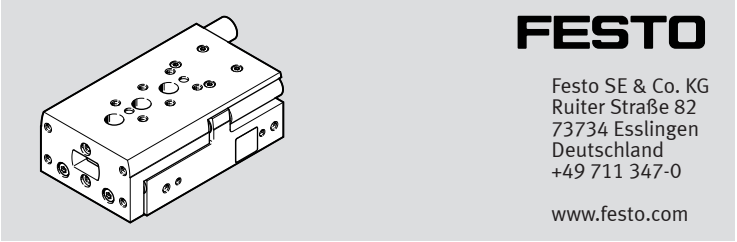


DGST
Mini slide



Operating instructions

8149643
2021-04c
[8149645]



Translation of the original instructions

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1 Applicable documents

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

Table with 3 columns: Documents, Product, Table of contents. Rows include Operating instructions for Shock absorber DYSS-G8 and Shock absorber DYEF-G8.

Tab. 1

2 Safety

2.1 Safety Instructions

- Take into consideration the ambient conditions at the location of use.
- Only use the product in original status without unauthorised modifications.
- Observe labelling on the product.
- Store the product in a cool, dry, UV-protected and corrosion-protected environment. Ensure that storage times are kept to a minimum.
- Prior to mounting, installation and maintenance work: Switch off compressed air supply and secure it from being switched back on.
- Observe tightening torques. Unless otherwise specified, the tolerance is ± 20 %.

2.2 Intended use

The product is intended for the space-saving transport of masses. A high degree of positioning accuracy is achieved. The product is approved for slide operating mode.

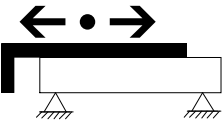


Fig.1

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 design

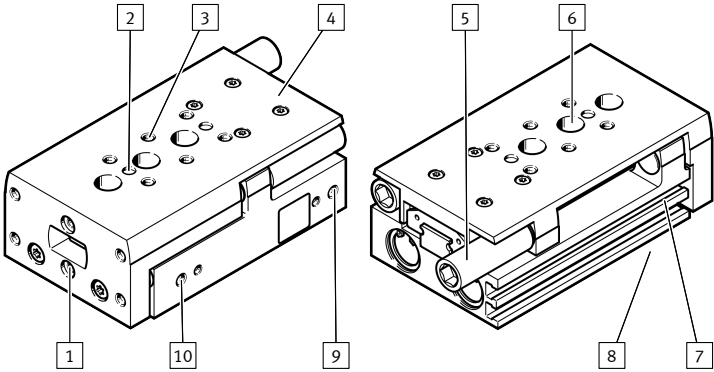


Fig.2

- 1 Thread with centring hole for mounting the payload
- 2 Centring
- 3 Thread for mounting the payload
- 4 Slide
- 5 Shock absorber with threaded sleeve:
- DGST-...-P: elastic cushioning
- DGST-...-Y12: hydraulic cushioning
- 6 Drill holes for mounting the mini slide from above (concealed under the slide)
- 7 Slot for proximity switch
- 8 Thread for mounting the mini slide from below (concealed underneath)
- 9 Supply port (extending)
- 10 Supply port (retracting)

5 Function

The DGST mini slide is a non-rotating twin--piston drive with bearing guide. The slide is moved back and forth by alternate pressurisation of the supply ports. The DGST-...-E1 is the basic variant with internal elastic cushioning and without the setting option of adjusting the stroke. The slide is braked at the end position by suitable shock absorbers.
- For DGST -...- P: via external elastic shock absorbers DYEF-G8.
- For DGST -...- Y12: via external hydraulic shock absorbers DYSS-G8.
These shock absorbers can also adjust the stroke.

6 Transport and storage

NOTICE
Unexpected and unbraked movement of components
• Secure moving components for transport.

