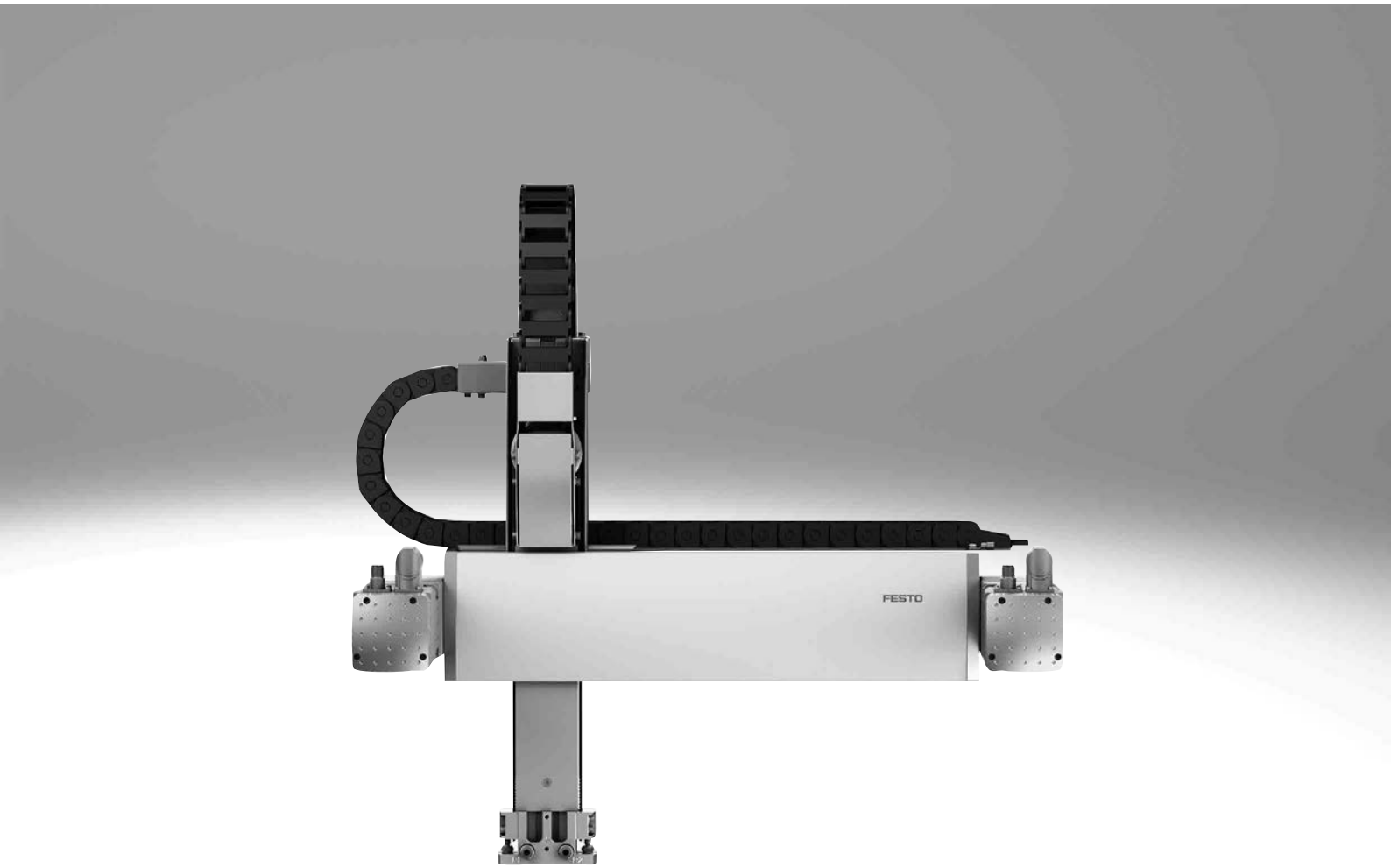
Linear gantries EXCT

FESTO



Characteristics

At a glance

General

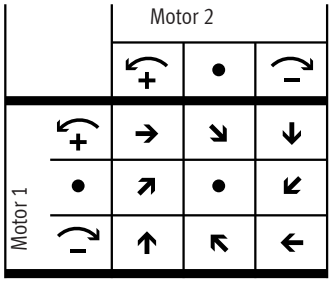
- Optimal dynamic response when compared with other Cartesian gantry systems
- The drive concept ensures low moving dead weight
- Flat system design
- Perfectly matched drive and controller package
- High acceleration in both axis directions
- Interface for many grippers from Festo

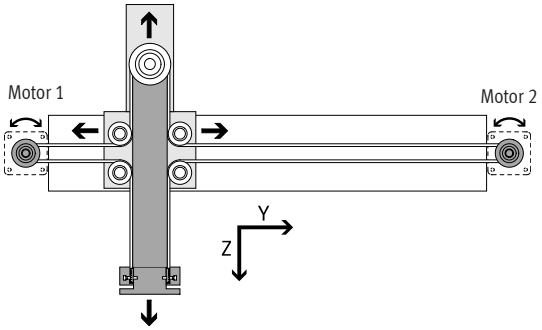
Application examples

- Fast repositioning of parts and modules in a large, rectangular working space, e.g.:
  - Sorting
  - Loading, unloading
  - Gluing, cutting

Functional principle

Two fixed servo motors drive a toothed belt arranged in a T-shape.
The toothed belt moves the slide of the Y-axis and the interface located on the Z-axis in a two-dimensional space.
A controller calculates the position of the interface. The controlled interaction of the motors results in the movement of the interface.
Attachment components enable additional processes to be carried out.





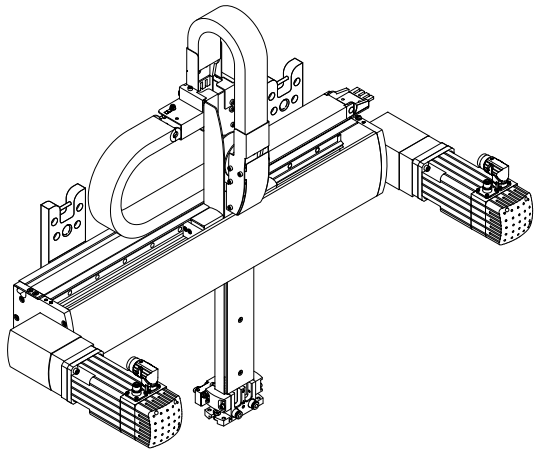
Type		EXCT-15	EXCT-30	EXCT-100
Guide		Recirculating ball bearing guide		
Stroke of the				
Y-axis	[mm]	100 ... 1000	100 ... 1500	100 ... 2000
Z-axis	[mm]	100, 200	250, 500	250, 500, 800
Rated load at max. dynamic response[1)]	[kg]	1.5	3	10
Repetition accuracy	[mm]	±0.1		

1) Rated load = tool load (attachment component + gripper, for example) + payload

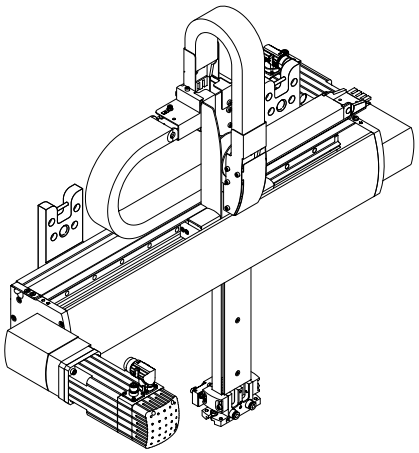
Characteristics

Motor mounting variants

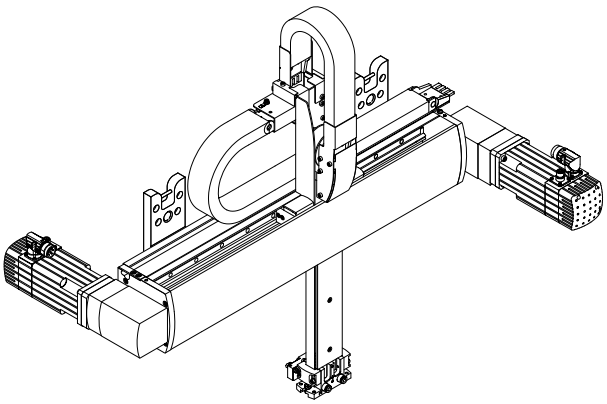
EXCT-...-VV – Motor 1 at front, motor 2 at front



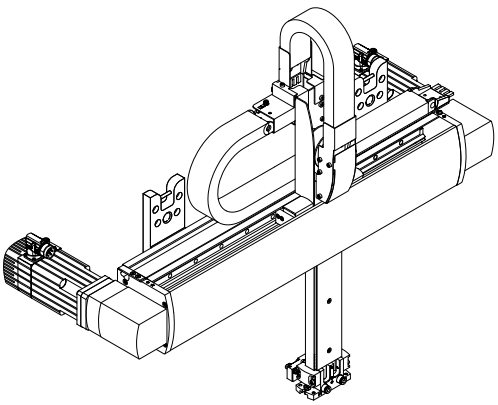
EXCT-...-VH – Motor 1 at front, motor 2 at rear



EXCT-...-HV – Motor 1 at rear, motor 2 at front

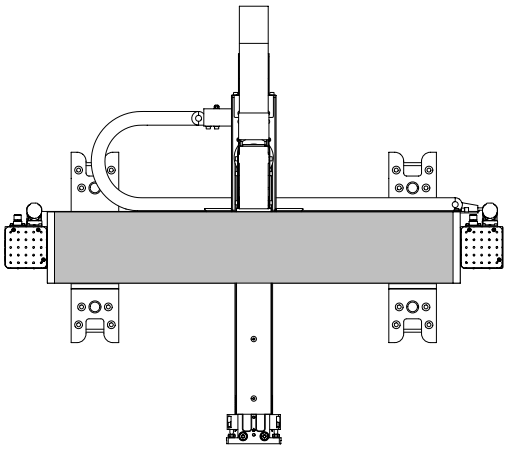


EXCT-...-HH – Motor 1 at rear, motor 2 at rear



Mounting position

The linear gantry may only be mounted and operated with a vertical Z-axis. The interface for attachment components must be positioned at the bottom.

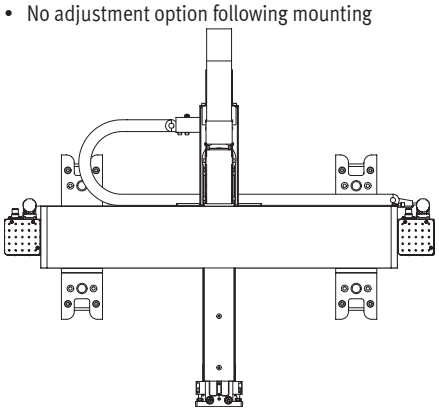


Characteristics

Mounting options

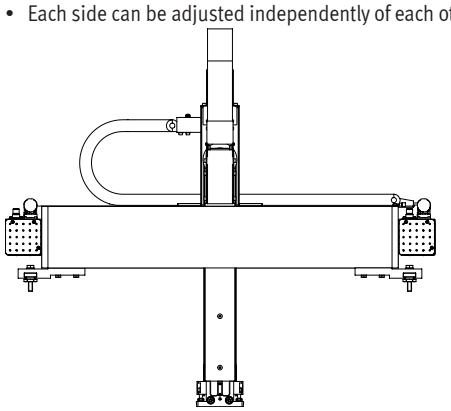
Using mounting kit EAHM-E17-K1-...

- For wall mounting
- No adjustment option following mounting



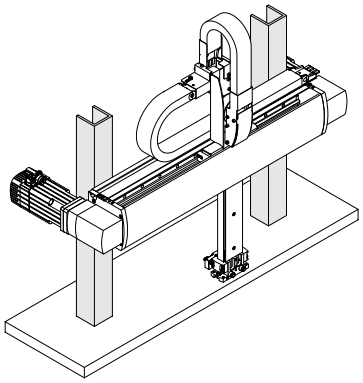
Using mounting kit EAHM-E17-K2-...

