

Stop element

YSRWJ-...-A



FESTO

**(en) Operating
instructions**

8103872
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[8103874]

Translation of the original instructions

Identification of hazards and instructions on how to prevent them:



Danger

Immediate dangers which can lead to death or serious injuries



Warning

Hazards that can cause death or serious injuries



Caution

Hazards that can cause minor injuries

Other symbols:



Note

Material damage or loss of function



Recommendations, tips, references to other documentation



Essential or useful accessories



Information on environmentally sound usage

Text designations:

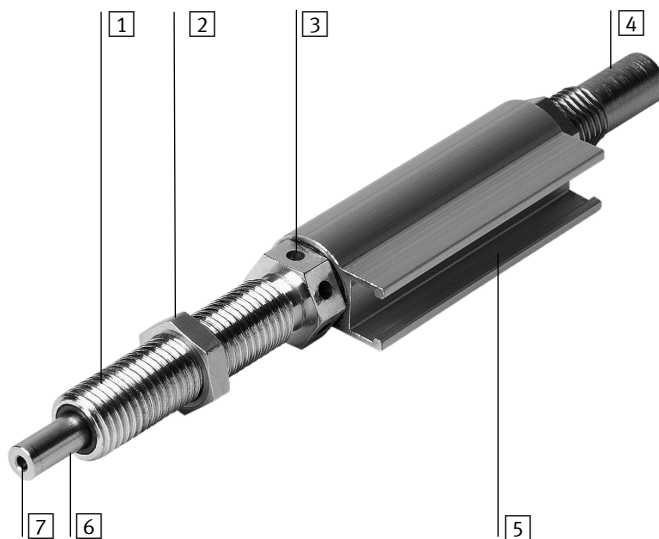
- Activities that may be carried out in any order
- 1. Activities that should be carried out in the order stated
- General lists
- ➔ Result of an action/References to more detailed information

Positioning element type YSRWJ-...



For all available product documentation → www.festo.com/pk

1 Operating parts and connections



- 1 Thread for fastening and positioning the positioning element
- 2 Lock nut
- 3 Capstan nut for setting the end position
- 4 Shock absorber for end position cushioning secured with lock nut
- 5 Groove for proximity switch
- 6 Positioning plunger
- 7 Rubber buffer (only with YSRWJ-7/8-...)

Fig. 1

2 Method of operation and use

The positioning element YSRWJ-... consists of a positioning support, a positioning plunger and a hydraulic shock absorber. A magnet is fastened to the positioning plunger. The position of the magnet can be interrogated by a proximity switch of type SM...-8-... in the groove [5] of the positioning element.

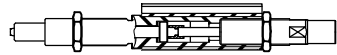


Fig. 2

The positioning element type YSRWJ-... is designed for cushioning mass forces. The YSRWJ-... also functions as a stop within the permitted loading limits.

3 Conditions of use



Please note

Incorrect handling can lead to malfunctioning.

These general conditions for the correct and safe use of the product must be observed at all times.

- Compare the maximum values specified with those of your application. The maximum permitted values, e.g. for pressures, forces, torques, masses, speeds and temperatures must not be exceeded.
- Please observe the prevailing ambient conditions.
- Please comply with national and local safety laws and regulations.
- Unauthorized product modification is not permitted.

[°C]



[%]



[mbar]



Fig. 3

4 Fitting

Fitting mechanical components

- Select the fitting variant to suit your application.

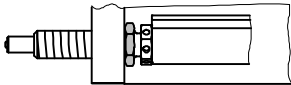
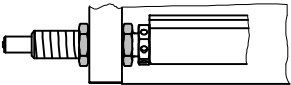
Variants	
Direct fastening with the screw thread	Indirect fastening in a hole
	
1 x locked	2 x locked

Fig. 4

The relevant tightening torque is shown in the table below.

Type	YSRWJ-5-8-A	YSRWJ-7-10-A	YSRWJ-8-14-A
Tightening torque	2 Nm	3 Nm	5 Nm
Width across flats	10	13	15
Hole in capstan nut	2 mm	2.4 mm	
Length X	15 mm	20 mm	

Fig. 5

- Tighten the lock nuts in the desired end positions equally.

The following maximum end positions of the positioning element are permitted:

- screwed in flush
- the thread of the positioning element projects with maximum length X (see Fig. 5).

