Angle grippers HGWM, micro

FESTO

- Miniaturised and optimised for assembly tasks
- Versatile

Angle grippers HGWM, micro

Key features

G6: with stroke compensation

G7: with male thread

G8: with clamping spigot

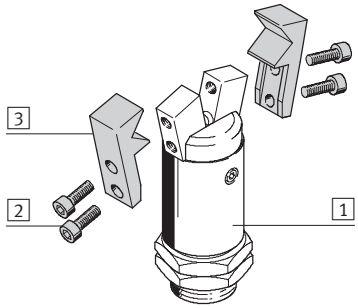
At a glance

- Compact, handy design
- With open or closed gripper jaws
- Versatility thanks to externally adaptable gripper fingers
- Wide range of options for attaching drive units
- With stroke compensation after installation
- Mounting options:
  - Clamping spigot
  - Male thread

Gripper selection software
www.festo.com/en/engineering

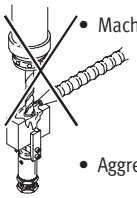
Mounting options for external gripper fingers (customer-specific)

1 Angle gripper
2 External gripper fingers
3 Mounting screws



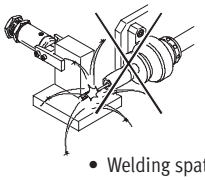
Note

Grippers are not suitable for the following, or for similar applications:



- Machining
- Aggressive media

- Grinding dust



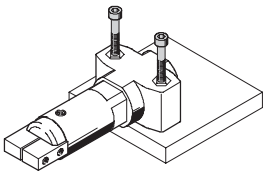
- Welding spatter

Angle grippers HGWM, micro

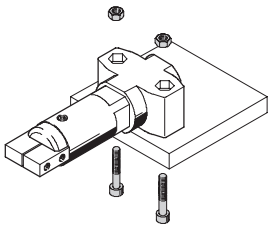
Key features

Mounting options

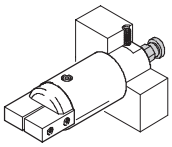
With through-holes



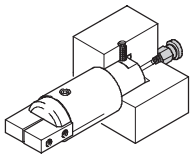
With through-holes, screws and retaining nuts



