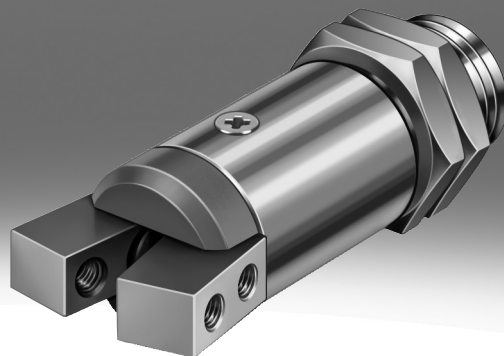


## Angle gripper HGWM

**FESTO**



## Characteristics

### At a glance

[Link](#) [hgwm](#)

- Small and handy designs
- Choice of open or closed gripper jaws
- Versatile thanks to externally adaptable gripper fingers
- Wide range of adaptation options on the drives
- With stroke compensation when installed

Mounting options, choice of:

- Flange
- Thread
- Clamping shaft

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

- Machining
- Aggressive media
- Grinding dust
- Welding spatter

### 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 this. 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 which 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

### Gripper function

[E0] Single-acting, open



[EZ] Single-acting, closed



### Mounting method

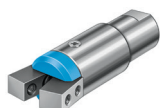
[G6] Flange with stroke compensation



[G7] Thread



[G8] Clamping shaft



Type code

001	Series
<b>HGWM</b>	Angle gripper, micro

002	Size [mm]
<b>8</b>	8
<b>12</b>	12

003	Gripper function
<b>E0</b>	Single-acting, open
<b>EZ</b>	Single-acting, closed

004	Mounting method
<b>G6</b>	Flange with stroke compensation
<b>G7</b>	Thread
<b>G8</b>	Clamping shaft

## Datasheet

### General technical data

Size	8	12
Design	Wedge-shaped drive	
Mode of operation	Single-acting Closed Open	
Gripper force back-up	None	
Gripper function	Angle	
Drive system	Pneumatic	
Number of gripper jaws	2	
Pneumatic connection	M3	
Repetition accuracy, gripper <sup>1)</sup>	≤0.02 mm	
Max. operating frequency of gripper	4 Hz	
Position detection	Without	
Type of mounting	Clamped Via female thread Via lock nut	

1) End-position drift under constant operating conditions with 100 consecutive strokes in the direction of movement of the gripper jaws.  
The indicated values are only valid when gripping with compressed air, not when gripping with spring force.

### Opening angle

Size	8	12		
Mode of operation	Single-acting, Closed	Single-acting, Open	Single-acting, Closed	Single-acting, Open
Max. opening angle	14 deg	17 deg	14 deg	18.5 deg

### Spring return force

Size	8	12		
Mode of operation	Single-acting, Closed	Single-acting, Open	Single-acting, Closed	Single-acting, Open
Spring return moment <sup>1)</sup>	0.6 Ncm	0.5 Ncm	1.5 Ncm	1.3 Ncm

1) Spring return force between the gripper jaws

### Operating and environmental conditions

Size	8	12
Operating pressure	2 ... 8 bar	
Operating medium	Compressed air to ISO 8573-1:2010 [7:-:-]	
Ambient temperature	5 ... 60°C	
Corrosion resistance class CRC <sup>1)</sup>	2 - Moderate corrosion stress	

1) More information: visit [www.festo.com/x/topic/kbk](http://www.festo.com/x/topic/kbk)

### Weight

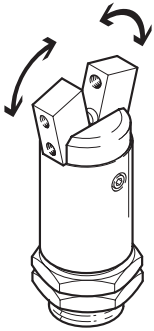
Size	8	12				
Mounting method	Flange with stroke compensation	Thread	Clamping shaft	Flange with stroke compensation	Thread	Clamping shaft
Product weight	23 g	14 g	13 g	75 g	52 g	45 g

### Materials

Size	8	12
Material housing	High-alloy stainless steel	
Material gripper jaws	High-alloy steel	
Material cover cap	POM	
Note on materials	RoHS-compliant	
LABS (PWIS) conformity	VDMA24364-B2-L	

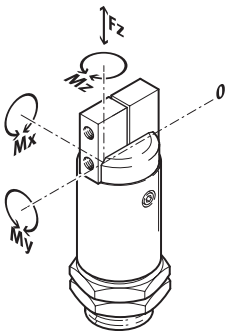
Datasheet

Gripping torque



Size	8		12	
Mode of operation	Single-acting, Closed	Single-acting, Open	Single-acting, Closed	Single-acting, Open
Total gripper torque, closing, 0.6 MPa (6 bar, 87 psi)	–	22 Ncm	–	64 Ncm
Total gripping torque at 0.6 MPa (6 bar, 87 psi), opening	24 Ncm	–	76 Ncm	–

