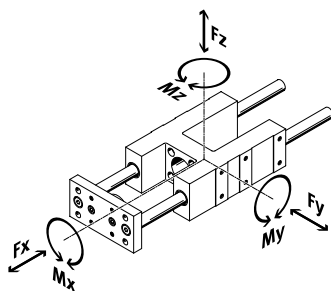
Centre of gravity of the moving mass						
Size	32 mm	40 mm	50 mm	63 mm	80 mm	100 mm
Centre of gravity at 0 mm stroke	43 mm	57 mm	60 mm	69 mm	54 mm	47 mm
Centre of gravity additional of moving mass per 10 mm	4.5 mm	4.7 mm		4.6 mm	3.9 mm	3.6 mm

Materials

Size	32 mm		40 mm		50 mm		63 mm		80 mm		100 mm	
Guide	Plain bearing	Recirculating ball bearing guide	Plain bearing	Recirculating ball bearing guide	Plain bearing	Recirculating ball bearing guide	Plain bearing	Recirculating ball bearing guide	Plain bearing	Recirculating ball bearing guide	Plain bearing	Recirculating ball bearing guide
Material housing	Anodised wrought aluminium alloy											
Material guide component	High-alloy steel	Tempered steel	High-alloy steel	Tempered steel	High-alloy steel	Tempered steel	High-alloy steel	Tempered steel	High-alloy steel	Tempered steel	High-alloy steel	Tempered steel
Material yoke plate	Anodised wrought aluminium alloy								Tempered steel			
Note on materials	RoHS-compliant											
LABS (PWIS) conformity	VDMA24364-B2-L											

Datasheet

Load values



The indicated forces and torques refer to the centre of the guide.

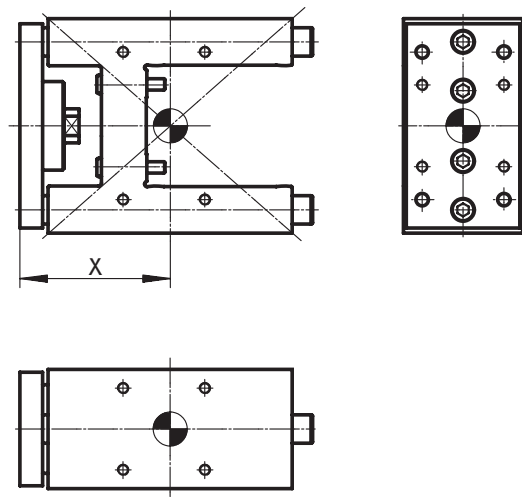
Size	32 mm	40 mm	50 mm	63 mm	80 mm	100 mm
Max. force Fy static	1,020 N	1,260 N	1,600 N		3,120 N	
Max. force Fz static	1,020 N	1,260 N	1,600 N		3,120 N	
Max. torque Mx static	38 Nm	55 Nm	83 Nm	95 Nm	231 Nm	268 Nm
Max. torque My static	46 Nm	65 Nm	89 Nm	115 Nm	259 Nm	267 Nm
Max. torque Mz static	46 Nm	65 Nm	89 Nm	115 Nm	259 Nm	267 Nm
Max. force Fy	750 N	1,000 N	1,260 N		2,300 N	
Max. force Fz	750 N	1,000 N	1,260 N		2,300 N	
Max. moment Mx	28 Nm	44 Nm	65 Nm	75 Nm	170 Nm	198 Nm
Max. moment My	34 Nm	52 Nm	70 Nm	90 Nm	191 Nm	197 Nm
Max. moment Mz	34 Nm	52 Nm	70 Nm	90 Nm	191 Nm	197 Nm

Load characteristics – Calculation of 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 guide unit is subjected to two or more of the indicated forces and torques simultaneously, the following equation must be satisfied in addition to the indicated maximum loads:

Load parameters – position of the centre of the guide

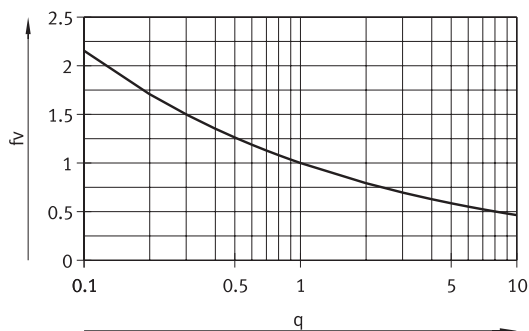


Distance X:

- FENG-32-...-KF: 83 mm
- FENG-40-...-KF: 85 mm
- FENG-50-...-KF: 99 mm
- FENG-63-...-KF: 117 mm
- FENG-80-...-KF: 142 mm
- FENG-100-...-KF: 145 mm

Datasheet

Calculating the service life



The service life of the guide depends on the load. To provide a rough indication of the service life of the guide, the graph below plots the load comparison factor f_v against the service life ratio q .

