

L1-N

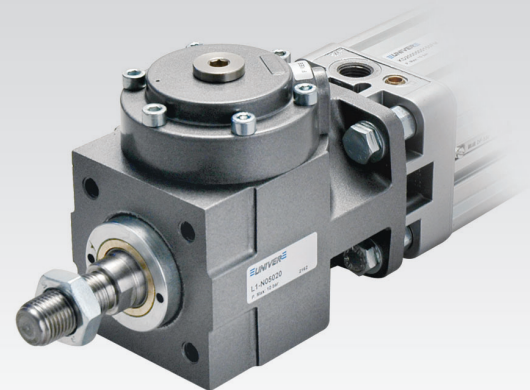
Locking unit for cylinders and rods

A product that combines the familiar and traditional appearance of the UNIVER locking unit to a new and revolutionary "elastic heart", which is able to improve performance under all points of view:

- maximum clamping force
- excellent response time
- high dissipable kinetic energy
- extreme locking repeatability
- excellent resistance to shocks and vibrations
- static locking and dynamic braking in a single component

Available ATEX version upon request

CE Ex II 2Gc IIC T5 II 2Dc T100°C



TECHNICAL CHARACTERISTICS

Ambient temperature	-20 ÷ 80 °C
Fluid	filtered air, with or without lubrication
Working pressure	4 ÷ 10 bar
Cylinders bore	Ø 16 - 20 - 25 - 32 - 40 - 50 - 63 - 80 - 100 - 125 mm

CONSTRUCTIVE CHARACTERISTICS

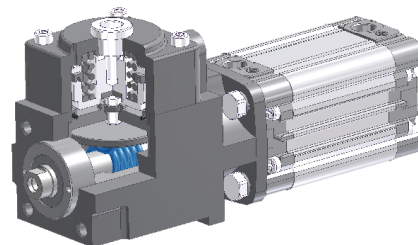
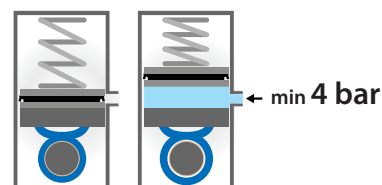
Body	die-cast aluminium
Cover	die-cast aluminium
Piston	aluminium
Seals	nitrile rubber (NBR)
Springs	special steel

CODIFICATION KEY

L	1	-	N	0	6	3	2	0		
	1			2		3		4	5	

1 Series	2 Cylinder bore (mm)	3 Piston rod bore (mm)	4 Option	5 ATEX option
L1-N = Locking unit for cylinders and rods	016 = Ø16 020 = Ø20 025 = Ø25 032 = Ø32 040 = Ø40	050 = Ø50 063 = Ø63 080 = Ø80 100 = Ø100 125 = Ø125	06 = Ø6 08 = Ø8 10 = Ø10 12 = Ø12 16 = Ø16 20 = Ø20 25 = Ø25 32 = Ø32	K = Metallic piston rod scraper (upon request) X = ATEX (upon request) See ATEX Catalogue for types and versions

Working principle



2 HIGH-TECH

Cylinders series M, KL, KE/K, KD, RS



Main features:

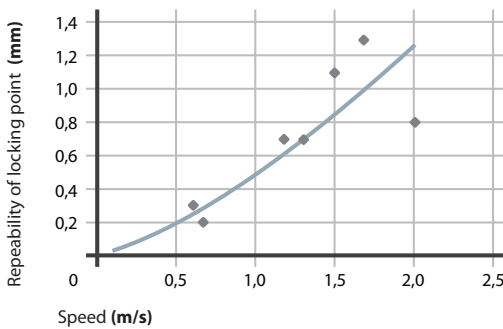
- Suitable only for chromium-plated rods and guiding shafts
- The locking unit stands variation and sudden application of payloads.
- No slipping even in case of greasy or oily rods and guiding shafts.
- The air pressure can be used only to release the unit (4 bar)
- Locking takes place in static or dynamic braking conditions

