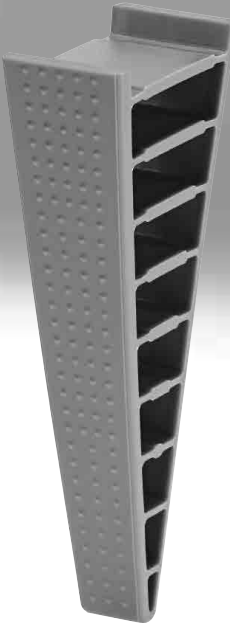


**Adaptive gripper fingers DHAS**



## Key features

### At a glance

Adaptive gripper fingers for smooth and flexible gripping, using the Fin Ray Effect<sup>®</sup> modelled on a fish's tail fin.

Two flexible bands, which meet at the top like a triangle, form the basis of the Fin Ray Structure<sup>®</sup>. The bands are connected by ribs, spaced at regular intervals, using flex hinges. This flexible but sturdy connection of the joints allows the gripper fingers to adapt to the contours of a workpiece.

Areas of application:

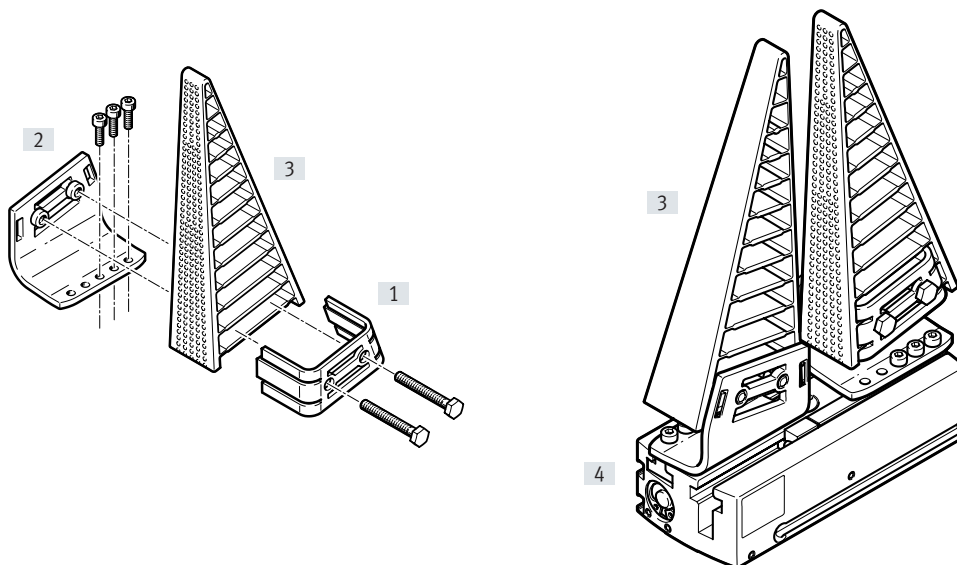
- Machine building
- Agriculture
- Human-machine cooperation

### Adaptation options with the mounting kit DHAS-ME / mounting bracket DHAS-MA

The gripper fingers' interface is designed so that both parts can be easily slid together to create a friction-fitting and form-fitting adapter while the fingers can flex.

The gripper finger can be mounted on an interface using the mounting kit DHAS-ME and a suitable adapter.

The gripper finger can be mounted on the parallel gripper HGPL-14 with the mounting kit DHAS-ME and the mounting bracket DHAS-MA.



- [1] Mounting kit DHAS-ME
- [2] Mounting bracket DHAS-MA
- [3] Adaptive gripper finger DHAS
- [4] Parallel gripper HGPL-14

### Note

The following gripper types are particularly well-suited to using the adaptive gripper fingers:

- Long-stroke grippers
- Radial grippers
- Angle grippers

- The gripper finger is suitable for gripping rounded shapes
- The stroke per gripper jaw should be at least 10 mm

