

## Angle grippers HGWM, micro

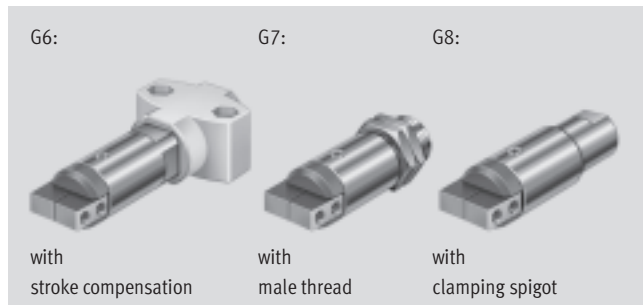
**FESTO**



# Angle grippers HGWM, micro

Key features

FESTO



## At a glance

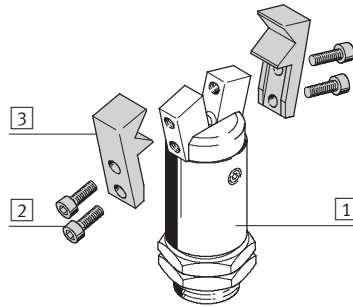
- Compact, handy design
- With open or closed gripper jaws
- Versatility thanks to externally adaptable gripper fingers
- Wide range of options for attaching drive units
- With stroke compensation after installation
- Mounting options:
  - Clamping spigot
  - Male thread

## Note

Sizing software  
Gripper selection  
→ [www.festo.com](http://www.festo.com)

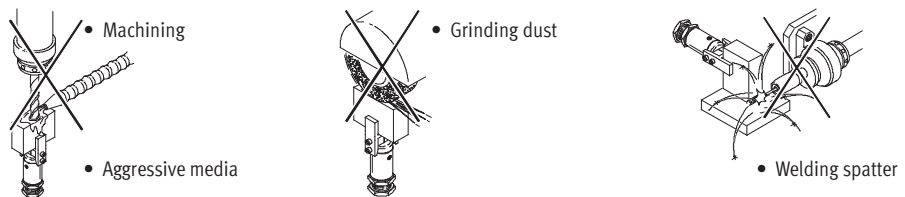
## Mounting options for external gripper fingers (customer-specific)

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



## Note

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

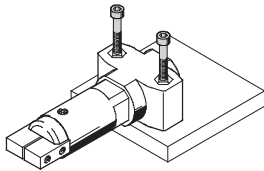


# Angle grippers HGWM, micro

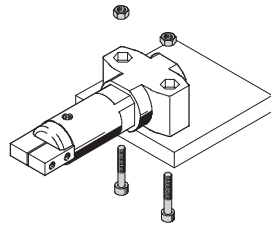
Key features

## Mounting options

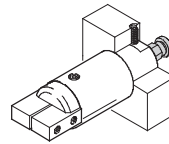
With through-holes



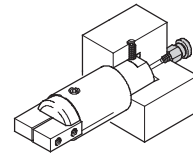
With through-holes, screws and retaining nuts



