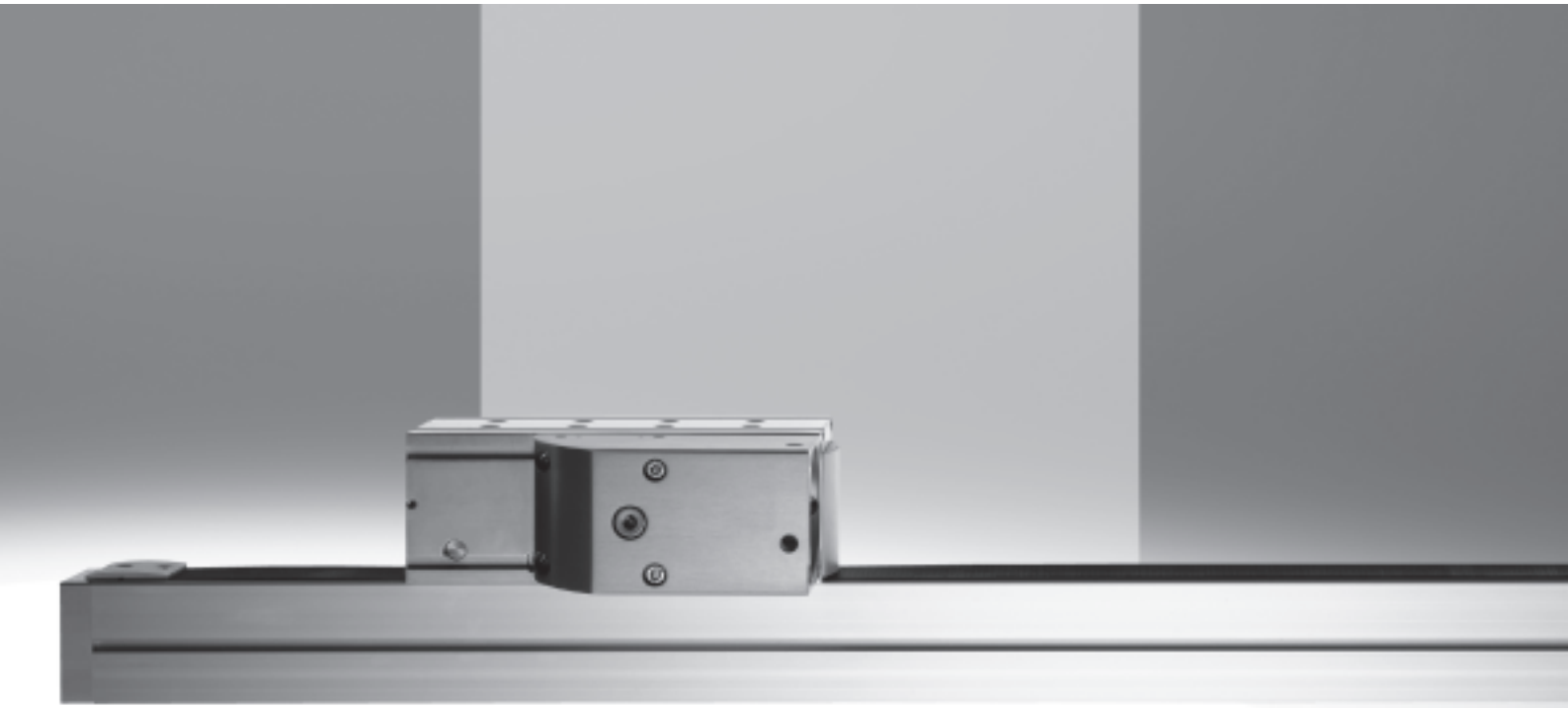
Cantilever axes DGEA

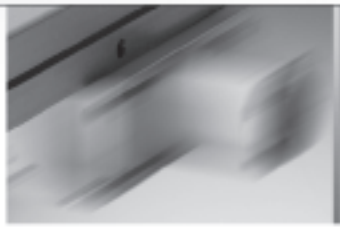
FESTO



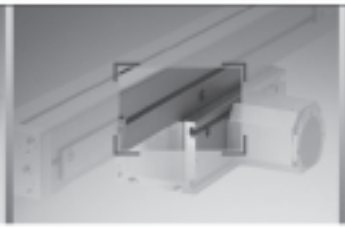
More economical!
For maximum dynamics
in the available space

Info 111

Extremely dynamic!



Economical dynamics,



precise,

compact.

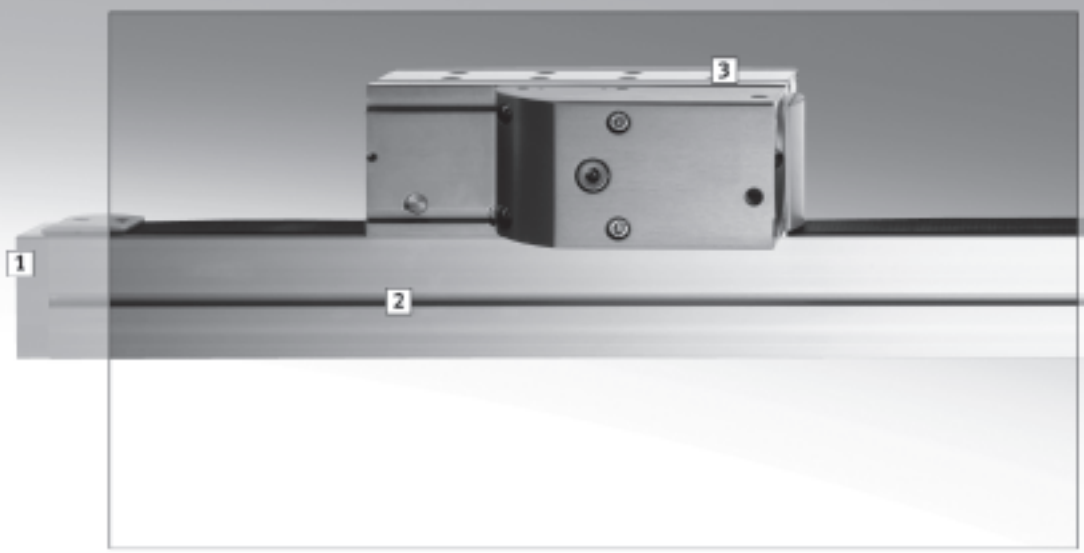
Maximum economy
Thanks to separating motor and profile! As a cantilever axis, for example, the DGEA ensures an economical solution to multi-axis systems in the case of handling and assembly systems.

Extremely dynamic
Extremely short cycle times thanks to the reduction of the moving load. This is because the motor, gearing and drive head are permanently mounted and only the main profile is moved with the load.

Maximum precision and reliability
Positioning capability within a range of 0.05 mm, thanks to the high quality toothed belt drive, which also protects the bearing guide integrated in the profile against contamination.

Extremely compact and installation-friendly
Thanks to the new operating principle, which permits a flat and compact drive head, and to the optional angled gear unit. The axis itself is mounted on the drive head. The mounting interface for the load is located at the end of the profile tube. Also includes access to the proven motor-controller packages.

Extremely modular and flexible
As another member of the modular handling and assembly system, it is the ideal Z axis for planar surface gantries and facilitates versatile combinations with semi-rotary drives and grippers.



1 Mounting interface for working load Thread, centring holes and port pattern are identical to the end caps on the DGE axes. Both caps can be machined as desired or removed and replaced by others.

2 Profile: three sides with slots for external mounting – clearance for tubing and electrical cable throughfeed.

3 Mounting interface for cantilever application (adapted to DGE... slide).

Advantages for designers

- Super flat drive head enabling high mechanical torques
- Better dynamics compared to the toothed belt drive DGE-ZR in cantilever operation because the motor, gear unit and drive head are permanently mounted so that the moving load (profile) is considerably reduced
- High-quality guide as for DGE-KF/ DGP-KF axes
- Reliable motor-controller packages can be utilised
- Mounting options adapted to the new multi-axis modular system

Advantages for buyers

- Outstanding economy thanks to higher cycle speeds
- Use of pre-assembled drive packages
- Simple logistics thanks to the interchangeability of the components
- Avoidance of costly special designs
- High reliability of supply
- Good worldwide support

Cantilever axes DGEA

Features

Key features at a glance

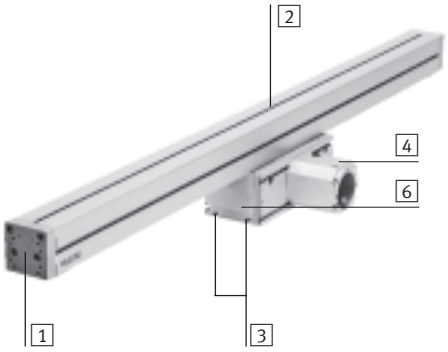
- Super flat Ω drive head enabling high mechanical torques.

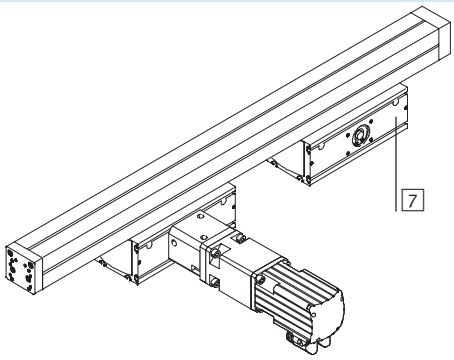
- High-quality guide as for DGE-KF/ DGP-KF axis.
- Improved dynamics compared to toothed belt axis DGE-ZR in cantilever operation, as the motor, gear unit and drive head are securely mounted and thus the moving load (profile barrel) is considerably reduced.
- Tried and tested motor-controller packages can be utilised.
- Mounting options adapted to the new multi-axis modular system.

Size		18	25	40
Max. working stroke	[mm]	800	900	1000
Max. working load	[kg]	7	18	27
Max. speed	[m/s]	3	3	3
Max. feed force	[N]	230	400	1000

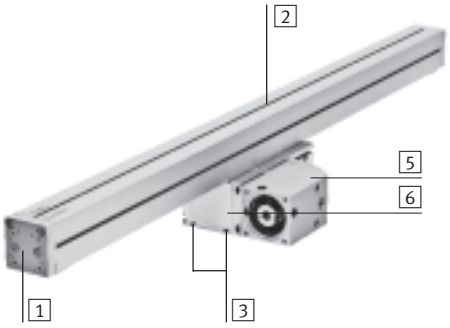
Variants

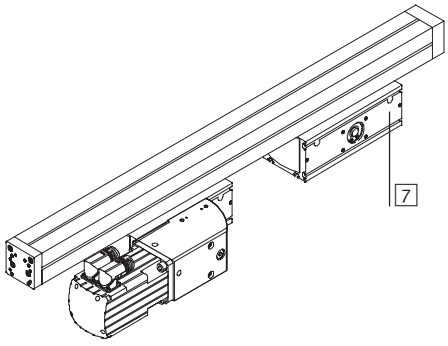
Basic design





With angled gear unit





1 Mounting interface for working load: thread, centring holes and hole pattern are identical to the end caps on the DGE axes. Both caps can be machined as desired or removed and replaced by others.