Main performances and characteristics

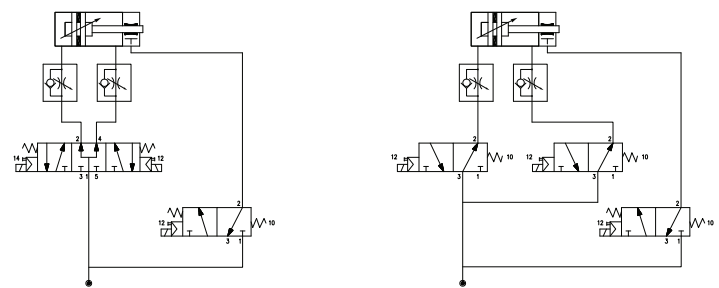
Ø	Ø Rod (mm)	Static locking force	Pressure on the equivalent cylinder	Dynamic braking force	Response time at 6 bar	Stopping point repeatability	Vibration resistance	Shock resistance	Minimum release pressure*
		N	bar	at 1m/s	ms			J	bar
16	6	200	10	40% of the static locking force	12	< 1 mm at 1 m/s (see diagram below)	10 g (10-55 Hz) for 30 minutes on each axis	2	4
20	8	314	10		12			3	4
25	10	490	10		15			4	4
32	12	800	10		20			5	4
40	16	1260	10		20			8	4
50	20	2000	10		25			11	4
63	20	3100	10		25			15	4
80	25	5000	10		30			21	4
100	25	7850	10		30			29	4
125	32	12300	10		40			40	4

* = For release pressure values under 4 bar, the reaction of the locking unit cannot be foreseen

Stop point



Scheme of working principle



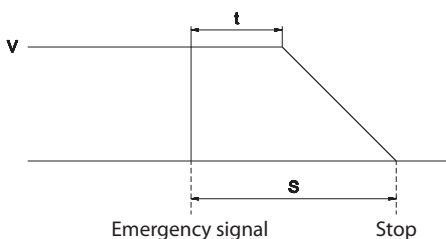
Breaking distance

In some applications, it could be necessary to know the piston rod strokes between the receipt of an emergency signal and its stop. This value (S) depends on the following values:

- V = speed at emergency signal in m/s
- t = locking system response time in seconds
- m = displacing mass (Kg)
- f = breaking force under dynamic conditions in N (see table performances and characteristics)

$$S = (V \cdot t) + \frac{m V^2}{2 f} = (0,7 \cdot 0,02) + \frac{10 \cdot 0,7^2}{2 \cdot 756} = 0,017 \text{ m}$$

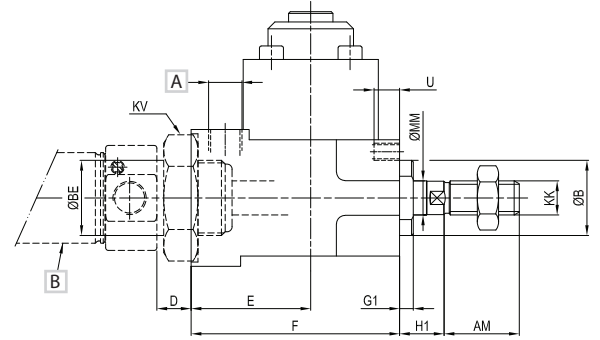
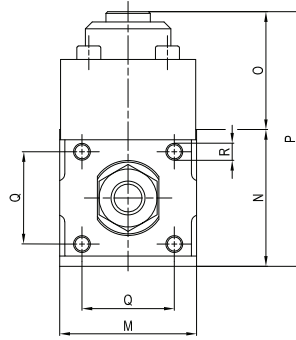
Example: locking unit size 40 with dynamic load 10 kg at a speed of 0,7 m/s



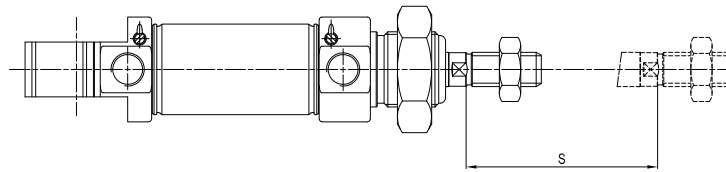
Mass

Ø	g
16	430
20	430
25	380
32	650
40	850
50	1350
63	2100
80	3800
100	6300
125	10000