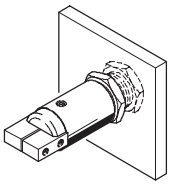
With set screw
Direct air supply



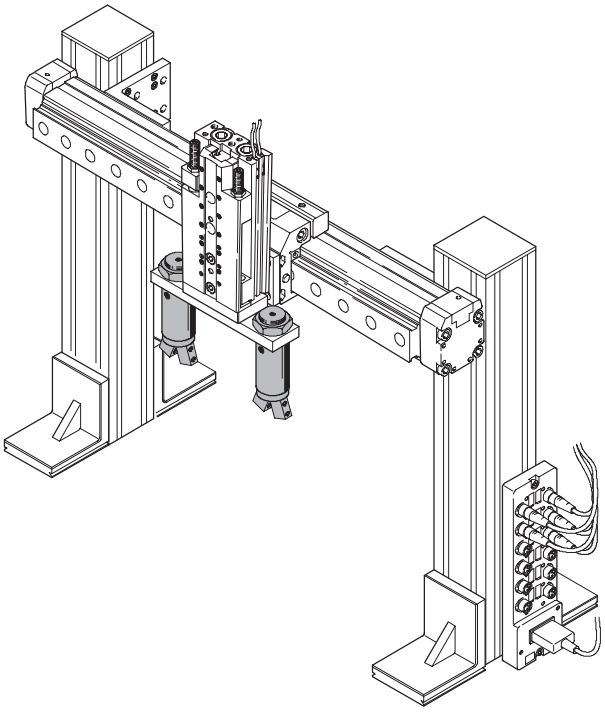
Integrated air supply



With male thread and lock nut



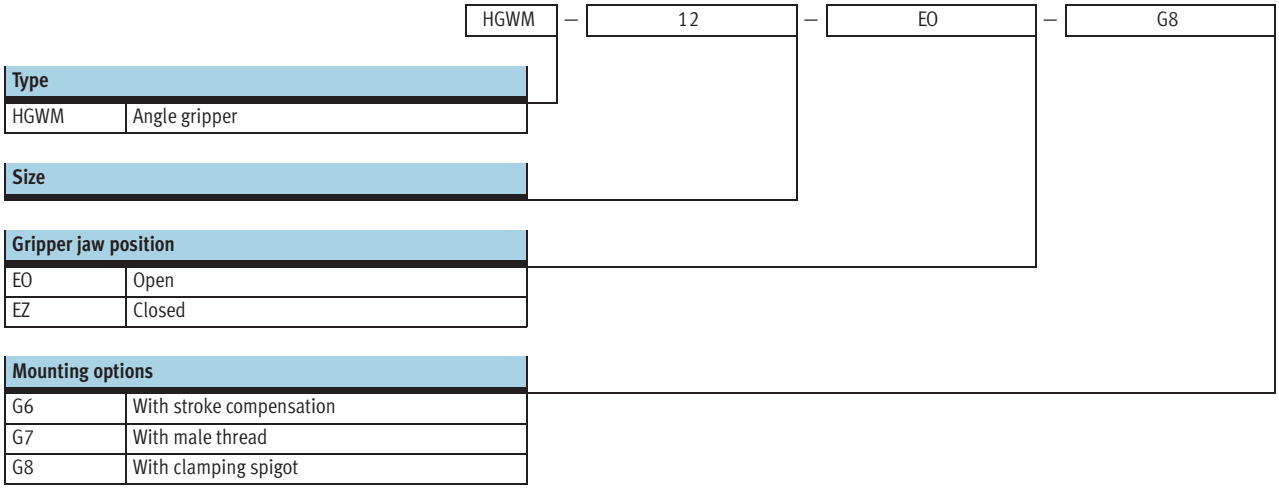
System product for handling and assembly technology



	➔ Page
Drives	Volume 1
Grippers	Volume 1
Adapters	Volume 5
Basic mounting components	Volume 5
Installation components	Volume 5
Axes	Volume 5
Motors	Volume 5

Angle grippers HGWM, micro

Type codes



Type	
HGWM	Angle gripper

Size

Gripper jaw position	
EO	Open
EZ	Closed

Mounting options	
G6	With stroke compensation
G7	With male thread
G8	With clamping spigot

Angle grippers HGWM, micro

Technical data

FESTO

Function
Single-acting
with open gripper jaws
HGWM-...-EO-G...

with closed gripper jaws
HGWM-...-EZ-G...

-Ø- Size
8 ... 12 mm

G6: with stroke compensation

G7: with male thread

G8: with clamping spigot

General technical data					
Size				8	12
Constructional design				Wedge-shaped drive	
Mode of operation				Single-acting	
Gripper function				Angle	
Number of gripper jaws				2	
Opening angle (±2°)	Gripper jaws open	Open	[°]	20	18.5
		Closed	[°]	4	3.5
	Gripper jaws closed	Open	[°]	14	14
		Closed	[°]	4	4
Spring resetting torque[1)]	Gripper jaws open		[Ncm]	0.5	1.3
	Gripper jaws closed		[Ncm]	0.55	1.5
Pneumatic connection				M3	
Repetition accuracy[2) 3)]			[mm]	< 0.02	
Max. operating frequency			[Hz]	4	
Position sensing				Without	
Type of mounting	HGWM-...-E...-G6			With internally threaded cap screws	
	HGWM-...-E...-G7			With lock nut	
	HGWM-...-E...-G8			Clamped	

1) Spring resetting force between the gripper jaws
2) End position drift under constant conditions of use with 100 consecutive strokes in the direction of movement of the gripper jaws
3) The indicated values are only valid when gripping with compressed air, not with spring force

Operating and environmental conditions		
Min. operating pressure	[bar]	2
Max. operating pressure	[bar]	8
Operating medium		Filtered compressed air, lubricated or unlubricated (grade of filtration 40µm)
Ambient temperature	[°C]	+5 ... +60
Corrosion resistance class CRC[1)]		2

1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. 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

Weights [g]		
Size	8	12
With stroke compensation	23	75
With male thread	14	52
With clamping spigot	13	45

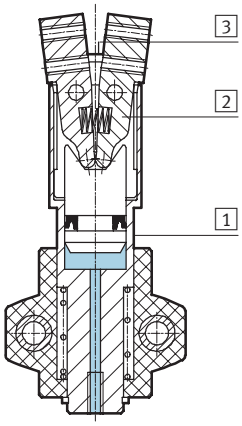
Angle grippers HGWM, micro

Technical data

FESTO

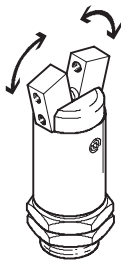
Materials

Sectional view



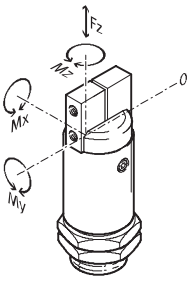
Angle gripper		
1	Body	Stainless steel
2	Gripper jaw	Stainless steel
3	Cover cap	Polyacetate
–	Note on materials	Copper, PTFE and silicone-free