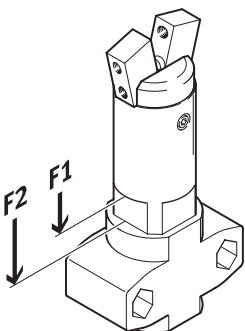
Characteristic load values on the gripper jaws



The indicated permissible forces and torques refer to one gripper jaw. They include the lever arm, additional applied loads created by the workpiece or by external gripper fingers and acceleration forces occurring during the movement. The zero coordinate line (guide of the gripper jaws) must be taken into account when calculating the torques.

Size	8	12
Max. force on gripper jaw Fz static	7 N	20 N
Max. torque at gripper Mx static	20 Ncm	40 Ncm
Max. torque at gripper My static	20 Ncm	40 Ncm
Max. torque at gripper Mz static	20 Ncm	40 Ncm

Spring displacement forces



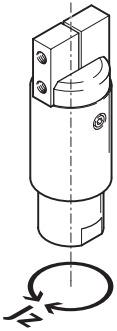
Theoretical actuating force of the stroke compensation for the design variant with stroke compensation.

Size	8	12
Spring force of stroke compensator <sup>1)</sup>	4 N; 6 N	10 N; 23 N

<sup>1)</sup> Spring displacement forces F1; spring displacement forces F2

## Datasheet

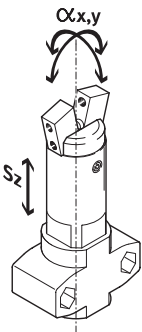
### Mass moments of inertia



Mass moment of inertia of the gripper in relation to the central axis, without external gripper fingers, with no load.

Size	8			12		
Mounting method	Flange with stroke compensation	Thread	Clamping shaft	Flange with stroke compensation	Thread	Clamping shaft
Mass moment of inertia	70.5 kgcm <sup>2</sup>	31.5 kgcm <sup>2</sup>	25.2 kgcm <sup>2</sup>	421 kgcm <sup>2</sup>	267 kgcm <sup>2</sup>	215.4 kgcm <sup>2</sup>
Mass moment of inertia per external gripper finger	250 kgcm <sup>2</sup>			560 kgcm <sup>2</sup>		
Max. mass per external gripper finger	400 g			1,000 g		

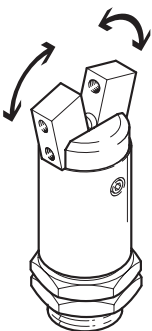
### Gripper jaw backlash



Because of the plain-bearing guide used in the grippers, there is backlash between the gripper jaws and the guide element. The backlash values listed in the table have been calculated based on the traditional accumulative tolerance method and do not normally occur on the mounted grippers.

Size	8	12
Max. gripper jaw backlash $S_z$	0.03 mm	
Max. angular gripper jaw backlash $\alpha_x, \alpha_y$	0.5 deg	