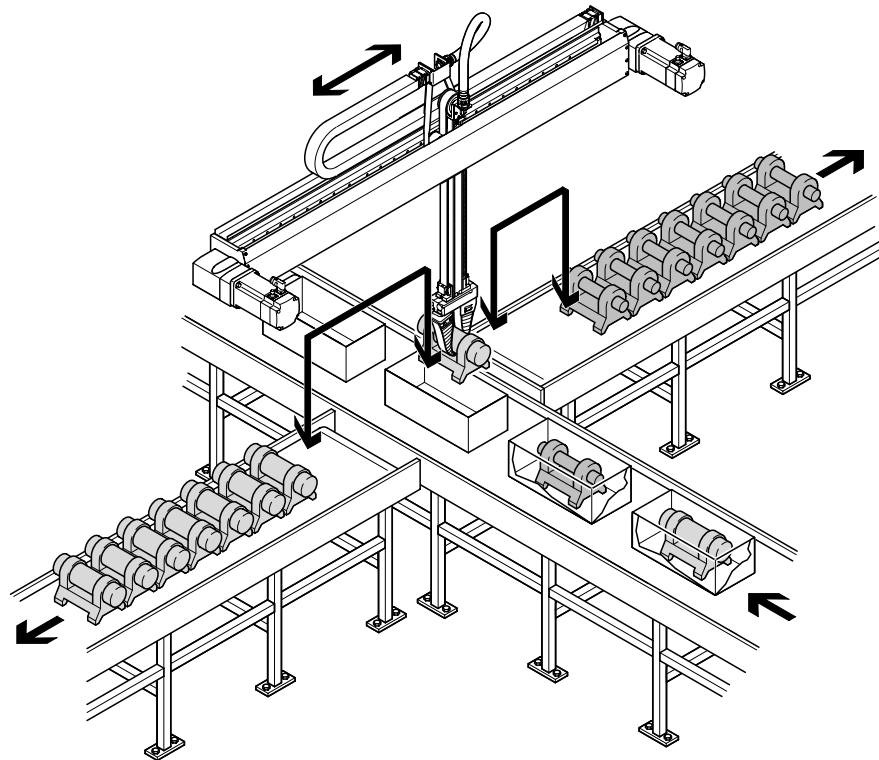
The gripper finger may become slightly deformed over the course of its service life. However, this does not have any influence on the gripper finger's functionality.

## Key features

### Application examples

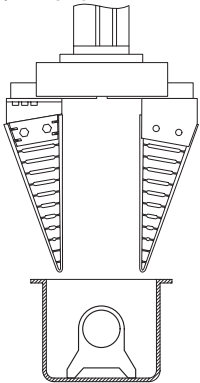
#### Transferring parts from tight packaging

- Different part diameters can be gripped in a form-fitting way with one gripper
- Using standard gripper jaws to grip parts that are tightly packed is difficult
- Thanks to the gripper fingers' pointed shape, they can be slid between the wall and the workpiece, even if the workpiece is off-centre



