

## Soft gripper HPSX

**FESTO**



## Characteristics

### At a glance

[Link ↗ hpsx](#)

With its soft fingers, the soft gripper HPSX is specifically designed to gently grip delicate objects such as fruit or luxury items. It adapts flexibly to different shapes and geometries. The gripper is used in the food and packaging industries as well as in other sectors where sensitive and differently shaped objects need to be handled reliably.

- Soft fingers for gently gripping sensitive objects
- Food safety thanks to food contact materials (FDA) and IP69K certification
- Less machine downtime, maintenance and cleaning effort thanks to the clean design and simple installation
- Flexible gripper thanks to the different sizes and number of gripper fingers
- Collaborative: Suitable for use on cobots and industrial robots thanks to its soft design
- Quick and easy to install thanks to ISO-standardised interface ISO50 with defined positioning

### Engineering tools

[Link ↗ engineering tools](#)



Save time with engineering tools: Smart engineering for the optimal solution. Our goal is to increase your productivity. Our engineering tools play an integral part in achieving this goal. They help you size your system correctly, tap into unimagined productivity reserves and generate additional productivity along the entire value chain. In every phase of your project, from the initial contact to the modernisation of your machine, you will come across a number of different tools that will be of use to you.

Gripper selection:

- This tool helps you to select the right grippers by simply entering the exact parameters for your application

### Number of fingers

[2] 2 pieces

[3] 3 pieces



[4] 4 pieces



## Characteristics

### Robot connection

[RA50] Flange ISO 9409-1-50-4-M6

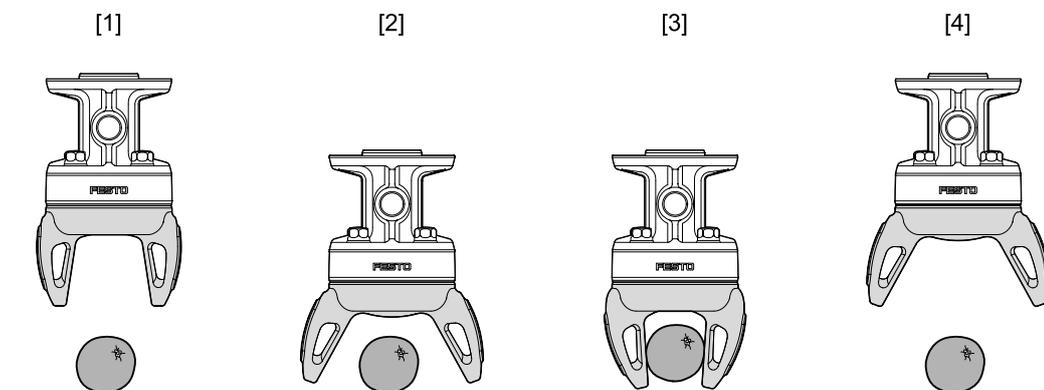
The gripper with robot connection can be quickly integrated in a lightweight robot environment.

The gripper can be connected to a wide range of robots with the ISO 9409-1-50-4-M6 interface. For example, to robots from the manufacturers:

- Universal Robots
- Fanuc
- Hanwha
- Aubo
- Doosan

The scope of delivery of the gripper with robot connection also includes the centring pin required for mounting.

### Overview



Functional principle of the actuation:

[1] Positioning element:

- Move the gripper over the gripped object
- Gripper is exhausted

[2] Open:

- Exhaust the gripper or apply overpressure to open the gripper fingers
- Align the gripper with the gripped object

[3] Gripping:

- Apply low pressure to the gripper to close the gripper fingers
- The gripper fingers adapt flexibly to the shape of the gripped object
- Regulate the vacuum accordingly so that the gripped object is held gently and securely

[4] Setting down:

- Exhaust the gripper or apply overpressure to open the gripper fingers
- Move the gripper away from the gripped object

Type code

001	Series	
HPSX	Soft gripper	

002	Size [mm]	
40	40	
70	70	
100	100	

003	Number of fingers	
2	2 pieces	
3	3 pieces	
4	4 pieces	

004	Material	
S	Silicone	

005	Shore hardness	
40	40	

006	Colour	
BU	Blue	

007	Robot connection	
RA50	Flange ISO 9409-1-50-4-M6	

## Datasheet

### General technical data

The technical data is valid for the following conditions:

Gripping object: Steel ball with smooth, turned surface

Diameter:

- HPSX-40: Ø 30/55 mm
- HPSX-70: Ø 55/80 mm
- HPSX-100: Ø 80/110 mm

Weight:

- HPSX-40: 50 g
- HPSX-70: 200 g
- HPSX-100: 500 g

The values may differ if another type of object needs to be gripped.

Sharp-edged gripped objects can affect the service life of the inverting cap.

Size	40	70	100
Working stroke	0 ... 55 mm	20 ... 90 mm	30 ... 125 mm
Number of gripper fingers	2	3	4
Design	Form-fitting Frictional locking		
Drive system	Pneumatic		
Mode of operation	Double-acting		
Gripper function	Adaptive		
Pneumatic connection	G1/4		
Max. operating frequency of gripper	5 Hz		
Type of mounting	To ISO 9409-1-50-4-M6		
Mounting position	optional		
Min. Ø to be gripped	30 mm	55 mm	80 mm
Max. Ø to be gripped	55 mm	80 mm	110 mm
Total gripping force	5 N	10 N	23 N
Product weight	240 g	318 g	632 g
Shore hardness	A 40 +5		
Colour	Blue		

### Operating and environmental conditions

Size	40	70	100
Operating pressure	-0.085 ... 0.02 MPa		
Operating pressure	-0.85 ... 0.2 bar		
Operating pressure	-12.325 ... 2.9 psi		
Burst pressure of cap	0.06 MPa		
Burst pressure of cap	0.6 bar		
Burst pressure of cap	8.7 psi		
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]		
Ambient temperature <sup>1)</sup>	0 ... 60°C		
Suitable for use with food	See supplementary material information		
Degree of protection	IP69K		
Vibration resistance	Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6		
Corrosion resistance class CRC <sup>2)</sup>	4 - Very high corrosion stress		

