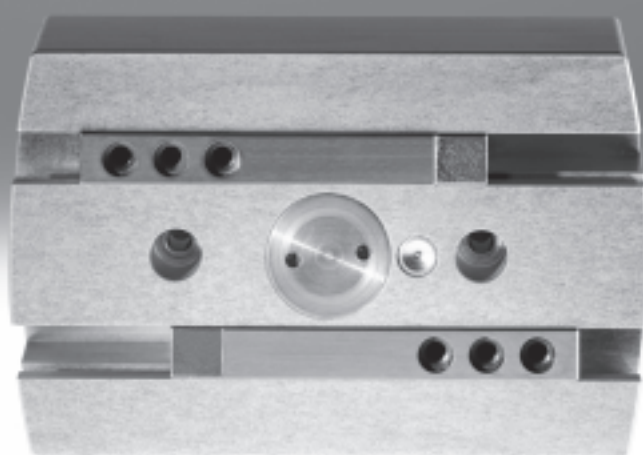


Parallel grippers HGPLE, sturdy with long stroke, electric

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Parallel grippers HGPLE, sturdy with long stroke, electric

Key features

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At a glance

With free, speed-controlled selection of the gripping positions, flexible gripping is no longer a problem with the parallel gripper HGPLE. Its long

stroke means it can be used with workpieces of different sizes. The option to adjust the gripping force

makes the HGPLE ideal for soft or very delicate workpieces. It also grips large and heavy workpieces reliably.

Economical

- A "pre-holding position" enables the HGPLE to stop its gripper fingers just short of the workpiece, thus reducing gripping times to an absolute minimum. The HGPLE offers impressively short opening and closing times of 0.6 s, even

- with workpiece sizes that require the entire stroke.
- The installation complexity is minimal as only one cable is required (from the controller to the gripper).

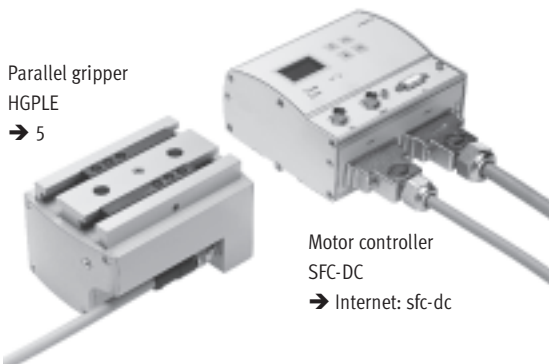
Flexible

As an integral component of the multi-axis modular system, the HGPLE offers identical interfaces to the pneumatic parallel gripper HGPL. It is actuated on-site using the proven motor controller SFC-DC.

Sturdy

The T-slot provides the HGPLE very high torque resistance as well as very high precision.

Everything from a single source



The parallel gripper and motor controller SFC form one unit.

- Thanks to the protection class IP54, the SFC can be mounted close to the HGPLE, either:
 - via central supports or
 - on a H-rail
- The motor controller SFC is available with or without control panel
- Easy actuation via:
 - Profibus
 - CANopen
 - DeviceNet

Parameterisation possible via:

- Control panel:
 - Suitable for simple position sequences
- FCT (Festo Configuration Tool) configuration package:
 - Parameterisation via RS 232 interface
 - Windows-based PC user interface, Festo Configuration Tool
 - Tool is included in scope of delivery

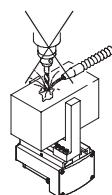


CANopen

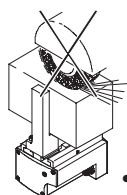
DeviceNet

 Note

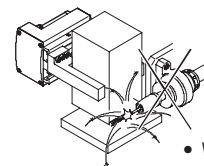
These grippers are not suitable for the following or similar application examples:



- Aggressive media
- Machining



- Grinding dust



- Welding splashes

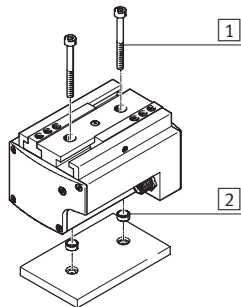
Parallel grippers HGPLE, sturdy with long stroke, electric

