

# Operating Manual Pneumatic Stroke Limitation for DELTA SW4 / M4



Read and understand this manual prior to operating or servicing this product.



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<b>Content</b>	<b>Page</b>
<b>1. General Terms</b>	<b>2</b>
<b>2. Safety Instructions</b>	<b>2</b>
<b>3. Mode of Operation</b>	<b>3</b>
<b>4. Dimensions</b>	<b>4</b>
<b>5. Technical Data</b>	<b>4</b>
<b>6. Service Instructions</b>	<b>5 - 6</b>
<b>7. Trouble Shooting</b>	<b>7</b>
<b>8. Spare Parts Lists</b>	

**Stroke Limitation SW4, M4 - RN 01.054.87**



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## 1. General Terms

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This operating manual has to be read carefully and must be observed by the competent operating and maintenance personnel.

We have to point out that we will not accept any liability for damage or malfunctions resulting from the non-compliance with this operating manual.

Descriptions and data given herein are subject to technical changes.

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## 2. Safety Instructions

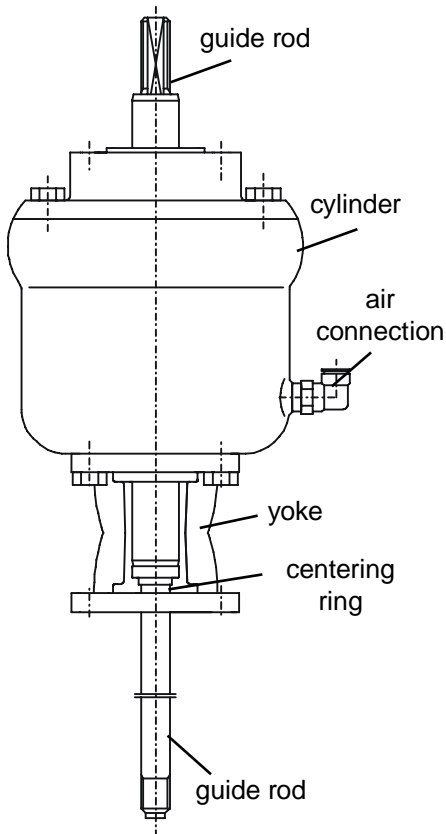
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### **DANGER!**

- The technical safety symbol draws your attention to important directions of operating safety. You will find it wherever the activities described are bearing risks of personal injury.
- Electric and pneumatic connections must be separated.
- Do not reach into the open valve.
- Risk of injury by suddenly operating valve. In dismantled state there is the risk of bruising at movable parts of the valve.
- Observe service instructions to ensure a safe maintenance of the valve.
- The welded actuator is under spring load, do not open it by force.

### 3. Mode of Operation



A pneumatic stroke limitation can be used for the valve series DELTA SW4 / M4.

The valves SW4 / M4 with pneumatic stroke limitation must be designed in the version NC = normally closed.

The valve design NO = normally open is not suited for the pneumatic stroke limitation.

The pneumatic stroke limitation allows a continuous adjustment of a total valve stroke of 0 - 100 %.

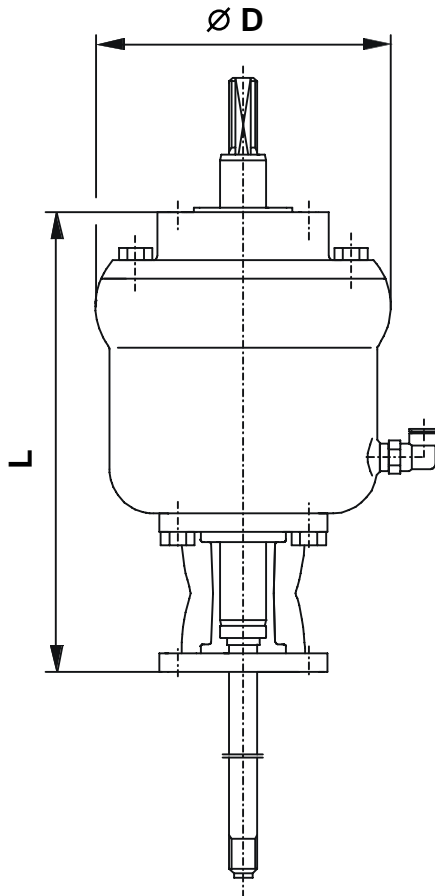
Equipped with the pneumatic stroke limitation, the valve seat can take three different positions: open, throttled and closed.