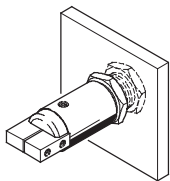
With set screw  
Direct air supply



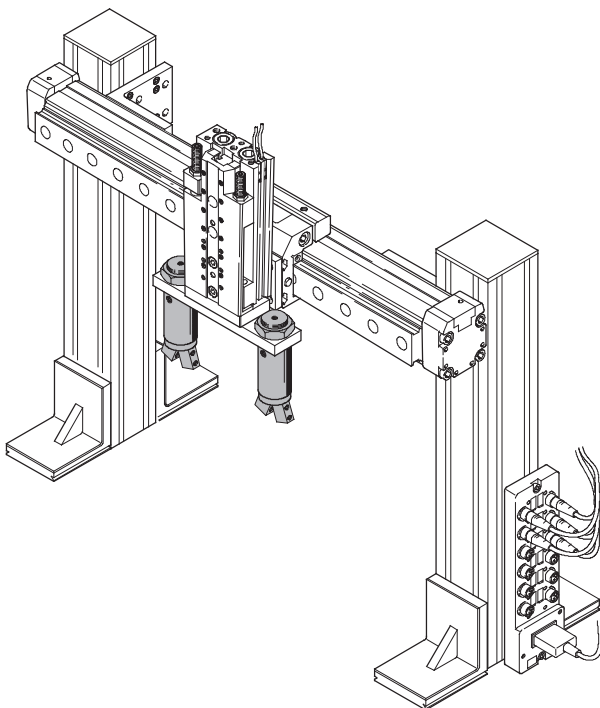
Integrated air supply



With male thread and lock nut



## System product for handling and assembly technology



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

# Angle grippers HGWM, micro

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

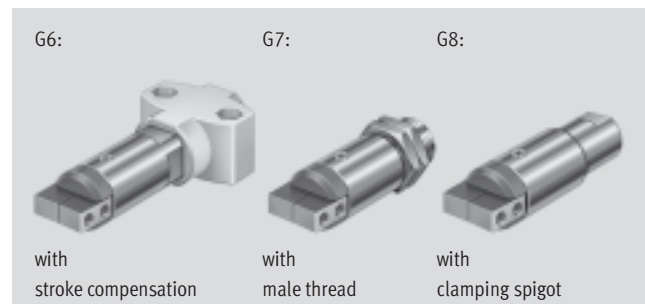
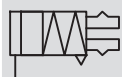
# Angle grippers HGWM, micro

## Technical data

Function -N- Size  
 Single-acting 8 ... 12 mm  
 with open gripper jaws  
 HGWM-...-EO-G...



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



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
		Closed [°]	4
	Gripper jaws closed	Open [°]	14
		Closed [°]	4
Spring resetting torque <sup>1)</sup>	Gripper jaws open	[Ncm]	0.5
	Gripper jaws closed	[Ncm]	0.55
Pneumatic connection	M3		
Repetition accuracy <sup>2) 3)</sup>	[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 <sup>1)</sup>	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

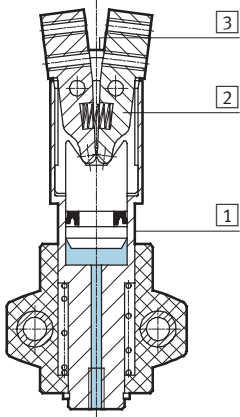
Weights [g]		
Size	8	12
With stroke compensation	23	75
With male thread	14	52
With clamping spigot	13	45

# Angle grippers HGWM, micro

Technical data

## Materials

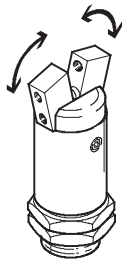
Sectional view



### Angle gripper

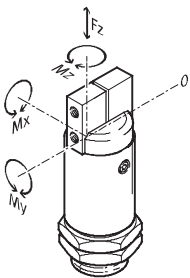
1	Body	Stainless steel
2	Gripper jaw	Stainless steel
3	Cover cap	Polyacetate
-	Note on materials	Copper, PTFE and silicone-free
		Conforms to RoHS

## 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

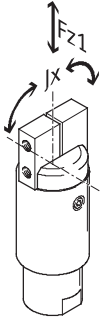
line (gripper jaws point of rotation) must be taken into consideration for the calculation of torques.

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

# Angle grippers HGWM, micro

Technical data

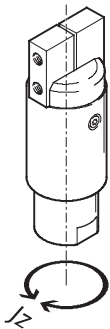
## Applied load [N] and mass moment of inertia [ $\text{kgm}^2 \times 10^{-4}$ ] per external gripper finger



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 [ $\text{kgm}^2 \times 10^{-4}$ ]

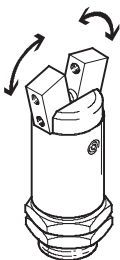


Mass moment of inertia [ $\text{kgm}^2 \times 10^{-4}$ ] for angle grippers in relation to the central axis without external gripper fingers.

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.