Key features and peripherals overview

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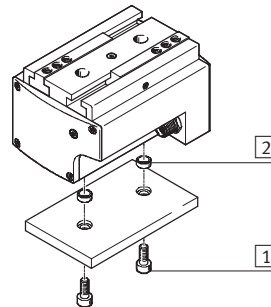
Mounting options

Direct mounting
from above



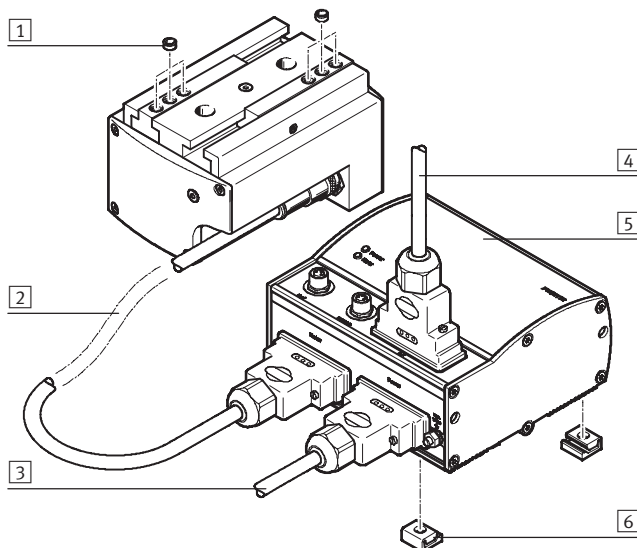
- 1 Mounting screws
- 2 Centring sleeves

from underneath

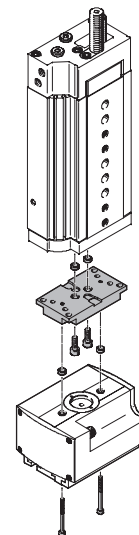


- 1 Mounting screws
- 2 Centring sleeves

Peripherals overview



System product for handling and assembly technology



Accessories			
Type	Brief description		→ Page/Internet
1 Centring sleeve ZBH	For centring attachments		10
2 Motor cable KMTR	Connecting cable between motor and motor controller		sfc-dc
3 Supply line KPWR	Power supply line; load and logic power supplies are isolated		sfc-dc
4 Plug FBS, FBA	For fieldbus interface		sfc-dc
5 Motor controller SFC	For parameterising and positioning the parallel gripper		sfc-dc
6 Central support MUP	– For mounting the motor controller – The motor controller can also be mounted on a H-rail		sfc-dc
– Gripper jaw blank BUB-HGPL	Blank specially matched to the gripper jaws for custom building of gripper fingers		10

Parallel grippers HGPLE, sturdy with long stroke, electric

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Type codes

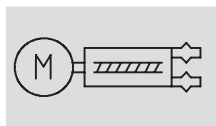
		HGPLE	–	25	–	40	–	2.8	–	DC	–	VCSC	–	G85
Type														
HGPLE	Parallel gripper													
Size														
Stroke [mm] per gripper jaw														
Lead screw pitch														
2.8	2.8 mm													
Type of motor														
DC	DC motor													
Nominal voltage/plug type														
VCSC	24 V													
Gear reduction														
G85	85:1													

Parallel grippers HGPLE, sturdy with long stroke, electric

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Technical data

Function



- Ø - Size
25 mm
- I - Stroke
80 mm



General technical data		
Constructional design	Electrically driven gripper	
	Synchronised gripper jaws	
Mode of operation	Double-acting	
Gripper function	Parallel	
Guide	Plain-bearing guide with T-slot	
Number of gripper jaws	2	
Stroke per gripper jaw, adjustable	[mm]	0 ... 40
Electrical connection	12-pin	
	M12x1	
	Plug	
Repetition accuracy ¹⁾	[mm]	≤ 0.05
Max. interchangeability	[mm]	≤ 0.2
Max. gripper jaw backlash ²⁾	[mm]	≤ 0.05
Rotational symmetry	[mm]	≤ 0.2
Homing	Negative fixed stop block	
	Positive fixed stop block	
Position sensing	Via integrated angular displacement encoder	
Type of mounting	Via through-holes and centring sleeves	
	Via female thread and centring sleeves	
Mounting position	Any	
Product weight	[g]	1,680