The required opening cross section is adopted by an adjusting screw.

A separate control is needed to operate the pneumatic stroke limitation.

The inner parts of the cylinder are maintenance-free.

## 4. Dimensions



	L in mm	$\varnothing D$ in mm
stroke limitation SW4 - 110	196	126
stroke limitation SW4 - 165	218	189

## 5. Technical Data

cylinder:	1.4301
max. stroke:	28 mm
throttle adjustment:	continuous from 0 to 100 %
air connection (for hose):	6x1 mm
max. control air pressure:	8 bar
min. control air pressure:	6 bar

**(Use dry and clean control air, only.)**

## 6. Service Instructions

### I. Modifications for valve ranges SW4 / M4

- a. Dismantle the SW4 or M4 valve insert from the valve housing according to the instructions given in the respective operating manual.
- b. Replace the standard SW4 or M4 guide rod against the extended guide rod to install the stroke limitation.

### II. Replacement of guide rod

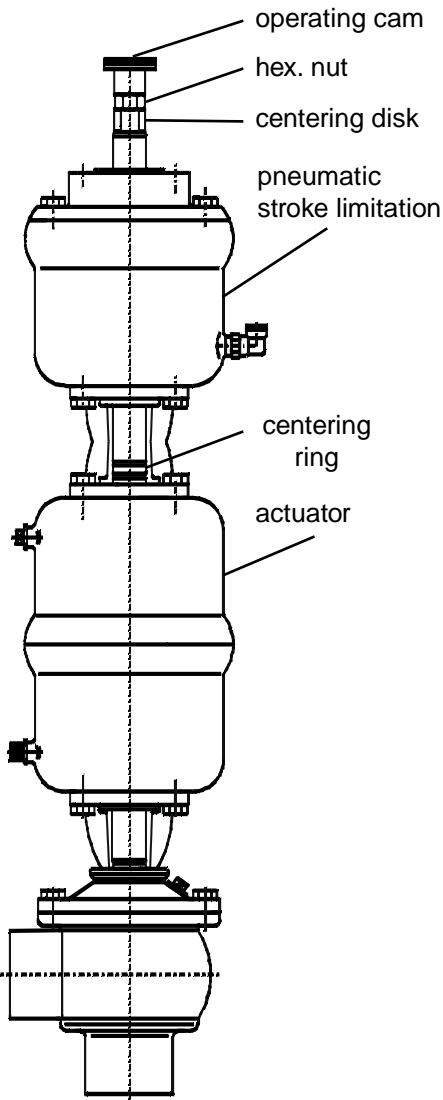
- a. Remove the operating cam.
- b. Unscrew hexagon nut by holding up the centering disk. Remove centering disk.
- c. Detach valve shaft from actuator.
- d. Clamp valve shaft into a vice.

**Attention:** Do not damage the valve shaft.  
(Use protective bracket.)

- e. Take the centering disk and a wrench, size 17 , to remove the guide rod from the valve shaft.
- f. Put the extended guide rod in the shaft.  
**Tightening torque: 40 Nm**
- g. Push the valve shaft through the yoke and the actuator.

### III. Assembly of stroke limitation

- a. Slide the centering ring on the guide rod.
- b. Fasten the pneumatic stroke limitation with yoke by the 4 hex. screws on the actuator.
- c. Attach the centering disk. Screw-on the hex. nut. Hold up the centering disk for this purpose and fasten the hex. nut with a tightening torque of **40 Nm**.
- d. Place the operating cam and tighten it.
- e. Secure the valve position indicator.  
Install the Control Unit.