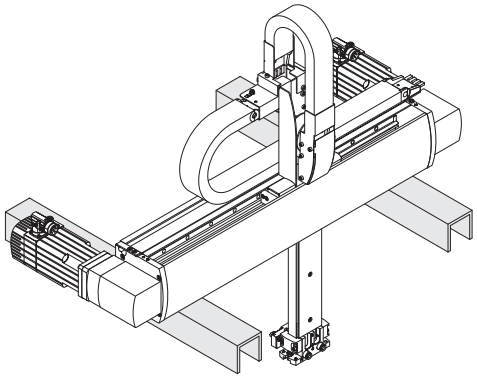
- For self-supported mounting
- Each side can be adjusted independently of each other in terms of height



Mounting with slot nuts

- For mounting directly on the machine frame
- No adjustment option following mounting

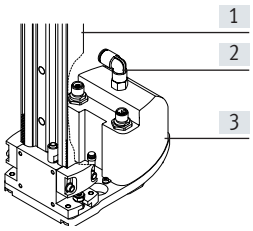




Front unit attachment component

Technical data → page 22

- A front unit (rotary drive) can be ordered via the modular product system or as an accessory; it is mounted on the Z-axis using an adapter plate
- The front unit is available in two sizes (torque 0.75 Nm or 1.8 Nm)
- The front unit can optionally be selected with or without a rotary through-feed (for vacuum or gauge pressure)
- When ordering via the modular product system, the front unit, connecting cables and compressed air tubing are installed and connected
- Required motor controller CMMP-AS → page 34



[1] Linear gantry EXCT-...
[2] Rotary through-feed
[3] Rotary drive EXCT-...-T1 to T4

Type codes

001	Series	
EXCT	Linear gantry	

002	Size	
15	15	
30	30	
100	100	

003	Stroke of the Y-axis [mm]	
50	50	
2000	2000	

004	Stroke of the Z-axis [mm]	
100	100 mm	
200	200 mm	
250	250 mm	
500	500 mm	
800	800 mm	

005	Guide	
KF	Recirculating ball bearing guide	

006	Motor type	
W	Without motor	
AB	Servo motor AC with brake	

007	Motor attachment position	
HH	Motor 1 at rear, motor 2 at rear	
HV	Motor 1 at rear, motor 2 at front	
VH	Motor 1 at front, motor 2 at rear	
VV	Motor 1 at front, motor 2 at front	

008	Energy chain connection side	
L	Left	
R	Right	

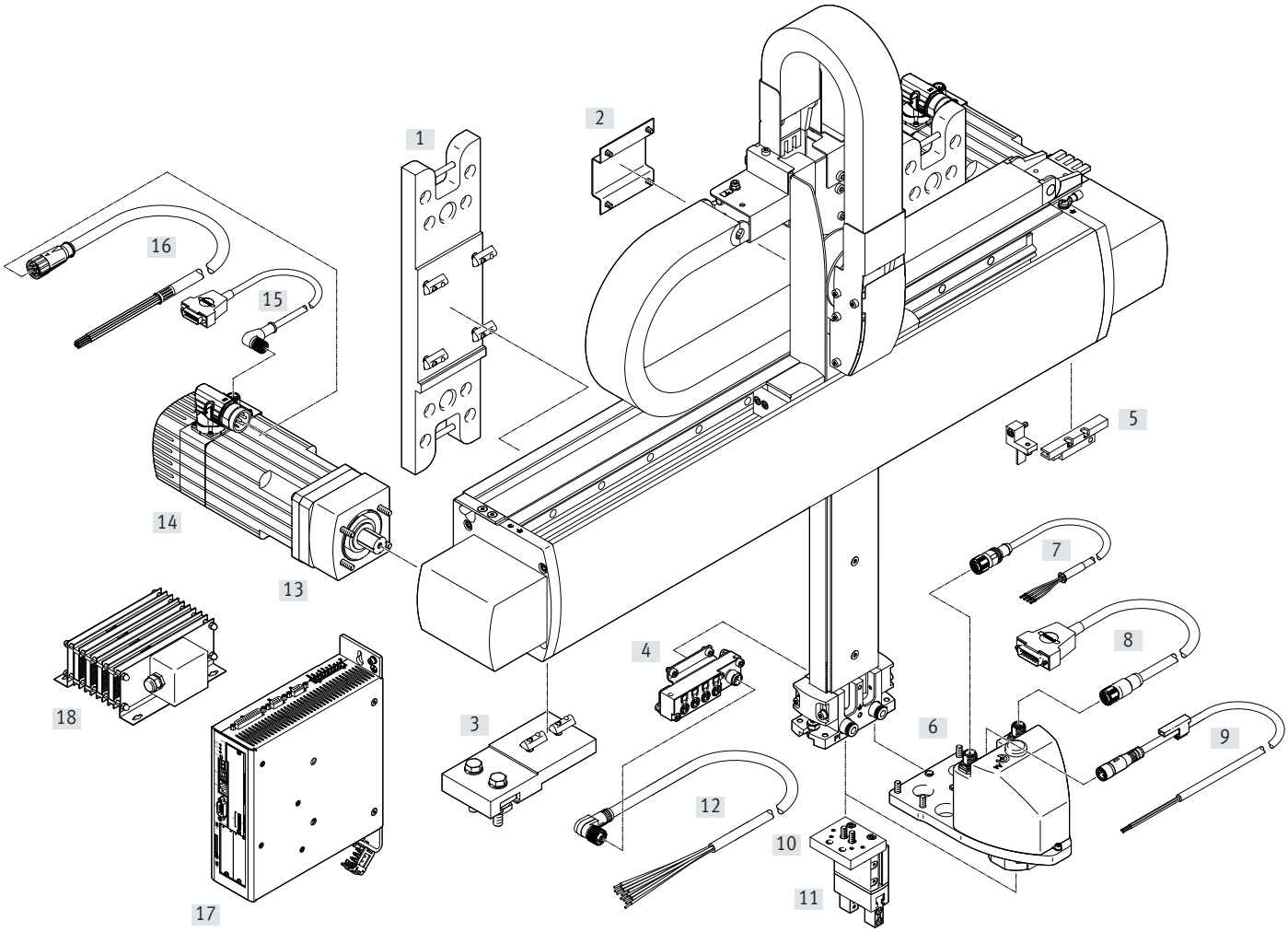
009	Attachment components	
T0	None	
T1	Rotary drive, size 8	
T2	Rotary drive, size 8 with pn. rotary feed-through	
T3	Rotary drive, size 11	
T4	Rotary drive, size 11 with pn. rotary feed-through	

010	Cable length	
	None	
5K	5 m	
10K	10 m	

011	Installation	
	None	
MP1	Multi-pin distributor 4 x M8, with pneumatic lines	

012	Document language	
DE	German	
EN	English	
ES	Spanish	
FR	French	
IT	Italian	
RU	Russian	
ZH	Chinese	

Peripherals overview



Peripherals overview

Attachments and accessories

Type		Description	→ Page/Internet
[1]	Mounting kit EAHM-E17-K1	• For wall mounting • Included in the scope of delivery of the linear gantry EXCT-...	28
[2]	Adapter kit EAHM-E17-U	• For mounting valves, vacuum generators, etc. Mounting holes must be drilled by the customer • Not included in the scope of delivery of the linear gantry	32
[3]	Mounting kit EAHM-E17-K2	• Height-adjustable mounting kit • Not included in the scope of delivery of the linear gantry	29
[4]	Multi-pin set EADH-E17-MP1	• For connecting up to 4 inputs/outputs • Included in the scope of delivery of the linear gantry EXCT-...-MP1	31
[5]	Sensing kit EAPR-E17-S	• For position sensing on the Y-axis • Included in the scope of delivery: proximity switch SIES-Q8B, sensor bracket, switch lug, mounting bracket and screws • Not included in the scope of delivery of the linear gantry	30
[6]	Front unit ERMH-...-E17	Choose from: • Without front unit (rotary drive T0) • With front unit (rotary drive T1 to T4). The connecting cables and compressed air tubing are installed and connected on delivery	33
[7]	Motor cable NEBM-M12G4	• Connecting cable between motor for the front unit and motor controller • Included in the scope of delivery of the linear gantry EXCT-...-T...	34
[8]	Encoder cable NEBM-M12G12	• Connecting cable between motor for the front unit and motor controller • Included in the scope of delivery of the linear gantry EXCT-...-T...	34
[9]	Connecting cable NEBU	• Connecting cable between reference switch for the front unit and motor controller • Included in the scope of delivery of the linear gantry EXCT-...-T...	34
[10]	Adapter plate HMSV, DHAA	• For connecting linear gantry and gripper	35
[11]	Gripper	• A wide range of grippers is available	35
[12]	Plug socket with cable NEBU	• Connecting cable between multi-pin plug distributor and controller • Included in the scope of delivery of the linear gantry EXCT-...-MP1; connected on delivery	33
[13]	Coupling housing EAMK	• For connecting third-party motors	33
[14]	Servo motor EMMS-AS	Motor sizes specially matched to the axis	emms-as
[15]	Encoder cable NEBM-M12W8	• Connecting cable between motor on the Y-axis and motor controller • Included in the scope of delivery of the linear gantry EXCT-...-AB...	34
[16]	Motor cable NEBM-M23G8	• Connecting cable between motor on the Y-axis and motor controller • Included in the scope of delivery of the linear gantry EXCT-...-AB...	34
[17]	Motor controller CMMP-AS	• For controlling the linear gantry	34
[18]	Braking resistor CACR	• Braking resistors are essential for operation	33

Data sheet

Size
15, 30, 100

General technical data				
Size		15	30	100
Design		Linear gantry		
Guide		Recirculating ball bearing guide		
Stroke of the				
Y-axis	[mm]	100 ... 1000	100 ... 1500	100 ... 2000
Z-axis	[mm]	100, 200	250, 500	250, 500, 800
Rated load at max. dynamic response[1]	[kg]	1.5	3	10
Max. process force in Z-direction	[N]	100	300	500
Max. torque[2]	[Nm]	7.75	12.5	22.1
Max. no-load torque[2][3]	[Nm]	0.51	1.28	2.56
Max. acceleration	[m/s²]	50	50	30
Max. speed[4]	[m/s]	4.8	5	4
Repetition accuracy	[mm]	±0.1		
Mounting position		Vertical		
Type of mounting		With mounting kit and slot nuts		

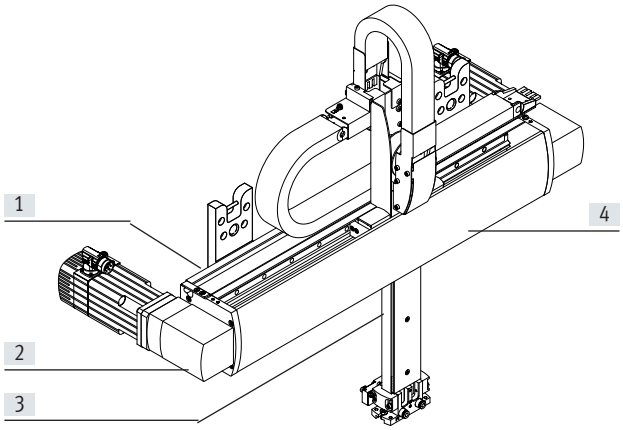
1) Rated load = tool load (attachment component + gripper, for example) + payload
2) These values must also be complied with when installing third-party motors
3) At v=0.2 m/s and 45° travel.
4) These data apply only under ideal conditions.
For a precise configuration, please consult a sales engineer from Festo.

