







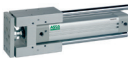




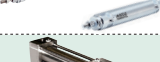










CYLINDERS & ACTUATORS

Product Index



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standards	model		construction								Ø (mm)		standard stroke		 Equipped for position detection ⁽¹⁾	 spare parts kit no.	 ATEX	type	illustration	Series	Page						
	single acting	double acting	Rod in at rest	Rod out at rest	Non-cushioned	Elastic cushioning	Adjust. pneumatic cushioning	Cylindrical	Food industry	Anti-corrosive	Tie rods	Profiled barrel	Through-rod	Rotation-proof								min.	max.	min.	max.		
Panel cylinders																											
															6	16	5	15			-	-	E		429	1	
Short-stroke cylinders																											
														8	100	4	100						-		441	3 10	
Round cylinders																											
ISO 6432														12	25	5	400	900				-		435	11		
														8	25	5	400	900				-					
ISO 6431														12	25	5	400	900			-	-		438	15		
														32	63	5	50	1000			-	-					
Compact cylinders according to ISO 21287 standard																											
ISO 21287																									VIII		
																									449	20 23	
	Mountings																									493	61
Cylinders according to ISO 15552 standard																											
ISO 15552																									453	VII	
																									454		
																									450		
																										453	27 28
																										454	30 31
																										450	34 35
		Options and specialised versions:																								453	37 (39..59)
	... Low friction /.../ Tandem / 3 positions / ...																								454		
	... "U" and "H" guiding units / ...																								450		
	... Static rod-locking device / ...																								450		
	... Dynamic rod-locking device / ...																								450		
	... Oversize piston rod / Rod bellow...																								450		
	Mountings																								493	61	

⁽¹⁾ Magnetic position detectors, see page: **V**

standards	single acting		double acting		model construction						Ø (mm)		standard stroke		 Equipped for position detection ⁽¹⁾	 spare parts kit no.	 ATEX	type	illustration	Series	Page	
	Rod in at rest	Rod out at rest	Non-cushioned	Elastic cushioning	Adjust. pneumatic cushioning	Cylindrical	Food industry	Anti-corrosive	Tie rods	Profiled barrel	Through-rod	Rotation-proof	min.	max.								min.
Cylinders according to CNOMO - AFNOR																						
CNOMO AFNOR NF E 49001								∅				25	200	5	2000	∅		-	PCN		437	69 71
Anti-corrosive cylinders																						
ISO 6432						●	●					12	25	5	400 900	●	-	-	-		435	11
ISO 6431						●	●					32	80	25	800 1000	●	-	-	-		431	77
ISO 15552							●	●				32	125	25	500	●			E-F G-H		S	83

⁽¹⁾ Magnetic position detectors, see page: **V**

standards	model										Ø (mm)		standard stroke		 Equipped for position detection (1)	type	illustration	Series	Page		
	double acting			guide			construction				min.	max.	min.	max.							
	Non-cushioned	Elastic cushioning	Adjust. pneumatic cushioning	Without	Ball bearings	Plain bearings	Cross rollers	Round cylinder	Profiled barrel	Rotation-proof	Rodless	Rotatable									
Rodless cylinders																					
	●	●	●		●	●					●		6	80			●	Quick Selection Chart		91	
Rodless cylinders with magnetic couplings																					
				●							●		6	40	50	2000	●	STN		445	95
					●						●		6	40	50	1500	●	STG		445	101
Rodless band cylinders																					
				●							●		16	80	5	6000	●	STBN		448	120
					●						●		25	63	100	3800	●	STB		446	108
						●					●		16	80	5	5500	●	STB		448	125
							●				●		25	50	5	3750	●	STBB		448	135
																	ILS MR	STB-STBN-STBB	Position detectors for cylinder series 448	881	147 149
Actuators with linear guides																					
					●	●		●					16	63	10	100	●	CGT		CGT	154
					●	●		●					16	32	10	160	●	P2L P2B		447	160 161
Rotatable cylinders (90°-180°)																					
											●		12	20	-	-	●	R (2 positions)		429	165
											●		16	22	-	-	●	RS (2, 3 and 4 positions)		429	167

(1) Magnetic position detectors, see page: **V**

model	adaptation on cylinder type					Rotatable cylinders R / RS	illustration	Series	Page
	reed-switch type - 2 wires Magneto-resistive - 3 wires (MIR)	round cylinders	compact profiled barrel	tie-rods	profiled barrel				
	Series	Series	Series	C-slot for series 441 cylinders					
	435 438	441 449 453 454	450 437 (PCN)						
Position detectors - for T-slot grooves									
								494	173
								494	175
		or			integrated	integrated	mounting kits	494	177
Position detectors - for C-slot grooves									
								494	179

DEFINITION OF THE DIAMETER OF A CYLINDER

• THE DYNAMIC EFFORT DEVELOPED BY A CYLINDER

$$F = \text{Pressure} \times \text{piston area} \times \text{efficiency}$$

The efficiency of a cylinder depends on the diameter of the cylinder, on the pressure and on its mechanical construction. The graph and chart page 6 show the dynamic effort developed by a cylinder at the piston rod, at various supply pressures.

• LOAD FACTOR

This is the relationship expressed as a percentage between the actual load being moved by the cylinder and the dynamic effort available at the end of the piston rod.

$$\text{load factor (\%)} = \frac{\text{actual load}}{\text{dynamic effort}} \times 100$$

For an optimum installation of a cylinder, we recommend a cylinder with a load factor inferior to or equal to 75%.

Example: calculate a cylinder to lift a load of 130 daN with a pressure of 7 bar (gauge pressure).

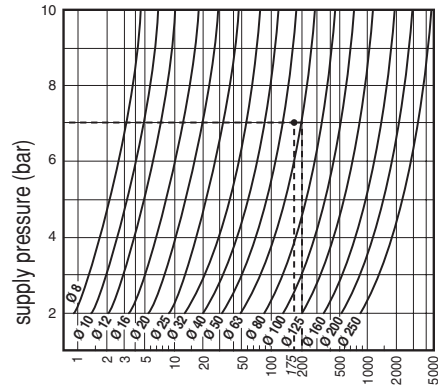
$$\text{theoretical dynamic effort} = \frac{\text{actual load}}{\text{load factor}} = \frac{130}{0,75} = 175 \text{ daN}$$

The graph below shows the cross over point between the dynamic effort and the supply pressure. The cylinder diameter required will be that where the curve passes this point or the cylinder giving a force immediately above that required.

In the example above: 175 daN is between Ø 50 and Ø 63. The cylinder recommended is the Ø 63 mm which will develop a force of 200 daN at 7 bar and the actual load factor is:

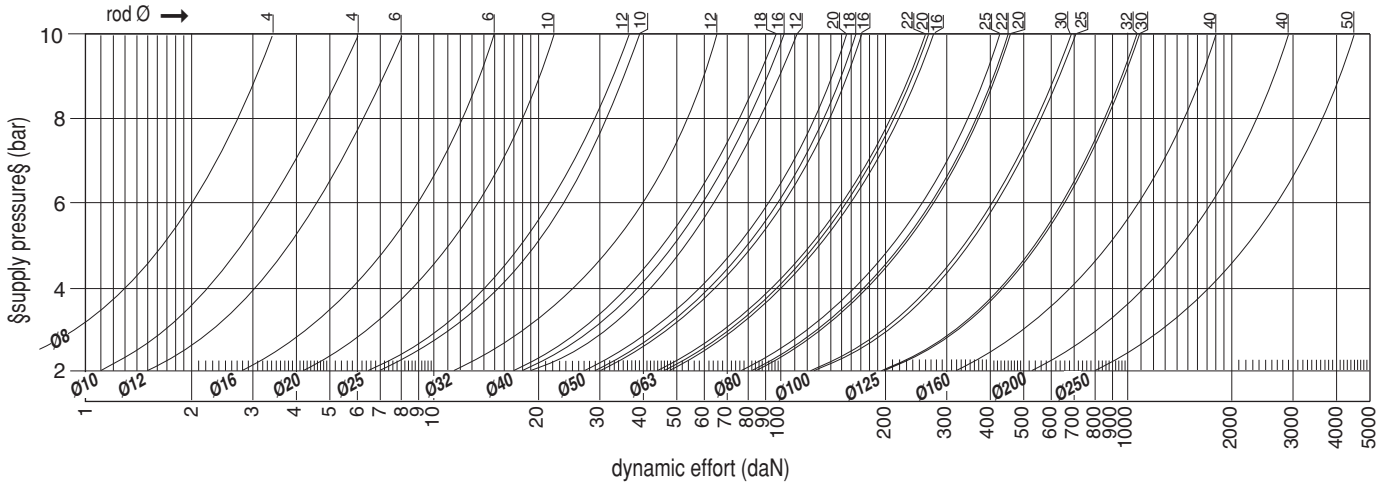
$$\frac{130 \text{ daN}}{200 \text{ daN}} \times 100 = 65 \%$$

EFFORTS DEVELOPED AT THE END OF THE ROD (ROD OUT)



dynamic effort (daN)

EFFORTS DEVELOPED AT THE END OF THE ROD (ROD RETURNED)



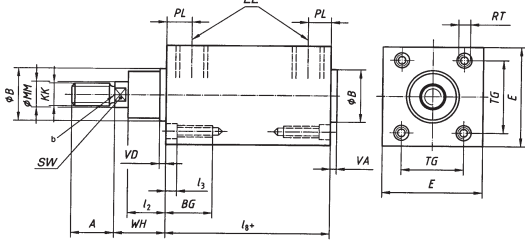
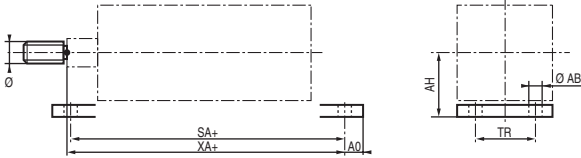
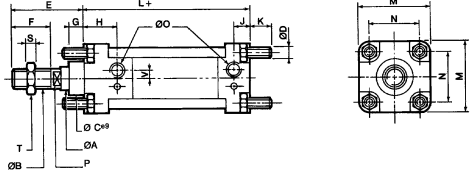
EFFORTS DEVELOPED BY A CYLINDER (daN)

cylinder Ø (mm)	rod Ø (mm)	Series					piston cross-section area (cm ²)		dynamic effort developed (daN) at various supply pressures (bar)									
		435 - 438	435 - 431 (Anti-corrosive)	449	453 - 454 - 453	437 (PCN)			2		4		6		8		10	
		●	○	●	○	●	○	●	○	●	○	●	○	●	○			
8	4	X					0,5	0,4	1,0	0,5	1,5	1,5	2,5	2,0	3,5	2,5	4,5	3,5
10	4	X					0,8	0,6	1,5	1,0	2,5	2,5	4,0	3,5	5,5	4,5	7,5	6,0
12	6	X	X				1,1	0,8	2,0	1,5	4,0	3,0	6,0	4,5	8,5	6,0	10,5	8,0
16	6	X	X				2,0	1,7	3,5	3,0	7,5	6,0	10,0	9,0	15,0	12,0	19,0	15,0
20	10	X	X	X			3,1	2,3	5,5	4,0	12,0	9,0	16,0	13,5	23,0	18,0	30,0	22,0
25	10	X	X	X			4,9	4,1	8,5	7,0	15,0	15,0	24,0	24,0	38,0	31,0	48,0	39,0
32	12	X	X	X	X	X	8,0	6,9	13,0	11,5	30,0	25,0	46,0	40,0	62,0	52,0	77,0	66,0
40	12				X			11,5		19,0		42,0		64,0		87,0		111,5
40	16		X		X		12,6	10,6	21,0	18,0	46,0	39,0	70,0	59,0	95,0	80,0	122,0	102,5
40	18	X				X		10,0		17,0		36,5		56,0		75,5		97,0
50	16			X				17,6		30,0		64,0		100,5		134,0		170,5
50	18	X				X	19,6	17,0	33,0	29,0	70,0	62,0	110,0	97,0	150,0	130,0	190,0	165,0
50	20		X		X			16,5		27,0		58,0		92,0		124,0		155,0
63	16			X				29,1		47,5		101,5		159,5		218,5		273,5
63	20		X		X		31,2	28,1	53,0	46,0	110,0	98,0	170,0	154,0	230,0	211,0	290,0	264,0
63	22	X				X		27,4		44,0		97,0		150,0		200,0		260,0
80	20			X				47,2		82,0		172,5		266,0		365,5		457,0
80	22				X		50,3	46,5	88,0	81,0	185,0	170,0	285,0	262,0	385,0	360,0	480,0	450,0
80	25		X		X			45,4		77,0		163,0		255,0		341,0		427,0
100	25			X	X			73,6		126,5		272,0		412,5		562,5		703,0
100	30				X		78,5	71,5	135,0	123,0	290,0	264,0	440,0	401,0	600,0	546,5	750,0	683,0
125	30					X		115,7		198,0		433,0		658,5		870,0		1082,0
125	32				X		123,0	115,0	210,0	196,5	460,0	430,0	700,0	654,5	925,0	865,0	1150,0	1075,0
160	40				X	X		201,0		350,0		750,0		1150,0		1550,0		1900,0
160	40				X	X		188,0		320,0		700,0		1100,0		1500,0		1800,0
200	40				X	X		314,0		550,0		1150,0		1800,0		2400,0		3000,0
200	40				X	X		302,0		530,0		1100,0		1700,0		2300,0		2900,0

● Efforts developed with rod out (bottom side)

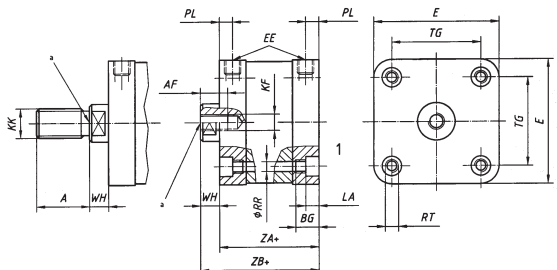
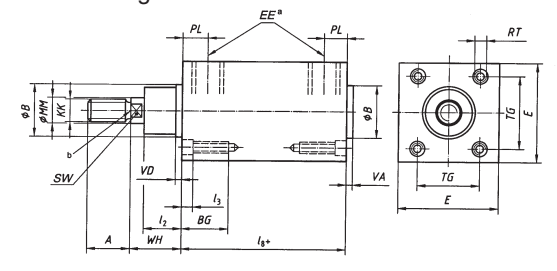
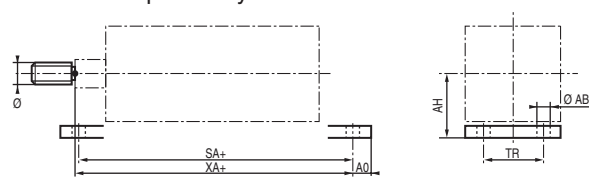
○ Efforts developed with rod returned (rod side)

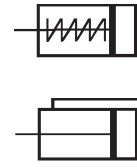
Note: Cylinders with double crossbar develop identical efforts in both working directions. Their values are the ones defined here-above for efforts developed with rod returned.

standard of cylinders Ø 32 to 320 mm		INTERCHANGEABILITY	
		within the standard	between standards
<p>ISO 15552 (year: 2004)</p>			
<p>This new international standard cancels and replaces ISO 6431. It defines the outer dimensions of a bare cylinder and equipped with its mountings.</p>			
 <p>Series 453-454-450: in accordance with the international standards</p>	<p>Full interchangeability between the manufacturers is achieved at every level:</p> <ul style="list-style-type: none"> • bare cylinder • each mounting • complete unit1 	<p>For full interchangeability with ISO 15552, ISO 6431 cylinder must be equipped with its mountings, and reciprocally.</p>	
<p>AFNOR NF ISO 15552 (june 2004) - DIN ISO 15552</p>			
<p>These standards fully include the international standard ISO 15552. The NF ISO 15552 is completed with a definition of the rod diameters MM and cancels and replaces standard NFE 49003 parts 1 to 3.</p>			
<p>Series 453-454-450: in accordance with the international standards</p>			
<p>ISO 6431 cylinders (year: 1983)</p>			
<p>This international standard defined a cylinder unit equipped with its mountings without specifying the bare cylinder alone. It is cancelled and replaced by above standard ISO 15552.</p>			
 <p>Series 453-454-450: in accordance with the international standards</p>	<p>Interchangeability between manufacturers is achieved by replacing both the cylinder and its mountings.</p>	<p>A cylinder to AFNOR NFE 49003 - either bare or equipped with its mountings - is interchangeable with a cylinder to AFNOR NF ISO 15552 and vice versa.</p>	
<p>AFNOR NFE 49003 - VDMA 24562 cylinders (year: 1992)</p>			
<p>These standards first define the outer dimensions of a bare cylinder and then its mountings; the cylinder with its mountings installed then corresponds to a cylinder unit according to above standard ISO 6431</p>	<p>Full interchangeability between the manufacturers is achieved at every level:</p> <ul style="list-style-type: none"> • bare cylinder • each mounting • complete unit1 		
<p>CNOMO 06.07.02/AFNOR NFE 49001 cylinders (year: 1968)</p>			
<p>The French standards define first all the external dimensions of a bare cylinder then the mountings.</p>			
 <p>Series 437 (PCN): complies with the French standards.</p>	<p>Full interchangeability between the manufacturers is achieved at every level:</p> <ul style="list-style-type: none"> • bare cylinder • each mounting • complete unit1 	<p>No interchangeability can be achieved between CNOMO/NFE 49001 cylinder (bare or equipped) and AFNOR NFE 49003 cylinder or ISO 6431 cylinder, and reciprocally.</p>	

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Note: ISO 6432 and AFNOR NFE 49030 standards apply only to mini-cylinders Ø 8 to 25 mm.

standards of cylinders	INTERCHANGEABILITY	
	within the standard	between standards
<p>ISO 21287 Ø 20 to 100 mm</p> <p>This new international standard defines the outer dimensions of a compact bare cylinder and equipped with its mountings. The center-to-center mounting distances of dia. 32 to 100 mm cylinders are identical to those of standard ISO 15552.</p>  <p>Series 449 cylinders complies with the international standard</p>	<p>Full interchangeability between the manufacturers is achieved at every level:</p> <ul style="list-style-type: none"> • bare cylinder • each mounting • complete unit 1 	<p>32 to 100 mm dia. cylinders can be equipped with all mountings to ISO 15552.</p>
<p>ISO 15552 Ø 32 to 320 mm</p> <p>This new international standard cancels and replaces ISO 6431. It defines the outer dimensions of a bare cylinder and equipped with its mountings.</p>  <p>Series 453-454-450 cylinders complies with the international standard</p>	<p>Full interchangeability between the manufacturers is achieved at every level:</p> <ul style="list-style-type: none"> • bare cylinder • each mounting • complete unit 1 	
<p>ISO 15552</p> <p>These standards fully include the international standard ISO 15552. The NF ISO 15552 is completed with a definition of the rod diameters MM and cancels and replaces standard NFE 49003 parts 1 to 3.</p> <p>Series 453-450 cylinders complies with the international standard</p>		<p>For full interchangeability with ISO 15552, ISO 6431 cylinder must be equipped with its mountings, and reciprocally.</p>
<p>ISO 6431 (1983)</p> <p>This international standard defined a cylinder unit equipped with its mountings without specifying the bare cylinder alone. It is cancelled and replaced by above standard ISO 15552.</p>  <p>Series 438 cylinders complies with the international standards</p>	<p>Interchangeability between manufacturers is achieved by replacing both the cylinder and its mountings.</p>	



FEATURES

- Compact cylinders with rear connection(s), including double acting cylinder.
- Its threaded body and nuts afford
 - Easy adaptation on any support through its tapped or smooth hole
 - Adjustable body axis opposite the support.

GENERAL

Fluid	Air or neutral gas, filtered, lubricated or not
Operating pressure	3 - 7 bar (single-acting cylinder) 1,5 - 7 bar (double-acting cylinder)
Ambient temperature	+5°C to +60°C

CONSTRUCTION

Body	Nickel brass
Nuts	Nickel brass
Rod	Iron steel
Piston seals	NBR (nitrile)



Extend force at 6 bar (daN)

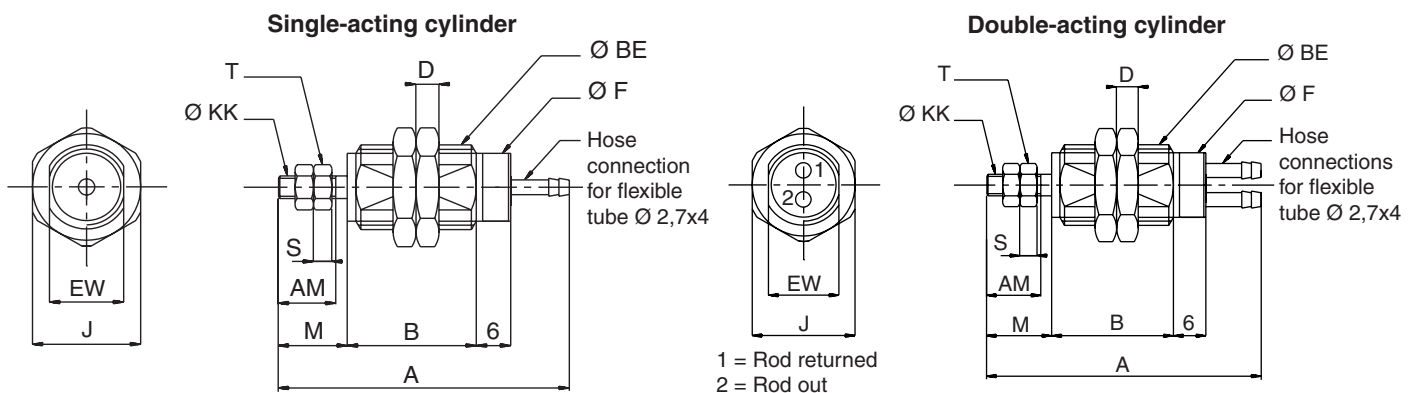
Ø (mm)	single acting	double acting	
	rod out	rod out	rod returned
6	1,3	1,7	1,3
10	3,6	4,2	3,4
16	8,8	10	9,2

The return of the piston rod must be without load.

SPECIFICATIONS

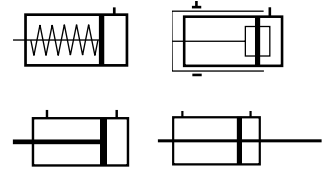
Ø (mm)	stroke (mm)	catalogue number	reference	weight (kg)	catalogue number	reference	weight (kg)	connec- tion Ø
		Single-acting cylinder (rod returned at rest)			Double-acting cylinder			
6	5	42900024	E 6 S 5	0,010	42900033	E 6 D 5	0,034	Hose connection 2,7x4
	10	42900025	E 6 S 10	0,015	42900034	E 6 D 10	0,042	
	15	42900026	E 6 S 15	0,018	42900035	E 6 D 15	0,050	
10	5	42900027	E 10 S 5	0,030	42900036	E 10 D 5	0,082	Hose connection 2,7x4
	10	42900028	E 10 S 10	0,037	42900037	E 10 D 10	0,094	
	15	42900029	E 10 S 15	0,042	42900038	E 10 D 15	0,106	
16	5	42900030	E 16 S 5	0,086	42900039	E 16 D 5	0,126	Hose connection 2,7x4
	10	42900031	E 16 S 10	0,093	42900040	E 16 D 10	0,138	
	15	42900032	E 16 S 15	0,100	42900041	E 16 D 15	0,155	

DIMENSIONS (mm)



	A stroke			B stroke			AM	BE	D	EW	F	J	KK	M	S	T
	5	10	15	5	10	15										
	Ø 6	38	45	52	13,5	20,5										
Ø 10	44	51	57	16	22,5	28,5	10	M15x1,5	4	13	12	19	M4	12	3,2	6
Ø 16	53	58	63	22,5	27,5	32,5	12	M22x1,5	5	20	18,5	27	M5	14	5	7

	A stroke			B stroke			AM	BE	D	EW	F	J	KK	M	S	T
	5	10	15	5	10	15										
	Ø 6	39	44	49	19	24										
Ø 10	47	52	57	18,5	23,5	28,5	10	M22x1,5	5	20	18,5	24	M4	12	3,2	6
Ø 16	50	55	60	19,5	24,5	29,5	12	M26x1,5	6	24	23	32	M5	14	5	7



GENERAL

Detection
Fluid
Operating pressure
Ambient temperature

Equipped for magnetic position detectors
Air or neutral gas, filtered, lubricated or not
10 bar max.
-20°C to +70°C

CONSTRUCTION

Body
Piston rod

Rod end
Parti interne
Piston seals
Bearing
Front, rear or side mounting

Light alloy
Stainless steel (Ø8 - 25 mm)
Hard chrome plated steel (Ø32 - 100 mm)
Tapped
POM (polyacetal) or light alloy
PUR (polyurethane)
Autolubrificante
With screws (not supplied)
or flange (see mounting section)



[Configurator - CAD Files](#)

15-DIGIT PRODUCT CODE

G 441 A - S K ---- A00

Thread connection
G = ISO 16030

Product series
441

Revision letter
A = Initial release

Diameter (mm)
G = 8 ⁽²⁾ 3 = 32
H = 10 ⁽²⁾ 4 = 40
J = 12 ⁽²⁾ 5 = 50
K = 16 ⁽²⁾ 6 = 63
L = 20 ⁽²⁾ 8 = 80
M = 25 ⁽²⁾ 1 = 100

⁽²⁾ Available in stainless steel rod end only.

Rod options 1

S = Single rod, Double acting
1 = Single acting rod in
2 = Through rod, Double acting
4 = Rod antirotation device (Ø 20 a 100 mm)

Rod options 2

K = Hard chromed female thread rod end (Ø 32 a 100 mm)
G = Stainless steel female thread rod end (Ø 8 a 100 mm)

Options

A00 = Without
AT1 = ATEX zones 1/21
AT2 = ATEX zones 2/22
HTP = High temperature (up to 120°C)⁽¹⁾

⁽¹⁾ Non equipped for magnetic position detectors

Recommended standard strokes (mm) ⁽³⁾

Ø mm	con-nect. Ø											max. stroke	Rod antirotation device max. stroke			
		4	5	10	15	20	25	30	40	50	60			80	100	
8	M5	S	SD	SD	D	D	D								30	-
10		S	SD	SD	D	D	D								30	-
12		S	SD	SD	D	D	D	D							40	-
16		S	SD	SD	SD	SD	SD	D	D						40	-
20		S	SD	SD	SD	SD	SD	D	D	D					60	60
25		SD	SD	SD	SD	SD	D	D	D					60	60	
32	G1/8		SD	SD	SD	SD	SD	D	D	D	D	D		100	100	
40			SD	SD	SD	SD	SD	D	D	D	D	D	D	120	100	
50			SD	SD	SD	SD	SD	D	D	D	D	D	D	150	100	
63			SD	SD	SD	SD	SD	D	D	D	D	D	D	150	100	
80			SD	SD	SD	SD	SD	D	D	D	D	D	D	150	100	
100			SD	SD	SD	SD	SD	D	D	D	D	D	D	150	100	

Strokes range available up to "max. stroke" column on the right.
Please note strokes marked in grey exceed the maximum recommended.

⁽³⁾ Other strokes on request. / Min. stroke: 4 mm

S = Single acting

D = Double acting only / SD = Single & Double acting

POSITION DETECTORS

Magnetic position detectors must be ordered separately:

"C" model, magneto-resistive type, 2 or 3 wires, modèles "T", reed switch or magneto-resistive type
"T" slots are available on Ø32-40-50-63-80-100]

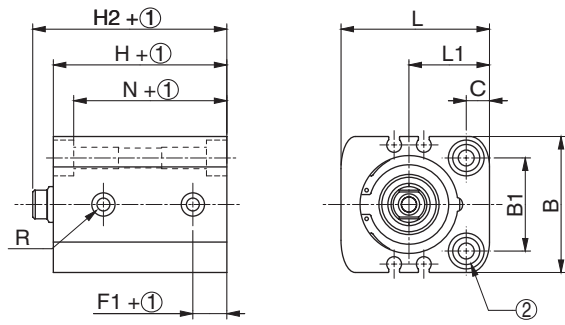
INSTALLATION

- For a longer lifetime, it is recommended to use external stoppers

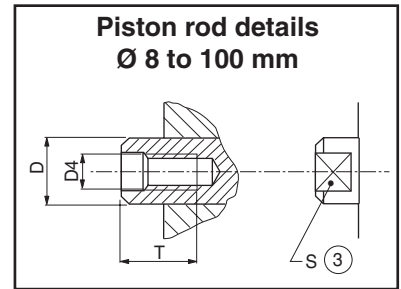
DIMENSIONS (mm)

[Configurator - CAD Files](#)

Ø 8 to 25 mm - single and double acting

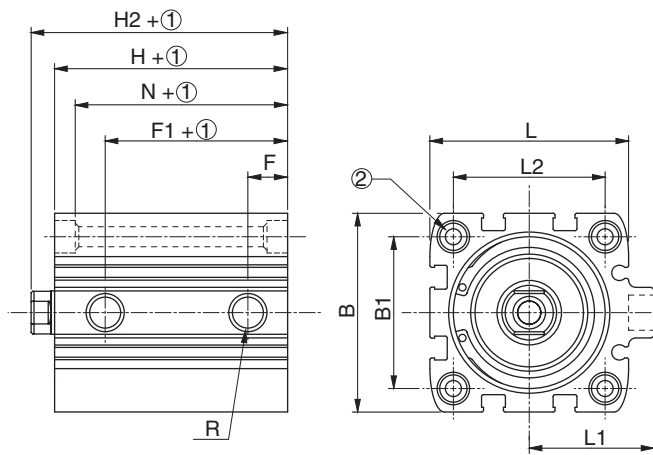


- ① Stroke
- ② Mounting holes and counterbores (see detailed view below and following pages)
- ③ Width across flats

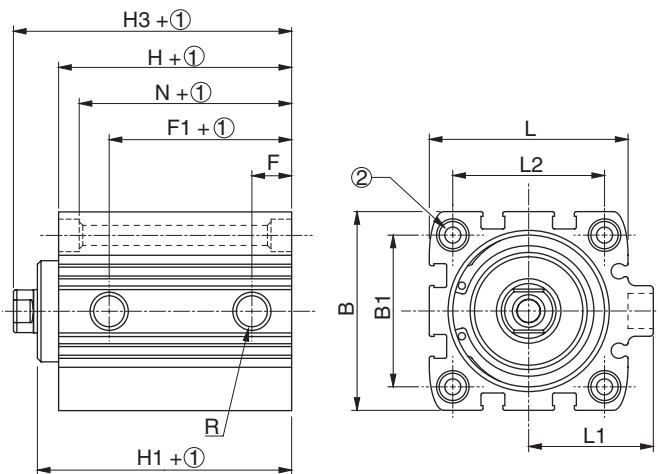


NOTE: In the single-acting version, the connection takes place on the port located in F.

Ø 32 to 100 mm - single acting

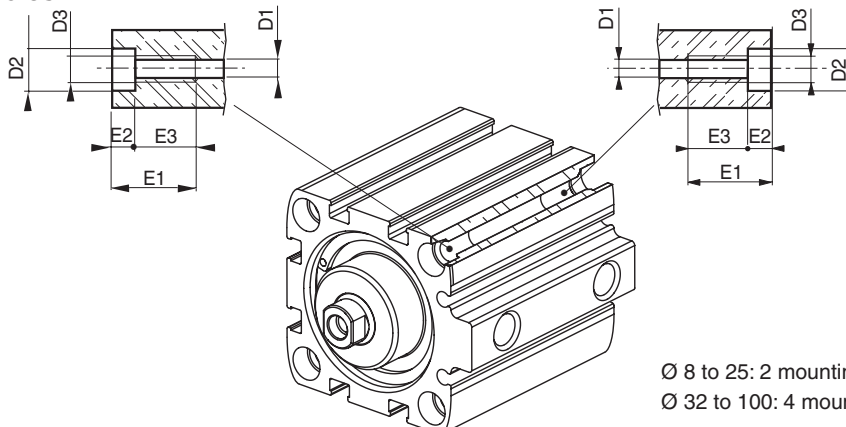


Ø 32 to 100 mm - double acting



Ø	B	B ₁	C	Ø D	Ø D ₁	Ø D ₂	Ø D ₃	Ø D ₄	Ø D ₅	E ₁	E ₂	E ₃	F	F ₁	H	H ₁	H ₂	H ₃	L	L ₁	L ₂	N	Ø R	S	T
8	20	11	4,5	4	3,4	6	M4	M2,5	-	12	3,4	8,6	5	14	23	-	24	-	24	15	-	19,6	M5	-	3,5
10	21	12	4,5	4	3,4	6	M4	M2,5	-	12	3,4	8,6	5	15	24	-	25	-	25,5	15	-	20,6	M5	-	3,5
12	23	13	4,5	4	3,4	6	M4	M2,5	-	12	3,4	8,6	5	16	24	-	25	-	27,5	16,5	-	20,6	M5	-	3,5
16	28	18	5,5	7,8	4,5	8	M5	M4	-	15	4,6	10,4	6	18	32	-	36,5	-	31,5	17,5	-	27,4	M5	6	8
20	32	20	6,5	9,8	5,5	10	M6	M5	-	18	5,7	12,3	8	20	32	-	36,5	-	37,5	21,5	-	26,3	M5	8	11
25	38	26	6,5	9,8	5,5	10	M6	M5	-	18	5,7	12,3	9,5	24,5	38,5	-	44	-	41,5	22,5	-	33,8	M5	8	11
32	45	32	-	11,8	5,5	10	M6	M6	26	18	5,7	12,3	9,5	22	39,5	44,5	45	50,5	48	31	36	33,8	G1/8	10	13
40	55	42	-	11,8	5,5	10	M6	M6	28	18	5,7	12,3	11	25,5	39,5	45,5	46	52	55	34,5	42	33,8	G1/8	10	13
50	65	50	-	15,8	6,6	11	M8	M8	34	20	6,8	13,2	11	25,5	39,5	45,5	47	53	65	41,5	50	32,7	G1/8	13	12
63	80	62	-	15,8	9	15	M10	M8	38,5	25	9	16	11	27,3	42	50	48,5	57,5	80	49	62	33	G1/8	13	14
80	100	82	-	19,8	9	15	M10	M10	44	25	9	16	12,5	29,3	46	56	54	64	100	59	82	37	G1/8	17	16
100	124	103	-	24,6	11	18	M12	M12	56	30	11	19	12,5	36	56	66,5	66	76,5	124	71	103	45	G1/8	22	20

Mounting holes

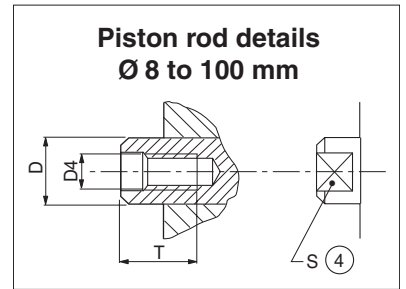
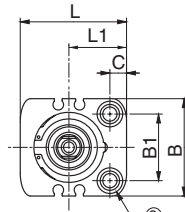
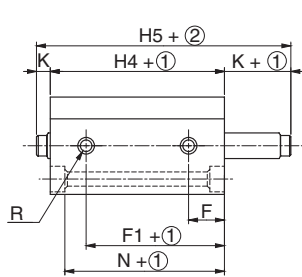


Ø 8 to 25: 2 mounting holes per face
Ø 32 to 100: 4 mounting holes per face

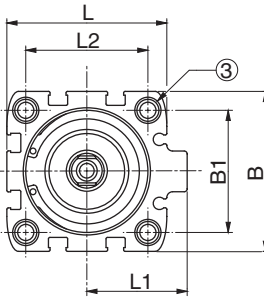
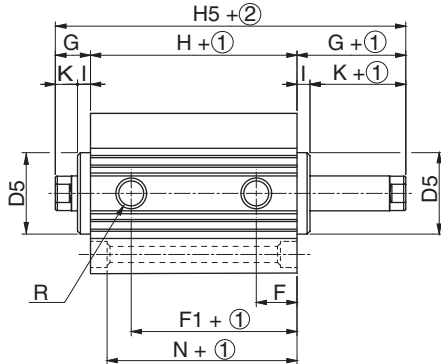
DIMENSIONS (mm)

Ø 8 to 25 mm

[Configurator - CAD Files](#)



Ø 32 to 100 mm



- ① Stroke
- ② Twice stroke
For non-standard strokes, add the value of the immediately higher standard stroke.
- ③ Mounting holes and counterbores (see detailed view on page 4 and following pages)
- ④ Width across flats

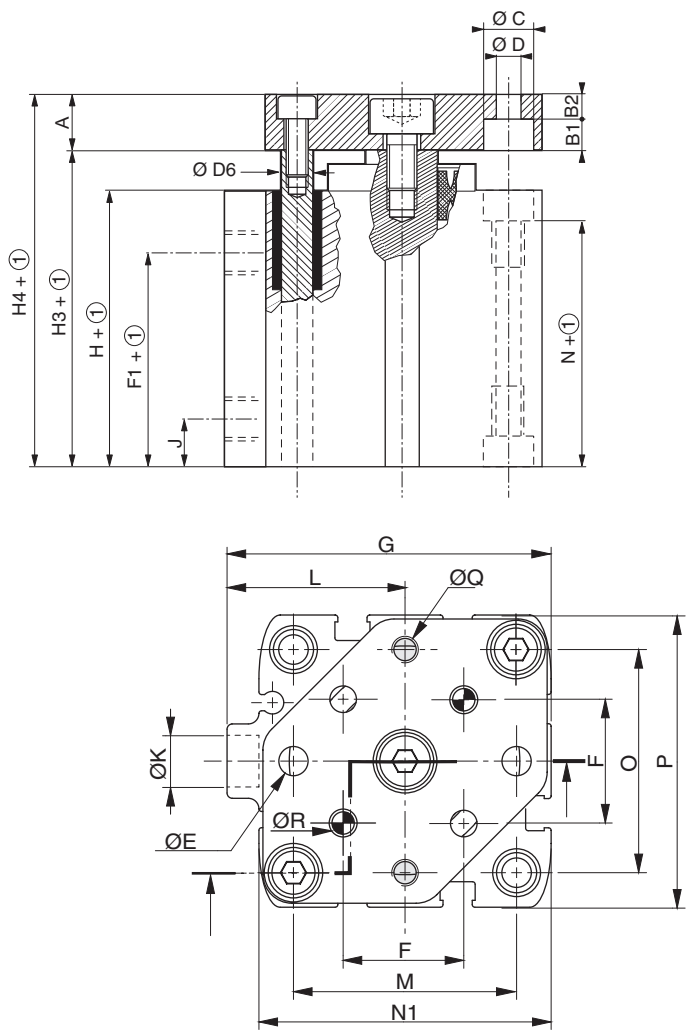
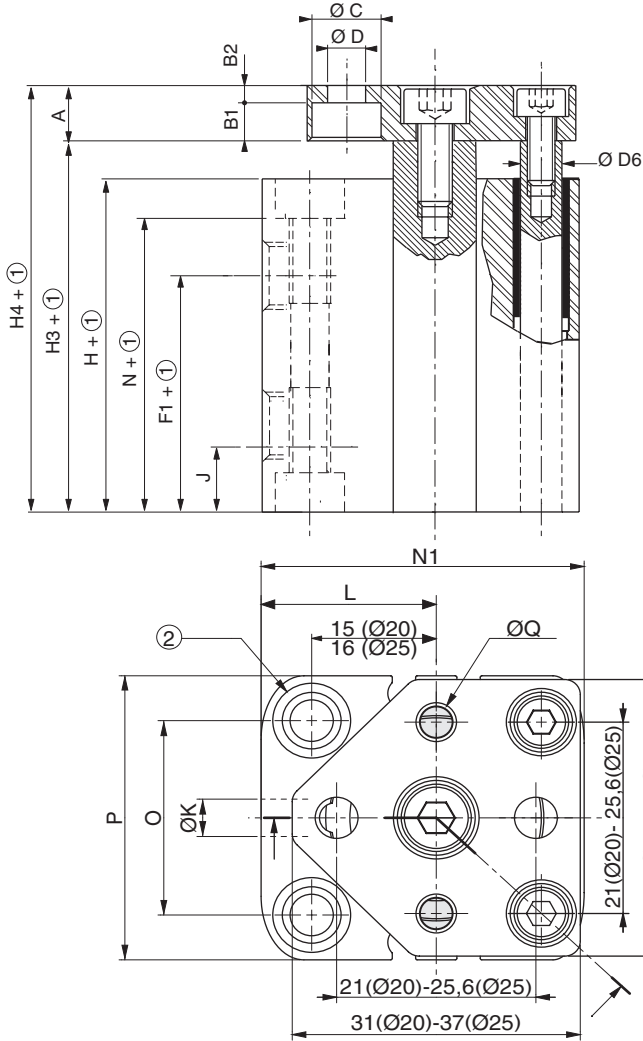
Ø	B	B ₁	C	Ø D	Ø D ₁	Ø D ₂	Ø D ₄	Ø D ₅	E ₁	E ₂	E ₃	F	F ₁	G	H	H ₄	H ₅	I	K	L	L ₁	L ₂	N	Ø R	S	T
8	20	11	4,5	4	3,4	6	M2,5	-	12	3,4	8,6	9	21,5	-	-	26,5	28,5	-	1	24	15	-	23,1	M5	-	3,5
10	21	12	4,5	4	3,4	6	M2,5	-	12	3,4	8,6	9	22,5	-	-	26,5	28,5	-	1	25,5	15	-	23,1	M5	-	3,5
12	23	13	4,5	4	3,4	6	M2,5	-	12	3,4	8,6	9	20	-	-	27,5	29,5	-	1	27,5	16,5	-	24	M5	-	3,5
16	28	18	5,5	7,8	4,5	8	M4	-	15	4,6	10,4	14	31	-	-	39,5	48,5	-	4,5	31,5	17,5	-	35	M5	6	8
20	32	20	6,5	9,8	5,5	10	M5	-	18	5,7	12,3	12	26	-	-	38	47	-	4,5	37,5	21,5	-	32,3	M5	8	11
25	38	26	6,5	9,8	5,5	10	M5	-	18	5,7	12,3	14	34	-	-	48	59	-	5,5	41,5	22,5	-	42,3	M5	8	11
32	45	32	-	11,8	5,5	10	M6	26	18	5,7	12,3	17,5	30	11	47,5	-	69,5	5	6	48	31	36	41,8	G1/8	10	13
40	55	42	-	11,8	5,5	10	M6	28	18	5,7	12,3	14	32	12,5	46	-	71	6	6,5	55	34,5	42	40,3	G1/8	10	13
50	65	50	-	15,8	6,6	11	M8	34	20	6,8	13,2	14	32,5	13,5	46,5	-	73,5	6	7,5	65	41,5	50	39,7	G1/8	13	12
63	80	62	-	15,8	9	15	M8	38,5	25	9	16	15	33	16	48	-	80	8	8	80	49	62	39	G1/8	13	14
80	100	82	-	19,8	9	15	M10	44	25	9	16	16,7	34,3	18	51	-	87	10	8	100	59	82	42	G1/8	17	16
100	124	103	-	24,6	11	18	M12	56	30	11	19	20	44	20,5	64	-	105	10,5	10	124	71	103	53	G1/8	22	20

DIMENSIONS (mm)

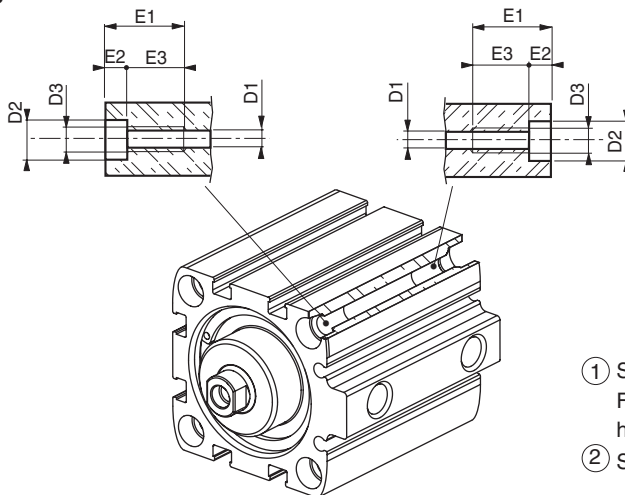
[Configurator - CAD Files](#)

■ Ø 20 - Ø 25 mm

■ Ø 32 - Ø 100 mm



Mounting holes



- ① Stroke
For non-standard strokes, add the value of the immediately higher standard stroke.
- ② See detail for holes and counterbores

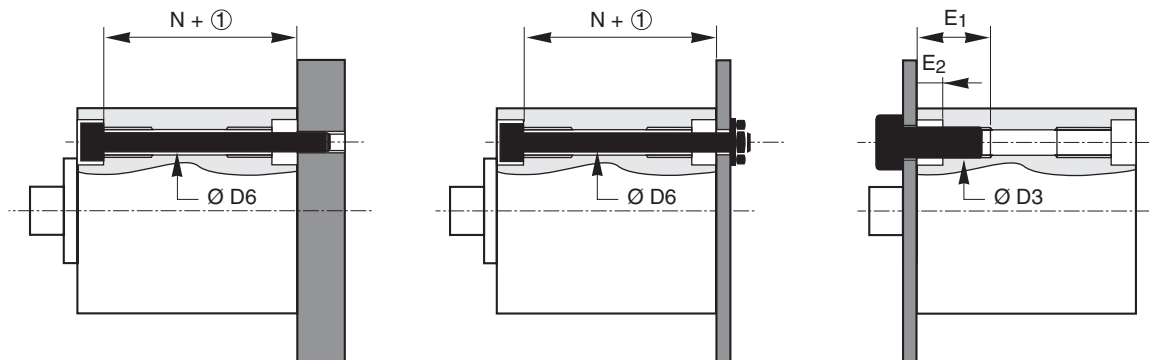
Ø	A	B1	B2	Ø C	Ø D	Ø D ₁	Ø D ₂	Ø D ₃	Ø D ₆	Ø E	E ₁	E ₂	E ₃	F	F ₁	G	H	H ₃	H ₄	J	Ø K	L	M	N	N ₁	O	P	Ø Q	Ø R
20	8	4,5	3,5	8	4,5	5,5	10	M6	5	-	18	5,7	12,3	-	20	-	32	36,5	44,5	8	M5	21,5	-	26,3	40	20	32	M3	-
25	8	5,5	2,5	10	5,5	5,5	10	M6	6	-	18	5,7	12,3	-	24,5	-	38,5	44	52	9,5	M5	21,5	-	32,8	44	26	38	M5	-
32	10	5,7	4,3	10	5,5	5,5	10	M6	8	-	18	5,7	12,3	-	22	56	39,5	50,5	60,5	9,5	G1/8	31	36	33,8	48	32	45	M5	-
40	10	5,7	4,3	10	5,5	5,5	10	M6	8	5,1	18	5,7	12,3	23,3	25,5	65	39,5	52	62	11	G1/8	34,5	42	33,8	55	42	55	M5	M5
50	12	5,7	6,3	10	5,5	6,6	11	M8	8	6,1	20	6,8	13,2	29,7	25,5	75	39,5	53	65	11	G1/8	41,5	50	32,7	65	50	65	M5	M6
63	12	6,8	5,2	11	6,6	9	15	M10	10	6,1	25	9	16	35,4	27,3	87,5	42	57,5	69,5	11	G1/8	49	62	33	80	62	80	M6	M6
80	14	6,8	7,2	11	6,6	9	15	M10	10	8,1	25	9	16	46	29,3	110	46	64	78	12,5	G1/8	59	82	37	100	82	100	M6	M8
100	16	9	7	15	9	11	18	M12	10	10,1	30	11	19	56,6	36	134	56	76,5	92,5	12,5	G1/8	71	103	45	124	103	124	M8	M10

All leaflets are available on: www.asco.com

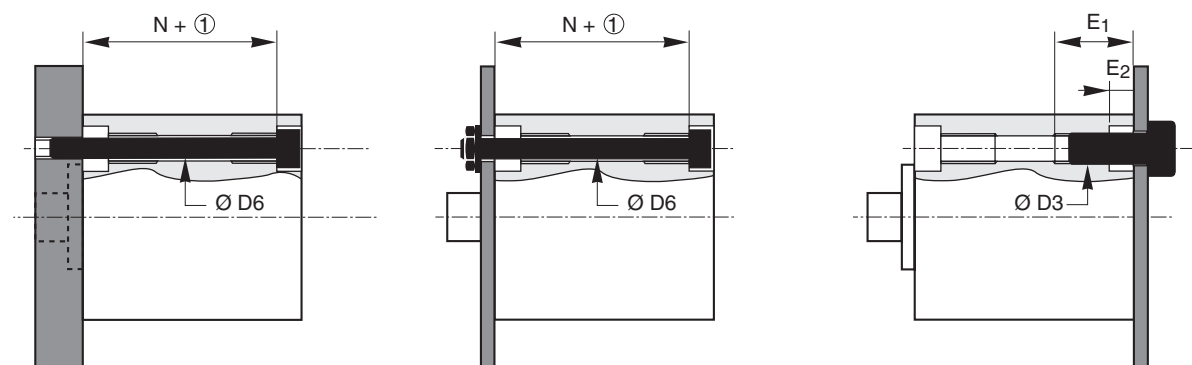
DIMENSIONS (mm)

The tapped and counterbore holes provide great flexibility for mounting. The tappings simplify securing of cylinders, particularly when in long stroke.

• **Front mounting**

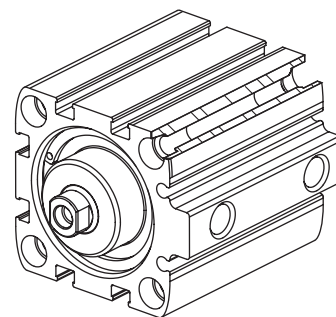


• **Rear mounting**



① Stroke
For non-standard strokes, add the next higher standard one.

Ø	Ø D3	Ø D6	E ₁	E ₂	N
8	M4	M3	12	3,4	19,6
10	M4	M3	12	3,4	20,6
12	M4	M3	12	3,4	20,6
16	M5	M4	15	4,6	27,4
20	M6	M5	18	5,7	26,3
25	M6	M5	18	5,7	32,8
32	M6	M5	18	5,7	33,8
40	M6	M5	18	5,7	33,8
50	M8	M6	20	6,8	32,7
63	M10	M8	25	9	33
80	M10	M8	25	9	37
100	M12	M10	30	11	45

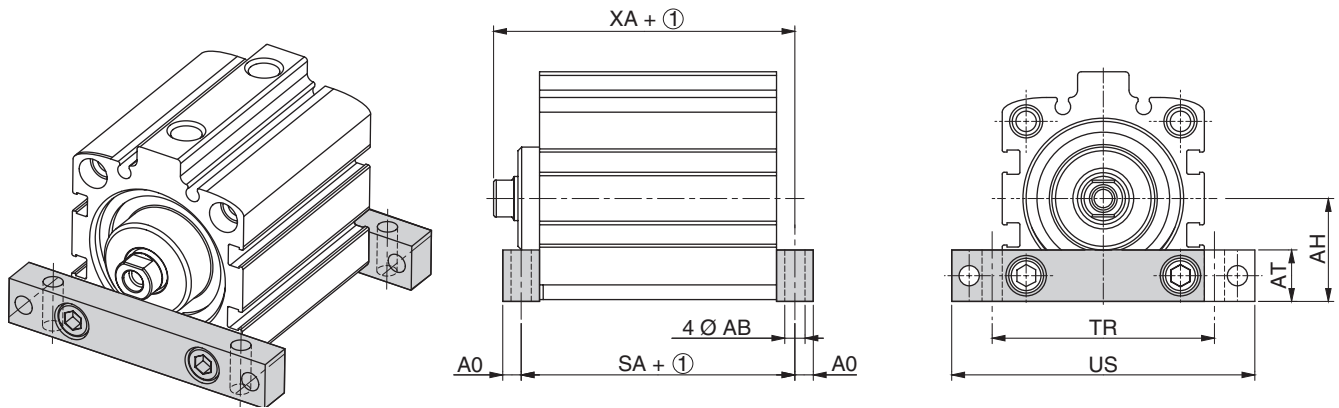
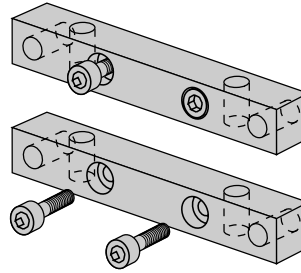


Ø 8 to 25 : 2 mounting holes per face
Ø 32 to 100 : 4 mounting holes per face

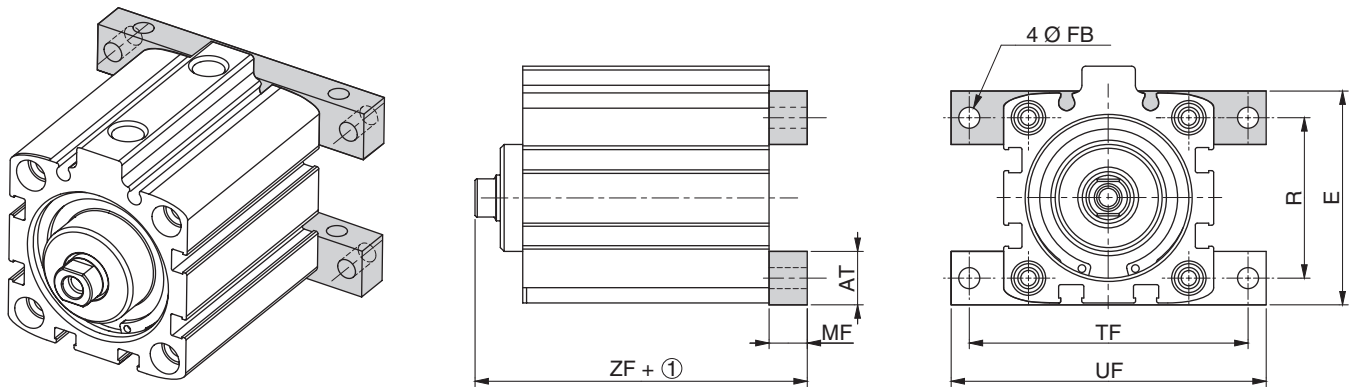
DIMENSIONS (mm), WEIGHT (kg)

A set of two flanges enables front, rear or side mounting of cylinders with bores of 32 to 100 mm, for single-acting, or double-acting, single rod or double crossbar type. (The set comprises two flanges and four screws for securing them to the cylinder).

Ø (mm)	catalogue number set of two flanges
32	P493A302E100A00
40	P493A402E100A00
50	P493A502E100A00
63	P493A602E100A00
80	P493A802E100A00
100	P493A102E100A00



• **Front or rear mounting**



① Stroke
For non-standard strokes, add the next higher standard one.

Ø (mm)	Ø AB	AH	AO	AT	E	Ø FB	MF	R	TF	TR	UF US	SA		XA		ZF		flanges weight
												(2)	(3)	(2)	(3)	(2)	(3)	
32	5,5	25	5	14	50	5,5	10	36	63	50,5	72,5	49,5	57,5	55,5	63,5	60,5	68,5	0,065
40	5,5	28	5	14	56	5,5	10	42	73	60,5	82,5	49,5	56	57	63,5	62	68,5	0,080
50	6,6	33	6	16	66	6,6	12	50	88	72,5	99	51,5	58,5	59	66	65	72	0,135
63	9	41	7,5	20	82	9	15	62	111	91	125	57	63	65	71	72,5	78,5	0,250
80	9	51	7,5	20	102	9	15	82	116	53	131	61	66	71,5	76,5	79	84	0,260
100	10,5	62,5	8,5	22	125	10,5	17	103	142,5	64,5	160	73	81	85	93	93,5	101,5	0,400

(2) Dimensions for single rod cylinder

(3) Dimensions for double crossbar cylinder

• Dimensions of bare cylinder, see specific overall dimensions pages.

• 32 mm bore cylinders are installed with the supply ports on top face.

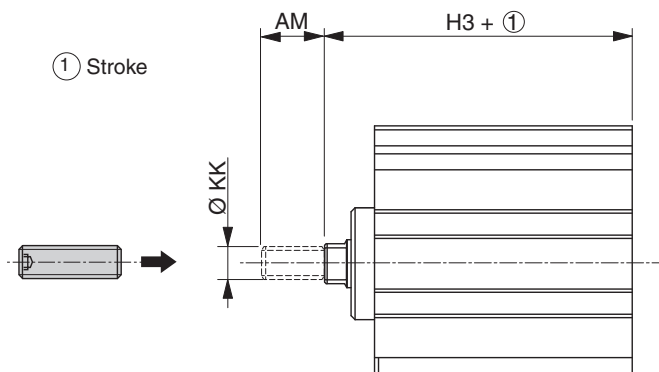
The bodies of 40 to 100 mm bore cylinders can be rotated by 90° increments.

• For side-mounted Ø80-100 mm cylinders, distance between TR centres is less than the distance between the centres of the mounting holes.

DIMENSIONS (mm), WEIGHT (kg)

Threaded end piece

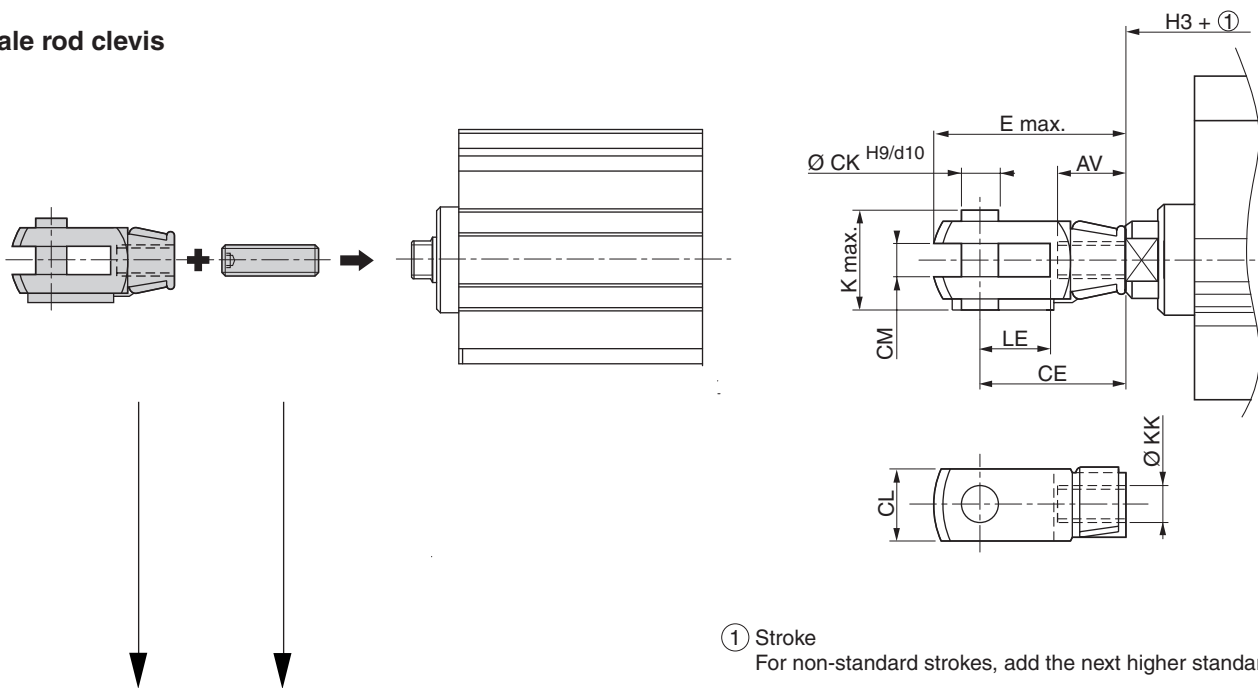
Threaded rod endfitting for the tapped rod end of standard 16 to 100 mm bore cylinders.



Ø (mm)	catalogue number threaded end piece	AM	H3 +	Ø KK
16	P493AK135000A00	8	36,5	M4
20	P493AL135000A00	12	36,5	M6
25		12	44	M6
32	P493A3135000A00	12	50,5	M6
40		12	52	M6
50	P493A5135000A00	15	53	M8
63		15	57,5	M8
80	P493A8135000A00	19	64	M10
100	P493A1135000A00	20	76,5	M12

In your order, indicate the code of the end piece, which is supplied separately.

Female rod clevis



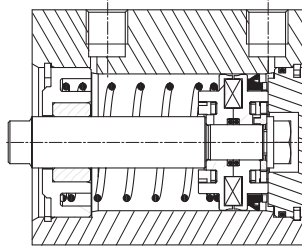
① Stroke
For non-standard strokes, add the next higher standard one.

Ø (mm)	catalogue number female end piece	catalogue number threaded end piece	AV	CE	Ø CK	CL	CM	E	K	Ø KK	LE	H3	clevis weight
15	P493AG431000A00	P493AK135000A00	8	16	4	8	4 ^{+0,4} _{+0,1}	22,5	11	M4	8	36,5	0,010
20	P493AJ431000A00	P493AL135000A00	12	24	6	12	6 ^{+0,4} _{+0,1}	33,5	16,5	M6	12	36,5	0,020
25		44											
32		50,5											
40	P493A3135000A00										52		
50	P493AL431000A00	P493A5135000A00	16	32	8	16	6 ^{+0,5} _{+0,15}	45	22	M8	16	53	0,050
63												57,5	
80	P493A3431000A00	P493A8135000A00	20	40	10	20	10 ^{+0,5} _{+0,15}	56	26	M10	20	64	0,100
100	P493A4431000A00	P493A1135000A00	22	48	12	24	10 ^{+0,5} _{+0,15}	67	32	M12	24	76,5	0,150

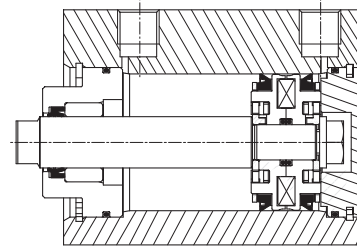
Please indicate the threaded and clevis end piece code in your order.



**SERIES 441
SINGLE ACTING**

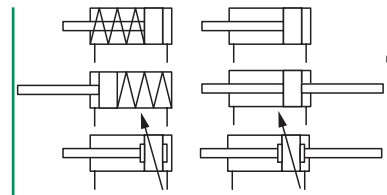


**SERIES 441
DOUBLE ACTING**



Ø (mm)	catalogue number
20	97801352
25	97801353
32	97801354
40	97801355
50	97801356
63	97801357
80	97801358
100	97801591
1 tube of grease, 11 cm ³	97802100

The kits contain wearing parts. They are suitable for both single and double acting.



FEATURES

- Excellent resistance to corrosive media (stainless steel barrel and rod)
- Mountings integrated in the front and MP4 cap in the rear cover for trunnion mounting
- Compact threaded mount for direct attachment of front or rear covers on machine
- Double acting cylinders with or without pneumatic cushioning



GENERAL

Detection	Equipped for magnetic position detectors
Fluid	Air or inert gas, filtered, lubricated or not
Operating pressure	[1 bar = 100 kPa]
single acting	2 to 10 bar
double acting	10 bar, max.
Ambient temperature	-20°C to +70°C
Optimal max. speed	≤ 1 m/s (for optimal service life)
Max. speed rate	2 m/s
Standards	ISO 6432

CONSTRUCTION

Barrel	Non-magnetic stainless steel
Rod	Stainless steel
Front and rear ends	Anodised light alloy (stainless steel: SSC option)
Cushioning seals	PUR (polyurethane)
Cushioning ^(a)	Pneumatic, adjustable from both sides with captive screw
Rod nut / neck nut	Galvanised steel
Piston	Light alloy POM (polyacetal) fitted with an annular permanent magnet
Piston seals	PUR (polyurethane)
Dismounting	Cannot be dismounted

Double acting ^(a) cushioning length
Ø 16 mm = 12,5 mm
Ø 20 mm = 17,5 mm
Ø 25 mm = 18 mm

^(a) CSH option

HOW TO ORDER

15-DIGIT PRODUCT CODE

G 435 A - S N - - - - A00

Thread connection
G = ISO 16030

Product series
435

Revision letter
A = Initial release

Diameter (mm)
G = 8 K = 16
H = 10 L = 20
J = 12 M = 25

Rod options 1
S = Double acting
1 = Single acting rod in
2 = Through rod (double acting)
3 = Single acting rod out ⁽¹⁾
⁽¹⁾ Available in bore size: 12, 16, 20 and 25
All cylinders delivered with rod nut.

Rod options 2
N = Stainless steel male thread rod end + rod nut

Options

- A00** = Not cushioned piston, prepared for magnetic detection
 - CSH** = Pneumatic cushioned piston, prepared for magnetic detection ⁽²⁾
 - SSC** = Stainless Steel Covers, FPM Rod Seal, Prepared for Magnetic Detection, Not Cushioned ⁽³⁾
 - AT1** = Cushioned and non cushioned piston, prepared for magnetic detection, certified for ATEX 1/21 zones
 - AT2** = Cushioned and non cushioned piston, prepared for magnetic detection, certified for ATEX 2/22 zones
- ⁽²⁾ Available in bore size: 16, 20 and 25 (double acting only)
⁽³⁾ Available in bore size: 12, 16, 20 and 25 (double acting only) delivered with SS rod nuts

Recommended standard strokes (mm) ⁽⁴⁾

Ø mm	connect. Ø	25	50	80	100	160	max. stroke
8	M5	SD	SD	D	D		400
10	M5	SD	SD	D	D		400
12	M5	SDO	SDO	D	D		400
16	M5	SDO	SDO	D	D		400
20	G1/8	SDO	SDO	D	D		400
25	G1/8	SDO	SDO	D	D	D	900

Strokes range available up to "max. stroke" column on the right.
Please note strokes marked in grey exceed the maximum recommended.

⁽⁴⁾ Other strokes on request. / Min. stroke: 5 mm
D = Double acting only / SD = Single & Double acting
SDO = Single acting rod in + Single acting rod out + Double acting




[Configurator - CAD Files](#)

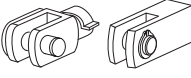


POSITION DETECTORS

Magnetic position detectors must be ordered separately: "T" model, [reed switch](#) or [magneto-resistive](#) type

INSTALLATION

- The cylinders can be mounted in any position without affecting operation
- Each cylinder is delivered with a neck nut and a rod nut
- Mountings: **catalogue number**

Ø (mm)	 Front or rear flange MF8		 High foot (per unit) MS3		 Rear trunnion	
	steel	st. steel	steel	st. steel	steel	st. steel
8 - 10	P493AG42A000A00	-	P493AG425000A00	-	P493AG42C000A00	-
12 - 16	P493AJ42A000A00	P493AJ42A200A00	P493AJ425000A00	P493AJ425200A00	P493AJ42C000A00	P493AJ42C200A00
20	P493AL42A000A00	P493AL42A200A00	P493AL425000A00	P493AL425200A00	P493AL42C000A00	P493AL42C200A00
25	P493AL42A000A00	P493AL42A200A00	P493AL425000A00	P493AL425200A00	P493AL42C000A00	P493AL42C200A00

Ø (mm)	 female rod clevis ISO 8140 - RP 102 P AP2		 spherical rod end ISO 8139 - RP 103 P AP6		 front neck nut MR3	
	steel	st. steel	steel	st. steel	steel	st. steel
8 - 10	P493AG431000A00	-	P493AG432000A00	-	P493AG42F000A00	-
12 - 16	P493AJ431000A00	P493AJ431200A00	P493AJ432000A00	-	P493AJ42F000A00	P493AJ42F200A00
20	P493AL431000A00	P493AL431200A00	P493AL432000A00	-	P493AL42F000A00	P493AL42F200A00
25	P493A3131000A00	P493AM431200A00	P493A3132000A00	-	P493AL42F000A00	P493AL42F200A00

- Pipe connections G 1/8 have standard thread according to ISO 16030
- Installation/maintenance instructions are included with each cylinder

DIMENSIONS (mm), WEIGHT (kg)

[Configurator - CAD Files](#)



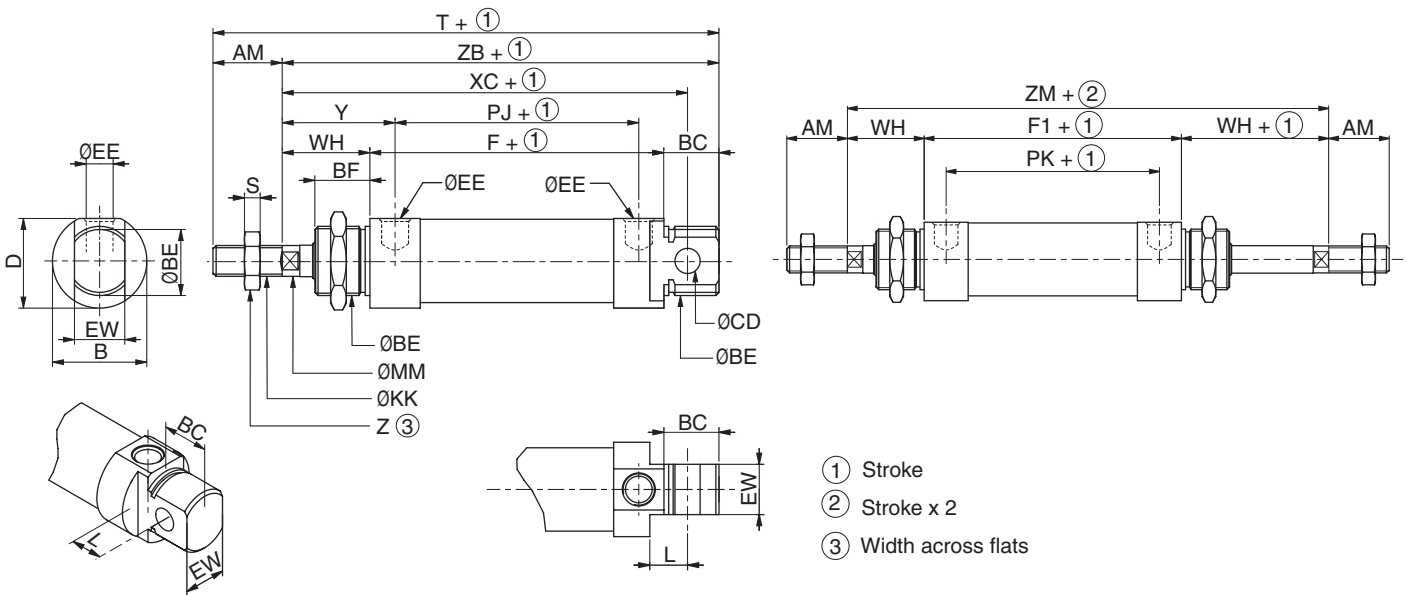
SINGLE-ROD TYPE CYLINDER

Bare cylinder, single and double acting
Supplied with front cover nut
ISO 6432



THROUGH-ROD TYPE CYLINDER

Bare cylinder, double acting
Supplied with front cover nut
ISO 6432

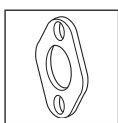


Ø	AM	B	BC	ØBE	BF	ØCD	D	ØEE	EW	F	F1	ØKK	L	MM	PJ	PK	S	T	WH	XC	Y
8	12	16	12	M12x1,25	12	4 H 9	15	M5	8 d 13	46	-	M4x0,7	6	4	34	-	2	86	16	64	22
10	12	16	12	M12x1,25	12	4 H 9	15	M5	8 d 13	46	-	M4x0,7	6	4	34	-	2	86	16	64	22
12	16	19	14	M16x1,5	14	6 H 11	18	M5	12 d 11	48,5	48,5	M6x1	9	6	34,5	34,5	3	100,3	22	75	29
16	16	19	14	M16x1,5	14	6 H 11	18	M5	12 d 11	55	55	M6x1	9	6	41,5	41,5	3	107	22	82	28,5
20	20	27	17,5	M22x1,5	17,5	8 H 11	25,4	G 1/8	16 d 11	63,5	63,5	M8x1,25	12	8	47,3	47,3	4	125	24	95	32
25	22	30	17,5	M22x1,5	17,5	8 H 11	28,5	G 1/8	16 d 11	68,5	68,5	M10x1,25	12	10	52,5	52,5	5	136	28	104	36

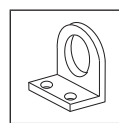
Ø	Z	ZB	ZM	weight	
				(4)	(5)
8	7	74	-	0,030	0,020
10	7	74	-	0,030	0,040
12	10	84,5	82,5	0,070	0,090
16	10	91	99	0,100	0,100
20	13	105	111,5	0,170	0,160
25	17	114	124,5	0,200	0,200

(4) Cylinder weight at 0 mm stroke.
(5) Weight to be added per additional 100 mm length.

