

FEATURES

- It is designed to hold the rod of the cylinder under load in the extended or retracted position in the event of air pressure or power failure during machine operation. The rod-locking device acts mechanically on the cylinder rod. It is disengaged when pressure is applied.
- Easily accessible and quick-to-operate manual operator (3/4 turn)
- Possibility of integrating the following options associated to the manual operator
 - Integrated rod-lock pilot control
 - Detection (magnetic or electro-mechanical) of the position of the manual operator
 - Cylinder startup interlock system (Ø 80-100 mm)
- Simple adaption. The compactly sized rod-locking device has approximately the same dimensions of a standard cylinder
- Possibility of mounting to specially designed cylinders (with overlength piston rod) complying with ISO 15552-AFNOR-DIN standards
- Holding of the piston rod in the end-of-stroke position: with rod extended or rod retracted side
- Holding in position of the maximum allowable cylinder load without creeping
- Bi-directional action
- Optional mounting position

GENERAL (STATIC ROD-LOCKING DEVICE)

Pilot pressure	3 to 6 bar
Ambient temperature	-5°C to +70°C
Pneumatic connection	G1/8 (Ø32 - 63) - G1/4 (Ø 80 - 100)
Standards	According to CNOMO RU-P/10 recommendation

CONSTRUCTION

Body	Anodized aluminium
Piston	Acetal resin
Seals	NBR (nitrile)
Operator body (if any)	Anodized aluminium
Other parts	Same as standard cylinders

MECHANICAL CHARACTERISTICS

Holding forces (static)	Ø 32 mm: 790 N	Ø 50 mm: 1930 N	Ø 80 mm	: 5400 N
	Ø 40 mm: 1240 N	Ø 63 mm: 3060 N	Ø 100 mm	: 7700 N

Example for holding force on a dia. 80 mm cylinder:

Attached weight (corresponding to a pressure of 6 bar and a 75 % load factor) = 2250 N

Additional force (equivalent to a pressure of 6 bar) = 3150 N

$$5400 \text{ N} = 2250 \text{ N} + 3150 \text{ N}$$

Holding force of rod-locking device Attached weight Additional force

THIS PRODUCT IS NOT A SAFETY COMPONENT

DIFFERENT VERSIONS



Rod-locking device alone



Rod-locking device pre-assembled on cylinder



Rod-locking device with manual operator pre-assembled on cylinder

- Integration possibilities:** (see next page)
- Integrated rod-locking device pilot control
 - Integrated position detection (magnetic or electro-mechanical)
 - Cylinder startup interlock system

Cylinder start-up interlock system

Manual 3/4-turn lock-up operator (wrench)

Integrated static rod-locking device pilot control

Possibility to mount an electro-mechanical detector for position detection of manual operator

Magnetic detection of position of manual operator



OPTIONS

The following options and versions cannot be fitted to this cylinder with rod-locking device

Stainless steel piston rod
Reinforced piston rod
High temperature version
Barrel in glass-fibre reinforced epoxy resin
Anti-rotation device

HOW TO ORDER

UNIT CONSISTING OF SERIES 453 OR 450 CYLINDER + STATIC ROD-LOCKING DEVICE

15-DIGIT PRODUCT CODE

G **45-** **A** **-** **S** **-** **----** **A00**

Thread connection
G = ISO 228/1

Product series
453
450

Revision letter
A = Initial release

Diameter (mm)
3 = 32
4 = 40
5 = 50
6 = 63
8 = 80
1 = 100

Rod options 1
Series 453:
S = Standard

Options
A00 = Without option

Recommended standard strokes (mm) ⁽²⁾

Ø mm	connect. Ø	50	80	100	125	160	200	250	320	400	500	630	700	800	900	1000	1500
32	G1/8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
40	G1/8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
50	G1/4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
63	G3/8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
80	G3/8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
100	G1/2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●