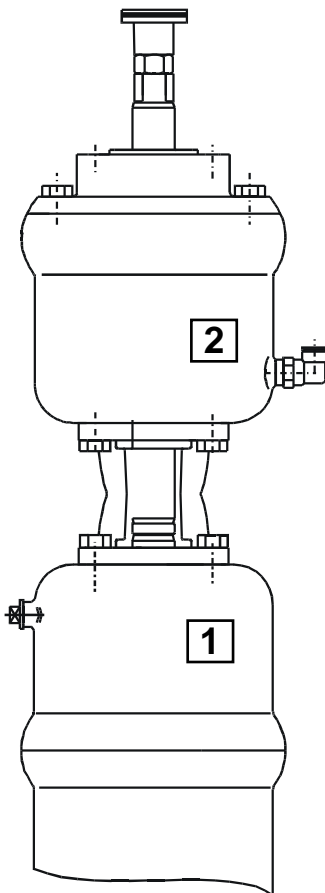




## 6. Service Instructions

### IV. Adjustment of stroke limitation

- a. Remove the Control Unit or valve position indicator.
- b. Remove the adapter **(8)**.
- c. Release the nut **(10)** by a spanner.  
Hold up the adjusting screw for this purpose.
- d. Set the adjusting screw accordingly.
  - turn right** : to increase stroke
  - turn left** : to reduce stroke
- e. Control the stroke limitation with air to check and to measure the stroke.
- f. Fasten the nut **(10)**. Hold up the adjusting screw for this purpose.
- g. Screw-on the adapter **(8)**.
- h. Attach the relevant valve position feedback.



### V. Control of stroke limitation

To open a sectional stroke in the valve, observe the following aspects for the control of the valve:

valve position	step of control
<b>valve from open position to sectional stroke</b>	
open	Control actuator <b>(1)</b>
sectional stroke	1. Leave actuator <b>(1)</b> controlled.
	2. Control pneumatic stroke limitation <b>(2)</b> .
	3. Vent actuator <b>(1)</b> .
closed	Vent pneumatic stroke limitation <b>(2)</b> .
<b>valve from closed position to sectional stroke</b>	
closed	Main cylinder <b>(1)</b> and stroke limitation <b>(2)</b> depressurized.
sectional stroke	Control pneumatic stroke limitation <b>(2)</b> .

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## 7. Trouble Shooting

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The item numbers refer to the spare parts list RN: 01.054.87.

Air leakage at the  
seal screw **(3)** : Replace seal screw **(3)**.

Permanent  
air leakage at the  
nut (10) : Replace stroke limitation **(1)**.

Flow quantity  
too small or too high : Adjust sectional stroke of valve.  
(see service instructions, **5.IV.**)

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## 8. Spare Parts Lists

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(see annex)



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ID-No.: H 2 0 4 5 1 6  
Translation of original manual



rev. 0



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02/194

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Gezeichnet	27.02.01	Name	Trytko
Geprüft			
Normgepr.			

