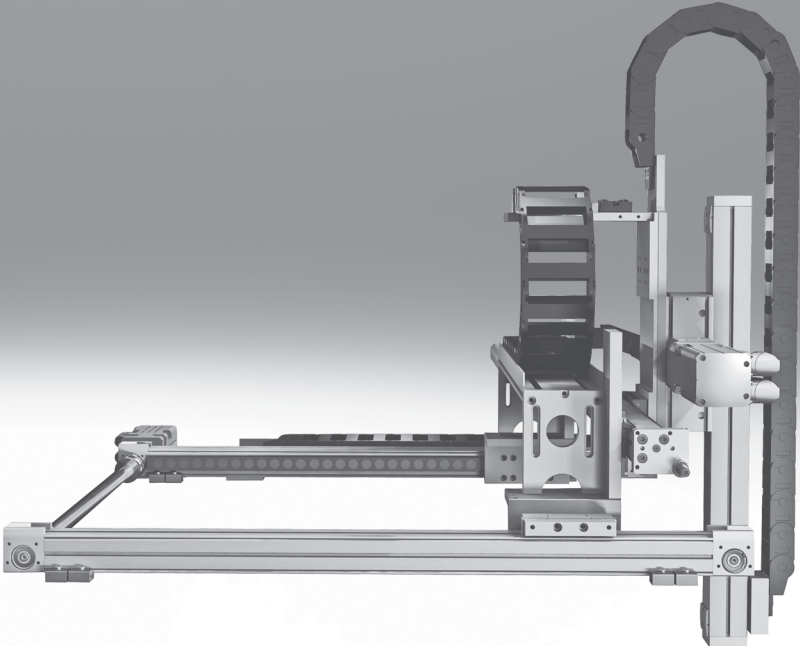


Toothed belt axes DGE



Toothed belt axes DGE

Key features

At a glance

- Precision, rigid guide
- Highly adaptable, thanks to wide choice of mounting and attachment options
- Wide range of options for attaching drive units
- Comprehensive range of mounting accessories for multi-axis combinations
- Optimally adapted motor controller combinations

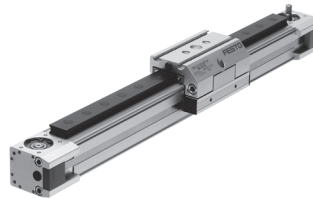
Basic version DGE-ZR

- Stroke lengths from 1 ... 4500 mm
- Without guide
- Low characteristic load values



With recirculating ball bearing guide DGE-ZR-KF

- Stroke lengths from 1 ... 4500 mm
- Standard slide or extended slide
- Medium to high characteristic load values



With protected version DGE-ZR-KF-GA

- Stroke lengths from 1 ... 1800 mm
- Standard slide
- Guide and slide are fitted with a cover to protect against the ingress of particles from above and the side



With roller guide DGE-ZR-RF

- Stroke lengths from 1 ... 5000 mm
- Standard slide or extended slide
- Internal, protected roller guide
- Medium characteristic load values
- High speeds possible

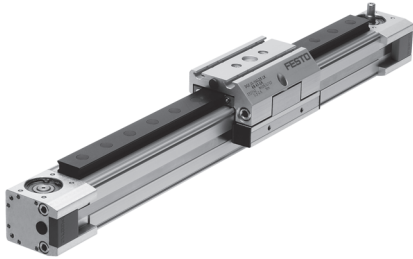


Toothed belt axes DGE

Key features

System selection for electromechanical drives

Toothed belt axis



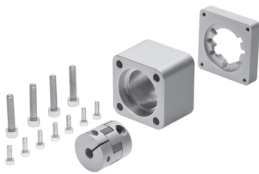
Note

For the toothed-belt axes and the motors there are matching complete solutions.

Motor kit

Axial kit

→ page 58

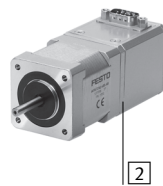


Axial kit consisting of:

- Motor flange
- Coupling housing
- Coupling
- Screws

Motor

→ page 58



- 1 Servo motor EMME-AS, EMMS-AS
- 2 Stepper motor EMMS-ST

Motor controller

Technical data → Internet: motor controller



- 1 Servo motor controller CMMP-AS
- 2 Stepper motor controller CMMS-ST

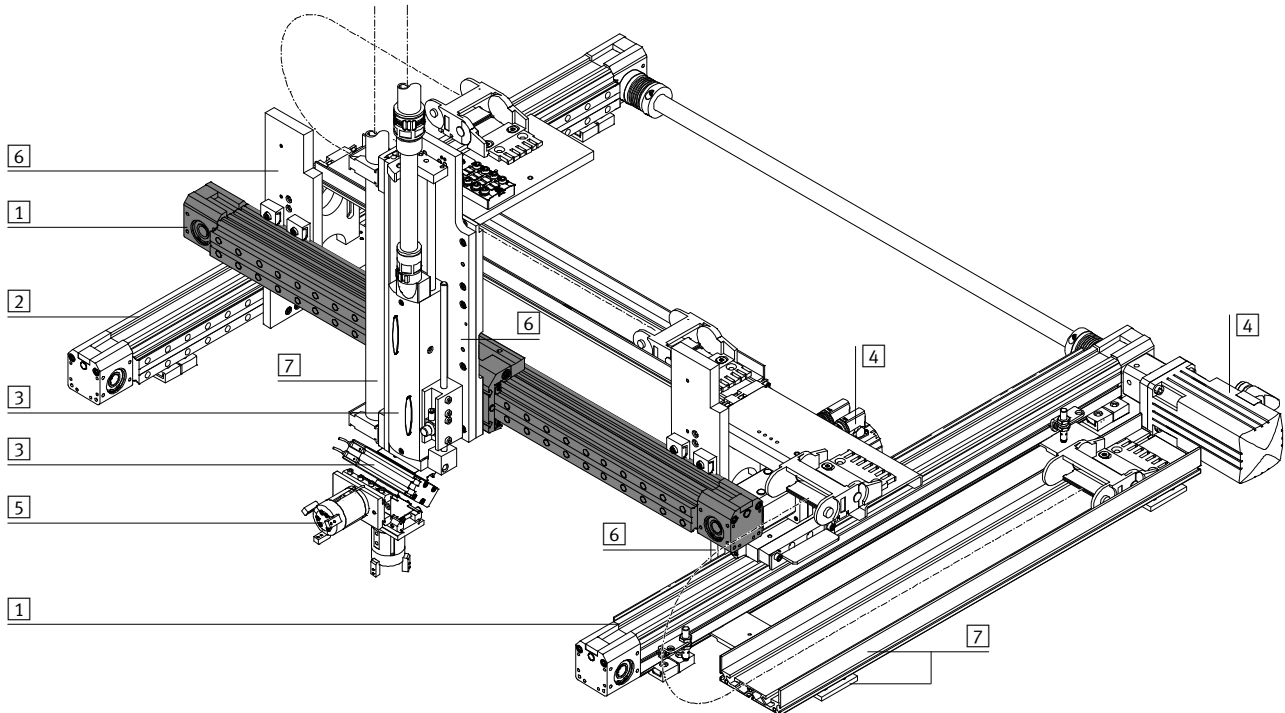
- 1 - Type discontinued
Available up until 2019

Toothed belt axes DGE

System example

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System product for handling and assembly technology



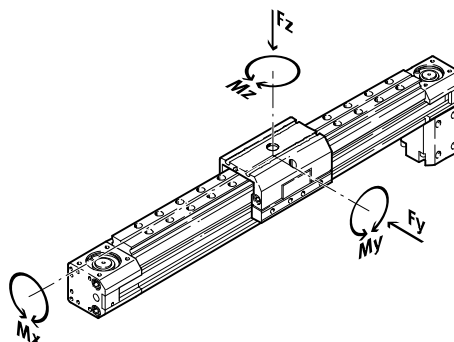
System components and accessories		
Type	Description	→ Page/Internet
1	Axes	Wide range of combination options within handling and assembly technology axes
2	Passive guide axes	Diverse possible combinations in handling and assembly technology guide axes
3	Drives	Wide range of combination options within handling and assembly technology drive
4	Motors	Servo and stepper motors, with or without gearing motor
5	Grippers	Wide range of combination options within handling and assembly technology gripper
6	Adapters	For drive/drive combinations 72
		For drive/gripper combinations gripper
7	Installation components	For achieving a clear-cut, safe layout for electrical cables and tubing installation component

Toothed belt axes DGE

Selection aid

Guide characteristics

The data in the table are maximum values. The precise values for each variant can be found in the corresponding data sheet included in the catalogue.



Version	Size	Working stroke ¹⁾ [mm]	Speed [m/s]	Repetition accuracy [mm]	Feed force [N]	Forces and torques					→ Page/Internet
						Fy [N]	Fz [N]	Mx [Nm]	My [Nm]	Mz [Nm]	
Basic version without guide ZR											
	8	1 ... 650	1	±0.08	15	–	38	0.15	2	0.3	6
	12	1 ... 1000	1.5	±0.08	30	–	59	0.3	4	0.5	
	18	1 ... 1000	2	±0.08	60	–	120	0.5	11	1	
	25	1 ... 3000	5	±0.1	260	–	330	1	20	3	
	40	1 ... 4000	5	±0.1	610	–	800	4	60	8	
	63	1 ... 4500	5	±0.1	1500	–	1600	8	120	24	
With recirculating ball bearing guide ZR-KF											
	8	1 ... 650	3	±0.08	15	255	255	1	3.5	3.5	22
	12	1 ... 1000	3	±0.08	30	565	565	3	9	9	
	18	1 ... 1000	3	±0.08	60	930	930	7	45	45	
	25	1 ... 3000	3	±0.1	260	3080	3080	45	170	170	
	40	1 ... 4000	3	±0.1	610	7300	7300	170	660	660	
	63	1 ... 4500	3	±0.1	1500	14050	14050	580	1820	1820	
With roller guide ZR-RF											
	25	1 ... 5000	10	±0.1	260	260	150	7	30	30	44
	40	1 ... 5000	10	±0.1	610	610	300	18	120	180	
	63	1 ... 5000	10	±0.1	1500	1500	600	65	340	600	

1) Special lengths on request

- Note

Sizing software

PositioningDrives

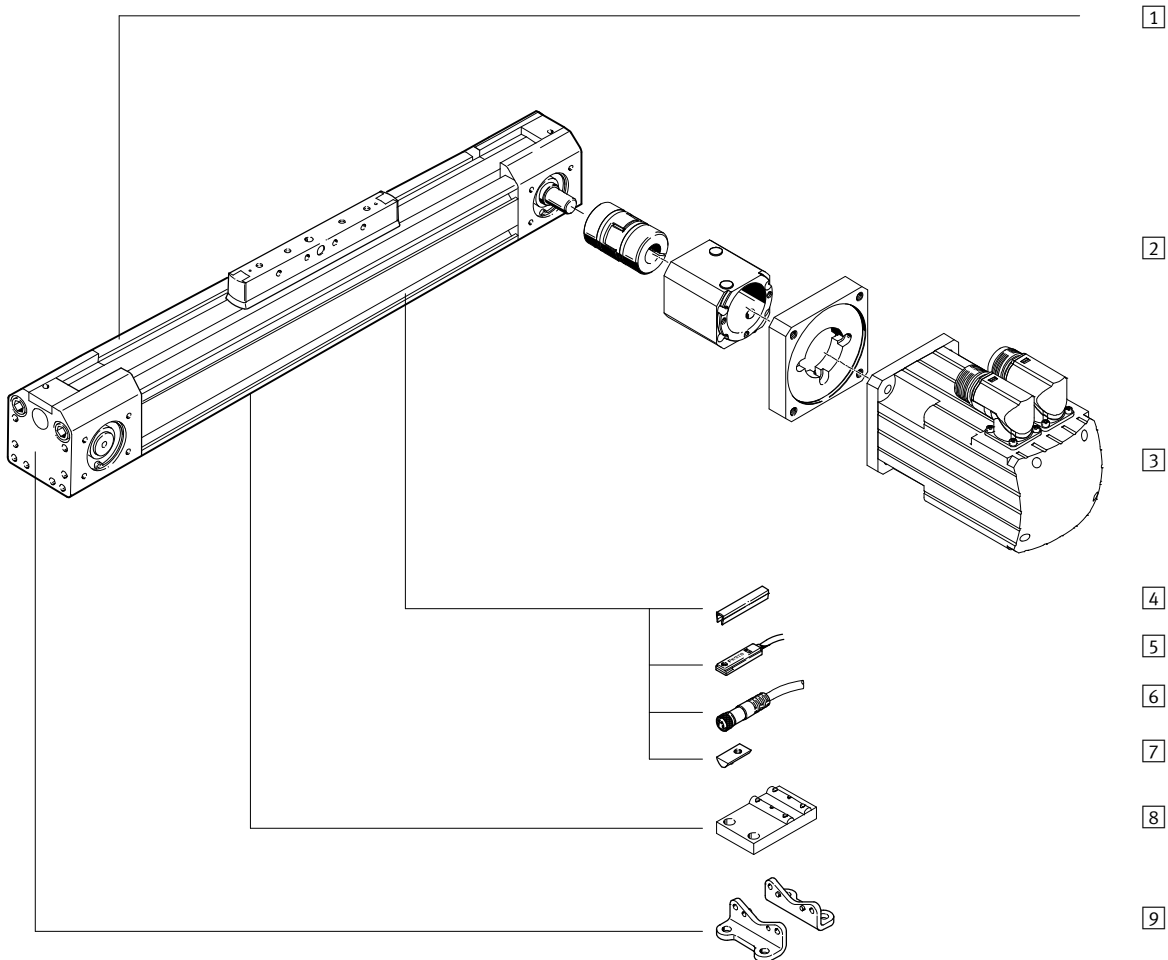
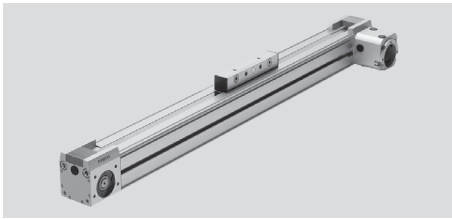
→ www.festo.com

- 1 - Type discontinued
Available up until 2019

Toothed belt axes DGE-ZR

Peripherals overview

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Toothed belt axes DGE-ZR

Peripherals overview

Variants and accessories		
Type	Description	→ Page/Internet
1 Toothed belt axis DGE-ZR	Electromechanical axis without guide	8
2 Axial kit EAMM-A	For axial motor attachment (consisting of: coupling housing, clamping component, motor flange)	58
3 Motor EMMS	Motors specially matched to the axis, with or without gearing, with or without brake	58
4 Slot cover B/S	For protecting against the ingress of dirt	70
5 Proximity sensor G/H/I/J/N	For use as a proximity signal and safety monitoring	71
6 Cable with socket V	For proximity sensors	71
7 Slot nut for mounting slot Y	For mounting attachments	70
8 Central support M	For mounting the axis	65
9 Foot mounting F	For mounting the axis	64

- 1 - Type discontinued
Available up until 2019

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Toothed belt axes DGE-ZR


Type code

		DGE	-	25	-	500	-	ZR	-	LK	-	RV
Type												
DGE	Toothed belt drive											
Size												
Stroke [mm]												
Drive function												
ZR	Toothed belt											
Drive shaft on left												
LK	No drive shaft on left											
LV	Drive shaft on left, front											
LH	Drive shaft on left, rear											
LB	Drive shaft on left, front and rear											
Drive shaft on right												
RK	No drive shaft on right											
RV	Drive shaft on right, front											
RH	Drive shaft on right, rear											
RB	Drive shaft on right, front and rear											

Toothed belt axes DGE-ZR

Type code

→		+ ZUB	-				F	2G	
Accessories									
ZUB	Accessories supplied loose								
Slot cover									
...S	Sensor slot								
...B	Mounting slot								
Slot nut									
...Y	For mounting slot								
Central support									
...M	Central support								
Foot mounting									
...F	Foot mounting								
Proximity sensor									
...G	With cable, 2.5 m								
...H	With plug								
...I	Contactless, with cable, 2.5 m								
...J	Contactless, plug								
...N	NC contact with cable, 2.5 m								
Cable with socket									
...V	2.5 m								

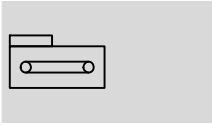
-  - Type discontinued
Available up until 2019

Toothed belt axes DGE-ZR

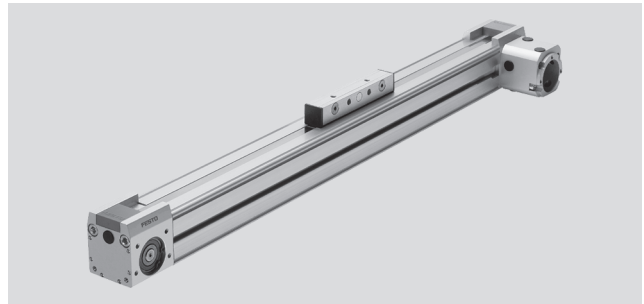
Technical data



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Function



 www.festo.com



-  - Size
8 ... 63
-  - Stroke length
1 ... 4500 mm

General technical data							
Size		8	12	18	25	40	63
Constructional design		Electromechanical axis with toothed belt					
Guide		-					
Mounting position		Any					
Max. working stroke ¹⁾	[mm]	1 ... 650	1 ... 1000	1 ... 1000	1 ... 3000 ²⁾	1 ... 4000 ²⁾	1 ... 4500 ²⁾
Max. feed force F_x	[N]	15	30	60	260	610	1500
Max. radial force ³⁾	[N]	103	77	290	307	984	2600
Radial force ⁴⁾	[N]	56	96	117	235	370	840
Radial force ⁵⁾	[N]	40	70	80	140	170	400
Max. driving torque	[Nm]	0.08	0.18	0.5	2.6	9.7	42
Max. no-load driving torque ⁶⁾	[Nm]	0.05	0.08	0.2	0.5	1.0	4.5
Max. speed	[m/s]	1	1.5	2	5	5	5
Max. acceleration	[m/s ²]	15	20	20	50	50	50
Repetition accuracy	[mm]	±0.08			±0.1		

- 1) Total stroke = working stroke + 2x stroke reserve
- 2) Special lengths on request
- 3) On the drive shaft
- 4) On the drive shaft, with a service life of 5,000 km
- 5) On the drive shaft, with a service life of 10,000 km
- 6) Measured at a speed of 0.2m/s

Operating and environmental conditions							
Size		8	12	18	25	40	63
Ambient temperature	[°C]	-10 ... +40					
Protection class		IP40					

Weights [kg]							
Size		8	12	18	25	40	63
Basic weight with 0 mm stroke ¹⁾		0.237	0.31	0.862	1.89	6.05	23.2
Additional weight per 100 mm stroke		0.05	0.08	0.16	0.32	0.51	1.8
Moving load		0,012	0,02	0,055	0,28	0,60	1,80

- 1) Including coupling housing

Mass moment of inertia							
Size		8	12	18	25	40	63
J_0	[kg cm ²]	0.006	0.015	0.064	0.38	2.34	25.6
J_H per metre stroke	[kg cm ² /m]	0.003	0.009	0.021	0.078	0.45	3.6
J_L per kg working load	[kg cm ² /kg]	0.259	0.365	0.685	1	2.53	7.85

The mass moment of inertia J_A of the entire axis is calculated as follows:

$$J_A = J_0 + J_H \times \text{working stroke [m]} + J_L \times m_{\text{working load [kg]}}$$

Toothed belt axes DGE-ZR

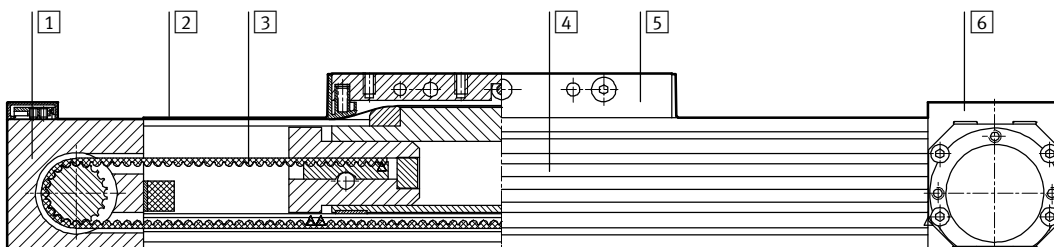
Technical data

Toothed belt		8	12	18	25	40	63
Size		8	12	18	25	40	63
Tensile stress ¹⁾	[%]	0.04	0.1	0.2	0.11	0.1	0.15
Pitch	[mm]	2	2	2	3	5	8
Effective diameter	[mm]	10.18	12.09	16.55	20.05	31.83	56.02
Feed constant	[mm/rev.]	32	38	52	63	100	176

1) At max. feed force

Materials

Sectional view



Axis

1	Return pulley housing	Anodised aluminium
2	Cover strip	Corrosion resistant steel
3	Toothed belt	Polychloroprene with Glascord and nylon coating
4	Profile	Anodised aluminium
5	Slide	Anodised aluminium
6	Drive housing	Anodised aluminium

Stroke reserve

L1+ Overall length of axis

L11 Internal mechanical stop

1 The working stroke is the effective usable work range. Please quote this in your order.

L12 Stroke reserve:

Safety distance to mechanical stop, present at both ends of the axis in addition to the stroke

Example:

Type DGE-25-500-ZR

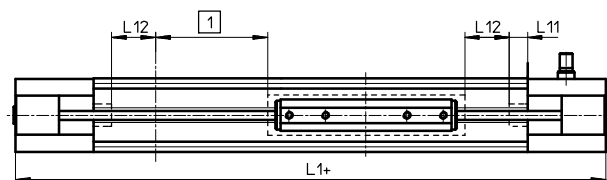
Working stroke = 500 mm

Stroke reserve = (2x 63 mm)

= 126 mm

Total stroke:

626 mm = 500 mm + 126 mm



Size	8	12	18	25	40	63
L12 per end position [mm]	27.5	36.5	46.5	63	100	172

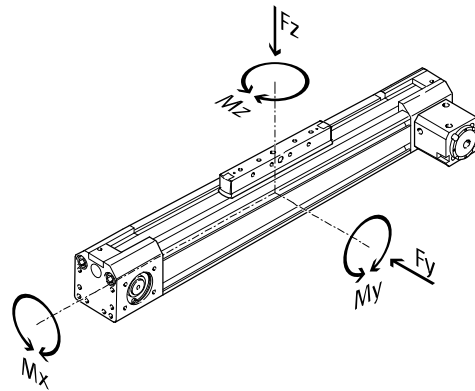
Toothed belt axes DGE-ZR

Technical data

Characteristic load values

The indicated forces and torques refer to the centre line of the internal diameter of the profile.

They must not be exceeded in the dynamic range. Special attention must be paid to the cushioning phase.



