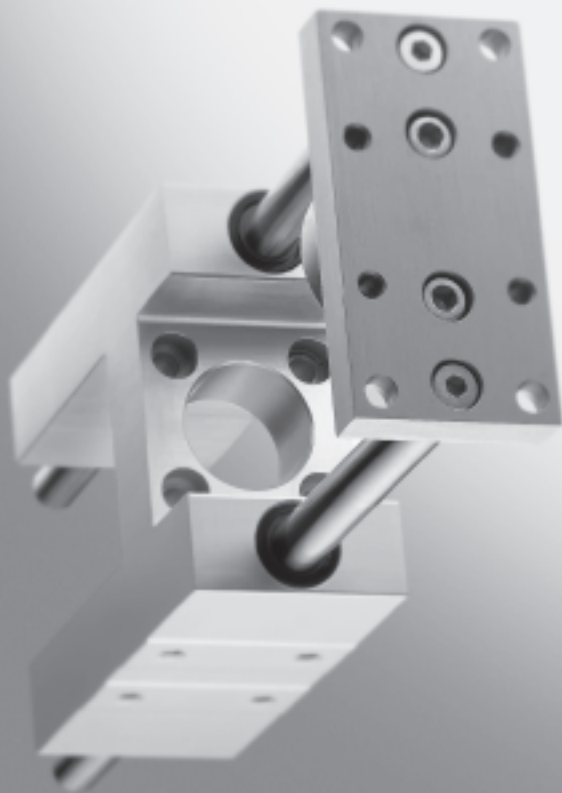


Type to be discontinued FEN-32 ... 100
- 2 - Available up to 2008

Guide units FEN/FENG for ISO cylinders

FESTO

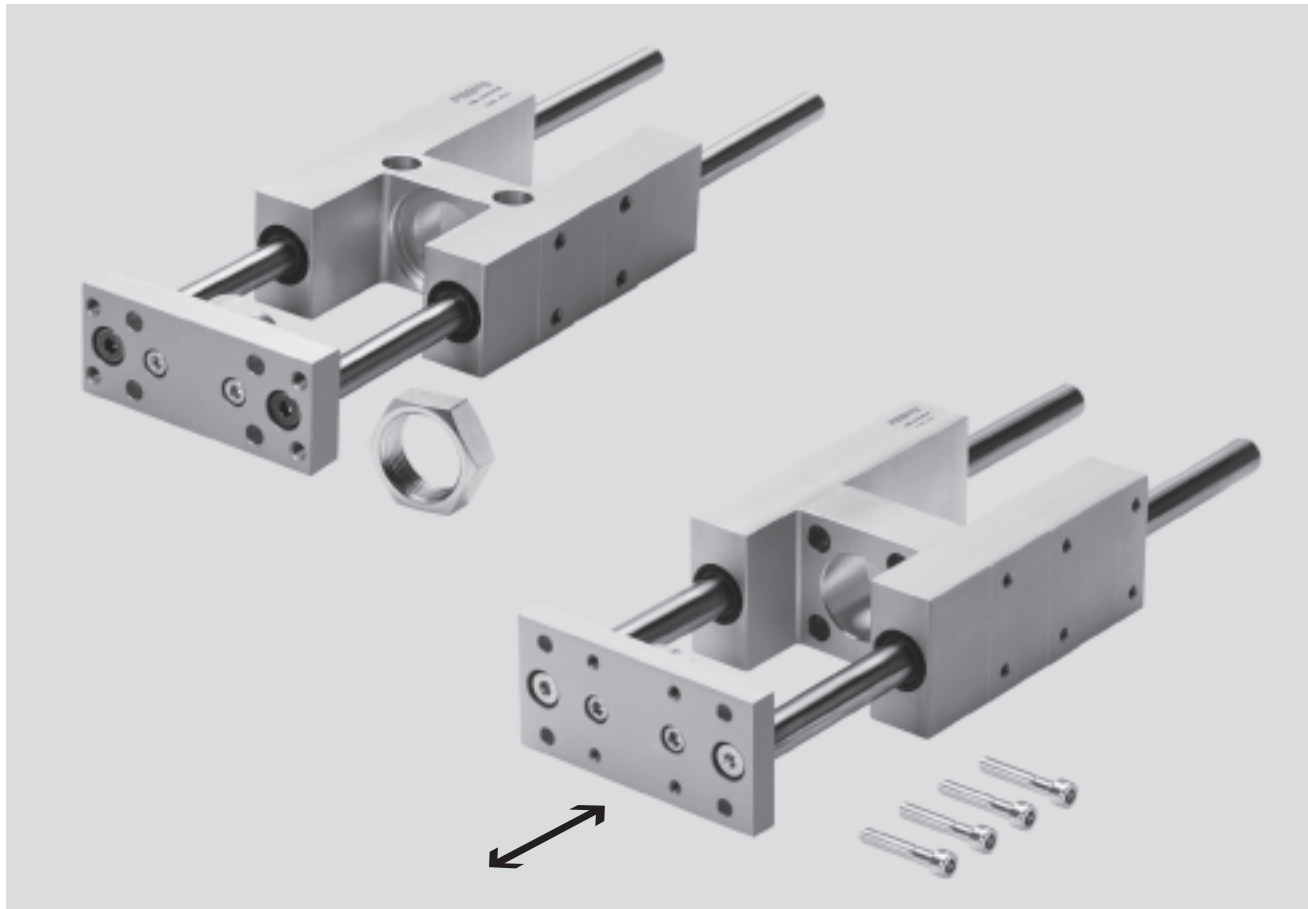


- High precision guiding
- To protect cylinders against torsion at high torque loads
- Plain bearing or recirculating ball bearing guide

Guide units FEN/FENG for ISO cylinders

Key features

FESTO



Brief description

Guide units FEN and FENG protect ISO standard cylinders from torsion when these are subjected to high torque loads. They provide high precision guidance for workpiece handling and other handling applications.

Guide unit FEN for cylinders DSN, DSNU and DNU.

Applicable pneumatic cylinders

■ $\varnothing$ 8 ... 25 mm: DSN, DSNU

→ 1 / 1.1-2

■ $\varnothing$ 32 ... 100 mm: DNU

→ 1 / 1.3-2

Guide unit FENG for cylinders DNCB, DNC, DNCV and DNG.

Applicable pneumatic cylinders:

■ Standard cylinder to ISO 6431 DNCB

→ 1 / 1.2-4

■ Standard cylinder to ISO 6431 DNC

→ 1 / 1.2-24

■ Cylinder/valve combination DNCV

→ 1 / 8.1-2

■ Standard cylinder to ISO 6431 DNG

→ 1 / 1.2-88



Note

Guided cylinder DFP has an integrated guide

→ 1 / 6.2-2

Guide units FEN/FENG for ISO cylinders

Key features

FESTO

