

# Adaptive gripper DHDG

FESTO



## Unique!

### Highlights

- SoftGrip: gentle gripping with positive locking
- Versatile: gripper fingers adapt to different shapes and contours
- Economical: 80% less weight than comparable series-produced grippers
- Optimised: Compact design, double-acting cylinder and interchangeable gripper fingers
- Durable: innovative production method for long service life

**Innovative: All-in-one bionic gripping solution with minimum weight for highly dynamic response. With individual bionic gripper fingers for gentle, flexible gripping.**

The adaptive gripper DHDG consists of a pneumatic drive and three gripper fingers with Fin Ray Effect®, derived from the movement of a fish's tail fin. The structure is based on two flexible bands which come together at one end to form a triangle. Intermediate struts at regular intervals are connected to the bands via joints. This flexible but firm design allows the gripper fingers to adjust to a workpiece's shape.

The bionic gripper is produced using the selective laser sintering process, in which 0.1 mm thin layers of polyamide powder are successively applied and fused into a solid component.

- Perfect for safe and damage-free gripping of fragile and irregularly shaped workpieces or goods.
- Minimum pressure on gripping surfaces – ideal for pressure-sensitive components or goods.



DEUTSCHER ZUKUNFTSPREIS  
Preis des Bundespräsidenten  
für Technik und Innovation

Fin Ray Effect® is a trademark of EvoLogics GmbH, Berlin



Gentle



Powerful



Flexible

[www.festo.com](http://www.festo.com)

## Technical data

### Grippers

	DHDG-W-60	DHDG-W-80	DHDG-W-100
Opening angle (adjustable)	-8° ... 29°	0° ... 29°	-6° ... 40°
Air connection	Combination rear/lateral		
Max. working pressure	8 bar		
Gripper weight	130 g	150 g	460 g
Temperature range	5 ... 60 °C		
Food compatibility	Gripper unpainted: Yes (2002/72/EC, non-alcoholic foodstuffs) Cylinder: No		
Gripper material	PA2200		
Medium	Filtered, lubricated or unlubricated compressed air (LX1)		
Mounting position	Any		
PWIS	Free		



### Finger

				DHDG-W-60	DHDG-W-80	DHDG-W-100
Length	Type of gripper finger	Band thickness	Max. workpiece weight [kg]	Workpiece diameter [mm]		
45 mm	DHAS-GF-B15-45-7	Soft 0.7 mm	0.2	5 ... 40	40 ... 60	70 ... 110
	DHAS-GF-B15-45-9	Medium 0.9 mm	0.3			
	DHAS-GF-B15-45-11	Hard 1.1 mm	0.4			
85 mm	DHAS-GF-B15-85-7	Soft 0.7 mm	0.7	9 ... 60	40 ... 80	65 ... 130
	DHAS-GF-B15-85-9	Medium 0.9 mm	0.9			
	DHAS-GF-B15-85-11	Hard 1.1 mm	1.4			
125 mm	DHAS-GF-B15-125-7	Soft 0.7 mm	0.4	11 ... 80	40 ... 100	55 ... 160
	DHAS-GF-B15-125-9	Medium 0.9 mm	0.7			
	DHAS-GF-B15-125-11	Hard 1.1 mm	1.0			



Additional sizes and max. workpiece weights on request

Price and delivery time on request

### Innovation meets standard parts: adaptive gripper finger and series-produced gripper combined

Thanks to the standardised interface, the gripper fingers can be easily combined, via adapters, with the common series-produced grippers from Festo. As a result, smooth and adaptive gripping is also possible

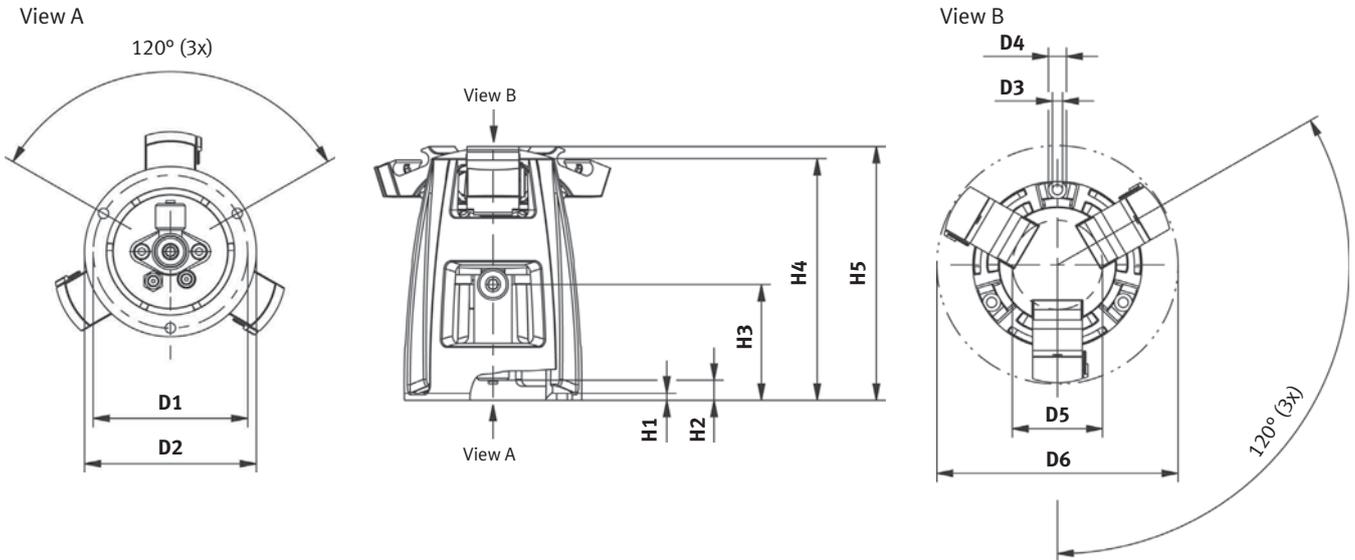
with existing gripper solutions and under tough operating conditions.