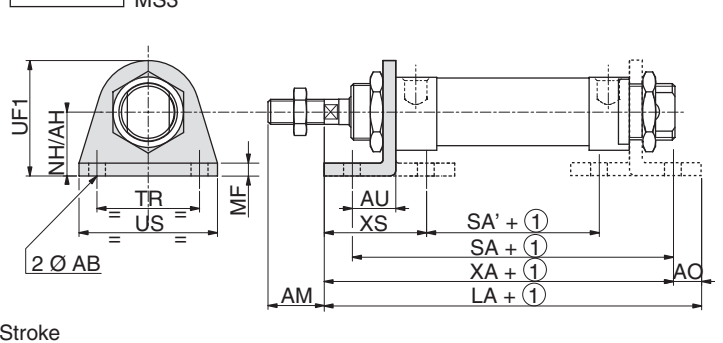
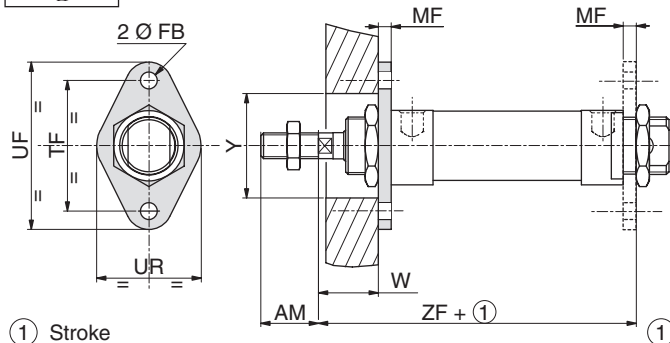
NOTE:
- Single and double acting Rod-In have the same dimensions.
- Use twice Nominal Stroke for Single Acting Rod Out.
- The mountings are always delivered separately



MOUNTING
Front or rear flange
MF8



MOUNTING
High foot
Foot mounting are supplied in single units,
not in pairs
MS3

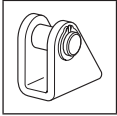


Ø (mm)	AM	ZF	MF	Y	W	ØFB	UF	TF	UR	weight
08	12	65	3	22	13	4,5	40	30	22	0,020
10	12	65	3	22	13	4,5	40	30	22	0,020
12	16	74,5	4	22	18	5,5	52	40	30	0,020
16	16	81,0	4	22	18	5,5	52	40	30	0,020
20	20	92,5	5	31	19	6,6	64	50	40	0,040
25	22	101,5	5	31	23	6,6	64	50	40	0,040

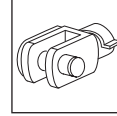
Ø (mm)	UF1	NH/AH	TR	US	MF	ØAB	AM	AU	XS	SA	SA'	XA	LA	AO	weight
08	26	16	25	35	3	4,5	12	11	24	68	30	73	78	5	0,030
10	26	16	25	35	3	4,5	12	11	24	68	30	73	78	5	0,030
12	32	20	32	42	4	5,5	16	14	32	76,5	28,5	84,5	90,5	6	0,050
16	32	20	32	42	4	5,5	16	14	32	83	35	91	97	6	0,050
20	45	25	40	54	5	6,6	20	17	36	97,5	39,5	104,5	113,5	9	0,100
25	45	25	40	54	5	6,6	22	17	40	102,5	44,5	113,5	122,5	9	0,100

01426GB-2016/R02
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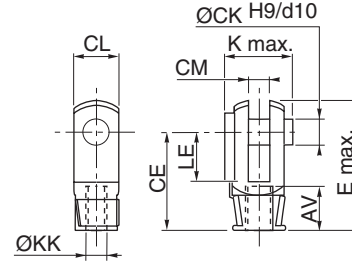
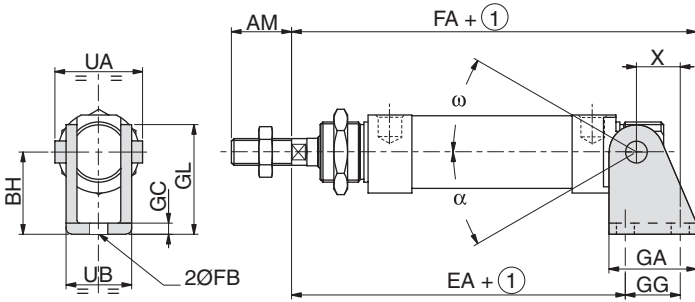
DIMENSIONS (mm), WEIGHT (kg)



MOUNTING
Rear trunnion



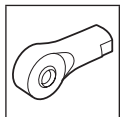
MOUNTING
Female rod clevis
ISO 8140
AP2 (steel)



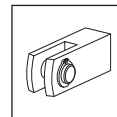
① Stroke

Ø (mm)	AM	BH	EA	FA	FB	GA	GC	GG	GL	UA	UB	X	α	ω	weight
8-10	12	24	62,7	79	4,5	20	2,5	12,5	29	18	13	11,2	7°	160°	0,020
12	16	27	72,5	93	5,5	25	3	16	34	25	18	13,5	50°	180°	0,050
16	16	27	79,5	100	5,5	25	3	16	34	25	18	13,5	47°	180°	0,050
20	20	30	91	117	6,6	32	4	20	40	32	24	16	8°	168°	0,080
25	20	30	100	126	6,6	32	4	20	40	32	24	16	8°	168°	0,080

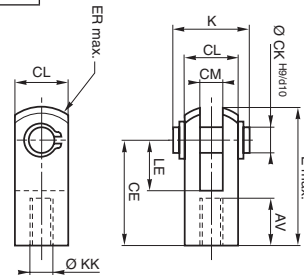
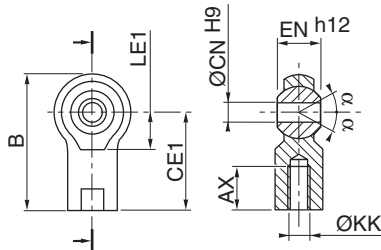
Ø (mm)	Ø CK	CM	K	AV	LE	CE	CL	ØKK	E max.	weight
8-10	4	4 ^{+0,01} _{-0,01}	11	8	8	16	8	M4x0,7	22,5	0,010
12-16	6	6 ^{+0,01} _{-0,01}	16,5	12	12	24	12	M6x1	33,5	0,020
20	8	8 ^{+0,01} _{-0,01}	22	15	16	32	16	M8x1,25	45	0,050
25	10	10 ^{+0,01} _{-0,01}	26	20	20	40	20	M10x1,25	56	0,100



MOUNTING
Spherical rod end
ISO 8139
AP6 (steel)

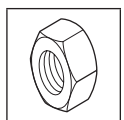


MOUNTING
Female rod clevis
ISO 8140
AP2 (stainless steel)

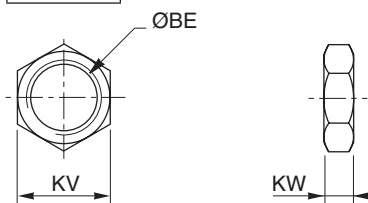


Ø (mm)	AX	B	CE1	ØCN	LE1	ØKK	EN	α	weight
8-10	8	36	27	5	10	M4x0,7	8	4°	0,020
12-16	12	40	30	6	11	M6x1	9	4°	0,030
20	15	48	36	8	13	M8x1,25	12	4°	0,050
25	20	57	43	10	15	M10x1,25	14	4°	0,070

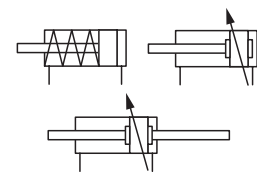
Ø (mm)	CL max.	ØKK	CM	ØCN	E max.	AV min.	LE	CE	weight
8-10	8	M4x0,7	4	4	21	10	8	16	0,005
12-16	12	M6x1	6	6	31	12	12	24	0,015
20	16	M8x1,25	8	8	42	16	16	32	0,036
25	20	M10x1,25	10	10	52	20	20	40	0,075



MOUNTING
Front neck nut
MR3

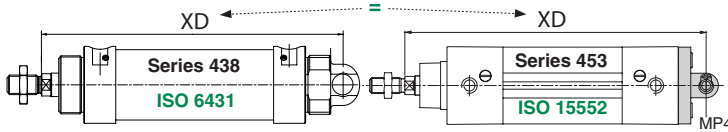


Ø (mm)	ØBE	KV	KW	weight
8	M12x1,25	19	6	0,010
10	M12x1,25	19	6	0,010
12	M16x1,5	19	4	0,010
16	M16x1,5	19	4	0,010
20	M22x1,5	27	5	0,010
25	M22x1,5	27	5	0,010



FEATURES

- 438 series comply with ISO 6431 specifications, making it interchangeable with ISO 15552 cylinders assembled with a rear trunnion mounting.



XD dimension (distance between the beginning of the rod thread and the center of the trunnion) is identical on ISO 6431 and ISO 15552 cylinders equipped with an MP4.

GENERAL

Detection	Equipped for magnetic position detectors
Fluid	Air or inert gas, filtered, lubricated or not
Operating pressure	[1 bar = 100 kPa]
single acting	1 to 10 bar
double acting	10 bar, max.
Ambient temperature	-20°C to +70°C
Max. speed rate	2 m/s (for higher and lower speed rate, see LFS option)
Standards	ISO 6431

CONSTRUCTION

Barrel	Anodised aluminium alloy
Front and rear ends	Anodised light alloy
Bearing	Self-lubricating metal
Cushioning seals	PUR (polyurethane)
Cushioning	Pneumatic, adjustable from both sides with captive screw
Rod	Hard chromed steel (stainless steel option)
Rod nut	Galvanised steel
Piston	POM (polyacetal) fitted with an annular permanent magnet
Piston seals	PUR (polyurethane)



HOW TO ORDER

15-DIGIT PRODUCT CODE

G 438 B - S K - - - - A00

Thread connection

G = ISO 16030

Product series

438

Revision letter

B = Release version

Diameter (mm)

3 = 32

5 = 50

4 = 40

6 = 63

Rod options 1

S = Double acting, single rod

1 = Single acting rod in⁽³⁾

2 = Through rod (double acting)

3 = Double acting-Stainless steel rod

4 = Double acting-Stainless steel rod-Through rod

5 = Single acting rod in - Stainless steel rod⁽³⁾

⁽³⁾ Single acting cylinders have no pneumatic cushion.

All cylinders delivered with rod nut, in stainless steel for options 3, 4 and 5.

Double acting cushioning length:

Ø32 mm = 16 mm / Ø40 mm = 20 mm

Ø50 mm = 26 mm / Ø63 mm = 30 mm

POSITION DETECTORS (double acting)

Magnetic position detectors must be ordered separately: "T" model, [reed switch](#) or [magneto-resistive](#) type

[Configurator - CAD Files](#)

Options

A00 = Without

LFS = Low friction piston seals⁽²⁾

Recommended standard strokes (mm)⁽¹⁾

Ø mm	connect. Ø	max. stroke												
		25	50	80	100	125	160	200	250	320	400	500	S	D
32	G1/8	SD	SD	D	D	D	D	D	D	D	D	D	50	1000
40	G1/4	SD	SD	D	D	D	D	D	D	D	D	D	50	1000
50	G1/4	SD	SD	D	D	D	D	D	D	D	D	D	50	1000
63	G3/8	SD	SD	D	D	D	D	D	D	D	D	D	50	1000

Strokes range available up to "max. stroke" column on the right.

Please note strokes marked in grey exceed the maximum recommended.

⁽¹⁾ Other strokes on request. / Min. stroke: 5 mm

D = Double acting only / SD = Single & Double acting

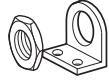
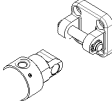


⁽²⁾ Special characteristics for this option:

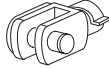


. piston material: light alloy

. max. speed rate: 3 m/s

INSTALLATION

- The cylinders can be mounted in any position without affecting operation
- 438B cylinders are not repairable
- The mountings are always delivered separately
- Mountings: **catalogue number**

Ø (mm)	 Foot mounting (2 neck nuts) MS3	 Rear male trunnion MP4	 Complete trunnion MP2	 Rear trunnion (not standardised)
32	P493A3325000A00	integrated (with the cylinder rear cover)	P493A3121110A00	P493A332C000A00
40	P493A4325000A00		P493A4121110A00	P493A432C000A00
50	P493A5325000A00		P493A5121110A00	P493A532C000A00
63	P493A6325000A00		P493A6121110A00	P493A632C000A00

Ø (mm)	 Female rod clevis ISO 8140 - RP 102 P AP2	 Spherical rod end ISO 8139 - RP 103 P AP6	 Front neck nut MR3
32	P493A3131000A00	P493A3132000A00	P493A332F000A00
40	P493A4131000A00	P493A4132000A00	P493A432F000A00
50	P493A5131000A00	P493A5132000A00	P493A532F000A00
63			

DIMENSIONS (mm), WEIGHT (kg)

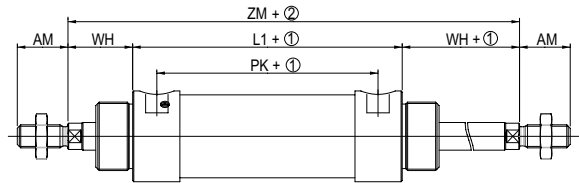
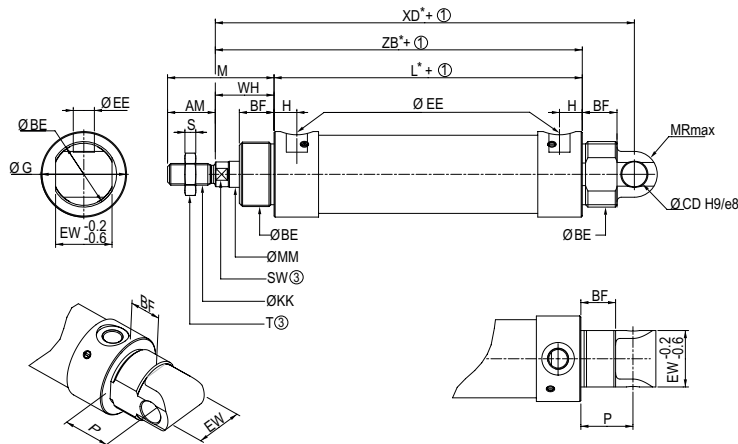
[Configurator - CAD Files](#)



SINGLE-ROD TYPE CYLINDER
Round cylinder, single and double acting
Supplied with front cover nut
ISO 6431 - 8139 - 8140



THROUGH-ROD TYPE CYLINDER
Round cylinder, double acting
Supplied with front cover nut
ISO 6431 - 8139 - 8140



- ① Stroke
- ② Stroke x 2
- ③ Width across flats

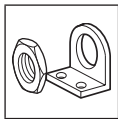
Double acting cushioning length:
Ø32 mm = 16 mm / Ø40 mm = 20 mm
Ø50 mm = 26 mm / Ø63 mm = 30 mm

Ø	AM	ØBE	BF	ØCD	ØEE	EW	ØG	H	ØKK	L*	L1	M	ØMM	MR	P	PK	S
32	22	M30 x 1,5	16	10	G1/8	26	39,4	10,5	M10 x 1,25	92	92	49	12	10,5	24	71	5
40	24	M36 x 1,5	19	12	G1/4	28	46,5	12,5	M12 x 1,25	107	108	53	16	13	24,3	81	6
50	32	M45 x 1,5	23,5/18,5	12	G1/4	32	56,8	12,8	M16 x 1,5	110	110	67	20	13	25,5	84,5	8
63	32	M45 x 1,5	23	16	G3/8	40	70	16,5	M16 x 1,5	125	125	67	20	17	31	92	8

Ø	SW	T	WH	XD*	ZB*	ZM	weight	
							(4)	(5)
32	10	17	27	143	119	147	0,367	0,0017
40	13	19	29	160	136	167	0,639	0,0024
50	17	24	35	170	145	181	1,017	0,0033
63	17	24	35	191	160	196	1,506	0,0038

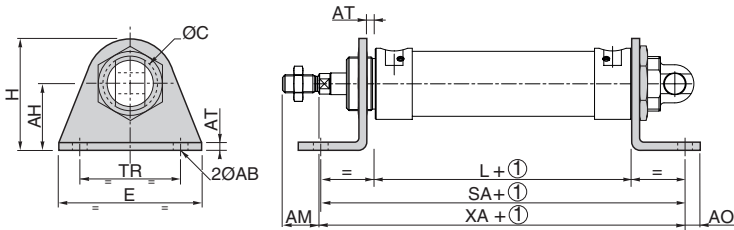
* Single acting cylinders dimension:
- stroke 25 = Double acting
- stroke 50 = Double acting + 25 mm
(4) Cylinder weight at 0 mm stroke.
(5) Weight to be added per additional 1 mm length.

DIMENSIONS (mm), WEIGHT (kg)



MOUNTING

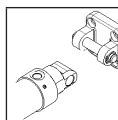
Foot mounting
Feet mounting are supplied in batch of two with 2 neck nuts.
MS3



Ø	ØAB	AH	AM	AO	AT	ØC	E	H	L*	SA*	TR	XA*	weight
32	7	32	22	6,5	3	30	45	51	92	142	32	144	0,16
40	9	36	24	8	3	36	52	60	107	161	36	163	0,23
50	9	45	32	10	4	45	75	73	110	170	45	175	0,54
63	9	50	32	10	4	45	75	85	125	185	50	190	0,64

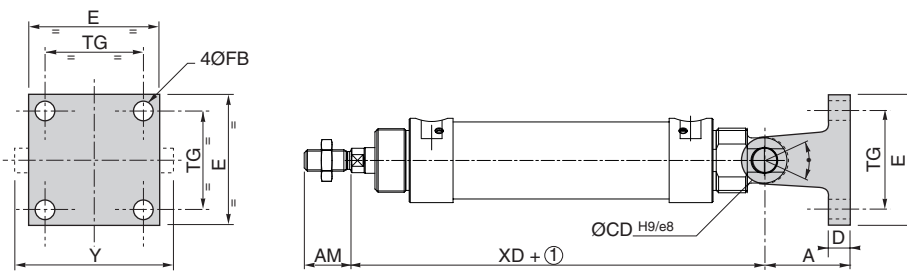
① Stroke

*+25 mm for single-acting cylinders with 50 mm stroke.



MOUNTING

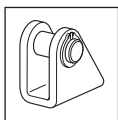
Complete trunnion
MP2 + MP4
MP4 fixing being integral with the cylinder rear cover, only MP2 mounting needs to be ordered.



Ø	A	AM	ØCD	D	E	FB	TG	XD*	Y	α max.	weight (complete trunnion)
32	20	22	10	8	45	7	33	143	53	76°	0,042
40	23	24	12	8	52	7	40	160	60	61°	0,060
50	25	32	12	10	65	9	49	171	68	58°	0,108
63	30	32	16	10	75	9	50	191	78	76°	0,155

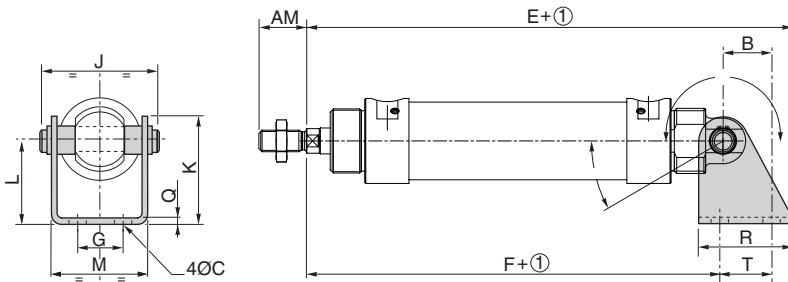
① Stroke

*+25 mm for single-acting cylinders with 50 mm stroke.



MOUNTING

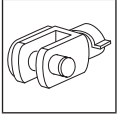
Rear trunnion
(The rear trunnion mounting is delivered separately)



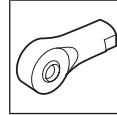
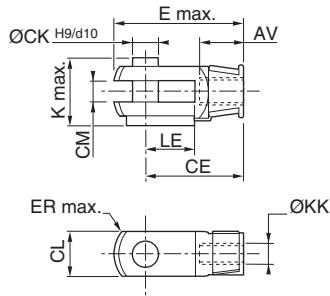
Ø	AM	B	ØC	E	F	G	J	K	L	M	Q	R	T	α	ω	weight
32	22	20	7	171	139	20	52	47	35	46	4	40	24	35°	180°	0,14
40	24	27	9	197	157	28	62	53	40	56	5	50	30	30°	170°	0,25
50	32	30	9	210	166	36	75	59	45	69	6	54	34	20°	165°	0,36
63	32	38	9	243	193	42	89	66	50	82	6	65	35	20°	160°	0,52

① Stroke

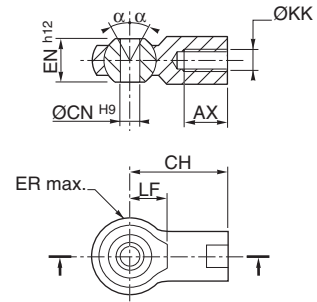
01427GB-2016/R01
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MOUNTING
Female rod clevis
ISO 8140
AP2

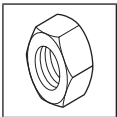


MOUNTING
Spherical rod end
ISO 8139
AP6

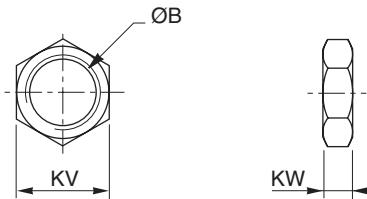


Ø	AV	CE	ØCK	CL	CM	E	ER	K	ØKK	LE	weight
32	20	40	10	20	10 ^{+0,5} _{+0,15}	57	14	26	M10x1,25	20	0,10
40	22	48	12	24	12 ^{+0,5} _{+0,15}	67	16	32	M12x1,25	24	0,15
50	28	64	16	32	16 ^{+0,5} _{+0,15}	89	21	41	M16x1,5	32	0,33
63	28	64	16	32	16 ^{+0,5} _{+0,15}	89	21	41	M16x1,5	32	0,33


Ø	AX	CH	ØCN	EN	ER	ØKK	LF	α _{max.}	weight
32	20	43	10	14	14	M10x1,25	15	4°	0,07
40	22	50	12	16	16	M12x1,25	17	4°	0,12
50	28	64	16	21	21	M16x1,5	22	4°	0,22
63	28	64	16	21	21	M16x1,5	22	4°	0,22

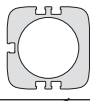


MOUNTING
Front neck nut
MR3



Ø	ØB	KV	KW	weight
32	M30x1,5	35	10	0,03
40	M36x1,5	42	10	0,04
50	M45x1,5	60	12	0,14
63	M45x1,5	60	12	0,14

MAGNETIC POSITION DETECTOR

 Reed-switch type or magneto-resistive type (MR)
 Installation into the T-slot grooves

T-SLOT GROOVES

 Grooves in 3 sides

EASY MOUNTING
 Wide choice of standard mountings and rod ends

ESTHETIC DESIGN
 Cylinders with profiled barrel in hard anodised aluminium


STURDY DESIGN
 Rod in hard chrome steel tapped or threaded

PRECISE ROD GUIDANCE
 With high-performance self-lubricating bearing and non-abrasive scraper seal

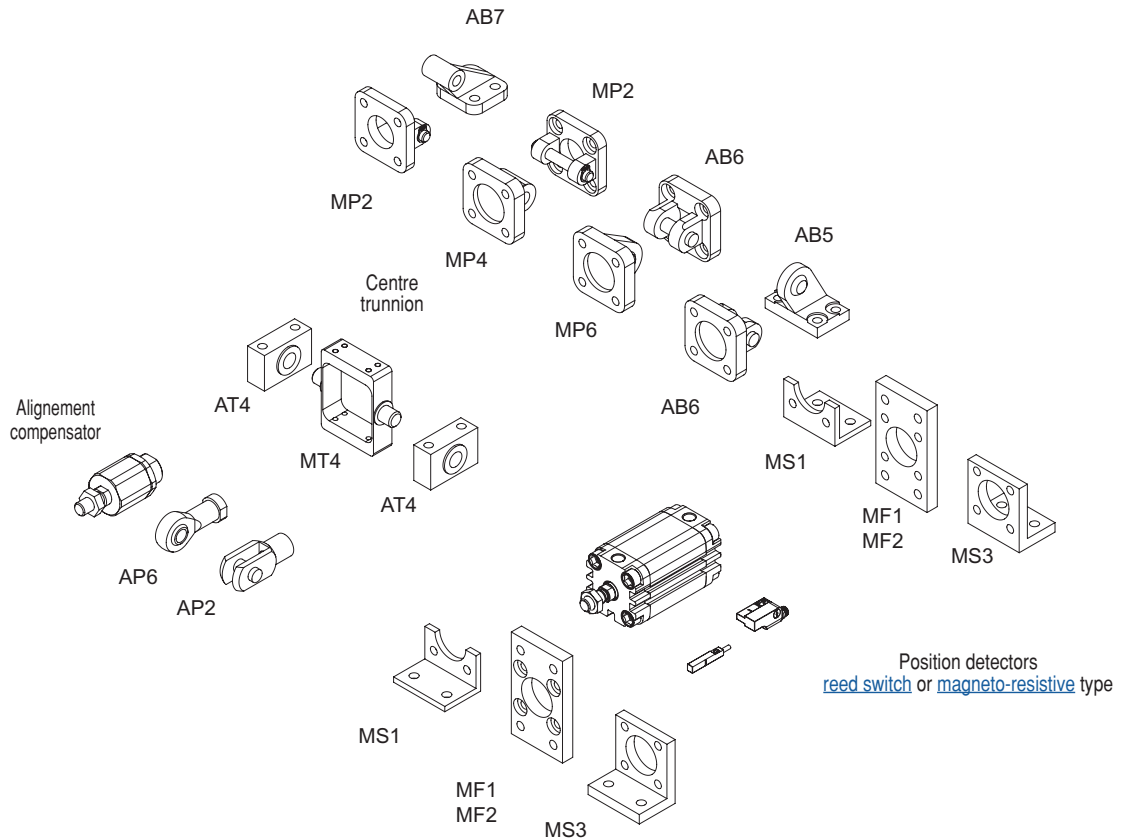
EASY MAINTENANCE
 Series 449 cylinders do not require lubrication.

STANDARD SWIVEL TRUNNION MOUNT

 As a fastening option, this trunnion slides on the barrel for on-site positioning.



STANDARD MOUNTINGS

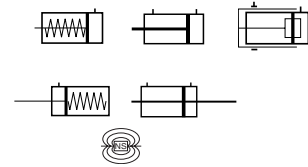


AB7
MP2
AB6
AB5
MP4
MP6
AB6
MS1
MF1
MF2
MS3
Centre trunnion
AT4
MT4
AT4
AP6
AP2
MS1
MF1
MF2
MS3

Alignment compensator

Position detectors
 reed switch or magneto-resistive type

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GENERAL

Detection	Equipped for magnetic position detectors
Fluid	Air or inert gas, filtered, lubricated or not
Operating pressure	10 bar, max. [1 bar = 100 kPa]
Ambient temperature	-20°C to +70°C (for higher temperature, see HTP option)
Max. speed rate	0,5 m/s
Standards	449 series comply with ISO 21287 Diameters 32-100 are also compatible with ISO 15552 (distances between the centres of the mounting holes)
Minimum pressure to compress the spring (single acting version)	Ø20-50 = 1 bar Ø63-100 = 0,65 bar
The return of the piston rod must be without load (single acting version)	



CONSTRUCTION

Barrel	Hard anodized aluminium alloy	
Front and rear ends	Aluminium alloy	
Bearing	Self-lubricating metal	
Rod	Ø 20-25: stainless steel Ø 32-100: Hard chrome plated steel	
Rod end	Tapped or threaded	
Piston	POM (polyacetal) or light alloy	
Piston seals	PUR (polyurethane)	
Version with antirotation device	Load carrying plate	Aluminium alloy
	Guide rod	Ø 20-25: stainless steel Ø 32-100: Hard chrome plated steel
	Bearing guide rod	Self-lubricating metal

[Configurator - CAD Files](#)

15-DIGIT PRODUCT CODE

G 449 A - S K - - - - A00

Thread connection
G = ISO 16030

Product series
449

Revision letter
A = Initial release

Diameter (mm)
L = 20⁽³⁾ 5 = 50
M = 25⁽³⁾ 6 = 63
3 = 32 8 = 80
4 = 40 1 = 100

⁽³⁾ Available in stainless steel rod end only.

Rod options 1

S = Double acting
1 = Single acting rod in
2 = Through rod
3 = Single acting rod out
4 = Rod antirotation device

Rod options 2⁽⁴⁾

K = Hard chromed female thread rod end
M = Hard chromed male thread rod end
G = Stainless steel female thread rod end
N = Stainless steel male thread rod end

⁽⁴⁾ K and M = No use with the 20/25 mm diameters.

Stainless steel male thread rod nuts delivered with Rod option N.

Options

A00 = Without
MT4 = Non fixed centre trunnion (MT4 axis perpendicular to the ports)^{(1) (3)}
MS4 = Non fixed centre trunnion (MT4 axis parallel to the ports)^{(1) (3)}
AT1 = ATEX zones 1/21
AT2 = ATEX zones 2/22
HTP = High temperature (up to 120°C)⁽²⁾

NPC = Anticorrosion treatment on covers & high-quality rod seals
⁽¹⁾ For fixed supplied centre trunnion, consult our Dynamic Product Modeling Tool on www.asco.com and indicate XV dimension.

⁽²⁾ Non equipped for magnetic position detectors

⁽³⁾ Ø32 to 100 mm only.

Recommended standard strokes (mm)⁽⁵⁾

Ø mm	connect. Ø (G)	5	10	15	20	25	50	80	100	max. stroke	Rod antirotation device max. stroke
20	M5	SD	SD	SD	D	D	D			60	60
25		SD	SD	SD	SD	D	D			60	60
32	G1/8	SD	SD	SD	SD	SD	D	D		400	100
40		SD	SD	SD	SD	SD	D	D	D	400	100
50		SD	SD	SD	SD	SD	D	D	D	400	100
60		SD	SD	SD	SD	SD	D	D	D	400	100
80		SD	SD	SD	SD	SD	D	D	D	400	100
100		SD	SD	SD	SD	SD	D	D	D	400	100

Strokes range available up to "max. stroke" column on the right.

Please note strokes marked in grey exceed the maximum recommended.

⁽⁵⁾ Other strokes on request. / Min. stroke: 5 mm

D = Double acting only / SD = Single & Double acting

POSITION DETECTORS

Magnetic position detectors must be ordered separately: modèles "T", [reed switch](#) or [magneto-resistive](#) type

MOUNTINGS

Mountings must be ordered separately

INSTALLATION

- For a longer lifetime, it is recommended to use external stoppers

All leaflets are available on: www.asco.com

DIMENSIONS (mm), WEIGHT (kg)

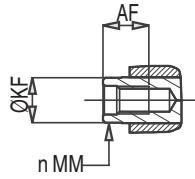
[Configurator - CAD Files](#)



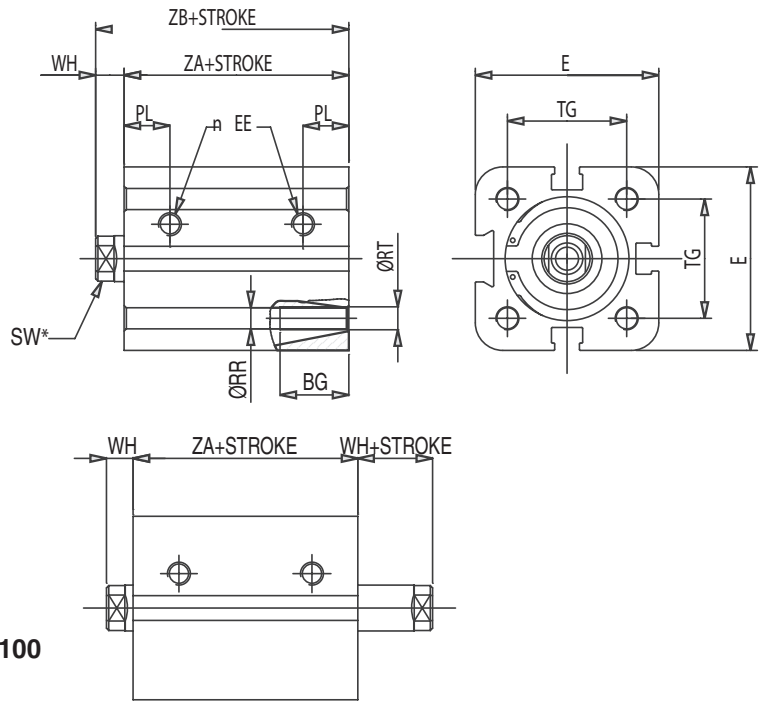
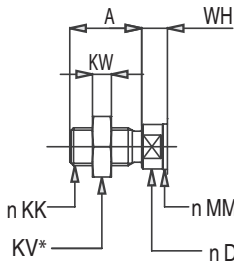
SINGLE-ROD TYPE CYLINDER Ø 20-25

Bare cylinder
ISO 21287

tapped rod end



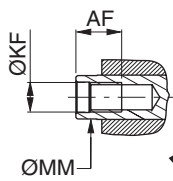
threaded rod end



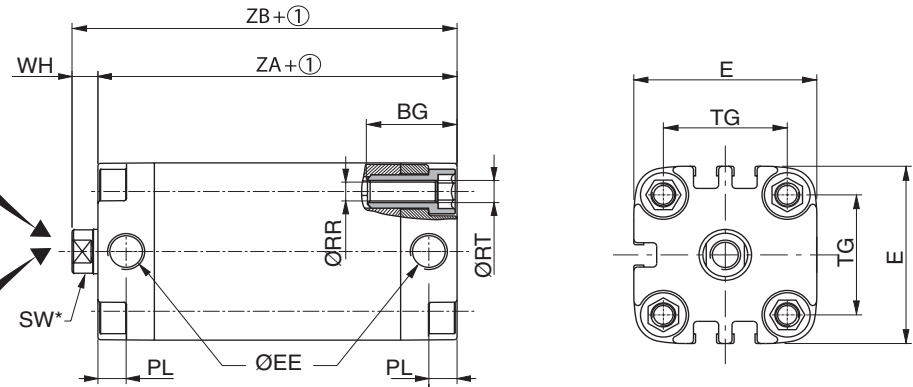
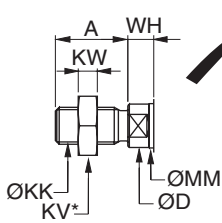
SINGLE-ROD TYPE CYLINDER Ø 32-100

Bare cylinder
ISO 21287

tapped rod end

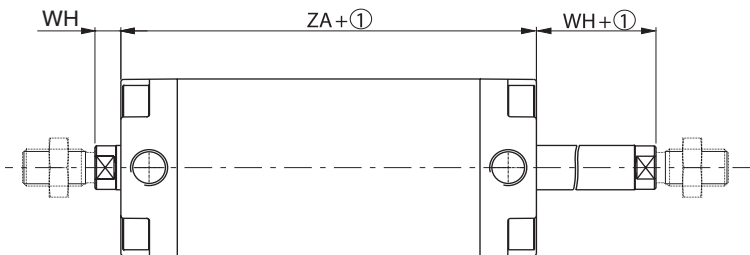


threaded rod end



THROUGH-ROD TYPE CYLINDER

Bare cylinder
ISO 21287



① Stroke

* Width across flats

Ø	weight	
	(2)	(3)
20	0,125	0,0026
25	0,15	0,003
32	0,228	0,0029
40	0,282	0,0033
50	0,421	0,0048
63	0,553	0,0053
80	0,991	0,0078
100	1,818	0,0099

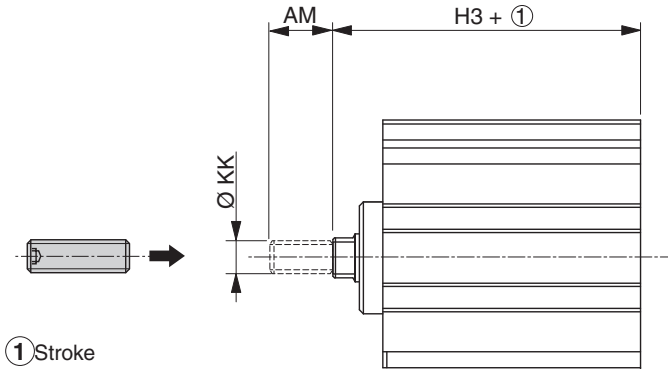
(2) Cylinder weight at 0 mm stroke.
(3) Weight to be added per additional mm length.

Ø	A	AF	BG	ØD	E	EE	ØKF	ØKK	KV	KW	ØMM	PL	ØRR	ØRT	SW	TG	WH	ZA	ZB
20	16	10	15	9,8	36	M5	M6	M8x1,25	13	4	10	10	4,2	M5	8	22	6	37	43
25	16	10	15	9,8	40	M5	M6	M8x1,25	13	4	10	10	4,2	M5	8	26	6	39	45
32	19	12	23,5	11,8	48	G 1/8	M8	M10x1,25	16	5	12	7,5	5,1	M6	10	32,5	7	44	51
40	19	12	23,5	11,8	54	G 1/8	M8	M10x1,25	16	5	12	7,5	5,1	M6	10	38	7	45	52
50	22	16	24	15,8	66	G 1/8	M10	M12x1,25	18	6	16	7,5	6,7	M8	13	46,5	8	45	53
63	22	16	24	15,8	78	G 1/8	M10	M12x1,25	18	6	16	7,5	6,7	M8	13	56,5	8	49	57
80	28	20	28,5	19,8	96	G 1/8	M12	M16x1,50	24	8	20	8,5	8,4	M10	16	72	10	54	64
100	28	20	28,5	24,8	115	G 1/8	M12	M16x1,50	24	8	25	10	8,4	M10	21	89	10	67	77

DIMENSIONS (mm), WEIGHT (kg)

Threaded end piece

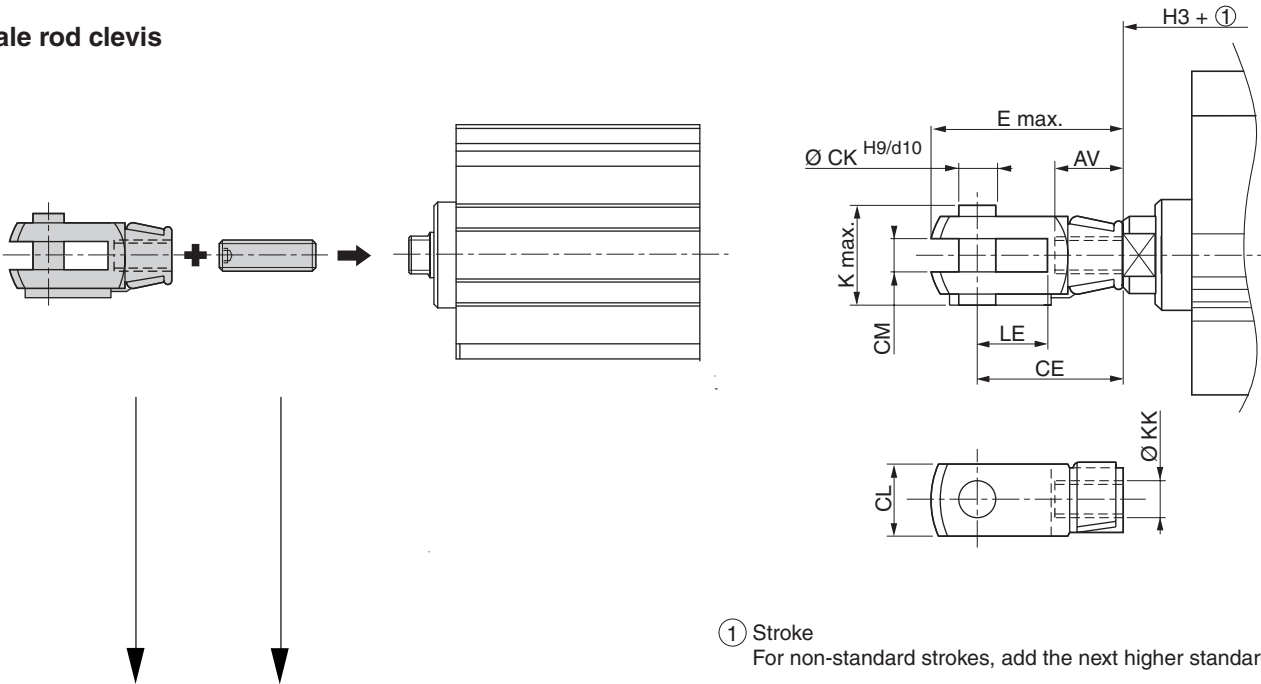
Threaded rod endfitting for the tapped rod end of standard 16 to 100 mm bore cylinders.



Ø (mm)	catalogue number threaded end piece	AM	H3 +	Ø KK
20	P493A3135000A00	12	50,5	M6
25			52	
32	P493A5135000A00	15	53	M8
40			57,5	
50	P493A8135000A00	M10	64	M10
63				
80	P493A1135000A00	M12	76,5	M12
100				

In your order, indicate the code of the end piece, which is supplied separately.

Female rod clevis

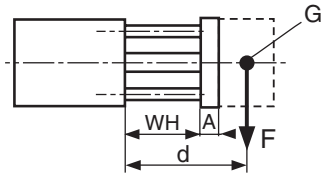


① Stroke
For non-standard strokes, add the next higher standard one.

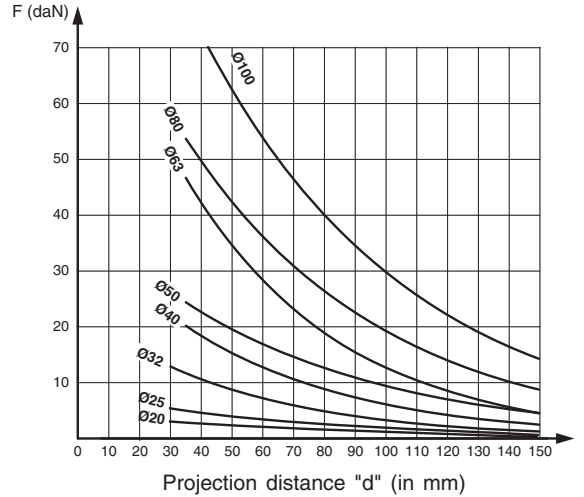
Ø (mm)	catalogue number female end piece	catalogue number threaded end piece	AV	CE	Ø CK	CL	CM	E	K	Ø KK	LE	H3	clevis weight
20	P493AJ431000A00	P493A3135000A00	12	24	6	12	6 ^{+0,4} _{+0,1}	33,5	16,5	M6	12	36,5	0,020
25												44	
32	P493AL431000A00	P493A5135000A00	16	32	8	16	6 ^{+0,4} _{+0,1}	45	22	M8	16	53	0,050
40												57,5	
50	P493A3431000A00	P493A8135000A00	20	40	10	20	10 ^{+0,5} _{+0,15}	56	26	M10	20	64	0,100
63													
80	P493A4431000A00	P493A1135000A00	22	48	12	24	10 ^{+0,5} _{+0,15}	67	32	M12	24	76,5	0,150
100													

Please indicate the threaded and clevis end piece code in your order.

MAX. ADMISSIBLE LOAD "F" ON THE ROD END



d = the projection distance (in mm) corresponds to the dimensions WH + A + the stroke length + the distance from the centre of gravity (G) of the load to the front mating surface of the load carrying plate.

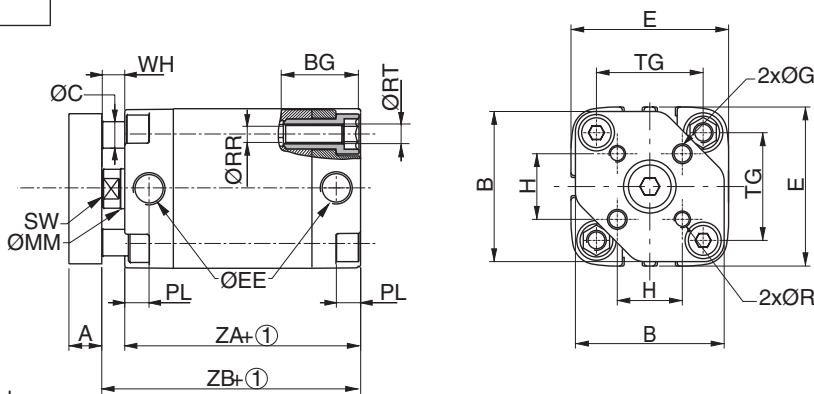


DIMENSIONS (mm), WEIGHT (kg)



CYLINDER WITH ANTIROTATION DEVICE

Bare cylinder
ISO 21287



Ø	weight	
	(3)	(4)
20	0,150	0,0029
25	0,1901	0,0034
32	0,328	0,0037
40	0,392	0,0041
50	0,601	0,0061
63	0,773	0,0065
80	1,381	0,0096
100	2,348	0,0116

(3) Cylinder weight at 0 mm stroke.
(4) Weight to be added per additional mm length.

- ① Stroke
- ② Mounting holes (see page P226-3)

Ø	A	B	BG	ØC	E	EE	ØG	H	ØMM	PL	ØR	ØRT	ØRR	SW	TG	WH	ZA	ZB
20	8	30,5	15	5	36	M5	4	12	10	10	M4	M5	4,5	8	22	6	37	43
25	8	36,5	15	6	40	M5	5	15,6	10	10	M5	M5	4,5	8	26	6	39	45
32	10	45,3	23,5	8	48	G1/8	5	19,8	12	7,5	M5	M6	5,1	10	32,5	7	44	51
40	10	51	23,5	8	54	G1/8	5	23,3	12	7,5	M5	M6	5,1	10	38	7	45	52
50	12	62	27,5	10	66	G1/8	6	29,7	16	7,5	M6	M8	6,7	13	46,5	8	45	53
63	12	73	27,5	10	78	G1/8	6	35,4	16	7,5	M6	M8	6,7	13	56,5	8	49	57
80	14	91	28,5	12	96	G1/8	8	46	20	8,5	M8	M10	8,5	16	72	10	54	64
100	16	111	28,5	12	115	G1/8	10	56,6	25	10	M10	M10	8,5	21	89	10	67	77

SPARE PARTS KITS CODE

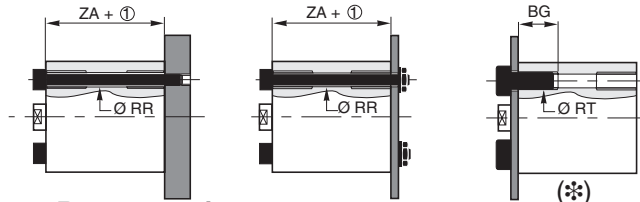
Ø (mm)	1 + 2 + 3 ⁽¹⁾
20	97802870
25	97802871
32	97802872
40	97802873
50	97802874
63	97802875
80	97802876
100	97802877

⁽¹⁾ For best results, use grease supplied in each kit. Supplementary tube (11 cm³) available on request, catalogue number: 97802100

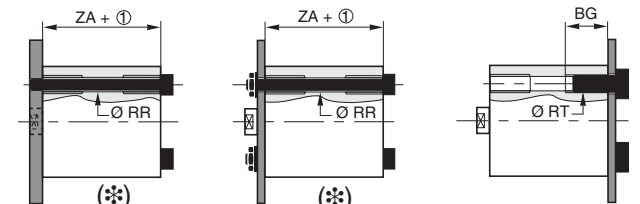
DIRECT MOUNTING OPTIONS

The threaded mounting holes and the four unthreaded through holes (ØRR) ensure compatibility with a wide choice of screws and other fasteners recommended for short-stroke cylinders.

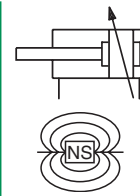
• **Front mounting**



• **Rear mounting**



(*) Type of mounting not suitable with anti-rotation device



model		Ø (mm)			standard stroke		illustration	series	page
construction	Profilled barrel Tie rods Through-rod	min.	max.	min.	max.				
		Cylinders according to ISO 15552 standard							
	● ●						ISO 15552 standard	453/454/450	Product Index
Profilled barrel									
	● ●	32	100	5	2000		453	27	
						spare parts	978	28	
Profilled barrel, food industry applications									
	● ●	32	100	5	2000		454	30	
						spare parts	499	31	
Tie rods									
	● ●	32	250	25	2000		450	34	
						spare parts	978	35	
Specialised versions & options									
Options and specialized versions	● ● ●						453/454/450	37 - 38	
Low friction	● ●	32	100	5	1000		453 450	39	
Tandem	● ●						453 / 450	40	
3 positions	● ●	32	200	-	-		453 / 450	41	
Nose to nose	● ●						453 / 450	42	
back-to-back	● ●						453 / 450	43	
Guiding units for cylinders	U - H	32	100	50	500		491 499	44	
Rod lock for cylinders	static	32	100	25	1500		453 450 463	48	
	dynamic	40	100	25	1500		453 450 492	53	
Oversize piston rods	● ●	63	100	25	1500		453 450	57	
Piston rod protective bellow	● ●	32	100	25	250		453 450	59	
Mountings									
Standardised mountings ISO 15552	● ●	20	200				434 - 439 - 493	61	
Position detectors									
Reed switch - 2 wires	● ● ●						494	173	
Magneto-inductive - 3 wires	● ● ●						494	175	

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PRECISE & STURDY CUSHIONING
 . Precise cushioning by means of captive micrometer screws
 . Large cushioning length

EASY MOUNTING
 Wide choice of standard mountings and rod ends

STURDY DESIGN
 Rod in hard chrome steel

PRECISE ROD GUIDANCE
 With high-performance self-lubricating bearing and non-abrasive scraper seal

MAGNETIC POSITION DETECTOR
 Reed-switch type or magneto-resistive type (MR)
 Installation into the T-slot grooves

T-SLOT GROOVES
 Grooves in 3 sides

ESTHETIC DESIGN
 Cylinders with profiled barrel in hard anodised aluminium

VERSIONS TO ATEX 

STANDARD SWIVEL TRUNNION MOUNT
 As a fastening option, this trunnion slides on the barrel for on-site positioning.

EASY MAINTENANCE
 . Series 453 cylinders do not require lubrication
 . All the functions in the same side:
 - air ports
 - cushioning adjustment
 - detection



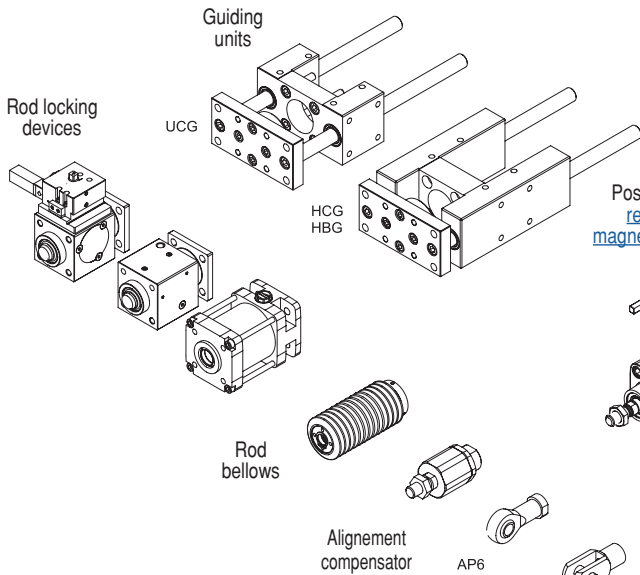
OPTIONS

Guiding units
 UCG
 HCG
 HBG

Rod locking devices

Rod bellows

Alignment compensator
 AP6



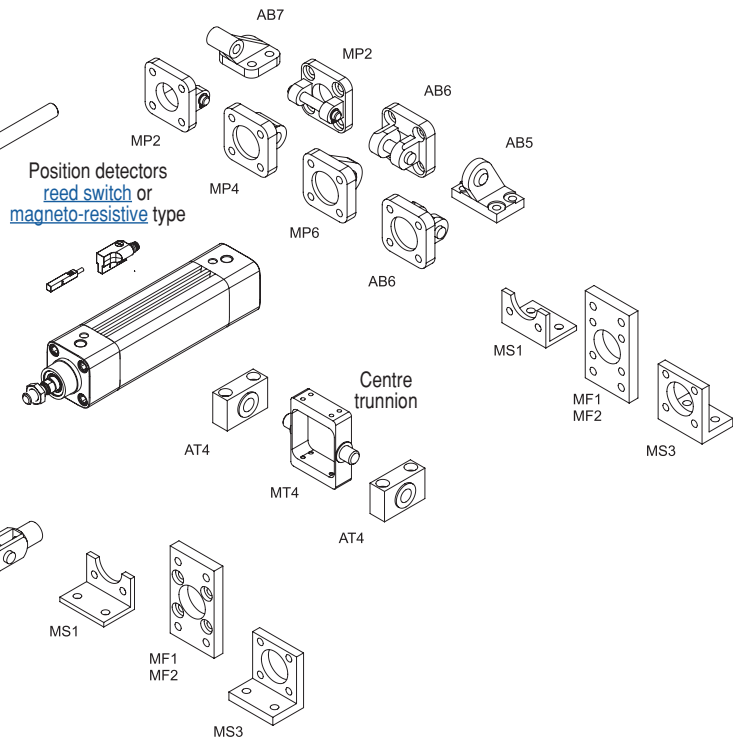
STANDARD MOUNTINGS

Position detectors
 reed switch or
 magneto-resistive type

AB7
 MP2
 AB6
 AB5
 MP4
 MP6
 AB6
 MS1
 MF1
 MF2
 MS3

Centre trunnion
 AT4
 MT4
 AT4

MS1
 MF1
 MF2
 MS3

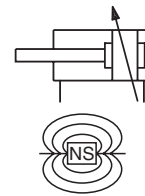


SPECIAL ASSEMBLIES

CONFIGURABLE INTO PLUG & PLAY UNITS
 5/2 and 5/3 valves with mounting pad to ISO or Namur Mountings, detectors, pneumatic function fittings
 Custom solutions assembled and tested on delivery



All leaflets are available on: www.ascocom



GENERAL

Detection	Equipped for magnetic position detectors
Fluid	Air or inert gas, filtered, lubricated or not
Operating pressure	10 bar, max. [1 bar = 100 kPa]
Ambient temperature	-20°C to +70°C (for higher temperature, see HTP option)
Optimal max. speed	≤ 1 m/s (for optimal service life)
Max. speed rate	2 m/s (for higher and lower speed rate, see LFS option)
Standards	ISO 15552

CONSTRUCTION

Barrel	Hard anodized aluminium alloy	
Front and rear ends	Aluminium alloy	
Bearing	Self-lubricating metal	
Cushioning seals	PUR (polyurethane)	
Cushioning	Pneumatic, adjustable from both sides with captive screw	
Rod	Hard chrome plated steel	
Rod nut	Galvanised steel	
Piston	Ø 32 to 80 mm	POM (polyacetal)
	Ø 100 mm	light alloy
	fitted with an annular permanent magnet	
Piston seals	PUR (polyurethane)	



HOW TO ORDER

15-DIGIT PRODUCT CODE

G 453 A - S K - - - A00

Thread connection
G = ISO 16030

Product series
453

Revision letter
A = Initial release

Diameter (mm)

- 3 = 32
- 4 = 40
- 5 = 50
- 6 = 63
- 8 = 80
- 1 = 100

Rod options 1

- S = Chromed single rod
 - 2 = Through rod
 - 3 = AISI 303 stainless steel rod
 - 4 = AISI 303 stainless steel through rod
 - 6 = AISI 316 stainless steel rod
 - 7 = AISI 316 stainless steel through rod
- All cylinders delivered with rod nut, in stainless steel for options 3, 4, 6 and 7.

Rod options 2

- K = No option
 - 3 = Static rod-locking device
 - 4 = Static rod-locking device and manual operator
 - 5 = Dynamic rod-locking device - Ø 40 to 100 mm
 - 6 = Oversized piston rod - Ø 63 to 100 mm
 - 8 = Rod bellow
 - T = Eye rod end
- Extended piston rod, contact us

Options

- A00 = Without
- MT4 = Non fixed centre trunnion (MT4 axis perpendicular to the ports)⁽¹⁾
- MS4 = Non fixed centre trunnion (MT4 axis parallel to the ports)⁽¹⁾
- UCG = Plain bearing "U" guiding unit
- HCG = Plain bearing "H" guiding unit
- HBG = Ball bearing "H" guiding unit
- AT1 = ATEX zones 1/21
- AT2 = ATEX zones 2/22
- HTP = High temperature (up to 120°C)⁽²⁾
- FPM = FPM seals
- FFP = FPM front end seals
- NPC = Anticorrosion treatment on covers & high-quality rod seals
- SCN = Stainless steel cover nuts
- LFS = Low friction piston seals - Ø 32 to 80 mm⁽³⁾
- NCS = Without pneumatic cushioning

⁽¹⁾ For fixed supplied centre trunnion, consult our Dynamic Product Modeling Tool on www.asco.com and indicate XV dimension.

⁽²⁾ Magnetic detectors cannot be fitted to this version.

⁽³⁾ Special characteristics for this option:
 . piston material: light alloy
 . max. speed rate: 3 m/s

[Configurator - CAD Files](#)

Recommended standard strokes (mm) ⁽⁵⁾

Ø	connect.	25	50	80	100	125	160	200	250	320	400	500	630	700	800	900	1000	1500	max. stroke	
32	G1/8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2000
40	G1/4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2000
50	G1/4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2000
63	G3/8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2000
80	G3/8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2000
100	G1/2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2000

Strokes range available up to "max. stroke" column on the right.
Please note strokes marked in grey exceed the maximum recommended.

⁽⁵⁾ Other strokes on request. / Min. stroke: 5 mm

POSITION DETECTORS

Magnetic position detectors must be ordered separately: "T" model, [reed switch](#) or [magneto-resistive](#) type

MOUNTINGS

Mountings must be ordered separately

DIMENSIONS (mm), WEIGHT (kg)

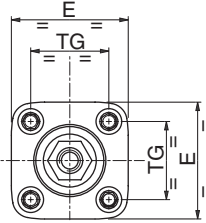
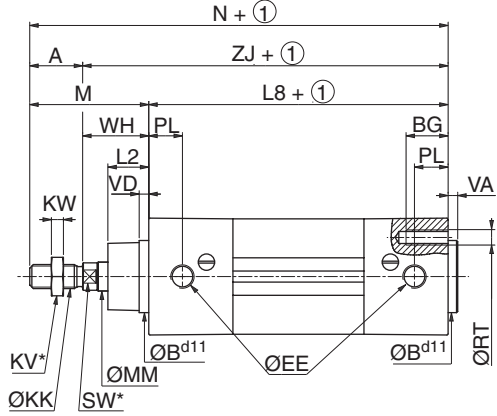
[Configurator - CAD Files](#)



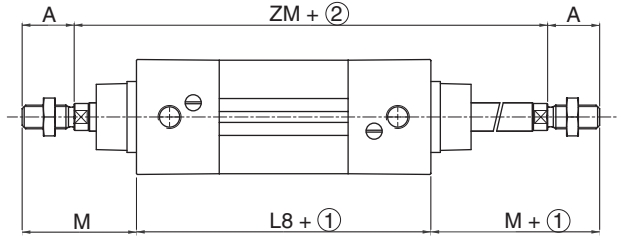
SINGLE-ROD TYPE CYLINDER
Bare cylinder
ISO 15552



THROUGH-ROD TYPE CYLINDER
Bare cylinder
ISO 15552



- ① Stroke
- ② Stroke x 2
- * Width across flats



Ø (mm)	A	ØBd11	BG	E	ØEE (3)	ØKK	KV	KW	L2	L8	M	ØMM	N	PL	ØRT	SW	TG	VA	VD min.	WH	ZJ	ZM	weight	
																							(4)	(5)
32	22	30	16	48	G1/8	M10x1,25	16	5	17	94	48	12	142	14	M6	10	32,5 ±0,5	4	4	26	120	146	0,49	0,0029
40	24	35	16	54	G1/4	M12x1,25	18	6	19	105	54	16	159	16	M6	13	38 ±0,5	4	4	30	135	165	0,78	0,0037
50	32	40	16	66	G1/4	M16x1,5	24	8	24	106	69	20	175	18,5	M8	17	46,5 ±0,5	4	4	37	143	180	1,00	0,0053
63	32	45	16	78	G3/8	M16x1,5	24	8	24	121	69	20	190	19	M8	17	56,5 ±0,5	4	4	37	158	195	1,35	0,0057
80	40	45	17	96	G3/8	M20x1,5	30	10	33	128	86	25	214	16,5	M10	22	72 ±0,5	4	4	46	174	220	2,36	0,0086
100	40	55	17	115	G1/2	M20x1,5	30	10	35,5	138	91	25	229	19,5	M10	22	89 ±0,5	4	4	51	189	240	3,46	0,0099

- (3) Thread connections G have standard thread according to ISO 16030.
- (4) Cylinder weight at 0 mm stroke.
- (5) Weight to be added per additional mm length.

SPARE PARTS KITS CODE		
Ø (mm)	1 + 2 + 3 + 4 ⁽¹⁾	
32	97802343	97802736 ⁽²⁾
40	97802344	97802737 ⁽²⁾
50	97802345	97802738 ⁽²⁾
63	97802346	97802739 ⁽²⁾
80	97802347	97802740 ⁽²⁾
100	97802259	97802741 ⁽²⁾

- ⁽¹⁾ For best results, use grease supplied in each kit. Supplementary tube (11 cm³) available on request, catalogue number: **97802100**
- ⁽²⁾ Specify stroke length (in mm).

SPECIAL COVERS

- Anti Corrosion treatment
No retention areas
Stainless steel nuts and protective screws as an option
- Adapted to aggressive cleaning agents, easy to clean and flexible configuration

QUALITY / RELIABILITY

- Based on 453 technology, ISO 1552 compliant specifically designed for "Food Industry Applications"
- Robust, reliable and long lasting

SPECIAL GREASE

- According to food & pharmaceutical process industry specifications



VERSIONS TO ATEX



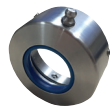
SPECIAL TUBE PROFILE

- Square shaped with rounded edges, no retention areas and light design with a "rail" for magnetic detector
- Easy to clean
- Laser marked tube as an option



ROD SEALS CONFIGURATION

- Rod Seals in special PUR, FPM, or FPM + PTFE
- External cartridge option with greaser for rod seal protection



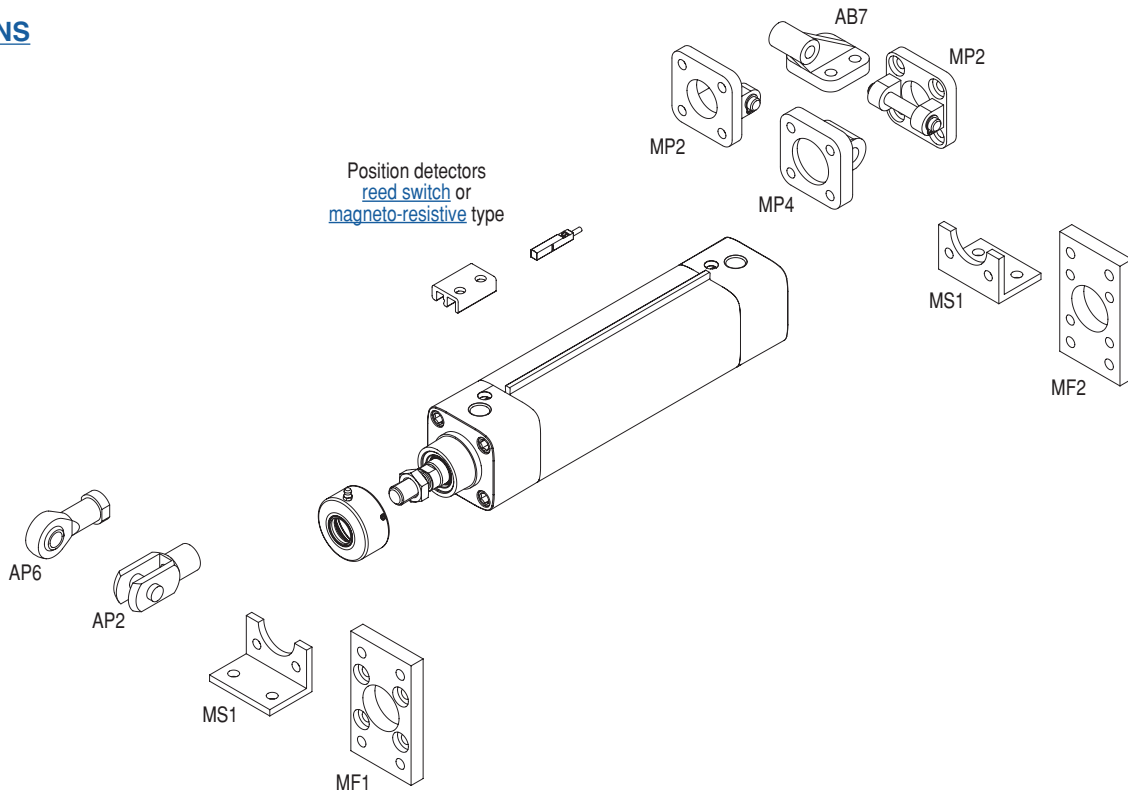
MAGNETIC DETECTION

- "Rail" to adapt magnetic detectors (e.g. [IP69K version](#))
- Reed-switch type or magneto-resistive type (MR)



OPTIONS

ANTICORROSION MOUNTINGS



MOUNTINGS

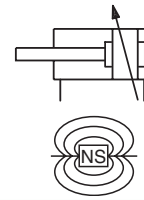
Mountings must be ordered separately
Consult our range of mountings with anticorrosion treatment or in stainless steel

POSITION DETECTORS

Magnetic position detectors must be ordered separately



01429GB-2016/R02
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GENERAL

Detection	Equipped for magnetic position detectors
Fluid	Air or inert gas, filtered, lubricated or not
Operating pressure	10 bar, max. [1 bar = 100 kPa]
Ambient temperature	-20°C to +70°C
Optimal max. speed	≤ 1 m/s (for optimal service life)
Max. speed rate	2 m/s
Standards	ISO 15552



CONSTRUCTION

Barrel	Hard anodized aluminium alloy Positive groove for adapting a magnetic sensor	
Front and rear ends	Aluminium alloy with anti-corrosion treatment	
Bearing	Self-lubricating metal	
Cushioning seals	PUR (polyurethane)	
Cushioning	Pneumatic, adjustable from both sides with captive screw	
Rod	Stainless steel, AISI 316L stainless steel, hard chromed	
Rod nut	Stainless steel	
Piston	Ø 32 to 80 mm	POM (polyacetal)
	Ø 100 mm	light alloy
	fitted with an annular permanent magnet	
Piston seals	PUR (polyurethane)	
Grease	Grease for food & pharmaceutical applications, ISO 21469 FDA 21 CFR § 178.3570	

HOW TO ORDER

15-DIGIT PRODUCT CODE

G 454 A - 3 A - - - - A00

Thread connection
G = ISO 16030

Product series
454

Revision letter
A = Initial release

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

Rod options 1
3 = Stainless steel single rod

4 = Stainless steel through rod

6 = AISI 316L stainless steel single rod

7 = AISI 316L stainless steel through rod

S = Hard chromed single rod
2 = Hard chromed through rod

All cylinders delivered with rod nut, in stainless steel for options 3, 4, 6 and 7.

Options

- A00** = Without Option
- SCN** = Stainless steel cover nuts
- AT1** = ATEX zones 1/21
- AT2** = ATEX zones 2/22
- LSR** = Laser marked Logo & Code
- LSS** = Option Combination LSR +SCN

Recommended standard strokes (mm) ⁽¹⁾

Ø mm	connect. Ø (G)	25	50	80	100	125	160	200	250	320	400	500	630	700	800	900	1000	1500	max. stroke	
32	G1/8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2000
40	G1/4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2000
50	G1/4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2000
63	G3/8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2000
80	G3/8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2000
100	G1/2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2000

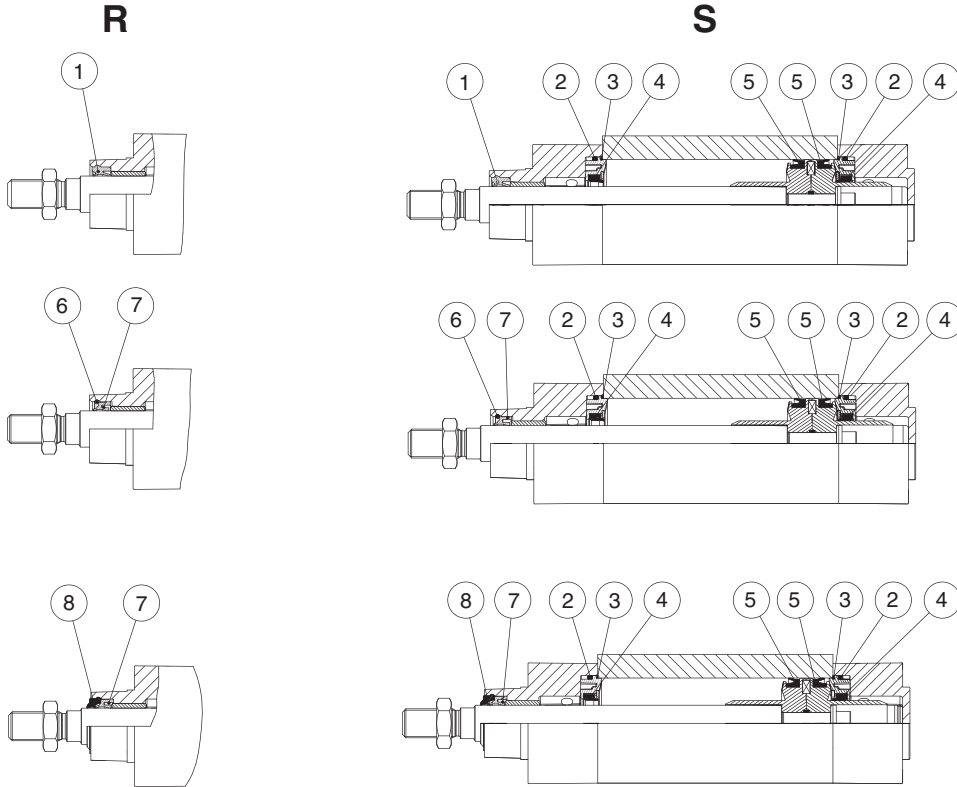
Strokes range available up to "max. stroke" column on the right.
Please note strokes marked in grey exceed the maximum recommended.
⁽¹⁾ Other strokes on request. / Min. stroke: 5 mm

Rod seal options

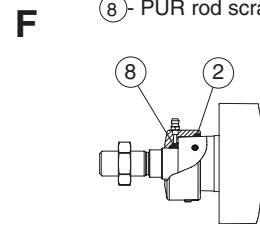
- A** = PUR rod seal for "Agro Applications"
 - F** = FPM Rod seal
 - P** = FPM Rod seal + PTFE rod scraper
 - D** = Protective cartridge with greaser for rod seal protection + "AGRO" PUR rod seal, only available in Ø 80 and Ø 100 mm
- Note: Cylinders with option "D" are delivered with 15 mm rod overlength.