Total gripping torque [Ncm] at 6 bar



Size	8		12	
	HGPM-...EO-...	HGPM-...EZ-...	HGPM-...EO-...	HGPM-...EZ-...
Total gripping torque				
Opening	–	24	–	76
Closing	22	–	64	–

Characteristic load values at the gripper jaws



The indicated permissible forces and torques apply to a single gripper jaw. Static forces and torques relate to additional applied loads caused by the workpiece or external gripper fingers, as well as forces which occur during handling. The zero co-ordinate line (gripper jaws point of rotation) must be taken into consideration for the calculation of torques.

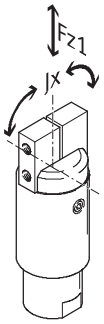
Size		8	12
Max. permissible force F_Z	[N]	7	20
Max. permissible torque M_X	[Ncm]	20	40
Max. permissible torque M_Y	[Ncm]	20	40
Max. permissible torque M_Z	[Ncm]	20	40

Angle grippers HGWM, micro

Technical data

FESTO

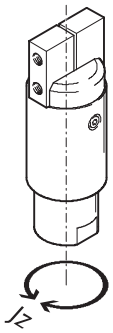
Applied load [N] and mass moment of inertia [kgm²x10⁻⁴] per external gripper finger



Size	8	12
Applied load Fz_1 [1]	< 0.04	< 0.1
Mass moment of inertia Jx [1]	< 0.025	< 0.056

1) Valid for unthrottled operation

Mass moment of inertia [kgm²x10⁻⁴]

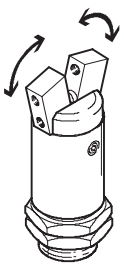


Mass moment of inertia [kgm^2x10^{-4}] for angle grippers in relation to the central axis without external gripper fingers.

Size	8	12
With stroke compensation	0.00705	0.0421
With male thread	0.00315	0.0267
With clamping spigot	0.00252	0.02154

Opening and closing times [ms] at 6 bar

Without external gripper fingers



The indicated opening and closing times [ms] have been measured at room temperature and 6 bar operating pressure with vertically mounted gripper and without external gripper fingers. Load is increased if external gripper fingers are attached. This means that kinetic energy is also increased, as this is determined by gripper finger mass moment of inertia and angular velocity.

Size		8	12
HGPM-...EO-...	Opening	2.7	3.7
	Closing	1.2	1.8
HGPM-...EZ-...	Opening	1	1.7
	Closing	2.5	2.8

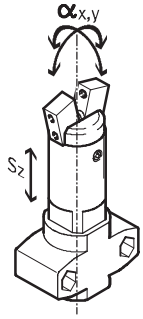
Angle grippers HGWM, micro

Technical data

FESTO

Gripper jaw backlash

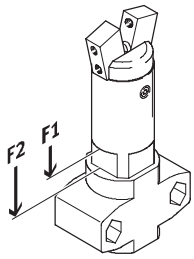
Without external gripper fingers



With angle grippers, backlash occurs between the gripper jaws and the guide element due to the plain-bearing guide. The backlash values listed in the table have been calculated based upon the traditional accumulative tolerance method and usually do not occur with mounted grippers.

Size		8	12
Gripper jaw backlash s_z	[mm]	< 0.03	
Gripper jaw angular backlash a_x, a_y	[°]	< 0.5	

Spring displacement forces [N]



Theoretical actuating force due to stroke compensation for design variant with stroke compensation.

Size	8	12
Spring displacement forces F_1	4	10
Spring displacement forces F_2	6	23