2 Profile barrel: 3 sides with slots for external mounting – clearance for tubing and electrical cable throughfeed

3 Mounting interface for cantilever application (matched to DGE-...-KF slide)

4 Coupling housing

5 Coupling housing with integrated angled gear unit

6 Drive head

7 Optional:
Additional drive head without drive shaft for increasing mechanical torque resistance

Cantilever axes DGEA

Features

System selection for electromechanical drives

Stepper motor controller
SEC-ST
➔ www.festo.com

Servo motor controller
SEC-AC
➔ www.festo.com

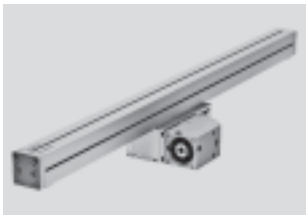
Axis controller
SPC-200
➔ www.festo.com

Stepper motor
MTR-ST
➔ www.festo.com

Servo motor
MTR-AC
➔ www.festo.com

Coupling
KSE-...
➔ www.festo.com

Motor flange
MTR-FL-...
➔ www.festo.com



Cantilever axis

DGEA-...-ZR-...

Toothed belt axis
with recirculating ball bearing guide
DGE-...-ZR-KF-...

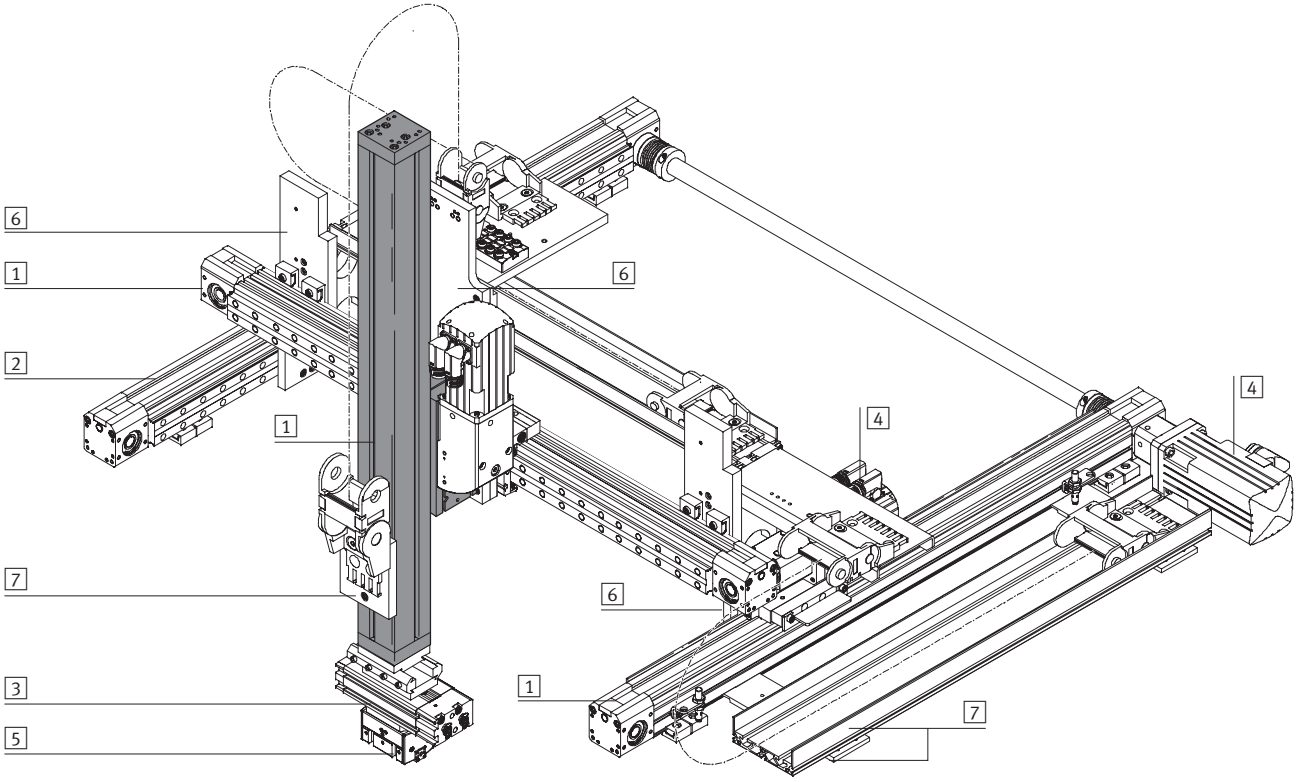
Toothed belt axis
with roller guide
DGE-...-ZR-RF-...

Spindle axis
with recirculating ball bearing guide
DGE-...-SP-...

Cantilever axes DGEA

System example

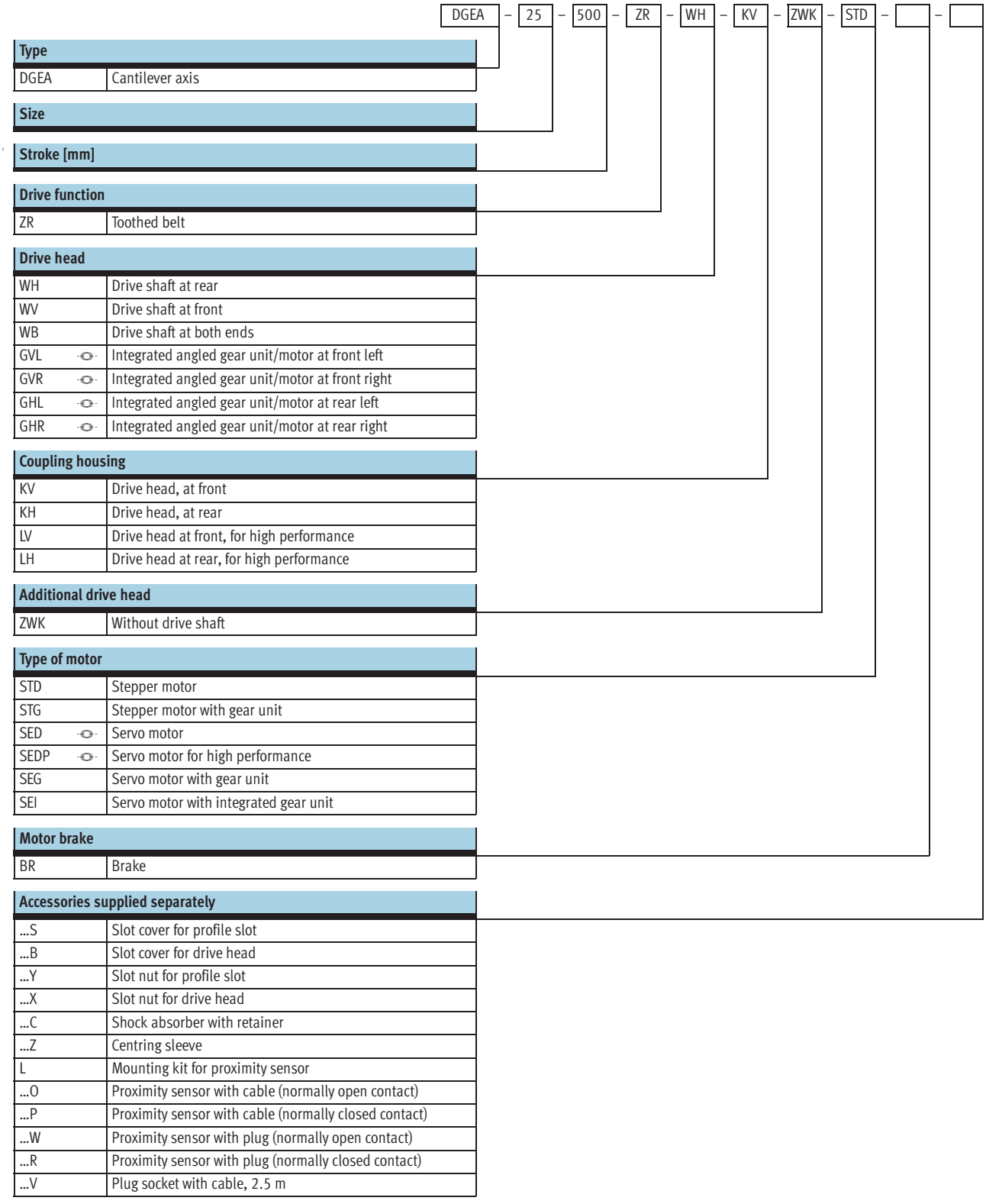
System product for handling and assembly technology



System elements and accessories			
		Brief description	**➔ Page**
1	Axes	Wide range of combination options within handling and assembly technology	9
2	Passive guide axis	To increase force and torque capacity in multi-axis applications	www.festo.com
3	Drive units	Wide range of combination options within handling and assembly technology	www.festo.com
4	Motors	Servo and stepper motors, with or without gearing	www.festo.com
5	Grippers	Wide range of variation options within handling and assembly technology	www.festo.com
6	Adapters	For drive/drive and drive/gripper combinations	www.festo.com
7	Installation components	For achieving a clear-cut, safe layout for electrical cables and tubing	www.festo.com

Cantilever axes DGEA

Type codes



Type	
DGEA	Cantilever axis

Size	

Stroke [mm]	

Drive function	
ZR	Toothed belt

Drive head	
WH	Drive shaft at rear
WV	Drive shaft at front
WB	Drive shaft at both ends
GVL	Integrated angled gear unit/motor at front left
GVR	Integrated angled gear unit/motor at front right
GHL	Integrated angled gear unit/motor at rear left
GHR	Integrated angled gear unit/motor at rear right

Coupling housing	
KV	Drive head, at front
KH	Drive head, at rear
LV	Drive head at front, for high performance
LH	Drive head at rear, for high performance