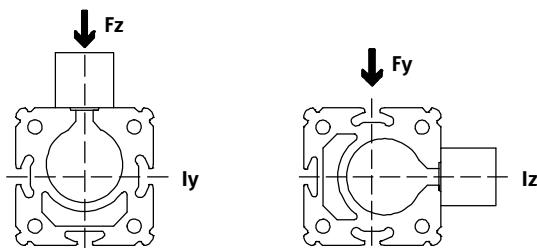
If the drive is subjected to more than two of the indicated forces and torques simultaneously, the following equations must be satisfied in addition to the indicated maximum loads.

$$0.4 \times \frac{F_z}{F_{z_{\max}}} + \frac{M_x}{M_{x_{\max}}} + \frac{M_y}{M_{y_{\max}}} + 0.2 \times \frac{M_z}{M_{z_{\max}}} \leq 1$$


$$\frac{F_z}{F_{z_{\max}}} \leq 1 \quad \frac{M_z}{M_{z_{\max}}} \leq 1$$

Permissible forces and torques		8	12	18	25	40	63
F _y _{max.}	[N]	-	-	-	-	-	-
F _z _{max.}	[N]	38	59	120	330	800	1600
M _x _{max.}	[Nm]	0.15	0.3	0.5	1	4	8
M _y _{max.}	[Nm]	2	4	11	20	60	120
M _z _{max.}	[Nm]	0.3	0.5	1	3	8	24

2nd moment of area



Size		8	12	18	25	40	63
L _y	[mm ⁴]	6.6x10 ³	19.7x10 ³	69.8x10 ³	224x10 ³	673x10 ³	5688x10 ³
L _z	[mm ⁴]	6.7x10 ³	19.1x10 ³	72.3x10 ³	240x10 ³	748x10 ³	6031x10 ³

-  - Note

Sizing software
PositioningDrives
→ www.festo.com

Toothed belt axes DGE-ZR

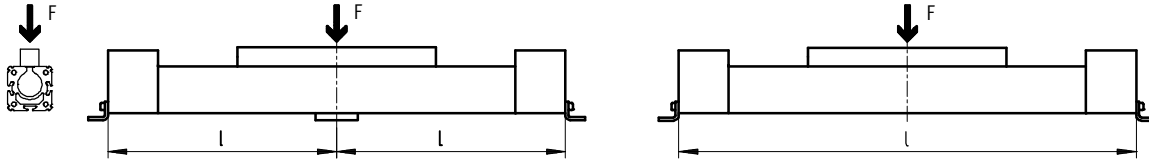
Technical data

Maximum permissible support span l as a function of the force F

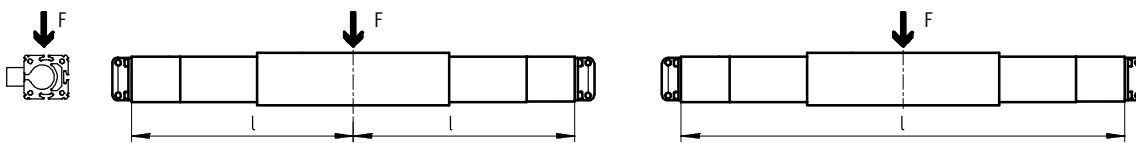
The drive may need to be supported with central supports MUP in order to restrict deflection with long stroke lengths. The following diagrams serve to determine the maximum permissible support span l as a

function of the force acting upon the drive F .

1 Force on the surface of the slide

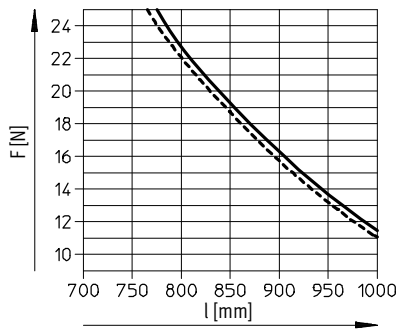


2 Force on the front of the slide

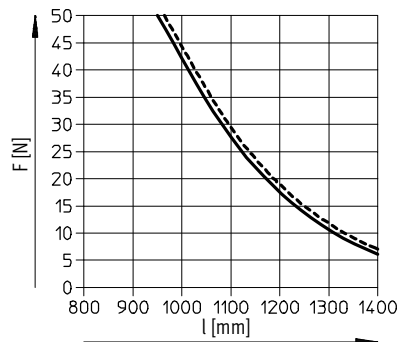


Maximum permissible support span l (without central support) as a function of the force F

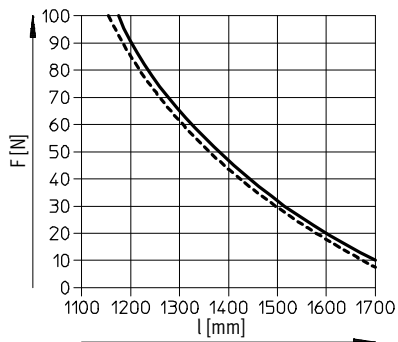
DGE-8



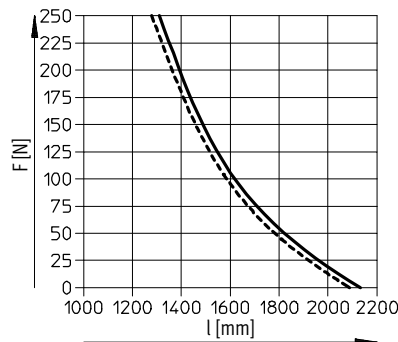
DGE-12



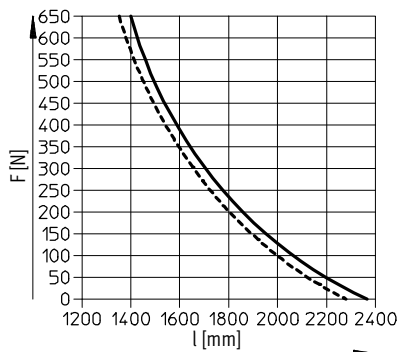
DGE-18



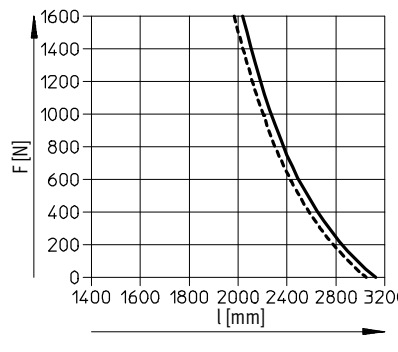
DGE-25




DGE-40



DGE-63



— 1
- - - 2

-  - Type discontinued
Available up until 2019

Toothed belt axes DGE-ZR

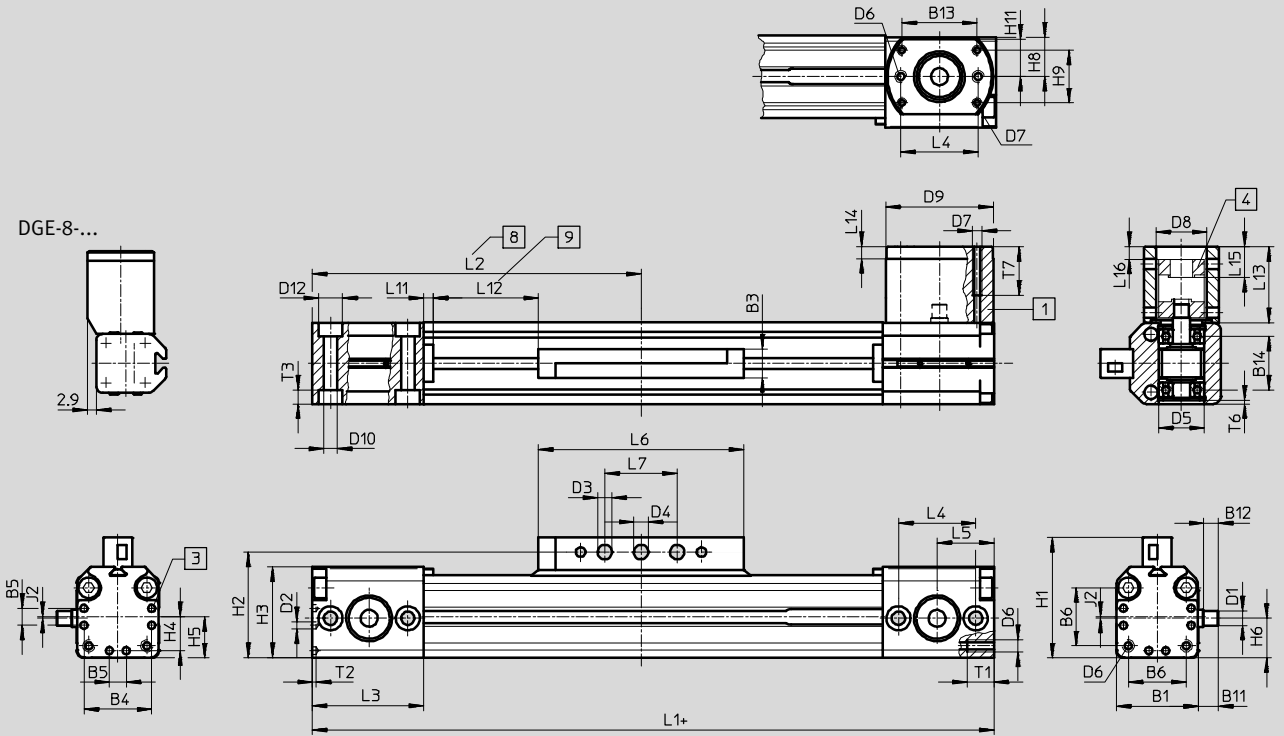
Technical data

FESTO

Dimensions

Download CAD data → www.festo.com

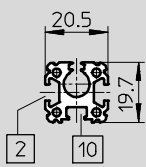
Size 8 ... 18



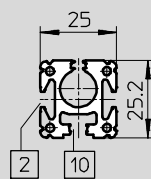
- 1 Coupling housing
- 2 Centring hole for foot mounting
- 3 Coupling
- 4 Driver in end position of working stroke (stroke reserve up to mechanical stop still present)
- 5 Stroke reserve → page 11
- 6 + = plus stroke length

Profile

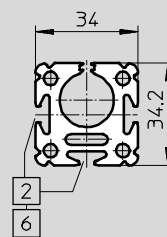
Size 8



Size 12



Size 18



- 2 Sensor slot for proximity sensor
- 6 Mounting slot for slot nut NST
- 10 Not suitable for proximity sensor

- 1 - Type discontinued
Available up until 2019

FESTO


Toothed belt axes DGE-ZR

Technical data

Size	B1 +0.2	B3 ±0.1	B4	B5	B6	B11	B12	B13	B14	D1 ∅ g6	D2 ∅	D3 ∅ H11	D4 ∅ H7	D5 ∅	D6	D7
8	20.5	8	16	4	13	7.3	5	-	12	4	2	3.4	4	12	M3	M3
12	25	8	21	6	18.6	8.7	6.5	22.7	16.2	4	2	3.4	4	16	M3	M3
18	34	12	28	7	24	7.7	5.5	31.1	22	6	3	5.4	6	19	M5	M4

Size	D8 ∅	D9 ∅ g7	D10	D12	H1	H2	H3	H4	H5	H6	H8	H9	H11	J2	L1	L2
8	16	28.7	3.4	6	30	26.5	23.1	8	9.8	8.1	11	0	11	1.7	180	90
12	16	30	3.4	6	35.5	32	28.6	10.5	12.5	11.8	11	13.1	11	0.7	216	108
18	21	44	5.5	10	49.8	43.8	37.6	14	17	16.4	15.5	21.8	15.5	0.6	282	141

Size	L3	L4 ±0.1	L5	L6 +4	L7 ±0.1	L11 ±0.1	L12	L13	L14	L15	L16	T1	T2	T3	T6	T7
8	30	21	15.5	52	15	4	27.5	27.5	5	9.7	3.2	7	1.1	3.4	0.7	18.8
12	33	24	17	64	15	4	36.5	29	5	11.3	4.8	7	1.1	3.4	0.8	29
18	46	32	23.5	85	30	4	46.5	31.5	5	12.8	5.3	11	1.6	5.7	1.5	19

-  - Type discontinued
Available up until 2019

Toothed belt axes DGE-ZR

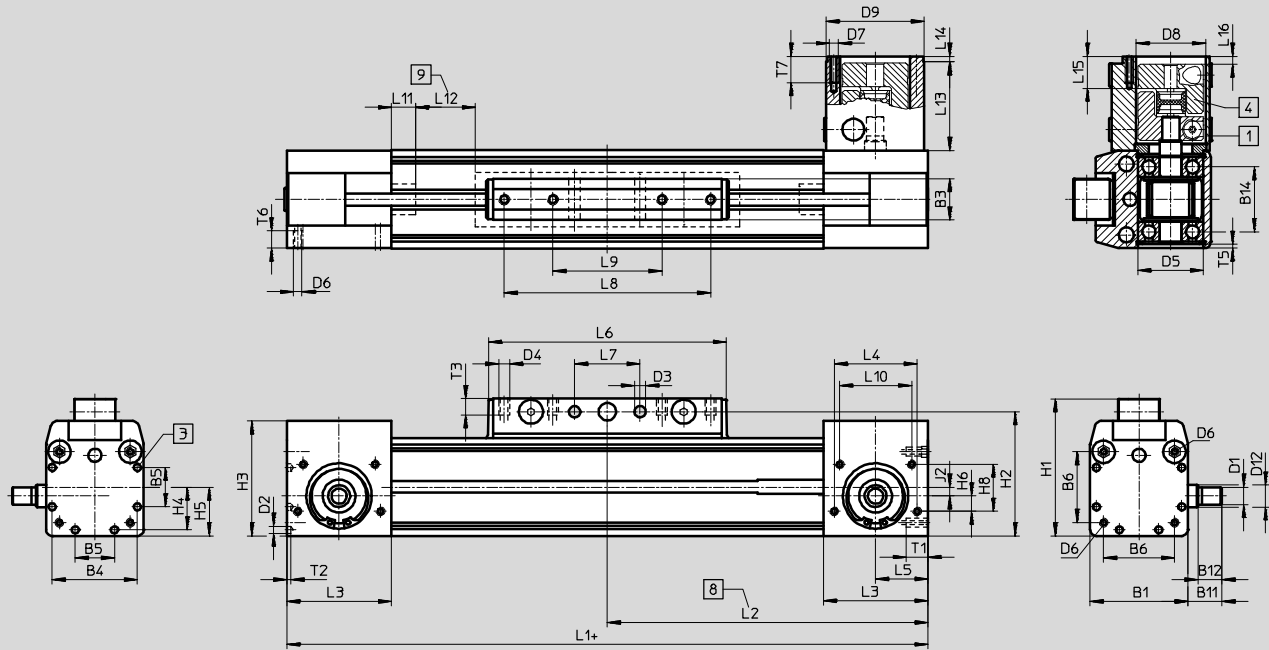
Technical data

FESTO

Dimensions

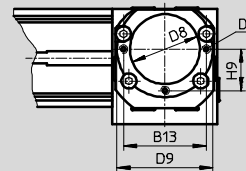
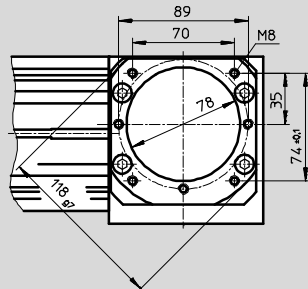
Size 25 ... 63

Download CAD data → www.festo.com



Size 63

Size 25/40



- 1 Coupling housing
- 3 Centring hole for foot mounting HP
- 4 Coupling

- 8 Driver in end position of working stroke (stroke reserve up to mechanical stop still present)

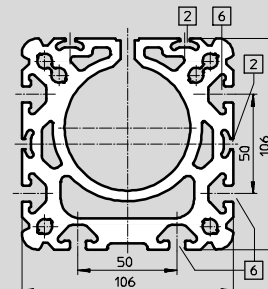
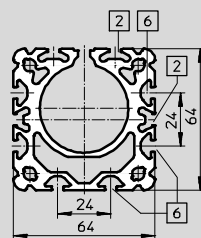
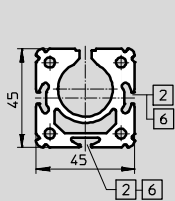
- 9 Stroke reserve → page 11
- + = plus stroke length

Profile

Size 25

Size 40

Size 63



- 2 Sensor slot for proximity sensor
- 6 Mounting slot for slot nut NST

Toothed belt axes DGE-ZR

Technical data

Size	B1	B3 +0.2	B4	B5	B6	B11	B12	B13	B14	D1 ∅ h6	D2 ∅	D3 ∅ +0.2	D4
25	45	19	39.1	18	32.5	15.5	11	38	29.8	8	3.3	5.2	M5
40	64	21	53	28	49	30	24.5	56	43.5	15	4.3	6.5	M6
63	106	24	89	44	83	41	35	-	77.7	25	6.3	8.5	M8

Size	D5 ∅ H7	D6	D7	D8 ∅	D9 ∅ g7	D12 ∅	H1	H2	H3	H4	H5	H6	H8
25	30	M4	M4	32	44	10	63	57	52.8	19.6	22.5	7	21.6
40	40	M5	M6	48	64	17	86	78	71.8	26.5	32	11.5	31
63	62	M8	M8	78	-	31	131	122	115	44.5	53	21.5	49

Size	H9 ±0.1	J2	L1	L2	L3	L4	L5	L6	L7 ±0.1	L8 ±0.1	L9 ±0.1	L10
25	19	4.1	372	186	48	38	24	109	30	-	50	33
40	28	5	569	284.5	67	54	34	171	70	130	40	54
63	35	6.5	882	441	106	84	55	234	110	190	70	84

Size	L11	L12	L13	L14	L15	L16 ¹⁾	T1	T2	T3	T5	T6	T7
25	11	63	40	3.2	14.6	3.6	10	2	7.5	1.4	8	10
40	15	100	65	4	22.8	-2.2	12	3	10.5	1.9	10	13
63	15	172	91	5	35	0	21	4	12.5	4.5	15	16

1) Negative dimension: Protrudes above coupling housing

- 1 - Type discontinued
Available up until 2019

FESTO

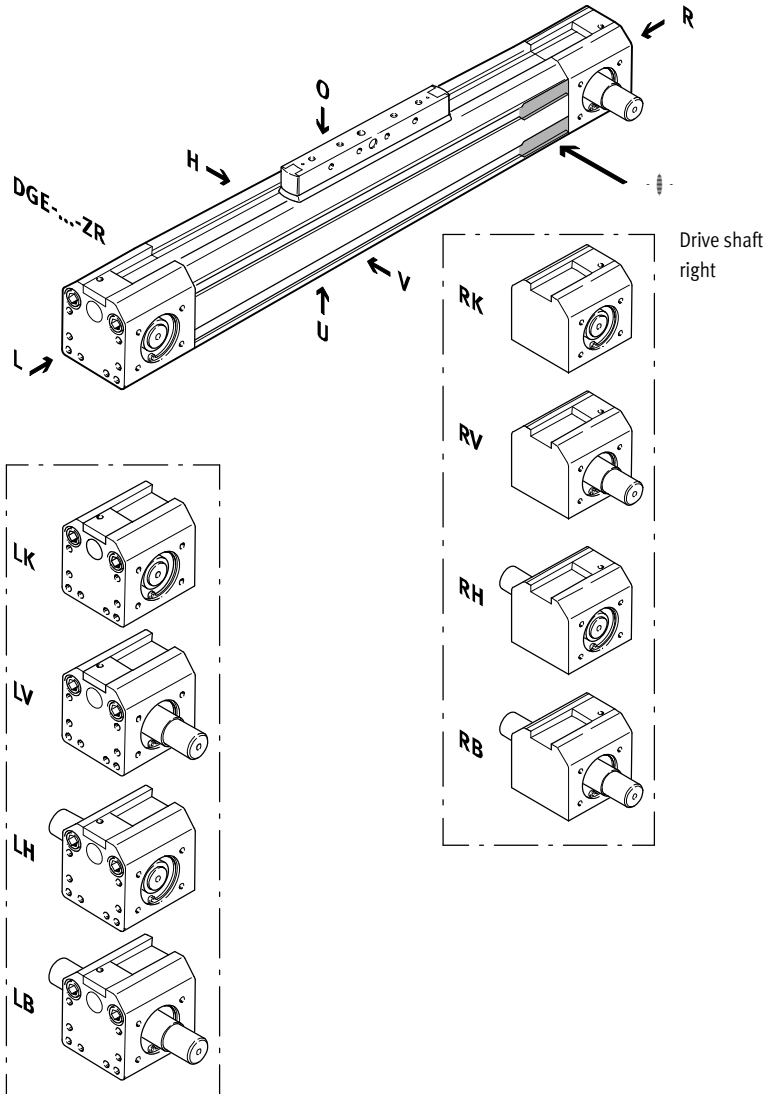
Toothed belt axes DGE-ZR

Ordering data – Modular products

Order code

Mandatory data

- LK No drive shaft on left
- LV Drive shaft on left, front
- LH Drive shaft on left, rear
- LB Drive shaft on left, front and rear
- RK No drive shaft on right
- RV Drive shaft on right, front
- RH Drive shaft on right, rear
- RB Drive shaft on right, front and rear



-  - Note

The insertion point for the proximity sensor is located on the right side of the toothed belt axis DGE-ZR

- O top
- U underneath
- R right
- L left
- V front
- H rear

- 1 - Type discontinued
Available up until 2019

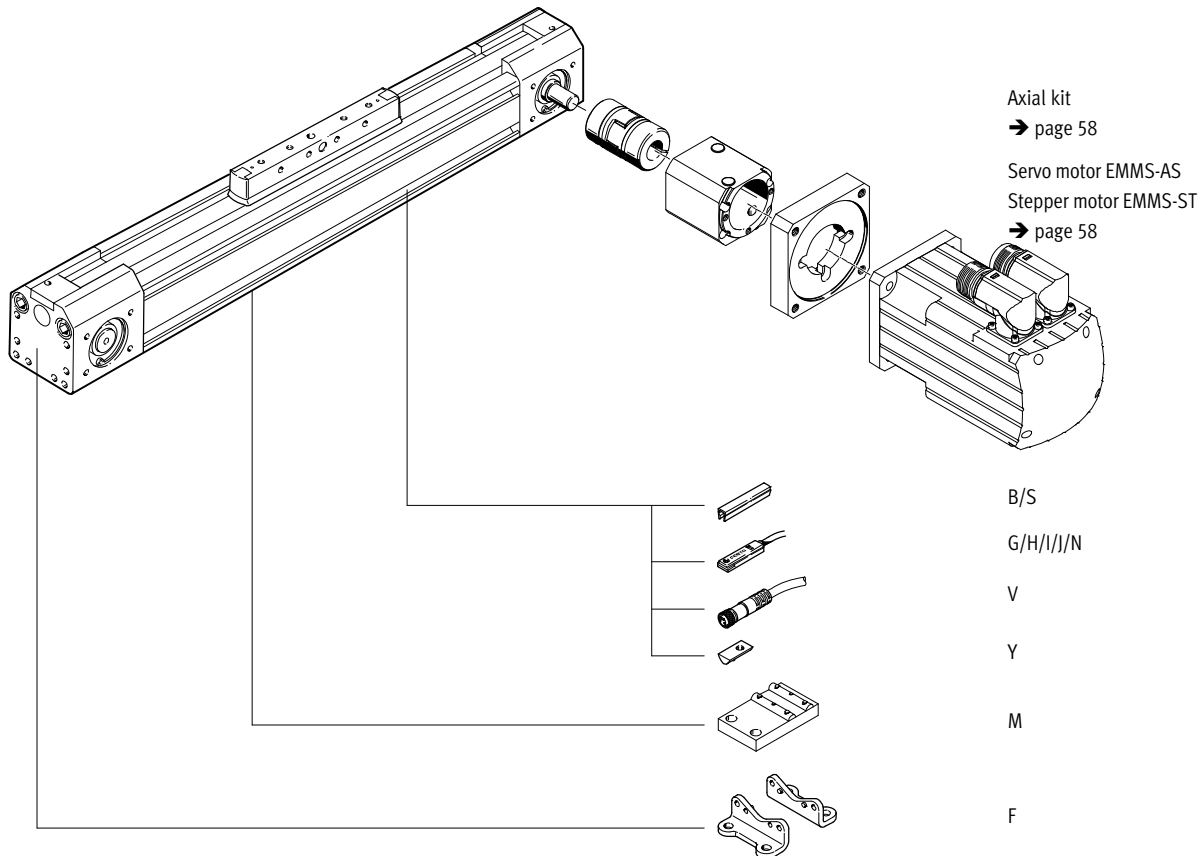
FESTO

Toothed belt axes DGE-ZR

Ordering data – Modular products

Order code

Options



- 1 - Type discontinued
Available up until 2019

FESTO

Toothed belt axes DGE-ZR

Ordering data – Modular products

Ordering table										
Size	8	12	18	25	40	63	Condi- tions	Code	Enter code	
M Module No.	193739	193740	193741	193742	193743	193744				
Design	Electromechanical linear axis							DGE	DGE	
Size	8	12	18	25	40	63		-...		
Stroke [mm]	1 ... 650	1 ... 1000		1 ... 3000	1 ... 4000	1 ... 4500	1	-...		
Drive function	Electromechanical drive with toothed belt								-ZR	-ZR
Drive shaft on left	No drive shaft on left							2	-LK	
	Drive shaft on left, front								-LV	
	Drive shaft on left, rear								-LH	
	Drive shaft on left, front and rear								-LB	
Drive shaft on right	No drive shaft on right							3	-RK	
	Drive shaft on right, front								-RV	
	Drive shaft on right, rear								-RH	
	Drive shaft on right, front and rear								-RB	

1 **Stroke** Special stroke lengths:
Module No. 8: 1000 mm
Module No. 12: 1400 mm
Module No. 18: 1700 mm
Module No. 25: 5100 mm
Module No. 40: 4900 mm
Module No. 63: 4700 mm

2 **LK** Not with drive shaft on right RK.
3 **RK** Not with drive shaft on left LK.

