


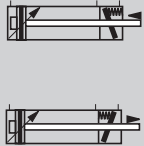


Overview

System	Fig.	Symbol	Series	Page
Locking units for cylinder Ø 32- 125 mm			FSE..	114-117
Cylinder with locking unit Double acting with cushioning For contactless position sensing			DZB.... DZBA....	118-125

Locking Units

to ISO 15552

for series AZ....

Ø 32-100 mm

for series DZ....

Ø 125 mm

Cylinders with Locking Unit

Series DZB....

Ø 32-125 mm

Blocking reverse stroke

Series DZBA....

Ø 32-125 mm

Mountings

to ISO 15552

Locking Unit for Cylinders Ø 32-125 mm

Series FSE..

Version:
with locking unit – locks if
pressure drops

Cylinders see page 46, 47
and 60.

Characteristics

Characteristics	Symbol	Unit	Description					
General								
Description	Piston rod cylinder with locking unit							
Series	AZF							
Locking unit	locks if pressure drops							
Material – Locking unit								
Cartridge	Aluminium, anodised							
Housing	Aluminium, anodised							
Clamping Jaw	Ms							
Cyl. piston rod	Steel, high-alloy							
FSE unlocking pressure	bar	≥4 bis 10						
Cylinder diameter	mm	32	40	50	63	80	100	125
Pilot air connection		M5	M5	G1/8	G1/8	G1/8	G1/8	G1/8
Locking force, static **)	N	600	1000	1500	2200	3000	5000	7000

for further information see standard cylinder on pages 46, 47, 60

Weight (mass) kg

Description	Cylinder diameter						
	32	40	50	63	80	100	125
Locking unit	0.60	0.80	1.00	1.20	1.40	1.60	1.80
Basic cylinder *)	0.70	1.20	1.75	2.32	3.75	4.90	7.87

*) with 100 mm stroke and longer piston rod

**) Note:

The holding force quoted relates to a static load. If this load is exceeded, slippage can occur. Any dynamic forces occurring in operation must not exceed the static holding force. In clamped operating mode, if the load is fluctuating, the clamping unit is not free from play. The cylinder is not suitable for positioning tasks.

Actuation:

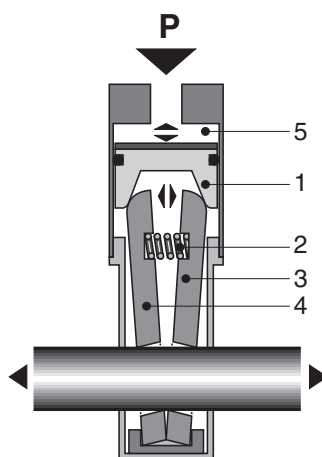
The clamping unit must only be released when both cylinder chambers are pressurised, otherwise there is danger of an accident from the jerky movement of the piston rod. Shutting off the compressed air supply at both ends with a 5/3 way valve provides adequate safety only for a short time.

Function

If the pressure drops the piston rod is locked by two tilting plates.

When the piston (1) is put under pressure it is pushed downwards, pressing the two tilting plates (3) and (4) together. The piston rod is then free to move.

If the pressure drops in piston chamber (5), a spring pushes the two plates (3) and (4) apart, so that the wedge effect pushes the piston (1) upwards and the tilting plates lock the piston rod.

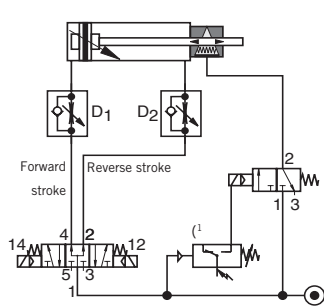


Important

- The locking unit can only be mounted on the cylinder if it is held in its unlocked position either by air pressure or by a suitable screw.
- When the cylinder piston rod is locked it must not be rotated or subjected to external force.

Circuit Diagrams – Cylinder with the Locking Unit FSE-...