These values are only theoretical. You must consult your local contact at Festo for load comparison factors f_v greater than 1.5.

Load comparison factor f_v as a function of service life ratio q :

Example:

The effect on the service life, deviating from the specified reference service life, can be determined using the service life ratio q :

Where:

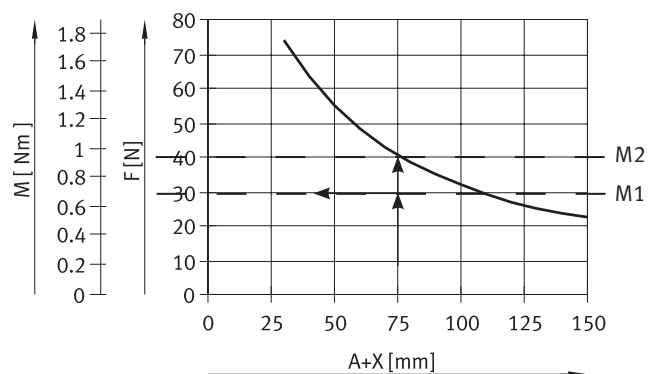
Reference service life = 5000 km

Required service life = 3000 km

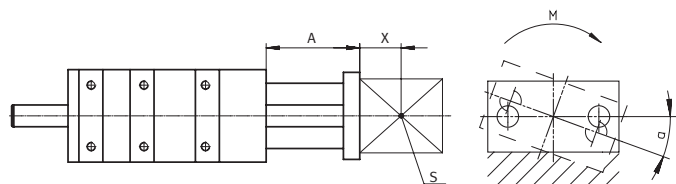
$$q = (3000 \text{ km} / 5000 \text{ km}) = 0.6$$

The graph shows a load comparison factor f_v of 1.2. This means that the permissible total load can be utilised up to 120%.

$f_v > 1.5$ are only theoretical comparison values.

Max. payload F and torque M as a function of projection A – Explanation of how to read the graphs in the case of a combined load

- Determine projection (75 mm)
- Enter proportion of payload (30 N)
- Enter distance from curve
- Permitted torque is the difference between M_2 and M_1

Max. payload F and torque M as a function of projection A – FENG-...-GF

A = projection

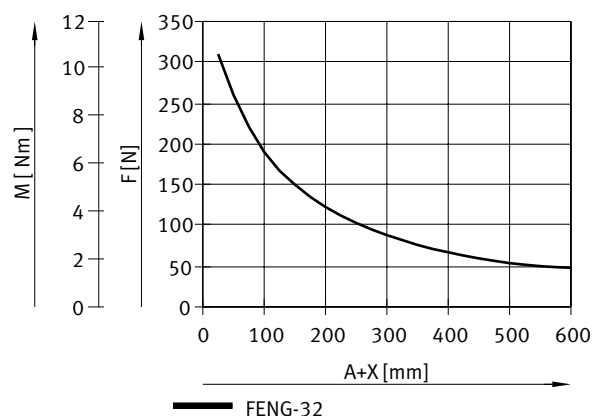
X = distance to the centre of gravity of the payload

S = centre of gravity of the payload

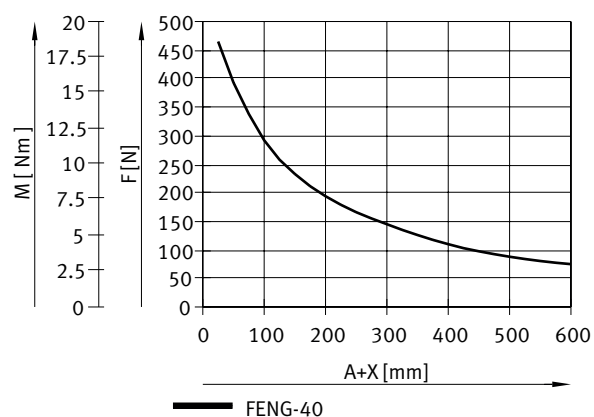
M = torque

Datasheet

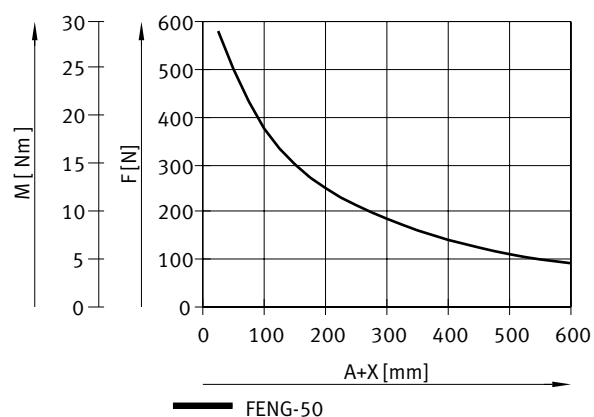
Max. payload F and torque M as a function of projection A – FENG-32-GF