M Mandatory data

O Options

Transfer order code

DGE - - - **ZR** - -

- 1 - Type discontinued
Available up until 2019

FESTO

Toothed belt axes DGE-ZR

Ordering data – Modular products

Ordering table											
Size		8	12	18	25	40	63	Condi- tions	Code	Enter code	
↓	Accessories	Supplied separately							ZUB-	ZUB-	
⓪	Slot cover	Sensor slot	1 ... 10							...S	
		Mounting slot	-	-	-	-	1 ... 10		...B		
	Slot nut	for mounting slot	-	-	1 ... 10				...Y		
	Central support	1 ... 10							...M		
	Foot mounting (kit)	1 ... 10							...F		
	Proximity sensor	with cable 2.5 m	1 ... 10							...G	
		with plug	1 ... 10							...H	
		contactless with cable 2.5 m	1 ... 10							...I	
		contactless, plug	1 ... 10							...J	
		NC contact with cable 2.5 m	1 ... 10							...N	
	Cable with socket, 2.5 m	1 ... 10							...V		

Mandatory data

Options

Transfer order code

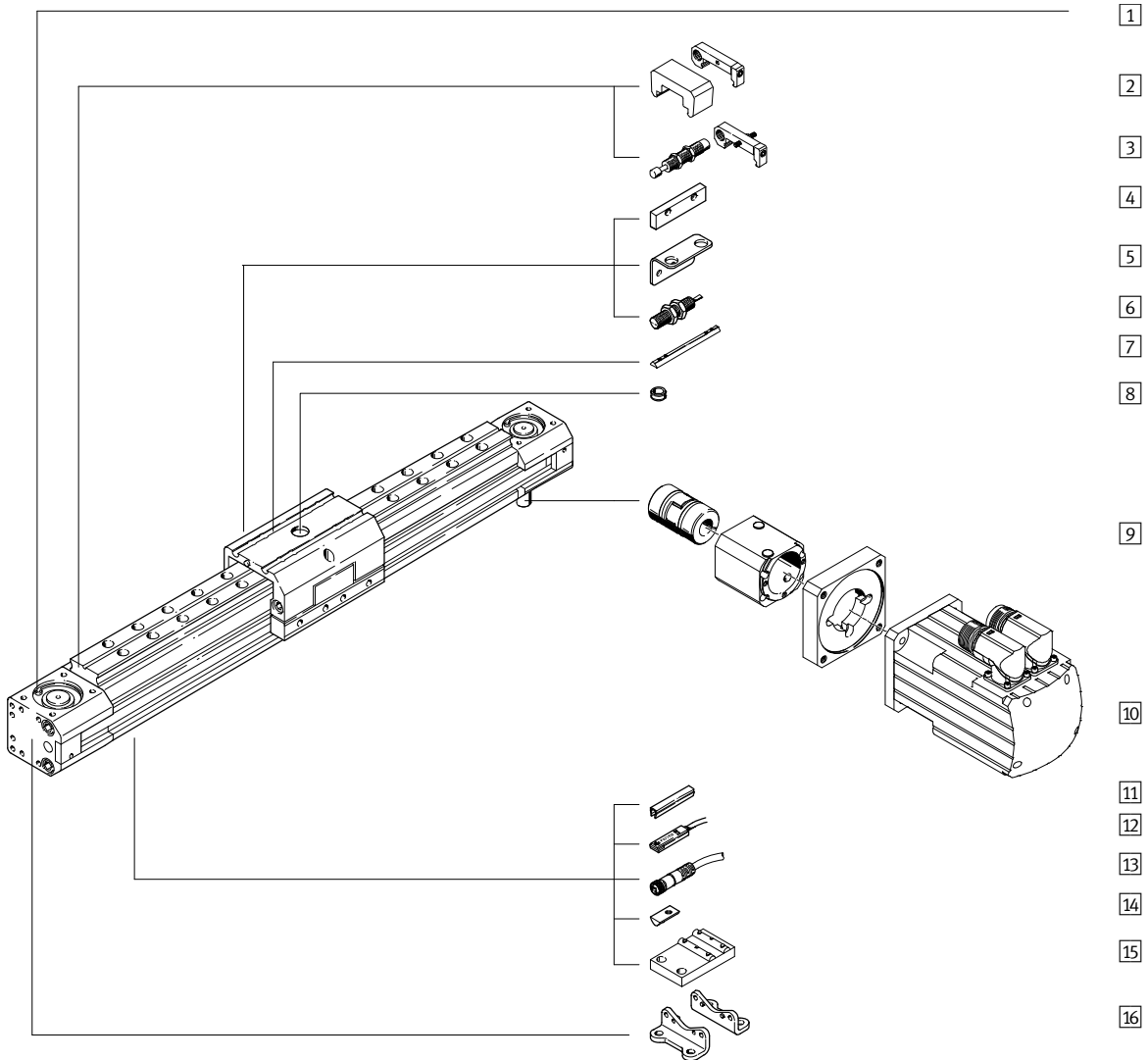
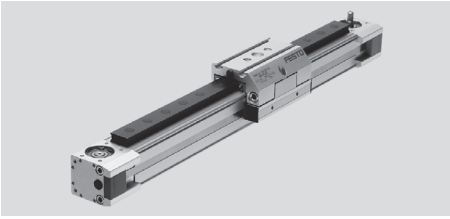
ZUB -

- 1 - Type discontinued
Available up until 2019

Toothed belt axes DGE-ZR-KF, with recirculating ball bearing guide

Peripherals overview

FESTO



Toothed belt axes DGE-ZR-KF, with recirculating ball bearing guide

Peripherals overview

Variants and accessories				
Type	Description	GK/GV	GA	→ Page/Internet
1	Toothed belt axis DGE-ZR-KF	■	■	24
2	Emergency buffer with retainer ¹⁾ A	■	■	67
3	Shock absorber kits C	■	-	66
3	Shock absorber kits E	-	■	67
4	Switching lug L	■	-	68
5	Sensor bracket T	■	-	68
6	Inductive proximity sensor O/P/R/W	■	-	71
7	Slot nut for slide X	■	■	70
8	Centring pins/sleeves Z	■	■	70
9	Axial kit EAMM-A	■	■	58
10	Motor EMMS	■	■	58
11	Slot cover B/S	■	■	70
12	Proximity sensor G/H/I/J/N	■	■	71
13	Cable with socket V	■	■	71
14	Slot nut for mounting slot Y	■	■	70
15	Central support M	■	■	65
16	Foot mounting F	■	■	64

1) Fitted as standard for GV and GA

- 1 - Type discontinued
Available up until 2019

Toothed belt axes DGE-ZR-KF, with recirculating ball bearing guide

FESTO


Type code

	DGE	-	25	-	500	-	ZR	-	LK	-	RV	-	KF	-	GK	-	KL	
Type																		
DGE	Toothed belt drive																	
Size																		
Stroke [mm]																		
Drive function																		
ZR	Toothed belt																	
Drive shaft on left																		
LK	No drive shaft on left																	
LV	Drive shaft on left, front																	
LH	Drive shaft on left, rear																	
LB	Drive shaft on left, front and rear																	
Drive shaft on right																		
RK	No drive shaft on right																	
RV	Drive shaft on right, front																	
RH	Drive shaft on right, rear																	
RB	Drive shaft on right, front and rear																	
Guide																		
KF	Recirculating ball bearing guide																	
Slide																		
GK	Standard slide																	
GV	Extended slide																	
GA	Protected version																	
Additional slide																		
KL	Left																	
KR	Right																	

Toothed belt axes DGE-ZR-KF, with recirculating ball bearing guide

Type code

		+ ZUB	- 2S	-	- M	- F			Z	2H	2V			
Accessories														
ZUB	Accessories supplied loose													
Slot cover														
...S	Sensor slot													
...B	Mounting slot													
Slot nut														
...Y	For mounting slot													
...X	For slide													
Central support														
...M	Central support													
Foot mounting														
...F	Foot mounting													
Emergency buffer														
...A	Emergency buffer with retainer													
Shock absorber kit														
...C	Plus retainer for GK/GV													
...E	For GA													
Centring sleeve														
...Z	For slide													
Proximity sensor														
...G	With cable, 2.5 m													
...H	With plug													
...I	Contactless, with cable, 2.5 m													
...J	Contactless, plug													
...N	NC contact with cable, 2.5 m													
Cable with socket														
...V	2.5 m													
Sensor bracket														
...T	For inductive proximity sensors													
Switching lug														
L	Switching lug													
Inductive proximity sensor														
...O	NO contact, cable													
...P	NC contact, cable													
...W	NO contact, plug													
...R	NC contact, plug													

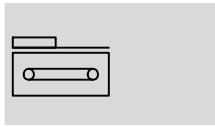
-  - Type discontinued
Available up until 2019

Toothed belt axes DGE-ZR-KF, with recirculating ball bearing guide

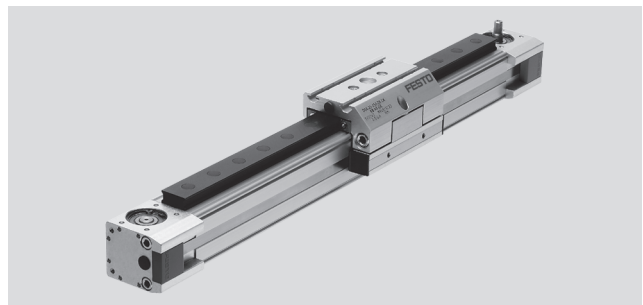
FESTO



Technical data

Function



 www.festo.com



-  - Size
8 ... 63
-  - Stroke length
1 ... 4500 mm

General technical data			8	12	18	25	40	63
Size			8	12	18	25	40	63
Constructional design			Electromechanical axis with toothed belt and recirculating ball bearing guide					
Guide			Recirculating ball bearing guide					
Mounting position			Any					
Max. working stroke ¹⁾	GK [mm]		1 ... 650	1 ... 1000	1 ... 1000	1 ... 3000 ²⁾	1 ... 4000 ²⁾	1 ... 4500 ²⁾
	GV [mm]		–	–	1 ... 920	1 ... 2900	1 ... 3830	1 ... 4250
	GA [mm]		–	–	–	1 ... 1800	1 ... 1800	–
Max. working load	[kg]		1.5	3	6	20	50	120
Max. feed force F_x	[N]		15	30	60	260	610	1500
Max. radial force ³⁾	[N]		103	77	290	307	984	2600
Radial force ⁴⁾	[N]		56	96	117	235	370	840
Radial force ⁵⁾	[N]		40	70	80	140	170	400
Max. driving torque	[Nm]		0.08	0.18	0.5	2.6	9.7	42
Max. no-load driving torque ⁶⁾	[Nm]		0.05	0.08	0.2	0.5	1.0	4.5
Max. speed	[m/s]		3	3	3	3	3	3
Max. acceleration	[m/s ²]		15	20	20	50	50	50
Repetition accuracy	[mm]		±0.08			±0.1		

- 1) Total stroke = working stroke + 2x stroke reserve
- 2) Special lengths on request
- 3) On the drive shaft
- 4) On the drive shaft, with a service life of 5000 km
- 5) On the drive shaft, with a service life of 10000 km
- 6) Measured at a speed of 0.2 m/s

Operating and environmental conditions			8	12	18	25	40	63
Size			8	12	18	25	40	63
Ambient temperature	[°C]		–10 ... +40					
Protection class			IP40					

Weights [kg]			8	12	18	25	40	63
Size			8	12	18	25	40	63
Basic weight with 0 mm stroke ¹⁾	GK		0.32	0.66	1.16	2.6	7.6	30.3
	GV		–	–	1.62	3.52	9.52	40.2
	GA		–	–	–	3.51	9.67	–
Additional weight per 100 mm stroke	GK/GV		0.095	0.14	0.26	0.47	0.94	2.6
	GA		–	–	–	0.56	1.06	–
Moving load	GK		0,085	0,14	0,32	0,71	1,8	5
	GV		–	–	0,48	0,97	2,52	7,46
	GA		–	–	–	1,27	3,17	–
Additional slide	KL/KR		–	–	0.25	0.38	1.06	3.1

- 1) Including coupling housing and slide

Toothed belt axes DGE-ZR-KF, with recirculating ball bearing guide

Technical data

Mass moment of inertia		8	12	18	25	40	63
Size							
J_0	GK [kg cm ²]	0.025	0.058	0.247	0.81	5.25	50.7
	GV [kg cm ²]	-	-	0.355	1.08	7.14	70.9
	GA [kg cm ²]	-	-	-	1.37	8.71	-
J_H per metre stroke	[kg cm ² /m]	0.003	0.009	0.021	0.078	0.45	3.6
J_L per kg working load	[kg cm ² /kg]	0.259	0.365	0.685	1	2.53	7.85

The mass moment of inertia J_A of the entire axis is calculated as follows:

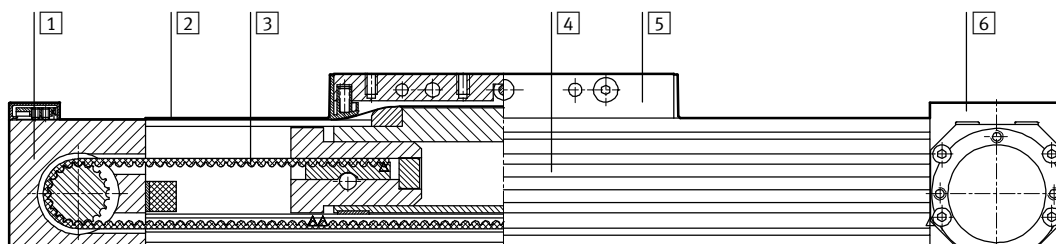
$$J_A = J_0 + J_H \times \text{working stroke [m]} + J_L \times m_{\text{working load [kg]}}$$

Toothed belt		8	12	18	25	40	63
Size							
Tensile stress ¹⁾	[%]	0.04	0.1	0.2	0.11	0.1	0.15
Pitch	[mm]	2	2	2	3	5	8
Effective diameter	[mm]	10.18	12.09	16.55	20.05	31.83	56.02
Feed constant	[mm/rev.]	32	38	52	63	100	176


1) At max. feed force

Materials

Sectional view



Axis		
1	Return pulley housing	Anodised aluminium
2	Cover strip	Corrosion resistant steel
3	Toothed belt	Polychloroprene with Glascord and nylon coating
4	Profile	Anodised aluminium
5	Slide	Anodised aluminium
6	Drive housing	Anodised aluminium

-  - Type discontinued
Available up until 2019

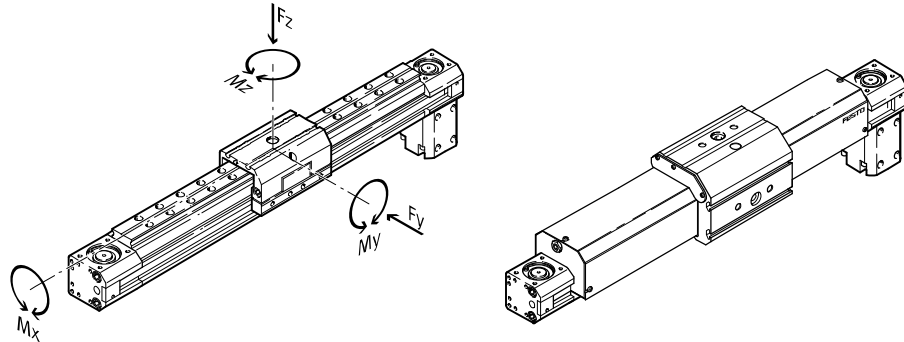
Toothed belt axes DGE-ZR-KF, with recirculating ball bearing guide

FESTO

Technical data

Characteristic load values for axis with standard slide GK or protected version GA

The indicated forces and torques refer to the centre of the guide rail. They must not be exceeded in the dynamic range. Special attention must be paid to the cushioning phase.

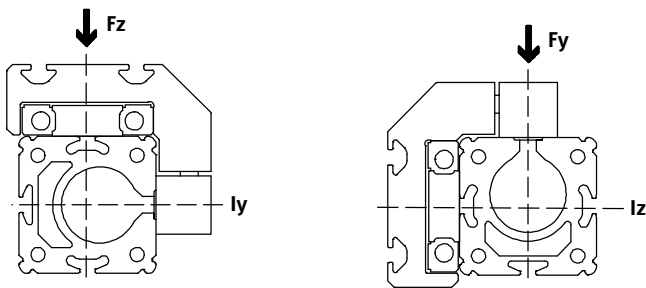


If the axis is subjected to more than two of the indicated forces and torques simultaneously, the following equations must be satisfied in addition to the indicated maximum loads.


$$\frac{F_y}{F_{y_{\max}}} + \frac{F_z}{F_{z_{\max}}} + \frac{M_x}{M_{x_{\max}}} + \frac{M_y}{M_{y_{\max}}} + \frac{M_z}{M_{z_{\max}}} \leq 1$$

Permissible forces and torques		8	12	18	25	40	63
F _y _{max.}	[N]	255	565	930	3080	7300	14050
F _z _{max.}	[N]	255	565	930	3080	7300	14050
M _x _{max.}	[Nm]	1	3	7	45	170	580
M _y _{max.}	[Nm]	3.5	9	23	85	330	910
M _z _{max.}	[Nm]	3.5	9	23	85	330	910

2nd moment of area



Size		8	12	18	25	40	63
ly	[mm ⁴]	16.9x10 ³	46x10 ³	172x10 ³	551x10 ³	1908x10 ³	13677x10 ³
lz	[mm ⁴]	7x10 ³	21x10 ³	73.7x10 ³	250x10 ³	875x10 ³	6987x10 ³

-  - Note

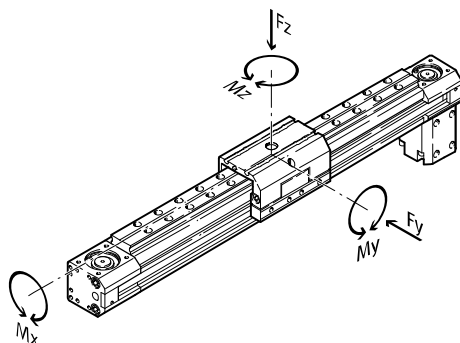
Sizing software
PositioningDrives
→ www.festo.com

Toothed belt axes DGE-ZR-KF, with recirculating ball bearing guide

Technical data

Characteristic load values for axis with extended slide GV

The indicated forces and torques refer to the centre of the guide rail. They must not be exceeded in the dynamic range. Special attention must be paid to the cushioning phase.

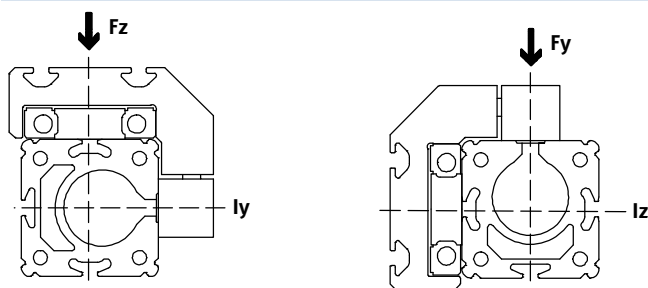


If the axis is subjected to more than two of the indicated forces and torques simultaneously, the following equations must be satisfied in addition to the indicated maximum loads.

$$\frac{F_y}{F_{y_{max}}} + \frac{F_z}{F_{z_{max}}} + \frac{M_x}{M_{x_{max}}} + \frac{M_y}{M_{y_{max}}} + \frac{M_z}{M_{z_{max}}} \leq 1$$

Permissible forces and torques							
Size		8	12	18	25	40	63
F _y _{max.}	[N]	255	565	930	3080	7300	14050
F _z _{max.}	[N]	255	565	930	3080	7300	14050
M _x _{max.}	[Nm]	1	3	7	45	170	580
M _y _{max.}	[Nm]	–	–	45	170	660	1820
M _z _{max.}	[Nm]	–	–	45	170	660	1820

2nd moment of area



Size		8	12	18	25	40	63
l _y	[mm ⁴]	16.9x10 ³	46x10 ³	172x10 ³	551x10 ³	1908x10 ³	13677x10 ³
l _z	[mm ⁴]	7x10 ³	21x10 ³	73.7x10 ³	250x10 ³	875x10 ³	6987x10 ³

- 1 - Type discontinued
Available up until 2019

Toothed belt axes DGE-ZR-KF, with recirculating ball bearing guide

FESTO

Technical data

Stroke reserve

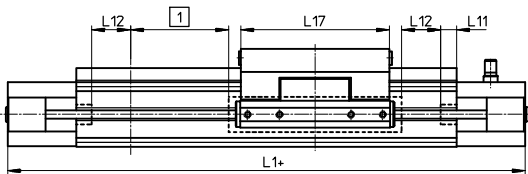
- L1+ Overall length of axis
- L11 Internal mechanical stop
- L17 Slide length
- 3 Emergency buffer
- 4 Shock absorber retainer

1 The working stroke is the effective usable work range. Please quote this in your order.

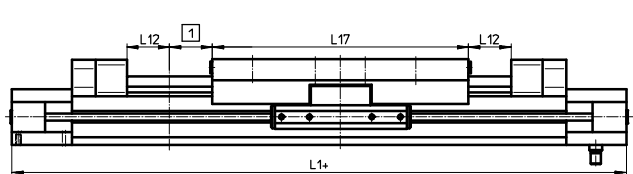
L12 Stroke reserve:
 Safety distance to mechanical stop, present at both ends of the axis in addition to the stroke.

Example:
 Type DGE-25-500-ZR
 Working stroke = 500 mm
 Stroke reserve = (2x 63 mm)
 = 126 mm
 Total stroke:
 626 mm = 500 mm + 126 mm

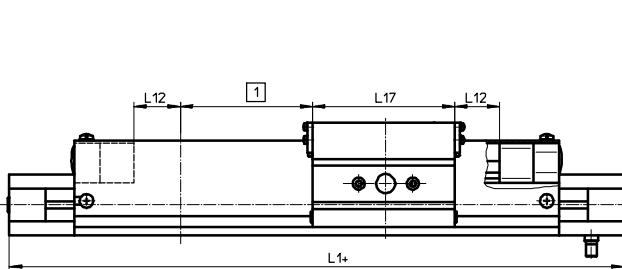
for standard slide GK



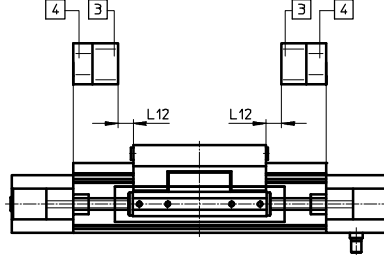
for extended slide GV



for protected version GA



for standard slide GK with optional emergency buffer

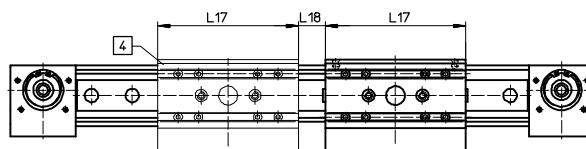


Stroke reserve L12 [mm] per end position

Size	8	12	18	25	40	63
Variant						
Standard slide GK	27.5	36.5	46.5	63	100	172
Standard slide GK with optional emergency buffer	-	-	23.5	41.5	62	116
Extended slide GV	-	-	23.5	41.5	62	116
Protected version GA	-	-	-	41.5	62	-

Working stroke reduction with standard slide GK or extended slide GV and additional slide KL/KR

- L17 = Slide/additional slide length
- L18 = Distance between both slides
- 4 Additional slide



For a toothed belt axis with additional slide, the working stroke is reduced by the length of the additional slide and the distance between both slides.