1) Observe the application range of the proximity switches

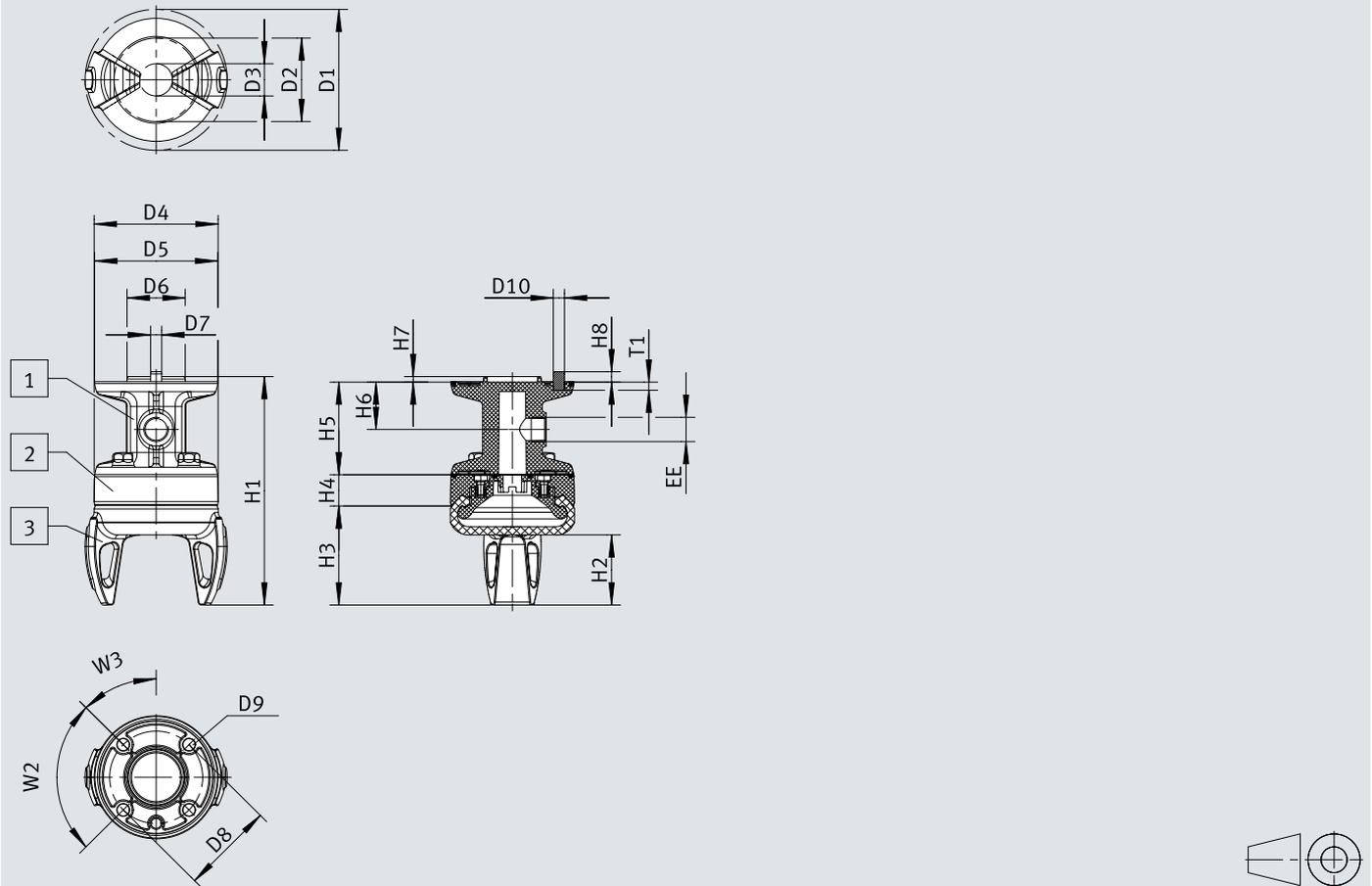
2) More information [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

## Datasheet

Materials			
Size	40	70	100
Material adapter	Reinforced PA		
Material cap	Reinforced PA		
Gripper finger material	VMQ (silicone), metal detectable		
Material screws	Stainless steel		
Note on materials	RoHS-compliant		
LABS (PWIS) conformity	VDMA24364 zone III		

## Dimensions

## Dimensions – Soft gripper HPSX-40

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

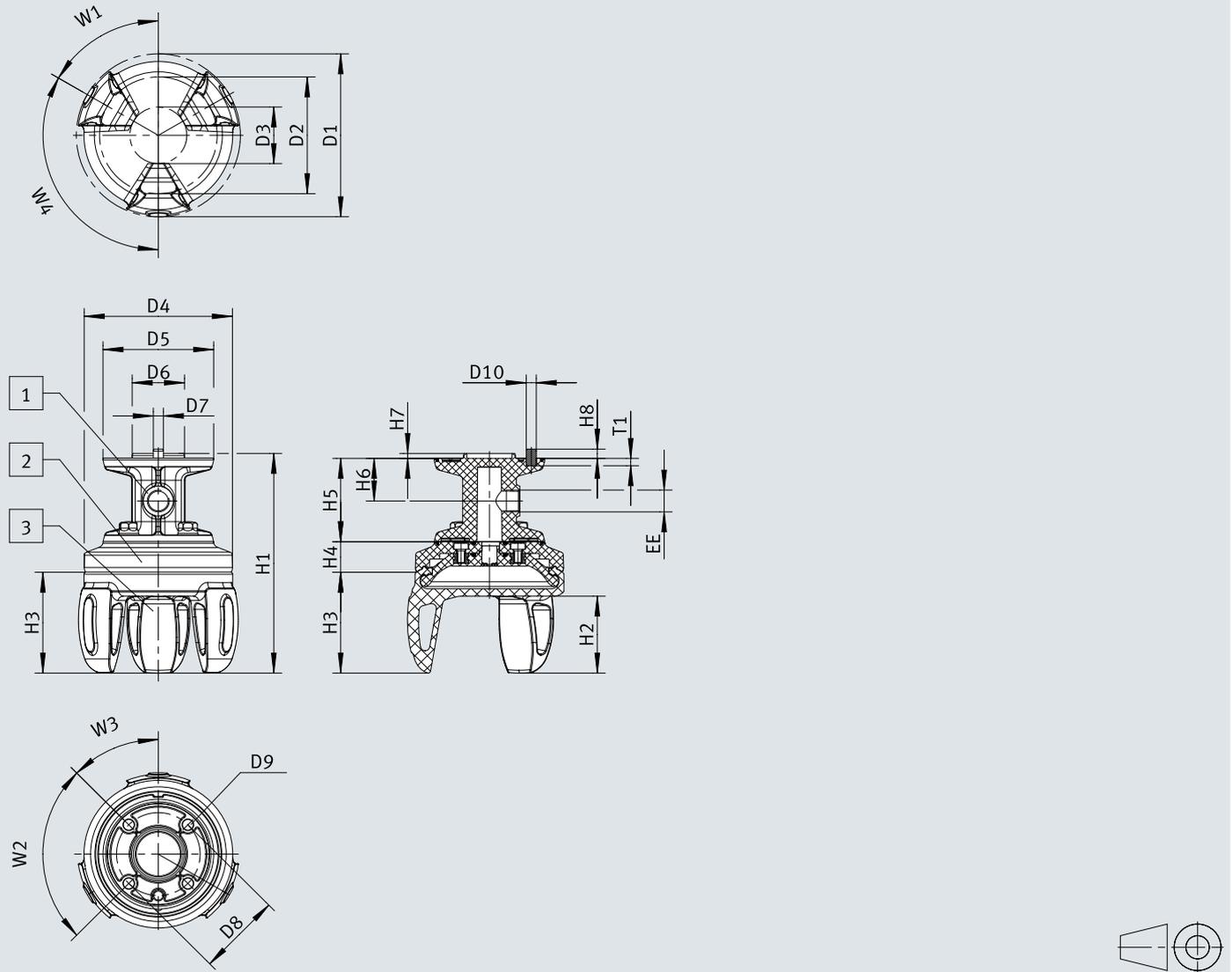
- [1] Adapter kit HAMA-MA-B33-RA50  
 [2] Mounting kit HAMA-MM-B33-...  
 [3] Gripper finger cap HAMA-GA-B33-....S-40-BU

