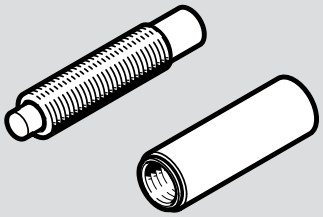
DYSS-G8
Shock absorber



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Operating instruction

8191013
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[8191015]

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Translation of the original instructions

1 Applicable documents

All available documents for the product ➔ www.festo.com/sp.

2 Safety

2.1 Safety instructions

- Only use the product in its original condition without unauthorised modifications.
- Observe the identifications on the product.
- Store the product in a cool, dry environment protected from UV and corrosion. Keep storage times short.
- Repair of the product is not permitted.
- Before working on the product, switch off the compressed air supply and lock it to prevent it from being switched on again.

2.2 Intended use

The shock absorber absorbs the impact energy and positions the slide end position on mini slides.

2.3 Training of qualified personnel

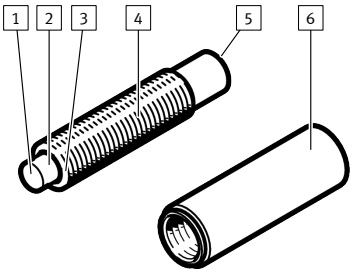
Work on the product may only be carried out by qualified personnel who can evaluate the work and detect dangers. The qualified personnel have knowledge and experience in dealing with pneumatic drives and pneumatic axes.

3 Additional information

- Contact the regional Festo contact if you have technical problems ➔ www.festo.com.
- Accessories and spare parts ➔ www.festo.com/catalogue.

4 Product overview

4.1 Product design



1 Buffer
2 Piston rod
3 Fixed stop
4 Male thread
5 Internal hexagon
For DYSS-G8-2: slot
6 Threaded sleeve

Fig. 1: Product design

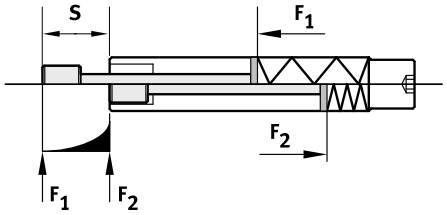
The screw in the internal hexagon socket of the shock absorber must not be loosened.

NOTICE

Tensile forces on the piston rod can seriously damage the shock absorber.

4.2 Function

Insertion force F2 acting on the buffer moves the piston rod of the hydraulic shock absorber through the cushioning length s to the fixed stop to the end position. When the piston rod is retracted, the hydraulic fluid in the shock absorber flows through a path-dependent flow control valve and cushions the motion.
If the insertion force is less than the reset force F1 of the internal compression spring, the piston rod returns to the initial position.



F1 Reset force
F2 Insertion force
s Stroke/cushioning distance

Tab. 1: Function

5 Assembly

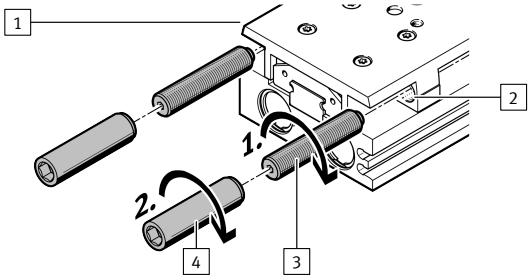


Fig. 2: Example of mounting on the mini slide DGST

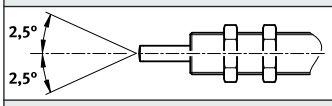
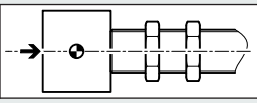
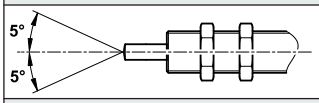
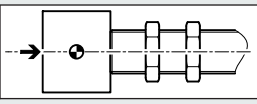
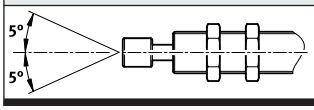
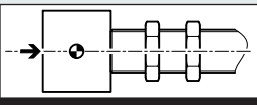
1 Thread on housing: cushioning for retracted end position
2 Thread on slide: cushioning for extended end position
3 Shock absorber
4 Threaded sleeve

For mini slides without pre-assembled shock absorbers:

1. Screw the shock absorbers into the thread on the housing 1 and into the thread on the slide 2.
2. Screw the threaded sleeves 4 onto the shock absorber 3.