Operating and environmental conditions				
Size		15	30	100
Degree of protection		IP40		
Operating pressure[1]	[bar]	–0.95 ... +8		
Operating medium		Compressed air to 8573-1:2010 [7:4:4]		
Note on operating and pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)		
Ambient temperature[2]	[°C]	+10 ... +40		
Storage temperature	[°C]	–10 ... +60		
Relative humidity	[%]	0 ... 90 (non-condensing)		
Noise level	[dB(A)]	70	78	77
Duty cycle	[%]	100		
CE marking (see declaration of conformity)		To EU EMC Directive[3]		

1) Permissible operating pressure for ports P1 and P2
2) Note operating range of proximity switches and motors
3) For information about the area of use, see the EC declaration of conformity at: www.festo.com/sp ➔ Certificates.
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

Data sheet

Materials



Size		15	30	100
[1]	Profile of the Y-axis	Anodised aluminium		
[2]	Drive housing	Anodised aluminium		
[3]	Profile of the Z-axis	Anodised aluminium		
[4]	Cover	Anodised aluminium		
–	Guide	High-alloy steel		
	Ball bearing	Steel		
	Toothed belt	PU with steel cord		
Note on materials		RoHS-compliant		
		Contains paint-wetting impairment substances		

Weight [kg]

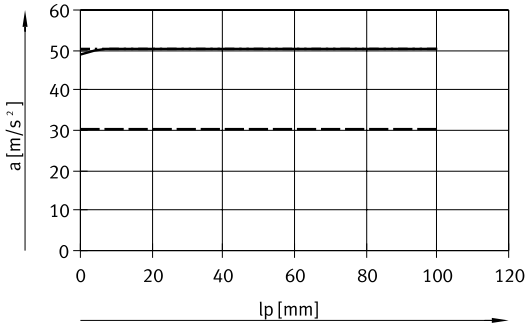
Size	15	30	100
Product weight at 0 mm stroke (without rated load, motors, axial kits, mounting kits)			
Y/Z-axis	12.1	25.38	31.65
Additional weight per 100 mm stroke			
Y-axis	0.95	1.48	1.86
Z-axis	0.32	0.37	0.39
Coupling housing	0.45	1.4	1.5
Motor including flange	2.95	7.35	9.55
Attachment component			
EXCT-...-T1	1.08	1.1	–
EXCT-...-T2	1.08	1.1	–
EXCT-...-T3	–	1.30	1.30
EXCT-...-T4	–	1.30	1.30
Multi-pin plug distributor	0.1	0.1	0.1

Data sheet

Max. acceleration a in Y-direction as a function of rated load m_L, Z-axis stroke l and position of Z-axis lp

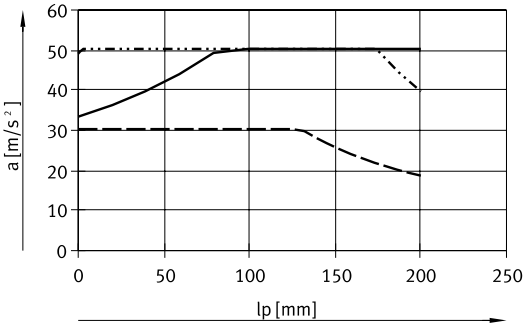
EXCT-15

Z-axis stroke l = 100 mm



Rated load m_L = 0 kg
Rated load m_L = 1.5 kg
Rated load m_L = 3 kg

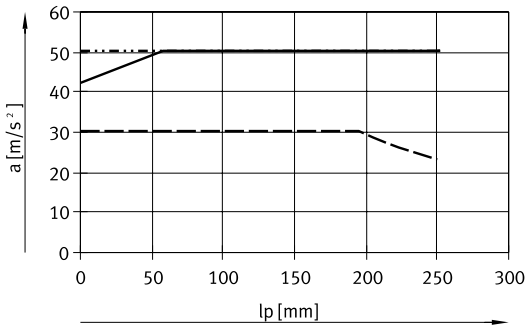
Z-axis stroke l = 200 mm



Rated load m_L = 0 kg
Rated load m_L = 1.5 kg
Rated load m_L = 3 kg

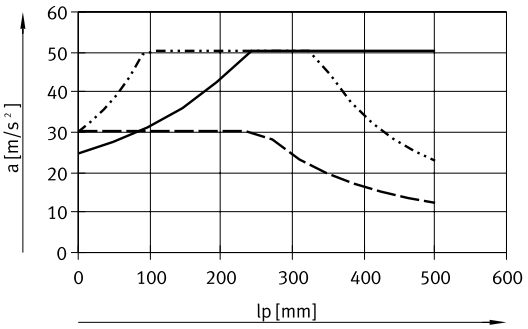
EXCT-30

Z-axis stroke l = 250 mm



Rated load m_L = 0 kg
Rated load m_L = 3 kg
Rated load m_L = 6 kg

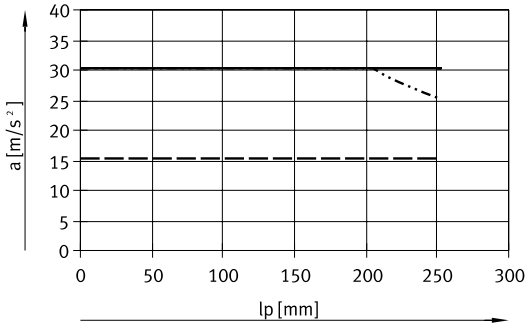
Z-axis stroke l = 500 mm



Rated load m_L = 0 kg
Rated load m_L = 3 kg
Rated load m_L = 6 kg

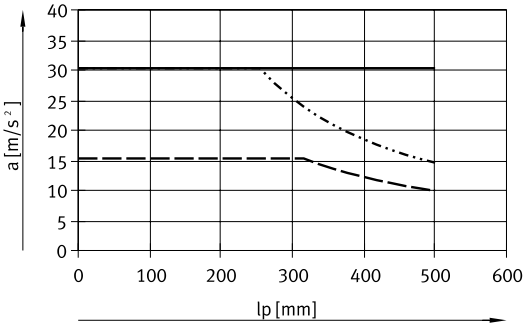
EXCT-100

Z-axis stroke l = 250 mm



Rated load m_L = 0 kg
Rated load m_L = 10 kg
Rated load m_L = 15 kg

Z-axis stroke l = 500 mm



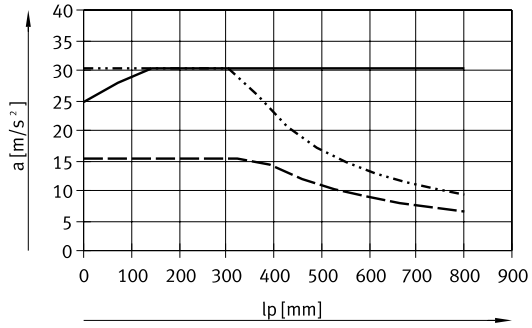
Rated load m_L = 0 kg
Rated load m_L = 10 kg
Rated load m_L = 15 kg

Data sheet

Max. acceleration a in Y-direction as a function of rated load m_L, Z-axis stroke l and position of Z-axis lp

EXCT-100

Z-axis stroke l = 800 mm



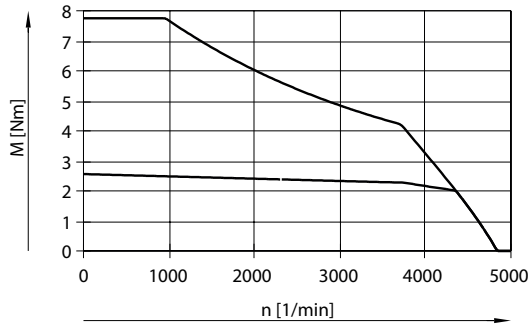
Rated load m_L = 0 kg
Rated load m_L = 10 kg
Rated load m_L = 15 kg

Torque M as a function of rotational speed n

Typical motor characteristic curve with nominal voltage and optimal motor controller.
The torque may briefly exceed the nominal torque. The rms value of the torque for the respective positioning cycle must remain below the nominal torque.

EXCT-15

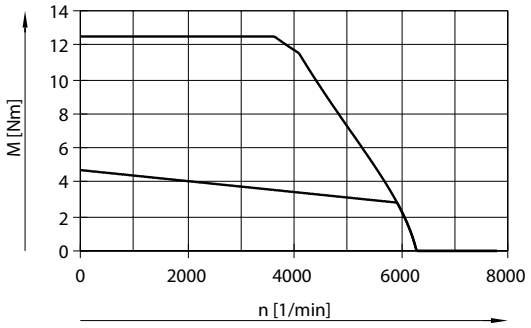
In combination with:
EMMS-AS-70-M-LS-RMB and CMMP-AS-C5-3A



Max. torque
Nominal torque

EXCT-30

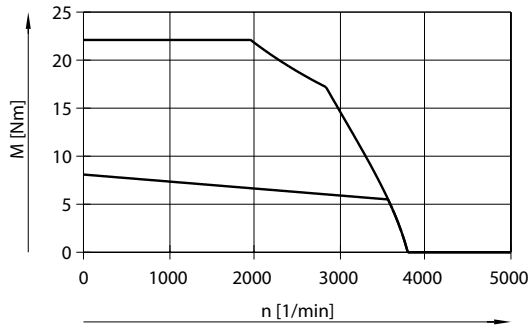
In combination with:
EMMS-AS-100-S-HS-RMB and CMMP-AS-C5-11A



Max. torque
Nominal torque

EXCT-100

In combination with:
EMMS-AS-100-M-HS-RMB and CMMP-AS-C5-11A

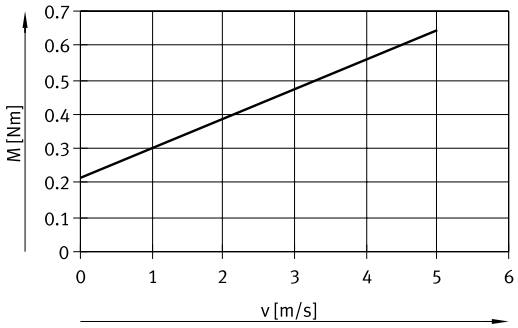


Max. torque
Nominal torque

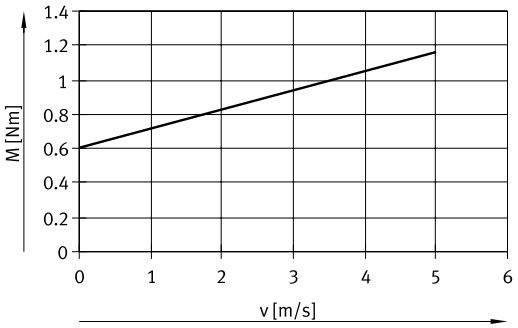
Data sheet

Friction torque M as a function of velocity v

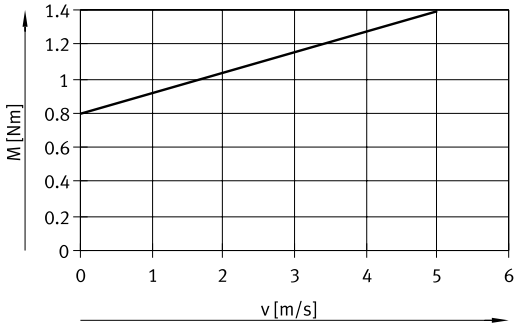
EXCT-15



EXCT-30



EXCT-100



Data sheet

Characteristic load values

The system is subject to the greatest load in the case of 45° travel.
The following data apply in this case:

Formula for calculating the required torque M and the required nominal rotational speed n

For EXCT-15:

$n_{45°} = 942.8 \times v$

and Z-axis stroke = 100 mm:

$M_{45°} = a \times (10.1 \times m_L + 9.87 \times J_m + 44.4) \times 10^{-3} + 0.07 \times (2.3 + m_L) + M_R$

and Z-axis stroke = 200 mm:

$M_{45°} = a \times (10.1 \times m_L + 9.87 \times J_m + 47.5) \times 10^{-3} + 0.07 \times (2.6 + m_L) + M_R$

For EXCT-30:

$n_{45°} = 848.5 \times v$

and Z-axis stroke = 250 mm:

$M_{45°} = a \times (11.3 \times m_L + 8.89 \times J_m + 99.1) \times 10^{-3} + 0.08 \times (4.7 + m_L) + M_R$

and Z-axis stroke = 500 mm:

$M_{45°} = a \times (11.3 \times m_L + 8.89 \times J_m + 108.1) \times 10^{-3} + 0.08 \times (5.5 + m_L) + M_R$

For EXCT-100:

$n_{45°} = 678.8 \times v$

and Z-axis stroke = 250 mm:

$M_{45°} = a \times (14.1 \times m_L + 7.11 \times J_m + 164.4) \times 10^{-3} + 0.098 \times (6 + m_L) + M_R$

and Z-axis stroke = 500 mm:

$M_{45°} = a \times (14.1 \times m_L + 7.11 \times J_m + 178.3) \times 10^{-3} + 0.098 \times (7 + m_L) + M_R$

and Z-axis stroke = 800 mm:

$M_{45°} = a \times (14.1 \times m_L + 7.11 \times J_m + 193.8) \times 10^{-3} + 0.098 \times (8.1 + m_L) + M_R$

a = acceleration [m/s²]
v = speed [m/s]
m_L = attachment component (Z-axis) [kg] with payload
J_m = moment of inertia of the motor [kgcm²] ➔ table below
M_R = friction torque [Nm] ➔ page 12
$n_{45°}$ = nominal rotational speed at 45° travel [rpm]

Allocation of linear gantry – servo motor – motor controller

Linear gantry	Servo motor	Moment of inertia of motor [kgcm²]
EXCT-15	EMMS-AS-70-M-LS-RMB	0.680
EXCT-30	EMMS-AS-100-S-HS-RMB	3.085
EXCT-100	EMMS-AS-100-M-HS-RMB	5.285

Data sheet

Sample calculation

1. What is the max. load permitted by the mechanical system?

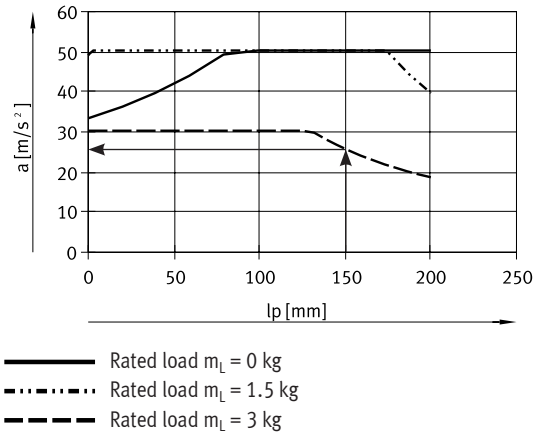
Given:
EXCT-15-500-200-KF-AB-VV-...
with attached motor
EMMS-AS-70-M-LS-RMB

$a_{max.}$ = 20 m/s²
$v_{max.}$ = 2 m/s
Rated load m_L = 3 kg (gripper + workpiece)
Position of Z-axis = 70 mm (at max. acceleration in Y-direction)

Calculation:
1. What is the max. acceleration permitted by the mechanical system?

Rated load m_L = 3 kg
Z-axis stroke = 200 mm
Position of Z-axis = 150 mm
From the graph:
a = approx. 26 m/s²

Result:
With a moving mass of 3 kg and a position of the Z-axis of 150 mm, the max. permissible acceleration in the Y-direction is 26 m/s².
The required acceleration of 20 m/s² is thus permissible.



Data sheet

Sample calculation

2. Is the envisaged motor sufficient for this load?

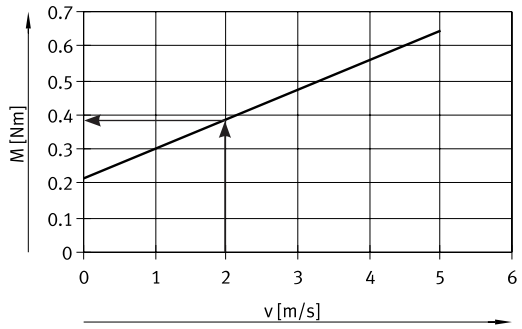
Given:

$a_{max.}$ = 20 m/s²
$v_{max.}$ = 2 m/s
Rated load m_L = 3 kg (gripper + workpiece)
J_m = 0.680 kgcm²

a = acceleration [m/s²]
v = speed [m/s]
m_L = attachment component (Z-axis) [kg] with payload
J_m = moment of inertia of the motor [kgcm²] ➔ table below
M_R = friction torque [Nm] ➔ page 12
$n_{45°}$ = nominal rotational speed at 45° travel [rpm]

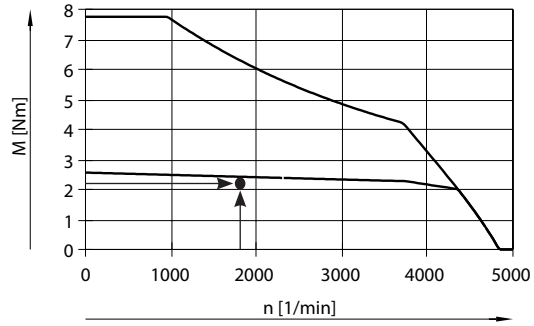
$M_{45°} = a \times (10.1 \times m_L + 9.87 \times J_m + 39.2) \times 10^{-3} + 0.07 \times (2.14 + m_L) + M_R$
$n_{45°} = 942.8 \times v$

Determining $M_{45°}$:
$n_{45°}$ = 942.8 x 2 m/s = 1885.4 rpm



M_R = 0.38 Nm
$M_{45°} = a \times (10.1 \times m_L + 9.87 \times J_m + 39.2) \times 10^{-3} + 0.07 \times (2.14 + m_L) + M_R$
$M_{45°} = 20\ m/s^2 \times (10.1 \times 3\ kg + 9.87 \times 0.680\ kgcm^2 + 39.2) \times 10^{-3} + 0.07 \times (2.14 + 3\ kg) + 0.38\ Nm = 2.26\ Nm$

Result:



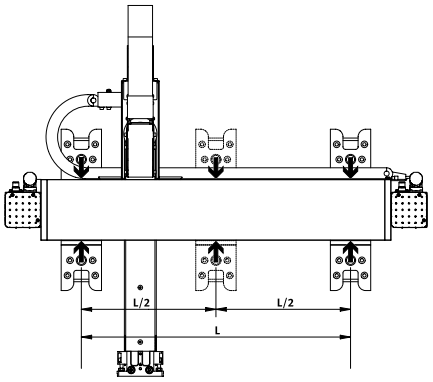
Max. torque
Nominal torque

Result:
The value for the torque is just below the nominal torque.
This torque is only required in the acceleration phases.
The design is thus acceptable.

Data sheet

Maximum permissible support span

In order to limit deflection in the case of large stroke lengths, the axis may need to be supported. An additional mounting kit is therefore required for strokes greater than L = 1500 mm.



Recommended deflection limits

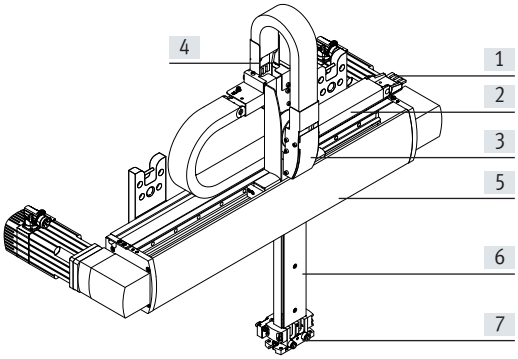
To avoid impairing the functionality of the gantry, we recommend that the following deflection limits are observed. Greater deformation can result in increased friction, greater wear and reduced service life.

Size	15	30	100
Dynamic deflection (load is moving)	0.03% [1]	0.03% [1]	0.03% [1]
	max. 0.3 mm	max. 0.45 mm	max. 0.6 mm
Static deflection (stationary load)	0.05% [1]	0.05% [1]	0.05% [1]

1) Of the length of the axis

Energy routing

- The cables are routed from the cable outlet to the Z-axis using energy chains [2]
- When ordering the linear gantry it is possible to select whether the cable outlet to the control cabinet [1] should be to the left or the right
- The cables are routed within the Z-axis [6] as far as the interface. At the interface, there are two permanent compressed air supply ports [7].



- 2 cable lengths (5 m or 10 m) can be selected via the modular product system → page 26. This specifies the length of the motor and encoder cables for the drive motors.
  The tubing and cables that project from the output of the energy chain at the Y-axis [5] are at least 10 m in length.

[1] Cable outlet to the control cabinet
[2] Energy chain
[3] Transfer to the Z-axis
[4] Transfer of the two energy chains
[5] Y-axis
[6] Z-axis
[7] Interface with compressed air supply ports

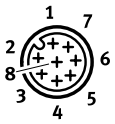
Data sheet

Pin allocations
Motors for the Y-axis

Motor (M23, pins)

PIN	Function		Colour
1	U	Phase U	BK (1)
PE	PE	Protective earthing	GNYE
3	W	Phase W	BK (3)
4	V	Phase V	BK (2)
A	M_T+	Temperature sensor	WH
B	M_T–	Temperature sensor	BN
C	BR+	Brake	GN
D	BR–	Brake	YE

Encoder (M12, pins)



PIN	Function
1	–SENS
2	+SENS
3	DATA
4	DATA/
5	0 V
6	CLOCK/
7	CLOCK
8	UP

Allocation of linear gantry – servo motor – motor controller

Linear gantry	Servo motor	Motor controller
EXCT-15	EMMS-AS-70-M-LS-RMB	CMMP-AS-C5-3A
EXCT-30	EMMS-AS-100-S-HS-RMB	CMMP-AS-C5-11A-P3
EXCT-100	EMMS-AS-100-M-HS-RMB	CMMP-AS-C5-11A-P3

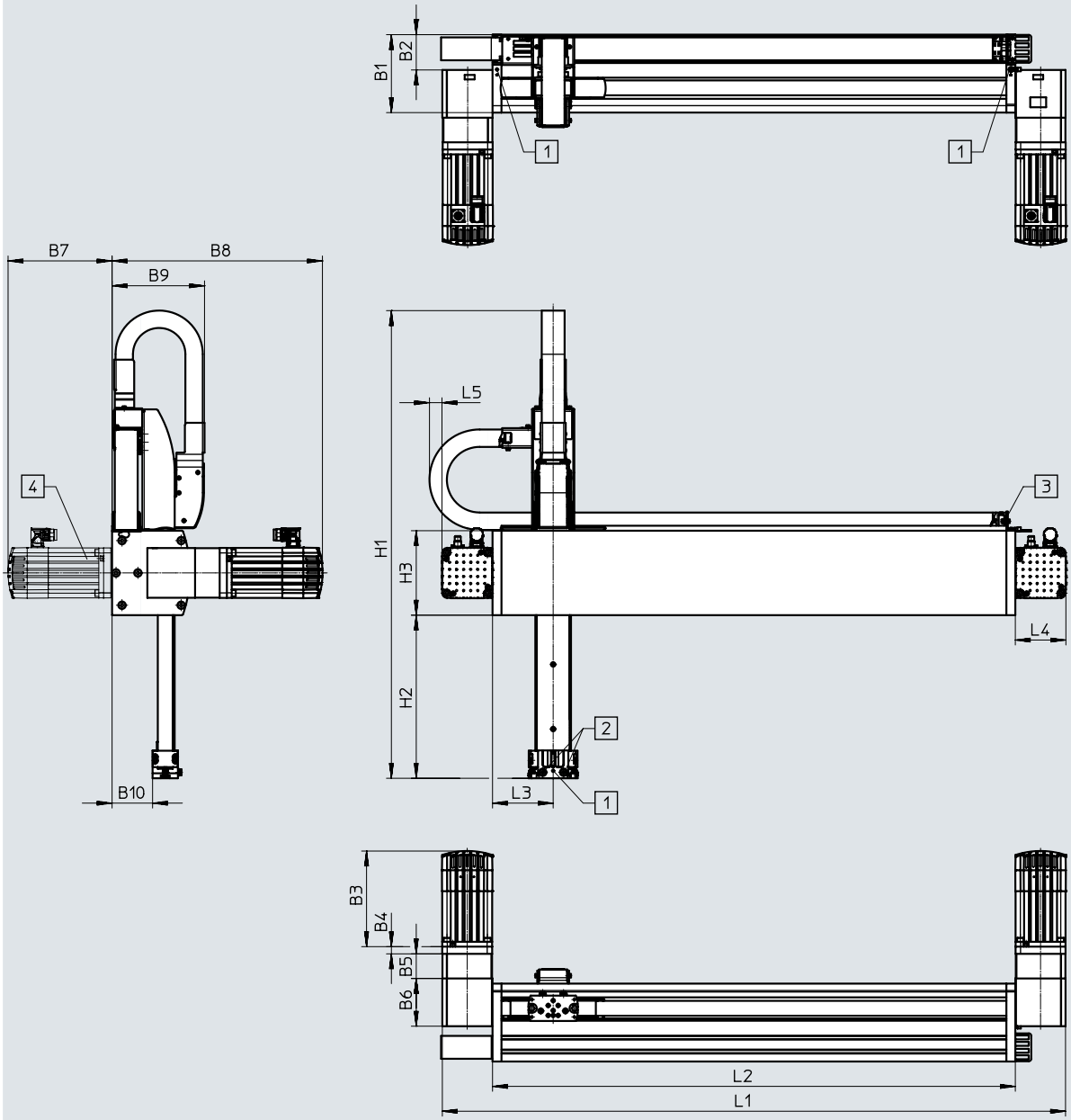
Note

Third-party motors that have an overly high driving torque may damage the linear gantry. When selecting the motors, please observe the limits specified in the technical data.
During commissioning, the motor brake must be released for safety purposes. We recommend the operator unit CDSA (→ modular product system) for this purpose.