Position sensing

When the cylinders DSNU-...-A, DNU-...-A or DNG-...-A are used, the piston position can be detected by

proximity sensors. These sensors require mounting kits which are listed in the table on the right.

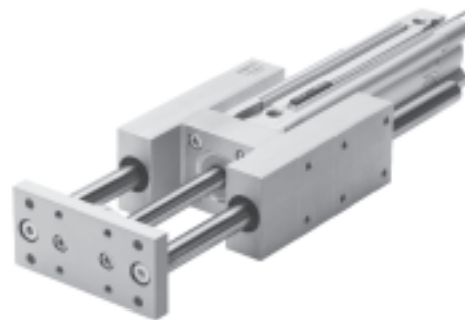
Cylinder	Piston Ø	Mounting kits
DNG-...-A	32 ... 50	SMB-2-B
	63 ... 100	SMB-3-B
DNU-...-A	32 ... 100	SMBU-...
DSNU-...-A	8 ... 25	SMBR-...
DNC-...-A	32 ... 100	SMB-8-FENG-...



Note

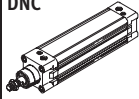
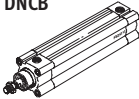
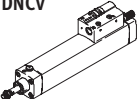
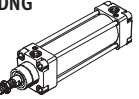
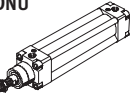
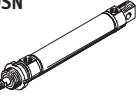
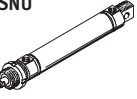
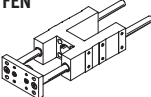
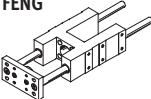
The cylinders DNC-...-A have integrated sensor slots and thus do not normally require mounting kits. However, when a cylinder DNC-...-A is combined with the guide unit FENG, the mounting kit SMB-8-FENG-... is required due to the covered front

mounting position of the proximity sensor. As there are two sensor slots available on the pneumatic connection side of the DNCB, no additional mounting kit is required.