6 Aligning payload

- Observe the axial direction of force of the moving mass to the axis of the shock absorber.
- The mass must contact the piston rod and the fixed stop over a wide area.

Force direction, max. deviation	Alignment of the mass
DYSS-G8-2	
	
DYSS-G8-3/-4	
	
DYSS-G8-5 ... -10	
	

Tab. 2: Permissible axial force direction and alignment of the moving mass

7 Commissioning

7.1 Setting slide end positions

When setting the end positions, observe the permissible setting range ➔ www.festo.com/catalogue. Non-compliance can lead to the destruction of the product.

The permissible setting range is maintained in the factory setting of mini slides with pre-assembled shock absorbers.

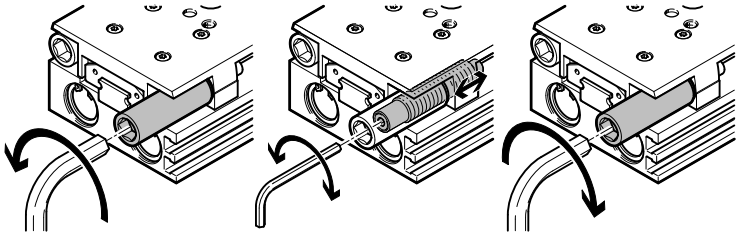


Fig. 3: Example of setting the slide end positions on the mini slide DGST

1. Loosen the threaded sleeves.
2. Position the slide first at the retracted and then at the advanced end position.
3. At the end position: screw in the shock absorbers to the end position. Turn the internal hexagon/slot [5] and do not exceed the maximum torque. Observe with the permissible setting range. If the minimum distance is not enough, the shock absorbers will not be completely effective and the product will impact internally.
4. At the end position: pressurise the slide as a counterhold to the shock absorber. Tighten the threaded sleeve. Observe the tightening torque and the tolerance ± 20%.

DYSS-G8		-2	-3	-4	-5	-7	-8	-10
Internal hexagon/slot on the shock absorber								
Max. torque	[Nm]	0.1	0.5	0.6	1	3	5	10
Threaded sleeve								
Tightening torque	[Nm]	0.4	0.64	0.8	1.6	2.4	4	6.4

NOTICE

The exact slide position must be checked during a test run with compressed air applied and, if necessary, corrected.

1. Reduce the velocity of the mini slide.
2. Observe with the maximum energy absorption ➔ 11 Technical data.

7.2 Executing test run

1. Start the test run at the drive with reduced velocity.
2. If necessary, readjust the position of the shock absorber.
3. Gradually increase the velocity of the drive to the operating value in steps.
   - If set correctly, the end position is reached without a hard stop.
   - With hard stop:
     - Reduce the impact velocity if necessary.
     - Check the function and sizing of the shock absorber.

7.3 Notes on operation

Energy absorption

- Only use the shock absorber within the permissible range of 25 % ... 100 % of the maximum energy absorption ➔ 11 Technical data.

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Recommendation: use the shock absorber within the optimum range from 50 % ... 80 % of the maximum energy absorption.

Energy absorption	Note
0 ... 25 %	Unfavourable; fluid leakage at the shock absorber may be increased
25 ... 50 %	Permitted
50 ... 80 %	Optimal
80 ... 100 %	Permitted
> 100 %	Impermissible

Tab. 3: Energy absorption of the shock absorber

Cushioning effect

The viscosity of the hydraulic fluid decreases over its operating life due to the generated friction heat. This can reduce the cushioning effect.