Data sheet

Dimensions Download CAD data ➔ www.festo.com

Linear gantry



[1] Earthing connection
[2] Working air ports P1 and P2
[3] Cable outlet to the control cabinet on the right

Data sheet

Size	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	H3	L4	L5
15	121	57.6	187.3	12.2	29.2	89	202	375	138.1	66	120	71	25
30	157	71	192.3	14.5	49.5	96	209	423	186	81.5	170	102	25
100	184	94	243.3	14.5	49	123	260	524	211	106.5	200	102	25

Stroke-dependent dimensions

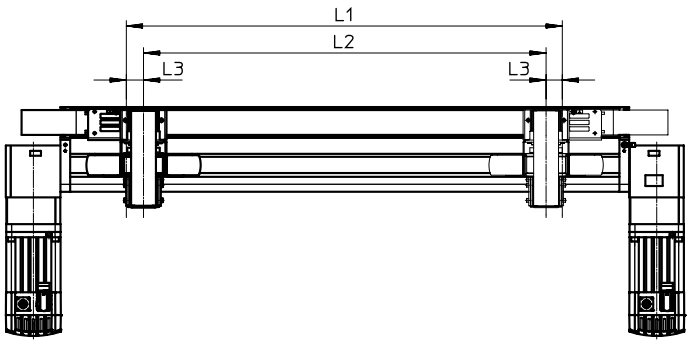
Size	Y-axis stroke	L1	L2	L3
15	100 ... 1000	336+stroke	194+stroke	94+software end positions
30	100 ... 1500	456+stroke	252+stroke	122+software end positions
100	100 ... 2000	468+stroke	264+stroke	128+software end positions

Size	Z-axis stroke	H1	H2
15	100	636	170
	200	736	270
	Stroke	536+stroke	70+stroke
30	250	942	328
	500	1192	578
	Stroke	692+stroke	78+stroke
100	250	991	336
	500	1241	586
	800	1541	886
	Stroke	741+stroke	86+stroke

Note
Requirements for the levelness of the bearing surface and for attachments
→ www.festo.com/sp User documentation

Factoring in software end positions

When selecting the strokes for the Y- and Z-axis, the dimension L3 for the software end positions must be factored into the working stroke L2. This dimension is freely selectable. A setting piece with L3 = 30 mm is included in the scope of delivery of the linear gantry.



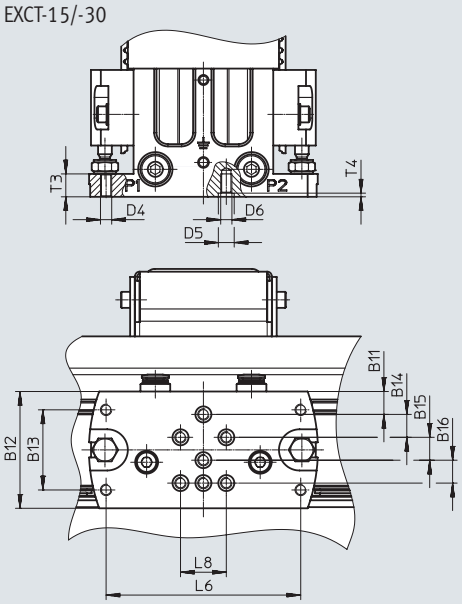
Stroke L1 = working stroke L2 + 2x software end position L3

Data sheet

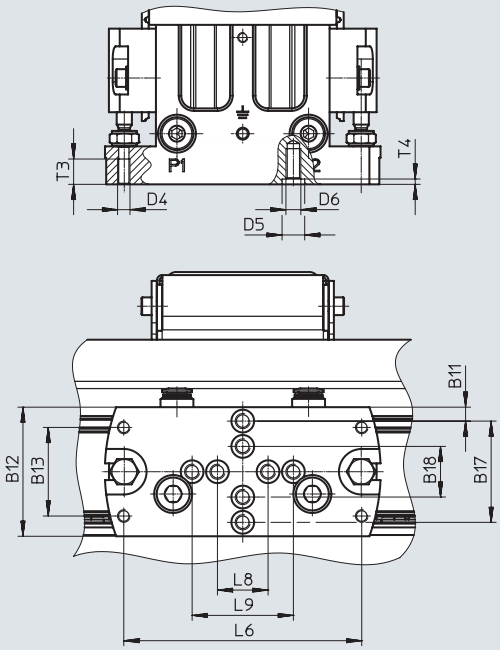
Dimensions Download CAD data ➔ www.festo.com

Interface of attachment component with compressed air supply ports P1 and P2

EXCT-15/-30



EXCT-100



Tubing with an outside diameter of 6 mm can be connected to ports P1 and P2.

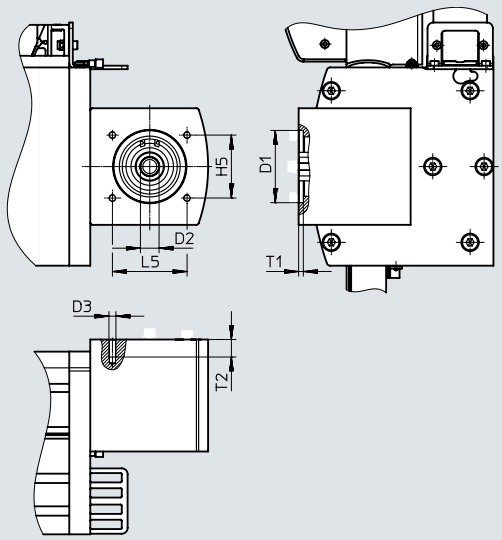
For size	B11	B12	B13	B14	B15	B16	B17	B18
15	5	41	31	10	10	10	–	–
30	10	51	35	10	10	10	–	–
100	5.5	51	35	–	–	–	40	20

For size	D4	D5 Ø H7	D6	L6	L8	L9	T3	T4 +0.1
15	M5	7	M5	76	20	–	10	1.6
30	M5	7	M5	85	20	–	10	1.6
100	M5	9	M6	94	20	40	15	2.1

Data sheet

Dimensions Download CAD data ➔ www.festo.com

Motor interface



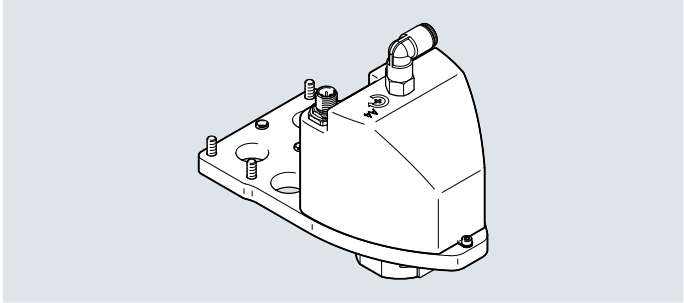
For size	D1 Ø +0.05	D2 Ø H7	D3	H5	L5	T1	T2
15	48	16	M5	35	46	4	15
30	62	16	M6	54	64	4	15
100	72	23	M6	54	64	4	15

Data sheet

Technical data – Front unit
EXCT-...-T...

Can be ordered via:
Modular product system ➔ page 26
or as an accessory ➔ page 28

Required motor controller CMMP-AS
➔ page 34



Technical data					
Type		EXCT-...-			
		T1	T2	T3	T4
Design		Electromechanical rotary drive			
		–	With rotary through-feed	–	With rotary through-feed
Motor type		Servo motor			
Size		8		11	
Rotation angle		Infinite			
Pneumatic connection		–	G1/8	–	G1/8
Nominal width	[mm]	–	4	–	4
Standard nominal flow rate	[l/min]	–	350	–	350
Gear ratio		30:1			
Repetition accuracy	[°]	±0.01			
Max. output speed	[rpm]	200			
Nominal torque	[Nm]	0.75		1.8	
Peak torque	[Nm]	1.8		4.5	
Max. axial force	[N]	200		300	
Max. pull-out torque, static	[Nm]	15		40	

Electrical data					
Type		EXCT-...-			
		T1	T2	T3	T4
Nominal voltage	[V AC]	230			
Nominal current	[A]	0.31	0.31	0.74	0.74
Peak current	[A]	0.61	0.61	1.5	1.5
Nominal power	[W]	9.2	9.2	22.1	22.1
Duty cycle	[%]	100			
Measuring system[1)]		Encoder			

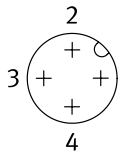
1) Homing required

Data sheet

Operating and environmental conditions					
Type		EXCT-...			
		T1	T2	T3	T4
Operating pressure	[bar]	–	–0.9 ... +8	–	–0.9 ... +8
Ambient temperature	[°C]	0 ... 40			
Storage temperature	[°C]	–10 ... +60			
Degree of protection		IP40			
Note on materials		RoHS-compliant			

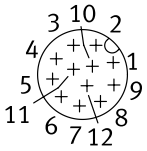
Motor for the front unit

Motor



PIN	Function
1	Operating voltage U
2	Operating voltage V
3	Operating voltage W
4	Protective earth conductor PE

Encoder

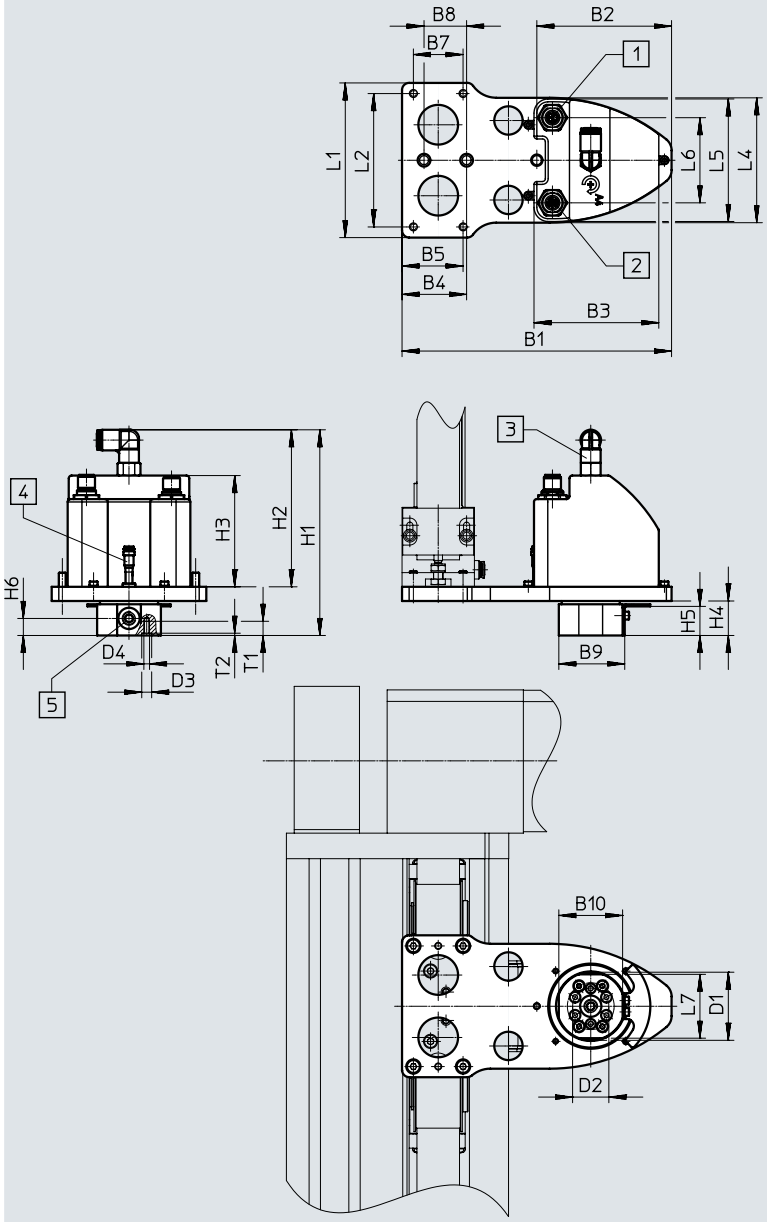


PIN	Function
1	Signal trace A
2	Signal trace A\
3	Signal trace B
4	Signal trace B\
5	Signal trace Z
6	Signal trace Z\
7	Signal trace U
8	Signal trace V
9	Signal trace W
10	Encoder GND
11	5 V supply
12	Screening