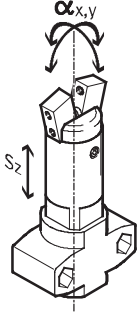
Size		8	12
HGPM-...EO-...	Opening	2.7	3.7
	Closing	1.2	1.8
HGPM-...EZ-...	Opening	1	1.7
	Closing	2.5	2.8

# Angle grippers HGWM, micro

Technical data

## Gripper jaw backlash

Without external gripper fingers

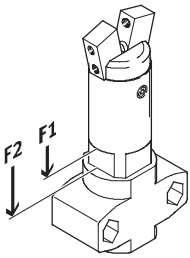


With angle grippers, backlash occurs between the gripper jaws and the guide element due to the plain-bearing guide. The backlash values listed in the table have been

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 $\alpha_x, \alpha_y$ [°]	< 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

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## Application example



# Angle grippers HGWM, micro

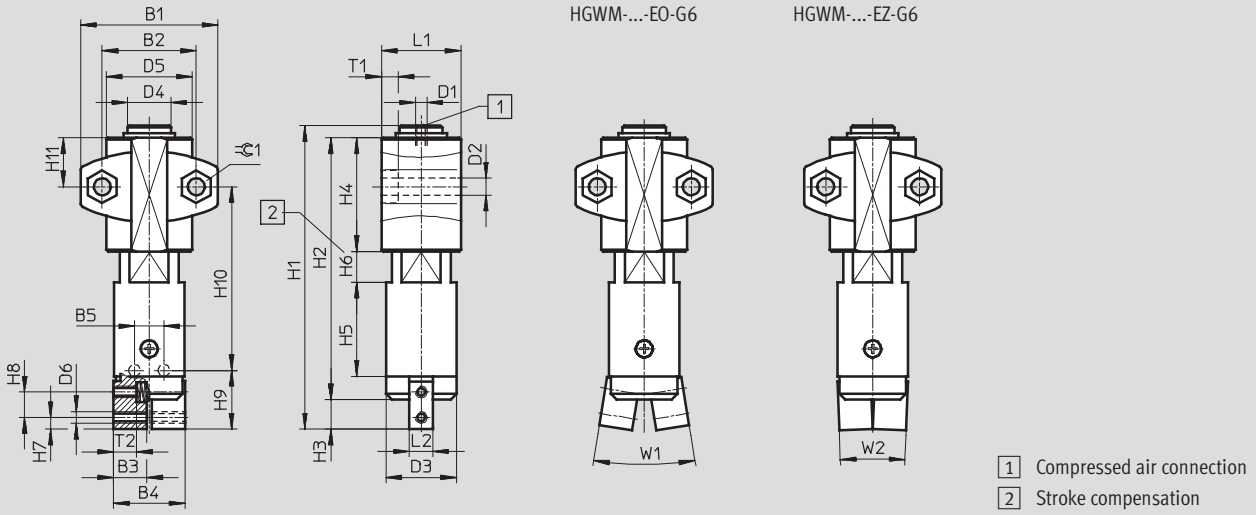
Technical data

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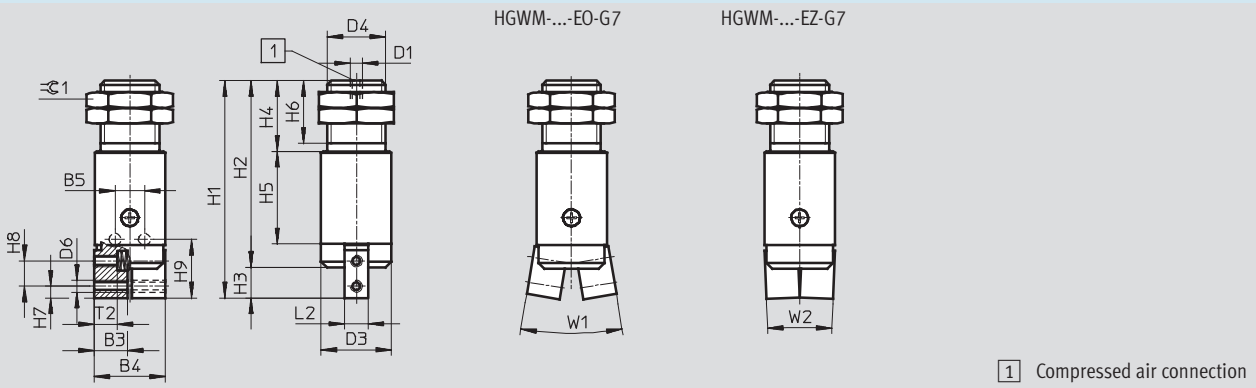
## Dimensions