### Opening and closing times



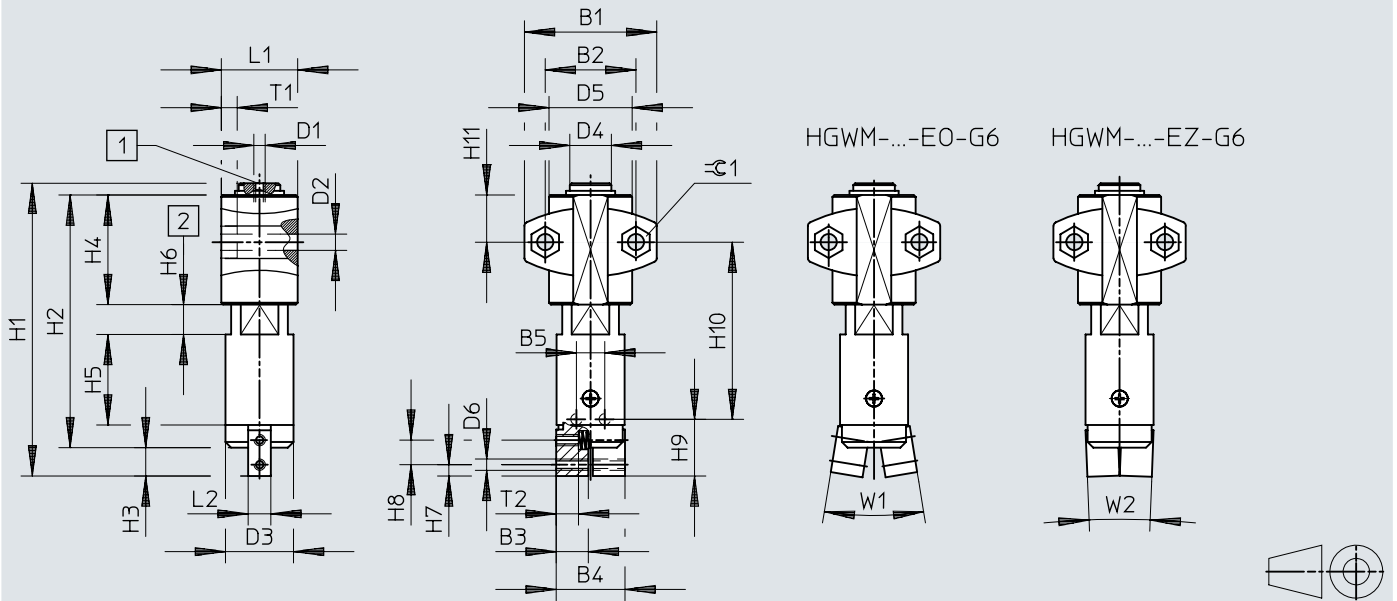
The indicated opening and closing times [ms] were measured at room temperature, an operating pressure of 0.6 M (6 bar, 87 psi) and with the gripper installed vertically without additional gripper fingers. The moving mass is increased when external gripper fingers are attached. This means that the kinetic energy, which is determined by the mass moment of inertia of the gripper fingers and the angular velocity, increases at the same time.

Size	8		12	
Mode of operation	Single-acting, Closed	Single-acting, Open	Single-acting, Closed	Single-acting, Open
Min. opening time at 0.6 MPa (6 bar, 87 psi)	1 ms	2.7 ms	1.7 ms	3.7 ms
Min. closing time at 0.6 MPa (6 bar, 87 psi)	2.5 ms	1.2 ms	2.8 ms	1.8 ms

Dimensions

Dimensions – With flange – HGWM-...-E...-G6

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



- [1] Compressed air supply port
- [2] Stroke compensation

	B1	B2	B3	B4	B5	D1	D2 ø	D3 ø	D4 ø
	±0,1	±0,25		±0,3			+0,1	+0,1	
HGWM-08-EO-G6	24	15	5,5	11,8	5 ±0,02	M3	3,4	12	8 -0,02/-0,05
HGWM-08-EZ-G6									
HGWM-12-EO-G6	35	24	8,5	18,2	7,5 -0,05		4,5	18	11 -0,02/-0,05
HGWM-12-EZ-G6									

	D5 ø	D6	H1	H2	H3	H4	H5	H6	H7
			+0,25				+0,1		
HGWM-08-EO-G6	15 ±0,5	M2	54	47 ±0,3	5 ±0,2	22-0,3	16	0 ... 5 +0,6/-0,3	2
HGWM-08-EZ-G6									
HGWM-12-EO-G6	22 ±0,5	M3	77,5	67 ±0,3	7,5	29-0,3	24	0 ... 8 +0,6/-0,3	3
HGWM-12-EZ-G6									