Data sheet

Dimensions Download CAD data ➔ www.festo.com

Front unit



[1] Connection for encoder cable
[2] Connection for motor cable
[3] Working air port for rotary through-feed (tubing outside diameter 6 mm)
[4] Proximity switch for reference point
[5] Working air port outlet

Data sheet

For linear gantry	Type	B1	B2	B3	B4	B5	B7	B8	B9	B10
EXCT-15-...-T1	ERMH-8-E17-15	170	95	88	36	36	31	30	46.5	45
EXCT-15-...-T2	ERMH-8-P-E17-15	170	95	88	36	36	31	30	46.5	45
EXCT-30-...-T1	ERMH-8-E17-30	190	95	88	41	43	35	30	46.5	45
EXCT-30-...-T2	ERMH-8-P-E17-30	190	95	88	41	43	35	30	46.5	45
EXCT-30-...-T3	ERMH-11-E17-30	190	95	88	41	43	35	30	46.5	45
EXCT-30-...-T4	ERMH-11-P-E17-30	190	95	88	41	43	35	30	46.5	45
EXCT-100-...-T3	ERMH-11-E17-100	190	95	88	45.5	43	35	30	46.5	45
EXCT-100-...-T4	ERMH-11-P-E17-100	190	95	88	45.5	43	35	30	46.5	45

For linear gantry	Type	D1 Ø	D2 Ø	D3 Ø H7	D4	H1	H2	H3	H4	H5	H6
EXCT-15-...-T1	ERMH-8-E17-15	48	25	7	M4	116.4	83.8	78.4	22.6	20.5	12
EXCT-15-...-T2	ERMH-8-P-E17-15	48	25	7	M4	141	106.7	78.4	22.6	20.5	12
EXCT-30-...-T1	ERMH-8-E17-30	48	25	7	M4	116.4	83.8	78.4	22.6	20.5	12
EXCT-30-...-T2	ERMH-8-P-E17-30	48	25	7	M4	141	106.7	78.4	22.6	20.5	12
EXCT-30-...-T3	ERMH-11-E17-30	48	25	7	M4	116.4	83.8	78.4	24.3	20.5	12
EXCT-30-...-T4	ERMH-11-P-E17-30	48	25	7	M4	141	106.7	78.4	24.3	20.5	12
EXCT-100-...-T3	ERMH-11-E17-100	48	25	7	M4	116.4	83.8	78.4	24.3	20.5	12
EXCT-100-...-T4	ERMH-11-P-E17-100	48	25	7	M4	141	106.7	78.4	24.3	20.5	12

For linear gantry	Type	L1	L2	L4	L5	L6	L7	T1	T2
EXCT-15-...-T1	ERMH-8-E17-15	92	76	88	86.3	60	45	10	1.6
EXCT-15-...-T2	ERMH-8-P-E17-15	92	76	88	86.3	60	45	10	1.6
EXCT-30-...-T1	ERMH-8-E17-30	100	85	88	86.3	60	45	10	1.6
EXCT-30-...-T2	ERMH-8-P-E17-30	100	85	88	86.3	60	45	10	1.6
EXCT-30-...-T3	ERMH-11-E17-30	100	85	88	86.3	60	45	10	1.6
EXCT-30-...-T4	ERMH-11-P-E17-30	100	85	88	86.3	60	45	10	1.6
EXCT-100-...-T3	ERMH-11-E17-100	109	94	88	86.3	60	45	10	1.6
EXCT-100-...-T4	ERMH-11-P-E17-100	109	94	88	86.3	60	45	10	1.6

Ordering data – Modular product system

Ordering table

Size		15	30	100	Conditions	Code		Enter code
Module no.		**8026575**	**8026576**	**8026577**				
Product type		T series				**EXCT**		EXCT
Size		15	30	100		**-...**		
Y-axis stroke	[mm]	100 ... 1000	100 ... 1500	100 ... 2000		**-...**		
Z-axis stroke	[mm]	100, 200	250, 500	250, 500, 800		**-...**		
Guide		Recirculating ball bearing guide				**-KF**		-KF
Motor type		Without motor			[1]	**-W**		
		Servo motor with brake				**-AB**		
Motor attachment position		Motor 1 at rear, motor 2 at rear				**-HH**		
		Motor 1 at rear, motor 2 at front				**-HV**		
		Motor 1 at front, motor 2 at rear				**-VH**		
		Motor 1 at front, motor 2 at front				**-VV**		
Energy chain connection side		Left				**-L**		
		Right				**-R**		
Attachment components (front unit)		Without				**-T0**		
		Rotary drive, size 8		–		**-T1**		
		Rotary drive, size 8 with pneum. rotary through-feed		–		**-T2**		
		–	Rotary drive, size 11			**-T3**		
		–	Rotary drive, size 11 with pneum. rotary through-feed			**-T4**		

[1] **W** Not in combination with 5K, 10K

Ordering data – Modular product system

Ordering table

Size	15	30	100	Conditions	Code		Enter code
Cable length	Without						
	5 m				**-5K**		
	10 m				**-10K**		
Installation	Without						
	Multi-pin plug distributor 4 x M8, with pneumatic cables				**-MP1**		
Document language	German				**-DE**		
	English				**-EN**		
	Spanish				**-ES**		
	French				**-FR**		
	Italian				**-IT**		
	Russian				**-RU**		
	Chinese				**-ZH**		

Combinations of attachment components for motor controllers

Linear gantry	Attachment components for Z-axis	Motor controller
EXCT-15-...	T0	2x CMMP-AS-C5-3A
	One attachment component (T1, T2)	2x CMMP-AS-C5-3A, 1x CMMP-AS-C2-3A
	Two attachment components (T1, T2 and electric gripper)	2x CMMP-AS-C5-3A, 2x CMMP-AS-C2-3A
EXCT-30-...	T0	2x CMMP-AS-C5-11A-P3
	One attachment component (T1, T2, T3, T4)	2x CMMP-AS-C5-11A-P3, 1x CMMP-AS-C2-3A
	Two attachment components (T1, T2, T3, T4 and electric gripper)	2x CMMP-AS-C5-11A-P3, 2x CMMP-AS-C2-3A
EXCT-100-...	T0	2x CMMP-AS-C5-11A-P3
	One attachment component (T3, T4)	2x CMMP-AS-C5-11A-P3, 1x CMMP-AS-C2-3A
	Two attachment components (T3, T4 and electric gripper)	2x CMMP-AS-C5-11A-P3, 2x CMMP-AS-C2-3A

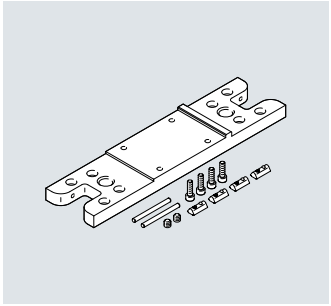
Note

Motor controllers must be ordered separately as accessories
➔ page 34.

Control system on request.

Accessories

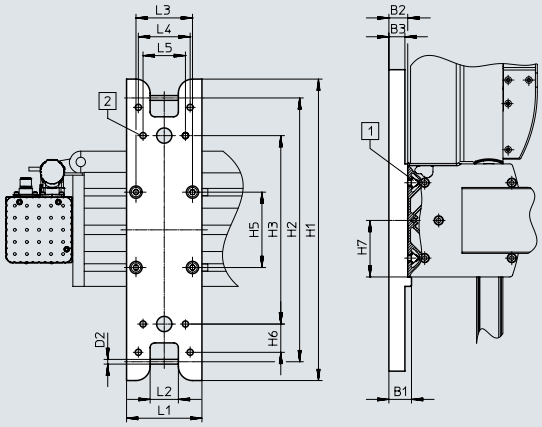
Mounting kit
EAHM-E17-K1



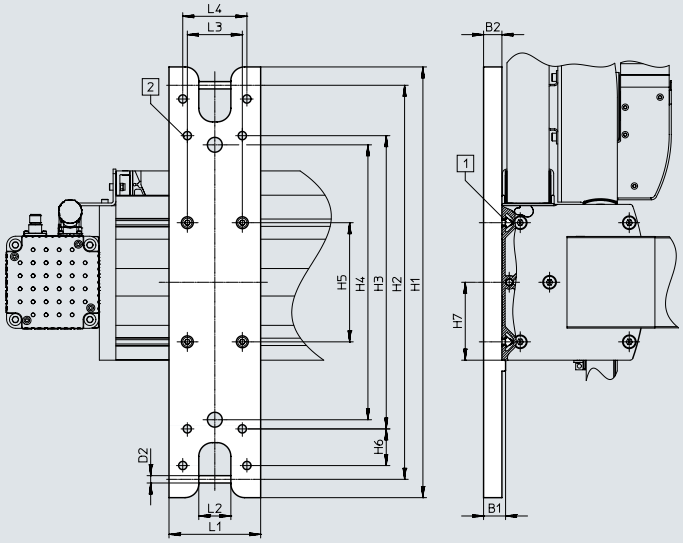
For wall mounting

Material:
Wrought aluminium alloy

EXCT-15



EXCT-30/100



[1] Screw ISO 4762 M6x20
[2] With EXCT-15:
for screw ISO 4762 M6
With EXCT-30/-100:
for screw ISO 4762 M8

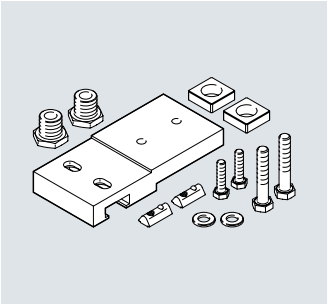
Dimensions and ordering data

For size	B1	B2	B3	D2 ø	H1	H2	H3	H4	H5	H6	H7
15	24	20	17	5	320	280	200	–	80	30	60
30	24	20	–	8	470	430	320	300	130	40	85
100	24	20	–	8	470	430	320	300	160	40	100

For size	L1	L2	L3	L4	L5	Weight [g]	Part no.	Type
15	80	30	60	55	45	1150	**3995047**	**EAHM-E17-K1-15**
30	100	35	60	70	–	2350	**3823208**	**EAHM-E17-K1-30**
100	100	35	60	70	–	2350	**4055845**	**EAHM-E17-K1-100**