Max. payload F and torque M as a function of projection A – FENG-40-GF

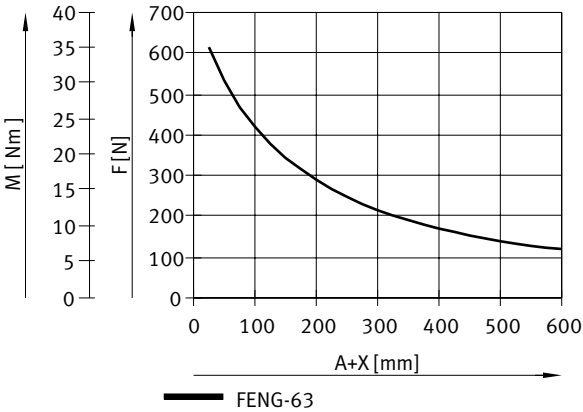


Max. payload F and torque M as a function of projection A – FENG-50-GF

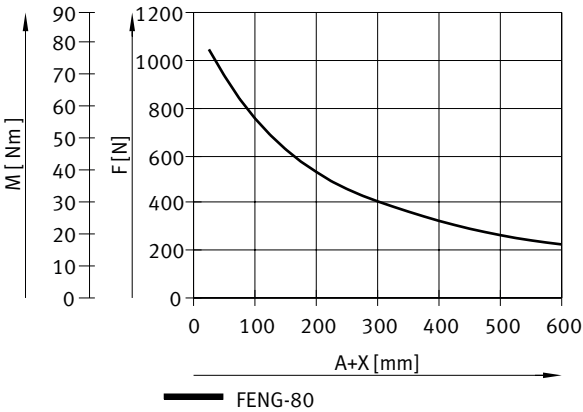


Datasheet

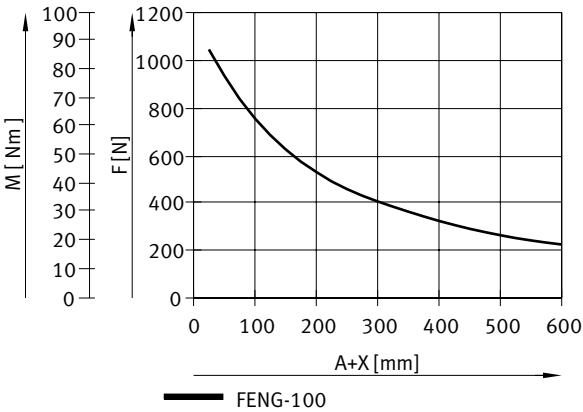
Max. payload F and torque M as a function of projection A – FENG-63-GF



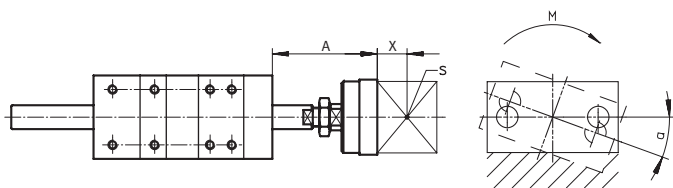
Max. payload F and torque M as a function of projection A – FENG-80-GF



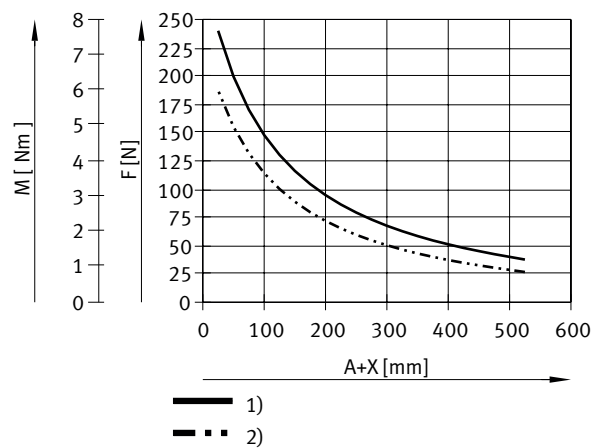
Max. payload F and torque M as a function of projection A – FENG-100-GF