⁽²⁾ Other strokes on request. / Min. stroke: 25 mm
max. stroke: 2000 mm

Rod options 2
3 = Static rod-locking device
4 = Static rod-locking device and manual operator

Series 450:
S = Standard (chromed single rod + rod nut)

B

 **MOUNTINGS**
See page P235

 **DETECTORS**
See page P291
(reed switch or magneto-resistive type)

ROD-LOCKING DEVICE ALONE

15-DIGIT PRODUCT CODE

G **492** **A** **-** **1** **2** **-** **000** **A00**

Thread connection
G = ISO 228/1

Product series
492 = Rod-locking device

Diameter (mm)
3 = 32
4 = 40
5 = 50
6 = 63
8 = 80
1 = 100

Accessory subtype 1
0 = Without manual operator
1 = With manual operator and shut-off plate

Accessory type
2 = Static

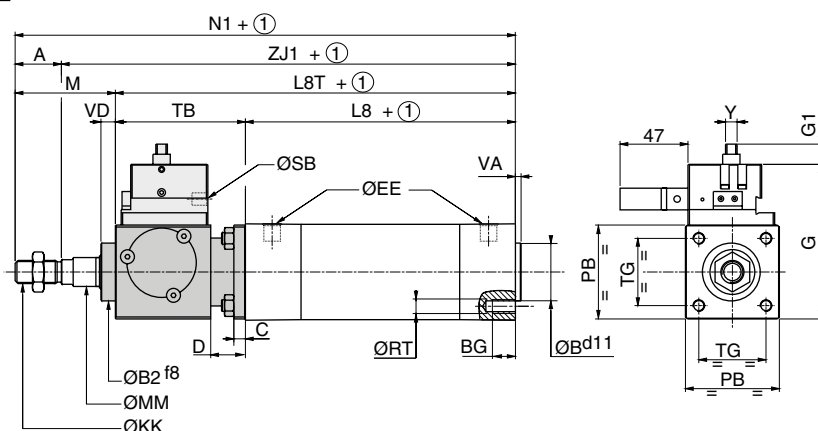
Cylinder type
1 = ISO 15552



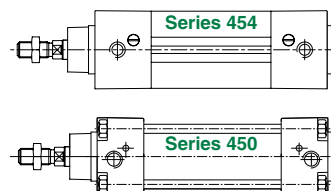
DIMENSIONS (mm), WEIGHT (kg)

ROD-LOCKING DEVICE WITH MANUAL OPERATOR

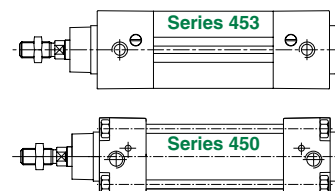
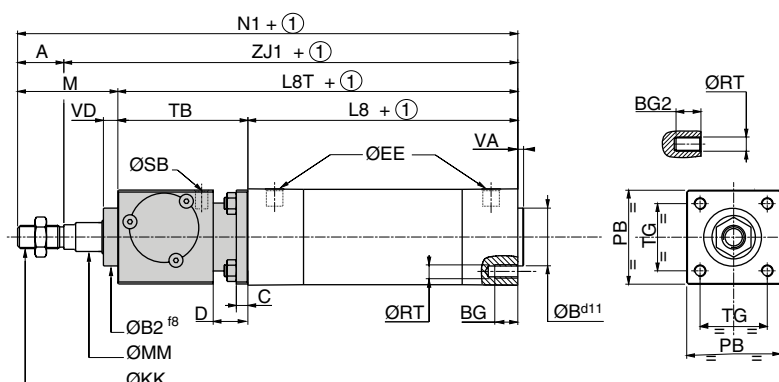
ISO 15552



- Manual operator with integrated rod-lock pilot control
- Static rod-locking device