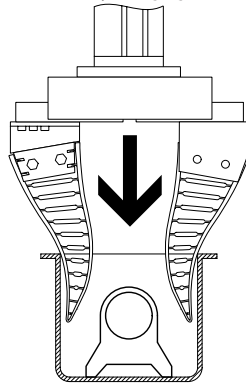
Step 1

Position the gripper fingers above the packaging



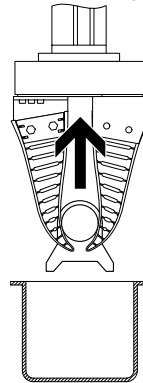
Step 2

Slide the gripper fingers along the inside of the packaging



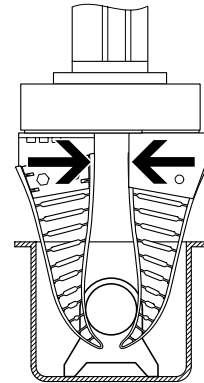
Step 3

Wrap the fingers around the workpiece in a form-fitting way



Step 4

Lift the workpiece

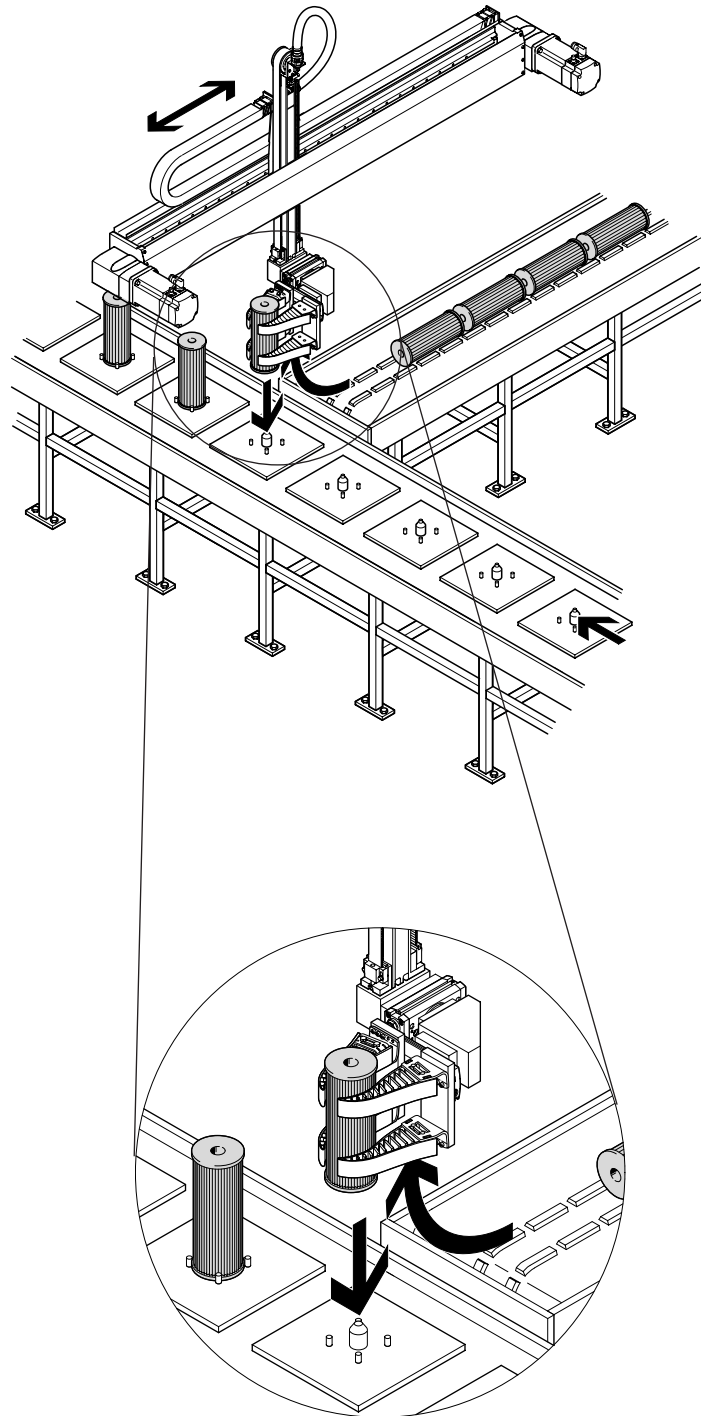


## Key features

### Application examples

Transferring sensitive parts such as filter cartridges

- Sensitive and fragile workpieces can be gripped gently
- Standard gripper jaws can damage workpieces during transfer
- Operating pressure can be adjusted using a proportional valve. This is particularly useful when the gripping force is distributed over several gripper fingers (less surface pressure)