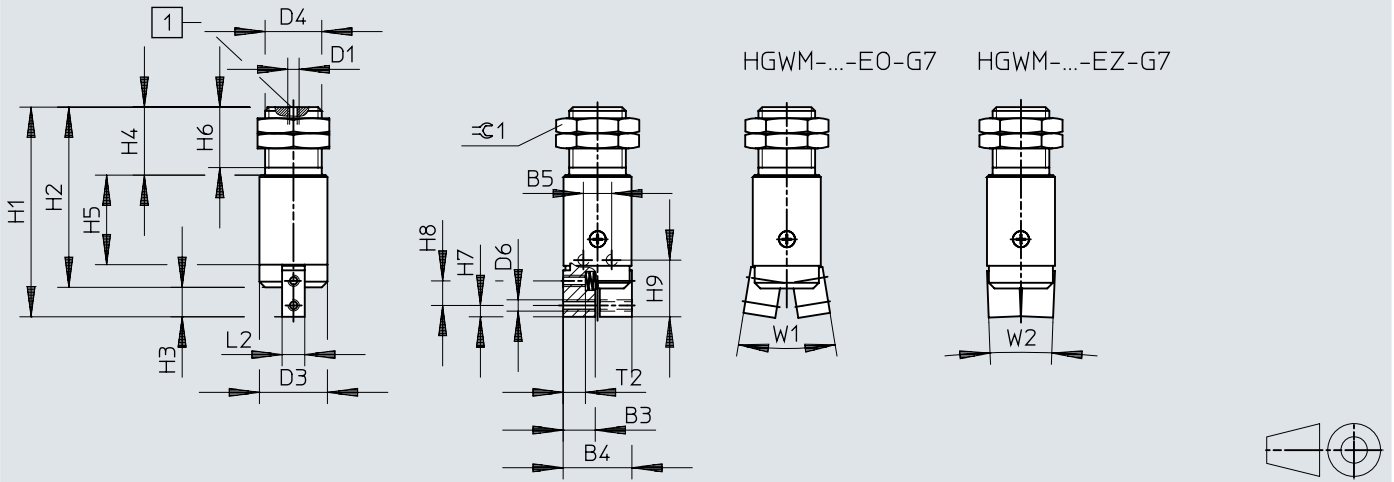
	H8	H9	H10	H11	L1	L2	T1	T2 <sup>1)</sup>	W1	W2	β1
		+0,1		±0,3		-0,02	-0,2		±2°	±2°	
HGWM-08-EO-G6	4,3	10	32,4 ±0,6	9,5	14,2 -0,2	4	3	3,4 ±0,2	20°	4°	5,7
HGWM-08-EZ-G6								-	14°		
HGWM-12-EO-G6	6,5	15	47 ±0,6	12,5	20,2 -0,2	6	4	5,9	18,5°	3,5°	7,5
HGWM-12-EZ-G6								-	14°		

1) Do not exceed max. thread screw-in depth

Dimensions

Dimensions – With thread – HGWM-...-E...-G7

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



[1] Compressed air supply port

	B3	B4	B5	D1	D3 ∅	D4 ∅	D6	H1	H2	H3
		±0,3			+0,1			+0,25		
HGWM-08-EO-G7	5,5	11,8	5 ±0,02	M3	12	M10x1	M2	37	32 +0,3/-0,2	5 ±0,2
HGWM-08-EZ-G7										
HGWM-12-EO-G7	8,5	18,2	7,5 -0,05		18	M15x1,5	M3	55,5	48 +0,3/-0,2	7,5
HGWM-12-EZ-G7										

	H4	H5	H6	H7	H8	H9	L2	T2 <sup>1)</sup>	W1	W2	β1
		+0,1				+0,1	-0,02		±2°	±2°	
HGWM-08-EO-G7	12	16	11	2	4,3	10	4	3,4 ±0,2	20°	4°	12
HGWM-08-EZ-G7								-	14°		
HGWM-12-EO-G7	18	24	16	3	6,5	15	6	5,9	18,5°	3,5°	19
HGWM-12-EZ-G7								-	14°		

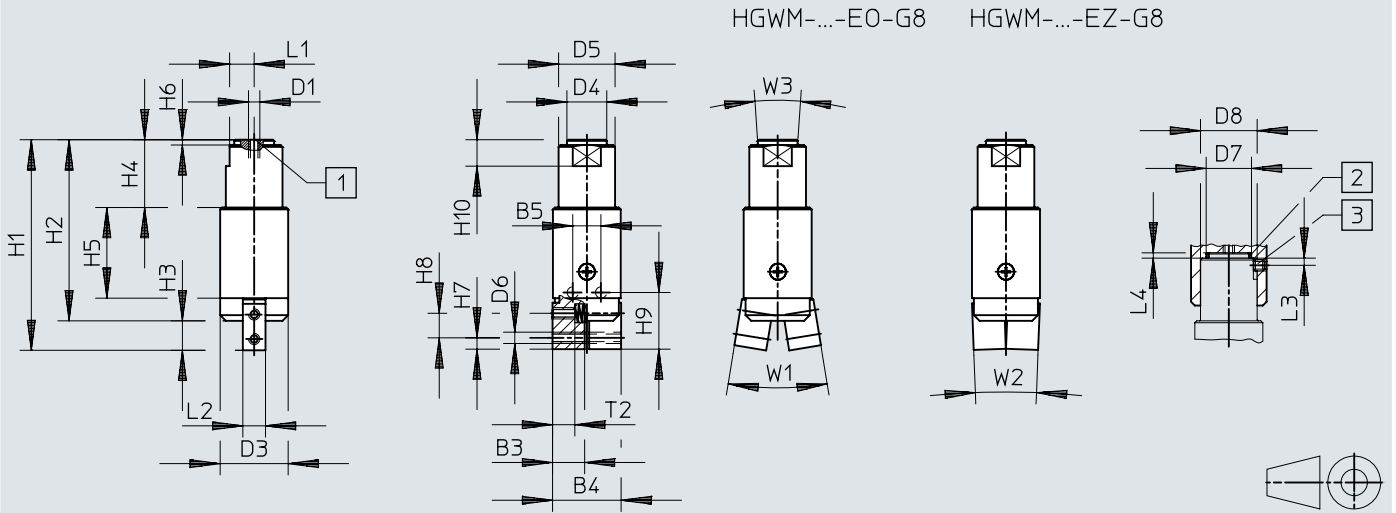
1) Do not exceed max. thread screw-in depth