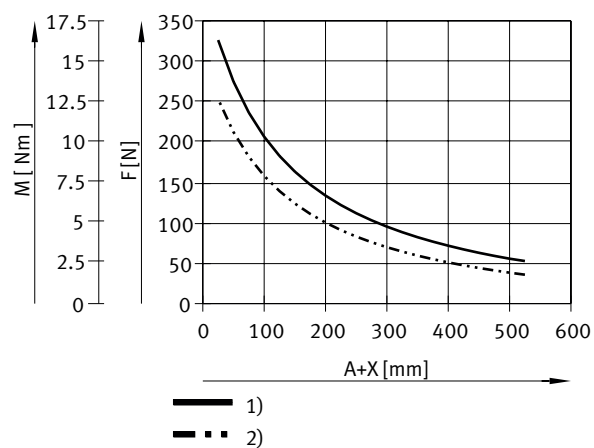
Datasheet

Max. payload F and torque M as a function of projection A – FENG-...-KF

A = projection
 X = distance to the centre of gravity of the payload
 S = centre of gravity of the payload
 M = torque

Max. payload F and torque M as a function of projection A – FENG-32-KF

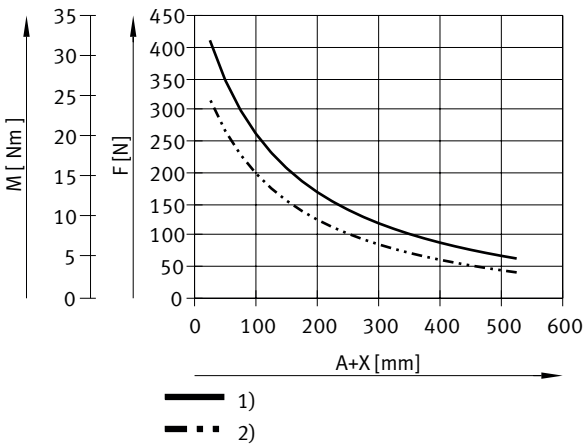
- 1) Running performance of 5000 km
- 2) Running performance of 10000 km

Max. payload F and torque M as a function of projection A – FENG-40-KF

- 1) Running performance of 5000 km
- 2) Running performance of 10000 km

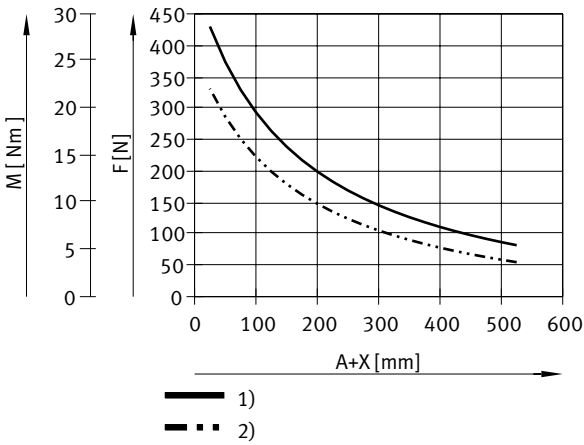
Datasheet

Max. payload F and torque M as a function of projection A – FENG-50-KF



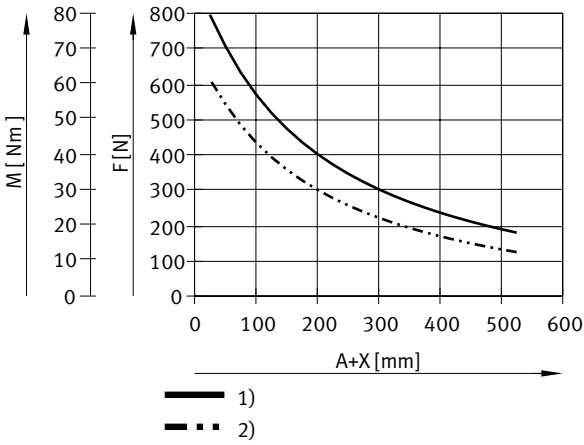
- 1) Running performance of 5000 km
- 2) Running performance of 10000 km