Angle grippers HGWM, micro

Technical data

FESTO

Application example

Angle grippers HGWM, micro

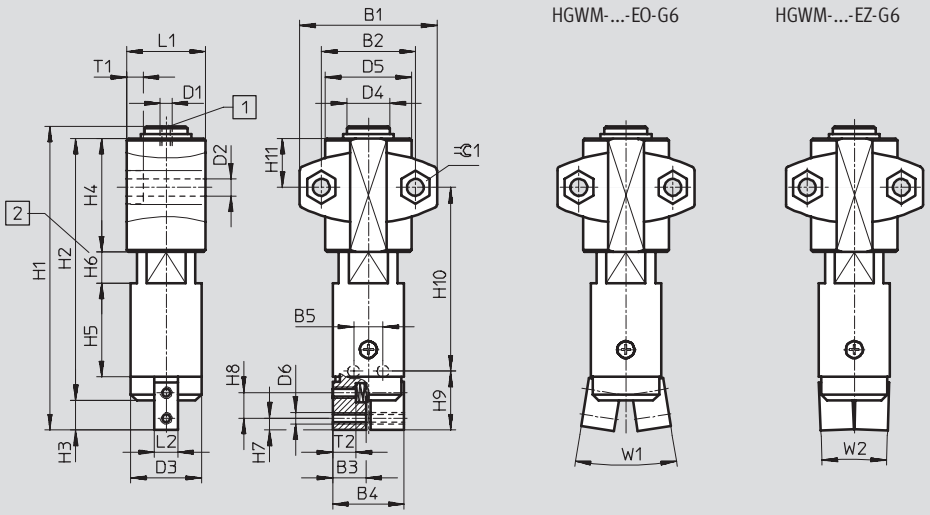
Technical data

FESTO

Dimensions

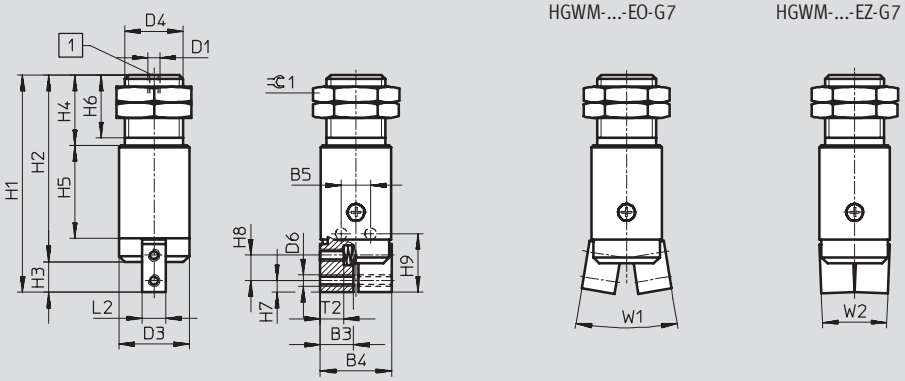
Download CAD data ➔ **www.festo.com/en/engineering**

With stroke compensation – HGWM-...-E...-G6



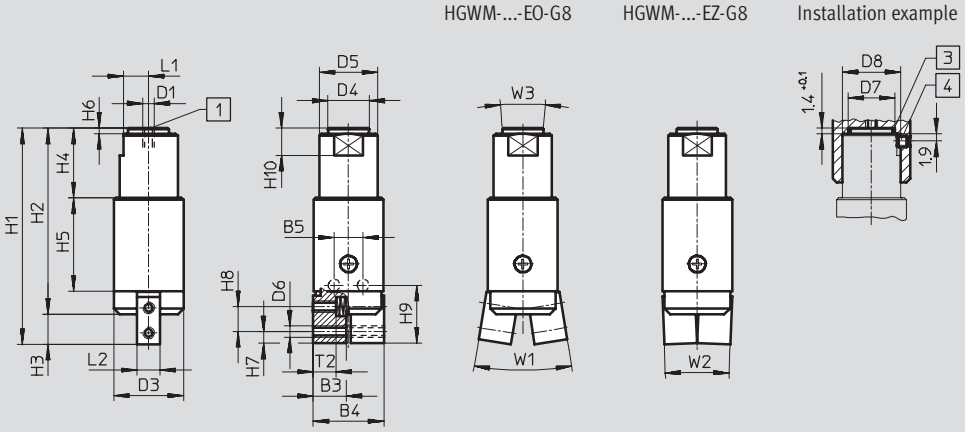
1 Compressed air connection
2 Stroke compensation

With male thread – HGWM-...-E...-G7



1 Compressed air connection

With clamping spigot – HGWM-...-E...-G8



1 Compressed air connection
3 O-ring:
HGWM-08: 6x1
HGWM-12: 10x1
(Not included in the scope of delivery)
4 Threaded pin M3x3 DIN 913
(Not included in the scope of delivery)