ROD-LOCKING DEVICE WITHOUT MANUAL OPERATOR

ISO 15552



① Stroke

Ø (mm)	A	ØB2	ØB	BG	BG2	C	D	ØRT	ØEE	G	G1	ØKK	L8	L8T	M	ØMM	N1	PB	ØSB
32	22	30	30	16	8	6	20	M6	G1/8	79,5	11	M10x1,25	94	154	48	12	202	47	G1/8
40	24	34,9	35	16	8	6	20	M6	G1/4	85	11	M12x1,25	105	175	54	16	229	54	G1/8
50	32	40	40	16	12	8	24	M8	G1/4	107	14	M16x1,5	106	196	69	20	265	65	G1/8
63	32	45	45	16	12	8	24	M8	G3/8	113	14	M16x1,5	121	211	69	20	280	75	G1/8
80	40	45	45	17	16	12	32	M10	G3/8	138,5	14,5	M20x1,5	128	238	86	25	324	95	G1/4
100	40	55	55	17	16	12	32	M10	G1/2	155	14,5	M20x1,5	138	248	91	25	339	114	G1/4

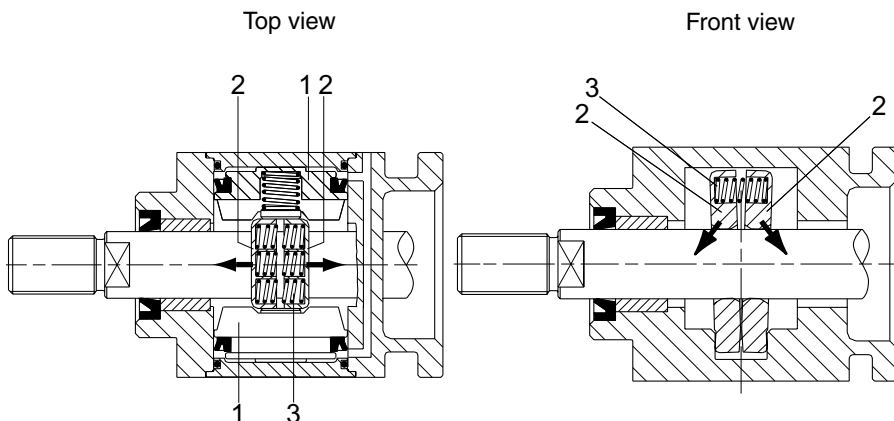
Ø (mm)	TB	TG	VA	VD	Y	ZJ1	weight (rod lock device alone with manual operator)	weight (rod lock device alone without manual operator)
32	60	32,5	4	7,5	8	180	0,700	0,400
40	70	38	4	10	8	205	0,900	0,600
50	90	46,5	4	10	8	233	1,500	1,100
63	90	56,5	4	10	8	248	1,900	1,500
80	110	72	4	10	8	284	3,000	2,600
100	110	89	4	10	8	299	3,900	3,500

NOTE: The rod-locking device is mounted in line and centered on the piston rod. Its outside dimensions are approximately equal to the standard dimensions of the cylinder. The lengths of the versions equipped with the rod-locking device correspond to the standard lengths of the cylinders (see standard products) to which dimension TB is added.

OPERATING PRINCIPLE

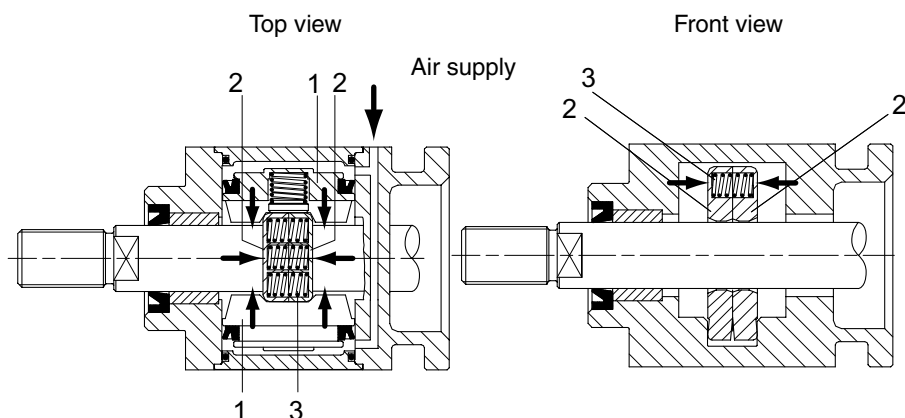
■ NO PRESSURE ON STATIC ROD-LOCKING DEVICE (rod locked)