Max. payload F and torque M as a function of projection A – FENG-63-KF



- 1) Running performance of 5000 km
- 2) Running performance of 10000 km

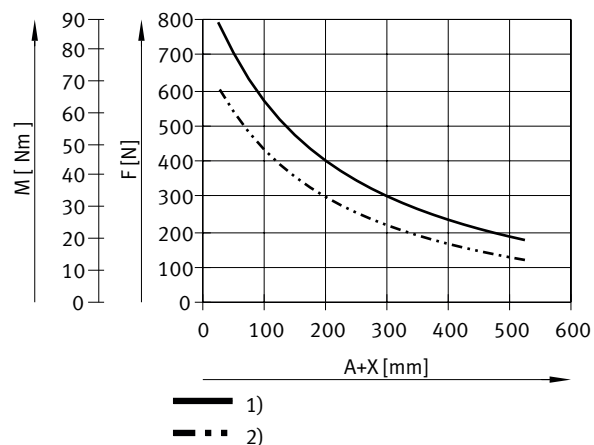
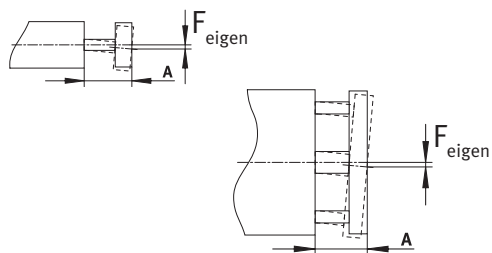
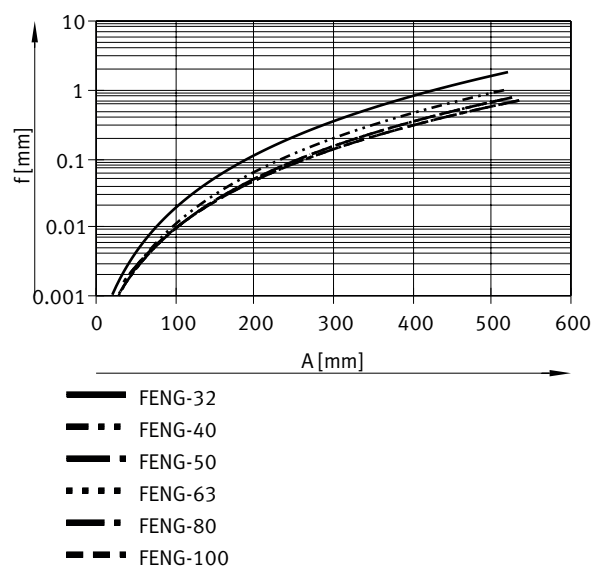
Max. payload F and torque M as a function of projection A – FENG-80-KF



- 1) Running performance of 5000 km
- 2) Running performance of 10000 km

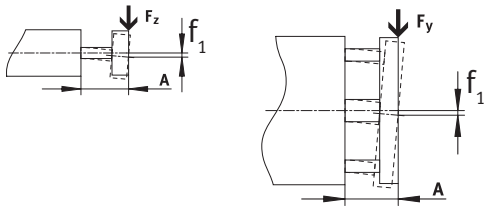
Datasheet

Max. payload F and torque M as a function of projection A – FENG-100-KF

Deflection f_{tare} (due to tare weight) as a function of projection ADeflection of f_{tare} (due to tare weight) as a function of projection A – FENG-32 ... 100-GF/KF

Datasheet

Deflection f_{standard} (due to lateral force) as a function of projection A



The maximum permissible lateral force must not be exceeded.

$$f_1 = (F_1/F_2) \cdot f_2$$

$$F_2 = 10 \text{ N}$$

A = projection for guide rod

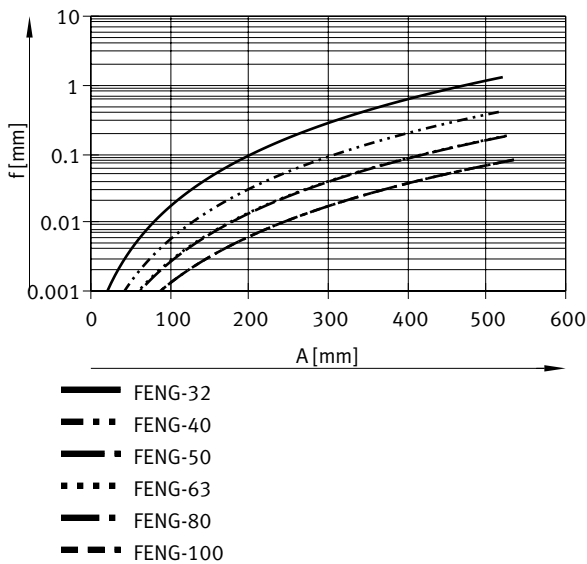
f_1 = deflection due to lateral force

F_1 = lateral force

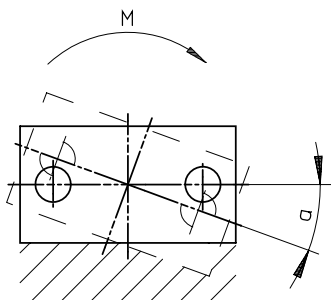
F_2 = standardised lateral force

f_2 = deflection due to standardised lateral force (value from graph)