FENG-... with DNCB

Possible combinations

Guided unit	Cylinder						
	DNC	DNCB	DNCV	DNG	DNU	DSN	DSNU
							
 FEN	—	—	—	—	■ Ø 32 ... 100	■ Ø 8 ... 25	■ Ø 8 ... 25
 FENG	■	■	■	■	—	—	—

Type to be discontinued FEN-32 ... 100

- 1 - Available up to 2008

Guide units FEN/FENG for ISO cylinders

Technical data

FESTO

FEN to DIN ISO 6432

- Ø - Diameter
8 ... 100 mm

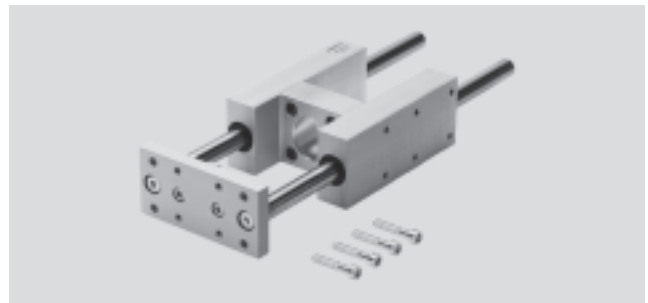
- I - Stroke length
1 ... 500 mm



FENG to DIN ISO 6432 and VDMA 24 562

- Ø - Diameter
32 ... 100 mm

- I - Stroke length
10 ... 500 mm



General technical data

Ambient temperature	[°C]	-20 ... +80 °C
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Product weight FEN [g]

Piston Ø	8/10	12/16	20	25
With plain bearing guide				
Product weight at 0 mm stroke	332	490	873	866
Additional weight per 10 mm stroke	10	13	13	13
With recirculating ball bearing guide				
Product weight at 0 mm stroke	300	429	828	813
Additional weight per 10 mm stroke	11	14	14	14

Product weight FENG [g]

Piston Ø	32	40	50	63	80	100
With plain bearing guide						
Product weight at 0 mm stroke	1,570	2,480	4,190	5,540	10,720	13,420
Additional weight per 10 mm stroke	17	31	47	48	70	70
With recirculating ball bearing guide						
Product weight at 0 mm stroke	1,530	2,370	4,030	5,410	10,430	12,990
Additional weight per 10 mm stroke	18	32	50	49	80	80

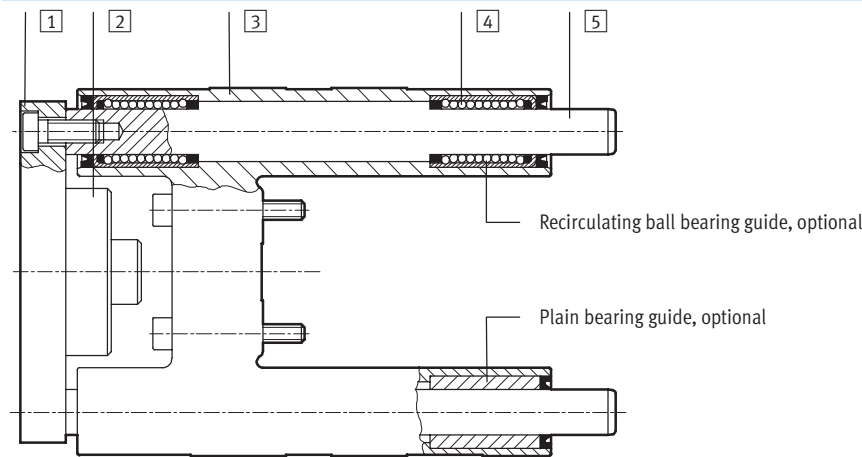
Guide units FEN/FENG for ISO cylinders

Technical data

FESTO

Materials

Sectional view



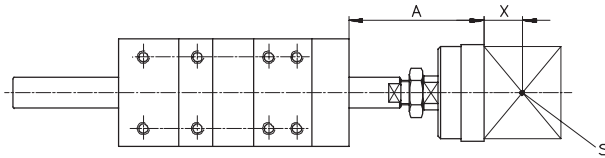
		FEN	FENG with plain bearing guide	FENG with recirculating ball bearing guide
1	Yoke plate	32 ... 63 80 ... 100	Aluminium Steel	Aluminium Steel
2	Coupling		Steel	Steel
3	Guide		Aluminium	Aluminium
4	Bearing		Sintered bronze	Steel
5	Guide rods		Steel	Steel
-	Note on material		-	Free of copper, PTFE and silicone

Guide units FEN/FENG for ISO cylinders

Technical data

FESTO

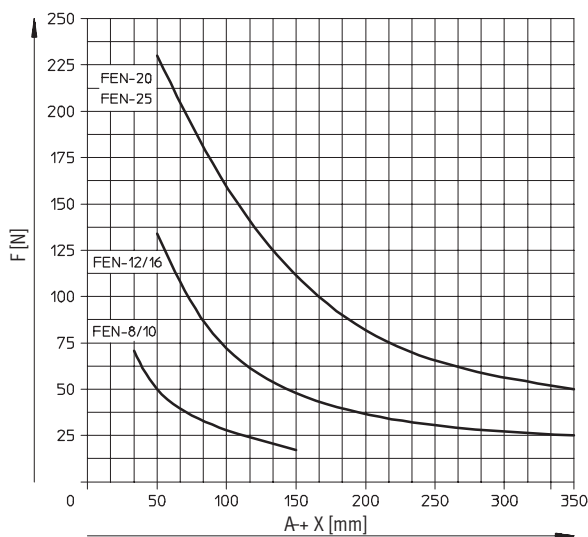
Max. working load F as a function of cantilever extension A