Example:
 Type DGE-25-500-ZR-...-KF-GK-KL
 Working stroke without additional slide = 500 mm
 L18 = 20 mm
 L17 = 105 mm
 Working stroke with additional slide = 375 mm
 (500 mm - 20 mm - 105 mm)

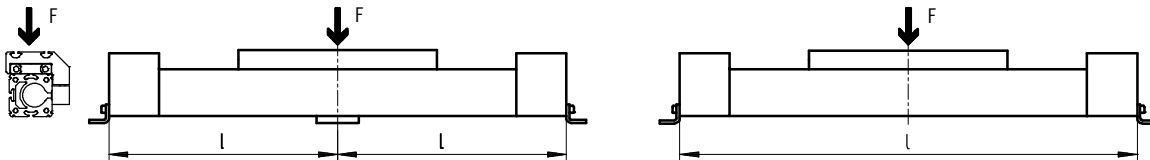
Toothed belt axes DGE-ZR-KF, with recirculating ball bearing guide

Technical data

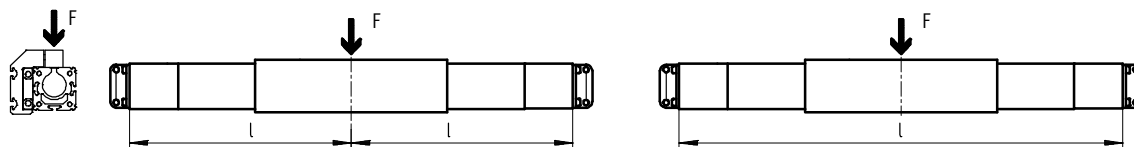
Maximum permissible support span l as a function of the force F

The axis may need to be supported with central supports MUP in order to restrict deflection with long stroke lengths. The following diagrams serve to determine the maximum permissible support span l as a function of the force acting upon the axis F .

1] Force on the surface of the slide

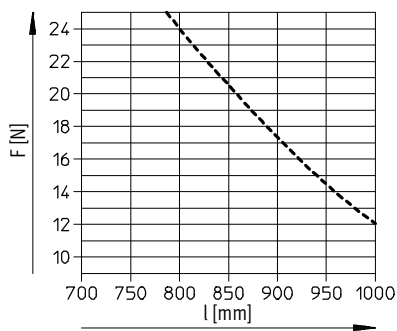


2] Force on the front of the slide

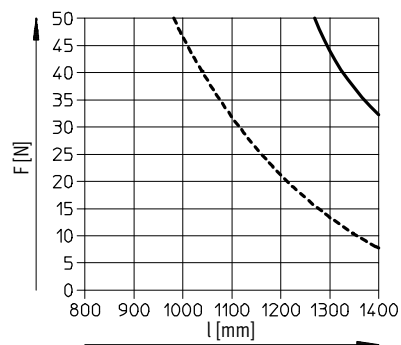


Maximum support span l (without central support) as a function of the force F

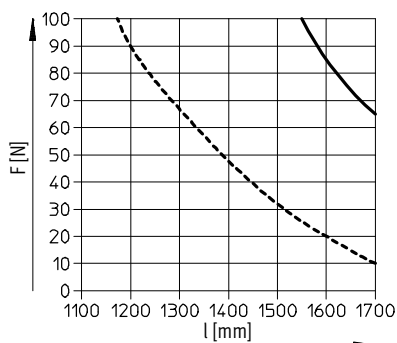
DGE-8



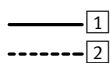
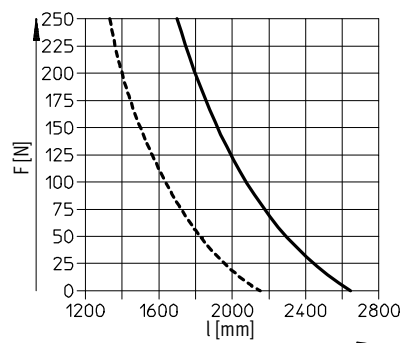
DGE-12




DGE-18



DGE-25



-  - Type discontinued
Available up until 2019

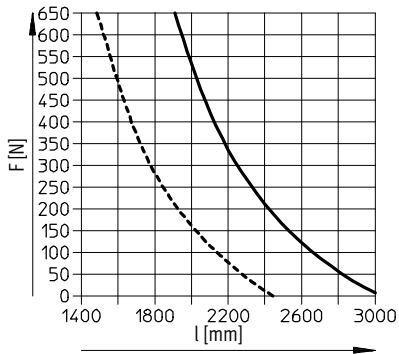
Toothed belt axes DGE-ZR-KF, with recirculating ball bearing guide

FESTO

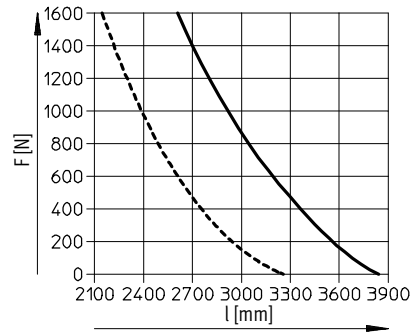
Technical data

Maximum support span l (without central support) as a function of the force F

DGE-40



DGE-63



— 1
- - - 2

Toothed belt axes DGE-ZR-KF, with recirculating ball bearing guide

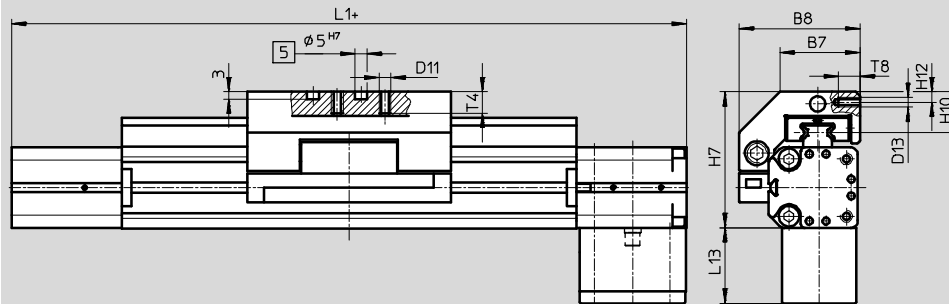
Technical data

Dimensions

Download CAD data → www.festo.com

Standard slide GK

Size 8 ... 18



- 5 Hole for centring pin ZBS-5
- + = plus stroke length

Basic dimensions

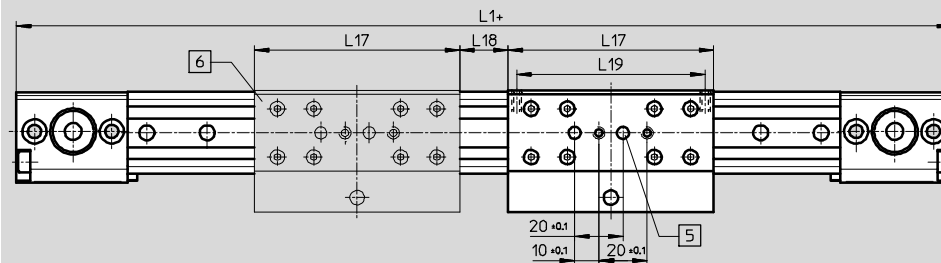
→ 14

Stroke reserve

→ 30

Additional slide KL/KR

Size 18



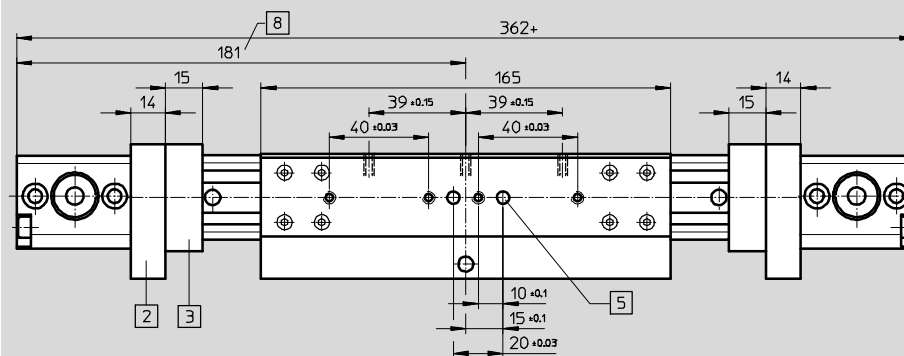
- 5 Hole for centring pin ZBS-5
- 6 Additional slide
- + = plus stroke length

Reduction of working stroke

→ 30

Extended slide GV

Size 18



- 2 Shock absorber retainer KYP
- 3 Emergency buffer NPE
- 5 Hole for centring pin ZBS-5
- 8 Driver in end position of working stroke (stroke reserve up to mechanical stop still present)

+ = plus stroke length

Stroke reserve

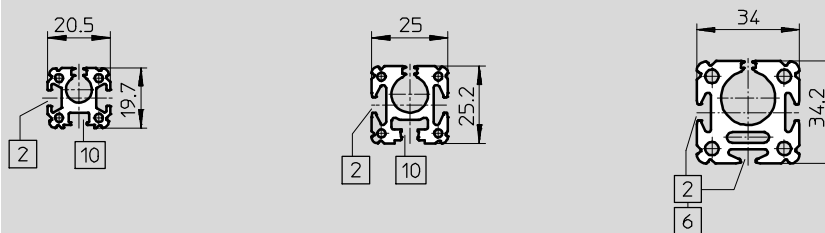
→ 30

Profile

Size 8

Size 12

Size 18



- 2 Sensor slot for proximity sensor
- 6 Mounting slot for slot nut NST
- 10 Not suitable for proximity sensor

Size	B7	B8	D11	D13	H7	H10	H12	L1	L13	L17	L18	L19	T4	T8
8	21.5	32	M4	-	35.5	12	-	180	27.5	52	-	-	7	-
12	22	36.5	M4	-	43.5	14	-	216	29	64	-	-	8.5	-
18	32	50.5	M5	M4	57	17	4.3	282	31.5	85	20	78	10	9

- 1 - Type discontinued
Available up until 2019

Toothed belt axes DGE-ZR-KF, with recirculating ball bearing guide

FESTO

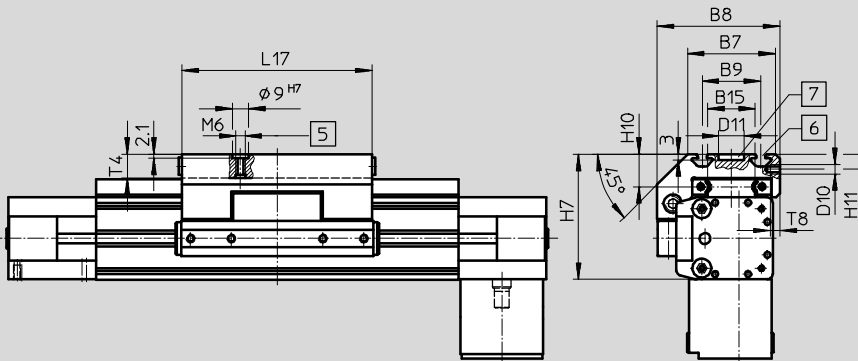
Technical data

Dimensions

Standard slide GK

Download CAD data → www.festo.com

Size 25 ... 63



- 5 Hole for centring sleeve ZBH-9
- 6 Mounting slot for slot nut NSTL
- 7 Hole for central mounting SLZZ

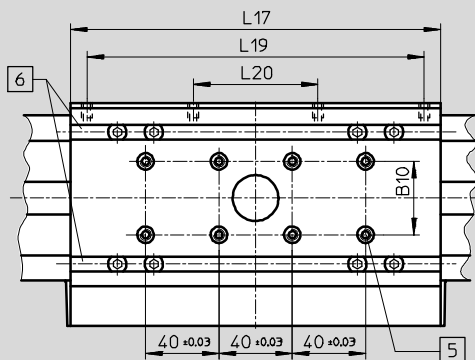
Basic dimensions

→ 16

Stroke reserve

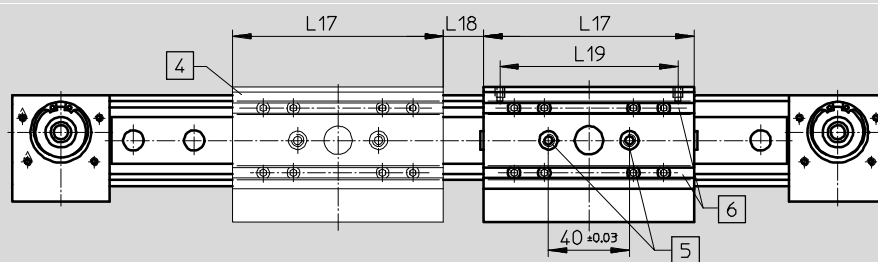
→ 30

Size 40/63



- 5 Hole for centring sleeve ZBH-9
- 6 Mounting slot for slot nut NSTL

Size 25 ... 63



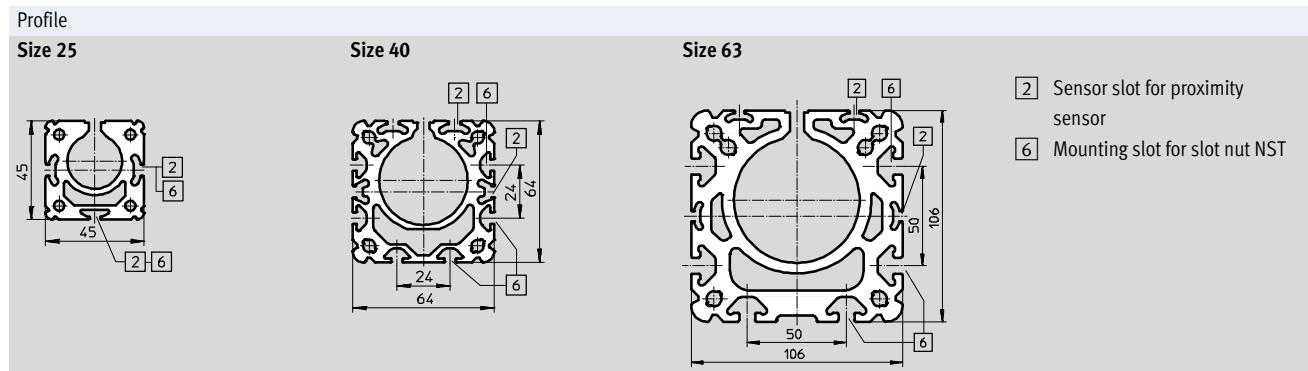
- 4 Additional slide DGE-...-KL/KR
- 5 Hole for centring sleeve ZBH-9
- 6 Mounting slot for slot nut NSTL

Reduction of working stroke

→ page 30

Toothed belt axes DGE-ZR-KF, with recirculating ball bearing guide


Technical data



Size	B7	B8	B9 ±0.2	B10	B15	D10	D11 ∅ G7	H7
25	48	67	32	–	23.5	M5	14	68.5
40	78.5	96.5	55	20	42	M5	25	90.5
63	121	142	90	40	71	M8	25	144.5

Size	H10	H11	L17	L18 ¹⁾	L19 ±0.1	L20 ±0.1	T4 max.	T8
25	18.5	8.2	105	20	88	–	12.5	8.5
40	20	7	167	20	150	58	12.5	8.5
63	30	12.5	230	27	200	72	20.5	10.5

1) Recommended minimum distance for access to lubrication nipple.

-  - Type discontinued
Available up until 2019

Toothed belt axes DGE-ZR-KF, with recirculating ball bearing guide

FESTO

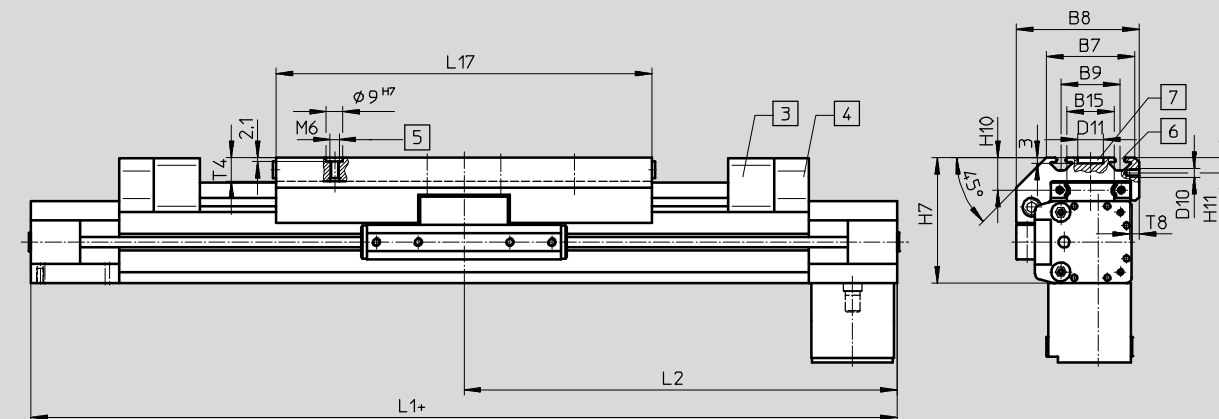
Technical data

Dimensions

Download CAD data → www.festo.com

Extended slide GV

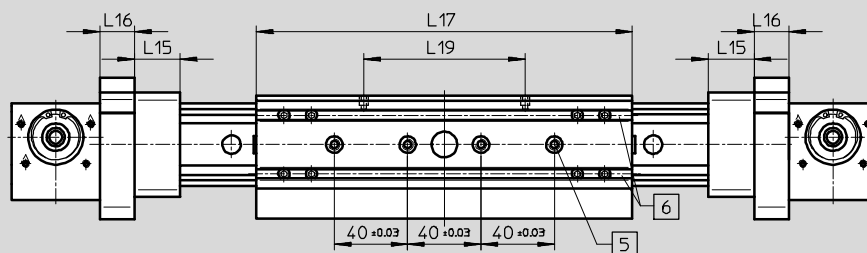
Size 25 ... 63



- 3 Emergency buffer NPE
 - 4 Shock absorber retainer KYP
 - 5 Hole for centring sleeve ZBH-9
 - 6 Slot for slot nut NSTL
 - 7 Hole for central mounting SLZZ
- + = plus stroke length

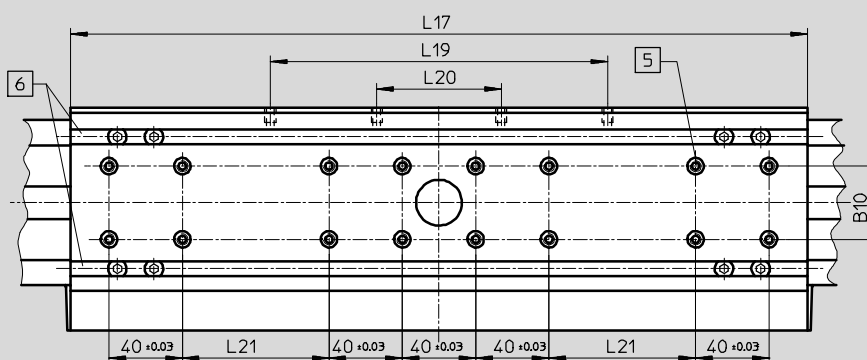
Basic dimensions
→ page 16
Stroke reserve
→ page 30

Size 25



- 5 Hole for centring sleeve ZBH-9
- 6 Slot for slot nut NSTL

Size 40/63



- 5 Hole for centring sleeve ZBH-9
- 6 Slot for slot nut NSTL

- 1 - Type discontinued
Available up until 2019

Toothed belt axes DGE-ZR-KF, with recirculating ball bearing guide

FESTO

Technical data

Size	B7	B8	B9 ±0.2	B15	D10	D11 ∅ G7	H7	H10	H11
25	48	67	32	23.5	M5	14	68.5	18.5	8.2
40	78.5	96.5	55	42	M5	25	90.5	20	7
63	121	142	90	71	M8	25	144.5	30	12.5

Size	L1	L2	l15	L16	L17 ±0.2	L19 ±0.1	L20 ±0.1	L21 ±0.1	T4 max.	T8
25	472	236	25	19	205	88	-	-	12.5	8.5
40	739	369.5	40	32	337	150	58	40	12.5	8.5
63	1132	566	60	44	480	200	72	120	20.5	10.5

- 1 - Type discontinued
Available up until 2019

Toothed belt axes DGE-ZR-KF, with recirculating ball bearing guide

FESTO

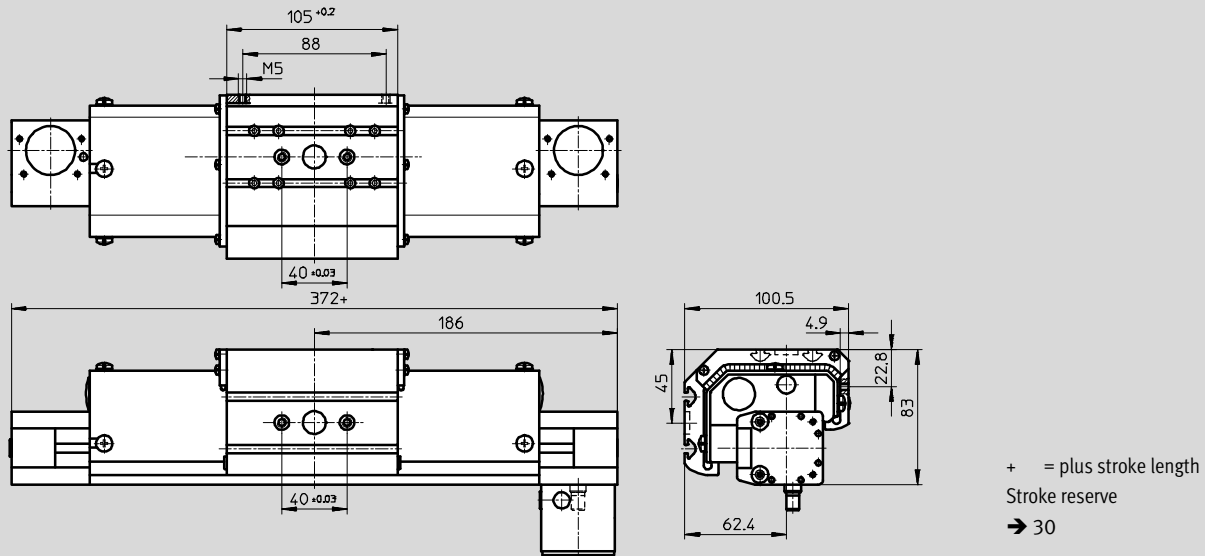
Technical data

Dimensions

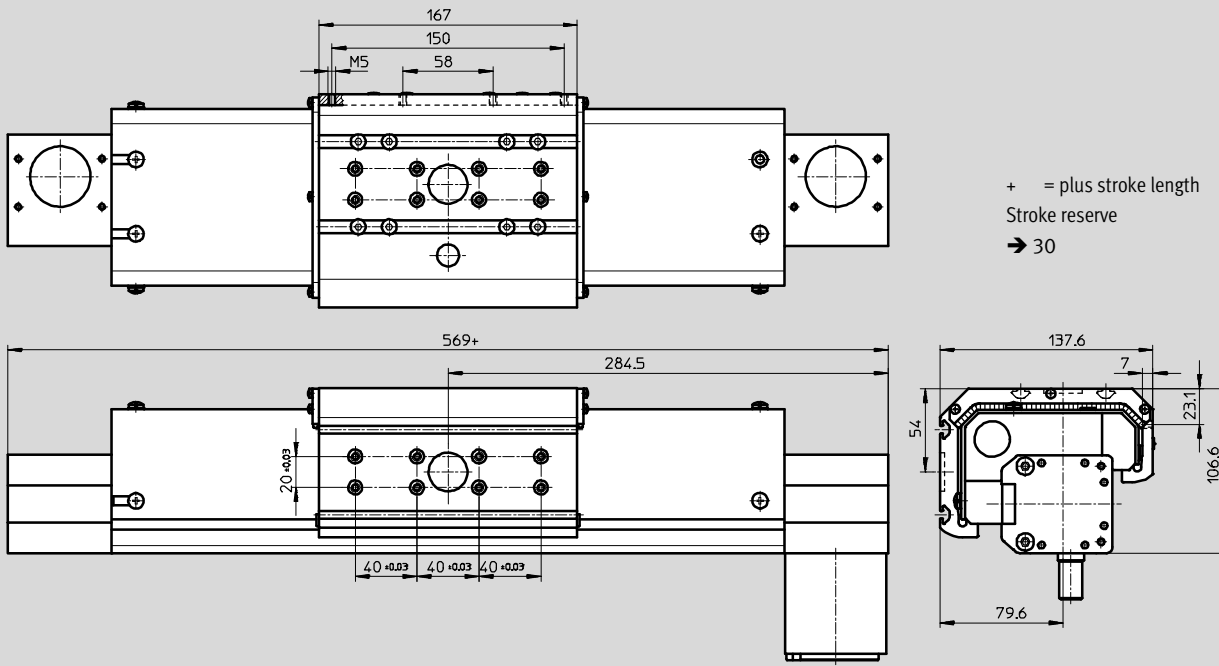
Download CAD data → www.festo.com

Protected version GA

Size 25



Size 40



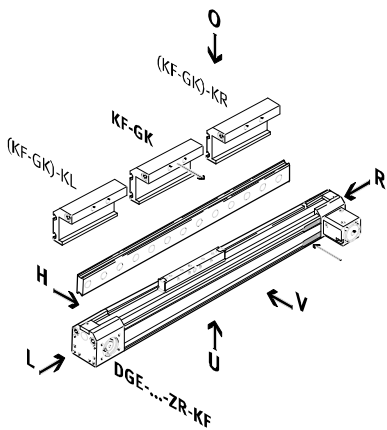
Toothed belt axes DGE-ZR-KF, with recirculating ball bearing guide