Deflection f_{standard} (due to lateral force) as a function of projection A – FENG-32 ... 100-GF/KF



Incline a_1 (due to torque) as a function of projection A



$$a_1 = (M_1/M_2) \cdot a_2$$

$$M_2 = 2 \text{ Nm (valid for } \leq 10^\circ)$$

A = projection for guide rod

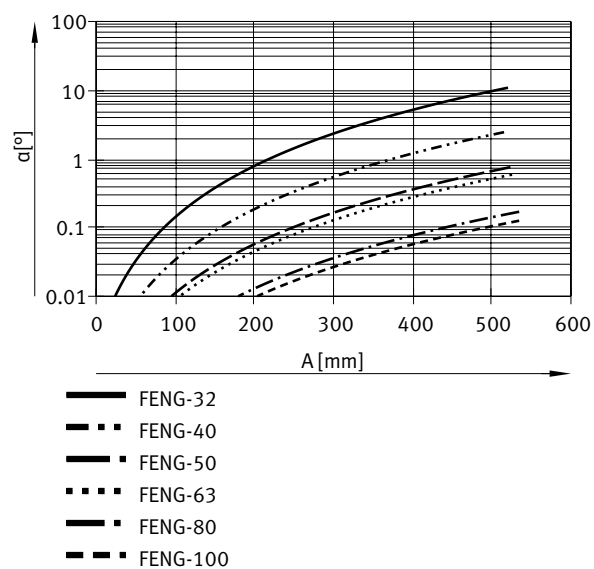
a_1 = incline due to torque

M_1 = torque

M_2 = standardised torque

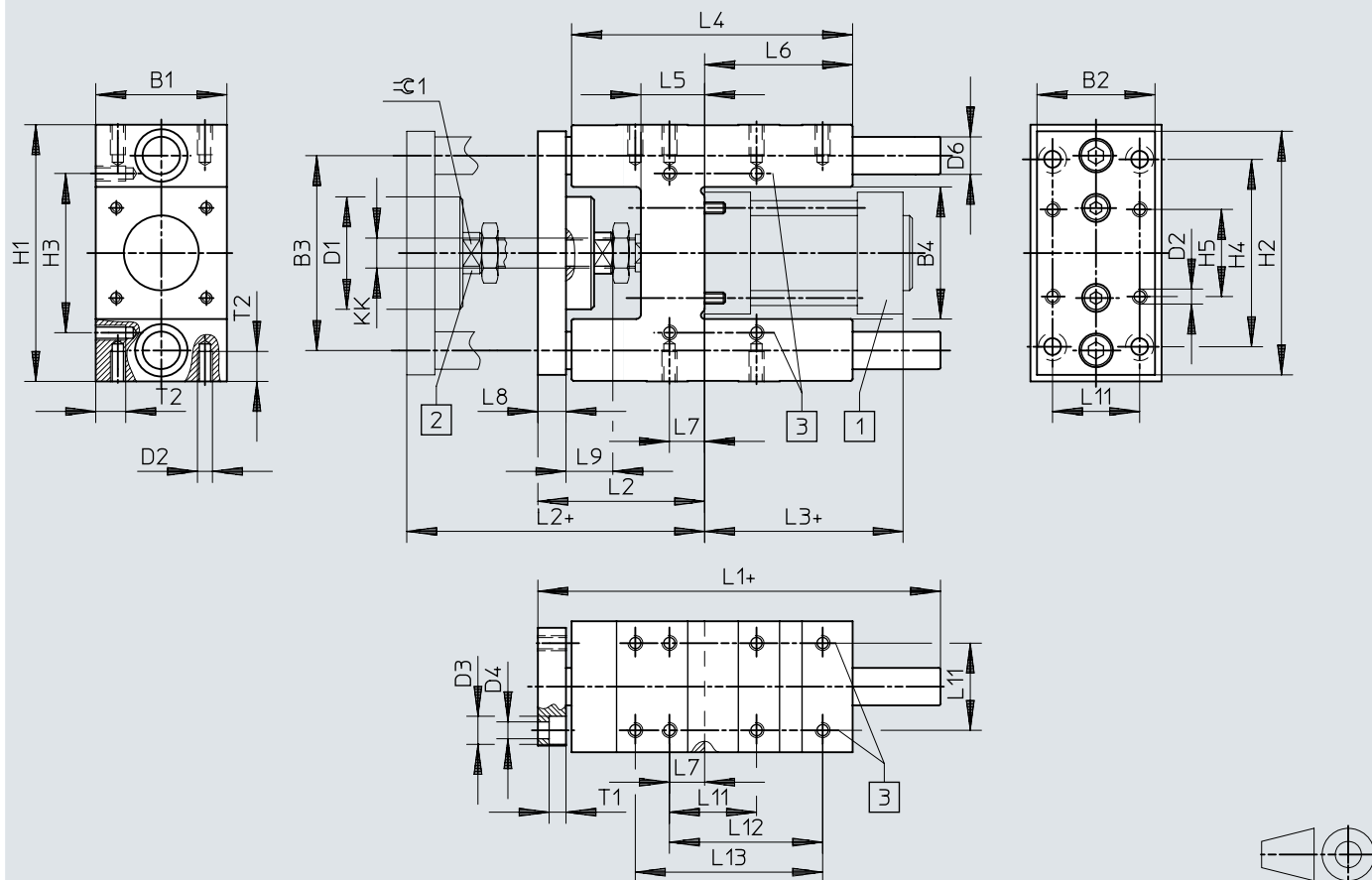
a_2 = deflection due to standardised lateral force