#### Suitable gripper types:

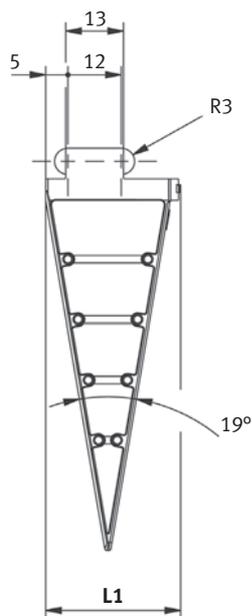
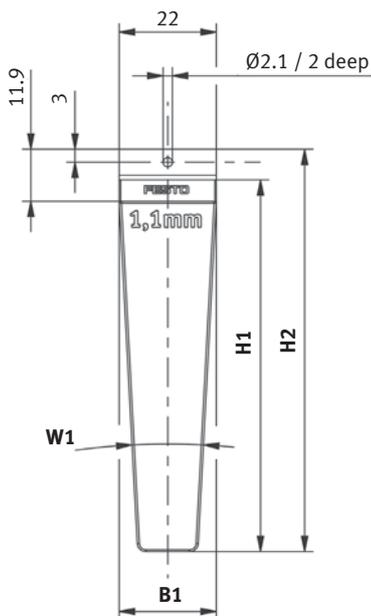
- Parallel gripper HGPT
- Long-stroke gripper HGPL
- Three-point gripper HGDT
- Radial/angle gripper HGRC/HGWC
- Parallel gripper HGPC



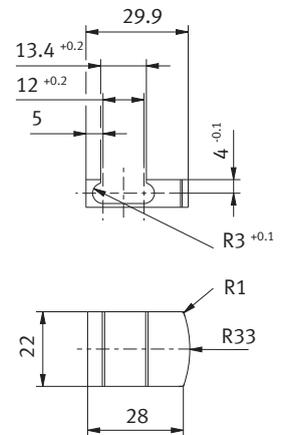
## Dimensions



Gripper	ØD1	ØD2	ØD3 (3x)	ØD4 (3x)	ØD5	ØD6	H1	H2	H3	H4	H5
DHDG-W-60	67.4	75	4.5	8	20	87	3	8.6	49.5	103.1	111.3
DHDG-W-80	67.4	75	4.5	8	40	107	3	8.6	49.5	103.1	108.3
DHDG-W-100	112	124	6.6	11	80	144	4	18.3	79.1	153	161

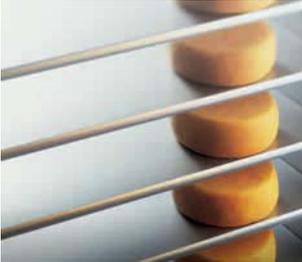


### Receiving profile of the gripper finger (all 3 sizes)



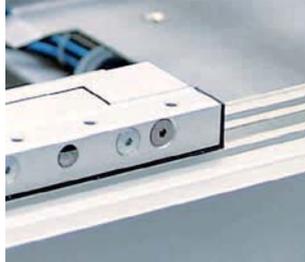
Gripper finger	B1	H1	H2	L1 max	W1
DHAS-GF-B15-45-xx	13	44.9	51.9	30.4	8°
DHAS-GF-B15-85-xx	22	84.9	91.9	30.4	6°
DHAS-GF-B15-125-xx	30	124.9	131.9	44.4	6°

## Scopes of application



### Food

Fruit, vegetables, bread, muffins, fish, meat, cheese, salad, etc.



### Mechanical engineering

Parts supply, assistance at manual workstations, human-machine cooperation



### Sorting tasks

Sorting products of different sizes and shapes, such as flower bulbs, potatoes, oranges, eggs, bottles etc.



### Man-machine interaction

Auxiliary and support systems in health care and other services

## Customer application



### Sorting and repositioning chocolate eggs

In a sorting station, chocolate eggs wrapped in aluminium foil are to be repositioned in an egg carton. In addition to short cycle times, soft and flexible gripping is especially important.

Thanks to the very low weight of the gripper, very short cycle times can be achieved. Despite the required high acceleration, the bionic gripper fingers hold the eggs securely. They wrap all the way around the contour of chocolate egg without crushing it or damaging its aluminium foil packaging.

### Federico Nardone, engineer for the Italian system integrator Fluidodinamica:

“The flexible structure of the adaptive gripper even makes it possible to grip the eggs when they are at an angle or incorrectly positioned.”

### Additional variants:

- Adaptive gripper with 4 gripper fingers for gripping long workpieces.
- Customer-specific gripper variants
- Gripper fingers for large extraction forces or lateral forces
- Gripper fingers with special surface structures
- Extremely compact gripper fingers



### Winner of the 2010 German Future Award

**Trend setting:**  
the Bionic Handling Assistant.

Already available in our product range: many innovative products, like the adaptive gripper DHDG.

### Convinced? We look forward to hearing from you!

### Festo AG & Co. KG

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