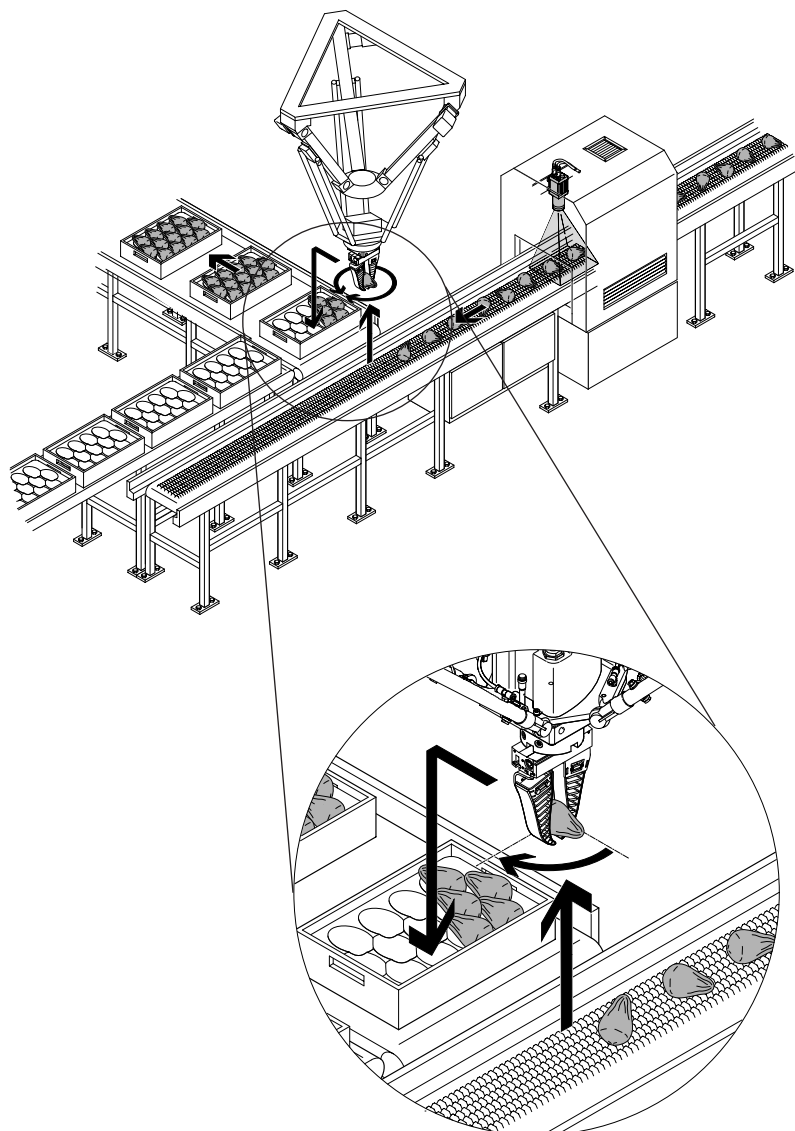


## Key features

### Application examples

Transferring unevenly shaped parts such as avocados

- Differently shaped parts can be gripped in an adaptive and gentle way without any need to change the gripper
- The option of having an internal block to reduce the stroke is particularly suitable if the workpiece forms vary significantly
- By varying the distance between the grippers, both the gripping force and the flex distance (the distance by which the fingers flex if pressed) can be adapted



## Type codes

001	Series
DHAS	Gripper finger

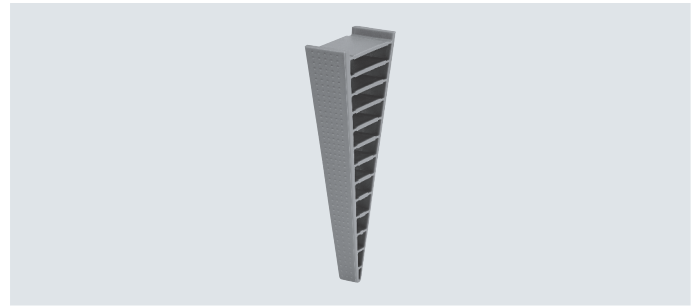
002	Product type
GF	Fin jaw

003	Size
60	60
80	80
120	120

004	Material
U	Polyurethane

005	Colour
BU	Blue

## Datasheet




General technical data				
Size		60	80	120
Mounting position		Any		
Weight				
Gripper fingers	[g]	6.5	13	29
Bracket	[g]	23	38	59
Retaining bracket	[g]	7	13	23
Screws	[g]	2.5	6	7
Clamping jaw materials		TPE-U (PU)		
Note on materials		Free of copper and PTFE		
		RoHS-compliant		

Operating and environmental conditions				
Size		60	80	120
Ambient temperature	[°C]	10 ... 50		
Corrosion resistance class CRC <sup>1)</sup>		2		
Food-safe <sup>2)</sup>		→ Supplementary material information		

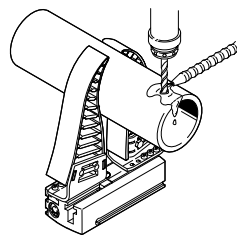
1) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements that are in direct contact with a normal industrial environment.