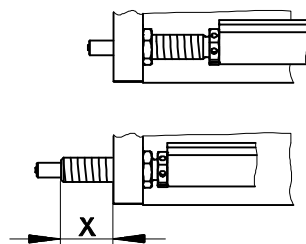


Fig. 6

Using the YSRWJ-... as a fixed stop



Please note

Too high impact forces will damage the positioning element.
Make sure that the max. permitted impact force is not exceeded (see Technical specifications).



Please note

Masses which strike the positioning element at an angle will damage it.
Make sure that the cushioning energy: is always applied vertically, if possible at the point of mass centre of gravity.

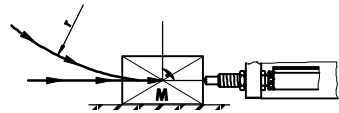


Fig. 7

Fitting electric components

Using proximity switches

- Place the proximity switches in the groove 5 of the positioning element (see Fig. 8).

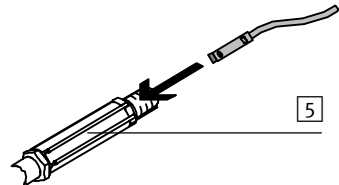


Fig. 8

- Fasten the proximity switches in the end positions.
The integrated magnet (M) serves for interrogating the position of the shock absorber.

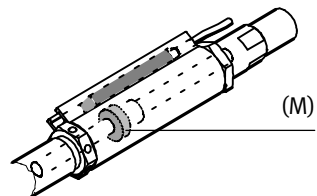


Fig. 9

5 Commissioning

For precise adjustment of an end position:

- Carry out the following steps:
 1. Move to end position under operating conditions.
 2. Use an open-end spanner to loosen the lock nut on the side of the capstan.
 3. Set the desired end position of the move-able mass as follows:

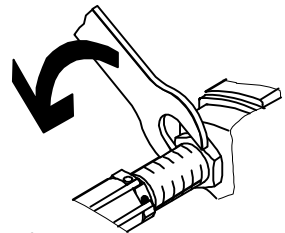


Fig. 10

Direct fitting with the screw thread	Indirect fastening in a hole
Turn the capstan nut with a mandrel/ open-end spanner.	Turn the loaded lock nut with an open-end spanner (if necessary, hold the positioning element against the capstan nut with a mandrel).
One turn corresponds to approx. 1 mm modification to the stroke.	

The following maximum end positions of the positioning element must be observed here (see “Fitting mechanical components”).

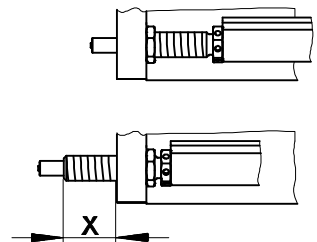


Fig. 11

4. Fix the position of the positioning element with a mandrel/open-end spanner and at the same time tighten the lock nut on the side of the capstan nut again (tightening torque of lock nut see “Fitting mechanical components”).

- Start a test run at low frequency and at low impact speed.
- Accelerate the work load in steps until the operating speed is reached. Please refer to the calculations for your application for these speeds. The shock absorber must not strike hard against the stop.
- Conclude the test run.

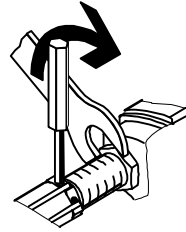


Fig. 12

6 Operation

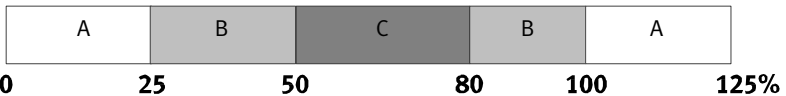


Please note

If the shock absorber is not used to its full extent, there will be an increase in the oil leakage.

Make sure that the shock absorber is operated with an energy utilization of at least 25 % to max. 100 %.

The recommended range lies between 50 and 80 %.



A = not permitted B = permitted C = optimal

Fig. 13

- Take into account the fact that the viscosity of the hydraulic oil diminishes during operation due to the friction warmth which arises. The shock absorber can therefore break through after a long period of operation.