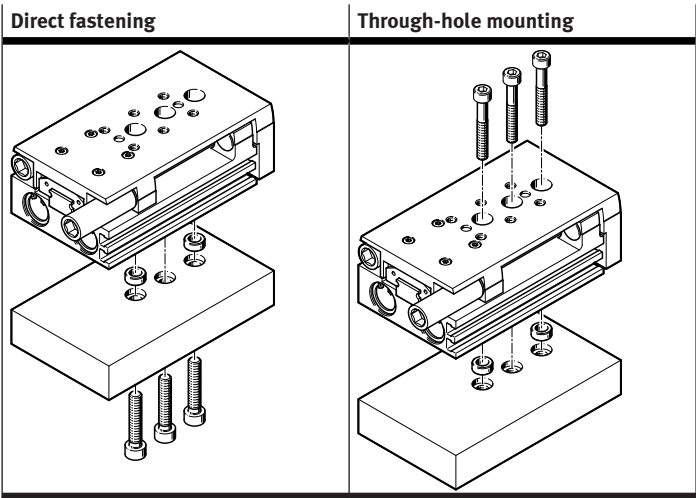
7 Assembly

7.1 Preparation

- Do not modify screws and threaded pins.
Exception: immediate requirement for change in this instruction manual.
- Position the product so the controls are accessible, e.g. threaded sleeves for shock absorbers.
- Mount product without torsional stresses.
- Mount the product on a mounting surface with flatness of 0.05% of the stroke length, but max. 0.1 mm.
- If needed: select mounting components or accessories -> www.festo.com/catalogue. Centring sleeves are not included in the scope of delivery.
To prevent collisions, mount the mounting components outside the positioning range.

7.2 Mounting

- 1. Mount drive ensuring that the minimum number of screws is used.

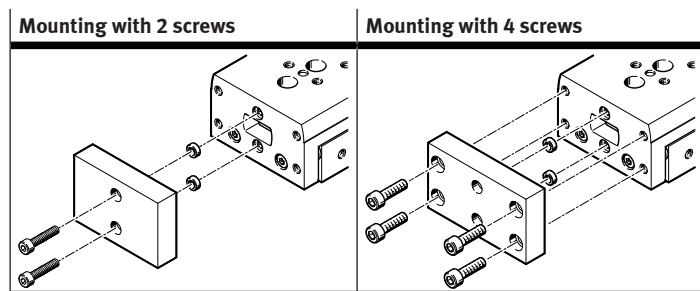


- 2. Tighten screws evenly.

DGST-...	6	8	10	12	16	20	25
Minimum number of screws dependent on stroke							
10 ... 150 [mm]	2	2	2	2	2	2	2
200 [mm]	–					3	
Direct fastening							
Screw	M4	M4	M5	M5	M6	M8	M8
Centring [H7] [mm]	5	5	7	7	9	12	12
Through-hole mounting							
Screw	M3	M3	M4	M4	M5	M6	M6
Centring [H7] [mm]	5	5	7	7	9	12	12

7.3 Attachment

- Mount the attachment on the slide or the yoke plate with screws and centring elements. Observe maximum screw-in depth D. If needed: select mounting elements or accessories → www.festo.com/catalogue. Centring sleeves are not included in the scope of delivery.



DGST	6	8	10	12	16	20	25
Mounting on the slide (top)							
Screw	M3	M3	M4	M4	M5	M5	M6
Max. screw-in depth D [mm]	3.1	5.5	4.5	5.2	7.2	8	11
Centring [H7] [mm]	Ø 5	Ø 5	Ø 5	Ø 5	Ø 5	Ø 12	Ø 12
Mounting on the slide with 2 screws (front)							
Screw	–	M3	M3	M4	M4	M5	M6
Max. screw-in depth D [mm]	–	4.7	5.2	6.4	6.4	7.4	7.4
Centring [H7] [mm]	–	Ø 5	Ø 5	Ø 7	Ø 7	Ø 12	Ø 12
Mounting on the slide with 4 screws (front)							
Screw	M3	M3	M4	M4	M5	M5	M6
Max. screw-in depth D [mm]	4.5	4.5	6.5	6.5	8	8	10
Centring [H7] [mm]	Ø 2H8	Ø 5	Ø 5	Ø 7	Ø 7	Ø 12	Ø 12

7.4 Mounting Accessories

Shock absorber

DGST-...-E1 with internal cushioning:

NOTICE

When operating the product with internal cushioning, reduce the speed.

- Observe permitted impact energy → Technical data.

Suitable shock absorbers can be retrofitted to the DGST

→ www.festo.com/catalogue.

Proximity switch

For position sensing with proximity switches:

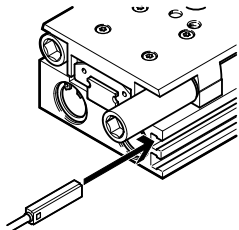


Fig. 3: Position sensing

- Slide proximity switches into the slots [7] → Fig. 1.
- Avoid external influence caused by magnetic or ferritic parts in the vicinity of the proximity switches. Check the required distance in the application case.
- To prevent contamination: use slot covers on all unused slots → www.festo.com/catalogue.