Download CAD Data → [www.festo.com/us/cad](http://www.festo.com/us/cad)

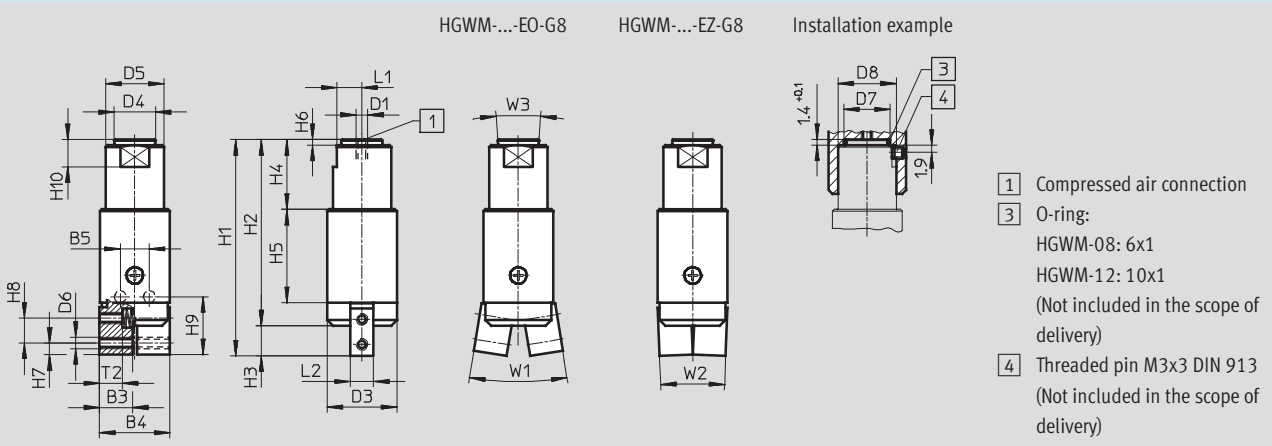
With stroke compensation – HGWM-...-E...-G6



With male thread – HGWM-...-E...-G7



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



# Angle grippers HGWM, micro

Technical data

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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 <sup>1)</sup>	W1 ±2°	W2 ±2°	W3 ±2°	≙C1
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



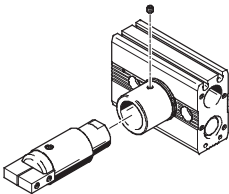
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Ordering data							
Single-acting	Size [mm]	Mounting options					
		With stroke compensation		With male thread		With clamping spigot	
		Part No.	Type	Part No.	Type	Part No.	Type
Gripper jaws open	8	185 693	HGWM-08-EO-G6	185 694	HGWM-08-EO-G7	185 695	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

# Angle grippers HGWM, micro

Accessories

Permissible drive/gripper combinations with adapter kit					Download CAD Data → <a href="http://www.festo.com/us/cad">www.festo.com/us/cad</a>		
Combination	Drive Size	Gripper Size	Mounting option		Semi-rotary drive <sup>2)</sup> CRC <sup>1)</sup>	Part No.	Type
							
DRQD/HGWM	DRQD	HGWM					
	6, 8, 12	8	■	■	2	187431	DRQD-6-...-A08-HS
						187432	DRQD-8-...-A08-HS
						187433	DRQD-12-...-A08-HS
	6, 8, 12	12	■	■		187431	DRQD-6-...-A12-HS
						187432	DRQD-8-...-A12-HS
						187433	DRQD-12-...-A12-HS

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

**Note**

- 2) Semi-rotary drives DRQD are ordered using the modular product system with the corresponding adapter kit (code A...) and hollow bolt (code HS).  
 The kit includes the individual mounting interface as well as the necessary mounting material.

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## A Complete Suite of Automation Services

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