	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	EE
	∅	∅	∅	∅	∅	∅	∅	∅	∅	∅	∅
					-0,4	-0,1	h8		+0,2	+0,05	
HPSX-40-2-S-40-BU-RA50	76,4	45,2	17,5	66,6	66	31,3	6	50	6,5	6	G1/4
	H1	H2	H3	H4	H5	H6	H7	H8	T1	W2	W3
		±0,4			±0,2				+0,1		
HPSX-40-2-S-40-BU-RA50	123,8	38	53,7	17	50,2	25,7	3	5,6	4,4	90°	45°

Dimensions

Dimensions – Soft gripper HPSX-70

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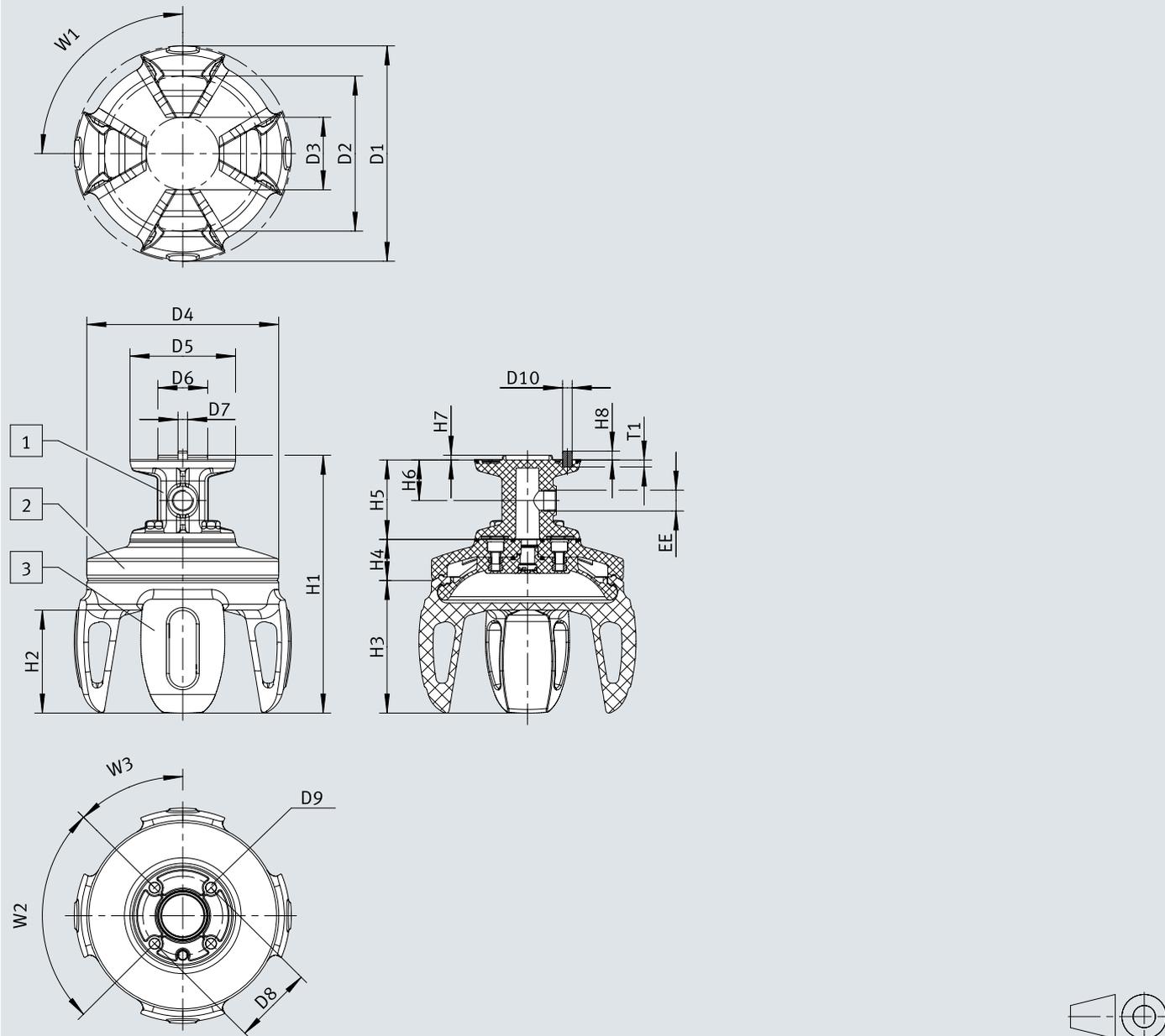


- [1] Adapter kit HAMA-MA-B33-RA50
- [2] Mounting kit HAMA-MM-B33-...
- [3] Gripper finger cap HAMA-GA-B33-.....S-40-BU

	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	EE	H1
	∅	∅	∅	∅	∅	∅	∅	∅	∅	∅		
	±1	±0,5	±0,35		-0,4	-0,1	h8		+0,2	+0,05		
HPSX-70-3-S-40-BU-RA50	98	70	34	89	66	31,3	6	50	6,5	6	G1/4	132,3
	H2	H3	H4	H5	H6	H7	H8	T1	W1	W2	W3	W4
	±0,4			±0,2					+0,1			
HPSX-70-3-S-40-BU-RA50	46,3	60,7	18,4	50,2	25,7	3	5,6	4,4	60°	90°	45°	120°