Additional drive head	
ZWK	Without drive shaft

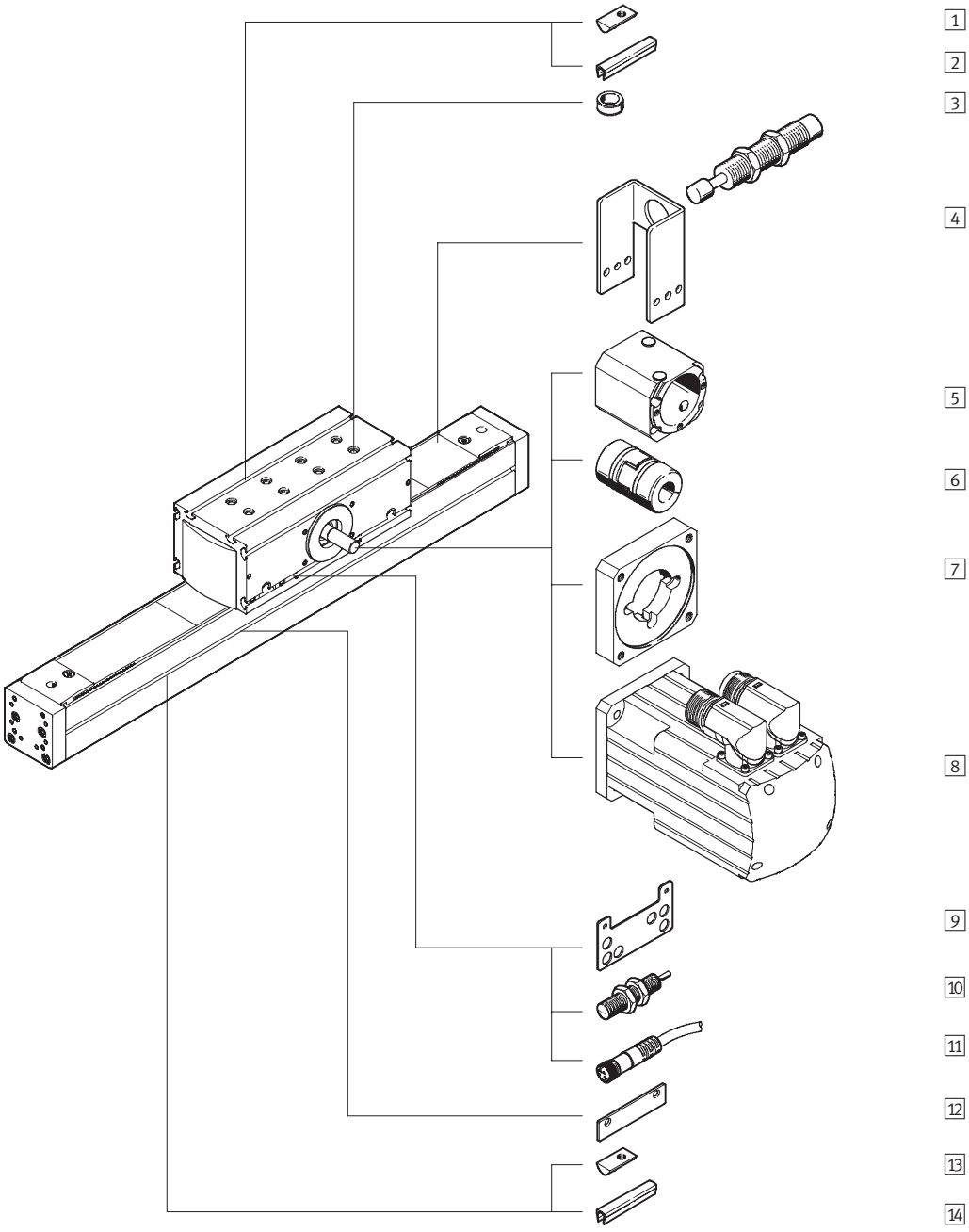
Type of motor	
STD	Stepper motor
STG	Stepper motor with gear unit
SED	Servo motor
SEDP	Servo motor for high performance
SEG	Servo motor with gear unit
SEI	Servo motor with integrated gear unit

Motor brake	
BR	Brake

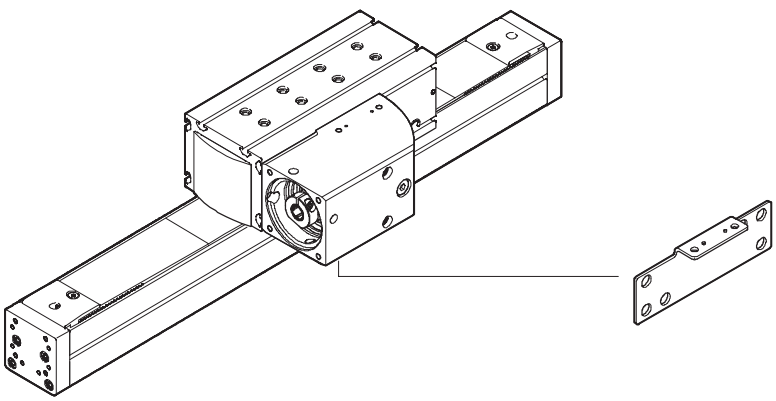
Accessories supplied separately	
...S	Slot cover for profile slot
...B	Slot cover for drive head
...Y	Slot nut for profile slot
...X	Slot nut for drive head
...C	Shock absorber with retainer
...Z	Centring sleeve
L	Mounting kit for proximity sensor
...O	Proximity sensor with cable (normally open contact)
...P	Proximity sensor with cable (normally closed contact)
...W	Proximity sensor with plug (normally open contact)
...R	Proximity sensor with plug (normally closed contact)
...V	Plug socket with cable, 2.5 m

Cantilever axes DGEA

Peripherals overview



With angled gear unit



Cantilever axes DGEA

Peripherals overview

Variants and accessories					
	Type	Brief description	Basic design	Angled gear unit	→ Page
1	Slot nut for drive head X	For mounting the axis	■	■	29
2	Slot cover for drive head B	For protecting against ingress of dirt	■	■	29
3	Centring sleeve Z	To centre the axis	■	■	29
4	Shock absorber with retainer C	Prevents damage to the axis in the event of a power failure (in vertical operation), if the axis is driven into the end position by the load	■	■	28
5	Coupling housing KG	Adapter for mounting the motor on the axis	■	integrated	24
6	Coupling KSE	Connecting element between axis and motor	■	integrated	24
7	Motor flange MTR-FL	Connecting element between coupling housing and motor	■	integrated	24
8	Motor MTR	Motors specially matched to the axis, with or without gearing	■	■	24
9	Mounting plate L	Adapter for mounting the SIEN proximity sensor on the axis (basic design)	■	–	26
10	Proximity sensor O/P/W/R	For providing a proximity signal or safety check	■	■	29
11	Plug socket with cable V	Via proximity sensor	■	■	29
12	Switching lug L	For sensing the slide position	■	■	26
13	Slot nut for profile slot Y	For mounting attachments	■	■	29
14	Slot cover for profile slot S	For protecting against ingress of dirt	■	■	29
15	Mounting plate L	Adapter for mounting the SIEN proximity sensor on the axis with angled gear unit	–	■	27

Cantilever axes DGEA

Data sheet

FESTO

- Ø - Size
  18, 25, 40
- l - Stroke length
  100 ... 1000 mm

DGEA... DGEA-...G-...

General technical data				
Size		18	25	40
Constructional design		Cantilever axis with toothed belt drive		
Guide		Recirculating ball bearing guide		
Mounting position		Any		
Max. working stroke[1]	[mm]	1 ... 800	1 ... 900	1 ... 1000
Max. working (effective) load, horizontal[2]	[kg]	6	15	40
Max. working load, vertical	[kg]	10	20	50
Max. feed force F_x	[N]	230	400	1000
Max. speed	[m/s]	3		
Max. acceleration	[m/s²]	50		
Repetition accuracy	[mm]	< ±0.05		
Basic design				
Max. driving torque	[Nm]	3	5.2	19
Max. no-load driving torque[3]	[Nm]	0.4	0.4	1
Maximum drive speed	[rpm]	2222	2222	1500
With angled gear unit				
Max. driving torque	[Nm]	1.4	2.2	7.3
Max. no-load driving torque[3]	[Nm]	0.3	0.6	1.3
Maximum drive speed	[rpm]	6666	6666	4500
Gearing type		Crown gear unit		
Gearing		Straight		
Gear ratio		3		

1) Total stroke = working stroke + 2x stroke reserve
2) At 500 mm stroke and with a centred working load in the middle of the guide. Further values ➔ 14
3) Measured at a speed of 0.2m/s

Operating and environmental conditions				
Size		18	25	40
Ambient temperature	[°C]	–10 ... +60		
Protection class		IP20		

Weights [kg]							
Size		18		25		40	
Number of drive heads		1	2	1	2	1	2
Basic design							
Overall weight	at 0 mm stroke[1)]	2.8	4.7	4.9	8.5	14.3	23.2
	Additional weight Per 100 mm stroke[1)]	0.35	0.35	0.47	0.47	1	1
Moving load	at 0 mm stroke	1.5	2	2.4	3.3	6.2	8.6
With angled gear unit							
Overall weight	at 0 mm stroke[1)]	3.6	5	6.6	9.3	19.5	26
	Additional weight Per 100 mm stroke[1)]	0.35	0.35	0.47	0.47	1	1
Moving load	at 0 mm stroke[1)]	1.5	2	2.4	3.3	6.2	8.6

1) Without motor, coupling, coupling housing and accessories

Mass moment of inertia								
Size			18		25		40	
Number of drive heads			1	2	1	2	1	2
J_O		[kg cm^2]	2.87	4.08	4.45	6.40	28	41.5
J_H	per metre stroke	[kg cm^2/m]	0.6		0.8		3.65	
J_L	per kg working load	[kg cm^2/kg]	1.66		1.66		3.65	
J_G	angled gear unit	[kg cm^2/m]	0.14		0.26		2.02	
i	gear ratio		3		3		3	

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

Basic design

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

With angled gear unit

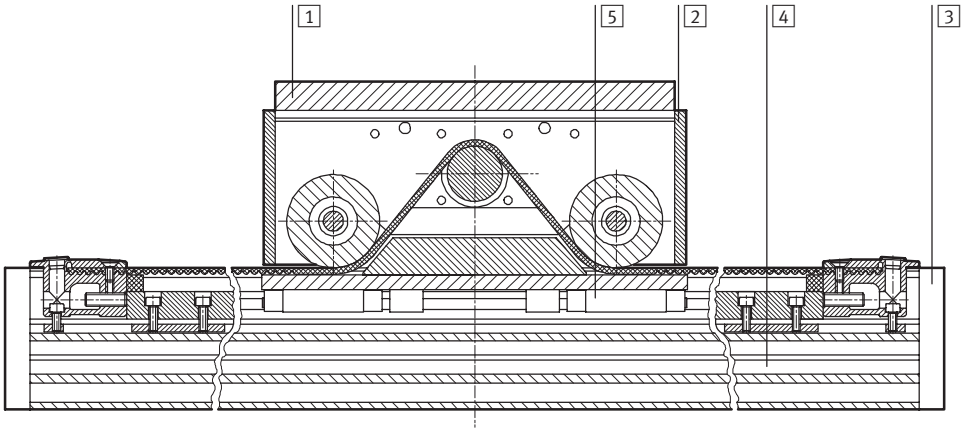
$$J_A = J_G + \frac{J_O + J_H \times \text{working stroke [m]} + J_L \times m_{\text{working load}}\ [\text{kg}]}{i^2}$$

Toothed belt				
Size		18	25	40
Expansion[1)]	[%]	0.037	0.053	0.056
Pitch	[mm]	3	3	5
Effective radius; effective diameter	[mm]	25.78	25.78	38.2
Feed constant	[mm/rev.]	81	81	120
Feed constant with integrated angled gear unit	[mm/rev.]	27	27	40

1) At max. feed force

Materials

Sectional view



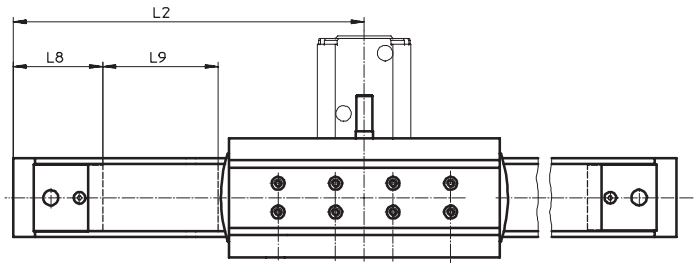
Axis		
1	Drive head interface	Galvanised steel
2	Drive head - Housing	Anodised aluminium
3	End cap	Anodised aluminium
4	Profile	Anodised aluminium
5	Guide rail	Rolled steel, corrotec coated
–	Gearing housing	Anodised aluminium
–	Pinion	Steel
–	Crown gear	Steel

Stroke reserve

L2 Drive head in the end position of the working stroke

L8 Distance between mechanical stop and external dimension of the axis

L9 The stroke reserve is a safety distance available on both sides of the axis in addition to the stroke



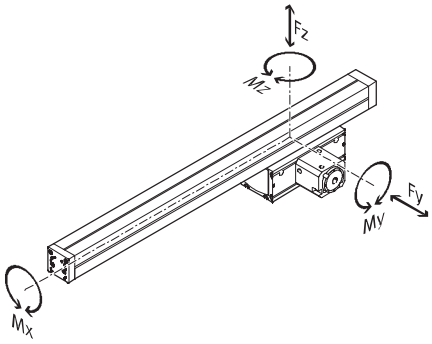
Example:
Type DGEA-25-500-ZR

Working stroke = 500 mm
Stroke reserve = (2x 81 mm)
= 162 mm
Total stroke = 500 mm + 126 mm
= 662 mm

Size		18	25	40
L9 per end position	[mm]	81	81	120

Characteristic load values of the guide

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.