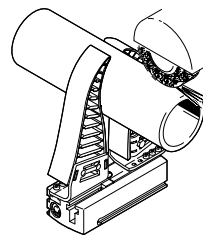
2) More information: [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

 **Note**

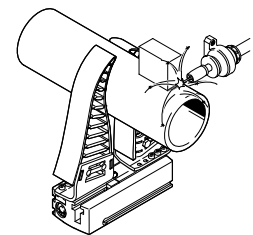
These gripper fingers are not designed for the following or similar examples of use:



- Machining
- Aggressive media



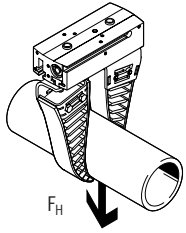
- Grinding dust



- Welding spatter

Datasheet

Max. retention force  $F_H$  as a function of gripping force  $F_G$  (of two gripper fingers) and workpiece diameter at 23 °C



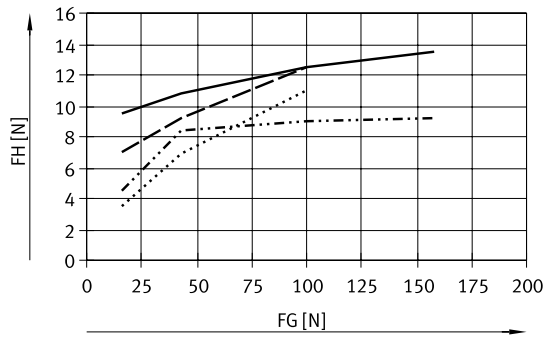
The retention force  $F_H$  is the maximum force that may be applied so that the gripper fingers can still hold the workpiece.

The values were determined under the following conditions:

- With parallel gripper HGPL-14
- Cylindrical workpiece

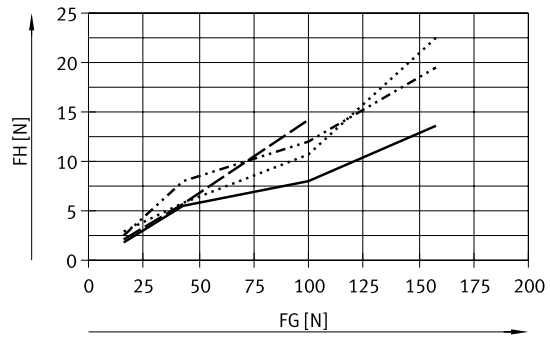
The values may differ under other ambient conditions (additional information on request).

Size 60



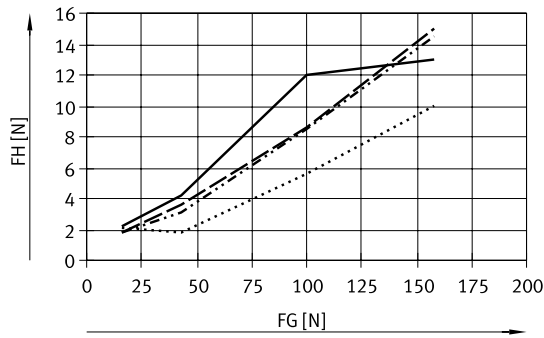
- ∅ 6 mm
- · - · ∅ 20 mm
- - - ∅ 40 mm
- · · ∅ 50 mm