One-way flow control valves

To set the velocity:

- Use one-way flow control valves in the supply ports. They are screwed directly into the supply ports.

To secure the payload from dropping if the pressure fails:

- Use check valves.

8

Pneumatic installation

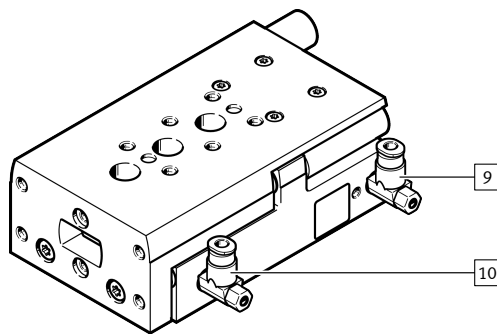


Fig. 4: Supply ports with one-way flow control valves

9 Supply port (extending) 10 Supply port (retracting)

- Use one-way flow control valves to set the speed of the slide.
- Connect hoses to supply ports:
 - extending movement [9].
 - retracting movement [10].

9 Commissioning

9.1 Preparation

NOTICE

Unexpected movement of components.

- Keep foreign objects out of the positioning range.
- Initiate start-up at low speed.

- Slowly pressurise complete system. Use on-off valve HEL for slow start-up pressurisation.

With medium or large payloads or at high speeds:

- Use sufficiently dimensioned arrester fixtures. Without the use of external arrester fixtures, the product will withstand the maximum speeds and payloads defined in the catalogue or the technical data.

9.2 Set slide end positions

In the factory settings for the mini slide DGST-...-P/-Y12 the minimum distance L of the shock absorbers specified below for the slide end positions must be observed.

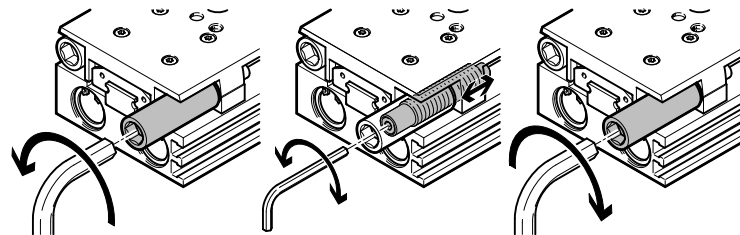
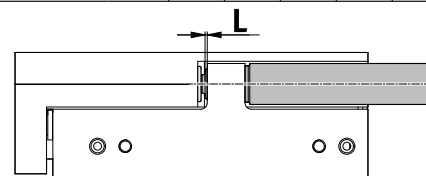
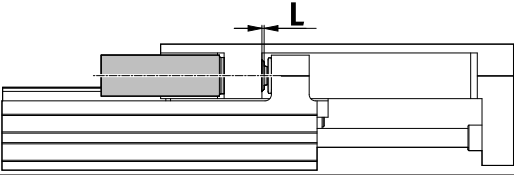


Fig. 5: Adjustment of the slide end positions

- Loosen threaded sleeves.
- Position the slides one after the other in the retracted and advanced end positions.
- At the end position: screw in the shock absorber to the end position. Do not exceed the maximum torque when screwing the internal hexagon socket/slot. Maintain minimum distance L. If the minimum distance L is not long enough, the shock absorbers will not be completely effective and the mini slide will impact internally. This can lead to the destruction of the mini slide.

Mini slide DGST-...	6	8	10	12	16	20	25
Shock absorber DYE-F-G8-M...-	4	5	6	8	10	12	14
Shock absorber DYSS-G8-...	2	3	4	5	7	8	10
Retracted end position							
Minimum distance L [mm]	2.5	2	2	2	2	2.5	2.5



Mini slide DGST-...	6	8	10	12	16	20	25
Shock absorber DYE-F-G8-M-...	4	5	6	8	10	12	14
Shock absorber DYS-G8-...	2	3	4	5	7	8	10
Extended end position							
Minimum distance L [mm]	1.5	1.3	1.4	1.4	1.35	1.25	1.5
							

- At the end position: pressurise the slide as a counterhold to the shock absorber. Tighten the threaded sleeve to the tightening torque.

Mini slide DGST-...	6	8	10	12	16	20	25
Shock absorber DYE-F-G8-M-...	4	5	6	8	10	12	14
Shock absorber DYS-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
Tolerance ± 20%							

NOTICE

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

9.3 Test run

NOTICE

Risk of collision by payloads that protrude through the rotor/slide.

- Only turn adjusting screws while the rotor/slide is stationary.

