

Angle grippers HGWM, micro

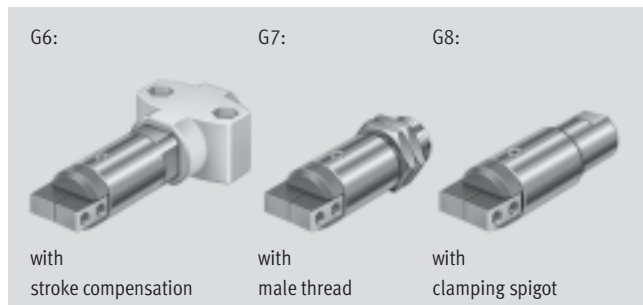
FESTO



Angle grippers HGWM, micro

Key features

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At a glance

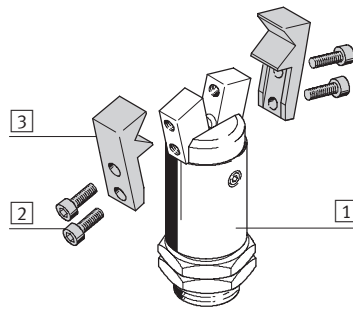
- Compact, handy design
- With open or closed gripper jaws
- Versatility thanks to externally adaptable gripper fingers
- Wide range of options for attaching drive units
- With stroke compensation after installation
- Mounting options:
 - Clamping spigot
 - Male thread


-  - Note

Sizing software
Gripper selection
➔ www.festo.com

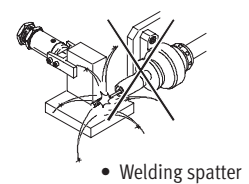
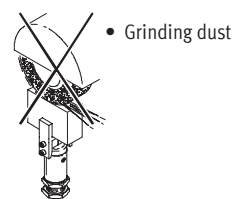
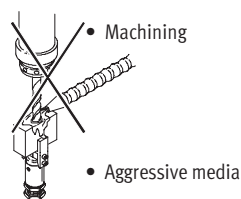
Mounting options for external gripper fingers (customer-specific)

- 1 Angle gripper
- 2 External gripper fingers
- 3 Mounting screws



-  - Note

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

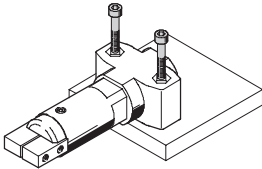


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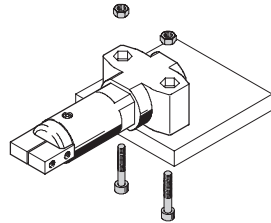
Key features

Mounting options

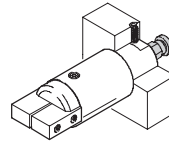
With through-holes



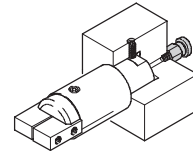
With through-holes, screws and retaining nuts



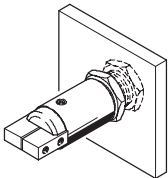
With set screw
Direct air supply



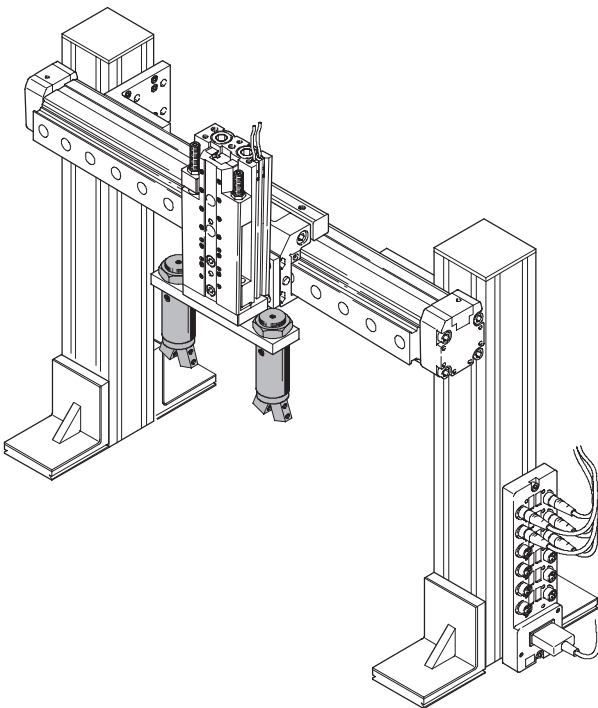
Integrated air supply



With male thread and lock nut



System product for handling and assembly technology



	→ Page/Internet
Drives	drive
Grippers	gripper
Adapters	adapter kit
Basic mounting components	basic component
Installation components	installation component
Axes	axes
Motors	motor