Size 80



- ∅ 40 mm
- · - · ∅ 50 mm
- - - ∅ 70 mm
- · · ∅ 80 mm

Size 120

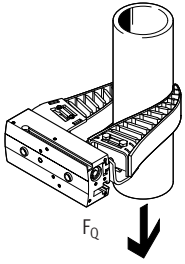


- ∅ 70 mm
- · - · ∅ 80 mm
- - - ∅ 120 mm
- · · ∅ 80 mm



Datasheet

Max. lateral force  $F_Q$  as a function of gripping force  $F_G$  (of two gripper fingers) and workpiece diameter at 23 °C



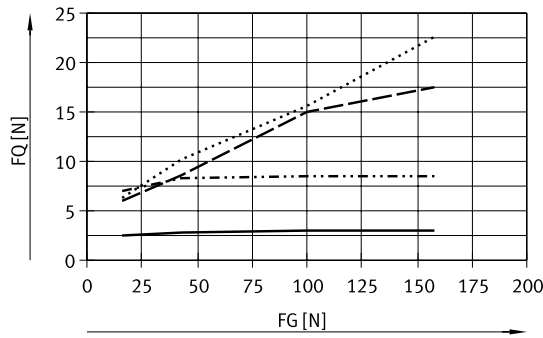
The lateral force  $F_Q$  is the maximum force that may be applied so that the workpiece does not begin to slip.

The values were determined under the following conditions:

- With parallel gripper HGPL-14
- Cylindrical workpiece
- In the middle of the gripper finger (MP2 → page 10)

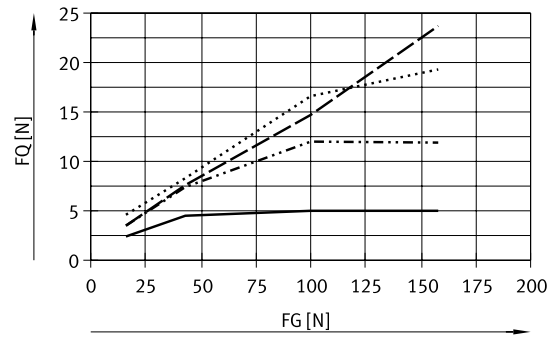
The values may differ under other ambient conditions (additional information on request).

Size 60



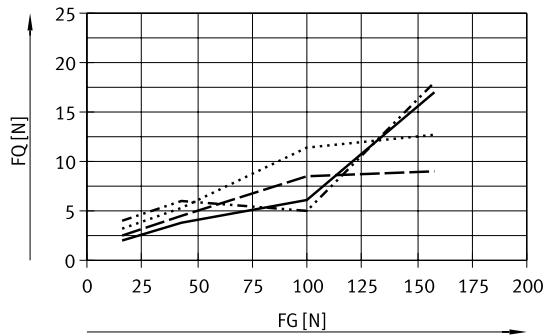
- ∅ 6 mm
- · - · ∅ 20 mm
- - - ∅ 40 mm
- · · ∅ 50 mm

Size 80



- ∅ 40 mm
- · - · ∅ 50 mm
- - - ∅ 70 mm
- · · ∅ 80 mm

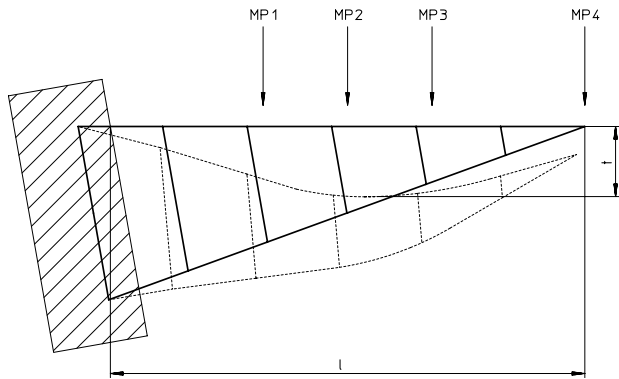
Size 120



- ∅ 70 mm
- · - · ∅ 80 mm
- - - ∅ 120 mm
- · · ∅ 80 mm

Datasheet

Indentation depth  $t$  as a function of gripping force  $F_G$  (per gripper finger) at 23°C



- MP1 Measuring point 1
- MP2 Measuring point 2
- MP3 Measuring point 3
- MP4 Measuring point 4
- l Total length
- t Indentation depth