## Dimensions

## Dimensions – Soft gripper HPSX-100

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

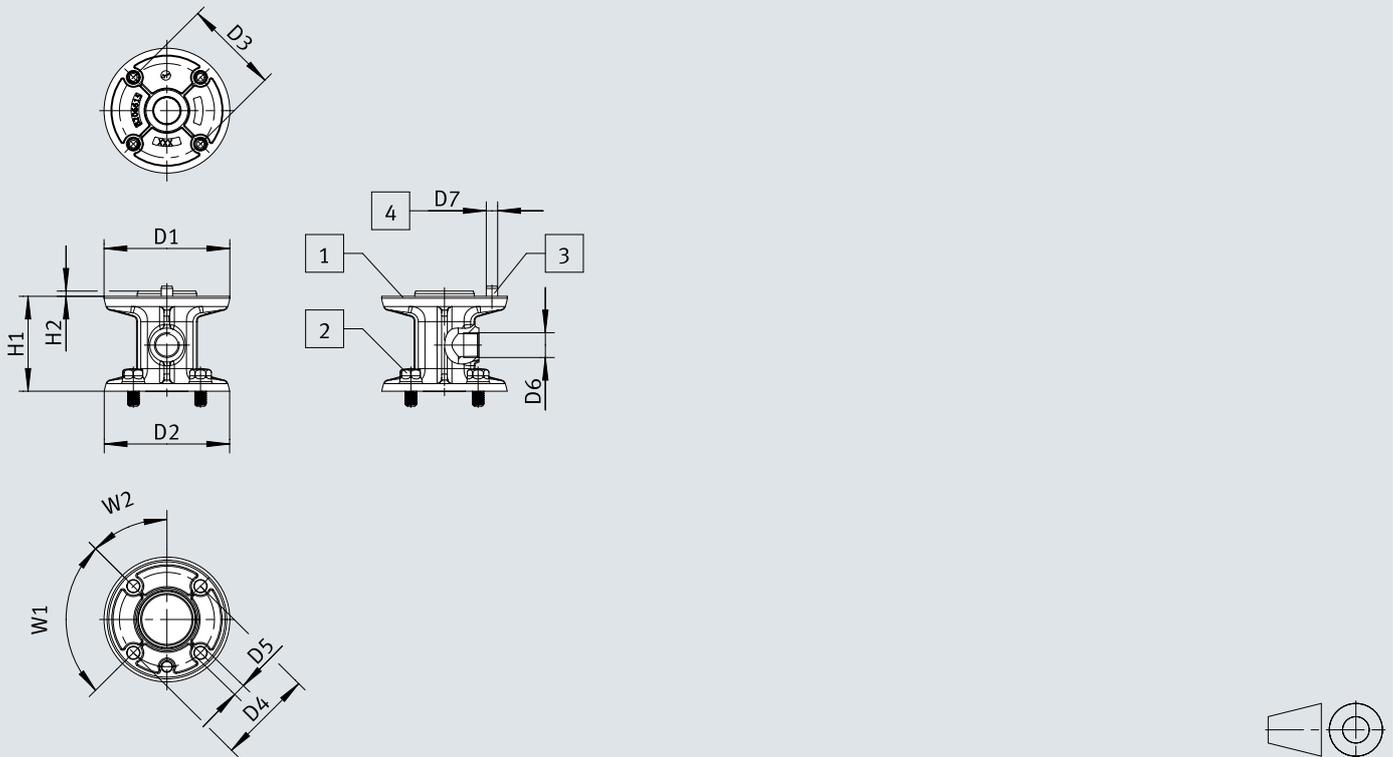
- [1] Adapter kit HAMA-MA-B33-RA50  
 [2] Mounting kit HAMA-MM-B33-...  
 [3] Gripper finger cap HAMA-GA-B33-.....S-40-BU

	D1 ∅ ±0,5	D2 ∅ ±0,5	D3 ∅ ±0,35	D4 ∅	D5 ∅ -0,4	D6 ∅ -0,1	D7 ∅ h8	D8 ∅	D9 ∅ +0,2	D10 ∅ +0,05	EE	H1
HPSX-100-4-S-40-BU-RA50	136	98	46	120	66	31,3	6	50	6,5	6	G1/4	162,9
	H2 ±0,4	H3	H4	H5 ±0,2	H6	H7	H8	T1 +0,1	W1	W2	W3	
HPSX-100-4-S-40-BU-RA50	65	83,7	26	50,2	25,7	3	5,6	4,4	90°	90°	45°	

## Dimensions

### Dimensions – Adapter kit HAMA-MA-B33-RA50

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

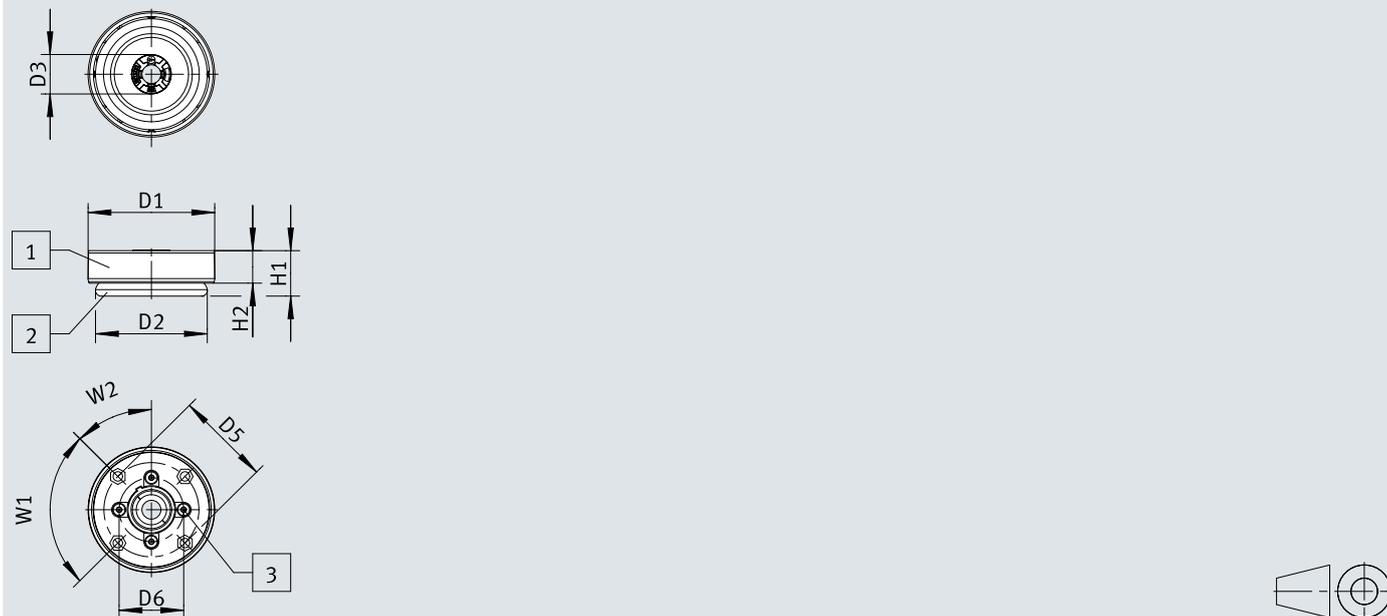


- [1] Seal
- [2] Screw M6x12-A4-70
- [3] Centring pin ISO 2338-6H8x10-A2

	D1	D2	D3	D4	D5	D6	D7	H1	H2	W1	W2
	∅ -0,4	∅ +0,2	∅	∅	∅ +0,2		∅ +0,05	±0,2	-0,1		
HAMA-MA-B33-RA50	66	66	50	50	6,5	G1/4	6	50	3	90°	45°