Dimensions

Dimensions – With clamping shaft – HGWM-...-E...-G8

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- [1] Compressed air supply port
- [2] O-ring: HGWM-08: 6x1, HGWM-12: 10x1 (not included in the scope of delivery)
- [3] Threaded pin M3x3 DIN 913 (not included in the scope of delivery)

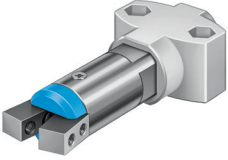
	B3	B4	B5	D1	D3 ∅	D4 ∅	D5 ∅	D6	D7 ∅	D8	H1
		±0,3			+0,1				+0,1	+0,1	+0,25
HGWM-08-EO-G8	5,5	11,8	5 ±0,02	M3	12	6,6 -0,03	10 h8	M2	8	10	37
HGWM-08-EZ-G8											
HGWM-12-EO-G8	8,5	18,2	7,5 -0,05		18	10,6 -0,03	15 h8	M3	12	15	55,5
HGWM-12-EZ-G8											


	H2	H3	H4	H5	H6	H7	H8
				+0,1			
HGWM-08-EO-G8	32 +0,3/-0,2	5 ±0,2	12	16	1,4 -0,1	2	4,3
HGWM-08-EZ-G8							
HGWM-12-EO-G8	48 +0,3/-0,2	7,5	18	24		3	6,5
HGWM-12-EZ-G8							


	H9	H10	L1	L2	T2 <sup>1)</sup>	W1	W2	W3
	+0,1			-0,02		±2°	±2°	±2°
HGWM-08-EO-G8	10	5	4,5 -0,05	4	3,4 ±0,2	20°	4°	8°
HGWM-08-EZ-G8					-	14°		
HGWM-12-EO-G8	15	7	6,5 -0,05	6	5,9	18,5°	3,5°	
HGWM-12-EZ-G8					-	14°	4°	

1) Do not exceed max. thread screw-in depth

Ordering data

With flange					
	Size	Mode of operation	Max. opening angle	Part no.	Type
	8	Single-acting, Closed	14 deg	<b>185696</b>	<b>HGWM-08-EZ-G6</b>
		Single-acting, Open	17 deg	<b>185693</b>	<b>HGWM-08-EO-G6</b>
	12	Single-acting, Closed	14 deg	<b>185702</b>	<b>HGWM-12-EZ-G6</b>
		Single-acting, Open	18.5 deg	<b>185699</b>	<b>HGWM-12-EO-G6</b>

With thread					
	Size	Mode of operation	Max. opening angle	Part no.	Type
	8	Single-acting, Closed	14 deg	<b>185697</b>	<b>HGWM-08-EZ-G7</b>
		Single-acting, Open	17 deg	<b>185694</b>	<b>HGWM-08-EO-G7</b>
	12	Single-acting, Closed	14 deg	<b>185703</b>	<b>HGWM-12-EZ-G7</b>
		Single-acting, Open	18.5 deg	<b>185700</b>	<b>HGWM-12-EO-G7</b>

With clamping shaft					
	Size	Mode of operation	Max. opening angle	Part no.	Type
	8	Single-acting, Closed	14 deg	<b>185698</b>	<b>HGWM-08-EZ-G8</b>
		Single-acting, Open	17 deg	<b>185695</b>	<b>HGWM-08-EO-G8</b>
	12	Single-acting, Closed	14 deg	<b>185704</b>	<b>HGWM-12-EZ-G8</b>
		Single-acting, Open	18.5 deg	<b>185701</b>	<b>HGWM-12-EO-G8</b>