No pressure is transmitted to the locking pistons (1). The springs (3) apply an axial force onto the two jaws (2) which clamp against the rod, holding it secure.



■ STATIC ROD-LOCKING DEVICE UNDER PRESSURE (rod unlocked)

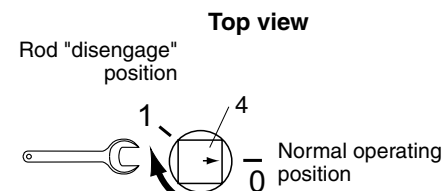
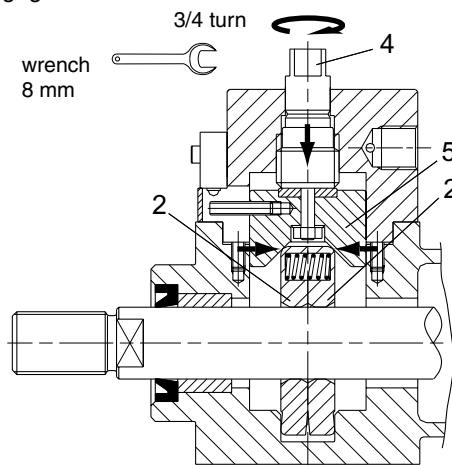
The pressure exerts a force on the 2 pneumatic pistons (1) which come into contact with the two jaws (2), clamping them together. The 2 jaws no longer exert any force on the rod which is free to move.



OPERATING PRINCIPLE OF THE MANUAL OPERATOR

■ NO PRESSURE ON STATIC ROD LOCK DEVICE (rod locked)

Operate the manual operator to disengage the rod.

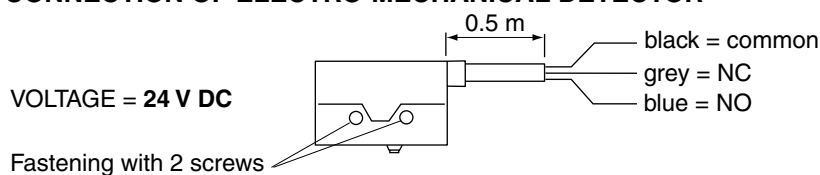


Actuating the manual operator (4) by a 3/4 turn makes the piston (5) come into contact with the two jaws (2), clamping them together. The 2 jaws no longer exert any force on the rod which is unlocked.

Caution: After having operated the manual lock-up operator, it must always be returned to its normal operating position (rod lock device "activated") by a trained and qualified person before starting up the system again.

THIS PRODUCT IS NOT A SAFETY COMPONENT

CONNECTION OF ELECTRO-MECHANICAL DETECTOR



MOUNTING AND OPERATING RECOMMENDATIONS

Precautions should be taken when installing a cylinder fitted with a static rod-locking device. It is important to clearly define the type of layout that is required and the operating conditions of the cylinder.

The cylinder must be locked only in case of need at the end of a cycle in a situation such as:

- failure in electric supply
- failure in pneumatic supply
- drop in pressure

The cylinder may be fitted horizontally or vertically, with the rod either upward or downward.

A specific layout corresponds to each application. The specimen layouts on the following page show the principles to be observed and the stops caused by interruption of the power supply or removal of the pressure by means of electropneumatic valves.

In vertical load movements, the force generated by the pressure on the piston, acting in the same direction as the load, must not exceed the locking capacity of the device when combined to the force of the load.