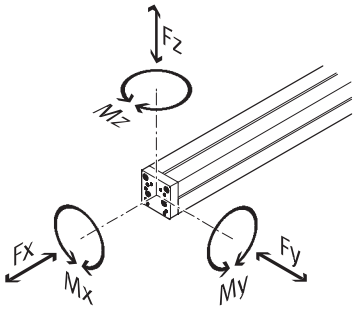
If the cantilever axis is simultaneously subjected to several of the forces and torques listed below, the following equation must be satisfied in addition to the indicated maximum loads.

$$\left|\frac{Fy}{Fy_{max.}}\right| + \left|\frac{Fz}{Fz_{max.}}\right| + \left|\frac{Mx}{Mx_{max.}}\right| + \left|\frac{My}{My_{max.}}\right| + \left|\frac{Mz}{Mz_{max.}}\right| \leq 1$$

Permissible forces and torques				
Size		18	25	40
$Fy_{max.}$	[N]	2000	3080	7300
$Fz_{max.}$	[N]	2000	3080	7300
$Mx_{max.}$	[Nm]	19	28	133
$My_{max.}$	[Nm]	94	230	665
$Mz_{max.}$	[Nm]	65	160	460

Characteristic load values of the interface for mounting the effective load

The forces and torques specified refer to the interface for mounting the effective load.
They must not be exceeded in the dynamic range. Special attention must be paid to the cushioning phase.



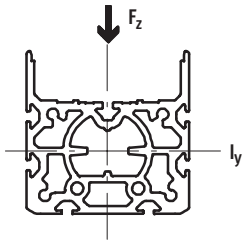
If the cantilever axis is simultaneously subjected to several of the forces and torques listed below, the following equation must be satisfied in addition to the indicated maximum loads.

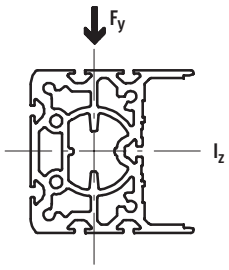
$$\left|\frac{Fx}{Fx_{max.}}\right| + \left|\frac{Fy}{Fy_{max.}}\right| + \left|\frac{Fz}{Fz_{max.}}\right| + \left|\frac{Mx}{Mx_{max.}}\right| + \left|\frac{My}{My_{max.}}\right| + \left|\frac{Mz}{Mz_{max.}}\right| \leq 1$$

Permissible forces and torques				
Size		18	25	40
$Fx_{max.}$	[N]	6000	6000	8400
$Fy_{max.}$	[N]	2240	2240	3200
$Fz_{max.}$	[N]	2240	2240	3200
$Mx_{max.}$	[Nm]	30	50	118
$My_{max.}$	[Nm]	125	230	407
$Mz_{max.}$	[Nm]	185	273	580

PtTool
design tool
www.festo.com/en/engineering

2nd moment of area[1)]

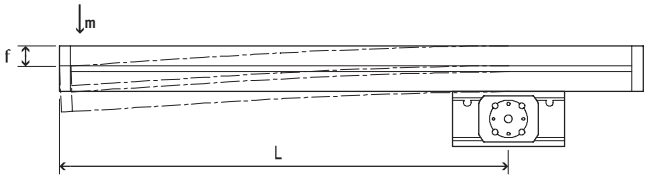




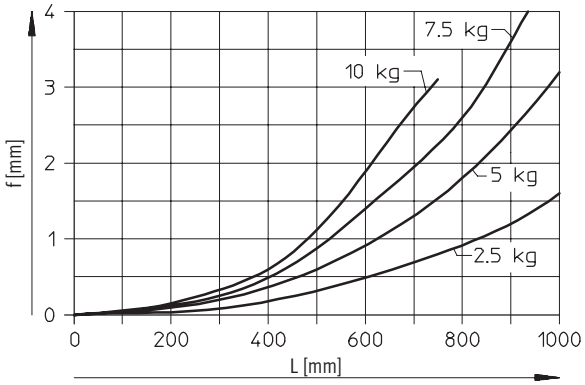
Size		18	25	40
Iy	[mm^4]	173x10^3	432x10^3	1759x10^3
Iz	[mm^4]	135x10^3	438x10^3	1894x10^3

1) After machining or replacing the end cap, the values become invalid.

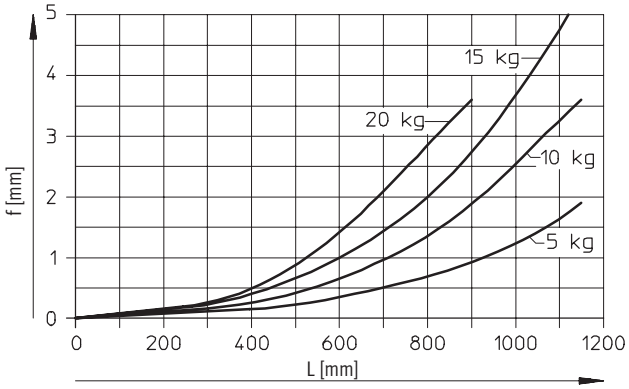
Deflection f of the profile as a function of the distance L and the effective load m



DGEA-18

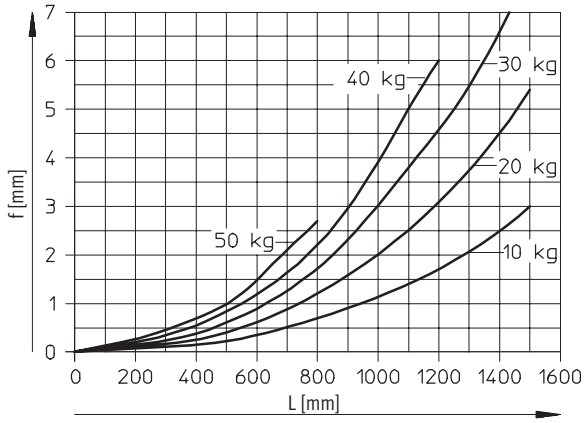


DGEA-25



Deflection f of the profile as a function of the distance L and the effective load m

DGEA-40



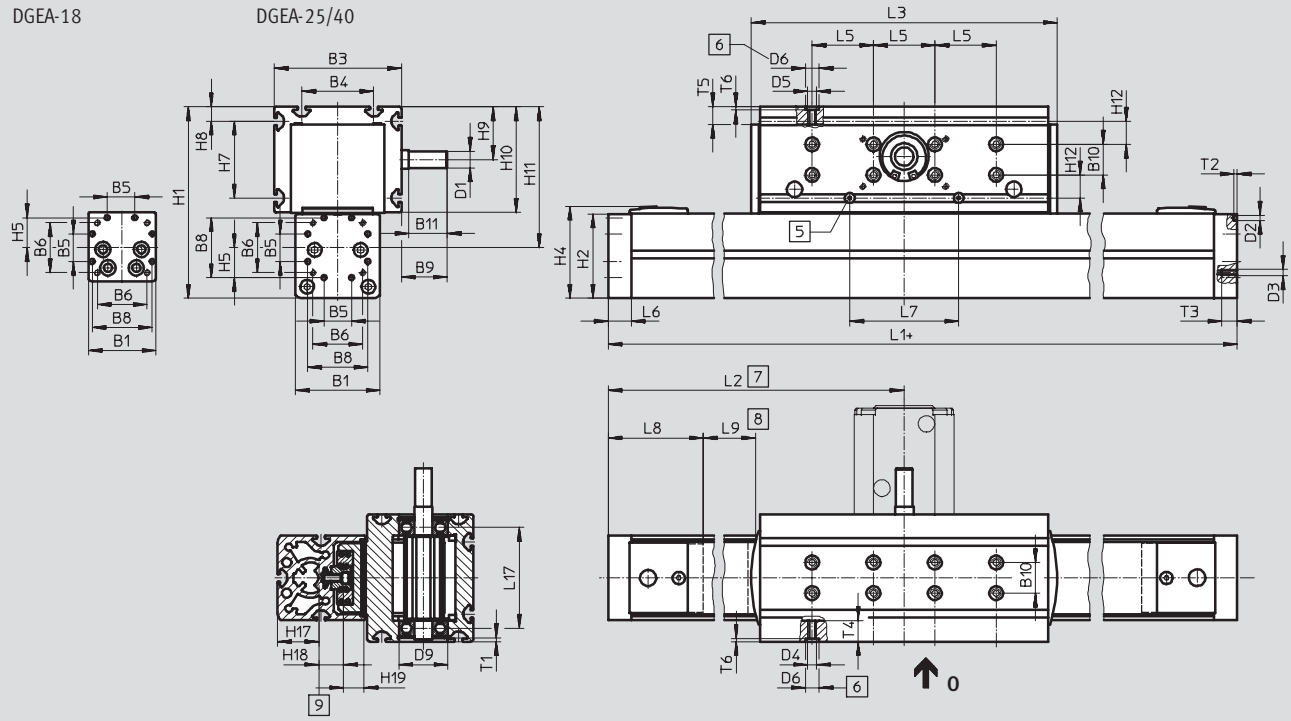
Dimensions

Download CAD data ➔ **www.festo.com/en/engineering**

Basic design

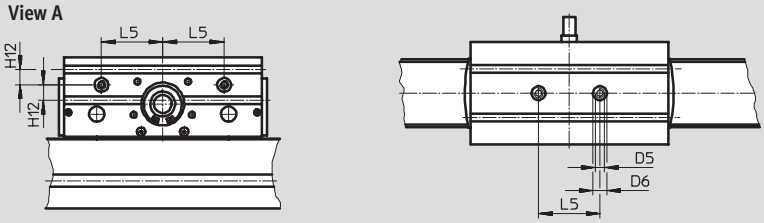
DGEA-18

DGEA-25/40



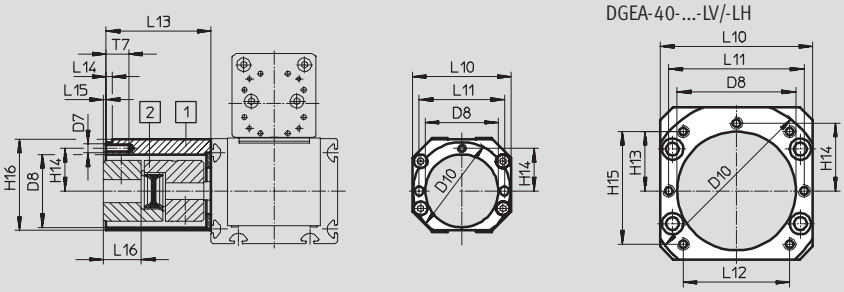
DGEA-18

View A



\+ = plus stroke length

Coupling housing



DGEA-40-...-LV/-LH

1 Coupling housing
2 Coupling
5 Lubrication nipple
6 Hole for centring sleeve ZBH-9
7 Slide in end position of the working stroke
8 Stroke reserve (Available safety distance from mechanical end position at both ends)
9 Centre of gravity of the moving intrinsic load