Angle grippers HGWM, micro

Technical data

FESTO

Type	B1 ±0.1	B2 ±0.25	B3	B4 ±0.3	B5	D1	D2 ∅ +0.1	D3 ∅ +0.1	D4 ∅	D5 ∅	D6
HGWM-08-EO-G6	24	15	5.5	11.8	5 ±0.02	M3	3.4	12	8 –0.02/–0.05	15 ±0.5	M2
HGWM-08-EZ-G6											
HGWM-12-EO-G6	35	24	8.5	18.2	7.5 –0.05	M3	4.5	18	11 –0.02/–0.05	22 ±0.5	M3
HGWM-12-EZ-G6											
HGWM-08-EO-G7	–	–	5.5	11.8	5 ±0.02	M3	–	12	M10x1	–	M2
HGWM-08-EZ-G7											
HGWM-12-EO-G7	–	–	8.5	18.2	7.5 –0.05	M3	–	18	M15x1.5	–	M3
HGWM-12-EZ-G7											
HGWM-08-EO-G8	–	–	5.5	11.8	5 ±0.02	M3	–	12	6.6 –0.03	10 h8	M2
HGWM-08-EZ-G8											
HGWM-12-EO-G8	–	–	8.5	18.2	7.5 –0.05	M3	–	18	10.6 –0.03	15 h8	M3
HGWM-12-EZ-G8											

Type	D7 ∅ +0.1	D8 +0.1	H1 +0.25	H2	H3	H4	H5 +0.1	H6	H7	H8	H9 +0.1
HGWM-08-EO-G6	–	–	54	47 ±0.3	5 ±0.2	22–0.3	16	0 ... 5 +0.6/–0.3	2	4.3	10
HGWM-08-EZ-G6											
HGWM-12-EO-G6	–	–	77.5	67 ±0.3	7.5	29–0.3	24	0 ... 8 +0.6/–0.3	3	6.5	15
HGWM-12-EZ-G6											
HGWM-08-EO-G7	–	–	37	32 +0.3/–0.2	5 ±0.2	12	16	11	2	4.3	10
HGWM-08-EZ-G7											
HGWM-12-EO-G7	–	–	55.5	48 +0.3/–0.2	7.5	18	24	16	3	6.5	15
HGWM-12-EZ-G7											
HGWM-08-EO-G8	8	10	37	32 +0.3/–0.2	5 ±0.2	12	16	1.4 –0.1	2	4.3	10
HGWM-08-EZ-G8											
HGWM-12-EO-G8	12	15	55.5	48 +0.3/–0.2	7.5	18	24	1.4 –0.1	3	6.5	15
HGWM-12-EZ-G8											

Type	H10	H11 ±0.3	L1	L2 –0.02	T1 –0.2	T2[1]	W1 ±2°	W2 ±2°	W3 ±2°	⌯1
HGWM-08-EO-G6	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	47 ±0.6	12.5	20.2 –0.2	6	4	5.9	18.5°	3.5°	–	7.5
HGWM-12-EZ-G6						–	14°	4°		
HGWM-08-EO-G7	–	–	–	4	–	3.4 ±0.2	20°	4°	–	12
HGWM-08-EZ-G7						–	14°			
HGWM-12-EO-G7	–	–	–	6	–	5.9	18.5°	3.5°	–	19
HGWM-12-EZ-G7						–	14°	4°		
HGWM-08-EO-G8	5	–	4.5 –0.05	4	–	3.4 ±0.2	20°	4°	8°	–
HGWM-08-EZ-G8						–	14°			
HGWM-12-EO-G8	7	–	6.5 –0.05	6	–	5.9	18.5°	3.5°	8°	–
HGWM-12-EZ-G8						–	14°	4°		

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

Angle grippers HGWM, micro

Technical data and accessories

FESTO

Ordering data								
Single-acting	Size	Mounting options						
		With stroke compensation		With male thread		With clamping spigot		
	[mm]	Part No.	Type	Part No.	Type	Part No.	Type	
Gripper jaws open	8	**185 693**	**HGWM-08-EO-G6**	**185 694**	**HGWM-08-EO-G7**	**185 695**	**HGWM-08-EO-G8**	
	12	**185 699**	**HGWM-12-EO-G6**	**185 700**	**HGWM-12-EO-G7**	**185 701**	**HGWM-12-EO-G8**	
Gripper jaws closed	8	**185 696**	**HGWM-08-EZ-G6**	**185 697**	**HGWM-08-EZ-G7**	**185 698**	**HGWM-08-EZ-G8**	
	12	**185 702**	**HGWM-12-EZ-G6**	**185 703**	**HGWM-12-EZ-G7**	**185 704**	**HGWM-12-EZ-G8**	

Accessories	
For angle grippers with clamping flange	
Adapter kits A08 and A12	
	In combination with semi-rotary drives DRQD-6 to 12 ➔ 1 / 4.2-24 Adapter kits for drive/gripper combinations ➔ Volume 5