1) End-position drift under constant conditions of use with 100 consecutive strokes in the direction of movement of the gripper jaws

2) In the direction of movement of the gripper jaws

Electrical data for motor		
Type of motor	DC servo motor	
Nominal operating voltage	[V DC]	24

Operating and environmental conditions		
Ambient temperature	[°C]	10 ... 40
Protection class	IP54	
Noise level	[dB A]	≤60
CE mark (see declaration of conformity)	To EU EMC Directive	
Corrosion resistance class CRC ¹⁾	2	

1) Corrosion resistance class 2 as per Festo standard 940 070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

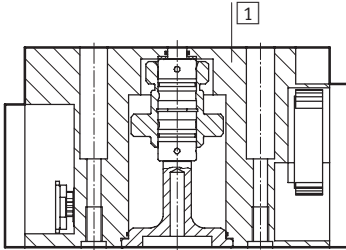
Parallel grippers HGPLE, sturdy with long stroke, electric

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Technical data

Materials

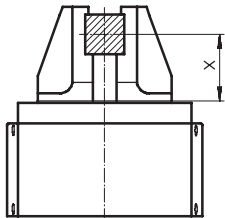
Sectional view



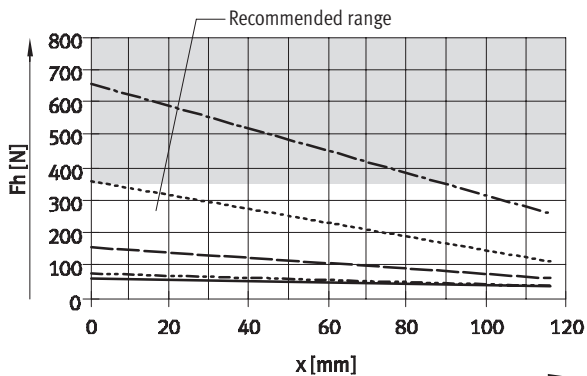
Parallel gripper

1	Housing	Wrought aluminium alloy, coated with CompCote
-	Gripper jaw	Hardened steel
-	Note on materials	Free of copper, PTFE and silicone
		RoHS-compliant

Gripping force F as a function of travel speed v and lever arm x

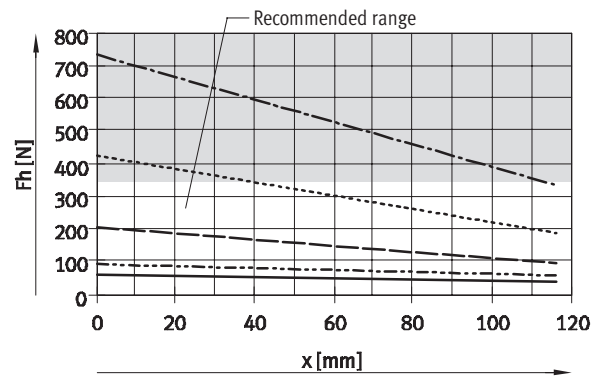


Gripping force F_h per gripper jaw
opening



$v = 2 \text{ mm/s}$ $v = 40 \text{ mm/s}$
 $v = 10 \text{ mm/s}$ $v = 60 \text{ mm/s}$
 $v = 20 \text{ mm/s}$

closing



Total gripping force F with a lever arm $x = 20 \text{ mm}$

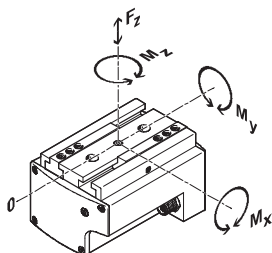
Travel speed v	[mm/s]	2	5	10	20	40	60
opening	[N]	120	120	148	293	652	1,150
closing	[N]	121	120	176	376	771	1,300

Parallel grippers HGPLE, sturdy with long stroke, electric

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Technical data

Characteristic load values at the gripper jaws

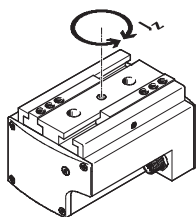


The indicated permissible forces and torques apply to a single gripper jaw. They include the lever arm, additional applied loads due to the workpiece or external gripper fingers and acceleration forces occurring during movement.