Datasheet

Incline α_1 (due to torque) as a function of projection A – FENG-32 ... 100-GF/KF

Dimensions

Dimensions – FENG-32 ... 100

Download CAD data www.festo.com

- [1] Cylinder DSNU
 [2] Compensating coupling for radial and axial alignment
 [3] Customers can drill additional mounting holes along these axes as required.
 [4] + = plus stroke length

	B1	B2	B3	B4	D1 ø	D2	D3 ø	D4 ø	D6 ¹⁾ ø	H1	H2	H3	H4	H5	KK
	-0,3		±0,2									±0,2	±0,2	±0,2	
FENG-32	50	45	74	50,5 ±0,3	45	M6	11	6,6	12	97 -0,4	90	61	78	32,5	M10x1,25
FENG-40	58	54	87	58,5 ±0,3	45	M6	11	6,6	16	115 -0,4	110	69	84	38	M12x1,25
FENG-50	70	63	104	70,5 ±0,3	60	M8	15	9	20	137 -0,5	130	85	100	46,5	M16x1,5
FENG-63	85	80	119	85,5 ±0,3	60	M8	15	9	20	152 -0,5	145	100	105	56,5	M16x1,5
FENG-80	105	100	148	106 ±0,6	78	M10	18	11	25	189 -0,5	180	130	130	72	M20x1,5
FENG-100	130	120	172	131 ±0,6	78	M10	18	11	25	213 -0,5	200	150	150	89	M20x1,5

	L1	L2	L3	L4	L5	L6	L7	L8	L9	L11	L12	L13	T1	T2	≅G1
										±0,2	±0,2	±0,2		max.	
FENG-32	155	67 +5	94	125	24	76	4,3	12	20	32,5	70,3	78	6,5	14	15
FENG-40	170	75 +5	105	140	28	81	11	12	22	38	84	—	6,5	14	15
FENG-50	188	89 +10	106	150	34	79	18,8	15	25	46,5	81,8	100	9	16	19
FENG-63	220	89 +10	121	182	34	111	15,3	15	25	56,5	105	—	9	16	19
FENG-80	258	111 +10	128	215	40	128	21	20	32	72	—	—	11	20	27
FENG-100	263	116 +10	138	220	40	128	24,5	20	32	89	—	—	11	20	27

1) FENG-...-GF: Tolerance class h8, FENG-...-KF: Tolerance class h7

Ordering data

FENG-...-GF – variable strokes

	Size	Stroke	Part no.	Type
	32 mm	10 ... 500 mm	34481	FENG-32- -GF
	40 mm		34482	FENG-40- -GF
	50 mm		34483	FENG-50- -GF
	63 mm		34484	FENG-63- -GF
	80 mm		34485	FENG-80- -GF
	100 mm		34486	FENG-100- -GF

FENG-...-KF – variable strokes

	Size	Stroke	Part no.	Type
	32 mm	10 ... 500 mm	34487	FENG-32- -KF
	40 mm		34488	FENG-40- -KF
	50 mm		34489	FENG-50- -KF
	63 mm		34490	FENG-63- -KF
	80 mm		34491	FENG-80- -KF
	100 mm		34492	FENG-100- -KF