## Dimensions

## Dimensions – Mounting kit HAMA-MM-B33-40

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

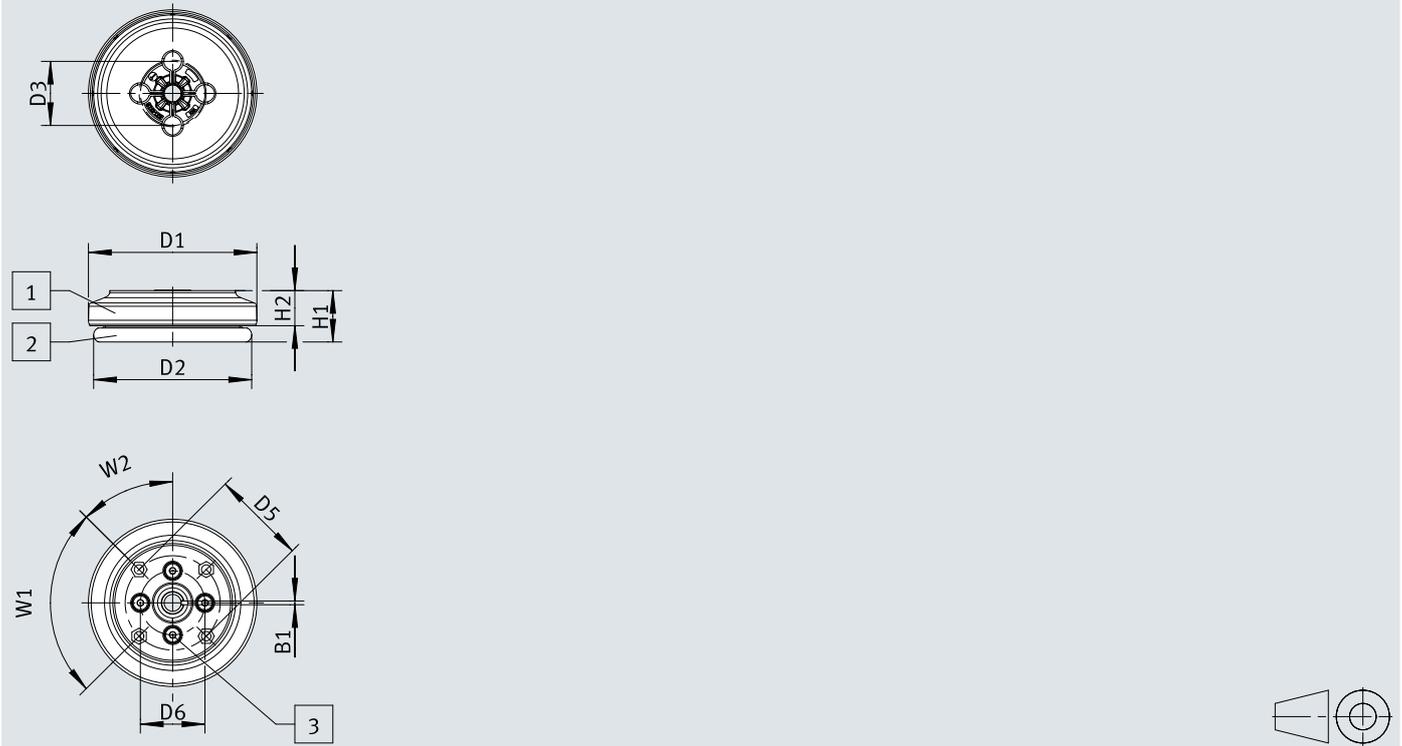
- [1] Cap HAMA-MM-B33-40-C  
 [2] Base plate HAMA-MM-B33-40-B  
 [3] Screw DIN 7984-M4x8-A4-70

	D1 ∅ +0,2	D2 ∅ +0,2	D3 ∅	D5 ∅	D6	H1	H2	W1	W2
HAMA-MM-B33-40	65,6	58,8	20,7	50	34	~24,1	17	90°	45°

## Dimensions

### Dimensions – Mounting kit HAMA-MM-B33-70

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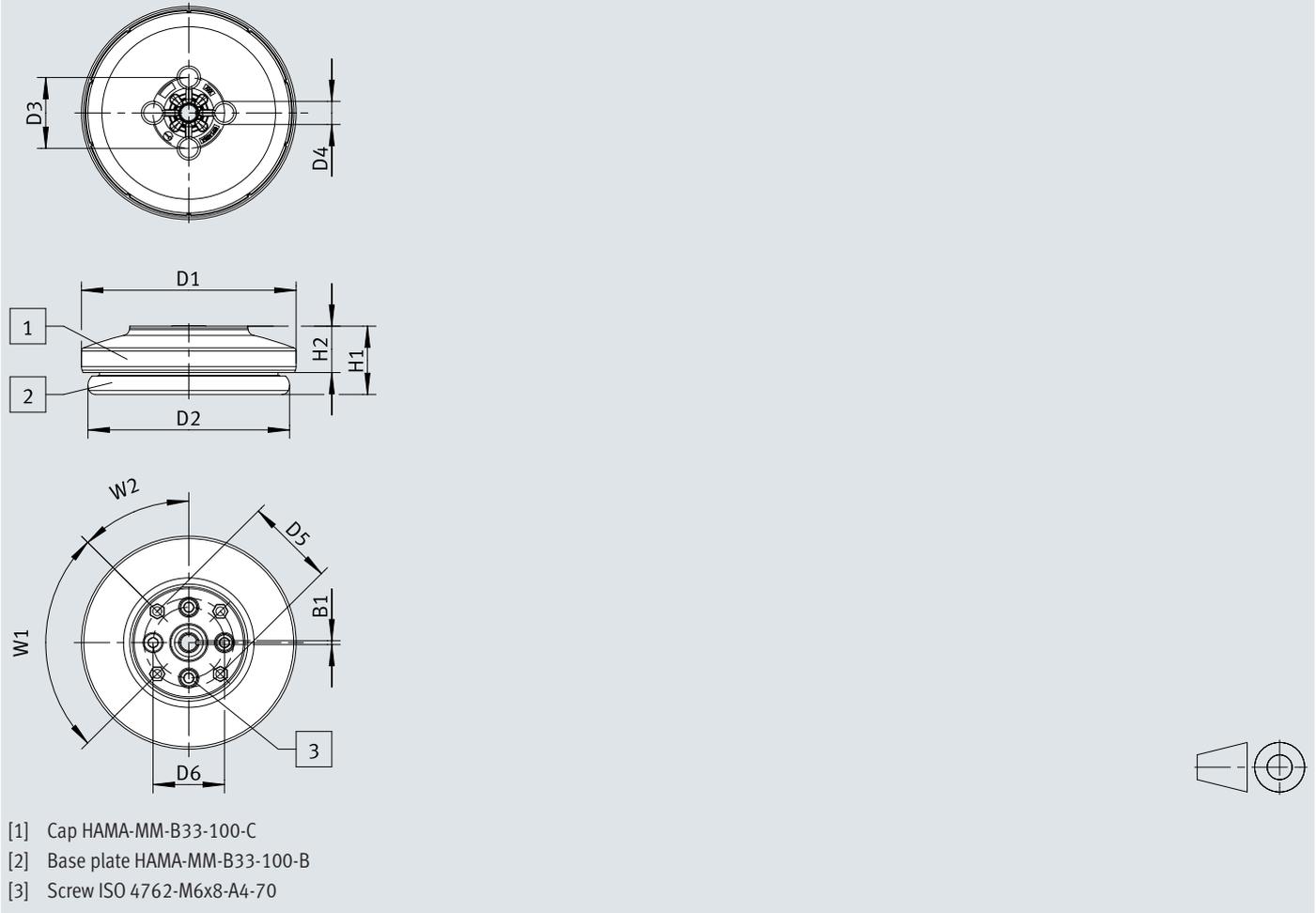