Ordering data – Modular products

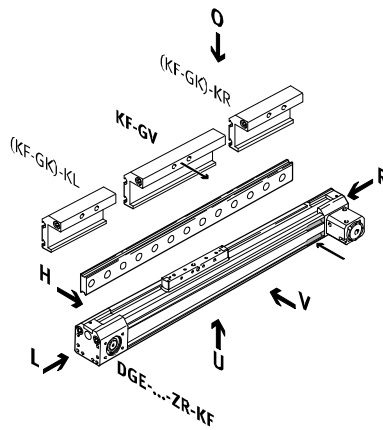
Order code

Mandatory data

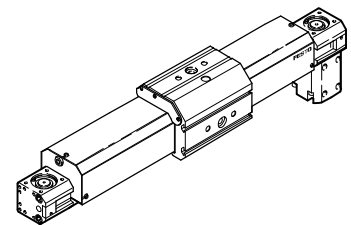
Standard slide GK



Extended slide GV

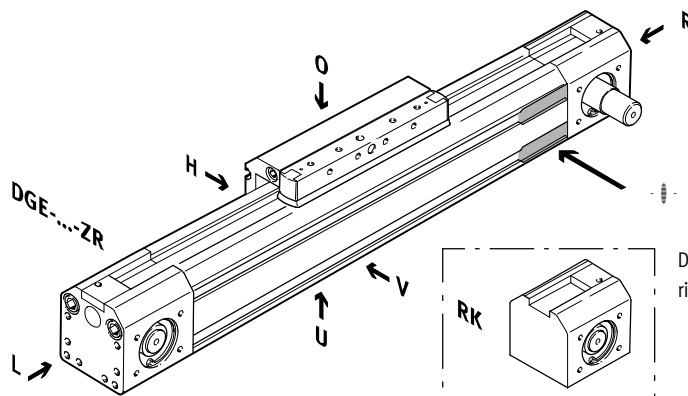


Protected version GA

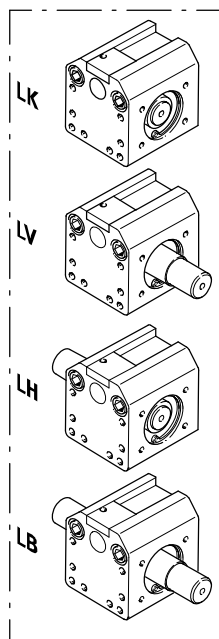


Drive shaft

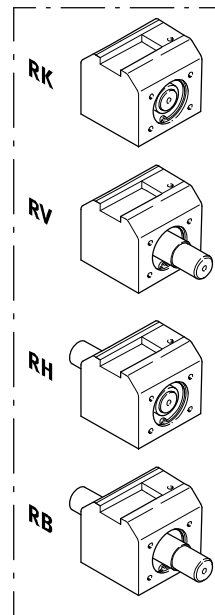
- LK No drive shaft on left
- LV Drive shaft on left, front
- LH Drive shaft on left, rear
- LB Drive shaft on left, front and rear
- RK No drive shaft on right
- RV Drive shaft on right, front
- RH Drive shaft on right, rear
- RB Drive shaft on right, front and rear



Drive shaft left



Drive shaft right



- - Note

The insertion point for the proximity sensor is located on the right side of the toothed belt axis

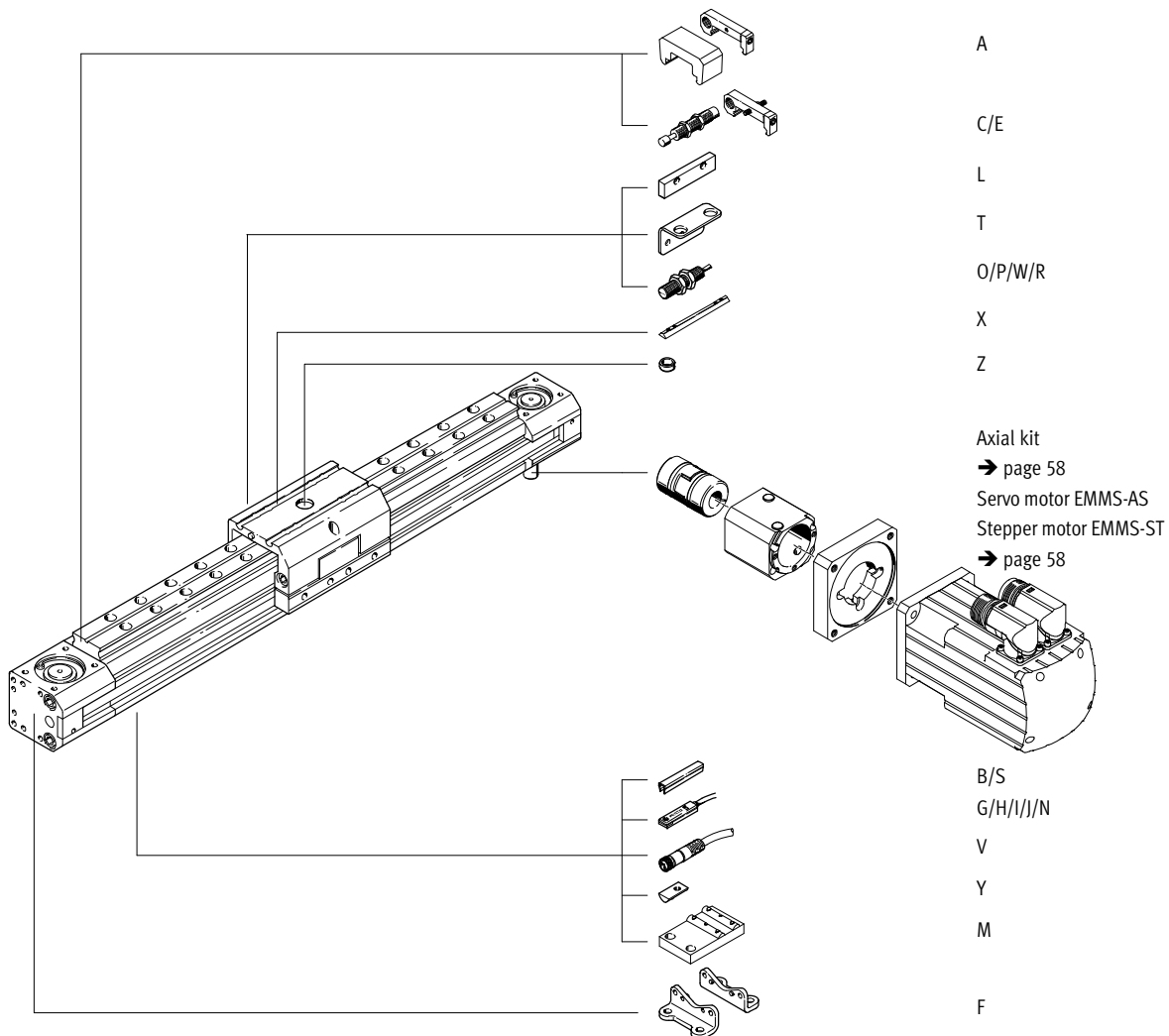
- O top
- U underneath
- R right
- L left
- V front
- H rear

- 1 - Type discontinued
Available up until 2019

FESTO

Toothed belt axes DGE-ZR-KF, with recirculating ball bearing guide

Ordering data – Modular products



- 1 - Type discontinued
Available up until 2019

Toothed belt axes DGE-ZR-KF, with recirculating ball bearing guide

FESTO

Ordering data – Modular products

Ordering table									
Size	8	12	18	25	40	63	Condi- tions	Code	Enter code
M Module No.	193739	193740	193741	193742	193743	193744			
Design	Electromechanical linear axis							DGE	DGE
Size	8	12	18	25	40	63		-...	
Stroke [mm]	1 ... 650	1 ... 1000		1 ... 3000	1 ... 4000	1 ... 4500	1	-...	
Drive function	Electromechanical drive with toothed belt							-ZR	-ZR
Drive shaft on left	No drive shaft on left						2	-LK	
	Drive shaft on left, front							-LV	
	Drive shaft on left, rear							-LH	
	Drive shaft on left, front and rear							-LB	
Drive shaft on right	No drive shaft on right						3	-RK	
	Drive shaft on right, front							-RV	
	Drive shaft on right, rear							-RH	
	Drive shaft on right, front and rear							-RB	

1 **Stroke** Special stroke lengths:
Module No. 8: 1000 mm
Module No. 12: 1400 mm
Module No. 18: 1700 mm
Module No. 25: 5100 mm
Module No. 40: 4900 mm
Module No. 63: 4700 mm

2 **LK** Not with drive shaft on right RK.
3 **RK** Not with drive shaft on left LK.

M Mandatory data
O Options

Transfer order code

DGE - - - **ZR** - -

- 1 - Type discontinued
Available up until 2019

Toothed belt axes DGE-ZR-KF, with recirculating ball bearing guide

FESTO

Ordering data – Modular products

Ordering table											
Size	8	12	18	25	40	63	Condi- tions	Code	Enter code		
0 Guide	Recirculating ball bearing guide						4	-KF	-KF		
Slide	Standard		Standard				5	-GK			
	Extended (maximum stroke for DGE...-ZR-KF-GV)		-	-	Extended (920 mm)	(2 900 mm)	(3 830 mm)	(4 250 mm)		6	-GV
	Dust protection (maximum stroke for DGE...-ZR-KF-GA)		-	-	-	Dust proof version (1 800 mm)		(1 800 mm)		-	6
Additional slide ↓	Left (effective stroke reduction)		-	-	Standard slide left (85 mm)		(105 mm)	(167 mm)	(230 mm)	7	-KL
	Right (effective stroke reduction)		-	-	Standard slide right (85 mm)		(105 mm)	(167 mm)	(230 mm)	7	-KR

4 **KF**

Only with slide GK, GV, GA.

5 **GK**

Emergency buffer recommended → Accessory option "A".

6 **GV,GA**

Emergency buffer is scope of delivery

7 **KL, KR**

Only with slide GK or GV.

Emergency buffer recommended → Accessory option "A".

M Mandatory data

0 Options

Transfer order code

- **KF** - -

- 1 - Type discontinued
Available up until 2019

FESTO

Toothed belt axes DGE-ZR-KF, with recirculating ball bearing guide

Ordering data – Modular products

Ordering table											
Size		8	12	18	25	40	63	Condi- tions	Code	Enter code	
↓	Accessories	Supplied separately								ZUB-	ZUB-
0	Slot cover	Sensor slot	1 ... 10							...S	
		Mounting slot	-	-	-	-	1 ... 10		...B		
	Slot nut	for mounting slot	-	-	1 ... 10				...Y		
		for slide	-	-	-	1 ... 10			...X		
	Central support	1 ... 10							...M		
	Foot mounting (kit)	1 ... 10							...F		
	Emergency buffer and retainer for KF	-	-	1 ... 2				8	...A		
	Shock absorber and retainer for KF-GK, KF-GV	1 ... 2							9	...C	
		for KF-GA	-	-	-	1 ... 2		-	10	...E	
	Centring sleeve (pack of 10)	10, 20, 30, 40, 50, 60, 70, 80, 90							...Z		
	Proximity sensor	with cable 2.5 m	1 ... 10							...G	
		with plug	1 ... 10							...H	
		contactless with cable 2.5 m	1 ... 10							...I	
		contactless, plug	1 ... 10							...J	
		NC contact with cable 2.5 m	1 ... 10							...N	
	Cable with socket 2.5 m	1 ... 10							...V		
	Sensor bracket for inductive sensors	-	-	1 ... 5				9	...T		
	Switching lug	-	-	1				9	L		
	Inductive sensor	NO contact, cable	-	-	1 ... 5			9	...O		
		NC contact, cable	-	-	1 ... 5			9	...P		
		NO contact, plug	-	-	1 ... 5			9	...W		
		NC contact, plug	-	-	1 ... 5			9	...R		

8 A Only with slide GK.
Mounted as standard for slide GV, GA

10 E Only with slide GA.

9 C, T, L, O, P, W, R
Not with slide GA.

M Mandatory data

O Options

Transfer order code

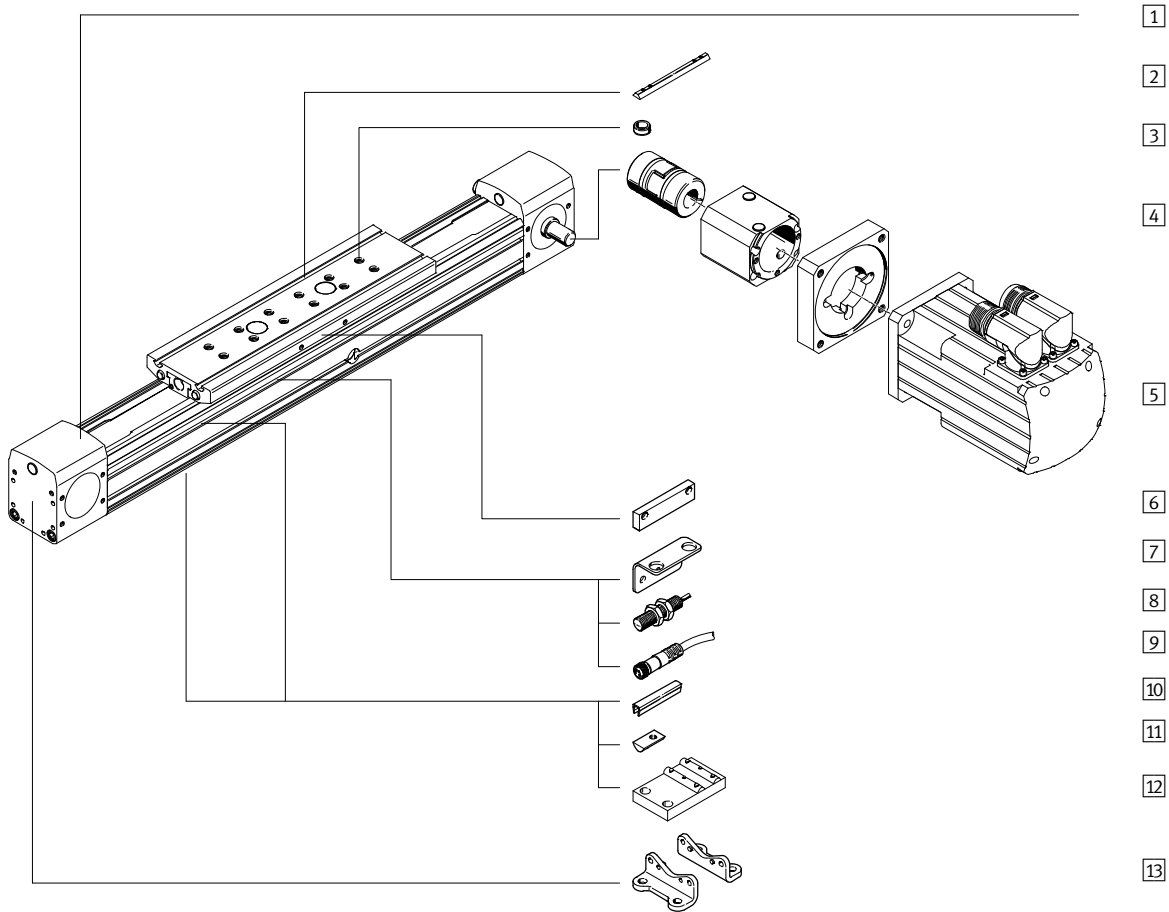
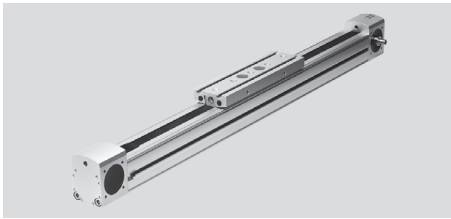
ZUB -

- 1 - Type discontinued
Available up until 2019

FESTO

Toothed belt axes DGE-ZR-RF, with roller guide

Peripherals overview



Toothed belt axes DGE-ZR-RF, with roller guide

Peripherals overview

Variants and accessories		
Type	Description	→ Page/Internet
1 Toothed belt axis DGE-RF	Electromechanical axis with roller guide	48
2 Slot nut for slide X	For mounting loads and attachments on the slide	70
3 Centring sleeve Z	For centring loads and attachments on the slide	70
4 Axial kit EAMM-A	For axial motor attachment (consisting of: coupling housing, clamping component, motor flange)	58
5 Motor EMMS	Motors specially matched to the axis, with or without gearing, with or without brake	58
6 Switching lug L	For sensing the slide position	68
7 Sensor bracket T	Adapter for mounting the sensors on the axis	68
8 Inductive proximity sensor O/P/W/R	For use as a proximity signal and safety monitor	71
9 Cable with socket V	For proximity sensors	71
10 Slot cover B	For protecting against the ingress of dirt	70
11 Slot nut for profile slot Y	For mounting attachments	70
12 Central support M	For mounting the axis	65
13 Foot mounting F	For mounting the axis	64

- 1 - Type discontinued
Available up until 2019

FESTO

Toothed belt axes DGE-ZR-RF, with roller guide

Type code

		DGE	-	25	-	500	-	ZR	-	RF	-	LK	-	RV	-	GK
Type																
DGE	Toothed belt drive															
Size																
Stroke [mm]																
Drive function																
ZR	Toothed belt															
Guide																
RF	Roller guide															
Drive shaft on left																
LK	No drive shaft on left															
LV	Drive shaft on left, front															
LH	Drive shaft on left, rear															
LB	Drive shaft on left, front and rear															
Drive shaft on right																
RK	No drive shaft on right															
RV	Drive shaft on right, front															
RH	Drive shaft on right, rear															
RB	Drive shaft on right, front and rear															
Slide																
GK	Standard slide															
GV	Extended slide															

Toothed belt axes DGE-ZR-RF, with roller guide

Type code

→		+ ZUB	-		-		-		-	F	Z		2T	2L	20
Accessories															
ZUB	Accessories supplied loose														
Slot cover															
...B	Mounting slot														
Slot nut															
...Y	For profile slot														
...X	For slide														
Central support															
...M	Central support														
Foot mounting															
...F	Foot mounting														
Centring sleeve															
...Z	For slide														
Cable with socket															
...V	2.5 m														
Sensor bracket															
...T	For inductive proximity sensors														
Switching lug															
L	Switching lug														
Inductive proximity sensor															
...O	NO contact, cable														
...P	NC contact, cable														
...W	NO contact, plug														
...R	NC contact, plug														

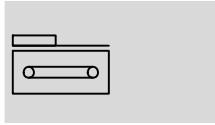
-  - Type discontinued
Available up until 2019



Toothed belt axes DGE-ZR-RF, with roller guide

FESTO

Technical data

Function



-  - Size
25, 40 and 63
-  - Stroke length
1 ... 5000 mm

General technical data				
Size		25	40	63
Constructional design		Electromechanical axis with toothed belt and internal roller guide		
Guide		Internal roller guide		
Mounting position		Any		
Max. working stroke ¹⁾	[mm]	1 ... 5000	1 ... 5000	1 ... 5000 ²⁾
Max. working load	[kg]	15	30	60
Max. feed force F_x	[N]	260	610	1500
Max. radial force ³⁾	[N]	260	935	2490
Radial force ⁴⁾	[N]	110	100	1050
Max. driving torque	[Nm]	3.7	12.1	55.38
Max. no-load torque	[Nm]	0.5	1.0	4.5
Max. speed	[m/s]	10		
Max. acceleration	[m/s ²]	50	50	50
Repetition accuracy	[mm]	±0.1		

- 1) Total stroke = working stroke + 2x stroke reserve
- 2) In the case of the variant with extended slide (-GV), the maximum working stroke is 4800 mm
- 3) On the drive shaft
- 4) On the drive shaft, with a service life of 10000 km

Operating and environmental conditions				
Size		25	40	63
Ambient temperature	[°C]	0 ... +60		
Protection class		IP40		

Weights [kg]						
Size	25		40		63	
	GK	GV	GK	GV	GK	GV
Basic weight with 0 mm stroke	2.61	3.15	7.75	9.32	29.81	34.91
Additional weight per 100 mm stroke	0.30		0.61		1.44	
Moving load	0.62	0.85	2.00	2.70	5.20	7.00

Mass moment of inertia							
Size	25		40		63		
	GK	GV	GK	GV	GK	GV	
J_0	[kg cm ²]	1.75	2.75	9.89	15.37	108.11	156.71
J_H per metre stroke	[kg cm ² /m]	0.188		0.933		7.605	
J_L per kg working load	[kg cm ² /kg]	2.052		3.958		13.634	

The mass moment of inertia J_A of the entire axis is calculated as follows:

$$J_A = J_0 + J_H \times \text{working stroke [m]} + J_L \times m_{\text{working load [kg]}}$$

Toothed belt axes DGE-ZR-RF, with roller guide

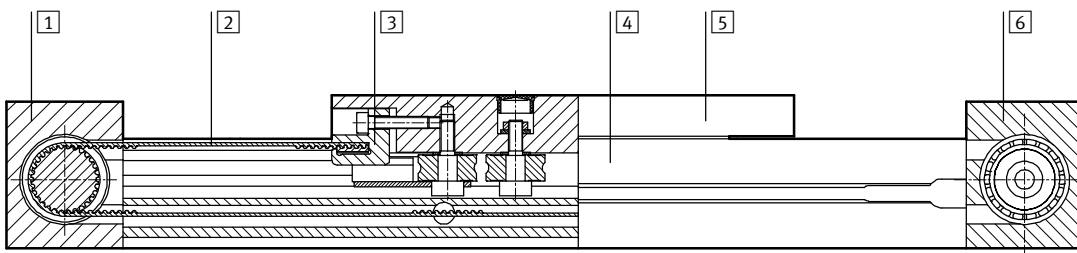
Technical data

Toothed belt		25	40	63
Size		25	40	63
Tensile stress ¹⁾	[%]	0.16	0.11	0.15
Pitch	[mm]	3	5	8
Effective diameter	[mm]	28.65	39.79	73.85
Feed constant	[mm]	90	125	232

1) At max. feed force

Materials

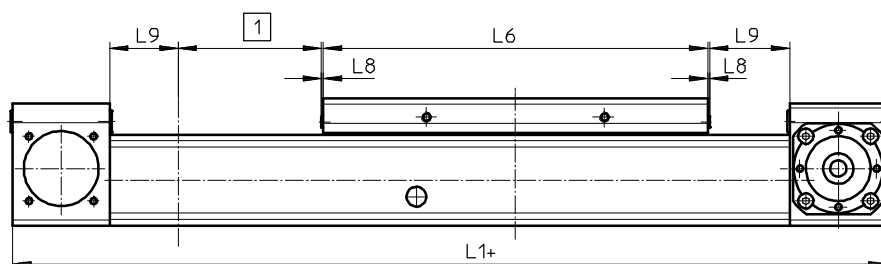
Sectional view



Axis		
1	Return pulley housing	Anodised aluminium
2	Toothed belt	Polychloroprene with Glascord and nylon coating
3	Clamping component	Special steel casting
4	Profile	Anodised aluminium
5	Slide	Anodised aluminium
6	Drive housing	Anodised aluminium

Stroke reserve

- L9 Stroke reserve:
Safety distance to mechanical stop, present at both ends of the axis in addition to the stroke.
- L6 Slide length
- L8 Stop element
- L1+ Overall length of axis
- 1 Working stroke



Example:
Type DGE-25-500-ZR-RF

Working stroke = 500 mm
Stroke reserve = (2x 63 mm)
= 126 mm
Total stroke = 500 mm + 126 mm
= 626 mm

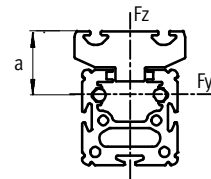
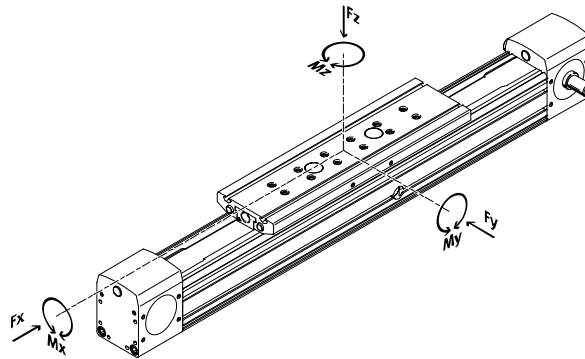
Stroke reserve L9 [mm] per end position			
Size	25	40	63
Standard slide GK	63	100	172
Extended slide GV	63	100	172

Toothed belt axes DGE-ZR-RF, with roller guide

Technical data

Characteristic load values

The indicated forces and torques refer to the centre of the guide. They must not be exceeded in the dynamic range. Special attention must be paid to the cushioning phase.