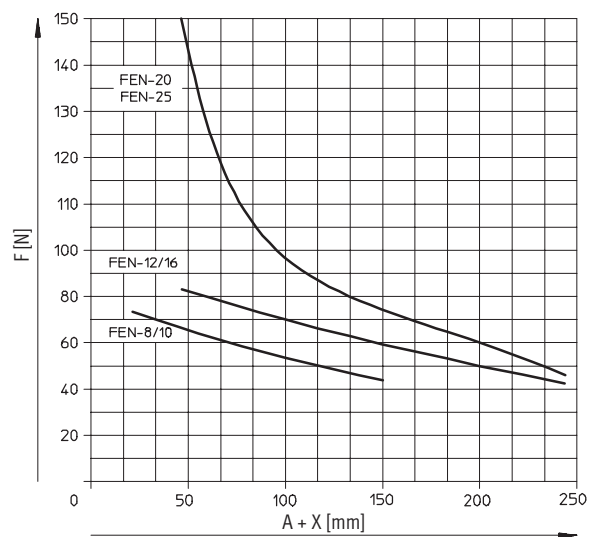
- A = Cantilever extension
- X = Distance for centre of gravity of working load
- S = Centre of gravity of working load

FEN-8 ... 25

with plain bearing guide

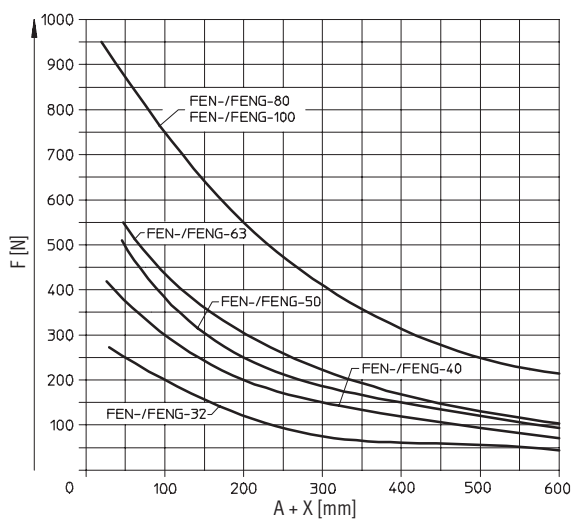


with recirculating ball bearing guide

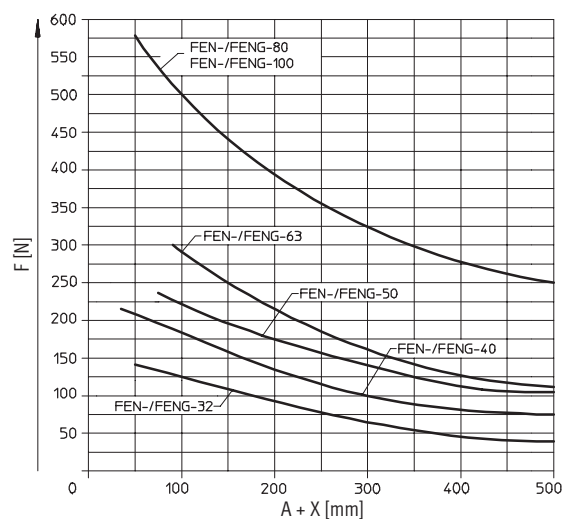


FEN/FENG-32 ... 100

with plain bearing guide



with recirculating ball bearing guide



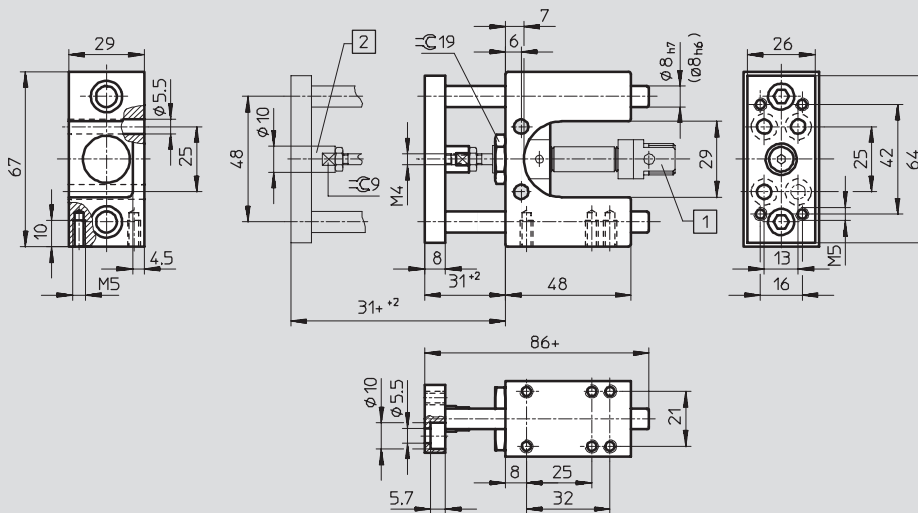
Guide units FEN for ISO cylinders

Technical data