- [1] Cap HAMA-MM-B33-70-C
- [2] Base plate HAMA-MM-B33-70-B
- [3] Screw ISO 7984-M5x8-A4-70

	B1	D1 ∅	D2 ∅	D3 ∅	D5 ∅	D6 ∅	H1	H2	W1	W2
HAMA-MM-B33-70	-0,1	+0,2/-0,1	+0,3	34	50	34	~27,2	18,4	90°	45°

## Dimensions

## Dimensions – Mounting kit HAMA-MM-B33-100

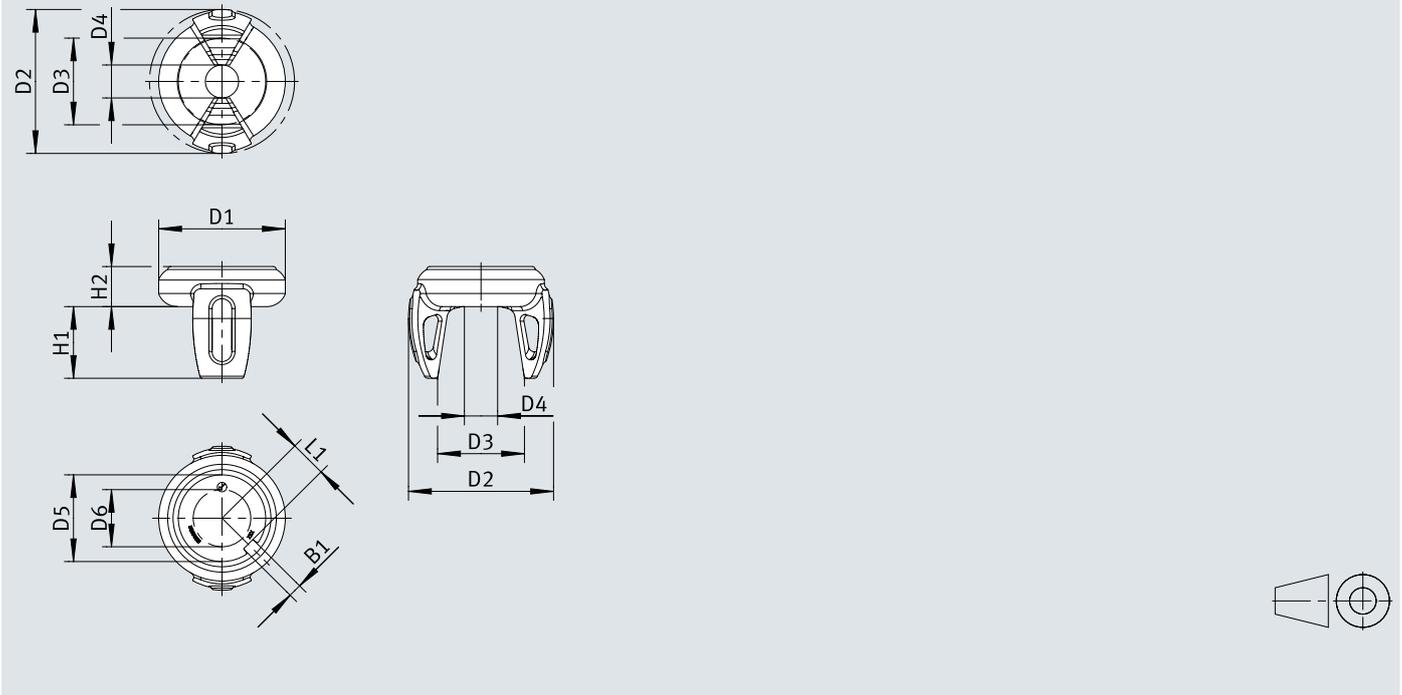
Download CAD data [www.festo.com](http://www.festo.com)

	B1	D1 ∅	D2 ∅	D3 ∅	D4 ∅	D5 ∅	D6 ∅	H1	H2	W1	W2
	-0,1	±0,3	+0,3/-0,1								
HAMA-MM-B33-100	2	120,3	113	40	13,1	50	40	~38,6	26	90°	45°

## Dimensions

Dimensions – Gripper finger cap HAMA-GA-B33-40-2-S-40-BU

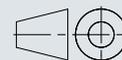
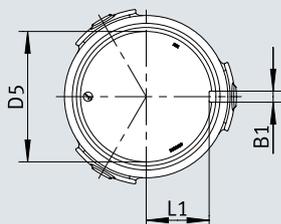
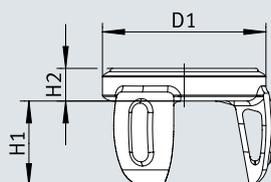
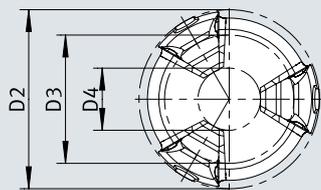
Download CAD data [www.festo.com](http://www.festo.com)



	B1	D1	D2	D3	D4	D5	D6	H1	H2	L1
	±0,15	∅ ±0,4	∅	∅ ±0,35	∅ ±0,2	∅ ±0,35	∅	+0,5	±0,2	±0,2
HAMA-GA-B33-40-2-S-40-BU	6,9	66,7	76,4	46	17,5	46	33	38	21	19,5