Distance a with:
DGE-25: 30 mm
DGE-40: 37 mm
DGE-63: 44.6 mm

If the drive is subjected to more than two of the indicated forces and torques simultaneously, the following equations must be satisfied in addition to the indicated maximum loads.

Calculating the load comparison factor:

$$f_v = \frac{|F_y|}{F_{y_{max}}} + \frac{|F_z|}{F_{z_{max}}} + \frac{|M_x|}{M_{x_{max}}} + \frac{|M_y|}{M_{y_{max}}} + \frac{|M_z|}{M_{z_{max}}} \leq 1$$

Permissible forces and torques

Size	25		40		63	
	GK	GV	GK	GV	GK	GV
$F_{x_{max}}$ [N]	260		610		1500	
$F_{y_{max}}$ [N]	150		300		600	
$F_{z_{max}}$ [N]	150		300		600	
$M_{x_{max}}$ [Nm]	7		18		65	
$M_{y_{max}}$ [Nm]	15	30	60	120	170	340
$M_{z_{max}}$ [Nm]	15	30	90	180	300	600

Service life

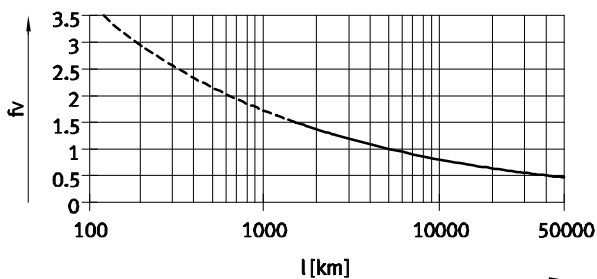
The service life of the guide depends on the load. To provide a rough indication of the service life of the

guide, the graph below plots the load comparison factor f_c against the service life.

This graph only shows theoretical values. Consultation with your local contact person at Festo is mandatory

for load comparison factors f_c greater than 1.5.


Load comparison factor f_c as a function of service life



Example:

A user wants to move an X kg load. Using the above calculation gives a value of 1.5 for the load comparison factor f_c . According to the graph, the guide would have a service life of

approx. 1,500 km. Reducing the acceleration reduces the M_z and M_y values. A load comparison factor of 1 now gives a service life of 5000 km.

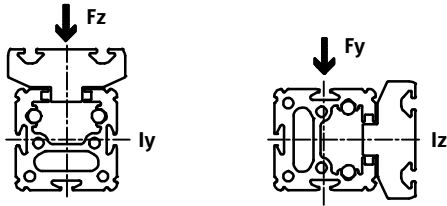
-  - Note

Sizing software
PositioningDrives
→ www.festo.com

Toothed belt axes DGE-ZR-RF, with roller guide

Technical data

2nd moment of area



Size	25	40	63
l_y [mm ⁴]	1.88×10^5	7.03×10^5	4.75×10^6
l_z [mm ⁴]	2.36×10^5	9.463×10^5	5.997×10^6

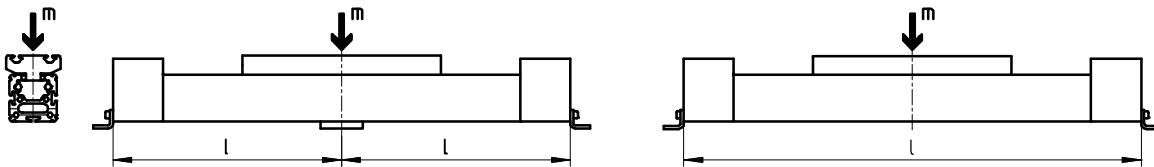
Maximum permissible support span l as a function of the applied load m

The axis may need to be supported with central supports MUP in order to restrict deflection with long stroke lengths. The following diagrams serve

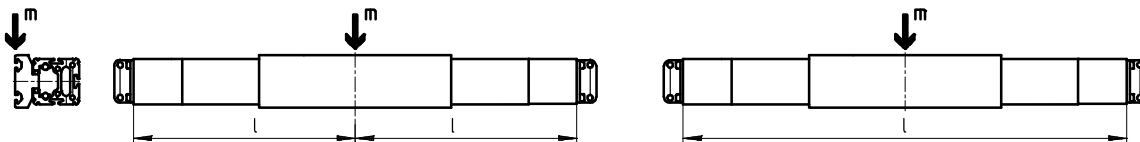
to determine the maximum permissible support span as a function of the applied load acting upon the axis.

A distinction is made here between forces acting upon the surface of the slide and forces acting upon the front of the slide.

1 Load on the surface of the slide

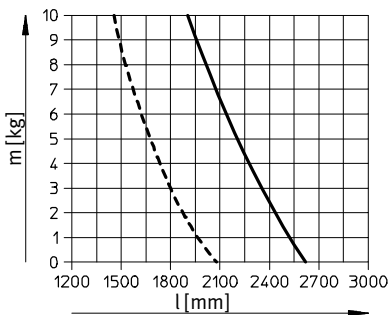


2 Load on the front of the slide

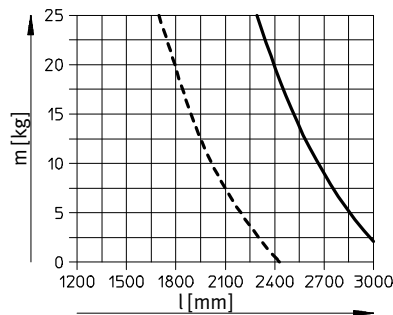


Maximum support span l (without central support) as a function of the applied load m

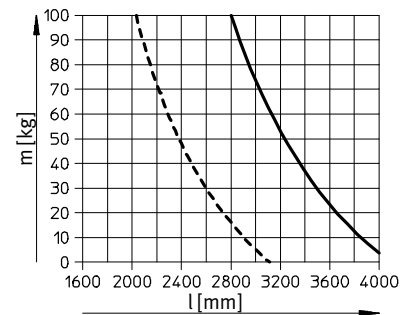
DGE-25-RF




DGE-40-RF



DGE-63-RF



- 1
- - - 2

-  - Type discontinued
Available up until 2019

Toothed belt axes DGE-ZR-RF, with roller guide

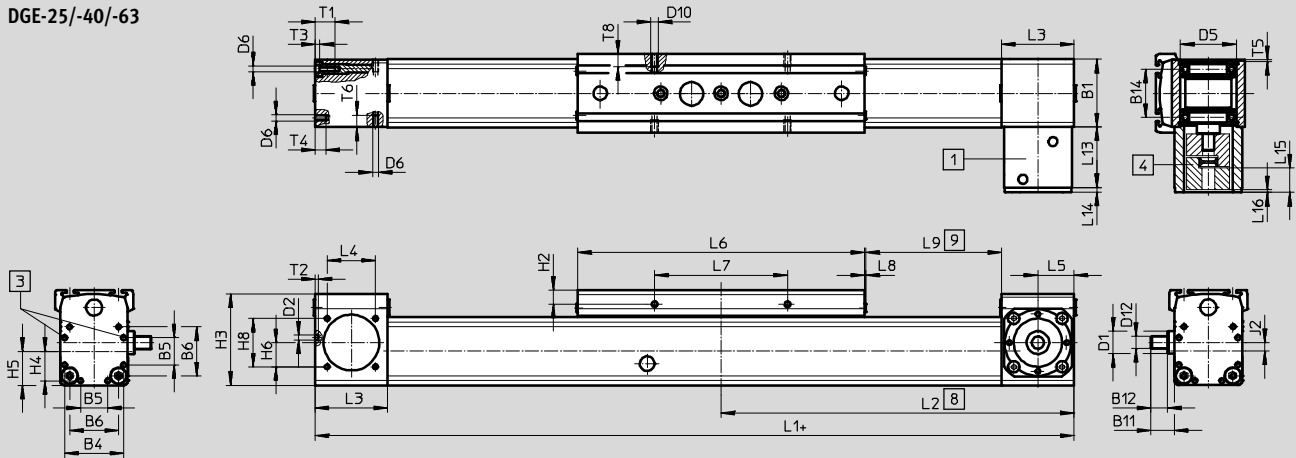
Technical data

FESTO

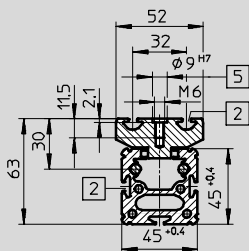
Dimensions

Download CAD data → www.festo.com

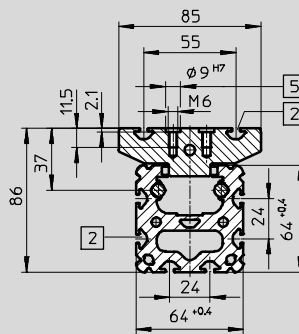
DGE-25/-40/-63



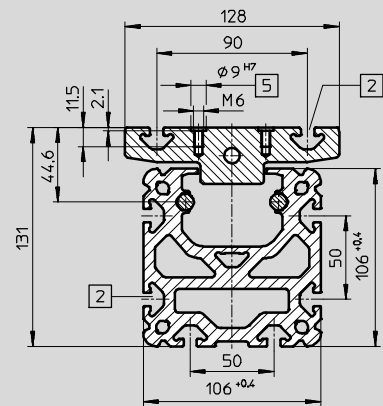
DGE-25



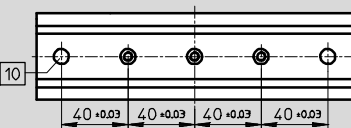
DGE-40



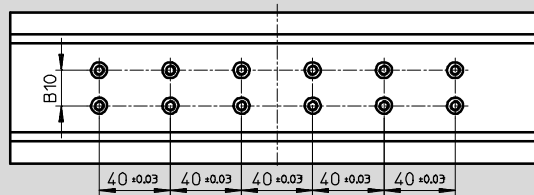
DGE-63



DGE-25-GK



DGE-40-GK



- | | | | |
|--|---|--|--|
| 1 Coupling housing | 4 Coupling | 8 Driver in end position of working stroke (stroke reserve up to mechanical stop still present) | 9 Stroke reserve → 49 |
| 2 Slot for slot nuts | 5 Hole for centring sleeve ZBH-9 and mounting thread | | 10 Hole for centring sleeve ZBH-9 |
| 3 Centring hole for foot mounting | | | + = plus stroke length present |

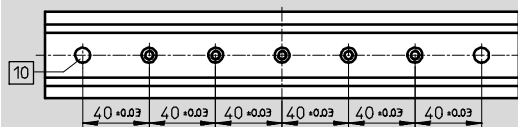
Toothed belt axes DGE-ZR-RF, with roller guide

Technical data

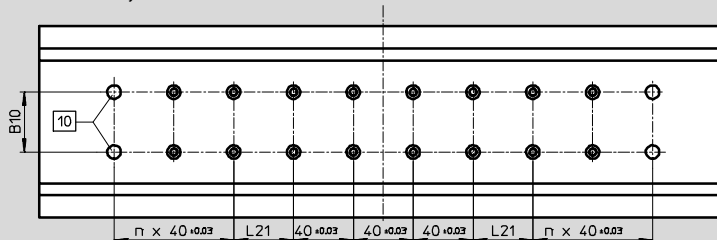
Dimensions

Download CAD data → www.festo.com

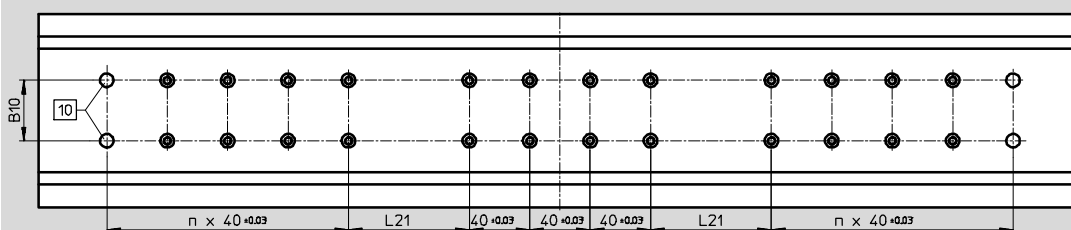
DGE-25-GV



DGE-40-GV, DGE-63-GK



DGE-63-GV



10 Hole for centring sleeve ZBH-9

Size	B1	B4	B5	B6	B10	B11	B12	B14	D1	D2	D5	D6	D10	D12	
					±0.03				∅		H7			∅	
25	GK GV	45	39.1	18	32.5	-	15.6	11	31.8	15	3.3 _{+0.1}	37	M4	M5	8
40	GK GV	64	53	28	49	20	29.6	24.5	45.5	20	4.4 _{H13}	47	M5	M5	15
63	GK GV	106	89	44	83	40	41.1	35.2	74.3	35	6.4 _{+0.1}	80	M8	M8	25

Size	H2	H3	H4	H5	H6	H8	J2	L1	L2	L3	L4	L5	L6	L7
25	GK GV	9.3	60.4	19.6	22.5	16	32	5.8	414 509	207 254.5	48	32	24	190 285
40	GK GV	9.5	83.8	26.5	32	19.5	30	8.8	638 778	319 389	67	54	34	300 440
63	GK GV	10.5	129.3	44.5	52.8	27.5	49	10.1	1020 1250	510 625	106	84	55	460 690

Size	L8	L9	L13	L14	L15	L16	L21	n	T1	T2	T3	T4	T5	T6	T8	
							±0.03									
25	GK GV	1	63	40	3,2	14,6	3,6	-	-	13	2	3	7	< 1.6	8	8.5
40	GK GV	2	100	65	4	22,8	-2,2	40	- 2	13.2	3	5	12	< 2.9	12	8.5
63	GK GV	2	172	91	5	35	0	40 80	2 4	21.2	4	6.5	22	< 5.1	15	12

- 1 - Type discontinued
Available up until 2019

Toothed belt axes DGE-ZR-RF, with roller guide

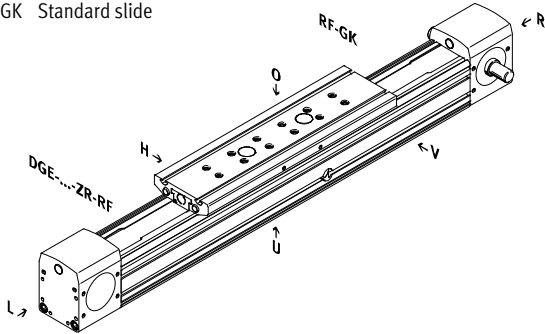
Ordering data – Modular products

FESTO

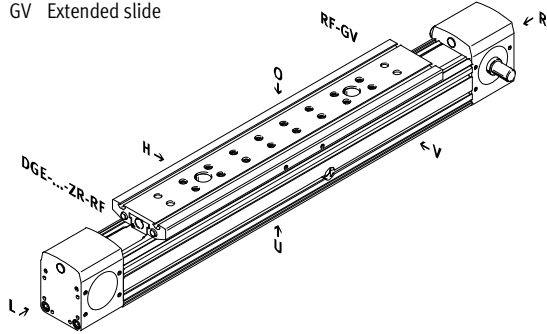
Order code

Mandatory data

GK Standard slide

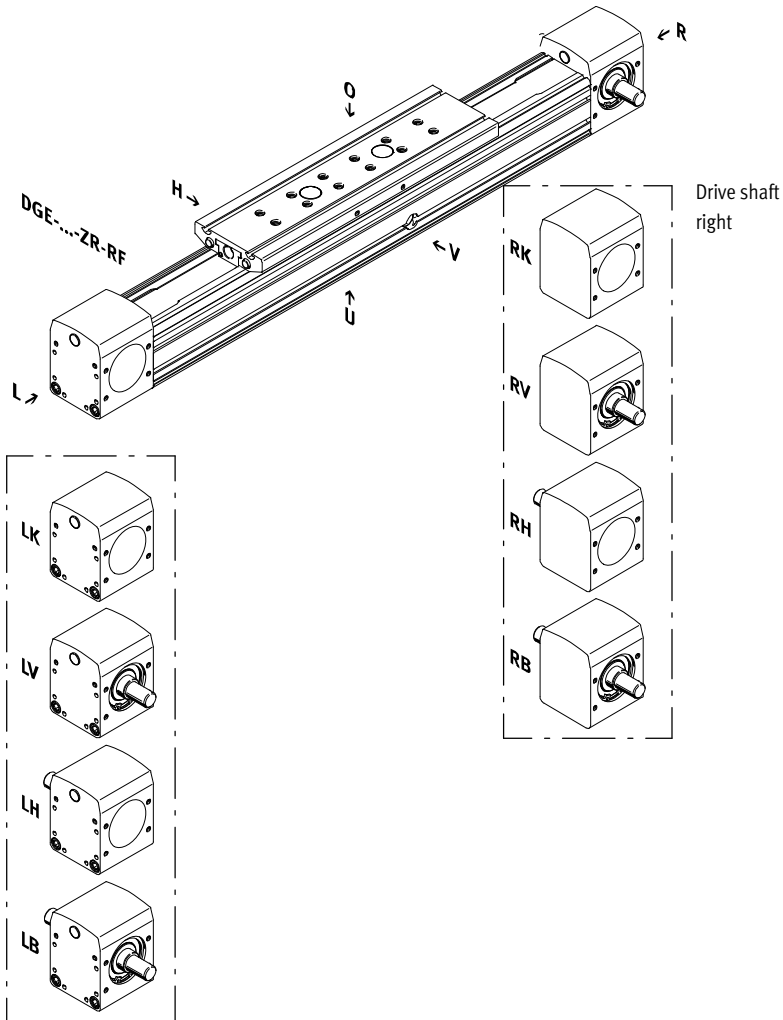


GV Extended slide



Drive shaft

- LK No drive shaft on left
- LV Drive shaft on left, front
- LH Drive shaft on left, rear
- LB Drive shaft on left, front and rear
- RK No drive shaft on right
- RV Drive shaft on right, front
- RH Drive shaft on right, rear
- RB Drive shaft on right, front and rear



- O top
- U underneath
- R right
- L left
- V front
- H rear

- 1 - Type discontinued
Available up until 2019

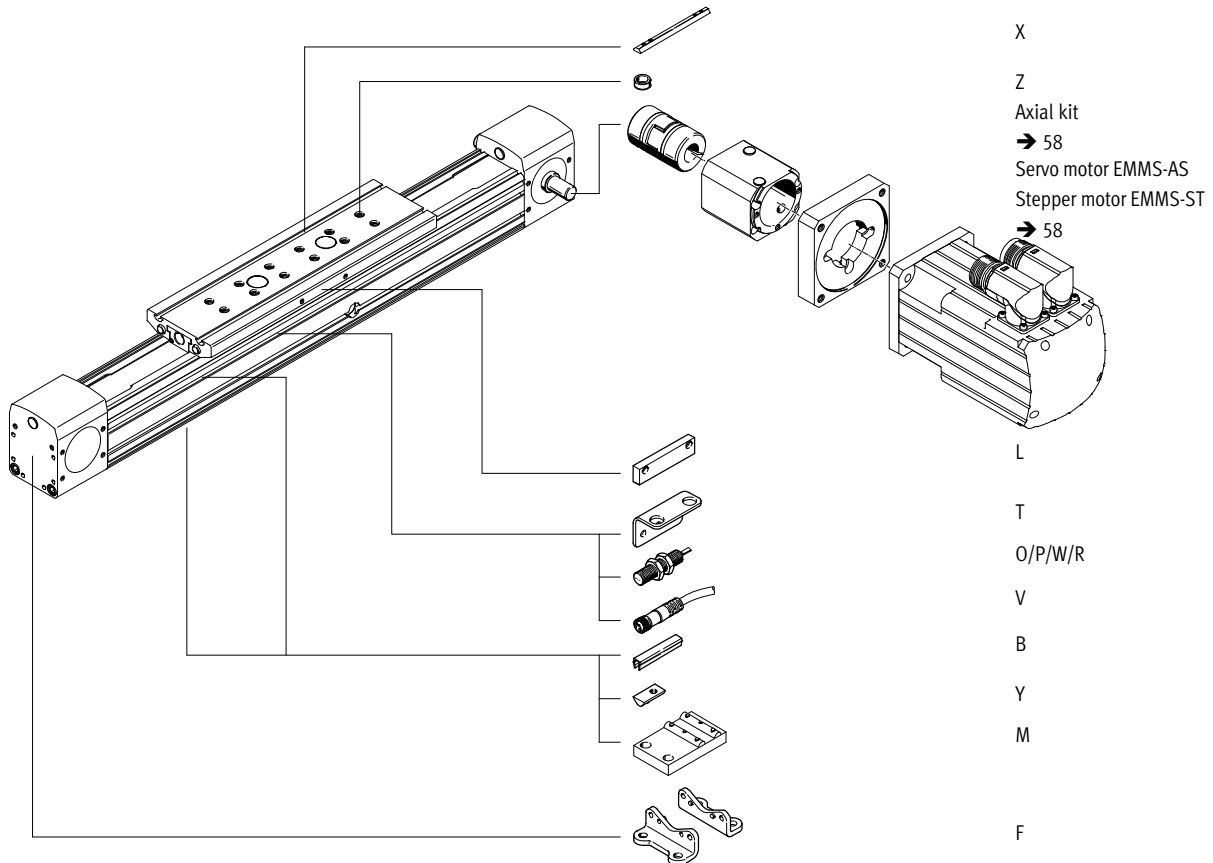
FESTO

Toothed belt axes DGE-ZR-RF, with roller guide

Ordering data – Modular products

Order code

Options



- 1 - Type discontinued
Available up until 2019

Toothed belt axes DGE-ZR-RF, with roller guide

Ordering data – Modular products

FESTO

Ordering table						
Size	25	40	63	Condi- tions	Code	Enter code
M Module No.	534391	534392	534393			
Design	Electromechanical linear drive				DGE	DGE
Size	25	40	63		-...	
Stroke [mm]	1 ... 5000	1 ... 5000	1 ... 5000		-...	
Drive function	Electromechanical drive with toothed belt				-ZR	-ZR
Guide	Roller guide				-RF	-RF
Drive shaft on left	No drive shaft on left			1	-LK	
	Drive shaft on left, front				-LV	
	Drive shaft on left, rear				-LH	
	Drive shaft on left, front and rear				-LB	
Drive shaft on right	No drive shaft on right			2	-RK	
	Drive shaft on right, front				-RV	
	Drive shaft on right, rear				-RH	
	Drive shaft on right, front and rear				-RB	
Slide	Standard slide				-GK	
	Extended slide			3	-GV	