Example 1:
Horizontal Application with
5/3 Way Valve - RFB



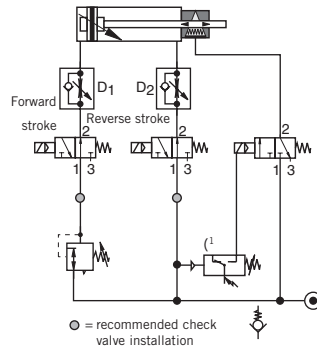
Example 1

When operating pressure is applied the P/E converter is closed and the 3/2 way valve is on through-flow, i.e. the locking unit is unlocked (working position). The locking unit is actuated with a 3/2 way solenoid valve via a pressure switch, whereby if the pressure drops, the pressure switch reacts and the locking unit exhausts via the 3/2 way valve so that the piston rod is locked. The use of the 5/3 way valve ensures that both sides of the cylinder piston are under pressure, so that the piston rod remains wherever it stops. This „stand-still“ however is only enough for the function of the FSE locking unit: without the FSE, the piston rod would continue its forward stroke because of the different piston areas.

After the pressure is equalized on both sides of the cylinder piston the locking unit can be actuated and the piston rod locked. The sequence of operations must therefore be correct: the two throttle/check valves D1 and D2 only control piston speed and have no influence on the actuation of the locking unit.

The fitting of a check valve increases safety because it prevents any movement of the piston before the FSE locks.

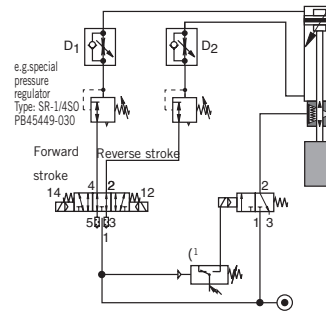
Example 2:
Horizontal Application with
Two 3/2 Way Valves - RFE



Example 2

In contrast to example 1, here the 5/3 way valve is replaced by two 3/2 way valves. The choice will depend on the customer.

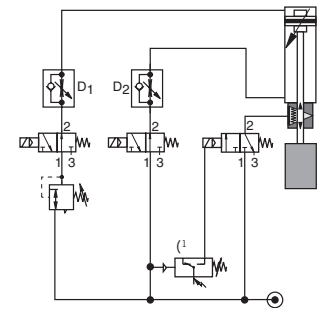
Example 3:
Vertical Application with 5/3
Way Valve - RFE



Example 3

Example 3 is designed for a load acting downwards. The installation of the special pressure regulators between valve and cylinder makes regulation of the stroke direction possible. Venting is carried out via the main valve of the pressure regulator, so that there is no limitation of the stroke times.