## Dimensions

Dimensions – Gripper finger cap HAMA-GA-B33-70-3-S-40-BU

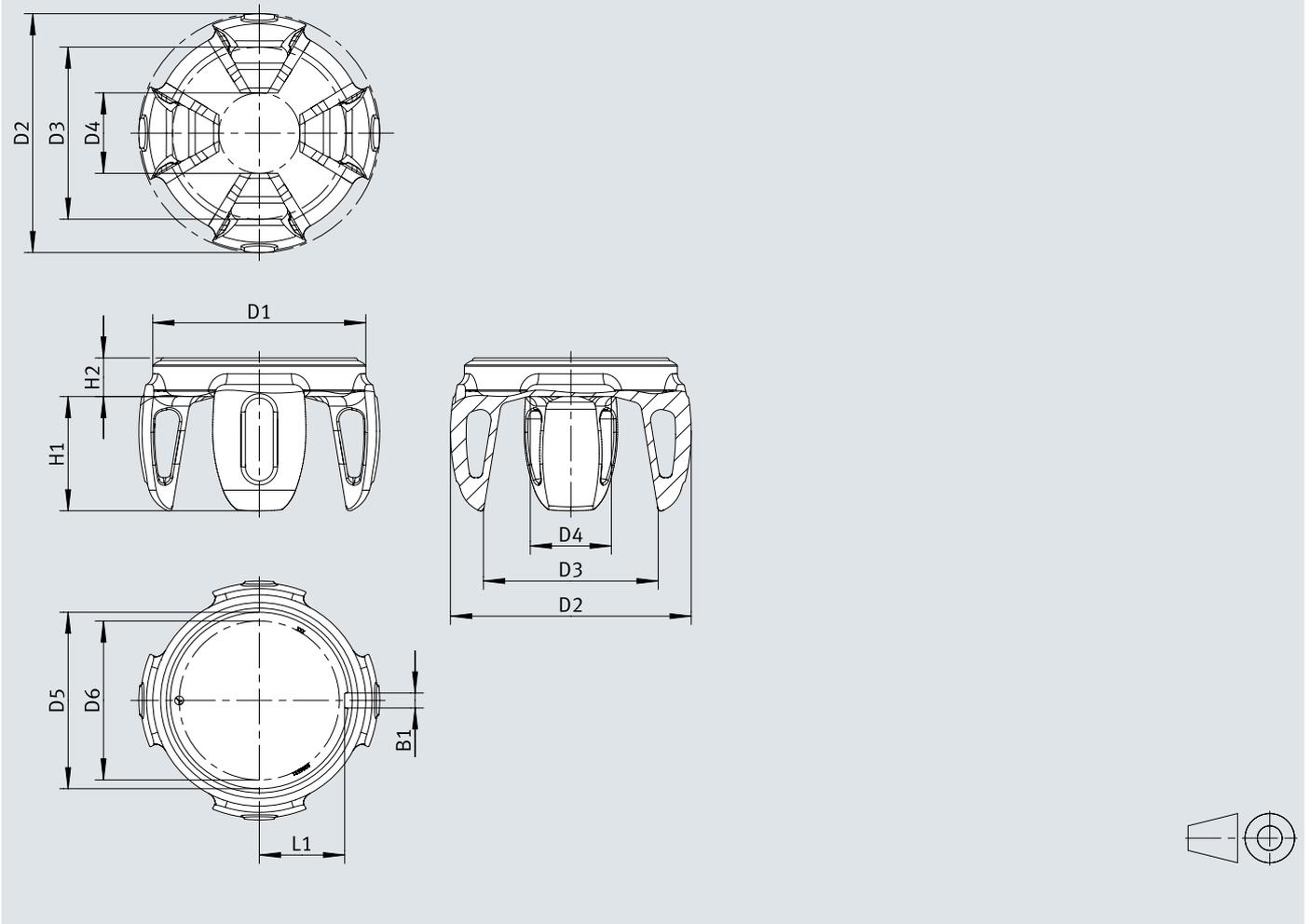
Download CAD data [www.festo.com](http://www.festo.com)

	B1	D1	D2	D3	D4	D5	H1	H2	L1
	±0,15	∅ +1	∅ ±1	∅ ±0,5	∅ ±0,35	∅ +0,1/-0,3	+0,7	+0,2	+0,2/-0,1
HAMA-GA-B33-70-3-S-40-BU	6	89	98	70	34	71,5	46,3	18	34,3

## Dimensions

Dimensions – Gripper finger cap HAMA-GA-B33-100-4-S-40-BU

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



	B1	D1	D2	D3	D4	D5	D6	H1	H2	L1
	±0,15	∅ +0,8	∅ ±0,5	∅ ±0,5	∅ ±0,35	∅ ±0,4	∅	±0,4	+0,4	+0,3/-0,1
HAMA-GA-B33-100-4-S-40-BU	8,4	120,3	136	98	46	100,5	90,5	65	22	48,3

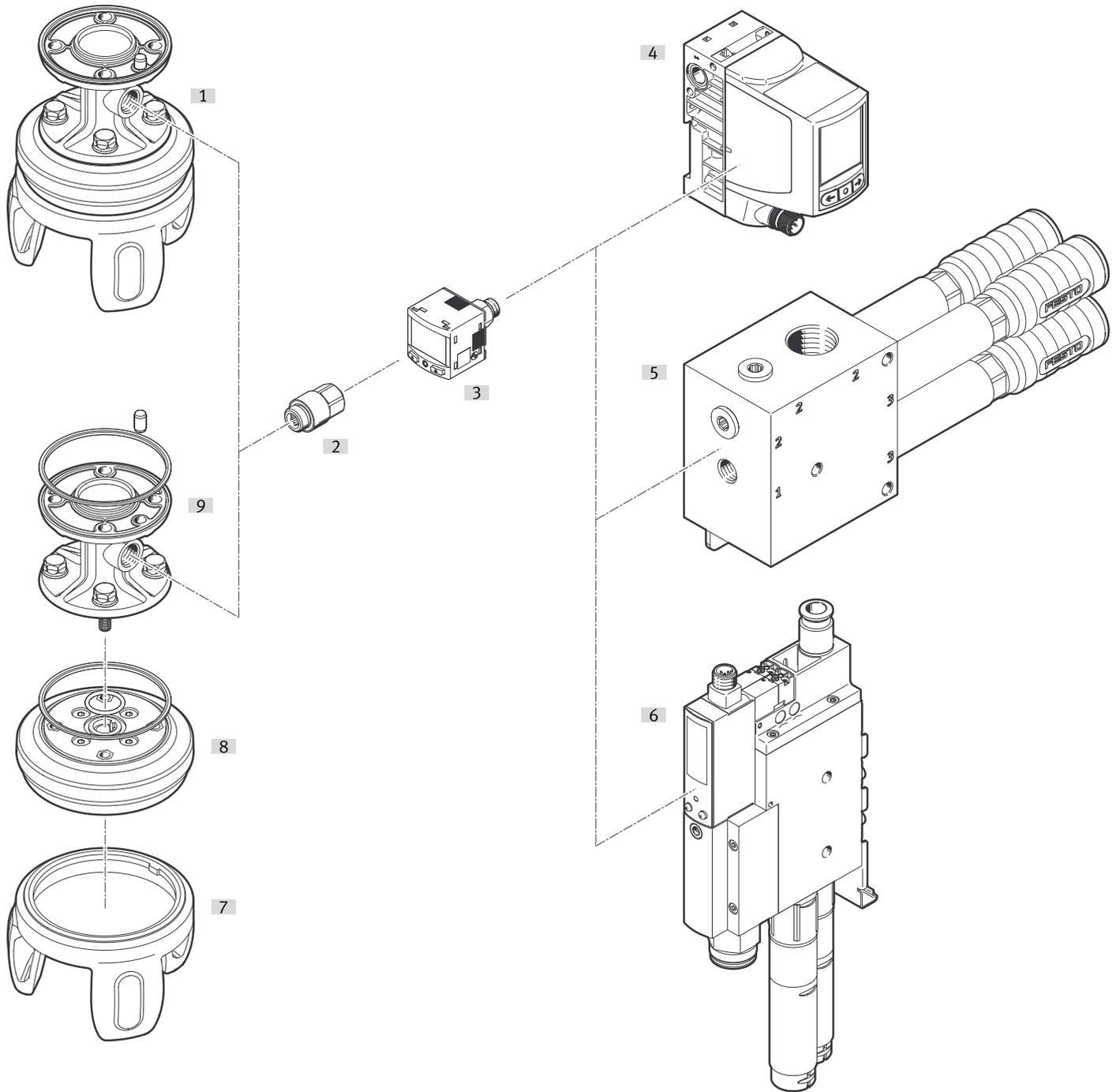
## Ordering data

Soft gripper HPSX						
	Size <sup>1)</sup>	Working stroke	Number of gripper fingers	Robot connection	Part no.	Type
	40	0 ... 55 mm	2	Flange ISO 9409-1-50-4-M6	<b>8207885</b>	<b>HPSX-40-2-S-40-BU-RA50</b>
	70	20 ... 90 mm	3		<b>8207889</b>	<b>HPSX-70-3-S-40-BU-RA50</b>
	100	30 ... 125 mm	4		<b>8207884</b>	<b>HPSX-100-4-S-40-BU-RA50</b>