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Type codes

HGWM – 12 – EO – G8

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

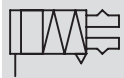
Technical data

Function

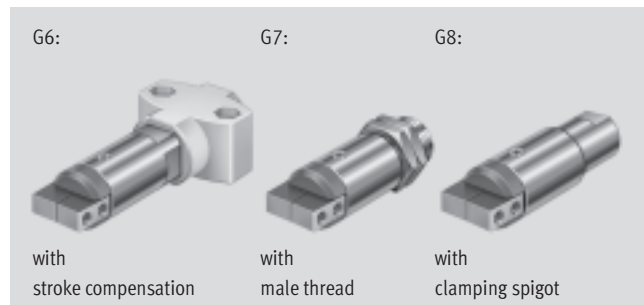
Single-acting
with open gripper jaws
HGWM-...-EO-G...



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



Size
8 ... 12 mm



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

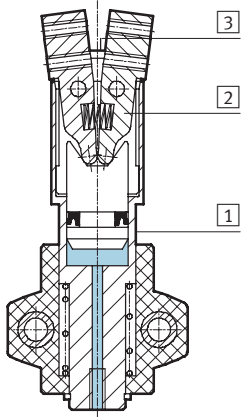
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Technical data

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Materials

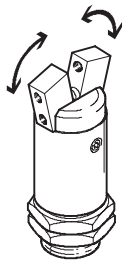
Sectional view



Angle gripper

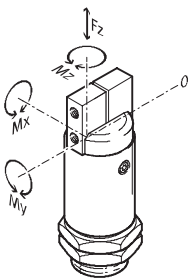
1	Body	Stainless steel
2	Gripper jaw	Stainless steel
3	Cover cap	Polyacetate
-	Note on materials	Copper, PTFE and silicone-free Conforms to RoHS

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

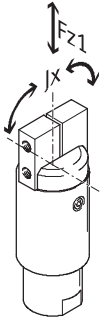
line (gripper jaws point of rotation) must be taken into consideration for the calculation of torques.

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

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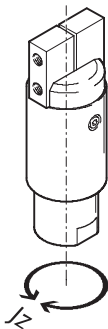
Applied load [N] and mass moment of inertia [$\text{kgm}^2 \times 10^{-4}$] per external gripper finger



Size	8	12
Applied load $F_{z1}^{1)}$	< 0.04	< 0.1
Mass moment of inertia $J_x^{1)}$	< 0.025	< 0.056

1) Valid for unthrottled operation

Mass moment of inertia [$\text{kgm}^2 \times 10^{-4}$]

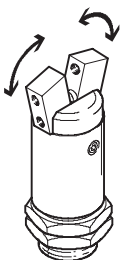


Mass moment of inertia [$\text{kgm}^2 \times 10^{-4}$] for angle grippers in relation to the central axis without external gripper fingers.

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.

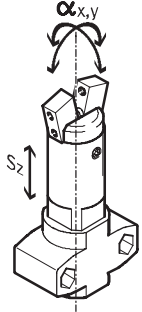
Size		8	12
HGPM-...EO-...	Opening	2.7	3.7
	Closing	1.2	1.8
HGPM-...EZ-...	Opening	1	1.7
	Closing	2.5	2.8

Angle grippers HGWM, micro

Technical data

Gripper jaw backlash

Without external gripper fingers

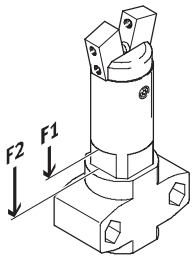


With angle grippers, backlash occurs between the gripper jaws and the guide element due to the plain-bearing guide. The backlash values listed

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 α_x, α_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

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Application example



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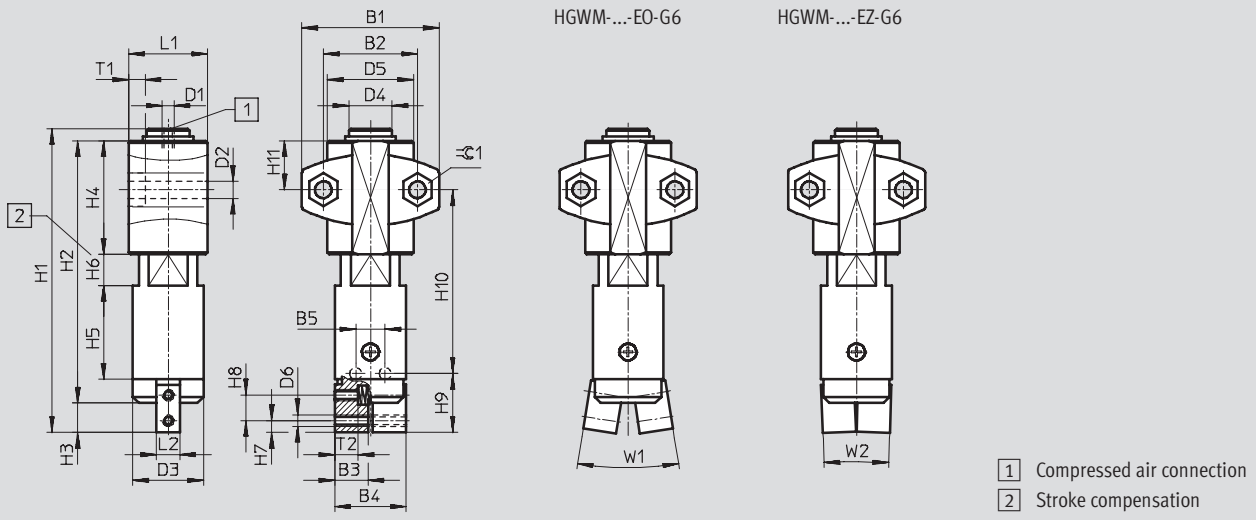
Technical data