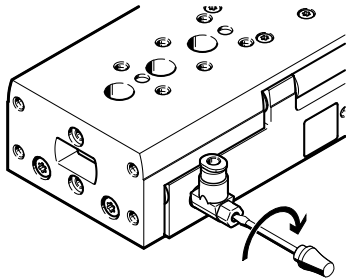


Fig.6

- First of all, fully close the one-way flow control valves on both sides, then open them one complete revolution.
- First pressurise drive simultaneously at both sides.
 - The slide moves slightly to a point of balance.
- Then exhaust the drive on just one side.
 - The slide moves to an end position.
- Start test run.
- If needed: correct speed at the one-way flow control valves. The slide should reach the end positions without striking them harshly or recoiling.

10 Cleaning

Clean the product with a soft cloth. Do not use aggressive cleaning agents.

For use with reduced particle emission:

- Remove abrasion and contamination from the product on the following schedule:
 - Prior to initial commissioning.
 - Regularly during operation.

11 Malfunctions

11.1 Fault clearance

Fault description	Cause	Remedy
Slide moves unevenly.	One-way flow control valves are not installed correctly.	Throttle exhaust air.
Slide in initial position despite pressurisation.	Tubing faulty.	Check tubing.
Slide speed too low.	Insufficient air volume.	<ul style="list-style-type: none"> Increase connection cross-sections. Check flow control valve setting. Connect volume upstream.

Fault description	Cause	Remedy
Slide stops in the end position without cushioning.	Speed too high.	Reduce speed.
	Insufficient cushioning.	<ul style="list-style-type: none"> Reset shock absorber/fixed stop → 9.1 Preparation. Reduce speed. Check shock absorber and replace if necessary.
	Missing air cushion.	Pressurise both supply ports simultaneously, then exhaust one side.
	Shock absorber faulty.	Replace shock absorber.
Payload too high		Reduce payload.

Tab. 2: Fault clearance

11.2 Repair

Send the product to the Festo repair service for repair.

- Replacement of shock absorbers → 1 Applicable documents.

12 Technical data

Size	6	8	10	12	16	20	25	
Design	Drive with scotch yoke system							
Guide	recirculating ball bearing guide					three-part cage guide		
Mode of operation	double-acting							
Pneumatic port	M3	M5				G1/8		
Mounting position	any							
Ambient temperature [°C]	−10 ... +60							
Cushioning								
DGST-...-E1	Elastic cushioning, without end-position adjustment, at both ends							
DGST-...-P	Elastic cushioning at both ends, non-adjustable, with end-position adjustment							
DGST-...-Y12	Shock absorber, self-adjusting on both sides, with end-position adjustment							
Max. velocity								
DGST-...-E1/Y12	[m/s]	0.5						
DGST-...-P	[m/s]	0.5	0.8					
Repetition accuracy								
DGST-...-E1/P	[mm]	≤ 0.3						
DGST-...-Y12	[mm]	≤ 0.02						
Operating conditions								
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]							
Information on the operating medium	lubricated operation possible, in which case lubricated operation will always be required							
Operating pressure ¹⁾	[MPa]	0.15 ... 0.8		0.1 ... 0.8				
	[bar]	1.5 ... 8		1 ... 8				
	[psi]	22 ... 116		15 ... 116				
Forces								
Theoretical force at 6 bar (supply)	[N]	34	60	94	136	241	377	589
Theoretical force at 6 bar (return)	[N]	25	45	79	102	207	317	495
Impact energy at the end positions								
– DGST-...-E1	[J]	0.012	0.03	0.05	0.07	0.15	0.2	0.3
– DGST-...-P	[J]	0.018	0.05	0.08	0.12	0.25	0.35	0.45
– DGST-...-Y12 (per stroke)	[J]	0.09	0.18	0.28	0.48	0.85	1.9	3.6
Max. operating frequency								
For DGST -...- Y12	[cycles/min]	50	80	80	80	70	50	50
Weights								
Product weight at 10 mm stroke with DGST-...-E1	[g]	90	129	247	391	454	978	1463
Product weight at max. stroke with DGST-...-E1	[g]	172	310	561	988	1402	3275	4803
Materials								
Slide, housing	Anodised wrought aluminium alloy							
Piston rod	High-alloy stainless steel							
Guide	High-alloy steel, POM, TPE							
Seals	HNBR/PU							

1) The min. operating pressure for sizes 6/8/10/12 can be slightly increased after a rest period > 24 h.

Tab. 3: Technical data DGST