Size	Variant	B1	B3	B4	B5 ±0.1	B6	B8	B9	B10	B11	D1 ∅ h6	D2 ∅	D3
18	KV/KH	44	67	32	18	32.5	39.1	16	–	12	8	3.3	M4
25	KV/KH	55	83	47	18	32.5	39.1	29.8	20	25	11	3.3	M4
40	KV/KH	80	111.8	72	28	49	53	30.1	40	25	15	4	M5
	LV/LH												

Size	Variant	D4	D5	D6 ∅ H7	D7	D8 ∅	D9 ∅ H7	D10 ∅ g7	H1	H2	H4	H5	H7
18	KV/KH	M6	M6	9	M4	32	28	44	99	45	50.8	19.55	20
25	KV/KH	M6	M6	9	M6	48	32	64	128	57.7	63.1	19.55	50
40	KV/KH	M6	M6	9	M6	48	40	64	197	85	91.3	26.5	72
	LV/LH				M8	78		118					

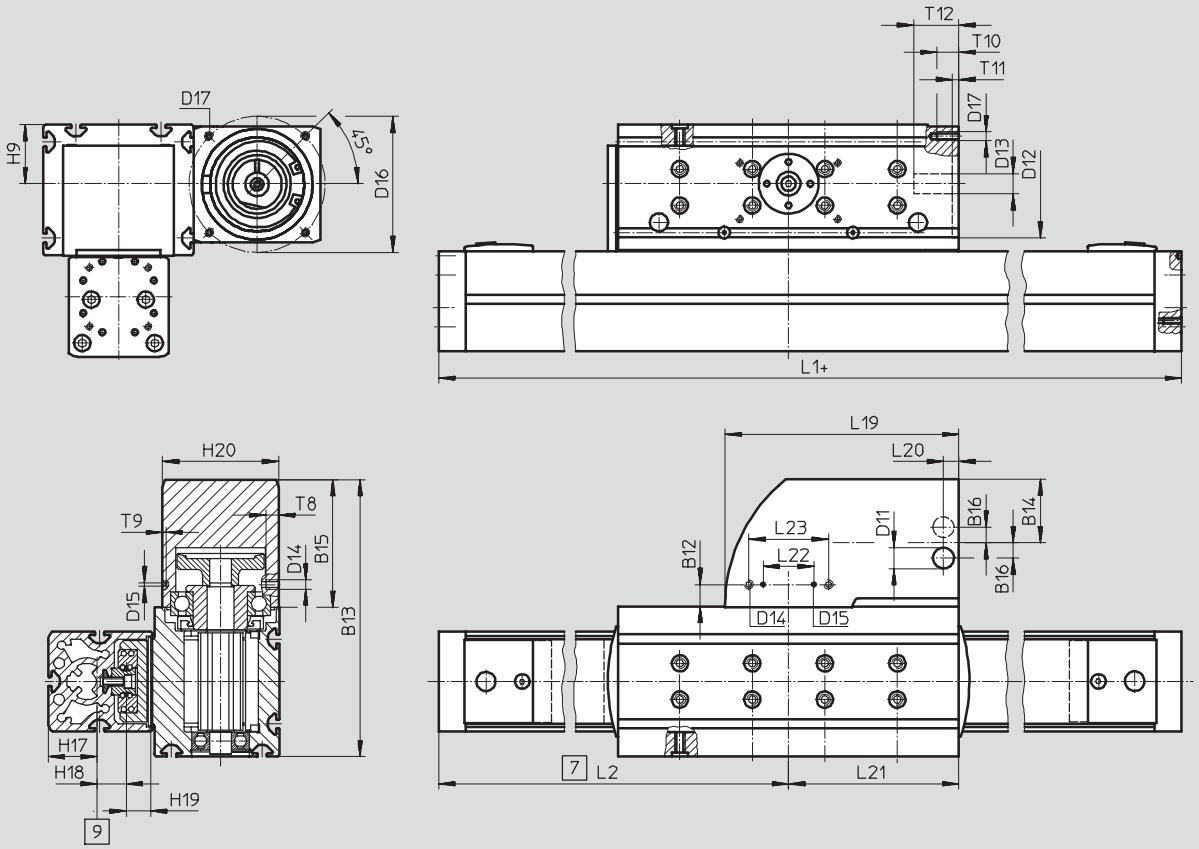
Size	Variant	H8	H9	H10	H11	H12	H13	H14 ±0.1	H15	H16	H17	H18	H19
18	KV/KH	8	30.5	52	77	10	–	19	–	45	19.6	10	14.3
25	KV/KH	9.5	32.5	69	95	15	–	28	–	60	27.1	16	13.3
40	KV/KH	15.5	55.5	110	153	16	–	28	–	60	42.8	21.5	18
	LV/LH						39	44.5	74	100			

Size	Variant	L1	L2	L3	L5	L6	L7	L8	L9	L10	L11	L12	L13
18	KV/KH	419.5	210	138	40	13	28	58	81	45	38	–	40
25	KV/KH	487.5	244	202	40	15	71	60	81	65	56	–	65
40	KV/KH	662	331	256	40	15	94	81	120	65	56	–	65
	LV/LH									100	89	70	96

Size	Variant	L14	L15	L16	L17	T1	T2	T3	T4 min.	T5 min.	T6	T7
18	KV/KH	3.2	–3.6	14.6	53	1.6	2	9	11	11	2.1	10
25	KV/KH	4	2.2	22.8	65.6	2.3	2	10	11	11	2.1	13
40	KV/KH	4	2.2	22.8	90	2.8	3	10	11	11	2.1	13
	LV/LH	5	–0.9	35.9								18

Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

With angled gear unit



\+ = plus stroke length

7 Slide in end position of the nominal stroke

9 Centre of gravity of the moving intrinsic load

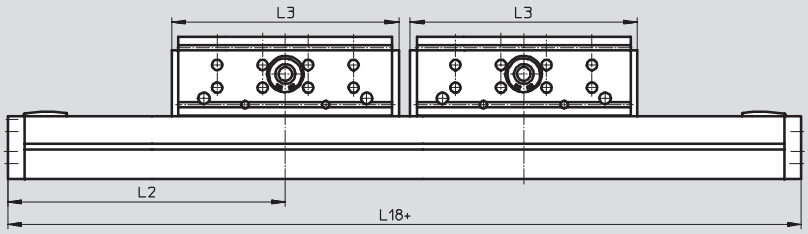
Size	B12	B13	B14	B15	B16	D11 ∅	D12 ∅ +0.05/+0.08	D13 ∅	D14	D15 ∅ ±0.05
18	11	122	27.5	55	9	11.5	40	9	M4	2
25	12	153	35	70	9	11.5	60	11	M5	2
40	16	211.8	50	100	17	11.9	95	19	M5	3

Size	D16 ∅	D17	H9	H17	H18	H19	H20	L1	L2	L19
18	63	M5	30.5	19.6	10	14.3	55	419.5	210	97
25	75	M5	32.5	27.1	16	13.3	64	487.5	244	129
40	115	M8	55.5	42.8	21.5	18	100	662	331	173

Size	L20	L21	L22 ±0.1	L23 ±0.1	T8	T9	T10	T11	T12
18	8.5	64.5	18	34	5	2	12	3.5	24
25	8.5	94	28	44	7	2	12	3.5	25
40	11.5	120	44	68	5	2	12	3.5	40

Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

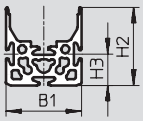
with additional drive head



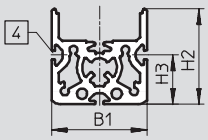
\+ = plus stroke length

Profile barrel

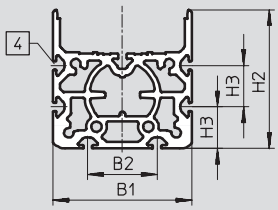
Size 18



Size 25



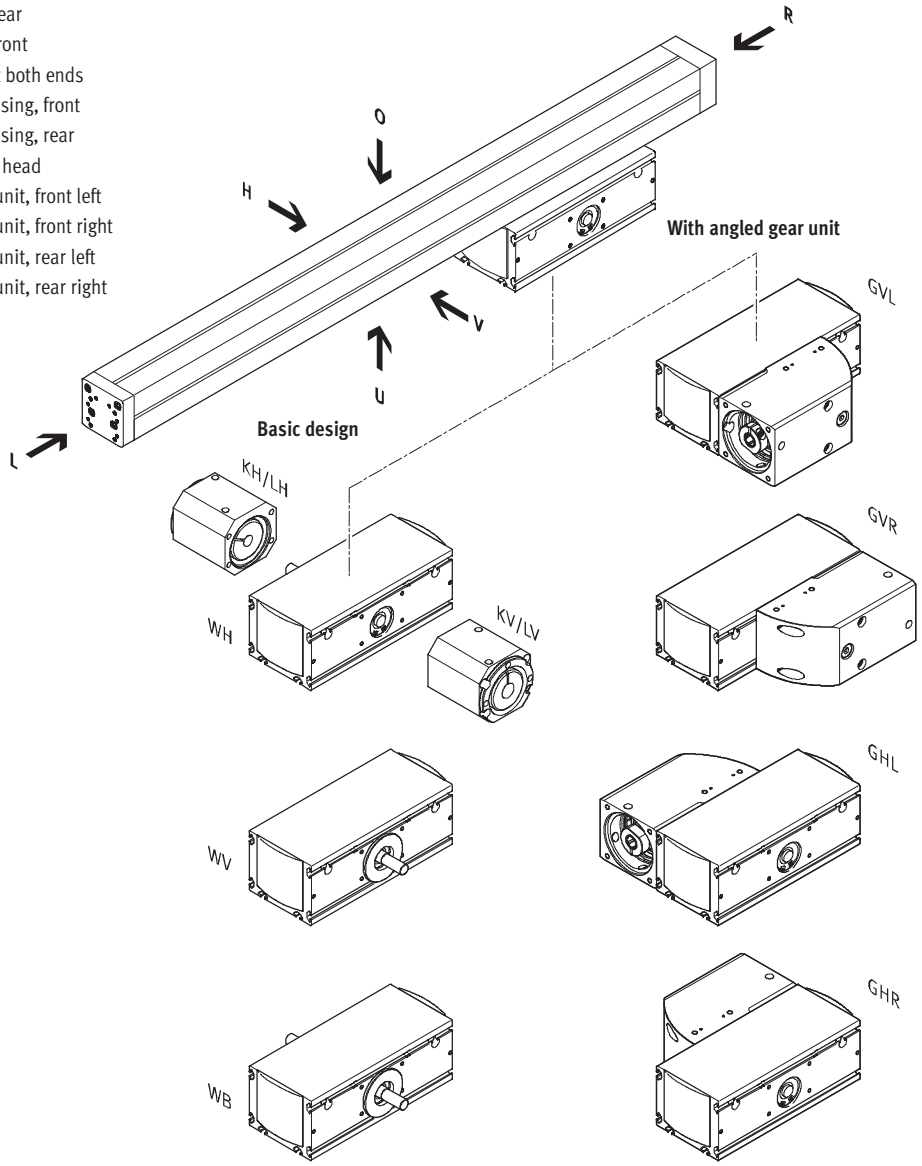
Size 40



4 Mounting slot for slot nut NST

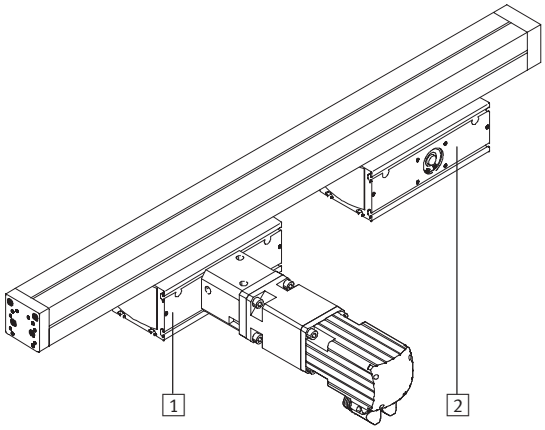
Size	B1	B2	H2	H3	L2	L3	L18
18	44	–	45	18	210	138	569.5
25	55	–	57.7	28.7	244	202	697.5
40	80	40	85	24	331	256	926

Order code	
Mandatory data/options	
WH	Drive shaft, rear
WV	Drive shaft, front
WB	Drive shaft at both ends
KV/LV	Coupling housing, front
KH/LH	Coupling housing, rear
ZWK	Second drive head
GVL	Angled gear unit, front left
GVR	Angled gear unit, front right
GHL	Angled gear unit, rear left
GHR	Angled gear unit, rear right

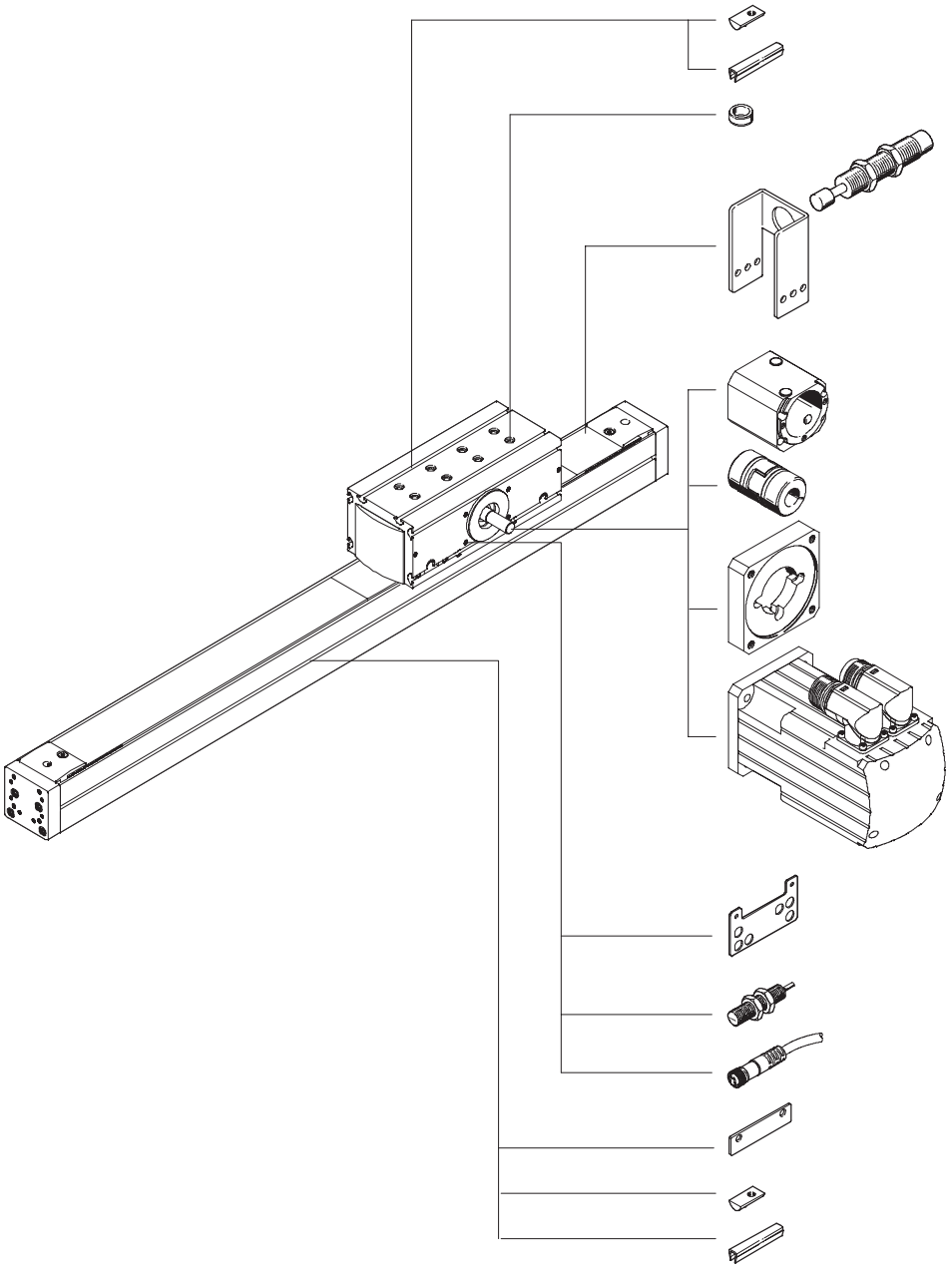


O = top
U = underneath
R = right
L = left
V = front
H = rear

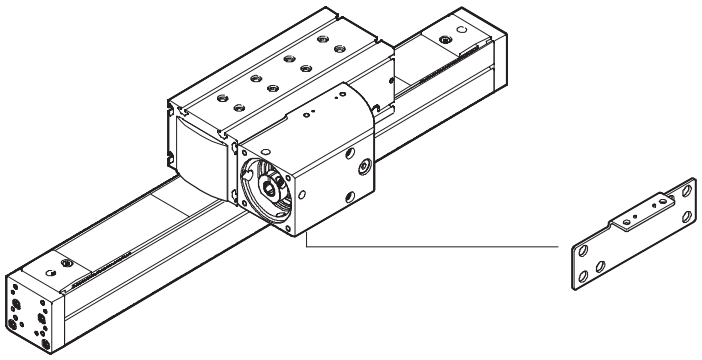
1 Drive head
2 Optionally:
Additional drive head
(to increase the mechanical torque resistance)



Order code
Options



With angled gear unit



Cantilever axes DGEA

Ordering data – Modules

FESTO

[M] Mandatory data							[O] Options			
Module No.	**Construc-tion**	**Size**	**Stroke**	**Drive function**	**Drive head**	**Coupling housing**	**Additional drive head**	**Type of motor**	**Brake**
195 611 195 612 195 613	DGEA	18 25 40	1 ... 1000	ZR	WH WV WB GVL GVR GHL GHR	KV KH LV LH	ZWK	STD STG SED SEDP SEG SEI	BR
Ordering example									
195 612	**DGEA**	**25**	**850**	**ZR**	**WV**	**KV**		**STD**	**BR**

Ordering table

Size			18	25	40	Condi-tions	Code	Enter code
[M]	Module No.		**195 611**	**195 612**	**195 613**			
	Construction		Cantilever axis with toothed belt drive				**DGEA**	DGEA
	Size		18	25	40		**-...**	
	Stroke	[mm]	1 ... 800	1 ... 900	1 ... 1000		**-...**	
	Drive function		Electromechanical drive with toothed belt drive				**-ZR**	-ZR
	Drive head		Drive shaft at rear				**-WH**	
			Drive shaft at front				**-WV**	
			Drive shaft at both ends				**-WB**	
			Integrated angled gear unit for arrangement of motor at front left				**-GVL**	
			Integrated angled gear unit for arrangement of motor at front right				**-GVR**	
			Integrated angled gear unit for arrangement of motor at rear left				**-GHL**	
			Integrated angled gear unit for arrangement of motor at rear right				**-GHR**	
[O]	Coupling housing	Standard	For drive head at front		–	[1]	**-KV**	
			For drive head at rear		–	[2]	**-KH**	
		Large version (for high performance)	–	–	For drive head at front	[1]	**-LV**	
			–	–	For drive head at rear	[2]	**-LH**	
	Additional drive head		Without drive shaft				**-ZWK**	
	Type of motor	Stepper motor on one drive head	Stepper motor		–	[3]	**-STD**	
			–	–	with gearing	[3]	**-STG**	
		Servo motor on one drive head	Servo motor		–	[4]	**-SED**	
			–	–	for high performance	[4]	**-SEDP**	
			with gearing		–	[3]	**-SEG**	
			–	–	with integrated gearing	[5]	**-SEI**	
↓	Brake[1)]		Motor brake			[6]	**-BR**	

1) Always order brake for vertical applications for safety reasons.

[1] **KV, LV** Only with drive head WV, WB.

[2] **KH, LH** Only with drive head WH, WB.

[3] **STD, STG, SEG** Only with coupling housing KV, KH and drive head WV, WH, WB.

[4] **SED, SEDP** Only with drive head GVL, GVR, GHL, GHR.

[5] **SEI** Only with coupling housing LV, LH and drive head WV, WH, WB.

[6] **BR** Only permissible with motor type.

Transfer order code

	DGEA	–		–		–	**ZR**	–		–		–		–		–		–		–

Cantilever axes DGEA

Ordering data – Modules

FESTO

[O] Options

Accessories	Slot cover	Slot nut	Shock absorber with retainer	Centring sleeve	Retaining plate for proximity sensor	Inductive proximity sensor	Plug socket with cable
ZUB	...S ...B	...Y ...X	...C	...Z	L	...O ...P ...W ...R	...V
ZUB –	**2B**		**2C**	**10Z**	**L**	**2P2W**	**2V**

Ordering table

Size		18	25	40	Conditions	Code		Enter code
↓	Accessories	Supplied separately				**ZUB-**		ZUB-
[O]	Slot cover for profile slot	1 ... 10				**...S**		
	Slot cover for drive head	1 ... 10				**...B**		
	Slot nut for profile slot	1 ... 10				**...Y**		
	Slot nut for drive head	1 ... 10				**...X**		
	Shock absorber with retainer	1 ... 2				**...C**		
	Centring sleeve	10, 20, 30, 40, 50, 60, 70, 80, 90				**...Z**		
	Retaining plate for inductive proximity switch, incl. 2 switching lugs	1				**L**		
	Inductive proximity sensor NO contact, cable	1 ... 5				**...O**		
	Inductive proximity sensor NC contact, cable	1 ... 5				**...P**		
	Inductive proximity sensor NO contact, plug	1 ... 5				**...W**		
	Inductive proximity sensor NC contact, plug	1 ... 5				**...R**		
	Plug socket with cable	1 ... 10				**...V**		

- Note

The motor controller and cable set must be ordered separately.
Ordering data:

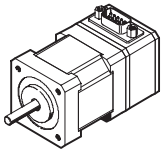
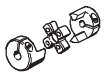
Stepper/servo motor
➔www.festo.com

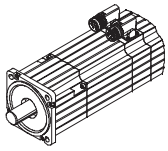
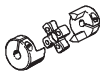
Cantilever axes DGEA offer the same mounting options (on the end cap of the profile and drive head) as the electromechanical axes DGE-...-ZR-KF/-SP-KF.