Example 4:
Vertical Application with Two
3/2 Way Valves

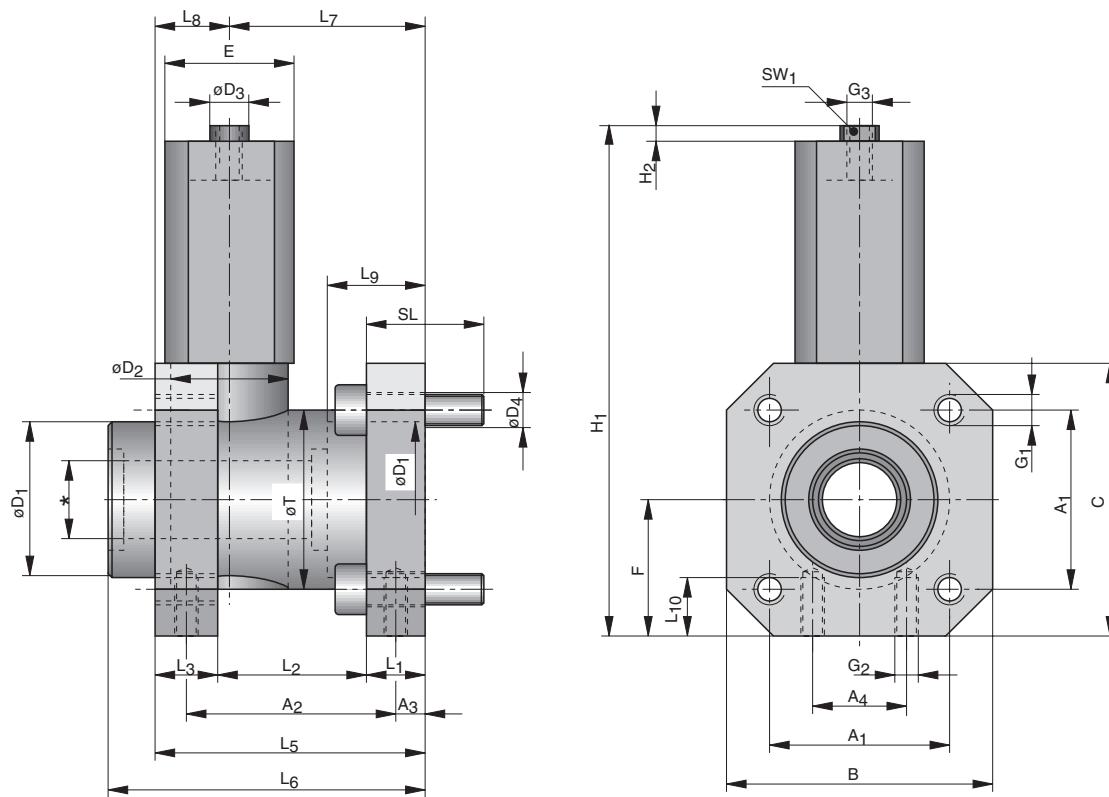


Example 4

This example is basically similar to example 2 but it is designed for a load acting downwards. A regulator on port 5 of the 5/3 way valve or on port 1 of the 3/2 way valve connected to the top end of the cylinder equalizes the forces resulting from the difference in piston areas and the load acting downwards.

⁽¹⁾ **Note:**
without P/E converter: only if the pressure drops
with P/E converter: if the pressure drops or the power fails.

Dimensions – Locking Unit FSE-..., Ø 32 – 125 mm




* Piston rod diameter
for installation dimensions for cylinder with locking unit FSE-... see page 51, 63

Dimensions Table (mm) – for Locking Unit FSE-...

Cyl. Ø	A ₁	A ₂	A ₃	A ₄	B	C	ØD ₁	ØD ₂	ØD ₃	ØD ₄	E	F	G ₁	G ₂
32	32.5	40	4.2	16	48	50	30	20	10	6.6	22.5	25	M6	M5
40	38	46	4.5	21	56	58	35	24	10	6.6	27.5	29	M6	M5
50	46.5	54	11.5	24	68	70	40	30	15	8.5	32.5	35	M8	M6
63	56.5	55	7.5	32	82	85	45	38	15	8.5	41	42.5	M8	M8
80	72	70	10	44	100	105	45	40	19	11	49	52.5	M10	M8
100	89	70	10	60	120	130	55	48	19	11	53	65	M10	M8
125	110	95	11	75	140	150	60	65	19	13	65	75	M12	M10

Cyl. Ø	G ₃	H ₁	H ₂	L ₁	L ₂	L ₃	L ₅	L ₆	L ₇	L ₈	L ₉	L ₁₀	SL	SW1	ØT
32	M5	94	4	8	28	12	48	58	32	16	20.5	8	20	8	34
40	G1/8	102.5	4	10	33	12	55	65	35.5	19.5	22.5	10	25	8	42
50	G1/8	119.5	4	15	39	16	70	82	49	21	29.5	12	30	13	50
63	G1/8	138	4	15	40	15	70	82	49	21	29.5	12	30	13	50
80	G1/8	152	4	16	58	16	90	110	62	28	35.5	16	30	17	60
100	G1/8	193.5	4	16	58	18	92	115	65	27	38.5	16	30	17	60
125	G1/8	223.5	4	25	70	27	122	154	85	37	45.5	20	45	17	80

Order Instructions – Locking unit (without cylinder), Series FSE-..., Ø 32 – 125 mm

Description	Symbol	for Cyl. Ø	Order Instructions	
			Type	Order-No.
Locking unit locks if pressure drops		32	FSE 032	KC 8227
		40	FSE 040	KC 8228
		50	FSE 050	KC 8229
		63	FSE 063	KC 8230
		80	FSE 080	KC 8231
		100	FSE 100	KC 8232
		125	FSE 125	KC 8233