The zero coordinate line (guide groove of the gripper jaws) must be taken into consideration for the calculation of torques.

Size		25
Max. permissible force F_z	[N]	1,500
Max. permissible torque M_x	[Nm]	100
Max. permissible torque M_y	[Nm]	60
Max. permissible torque M_z	[Nm]	70

Mass moment of inertia [kgcm²]

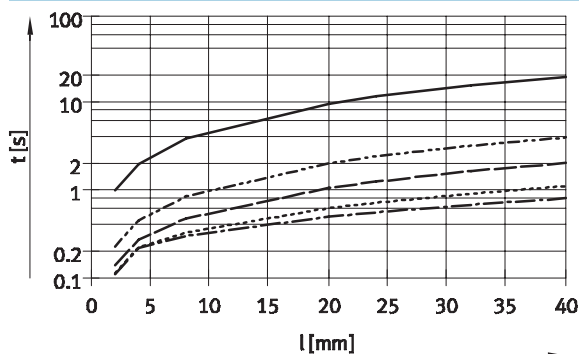


Under the following conditions:

- The reference point is the central axis
- Without external gripper fingers
- In a load-free state

Size		25
Mass moment of inertia J_z	[kgcm ²]	28.32

Positioning time t as a function of stroke per gripper jaw l and travel speed v



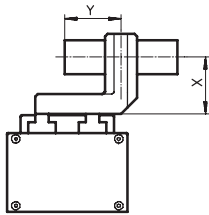
- $v = 2 \text{ mm/s}$
- - - $v = 10 \text{ mm/s}$
- · - $v = 20 \text{ mm/s}$
- · · $v = 40 \text{ mm/s}$
- · · $v = 65 \text{ mm/s}$

Parallel grippers HGPLE, sturdy with long stroke, electric

Technical data

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Gripping force F_{Grip} per gripper jaw as a function of lever arm x and eccentricity y



The gripping forces as a function of eccentric application of force and the maximum permissible off-centre point at which force is applied can be determined from the following graphs.

Calculation example

Given:

Lever arm $x = 60$ mm

Eccentricity $y = 70$ mm

To be calculated:

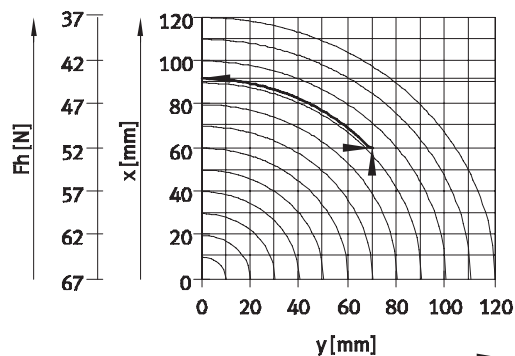
Gripping force at $v < 1$ mm/s

Procedure:

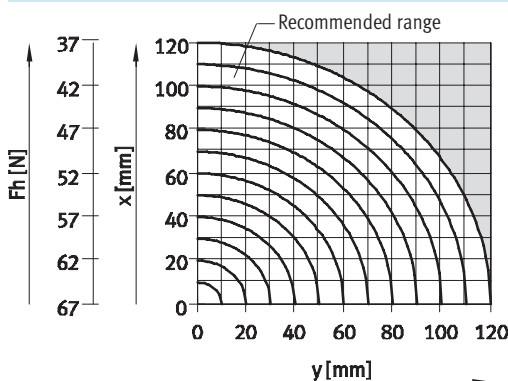
- Determine the intersection xy between the lever arm x and eccentricity y in the graph for HGPLE
- Draw an arc (with centre at origin) through the intersection xy
- Determine the intersection between the arc and X axis
- Read the gripping force

Result:

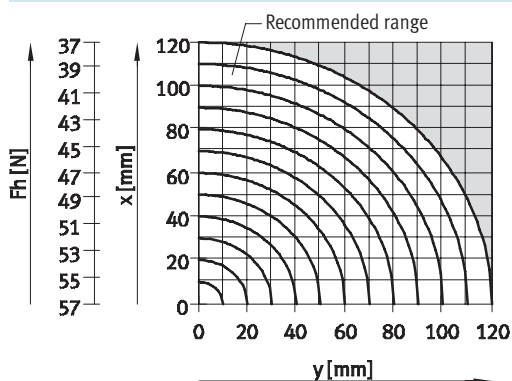
Gripping force = approx. 44 N



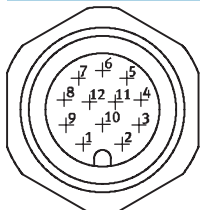
External gripping (closing)



Internal gripping (opening)



Pin allocation of connecting plug



Plug M12		
Pin	Connection	Function
1	Motor +	Motor conductor
2	Motor -	Motor conductor
3	A	Encoder signal RS 485
4	A/	Encoder signal RS 485
5	B	Encoder signal RS 485
6	B/	Encoder signal RS 485
7	I	Encoder signal RS 485
8	I/	Encoder signal RS 485
9	+5 V DC	Signal supply
10	0 V	Signal ground
11	-	Preassigned
12	-	Preassigned

Technical data

[illegible]

	Part No.	Type
	555563	HGPLE-25-40-2,8-DC-VCSC-G85

Parallel grippers HGPLE, sturdy with long stroke, electric

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Accessories

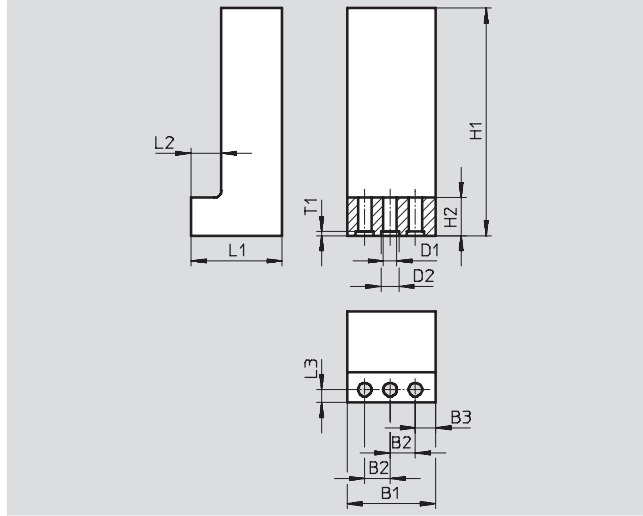
Gripper jaw blank BUB-HGPL

(scope of delivery: 2 pieces)

Material:

Aluminium

Free of copper, PTFE and silicone



Dimensions and ordering data						
B1	B2	B3	D1 Ø	D2 Ø	H1	H2
±0.1	+0.02		+0.1	H8	±0.1	
35	10	8	5.3	7	120	15

L1	L2	L3	T1	Weight per blank	Part No.	Type
±0.1	+0.1	+0.1	+0.1	[g]		
36	12	5	1.6	295	537317	BUB-HGPL-25

Ordering data				
	Weight [g]	Part No.	Type	PU ¹⁾
Centring sleeve for the gripper jaws ZBH Technical data → Internet: zbh				
	1	186717	ZBH-7	10
Centring sleeve for the gripper ZBH Technical data → Internet: zbh				
	1	150927	ZBH-9	10

1) Packaging unit quantity

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Our experienced engineers provide complete support at every stage of your development process, including: conceptualization, analysis, engineering, design, assembly, documentation, validation, and production.



Custom Automation Components
Complete custom engineered solutions



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With a comprehensive line of more than 30,000 automation components, Festo is capable of solving the most complex automation requirements.



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Electromechanical actuators, motors, controllers & drives



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Festo is a leading global manufacturer of pneumatic and electromechanical systems, components and controls for industrial automation, with more than 12,000 employees in 56 national headquarters serving more than 180 countries. For more than 80 years, Festo has continuously elevated the state of manufacturing with innovations and optimized motion control solutions that deliver higher performing, more profitable automated manufacturing and processing equipment. Our dedication to the advancement of automation extends beyond technology to the education and development of current and future automation and robotics designers with simulation tools, teaching programs, and on-site services.

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