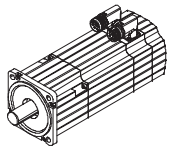
Note however that there is no 1:1 conformity with regard to size.
Example:
Profile dimension DGEA-18 corresponds to DGE-25.

Transfer order code

ZUB	–							

Permissible combinations with stepper motor								
Order code	Motor		Motor flange		Coupling		Coupling housing	
								
	Part No.	Type	Part No.	Type	Part No.	Type	Part No.	Type
For DGEA-18, basic design								
	without gear unit/without brake							
STD	530 065	MTR-ST-87-48S-AA	530 082	MTR-FL44-ST87	123 042	KSE-30-35-D08-D11	530 468	DGEA-KG-18-ZR-FL44
	without gear unit/with brake							
STD + BR	530 066	MTR-ST-87-48S-AB	530 082	MTR-FL44-ST87	123 042	KSE-30-35-D08-D11	530 468	DGEA-KG-18-ZR-FL44
For DGEA-25, basic design								
	without gear unit/without brake							
STD	530 065	MTR-ST-87-48S-AA	533 140	MTR-FL64-ST87	530 090	KSE-40-66-D11-D11	530 469	DGEA-KG-25-ZR-FL64
	without gear unit/with brake							
STD + BR	530 066	MTR-ST-87-48S-AB	533 140	MTR-FL64-ST87	530 090	KSE-40-66-D11-D11	530 469	DGEA-KG-25-ZR-FL64
For DGEA-40, basic design								
	with gear unit/without brake							
STG	530 067	MTR-ST-87-48S-GA	533 139	MTR-FL64-PL80	123 845	KSE-40-66-D15-D20	124 629	DGEA-KG-40-ZR-FL64
	with gear unit/with brake							
STG + BR	530 068	MTR-ST-87-48S-GB	533 139	MTR-FL64-PL80	123 845	KSE-40-66-D15-D20	124 629	DGEA-KG-40-ZR-FL64

Permissible combinations with servo motor								
Order code	Motor		Motor flange		Coupling		Coupling housing	
								
	Part No.	Type	Part No.	Type	Part No.	Type	Part No.	Type
For DGEA-18, basic design								
	with gear unit/without brake							
SEG	526 725	MTR-AC-55-3S-GA	529 944	MTR-FL44-PL60	123 042	KSE-30-35-D08-D11	530 468	DGEA-KG-18-ZR-FL44
	with gear unit/with brake							
SEG + BR	526 726	MTR-AC-55-3S-GB	529 944	MTR-FL44-PL60	123 042	KSE-30-35-D08-D11	530 468	DGEA-KG-18-ZR-FL44
For DGEA-25, basic design								
	with gear unit/without brake							
SEG	526 729	MTR-AC-70-3S-GA	529 945	MTR-FL64-AC70	525 864	KSE-40-66-D11-D12	530 469	DGEA-KG-25-ZR-FL64
	with gear unit/with brake							
SEG + BR	526 730	MTR-AC-70-3S-GB	529 945	MTR-FL64-AC70	524 864	KSE-40-66-D11-D12	530 469	DGEA-KG-25-ZR-FL64
For DGEA-40, basic design								
	with gear unit/without brake							
SEI	526 737	MTR-AC-100-5S-GA	529 949	MTR-FL118-AC100	530 940	KSE-65-90-D15-D24	530 470	DGEA-KG-40-ZR-FL118
	with gear unit/with brake							
SEI + BR	526 738	MTR-AC-100-5S-GB	529 949	MTR-FL118-AC100	530 940	KSE-65-90-D15-D24	530 470	DGEA-KG-40-ZR-FL118

Permissible combinations with servo motor	
Order code	Motor
	
	Part No. Type
For DGEA-18, with angled gear unit	
	without gear unit/without brake
SED	526 723 MTR-AC-55-3S-AA
	without gear unit/with brake
SED + BR	526 724 MTR-AC-55-3S-AB
For DGEA-25, with angled gear unit	
	without gear unit/without brake
SED	526 727 MTR-AC-70-3S-AA
	without gear unit/with brake
SED + BR	526 728 MTR-AC-70-3S-AB
For DGEA-40, with angled gear unit	
	without gear unit/without brake
SEDP	526 735 MTR-AC-100-5S-AA
	without gear unit/with brake
SEDP + BR	526 736 MTR-AC-100-5S-AB

Note

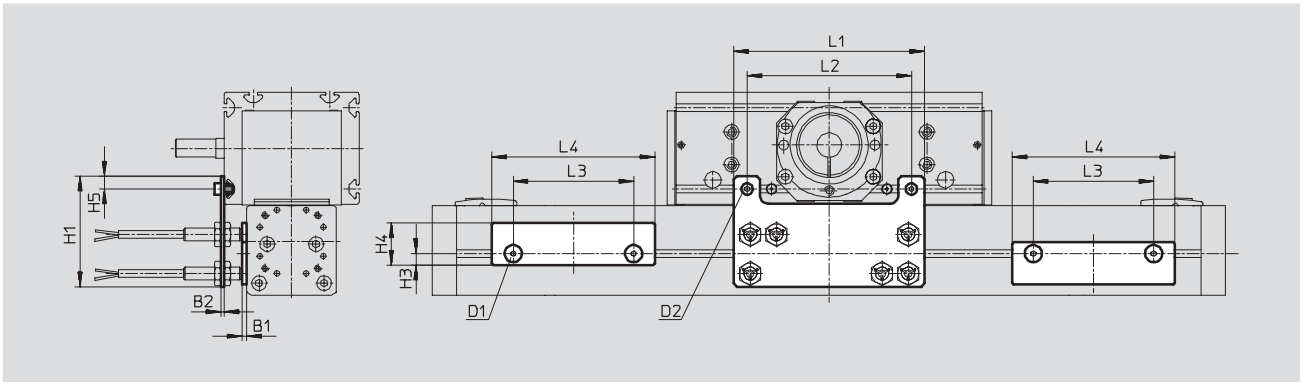
The basic design of the gear units facilitates a reduction of 4 : 1 and that of the angled gear unit a reduction ratio of 3: 1.

Technical data for stepper motors
➔ www.festo.com

Technical data for servo motors
➔ www.festo.com

Mounting kit for proximity sensor (DGEA in basic design)
DGEA-...-SIE-M8
(Order code: L)

Material:
Galvanised steel



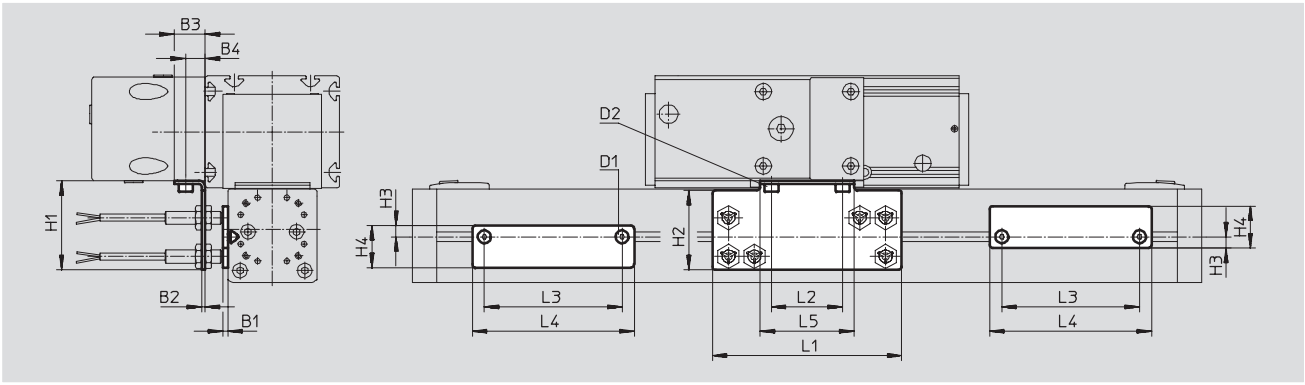
Dimensions and ordering data

For size	B1	B2	D1	D2	H1	H3	H4
18	3	2	M4	M4	77	5	21
25	3	2	M4	M5	68	7	26
40	3	7	M4	M5	92	7	26

For size	H5	L1	L2	L3	L4	Weights [g]	Part No.	Type
18	7.5	114	90	74	84	200	**525 868**	**DGEA-18-SIE-M8**
25	8	117	101	85	100	250	**525 869**	**DGEA-25-SIE-M8**
40	10	190	133	124.5	145	600	**525 870**	**DGEA-40-SIE-M8**

Mounting kit for proximity sensor
(DGEA with angled gear unit)
DGEA-...-G...-SIE-M8
(Order code: L)

Material:
Galvanised steel



Dimensions and ordering data

For size	B1	B2	B3	B4	D1	D2	H1	H2	H3
18	3	2	17	11	M4	M4	40	34	5
25	3	2	19	12	M4	M5	55	49	7
40	3	4	23	16	M4	M5	64	52	7