FENG-...-GF – fixed strokes

	Size	Stroke	Part no.	Type
	32 mm	50 mm	8204059	FENG-32-50-GF
		80 mm	8204060	FENG-32-80-GF
		100 mm	8204061	FENG-32-100-GF
		125 mm	8204062	FENG-32-125-GF
		160 mm	8204063	FENG-32-160-GF
		200 mm	8204064	FENG-32-200-GF
		250 mm	8204065	FENG-32-250-GF
		320 mm	8204066	FENG-32-320-GF
		400 mm	8204067	FENG-32-400-GF
		500 mm	8204068	FENG-32-500-GF
	40 mm	50 mm	8204069	FENG-40-50-GF
		100 mm	8204070	FENG-40-100-GF
		160 mm	8204071	FENG-40-160-GF
		200 mm	8204072	FENG-40-200-GF
		250 mm	8204073	FENG-40-250-GF
		320 mm	8204074	FENG-40-320-GF
		500 mm	8204075	FENG-40-500-GF
	50 mm	50 mm	8204076	FENG-50-50-GF
		80 mm	8204077	FENG-50-80-GF
		100 mm	8204078	FENG-50-100-GF
		200 mm	8204079	FENG-50-200-GF
		250 mm	8204080	FENG-50-250-GF

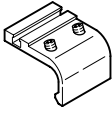
FENG-...-KF – fixed strokes

	Size	Stroke	Part no.	Type
	32 mm	50 mm	34493	FENG-32-50-KF
		100 mm	34494	FENG-32-100-KF
		160 mm	34495	FENG-32-160-KF
		200 mm	34496	FENG-32-200-KF
		250 mm	150289	FENG-32-250-KF
		320 mm	34497	FENG-32-320-KF
		400 mm	150290	FENG-32-400-KF
		500 mm	34498	FENG-32-500-KF
	40 mm	50 mm	34499	FENG-40-50-KF
		100 mm	34500	FENG-40-100-KF

Ordering data

FENG-...-KF – fixed strokes				
	Size	Stroke	Part no.	Type
	40 mm	160 mm	34501	FENG-40-160-KF
		200 mm	34502	FENG-40-200-KF
		250 mm	34503	FENG-40-250-KF
		320 mm	34504	FENG-40-320-KF
		400 mm	150291	FENG-40-400-KF
		500 mm	34505	FENG-40-500-KF
	50 mm	50 mm	34506	FENG-50-50-KF
		100 mm	34507	FENG-50-100-KF
		160 mm	34508	FENG-50-160-KF
		200 mm	34509	FENG-50-200-KF
		250 mm	34510	FENG-50-250-KF
		320 mm	34511	FENG-50-320-KF
		400 mm	150292	FENG-50-400-KF
		500 mm	34512	FENG-50-500-KF
	63 mm	50 mm	34513	FENG-63-50-KF
		100 mm	34514	FENG-63-100-KF
		160 mm	34515	FENG-63-160-KF
		200 mm	34516	FENG-63-200-KF
		250 mm	34517	FENG-63-250-KF
		320 mm	34518	FENG-63-320-KF
		400 mm	34519	FENG-63-400-KF
		500 mm	34520	FENG-63-500-KF
	80 mm	50 mm	34521	FENG-80-50-KF
		100 mm	34522	FENG-80-100-KF
		160 mm	34523	FENG-80-160-KF
		200 mm	34524	FENG-80-200-KF
		250 mm	34525	FENG-80-250-KF
		320 mm	34526	FENG-80-320-KF
		400 mm	34527	FENG-80-400-KF
		500 mm	34528	FENG-80-500-KF
	100 mm	50 mm	34529	FENG-100-50-KF
		100 mm	34530	FENG-100-100-KF
		160 mm	34531	FENG-100-160-KF
		200 mm	34532	FENG-100-200-KF
		250 mm	34533	FENG-100-250-KF
		320 mm	34534	FENG-100-320-KF
		400 mm	34535	FENG-100-400-KF
		500 mm	34536	FENG-100-500-KF

Accessories

Mounting kit SMB-8-FENG-... – for standards-bases cylinder DNC-...-A			
	Size [mm]	Part no.	Type
	32 mm, 40 mm	★ 175705	SMB-8-FENG-32/40
	50 mm, 63 mm	★ 175706	SMB-8-FENG-50/63
	80 mm, 100 mm	175707	SMB-8-FENG-80/100