FESTO

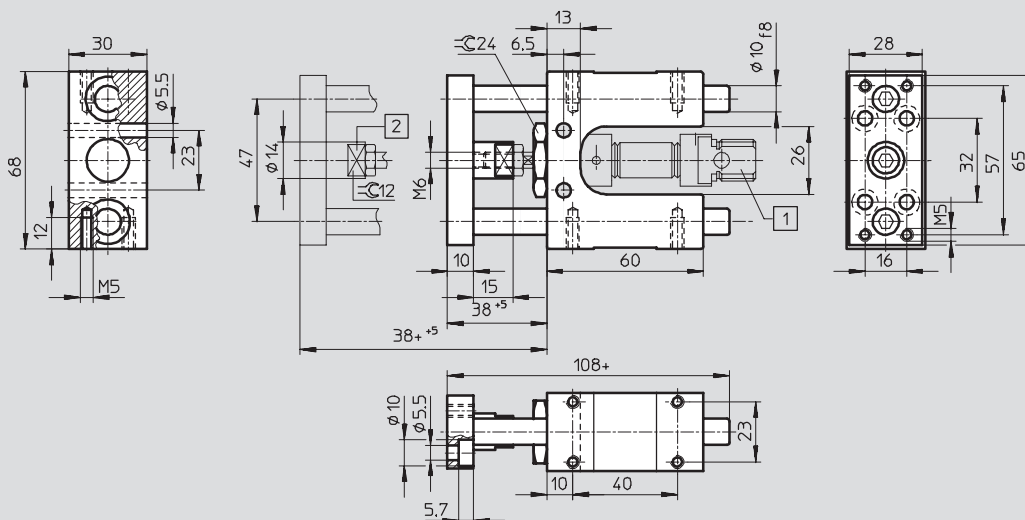
Dimensions

FEN-8/10



Note
Dimensions in brackets are for the variant FEN-8/10-...-KF.

FEN-12/16



- 1 Cylinders DSN, DSNU
- 2 Compensating coupling for radial and axial alignment

+ = plus stroke length

Type to be discontinued FEN-32 ... 100

- 1 - Available up to 2008

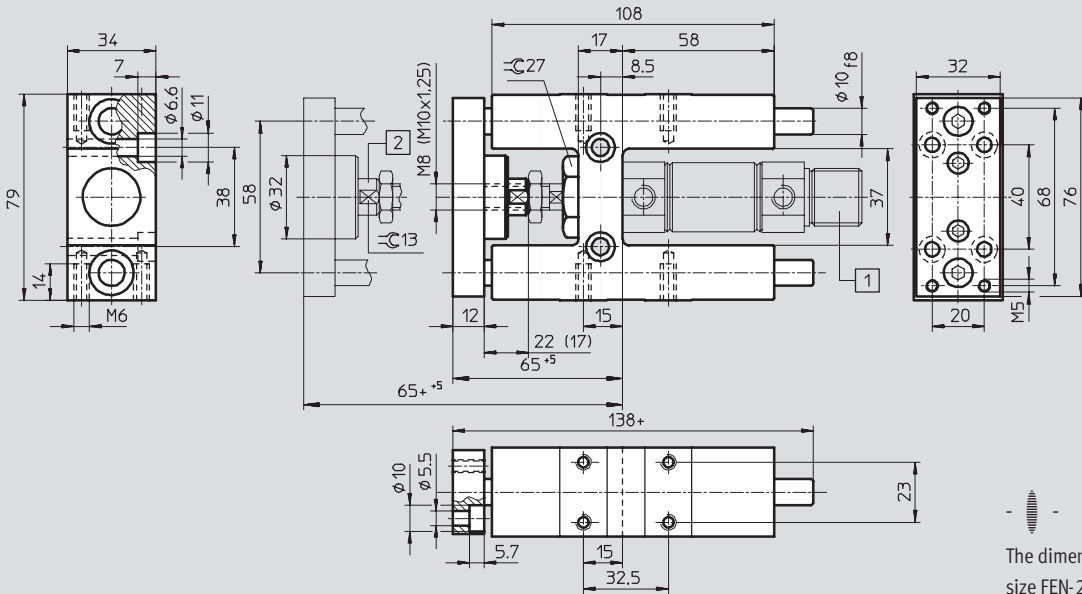
Guide units FEN for ISO cylinders

Technical data

FESTO

Dimensions

FEN-20/25



- - Note

The dimensions in brackets apply to size FEN-25.