1) The gripper HPSX is supplied as three individual kits HAMA-MA, HAMA-MM and HAMA-GA. The kits are also available as accessories.

Peripherals

Soft gripper HPSX

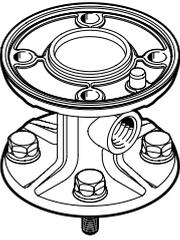


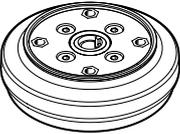
Accessories		→ Link
Type/order code	Description	
[1] Soft gripper HPSX	The gripper HPSX is supplied as three individual kits: • Adapter kit HAMA-MA • Mounting kit HAMA-MM • Gripper finger cap HAMA-GA The kits are also available as accessories.	<a href="#">hpsx</a>
[2] Fitting NPCK	For connecting compressed air tubing with standard O.D.	<a href="#">npck</a>
[2] Push-in fitting stainless steel NPQR	For connecting compressed air tubing with standard O.D.	<a href="#">npqr</a>
[3] Pressure sensor SPAN	To monitor the compressed air	<a href="#">20</a>
[4] Proportional-pressure regulator VPPI	For electronically regulating the compressed air	<a href="#">21</a>
[5] Vacuum generator OVPM	For generating negative pressure	<a href="#">21</a>
[6] Vacuum generator OVEM	For generating negative pressure	<a href="#">21</a>
[7] Gripper finger cap HAMA-GA	Included in the scope of delivery of the gripper HPSX	<a href="#">20</a>

## Peripherals

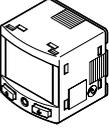
Accessories		→ Link
Type/order code	Description	
[8] Mounting kit HAMA-MM	Included in the scope of delivery of the gripper HPSX	<a href="#">20</a>
[9] Adapter kit HAMA-MA	Included in the scope of delivery of the gripper HPSX	<a href="#">20</a>

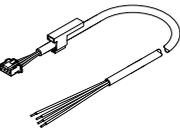
## Accessories

Adapter kit HAMA-MA						
	Description	Type of mounting	Material adapter	Product weight	Part no.	Type
	For size 40, 70, 100	To ISO 9409-1-50-4-M6	Reinforced PA	91 g	<b>8203455</b>	<b>HAMA-MA-B33-RA50</b>

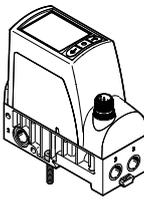
Mounting kit HAMA-MM						
	Description	Material cap	Product weight	Part no.	Type	
	For size 40	Reinforced PA	81 g	<b>8203456</b>	<b>HAMA-MM-B33-40</b>	
	For size 70		113 g	<b>8203464</b>	<b>HAMA-MM-B33-70</b>	
	For size 100		226 g	<b>8203460</b>	<b>HAMA-MM-B33-100</b>	

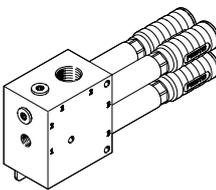
Gripper finger cap HAMA-GA						
	Description	Number of gripper fingers	Gripper finger material	Product weight	Part no.	Type
	For size 40	2	VMQ (silicone), metal detectable	68 g	<b>8203480</b>	<b>HAMA-GA-B33-40-2-S-40-BU</b>
	For size 70	3		114 g	<b>8203485</b>	<b>HAMA-GA-B33-70-3-S-40-BU</b>
	For size 100	4		315 g	<b>8203482</b>	<b>HAMA-GA-B33-100-4-S-40-BU</b>

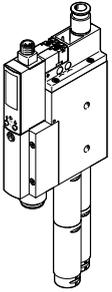
Pressure sensor SPAN <span style="float: right;">Link <a href="#">span</a></span>						
	Pressure measuring range	Analogue output	Setting options	Pneumatic connection	Part no.	Type
	-1 ... 1 bar	0 - 10 V 4 - 20 mA 1 - 5 V	IO-Link® Teach-in Via display and keys	Male thread G1/8 Female thread M5	<b>8035534</b>	<b>SPAN-B2R-G18M-PNLK-PNVBA-L1</b>

Connecting cables NEBS, straight						
	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	Connection pattern L1J	Open end	4	2.5 m	<b>572576</b>	<b>NEBS-L1G4-K-2.5-LE4</b>
				5 m	<b>572577</b>	<b>NEBS-L1G4-K-5-LE4</b>

## Accessories

Proportional-pressure regulator VPPI						Link <a href="#">vppi</a>
	Pressure regulation range	Signal range analogue output	Valve function	Operator unit/interface	Part no.	Type
	-1 ... 1 bar	0 - 10 V	3-way proportional pressure regulator	Display	<b>8104673</b>	<b>VPPI-5L-3-G18-1V1H-V1-S1D</b>

Vacuum generator OVPN						Link <a href="#">ovpn</a>
	Grid dimension	Nominal size, Laval nozzle	Design	Part no.	Type	
	60 mm	2.6 mm	Vacuum generator, 3-stage	<b>8199150</b>	<b>OVPN-26-L3-PG14-G34-UA</b>	

Vacuum generator OVEM						Link <a href="#">ovem</a>
	Grid dimension	Nominal size, Laval nozzle	Design	Part no.	Type	
	20 mm	0.95 mm	Modular	<b>8037699</b>	<b>OVEM-10-H-B-QO-CE-N-1PD</b>	

Connecting cables NEBA, straight						
	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	M12x1, A-coded to EN 61076-2-101	Open end	5	2.5 m	<b>8078242</b>	<b>NEBA-M12G5-U-2.5-N-LE5</b>
				5 m	<b>8078243</b>	<b>NEBA-M12G5-U-5-N-LE5</b>

Accessories

Connecting cables NEBA, angled						
	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	M12x1, A-coded to EN 61076-2-101	Open end	5	2.5 m	<b>8078251</b>	<b>NEBA-M12W5-U-2.5-N-LE5</b>
				5 m	<b>8078252</b>	<b>NEBA-M12W5-U-5-N-LE5</b>