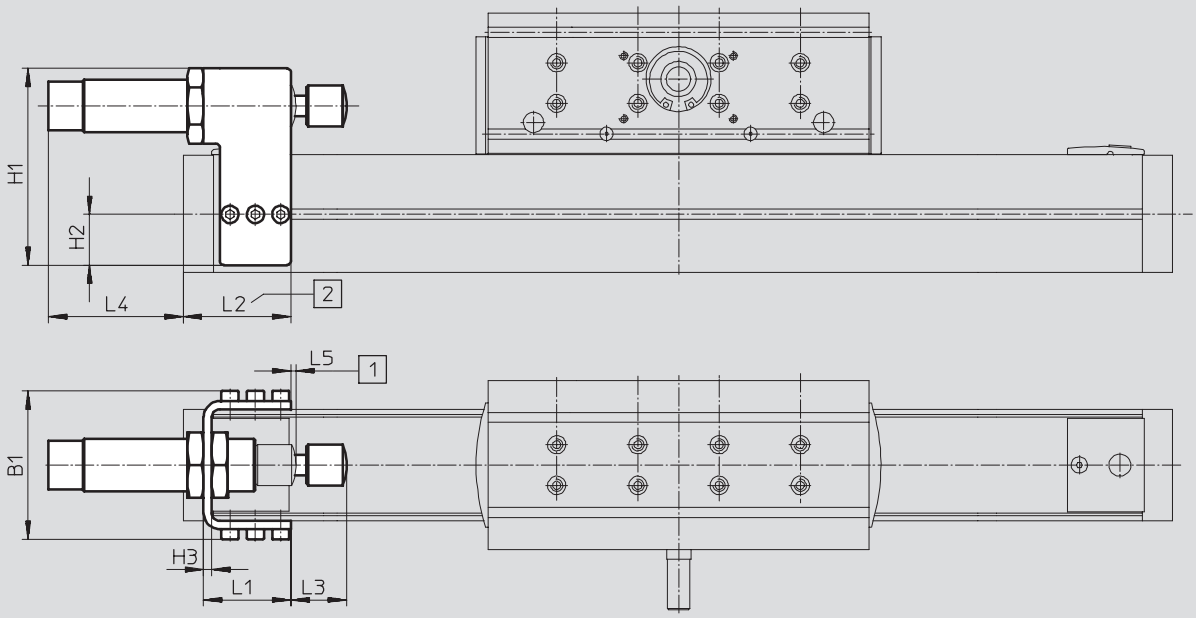
For size	H4	L1	L2	L3	L4	L5	Weights [g]	Part No.	Type
18	21	114	34	74	84	46	170	**539 935**	**DGEA-18-G...-SIE-M8**
25	26	117	44	85	100	58	250	**539 936**	**DGEA-25-G...-SIE-M8**
40	26	153	68	124.5	145	82	520	**539 937**	**DGEA-40-G...-SIE-M8**

Cantilever axes DGEA

Accessories

Shock absorber kit
DGEA-...-YSR
(Order code: C)

Material:
Galvanised steel
Copper, PTFE and silicone-free



1 Adjusted during assembly

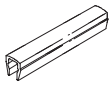
2 Minimum distance to axis end, otherwise end position not protected

Dimensions and ordering data

For size	B1	H1	H2	H3	L1	L2 +1	L3	L4	L5 +1	Weights [g]	Part No.	Type
18	59	80	15	3	44	67	1)	1)	2	390	**525 865**	**DGEA-18-YSR**
25	73	97	25	4	43	60	1)	1)	2	630	**525 866**	**DGEA-25-YSR**
40	98	122	14	4	70.5	81	1)	1)	2	1200	**525 867**	**DGEA-40-YSR**

1) Dimension is related to the size of the shock absorber and the mounting position of the shock absorber kit

Ordering data — Technical data ➔ www.festo.com

	For size	Remarks	Order code	Part No.	Type	PU[1]
Slot nut NST						
	18	for profile slot	Y	**526 091**	**NST-HMV-M4**	1
	25, 40			**150 914**	**NST-5-M5**	1
	18, 25, 40	for drive head	X	**150 914**	**NST-5-M5**	1
Centring sleeve ZBH						
	18, 25, 40	for drive head	Z	**150 927**	**ZBH-9**	10
Slot cover ABP/ABP-S						
	18	for profile slot every 0.5 m	S	**151 680**	**ABP-5-S**	2
	25, 40			**151 681**	**ABP-5**	2
	18, 25, 40	for drive head every 0.5 m	B	**151 681**	**ABP-5**	2

1) Packaging unit quantity

Ordering data – Inductive proximity sensors M8 — Technical data ➔ www.festo.com

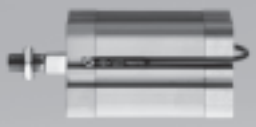
	Electrical connection		Switch output	LED	Cable length [m]	Part No.	Type
	Cables	M8 plug					
NO contact							
	3-core	–	PNP	■	2.5	**150 386**	**SIEN-M8B-PS-K-L**
	–	3-pin	PNP	■		**150 387**	**SIEN-M8B-PS-S-L**
NC contact							
	3-core	–	PNP	■	2.5	**150 390**	**SIEN-M8B-PO-K-L**
	–	3-pin	PNP	■		**150 391**	**SIEN-M8B-PO-S-L**

Ordering data – Plug sockets with cable — Technical data ➔ www.festo.com

	Mounting	Switch output		Connection	Cable length [m]	Part No.	Type
		PNP	NPN				
Straight plug socket							
	Union nut M8	■	■	3-pin	2.5	**159 420**	**SIM-M8-3GD-2.5-PU**
					5	**159 421**	**SIM-M8-3GD-5-PU**
Angled plug socket							
	Union nut M8	■	■	3-pin	2.5	**159 422**	**SIM-M8-3WD-2.5-PU**
					5	**159 423**	**SIM-M8-3WD-5-PU**

Products and services – everything from a single source

Products incorporating new ideas are created when enthusiasm for technology and efficiency come together. Tailor-made service goes without saying when the customer is the focus of attention.



Pneumatic and electrical drives

- Pneumatic cylinders
- Semi-rotary drives
- Handling modules
- Servopneumatic positioning systems
- Electromechanical drives
- Positioning controllers and controllers

Valves and valve terminals

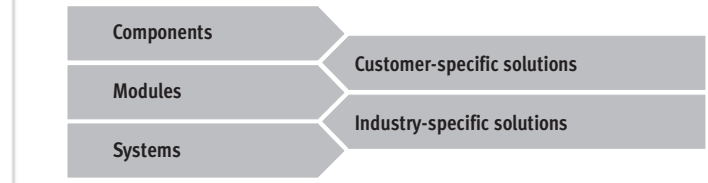
- Standard valves
- Universal and application-optimised valves
- Manually and mechanically actuated valves
- Shut-off, pressure control and flow control valves
- Proportional valves
- Safety valves

Fieldbus systems/ electrical peripherals

- Fieldbus Direct
- Installation system CP/CPI
- Modular electrical terminal CPX

Compressed air preparation

- Service unit combinations
- Filter regulators
- Filters
- Pressure regulators
- Lubricators
- On-off and soft-start valves
- Dryers
- Pressure amplifiers
- Accessories for compressed air preparation



Services from Festo to increase your productivity – across the entire value creation sequence

Engineering – for greater speed in the development process

- CAD models
- 14 engineering tools
- Digital catalogue
- FluidDRAW®
- More than 1,000 technical consultants and project engineers worldwide
- Technical hotlines

Supply chain – for greater speed in the procurement process

- E-commerce and online shop
- Online order tracking
- Euro special manufacturing service
- Logistics optimisation

Gripping and vacuum technology

- Vacuum generators
- Vacuum grippers
- Vacuum security valves
- Vacuum accessories
- Standard grippers
- Micro grippers
- Precision grippers
- Heavy-duty grippers

Sensors and monitoring units

- Proximity sensors
- Pressure and flow sensors
- Display and operating units
- Inductive and optical proximity sensors
- Displacement encoders for positioning cylinders
- Optical orientation detection and quality inspection

Controllers/bus systems

- Pneumatic and electropneumatic controllers
- Programmable logic controllers
- Fieldbus systems and accessories
- Timers/counters
- Software for visualisation and data acquisition
- Display and operating units

Accessories

- Pipes
- Tubing
- Pipe connectors and fittings
- Electrical connection technology
- Silencers
- Reservoirs
- Air guns

All in all, 100% product and service quality

A customer-oriented range with unlimited flexibility:
Components combine to produce ready-to-install modules and systems. Included in this are special designs – since at Festo, most industry-specific products and customer-specific solutions are based on the 23,000 plus catalogue products. Combined with the services for the entire value creation sequence, the end result is unbeatable economy.

Assembly – for greater speed in the assembly/commissioning process

- Prepack
- Preassembly
- Turnkey pneumatics
- Handling solutions

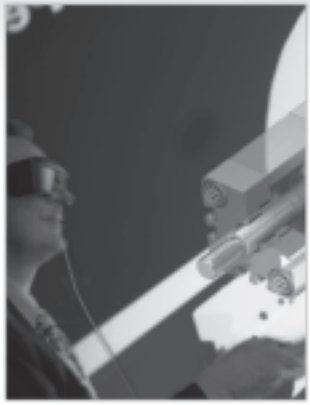
Operation – for greater speed in the operational process

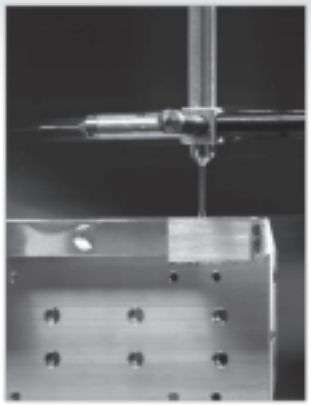
- Spare parts service
- Energy saving service
- Compressed air consumption analysis
- Compressed air quality analysis
- Customer service

Aspects of quality

Quality can be viewed from a number of aspects. A short virtual tour of the Research and Development department, the Production department or the Customer Service Centre speaks more than a thousand words.

3D engineering and simulation





Innovation quality

Let's look at some of the figures:

- 6.5% of turnover
- 2,800 patents with 100 new applications every year
- 3D engineering and simulation
- 10,600 employees worldwide
- Each and every one of them a lateral thinker

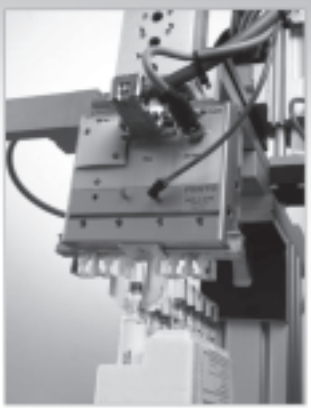
Production quality

Your interest is quality and economy – therefore we place considerable value on:

- Minimum production tolerances
- Ultra-modern, proprietary production methods
- Core competencies in production
- Defined quality standards across the entire production chain
- Strict quality assurance systems: on that you can depend.

Price quality

More service for less money. Many of the new and further developments in the Festo product range have one thing in common: they are technically superior and more attractively priced than their predecessor product. Examples are to be found in all product segments: among the drives, valves, valve terminals; among the service units, and among the range of accessories.



Range quality

For individual solutions. Festo offers components as industry-specific catalogue products as well as standards-based and highly individual special designs. Ready-to-install combinations of these components play an integral part in the Festo product portfolio as modules or systems. Incidentally, an increasing number of components can be individually configured as modular products.

Didactic quality

To complement the products and services for automation, Festo Didactic offers exceptionally efficient training hardware, learning software and seminars of the highest quality. Optimally tailored to your value creation sequence.
In short – training in practical applications for practical application.

What must be observed when using Festo components?

Specified limit values for technical data and any specific instructions must be adhered to by the user in order to ensure recommended operating conditions.
When pneumatic components are used, the user shall ensure that they are operated using correctly prepared compressed air without aggressive media.
When Festo components are used in safety-oriented applications, the user shall ensure that all applicable national and local safety laws and regulations, for example the machine directive, together with the relevant references to standards are observed.
Unauthorised conversions or modifications to products and systems from Festo involve a safety risk and are thus not permissible.
Festo does not accept any liability for resulting damages.
You should contact Festo's advisors if one of the following apply to your application:

- The ambient conditions and conditions of use or the operating medium differ from the specified technical data.
- The product is to perform a safety function.
- A risk or safety analysis is required.
- You are unsure about the product's suitability for use in the planned application.
- You are unsure about the product's suitability for use in safety-oriented applications.