- 1 Cylinders DSN, DSNU
- 2 Compensating coupling for radial and axial alignment

+ = plus stroke length

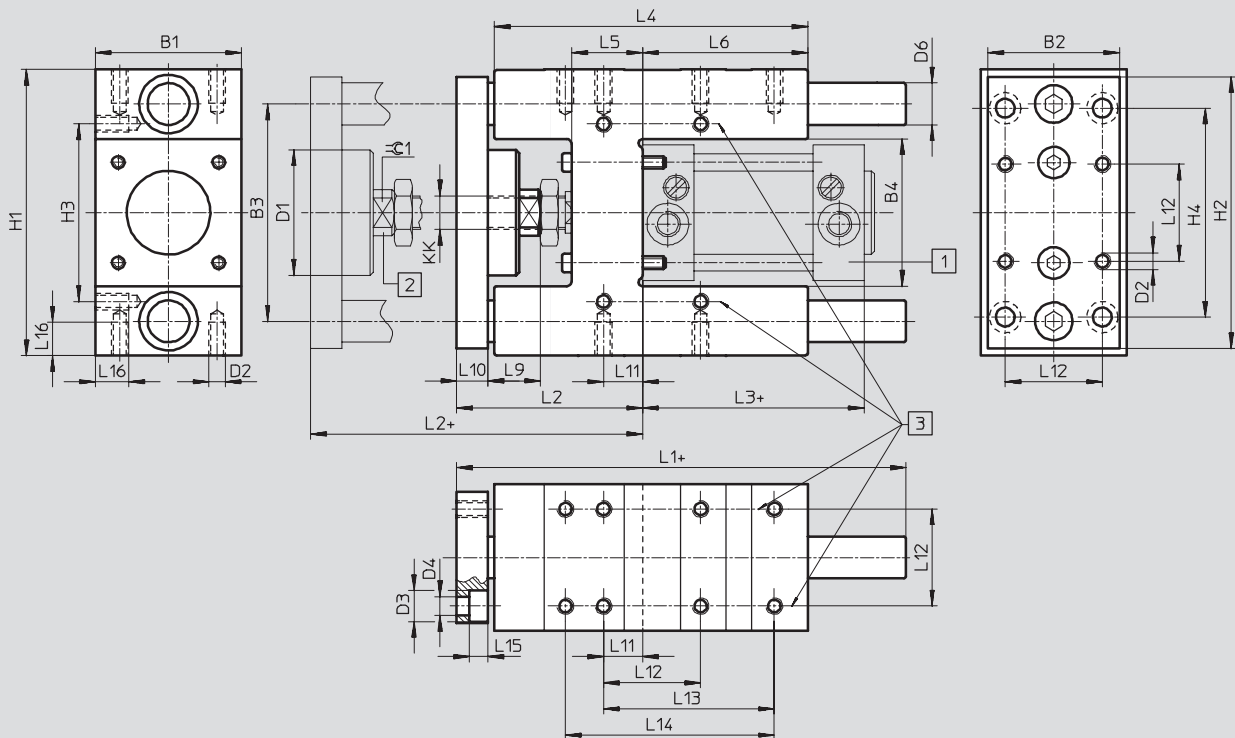
Guide units FEN for ISO cylinders

Technical data

FESTO

Dimensions

FEN-32 ... 100



1) Cylinder DNU

2) Compensating coupling for radial and axial alignment

3) Users can drill additional mounting holes along these axes as required.

+ = plus stroke length

Ø	B1	B2	B3	B4	D1	D2	D3	D4	D6 ¹⁾	H1	H2	H3	H4	KK
[mm]	-0.3		±0.2		Ø		Ø	Ø	Ø			±0.2	±0.2	
32	50	45	74	50.5 ±0.3	44	M6	11	6.6	12	97 -0.4	90	61	78	M10x1.25
40	58	54	87	58.5 ±0.3	44	M6	11	6.6	16	115 -0.4	110	69	84	M12x1.25
50	70	63	104	70.5 ±0.3	60	M8	15	9	20	137 -0.5	130	85	100	M16x1.5
63	85	80	119	85.5 ±0.3	60	M8	15	9	20	152 -0.5	145	100	105	M16x1.5
80	105	100	148	106 ±0.6	78	M10	18	11	25	189 -0.5	180	130	130	M20x1.5
100	130	120	172	131 ±0.6	78	M10	18	11	25	213 -0.5	200	150	150	M20x1.5

Ø	L1	L2	L3	L4	L5	L6	L9	L10	L11	L12	L13	L14	L15	L16	≈C1
[mm]										±0.2	±0.2	±0.2			
32	155	64 +5	94	125	24	76	20	12	4.3	32.5	70.3	78	6.5	12	15
40	170	74 +5	105	140	28	81	22	12	11	38	84	-	6.5	14	15
50	188	89 +10	106	150	34	79	25	15	18.8	46.5	81.8	100	9	16	19
63	220	89 +10	115	182	34	111	25	15	15.3	56.5	105	-	9	16	19
80	258	110 +10	124	215	40	128	32	20	21	72	-	-	11	20	27
100	263	115 +10	134	220	40	128	32	20	24.5	89	-	-	11	20	27