Locking unit for microcylinders $\varnothing 16 \div 25$ mm



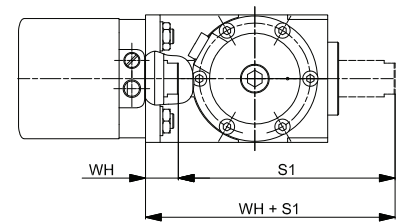
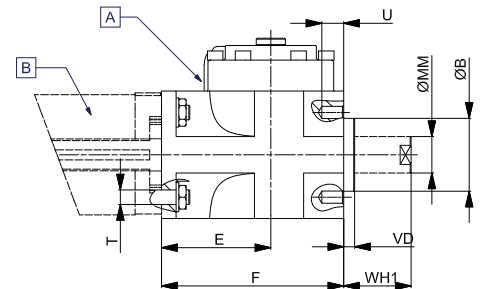
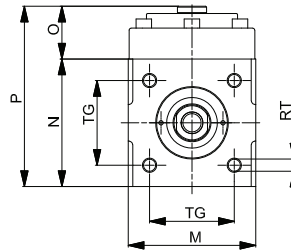
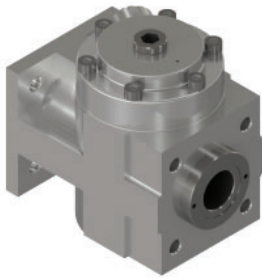
> Additional length to standard rod



A | G1/8 pneumatic release
B | ISO microcylinder

Ø	AM	B	BE	D	E	F	G1	H1	KK	KV	M	MM	N	O	P	Q	R	S	U
16	16	16	M16 x 1,5	10	35	61	1,5	7	M6 x 1	es. 24	40	6	40	34,5	74,5	27	M5	55	7,5
20	20	22	M22 x 1,5	10	35	61	4	9	M8 x 1,25	es. 32	40	8	40	34,5	74,5	27	M5	55	7,5
25	22	22	M22 x 1,5	10	35	61	4	13	M10 x 1,25	es. 32	40	10	40	34,5	74,5	27	M5	55	7,5

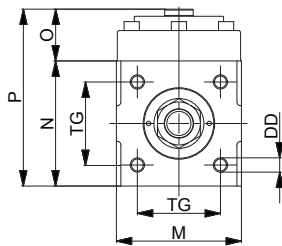
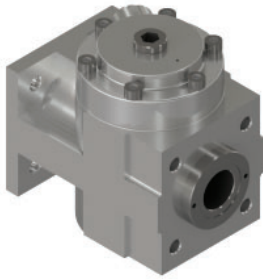
Locking unit for compact cylinders STRONG $\varnothing 32 \div 100$ mm



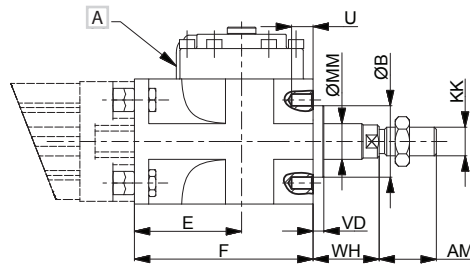
A | G1/8 pneumatic release
B | STRONG cylinder

Ø	B	RT	E	F	M	MM	N	O	P	TG	S1	U	T	VD	WH	WH1
32	30	M6	54,5	84	50	12	50	29,5	79,5	32,5	82	10	6,5	6	14	26
40	35	M6	58	90	58	16	58	29,5	87,5	38	90	9	6,5	6	14	30
50	40	M8	60	100	70	20	70	29	99	46,5	100	10	8,5	6	18	37
63	45	M8	65	110	85	20	85	37	122	56,5	110	13	8,5	6	18	37
80	45	M10	75	125	100	25	100	40,5	140,5	72	125	16	10,5	8	32	46
100	55	M10	90	152	116	25	116	59	179	89	152	18	10,5	8	32	51

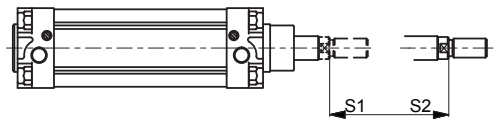
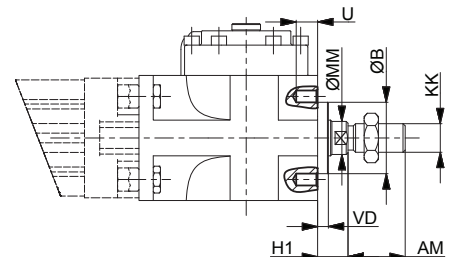
Locking units for ISO cylinders $\varnothing 32 \div 125$ mm