Accessories

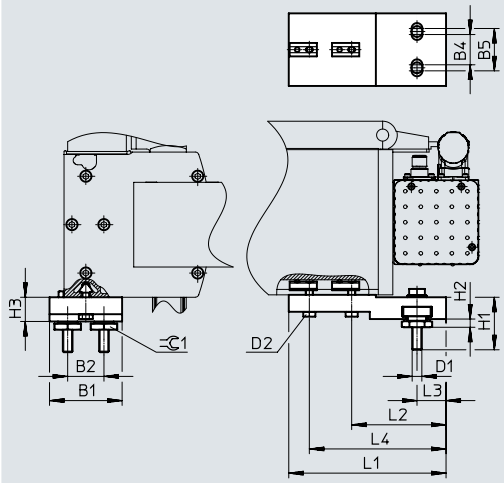
Mounting kit
EAHM-E17-K2



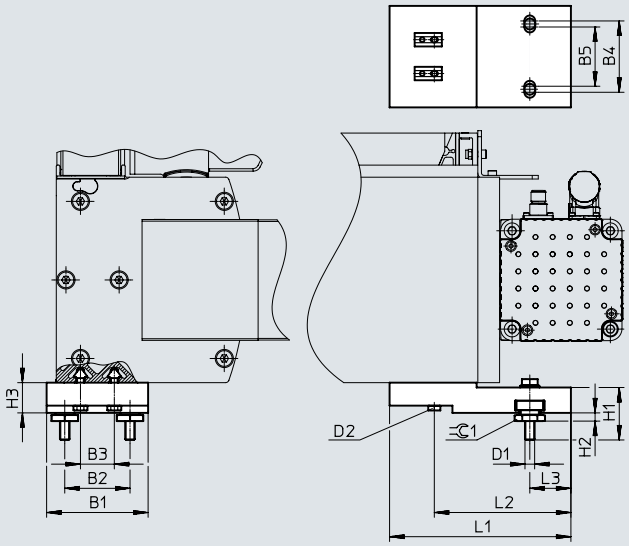
For mounting and aligning on a bearing surface.
The kit is height-adjustable

Material:
Galvanised steel

EXCT-15



EXCT-30/100



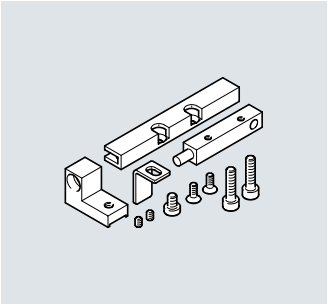
Dimensions and ordering data

For size	B1	B2	B3	B4	B5	D1	D2	H1	H2 +3	H3
15	60	30	–	25	35	M8	M6	43.4	6.8	20
30	84	54	28	49	59	M8	M6	43.4	6.8	25
100	110	70	50	65	75	M8	M6	43.4	6.8	25

For size	L1	L2	L3	L4	⊂1	Weight [g]	Part no.	Type
15	130	78	24	113	22	1015	**3838164**	**EAHM-E17-K2-15**
30	150	113	34	–	22	2050	**3838337**	**EAHM-E17-K2-30**
100	170	133	29	–	22	3000	**3838404**	**EAHM-E17-K2-100**

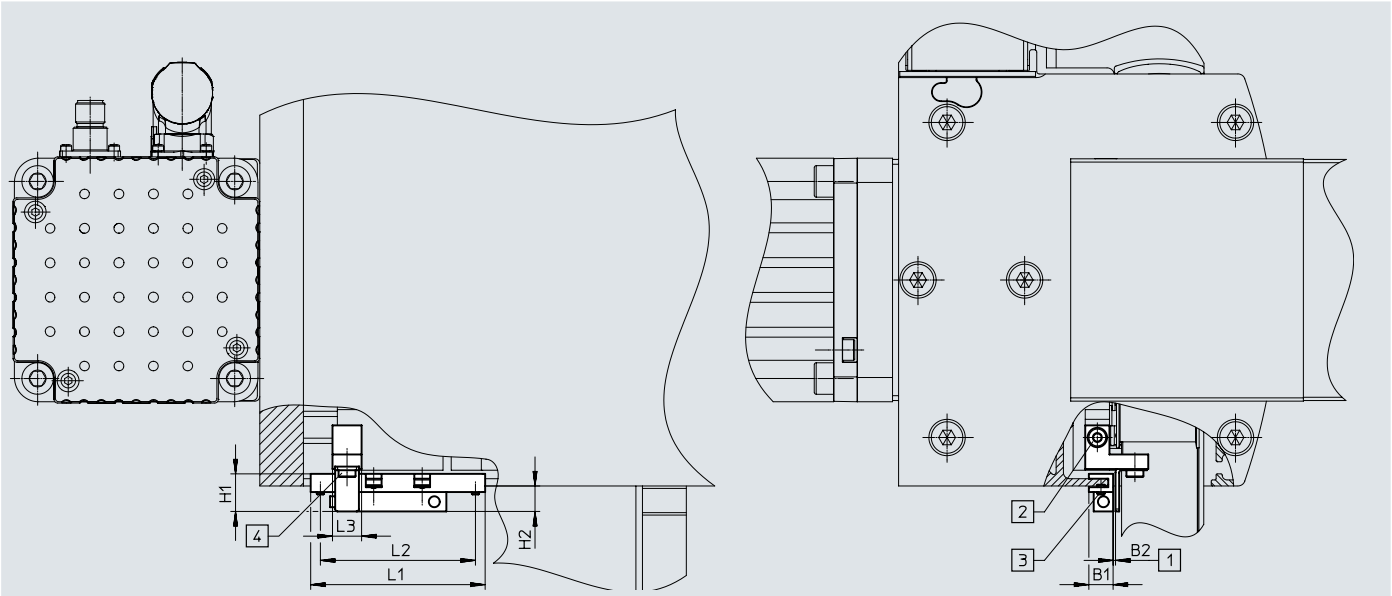
Accessories

Sensing kit
EAPR-E17-S



Included in the scope of delivery:
Proximity switch SIES-Q8B, sensor bracket, switch lug, mounting bracket and screws

Material:
Switch lug: steel
Sensor bracket: wrought aluminium alloy



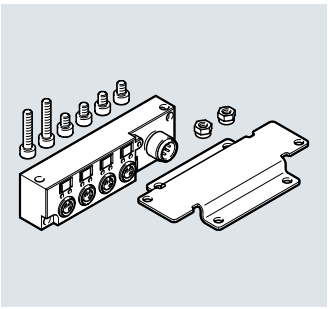
[1] Sensing distance is adjustable
[2] Screw ISO 4762 M4x16
[3] Screw ISO 4026 M3x4
[4] Screw ISO 6912 M4x6

Dimensions and ordering data

For size	B1	B2	H1	H2	L1	L2	L3	Weight [g]	Part no.	Type
15, 30, 100	10	1	15.5	10.5	72	64	12	30	**2478427**	**EAPR-E17-S**

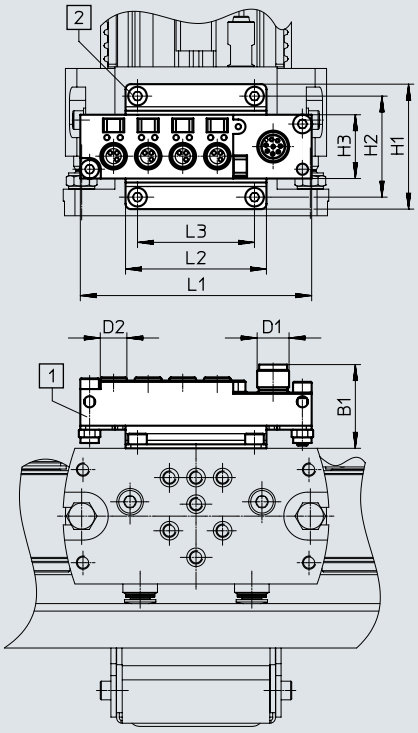
Accessories

Multi-pin set
EADH-E17



For connecting up to 4 inputs/outputs

Material:
Housing: PBT reinforced
Retaining bracket: aluminium



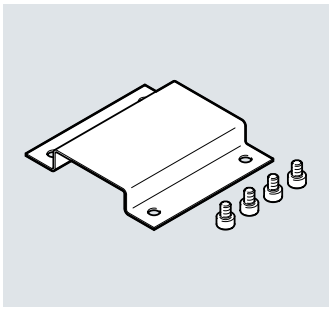
[1] Multi-pin plug distributor
[2] Mounting plate

Dimensions and ordering data

For size	B1	D1	D2	H1	H2	H3	L1	L2	L3	Weight [g]	Part no.	Type
15, 30, 100	31.5	M12	M8	47	38	24	87	53	44	70	**2972137**	**EADH-E17-MP1**

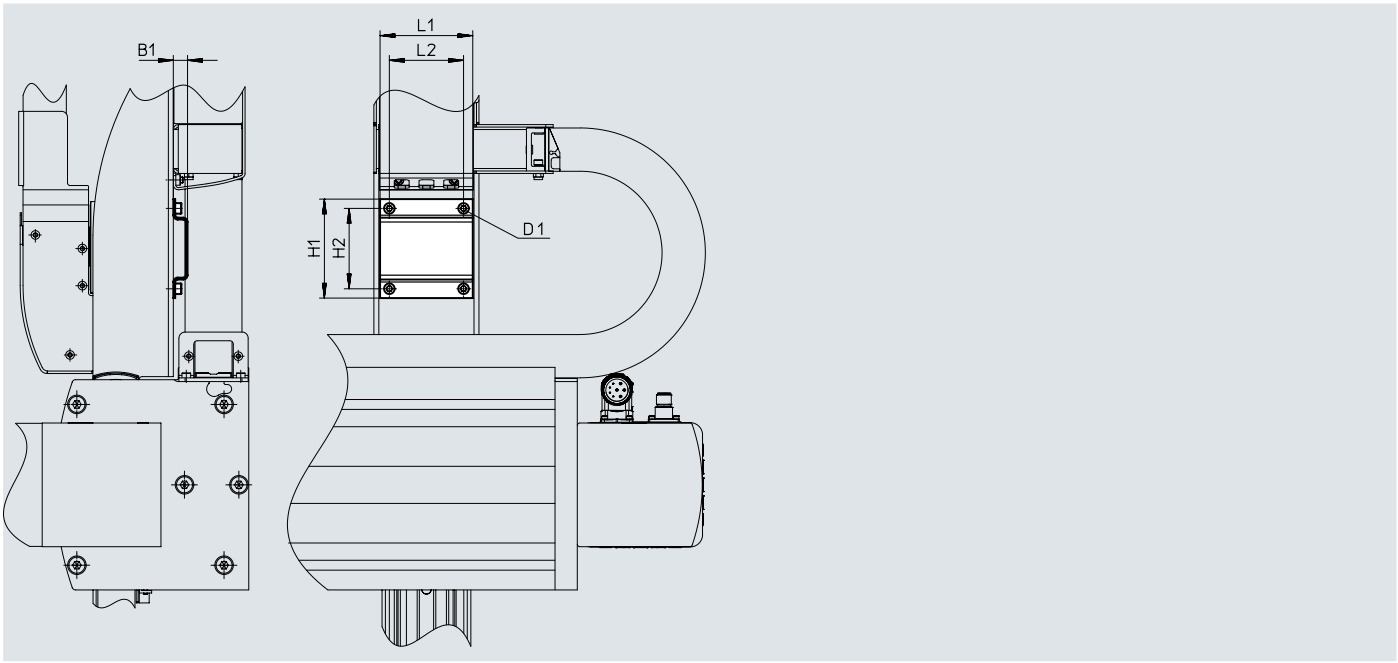
Accessories

Adapter kit
EAHM-E17



For mounting valves, vacuum generators, etc., on the Z-axis

Material:
Stainless steel



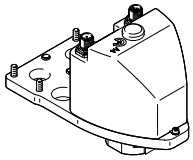
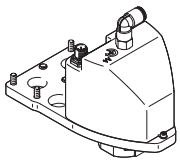
Dimensions and ordering data

For size	B1	D1	H1	H2	L1	L2	Weight [g]	Part no.	Type
15	11.5	M4x6	70	55	65	50	50	**3018429**	**EAHM-E17-U-15**
30	11.5	M5x8	80	65	75	60	95	**3018428**	**EAHM-E17-U-30**
100	11.5	M5x8	80	65	85	60	110	**3018426**	**EAHM-E17-U-100**