[Configurator - CAD Files](#)

SPARE PARTS KITS CODE



- A**
- ①- PUR rod seal for "Agro Applications"
 - ②- O-ring
 - ③- Cushioning seal
 - ④- Piston seal
 - ⑤- Stainless steel seal
 - ⑥- FPM rod seal
 - ⑦- PTFE rod scraper
 - ⑧- PUR rod scraper with greaser



P

15-DIGIT PRODUCT CODE

M 454 A - S A 0000 A00

Spare Parts digit
M

Product series
454

Revision letter
A = Initial release

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

Rod seal and rod scraper seal
A = PUR rod seal for "Agro Applications"
F = FPM Rod Seal
P = FPM Rod Seal+ PTFE Rod Scraper seal
D = Protective cartridge with greaser for rod seal protection + "AGRO" PUR rod seal

Type of kit
S = Complete set of seals
R = Rod seals only

ACCESSORIES

- Special adaptor for magnetic detector (code : **P494A0029100A00**)
Magnetic position detectors must be ordered separately

- Set of 4 stainless steel protection screws to cover the cylinder mounting holes:

Ø (mm)	code
32-40	P4994395723N001
50-63	P4994395735N001
80-100	P4994395748N001

- External cartridge with greaser for rod seal:

Ø (mm)	code
80	P4994378238N001
100	P4994378241N001
125 (Series 450)	P499502668PN001
160 (Series 450)	P499516338QN001
200 (Series 450)	P499516339RN001



DIMENSIONS (mm), WEIGHT (kg)

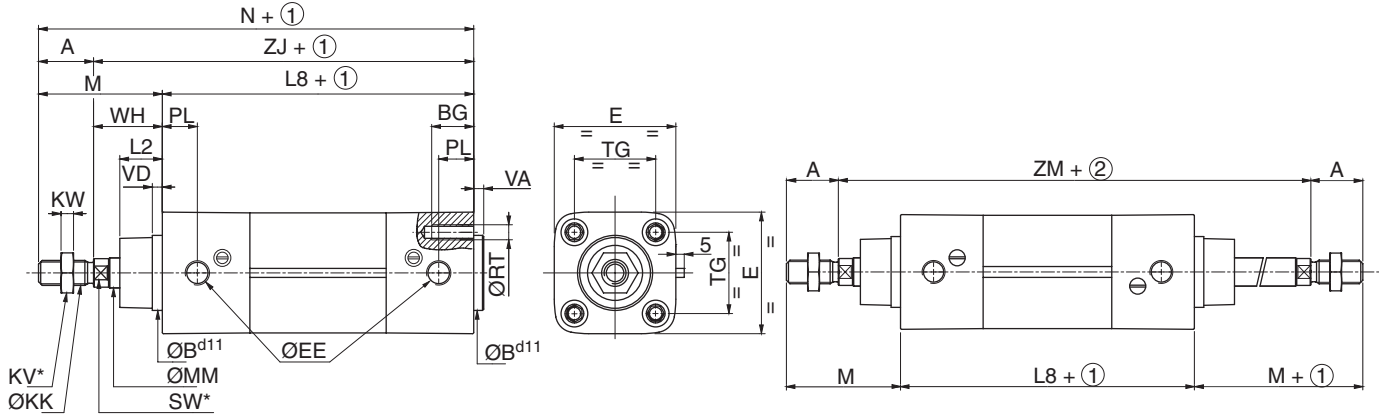
[Configurator - CAD Files](#)



SINGLE-ROD TYPE CYLINDER
Bare cylinder
ISO 15552



THROUGH-ROD TYPE CYLINDER
Bare cylinder
ISO 15552



- ① Stroke
- ② Stroke x 2
- * Width across flats

Ø (mm)	A	ØBd11	BG	E	ØEE (3)	ØKK	KV	KW	L2	L8	M	ØMM	N	PL	ØRT	SW	TG	VA	VD min.	WH	ZJ	ZM	weight	
																							(4)	(5)
32	22	30	16	48	G1/8	M10x1,25	16	5	17	94	48	12	142	14	M6	10	32,5 ±0,5	4	4	26	120	146	0,49	0,0029
40	24	35	16	54	G1/4	M12x1,25	18	6	19	105	54	16	159	16	M6	13	38 ±0,5	4	4	30	135	165	0,78	0,0037
50	32	40	16	66	G1/4	M16x1,5	24	8	24	106	69	20	175	18,5	M8	17	46,5 ±0,5	4	4	37	143	180	1,00	0,0053
63	32	45	16	78	G3/8	M16x1,5	24	8	24	121	69	20	190	19	M8	17	56,5 ±0,5	4	4	37	158	195	1,35	0,0057
80	40	45	17	96	G3/8	M20x1,5	30	10	33	128	86	25	214	16,5	M10	22	72 ±0,5	4	4	46	174	220	2,36	0,0086
100	40	55	17	115	G1/2	M20x1,5	30	10	35,5	138	91	25	229	19,5	M10	22	89 ±0,5	4	4	51	189	240	3,46	0,0099

(3) Thread connections G have standard thread according to ISO 16030.
 (4) Cylinder weight at 0 mm stroke.
 (5) Weight to be added per additional mm length.

ACCURATE ROD GUIDING

High-performance self lubricating bearing and non-abrasive scraper seal.

ACCURATE CUSHIONING LENGTH

by means of micrometer screws (captive screws).

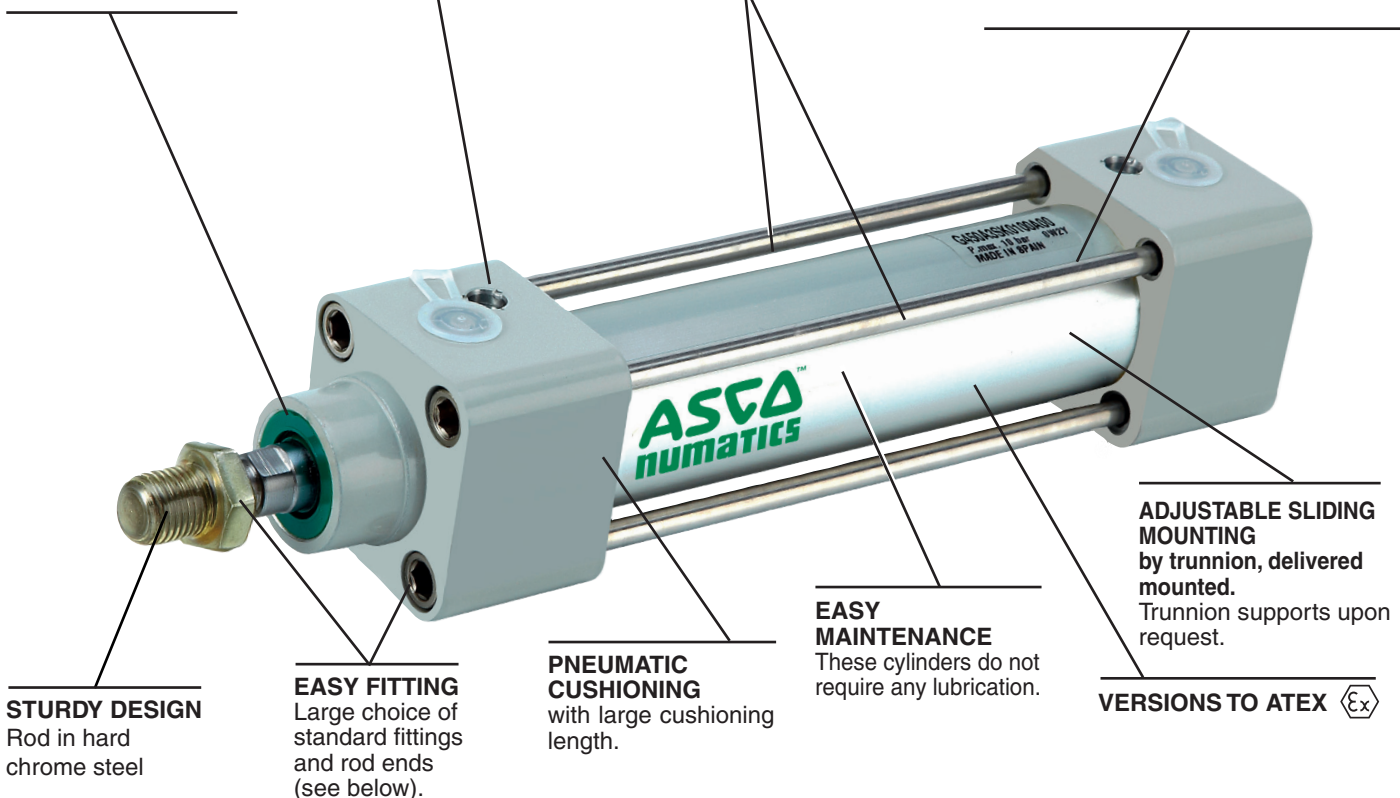
LIGHT AND ESTHETIC DESIGN

Tie-rod construction with hard anodized aluminium tube.

POSITION DETECTOR

Cylinder equipped with a piston with a permanent magnet, for position sensors, type:

- REED switch
- magneto resistive (MR)



STURDY DESIGN

Rod in hard chrome steel

EASY FITTING

Large choice of standard fittings and rod ends (see below).

PNEUMATIC CUSHIONING

with large cushioning length.

EASY MAINTENANCE

These cylinders do not require any lubrication.

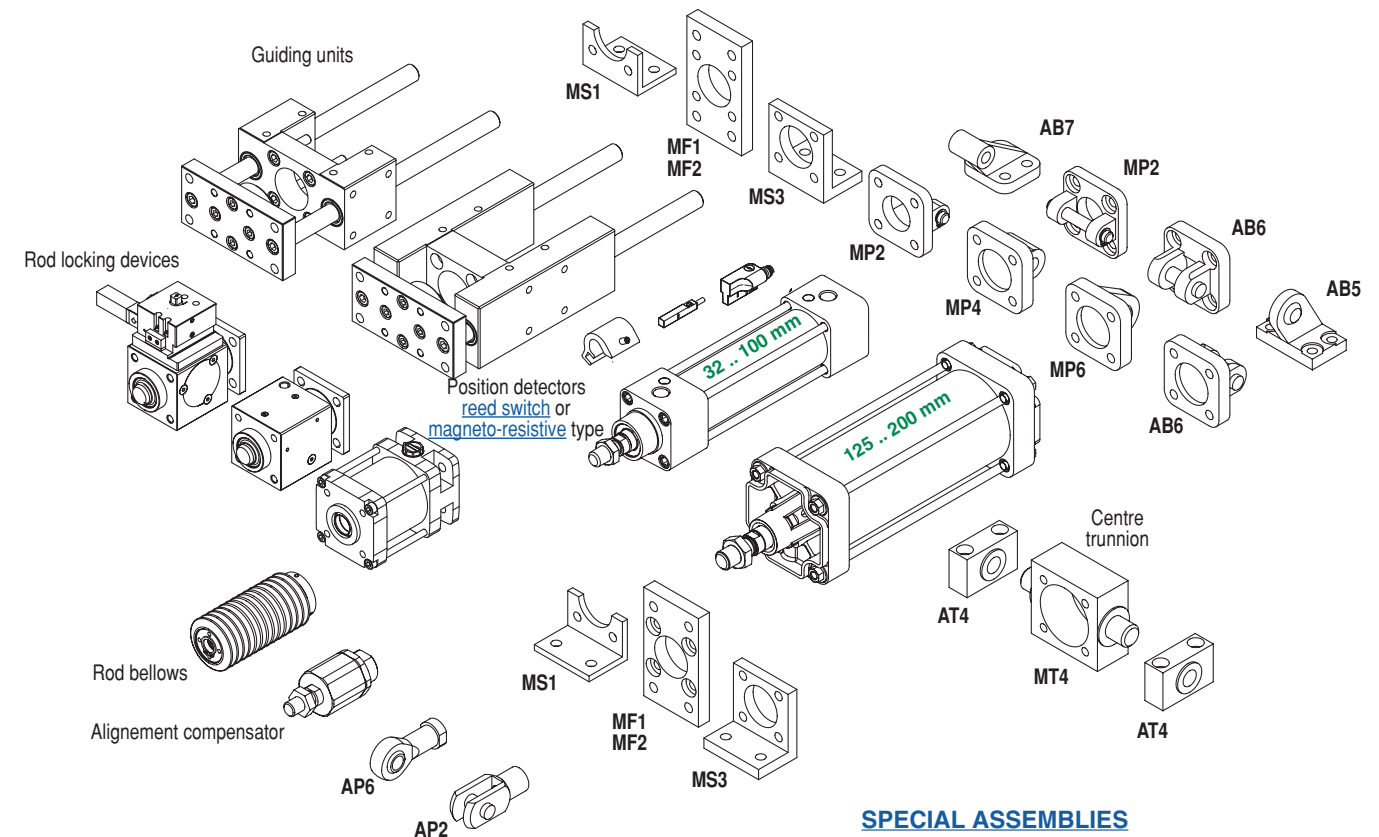
ADJUSTABLE SLIDING MOUNTING

by trunnion, delivered mounted. Trunnion supports upon request.

VERSIONS TO ATEX

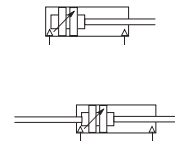
OPTIONS

STANDARD MOUNTINGS



SPECIAL ASSEMBLIES

01425GB-2016/R01
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GENERAL

Detection

Fluid

Operating pressure

Ambient temperature

Optimal max. speed

Max. speed rate

Standards

Equipped for magnetic position detectors

Air or inert gas, filtered, lubricated or not

10 bar, max. [1 bar = 100 kPa]

-20°C to +70°C (for higher temperature, see HTP option)

≤ 1 m/s (for optimal service life)

2 m/s (for higher and lower speed rate, see LFS option)

ISO 15552

CONSTRUCTION

Barrel	Hard anodized aluminium alloy	
Tie rods	Stainless steel (Ø32-100), steel (Ø 125-200)	
Front and rear ends	Aluminium alloy	
Bearing	Self-lubricating metal	
Cushioning seals	PUR (polyurethane)	
Cushioning	Pneumatic, adjustable from both sides with captive screw	
Rod	Hard chromed steel	
Rod nut	Galvanised steel	
Piston	Ø 32 to 80 mm	POM (polyacetal)
	Ø 100 to 200 mm	light alloy
	fitted with an annular permanent magnet	
Piston seals	PUR (polyurethane)	



HOW TO ORDER

15-DIGIT PRODUCT CODE

G 450 A - S K - - - - A00

Thread connection

G = ISO 16030

Product series

450

Revision letter

A = Initial release

Diameter (mm) ⁽¹⁾

3 = 32 1 = 100
 4 = 40 P = 125
 5 = 50 Q = 160
 6 = 63 R = 200
 8 = 80

⁽¹⁾ 250 mm/ 320 mm, contact us

Rod options 1

S = Chromed single rod
 2 = Through rod
 3 = AISI 303 stainless steel rod
 4 = AISI 303 stainless steel through rod
 6 = AISI 316 stainless steel rod
 7 = AISI 316 stainless steel through rod
 All cylinders delivered with rod nut, in stainless steel for options 3, 4, 6 and 7.

Rod options 2

K = No option
 3 = Static rod-locking device
 4 = Static rod-locking device and manual operator
 5 = Dynamic rod-locking device - Ø 40 to 100 mm
 6 = Oversized piston rod - Ø 63 to 100 mm
 8 = Rod bellow

POSITION DETECTORS

Magnetic position detectors must be ordered separately

MOUNTINGS

Mountings must be ordered separately

Options

A00 = Without
 FMT = Fixed centre trunnion (axis perpendicular to the ports)⁽²⁾
 FST = Fixed centre trunnion (axis parallel to the ports)⁽²⁾
 UCG = Plain bearing "U" guiding unit
 HCG = Plain bearing "H" guiding unit
 HBG = Ball bearing "H" guiding unit
 AT1 = ATEX zones 1/21
 AT2 = ATEX zones 2/22
 HTP = High temperature (up to 120°C)⁽³⁾
 FPM = FPM seals
 FFP = FPM front end seals
 NPC = Anticorrosion treatment on covers & high-quality rod seals
 MMT = Ø125 mm, with non groved profiled tube
 MM4 = Ø125 mm, with non groved profiled tube and non fixed MT4, axis perpendicular to the port
 MM5 = Ø125 mm, with non groved profiled tube and non fixed MT4, axis parallel to the port
 STN = Stainless steel cover nuts + tie rods
 LFS = Low friction piston seals - Ø 32 to 80 mm⁽⁴⁾
 NCS = Without pneumatic cushioning
 TAN = Tandem, double force, linked rods
 EPX = Epoxy tube

⁽²⁾ For fixed supplied centre trunnion, consult our Dynamic Product Modeling Tool on www.asco.com and indicate XV dimension.

⁽³⁾ Magnetic detectors cannot be fitted to this version.

⁽⁴⁾ Special characteristics for this option:
 . piston material: light alloy
 . max. speed rate: 3 m/s

Recommended standard strokes (mm) ⁽⁵⁾

Ø connect. mm	Ø (G)	25	50	80	100	125	160	200	250	320	400	500	630	700	800	900	1000	1500	max. stroke
32	G1/8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2000
40	G1/4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2000
50	G1/4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2000
63	G3/8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2000
80	G3/8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2000
100	G1/2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2000
125	G1/2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2000
160	G3/4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2000
200	G3/4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2000

Strokes range available up to "max. stroke" column on the right.
 Please note strokes marked in grey exceed the maximum recommended.

⁽⁵⁾ Other strokes on request. / Min. stroke: 5 mm

[Configurator - CAD Files](#)

DIMENSIONS (mm), WEIGHT (kg)

[Configurator - CAD Files](#)



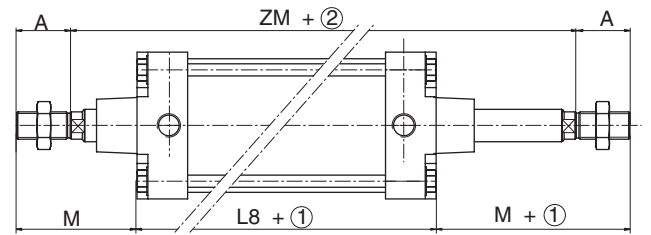
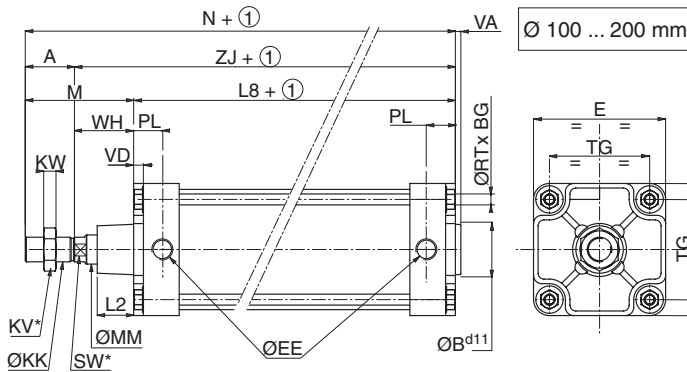
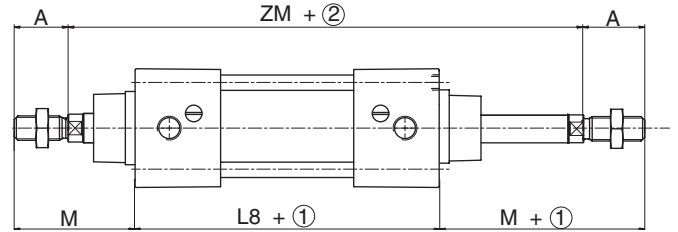
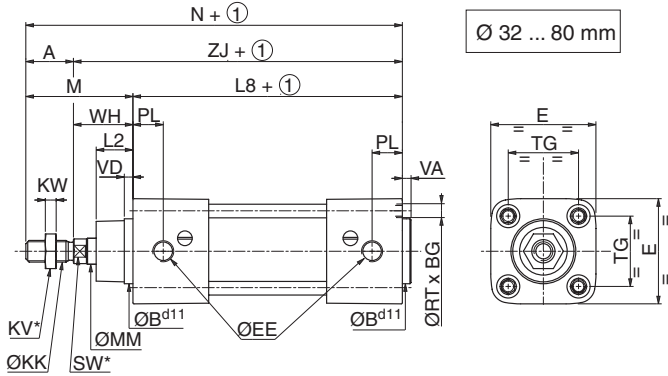
SINGLE-ROD TYPE CYLINDER

Tie-rod cylinder
ISO 1552



THROUGH-ROD TYPE CYLINDER

Tie-rod cylinder
ISO 1552



- ① Stroke
- ② Stroke x 2

Ø (mm)	A	ØB ^{d11}	BG	E	ØEE	ØKK	KV	KW	L2	L8	M	ØMM	N	PL	ØRT	SW (5)	TG	VA	VD min.	WH	ZJ	ZM	weight	
																							(3)	(4)
32	22	30	16	48	G1/8	M10x1,25	16	5	17	94	48	12	142	14	M6	10	32,5 ± 0,5	4	4	26	120	146	0,590	0,235
40	24	35	16	54	G1/4	M12x1,25	18	6	19	105	54	16	159	16	M6	13	38 ± 0,5	4	4	30	135	165	0,840	0,335
50	32	40	16	66	G1/4	M16x1,5	24	8	24	106	69	20	175	18,5	M8	17	46,5 ± 0,6	4	4	37	143	180	1,200	0,510
63	32	45	16	78	G3/8	M16x1,5	24	8	24	121	69	20	190	17	M8	17	56,5 ± 0,7	4	4	37	158	195	1,500	0,540
80	40	45	17	96	G3/8	M20x1,5	30	10	33	128	86	25	214	16,5	M10	22	72 ± 0,7	4	4	46	174	220	2,860	0,840
100	40	55	17	115	G1/2	M20x1,5	30	10	35,5	138	91	25	229	21	M10	22	89 ± 0,7	4	4	51	189	240	3,675	1,185
125	54	60	24	145	G1/2	M27x2	41	13,5	40	160	119	32	279	32	M12	27	110 ± 1,1	6	6	65	225	290	6,955	1,360
160	72	65	29,5	180	G3/4	M36x2	55	18	58	180	152	40	332	35,5	M16	36	140 ± 1,1	6	6	80	260	340	12,835	2,100
200	72	75	29,5	220	G3/4	M36x2	55	18	58	180	167	40	347	35	M16	36	175 ± 1,1	6	6	95	275	370	17,575	2,500

- (3) Cylinder weight at 0 mm stroke.
- (4) Weight to be added per additional 100 mm length.

SPARE PARTS KITS CODE		
Ø (mm)	1 + 2 + 3 ⁽¹⁾	rod + piston unit
32		97802736 ⁽²⁾
40		97802737 ⁽²⁾
50		97802738 ⁽²⁾
63		97802739 ⁽²⁾
80		97802740 ⁽²⁾
100		97802741 ⁽²⁾

SPARE PARTS KITS CODE		
Ø (mm)	1 + 2 + 3 ⁽¹⁾	rod + piston unit
125		97802742 ⁽²⁾
160		97802743 ⁽²⁾
200		97802744 ⁽²⁾
250		contact us

- ⁽¹⁾ For best results, use grease supplied in each kit. Supplementary tube (11 cm³) available on request, catalogue number: 97802100
- ⁽²⁾ Specify stroke length (in mm).

GENERAL / CONSTRUCTION / SPECIFICATIONS
See following pages

CHOICE OF OPTIONS AND ACCESSORIES

construction type	cylinder series	catalogue page						cylinder diameter (mm)								
		26	29	33	39..60	61 Mountings	173 Detectors	32	40	50	63	80	100	125	160	200
		453	454	450	39..60	61	173	32	40	50	63	80	100	125	160	200
01 - Through rod	453	27	30	-	-	•	•	•	•	•	•	•	•	•	•	•
	454															
	450	-	-	34	-	•	•	•	•	•	•	•	•	•	•	•
02 - Stainless steel rod	453	27	30	-	-	-	-	•	•	•	•	•	•	-	-	-
	454															
	450	-	-	34	-	-	-	•	•	•	•	•	•	•	•	•
03 AT1 AT2 ATEX	453	27 ⁽¹⁾	30 ⁽¹⁾	-	-	•	•	•	•	•	•	•	•	-	-	-
	454															
	450	-	-	34 ⁽¹⁾	-	•	•	•	•	•	•	•	•	•	•	•
04 HTP High temperature (up to 120°C) Non equipped for magnetic position detectors	453	27 ⁽¹⁾	-	-	-	-	-	•	•	•	•	•	•	-	-	-
	-															
	450	-	-	34 ⁽¹⁾	-	-	-	•	•	•	•	•	•	•	•	•
05 - FPM seals (aggressive environments)	453	27 ⁽¹⁾	30 ⁽¹⁾	-	-	•	•	•	•	•	•	•	•	-	-	-
	454															
	450	-	-	34 ⁽¹⁾	-	•	•	•	•	•	•	•	•	•	•	•
06 NPC Anticorrosion treatment on covers & high-quality rod seals	453	27 ⁽¹⁾	30 ⁽¹⁾	-	-	•	•	•	•	•	•	•	•	-	-	-
	454															
	450	-	-	34 ⁽¹⁾	-	•	•	•	•	•	•	•	•	•	•	•
07 STN Stainless steel cover nuts	453	27 ⁽¹⁾	30 ⁽¹⁾	-	-	•	•	•	•	•	•	•	•	-	-	-
	454															
	-															
08 EPX Epoxy	-															
	-															
	450	-	-	34 ⁽¹⁾	-	•	-	•	•	•	•	•	•	•	•	•
09 LFS Low Friction - Ø 32 to 80 mm	453	27 ⁽¹⁾	30 ⁽¹⁾	-	39	•	•	•	•	•	•	•	•	-	-	-
	450	-	-	34 ⁽¹⁾	39	•	•	•	•	•	•	•	•	•	•	•
	-															
10 NCS Without pneumatic cushioning	453	27	-	-	-	•	•	•	•	•	•	•	•	-	-	-
	-															
	450	-	-	34	-	•	•	•	•	•	•	•	•	•	•	•
11 MMT MM4 MM5 Ø125 mm, with non groved profiled tube	-															
	-															
	450	-	-	34 ⁽¹⁾	-	•	•	-	-	-	-	-	-	•	-	-
12 TAN Tandem, double force, linked rods	453	27 ⁽¹⁾	-	-	40	•	•	•	•	•	•	•	•	-	-	-
	-															
	450	-	-	34 ⁽¹⁾	40	•	•	•	•	•	•	•	•	•	•	•
13 - 3 positions	453	-	-	-	41 ⁽¹⁾	•	•	•	•	•	•	•	•	-	-	-
	-															
	450	-	-	-	41 ⁽¹⁾	•	•	•	•	•	•	•	•	•	•	•
14 - Nose to nose	453	-	-	-	42 ⁽¹⁾	•	•	•	•	•	•	•	•	-	-	-
	-															
	450	-	-	-	42 ⁽¹⁾	•	•	•	•	•	•	•	•	•	•	•

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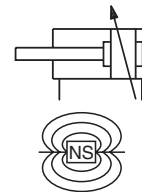
⁽¹⁾ **HOW TO ORDER**
Consult our Dynamic Product Modeling Tool on: www.asco.com

CHOICE OF OPTIONS AND ACCESSORIES

construction type			cylinder series	catalogue page						cylinder diameter											
				26	29	33	39..60	61 Mountings	173 Detectors	(mm)											
										453	454	450	32	40	50	63	80	100	125	160	200
15		- Back to back	453	-	-	-	43 ⁽¹⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			450	-	-	-	43 ⁽¹⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•
16		- Centre trunion MT4	453	-	-	-	-	•	•	•	•	•	•	•	•	•	•	•	•	•	
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			450	-	-	-	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•
17		UCG «U» guiding unit (with slide bearings)	453	27	-	-	44	-	•	•	•	•	•	•	•	•	•	•	•	•	
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			450	-	-	34	44	-	•	•	•	•	•	•	•	•	•	•	•	•	•
18		HCG «H» guiding unit (with slide or ball bearings) HBG	453	27	-	-	44	-	•	•	•	•	•	•	•	•	•	•	•	•	
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			450	-	-	34	44	-	•	•	•	•	•	•	•	•	•	•	•	•	•
19		- Static rod-locking device	453	-	-	-	49	•	•	•	•	•	•	•	•	•	•	•	•	•	
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			450	-	-	-	49	•	•	•	•	•	•	•	•	•	•	•	•	•	•
20		- Dynamic rod-locking device	453	-	-	-	53	•	•	-	•	•	•	•	•	•	•	•	•	•	
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			450	-	-	-	53	•	•	-	•	•	•	•	•	•	•	•	•	•	•
21		- Oversize piston rod	453	-	-	-	57	•	•	-	-	-	-	-	-	-	-	-	-	-	
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			450	-	-	-	57	•	•	-	-	-	-	-	-	-	-	-	-	-	-
22		- Rod bellow	453	-	-	-	59	•	•	•	•	•	•	•	•	•	•	•	•	•	
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			450	-	-	-	59	•	•	•	•	•	•	•	•	•	•	•	•	•	•
23		- Rod overlength	453	-	-	-	(1)	-	•	•	•	•	•	•	•	•	•	•	•	•	
			454	-	-	-	(1)	-	•	•	•	•	•	•	•	•	•	•	•	•	•
			450	-	-	-	(1)	-	•	•	•	•	•	•	•	•	•	•	•	•	•
24		- Special rod threads	453	-	-	-	(1)	-	•	•	•	•	•	•	•	•	•	•	•	•	
			454	-	-	-	(1)	-	•	•	•	•	•	•	•	•	•	•	•	•	•
			450	-	-	-	(1)	-	•	•	•	•	•	•	•	•	•	•	•	•	•
25		- Mountings	453	-	-	-	-	•	-	•	•	•	•	•	•	•	•	•	•	•	
			454	-	-	-	-	•	-	•	•	•	•	•	•	•	•	•	•	•	•
			450	-	-	-	-	•	-	•	•	•	•	•	•	•	•	•	•	•	•
26		- Spare parts	453	28	31	-	39	-	-	•	•	•	•	•	•	•	•	•	•	•	
			454	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			450	-	-	35	39	-	-	•	•	•	•	•	•	•	•	•	•	•	•
27	-	- Accessories	453	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
			454	-	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			450	-	-	34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

(1) HOW TO ORDER

Consult our Dynamic Product Modeling Tool on: www.asco.com



FEATURES

- Cylinder equipped with low friction piston seal

GENERAL

Ambient temperature -20°C to +70°C
Max. speed rate 3 m/s

CONSTRUCTION

Piston	Light alloy
Other parts	Same as standard cylinders
Through rod	Not available



HOW TO ORDER

15-DIGIT PRODUCT CODE

G 45- A - S - - - - LFS

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

Rod options 1
S, ... = Consult "Rod options 1" for: [453/450](#)

Rod options 2
K, A, ... = Consult "Rod options 2" for: [453/450](#)

Options
LFS = Low friction piston seals - Ø 32 to 80 mm

Recommended standard strokes (mm) ⁽¹⁾

Ø mm	connect. Ø	25	50	80	100	125	160	200	250	320	400	500	630	700	800	900	1000	max. stroke
32	G1/8	●	●	●	●	●	●	●	●									2000
40	G1/4	●	●	●	●	●	●	●	●	●	●							2000
50	G1/4	●	●	●	●	●	●	●	●	●	●	●	●					2000
63	G3/8	●	●	●	●	●	●	●	●	●	●	●	●	●				2000
80	G3/8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2000

⁽¹⁾ Other strokes on request. / Min. stroke : 5 mm

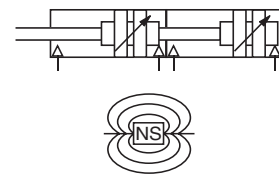
[Configurator - CAD Files](#)

SPARE PARTS KITS CODE

Ø (mm)	1 + 2 + 3 + 4 ⁽¹⁾	rod + piston unit
32	97802060	-
40	97802061	-
50	97802062	-
63	-	97802887 ⁽²⁾
80	-	97802888 ⁽²⁾

⁽¹⁾ For best results, use grease supplied in each kit. Supplementary tube (11 cm³) available on request, catalogue number: **97802100**

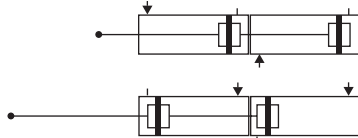
⁽²⁾ Specify stroke length (in mm).



FEATURES

- Tandem-mounted cylinders with connected rods develop twice the force of a standard cylinder of the same diameter
- This arrangement offers the advantage of providing a given force with a smaller frontal area than a standard cylinder developing the same force

Note: Operation by a single 5/2 control valve is possible



Force developed

Ø (mm)		dynamic force developed (daN) as a function of pressure (bar)									
		2		4		6		8		10	
453	450	●	○	●	○	●	○	●	○	●	○
32	32	25	23	55	50	86	78	114	104	143	132
40	40	39	36	85	78	129	118	175	160	225	205
50	50	60	54	128	116	202	184	274	248	345	310
63	63	99	92	208	196	324	308	441	422	554	528
80	80	165	154	348	326	540	510	726	682	907	854
100	100	262	253	562	544	853	825	1163	1125	1453	1406
-	125	407	393	890	860	1355	1309	1790	1730	2225	2150
-	160	670	640	1450	1400	2250	2200	3050	3000	3700	3600
-	200	1080	1060	2250	2200	3500	3400	4700	4600	5900	5800



- Force developed upon extension of the piston rod
- Force developed upon retraction of the piston rod

GENERAL

Detection
Cushioning

Equipped for magnetic position detectors
Pneumatic, adjustable from both sides with captive screw

HOW TO ORDER

Consult our [Dynamic Product Modeling Tool](http://www.asco.com) on: www.asco.com



MOUNTINGS



DETECTORS

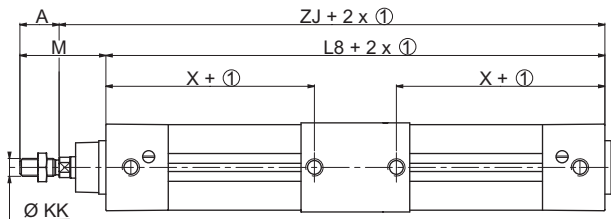
reed switch or magneto-resistive type

DIMENSIONS (mm)



SINGLE-ROD TYPE CYLINDER

453 Series
Ø 32 to 100 mm



① Stroke

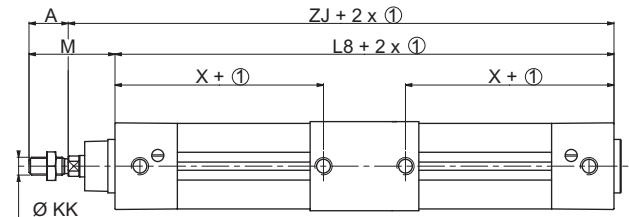
Ø (mm)	A	ØKK	L8	M	ZJ	X	
						453	450
32	32	M10x1,25	180	48	206	68	68
40	40	M12x1,25	198,5	54	228,5	77	77
50	50	M16x1,5	205	69	242	78,5	78,5
63	63	M16x1,5	233	69	270	95	95
80	80	M20x1,5	251,5	86	297,5	98	98
100	100	M20x1,5	243	91	294	100	100
-	125	M27x2	278	119	343	-	139
-	160	M36x2	303	152	383	-	151,5
-	200	M36x2	303	167	398	-	151,5



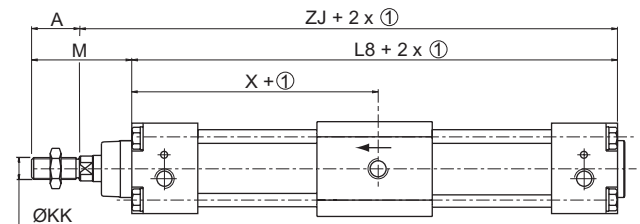
SINGLE-ROD TYPE CYLINDER

450 Series
Ø 32 to 200 mm

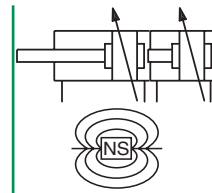
Ø 32 to 100 mm



Ø 125 to 200 mm

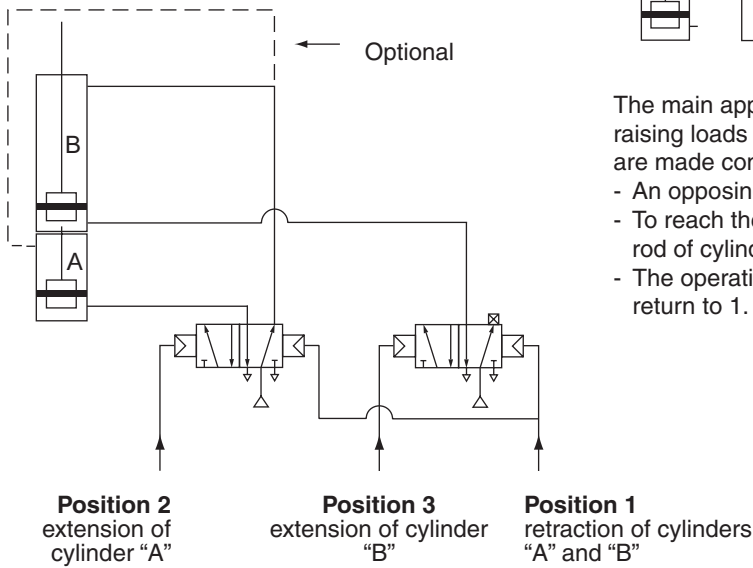
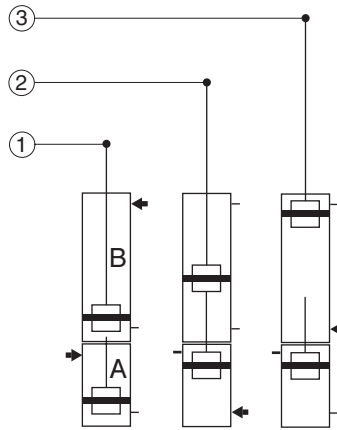


The two ports on the intermediate block are positioned at 180° to each other



FEATURES

- The three-position cylinder is a monolithic assembly consisting of two cylinder bodies in tandem, generally with different strokes, whose piston rods are not connected together



The main applications of three-position cylinders are for pressing and raising loads with two different positions. The following recommendations are made concerning use:

- An opposing force is necessary during extension
- To reach the second position with sufficient accuracy, extension of the rod of cylinder "A" must not be too fast.
- The operating cycle is necessarily as follows: 1 → 2 → 3 then direct return to 1.

Maximum stroke

Ø (mm)	stroke A + B (mm) ⁽¹⁾	
	453 Series	450 Series
32/40/50/63/80/100	2000	2000
125-200	-	2000

⁽¹⁾ "B" stroke must be longer than "A" stroke

- Determination of stroke of cylinder "A": Distance between Positions 1 and 2 (in mm)
- Determination of stroke of cylinder "B": Distance between Positions 1 and 3 (in mm)

GENERAL

Detection
Cushioning

Equipped for magnetic position detectors
Pneumatic, adjustable from both sides with captive screw

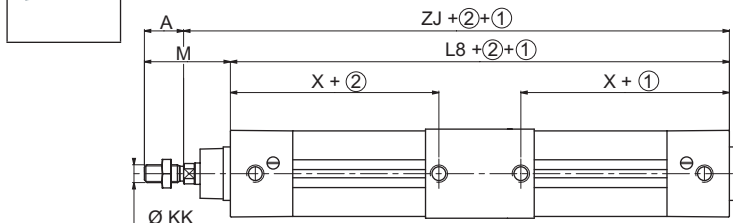
HOW TO ORDER

Consult our *Dynamic Product Modeling Tool* on: www.asco.com

DIMENSIONS (mm)

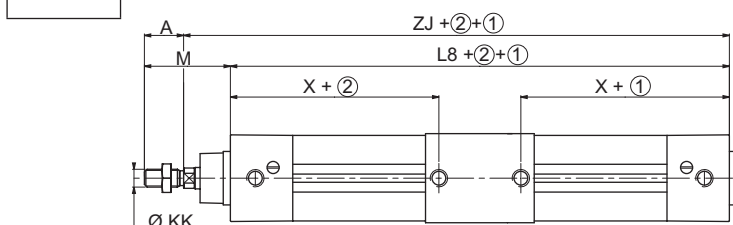
SINGLE-ROD TYPE CYLINDER

453 Series
Ø 32 to 100 mm



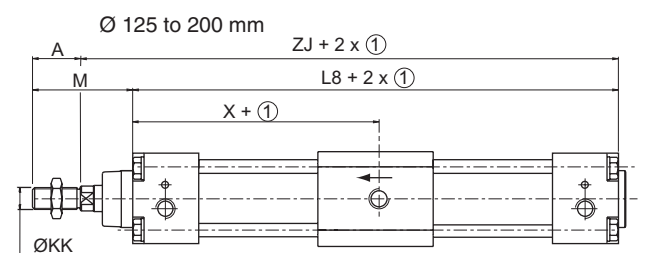
SINGLE-ROD TYPE CYLINDER

450 Series
Ø 32 to 100 mm



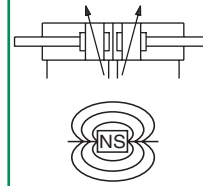
① Stroke (A) ② Stroke (B)

Ø (mm)	A	ØKK	L8	M	ZJ	X		
						453	450	
453 32	32	22	M10x1,25	180	48	206	68	68
40	40	24	M12x1,25	198,5	54	228,5	77	77
50	50	32	M16x1,5	205	69	242	78,5	78,5
63	63	32	M16x1,5	233	69	270	95	95
80	80	40	M20x1,5	251,5	86	297,5	98	98
100	100	40	M20x1,5	243	91	294	100	100
-	125	54	M27x2	278	119	343	-	139
-	160	72	M36x2	303	152	383	-	151,5
-	200	72	M36x2	303	167	398	-	151,5



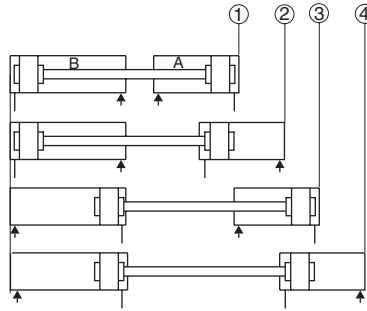
The two ports on the intermediate block are positioned at 180° to each other

All leaflets are available on: www.asco.com



FEATURES

- Set of two cylinders connected by a common piston rod. This arrangement provides:
 - three positions if the two cylinders have the same stroke
 - four positions if the two cylinders have different strokes



GENERAL

Detection
Cushioning

Equipped for magnetic position detectors
Pneumatic, adjustable from both sides with captive screw

Max. stroke of the two cylinders

1 m

HOW TO ORDER

Consult our Dynamic Product Modeling Tool on: www.asco.com

The following mountings do not fit nose to nose:

- Straight complete trunnion
- Complete trunnion with angular clevis bracket
- Rear flange



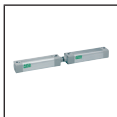
MOUNTINGS



DETECTORS

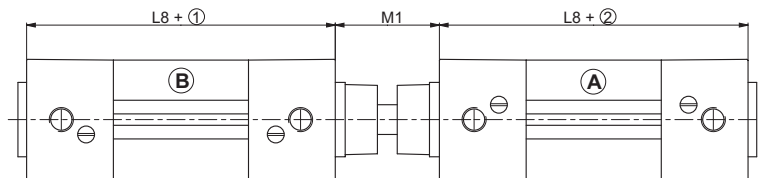
reed switch or magneto-resistive type

DIMENSIONS (mm)



SINGLE-ROD TYPE CYLINDER

453 Series
Ø 32 to 100 mm
(125 mm: contact us)



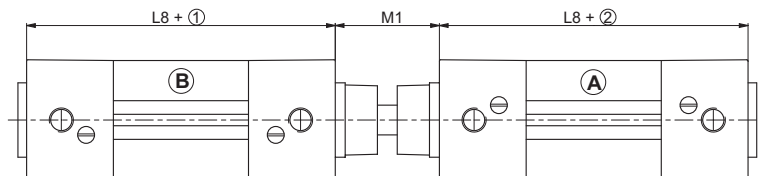
- ① Stroke B
② Stroke A



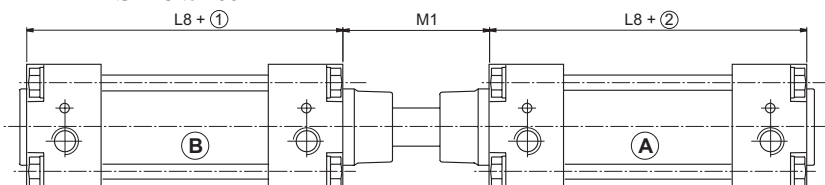
SINGLE-ROD TYPE CYLINDER

450 Series
Ø 32 to 200 mm

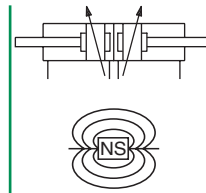
Ø 32 to 100 mm



Ø 125 to 200 mm

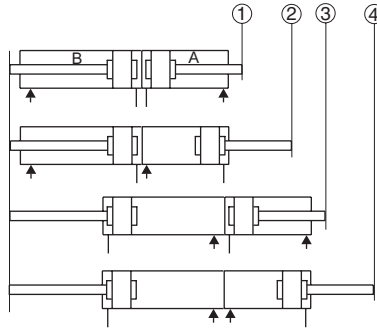


Ø (mm)		M1 min.	L8
453	450		
32	32	42	94
40	40	46	105
50	50	60	106
63	63	62	121
80	80	76	128
100	100	81	138
-	125	95	160
-	160	131	180
-	200	131	180



FEATURES

- System consisting of two standard cylinders mounted back-to-back and connected by a support or four tie rods. This arrangement provides:
 - three positions if the two cylinders have the same stroke
 - four positions if the two cylinders have different strokes



GENERAL

Detection

Equipped for magnetic position detectors

Cushioning

Pneumatic, adjustable from both sides with captive screw

Max. stroke of the two cylinders 1 m

HOW TO ORDER

Consult our [Dynamic Product Modeling Tool](http://www.asco.com) on: www.asco.com

The following mountings do not fit back-to-back cylinders:

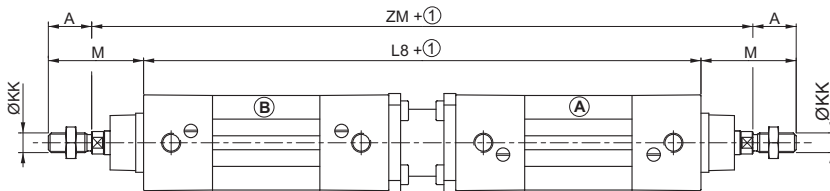
- Straight complete trunnion
- Complete trunnion with angular clevis bracket
- Rear flange

DIMENSIONS (mm)



SINGLE-ROD TYPE CYLINDER

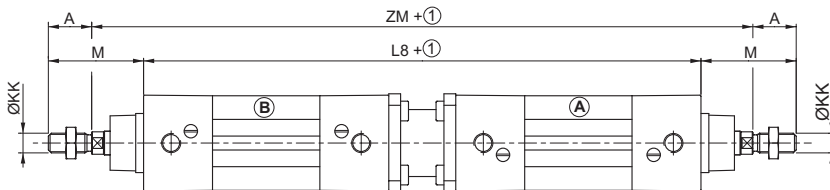
453 Series
Ø 32 to 100 mm
(125 mm: contact us)



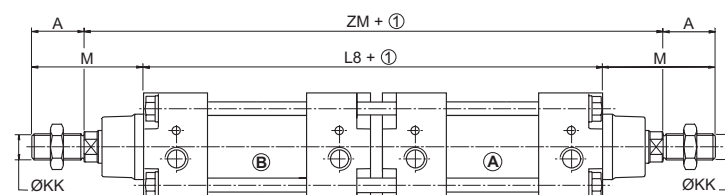
SINGLE-ROD TYPE CYLINDER

450 Series
Ø 32 to 200 mm

Ø 32 to 100 mm



Ø 125 to 200 mm



① Stroke (B) + Stroke (A)

Ø (mm)	A	ØKK	L8		M	ZM		
			453	450		453	450	
32	32	22	M10x1,25	222	197	48	274	249
40	40	24	M12x1,25	244	219	54	304	279
50	50	32	M16x1,5	249	221	69	323	295
63	63	32	M16x1,5	279	251	69	353	325
80	80	40	M20x1,5	302	265	86	394	357
100	100	40	M20x1,5	322	285	91	424	387
-	125	54	M27x2	-	332	119	-	462
-	160	72	M36x2	-	372	152	-	532
-	200	72	M36x2	-	372	167	-	562



FEATURES

- High quality components with the following characteristics:
 - High admissible loads
 - Accurate guiding
 - High overall sturdiness
 - «H» guiding unit: Excellent mobility, low wear and long life with the linear ball bearings
 - The cylinder rod is fixed to the guiding unit by an alignment compensation bracket

GENERAL (GUIDING UNIT)

Min. stroke (with detectors)	50 mm
Maximum stroke	500 mm (other strokes on request)
Max. speed rate	1 m/s



CONSTRUCTION

"U" and "H" guiding units with slide bearings		"H" guiding unit with ball bearings	
Single block unit	Metal body	Single block unit	Metal body
4 self-lubricating roller bearings	Sintered bronze	4 linear ball bearings	
2 guiding rods	Chrome-plated steel	2 guiding rods	Hardened steel
Lip seals on the guiding rods		Lip seals on the guiding rods	
		2 type KP2K DIN 51825 grease nipples	

MOUNTINGS

- Guiding unit on frame: 4 mounting options using 4 tapped holes (on the 2 smallest and largest sides) + 2 holes for centring.
- Load on the guiding unit: 2 options, using 4 tapped holes or 4 spotfaced holes + 2 holes for centring.

HOW TO ORDER

UNIT CONSISTING OF SERIES 453 OR 450 CYLINDER + GUIDING UNIT

15-DIGIT PRODUCT CODE

[Configurator - CAD Files](#)

	G	45-	A	-	S	K	---	HCG	
Thread connection G = ISO 228/1	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Options</p> <p>UCG = Plain bearing "U" Guiding Unit HCG = Plain bearing «H» Guiding Unit HBG = Ball bearing «H» Guiding Unit</p> <p>Recommended standard strokes ⁽¹⁾</p> <p>0050 = 50 mm 0080 = 80 mm 0100 = 100 mm 0125 = 125 mm 0160 = 200 mm 0200 = 200 mm 0250 = 250 mm 0320 = 320 mm 0400 = 400 mm 0500 = 500 mm</p> <p>⁽¹⁾ Other strokes on request. Min. stroke: 25 mm max. stroke: 2000 mm</p> </div> <div style="width: 45%;"> <p>Rod options 2</p> <p>Series 453 / Series 450</p> <p>K = Standard</p> </div> </div>								
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	<p>Series 453:</p> <p>S = Standard 3 = AISI 303 stainless steel rod ⁽¹⁾</p> <p>Series 450:</p> <p>S = Standard (chromed single rod + rod nut) 3 = AISI 303 stainless steel rod + rod nut ⁽¹⁾ 6 = AISI 316 stainless steel rod + rod nut</p> <p>⁽¹⁾ 316L stainless steel rod, contact us.</p>								

POSITION DETECTORS

The magnetic position detectors are ordered separately: [reed switch](#) or [magneto-resistive](#) type

All leaflets are available on: www.asco.com

"U" AND "H" GUIDING UNITS ALONE

15-DIGIT PRODUCT CODE

P 491 A - 1 - - - - A00

Product series
491 = Guiding units for cylinders

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

Standard stroke (mm)
Stroke to be indicated

Accessory subtype
1 = Plain bearing «H» Guiding Unit
2 = Ball bearing «H» Guiding Unit
3 = Plain bearing «U» Guiding Unit

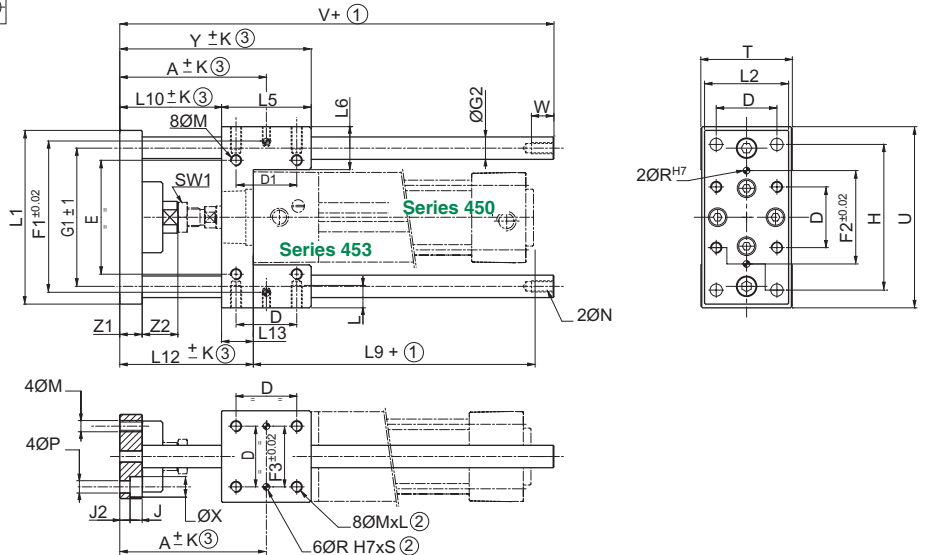
Cylinder type
1 = Metric cylinders

DIMENSIONS (mm), WEIGHT (kg)



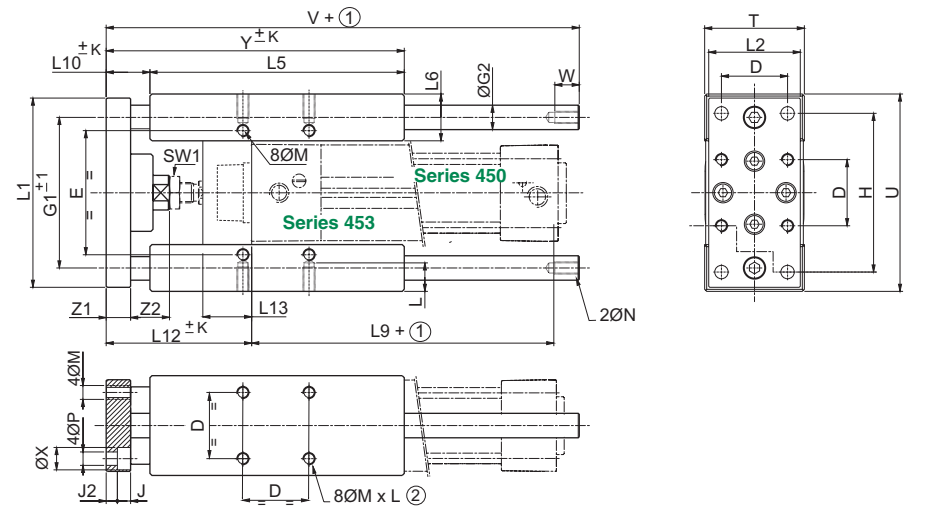
"U" GUIDING UNIT
ISO 15552
With slide bearings

[Configurator - CAD Files](#)



"H" GUIDING UNIT
ISO 15552
With slide or ball bearings

[Configurator - CAD Files](#)



- ① Stroke
 - ② Depth
 - ③ Dimension variable: ± K End play: 0,1 mm
 - ⊕ : 6 + 2 holes for centering pins (ØRH7)
- NOTE: The guiding units with a linear ball bearings must be lubricated every 3000 km, and more frequently if they are used in dusty surroundings.

Ø (mm)	A	D	D1	E	F1	F2	F3	G1	G2	H	J	J2	K	L	L1	L2	L5		L6		L9	L10		L12
																	"U"	"H"	"U"	"H"		"U"	"H"	
32	78,5	32,5	32,5	61	81	50	32,5	74	12	78	6,5	5,5	2,5	12	93	45	48	125	23	23	98	54,5	21,5	71,5
40	85	38	38	69	99	54	38	87	16	84	6,5	5,5	3	12	112	55	58	140	28,4	28	109	56	17	77
50	97	46,5	46,5	85	119	72	46,5	104	20	100	8,5	6,5	4	16	134	65	59	148	33,4	33	110	67,5	22,5	92,5
63	106	56,5	56,5	100	132	82	56,5	119	20	105	9	6	4	16	147	80	76	178	33,4	33	125	68	21	93
80	130	72	50	130	166	106	72	148	25	130	11	9	5	20	180	100	90	195	41,8	41	132	81	31	115
100	140,5	89	70	150	190	131	89	173	25	150	11	9	5	20	206	120	110	218	41,3	42	142	81,5	30,5	120,5

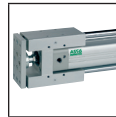
Ø	L13		M	N	P	R (H7)	S	SW1	T	U	V	W	X	Y		Z1	Z2	weight			
	"U"	"H"												"U"	"H"			"U"	"H"		
	(6)	(7)																			
32	17	24	M6	M6	6,6	6	10	16	49	97	182	11	11	102,5	146,5	12	25	0,750	1,3	0,00178	0,0018
40	21	28	M6	M6	6,6	6	10	18	58	115	192	11	11	114	157	12	25	1,230	2,4	0,00316	0,0032
50	25	34	M8	M8	9	6	10	24	70	137	237	16	15	126,5	170,5	15	29	2,150	3,5	0,005	0,005
63	25	34	M8	M8	9	6	10	24	85	152	237	16	15	144	199	15	29	2,890	4,8	0,005	0,005
80	34	50	M10	M10	11	6	10	30	105	189	280	16	18	171	226	20	27	5,700	8,4	0,0077	0,0077
100	39	55	M10	M10	11	6	10	30	130	213	280	16	18	191,5	248,5	20	27	7,950	11,8	0,0077	0,0077

(6) Weight of guiding unit for 0 mm stroke. Weight of the cylinders: see page P229
(7) Weight to be added per additional mm stroke length.

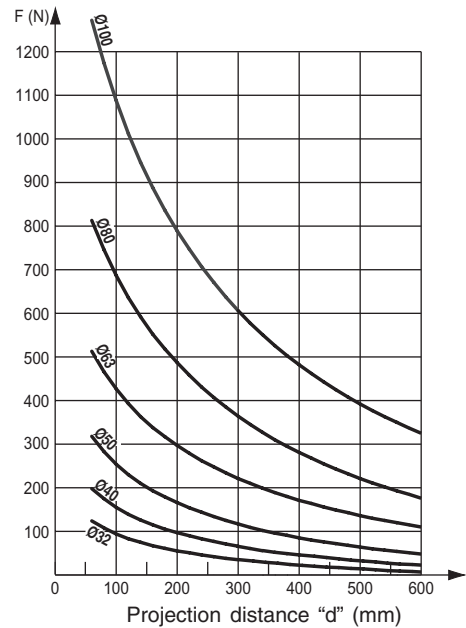
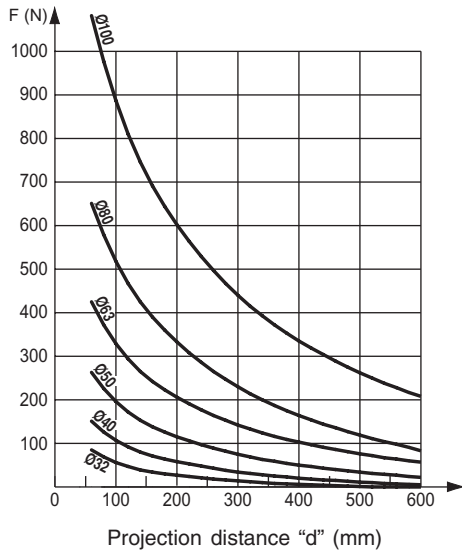
MAXIMUM ADMISSIBLE LOAD "F" ON THE ROD END



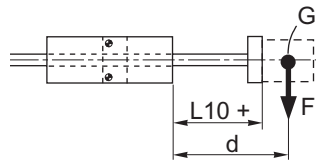
"U" GUIDING UNIT
With slide bearings



"H" GUIDING UNIT
With slide bearings



d = The projection distance (in mm) corresponding to the dimension L10 + the stroke length + the distance from the load centre of gravity (G) to the mating surface of the cylinder flange

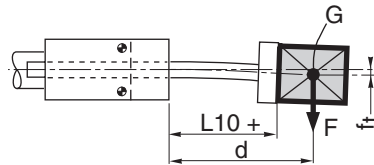


Note:

The values in the opposite chart correspond to those in regular horizontal movement of the guiding unit with the rods in the same horizontal plane. In the case of vibration or jerky movement, halve the maximum allowable load values.

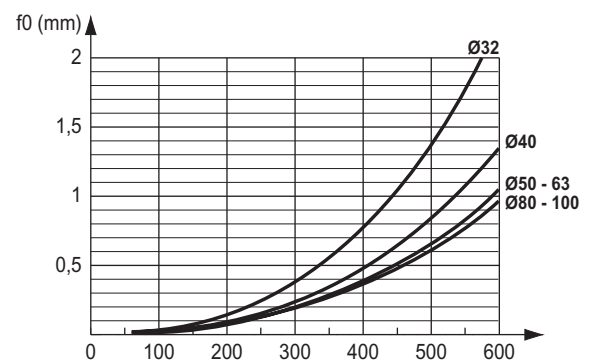
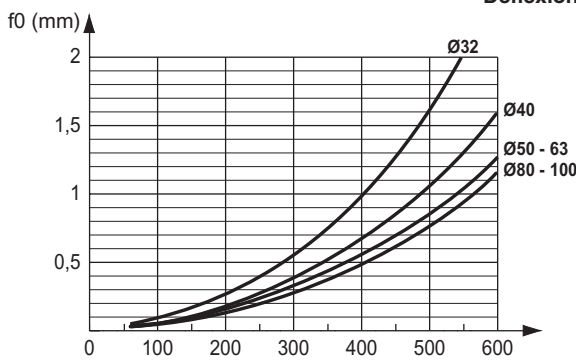
DETERMINING THE DEFLECTION : f_t

$$f_t = f_0 + \left(f_{10} \times \frac{F}{10} \right)$$

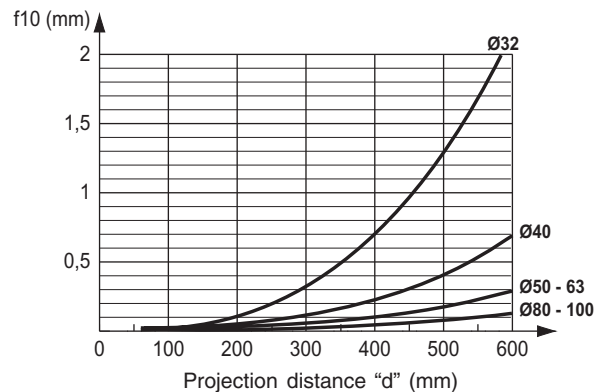
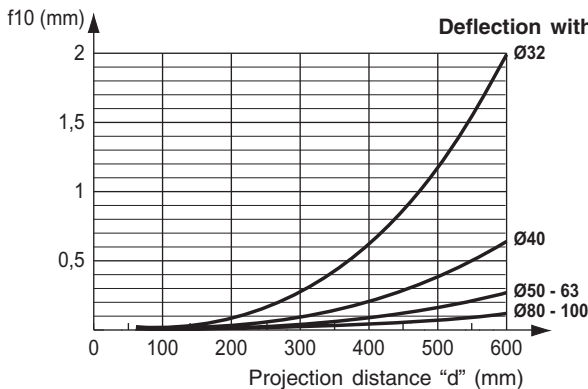


- f_t = Total deflection (mm)
- f_0 = Deflection without a load (mm)
- f_{10} = Deflection with a load of 10 N (mm)
- F = Load on the rod ends (N)
- d = Projection distance as defined above (mm)

Deflection without a load (f_0)



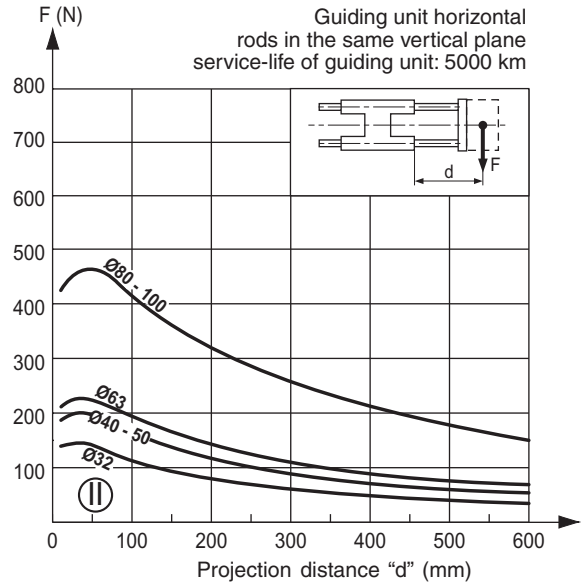
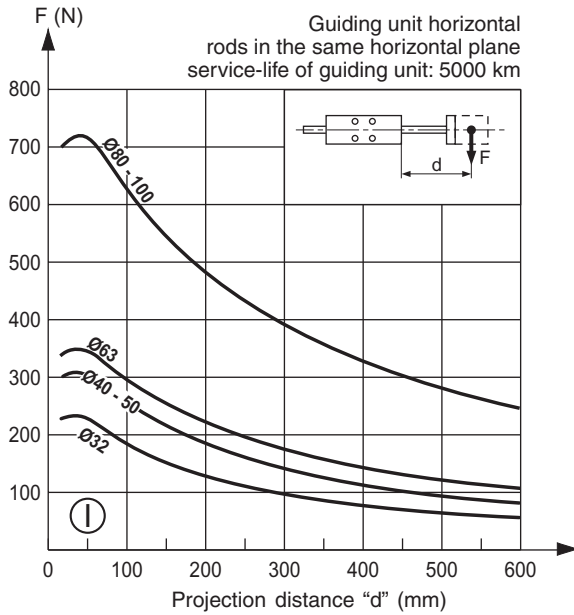
Deflection with a load of 10 N (f_{10})



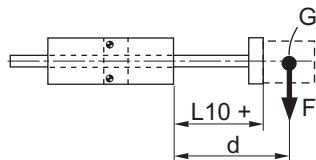
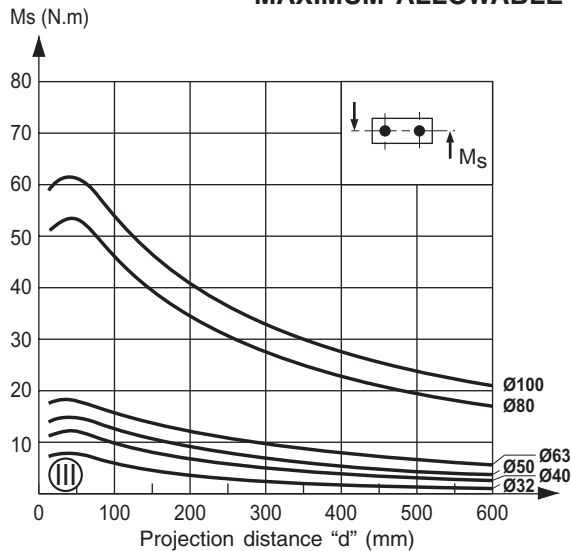


"H" GUIDING UNIT
With ball bearings

MAXIMUM ADMISSIBLE LOAD "F" ON THE ROD END



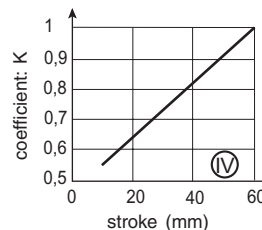
MAXIMUM ALLOWABLE MOMENTS "Ms" AT ROD END



d = The projection distance (in mm) corresponding to the dimension $L10$ + the stroke length + the distance from the load centre of gravity (G) to the mating surface of the cylinder flange

Note: The values in charts (I), (II) and (III) correspond to those in regular horizontal movement. In the event of vibration or jerky movement, halve the maximum allowable values.

Whatever the stroke of the cylinder, if its movement is only a small proportion of the travel (not more than 60 mm) : it is necessary to reduce the maximum allowable torques and loads by multiplying the values taken from charts (I), (II) and (III) by coefficient K from chart (IV). For short travels which do not exceed 60 mm, the curves allow for this reduction in performance.