8 Maintenance

Maintenance interval	Maintenance work
Every 2 million load changes	Check shock absorber: – sealing, no fluid leakage – fixed stop, no deformation – Cushioning distance s ➔ 11 Technical data In case of leakage, hard stop or cushioning distance too short: replace shock absorber.

Tab. 4: Maintenance schedule

The hydraulic fluid in the shock absorber cannot be topped up or changed.

9 Fault clearance

Malfunction	Cause	Remedy
Leakage/fluid leakage	The shock absorber is faulty	– Replace the shock absorber.
Hard stop in the end position	The shock absorber is overloaded	– Reduce the impact velocity. – Check the sizing of the shock absorber.
	The shock absorber is faulty.	– Replace the shock absorber.

Tab. 5: Fault clearance

10 Disposal

⚠ CAUTION

The product contains pressurised hydraulic fluid that can escape in an uncontrolled manner if the housing is damaged.

The hydraulic fluid can injure people's eyes and skin and damage the environment.

- Have the product disposed of by a qualified waste disposal company.
- Do not destroy the product in order to drain the hydraulic fluid.

11 Technical data

DYSS-G8		-2	-3	-4	-5
Stroke/cushioning length s	[mm]	4	4	4	5
Male thread		M4x0.5	M5x0.5	M6x0.5	M8x1
Mode of operation		Single-acting, pushing			
Cushioning		Self-adjusting			
Mounting position		Any			
Max. mass	[kg]	0.8	1	1.7	2.5
Max. energy absorption per stroke at +20 °C[1]	[J]	0.1	0.4	0.8	1.4
Max. energy absorption per hour at +20 °C[1]	[kJ]	0.27	4.5	5.5	8
Max. operating frequency[2]	[cycles/min]	50	80	80	80
Impact velocity	[m/s]	0.1 ... 0.5	0.1 ... 1.0		
Min. insertion force F_2	[N]	2.5	3.5	4.5	10
Max. stop force at end position	[N]	60	80	100	200
Min. reset force F_1	[N]	0.7	0.5	0.7	0.9
Max. reset time at +20 °C[3]	[s]	0.5	0.2		
Ambient temperature	[°C]	–10 ... +70	–10 ... +80		

1) At higher temperatures in the range of 80 °C the maximum mass must be reduced by approximately 50%.
2) For energy utilisation from 70 % per stroke.
3) At temperatures below 0 °C the reset time can increase to 1 s. The reset time may increase during continuous actuation in the end position.

Tab. 6: Technical data, DYSS-G8-2 ... -5

DYSS-G8		-7	-8	-10
Stroke/cushioning length s	[mm]	5	8	10
Male thread		M10x1	M12x1	M14x1
Mode of operation		Single-acting, pushing		
Cushioning		Self-adjusting		
Mounting position		Any		
Max. mass	[kg]	5.5	15	20
Max. energy absorption per stroke at +20 °C[1]	[J]	2	3	6
Max. energy absorption per hour at +20 °C[1]	[kJ]	12	18	25
Max. operating frequency[2]	[cycles/min]	70	50	50
Impact velocity	[m/s]	0.1 ... 1.5		
Min. insertion force F_2	[N]	10	18	24
Max. stop force at end position	[N]	300	500	700
Min. reset force F_1	[N]	1.2	2.5	4
Max. reset time at +20 °C[3]	[s]	0.2		
Ambient temperature	[°C]	–10 ... +80		

1) At higher temperatures in the range of +80 °C the maximum mass must be reduced by approximately 50%.
2) For energy utilisation from 70 % per stroke.
3) At temperatures below 0 °C the reset time can increase to 1 s. The reset time may increase during continuous actuation in the end position.

Tab. 7: Technical data, DYSS-G8-7 ... -10