ISO protrusion



Reduced protrusion



Additional length to standard rod

S₁ for ISO protrusion

S₂ for reduced protrusion

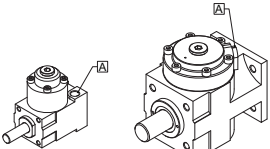
A G1/8 pneumatic release

Ø	AM	B	DD	E	F	H1	KK	M	MM	N	O	P	S1	S2	TG	U	VD	WH
32	22	30	M6	54,5	84	16	M10 x 1,25	50	12	50	29,5	79,5	85	75	32,5	10	6	26
40	24	35	M6	58	90	15	M12 x 1,25	58	16	58	29,5	87,5	90	75	38	9	6	30
50	32	40	M8	60	100	17	M16 x 1,5	70	20	70	29	99	100	80	46,5	10	6	37
63	32	45	M8	65	110	17	M16 x 1,5	85	20	85	37	122	110	90	56,5	13	6	37
80	40	45	M10	75	125	21	M20 x 1,5	100	25	100	40,5	140,5	125	100	72	16	8	46
100	40	55	M10	90	152	26	M20 x 1,5	116	25	116	59	179	150	125	89	18	8	51
125	54	60	M12	112,5	185	35	M27 x 2	145	32	145	62	207	185	155	110	22	9,5	65

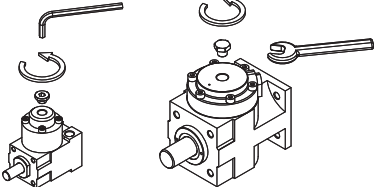
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Assembly instruction for rods

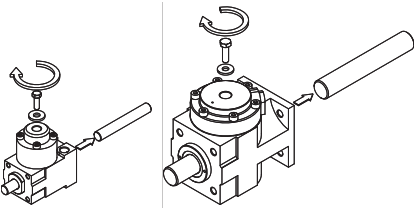
Pneumatic release (mechanic)

- 1**
- 
- With 6 bar compressed air prepare to feed safety the release port (e.g. check valve or reservoir)
Supply with pressurized air to clear the false rod off.
Ensure the safe and controlled removal of the false rod.
- A = Supply

Manual release (mechanic)

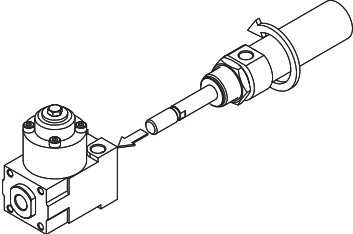
- 1**
- 
- Remove the protective cap from manual control, by using a hex key for $\varnothing 16 \div 25$ or a wrench for $\varnothing 32 \div 125$.

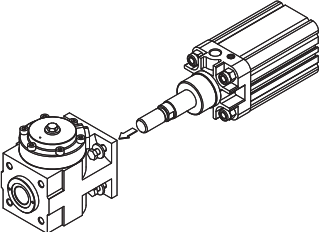
\varnothing	Screw	Washer UNI 6593
16		
20	M5x15	6,6x12,5
25		

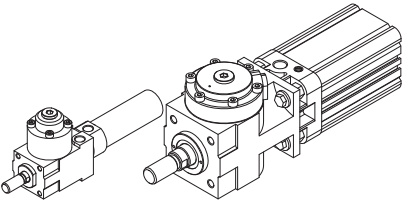
- 2**
- 
- Tighten in the threaded screw M (see tables) until the jaws are released (at this point the block is deactivated) and extract the false rod.

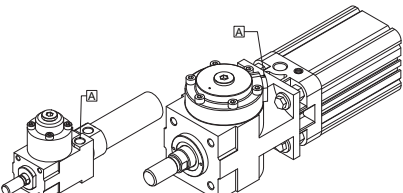
\varnothing	Screw	Washer UNI 6593
32	M5x15	6,6x12,5
40		
50	M6x15	9x17
63		
80	M8x20	
100	M10x35	11x21
125		

Assembling instruction for cylinders

- 1**
- 
- $\varnothing 16 \div 25$**
Insert the cylinder rod into the locking unit and tighten it in, orienting it to the correct position.
Reset the locking functions (mechanical or pneumatic) and proceed by fully tightening the fixing nut.

- 1**
- 
- $\varnothing 32 \div 125$**
Insert the cylinder rod into the locking unit and pre-fix it onto the end cap by means of the appropriate screws supplied. Reset the locking functions (mechanical or pneumatic) and fully tighten the fixing screws.

- 2**
- 
- Remove the threaded screw used to release the jaws and reposition the protective cap (mechanical).