DETERMINING THE DEFLEXION: f_t (See "H guiding unit with slide bearings" preceding page)

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

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

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

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

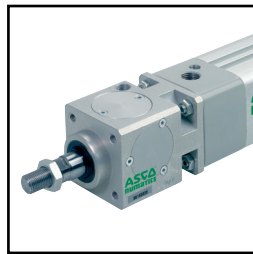
Holding force of rod-locking device Attached weight Additional force

THIS PRODUCT IS NOT A SAFETY COMPONENT

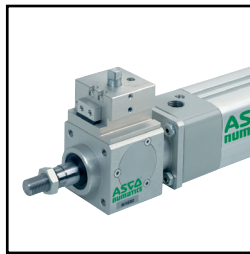
DIFFERENT VERSIONS



Rod-locking device alone



Rod-locking device pre-assembled on cylinder



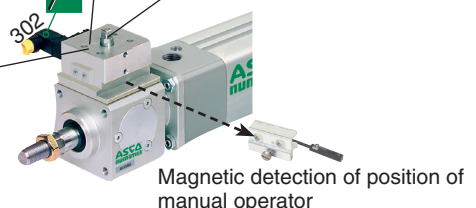
Rod-locking device with manual operator pre-assembled on cylinder

- Integration possibilities:** (see next page)
- Integrated rod-locking device pilot control
 - Integrated position detection ([reed switch](#) or [magneto-resistive](#) type)
 - Cylinder start-up interlock system

Cylinder start-up interlock system

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

Integrated static rod-locking device pilot control



Magnetic detection of position of manual operator

code fastening kit: **P494A0029400A00**

HOW TO ORDER

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

[Configurator - CAD Files](#)

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)



MOUNTINGS



DETECTORS

[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

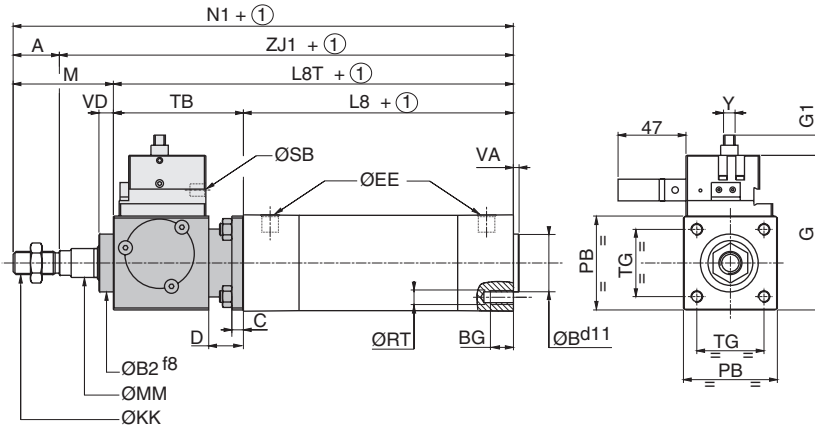
Cylinder type
1 = ISO 15552

DIMENSIONS (mm), WEIGHT (kg)

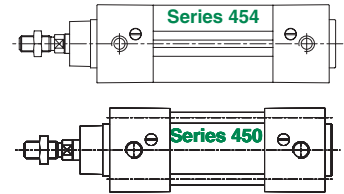
[Configurator - CAD Files](#)



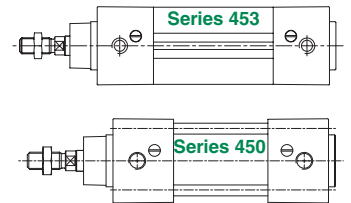
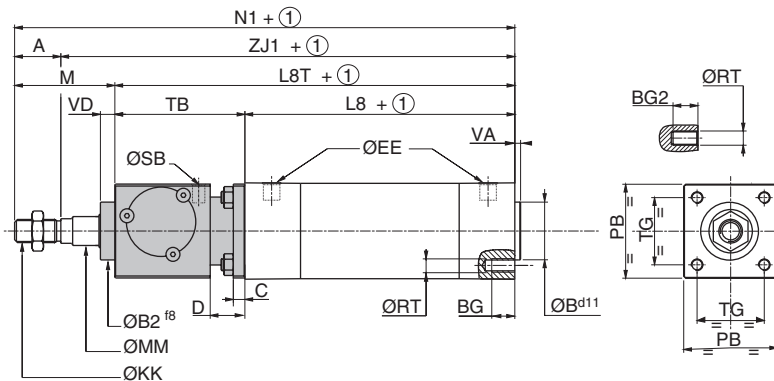
ROD-LOCKING DEVICE WITH MANUAL OPERATOR ISO 15552



- 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

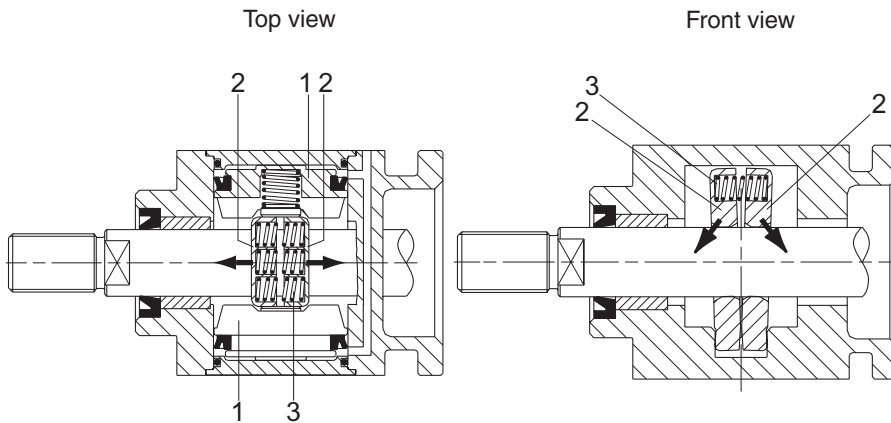
Ø (mm)	TB	TG	VA	VD	Y	ZJ1	weight	
							(rod lock device alone with manual operator)	(rod lock device alone without manual operator)
32	60	32,5	4	7,5	8	180	0,700	0,400
40	70	38	4	10	8	205	0,900	0,600
50	90	46,5	4	10	8	233	1,500	1,100
63	90	56,5	4	10	8	248	1,900	1,500
80	110	72	4	10	8	284	3,000	2,600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

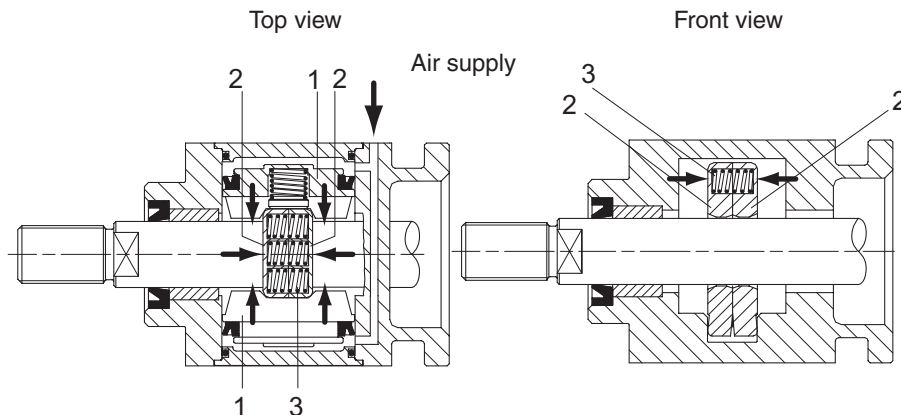
■ NO PRESSURE ON STATIC ROD-LOCKING DEVICE (rod locked)

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.



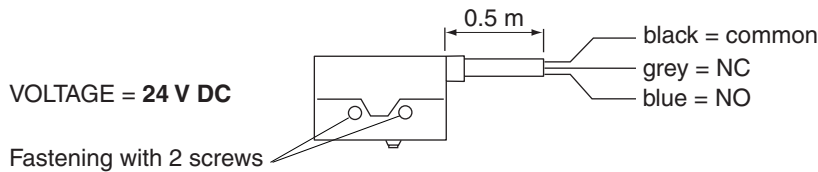
■ STATIC ROD-LOCKING DEVICE UNDER PRESSURE (rod unlocked)

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.



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.

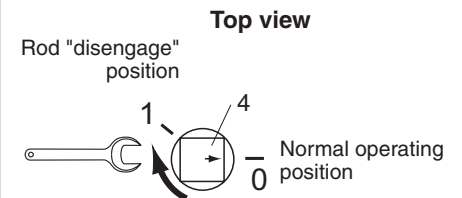
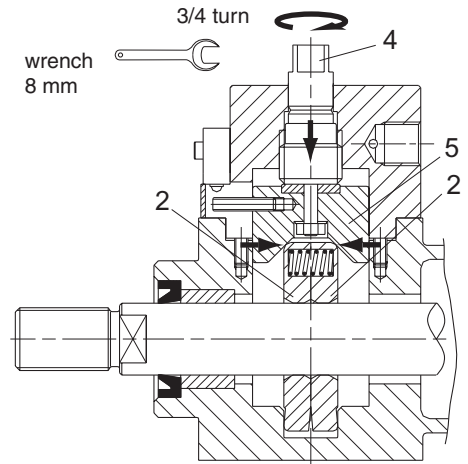
It is recommended to check the correct operation of the static rod-locking devices once a month:

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

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.

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

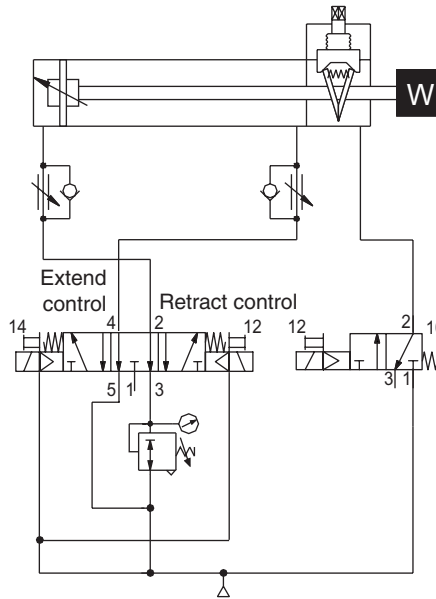


Fig. 1
Cylinder control with a 5/3 valve, centre open to exhaust (type W3)

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

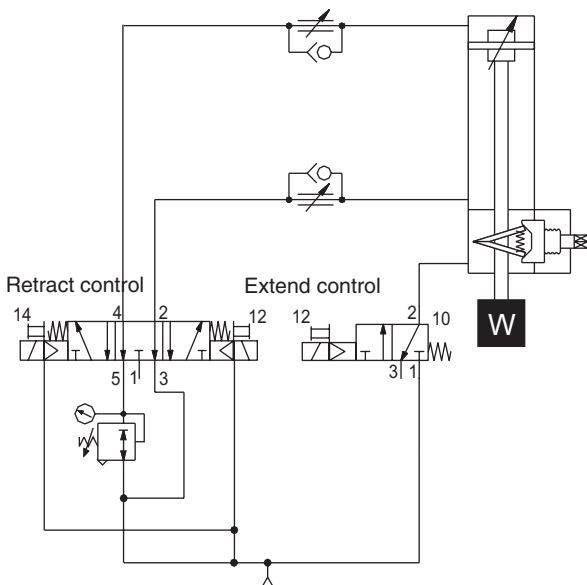
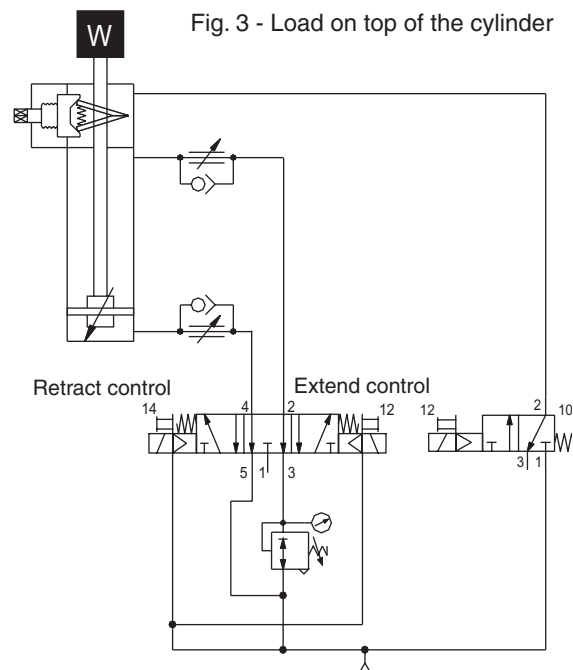
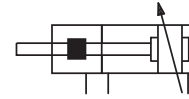


Fig. 3 - Load on top of the cylinder





FEATURES

- Designed to stop and hold the rod of the cylinder under load in the event of air pressure or power failure. The rod lock is an elastic mechanical device acting on brake pads. It is disengaged when pressure is applied.
- Stops and holds the piston rod at any point of its stroke
- Holds maximum allowable cylinder load without drifting
- Locks in the absence of air
- Bi-directional action
- Cast iron brake pads, concentric on the rod, ensure long service life without damaging the piston rod
- Compact and easy to install
- Any mounting position
- Reduced weight (light metal alloy body)
- Possibility of mounting to cylinders complying with ISO 15552-AFNOR-DIN standards (longer rod, without front bushing)

GENERAL (DYNAMIC ROD-LOCKING DEVICE)

Operating pressure	8 bar max.
Disengage pressure	4 bar (min.), 8 bar (max.)
Ambient temperature	-5°C to +70°C
Pneumatic connection	G1/8 (Ø32) - G1/4 (Ø 50 - 100)

fluids (*)	temperature range (TS)	seal materials (*)
air, inert gas, water, oil	-25°C to +80°C	NBR (nitrile)
	0°C to +60°C	UR (cast urethane)

MECHANICAL CHARACTERISTICS

Holding forces (static)	40 mm: 1000 N / 50 mm: 1600 / 63 mm: 2500 N 80 mm: 4000 N / 100 mm: 6300 N					
Locking capacity	Maximum load, in kg, that can be stopped dynamically over a distance of 50 mm in relation to the rate of speed of the rod (the cylinder must be in a vertical mounting position)					
	V (mm/s)	Ø 40	Ø 50	Ø 63	Ø 80	Ø 100
	500	80	130	200	320	500
	200	90	145	225	360	590
Max. allowable speed	500 mm/s					
Number of cycles	1,5 x 10 ⁶ (at 20° C, at a balanced stop, in hold function, cycle = 1 Hz)					

THIS PRODUCT IS NOT A SAFETY COMPONENT

HOW TO ORDER

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

[Configurator - CAD Files](#)

15-DIGIT PRODUCT CODE

G 45- A - S 5 - - - - A00

Thread connection

G = ISO 228/1

Product series

453
450

Revision letter

A = Initial release

Diameter (mm)

4 = 40
5 = 50
6 = 63
8 = 80
1 = 100

Rod options 1

Series 453:
S = Standard

Series 450:

S = Standard (chromed single rod + rod nut)

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

5 = Dynamic rod-locking device



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
U and H guiding units



MOUNTINGS



DETECTORS

reed switch or magneto-resistive type

ROD-LOCKING DEVICE ALONE

15-DIGIT PRODUCT CODE

G **492** **A** - **1** **1** **0000** **A00**

Thread connection

G = ISO 228/1

Product series

492 = Rod-locking device

Diameter (mm)

4 = 40
5 = 50
6 = 63
8 = 80
1 = 100

Accessory type

1 = Dynamic

Cylinder type

1 = ISO 15552

DIMENSIONS (mm), WEIGHT (kg)

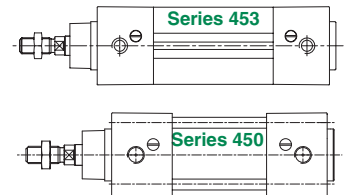
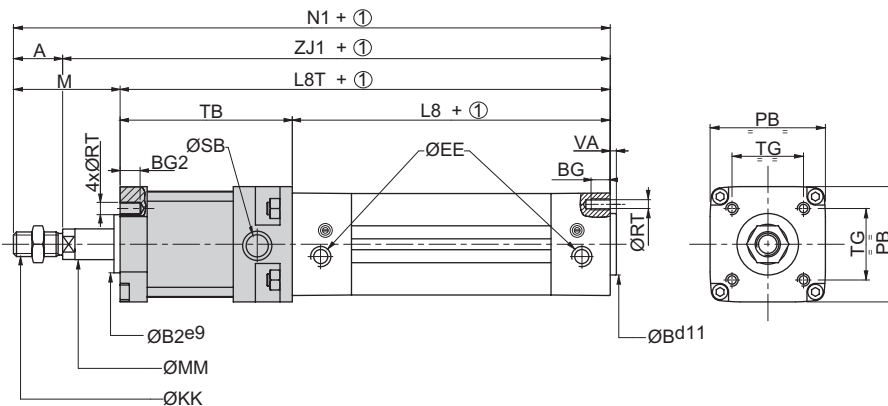


[Configurator - CAD Files](#)



DYNAMIC ROD-LOCKING DEVICE

Series 453/450
ISO 15552



① Stroke

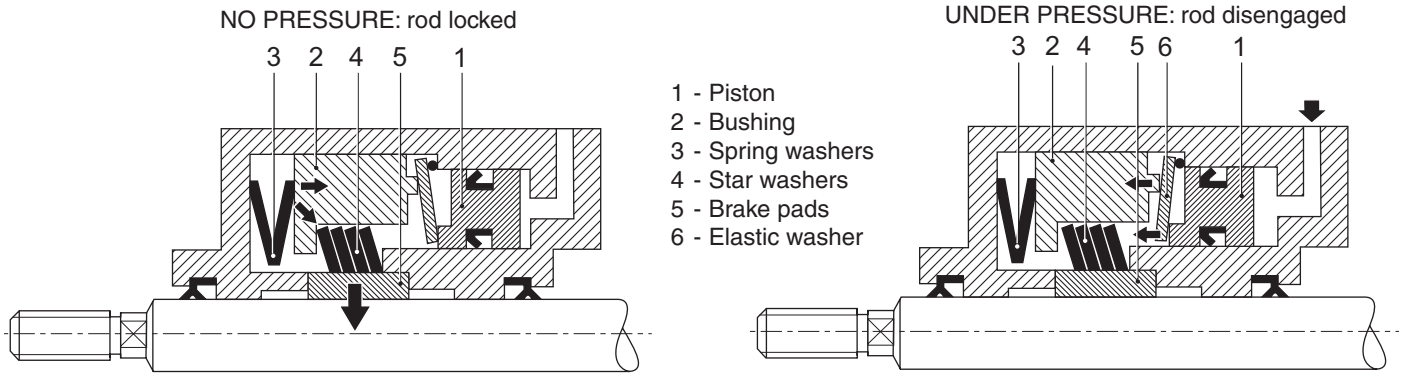
Ø (mm)	A	ØB	ØB2	BG	BG2	ØRT	ØEE	ØKK	L8	L8T	M	ØMM	N1	PB	ØSB	TB	TG
40	24	35	35	16	10	M6	G1/4	M12x1,25	105	200	54	16	254	70	G1/8	95	38
50	32	40	40	16	13	M8	G1/4	M16x1,5	106	218	69	20	287	75	G1/4	112	46,5
63	32	45	45	16	12	M8	G3/8	M16x1,5	121	241	69	20	310	95	G1/4	120	56,5
80	40	45	45	17	18	M10	G3/8	M20x1,5	128	268	86	25	354	95	G1/4	140	72
100	40	55	55	17	19	M10	G1/2	M20x1,5	138	288	91	25	379	120	G1/4	150	89

Ø (mm)	VA	VD	ZJ1	weight (kg) (rod-locking device alone)
40	4	4	230	1.3
50	4	4	255	1.5
63	4	4	278	3.1
80	4	4	314	3.5
100	4	4	339	5.6

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.

All leaflets are available on: www.asco.com

OPERATING PRINCIPLE



THIS PRODUCT IS NOT A SAFETY COMPONENT

DYNAMIC ROD-LOCKING DEVICE IN THE ABSENCE OF PRESSURE

No force is transmitted to the pneumatic piston (1). The two spring washers (3) apply an axial force to the bushing (2) which transmits it to the star washers (4). The star washers apply a radial force to the brake pads (5) which lock the piston rod.

DYNAMIC ROD-LOCKING DEVICE UNDER PRESSURE (min. 4 bar, max. 8 bar)

The pressure exerts a force on the pneumatic piston (1) which transmits it to the elastic washer (6). This acts as a lever and gears down the force on the bushing (2). The bushing compresses the spring washers (3), all restraint is removed from the star washers (4) and brake pads (5). The rod is disengaged.

DYNAMIC RESTRAINT

The cylinder must be locked only in case of need in the event of an emergency shutdown or failure in the power or air supply.

The rod-locking device can, however, be activated in every cycle as soon as the cylinder has come to a stop (hold function).

The stopping precision of the cylinder depends on:

- the fitting position of the cylinder (horizontal or vertical)
- the load being moved by the cylinder
- the rate of speed at which the load is moved
- the response time of the downstream pneumatically or electrically operated valves
- the air volume and opening area between the rod locking device control valve and its supply port

DYNAMIC LOCKING CAPACITY: Maximum load between 80 and 590 kg according to speed and cylinder diameter.

STATIC HOLDING CAPACITY: Maximum force between 1000 and 6300 N according to cylinder diameter.

MOUNTING AND OPERATING RECOMMENDATIONS

Precautions should be taken when installing a cylinder fitted with a 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 in the event of an emergency shutdown or a situation such as:

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

The rod-locking device can, however, be activated in every cycle as soon as the cylinder has come to a stop (hold function).

The cylinder may be mounted horizontally or vertically, with the rod either upward or downward, or mounted tilted, with the rod either upward or downward. A specific layout corresponds to each application. The specimen layouts on the opposite 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.

The rate of speed of the rod must be less than 500 mm/sec.

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

The rod-locking device is fitted with 2 wiper seals made of PUR. It is recommended to grease the rod lightly at regular intervals with a non-detergent class ISO VG 32 oil without aggressive additives (commonly used in pneumatic circuits). Do not let the rod come into contact with any other oils or products which might damage the wiper seals made of PUR.

It is recommended to check the correct operation of the rod-locking device at regular intervals.

Note: Position control for rod-locking device on request: contact us

HORIZONTAL MOUNTING

The cylinder is controlled by a 5/3 valve (ISO size 1 for diameters 40 and 50 mm, ISO size 2 for diameters 63, 80 and 100 mm), with centre open to the central port (type W2 - fig.1) or centre open to exhaust (type W3 - fig.2), and supplied by exhaust ports 3 and 5. In both options, the pressure is maintained on both sides of the cylinder piston and the forces exerted on it are balanced. This prevents any accidental movement of the rod when it is disengaged. Type W2 is recommended for its simpler wiring. Do not use a 5/3 valve with closed centre (type W1), since this will unbalance the piston in case one of the components in the circuit leaks.

NOTE: The cylinder rod may move out slowly after release of the system as a result of the "rod effect".

One-directional flow reducers must be used to control the rate of speed of the rod.

The rod lock device must be activated by a 3/2 NC solenoid valve, with a minimum passage diameter of 8 mm, to ensure fast braking of the cylinder rod. It locks in the absence of air.

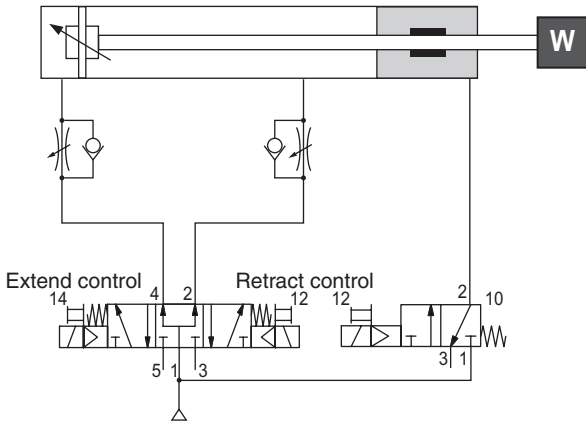


Fig. 1 - Cylinder control with a 5/3 valve, centre open on central port (type W2).

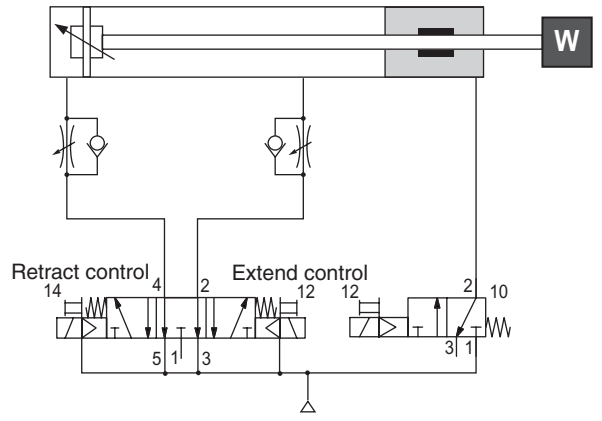


Fig. 2 - Cylinder control with a 5/3 valve, centre open to exhaust (type W3).

VERTICAL MOUNTING

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

The rate of speed of the rod must be less than 500 mm/sec.

Do not use a 5/3 valve with closed centre (type W1) since this will unbalance the piston in case one of the components in the circuit leaks. This could be hazardous when the rod is disengaged.

Use of a 5/3 (type W3) valve provides a braking effect and ensures that the rod is held in a given position. The stopping precision depends on the rate of speed of the rod and the loads in motion.

One-directional flow reducers must be used to control the rate of speed of the rod.

The rod lock device must be activated by a 3/2 NC solenoid valve, with a minimum passage diameter of 8 mm, to ensure fast braking of the cylinder rod. Locking by absence of air.

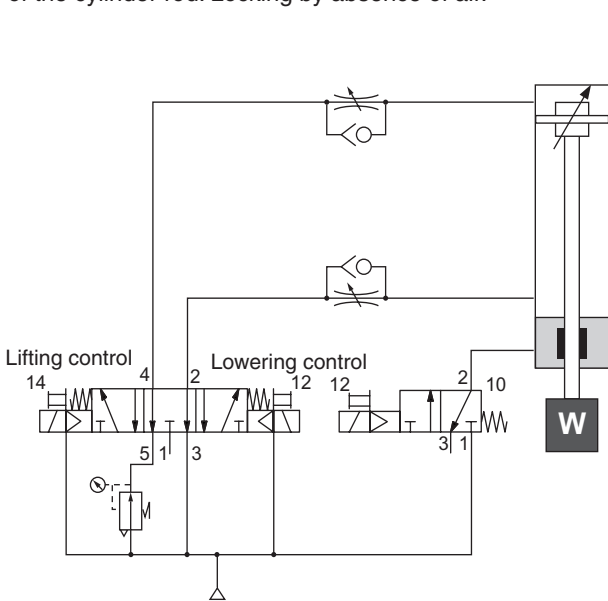


Fig. 3 - Load underneath the cylinder

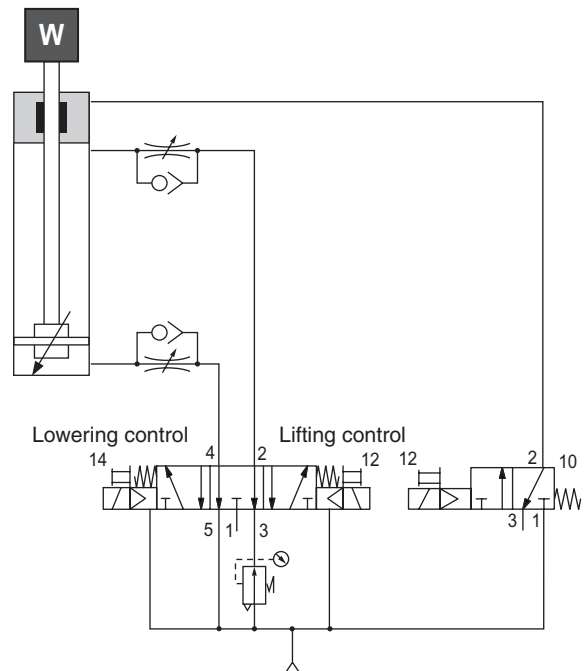
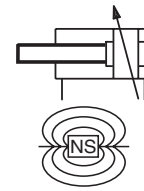


Fig. 4 - Load on top of the cylinder



FEATURES

- ISO 15552 cylinders with Ø 63 to 100 mm can be fitted with a larger diameter piston rod than standard:

Ø (mm)	rod Ø (ØMM)		rod end thread Ø (ØKK)	
	standard	oversize	standard	oversize
63	20	25	M16x1,5	M20x1,5
80	25	30	M20x1,5	M27x2
100	25	32	M20x1,5	M27x2

GENERAL Cushioning

Pneumatic, only at rear end



HOW TO ORDER

[Configurator - CAD Files](#)

15-DIGIT PRODUCT CODE

G 45- A - S 6 - - - - A00

Thread connection

G = ISO 228/1

Product series

453
450

Revision letter

A = Initial release

Diameter (mm)

6 = 63
8 = 80
1 = 100

Rod options 1

Series 453:

S = Standard

3 = AISI 303 stainless steel rod ⁽¹⁾

⁽¹⁾ 316L stainless steel rod, contact us.

Series 450:

S = Standard (chromed single rod + rod nut)

3 = AISI 303 stainless steel rod + rod nut ⁽¹⁾

6 = AISI 316 stainless steel rod + rod nut

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
63	G3/8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
80	G3/8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
100	G1/2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

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

max. stroke: 1800 mm (Ø 63) / 2000 mm (Ø 80/100)

Rod options 2

6 = Oversized piston rod



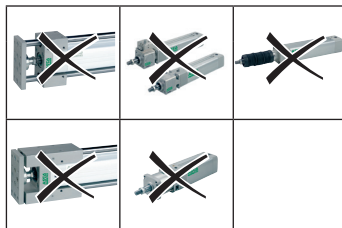
MOUNTINGS

Rod mountings: See following page



DETECTORS

reed switch or magneto-resistive type



OPTIONS AND SPECIALISED VERSIONS

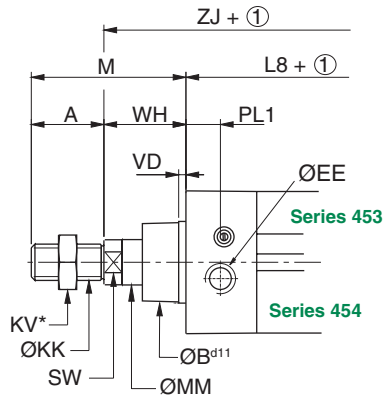
Cannot be fitted:

Guiding units/ Rod locking device / Rod bellows

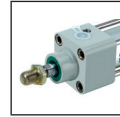
DIMENSIONS (mm), WEIGHT (kg)



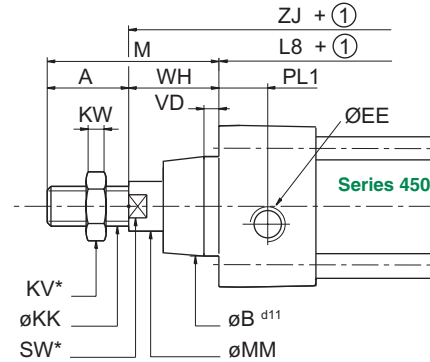
OVERSIZE PISTON RODS
453 Series
Single-rod type cylinder
Ø 63 to 100 mm



Configurator - CAD Files



OVERSIZE PISTON RODS
450 Series
Single-rod type cylinder
Ø 63 to 100 mm



Ø (mm)	A	ØB	ØEE	ØKK	KV	KW	L8	M	ØMM	PL1	SW	VD	WH	ZJ	
453 450															
63	63	40	45	G3/8	M20x1,5	30	10	121	86	25	26	22	6	46	167
80	80	54	45	G3/8	M27x2	41	13,5	128	119	30	24	27	6	65	193
100	100	54	55	G1/2	M27x2	41	13,5	138	119	32	25	27	6	65	203

- ① Stroke
- ② Width across flats

ACCESSORIES (ROD MOUNTINGS)

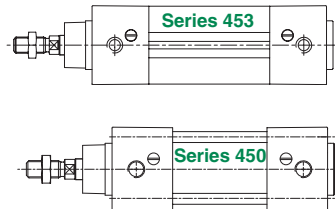
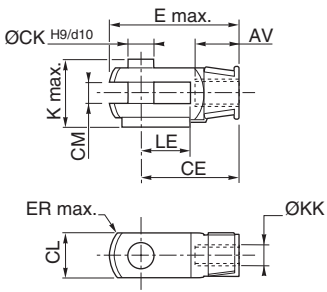
The following table shows all the clevises and self-aligning eyes that fit oversize rod ends with allowance for the rod end thread diameter difference.

Ø (mm)		Femelle rod clevis ⁽¹⁾ ISO 8140 - RP102P AP2		Spherical rod end ISO8139-RP103P AP6	
453	450	steel	stainless steel	steel	stainless steel
63	63	P493A8131000A00	P493A8131200A00	P493A8132000A00	P493A8132200A00
80	80	P493AP131000A00	-	P493AP132000A00	-
100	100	P493AP131000A00	-	P493AP132000A00	-

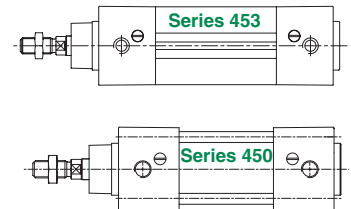
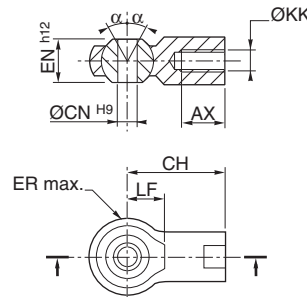
DIMENSIONS (mm), WEIGHT (kg)



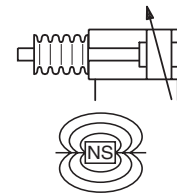
ROD MOUNTINGS
Female rod clevis
ISO 8140
AP2



ROD MOUNTINGS
Spherical rod end
ISO 8139
AP6



Ø (mm)	AV AX	CE	CH	ØCK	CL	CM	ØCN	E max.	EN	ER max.	K	ØKK	LE	LF	α	weight		
																steel		
453 450																AP2	AP6	
63	63	33	80	77	20	40	20 ^{+0,6} _{+0,15}	20	112	25	25	48	M20x1,5	40	26	4°	0,67	0,39
80	80	51	110	110	30	55	30 ^{+0,6} _{+0,15}	30	155	37	35	65	M27x2	54	36	4°	1,81	1,6
100	100	51	110	110	30	55	30 ^{+0,6} _{+0,15}	30	155	37	35	65	M27x2	54	36	4°	1,81	1,6



FEATURES

- Cylinder equipped with protective bellow

CONSTRUCTION

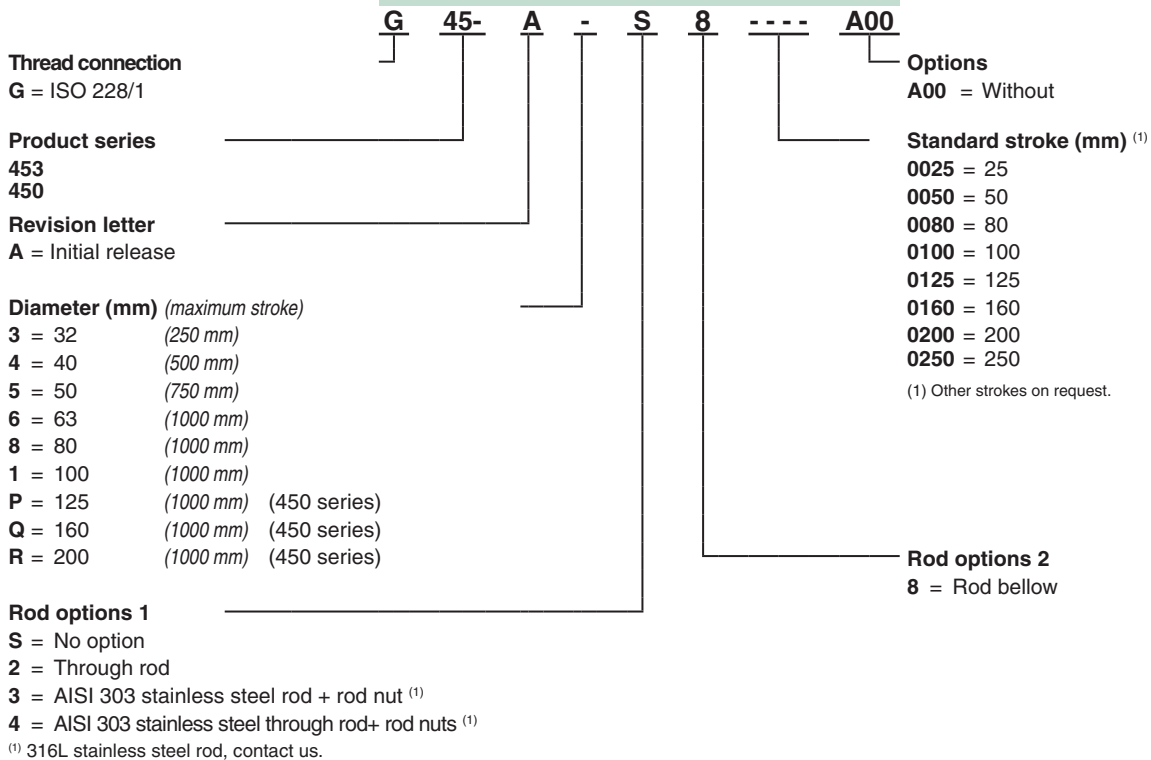
Bellow	NBR (nitrile)
Retaining ring	Light alloy and POM (polyacetal)
Other parts	Same as standard cylinders



HOW TO ORDER

15-DIGIT PRODUCT CODE

[Configurator - CAD Files](#)



MOUNTINGS

The front flange or top brackets are supplied installed on the cylinder



DETECTORS

reed switch or magneto-resistive type

OPTIONS

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

Hinge
High temperature version
Oversized rod
Anti-rotation device
Rod locking device

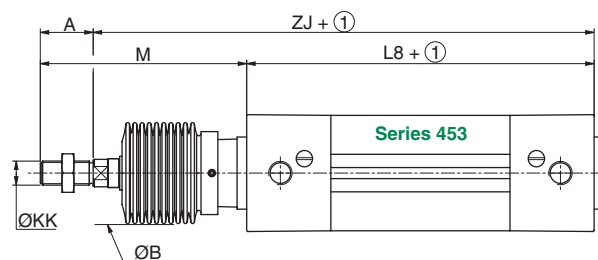
DIMENSIONS (mm)

[Configurator - CAD Files](#)



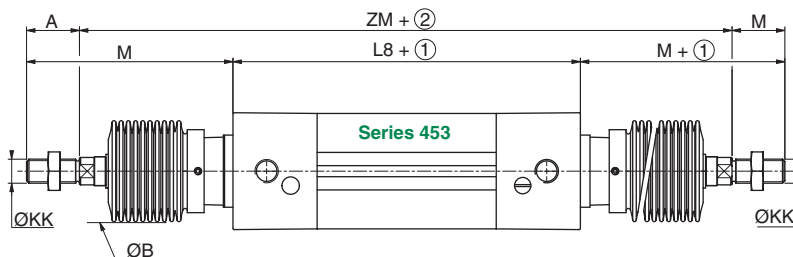
SINGLE-ROD TYPE CYLINDER

Profiled barrel cylinder
Ø 32 to 100 mm



THROUGH-ROD TYPE CYLINDER

Profiled barrel cylinder
Ø 32 to 100 mm



① Stroke

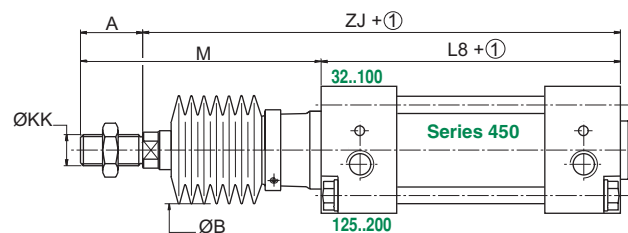
② 2 x Stroke

Ø (mm)	A	ØB	ØKK	L8	M depending on the stroke: (mm)						ZJ depending on the stroke: (mm)						ZM depending on the stroke: (mm)							
					0-75	76-150	151-250	251-500	501-750	751-1000	0-75	76-150	151-250	251-500	501-750	751-1000	0-75	76-150	151-250	251-500	501-750	751-1000		
32	22	41	M10x1,25	94	81	107	127	-	-	-	153	179	199	-	-	212	264	304	-	-	-	-	-	-
40	24	41	M12x1,25	105	138	138	138	218	-	-	219	219	219	299	-	-	333	333	333	493	-	-	-	-
50	32	60	M16x1,5	106	153	153	153	233	313	-	227	227	227	307	387	-	348	348	348	508	668	-	-	-
63	32	60	M16x1,5	121	153	153	153	233	313	394	242	242	242	322	402	483	363	363	363	523	683	845	-	-
80	40	60	M20x1,5	128	170	170	170	250	330	411	258	258	258	338	418	499	388	388	388	548	708	870	-	-
100	40	60	M20x1,5	138	160	160	160	220	280	340	258	258	258	318	378	438	378	378	378	498	618	738	-	-



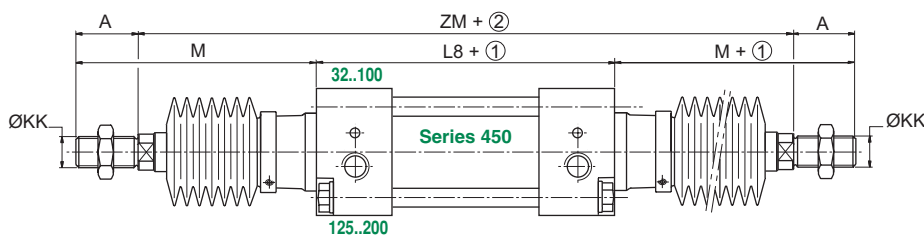
SINGLE-ROD TYPE CYLINDER

Cylinder with tie rods
Ø 32 to 200 mm



THROUGH-ROD TYPE CYLINDER

Cylinder with tie rods
Ø 32 to 200 mm



① Stroke

② 2 x Stroke

Ø (mm)	A	ØB	ØKK	L8	M depending on the stroke: (mm)						ZJ depending on the stroke: (mm)						ZM depending on the stroke: (mm)							
					0-75	76-150	151-250	251-500	501-750	751-1000	0-75	76-150	151-250	251-500	501-750	751-1000	0-75	76-150	151-250	251-500	501-750	751-1000		
32	22	41	M10x1,25	94	81	107	127	-	-	-	153	179	199	-	-	212	264	304	-	-	-	-	-	-
40	24	41	M12x1,25	105	138	138	138	218	-	-	219	219	219	299	-	-	333	333	333	493	-	-	-	-
50	32	60	M16x1,5	106	153	153	153	233	313	-	227	227	227	307	387	-	348	348	348	508	668	-	-	-
63	32	60	M16x1,5	121	153	153	153	233	313	394	242	242	242	322	402	483	363	363	363	523	683	845	-	-
80	40	60	M20x1,5	128	170	170	170	250	330	411	258	258	258	338	418	499	388	388	388	548	708	870	-	-
100	40	60	M20x1,5	138	160	160	160	220	280	340	258	258	258	318	378	438	378	378	378	498	618	738	-	-
125	54	88	M27x2	160	188	188	188	248	308	368	294	294	294	354	414	474	428	428	428	548	668	788	-	-
160	72	88	M36x2	180	222	222	222	266	311	386	330	330	330	374	419	494	480	480	480	568	658	808	-	-
200	72	88	M36x2	180	237	237	237	281	326	401	345	345	345	389	434	509	510	510	510	598	688	838	-	-

- All mountings can be used in explosives atmospheres, zones 1-21 and 2-22

SPECIFICATIONS ⁽¹⁾

Ø (mm)				Low feet (set of 2 items) MS1		High foot MS3		Rectangular front or rear flange MF1 - MF2	
449	453	454	450	stamped sheet steel	stainless steel	light alloy	steel	stainless steel	
20	-	-	-	P493AL124000A00	-	-	P493AL126000A00	-	
25	-	-	-	P493AM124000A00	-	-	P493AM126000A00	-	
32	32	32	32	P493A3124000A00	P493A3124200A00	P493A3125100A00	P493A3126000A00	P493A3126200A00	
40	40	40	40	P493A4124000A00	P493A4124200A00	P493A4125100A00	P493A4126000A00	P493A4126200A00	
50	50	50	50	P493A5124000A00	P493A5124200A00	P493A5125100A00	P493A5126000A00	P493A5126200A00	
63	63	63	63	P493A6124000A00	P493A6124200A00	P493A6125100A00	P493A6126000A00	P493A6126200A00	
80	80	80	80	P493A8124000A00	P493A8124200A00	P493A8125100A00	P493A8126000A00	P493A8126200A00	
100	100	100	100	P493A1124000A00	P493A1124200A00	-	P493A1126000A00	P493A1126200A00	
-	-	-	125	P493AP124000A00	-	-	P493AP126000A00	-	
-	-	-	160	P493AQ124000A00	-	-	P493AQ126000A00	-	
-	-	-	200	P493AR124000A00	-	-	P493AR126000A00	-	

Centre trunnion MT4				Centre trunnion MT4				Support for centre trunnion (set of 2 items) AT4	
Ø (mm)		delivered separately	supplied loose	Ø (mm)		delivered separately	supplied fixed /XV ⁽²⁾	aluminium	
449	453	cast iron		450	cast iron				
20	-	-	-	-	-	-	-	-	
25	-	-	-	-	-	-	-	-	
32	32	P493B3111000A00	See page: P226-2 and P229-3	32	P493A3113000A00	Check codes on DPM (Dynamic Product Modeling) with our on-line configurator tool at: www.asco.com	P493A3112100A00		
40	40	P493A4111000A00		40	P493A4113000A00		P493A4112100A00		
50	50	P493A5111000A00		50	P493A5113000A00		P493A5112100A00		
63	63	P493A6111000A00		63	P493A6113000A00		P493A6112100A00		
80	80	P493A8111000A00		80	P493A8113000A00		P493A8112100A00		
100	100	P493A11111000A00		100	P493A1113000A00		P493A1112100A00		
-	-	-		125	P493AP113000A00		P493A1112100A00		
-	-	-	160	P493AQ113000A00	P493AQ112100A00				
-	-	-	200	P493AR113000A00	P493AQ112100A00				

- ⁽¹⁾ Refer to the dimensional drawings on the following page.
NOTE: With the exception of the centre trunnion, mountings are delivered separately.
⁽²⁾ Trunnion supplied fixed to the barrel: specify XV dimension when ordering.

REAR MOUNTINGS ⁽¹⁾



Ø (mm)				Cap, detachable clevis MP2			
449	453	454	450	light alloy	cast iron	light alloy anticorrosion (NPC treatment)	stainless steel
20	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-
32	32	32	32	P493A3121110A00	-	P493A3121100NPC	P493A3121200A00
40	40	40	40	P493A4121110A00	-	P493A4121100NPC	P493A4121200A00
50	50	50	50	P493A5121110A00	-	P493A5121100NPC	P493A5121200A00
63	63	63	63	P493A6121110A00	-	P493A6121100NPC	P493A6121200A00
80	80	80	80	P493A8121110A00	-	P493A8121100NPC	P493A8121200A00
100	100	100	100	P493A1121110A00	-	P493A1121100NPC	P493A1121200A00
-	-	-	125	-	P493AP121010A00	-	-
-	-	-	160	-	P493AQ121010A00	-	-
-	-	-	200	-	P493AR121010A00	-	-



Ø (mm)				Cap, detachable eye (trunnion) MP4			
449	453	454	450	light alloy	cast iron	light alloy anticorrosion (NPC treatment)	stainless steel
20	-	-	-	P493AL122110A00	-	-	-
25	-	-	-	P493AM122110A00	-	-	-
32	32	32	32	P493A3122100A00	-	P493A3122100NPC	P493A3122200A00
40	40	40	40	P493A4122100A00	-	P493A4122100NPC	P493A4122200A00
50	50	50	50	P493A5122100A00	-	P493A5122100NPC	P493A5122200A00
63	63	63	63	P493A6122100A00	-	P493A6122100NPC	P493A6122200A00
80	80	80	80	P493A8122100A00	-	P493A8122100NPC	P493A8122200A00
100	100	100	100	P493A1122100A00	-	P493A1122100NPC	P493A1122200A00
-	-	-	125	-	P493AP122010A00	-	-
-	-	-	160	-	P493AQ122010A00	-	-
-	-	-	200	-	P493AR122010A00	-	-






Ø (mm)				Angular clevis bracket AB7				Cap clevis for spherical eye or clevis bracket AB6	Cap eye with spherical eye ⁽²⁾ MP6	Angular clevis bracket spherical bearing ⁽²⁾ AB5
449	453	454	450	light alloy	cast iron	light alloy anticorrosion (NPC treatment)	stainless steel	steel	steel	steel
20	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-
32	32	32	32	P493A3123110A00	-	P493A3123100NPC	P493A3123200A00	P493A3129000A00	P493A3128000A00	P493A3127000A00
40	40	40	40	P493A4123110A00	-	P493A4123100NPC	P493A4123200A00	P493A4129000A00	P493A4128000A00	P493A4127000A00
50	50	50	50	P493A5123110A00	-	P493A5123100NPC	P493A5123200A00	P493A5129000A00	P493A5128000A00	P493A5127000A00
63	63	63	63	P493A6123110A00	-	P493A6123100NPC	P493A6123200A00	P493A6129000A00	P493A6128000A00	P493A6127000A00
80	80	80	80	P493A8123110A00	-	P493A8123100NPC	P493A8123200A00	P493A8129000A00	P493A8128000A00	P493A8127000A00
100	100	100	100	P493A1123110A00	-	P493A1123100NPC	P493A1123200A00	P493A1129000A00	P493A1128000A00	P493A1127000A00
-	-	-	125	-	P493AP123010A00	-	-	P493AP129000A00	P493AP128000A00	P493AP127000A00
-	-	-	160	-	P493AQ123010A00	-	-	-	-	-
-	-	-	200	-	P493AR123010A00	-	-	-	-	-

⁽¹⁾ Refer to the dimensional drawings on the following page.

⁽²⁾ These accessories allows accurate angular compensation adjustment spherical of 4°.

ROD MOUNTINGS ⁽¹⁾

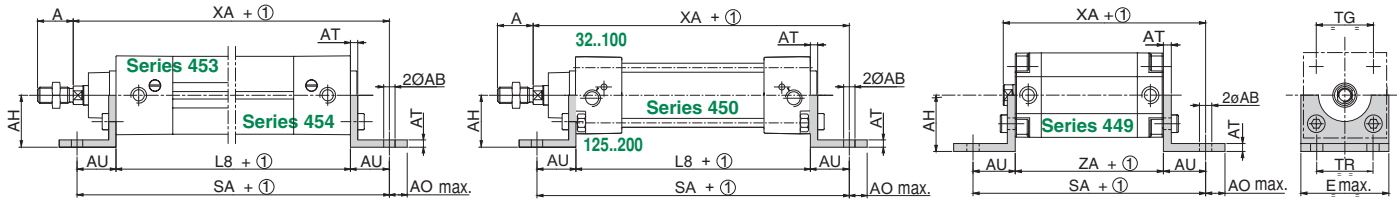
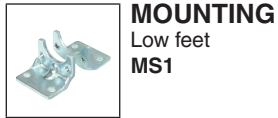
								
				Femelle rod clevis ⁽²⁾ AP2	Spherical rod end AP6	Alignment compensator ⁽³⁾		
Ø (mm)				steel	stainless steel	steel	stainless steel	steel
449	453	454	450					
20-25	-	-	-	P493AL431000A00	-	P493AL432000A00	-	-
32-40	32	32	32	P493A3131000A00	P493A3131200A00	P493A3132000A00	P493A3132200A00	P493A3134000A00
50-63	40	40	40	P493A4131000A00	P493A4131200A00	P493A4132000A00	P493A4132200A00	P493A4134000A00
80-100	50-63	50-63	50-63	P493A5131000A00	P493A5131200A00	P493A5132000A00	P493A5132200A00	P493A5134000A00
-	80-100	80-100	80-100	P493A8131000A00	P493A8131200A00	P493A8132000A00	P493A8132200A00	P493A8134000A00
-	-	-	125	P493AP131000A00	-	P493AP132000A00	-	P493AP134000A00
-	-	-	160-200	P493AQ131000A00	-	P493AQ132000A00	-	-

⁽¹⁾ Refer to the dimensional drawings on the following page.

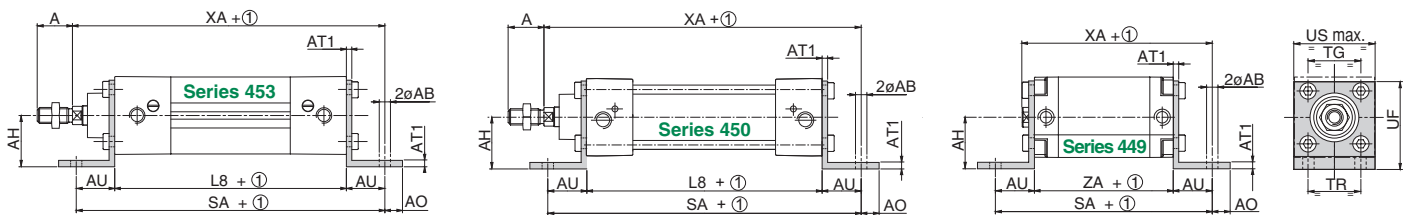
⁽²⁾ Ø125 to 200 mm: Clevis with axis locking pin

⁽³⁾ This accessory allows accurate angular compensation adjustment spherical of 4° and radial of 0,7 mm.

DIMENSIONS (mm), WEIGHT (kg)

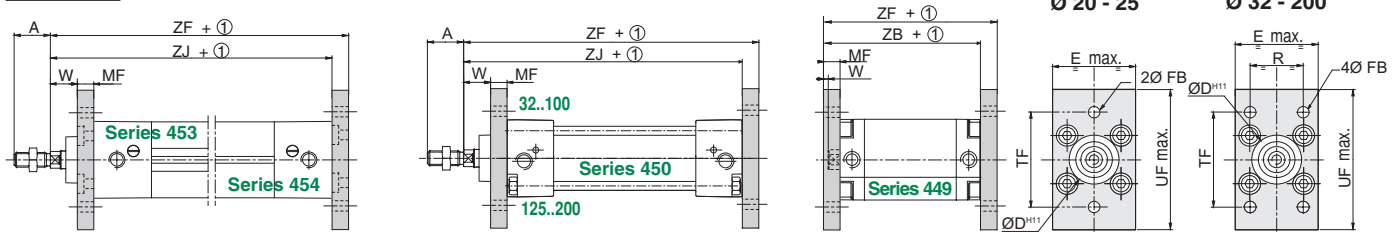
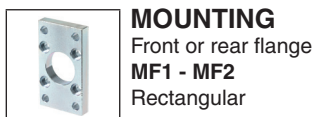


① Stroke



① Stroke

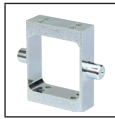
Ø (mm)				ØAB	A	AO	AH	AT	AT1	AU	E	L8	SA		TR	TG	UF	US	XA		ZA	weight	
449	453	454	450										449	453/454/450					449	453/454/450		2 x MS1	1 x MS3
20	-	-	-	7	-	7	27	4	-	16	38	-	69	-	22	22	-	-	59	-	37	0,064	-
25	-	-	-	7	-	7	29	4	-	16	41	-	71	-	26	26	-	-	61	-	39	0,076	-
32	32	32	32	7	22	11	32	4	8	24	50	94	92	142	32	32,5	54	50	79	144	44	0,150	0,180
40	40	40	40	9	24	13	36	4	8	28	58	105	101	161	36	38	62	58	83	163	45	0,190	0,250
50	50	50	50	9	32	13	45	5	10	32	70	106	109	170	45	46,5	77	70	88	175	45	0,395	0,470
63	63	63	63	9	32	13	50	5	10	32	85	121	113	185	50	56,5	87	85	91,5	190	49	0,445	0,595
80	80	80	80	12	40	20	63	6	12	41	105	128	146	210	63	72	110	105	107,5	215	54	0,790	1,265
100	100	100	100	14,5	40	25	71	6	12	41	130	138	149	220	75	89	130	130	128,5	230	67	1,400	-
-	-	-	125	16,5	54	25	90	8	16	45	157	160	-	250	90	110	161	157	-	270	-	2,330	-
-	-	-	160	18,5	72	25	115	10	-	60	195	180	-	300	115	140	-	-	-	320	-	4,860	-
-	-	-	200	24	72	35	135	12	-	70	238	180	-	320	135	175	-	-	-	345	-	7,900	-



① Stroke

Ø (mm)				A	ØD	E	ØFB	MF	R	TF	UF	W		ZB	ZJ	ZF		weight
449	453	454	450									449	453/454/450			449	453/454/450	
20	-	-	-	-	16	38	6,6	8	-	55	70	2	-	43	-	51	-	0,016
25	-	-	-	-	16	41	6,6	8	-	60	76	2	-	45	-	53	-	0,020
32	32	32	32	22	30	50	7	10	32	64	86	3	16	55	120	65	130	0,190
40	40	40	40	24	35	58	9	10	36	72	96	3	20	55	135	65	145	0,245
50	50	50	50	32	40	70	9	12	45	90	115	4	25	56	143	67	155	0,500
63	63	63	63	32	45	85	9	12	50	100	130	4	25	59,5	158	71,5	170	0,580
80	80	80	80	40	45	105	12	16	63	126	165	6	30	66,5	174	82,5	190	1,390
100	100	100	100	40	55	130	14	16	75	150	187	6	35	77,5	189	93,5	205	1,630
-	-	-	125	54	60	157	16	20	90	180	224	-	45	-	225	-	245	4,270
-	-	-	160	72	65	195	18	20	115	230	280	-	60	-	260	-	280	6,880
-	-	-	200	72	75	238	22	25	135	270	320	-	70	-	275	-	300	12,330

DIMENSIONS (mm), WEIGHT (kg)



MOUNTING

Centre trunnion

MT4

(Series 449-453)

XV Dimension must be specified when ordering.



MOUNTING

Centre trunnion

MT4

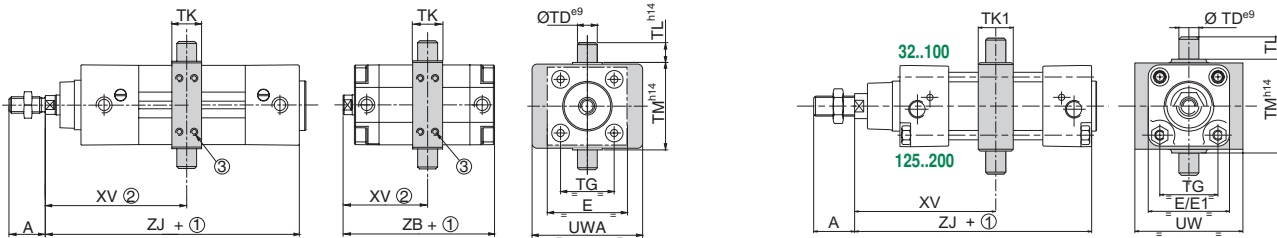
(Series 450)

XV Dimension must be specified when ordering.

Series 453

Series 449

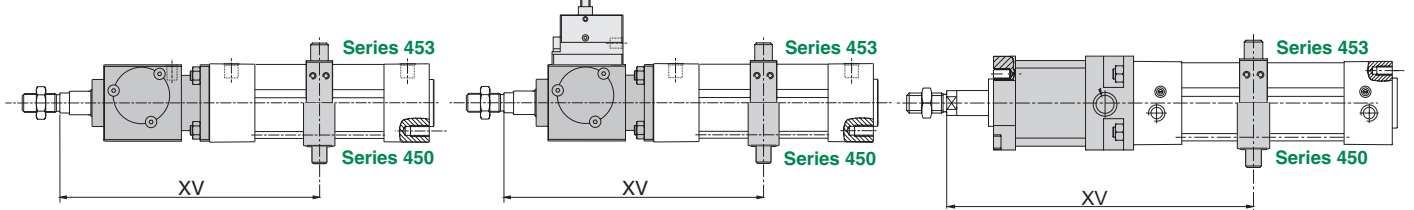
Series 450



Ø (mm)															XV min.			XV max. (+ stroke)			min. stroke	weight		
449	453	450	A	E	E1 ⁽¹⁾	TD	TG	TK	TK1	TL	TM	UW	UWA	ZB	ZJ	449	453	450	449	453	450	449	449/453	450
32	32	32	22	46,5	48	12	32,5	20	22	12	50 ⁽²⁾	55	65	55	120	32	71	72	26	76	75	5	0,185	0,2
40	40	40	24	52	54	16	38	20	28	16	63	58	75	55	135	32	79	83	27	86	82	5	0,33	0,4
50	50	50	32	64	66	16	46,5	20	28	16	75	68	90	56	143	33	86	90	28	95	91	5	0,475	0,5
63	63	63	32	74	78	20	56,6	25	35	20	90	84	100	59,5	158	35	89	94	30	107	102	5	0,57	0,9
80	80	80	40	92	96	20	72	25	35	20	110	102	130	66,5	174	40	102	107	35	119	114	5	1,12	1,1
100	100	100	40	109	115	25	89	30	40	25	132	145	140	87,5	189	45	109	114	42	132	127	5	1,52	1,86
-	-	125	54	145	-	25	110	40	40	25	160	175	175	-	225	-	-	-	-	156	-	-	-	2,55
-	-	160	72	180	-	32	140	50	50	32	200	220	220	-	260	-	-	-	-	181	-	-	-	4,7
-	-	200	72	220	-	32	175	50	50	32	250	260	260	-	275	-	-	-	-	197	-	-	-	4,2

⁽¹⁾ Applies to 450 series with options AT1, AT2, HTP, FPM, FFP and NPC.

⁽²⁾ TM dimension is 53 for series 449 and 453, in Ø32.



		STATIC ROD-LOCKING DEVICE				DYNAMIC ROD-LOCKING DEVICE			
Ø (mm)		XV min.		XV max. (+ stroke)		XV min.		XV max. (+ stroke)	
453	450	453	450	453	450	453	450	453	450
32	32	131	132	136	135	-	-	-	-
40	40	149	153	156	152	174	178	181	177
50	50	176	180	185	181	198	202	207	203
63	63	179	184	197	192	209	214	227	222
80	80	212	217	229	224	242	247	259	254
100	100	219	224	242	237	259	264	282	277

① Stroke

② Except when XV dimension is specified when ordering, the position of the trunnion may be adjusted along the unit. Consequently, the centre trunnion is not screwed on and must be adjusted after delivery.

③ 8 locking screws.

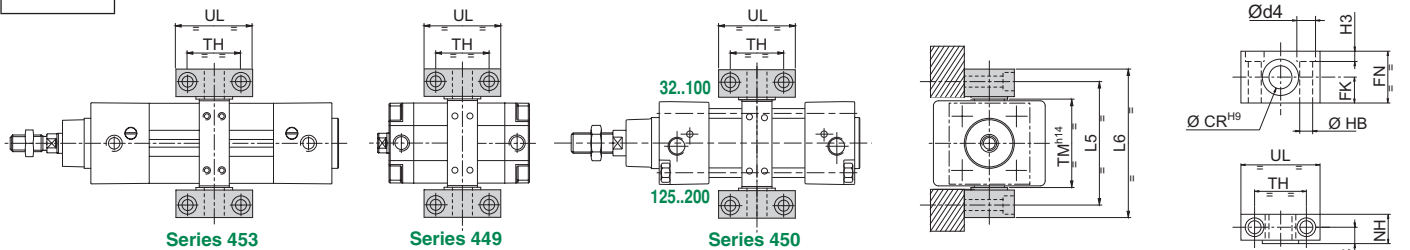


MOUNTING

Support for centre trunnion (set of 2 items)

AT4

(Series 449-453-450)



Ø (mm)															weight	
449	453	450	C	ØCR	Ød4	FK	FN	HB	H3	L5	L6	NH	TH	TM	UL	
32	32	32	10,5	12	11	15	30	6,6	6,8	74	89	18	32	50 ⁽²⁾	46	0,12
40	40	40	12	16	15	18	36	9	9	87	105	21	36	63	55	0,23
50	50	50	12	16	15	18	36	9	9	99	117	21	36	75	55	0,23
63	63	63	13	20	18	20	40	11	11	116	136	23	40	90	65	0,33
80	80	80	13	20	18	20	40	11	11	136	156	23	40	110	65	0,33
100	100	100	16	25	20	25	50	13,5	13	164	189	28,5	50	132	75	0,58
-	-	125	16	25	20	25	50	13,5	13	192	219	28,5	50	160	75	0,58
-	-	160	22,5	32	26	30	60	17,5	17,5	245	280	40	60	200	92	1,03
-	-	200	22,5	32	26	30	60	17,5	17,5	295	330	40	60	250	92	1,03

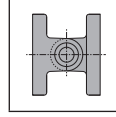
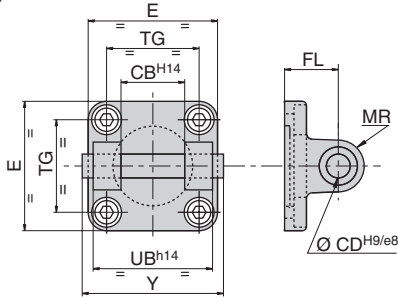
⁽²⁾ TM dimension is 53 for series 449 and 453, in Ø32.