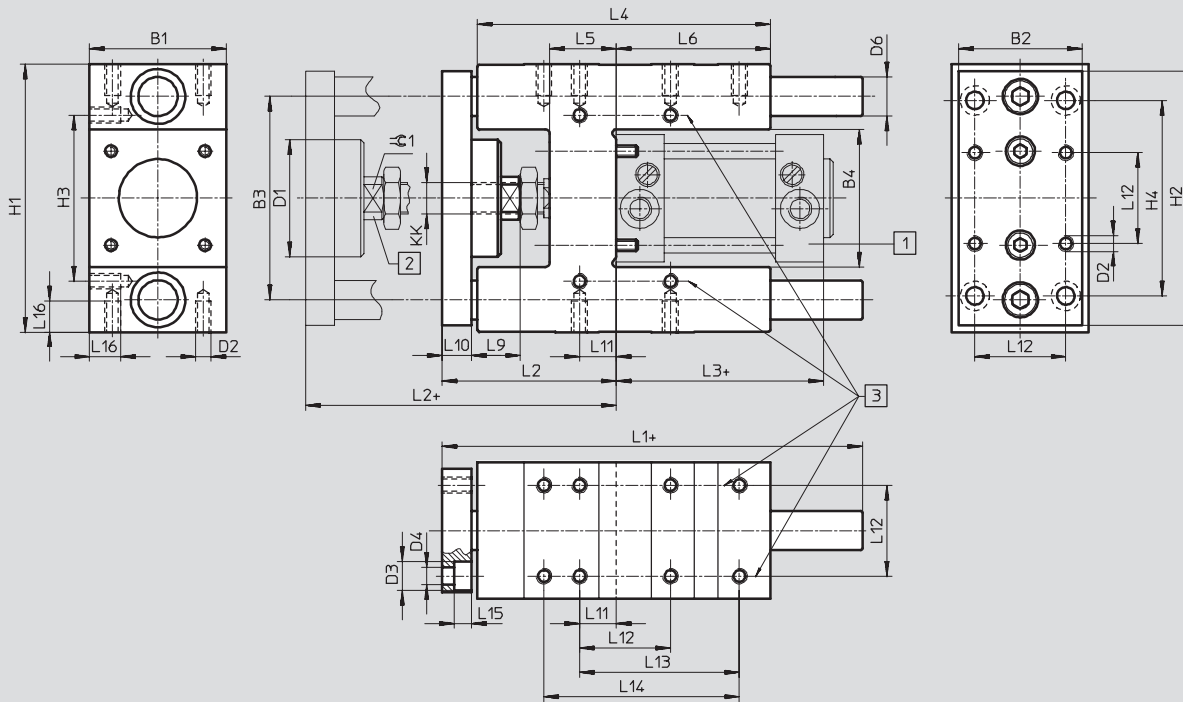
1) FEN-... : Tolerance class f8
FEN-...-KF: Tolerance class h6

Guide units FENG for ISO cylinders

Technical data

Dimensions

FENG-32 ... 100



- | | | | | | |
|---|--|---|---|---|----------------------|
| 1 | Cylinder DNCB, DNC, DNCV, DNG | 3 | Users can drill additional mounting holes along these axes as required. | + | = plus stroke length |
| 2 | Compensating coupling for radial and axial alignment | | | | |

Ø	B1	B2	B3	B4	D1 Ø	D2	D3 Ø	D4 Ø	D6 ¹⁾ Ø	H1	H2	H3	H4	KK
[mm]	−0.3		±0.2									±0.2	±0.2	
32	50	45	74	50.5 ±0.3	44	M6	11	6.6	12	97 −0.4	90	61	78	M10x1.25
40	58	54	87	58.5 ±0.3	44	M6	11	6.6	16	115 −0.4	110	69	84	M12x1.25
50	70	63	104	70.5 ±0.3	60	M8	15	9	20	137 −0.5	130	85	100	M16x1.5
63	85	80	119	85.5 ±0.3	60	M8	15	9	20	152 −0.5	145	100	105	M16x1.5
80	105	100	148	106 ±0.6	78	M10	18	11	25	189 −0.5	180	130	130	M20x1.5
100	130	120	172	131 ±0.6	78	M10	18	11	25	213 −0.5	200	150	150	M20x1.5