1 LK Not with drive shaft on right RK.

2 RK Not with drive shaft on left LK.

3 GV Maximum stroke: Size 63: 4800 mm

M Mandatory data

O Options

Transfer order code

DGE - - - **ZR** - **RF** - - -

- 1 - Type discontinued
Available up until 2019

FESTO

Toothed belt axes DGE-ZR-RF, with roller guide

Ordering data – Modular products

Ordering table			25	40	63	Condi- tions	Code	Enter code
<input type="checkbox"/>	Accessories	Supplied separately					ZUB-	ZUB-
	Slot cover for mounting slot	1 ... 10					...B	
	Slot nut	for profile slot	1 ... 10				...Y	
		for slide	1 ... 10				...X	
	Central support	1 ... 10					...M	
	Foot mounting (kit)	1 ... 10					...F	
	Centring sleeve (pack of 10)	10, 20, 30, 40, 50, 60, 70, 80, 90					...Z	
	Cable with socket, 2.5 m	1 ... 10					...V	
	Sensor bracket for inductive sensors	1 ... 5					...T	
	Switching lug	1					L	
	Inductive proximity sensor	NO contact with cable	1 ... 5				...O	
		NC contact with cable	1 ... 5				...P	
		NO contact with plug	1 ... 5				...W	
		NC contact with plug	1 ... 5				...R	

Mandatory data

Options

Transfer order code

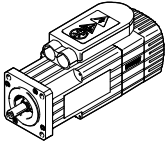
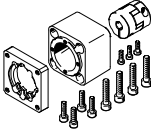


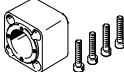
ZUB -

- 1 - Type discontinued
Available up until 2019

Toothed belt axes DGE

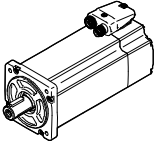
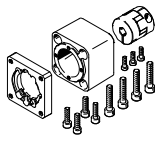


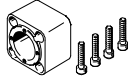
Accessories

FESTO

Permissible axis/motor combinations with axial kit – Without gear unit					Technical data → Internet: eamm-a
Motor	Axial kit	Axial kit consisting of:			
		Motor flange	Coupling	Coupling housing	
					
Type	Part No. Type	Part No. Type	Part No. Type	Part No. Type	
DGE-8-...-ZR					
With servo motor					
EMMS-AS-40-...	550921 EAMM-A-G13-40A	540301 EAMF-A-28A/30A-40A	540750 EAMC-B-15-22-4-6	171186 EAMK-A-G13-28A	
With stepper motor					
EMMS-ST-42-...	550922 EAMM-A-G13-42A	530080 EAMF-A-28A-42A	530084 EAMC-B-15-22-4-5	171186 EAMK-A-G13-28A	
DGE-12-...-ZR					
With servo motor					
EMMS-AS-40-...	550923 EAMM-A-G16-40A	540301 EAMF-A-28A/30A-40A	540750 EAMC-B-15-22-4-6	171185 EAMK-A-G16-30A	
EMMS-AS-55-...	550925 EAMM-A-G16-55A	534807 EAMF-A-30A-55A	184262 EAMC-B-15-22-4-9	171185 EAMK-A-G16-30A	
With stepper motor					
EMMS-ST-42-...	550924 EAMM-A-G16-42A	530079 EAMF-A-30A-42A	530084 EAMC-B-15-22-4-5	171185 EAMK-A-G16-30A	
DGE-18-...-ZR					
With servo motor					
EMMS-AS-40-...	550926 EAMM-A-G19-40A	550985 EAMF-A-44A/B-40A	184265 EAMC-B-19-24-6-6	170375 EAMK-A-G19-44B	
EMMS-AS-55-...	550927 EAMM-A-G19-55A	529942 EAMF-A-44A/B-55A	184263 EAMC-B-19-24-6-9	170375 EAMK-A-G19-44B	
With stepper motor					
EMMS-ST-57-...	550928 EAMM-A-G19-57A	530081 EAMF-A-44A/B-57A	530086 EAMC-B-19-24-6-6.35	170375 EAMK-A-G19-44B	
With integrated drive					
EMCA-EC-67-...	1454260 EAMM-A-G19-67A	1476305 EAMF-A-44A/B/C-67A-S1	184263 EAMC-B-19-24-6-9	170375 EAMK-A-G19-44B	
DGE-25-...-ZR					
With servo motor					
EMMS-AS-55-...	550929 EAMM-A-F30-55A	529942 EAMF-A-44A/B-55A	557390 EAMC-30-35-8-9	124628 EAMK-A-F30-44A	
EMMS-AS-70-...	550932 EAMM-A-F30-70A	529943 EAMF-A-44A/B-70A	123042 EAMC-30-35-8-11	124628 EAMK-A-F30-44A	
With stepper motor					
EMMS-ST-57-...	550930 EAMM-A-F30-57A	530081 EAMF-A-44A/B-57A	530088 EAMC-30-35-6.35-8	124628 EAMK-A-F30-44A	
EMMS-ST-87-...	550933 EAMM-A-F30-87A	530082 EAMF-A-44A/B-87A	123042 EAMC-30-35-8-11	124628 EAMK-A-F30-44A	

Toothed belt axes DGE

Accessories

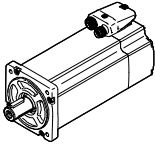
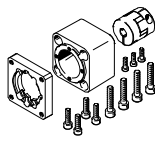


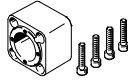
Permissible axis/motor combinations with axial kit – Without gear unit					Technical data → Internet: eamm-a
Motor	Axial kit	Axial kit consisting of:			
		Motor flange	Coupling	Coupling housing	
					
Type	Part No. Type	Part No. Type	Part No. Type	Part No. Type	
DGE-25-...-ZR-RF					
With servo motor					
EMMS-AS-55-...	550942 EAMM-A-F37-55A	529942 EAMF-A-44A/B-55A	557390 EAMC-30-35-8-9	534394 EAMK-A-F37-44A/C	
EMMS-AS-70-...	550945 EAMM-A-F37-70A	529943 EAMF-A-44A/B-70A	123042 EAMC-30-35-8-11	534394 EAMK-A-F37-44A/C	
With stepper motor					
EMMS-ST-57-...	550943 EAMM-A-F37-57A	530081 EAMF-A-44A/B-57A	530088 EAMC-30-35-6.35-8	534394 EAMK-A-F37-44A/C	
EMMS-ST-87-...	550946 EAMM-A-F37-87A	530082 EAMF-A-44A/B-87A	123042 EAMC-30-35-8-11	534394 EAMK-A-F37-44A/C	
DGE-40-...-ZR					
With servo motor					
EMMS-AS-70-...	550934 EAMM-A-F40-70A	529945 EAMF-A-64A/B-70A	550998 EAMC-40-66-11-15	124629 EAMK-A-F40-64A	
EMME-AS-100-...	550937 EAMM-A-F40-100A	529947 EAMF-A-64A/C/D-100A	123844 EAMC-40-66-15-19	124629 EAMK-A-F40-64A	
EMMS-AS-100-...	550937 EAMM-A-F40-100A	529947 EAMF-A-64A/C/D-100A	123844 EAMC-40-66-15-19	124629 EAMK-A-F40-64A	
With stepper motor					
EMMS-ST-87-...	550936 EAMM-A-F40-87A	533140 EAMF-A-64A/B-87A	550998 EAMC-40-66-11-15	124629 EAMK-A-F40-64A	
DGE-40-...-ZR-RF					
With servo motor					
EMME-AS-100-...	550949 EAMM-A-F47-100A	529947 EAMF-A-64A/C/D-100A	123844 EAMC-40-66-15-19	534395 EAMK-A-F47-64A	
EMMS-AS-100-...	550949 EAMM-A-F47-100A	529947 EAMF-A-64A/C/D-100A	123844 EAMC-40-66-15-19	534395 EAMK-A-F47-64A	
EMMS-AS-140-...	550950 EAMM-A-F47-140A	550988 EAMF-A-64A-140A	176033 EAMC-40-66-15-24	534395 EAMK-A-F47-64A	
With stepper motor					
EMMS-ST-87-...	550948 EAMM-A-F47-87A	533140 EAMF-A-64A/B-87A	550998 EAMC-40-66-11-15	534395 EAMK-A-F47-64A	

- 1 - Type discontinued
Available up until 2019

Toothed belt axes DGE

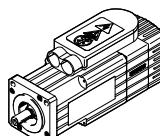
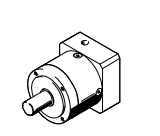
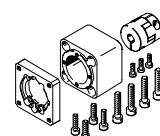
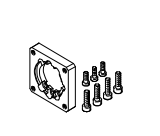
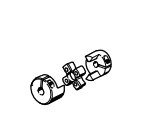
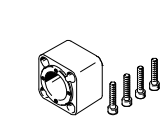
Accessories


FESTO

Permissible axis/motor combinations with axial kit – Without gear unit					Technical data → Internet: eamm-a
Motor	Axial kit	Axial kit consisting of:			
		Motor flange	Coupling	Coupling housing	
					
Type	Part No. Type	Part No. Type	Part No. Type	Part No. Type	
DGE-63-...-ZR					
With servo motor					
EMME-AS-100-...	550939 EAMM-A-F62-100A	529949 EAMF-A-118C-100A	551000 EAMC-65-90-19-25	124630 EAMK-A-F62-118A/B/C	
EMMS-AS-100-...	550939 EAMM-A-F62-100A	529949 EAMF-A-118C-100A	551000 EAMC-65-90-19-25	124630 EAMK-A-F62-118A/B/C	
EMMS-AS-140-...	550941 EAMM-A-F62-140A	550991 EAMF-A-118B-140A	123852 EAMC-65-90-24-25	124630 EAMK-A-F62-118A/B/C	
DGE-63-...-ZR-RF					
With servo motor					
EMME-AS-100-...	550952 EAMM-A-F80-100A	529949 EAMF-A-118C-100A	551000 EAMC-65-90-19-25	534396 EAMK-A-F80-118A/B/C	
EMMS-AS-100-...	550952 EAMM-A-F80-100A	529949 EAMF-A-118C-100A	551000 EAMC-65-90-19-25	534396 EAMK-A-F80-118A/B/C	
EMMS-AS-140-...	550954 EAMM-A-F80-140A	550991 EAMF-A-118B-140A	123852 EAMC-65-90-24-25	534396 EAMK-A-F80-118A/B/C	

Toothed belt axes DGE

Accessories

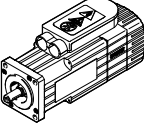

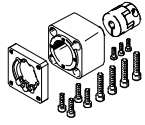


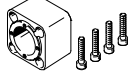
Permissible axis/motor combinations with axial kit – With gear unit						Technical data → Internet: eamm-a
Motor	Gear unit	Axial kit	Axial kit consisting of:			
			Motor flange	Coupling	Coupling housing	
						
Type	Type	Part No. Type	Part No. Type	Part No. Type	Part No. Type	
DGE-18-...-ZR						
With servo motor						
EMME-AS-40-...	EMGA-40-P-G...-EAS-40	1454259 EAMM-A-G19-40G	550986 EAMF-A-44A/B-40G	1450210 EAMC-B-19-24-6-10	170375 EAMK-A-G19-44B	
EMMS-AS-40-...	EMGA-40-P-G...-SAS-40	1454259 EAMM-A-G19-40G	550986 EAMF-A-44A/B-40G	1450210 EAMC-B-19-24-6-10	170375 EAMK-A-G19-44B	
With stepper motor						
EMMS-ST-42-...	EMGA-40-P-G...-SST-42	1454259 EAMM-A-G19-40G	550986 EAMF-A-44A/B-40G	1450210 EAMC-B-19-24-6-10	170375 EAMK-A-G19-44B	
With integrated drive						
EMCA-EC-67-...	EMGC-40-...	1454259 EAMM-A-G19-40G	550986 EAMF-A-44A/B-40G	1450210 EAMC-B-19-24-6-10	170375 EAMK-A-G19-44B	
DGE-25-...-ZR						
With servo motor						
EMME-AS-40-...	EMGA-40-P-G...-EAS-40	1454254 EAMM-A-F30-40G	550986 EAMF-A-44A/B-40G	123050 EAMC-30-35-8-10	124628 EAMK-A-F30-44A	
EMMS-AS-40-...	EMGA-40-P-G...-SAS-40	1454254 EAMM-A-F30-40G	550986 EAMF-A-44A/B-40G	123050 EAMC-30-35-8-10	124628 EAMK-A-F30-44A	
EMMS-AS-55-...	EMGA-60-P-G...-SAS-55	550931 EAMM-A-F30-60G	529944 EAMF-A-44A/B-60G	123042 EAMC-30-35-8-11	124628 EAMK-A-F30-44A	
EMME-AS-60-...	EMGA-60-P-G...-EAS-60	1454255 EAMM-A-F30-60H	1780430 EAMF-A-44A-60G/H	1453063 EAMC-30-35-8-14	124628 EAMK-A-F30-44A	
EMMS-AS-70-...	EMGA-60-P-G...-SAS-70	550931 EAMM-A-F30-60G	529944 EAMF-A-44A/B-60G	123042 EAMC-30-35-8-11	124628 EAMK-A-F30-44A	
With stepper motor						
EMMS-ST-42-...	EMGA-40-P-G...-SST-42	1454254 EAMM-A-F30-40G	550986 EAMF-A-44A/B-40G	123050 EAMC-30-35-8-10	124628 EAMK-A-F30-44A	
EMMS-ST-57-...	EMGA-60-P-G...-SST-57	550931 EAMM-A-F30-60G	529944 EAMF-A-44A/B-60G	123042 EAMC-30-35-8-11	124628 EAMK-A-F30-44A	
With integrated drive						
EMCA-EC-67-...	EMGC-40-...	1454254 EAMM-A-F30-40G	550986 EAMF-A-44A/B-40G	123050 EAMC-30-35-8-10	124628 EAMK-A-F30-44A	
EMCA-EC-67-...	EMGC-60-...	1454255 EAMM-A-F30-60H	1780430 EAMF-A-44A/60G/H	1453063 EAMC-30-35-8-14	124628 EAMK-A-F30-44A	


 Type discontinued
Available up until 2019

FESTO

Toothed belt axes DGE

Accessories

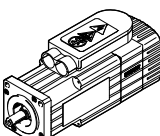

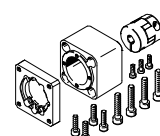


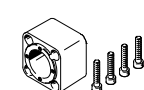
Permissible axis/motor combinations with axial kit – With gear unit						Technical data → Internet: eamm-a
Motor	Gear unit	Axial kit	Axial kit consisting of:			
			Motor flange	Coupling	Coupling housing	
						
Type	Type	Part No. Type	Part No. Type	Part No. Type	Part No. Type	
DGE-25-...-ZR-RF						
With servo motor						
EMME-AS-40-...	EMGA-40-P-G...-EAS-40	1454257 EAMM-A-F37-40G	550986 EAMF-A-44A/B-40G	123050 EAMC-30-35-8-10	534394 EAMK-A-F37-44A/C	
EMMS-AS-40-...	EMGA-40-P-G...-SAS-40	1454257 EAMM-A-F37-40G	550986 EAMF-A-44A/B-40G	123050 EAMC-30-35-8-10	534394 EAMK-A-F37-44A/C	
EMMS-AS-55-...	EMGA-60-P-G...-SAS-55	550944 EAMM-A-F37-60G	529944 EAMF-A-44A/B-60G	123042 EAMC-30-35-8-11	534394 EAMK-A-F37-44A/C	
EMME-AS-60-...	EMGA-60-P-G...-EAS-60	1454258 EAMM-A-F37-60H	1780430 EAMF-A-44A/60G/H	1453063 EAMC-30-35-8-14	534394 EAMK-A-F37-44A/C	
EMMS-AS-70-...	EMGA-60-P-G...-SAS-70	550944 EAMM-A-F37-60G	529944 EAMF-A-44A/B-60G	123042 EAMC-30-35-8-11	534394 EAMK-A-F37-44A/C	
With stepper motor						
EMMS-ST-42-...	EMGA-40-P-G...-SST-42	1454257 EAMM-A-F37-40G	550986 EAMF-A-44A/B-40G	123050 EAMC-30-35-8-10	534394 EAMK-A-F37-44A/C	
EMMS-ST-57-...	EMGA-60-P-G...-SST-57	550944 EAMM-A-F37-60G	529944 EAMF-A-44A/B-60G	123042 EAMC-30-35-8-11	534394 EAMK-A-F37-44A/C	
With integrated drive						
EMCA-EC-67-...	EMGC-40-...	1454257 EAMM-A-F37-40G	550986 EAMF-A-44A/B-40G	123050 EAMC-30-35-8-10	534394 EAMK-A-F37-44A/C	
EMCA-EC-67-...	EMGC-60-...	1454258 EAMM-A-F37-60H	1780430 EAMF-A-44A/60G/H	1453063 EAMC-30-35-8-14	534394 EAMK-A-F37-44A/C	
DGE-40-...-ZR						
With servo motor						
EMMS-AS-70-...	EMGA-80-P-G...-SAS-70	550935 EAMM-A-F40-80G	533139 EAMF-A-64A/C-80G	123845 EAMC-40-66-15-20	124629 EAMK-A-F40-64A	
EMME-AS-80-...	EMGA-80-P-G...-EAS-80	550935 EAMM-A-F40-80G	533139 EAMF-A-64A/C-80G	123845 EAMC-40-66-15-20	124629 124629-A-F40-64A	
EMME-AS-100-...	EMGA-80-P-G...-SAS-100	550935 EAMM-A-F40-80G	533139 EAMF-A-64A/C-80G	123845 EAMC-40-66-15-20	124629 EAMK-A-F40-64A	
EMMS-AS-100-...	EMGA-80-P-G...-SAS-100	550935 EAMM-A-F40-80G	533139 EAMF-A-64A/C-80G	123845 EAMC-40-66-15-20	124629 EAMK-A-F40-64A	
With stepper motor						
EMMS-ST-87-...	EMGA-80-P-G...-SST-87	550935 EAMM-A-F40-80G	533139 EAMF-A-64A/C-80G	123845 EAMC-40-66-15-20	124629 EAMK-A-F40-64A	
DGE-40-...-ZR-RF						
With servo motor						
EMMS-AS-70-...	EMGA-80-P-G...-SAS-70	550947 EAMM-A-F47-80G	533139 EAMF-A-64A/C-80G	123845 EAMC-40-66-15-20	534395 EAMK-A-F47-64A	
EMME-AS-80-...	EMGA-80-P-G...-EAS-80	550947 EAMM-A-F47-80G	533139 EAMF-A-64A/C-80G	123845 EAMC-40-66-15-20	534395 EAMK-A-F47-64A	
EMME-AS-100-...	EMGA-80-P-G...-SAS-100	550947 EAMM-A-F47-80G	533139 EAMF-A-64A/C-80G	123845 EAMC-40-66-15-20	534395 EAMK-A-F47-64A	
EMMS-AS-100-...	EMGA-80-P-G...-SAS-100	550947 EAMM-A-F47-80G	533139 EAMF-A-64A/C-80G	123845 EAMC-40-66-15-20	534395 EAMK-A-F47-64A	
With stepper motor						
EMMS-ST-87-...	EMGA-80-P-G...-SST-87	550947 EAMM-A-F47-80G	533139 EAMF-A-64A/C-80G	123845 EAMC-40-66-15-20	534395 EAMK-A-F47-64A	

 Type discontinued
Available up until 2019

FESTO

Toothed belt axes DGE

Accessories

Permissible axis/motor combinations with axial kit – With gear unit						Technical data → Internet: eamm-a
Motor	Gear unit	Axial kit	Axial kit consisting of:			
			Motor flange	Coupling	Coupling housing	
						
Type	Type	Part No. Type	Part No. Type	Part No. Type	Part No. Type	
DGE-63-...-ZR						
With servo motor						
EMMS-AS-70-...	EMGA-80-P-G...-SAS-70	550938 EAMM-A-F62-80G	550989 EAMF-A-118A-80G	176035 EAMC-65-90-20-25	124630 EAMK-A-F62-118A/B/C	
EMME-AS-80-...	EMGA-80-P-G...-EAS-80	550938 EAMM-A-F62-80G	550989 EAMF-A-118A-80G	176035 EAMC-65-90-20-25	124630 EAMK-A-F62-118A/B/C	
EMME-AS-100-...	EMGA-80-P-G...-SAS-100	550938 EAMM-A-F62-80G	550989 EAMF-A-118A-80G	176035 EAMC-65-90-20-25	124630 EAMK-A-F62-118A/B/C	
EMMS-AS-100-...	EMGA-80-P-G...-SAS-100	550938 EAMM-A-F62-80G	550989 EAMF-A-118A-80G	176035 EAMC-65-90-20-25	124630 EAMK-A-F62-118A/B/C	
EMME-AS-100-...	EMGA-120-P-G...-SAS-100	550940 EAMM-A-F62-120G	550990 EAMF-A-118A-120G	123853 EAMC-65-90-25-25	124630 EAMK-A-F62-118A/B/C	
EMMS-AS-100-...	EMGA-120-P-G...-SAS-100	550940 EAMM-A-F62-120G	550990 EAMF-A-118A-120G	123853 EAMC-65-90-25-25	124630 EAMK-A-F62-118A/B/C	
EMMS-AS-140-...	EMGA-120-P-G...-SAS-140	550940 EAMM-A-F62-120G	550990 EAMF-A-118A-120G	123853 EAMC-65-90-25-25	124630 EAMK-A-F62-118A/B/C	
With stepper motor						
EMMS-ST-87-...	EMGA-80-P-G...-SST-87	550938 EAMM-A-F62-80G	550989 EAMF-A-118A-80G	176035 EAMC-65-90-20-25	124630 EAMK-A-F62-118A/B/C	
DGE-63-...-ZR-RF						
With servo motor						
EMMS-AS-70-...	EMGA-80-P-G...-SAS-70	550951 EAMM-A-F80-80G	550989 EAMF-A-118A-80G	176035 EAMC-65-90-20-25	534396 EAMK-A-F80-118A/B/C	
EMME-AS-80-...	EMGA-80-P-G...-EAS-80	550951 EAMM-A-F80-80G	550989 EAMF-A-118A-80G	176035 EAMC-65-90-20-25	534396 EAMK-A-F80-118A/B/C	
EMME-AS-100-...	EMGA-80-P-G...-SAS-100	550951 EAMM-A-F80-80G	550989 EAMF-A-118A-80G	176035 EAMC-65-90-20-25	534396 EAMK-A-F80-118A/B/C	
EMMS-AS-100-...	EMGA-80-P-G...-SAS-100	550951 EAMM-A-F80-80G	550989 EAMF-A-118A-80G	176035 EAMC-65-90-20-25	534396 EAMK-A-F80-118A/B/C	
EMME-AS-100-...	EMGA-120-P-G...-SAS-100	550953 EAMM-A-F80-120G	550990 EAMF-A-118A-120G	123853 EAMC-65-90-25-25	534396 EAMK-A-F80-118A/B/C	
EMMS-AS-100-...	EMGA-120-P-G...-SAS-100	550953 EAMM-A-F80-120G	550990 EAMF-A-118A-120G	123853 EAMC-65-90-25-25	534396 EAMK-A-F80-118A/B/C	
EMMS-AS-140-...	EMGA-120-P-G...-SAS-140	550953 EAMM-A-F80-120G	550990 EAMF-A-118A-120G	123853 EAMC-65-90-25-25	534396 EAMK-A-F80-118A/B/C	
EMMS-AS-140-...	EMGA-160-P-G...-SAS-140	550955 EAMM-A-F80-160G	550992 EAMF-A-118A-160G	551001 EAMC-65-90-25-40	534396 EAMK-A-F80-118A/B/C	
With stepper motor						
EMMS-ST-87-...	EMGA-80-P-G...-SST-87	550951 EAMM-A-F80-80G	550989 EAMF-A-118A-80G	176035 EAMC-65-90-20-25	534396 EAMK-A-F80-118A/B/C	