DIMENSIONS (mm), WEIGHT (kg)



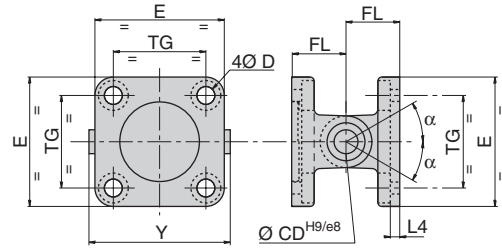
REAR MOUNTING

Cap, detachable clevis
MP2



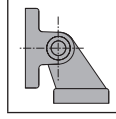
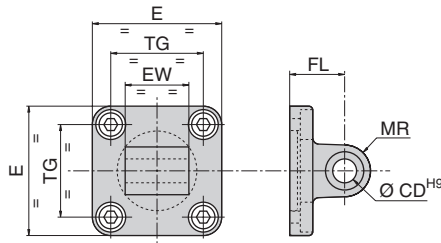
MP2 + MP4

Cap, detachable clevis
+
Cap, detachable eye (trunnion)



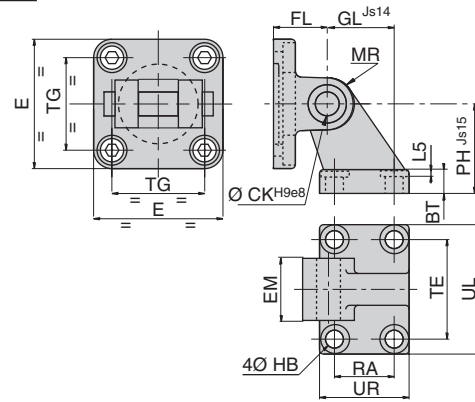
REAR MOUNTING

Cap, detachable eye (trunnion)
MP4



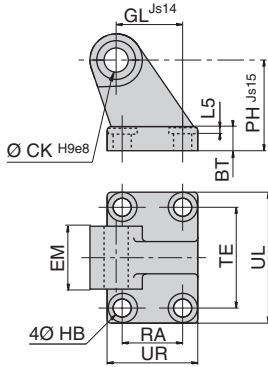
MP2 + AB7

Cap, detachable clevis
+
Angular clevis bracket



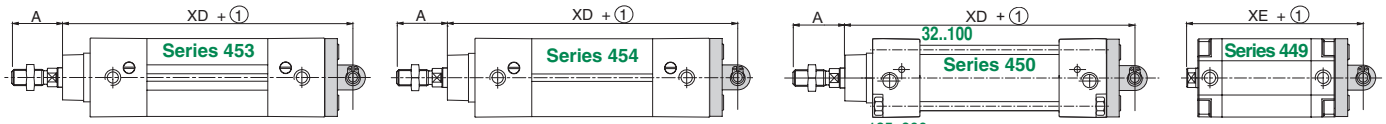
REAR MOUNTING

Angular clevis bracket
AB7



① Stroke

Ø (mm)				weight								
				light alloy			cast iron			stainless steel		
449	453	454	450	MP2	MP4	AB7	MP2	MP4	AB7	MP2	MP4	AB7
20	-	-	-	-	0,085	-	-	-	-	-	-	-
25	-	-	-	-	0,092	-	-	-	-	-	-	-
32	32	32	32	0,105	0,085	0,16	-	-	-	0,41	0,41	0,16
40	40	40	40	0,15	0,092	0,23	-	-	-	0,67	0,67	0,24
50	50	50	50	0,24	0,17	0,39	-	-	-	0,97	0,97	0,42
63	63	63	63	0,37	0,25	0,57	-	-	-	1,585	1,585	0,525
80	80	80	80	0,635	0,445	0,95	-	-	-	3,46	3,46	1,055
100	100	100	100	0,99	0,755	0,5	-	-	-	5,35	5,35	1,36
-	-	-	125	-	-	-	3,57	3,1	6,61	-	-	-
-	-	-	160	-	-	-	6,66	5,22	12,47	-	-	-
-	-	-	200	-	-	-	9,89	7,78	16,76	-	-	-

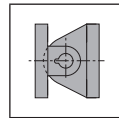
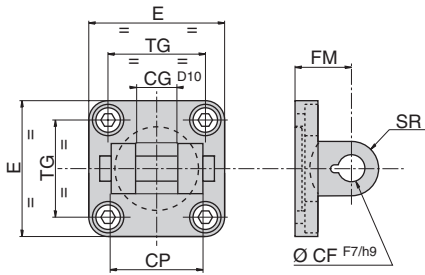


Ø (mm)				A	BT	CB EM	CD CK	D	E max.	EW	FL	GL	HB	L4	L5	MR	PH	RA	TE	TG	UB	UR	UL	XD	XE	Y	α
449	453	454	450																								
20	-	-	-	-	-	-	8	-	38	16	20	-	-	-	9	-	-	-	22	-	-	-	-	63	-	-	
25	-	-	-	-	-	-	8	-	41	16	20	-	-	-	9	-	-	-	26	-	-	-	-	65	-	-	
32	32	32	32	22	8	26	10	6,6	50	26	22	21	6,6	5,5	1,6	11	32	18	38	32,5	45	31	51	142	73	56	45°
40	40	40	40	24	10	28	12	6,6	58	28	25	24	6,6	5,5	1,6	13	36	22	41	38	52	35	54	160	77	63	50°
50	50	50	50	32	12	32	12	9	70	32	27	33	9	6,5	1,6	13	45	30	50	46,5	60	45	65	170	80	71	40°
63	63	63	63	32	12	40	16	9	85	40	32	37	9	6,5	1,6	17	50	35	52	56,5	70	50	67	190	89	81	55°
80	80	80	80	40	14	50	16	11	105	50	36	47	11	10	2,5	17	63	40	66	72	90	60	86	210	100	101	45°
100	100	100	100	40	15	60	20	11	130	60	41	55	11	10	2,5	21	71	50	76	89	110	70	96	230	118	128	35°
-	-	-	125	54	20	70	25	14	157	70	50	70	14	10	3,2	26	90	60	94	110	130	90	124	275	-	149	30°
-	-	-	160	72	25	90	30	18	195	90	55	97	18	10	4	31	115	88	118	140	170	126	156	315	-	183	30°
-	-	-	200	72	30	90	30	18	238	90	60	105	18	11	4	31	135	90	122	175	170	130	162	335	-	183	30°

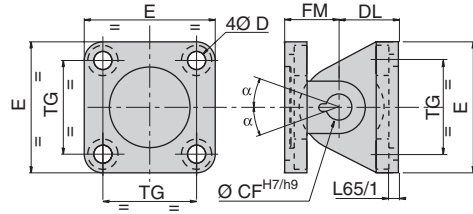
DIMENSIONS (mm), WEIGHT (kg)



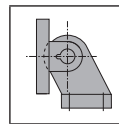
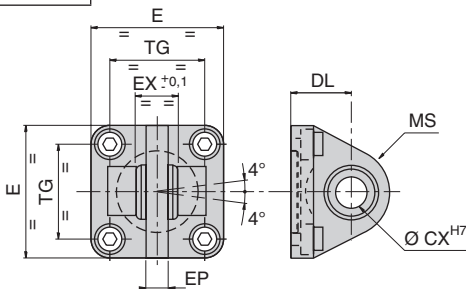
REAR MOUNTING
Cap clevis for spherical eye or clevis bracket
AB6



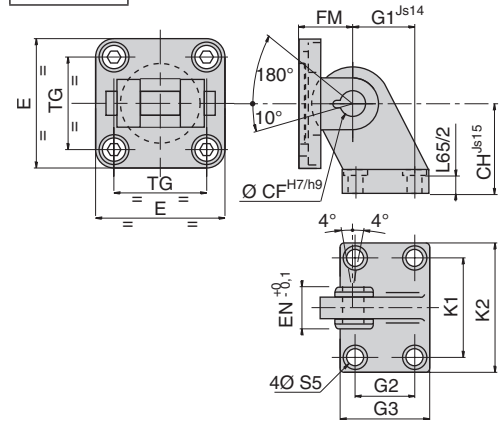
AB6 + MP6
Cap clevis for spherical eye or clevis bracket
+ Cap eye with spherical eye



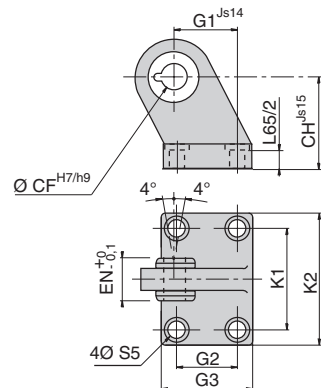
REAR MOUNTING
Cap eye with spherical eye
MP6



AB6 + AB5
Cap clevis for spherical eye or clevis bracket
+ Angular clevis bracket spherical bearing

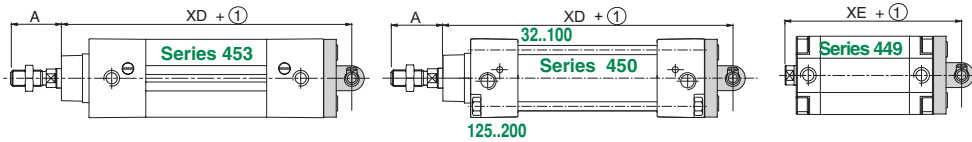


REAR MOUNTING
Angular clevis bracket spherical bearing
AB5



Ø (mm)				weight steel		
449	453	454	450	AB6	AB5	MP6
20	-	-	-	-	-	-
25	-	-	-	-	-	-
32	32	-	32	0,190	0,180	0,180
40	40	-	40	0,300	0,230	0,290
50	50	-	50	0,460	0,450	0,420
63	63	-	63	0,680	0,520	0,650
80	80	-	80	1,460	0,940	1,210
100	100	-	100	2,130	1,070	1,870
-	-	-	125	4,240	2,470	3,640
-	-	-	160	-	-	-
-	-	-	200	-	-	-

① Stroke



Ø (mm)				A	CG	CH	CP	CX CF	DL FM	E max.	EN EX	EP	G1	G2	G3 max.	K1	K2 max.	L65/1	L65/2	MS max.	TG	SR max.	S5 D	XD	XE	α
449	453	454	450	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	32	-	32	22	14	32	34	10	22	50	14	10,5	21	18	31	38	51	5,5	8,5	15	32,5	11	6,6	142	73	40°
40	40	-	40	24	16	36	40	12	25	58	16	12	24	22	35	41	54	5,5	8,5	18	38	13	6,6	160	77	45°
50	50	-	50	32	21	45	45	16	27	70	21	15	33	30	45	50	65	6,5	10	20	46,5	18	9	170	80	35°
63	63	-	63	32	21	50	51	16	32	85	21	15	37	35	50	52	67	6,5	10	23	56,5	18	9	190	89	50°
80	80	-	80	40	25	63	65	20	36	105	25	18	47	40	60	66	86	10	11,5	27	72	22	11	210	100	40°
100	100	-	100	40	25	71	75	20	41	130	25	18	55	50	70	76	96	10	12,5	30	89	22	11	230	118	30°
-	-	-	125	54	37	90	97	30	50	157	37	25	70	60	90	94	124	10	16,5	40	110	30	14	275	-	25°
-	-	-	160	72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	315	-	-
-	-	-	200	72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	335	-	-

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DIMENSIONS (mm), WEIGHT (kg)



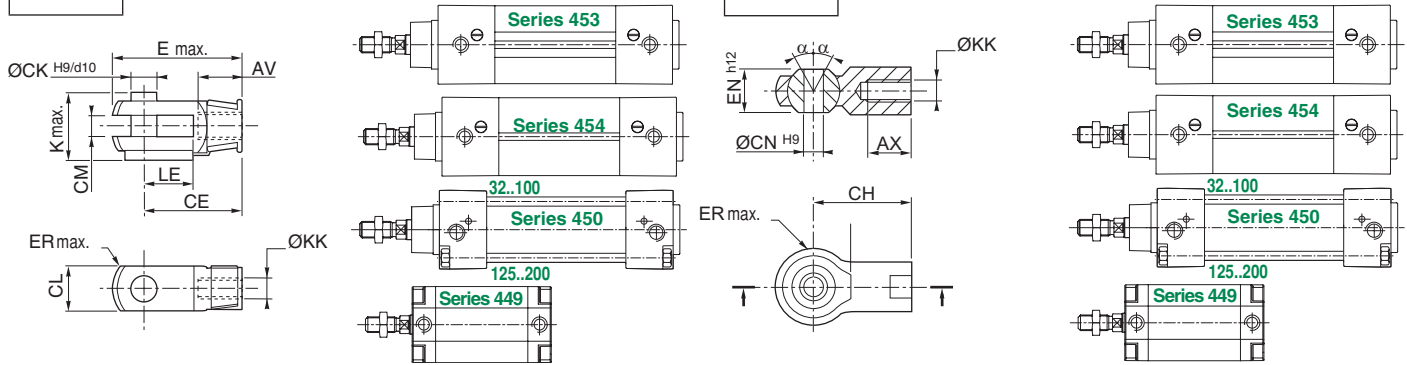
ROD MOUNTING

Female rod clevis
AP2



ROD MOUNTING

Spherical rod end
AP6

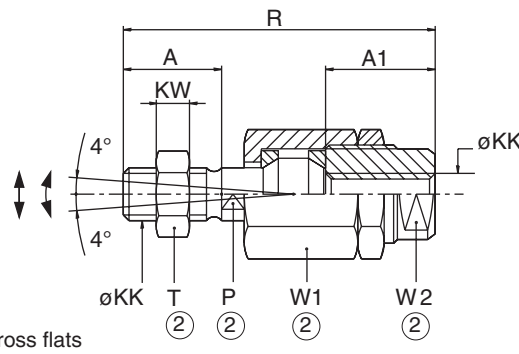


Ø (mm)	AV				CE	CH	ØCK	CL	CM	ØCN	E max.	EN	ER max.	K	ØKK	LE	α	weight			
	449	453	454	450														steel		stainless steel	
	AX	AX	AX	AX														AP2	AP6	AP2	AP6
20	-	-	-	15	32	36	8	16	8 ^{+0,5 +0,15}	8	42	12	12	22	M8x1,25	16	4°	0,08	0,04	-	-
25	-	-	-	15	32	36	8	16	8 ^{+0,5 +0,15}	8	42	12	12	22	M8x1,25	16	4°	0,08	0,04	-	-
32	32	32	32	20	40	43	10	20	10 ^{+0,5 +0,15}	10	56	14	14	26	M10x1,25	20	4°	0,1	0,07	0,09	0,08
40	-	-	-	20	40	43	10	20	10 ^{+0,5 +0,15}	10	56	14	14	26	M10x1,25	20	4°	0,1	0,07	-	-
-	40	40	40	22	48	50	12	24	12 ^{+0,5 +0,15}	12	67	16	16	32	M12x1,25	24	4°	0,15	0,12	0,16	0,12
50	-	-	-	22	48	50	12	24	12 ^{+0,5 +0,15}	12	67	16	16	32	M12x1,25	24	4°	0,15	0,12	-	-
-	50	50	50	28	64	64	16	32	16 ^{+0,5 +0,15}	16	89	21	21	41	M16x1,5	32	4°	0,33	0,22	0,31	0,23
63	-	-	-	22	48	50	12	24	12 ^{+0,5 +0,15}	12	67	16	16	32	M12x1,25	24	4°	0,15	0,12	-	-
-	63	63	63	28	64	64	16	32	16 ^{+0,5 +0,15}	16	89	21	21	41	M16x1,5	32	4°	0,33	0,22	0,31	0,23
80	-	-	-	28	64	64	16	32	16 ^{+0,5 +0,15}	16	89	21	21	41	M16x1,5	32	4°	0,33	0,22	-	-
-	80	80	80	33	80	77	20	40	20 ^{+0,6 +0,15}	20	112	25	25	48	M20x1,5	40	4°	0,67	0,39	0,67	0,42
100	-	-	-	28	64	64	16	32	16 ^{+0,5 +0,15}	16	89	21	21	41	M16x1,5	32	4°	0,33	0,22	-	-
-	100	100	100	33	80	77	20	40	20 ^{+0,6 +0,15}	20	112	25	25	48	M20x1,5	40	4°	0,67	0,39	0,67	0,42
-	-	-	-	125	51	110	110	30	30 ^{+0,6 +0,15}	30	155	37	35	65	M27x2	54	4°	1,81	1,6	-	-
-	-	-	-	160	56	144	125	35	35 ^{+0,6 +0,15}	35	201	43	40	84	M36x2	72	4°	3,85	1,6	-	-
-	-	-	-	200	56	144	125	35	35 ^{+0,6 +0,15}	35	201	43	40	84	M36x2	72	4°	3,85	1,6	-	-

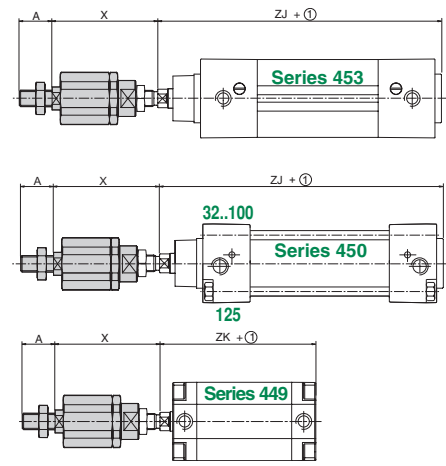


ROD MOUNTING

Alignment compensator



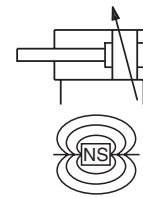
- ① Stroke
- ② Width across flats



Ø (mm)	A	A1	P	ØKK	KW	R	T	W1	W2	X min.	ZJ	ZK	radial compensation (mm)	spherical angular compensation (°)	weight													
449	-	-	●	-	●	-	●	-	●	-	●	-	●	-	●													
-	453	450	-	●	-	●	-	●	-	●	-	●	-	●	●													
20	-	-	16	-	18	-	7	-	M8x1,25	-	4	-	55	-	13	-	17	-	10	-	45	-	43	0,5	-	4	0,06	
25	-	-	16	-	18	-	7	-	M8x1,25	-	4	-	55	-	13	-	17	-	10	-	45	-	45	0,5	-	4	0,06	
32	32	32	20	20	22	22	12	12	M10x1,25	M10x1,25	5	5	71,5	71,5	16	16	30	30	19	19	57	57	120	51	0,7	0,7	4	0,22
40	40	40	22	24	26	23	12	12	M10x1,25	M12x1,25	6	7	73	75	17	19	30	30	19	19	58	57	135	52	0,7	0,7	4	0,23
50	50	50	24	32	26	32	12	20	M12x1,25	M16x1,5	7	8	77	103	19	24	30	41	19	27	59	79	143	53	0,7	1	4	0,66
63	63	63	24	32	26	32	12	20	M12x1,25	M16x1,5	7	8	77	103	19	24	30	41	19	27	59	79	158	57	0,7	1	4	0,66
80	80	80	32	40	34	39	19	20	M16x1,5	M20x1,5	8	10	106	119	24	30	42	41	30	27	82	89	174	64	1	1	4	0,7
100	100	100	32	40	34	39	19	20	M16x1,5	M20x1,5	8	10	106	119	24	30	42	41	30	27	82	89	189	77	1	1	4	0,7
-	-	-	125	-	54	-	40	-	24	-	13,5	-	147	-	41	-	65	-	54	-	107	225	-	-	1	1	4	1,7

NOTE: The compensator is preset with an axial clearance of 0,05 to 0,1 - Do not reset.

All leaflets are available on: www.asco.com



GENERAL

Detection	Equipped for magnetic position detectors
Fluid	Air or inert gas, filtered, lubricated or not
Operating pressure	10 bar, max. [1 bar = 100 kPa]
Ambient temperature	-10°C to +70°C
Optimal max. speed	≤ 1 m/s (for optimal service life)
Max. speed rate	2 m/s
Standards	CNOMO 06-07-02 to 06-07-15 AFNOR NFE 49001 - NFE 49002 NFE 49011 to NFE 49015

CONSTRUCTION

Barrel	Hard anodized aluminium alloy (Ø 25: stainless steel)
Tie rods	Stainless steel (Ø32-100), paint steel (Ø 25 + Ø125-200)
Front and rear ends	Zamak (Ø 25 mm) - light alloy (Ø 32 to 200 mm)
Bearing	Self-lubricating metal
Cushioning seals	NBR (nitrile)
Cushioning	Pneumatic, adjustable from both sides with captive screw
Rod	Hard chrome plated steel
Rod nut	Galvanised steel
Piston	Ø 25 to 200 mm light alloy fitted with an annular permanent magnet
Piston seals	PUR (polyurethane)
Rod seal	NBR (nitrile)



cushioning length	
Ø 25 - 32 mm	= 15 mm
Ø 40 - 50 mm	= 20 mm
Ø 63 - 80 mm	= 21 mm
Ø 100 - 125 mm	= 24 mm
Ø 160 - 200 mm	= 30 mm

SPECIFICATIONS

Ø (mm)	connect. Ø (G) ⁽¹⁾	stroke (mm)	catalogue number *	reference	max. stroke (mm)
25	G 1/8	25	43701270	PCN 25 A 25 - DM	2000
		50	43700999	PCN 25 A 50 - DM	
		75	43701271	PCN 25 A 75 - DM	
		100	43701000	PCN 25 A 100-DM	
		125	43701272	PCN 25 A 125-DM	
		150	43701001	PCN 25 A 150-DM	
		200	43701002	PCN 25 A 200-DM	
		250	43701003	PCN 25 A 250-DM	
		300	43701273	PCN 25 A 300-DM	
		400	43701274	PCN 25 A 400-DM	
		to be defined	43751263.... ⁽²⁾	PCN 25 A ⁽²⁾ -DM	
32	G 1/8	25	43701275	PCN 32 A 25 - DM	2000
		50	43701004	PCN 32 A 50 - DM	
		75	43701276	PCN 32 A 75 - DM	
		100	43701005	PCN 32 A 100-DM	
		125	43701277	PCN 32 A 125-DM	
		150	43701006	PCN 32 A 150-DM	
		200	43701007	PCN 32 A 200-DM	
		250	43701008	PCN 32 A 250-DM	
		300	43701278	PCN 32 A 300-DM	
		400	43701279	PCN 32 A 400-DM	
to be defined	43751264.... ⁽²⁾	PCN 32 A ⁽²⁾ -DM			
40	G 1/4	25	43701280	PCN 40 A 25 - DM	2000
		50	43701009	PCN 40 A 50 - DM	
		75	43701281	PCN 40 A 75 - DM	
		100	43701010	PCN 40 A 100-DM	
		125	43701282	PCN 40 A 125-DM	
		150	43701011	PCN 40 A 150-DM	
		200	43701012	PCN 40 A 200-DM	
		250	43701013	PCN 40 A 250-DM	
		300	43701014	PCN 40 A 300-DM	
		400	43701015	PCN 40 A 400-DM	
to be defined	43751265.... ⁽²⁾	PCN 40 A ⁽²⁾ -DM			
50	G 1/4	25	43701283	PCN 50 A 25 - DM	2000
		50	43701016	PCN 50 A 50 - DM	
		75	73701284	PCN 50 A 75 - DM	
		100	43701017	PCN 50 A 100-DM	
		125	43701285	PCN 50 A 125-DM	
		150	43701018	PCN 50 A 150-DM	
		200	43701019	PCN 50 A 200-DM	
		250	43701020	PCN 50 A 250-DM	
		300	43701021	PCN 50 A 300-DM	
		400	43701022	PCN 50 A 400-DM	
		to be defined	43751266.... ⁽²⁾	PCN 50 A ⁽²⁾ -DM	
63	G 3/8	25	43701286	PCN 63 A 25 - DM	2000
		50	43701023	PCN 63 A 50 - DM	
		75	43701287	PCN 63 A 75 - DM	
		100	43701024	PCN 63 A 100-DM	
		125	43701288	PCN 63 A 125-DM	
		150	43701025	PCN 63 A 150-DM	
		200	43701026	PCN 63 A 200-DM	
		250	43701027	PCN 63 A 250-DM	
		300	43701028	PCN 63 A 300-DM	
		400	43701029	PCN 63 A 400-DM	
		500	43701030	PCN 63 A 500-DM	
		600	43701031	PCN 63 A 600-DM	
		to be defined	43751267.... ⁽²⁾	PCN 63 A ⁽²⁾ -DM	
		80	G 3/8	25	
50	43701032			PCN 80 A 50 - DM	
75	43701290			PCN 80 A 75 - DM	
100	43701033			PCN 80 A 100-DM	
125	43701291			PCN 80 A 125-DM	
150	43701034			PCN 80 A 150-DM	
200	43701035			PCN 80 A 200-DM	
250	43701036			PCN 80 A 250-DM	
300	43701037			PCN 80 A 300-DM	
400	43701038			PCN 80 A 400-DM	
500	43701039			PCN 80 A 500-DM	
600	43701040			PCN 80 A 600-DM	
to be defined	43751268.... ⁽²⁾			PCN 80 A ⁽²⁾ -DM	
100	G 1/2			25	43701494
		50	43701329	PCN 100 A 50 - DM	
		75	43701495	PCN 100 A 75 - DM	
		100	43701330	PCN 100 A 100 - DM	
		125	43701496	PCN 100 A 125 - DM	
		150	43701331	PCN 100 A 150 - DM	
		200	43701332	PCN 100 A 200 - DM	
		250	43701333	PCN 100 A 250 - DM	
		300	43701334	PCN 100 A 300 - DM	
		400	43701335	PCN 100 A 400 - DM	
		500	43701336	PCN 100 A 500 - DM	
		600	43701337	PCN 100 A 600 - DM	
		700	43701338	PCN 100 A 700 - DM	
		800	43701339	PCN 100 A 800 - DM	
		900	43701340	PCN 100 A 900 - DM	
		1000	43701341	PCN 100 A 1000-DM	
to be defined	43751278.... ⁽²⁾	PCN 100 A ⁽²⁾ -DM			

* The magnetic position detectors must be ordered separately:
- "T" model ([reed switch](#) or [magneto-resistive](#) type)

⁽¹⁾ Thread connection: G = ISO 16030

⁽²⁾ Code for non standard stroke, to be defined.
(Min. stroke: 5 mm)

SPECIFICATIONS

Ø (mm)	connect. Ø (G) ⁽¹⁾	stroke (mm)	catalogue number *	reference	max. stroke (mm)
125	G 1/2	25	43701497	PCN 125 A 25 - DM	2000
		50	43701355	PCN 125 A 50 - DM	
		75	43701498	PCN 125 A 75 - DM	
		100	43701356	PCN 125 A 100 - DM	
		125	43701499	PCN 125 A 125 - DM	
		150	43701357	PCN 125 A 150 - DM	
		200	43701358	PCN 125 A 200 - DM	
		250	43701359	PCN 125 A 250 - DM	
		300	43701360	PCN 125 A 300 - DM	
		400	43701361	PCN 125 A 400 - DM	
		500	43701362	PCN 125 A 500 - DM	
		600	43701363	PCN 125 A 600 - DM	
		700	43701364	PCN 125 A 700 - DM	
		800	43701365	PCN 125 A 800 - DM	
		900	43701366	PCN 125 A 900 - DM	
		1000	43701367	PCN 125 A 1000-DM	
	to be defined	43751279.... ⁽²⁾	PCN 125 A ⁽³⁾ -DM		
160	G 3/4	25	43701500	PCN 160 A 25 - DM	2000
		50	43701381	PCN 160 A 50 - DM	
		75	43701501	PCN 160 A 75 - DM	
		100	43701382	PCN 160 A 100 - DM	
		125	43701502	PCN 160 A 125 - DM	
		150	43701383	PCN 160 A 150 - DM	
		200	43701384	PCN 160 A 200 - DM	
		250	43701385	PCN 160 A 250 - DM	
		300	43701386	PCN 160 A 300 - DM	
		400	43701387	PCN 160 A 400 - DM	
		500	43701388	PCN 160 A 500 - DM	
		600	43701389	PCN 160 A 600 - DM	
		700	43701390	PCN 160 A 700 - DM	
		800	43701391	PCN 160 A 800 - DM	
		900	43701392	PCN 160 A 900 - DM	
		1000	43701393	PCN 160 A 1000-DM	
	to be defined	43751280.... ⁽²⁾	PCN 160 A ⁽³⁾ -DM		

Ø (mm)	connect. Ø (G) ⁽¹⁾	stroke (mm)	catalogue number *	reference	max. stroke (mm)
200	G 3/4	25	43701503	PCN 200 A 25 - DM	2000
		50	43701407	PCN 200 A 50 - DM	
		75	43701504	PCN 200 A 75 - DM	
		100	43701408	PCN 200 A 100 - DM	
		125	43701505	PCN 200 A 125 - DM	
		150	43701409	PCN 200 A 150 - DM	
		200	43701410	PCN 200 A 200 - DM	
		250	43701411	PCN 200 A 250 - DM	
		300	43701412	PCN 200 A 300 - DM	
		400	43701413	PCN 200 A 400 - DM	
		500	43701414	PCN 200 A 500 - DM	
		600	43701415	PCN 200 A 600 - DM	
		700	43701416	PCN 200 A 700 - DM	
		800	43701417	PCN 200 A 800 - DM	
		900	43701418	PCN 200 A 900 - DM	
		1000	43701419	PCN 200 A 1000-DM	
	to be defined	43751281.... ⁽²⁾	PCN 200 A ⁽³⁾ -DM		

* The magnetic position detectors must be ordered separately:

- "T" model (reed switch or magneto-resistive type)

⁽¹⁾ Thread connection: G = ISO 16030

⁽²⁾ Code for non standard stroke, to be defined.

(Min. stroke: 5 mm)

MOUNTINGS

Ø (mm)	catalogue number				
	Front or rear flange CNOMO 06-07-04	Standard foot, high CNOMO 06-07-05	Foot, high and broad CNOMO 06-07-06	Low feet * stamped steel	Front or rear trunnion CNOMO 06-07-09
25	43900101	43900061	43900071	43900169	43900031
32	43900102	43900062	43900072	43900170	43900032
40	43900103	43900063	43900073	43900171	43900033
50	43900104	43900064	43900074	43900172	43900034
63	43900105	43900065	43900075	43900173	43900035
80	43900106	43900066	43900076	43900174	43900036
100	43900107	43900067	43900077	43900175	43900037
125	43900108	43900068	43900078	43900176	43900038
160	43900109	43900069	43900079	43900177	43900039
200	43900110	43900070	43900080	43900178	43900040

Ø (mm)	catalogue number				
	female rod clevis CNOMO 06-07-14	Male rod clevis CNOMO 06-07-15	Straight complete trunnion mounting CNOMO 06-07-10	Complete trunnion mounting w/ angular clevis bracket CNOMO 06-07-11	Centre trunnion *** CNOMO 06-07-12
25	43900091	43900081	43900021	43900011	410500
32	43900091	43900081	43900022	43900012	410501
40	43900093	43900083	43900023	43900013	410502
50	43900093	43900083	43900024	43900014	410503
63	43900095	43900085	43900025	43900015	410504
80	43900095	43900085	43900026	43900016	410505
100	43900097	43900087	43900027	43900017	410506
125	43900097	43900087	43900028	43900018	410507
160	43900099	43900089	43900029	43900019	410508
200	43900099	43900089	43900030	43900020	410509

* Corresponds to a set of 2 parts.

*** The code of the centre trunnion, the dimension G (see last page) and, if necessary, the orientation code of the trunnion with respect to the ports must be added to the code for the cylinder.

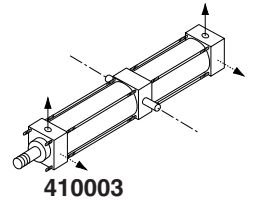
NOTE: The mountings are identical for CNOMO cylinders either with or without magnetic position detectors.

With the exception of the centre trunnion, mountings are delivered separately.

All leaflets are available on: www.asco.com

OPTIONS AND SPECIAL VERSIONS

- Other strokes on request
 - Version without cushioning and/or non equipped for magnetic position detectors.
 - Standard orientation of trunnion: trunnion axis perpendicular to the ports (trunnion axis orientation horizontal to the ports, option cat. no. **410003**)
 - Piston rod in 316L stainless steel, cat. no.: **995002** - in 303 stainless steel, cat. no.: **995202**
 - Overlength piston rod in hard chrome steel, cat. no.: **995003** - in 316L stainless steel, cat. no.: **995004** - in 303 stainless steel, cat. no.: **995204**
 - Through rod: contact us
- Other options and special versions: contact us



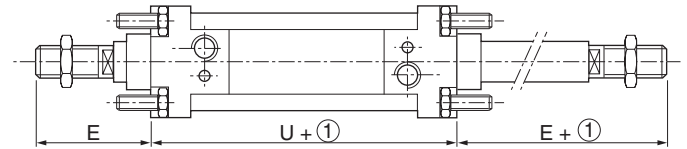
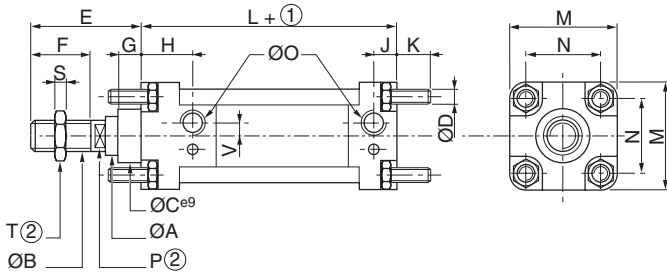
DIMENSIONS (mm), WEIGHT (kg)



THROUGH-ROD TYPE CYLINDER
Tie-rod cylinder
CNOMO 06.07.02



SINGLE-ROD TYPE CYLINDER
Tie-rod cylinder
CNOMO 06.07.02



- ① Stroke
- ② Width across flats

Ø	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	S
25	12	M10 x 1,5	25	M6	45	20	15	14	14	17	80	40	28	G1/8	8	5
32	12	M10 x 1,5	25	M6	45	20	15	18	11,5	17	80	45	33	G1/8	8	5
40	18	M16 x 1,5	32	M6	70	36	15	29,5	11	17	110	52	40	G1/4	13	8
50	18	M16 x 1,5	32	M8	70	36	15	29,5	14	23	110	65	49	G1/4	13	8
63	22	M20 x 1,5	45	M8	85	46	20	33	16	23	125	75	59	G3/8	17	10
80	22	M20 x 1,5	45	M10	85	46	20	33	16	28	125	95	75	G3/8	17	10
100	30	M27 x 2	55	M10	110	63	20	30	30	28	145	115	90	G1/2	22	13,5
125	30	M27 x 2	55	M12	110	63	20	36,5	18	34	145	140	110	G1/2	22	13,5
160	40	M36 x 2	65	M16	135	85	25	39	20	42	180	180	140	G3/4	32	18
200	40	M36 x 2	65	M16	135	85	25	39	20	42	180	220	175	G3/4	32	18

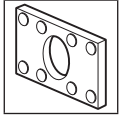
Ø	T	U	V	weight	
				(3)	(4)
25	17	90	2,5	0,520	0,280
32	17	90	4	0,640	0,320
40	24	129	1,5	0,910	0,470
50	24	129	4	1,200	0,600
63	30	146	5,5	1,970	0,830
80	30	146	5,5	2,700	1,100
100	41	164	-	5,100	1,280
125	41	164	-	6,500	2,000
160	54	200	-	13,550	3,250
200	54	200	-	18,000	4,100

(3) Cylinder weight at 0 mm stroke.
(4) Weight to be added per additional 100 mm length.

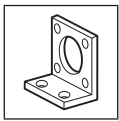
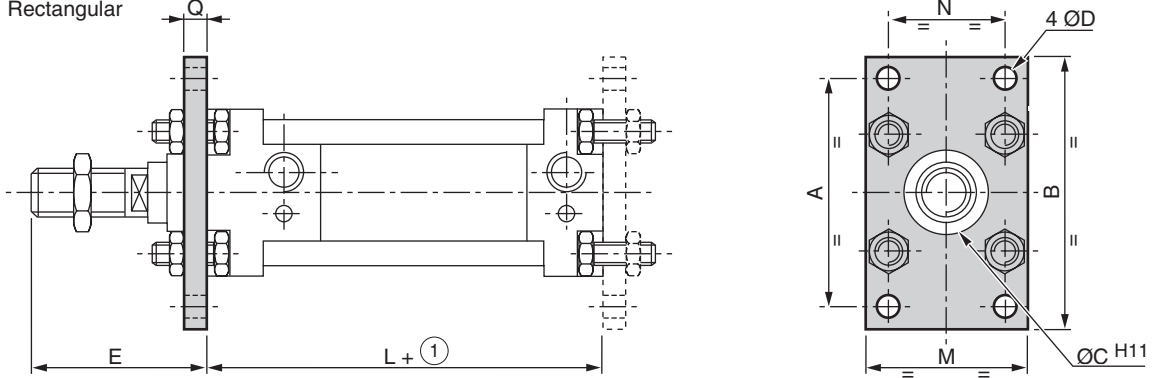
SPARE PARTS KITS CODE		
Ø (mm)	1 + 2 + 3 ⁽¹⁾	4 to 10 (Except 6: Ø25 to 100) seals
	25	
32		97801393 97801394
40		97801395 97801396
50		97801395 97801398
63		97801399 97801400
80		97801399 97801402
100		97801543 97802263
125		97801569 97802264
160		97801544 97802265
200		97801544 97802266

(1) For best results, use grease supplied in each kit. Supplementary tube (11 cm³) available on request, catalogue number: **97802100**
(2) Specify stroke length (in mm).

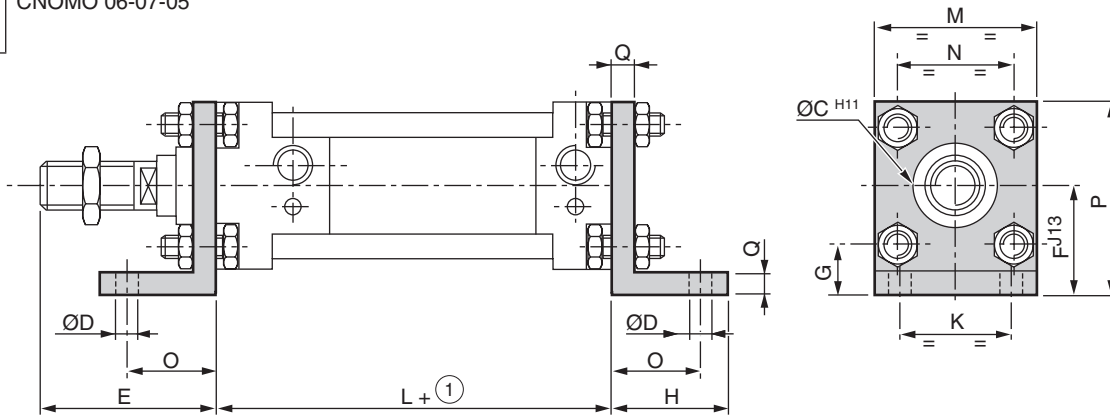
DIMENSIONS (mm), WEIGHT (kg)



MOUNTING
Front or rear flange
CNOMO 06-07-04
Rectangular



MOUNTING
Standard foot, high
CNOMO 06-07-05




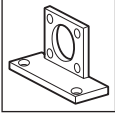
① Stroke

Ø	A	B	ØC	ØD	E	F	G	H	K	L	M	N	O	P	Q
25	68	80	25	9	45	30	16	35	24	80	40	28	27	50	8
32	68	80	25	9	45	32	15,5	35	28	80	45	33	27	54	8
40	78	90	32	9	70	36	16	35	36	110	52	40	27	62	8
50	94	110	32	11	70	45	20,5	45	45	110	65	49	35	77	10
63	104	120	45	11	85	50	20,5	45	55	125	75	59	35	87	10
80	130	150	45	14	85	63	25,5	55	70	125	95	75	43	110	12
100	150	170	55	14	110	73	28	55	90	145	115	90	43	130	12
125	180	205	55	18	110	91	36	68	100	145	140	110	52	161	16
160	228	260	65	22	135	115	45	80	130	180	180	140	62	205	20
200	268	300	65	22	135	135	47,5	80	170	180	220	175	62	245	20

Ø	weight	
	Front or rear flange	Standard foot, high
25	0,140	0,140
32	0,170	0,180
40	0,220	0,220
50	0,440	0,470
63	0,530	0,550

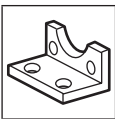
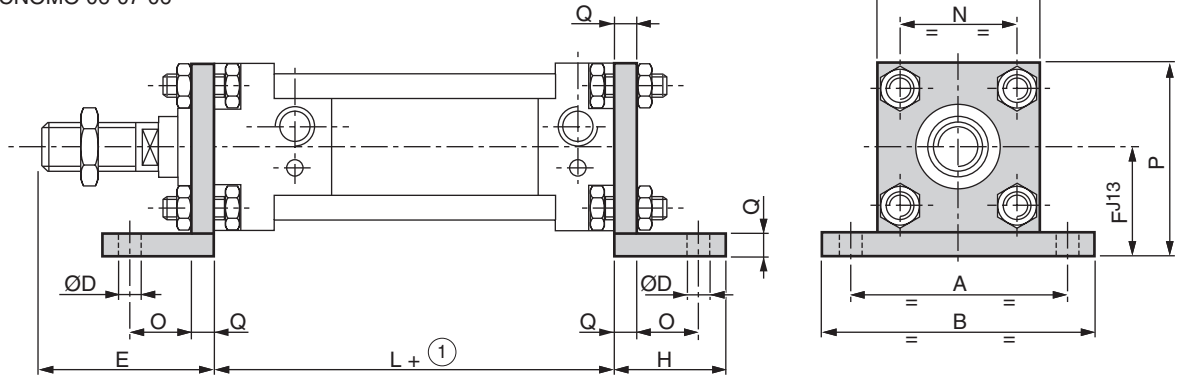
Ø	weight	
	Front or rear flange	Standard foot, high
80	1,080	1,090
100	1,520	1,500
125	3,060	3,240
160	6,380	6,350
200	9,580	9,150

DIMENSIONS (mm), WEIGHT (kg) 



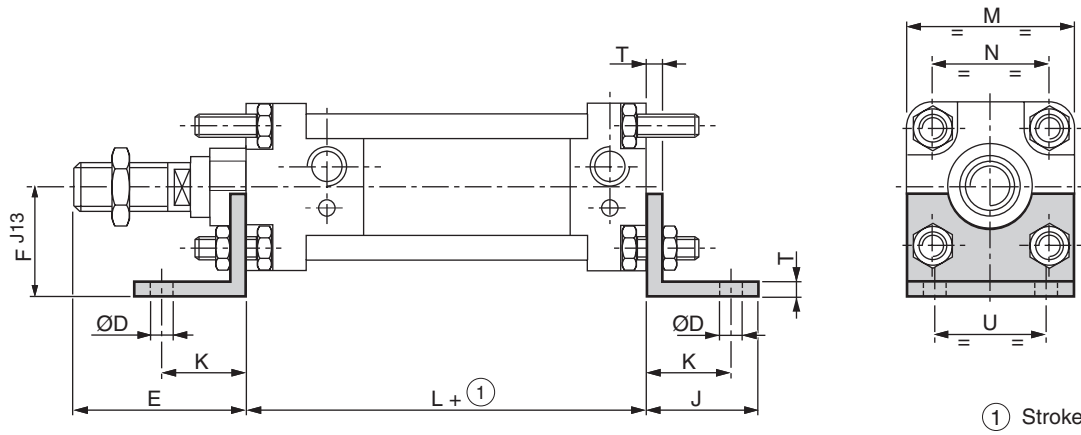
MOUNTING

Foot, high and broad
CNOMO 06-07-06



MOUNTING

Low feet
stamped steel
CNOMO 06-07-05



① Stroke

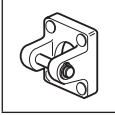
Ø	A	B	ØD	E	F	H	J	K	L	M	N	O	P	Q	T	U
25	58	75	9	45	30	35	35	27	80	40	28	10	50	8	2,5	24
32	65	82	9	45	32	35	37,5	27	80	45	33	10	54	8	3	28
40	72	90	9	70	36	35	35	27	110	52	40	10	62	8	3	36
50	90	110	11	70	45	45	45	35	110	65	49	12	77	10	4	45
63	100	120	11	85	50	45	45	35	125	75	59	12	87	10	4	55
80	126	155	14	85	63	55	55,5	43	125	95	75	16	110	12	5	70
100	148	180	14	110	73	55	55	43	145	115	90	16	130	12	5	90
125	180	215	18	110	91	68	72	52	145	140	110	16	161	16	5	100
160	230	275	22	135	115	80	87	62	180	180	140	20	205	20	6	130
200	270	315	22	135	135	80	95	62	180	220	175	20	245	20	6	170

Ø	weight	
	Foot, high and broad	Low feet
25	0,220	0,100
32	0,260	0,120
40	0,310	0,150
50	0,620	0,310
63	0,720	0,340

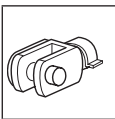
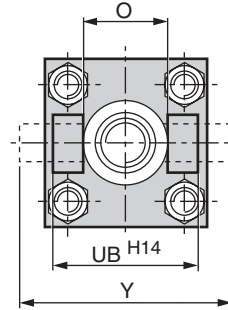
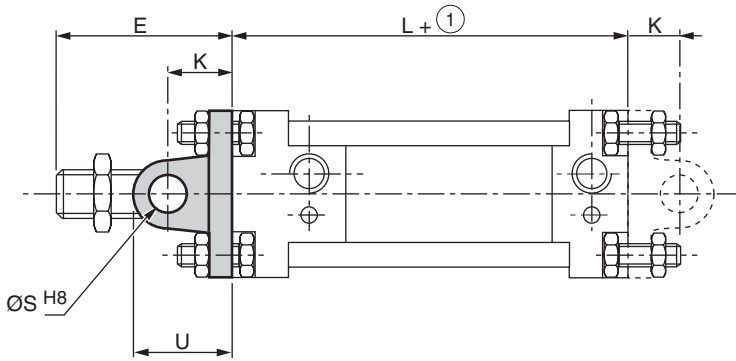
Ø	weight	
	Foot, high and broad	Low feet
80	1,390	0,700
100	1,820	0,740
125	3,910	1,350
160	7,770	2,570
200	10,790	3,450

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DIMENSIONS (mm), WEIGHT (kg)

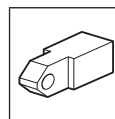


MOUNTING
Front or rear trunnion
CNOMO 06-07-09



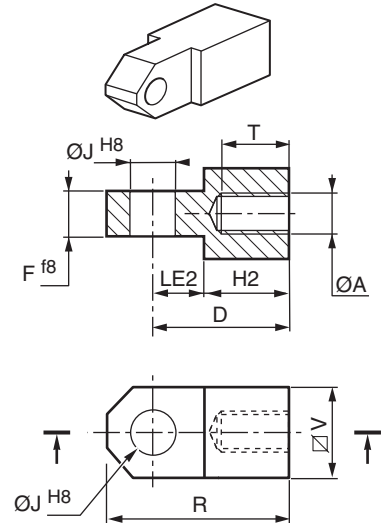
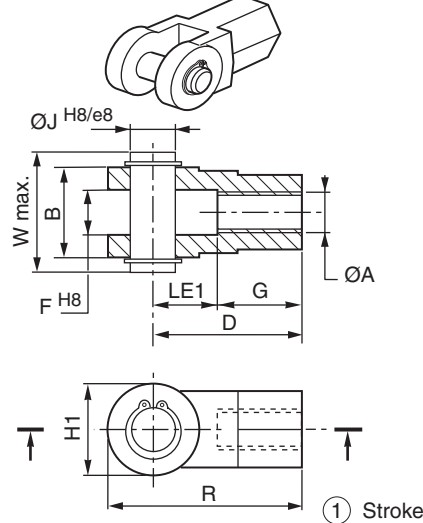
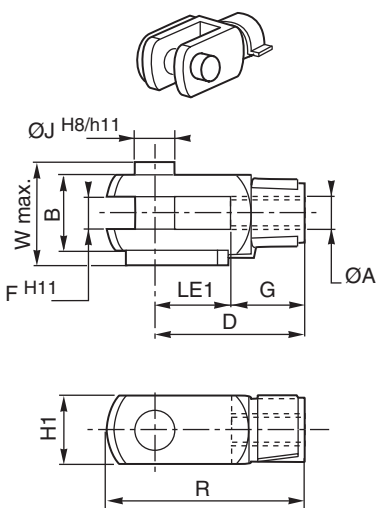
MOUNTING
Female rod clevis
CNOMO 06-07-14

Ø 25...80 mm



MOUNTING
Male rod clevis
CNOMO 06-07-15

Ø 100...200 mm

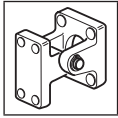


Ø	A	B	D	E	F	G	H1	H2	J	K	L	LE1	LE2	O	R	ØS	T	U	UB	V	W	Y
25	M10 x 1,5	22	36	45	11	20	22	25	8	18	80	16	11	26	45	8	20	26	40	22	28	49
32	M10 x 1,5	22	36	45	11	20	22	25	8	18	80	16	11	26	45	8	20	26	45	22	28	54
40	M16 x 1,5	36	51	70	18	26	26	34	12	24	110	25	17	33	64	12	30	36	52	32	44	62
50	M16 x 1,5	36	51	70	18	26	26	34	12	26	110	25	17	33	64	12	30	38	60	32	44	70
63	M20 x 1,5	45	63	85	22	30	34	41	16	30	125	33	22	47	80	16	36	46	70	35	53	80
80	M20 x 1,5	45	63	85	22	30	34	41	16	32	125	33	22	47	80	16	36	48	90	35	53	100
100	M27 x 2	63	85	110	30	55	44	58	20	37	145	30	27	57	105	20	50	57	110	45	76	123
125	M27 x 2	63	85	110	30	55	44	58	20	41	145	30	27	57	105	20	50	61	140	45	76	153
160	M36 x 2	80	115	135	40	75	56	81	25	55	180	40	34	72	140	25	70	80	180	63	93	193
200	M36 x 2	80	115	135	40	75	56	81	25	55	180	40	34	72	140	25	70	80	220	63	93	233

Ø	weight		
	Front or rear trunnion	Female rod clevis	Male rod clevis
25	0,090	0,095	0,120
32	0,120	0,095	0,120
40	0,210	0,250	0,320
50	0,350	0,250	0,320
63	0,500	0,530	0,480

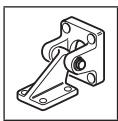
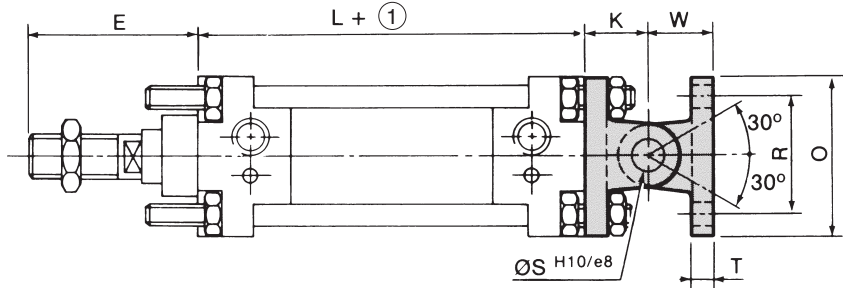
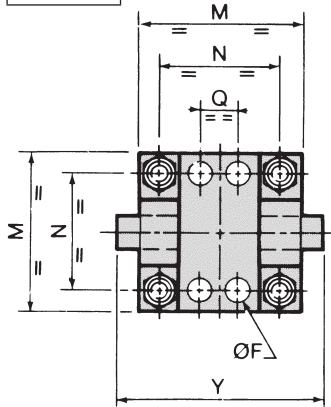
Ø	weight		
	Front or rear trunnion	Female rod clevis	Male rod clevis
80	1,070	0,530	0,480
100	1,500	1,050	1
125	2,430	1,050	1
160	5,330	2,150	2,270
200	7,020	2,150	2,270

DIMENSIONS (mm), WEIGHT (kg)



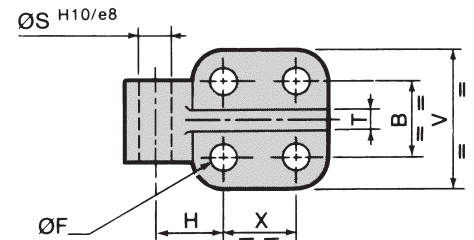
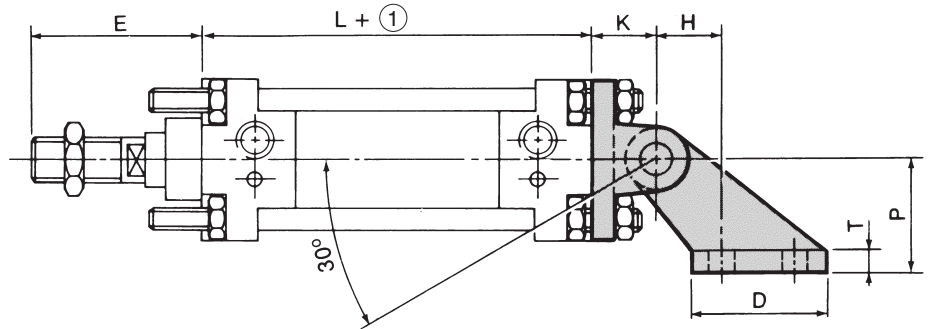
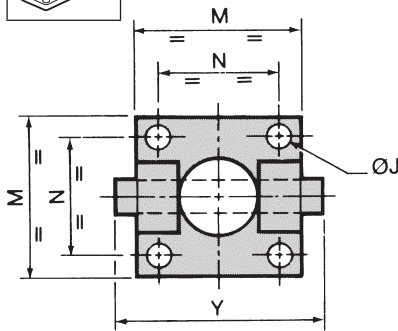
MOUNTING

Straight complete trunnion mounting
CNOMO 06-07-10



MOUNTING

Complete trunnion mounting w/ angular clevis bracket
CNOMO 06-07-11




① Stroke

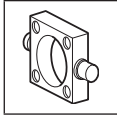
Ø	B	D	E	ØF	H	ØJ	K	L	M	N	O	P	Q	R	ØS	T	V	W	X	Y
25	25	37	45	7	18	7	18	80	40	28	40	32	0	28	8	8	41	18	20	49
32	25	37	45	7	18	7	18	80	45	33	40	32	0	28	8	8	41	18	20	54
40	32	54	70	9	25	7	24	110	52	40	52	45	16	38	12	10	52	26	32	62
50	32	54	70	9	25	9	26	110	65	49	52	45	16	38	12	10	52	26	32	70
63	40	75	85	11	32	9	30	125	75	59	75	63	25	54	16	12	63	34	50	80
80	40	75	85	11	32	11	32	125	75	75	75	63	25	54	16	12	63	34	50	100
100	50	103	110	14	40	11	37	145	115	90	115	90	32	90	20	16	80	41	70	123
125	50	103	110	14	40	14	41	145	115	110	115	90	32	90	20	16	80	41	70	153
160	63	154	135	18	50	18	55	180	180	140	180	140	43	150	25	20	103	55	110	193
200	63	154	135	18	50	18	55	180	180	175	180	140	43	150	25	20	103	55	110	233

Ø	weight	
	Straight complete trunnion mounting	Complete trunnion mounting w/ angular clevis bracket
25	0,180	0,240
32	0,210	0,280
40	0,410	0,550
50	0,540	0,720
63	1,040	1,360

Ø	weight	
	Straight complete trunnion mounting	Complete trunnion mounting w/ angular clevis bracket
80	1,610	1,930
100	2,280	3,270
125	3,330	4,350
160	7,480	12,020
200	9,290	12,230

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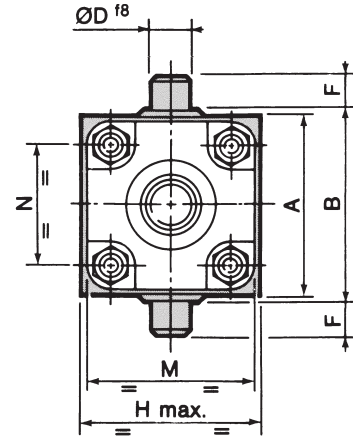
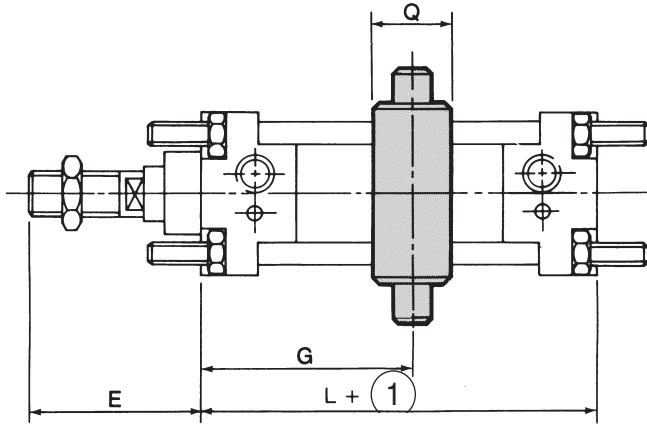
DIMENSIONS (mm), WEIGHT (kg) 



MOUNTING

Centre trunnion
CNOMO 06-07-12

Note: The centre trunnion is delivered pre-assembled.



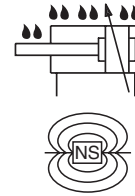
① Stroke

Ø	A	B	D	E	F	H	L	M	N	Q	without detectors		with detectors			weight (trunnion alone)
											G min.	G max.	G min.	G max.	C min.	
25	38	42	12	45	12	60	80	40	28	22	38	42 + ①	80	① - 10	90	0,140
32	46	50	12	45	12	65	80	45	33	22	45	45 + ①	97	① + 10	90	0,180
40	58	63	16	70	16	75	110	52	40	30	66	63 + ①	118	① + 20	95	0,380
50	68	73	16	70	16	90	110	65	49	30	55	63 + ①	118	① + 20	95	0,460
63	84	90	20	85	20	100	125	75	59	35	77	69 + ①	129	① + 30	100	0,820
80	102	108	20	85	20	125	125	95	75	35	77	69 + ①	129	① + 30	100	1,060
100	124	131	25	110	25	140	145	115	90	40	76	89 + ①	130	① + 10	120	1,800
125	152	159	25	110	25	170	145	140	110	40	76	89 + ①	130	① + 20	115	2,490
160	190	198	32	135	32	215	180	180	140	50	84	116 + ①	145	① + 20	130	4,170
200	240	248	32	135	32	250	180	220	175	50	84	116 + ①	145	① + 25	120	4,200

Unless otherwise specified on the order, all cylinders with standard strokes will be supplied with dimension G as shown in the table below. For all cylinders with non-CNOMO standard strokes, the dimension G must be indicated, taking into account the maximum and minimum dimensions defined above.

Dimension G to CNOMO recommendations:

Ø	stroke													
	50	100	150	200	250	300	400	500	600	700	800	900	1000	
25 - 32	54	75	96	117	137	-	-	-	-	-	-	-	-	
40 - 50	67	87	108	129	150	171	212	-	-	-	-	-	-	
63 - 80	-	94	115	135	156	177	219	260	302	-	-	-	-	
100 - 125	-	102	123	144	165	185	227	269	310	352	394	434	477	
160 - 200	-	-	137	158	179	200	242	283	325	366	408	450	492	



FEATURES

These stainless steel cylinders are designed for use in corrosive environments:

- chemical, salty or humid atmospheres
- food processing, dairy and meat industries: high resistance to lactic acid and bactericidal sprays

GENERAL

Detection	Equipped for magnetic position detectors
Operating pressure	10 bar, max. [1 bar = 100 kPa]
Ambient temperature	-20°C to +80°C
Standards	ISO 6431

fluids (*)	temperature range (TS)
air or inert gas filtered at 50 µm, lubricated or not	-20°C to +80°C



MATERIALS IN CONTACT WITH FLUID

(*) Ensure that the compatibility of the fluids in contact with the materials is verified

Barrel	Stainless steel, AISI 304
Rod	Stainless steel, AISI 303, AISI 316 L
Rod seal	FPM (fluoroelastomer)
Front and rear ends	Stainless steel, AISI 304
Piston	Light alloy - POM Acetal
Piston seal	PUR (polyurethane)
Scraper seal	FPM (fluoroelastomer), PTFE in option
CONSTRUCTION	
Cushioning	Adjustable pneumatic
Dismounting	Dismountable cylinder
Rod nut	Stainless steel, AISI 316 L
Bearing	Composite material

HOW TO ORDER

15-DIGIT PRODUCT CODE
G 431 A 5 3 K 0080 A00

Thread connection
G = ISO 16030

Product series
431

Revision letter
A = Initial release

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

Rod options
3 = Single rod, Stainless steel
4 = Through rod, Stainless steel
6 = Single rod, AISI 316 L
7 = Through rod, AISI 316 L

Rod seal and rod scraper seal
K = FPM Rod Seal (Standard)
P = FPM Rod Seal + PTFE Rod Scraper seal
C = FPM Rod Seal + PTFE Detachable Rod Scraper seal Cartridge

Options

- A00** = Single rod, Plain Front & Rear Covers
- PRC** = Single rod, Threaded Front Cover, Plain Rear Cover
- TRE** = Single rod, Plain Front Cover, Integral-Eye Rear End
- THR** = Through rod (Threaded Covers)

Recommended standard strokes (mm) ⁽¹⁾

Ø mm	con-nect. Ø (G)	25	50	80	100	125	160	200	250	320	400	500	max. stroke
32	G1/8	●	●	●	●	●	●	●	●				1000
40	G1/4	●	●	●	●	●	●	●	●	●			1000
50	G1/4	●	●	●	●	●	●	●	●	●	●		1000
63	G3/8	●	●	●	●	●	●	●	●	●	●		1000
80	G3/8	●	●	●	●	●	●	●	●	●	●		1000

⁽¹⁾ Other strokes on request. / Min. stroke: 5 mm





[Configurator - CAD Files](#)




POSITION DETECTORS

[IP69K Magnetic position detector](#) and [stainless steel collars](#)

INSTALLATION

- The cylinders can be mounted in any position without affecting operation
- Stainless steel mountings: **catalogue number**

∅ (mm)	 female rod clevis ISO 8140 AP2	 spherical rod end ISO 8139 AP6	 front neck nut MR3	 feet MS1
32	P493A3131200A00	P493A3132200A00	P493A332F200A00	P493A3324200A00
40	P493A4131200A00	P493A4132200A00	P493A432F200A00	P493A4324200A00
50	P493A5131200A00	P493A5132200A00	P493A532F200A00	P493A5324200A00
63	P493A5131200A00	P493A5132200A00	P493A532F200A00	P493A6324200A00
80	P493A8131200A00	P493A8132200A00	P493A832F200A00	P493A8324200A00

∅ (mm)	 cap, detachable eye (trunnion) MP4	 cap, eye with spherical bearing MP6	 cap, clevis for spherical eye
32	P493A3322210A00	P493A3328200A00	P493A332C200A00
40	P493A4322210A00	P493A4328200A00	P493A432C200A00
50	P493A5322210A00	P493A5328200A00	P493A532C200A00
63	P493A6322210A00	P493A6328200A00	P493A632C200A00
80	P493A8322210A00	P493A8328200A00	P493A832C200A00

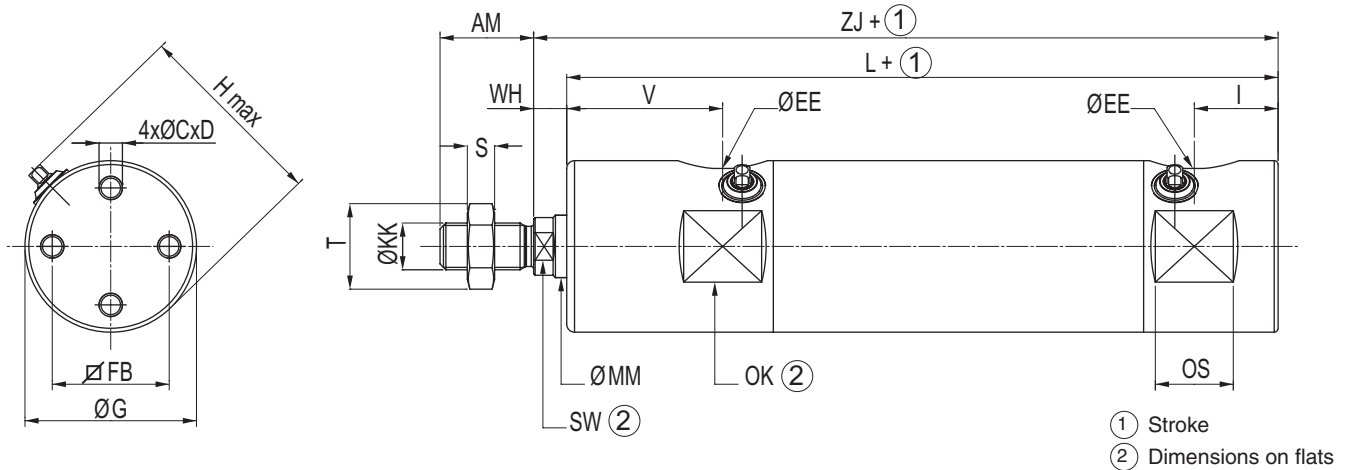
- Pipe connections 1/4-3/8-1/2 (G*) have standard combination thread according to ISO 228/1 and ISO 7/1. Pipe connections G 1/8 have standard thread according to ISO 228/1
- Installation/maintenance instructions are included with each cylinder

DIMENSIONS (mm) 

[Configurator - CAD Files](#)



SINGLE-ROD TYPE CYLINDER
Plain Front & Rear Covers (option: A00)
For detachable rear mounting
Supplied without front cover nut
ISO 6431



∅ (mm)	AM	C	D	∅EE	FB	G	H max.	I	∅KK	L	MM	OK	OS	S	SW	T	V	WH	ZJ
32	22	M5	7	G1/8	25	36	44,70	17,5	M10x1,25	115,5	12	33	16,5	5	10	17	34	8	123,5
40	24	M6	8	G1/4	30	44	52,45	21,5	M12x1,25	132,5	16	40	20	6	13	19	40	8,5	141
50	32	M6	8	G1/4	39	54	62,45	19	M16x1,5	135	20	50	19	8	17	24	44,5	13	148
63	32	M8	8	G3/8	49	68	76,45	22,5	M16x1,5	151	20	64	24	8	17	24	44	13	164
80	40	M10	8,5	G3/8	64	86	94,60	25,5	M20x1,5	164	25	82	24	10	21	30	51	15,5	179,5

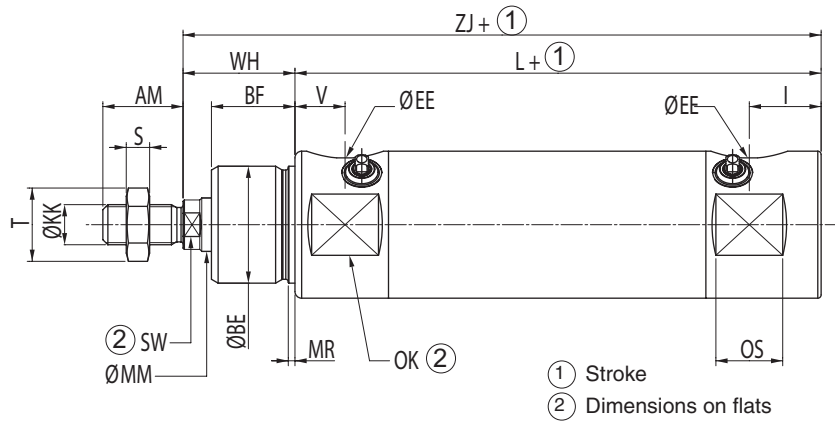
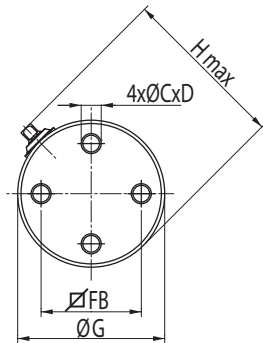
DIMENSIONS (mm)

[Configurator - CAD Files](#)



SINGLE-ROD TYPE CYLINDER

Threaded Front Cover, Plain Rear Cover (option: **PRC**)
For detachable rear mounting
Supplied without front cover nut
ISO 6431

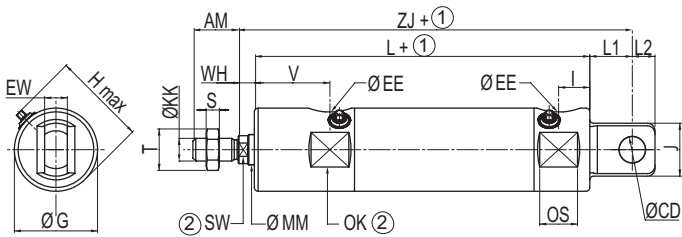


Ø (mm)	AM	BE	BF	C	D	ØEE	FB	G	H max.	I	ØKK	L	MM	MR	OK	OS	S	SW	T	V	WH	ZJ
32	22	M30x1,5	22	M5	7	G1/8	25	36	44,70	17,5	M10x1,25	92,5	12	2	33	16,5	5	10	17	12	31	123,5
40	24	M35x1,5	25	M6	8	G1/4	30	44	52,45	21,5	M12x1,25	106,5	16	2	40	20	6	13	19	15	34,5	141
50	32	M42x1,5	28	M6	8	G1/4	39	54	62,45	19	M16x1,5	107	20	2	50	19	8	17	24	16,5	41	148
63	32	M42x1,5	28	M8	8	G3/8	49	68	76,45	22,5	M16x1,5	123	20	2	64	24	8	17	24	16	41	164
80	40	M50x2,0	28	M10	8,5	G3/8	64	86	94,60	25,5	M20x1,5	136	25	2	82	24	10	21	30	23	43,5	179,5



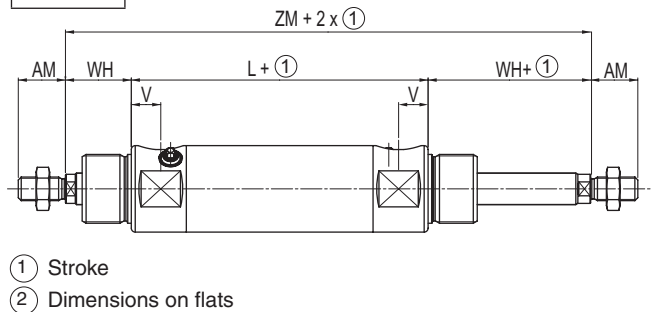
SINGLE-ROD TYPE CYLINDER

Plain Front Cover, Tenon Rear End (option: **TRE**)
Supplied without front cover nut
ISO 6431



THROUGH-ROD TYPE CYLINDER

Threaded Covers (option: **THR**)
ISO 15552-AFNOR - DIN

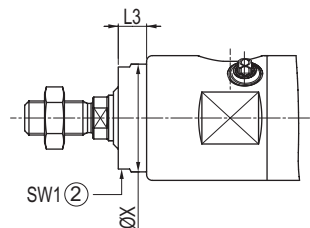
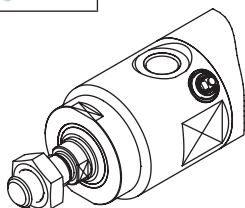


Ø (mm)	AM	ØCD	ØEE	G	H max.	I	J	ØKK	L	L1	L2 EW	MM	OK	OS	S	SW	T	V	WH	ZJ	Ø (mm)	AM	L	V	WH	ZM
32	22	10	G1/8	36	44,70	12	24	M10x1,25	109	22,5	10	12	33	16,5	5	10	17	34	8	140,5	32	22	88	12	31	150
40	24	12	G1/4	44	52,45	16,5	28	M12x1,25	126,5	22,5	12	16	40	20	6	13	19	40	8,5	158,5	40	24	101	15	34,5	170
50	32	16	G1/4	54	62,45	15,5	30	M16x1,5	131,5	27	16	20	50	19	8	17	24	44,5	13	171,5	50	32	105,5	16,5	41	187,5
63	32	16	G3/8	68	76,45	21,5	40	M16x1,5	150	27	16	20	64	24	8	17	24	44	13	190	63	32	117	16	41	199
80	40	20	G3/8	86	94,60	20	50	M20x1,5	158,5	36	20	25	82	24	10	21	30	51	15,5	210	80	40	134,5	23	43,5	221,5



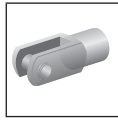
OPTION

PTFE Detachable Rod Scraper seal Cartridge

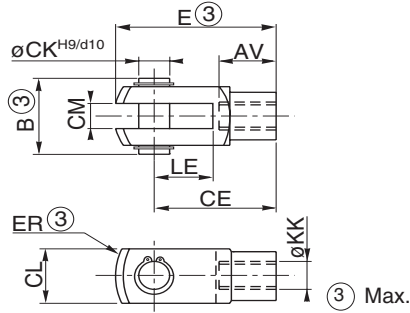


Ø (mm)	ØX	L3	SW1
32	31	5	27
40	38	5	36
50	40	5	36
63	40	5	36
80	53	5	46

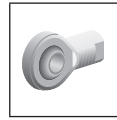
DIMENSIONS (mm), WEIGHT (kg)



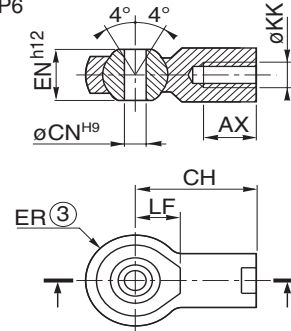
MOUNTING
Female rod clevis
ISO 8140
AP2



Ø (mm)	AV	B	CE	CK	CL	CM	E	ER	KK	LE	weight
32	20	26	40	10	20	10	52	13	M10x1,25	20	0,09
40	23	31	48	12	24	12	62	15	M12x1,25	24	0,16
50	34	39	64	16	32	16	83	20	M16x1,5	32	0,31
63	34	39	64	16	32	16	83	20	M16x1,5	32	0,31
80	40	48	80	20	40	20	105	25	M20x1,5	40	0,67



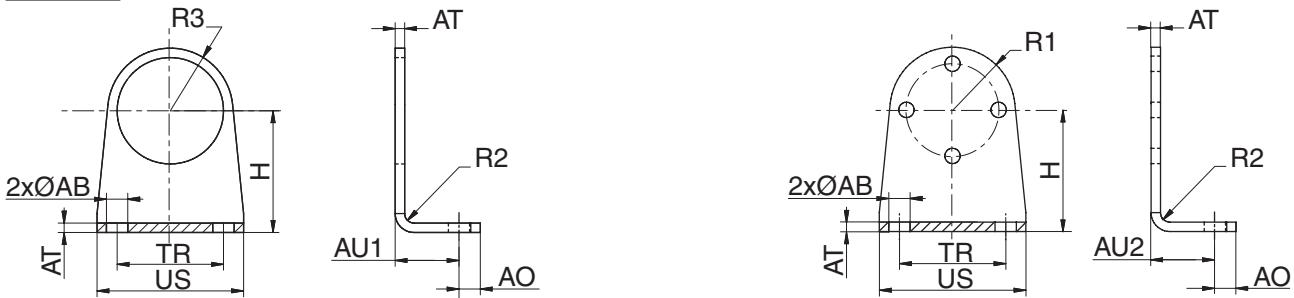
MOUNTING
Spherical rod end
ISO 8139
AP6




Ø (mm)	AX	CH	CN	EN	ER	LF	KK	weight
32	20	43	10	14	13	14	M10x1,25	0,076
40	23	50	12	16	15	16	M12x1,25	0,115
50	34	64	16	21	20	22	M16x1,5	0,230
63	34	64	16	21	20	22	M16x1,5	0,230
80	40	77	20	25	25	26	M20x1,5	0,415

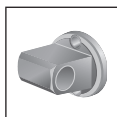


MOUNTING
Feet
MS1



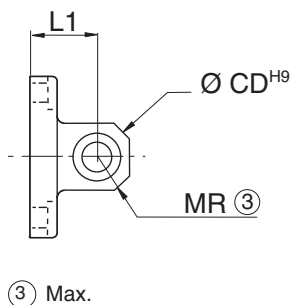
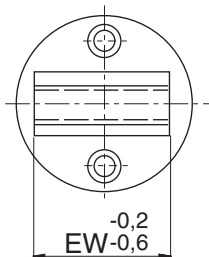
Ø (mm)	AB	AO	AU1	AU2	AT	H	R1	R2	R3	TR	US	weight
32	7	9	28,5	20,5	3	33	17,5	3	17,5	32	45	0,075
40	9	9	32	22	3	38	21,5	3	21,5	36	52	0,090
50	9	9	36	27	4	47	26,5	4	25	45	62	0,170
63	9	9	36	26	4	52	33	4	27	50	72	0,230
80	12	15	38,5	35,5	5	65	42,5	5	31	63	90	0,450

DIMENSIONS (mm), WEIGHT (kg) 



MOUNTING

Cap detachable eye (trunnion) mounting
MP4

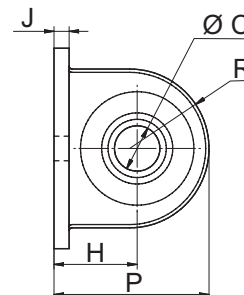
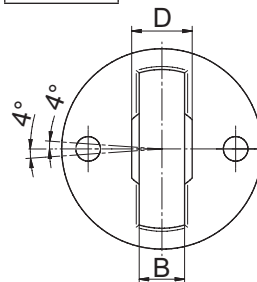


Ø (mm)	CD	EW	MR	L1	weight
32	10	26	11	18,5	0,08
40	12	28	13	19	0,10
50	12	32	13	22	0,17
63	16	40	17	26	0,32
80	16	50	17	30,5	0,58

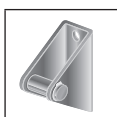


MOUNTING

Cap, detachable eye mounting with spherical bearing
MP6

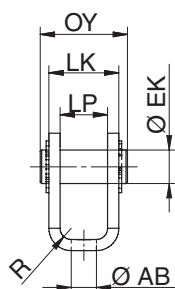
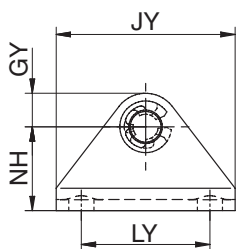


Ø (mm)	B	C	D	H	J	P	R	weight
32	10,5	10	14	18,5	3,5	33,5	15	0,09
40	12	12	16	19	3,5	37	18	0,14
50	12	12	16	22	5	44	22	0,22
63	15	16	21	26	5	48	22	0,34
80	15	16	21	30,5	8	55,5	25	0,60

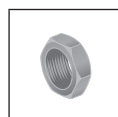


MOUNTING

Cap, clevis for spherical eye

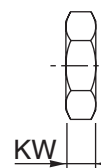
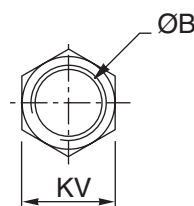


Ø (mm)	AB	EK	GY	JY	LK	LP	LY	NH	OY	R	weight
32	7	10	9	45	21	15	30	24	26	3	0,08
40	9	12	10	55	23	17	38	27	29	3	0,09
50	9	12	10	64	25	17	46	30	31	4	0,18
63	12	16	13	79	30	22	58	36	36	4	0,27
80	14	16	13	94	32	22	70	40	38	5	0,41



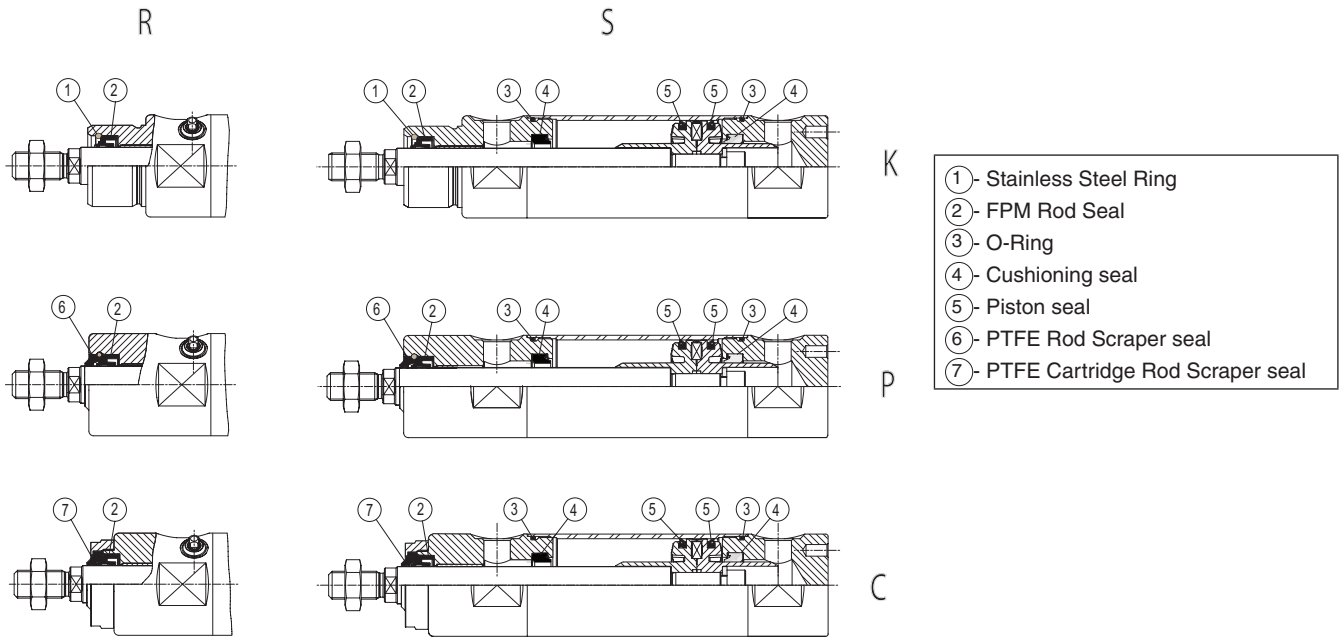
MOUNTING

Front neck nut
MR3



Ø (mm)	Ø B	KV	KW	weight
32	M30x1,5	36	10	0,037
40	M35x1,5	41	10	0,043
50	M42x1,5	50	12	0,079
63	M42x1,5	50	12	0,079
80	M50x2	65	12	0,167

SPARE PARTS KITS CODE



15-DIGIT PRODUCT CODE

M 431 A 5 S K 0000 A00

Spare Parts digit
M

Product series
431

Revision letter
A = Initial release

Diameter (mm)

- 3 = 32
- 4 = 40
- 5 = 50
- 6 = 63
- 8 = 80

Rod seal and rod scraper seal

K = FPM Rod Seal (Standard)

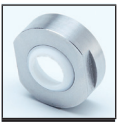
P = FPM Rod Seal + PTFE Rod Scraper seal

C = FPM Rod Seal + PTFE Cartridge Rod Scraper seal

Type of kit

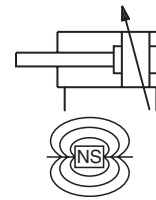
S = Complete set of seals

R = Rod seals only



Cartridge with PTFE Rod Scraper seal

Ø (mm)	SPARE PARTS KITS CODE Cartridge with PTFE Rod Scraper seal
32	M431A3EC0000A00
40	M431A4EC0000A00
50-63	M431A5EC0000A00
80	M431A8EC0000A00



FEATURES

The cylinders are designed for use in corrosive environments:

- chemical, salty or humid atmospheres
- food processing, dairy and meat industries: high resistance to lactic acid and bactericidal sprays

GENERAL

Detection	Equipped or not for magnetic position detectors
Fluid	Air or neutral gas, filtered, lubricated or not
Operating pressure	10 bar max.
Ambient temperature	-20°C to +80°C
Standards	ISO 15552

CONSTRUCTION

Barrel	Stainless steel 1.4301 AISI 304
Piston rod	Stainless steel 1.4571 AISI 316 TI
Tie rods	Ø 32 to 100 : Stainless steel 1.4571 AISI 316 TI Ø 125 : Stainless steel 1.4301 AISI 304
Front and rear covers	Stainless steel 1.4301 AISI 304
Piston rod nut	Stainless steel 1.4301 AISI 304
Seals	PUR (polyurethane) - NBR (nitrile)
Bearing	Sintered bronze
Cushioning	Adjustable pneumatic



SPECIFICATIONS

DEFINING THE CYLINDER CATALOGUE NUMBER

Standard version: tie rods with adjustable pneumatic cushioning, equipped for magnetic position detectors

To order, please specify:

- **CYLINDER** : - The cylinder type (single rod, through rod)
- The cylinder diameter and its stroke
- **DETECTORS** : The magnetic position detectors must be ordered separately :
- [IP69K Magnetic position detector](#)

S / 000 00

cushioning	position detection	type	
		single rod	through rod
With	Not Equipped	E	F
With	Equipped	G	H

Ø (mm)	standard stroke (mm) ⁽²⁾										
	(recommended standard strokes)										
	25	50	80	100	125	160	200	250	320	400	500
32	•	•	•	•	•	•	•	•	•	•	•
40	•	•	•	•	•	•	•	•	•	•	•
50-63	•	•	•	•	•	•	•	•	•	•	•
80	•	•	•	•	•	•	•	•	•	•	•
100	•	•	•	•	•	•	•	•	•	•	•
125	•	•	•	•	•	•	•	•	•	•	•

(2) Other strokes on request.

cylinder Ø ⁽¹⁾	
type	Ø (mm)
032	32
040	40
050	50
063	63
080	80
100	100
125	125

⁽¹⁾ Ø 160 and 200mm on request.