Accessories

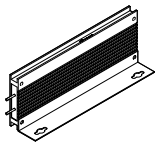
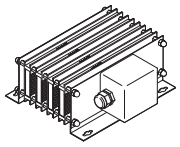
Ordering data – Front unit (rotary drive)[1]

Download CAD data → www.festo.com

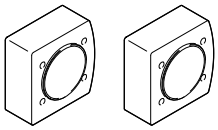
	Description	For size	Order code	Part no.	Type
	Without pneumatic rotary through-feed	15	T1	**3383157**	**ERMH-8-E17-15**
		30	T1	**3385151**	**ERMH-8-E17-30**
		30	T3	**3385153**	**ERMH-11-E17-30**
		100	T3	**3383152**	**ERMH-11-E17-100**
	With pneumatic rotary through-feed	15	T2	**3383151**	**ERMH-8-P-E17-15**
		30	T2	**3385152**	**ERMH-8-P-E17-30**
		30	T4	**3385154**	**ERMH-11-P-E17-30**
		100	T4	**3383156**	**ERMH-11-P-E17-100**

1) Included in the scope of delivery: motor cable, encoder cable and reference switch

Ordering data – Braking resistor

	For size	Resistance value [Ω]	Nominal power [W]	Weight [g]	Part no.	Type
	15	50	200	550	**2882342**	**CACR-LE2-50-W500**
	30, 100	40	800	2400	**2882343**	**CACR-KL2-40-W2000**

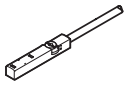
Ordering data

	Description	For size	Possible screws	Tightening torque [Nm]	Part no.	Type	PU[1]
Plug socket with cable NEBU for multi-pin set EADH							
	–	15, 30, 100	–	–	**8048086**	**NEBU-M12W8-K-15-N-LE8**	1
Coupling housing EAMK-A-E17[2]							
	For connecting third-party motors	15	ISO 4762-M5xn[3]	6	**3780303**	**EAMK-A-E17-15**	2
		30	ISO 4762-M6xn[3]	8.5	**3780304**	**EAMK-A-E17-30**	
		100	ISO 4762-M6xn[3]	8.5	**3780305**	**EAMK-A-E17-100**	

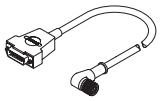
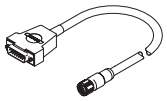
1) Packaging unit
2) Retaining screws are not included in the scope of delivery
3) The length n must be determined as a function of the motor flange used

Accessories

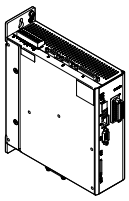
Ordering data

	Switching output	Switching element function	Cable length [m]	Part no.	Type
Proximity switch for sensing kit EAPR-E17					
	PNP	N/O contact	2.5	**178294**	**SIES-Q8B-PS-K-L**

Ordering data – Cables

	Cable length [m]	Part no.	Type
For Y-axis			
	**Motor cable NEBM**		
	5	**550310**	**NEBMM23G8E5Q9NLE8**
	10	**550311**	**NEBMM23G8E10Q9NLE8**
	15	**550312**	**NEBMM23G8E15Q9NLE8**
	**Encoder cable NEBM**		
	5	**550318**	**NEBM-M12W8-E-5-N-S1G15**
	10	**550319**	**NEBM-M12W8-E-10-N-S1G15**
	15	**550320**	**NEBM-M12W8-E-15-N-S1G15**
For front unit			
	**Motor cable NEBM**		
	15	**571907**	**NEBM-M12G4-RS-15-N-LE4**
	**Encoder cable NEBM**		
	15	**571915**	**NEBM-M12G12-RS-15-N-S1G15**
For reference switch for front unit			
	**Connecting cable NEBU**		
	15	**575986**	**NEBU-M8G3-K-15-LE3**

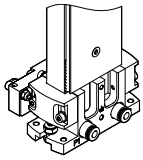
Ordering data – Motor controller

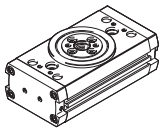
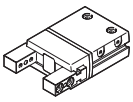
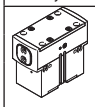
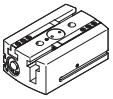
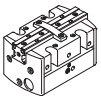
	For size	Output voltage [V AC]	Nominal output current [A]	Nominal power [VA]	Part no.	Type
	**For linear gantry**					
	15	3x 0 ... 270	5	1000	**1622902**	**CMMP-AS-C5-3A-M0**
	30, 100	3x 0 ... 360	5	3000	**1622903**	**CMMP-AS-C5-11A-P3-M0**
	For attachment components					
	15, 30, 100	3x 0 ... 270	2.5	500	**1622901**	**CMMP-AS-C2-3A-M0**

Accessories

Permissible combinations without front unit

Download CAD data ➔ www.festo.com



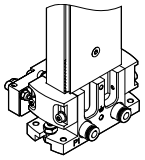
Combination with	Linear gantry Size	Drive/gripper Size	Adapter kit CRC[1]	Part no.	Type
Semi-rotary drive					
DRRD	**EXCT**	**DRRD**	**DHAA**		
	15	10	2	**2728486**	**DHAA-D-E8-45-Q11-10**
	15, 30	12		**2715152**	**DHAA-D-E8-45/55-Q11-12**
	30	16		**1926914**	**DHAA-D-E8-55-Q11-16**
	100	16		**1928306**	**DHAA-D-E8-75-Q11-16**
	100	20		**1930038**	**DHAA-D-E8-75-Q11-20**
Parallel grippers					
DHPS	**EXCT**	**DHPS**	**HMSV**		
	15, 30	16	2	**548785**	**HMSV-55**
	100	20, 25		**548786**	**HMSV-56**
HGPD, sealed	**EXCT**	**HGPD**	**DHAA, HAPG**		
	15, 30	25	2	**564952**	**DHAA-G-G6-16-B8-25**
	100	25, 35		**537175**	**HAPG-79**
	100	40		**564951**	**DHAA-G-G6-20-B8-40**
HGPL, heavy-duty with long stroke	**EXCT**	**HGPL**	**DHAA/HAPG**		
	15, 30	14-20	2	**2406159**	**DHAA-G-G6-16-B6-14**
	100	14-20		**2410181**	**DHAA-G-G6-20-B6-14**
	15, 30	14-40, 14-60, 14-80		**538055**	**HAPG-89**
	100	14-40, 14-60, 14-80		**539274**	**HAPG-90**
	100	25		**539274**	**HAPG-90**
HGPP, precision	**EXCT**	**HGPP**	**HAPG, HMSV**		
	15, 30	10	2	**529018**	**HAPG-58**
	15, 30	12		**191266**	**HAPG-48**
	100	12		**191267**	**HAPG-49**
	100	16		**191269**	**HAPG-51**
HGPT-B, heavy-duty	**EXCT**	**HGPT-B**	**DHAA, HAPG**		
	15, 30	25	2	**564952**	**DHAA-G-G6-16-B8-25**
	100	40		**564951**	**DHAA-G-G6-20-B8-40**
	100	25, 35		**537175**	**HAPG-79**

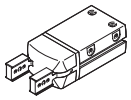
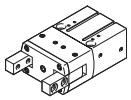
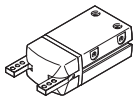
1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

Accessories

Permissible combinations without front unit

Download CAD data ➔ www.festo.com

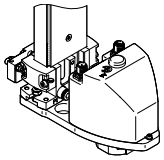


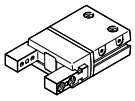
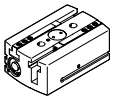
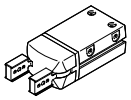
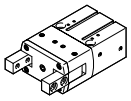
Combination with	Linear gantry Size	Drive/gripper Size	Adapter kit CRC[1]	Part no.	Type
Radial grippers					
DHRS	**EXCT**	**DHRS**	**HMSV**		
	15, 30	16	2	**548785**	**HMSV-55**
	100	25, 32		**548786**	**HMSV-56**
HGRT, heavy-duty	**EXCT**	**HGRT**	**DHAA**		
	15, 30	20	2	**1278364**	**DHAA-G-G6-12-B11-20**
	15, 30	25		**1279418**	**DHAA-G-E8-45-B11-25**
	100	25		**1468307**	**DHAA-G-G6-20-B11-25**
	100	32		**1280494**	**DHAA-G-G6-25-B11-32**
Angle gripper					
DHWS	**EXCT**	**DHWS**	**HMSV**		
	15, 30	16	2	**548785**	**HMSV-55**
	100	25, 32		**548786**	**HMSV-56**
Three-point grippers					
HGDD, sealed	**EXCT**	**HGDD**	**DHAA**		
	15, 30, 100	35	2	**2371422**	**DHAA-G-G3-20-B13-35**
	100	40		**2373773**	**DHAA-G-H2-16-B13-40**
	100	50		**2377625**	**DHAA-G-H2-20-B13-50**
	EXCT	**HGDD-G1/G2**	**DHAA/HAPG**		
	15, 30, 100	35	2	**542436**	**HAPG-94**
	100	40		**542437**	**HAPG-95**
	100	50		**2378415**	**DHAA-G-H2-20-B13G-50**
HGDT, heavy-duty	**EXCT**	**HGDT**	**HAPG**		
	15, 30	25	2	**542439**	**HAPG-SD2-32**
	15, 30, 100	35		**542436**	**HAPG-94**
	100	40		**542437**	**HAPG-95**
	100	50		**542443**	**HAPG-SD2-36**

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

Accessories

Permissible combinations with front unit (EXCT-...-T1/T2/T3/T4) Download CAD data ➔ www.festo.com

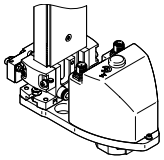


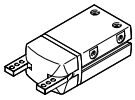
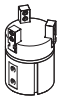
Combination with	Linear gantry Size	Drive/gripper Size	Adapter kit CRC[1]	Part no.	Type
Parallel grippers					
DHPS	**EXCT with ERMH**	**DHPS**	**HMSV**		
	15, 30, 100	6	2	**187566**	**HAPG-SD2-12**
		10		**184477**	**HAPG-SD2-1**
		16		**184478**	**HAPG-SD2-2**
HGPD, sealed	**EXCT with ERMH**	**HGPD**	**DHAA, HAPG**		
	15, 30, 100	16, 20	2	**564959**	**DHAA-G-Q5-16-B8-16**
		25		**544642**	**HAPG-SD2-48**
HGPL, heavy-duty with long stroke	**EXCT with ERMH**	**HGPL**	**DHAA/HAPG**		
	15, 30, 100	14	2	**544644**	**HAPG-SD2-45**
HGPT-B, heavy-duty	**EXCT with ERMH**	**HGPT-B**	**DHAA, HAPG**		
	15, 30, 100	16, 20	2	**564959**	**DHAA-G-Q5-16-B8-16**
		25		**544642**	**HAPG-SD2-48**
Radial grippers					
DHRS	**EXCT with ERMH**	**DHRS**	**HMSV**		
	15, 30, 100	10	2	**187566**	**HAPG-SD2-12**
		16		**184477**	**HAPG-SD2-1**
		25		**184478**	**HAPG-SD2-2**
HGRT, heavy-duty	**EXCT with ERMH**	**HGRT**	**DHAA**		
	15, 30, 100	16	2	**1273999**	**DHAA-G-Q5-16-B11-16**

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

Accessories

Permissible combinations with front unit (EXCT-...-T1/T2/T3/T4) Download CAD data ➔ www.festo.com



Combination with	Linear gantry Size	Drive/gripper Size	Adapter kit CRC[1]	Part no.	Type
Angle gripper					
DHWS	**EXCT with ERMH**	**DHWS**	**HMSV**		
	15, 30, 100	10	2	**187566**	**HAPG-SD2-12**
		16		**184477**	**HAPG-SD2-1**
		25		**184478**	**HAPG-SD2-2**
Three-point grippers					
DHDS	**EXCT with ERMH**	**DHDS**	**HAPG**		
	15, 30, 100	16	2	**187567**	**HAPG-SD2-13**
HGDT, heavy-duty	**EXCT with ERMH**	**HGDT**	**HAPG**		
	15, 30, 100	25	2	**542439**	**HAPG-SD2-32**

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

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