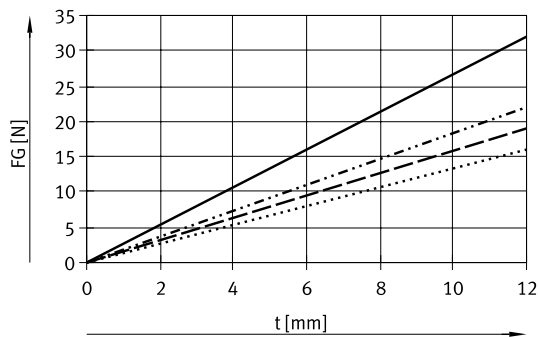
The values may differ under other ambient conditions (additional information on request).

Workpieces are best gripped in the middle of the gripper finger (MP2).

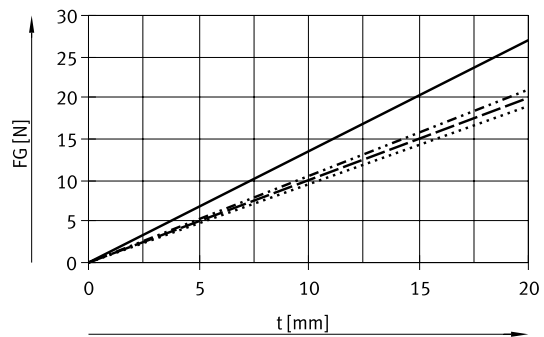
Size	l [mm]	MP1 [mm]	MP2 [mm]	MP3 [mm]	MP4 [mm]
60	50	15	25	35	50
80	80	30	40	50	80
120	115	47.5	57.5	67.5	115

Size	Indentation depth at MP2 [mm]
60	12
80	20
120	30

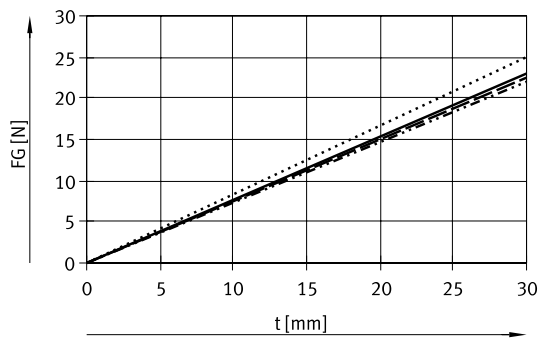
Size 60



Size 80



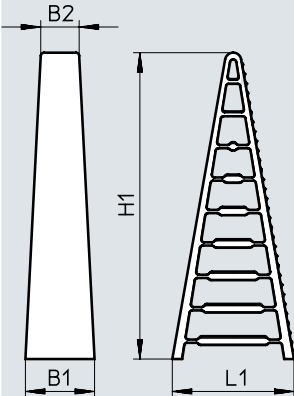
Size 120



- MP1
- - - - - MP2
- - - - - MP3
- ..... MP4

## Datasheet

## Dimensions and ordering data

Download CAD data → [www.festo.com](http://www.festo.com)

Size	B1	B2	H1	L1
60	18	11.8	61.5	26
80	21.3	11.8	94.5	37.5
120	25	11.8	134.5	50

Size	Part no.	Type
60	3998967	DHAS-GF-60-U-BU
80	3998964	DHAS-GF-80-U-BU
120	3998959	DHAS-GF-120-U-BU