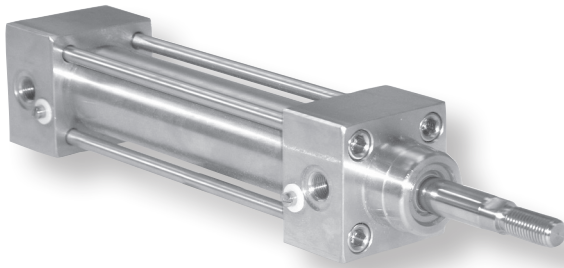
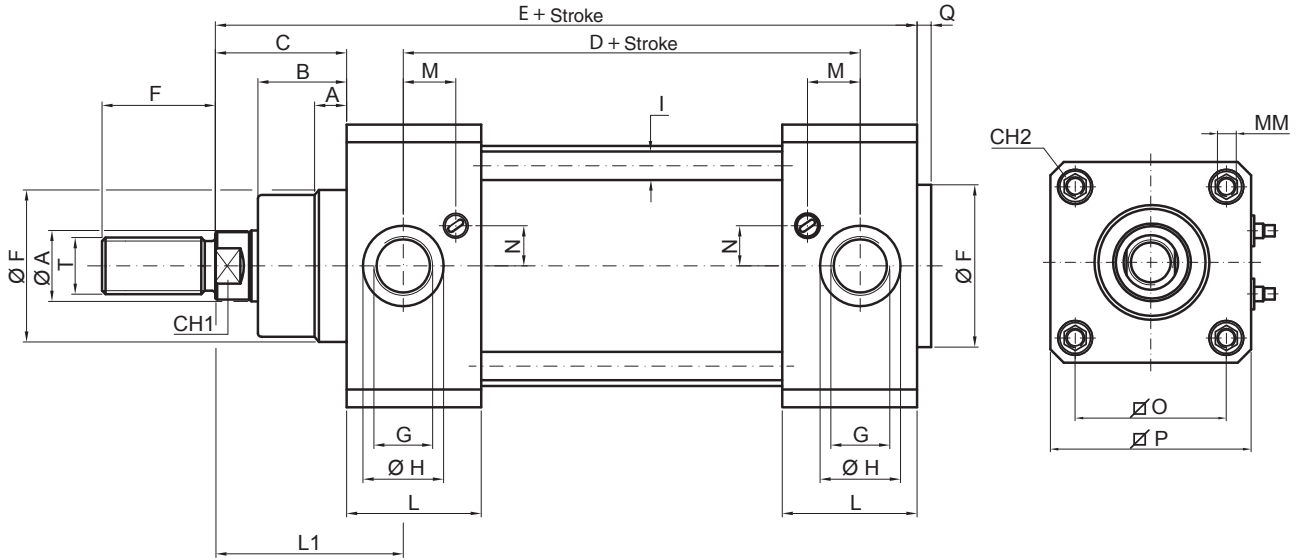
Ordering example:

- Cylinder single rod with pneumatic cushioning equipped for detectors = **G**
 - Cylinder Ø 63 mm = **063**
 - Stroke 80 mm = **080**
- Ordering catalogue number: **SG063/008000000**

OPTIONS

- Grease for food processing, replace the 2 last digits by **N2**, example : SG063/008000**N2**

MOUNTINGS: see following pages

DIMENSIONS (mm)
Double Acting with/without Magnetic Piston
 Single Rod End, Types SE or SG

Thrust and retract forces (6 bar) single rod end

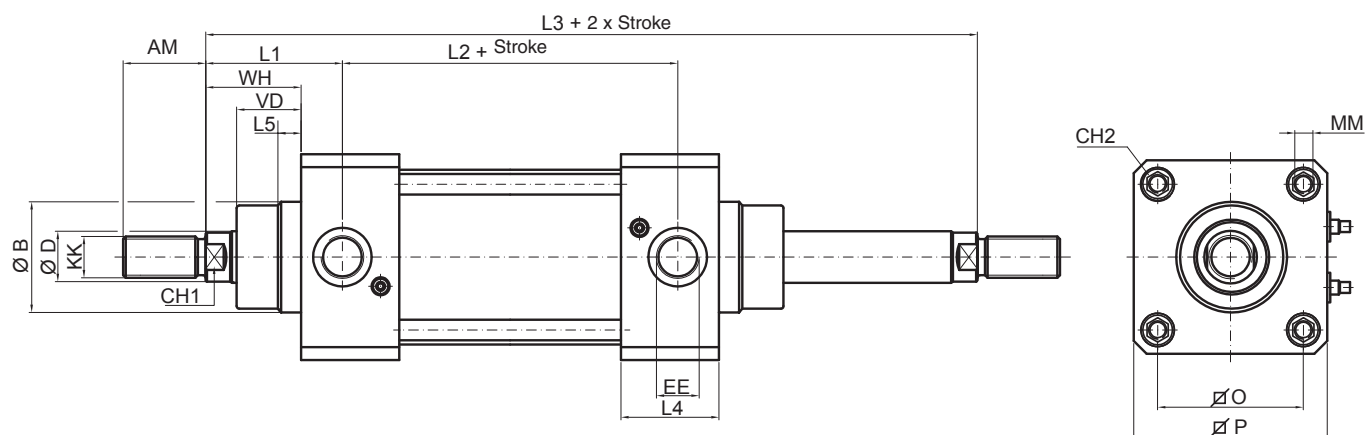
Ø (mm)	Thrust force (N)	Retract force (N)
32	458	394
40	716	601
50	1180	939
63	1775	1596
80	2863	2583
100	4474	4194
125	6991	6532

Type	Ø (mm)	Ø A	A	B	C	D	E	F	Ø F	G	L
SE; SG	32	12,0	9,0	18,0	26,0	67,0	121,0	22,0	30,0	G 1/8	30,8
SE; SG	40	16,0	9,0	22,0	30,0	77,0	135,0	24,0	35,0	G 1/4	33,0
SE; SG	50	20,0	9,0	25,5	37,0	78,0	143,0	32,0	40,0	G 1/4	33,7
SE; SG	63	20,0	9,0	25,0	37,0	89,0	158,0	32,0	45,0	G 3/8	38,0
SE; SG	80	25,0	9,0	35,0	46,0	96,0	174,0	40,0	45,0	G 3/8	40,0
SE; SG	100	25,0	9,0	38,0	51,0	102,0	189,0	40,0	55,0	G 1/2	43,5
SE; SG	125	32,0	11,0	46,0	65,0	124,0	225,0	54,0	60,0	G 1/2	53,2

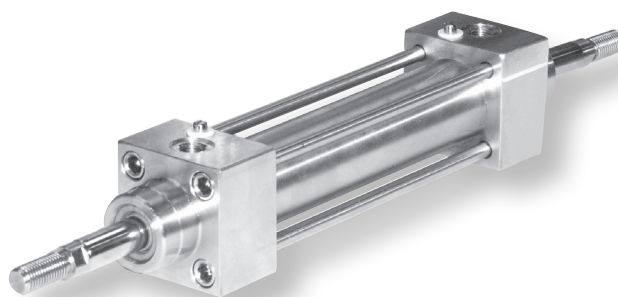
type	Ø (mm)	L1	M	MM	N	O	P	Q	T	CH1	CH2
SE; SG	32	39,5	11,3	M6	6,0	32,5	50,0	4,0	M10x1,25	10	6
SE; SG	40	44,0	13,0	M6	8,0	38,0	55,0	4,0	M12x1,25	13	6
SE; SG	50	51,0	12,7	M8	11,8	46,5	65,0	4,0	M16x1,5	16	8
SE; SG	63	53,0	15,8	M8	11,7	56,5	75,0	4,0	M16x1,5	16	8
SE; SG	80	62,0	16,3	M10	15,5	72,0	95,0	4,0	M20x1,5	21	10
SE; SG	100	69,0	15,5	M10	15,5	89,0	110,0	4,0	M20x1,5	21	10
SE; SG	125	83,0	25,0	M12	19,0	110,0	139,0	6,0	M27x2,0	28	12

DIMENSIONS (mm)
Double Acting Cylinder with/without Magnetic Piston

Double Rod End, Types SF or SH


**Retract and thrust forces (6 bar)
double rod end**


Ø (mm)	thrust/retract force (N)
32	394
40	601
50	939
63	1596
80	2583
100	4194
125	6532



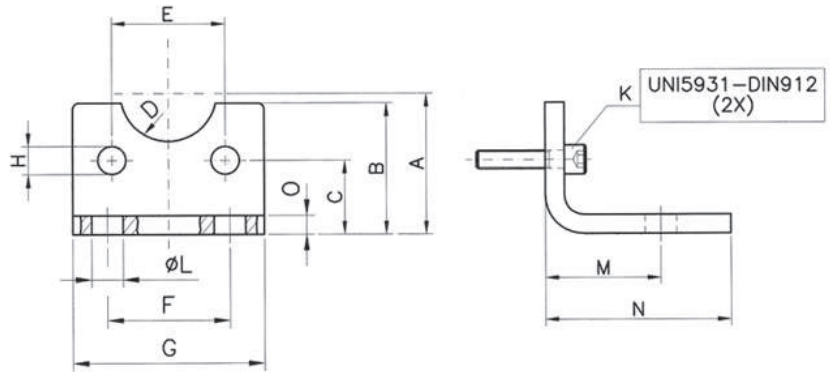
type	Ø (mm)	Ø D	L5	VD	WH	L2	L3	AM	Ø B	EE	L4
SF; SH	32	12,0	9,0	18,0	26,0	67,0	121,0	22,0	30,0	G 1/8	30,8
SF; SH	40	16,0	9,0	22,0	30,0	77,0	135,0	24,0	35,0	G 1/4	33,0
SF; SH	50	20,0	9,0	25,5	37,0	78,0	143,0	32,0	40,0	G 1/4	33,7
SF; SH	63	20,0	9,0	25,0	37,0	89,0	158,0	32,0	45,0	G 3/8	38,0
SF; SH	80	25,0	9,0	35,0	46,0	96,0	174,0	40,0	45,0	G 3/8	40,0
SF; SH	100	25,0	9,0	38,0	51,0	102,0	189,0	40,0	55,0	G 1/2	43,5
SF; SH	125	32,0	11,0	46,0	65,0	124,0	225,0	54,0	60,0	G 1/2	53,2

type	Ø (mm)	L1	M	MM	N	O	P	Q	T	CH1	CH2
SF; SH	32	39,5	11,3	M6	6,0	32,5	50,0	4,0	M10x1,25	10	6
SF; SH	40	44,0	13,0	M6	8,0	38,0	55,0	4,0	M12x1,25	13	6
SF; SH	50	51,0	12,7	M8	11,8	46,5	65,0	4,0	M16x1,5	16	8
SF; SH	63	53,0	15,8	M8	11,7	56,5	75,0	4,0	M16x1,5	16	8
SF; SH	80	62,0	16,3	M10	15,5	72,0	95,0	4,0	M20x1,5	21	10
SF; SH	100	69,0	15,5	M10	15,5	89,0	110,0	4,0	M20x1,5	21	10
SF; SH	125	83,0	25,0	M12	19,0	110,0	139,0	6,0	M27x2	28	12

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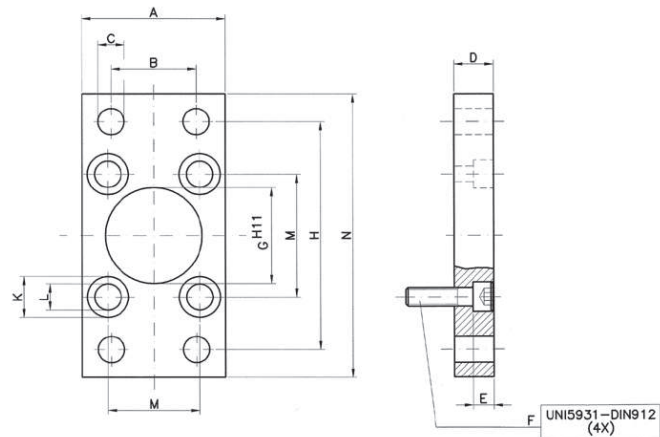
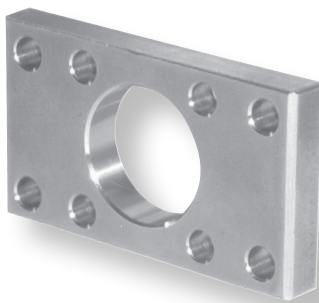
DIMENSIONS (mm), WEIGHT (kg) 

Foot Brackets (outside) to ISO 15552
for Cylinder with Piston Diameter 32 to 125 mm
Stainless steel AISI 304




Ø (mm)	A	B	C	D	E	F	G	H	K	L	M	N	O	weight	catalogue number
32	32,0	30,0	15,75	R 15,0	32,5	32,0	45,0	7,0	M6x20	7,0	24,0	35,0	4,0	0,130	VC01/032-VA
40	36,0	30,0	17,0	R 17,5	38,0	36,0	52,0	7,0	M6x20	9,0	28,0	36,0	4,0	0,160	VC01/040-VA
50	45,0	36,0	21,75	R 2,00	46,5	45,0	65,0	9,0	M8x25	9,0	32,0	47,0	5,0	0,340	VC01/050-VA
63	50,0	35,0	21,75	R 22,5	56,5	50,0	75,0	9,0	M8x25	9,0	32,0	45,0	5,0	0,380	VC01/063-VA
80	63,0	47,0	27,0	R 22,5	72,0	63,0	95,0	11,0	M10x25	12,0	41,0	55,0	6,0	0,765	VC01/080-VA
100	71,0	53,0	26,5	R 27,5	89,0	75,0	115,0	11,0	M10x30	14,0	41,0	57,0	6,0	0,905	VC01/100-VA
125	90,0	70,0	35,0	R 30,0	110,0	90,0	140,0	14,0	M12x30	16,0	45,0	70,0	8,0	2,180	VC01/125-VA

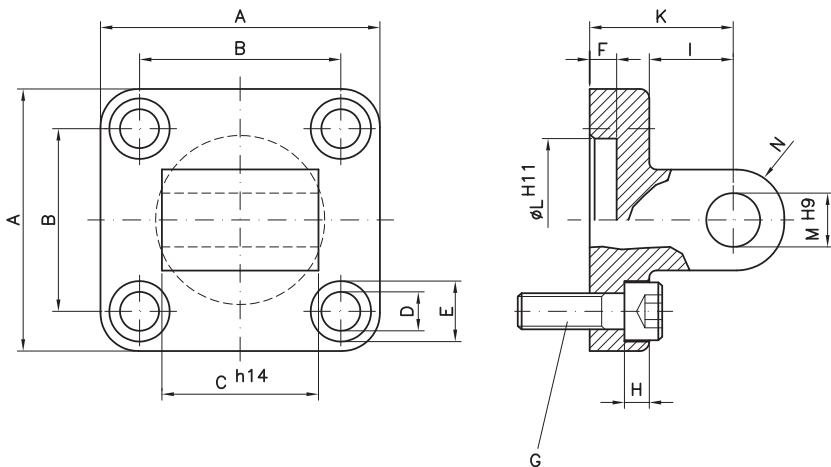
Flange to ISO 15552
for Cylinder with Piston Diameter 32 to 125 mm
Stainless steel AISI 304



Ø (mm)	A	B	C	D	E	F	G	H	K	L	M	N	weight	catalogue number
32	45,0	32,0	7,0	10,0	6,5	M6x16	30,0	64,0	10,5	6,5	32,5	80,0	0,190	VC02/032-VA
40	52,0	36,0	9,0	10,0	6,5	M6x16	35,0	72,0	10,5	6,5	38,0	90,0	0,250	VC02/040-VA
50	65,0	45,0	9,0	12,0	8,5	M8x20	40,0	90,0	13,5	8,5	46,5	110,0	0,480	VC02/050-VA
63	75,0	50,0	9,0	12,0	8,5	M8x20	45,0	100,0	13,5	8,5	56,5	120,0	0,620	VC02/063-VA
80	95,0	63,0	12,0	16,0	10,5	M10x25	45,0	126,0	16,5	10,5	72,0	150,0	1,415	VC02/080-VA
100	115,0	75,0	14,0	16,0	10,5	M10x25	55,0	150,0	16,5	10,5	89,0	170,0	1,985	VC02/100-VA
125	140,0	90,0	16,0	20,0	9,5	M12x30	60,0	180,0	20,0	13,5	110,0	205,0	3,750	VC02/125-VA

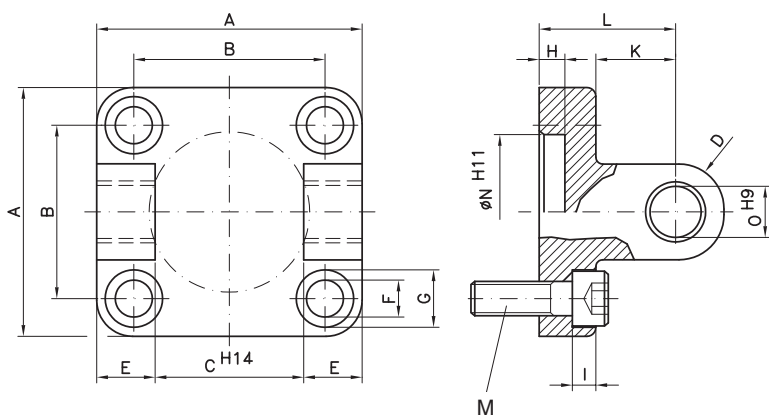
DIMENSIONS (mm), WEIGHT (kg) 

Oscillating Brackets with Lugs to ISO 15552
for Cylinder with Piston Diameter 32 to 125 mm
Stainless steel AISI 304




Ø (mm)	A	B	C	D	E	F	G	H	I	K	L	M	N	weight	catalogue number
32	45,0	32,5	26,0	6,6	11,0	5,0	M6x16	3,5	13,0	22,0	30,0	10,0	10,0	0,410	VC07/032-VA
40	52,0	38,0	28,0	6,6	11,0	5,0	M6x16	3,5	16,0	25,0	35,0	12,0	12,0	0,670	VC07/040-VA
50	65,0	46,5	32,0	9,0	15,0	5,0	M8x25	4,5	16,0	27,0	40,0	12,0	12,0	0,970	VC07/050-VA
63	75,0	56,5	40,0	9,0	15,0	5,0	M8x25	4,5	21,0	32,0	45,0	16,0	16,0	1,585	VC07/063-VA
80	95,0	72,0	50,0	11,0	18,0	5,0	M10x25	4,0	22,0	36,0	45,0	16,0	16,0	3,460	VC07/080-VA
100	115,0	89,0	60,0	11,0	18,0	5,0	M10x25	4,0	27,0	41,0	55,0	20,0	20,0	5,350	VC07/100-VA
125	140,0	110,0	70,0	14,0	20,0	7,0	M12x30	10,0	30,0	50,0	60,0	25,0	25,0	10,320	VC07/125-VA

Oscillating Brackets Fork Type to ISO 15552
for Cylinder with Piston Diameter 32 to 125 mm
Stainless steel AISI 304

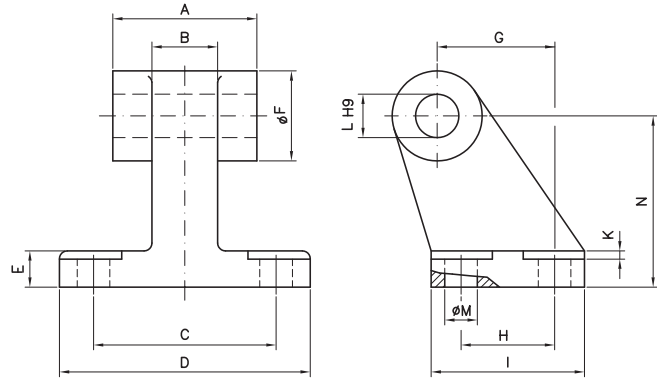
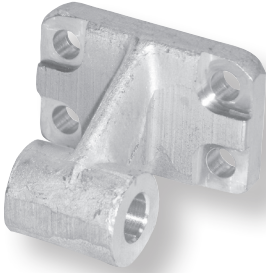


Ø (mm)	A	B	C	D	E	F	G	H	I	K	L	M	N	O	weight	catalogue number
32	45,0	32,5	26,0	10,0	9,5	6,6	11,0	5,0	3,5	13,0	22,0	M6x16	30,0	10,0	0,410	VC08/032-VA
40	52,0	38,0	28,0	12,0	12,0	6,6	11,0	5,0	3,5	16,0	25,0	M6x16	35,0	12,0	0,670	VC08/040-VA
50	65,0	46,5	32,0	12,0	14,0	9,0	15,0	5,0	4,5	16,0	27,0	M8x20	40,0	12,0	0,970	VC08/050-VA
63	75,0	56,5	40,0	16,0	15,0	9,0	15,0	5,0	4,5	21,0	32,0	M8x20	45,0	16,0	1,585	VC08/063-VA
80	95,0	72,0	50,0	16,0	20,0	11,0	18,0	5,0	4,0	22,0	36,0	M10x30	45,0	16,0	3,460	VC08/080-VA
100	115,0	89,0	60,0	20,0	25,0	11,0	18,0	5,0	4,0	27,0	41,0	M10x30	55,0	20,0	5,350	VC08/100-VA
125	140,0	110,0	70,0	25,0	30,0	14,0	20,0	7,0	10,0	30,0	50,0	M12x30	60,0	25,0	10,320	VC08/125-VA

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DIMENSIONS (mm), WEIGHT (kg) 

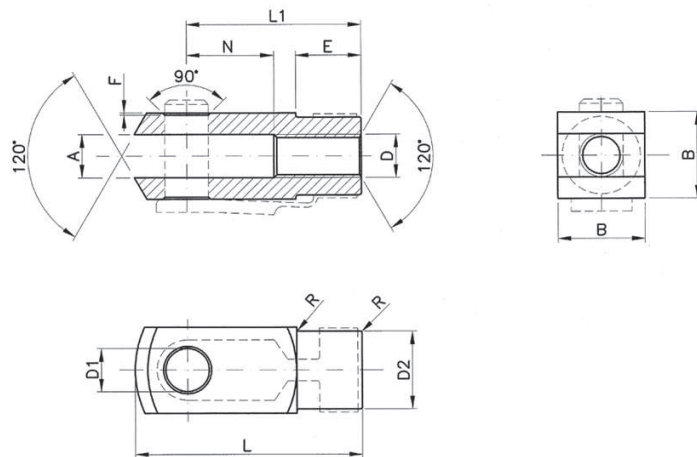
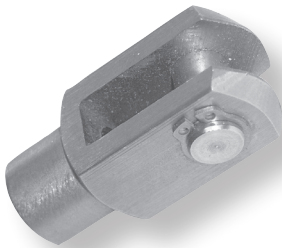
Right-angle Articulated Joint to ISO 15552
for Cylinder with Piston Diameter 32 to 125 mm
Stainless steel AISI 304




Ø (mm)	A	B	C	D	E	ØF	G	H	I	K	L	ØM	N	weight	catalogue number
32	26,0	10,0	38,0	51,0	8,0	20,0	21,0	18,0	31,0	1,6	10,0	6,6	32,0	0,160	VC11/032-VA
40	28,0	15,0	41,0	54,0	10,0	22,0	24,0	22,0	35,0	1,6	12,0	6,6	36,0	0,240	VC11/040-VA
50	32,0	16,0	50,0	65,0	12,0	26,0	33,0	30,0	45,0	1,6	12,0	9,0	45,0	0,420	VC11/050-VA
63	40,0	16,0	52,0	67,0	14,0	30,0	37,0	35,0	50,0	1,6	16,0	9,0	50,0	0,525	VC11/063-VA
80	50,0	20,0	66,0	86,0	14,0	30,0	47,0	40,0	60,0	2,5	16,0	11,0	63,0	1,055	VC11/080-VA
100	60,0	20,0	76,0	96,0	17,0	38,0	55,0	50,0	70,0	2,5	20,0	11,0	71,0	1,360	VC11/100-VA
125	70,0	30,0	94,0	124,0	20,0	45,0	70,0	60,0	90,0	3,2	25,0	14,0	90,0	2,500	VC11/125-VA

Rod Clevis

for Cylinder with Piston Diameter 32 to 125 mm
Stainless steel AISI 303

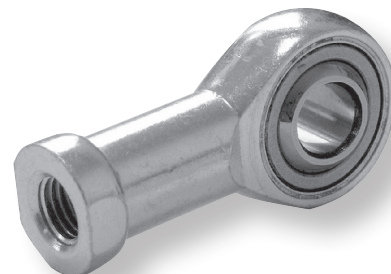
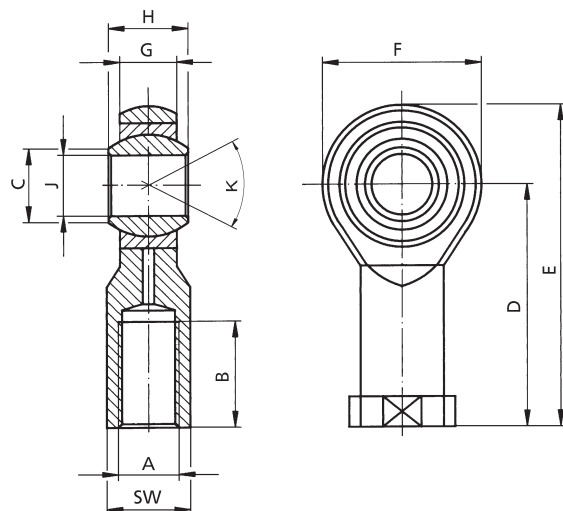


Ø (mm)	A	B	D	D1	D2	E	F	L	L1	N	R	weight	catalogue number
32	10,0	20,0	M10x1,25	10,0	18,0	15,0	0,5	52,0	40,0	20,0	0,5	0,090	SC4/032-VA
40	12,0	24,0	M12x1,25	12,0	20,0	18,0	0,5	62,0	48,0	24,0	0,5	0,150	SC4/040-VA
50/63	16,0	32,0	M16x1,5	16,0	26,0	24,0	1,0	83,0	64,0	32,0	1,0	0,340	SC4/050-VA
80/100	20,0	40,0	M20x1,5	20,0	34,0	30,0	1,0	105,0	80,0	40,0	1,0	0,690	SC4/080-VA
125	30,0	55,0	M27x2	30,0	48,0	38,0	1,0	148,0	110,0	54,0	1,0	1,820	SC4/125-VA

DIMENSIONS (mm), WEIGHT (kg) 

Oscillating Clevis

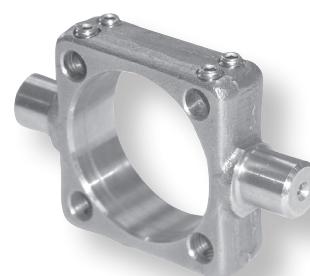
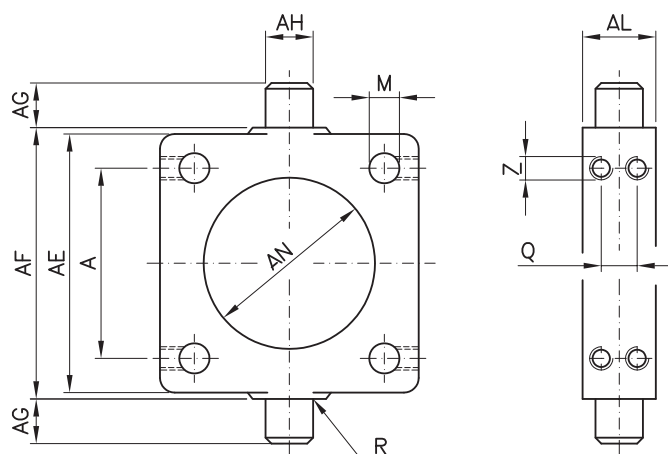
for Cylinders with Piston Diameters 32 to 125 mm
Stainless steel AISI 304



Ø (mm)	A	B	C Ø	D	E	F	G	H	J Ø H7	N	R	weight	catalogue number
32	M10x1,25	20,0	13,0	43,0	57,0	28,0	10,5	14,0	10,0	8°	17	0,075	SC5/025-VA
40	M12x1,25	22,0	15,5	50,0	66,0	32,0	12,0	16,0	12,0	8°	19	0,115	SC5/040-VA
50/63	M16x1,5	28,0	19,5	64,0	85,0	42,0	15,0	21,0	16,0	8°	22	0,230	SC5/050-VA
80/100	M20x1,5	33,0	24,5	77,0	102,0	50,0	18,0	25,0	20,0	8°	30	0,415	SC5/080-VA
125	M27x2	51,0	34,5	110,0	145,0	70,0	25,0	37,0	30,0	6°	41	1,130	SC5/125-VA

Pivot Variable

for Cylinder with Piston Diameter 32 to 125 mm
Stainless steel AISI 304



Ø (mm)	A	AE	AL	AH	AG	AF	AN	R	M	Q	Z	weight	catalogue number
32	32,5	46,0	15,0	12,0	12,0	50,0	37,0	1,0	6,25	7,0	M5	0,130	ZCV9/032-VA
40	38,0	59,0	20,0	16,0	16,0	63,0	46,0	1,5	6,25	8,0	M5	0,310	ZCV9/040-VA
50	46,5	69,0	20,0	16,0	16,0	75,0	56,0	1,6	8,25	8,0	M6	0,370	ZCV9/050-VA
63	56,5	84,0	25,0	20,0	20,0	90,0	69,0	1,6	8,25	12,0	M6	0,690	ZCV9/063-VA
80	72,0	102,0	25,0	20,0	20,0	110,0	87,0	1,6	10,25	12,0	M8	0,895	ZCV9/080-VA
100	89,0	125,0	30,0	25,0	25,0	132,0	107,0	2,0	12,25	15,0	M8	1,585	ZCV9/100-VA
125	110,0	155,0	32,0	25,0	25,0	160,0	133,0	2,0	12,25	15,0	M10	2,600	ZCV9/125-VA

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Force Table for Double Acting Cylinders
 with Piston Diameters 32 to 200 mm

Ø (mm)	Piston Rod Diameter (mm)	Effective Piston Surface (cm ²)	Pressure (bar)									
			2	3	4	5	6	7	8	9	10	
32	12	for thrust	8,0	141	212	282	353	424	494	565	636	706
		for tension	6,9	122	182	243	304	366	427	488	549	610
40	16	for thrust	12,6	223	334	445	555	667	780	893	1,001	1,109
		for tension	10,6	187	281	375	468	561	655	748	843	936
50	20	for thrust	19,6	346	520	692	865	1,040	1,207	1,383	1,560	1,727
		for tension	17,6	310	464	618	772	926	1,080	1,234	1,388	1,542
63	20	for thrust	31,2	551	827	1,099	1,373	1,648	1,933	2,207	2,482	2,757
		for tension	28,1	495	746	991	1,236	1,491	1,736	1,982	2,237	2,482
80	25	for thrust	50,3	889	1,334	1,776	2,217	2,668	3,110	3,551	4,002	4,444
		for tension	45,3	800	1,197	1,599	2,001	2,403	2,806	3,198	3,600	4,002
100	25	for thrust	78,5	1,383	2,080	2,776	3,463	4,159	4,856	5,543	6,239	6,926
		for tension	73,6	1,295	1,952	2,600	3,247	3,895	4,552	5,199	5,847	6,494
125	32	for thrust	122,7	2,168	3,247	4,336	5,415	6,497	7,583	8,662	9,751	10,830
		for tension	115,7	2,036	3,054	4,072	5,090	6,108	7,126	8,144	9,162	10,180
160	40	for thrust	201,1	3,551	5,327	7,102	8,878	10,654	12,429	14,205	15,980	17,756
		for tension	188,5	3,326	4,993	6,651	8,319	9,987	11,644	13,312	14,970	16,638
200	40	for thrust	314,2	5,563	8,319	11,095	13,871	16,648	19,424	22,190	24,966	27,743
		for tension	301,6	5,327	7,985	10,654	13,312	15,971	18,639	21,297	23,966	26,624

Friction losses are considered with 10%.

Table on Air Consumption for Double Acting Cylinders
 with Piston Diameters 32 to 200 mm

Ø (mm)	Pressure (bar)									
	2	3	4	5	6	7	8	9	10	
32	0,3	0,4	0,6	0,7	0,9	0,9	1,2	1,3	1,5	
40	0,5	0,7	0,9	1,2	1,4	1,6	1,8	2,1	2,3	
50	0,7	1,1	1,4	1,8	2,2	2,5	2,9	3,3	3,6	
63	1,2	1,8	2,4	3,0	3,6	4,1	4,7	5,3	5,9	
80	1,9	2,9	3,8	4,8	5,7	6,7	7,6	8,6	9,6	
100	3,0	4,6	6,1	7,6	9,1	10,7	12,2	13,7	15,2	
125	4,7	7,1	9,5	11,9	14,2	16,6	19,0	21,4	23,7	
160	7,8	11,7	15,6	19,5	23,4	27,3	31,2	35,1	39,0	
200	12,3	18,5	24,6	30,8	37,0	43,1	49,3	55,4	61,6	

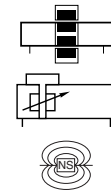
Value for 1 double stroke

Break-away Pressures for Double Acting Cylinders
 with Piston Diameters 32 to 100 mm

Ø (mm)	Type WG (bar)	Type ZG (bar)
32	0,15-0,30 (0,70)	0,15-0,30 (0,80)
40	0,10-0,20 (0,60)	0,15-0,30 (0,70)
50	0,10-0,20 (0,60)	0,15-0,30 (0,60)
63	0,10-0,20 (0,40)	0,10-0,25 (0,50)
80	0,10-0,20 (0,40)	0,10-0,25 (0,50)
100	0,10-0,20 (0,40)	0,10-0,25 (0,50)

On request: break-away pressures Ø 125 mm to Ø 320 mm

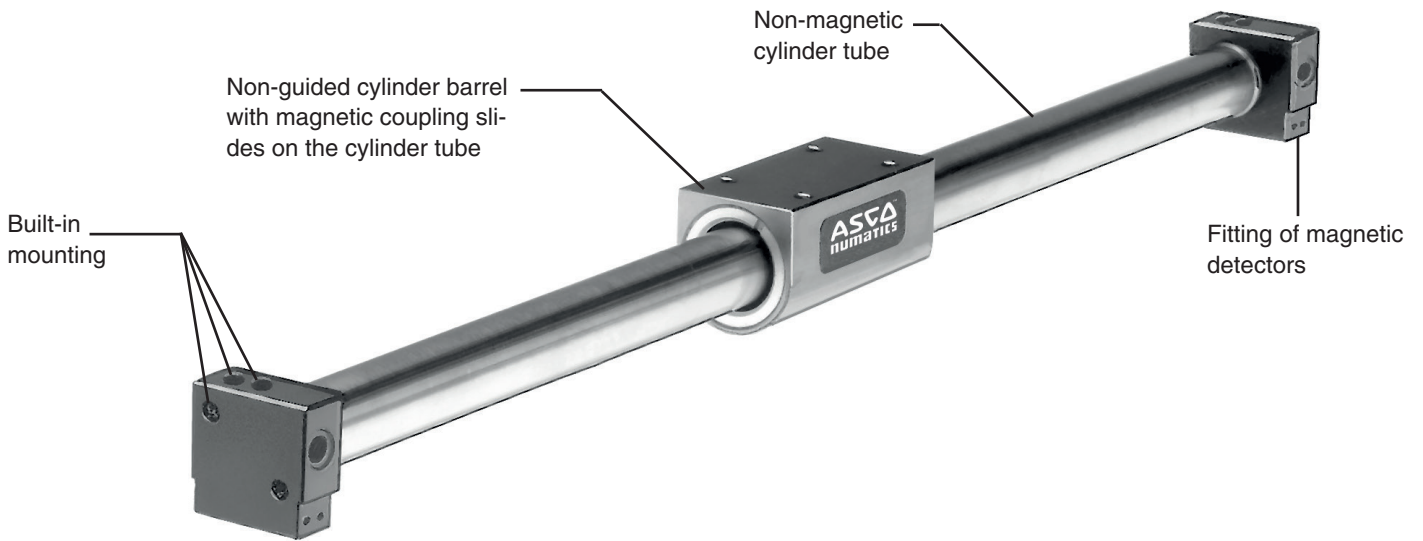
The values in brackets refer to a cylinder which has remained in its final position for a longer period of time (several hours or days). Due to long rest periods the material elastomer can "flow" into the rough walls of the cylinder barrel and it can "interlock". For cylinders that are regularly in motion the first values without brackets are valid, as the "sticking effect" occurs only after a longer rest period.



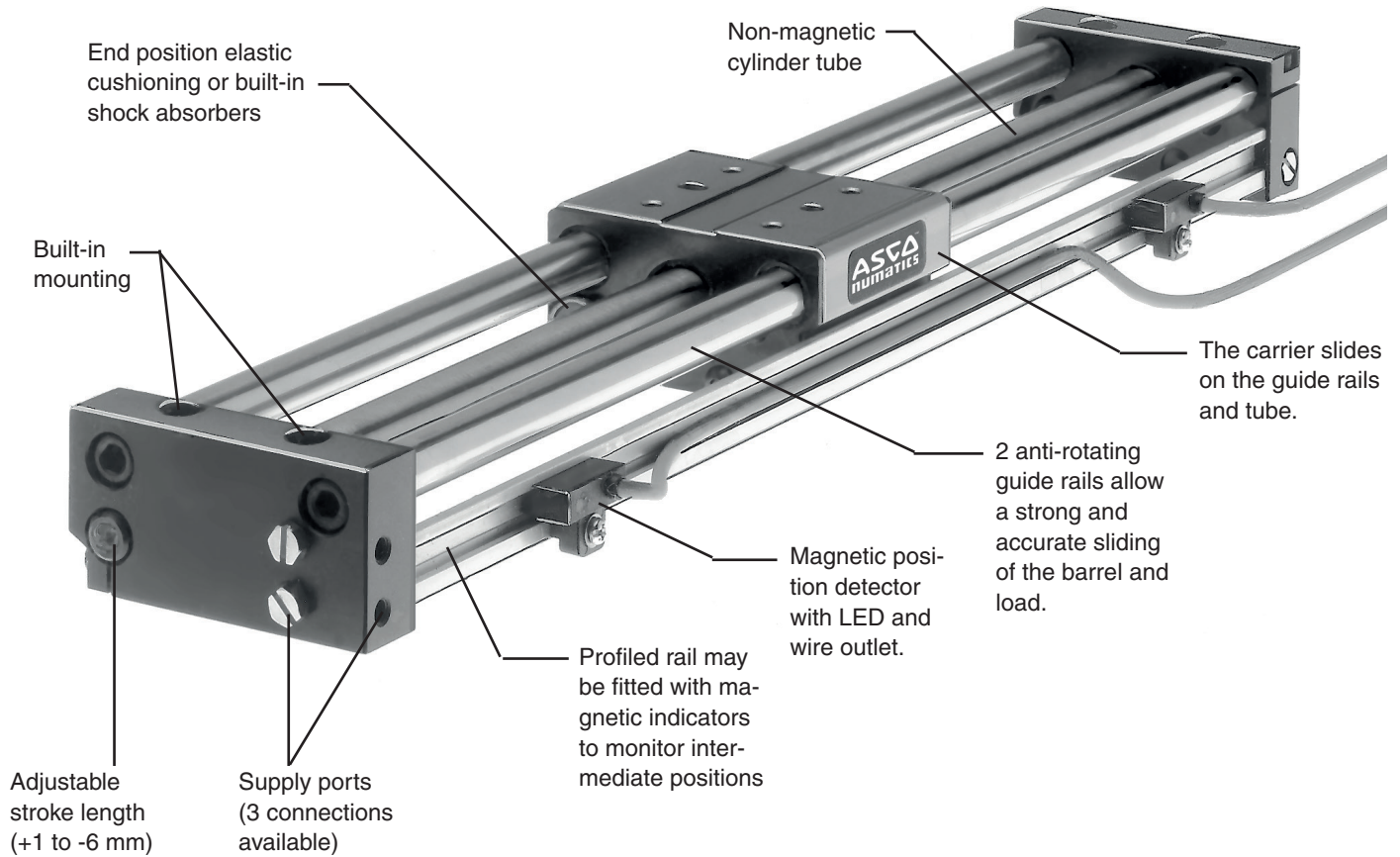
type - series	page	technology	guidance	Ø (mm)	max. load (N)	allowable ?moments (N.m)			brake		options		
						M	Ms	Mv	passive	active	low speed	air connection opposite to guide rail	
Unguided rodless cylinders													
 STN - 445	95	with magnetic coupling	unguided	6	13	0,1	-	-	-	-	-	-	
				10	36	0,3	-	-	-	-	-	-	-
				16	100	1,2	-	-	-	-	-	-	-
				20	180	2,5	-	-	-	-	-	-	-
				25	280	4	-	-	-	-	-	-	-
				32	438	9	-	-	-	-	-	-	-
				40	708	14	-	-	-	-	-	-	-
 STBN - 448	120	with bands	unguided	16	120	4	0,3	0,5	-	-	-	-	
				25	300	15	1	3	-	-	-	-	-
				32	450	30	2	5	-	-	-	-	-
				40	750	60	4	8	-	-	-	-	-
				50	1200	115	7	15	-	-	-	-	-
				63	1650	200	8	24	-	-	-	-	-
				80	2400	360	16	48	-	-	-	-	-
Guided rodless cylinders													
 STG - 445	101	with magnetic coupling	plain guide rails	6	13	0,3	0,06	0,3	-	-	-	-	
				10	36	1	0,2	1	-	-	-	-	-
				16	100	2,5	0,5	2,5	-	-	-	-	-
				20	180	5,5	1,1	5,5	-	-	-	-	-
				25	280	10	2	10	-	-	-	-	-
				32	438	16	3,2	16	-	-	-	-	-
				40	708	25	5	25	-	-	-	-	-
 STB - 446	108	with bands	plain guide rails	25	270	11	6	3,5	-	-	-	-	
				32	540	33	8,5	15	-	-	-	-	
				40	820	56	31	23	-	-	-	-	
				50	1360	125	34	37	-	-	-	-	
				63	1820	200	51	45	-	-	-	-	
 STB - 448	125	with bands	plain bearing guide	16	325	11	6	11	-	-	•	•	
				25	675	34	14	34	•	•	•	•	
				32	925	60	29	60	•	•	•	•	
				40	1500	110	50	110	•	•	•	•	
				50	2000	180	77	180	•	•	•	•	
				63	2500	260	120	260	•	-	•	•	
				80	2500	260	120	260	•	-	•	•	
									(129)	(132)			
									www.asco.com	www.asco.com			
 STBB - 448	135	with bands	cross roller guide	25	857	39	16	39	•	•	•	•	
				32	1171	73	29	73	•	•	•	•	
				40	2074	158	57	158	•	•	•	•	
				50	3111	249	111	249	•	•	•	•	
													(139)
									www.asco.com	www.asco.com			

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CYLINDERS WITH NON-GUIDED CARRIER (STN)



CYLINDERS WITH GUIDED CARRIER (STG)



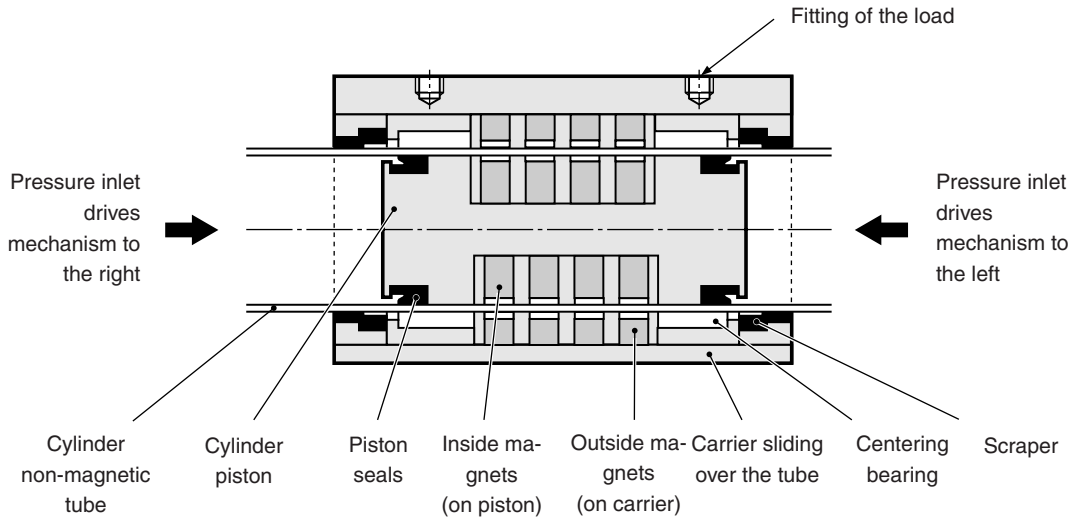
SUMMARY

CYLINDERS WITH NON-GUIDED CARRIER		CYLINDERS WITH GUIDED CARRIER	
• General	Page 95 (www.asco.com)	• General	Page 101 (www.asco.com)
• Mechanical properties	Page 97 (www.asco.com)	• Mechanical properties	Page 103 (www.asco.com)
• Magnetic detectors	Page 99 (www.asco.com)	• Magnetic detectors	Page 106 (www.asco.com)
• Dimensions	Page 98 (www.asco.com)	• Dimensions	Page 105 (www.asco.com)

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OPERATING SYSTEM

The air-operated cylinder slides within the non-magnetic tube. The cylinder activates the carrier via the magnetic coupling by means of powerful permanent magnets.



CHARACTERISTICS

Rodless cylinders with magnetic coupling offer many advantages :

● **REDUCED DIMENSIONS**

Unlike the traditional pneumatic cylinders, the linear drive cylinders with magnetic coupling are rodless, with reduced dimensions, an easier sliding of the cylinder within the mechanism and a different positioning of the load to move. This type of cylinder is compact.

● **EASY MOUNTING**

Cylinders are drilled for easier mounting and reduced dimensions.

● **LONG LASTING EQUIPMENT**

Due to absence of piston rod and mechanical movement, the cylinder with magnetic coupling is hermetically closed : it is thus leakage- and dust-free.

● **NON LUBRICATED AIR**

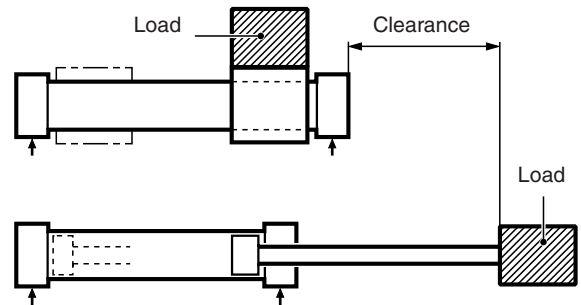
These products of advanced technology operate with lubricated or non-lubricated air.

● **MECHANICAL PROTECTION**

The linear drive is performed by magnetic coupling. In case the holding limit is exceeded, a magnetic breakaway occurs, thus offering an additional protection of the machinery and their environment. The magnetic coupling is restored when the piston and carrier align once again.

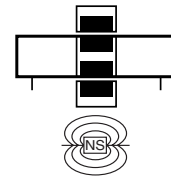
● **POSITION CONTROL**

All the cylinders are originally designed to be equipped with magnetic position detectors with ILS, LED and wire outlet.



APPLICATIONS

Whenever space is limited or large linear drives are required such as : door opening, sliding carriers, material handling, loading and feeding, transmission over conveyors, workpieces lift (or hoist), sliding of spraying guns or cutting tools etc...



GENERAL

Detection Equipped for magnetic position detectors (except Ø6)
Fluid air or neutral gas, filtered, lubricated or not
Pressure 7 bar maxi
Temperature 0°C, + 60°C

Strokes (in mm)	Ø (mm)	6	10	16	20	25	32	40
mini	-	50	50	50	50	50	50	50
maxi		300	500	1000	1500	2000	2000	2000

Force of the magnetic coupling

Ø (mm)	6	10	16	20	25	32	40
Force (N)	21	60	160	300	460	730	1170

Max. allowable load The maximum allowable load is defined by its positioning and by the cylinder specifications (see Mechanical properties).
Max. speed of carrier 0.4 m/s (this upper limit avoids magnetic breakaway).
Cushioning Elastic cushioning with nitrile (NBR) rings.



CONSTRUCTION

Cylinder tube Stainless steel.
Front and rear covers Anodized light alloy.
Carrier Light alloy with nitrile wear rings and seals.
Piston Stainless steel and light alloy.
Piston seals Nitrile (NBR).
Magnets Rare earths, a highly performing magnetic material.

SPECIFICATIONS

Ø (mm)	CYLINDER WITH ELASTIC CUSHIONING		Connector Ø
	catalogue number non-cushioned	reference	
6	44550001 *	STN 6 NA .#. .	M 5
10	44550002 *	STN 10 NA .#. .-DM	M 5
16	44550003 *	STN 16 NA .#. .-DM	M 5
20	44550004 *	STN 20 NA .#. .-DM	G 1/8
25	44550005 *	STN 25 NA .#. .-DM	G 1/8
32	44550006 *	STN 32 NA .#. .-DM	G 1/8
40	44550007 *	STN 40 NA .#. .-DM	G 1/4

* Please specify stroke length (in mm)

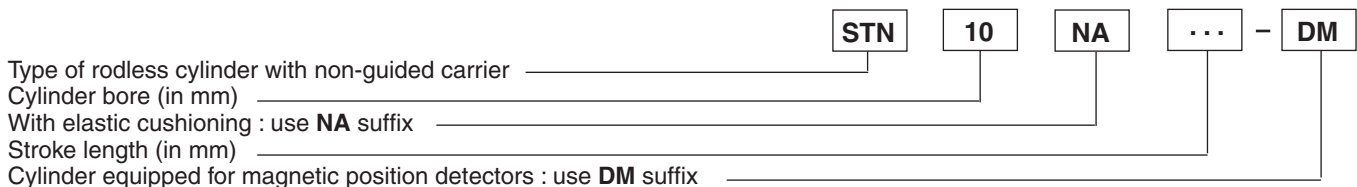
ACCESSORY

ALIGNMENT COMPENSATION BRACKET

Ø (mm)	Ø 6	Ø 16	Ø 20	Ø 25	Ø 32	Ø 40
catalogue number	88144501	88144503	88144504	88144505	88144506	88144507

MAGNETIC POSITION DETECTOR : see next pages

SPECIFYING THE REFERENCE OF A RODLESS CYLINDER WITH NON-GUIDED CARRIER



ORDERING INFORMATION

On your order please specify : **44550002 + stroke : 200 mm** **STN 10 NA 200-DM**

Cylinder code followed by stroke length (in mm) _____
 or cylinder reference followed by stroke length (in mm) _____

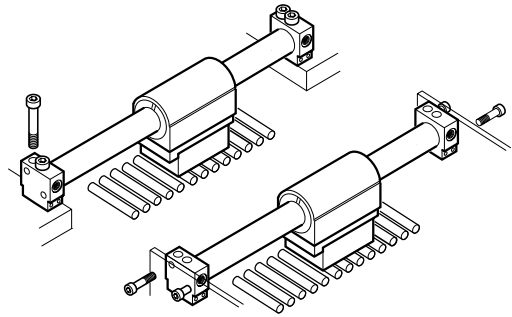
Note : Accessories and detectors must be ordered separately.

ACCESSORY - Accessory code **88144 ---**
 DETECTOR - Detector code and quantity **88144513**

AVAILABLE MOUNTINGS

● **ADJUSTABLE MOUNTING**

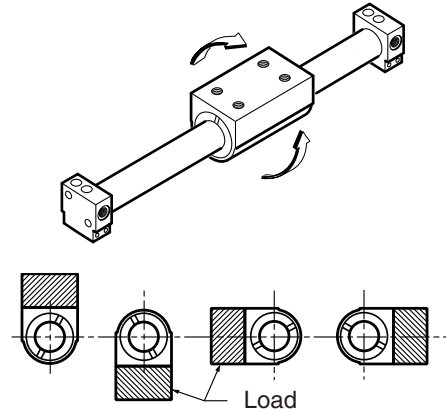
Front and rear covers allow axial or radial mounting



● **CHOICE OF ADAPTATIONS FOR SYSTEMS**

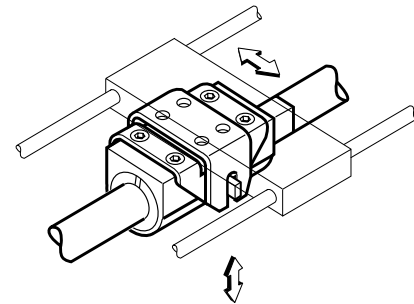
The carrier is rotatable up to 360° around the tube axis. The load thus may be fitted whatever the position angle. (For cylinders with magnetic position detector, see recommendations below).

The user must often fit an anti-rotating device. This type of cylinder is thus particularly recommended for the linear drive of guided loads.



● **ALIGNMENT COMPENSATION BRACKET**

Specially designed for loads guided externally, this additional bracket (see accessories) suppresses interfering moments and frictional losses due to the misalignment of the guiding mechanism and cylinder axes.



● **STROKE END MAGNETIC DETECTORS**

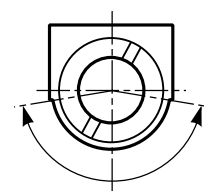
The cylinder is equipped for magnetic position detectors. The magnetic field of the detector coincides with the round part of the carrier.

Each detector is delivered with a mounting rail and a fitting device.

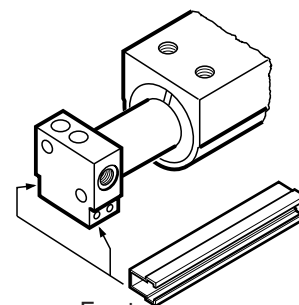
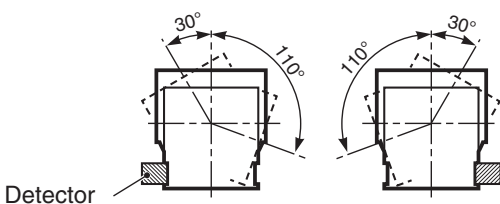
Each rail is fastened on the cylinder covers, with front or rear mounting available.

End position sensing only.

Possibilities of carrier adjusting according to the detector position on the cylinder end :

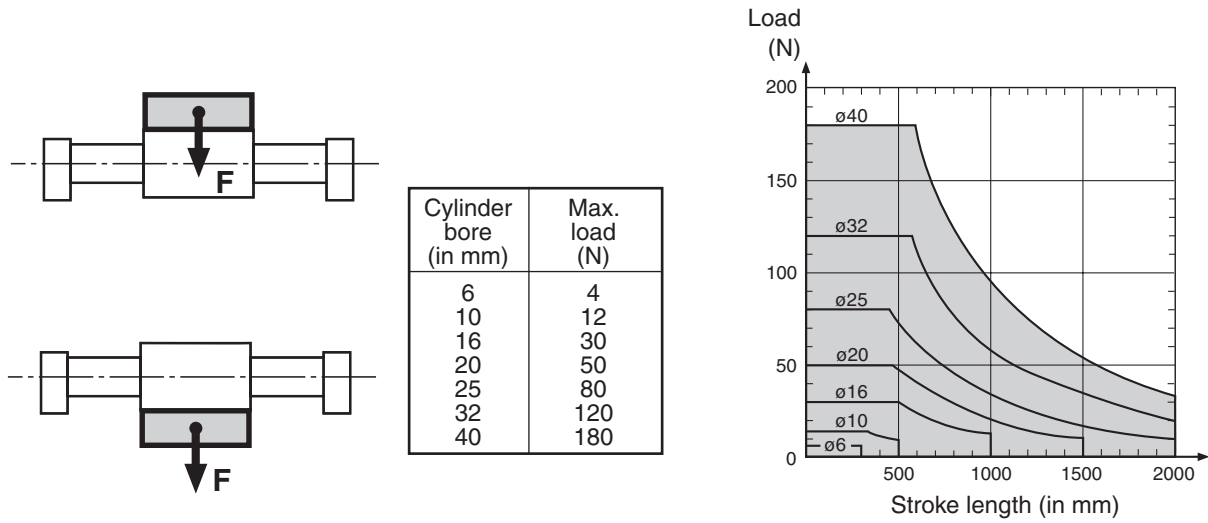


Magnetic field of the detector

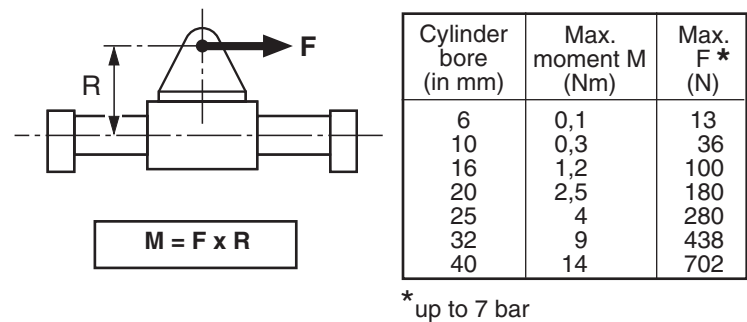


Front or rear mounting of the mounting rail

The rodless cylinder is essentially recommended for sliding loads over long strokes. The load may be positioned directly over / under the cylinder while conforming to the maximums defined according to the cylinder stroke.



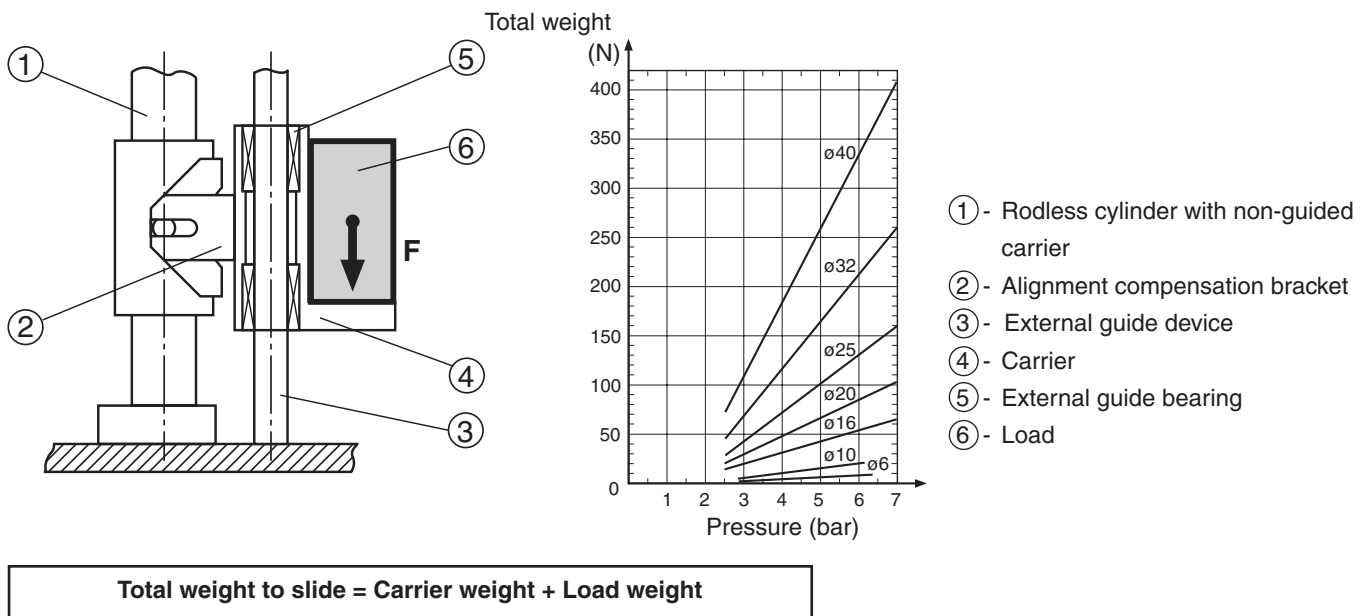
SLIDING EXTERNAL SLIDE UNITS (HORIZONTAL MOUNTING)



Due to linear drive and load positioning over the rodless cylinder, an effort results from sliding the load. Depending on the maximum values of moments and efforts shown in table opposite, determine the diameter of the appropriate cylinder.

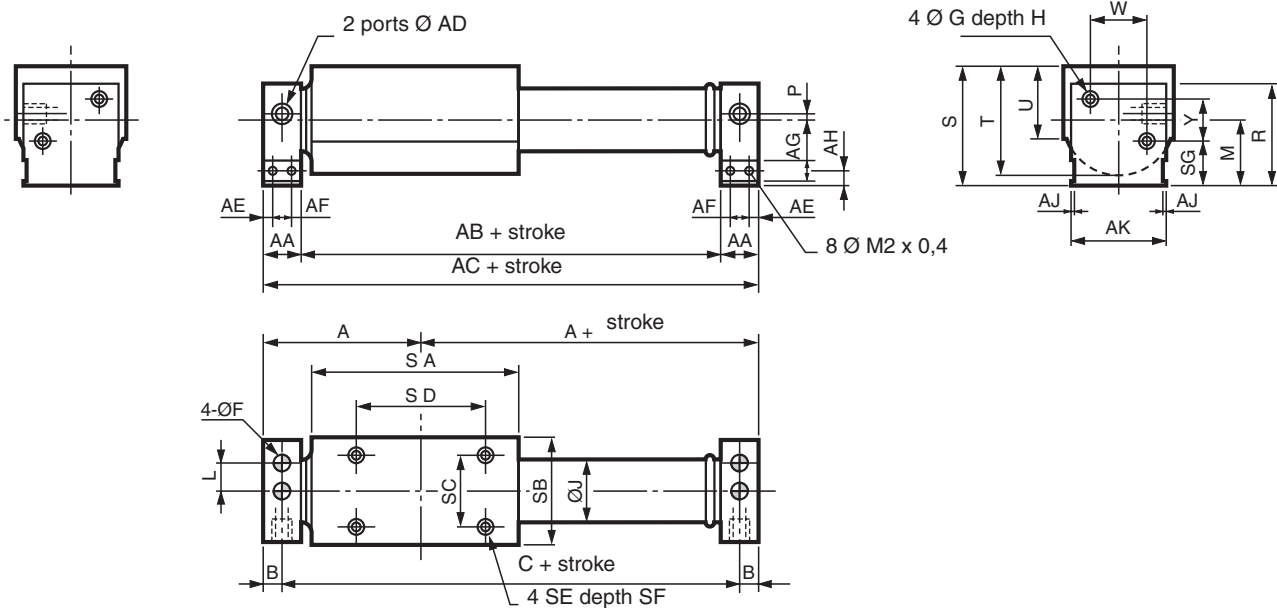
SLIDING EXTERNAL SLIDE UNITS (VERTICAL MOUNTING)

In a vertical mounting, the load must be guided externally. The ratio between the total load to slide and the driving pressure is defined by the diagram below.



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DIMENSIONS AND WEIGHTS

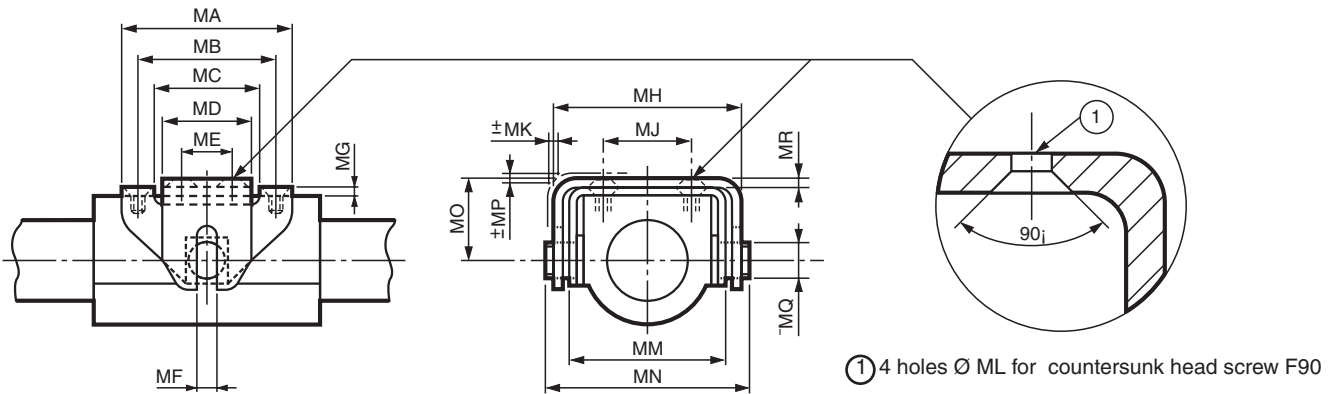


Ø (mm)	A	B	C	F	G	H	J	L	M	P	R	S	T	U	W	Y	AA	AB	AC
6	32,5	5	55	3,4	M3 x 0,5	5	6,8	4	10	0	14	18,5	17	11	8	0	10	45	65
10	33,5	5,5	56	3,4	M3 x 0,5	6	11	6,5	14	1	22	26,5	25	16	13	9	11	45	67
16	43	5,5	75	4,5	M4 x 0,7	6	17,4	8	17	0	27	32	30	20	16	12	11	64	86
20	53	8	90	4,5	M4 x 0,7	9	21,4	11	21	0	33	39	36	24	22	16	16	74	106
25	56	8	96	5,5	M5 x 0,8	9	26,4	12	23	0	38	44	42	28	24	20	16	80	112
32	64	8	112	6,6	M6 x 1	9	33,6	16	30	0	48	56	52	35	32	24	16	96	128
40	76	10	132	6,6	M6 x 1	12	41,6	18	37	0	60	69	64	43	36	28	20	112	152

Ø (mm)	AD	AE	AF	AG	AH	AJ	AK	SA	SB	SC	SD	SE	SF	SG	WEIGHTS (Kg)	
															1	2
6	M5 x 0,8	—	—	—	—	—	14	41	17	10	25	M3 x 0,5	4	5	0,050	0,006
10	M5 x 0,8	2,5	6	6	3,7	0,5	22	41	25	16	22	M3 x 0,5	6	9,5	0,110	0,013
16	M5 x 0,8	2,5	6	6	4	1	27	59	30	20	35	M4 x 0,7	6	11	0,210	0,028
20	G 1/8	2,5	11	6	6	1	32	68	36	26	40	M4 x 0,7	9	13	0,410	0,035
25	G 1/8	2,5	11	6	5	1	36	74	42	30	42	M5 x 0,8	9	13	0,550	0,047
32	G 1/8	2,5	11	6	8	2	46	87	52	38	55	M6 x 1	9	18	1,030	0,065
40	G 1/4	2,5	15	6	9	1	50	102	64	50	65	M6 x 1	15	23	1,830	0,080

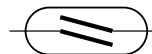
1 - Cylinders weight with stroke 0
2 - Weight to add per 100 mm stroke

WITH ALIGNMENT COMPENSATION BRACKET (ACCESSORY)



Mounting this bracket allows to compensate alignment errors between load guiding and cylinder axis : $\pm MK$ (\leftrightarrow) and $\pm MP$ (\updownarrow).
Head screws F90 must be fitted with LOCTITE 241 on the carrier as well as on the load.