At a temperature of 0 °C:

- note that the reset times of the YSRWJ-... are longer.
Low temperatures cause an increase in the viscosity of the hydraulic oil.
- Check the cushioning elements (type designation see “Accessories”) for the following signs of wear:

Cushioning element	Shock absorber 4	Rubber buffer 7
Test cycle	Every 2 million strokes (approx. every 2 months) ^{*)}	
Sign of wear	Oil leakage; hard knocking; stop plunger 6 remains in the retracted end position or moves away from it only hesitantly.	Loud noises
Replacement cycle	Every 10 million strokes (approx. 1 year) ^{*)}	Every 5 million strokes (approx. 1/2 year) ^{*)}
*) At 0.5 Hz in dual operation mode		

Fig. 14

The moveable mass should always reach the end position safely, but not strike hard against it.

- Check whether more frequent tests are required. This may be the case:
 - when subjected to high temperatures
 - when very dirty
 - when in the vicinity of solvent liquids or fumes.

7 Care and maintenance

- If the YSRWJ-... is dirty, clean it with a soft cloth.
Permitted cleaning agents are:
 - soap suds (max. 60 °C)
 - all non-abrasive agents.

8 Dismantling and repairs

Replacing a shock absorber

1. Exhaust the stop plunger **6**.
2. Loosen the lock nut **4** on the shock absorber.
3. Unscrew the shock absorber (spanner area **(A)** on the shock absorber).

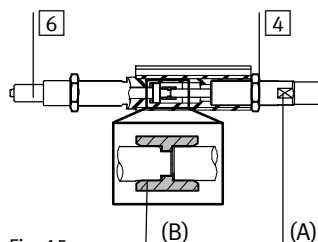


Fig. 15

4. If the connecting clip **(B)** is still on the shock absorber, pull it off and press it onto the new shock absorber.
 5. Screw in the new shock absorber as far as possible.
 6. Tighten the lock nut on the shock absorber again. (tightening torque see “Fitting mechanical components”).
 7. Slowly pressurize and exhaust the YSRWJ-... (connecting clip clicks into place).
- Reduce the amount of waste by using the materials in the shock absorber for other purposes (material recycling).
- The shock absorber is filled with hydraulic oil. Due to the design refilling is not possible.

9 Accessories

Designation	Type
Proximity switches	SME-8-K(S)-LED-24 SMT-8-PS(NS)-K(S)-LED-24-B
Designation labels for the sensor groove	SBS-8 x 10
Shock absorber	YSRW-...

Fig. 16

10 Eliminating faults

Fault	Possible cause	Remedy
Hard knocking in stroke end position	Shock absorber defective	Replace shock absorber
	Positioning element over-loaded	Reduce the impact speed
Loud knocking at start of stroke	Rubber buffer worn	Replace rubber buffer (only with YSRWJ-7/8-...)
Faults in position interrogation	Position of proximity switches incorrect	Correct position of proximity switches
	Incorrect type of proximity switch used	Use only proximity switches of type SME/SMT-8-...-B
	Proximity switch defective	Replace proximity switch
	Ferritic parts in vicinity of proximity switch	Use parts made of non-magnetic materials

Fig. 17

11 Technical specifications

Type	YSRWJ-...		
	5-8-A	7-10-A	8-14-A
Mounting position	As desired		
Cushioning type	Hydraulic cushioning (progressive)		
Fastening thread	M8x1	M10x1	M12x1
Cushioning length	7.5 mm	9.5 mm	13.5 mm
Max. cushioning energy per stroke	1 Nm	2 Nm	3 Nm
Max. cushioning energy per stroke	10000 Nm	15000 Nm	21000 Nm
Mass area	up to 2 kg	up to 5 kg	up to 10 kg
Max. permitted impact force	200 N	300 N	500 N
Max. actuation frequency	dDepending on energy per stroke		
Resetting force *)	1.5 N	2 N	3.5 N
Min. insertion force to guarantee reaching end position	5 N	18 N	80 N
Approach speed	– minimum 0.1 m/s		
	– maximum 2 m/s		3 m/s
Stroke times	max. on max. off	Depending on energy per stroke < 0.2 s	
Permitted temperature range	0 °C ... max. 60 °C		
Materials	Nuts, housing: Plunger: Sensor profile: Shock absorber housing, Threaded tube: O-rings, rubber buffer:		St (zinc-plated) St (hardened) Al (anodized) Ms (nickel plated) NBR
Weight	0.045 kg	0.075 kg	0.11 kg

Fig. 18 *) with extended stop plunger

YSRWJ-...-A

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