Ø	L1	L2	L3	L4	L5	L6	L9	L10	L11	L12	L13	L14	L15	L16	≈G1
[mm]										±0.2	±0.2	±0.2			
32	155	67+5	94	125	24	76	20	12	4.3	32.5	70.3	78	6.5	12	15
40	170	75+5	105	140	28	81	22	12	11	38	84	–	6.5	14	15
50	188	89+10	106	150	34	79	25	15	18.8	46.5	81.8	100	9	16	19
63	220	89+10	121	182	34	111	25	15	15.3	56.5	105	–	9	16	19
80	258	111+10	128	215	40	128	32	20	21	72	–	–	11	20	27
100	263	116+10	138	220	40	128	32	20	24.5	89	–	–	11	20	27

1) FENG-... : Tolerance class f8
FENG-...-KF: Tolerance class h6

Guide units FEN/FENG for ISO cylinders

Technical data

Ordering data FEN-... for variable strokes for ISO cylinders DSN/DSNU/DNU					
Piston Ø [mm]	Stroke [mm]	with plain bearing guide		with recirculating ball bearing guide	
		Part No.	Type	Part No.	Type
8/10	1 ... 100	35 196	FEN-8/10-...	35 197	FEN-8/10-...-KF
12/16	1 ... 200	19 168	FEN-12/16-...	33 481	FEN-12/16-...-KF
20	2 ... 250	19 169	FEN-20-...	33 482	FEN-20-...-KF
25	2 ... 250	19 170	FEN-25-...	33 483	FEN-25-...-KF
32	10 ... 500	19 171	FEN-32-...	33 484	FEN-32-...-KF
40		19 172	FEN-40-...	33 485	FEN-40-...-KF
50		19 173	FEN-50-...	33 486	FEN-50-...-KF
63		19 174	FEN-63-...	33 487	FEN-63-...-KF
80		19 175	FEN-80-...	33 488	FEN-80-...-KF
100		19 176	FEN-100-...	33 489	FEN-100-...-KF

Ordering data FENG-... for variable strokes for ISO cylinders DNC/DNCB/DNCV/DNG					
Piston Ø [mm]	Stroke [mm]	with plain bearing guide		with recirculating ball bearing guide	
		Part No.	Type	Part No.	Type
32	10 ... 500	34 481	FENG-32-...	34 487	FENG-32-...-KF
40		34 482	FENG-40-...	34 488	FENG-40-...-KF
50		34 483	FENG-50-...	34 489	FENG-50-...-KF
63		34 484	FENG-63-...	34 490	FENG-63-...-KF
80		34 485	FENG-80-...	34 491	FENG-80-...-KF
100		34 486	FENG-100-...	34 492	FENG-100-...-KF

Ordering data FENG-...-KF with recirculating ball bearing for fixed strokes for ISO cylinders DNC/DNCB/DNCV/DNG								
Piston Ø [mm]	Part No.	Type	Part No.	Type	Part No.	Type	Part No.	Type
	Stroke 50 mm		Stroke 100 mm		Stroke 160 mm		Stroke 200 mm	
32	34 493	FENG-32-50-KF	34 494	FENG-32-100-KF	34 495	FENG-32-160-KF	34 496	FENG-32-200-KF
40	34 499	FENG-40-50-KF	34 500	FENG-40-100-KF	34 501	FENG-40-160-KF	34 502	FENG-40-200-KF
50	34 506	FENG-50-50-KF	34 507	FENG-50-100-KF	34 508	FENG-50-160-KF	34 509	FENG-50-200-KF
63	34 513	FENG-63-50-KF	34 514	FENG-63-100-KF	34 515	FENG-63-160-KF	34 516	FENG-63-200-KF
80	34 521	FENG-80-50-KF	34 522	FENG-80-100-KF	34 523	FENG-80-160-KF	34 524	FENG-80-200-KF
100	34 529	FENG-100-50-KF	34 530	FENG-100-100-KF	34 531	FENG-100-160-KF	34 532	FENG-100-200-KF
	Stroke 250 mm		Stroke 320 mm		Stroke 400 mm		Stroke 500 mm	
32	150 289	FENG-32-250-KF	34 497	FENG-32-320-KF	150 290	FENG-32-400-KF	34 498	FENG-32-500-KF
40	34 503	FENG-40-250-KF	34 504	FENG-40-320-KF	150 291	FENG-40-400-KF	34 505	FENG-40-500-KF
50	34 510	FENG-50-250-KF	34 511	FENG-50-320-KF	150 292	FENG-50-400-KF	34 512	FENG-50-500-KF
63	34 517	FENG-63-250-KF	34 518	FENG-63-320-KF	34 519	FENG-63-400-KF	34 520	FENG-63-500-KF
80	34 525	FENG-80-250-KF	34 526	FENG-80-320-KF	34 527	FENG-80-400-KF	34 528	FENG-80-500-KF
100	34 533	FENG-100-250-KF	34 534	FENG-100-320-KF	34 535	FENG-100-400-KF	34 536	FENG-100-500-KF