- 3**
- 
- Ensure it is correctly working in both locking and release conditions by performing different actions.
- A = Supply

Fixing screws $\varnothing 32 \div 63$ mm
for **STRONG Compact Cylinders**

Grain UNI 5923, washer and nut UNI 5589

\varnothing	Small parts	Q.ty	Dimensions	Part no. *
32	Grain	4	M6x30	AZ4-VS0630
	Washer	4	6,4x16	AZ4-SR06,41,6
	Nut	4	M6x1	AZ4-SO0064
40	Grain	4	M6x30	AZ4-VS0630
	Washer	4	6,4x16	AZ4-SR06,41,6
	Nut	4	M6x1	AZ4-SO0064
50	Grain	4	M8x40	AZ4-VS0840
	Washer	4	8,4x1,6	AZ4-SR841,6
	Nut	4	M8x1,25	AZ4-SH08125
63	Grain	4	M8x40	AZ4-VS0840
	Washer	4	8,4x1,6	AZ4-SR8,41,6
	Nut	4	M8x1,25	AZ4-SH08125
80	Grain	4	M10x45	AZ4-VS0010-45
	Washer	4	10x18	AZ4-SR10,018,2
	Nut	4	M10x1,5	AZ4-SN010A
100	Grain	4	M10x50	AZ4-VS0010-50
	Washer	4	10x18	AZ4-SR10,018,2
	Nut	4	M10x1,5	AZ4-SN010A

* = Package 100 pz.

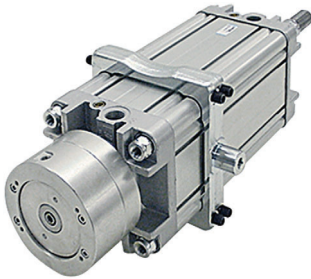
Fixing screws $\varnothing 32 \div 125$ mm
for **ISO Cylinders**

Screw with hexagonal head UNI 5739 and washer UNI 6592 for assembling locking unit to ISO cylinder

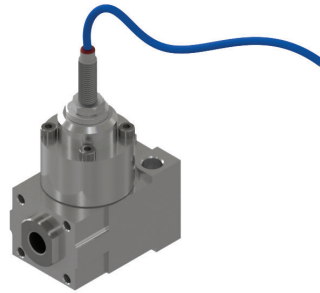
\varnothing	Small parts	Q.ty	Dimensions	Part no. *
32	Screws	4	M6x16	AZ4-VE0616
	Washer	4	6,4x1,6	AZ4-SR06,41,6
40	Screws	4	M6x20	AZ4-VE0620
	Washer	4	6,4x1,6	AZ4-SR06,41,6
50	Screws	4	M8x20	AZ4-VE0820
	Washer	4	8,4x1,6	AZ4-SR08,41,6
63	Screws	4	M8x25	AZ4-VE0825
	Washer	4	8,4x1,6	AZ4-SR08,41,6
80	Screws	4	M10x30	AZ4-VE1030
	Washer	4	10,5x2	AZ4-SR10,52,0
100	Screws	4	M10x30	AZ4-VE1030
	Washer	4	10,5x2	AZ4-SR10,52,0
125	Screws	4	M12x35	AZ4-VE1235
	Washer	4	13x2,5	AZ4-SR13,02,5

* = Package 100 pz.

2

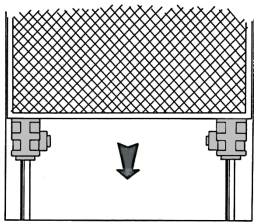


NFZ 160/200
ISO 15552 cylinders with
integrated locking unit

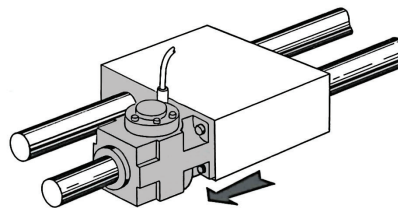


Locking unit with M8 inductive
position sensor

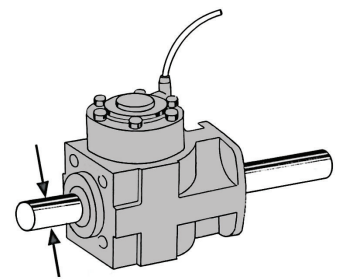
Other examples of locking unit applications



For bulkheads



For carriages



f8	f8
$\varnothing 6 - 8 - 10 - 12 - 14 - 16$	$\varnothing 20 - 25 - 32$

For chrome-plated rods
Shafts with F8-F7 tolerance are to
be used