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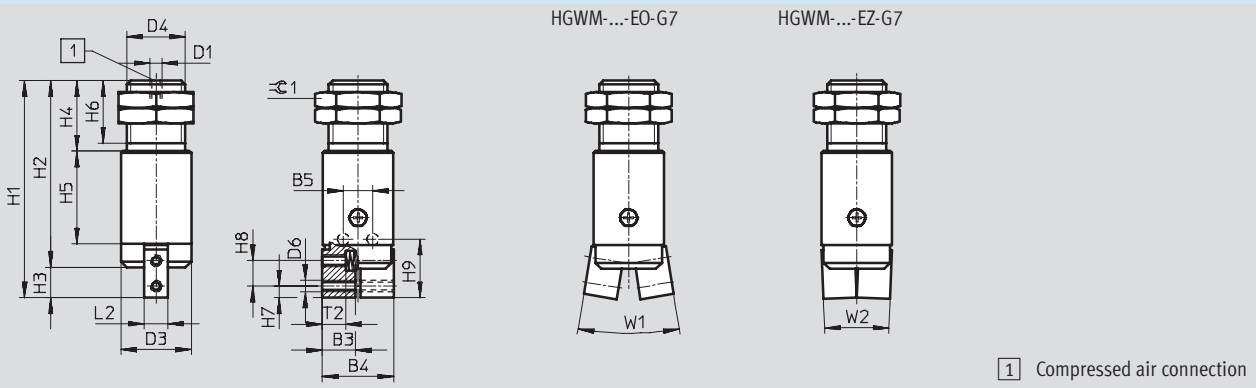
Dimensions

Download CAD data → www.festo.com

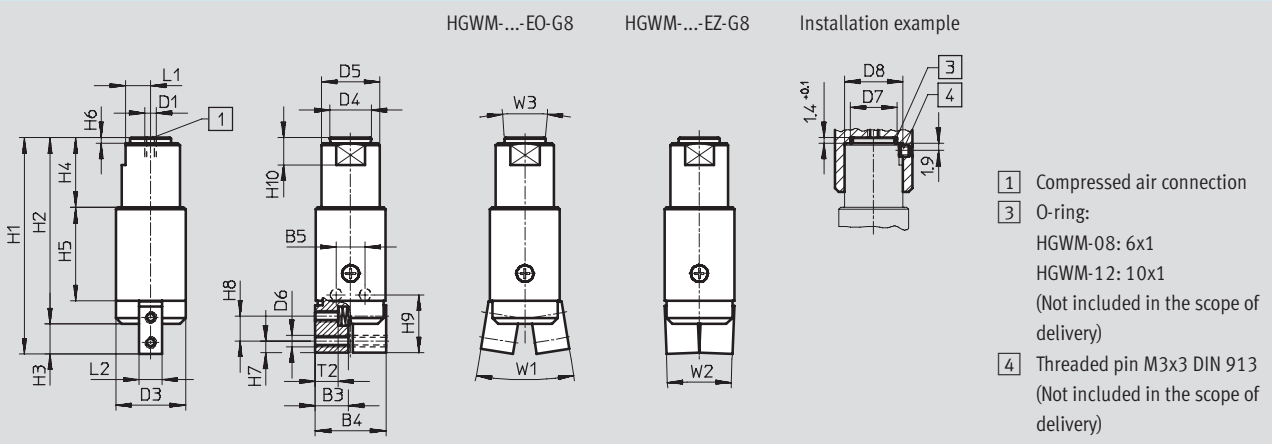
With stroke compensation – HGWM-...-E...-G6



With male thread – HGWM-...-E...-G7



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



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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°	≲G1
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

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Ordering data							
Single-acting	Size [mm]	Mounting options					
		With stroke compensation		With male thread		With clamping spigot	
		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 → Internet: drqd Adapter kits for drive/gripper combinations → Internet: adapter kit