After any emergency locking operation, make sure that the chambers of the cylinder are filled before the signal to unlock the device is given.

It is recommended to check the correct operation of the static rod-locking devices once a month:

rod-lock system, position detection system, manual lock-up operator mechanism, pilot valve function

MOUNTING OPTIONS

The cylinder is controlled by a 5/3 valve (ISO size 1 for diameters 32, 40 and 50 mm, ISO size 2 for diameters 63, 80 and 100 mm), with centre open to exhaust (type W3 - fig.1), and supplied by exhaust ports 3 and 5.

- NOTE:**
- 1) The static rod lock device must be activated by a 3/2 NC solenoid valve to ensure fast braking of the cylinder rod.
 - 2) It is recommended to use a pressure regulator to compensate the "rod effect" of the cylinder.
 - 3) One-directional flow reducers must be used to control the rate of speed of the rod.

Safety precautions when using the manual operator:

In case of air pressure or power failure, the rod-locking device holds the cylinder rod in place. The two cylinder chambers are exhausted. Only a trained and qualified person may unlock the rod (i.e. place the manual operator in position 1: manual disengagement) and push the cylinder rod in the desired direction.

Caution:

Before starting up the cylinder again, the manual operator must be returned to its normal operating position (position "0"). See cylinder startup interlock system designed for this purpose: Autonomous signal control without the use of a PLC.

HORIZONTAL MOUNTING

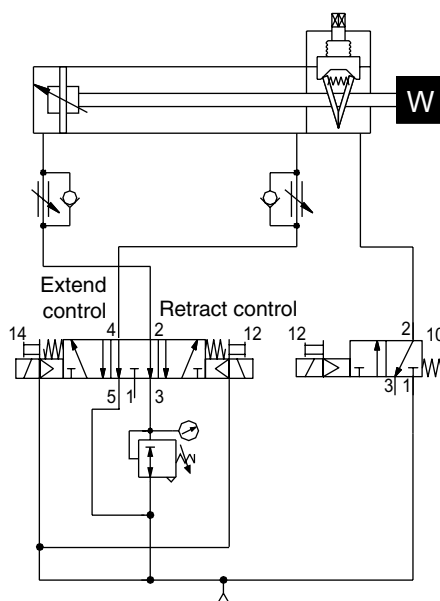


Fig. 1
Cylinder control with a 5/3 valve, centre open to exhaust (type W3)

VERTICAL MOUNTING

Caution:

In case the duly trained and qualified person wishes to operate the manual operator (i.e. place it in position "1": manual disengagement), check the area underneath the load (fig. 2) or the area between the load and the cylinder nose (fig. 3) to make sure there is no hazard.

Fig. 2 - Load underneath the cylinder

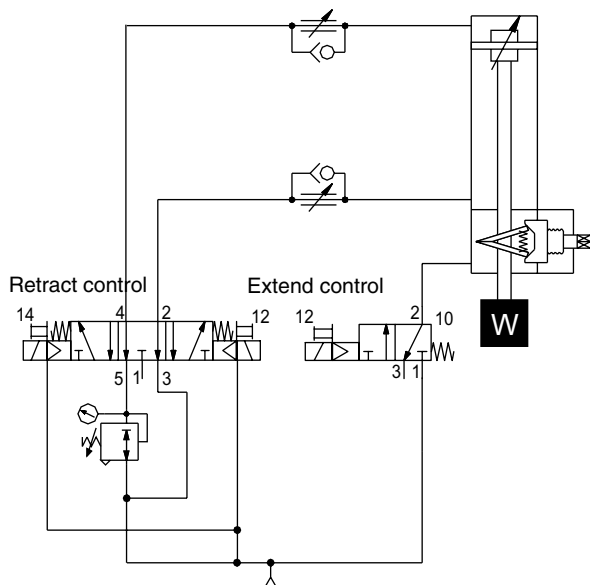


Fig. 3 - Load on top of the cylinder