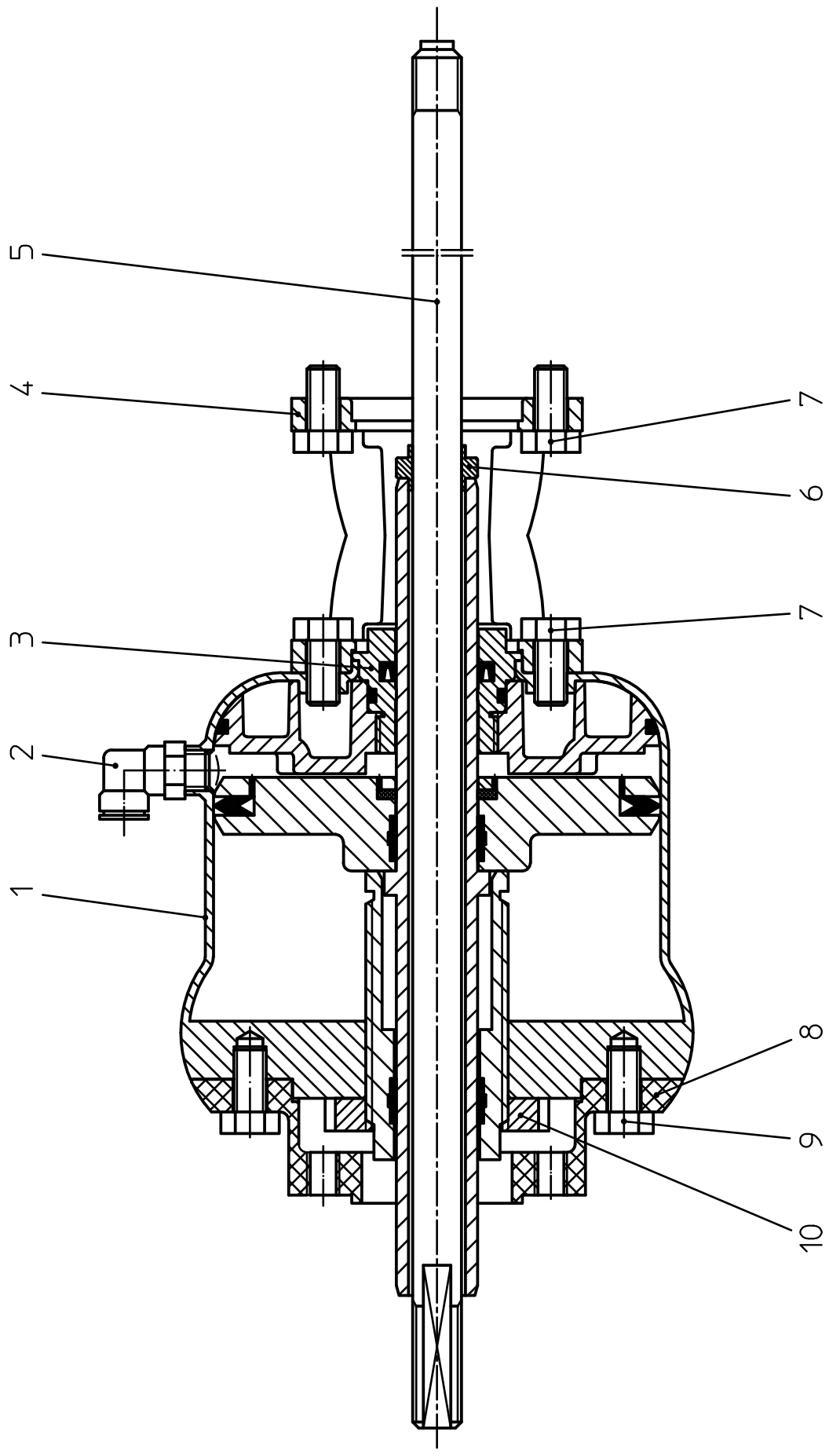
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Datum	02/01					
Name	Trytko					

RN 01.054.87

Ersatzteilliste: spare parts list:

Hubbegrenzung SW4, M4

Stroke limitation SW4, M4





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Ersatzteilliste: spare parts list:		Blatt 2		Name		Datum	
Hubbegrenzung SW4, M4				Trytko		27.02.01	
Stroke limitation SW4, M4				Trytko		07.05.01	
				Normgepr.			
						RN 01.054.87	



Pos item	Benennung description	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
		ø74	ø110	ø165	ø74	ø110	ø165	M4- Steuerkopfgröße / size of actuator			
		WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
1	Hubbegrenzung Stroke limitation	08-48-203/17	08-48-200/17	08-48-201/17	08-48-260/17	08-48-261/17	08-48-262/17				
2	Hubbegrenzung -Schweißteil Stroke limitation -welded	08-48-200/14	=	08-48-201/14	08-48-200/14	=	08-48-201/14				
3	W-Verschraubung schwenkbar Angular union, slewable	08-60-750/93	=	=	08-60-750/93	=	=				
4	Dichtungsschraube kpl Seal screw complete	15-28-840/93	=	=	15-28-840/93	=	=				
5	Laterne für Hubbegrenzung Yoke for stroke limitation	15-40-915/47	=	=	15-40-915/47	=	=				
6	Zugstange für Hubbegrenzung Guide rod for stroke limitation	15-26-060/12	15-26-061/12	15-23-982/12	39-23-113/12	39-23-114/12	39-23-115/12				
7	Zentrierung Centering ring	15-28-850/12	=	=	15-28-850/12	=	=				
8	Skt. Schraube Hex. screw	M8x16 65-01-081/15	=	=	M8x16 65-01-081/15	=	=				
9	Adapter Adapter	08-48-350/93	=	08-48-351/93	08-48-350/93	=	08-48-351/93				
10	Skt. Schraube Hex. screw	M8x16 65-01-081/15	=	=	M8x16 65-01-081/15	=	=				
	Nutmutter Nut	M35x1,5 07-01-050/17	=	=	M35x1,5 07-01-050/17	=	=				