Ø (mm)	MA	MB	MC	MD	ME	MF	MG	MH	MJ	MK	ML	MM	MN	MO	MP	MQ	MR	WEIGHTS (Kg)
6	32	25	18	16	9	2	2	29	0	1	3,5	23	32	13	2	3	2	0,027
10	29	22	15	14	7	2,5	2	37	16	1	3,5	31	40	17	2	4	2	0,032
16	45	35	24	20	10	4	2,5	45	20	1	4,5	38	50	20	2	6	2,6	0,074
20	52	40	30	26	16	5	2,5	51,2	26	1	4,5	44	54	23	2	8	2,6	0,100
25	57	42	31	29	17	6	3,2	61,8	30	1,5	5,5	52,4	66	27	2	10	3,2	0,175
32	73	55	39	37	20	8	4,5	79	38	2	6,6	66	84	34	2,5	12	4,5	0,370
40	83	65	49	46	30	10	4,5	91	50	2	6,6	78	96	40	2,5	16	4,5	0,525

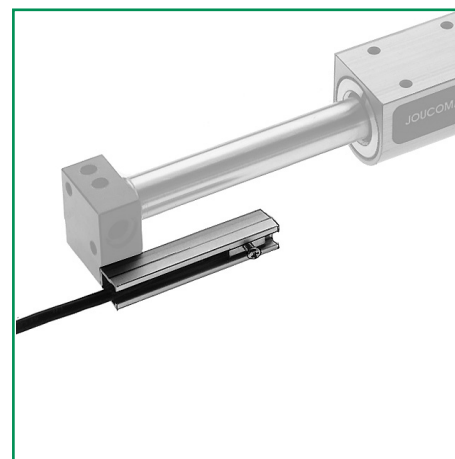

OPERATING SYSTEM

A permanent magnet mounted on the rodless cylinder carrier operates on stroke end a reed switch (ILS) mounted on the cylinder cover. The detector is fitted with a warning lamp which lights when the contact is closed.

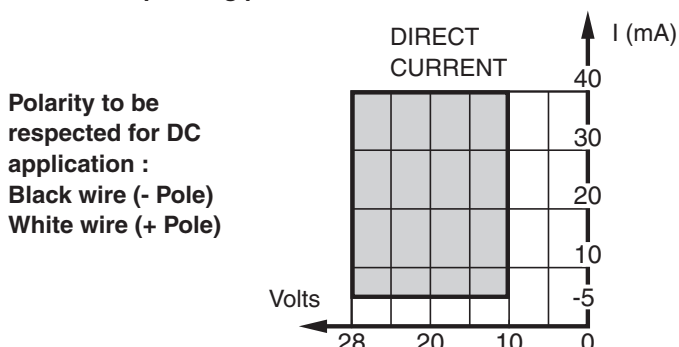
ELECTRICAL CHARACTERISTICS
SWITCHING POWER

max. DC current	: 1.12 W
SWITCHING VOLTAGE	: 10 to 28 VDC (1)
MAX. SWITCHING CURRENT	: 40 mA
CONTACT RESISTANCE	: 100 mΩ
INSULATION RESISTANCE:	100 MΩ
WITHSTAND VOLTAGE	: 1000 V
RESPONSE TIME opening	: 0.05 ms
closing	: 0.4 ms
REPEATABILITY	: ± 0.1 mm
LIFE	: 5 X 10 ⁶ operations
AMBIENT TEMPERATURE	: 0°C, + 60°C
ELECTRICAL PROTECTION	: see below
HOUSING	: brass
NF C20010 PROTECTION	: IP66
CONNECTION	: 1 Ø 3 mm cable, 1.5 m long, 2 conductors 0.15 mm ²
INDICATOR LAMP	: Red diode (LED) which lights when the contact is closed

(1) The indicator lamp gives a voltage drop approx. 2.5 V.



Note : The operating point must be within the shaded zone. Any overvoltage or overintensity may damage the detector.


PARTICULAR APPLICATIONS

- Detectors used for direct control of incandescent lamps :
 The power specified on the lamp is based on its resistance when hot, the resistance is very low when turned on with the lamp cold and the amperage can become very great and may exceed the ILS rating, allowance should therefore be made for the actual wattage of the bulb when cold.
- With wiring longer than 10 m, a 1000 Ω resistor must be fitted in series with the detector to reduce the capacitance effect caused by the wiring.

INDUCTIVE LOAD		100 V/1A Diode
RESISTIVE LOAD		Protection not necessary

The user is responsible for supply and assembly of the diode.

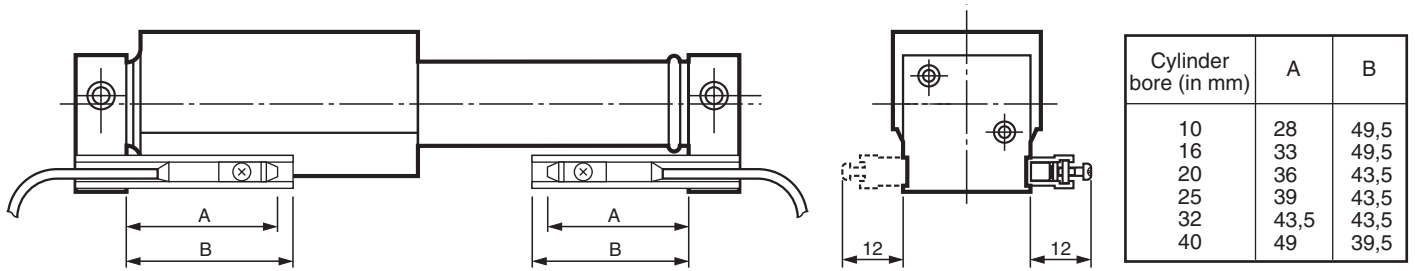
DETECTOR CODE

DESCRIPTION	CODE
Magnetic position detector with reed switch (ILS) and wire outlet for rodless cylinder with non-guided carrier - type STN	88144513

The detector is supplied with a securing collar adapted to the cylinder diameter.

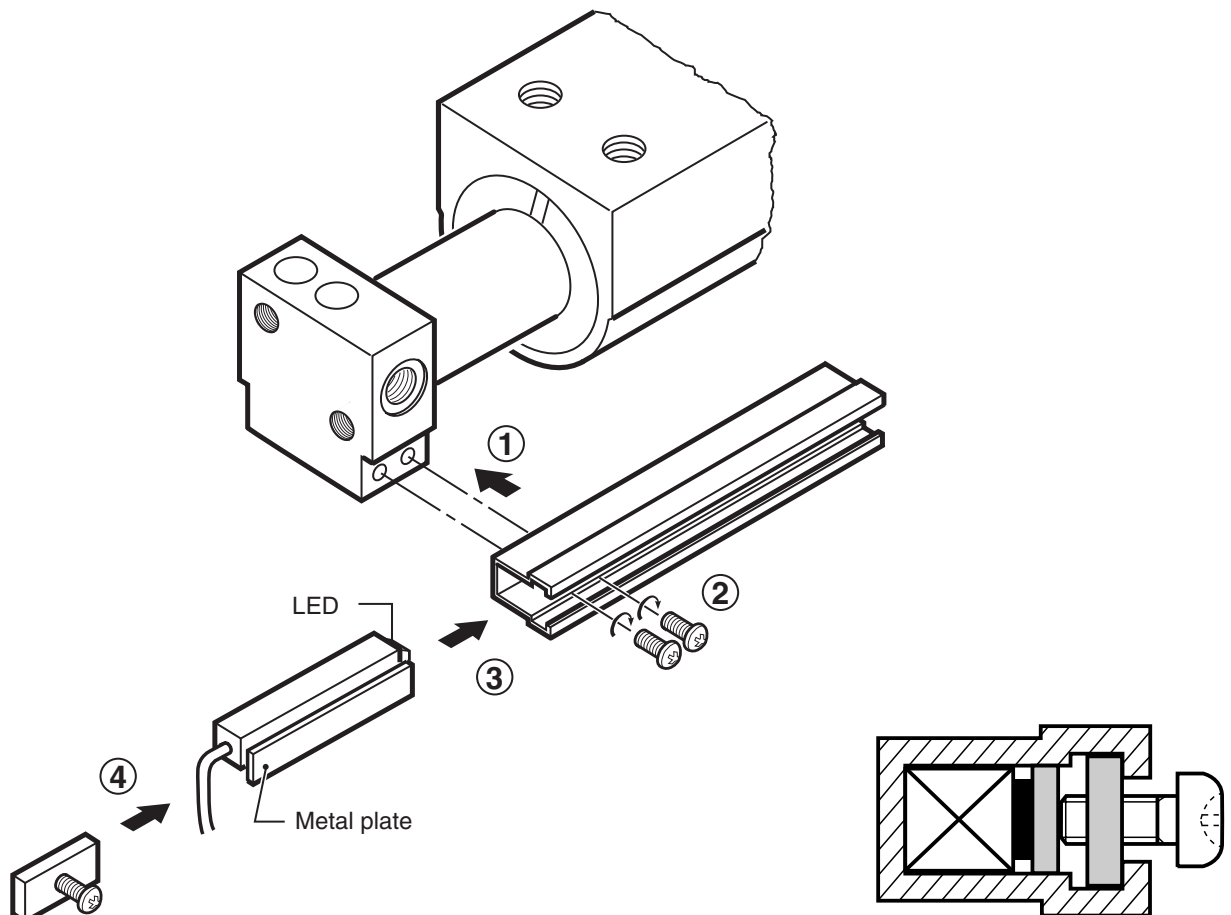
DIMENSIONS WITH DETECTOR

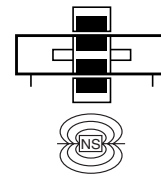
The detector must be mounted according to dimension A below. The detector position may be adjusted allowing a 1 mm overlap.



MOUNTING THE DETECTOR

- Fit the rail either on front or rear cylinder cover.
- Respect the directional mounting of detector with LED **inwards** and mounting instructions of parts.
- The detector is screwed into the rail by means of the locking screw.
Max. screwing torque : < 0.2 Nm.





GENERAL

Detector Equipped for magnetic position detector
Fluid air or neutral gas, filtered, lubricated or not
Pressure 7 bar maxi
Temperature 0°C, + 60°C
Strokes (in mm)

Ø (mm)	6	10	16	20	25	32	40
min. without absorber	50	50	50	50	50	50	50
with absorber	100	100	100	100	100	150	150
max.	300	500	750	1000	1500	1500	1500

Force of the magnetic coupling :

Ø (mm)	6	10	16	20	25	32	40
Force (N)	21	60	160	300	460	730	1170

Max. allowable load The maximum allowable load is defined by its positioning and by the cylinder specifications (see Mechanical properties).

Max. speed of carrier 0.5 m/s (this upper limit avoids magnetic breakaway).
Cushioning Elastic cushioning with or without shock absorber, not adjustable.

CONSTRUCTION

Cylinder tube Stainless steel.
Front and rear covers Anodized light alloy.
Slide unit Light alloy with nitrile wear rings and seals.
Piston Stainless steel and light alloy.
Piston seals Nitrile (NBR).
Magnets Rare earths, a highly performing magnetic material.
Guide rings Teflon.



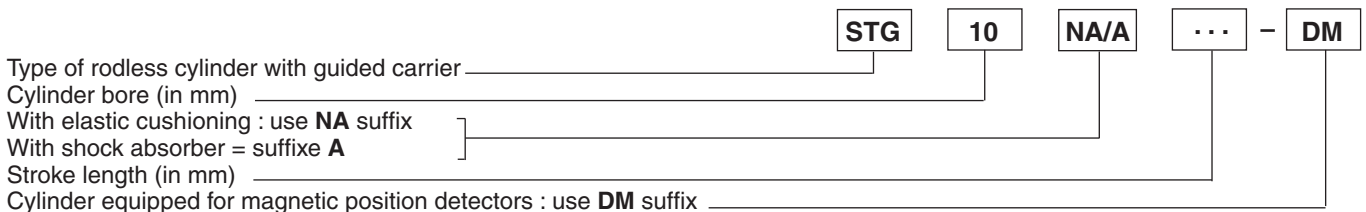
CHOICE OF EQUIPMENT

Cylinder bore in mm	CYLINDER WITH ELASTIC CUSHIONING		CYLINDER WITH SHOCK ABSORBER		Connection Ø
	CODE	REFERENCES	CODE	REFERENCES	
6	44550008 *	STG 6 NA . . . -DM	44550015 *	STG 6 A . . . -DM	M 5
10	44550009 *	STG 10 NA . . . -DM	44550016 *	STG 10 A . . . -DM	M 5
16	44550010 *	STG 16 NA . . . -DM	44550017 *	STG 16 A . . . -DM	M 5
20	44550011 *	STG 20 NA . . . -DM	44550018 *	STG 20 A . . . -DM	G 1/8
25	44550012 *	STG 25 NA . . . -DM	44550019 *	STG 25 A . . . -DM	G 1/8
32	44550013 *	STG 32 NA . . . -DM	44550020 *	STG 32 A . . . -DM	G 1/8
40	44550014 *	STG 40 NA . . . -DM	44550021 *	STG 40 A . . . -DM	G 1/4

* Please specify stroke length (in mm)

MAGNETIC POSITION DETECTOR : see next pages

SPECIFYING THE REFERENCE OF A RODLESS CYLINDER WITH GUIDED CARRIER



ORDERING INFORMATION

On your order please specify : **44550009** + course : 200 mm **STG 10 NA 200-DM**

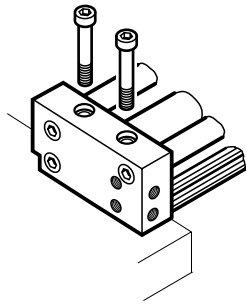
Cylinder code followed by stroke length (in mm) _____
 or cylinder reference followed by stroke length (in mm) _____

NOTE : Detectors must be ordered separately
 DETECTOR - Detector code and quantity **88144 ...**

AVAILABLE MOUNTINGS

● **ADJUSTABLE MOUNTING**

The front and rear covers are rectangular and allow a screwed radial mounting (no additional accessory).



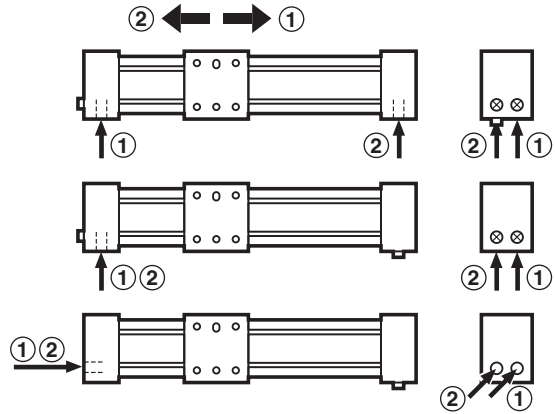
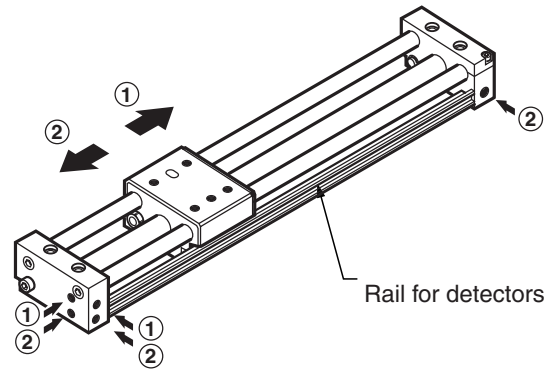
● **SEVERAL CONNECTIONS AVAILABLE**

The rodless cylinder with guided carrier is always equipped with a rail for magnetic position detectors. This specially designed rail includes a pressure supply pipe from one head cover to the other, the left one fitted with various ports. This mounting allows 3 axial or radial connections.

Note: Supplying pressure through both ports of a same head cover, mainly for large wiring, offers many advantages :

- reduced wiring
- positioning of the control valve close to the 2 ports
- less damage on piping due to mechanical movements
- reduced dimensions

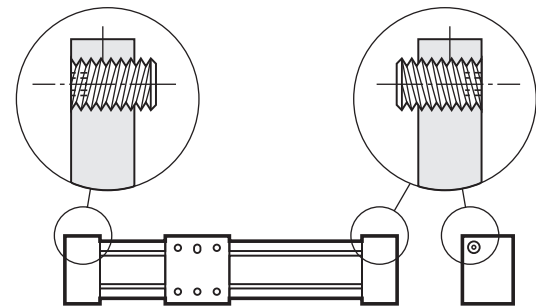
Close unused ports



● **ADJUSTABLE STROKE**

The stroke of the rodless cylinder with guided carrier may be adjusted from + 1 mm to - 6 mm screwing up/down the side stops of stroke end :

- Down to - 3 mm, adjusting stroke length from one side or both sides.
- Down to - 3 mm to - 6 mm or up to + 1 mm from both sides.



● **CUSHIONING**

The rodless cylinders with guided carrier are available in two versions :

- with elastic cushioning with polyurethane dampers
- with built-in, not adjustable shock absorber, acting on both stroke ends.

● **MAGNETIC POSITION DETECTORS**

The cylinder is equipped for sensors detecting stroke end and/or intermediate positions. These reed detectors are directly fitted on the rail and are operated by a permanent magnet within the carrier.

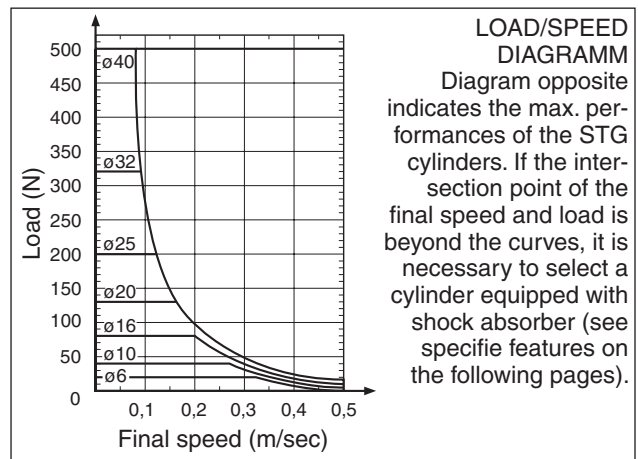
● **REDUCED MAINTENANCE**

The slide bearings with teflon rings protected by scrapers allow the cylinder tube and side guide rails to operate without lubrication.

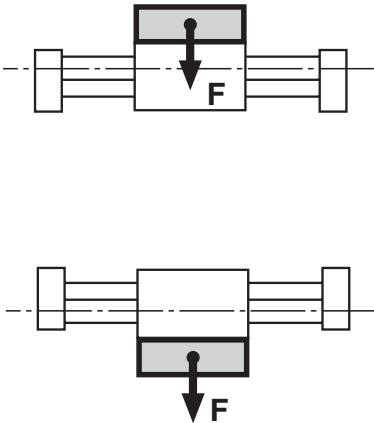


With elastic cushioning

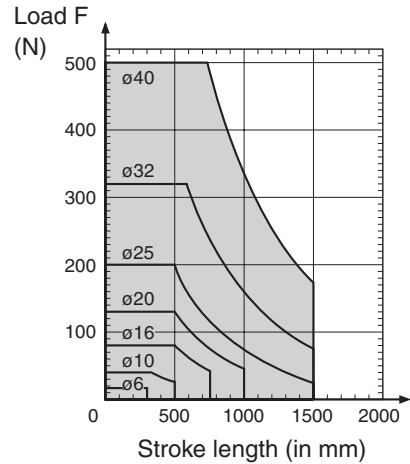
With shock absorber



The rodless cylinder is essentially recommended for sliding loads over long strokes. The load may be positioned directly over / under the cylinder while conforming to the maximums defined according to the cylinder stroke.

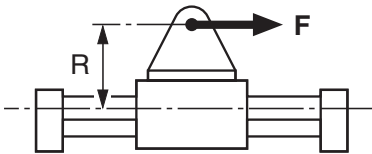


Cylinder bore (in mm)	Max. load F (N)
6	15
10	40
16	80
20	130
25	200
32	320
40	500



HORIZONTALLY OPERATING SLIDE UNITS

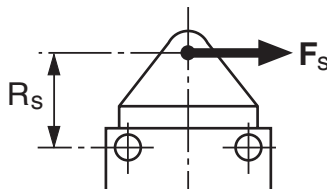
Due to linear drive and load positioning over the rodless cylinder, an effort results from sliding the load. Depending on the maximum values of moments and efforts shown in tables below, determine the diameter of the appropriate cylinder.



$$M = F \times R$$

Cylinder bore (in mm)	Max. moment M (N.m)	Max F* (N)
6	0,3	13
10	1	36
16	2,5	100
20	5,5	180
25	10	280
32	16	438
40	25	702

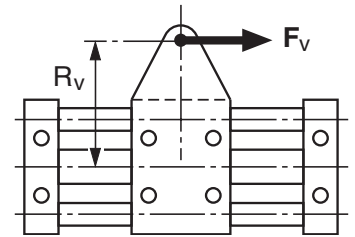
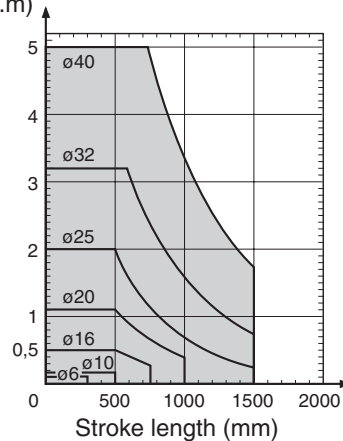
* up to 7 bar



$$M_s = F_s \times R_s$$

Cylinder bore (in mm)	Max. moment Ms (N.m)
6	0,06
10	0,2
16	0,5
20	1,1
25	2
32	3,2
40	

Max. moment Ms depending on the stroke length (N.m)



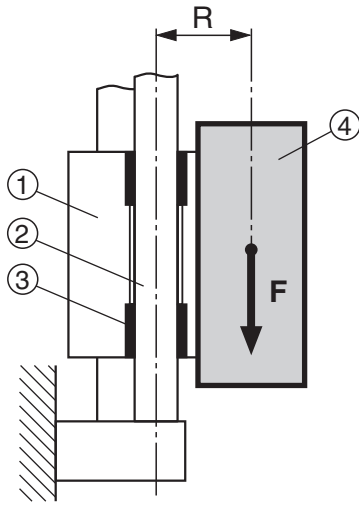
$$M_v = F_v \times R_v$$

Cylinder bore (in mm)	Max. moment Mv (N.m)	Max. Fv* (N)
6	0,3	13
10	1	36
16	2,5	100
20	5,5	180
25	10	280
32	16	438
40	25	702

* up to 7 bar

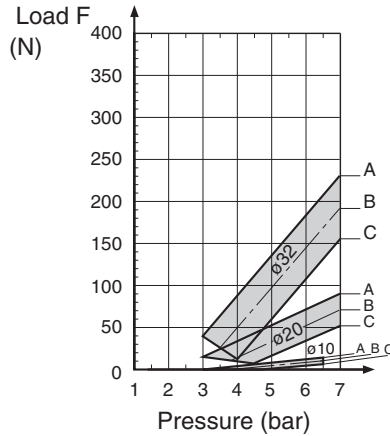
VERTICALLY OPERATING SLIDE UNITS

For vertically operating slide units, please refer to the diagram below to determine the relation between the load, the torsional moment M and the supply pressure.

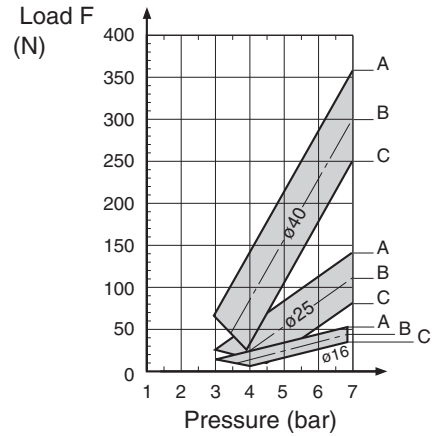


Torsional moment :
 $M = F \times R$

- ① - Rodless carrier with guided carrier
- ② - Cylinder guide rods
- ③ - Guide bearings
- ④ - Load



- Ⓐ - Curves with moment M = 0
- Ⓑ - Curves with moment M = see (B) above
- Ⓒ - Curves with moment M = see (C) above



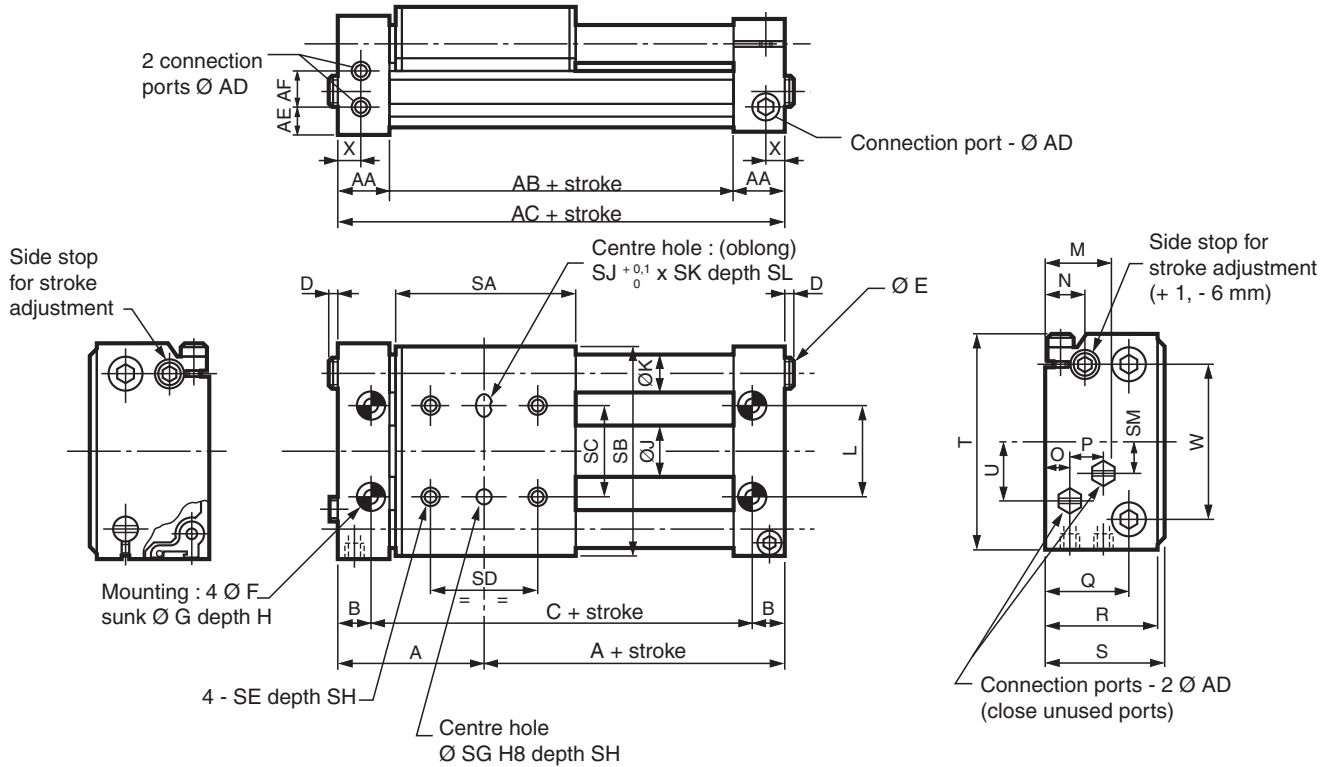
Cylinder bore (in mm)	Ⓑ Max. moment M/2 (N.m)	Ⓒ Max. moment M (N.m)
6	0,15	0,3
10	0,5	1
16	1,25	2,5
20	2,75	5,5
25	5	10
32	8	16
40	12,5	25

SHOCK ABSORBERS CHARACTERISTICS

- Double acting, non adjustable
- Max. final speed ; 0,5 m/s

∅ Cylinder (mm)	6	10	16	20	25	32	40
Max. inertial force W3 (J)	0,5	1	2,5	4	6	13,5	27
Absorber stroke (mm)	6	8	10	10	12	15	18

DIMENSIONS AND WEIGHTS



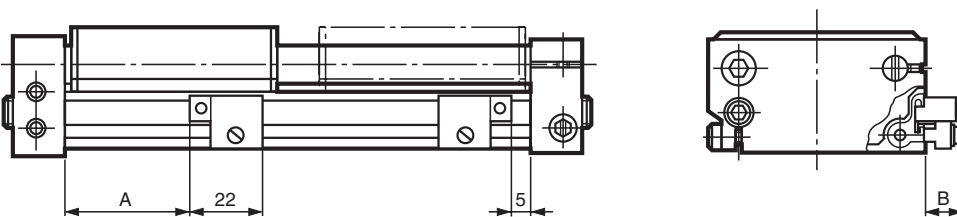
\varnothing (mm)	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T
6	34	9	50	4	M8 x 1,25	3,4	6,5	3,3	6,8	6	16	14,5	10	6	8,5	22	26	27	50
10	37,5	9	57	3	M10 x 1,5	4,5	8	4,5	11	10	20	18	12	6	11,5	26	33	34	60
16	48	11	74	4	M10 x 1,5	5,5	9,5	5	17,4	12	30	20	12	7	12	27	36	38	70
20	52,5	13	79	3	M12 x 1,75	5,5	9,5	5,5	21,4	14	35	24	15	8	14,5	33	44	46	84
25	57	14	86	4	M14 x 2	6,6	11	6,5	26,4	16	40	26	16	8,5	16,5	36	48	50	94
32	68,5	16	105	2	M18 x 2,5	9	14	8,5	33,6	20	50	31	20	10	20	44	58	60	116
40	76,5	19	115	4	M20 x 2,5	9	14	8,5	41,6	25	65	37,5	24	12	24	52	70	72	140

\varnothing (mm)	U	W	X	AA	AB	AC	AD	AE	AF	SA	SB	SC	SD	SE	SF	SG	SH	SJ
6	11	32	5	13	42	68	M5 x 0,8	6	10,5	40	48	20	20	M4 x 0,7	7	4	4	4
10	16	44	5	14	47	75	M5 x 0,8	6	11,5	45	59	25	25	M4 x 0,7	7	4	4	4
16	18	50	5,5	17	62	96	M5 x 0,8	7	12	60	68	30	35	M5 x 0,8	8	5	5	5
20	23	60	7,5	19	67	105	G 1/8	8	14,5	65	82	36	38	M5 x 0,8	9	5	5	5
25	23	68	7,5	21	72	114	G 1/8	8,5	16,5	70	92	42	40	M6 x 1	10	6	6	6
32	32	85	8	25	87	137	G 1/8	10	20	85	114	52	50	M8 x 1,25	14	8	8	8
40	41	102	10	28	97	153	G 1/4	12	24	95	138	62	55	M8 x 1,25	16	8	8	8

\varnothing (mm)	SK	SL	SM	Weights (Kg)	
				1	2
6	6	4	0	0,260	0,070
10	6	4	16	0,470	0,160
16	7	5	18	0,770	0,230
20	7	5	23	1,270	0,320
25	8	6	23	1,670	0,400
32	10	8	32	3,110	0,600
40	10	8	41	5,200	0,900

1 - Weight of cylinders with stroke 0
2 - Weight to be added per 100 mm length

DIMENSIONS WITH DETECTORS



Cylinder bore (in mm)	A min.	B
6	16	6
10	21	6
16	35	6
20	40	0
25	45	0
32	60	0
40	70	0



OPERATING SYSTEM

A permanent magnet mounted on the rodless cylinder carrier operates on stroke end a reed switch (ILS) mounted on the cylinder cover. The detector is fitted with a warning lamp which lights when the contact is closed.

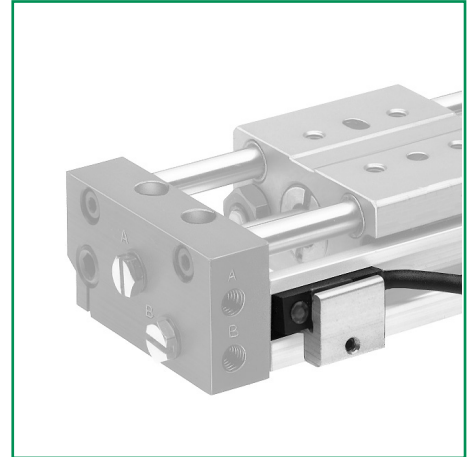
ELECTRICAL CHARACTERISTICS

MAX. SWITCHING POWER

AC current	: 3.45 VA
DC current	: 0.75 W
SWITCHING VOLTAGE	: 10 to 30 VDC - 85 to VAC (1)
MAX. SWITCHING CURRENT	: 25 mA VDC - 20 mA VAC
CONTACT RESISTANCE	: 100 mΩ
INSULATION RESISTANCE	: 100 MΩ
WITHSTAND VOLTAGE	: 500 V
RESPONSE TIME opening	: 0.05 ms
closing	: 0.4 ms
REPEATABILITY	: ± 0.1 mm
LIFE	: 5 X 10 ⁶ operations
AMBIENT TEMPERATURE	: 0°C to + 60°C
ELECTRICAL PROTECTION	: see below
HOUSING	: plastic PBT
NF C20010 PROTECTION	: IP42
CONNECTION	: 1 Ø 3 mm cable, 1.5 m long, 2 conductors 0.15 mm ²
INDICATOR LAMP	: Red diode (LED) which lights when the contact is closed

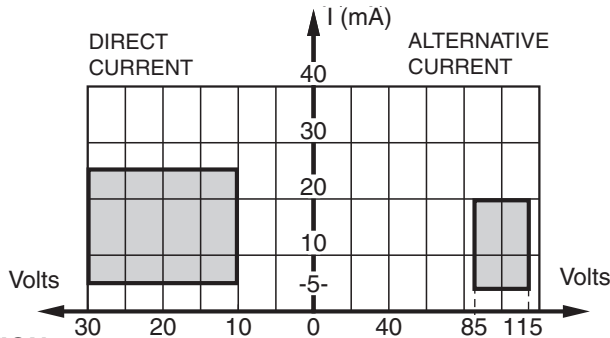
(1) The indicator lamp gives a voltage drop approx. 2.5 V.

NOTE : The operating point must be within the shaded zone. Any overvoltage or overintensity may damage the detector.



Polarity to be respected for DC application :

Black wire → - Pole
White wire → + Pole



ELECTRICAL PROTECTION

INDUCTIVE LOAD		100V/1A Diode	100 Ω / 4W		INDUCTIVE LOAD
RESISTIVE LOAD		Protection not necessary	0,1 μF 630 V		RESISTIVE LOAD

R = 4 W Resistor= Standard CCTU Resistors, code RP 59
C = Paper, polycarbonate or metalized mylar capacitor.

The user is responsible for supply and assembly of Resistors, Capacitors or Diodes.

DETECTOR CODE

DESCRIPTION	Ø Cylinder (mm)	CODE
Magnetic position detector with reed switch (ILS) and wire outlet for rodless cylinder with guided carrier - type STG	6-10-16	88144525
	20-25-32-40	88144526

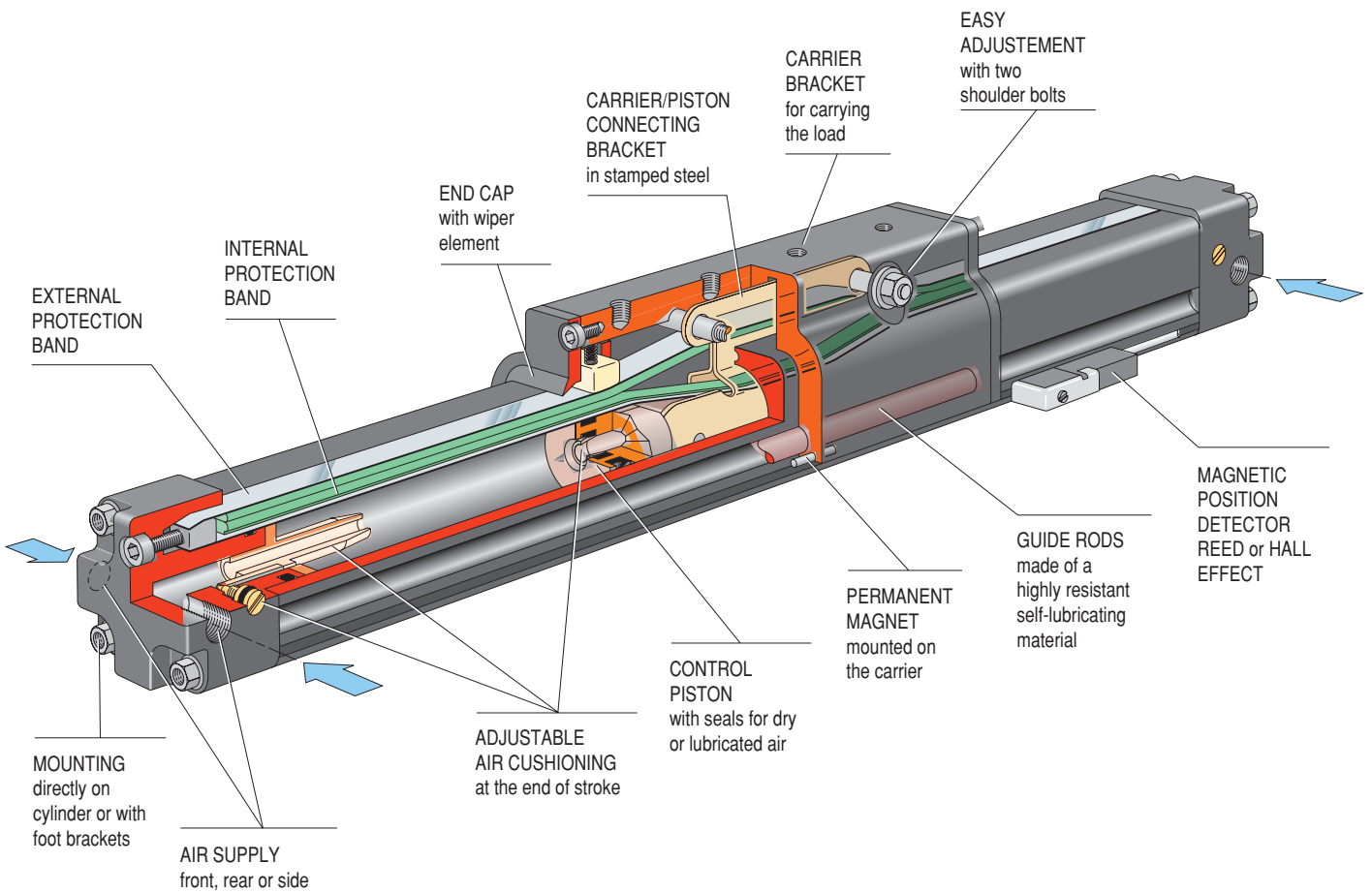
The detector is supplied with a securing collar adapted to the cylinder diameter.

PARTICULAR APPLICATIONS

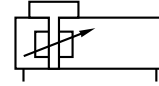
- Detectors used for direct control of incandescent lamps :
The power specified on the lamp is based on its resistance when hot, the resistance is very low when turned on with the lamp cold and the amperage can become very great and may exceed the ILS rating, allowance should therefore be made for the actual wattage of the bulb when cold.
- With wiring longer than 10 m, a 1000 Ω resistor must be fitted in series with the detector to reduce the capacitance effect caused by the wiring.

OPERATING PRINCIPLE

Set in motion with pneumatic energy, the piston moves in an extruded aluminium tube containing a slot running the length of the cylinder. In order to provide a tight seal over the slot length, there are two bands. A stamped steel piston bracket connects the cylinder piston to the carrier bracket. This piston bracket contains special band ramps which unseat and reseat the bands in the slot, providing a sealed unit.



00351GB-2017/R01
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SPECIFICATIONS

Detection	Equipped or not for magnetic detectors
Fluid	air or neutral gas, filtered, lubricated or not
Pressure	8 bar max
Temperature	-10°C to +65°C
Maximum velocity	2 m/sec
Stroke	

Ø mm	min. stroke	max. stroke
25	100	3400
32	100	3400
40	100	3400
50	100	3400
63	100	3300



CONSTRUCTION

Tube	Anodized aluminum alloy
Ends	Anodized aluminum alloy
Carrier bracket	Anodized aluminum alloy
Piston	Polyamide/light alloy
Piston seals	Nitrile (NBR)
Piston bracket	High resistance stamped steel
Bandes	Stainless steel with elastomer strips
Magnet	Placed outside the cylinder, on the carrier
Guide rods	Self-lubricating NYLATRON
Cushioning	With air, adjustable

Cushioning length :	Ø 25 mm = 17 mm
	Ø 32 mm = 28 mm
	Ø 40 mm = 32 mm
	Ø 50 mm = 34 mm
	Ø 63 mm = 50 mm



CHOICE OF EQUIPMENT

Ø Cylinder (mm)	CYLINDER NON EQUIPPED FOR DETECTOR		CYLINDER EQUIPPED FOR DETECTOR			Connection (4)
	CODE	REFERENCE	with Reed switch CODE ⁽³⁾	with Hall effect CODE ⁽³⁾	REFERENCE	
25	44650001 ⁽¹⁾	STB 25 A _ (1) _	44650006 ⁽¹⁾	44650011 ⁽¹⁾	STB 25 A _ (1) _ - DM (A/H) ⁽²⁾	G 1/8
32	44650002 ⁽¹⁾	STB 32 A _ (1) _	44650007 ⁽¹⁾	44650012 ⁽¹⁾	STB 32 A _ (1) _ - DM (A/H) ⁽²⁾	G 1/4
40	44650003 ⁽¹⁾	STB 40 A _ (1) _	44650008 ⁽¹⁾	44650013 ⁽¹⁾	STB 40 A _ (1) _ - DM (A/H) ⁽²⁾	G 1/4
50	44650004 ⁽¹⁾	STB 50 A _ (1) _	44650009 ⁽¹⁾	44650014 ⁽¹⁾	STB 50 A _ (1) _ - DM (A/H) ⁽²⁾	G 3/8
63	44650005 ⁽¹⁾	STB 63 A _ (1) _	44650010 ⁽¹⁾	44650015 ⁽¹⁾	STB 63 A _ (1) _ - DM (A/H) ⁽²⁾	G 3/8

- (1) Specify the stroke (in mm)
 (2) Cylinder equipped for Reed switch = suffix **DMA**, for Hall effect = suffix **DMH**
 (3) Position detectors are to be ordered separately (see following pages)
 (4) 3 types of pneumatic connection : front, rear or side

MOUNTINGS

 Foot brackets ⁽⁵⁾	Ø Cylinder (mm)	CODE
	25	43400237
	32	43400238

 Mounting brackets	Ø Cylinder (mm)	CODE
	40	43400239
	50	43400240
	63	43400241

Delivered with two (2) brackets plus cylinder mounting screws
 The mountings are delivered non assembled
 (5) Foot brackets for cylinders Ø 25 and 32 allows upward adjustment

ACCESSORIES

- **Tube support** (recommended to avoid buckling, depending on the stroke and load)
- Shock absorbers
- Floating mount bracket, alignment compensation (for guided load movement only)
- Magnetic detectors: Reed switch (ILS) or Hall effect

OPTIONS (contact us)

- Stroke limiting device adaptable on cylinder (adjustable stoppers equipped with shock absorbers)
- Double carrier bracket version (for loads and bending moments higher than standard values)

Selecting the appropriate Band Cylinder is simple. The information you need includes:

- the stroke,
- the force required for moving the load,
- the weight of the load,
- the position of the load (centered on the carrier or elsewhere),
- the final or average velocity.

How to select

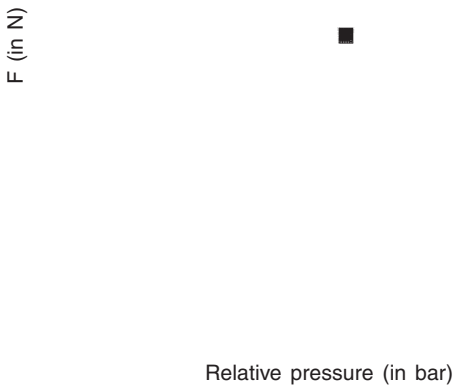
Graph (I) represents the theoretical force at various pressures. For the most efficient use of a cylinder, it is recommended to use a load rate of 70 %: the force needed to move the load therefore corresponds to 70% of the theoretical force.

After defining the cylinder diameter, you must determine if the cylinder's internal cushions may be used.

Allowable Bending Moments

If the load is not centered on the carrier, there will be bending moment. (see bending moment data below).

THEORETICAL FORCE AT VARIOUS PRESSURES



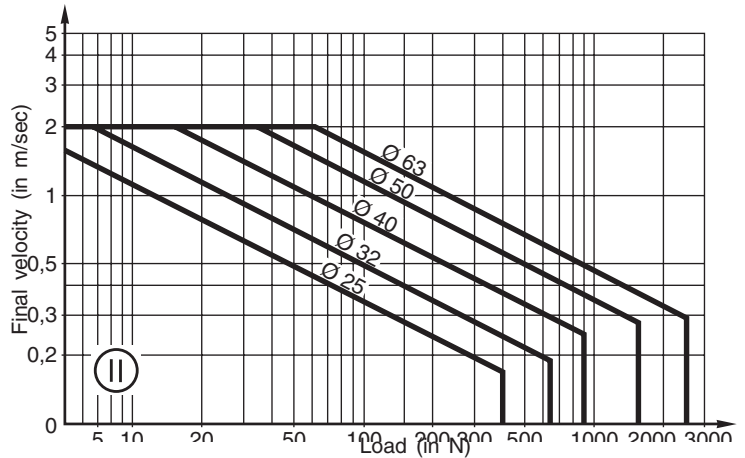
Cushioning capacity

Graph (II) is used to determine the type of cushioning needed. If the intersection point of the final velocity and the load falls below the curves, the internal cushions are adequate. If this is not the case, you must either choose a larger cylinder with greater cushion capacity, or use the shock absorbers which are offered as accessories. If you have determined that the internal cushions would be used near their maximum capacity and there is highly intense movement, it would be wise to use the optional shock absorbers.

OTHER ACCESSORIES :

- Tube support brackets: **You must determine if intermediate tube support brackets are required**, depending on the weight of the charge and the stroke. (see chart on tube support sheet)
- Floating mount bracket: for use when there is a lack of parallelism between the cylinder and a guided and supported load.
- Reed switch or Hall Effect magnetic detectors for position control.

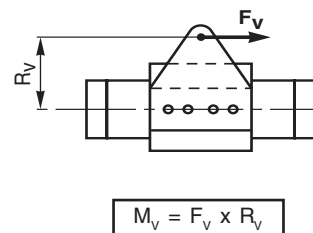
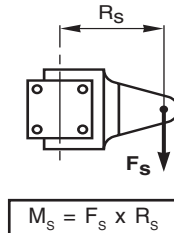
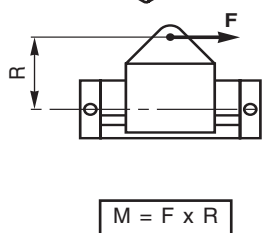
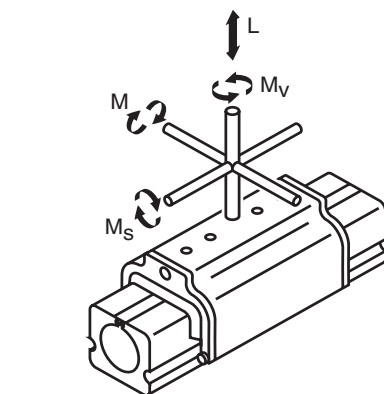
CUSHION DATA



The velocities indicated in graph (II) represent final velocities. To properly determine the inertial forces for cushioning, it is important to know the **final velocity**. If final (or impact) velocity cannot be calculated directly, a reasonable guideline is :

final V = 2 x average velocity

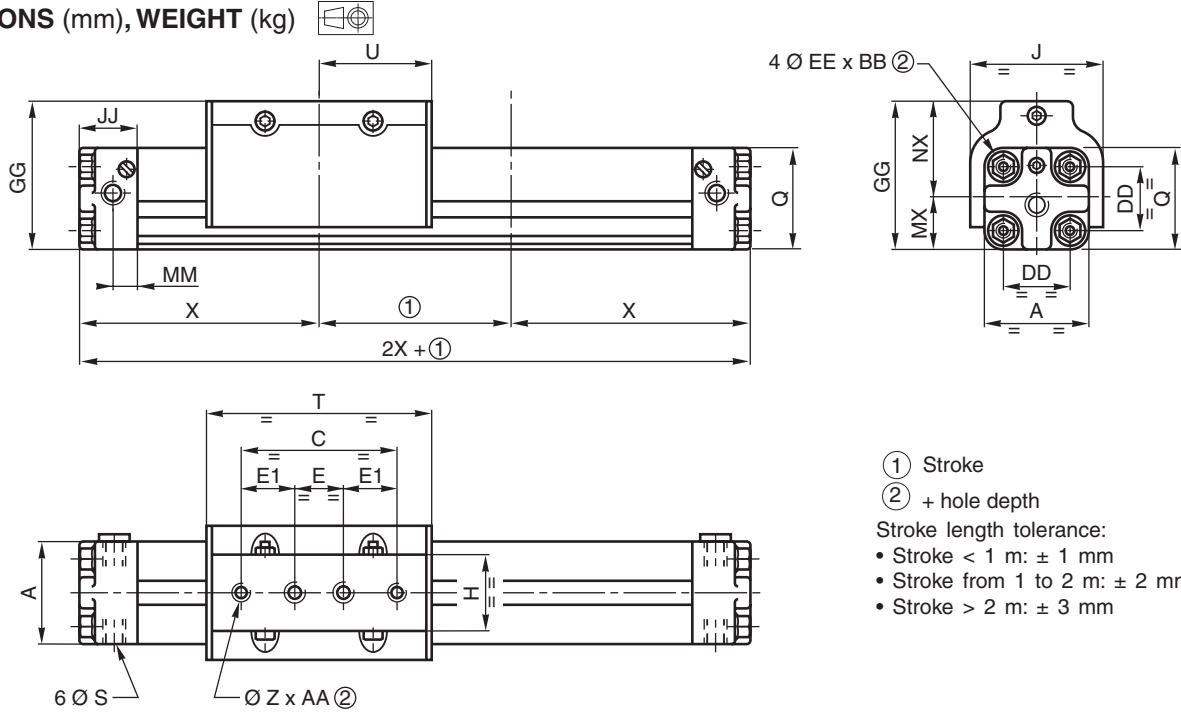
ALLOWABLE BENDING MOMENTS



Ø Cylinders (mm)	Bending moments (in N.m)			Load (in N)
	M	M _s	M _v	
25	11	6	3.5	270
32	33	8.5	15	540
40	56	31	23	820
50	125	34	37	1360
63	200	51	45	1820

Greater performances possible with the **double carrier bracket** version (contact us)

DIMENSIONS (mm), WEIGHT (kg)

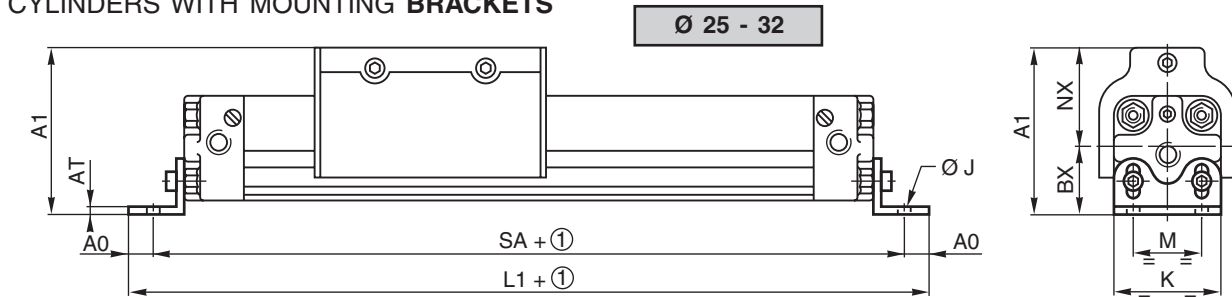


- ① Stroke
 - ② + hole depth
- Stroke length tolerance:
- Stroke < 1 m: ± 1 mm
 - Stroke from 1 to 2 m: ± 2 mm
 - Stroke > 2 m: ± 3 mm

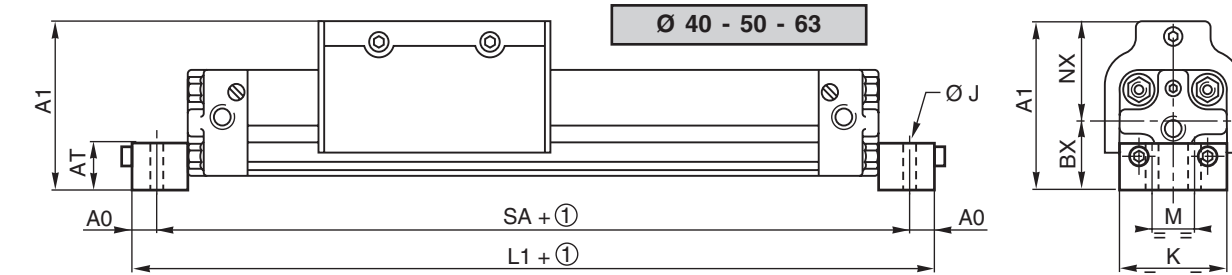
Ø (mm)	A	AA	BB	C	DD	E	E1	EE	GG	H	J	JJ	MM	MX	NX	Q	S	T	U	X	Z	weight	
																						(1)	(2)
25	40,1	6	11	80,0	27,9	25,4	27,3	M5x11	58,4	33,0	55,4	25,4	14,0	20,3	38,1	41,5	G1/8	120,7	60,2	100,1	M6x6	1,020	0,0024
32	55,4	7	12	81,3	36,1	25,4	28,0	M6x12	77,7	39,6	71,6	25,4	8,6	31,2	46,5	57,2	G1/4	117,9	58,9	123,7	M8x7	2,068	0,0036
40	72,4	10	12	107,7	46,0	25,4	41,2	M6x12	90,7	45,7	89,0	31,8	12,7	36,6	54,1	65,8	G1/4	150,1	75,1	150,1	M8x10	3,700	0,0058
50	82,6	11	25	127,0	57,2	63,5	31,8	M8x25	112,8	58,4	112,8	36,6	17,5	42,9	69,9	85,9	G3/8	187,2	93,5	160,0	M10x11	6,400	0,0093
63	108,0	12	25	152,4	73,2	76,2	38,1	M8x25	139,7	64,8	142,8	52,3	25,4	58,4	81,3	111,0	G3/8	225,0	112,5	214,6	M10x12	14,467	0,0173

(1) Cylinder weight at 0 mm stroke.
 (2) Weight to be added per additional 100 mm length.

CYLINDERS WITH MOUNTING BRACKETS



Ø Cylinder (mm)	DIMENSIONS (mm)											Weight (kg) Mounting
	A1		A0	AT	BX		J	K	L1	M	NX	
	min.	max.			min.	max.						
25	59,7	69,3	9,5	3	21,6	31,2	6,6	41	251	27	38,1	231,8
32	81,5	94,2	9	3	33,2	46	8,3	53	292	36	48,3	273,8

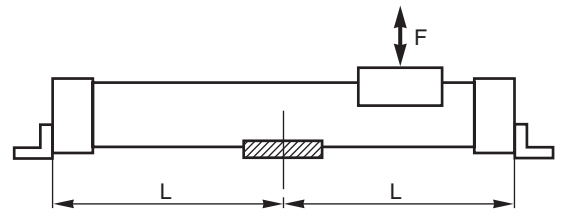
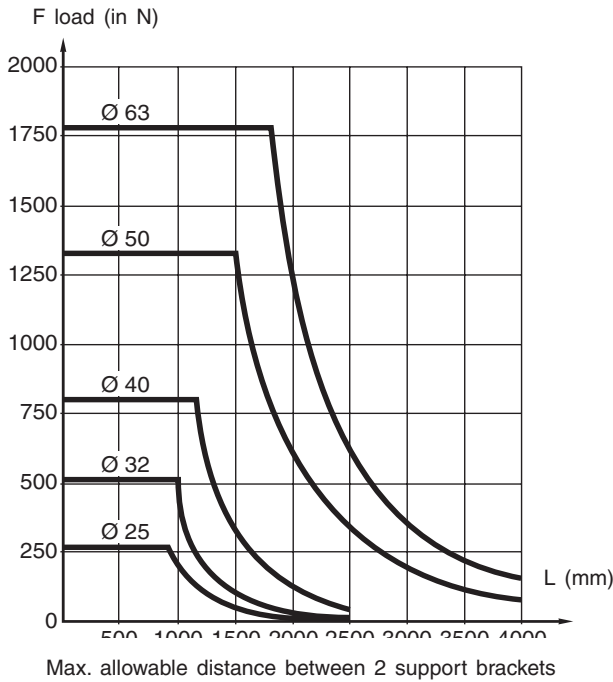


Ø Cylinder (mm)	DIMENSIONS (mm)											Weight (kg) Mounting
	A1	A0	AT	BX	J	K	L1	M	NX	SA		
40	92	12,7	25	34,7	8,3	72	351	30	57,3	325,5	0,270	
50	115	12,7	22	42	9,9	83	371	31,8	73,1	345,5	0,270	
63	143,5	15	25	54,3	11	108	490	48	89,2	460	0,400	

For certain strokes and loads, it is necessary to use tube support brackets for intermediate support. The graph below is used to determine the maximum allowable length. The number of tube support brackets required and their placement, depends on the overall length of the cylinder and the load weight being moved and supported.

These brackets are made of black-anodized aluminum and are designed to fit into dovetail grooves which run the length of the cylinder tube. They are **delivered mounted** on the cylinder; therefore, **they must be ordered with the cylinder**

Note : These support brackets cannot be mounted in the same place as the magnetic detector, as they use the same grooves.

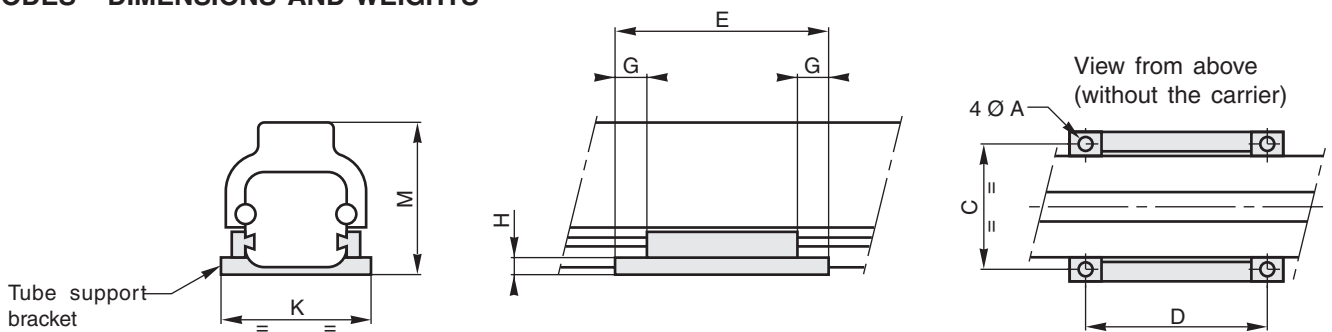


Number of supports needed (n) given that the cylinder is fixed on the ends.

$$n = \left(\frac{\text{Stroke} + 2 X}{L} \right) - 1$$

- n = whole number, rounded up.
- X = value in mm, mentioned with general cylinder dimensions
- L = max. distance defined in the graph below.

CODES - DIMENSIONS AND WEIGHTS



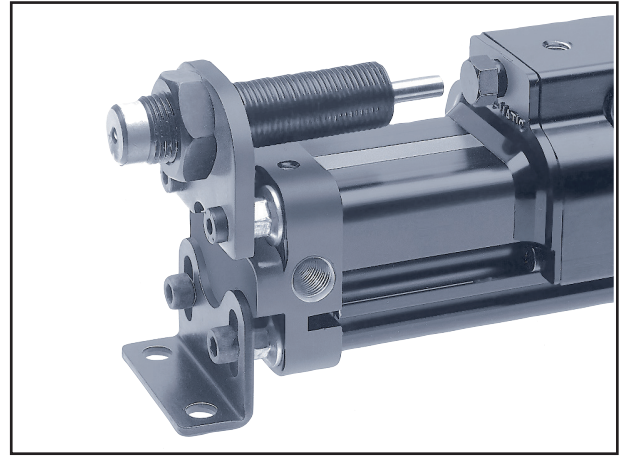
Ø Cylinder (mm)	CODE ⁽¹⁾				DIMENSIONS (mm)								Weight (kg) for 1 support bracket
	1 support bracket	2 support brackets	3 support brackets	4 support brackets	A	C	D	E	G	H	K	M	
25	410528	410529	410530	410531	5,6	51	76,2	90	13	6,5	60	62	0,180
32	410532	410533	410534	410535	6,7	66,7	114,3	127	13	10	79	82	0,220
40	410536	410537	410538	410539	6,7	76,2	114,3	127	13	8	89	92	0,220
50	410540	410541	410542	410543	10,5	95,3	146	162	17,5	9,5	113	115	0,350
63	410544	410545	410546	410547	10,7	130	197	216	19	11	152,5	143,5	0,600

(1) These codes are added to the cylinder codes

The standard rodless band cylinder cushion is an effective method for load deceleration. However, the band cylinder can bear heavier loads at higher velocities than that of which the cylinder cushion can absorb. Shock absorbers are used to increase the cylinder's service life and broaden the application range for the chosen cylinder. Shock absorbers can be mounted directly on the cylinder.

Selecting the necessary absorber :

- 1- Define the following values:
 - Weight of load being moved (in N).
 - Final **velocity** (in m/sec).
 - Cycles per hour.
- 2- In the graph below, determine the type of absorber in relation to the diameter of the cylinder chosen.
 Cross reference the intersection of final velocity and load weight to determine which shock absorber is required : type 1 or type 2.
- 3- To complete the shock absorber selection, you must consider the cycles per hour for your application. Since shock absorbers convert kinetic energy of a load into heat, it is important not to exceed the maximum allowable cycles listed in the adjacent table.



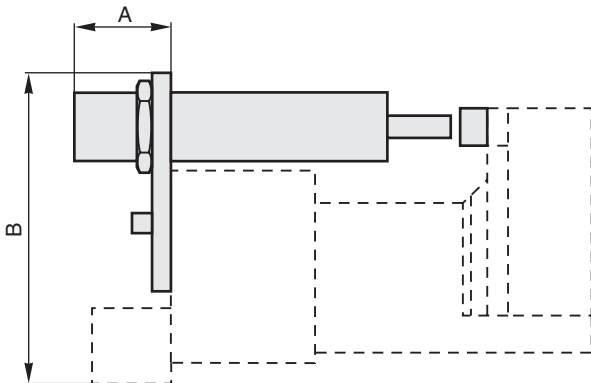
MAXIMUM CYCLE PER HOUR CAPACITY	
Models	Cycles per hour
Absorbers for cylinder Ø 25	1200
Absorbers for cylinder Ø 32	1000
Absorbers for cylinder Ø 40	1000
Absorbers for cylinder Ø 50	800
Absorbers for cylinder Ø 63	800

CODES

DESIGNATION		CODES ⁽¹⁾	
		Absorbers type 1	Absorbers type 2
Set of two (2) shock absorbers (delivered mounted on the cylinder)	Ø 25 mm	560569	560572
	Ø 32 mm	560570	560573
	Ø 40 mm	560577	560579
	Ø 50 mm	560571	560574
	Ø 63 mm	560578	560580

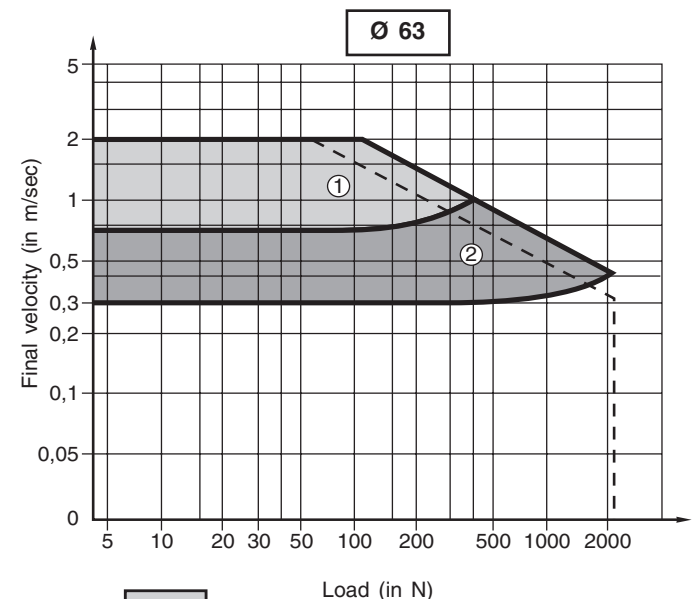
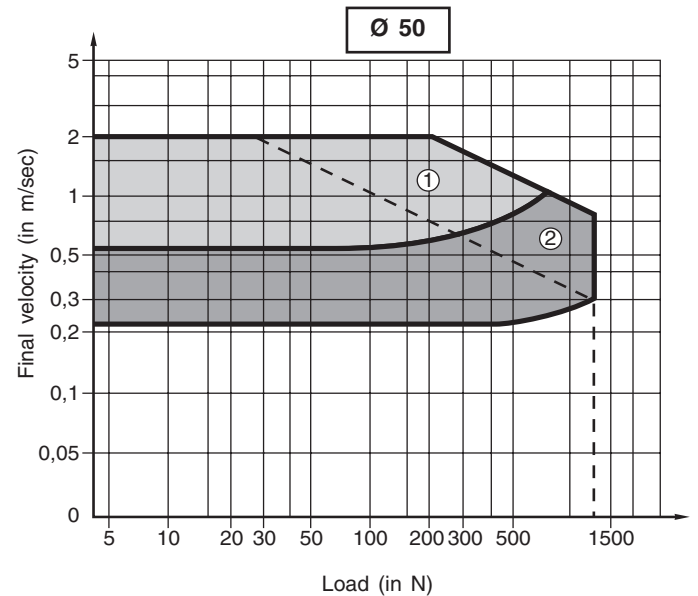
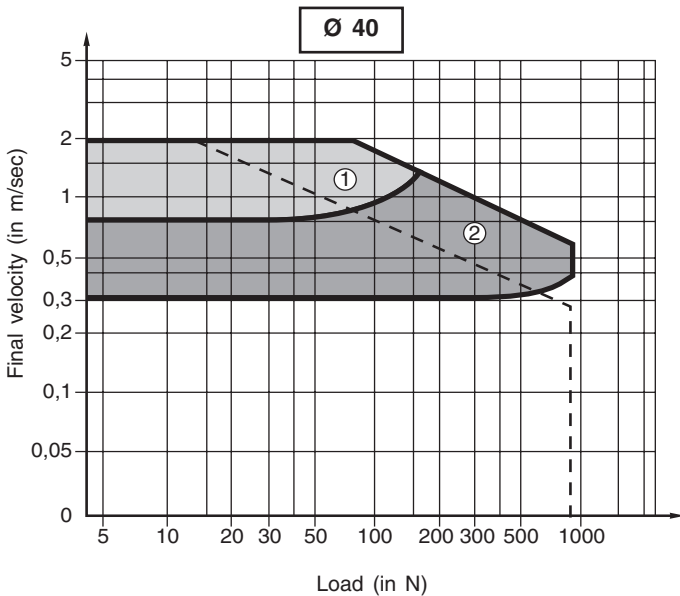
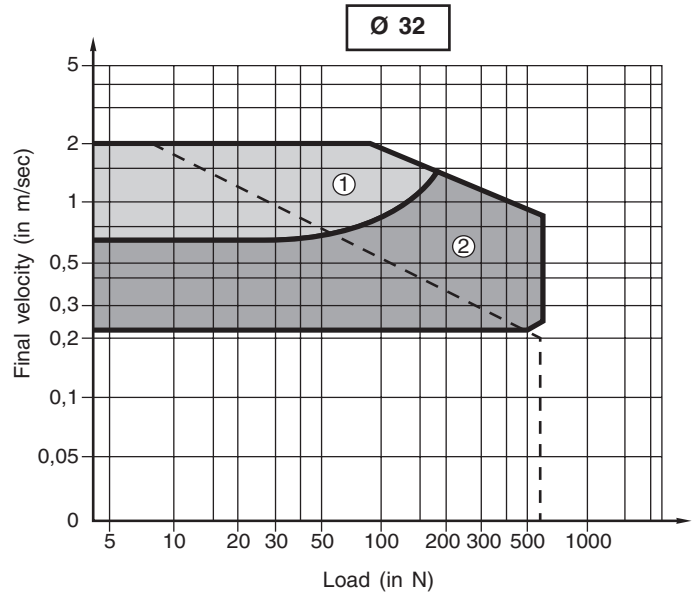
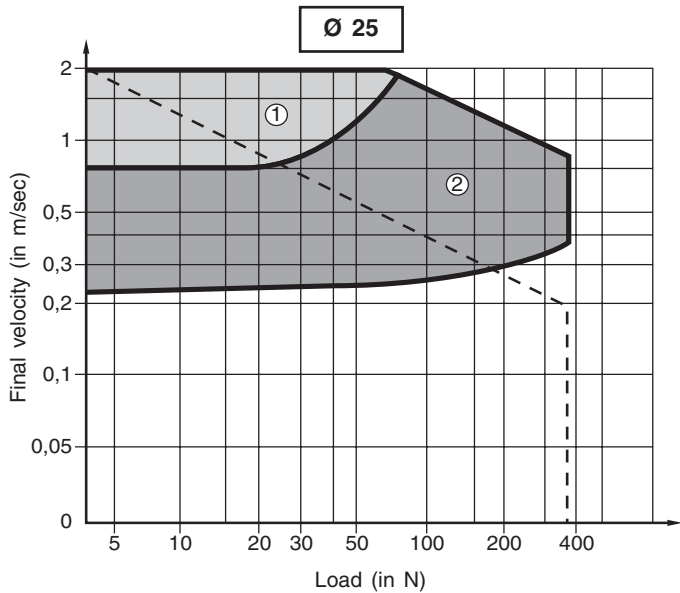
(1) Code to be added to the standard cylinder code

SIZE AND DIMENSIONS



Ø Cylinder (mm)	A	B		Weight (kg) 2 absorbers + mountings
		min.	max.	
25	40,5	64	73,5	0,200
32	29,5	90	102,5	0,430
40	28	104		0,570
50	58,5	123,5		0,780
63	24,5	162,5		0,920

You must not adjust the position of the absorbers



- ① Zone using type 1 absorber
- ② Zone using type 2 absorber

To properly determine the inertial forces for cushioning, it is important to know the final velocity. If the final velocity cannot be calculated directly, a reasonable guideline is:

Final velocity = 2 x average speed

For each cylinder diameter, the intersection of the final speed and the load weight indicates which type of absorber to use.

The dotted line represents the limit between choosing the air cushions or shock absorbers. If you have determined that the internal cushions would be used near their maximum capacity **and** there is highly intense movement, it would be wise to use the optional shock absorbers.

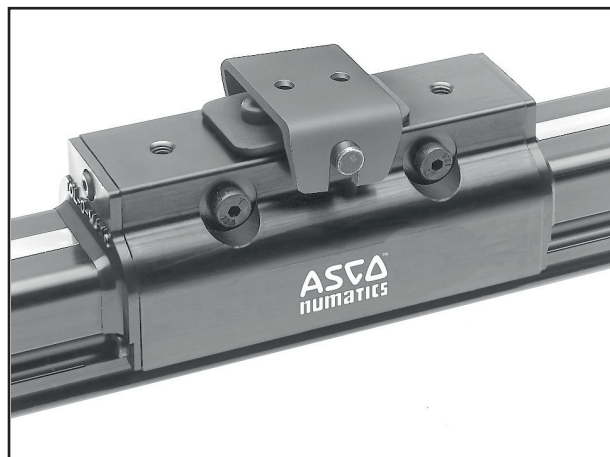
The above graphs were established for cylinders working on a horizontal plane and at 6 bar.

For applications exceeding cycle capability, please contact us.

For applications where a band cylinder moves a load that is externally guided and supported, a floating mount bracket is necessary to compensate for non-parallelism between the cylinder and the independent guiding member.