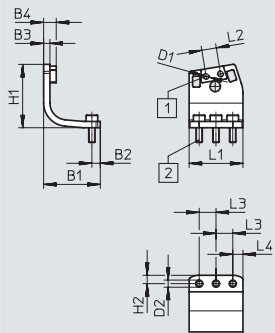
Accessories

Mounting bracket DHAS-MA

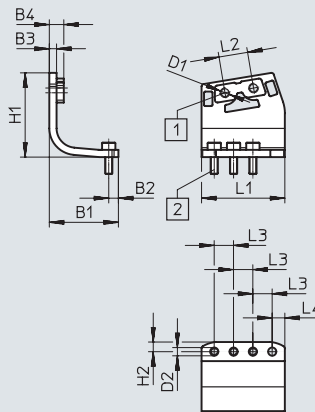


Dimensions and ordering data

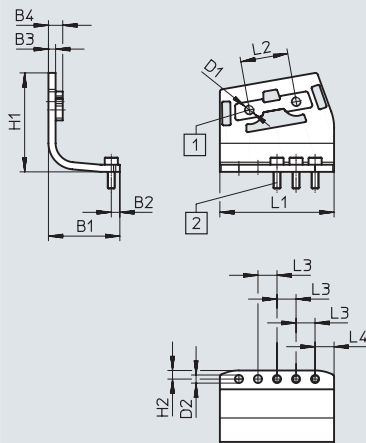
For size 60



For size 80



For size 120



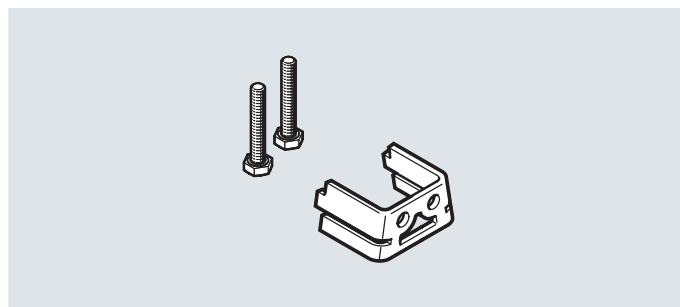
- [1] Insert nut  
for size 60: M3  
for size 80, 120: M4
- [2] Screw M3x8-10.9  
(included in the scope of delivery)

For size	B1	B2	B3 ±0.2	B4 ±0.1	D1	D2 ∅	H1
60	27	4	3	6	M3	3.4	30.3
80	28.6	4	3	6	M4	3.3	35
120	30	3.6	3	6	M4	3.4	41.7

For size	H2	L1	L2 ±0.1	L3 ±0.1	L4	Part no.	Type
60	4	25.7	7	8	4.85	3920696	DHAS-MA-B6-60
80	4	34.5	12	8	5.25	3899099	DHAS-MA-B6-80
120	3.6	48	20	8	7.9	3889257	DHAS-MA-B6-120

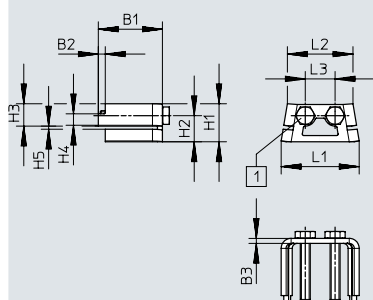
## Accessories

### Mounting kit DHAS-ME

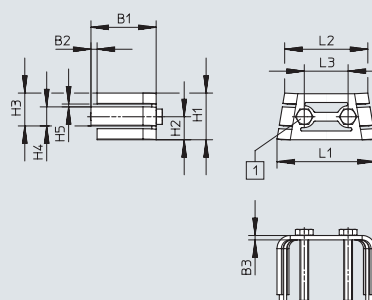


#### Dimensions and ordering data

For sizes 60 and 80



For size 120



- [2] Screw (included in the scope of delivery)  
 for size 60: ISO 4017-M3x22-A2-70  
 for size 80: ISO 4017-M4x25-A2-70  
 for size 120: ISO 4017-M4x30-A2-70

For size	B1	B2	B3 ±0.1	H1	H2	H3	H4
60	22.8	2.8	2	10.3	6.7	7	3.6
80	25.8	2.8	2	15.3	10.5	9	4.6
120	29.8	2.8	2	21.3	10.5	15	8.7

For size	H5 +0.1	L1	L2	L3 ±0.1	Part no.	Type
60	1.3	20.7	17.4	7	4464306	DHAS-ME-H9-60
80	1.3	31.4	26.4	12	4463570	DHAS-ME-H9-80
120	1.3	44.9	38	20	4461433	DHAS-ME-H9-120

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