- 1 - Type discontinued
Available up until 2019

Toothed belt axes DGE

Accessories

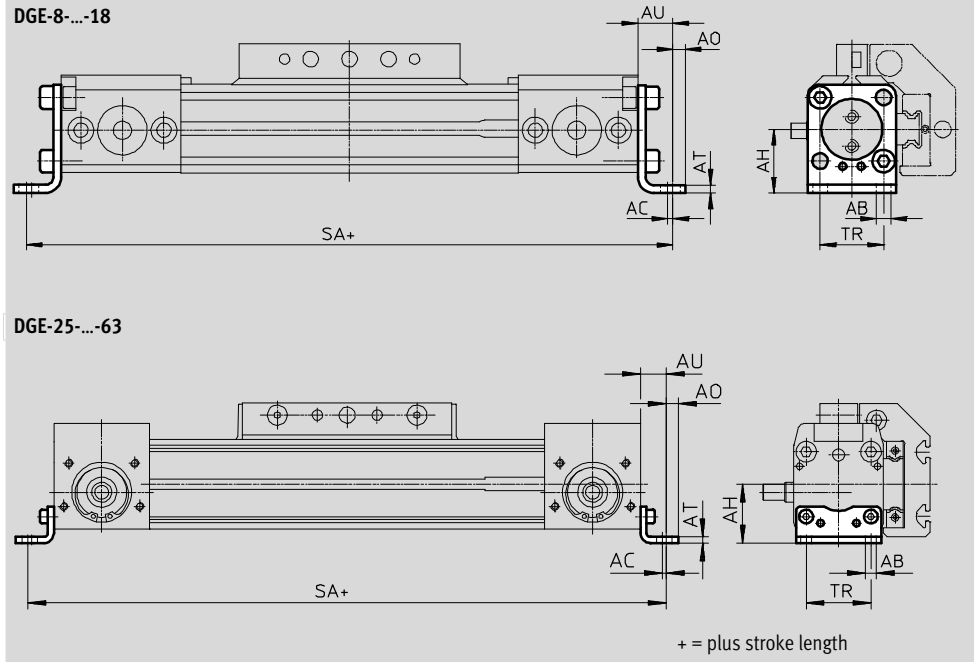
FESTO

Foot mounting HP
(order code F)

Material:
Galvanised steel
Free of copper and PTFE



HP-25



Dimensions and ordering data							
For size	AB Ø	AC	AH	AO	AT	AU	TR
8	3.4	1.5	13.8	3	2	9	13
12	3.4	1.5	16.5	3	2	9	18.6
18	5.5	2	24	4.8	3	13.3	24
25	5.5	2	29.5	6	3	13	32.5
40	6.6	2	46	8.5	5	17.5	45
63	11	3	69	13.5	6	28	75

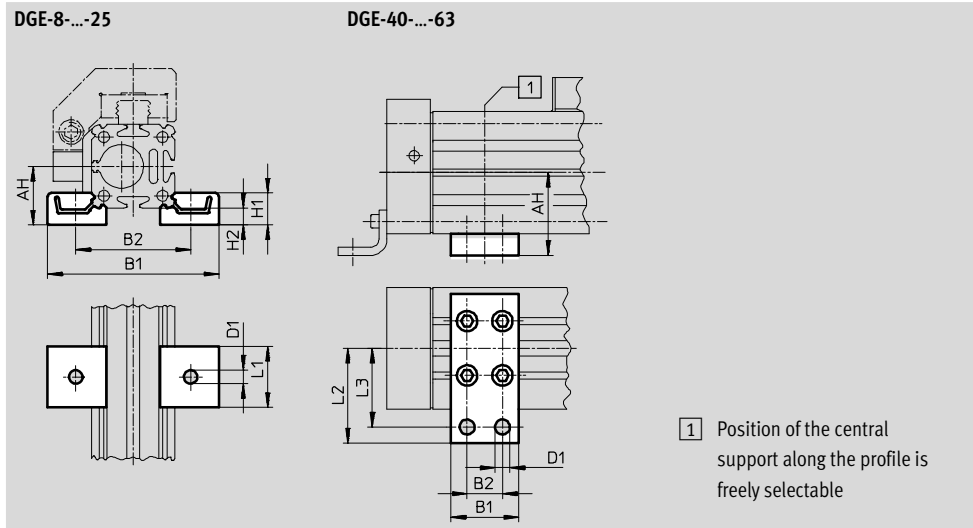
For size	SA				Weight [g]	Part No.	Type
	For DGE-ZR/DGE-ZR-KF		For DGE-ZR-RF				
	GK	GV	GK	GV			
8	198	-	-	-	17	158470	HP-8
12	234	-	-	-	23	158471	HP-12
18	308.6	388.6	-	-	70	158472	HP-18
25	398	498	440	535	61	150731	HP-25
40	604	774	673	813	188	150733	HP-40
63	938	1188	1076	1306	305	150735	HP-63

Toothed belt axes DGE


Accessories

Central support MUP
(order code M)

Material:
Anodised aluminium
Free of copper and PTFE



Dimensions and ordering data												
For size	AH	B1	B2	D1 Ø	H1	H2	L1	L2	L3	Weight [g]	Part No.	Type
8	13.8	40.5	28.5	3.5	8	4	15	-	-	8	160909	MUP-8/12
12	16.5	46	34	3.5	8	4	15	-	-	8	160909	MUP-8/12
18	24	70.5	47	5.5	13	7	25	-	-	33	150736	MUP-18/25
25	29.5	81	58	5.5	13	7	25	-	-	33	150736	MUP-18/25
40	46	35	22	6.6	-	-	-	47	40	126	150738	MUP-40
63	69	50	26	11	-	-	-	77	65	340	150800	MUP-63

-  - Type discontinued
Available up until 2019

Toothed belt axes DGE

Accessories

FESTO

Shock absorber YSR-...-C
(order code C)

Materials:
Housing: Galvanised steel; piston rod:
High-alloy steel
Seals: NBR, PUR
Free of copper and PTFE



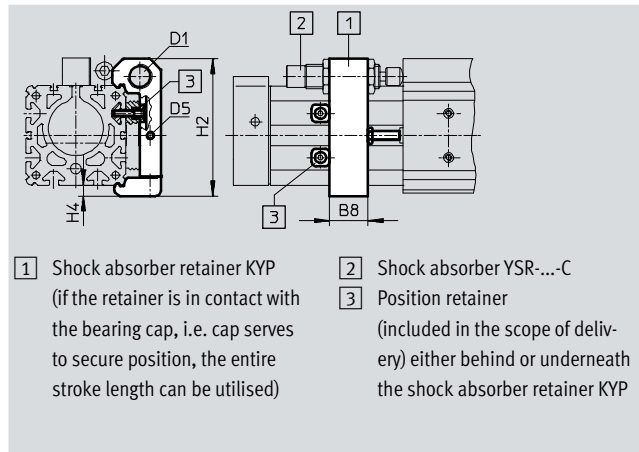
-  - Note

Shock absorber YSRW with
progressive characteristics
→ Internet: ysrw

Ordering data			
For size	Weight [g]	Part No.	Type
8	9	158981	YSR-5-5-C
12	9	158981	YSR-5-5-C
18	30	34571	YSR-8-8-C
25	70	34572	YSR-12-12-C
40	140	34573	YSR-16-20-C
63	240	34574	YSR-20-25-C

Shock absorber retainer KYP
(order code C)

Materials:
Retainer: Aluminium
Sleeve: Corrosion-resistant steel



Dimensions and ordering data								
For size	B8	D1	D5	H2	H4	Weight [g]	Part No.	Type
8	8	M8x1	M3	31.5	3	36	158905	KYP-8
12	11	M8x1	M4	37	3	44	158906	KYP-12
18	14	M12x1	M4	50.5	4.5	66	158907	KYP-18
25	19	M16x1	M5	69.5	6	95	158908	KYP-25
40	32	M22x1.5	M5	102	8	209	158910	KYP-40
63	44	M26x1.5	M10	152.5	11.5	609	158912	KYP-63

- 2 - Type discontinued
Available up until 2019

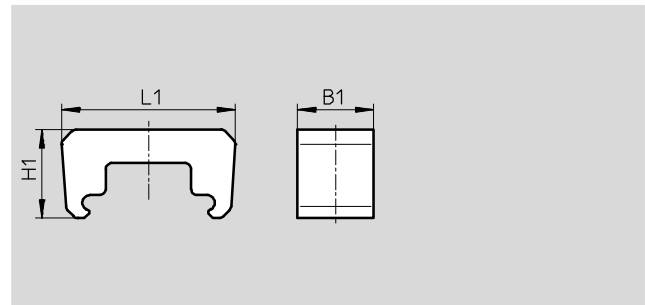
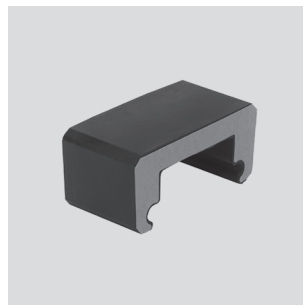
FESTO

Toothed belt axes DGE

Accessories

Emergency buffer NPE (order code A)

Material:
PUR



Dimensions and ordering data						
For size	B1	L1	H1	Weight [g]	Part No.	Type
18	15	43.1	28.5	6	193901	NPE-18
25	25	57	29	12	193902	NPE-25
40	40	80.5	36	41	193904	NPE-40
63	60	128.6	55	152	193906	NPE-63

- Note

The emergency buffer can only be used in combination with shock absorber retainer KYP. → page 66 (A threaded stud and nut are not required.)


Shock absorber DG-GA

for protected version GA
(order code E)

Materials:
Housing: Galvanised steel; piston rod:
High-alloy steel
Seals: NBR, PUR
Free of copper and PTFE



Ordering data			
For size	Weight [g]	Part No.	Type
25	70	192875	DG-GA-25-YSR
40	140	192877	DG-GA-40-YSR

-  - Type discontinued
Available up until 2019

Toothed belt axes DGE

Accessories

FESTO

Sensor bracket HWS

for inductive proximity sensors
(order code T)

Material:

Galvanised steel



Switch lug SF

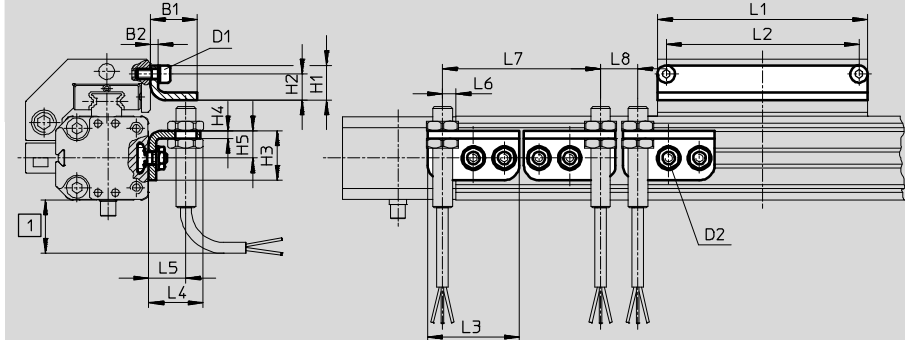
(order code L)

Material:

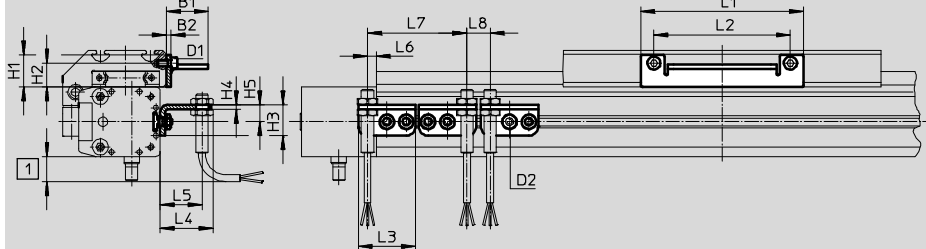
Galvanised steel



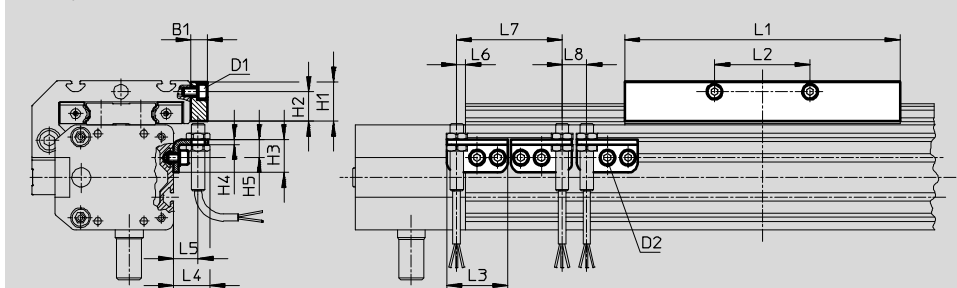
DGE-18-...-ZR-KF-...




DGE-25-...-ZR-KF-...



DGE-40/-63-...-ZR-KF-...



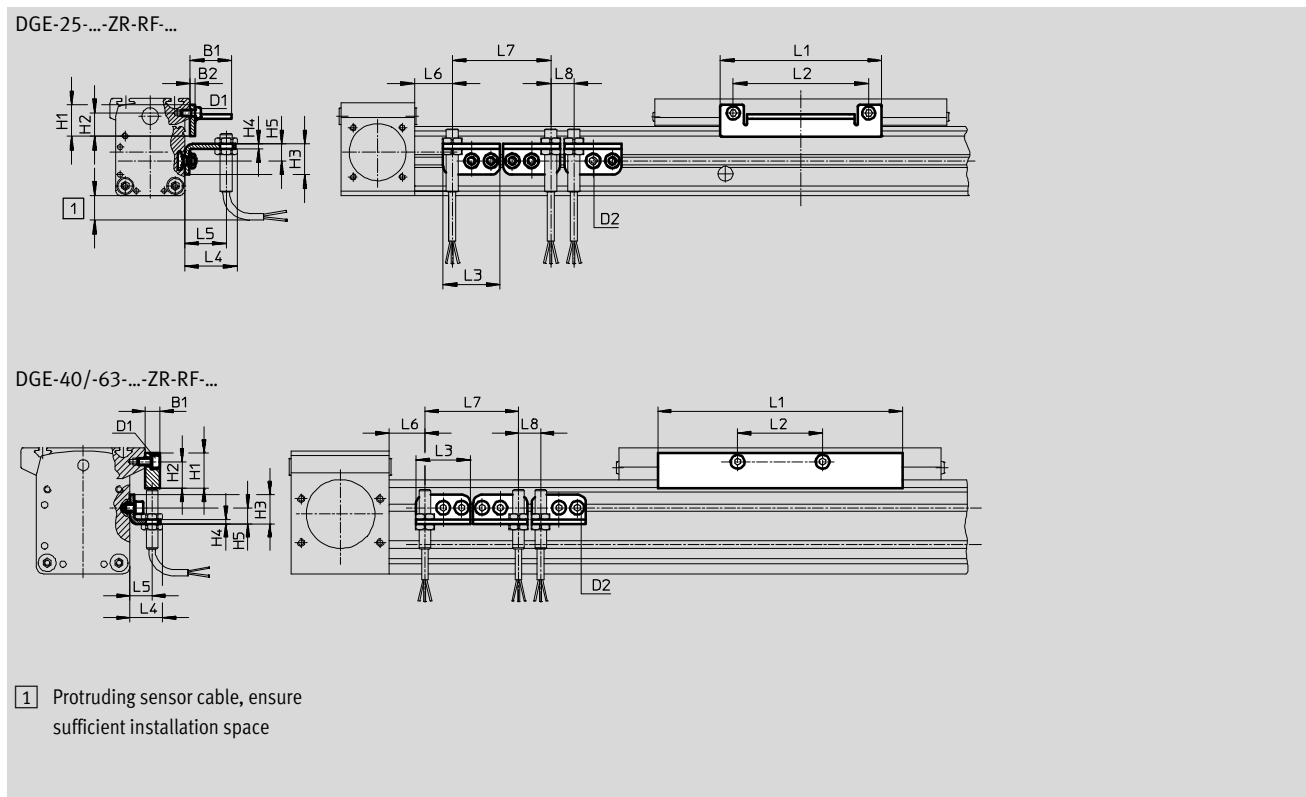
1 Protruding sensor cable, ensure sufficient installation space

-  - Note

Cannot be used in combination with the variant DGE-...-GA (protected version).

Toothed belt axes DGE

Accessories



Dimensions and ordering data														
For size	D1	D2	B1	B2	H1	H2	H3	H4	H5	L1	L2	L3	L4	L5
18	M4	M5	19	3	14	10.5	20	3	11	85	78	37	22.5	15
25	M5	M5	27	3	20.5	15.3	20	3	11	105	88	37	34.5	27
40	M5	M5	10	-	24	18	20	3	11	167	58	37	22.5	15
63	M8	M5	10	-	35	25	20	3	11	230	72	37	22.5	15


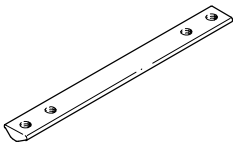

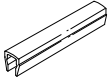
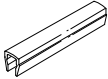
For size	L6			L7 min.	L8 min.	Weight [g]	Part No.	Type
	DGE-ZR-KF max.	DGE-ZR-RF GK	GV					
18	5.5	-	-	64	15	30	188968	HWS-18/25-M8
						60	188964	SF-18
25	5.5	43.5	91	64	15	30	540780	HWS-25-MAB-M8
						80	540430	SF-25-MAB
40	5.5	68.5	138.5	64	15	40	188969	HWS-40-M8
						310	188966	SF-40
63	5.5	117	232	64	15	40	188970	HWS-63-M8
						630	188967	SF-63

 Type discontinued
Available up until 2019

Toothed belt axes DGE

Accessories



FESTO

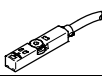
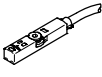
Ordering data				Technical data → Internet: mounting attachment		
	For size	Comment	Order code	Part No.	Type	PU ¹⁾
Slot nut NST						
	18, 25	For mounting slot/profile slot	Y	526091	NST-HMV-M4	10
	40			150914	NST-5-M5	1
	63			150915	NST-8-M6	1
Slot nut NSTL						
	25	For slide	X	158410	NSTL-25	1
	40			158412	NSTL-40	1
	63			158414	NSTL-63	1
Centring pin/sleeve ZBS/ZBH						
	8 ... 18	For slide	Z	150928	ZBS-5	10
	25 ... 63			150927	ZBH-9	10
Slot cover ABP						
	40	For mounting slot every 0.5 m	B	151681	ABP-5	2
	63			151682	ABP-8	
Slot cover ABP-S						
	8 ... 63	For sensor slot every 0.5 m	S	151680	ABP-5-S	2
	25	For mounting slot for DGE-ZR-RF	B			



1) Packaging unit



Toothed belt axes DGE

Accessories

Ordering data – Proximity sensors for T-slot, magnetic reed						Technical data → Internet: sme	
	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part No.	Type	
N/O contact							
	Insertable in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-wire	2.5	150855	SME-8-K-LED-24	
			Plug M8x1, 3-pin	0.3	150857	SME-8-S-LED-24	
N/C contact							
	Insertable in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-wire	7.5	160251	SME-8-O-K-LED-24	

Ordering data – Proximity sensors for T-slot, magneto-resistive						Technical data → Internet: smt	
	Type of mounting	Switch output	Electrical connection	Cable length [m]	Part No.	Type	
N/O contact							
	Insertable in the slot from above, flush with cylinder profile, short design	PNP	Cable, 3-wire	2.5	574335	SMT-8M-A-PS-24V-E-2,5-OE	
			Plug M8x1, 3-pin	0.3	574334	SMT-8M-A-PS-24V-E-0,3-M8D	
N/C contact							
	Insertable in the slot from above, flush with cylinder profile, short design	PNP	Cable, 3-wire	7.5	574340	SMT-8M-A-PO-24V-E-7,5-OE	

Ordering data – Inductive proximity sensors M8						Technical data → Internet: sien	
	Electrical connection		Switching output	LED	Cable length [m]	Part No.	Type
	Cable	Plug M8					
N/O contact							
	3-wire	–	PNP	■	2.5	150386	SIEN-M8B-PS-K-L
	–	3-pin	PNP	■	–	150387	SIEN-M8B-PS-S-L
N/C contact							
	3-wire	–	PNP	■	2.5	150390	SIEN-M8B-PO-K-L
	–	3-pin	PNP	■	–	150391	SIEN-M8B-PO-S-L

Ordering data – Connecting cables					Technical data → Internet: nebu	
	Electrical connection, left	Electrical connection, right	Cable length [m]	Part No.	Type	
	Straight socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	541333	NEBU-M8G3-K-2.5-LE3	
			5	541334	NEBU-M8G3-K-5-LE3	
	Angled socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	541338	NEBU-M8W3-K-2.5-LE3	
			5	541341	NEBU-M8W3-K-5-LE3	

- 1 - Type discontinued
Available up until 2019

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Toothed belt axes DGE

Accessories

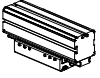
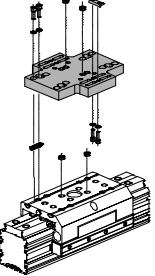
Adapter kit
HMVK

Material:
Wrought aluminium alloy
Free of copper and PTFE
RoHS-compliant



Note

The kit includes the individual mounting interface as well as the necessary mounting material.

Permissible drive/drive combinations with adapter kit			Download CAD data → www.festo.com		
Combination	1 Drive	2 Drive	Adapter kit		
	Size	Size	CRC ¹⁾	Part No.	Type
DGPL, DGE, DGEA/DGE	DG...	DGE	HMVK		
 1  2	Direct slide/slide mounting				
	18, 25	25	2	196779	HMVK-DL25-DL18/25
	25	32		196781	HMVK-DL32/40-DLA18-32
	18 ²⁾ , 25, 32 ³⁾	40		196781	HMVK-DL32/40-DLA18-32
	25 ²⁾ , 40	63		196783	HMVK-DL63-DLA25/40
	Direct slide/profile mounting				
	18	18	2	196780	HMVK-DL18/25-DL18/25
	25	25		196780	HMVK-DL18/25-DL18/25
	25	32, 40		196782	HMVK-DL32/40-DL25
	32 ³⁾ , 40	40		196781	HMVK-DL32/40-DLA18-32

- 1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.
- 2) Only for DGEA-...
- 3) Only for DGPL

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