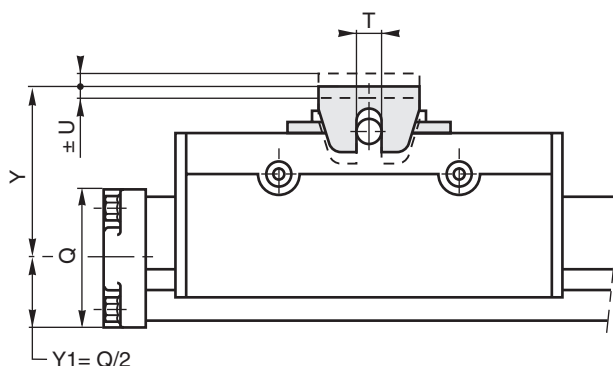
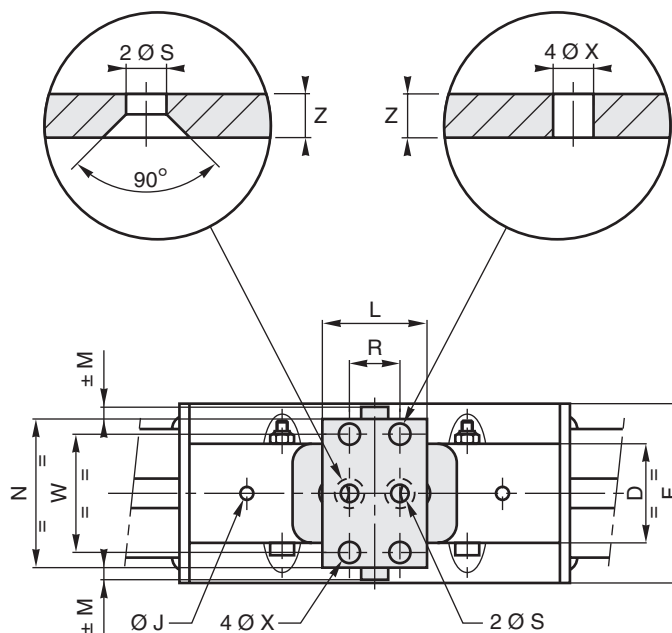
Alignment of compensation \updownarrow : $\pm U$

\leftrightarrow : $\pm M$



For cylinders
 \varnothing 25 - 32 - 50

For cylinders
 \varnothing 40 - 63



\varnothing Cylinder (mm)	MOUNT BRACKET CODE	DIMENSIONS (mm)														Weights Mount Bracket (kg)		
		D	F	$\varnothing J$	L	$\pm M$	N	R	$\varnothing S$	T	$\pm U$	W	$4\varnothing X$	Y	Y1		Q	Z
25	43400232	33	55,5	M6	32	3,3	46	15,7	5,6	8	3,8	-	-	50,5	20,5	41	3	0,110
32	43400233	40	71,5	M8	70	4	56	50	7	8	4	-	-	66	28,5	57	4	0,250
40	43400234	46	89	M8	90	7	75	75	-	11	6	55	7	75	33	66	7	0,540
50	43400235	58	113	M10	100	7	82	80	8,6	16	6,4	-	-	96	43	86	5	0,610
63	43400236	65	143	M10	120	12	98	100	-	16	7	70	8,6	102	54	108	5	0,730

Floating mount bracket mounting screws are supplied.

You must use LOCTITE 241 for the carrier bracket mounting screws.



direct current

OPERATION

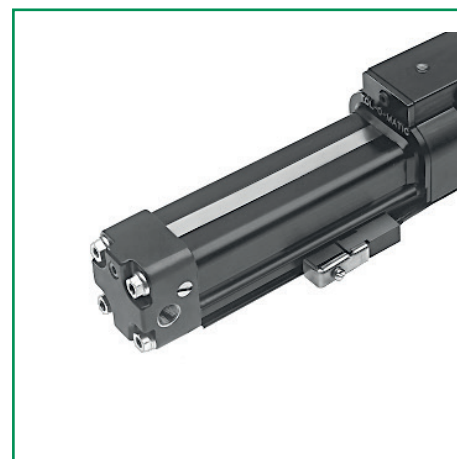
A permanent magnet mounted on the carriage passes in the vicinity of the reed switch and operates it without contact. One or more detectors can be mounted on the cylinder to detect the end of stroke position is reached. Reed switches are engaged in the longitudinal dovetail groove in the cylinder body. They are equipped with an indicator light which illuminates when contact is broken.

Passing an intermediate position by the piston can be detected with a solid-state sensor, see overleaf

ELECTRICAL CHARACTERISTICS

SWITCHING POWER	: 10 W max.
SWITCHING VOLTAGE	: 3 to 200 Vdc (1) (2)
SWITCHING CURRENT	: 500 mA
CONTACT RESISTANCE	: 100 mΩ
WITHSTAND VOLTAGE	: 200 V
REPOSE TIME	: < 0,6 ms
SERVICE LIFE	: until 2x10 ⁸ operations (depending on the load)
TEMPERATURE	: -40° C to + 70° C
ELECTRICAL PROTECTION	: See chart
HOUSING	: Polyamide
CONNECTION	: One Ø 4 mm cable - 5 m long - 2 conductors 0,30 mm ²
INDICATOR LAMP	: Red diode (LED) which lights up when the contact is closed (I min.: 4mA)

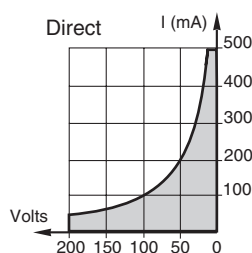
(1) The indicator lamp gives a voltage drop of approx. 3 V.



Nota : The operating point must be in the shaded zone. Exceeding the voltage or amperage levels can destroy the switches

PROTECTION

Polarity for DC :
Brown wire = pôle +
Blue wire = pôle -

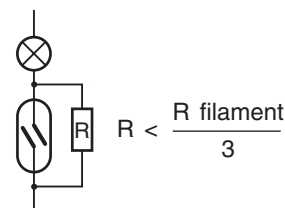


INDUCTIVE CHARGE		Diode 400 V / 1 A
OHMIC CHARGE		Protection unnecessary

The user is responsible for supplying and assembling diode.

PARTICULAR CASE

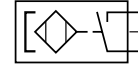
Detectors used for direct control of incandescent lamps:
The power indicated in the lamp is based on its resistance when hot. The resistance is very low when turned on with the lamp cold and the amperage can become very high and may exceed the ILS rating. Allowance should therefore be made for the actual wattage of the bulb when cold. (see diagram)



CODES FOR REED SWITCH

CODES (2 codes to specify : detector + fastening kit)		
REED SWITCH DETECTOR with wire outlet, 5m long	Ø cylinder	STB cylinder FASTENING KIT
88144658	25	88144662
	32	88144663
	40	88144664
	50	88144664
	63	88144663

(2) Detector for alternating current (120 V and 3 W max., without reed): **88144676**

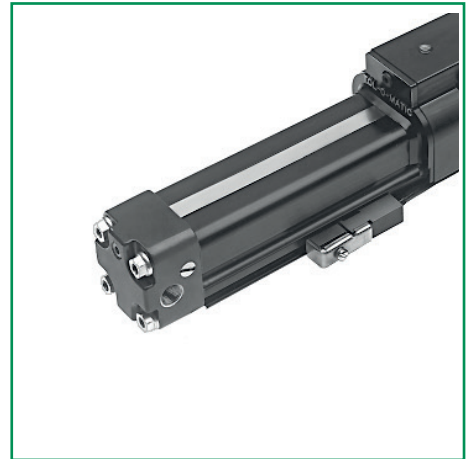


OPERATION

Solid-state sensors are magnetically-operated devices which open and close DC circuits and, having no moving parts, have theoretically unlimited service lives. Solid state sensors are engaged in the cylinder body groove and can be used to detect reaching end-of-stroke positions or any intermediate ones.

ELECTRICAL CHARACTERISTICS

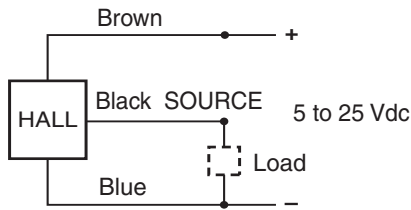
- SWITCHING VOLTAGE : 5 to 25 Vdc
- MAX. SWITCHING CURRENT : 200 mA
- WITHSTAND VOLTAGE : 300 V
- SATURATION : 5 V max.
- REPOSE TIME : 2 μs
- SENSITIVITY : 20 to 135 gauss max.
- TEMPERATURE : - 18° C to + 66° C
- HOUSING : Polyamide
- CONNECTION : One Ø 4 mm cable - 5 m long - 3 conductors 0,30 mm²
- INDICATOR : Red diode (LED) which lights up during switching
- ELECTRIC PROTECTION : Detector polarized, unprotected against short circuits and over voltage.
Protection on inductive circuit : Use of a 600 V/1 A diode is recommended, to be mounted parallel to the load.



CONNECTION

- **SOURCING** (switching positive potential of the charge)
- Max. Power : 0.2 A under 25 Vdc.
- The detector is conceived to supply a signal to equipment such as a PLC. (relay not recommended).

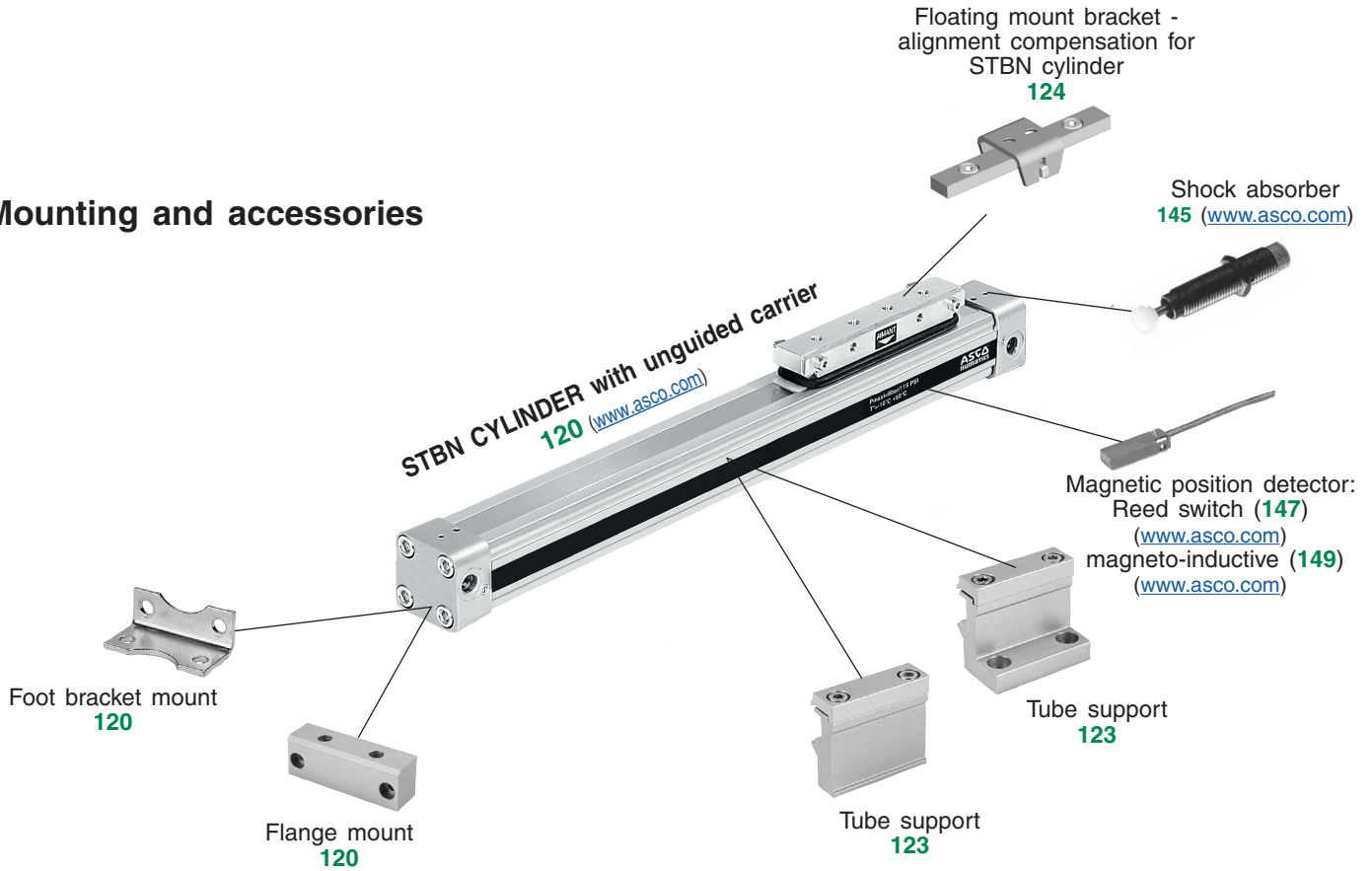
SOURCING function detector



CODES FOR HALL EFFECT SWITCHES

CODES (2 codes to specify : detector + fastening kit)		
HALL EFFECT DETECTOR with outlet wire, 5m long SOURCING function	Ø cylinder	STB cylinder FASTENING KIT
88144659	25	88144662
	32	88144663
	40	88144664
	50	88144664
	63	88144663

Mounting and accessories



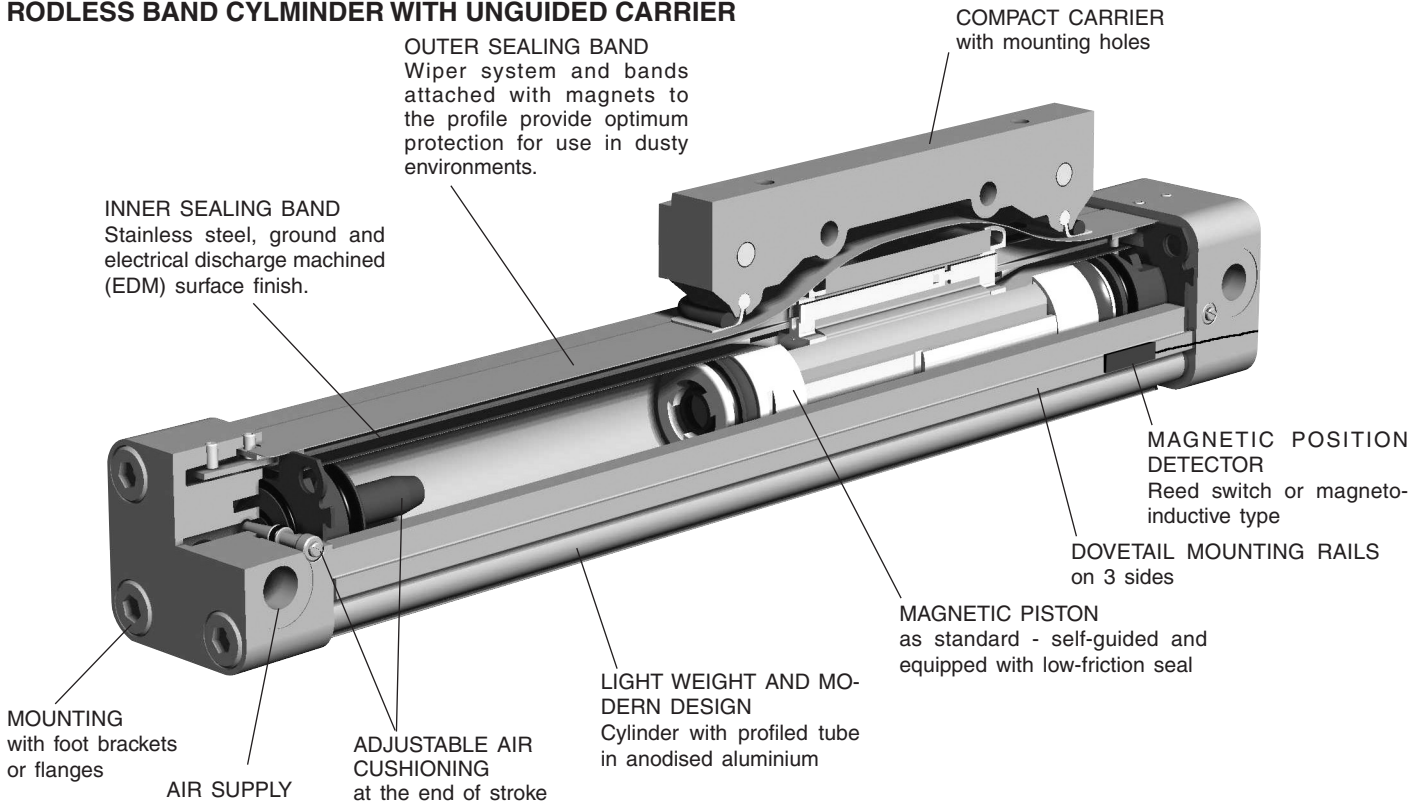
STB cylinder with guided carrier and plain bearing guide
(www.asco.com)

STBB cylinder with guided carrier and cross rollers guide
(www.asco.com)



00353GB-2017/R01
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RODLESS BAND CYLINDER WITH UNGUIDED CARRIER



ADVANTAGES

● **COMPACT INSTALLATIONS**

As this cylinder is rodless, installation space is cut by almost half compared to a standard cylinder with a rod.

● **LONG STROKE APPLICATIONS**

The rodless cylinder is perfectly adapted to applications requiring long linear movements, such as handling devices, lifting devices, door opening and closing, etc.

● **QUICK AND EASY ADJUSTMENT**

The carrier can be easily adjusted without having to take it apart. For heavy duty use, we recommend regularly checking the bracket adjustment.

● **LESS MAINTENANCE**

These cylinders operate without lubrication.

● **ADAPTATION POSSIBILITIES**

- **Mounting choices:** Mounting directly on the cylinder ends or with foot brackets
- **Load movement choices:** The load can be mounted directly on the carrier, or with a floating mount bracket, for applications where the cylinder is moving an externally guided and supported load, and when there is a need to compensate for non-parallelism between the cylinder and the load.
- **Air supply:** Front, rear or side.

● **PERFORMANCE AND SECURITY**

Adjustable air cushioning allows for smooth end of stroke and rapid start up. In case of very large and intense movement, the cylinder can be furnished with shock absorbers.

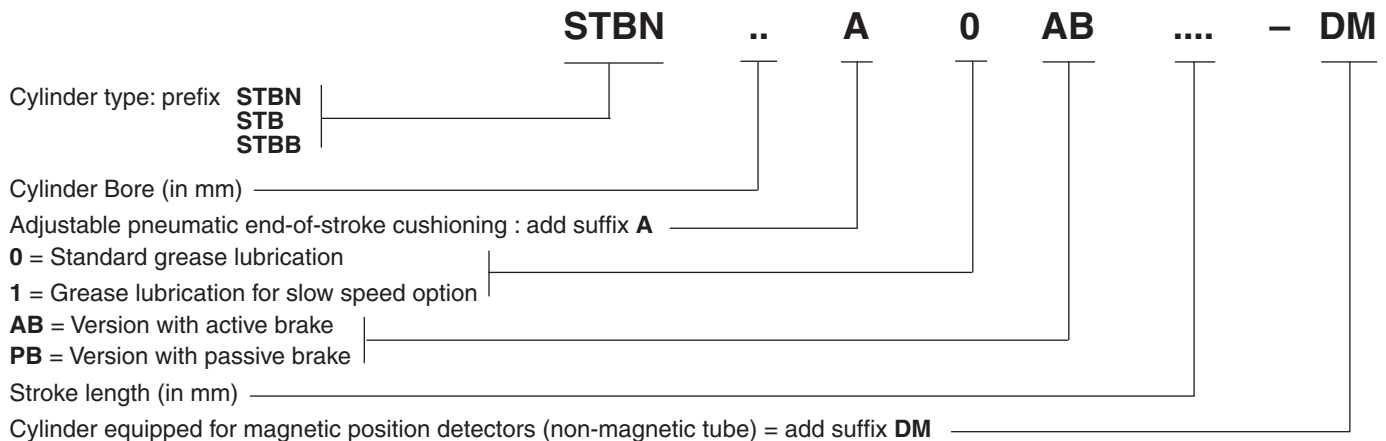
● **SEALING AND PROTECTION FOR USE IN DUSTY ENVIRONMENTS**

Two stainless steel bands provide sealing and protection. They are held in place by a patented band retention method using seals. Wipers on the carrier protect the internal parts from the outside.

● **LARGE RANGE**

The rodless band cylinders are available in Ø 16-25-32-40 50-63 and 80 mm, all strokes are available upon request, and equipped for magnetic detectors.

SPECIFYING THE REFERENCE OF A RODLESS CYLINDER - SERIES 448



Selecting the appropriate band cylinder is simple. The information you need includes:

- the stroke,
- the force required for moving the load,
- the weight of the load,
- the position of the load (centered on the carrier or elsewhere),
- the final or average velocity.

How to select

Graph ① represents the theoretical force at various pressures. For the most efficient use of a cylinder, it is recommended to use a load rate of 70 %: the force needed to move the load therefore corresponds to 70% of the theoretical force.

After defining the cylinder diameter, you must determine if the cylinder's internal cushions may be used.

Allowable bending moments

A bending moment will occur if the load is not centered on the carrier (see bending moment data below).

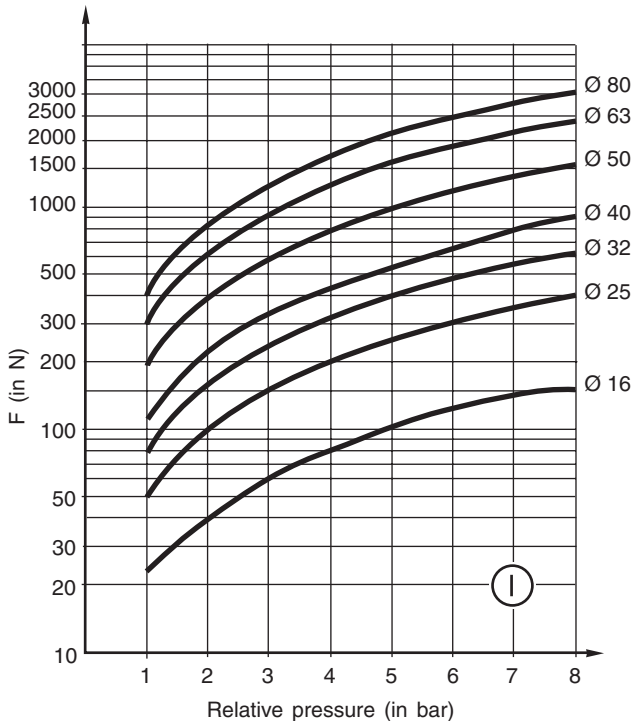
Cushioning capacity

Graph ② is used to determine the type of cushioning needed. If the intersection point of the final velocity and the load falls below the curves, the internal cushions are adequate. If this is not the case, you must either choose a larger cylinder with greater cushion capacity, or use the shock absorbers which are available as an accessory. If you have determined that the internal cushions would be used near their maximum capacity **and** there is highly intense movement, it would be wise to use the optional shock absorbers.

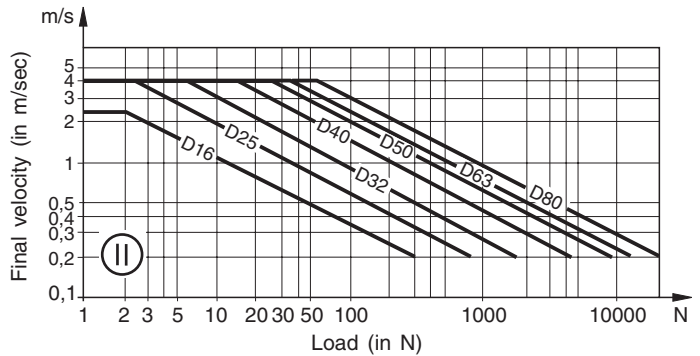
OTHER ACCESSORIES:

- Tube support brackets: **You must determine if intermediate tube support brackets are required**, depending on the weight of the charge and the stroke. (see chart on tube support sheet).
- Floating carrier bracket: for use when there is a lack of parallelism between the cylinder and a guided and supported load.
- Reed switch or magneto-inductive detectors for position control.

THEORETICAL FORCE AT VARIOUS PRESSURES



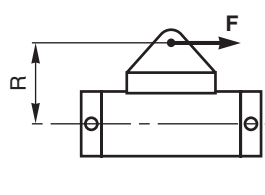
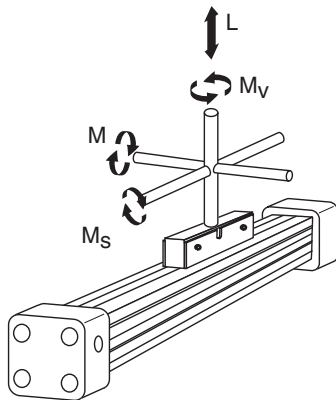
CUSHION DATA



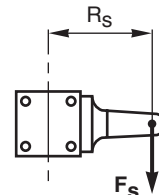
The velocities indicated in graph ② represent final velocities. To properly determine the inertial forces for cushioning, it is important to know the **final velocity**. If final (or impact) velocity cannot be calculated directly, a reasonable guideline is:

$$\text{Final } V = 1,5 \times \text{average velocity}$$

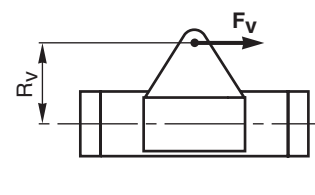
ALLOWABLE BENDING/TWISTING MOMENTS



$$M = F \times R$$

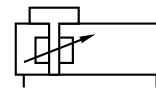


$$M_s = F_s \times R_s$$



$$M_v = F_v \times R_v$$

Ø Cylinder (mm)	Bending moments (in N.m)			Load (in N)
	M	Ms	Mv	L
16	4	0,3	0,5	120
25	15	1	3	300
32	30	2	5	450
40	60	4	8	750
50	115	7	15	1200
63	200	8	24	1650
80	360	16	48	2400



SPECIFICATIONS

FLUID	: air or neutral gas, filtered, unlubricated
PRESSURE	: 8 bar max.
TEMPERATURE	: - 10°C, + 80°C
STROKE min.	: 5 mm (without detectors)
	: 100 mm (with detectors)
max. standard	: see below (contact us for longer strokes)
MAXIMUM VELOCITY	: 0,2 to 4 m/sec

CONSTRUCTION

Tube	: Anodised aluminium
Ends	: Anodised aluminium
Carrier (piston)	: Anodised aluminium
Piston seals	: Nitrile (NBR)
Piston brackets	: High resistance stamped steel
Bands	: Stainless steel
Magnet	: Placed inside the piston
Covers, wipers	: Plastic
Screws	: Galvanised steel
Cushioning	: with air, adjustable




CHOICE OF EQUIPMENT


Ø Cylinder (mm)	CYLINDER EQUIPPED FOR DETECTOR		Max. allowable stroke (mm)	Pipe size	Cushioning length (mm)
	CODE ⁽²⁾	REFERENCE			
16	44850001 ⁽¹⁾	STBN 16 A - 0 ⁽³⁾ - <u> </u> - DM	6000	M5	11
25	44850002 ⁽¹⁾	STBN 25 A - 0 ⁽³⁾ - <u> </u> - DM	6000	G 1/8	17
32	44850003 ⁽¹⁾	STBN 32 A - 0 ⁽³⁾ - <u> </u> - DM	6000	G 1/4	20
40	44850004 ⁽¹⁾	STBN 40 A - 0 ⁽³⁾ - <u> </u> - DM	6000	G 1/4	27
50	44850005 ⁽¹⁾	STBN 50 A - 0 ⁽³⁾ - <u> </u> - DM	6000	G 1/4	30
63	44850006 ⁽¹⁾	STBN 63 A - 0 ⁽³⁾ - <u> </u> - DM	6000	G 3/8	32
80	44850007 ⁽¹⁾	STBN 80 A - 0 ⁽³⁾ - <u> </u> - DM	6000	G 1/2	39

For other strokes, contact us.

- (1) Specify stroke (in mm)
(2) Position detectors are to be ordered separately
(3) 1 for slow speed option

MOUNTINGS

Ø Cylinder (mm)	CODE  Low foot brackets (4)
16	43400493
25	43400494
32	43400495

Ø Cylinder (mm)	CODE  Flanges
40	43400496
50	43400497
63	43400498
80	43400499

Delivered with 2 foot brackets or 2 flanges plus cylinder mounting screws.

The mountings are delivered non assembled.

(5) Foot brackets for cylinders Ø 25 and 32 allow height adjustment.

ACCESSORIES

- **Floating carrier bracket for alignment compensation** (for guided load movement only)
- **Tube support** (recommended to avoid buckling, depending on the stroke and load)
- [Shock absorbers](#)
- Magnetic detectors: [Reed switch](#) or [magneto-inductive](#) type

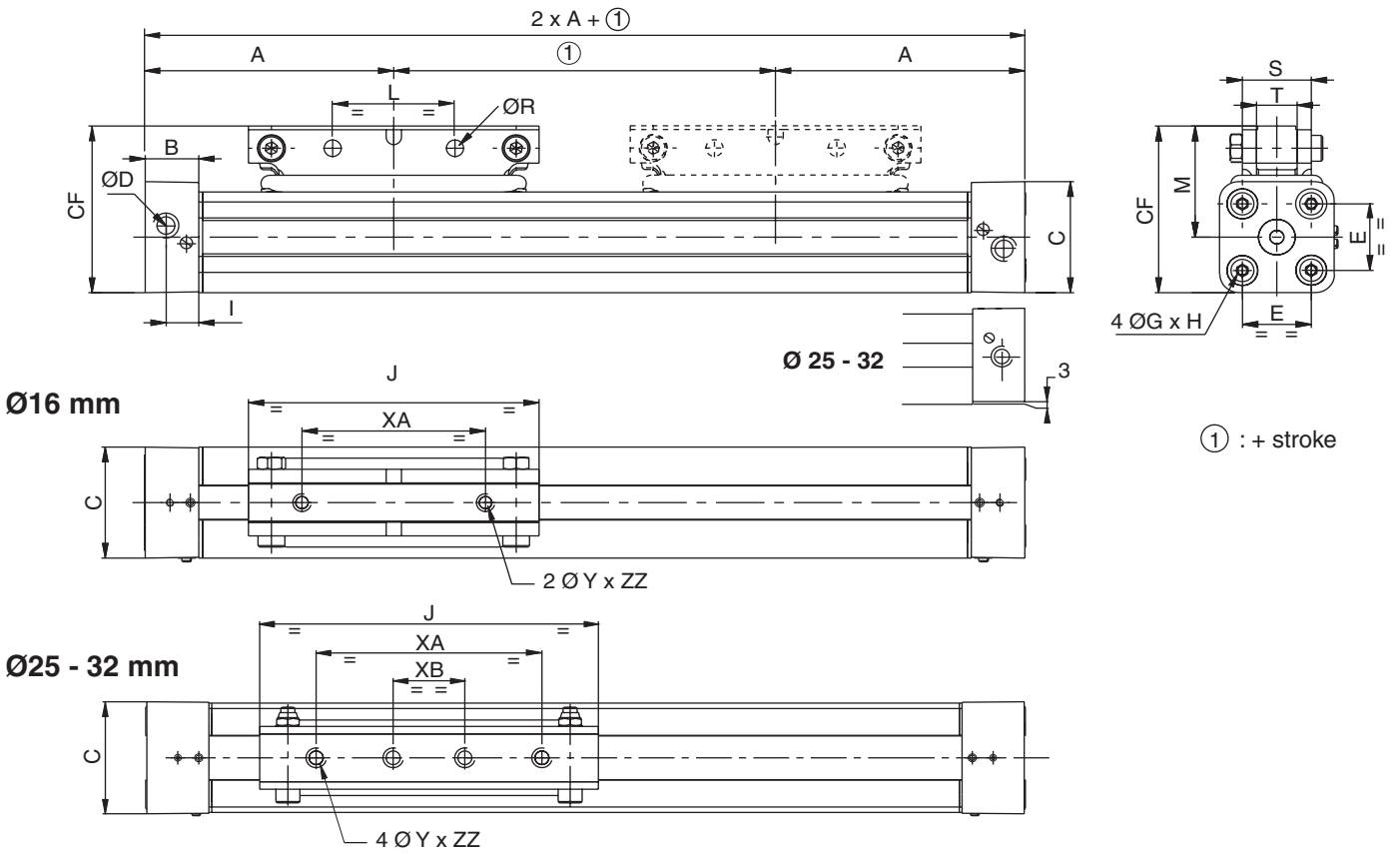
OPTION

- Slow speeds from 5 mm/s to 0,2 m/s - code: Ø 16 : **995082** Ø 50 : **995086**
Ø 25 : **995083** Ø 63 : **995087**
Ø 32 : **995084** Ø 80 : **995088**
Ø 40 : **995085**

(When selecting this option, you will have to change the cylinder reference to: STBN .. A **1** ... DM)

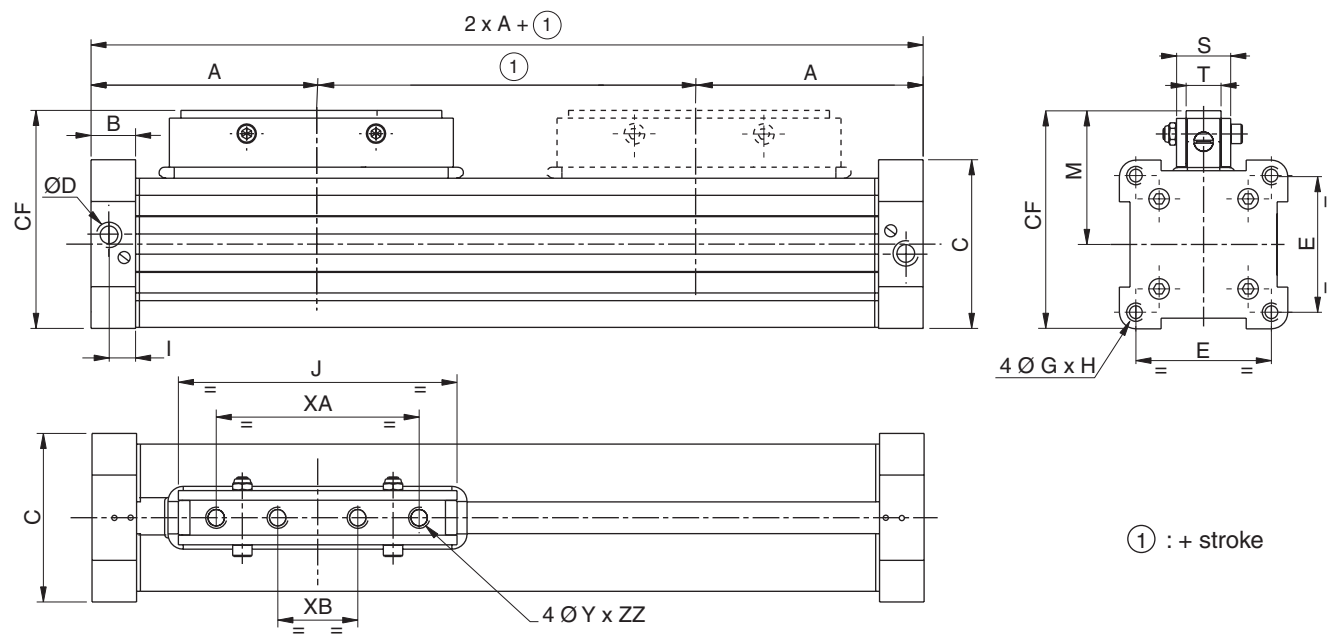
DIMENSIONS AND WEIGHTS
BARE CYLINDERS

Ø16 - 32 mm



① : + stroke

Ø40 - 80 mm



① : + stroke

Bore (mm)	DIMENSIONS (mm)																	Weights			
	A	B	C	D	E	G	H	I	J	L	M	R	S	T	Y	CF	XA	XB	ZZ	(1)	(2)
16	65,2	14	30	M5	18	M3	9	8,5	76	16	30	16	18	10,6	M4	45	48	-	8	0,250	0,100
25	100,4	22	41	G1/8	27	M5	15	13	120	-	37	-	23	17,5	M6	58,5	80	25,4	7	0,700	0,197
32	125,2	25,5	52	G1/4	36	M6	15	14	160	-	49	-	27	18	M8	77,5	81,4	25,4	9	1,420	0,354
40	150	28	69	G1/4	54	M6	15	16	150	-	56,8	-	28	18	M8	91,3	107,7	25,4	9	2,130	0,415
50	165	23	87	G1/4	70	M6	15	14	180	-	69	-	28	18	M10	112,5	127	63,5	16	3,590	0,566
63	215	38	106	G3/8	78	M8	21	23,5	220	-	82,8	-	30	19	M10	136,8	152,4	76,2	16	6,640	0,925
80	260	47	132	G1/2	96	M10	25	25	280	-	101	-	32	20	M10	168	180	90	20	12,100	1,262

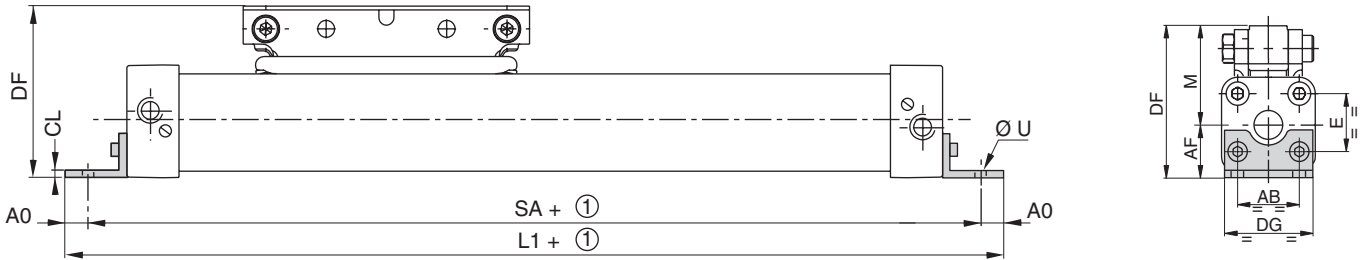
(1) Weight with 0 mm stroke
(2) Weight to be added per additional 100 mm length

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DIMENSIONS AND WEIGHTS

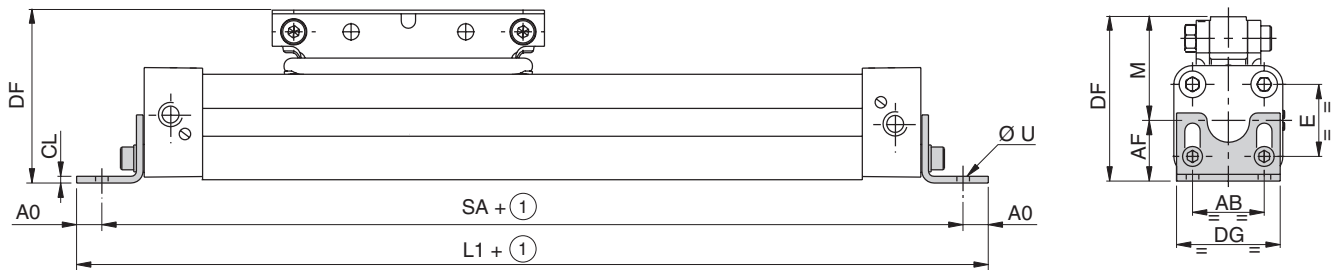
CYLINDERS WITH MOUNTING BRACKETS

Ø 16 mm



① : + stroke

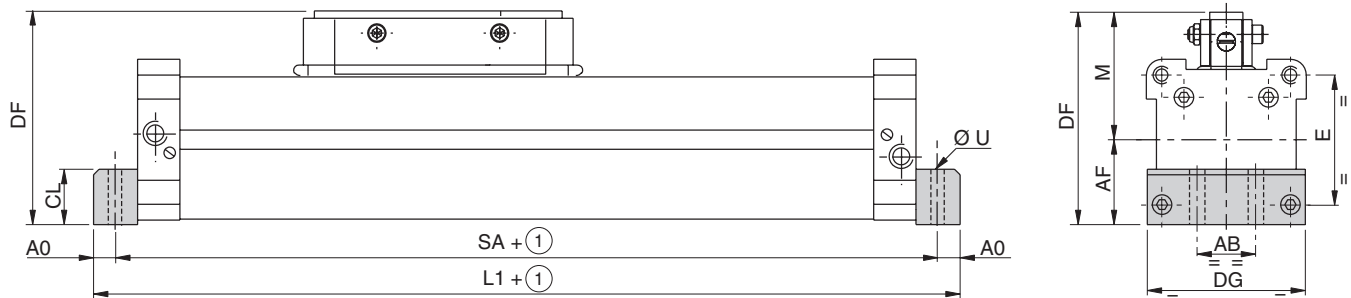
Ø 25-32 mm



① : + stroke

Ø 40-80 mm

CYLINDERS WITH MOUNTING FLANGES

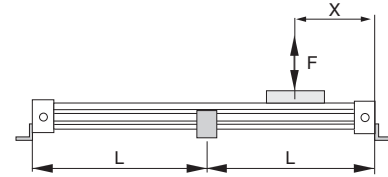
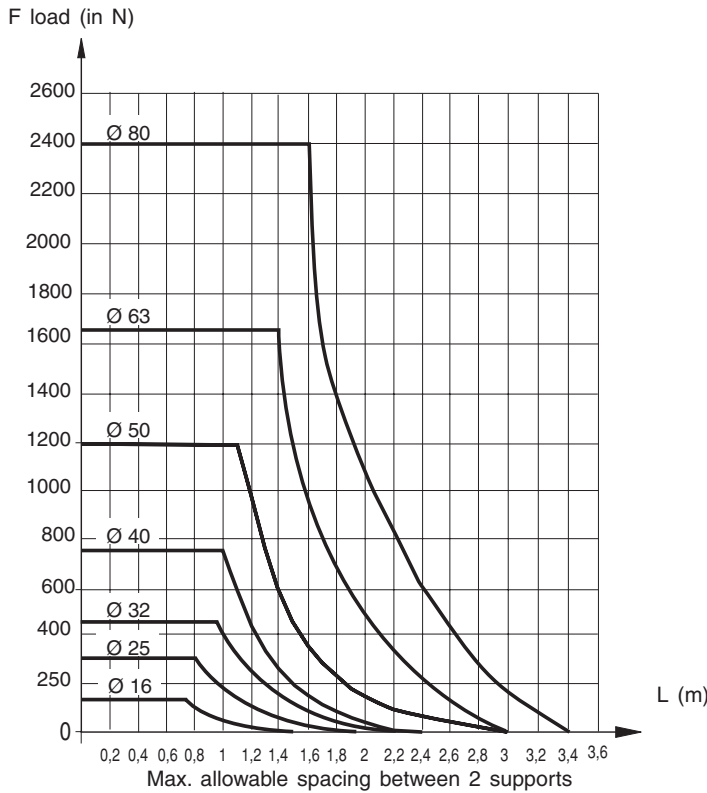


① : + stroke

Bore (mm)	DIMENSIONS (mm)											Weights (kg)			
	AB	AF		A0	CL	DF		DG	E	L1	M	SA	U	Weights (kg)	
		min	max			min	max							Brackets	Flanges
16	18	15		4	1,6	45		26	18	158,4	30	150,4	3,6	0,017	-
25	27	22,7	32,3	9,5	2,5	59,7	69,3	39	27	250,8	37	231,8	6,6	0,072	-
32	36	32,5	45,2	9,3	3	81,5	94,2	50	36	292,4	49	273,8	7	0,117	-
40	30	35,2		11,3	24	92		68	54	348	56,8	325,4	9	-	0,210
50	31,8	46		16,2	30	115		86	70	378	69	345,6	10	-	0,308
63	48	60,7		15	40	143,5		104	78	490	82,8	460	11	-	0,674
80	60	72		17,5	50	173		130	96	590	101	555	14	-	1,218

For certain strokes and loads, it is necessary to use tube support brackets for intermediate support. The graph below is used to determine the maximum allowable support spacings depending on the load and the number of supports required.

These supports are made of treated light alloy and are designed to fit into the dovetail grooves which run the length of the cylinder tube.



Number of supports needed (n) given that the cylinder is fixed on the ends.

$$n = \left(\frac{\text{Stroke} + 2 X}{L} \right) - 1$$

n = whole number, rounded up.

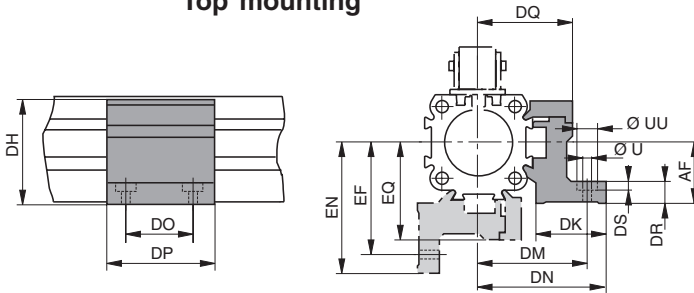
X = value in mm, mentioned with general cylinder dimensions

L = max. distance defined in the adjacent graph.

CHOICE OF EQUIPMENT

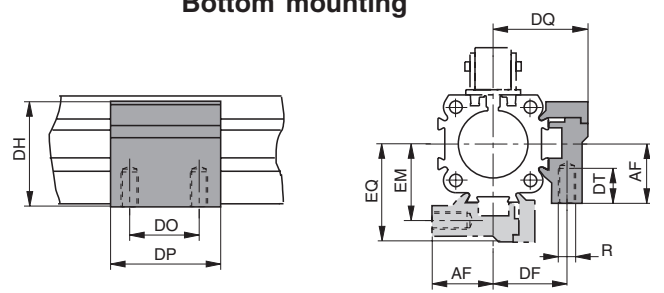
The tube supports must be mounted into the dovetailrails on the cylinder as shown below.

Top mounting



Bore (mm)	CODE	Weights (kg)
16	43400500	0,029
25	43400501	0,130
32	43400502	0,160
40	43400503	0,161
50	43400504	0,189
63	43400505	0,300
80	43400506	0,650

Bottom mounting



Bore (mm)	CODE	Weights (kg)
16	43400507	0,026
25	43400508	0,061
32	43400509	0,073
40	43400510	0,140
50	43400511	0,169
63	43400512	0,236
80	43400513	0,552

DIMENSIONS

Bore (mm)	DIMENSIONS (mm)																		
	R	U	UU	AF	DF	DH	DK	DM	DN	DO	DP	DQ	DR	DS	DT	EF	EM	EN	EQ
16	M3	3,4	6	15	20	29,2	24	32	36,4	18	30	27	6	3,4	6,5	32	20	36,4	27
25	M5	5,5	10	25	27	41	26	40	47,5	36	50	34,5	11	5,7	10	41,5	28,5	49	36
32	M5	5,5	10	33	33	49	27	46	54,5	36	50	40,5	13	5,7	10	48,5	35,5	57	43
40	M6	7	-	35,2	35	58,2	34	53	60	45	60	45	7,2	-	11	56	38	63	48
50	M6	7	-	46	40	69	34	59	67	45	60	52	8	-	11	64	45	72	57
63	M8	9	-	60,7	47,5	94,7	44	73	83	45	65	63	15,7	-	16	79	53,5	89	69
80	M10	11	-	72	60	111,5	63	97	112	55	80	81	15	-	25	103	66	118	87

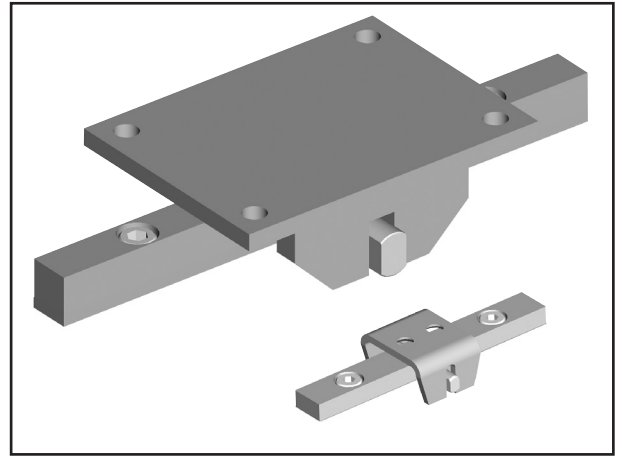
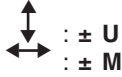
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For applications where a band cylinder moves a load that is externally guided and supported, a floating carrier bracket is necessary to compensate for non-parallelism and friction losses between the cylinder and the independent guiding member.

This flexible fastening compensates for the following alignment errors:

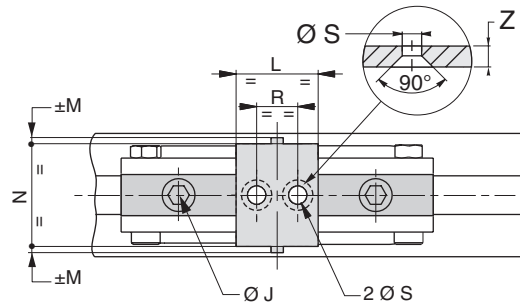
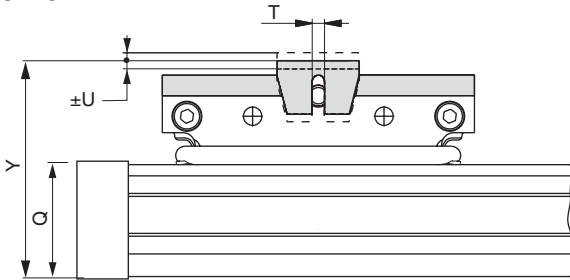
- Lateral
- Vertical
- Horizontal
- Longitudinal

Alignment compensation

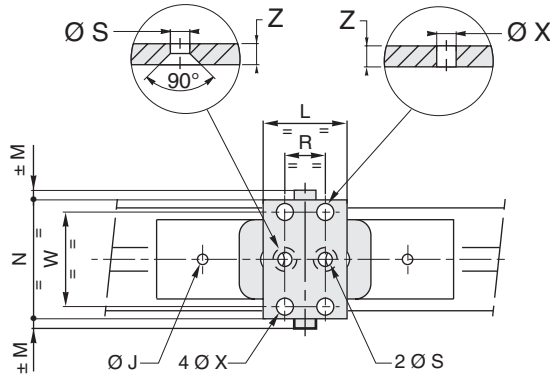
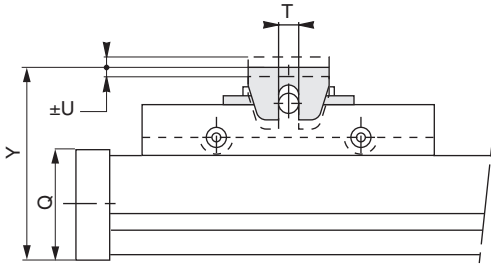


DIMENSIONS AND WEIGHTS

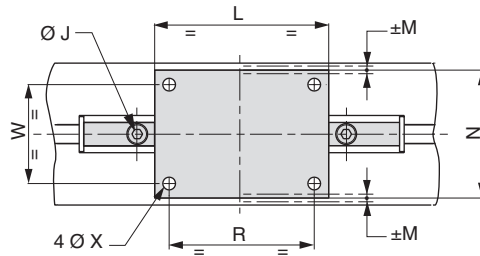
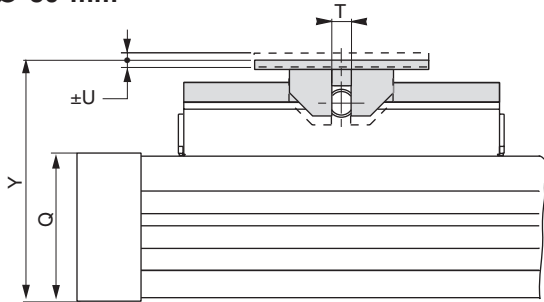
Ø 16 mm



Ø 25 to 63 mm



Ø 80 mm

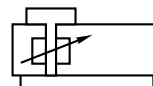


Ø Cyl. (mm)	MOUNT BRACKET CODE	DIMENSIONS (mm)													Weights (kg)
		Ø J	L	± M	N	R	Ø S	T	± U	W	Ø X	Y	Q	Z	
16	43400526	M4	20	1,5	25	10	4,5	3	1,5	-	-	52,5	30	2	0,432
25	43400232	M6	32	3,3	46	15,7	5,6	8	3,8	-	-	71	41	3	0,110
32	43400233	M8	70	4	56	50	7	8	4	-	-	94,5	52	4	0,250
40	43400234	M8	90	7	75	75	-	11	6	55	7	108	69	7	0,540
50	43400235	M10	100	7	82	80	8,6	16	6,4	-	-	139	87	5	0,610
63	43400236	M10	120	12	98	100	-	16	7	70	8,6	156	106	5	0,730
80	43400532	M10	150	4	110	125	-	13	4	85	11	203,2	132	8	1,320

Floating mount bracket mounting screws are supplied.

The fastening screws for the carrier and the load must be secured with LOCTITE 241.

All leaflets are available on: www.asco.com

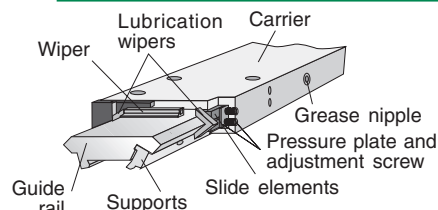
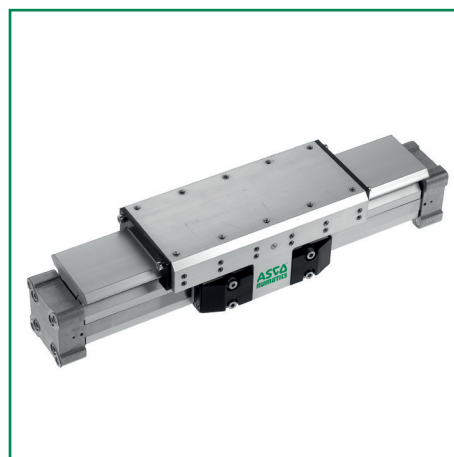


SPECIFICATIONS

FLUID	: air or neutral gas, filtered, unlubricated
PRESSURE	: 8 bar max.
TEMPERATURE	: - 10°C, + 80°C
STROKE min.	: 5 mm (without detectors)
	: 100 mm (with detectors)
	max. standard : see below (contact us for longer strokes)
MAXIMUM VELOCITY	: 0,2 to 4 m/sec

CONSTRUCTION

Tube	: Anodised aluminium
Ends	: Anodised aluminium
Carrier (piston)	: Anodised aluminium
Piston seals	: Nitrile (NBR)
Piston brackets	: High resistance stamped steel
Bands	: Stainless steel
Magnet	: Placed inside the piston
Covers, wipers	: Plastic
Screws	: Galvanised steel
Cushioning	: with air, adjustable
Slide elements	: adjustable, sintered material
Guide rail	: Anodised aluminium, prism shaped



CHOICE OF EQUIPMENT

Ø Cylinder (mm)	CYLINDER EQUIPPED FOR DETECTOR		Max. allowable stroke (mm)	Pipe size	Cushioning length (mm)
	CODE ⁽²⁾	REFERENCE			
16	44850008 ⁽¹⁾	STB 16 A - 0 ⁽³⁾ - _ ⁽¹⁾ - DM	5500	M5	11
25	44850009 ⁽¹⁾	STB 25 A - 0 ⁽³⁾ - _ ⁽¹⁾ - DM	5500	G 1/8	17
32	44850010 ⁽¹⁾	STB 32 A - 0 ⁽³⁾ - _ ⁽¹⁾ - DM	5500	G 1/4	20
40	44850011 ⁽¹⁾	STB 40 A - 0 ⁽³⁾ - _ ⁽¹⁾ - DM	5500	G 1/4	27
50	44850012 ⁽¹⁾	STB 50 A - 0 ⁽³⁾ - _ ⁽¹⁾ - DM	5500	G 1/4	30
63	44850013 ⁽¹⁾	STB 63 A - 0 ⁽³⁾ - _ ⁽¹⁾ - DM	5500	G 3/8	32
80	44850014 ⁽¹⁾	STB 80 A - 0 ⁽³⁾ - _ ⁽¹⁾ - DM	5500	G 1/2	39


For other strokes, consult us.


(1) Specify stroke (in mm)

(2) Position detectors are to be ordered separately

(3) 1 for slow speed option

MOUNTINGS

Ø Cylinder (mm)	CODE
	 Low foot brackets (4)
16	43400493
25	43400494
32	43400495

Ø Cylinder (mm)	CODE
	 Flanges
40	43400496
50	43400497
63	43400498
80	43400499

Delivered with 2 foot brackets or 2 flanges plus cylinder mounting screws.

The mountings are delivered non assembled.

(4) Foot brackets for cylinders Ø 25 and 32 allow height adjustment.

ACCESSORIES

- **Tube support** (recommended to avoid buckling, depending on the stroke and load)
- [Shock absorbers](#)
- Magnetic detectors: [Reed switch](#) or [magneto-inductive](#) type

OPTIONS

- Slow speeds from 5 mm/s to 0,2 m/s - code:

Ø 16 : 995082	Ø 50 : 995086
Ø 25 : 995083	Ø 63 : 995087
Ø 32 : 995084	Ø 80 : 995088
Ø 40 : 995085	

(When selecting this option, you will have to change the cylinder reference to: STB .. A 1 ... DM)

- Pressure supply ports on same side as guide rail (contact us)

Selecting the appropriate band cylinder is simple. The information you need includes:

- the stroke,
- the force required for moving the load,
- the weight of the load,
- the position of the load (centered on the carrier or elsewhere),
- the final or average velocity.

How to select

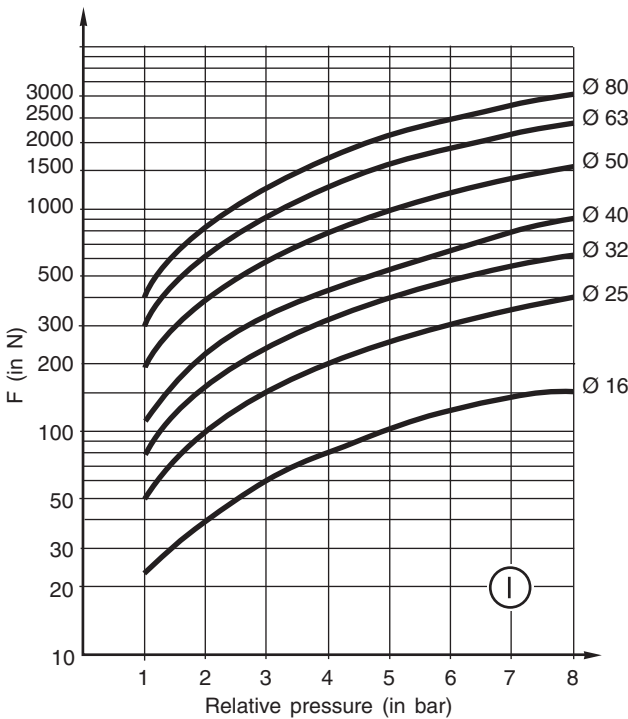
Graph (I) represents the theoretical force at various pressures. For the most efficient use of a cylinder, it is recommended to use a load rate of 70 %: the force needed to move the load therefore corresponds to 70% of the theoretical force.

After defining the cylinder diameter, you must determine if the cylinder's internal cushions may be used.

Allowable bending moments

A bending moment will occur if the load is not centered on the carrier (see bending moment data below).

THEORETICAL FORCE AT VARIOUS PRESSURES



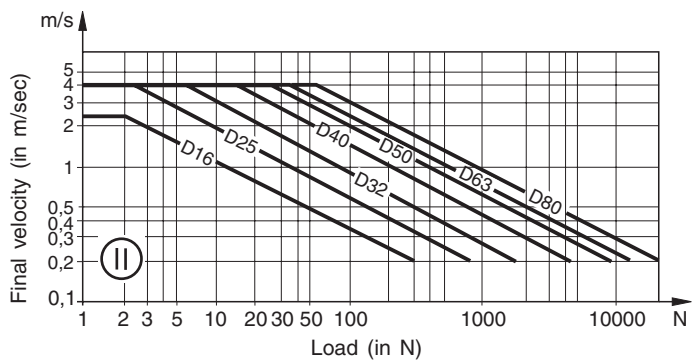
Cushioning capacity

Graph (II) is used to determine the type of cushioning needed. If the intersection point of the final velocity and the load falls below the curves, the internal cushions are adequate. If this is not the case, you must either choose a larger cylinder with greater cushion capacity, or use the shock absorbers which are available as an accessory. If you have determined that the internal cushions would be used near their maximum capacity **and** there is highly intense movement, it would be wise to use the optional shock absorbers.

OTHER ACCESSORIES:

- Tube support brackets: **You must determine if intermediate tube support brackets are required**, depending on the weight of the charge and the stroke. (see chart on tube support sheet).
- Reed switch or magneto-inductive detectors for position control.

CUSHION DATA

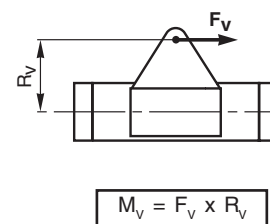
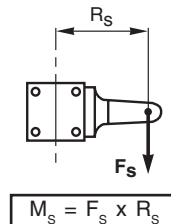
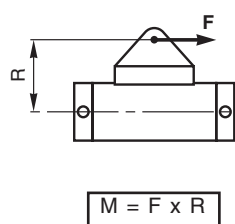
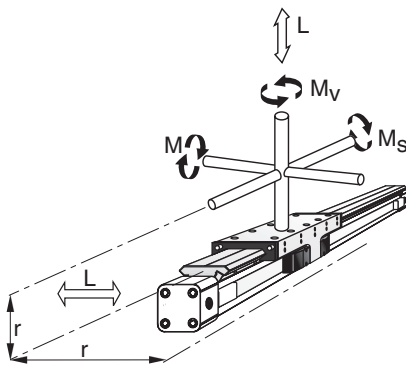


The velocities indicated in graph (II) represent **final velocities**. To properly determine the inertial forces for cushioning, it is important to know the **final velocity**. If final (or impact) velocity cannot be calculated directly, a reasonable guideline is:

Final V = 1,5 x average velocity

Ø Cylinder (mm)	Bending moments (in N.m)			Load (in N)
	M	M _s	M _v	L
16	11	6	11	325
25	34	14	34	675
32	60	29	60	925
40	110	50	110	1500
50	180	77	180	2000
63	260	120	260	2500
80	260	120	260	2500

ALLOWABLE BENDING/TWISTING MOMENTS

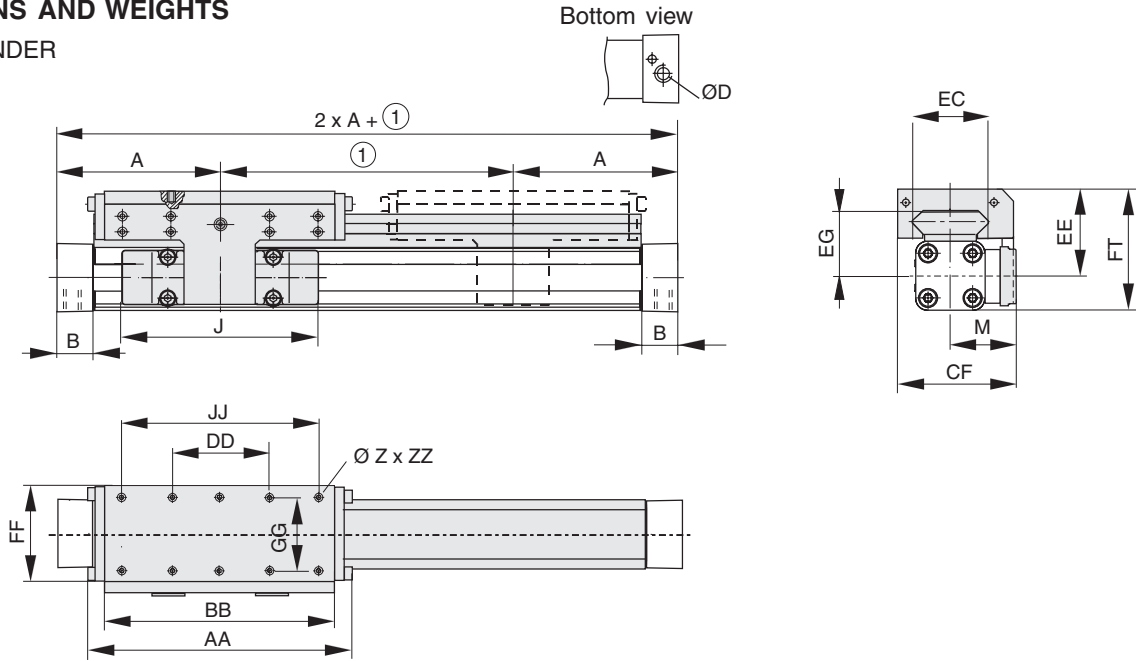


Note: When using the cushioning diagram, be sure to add the weight of the carrier (and that of the brake) to the weight of the load to be moved.

The maximum allowable values for loads, forces and moments are shown in the adjacent table. No dynamic calculation is needed for speeds up to 0,2 m/s.

DIMENSIONS AND WEIGHTS

BARE CYLINDER



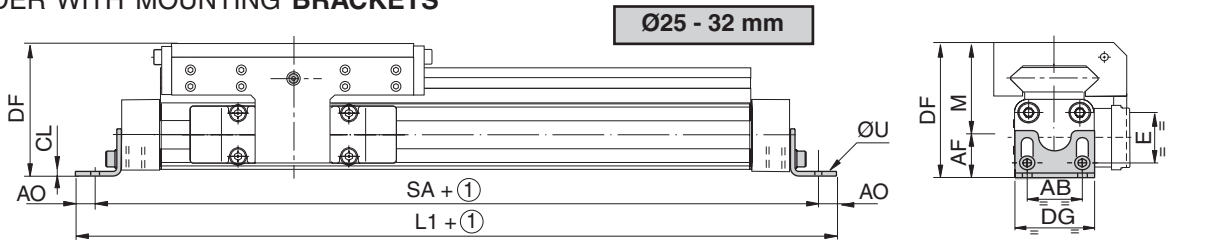
① : stroke

Bore (mm)	DIMENSIONS (mm)																	Weights (kg)			
	A	B	D	J	M	Z	AA	BB	DD	CF	EC	EE	EG	FF	FT	GG	JJ	ZZ	(1)	(2)	carrier
16	65,2	14	M5	69	31	M4	106	88	30	55	36	40	30	48	55	36	70	8	0,57	0,22	0,23
25	100,4	22	G1/8	117	40,5	M6	162	142	60	72,5	47	53	39	64	73,5	50	120	12	1,55	0,39	0,61
32	125,2	25,5	G1/4	152	49	M6	205	185	80	91	67	62	48	84	88	64	160	12	2,98	0,65	0,95
40	150	28	G1/4	152	55	M6	240	220	100	102	77	64,3	50	94	98,8	78	200	12	4,05	0,78	1,22
50	175	33	G1/4	200	62	M6	284	264	120	117	94	75	56	110	118,5	90	240	16	6,72	0,97	2,06
63	215	38	G3/8	256	79	M8	312	292	130	152	116	86	66	152	139	120	260	14	11,66	1,47	3,32
80	260	47	G1/2	348	96	M8	312	292	130	168	116	99	79	152	165	120	260	13	15,71	1,81	3,32

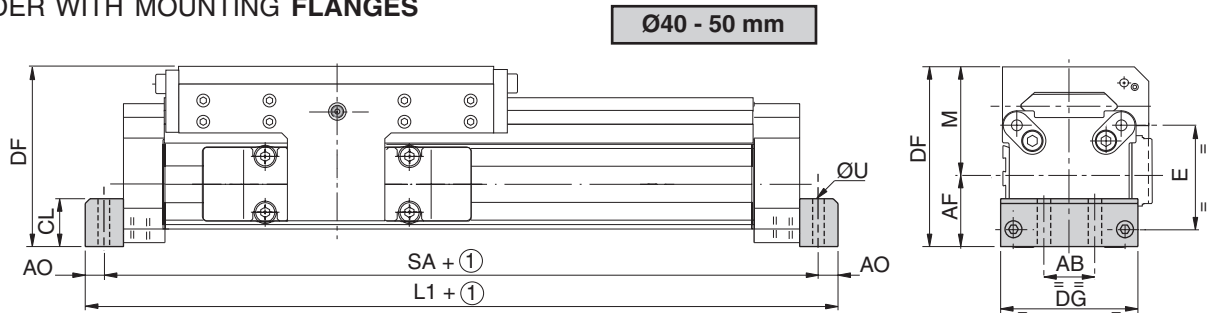
(1) Weight with 0 mm stroke

(2) Weight to be added per additional 100 mm length

CYLINDER WITH MOUNTING BRACKETS



CYLINDER WITH MOUNTING FLANGES



① : stroke

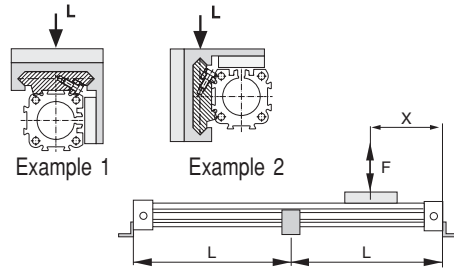
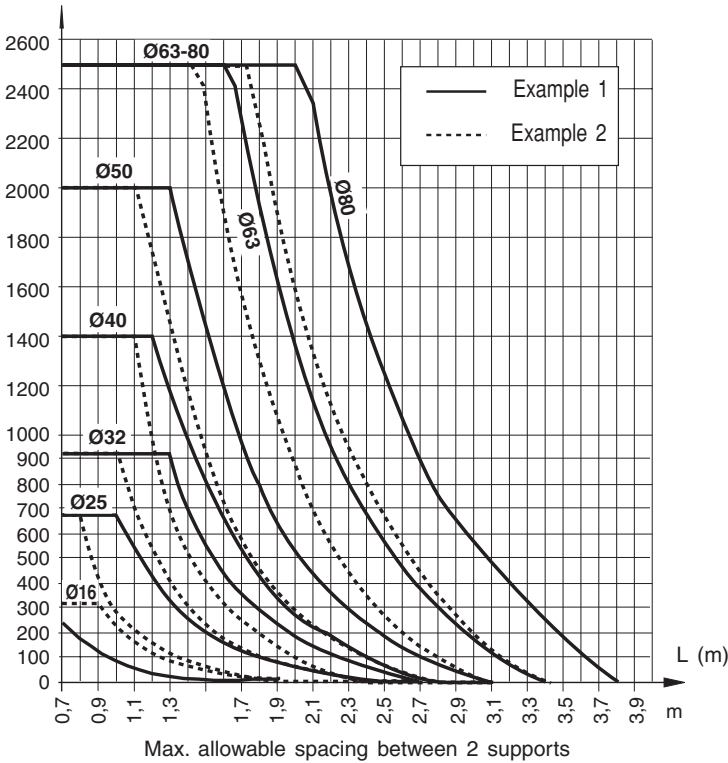
Bore (mm)	AB	AF		A0	CL	DF		DG	E	L1	M	SA	U	Weights (kg)	
		min	max			min	max							Brackets	Flanges
16	18	15		4	1,6	55		26	18	158,4	40	150,4	3,6	0,017	-
25	27	22,7	32,3	9,5	2,5	75,7	85,3	39	27	250,8	53	231,8	6,6	0,072	-
32	36	32,5	45,2	9,3	3	94,5	107,2	50	36	292,4	62	273,8	7	0,117	-
40	30	35,2		11,3	24	99,9		68	54	348	64,3	325,4	9	-	0,210
50	31,8	46		16,2	30	121		86	70	398	75	365,6	10	-	0,308
63	48	60,7		15	40	146,7		104	78	490	86	460	11	-	0,674
80	60	72		17,5	50	171		130	96	590	99	555	14	-	1,218

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For certain strokes and loads, it is necessary to use tube support brackets for intermediate support. The graph below is used to determine the maximum allowable support spacings depending on the load and the number of supports required.

These supports are made of treated light alloy and are designed to fit into the dovetail grooves which run the length of the cylinder tube.

F load (in N)



Number of supports needed (n) given that the cylinder is fixed on the ends.

$$n = \left(\frac{\text{Stroke} + 2 X}{L} \right) - 1$$

n = whole number, rounded up.

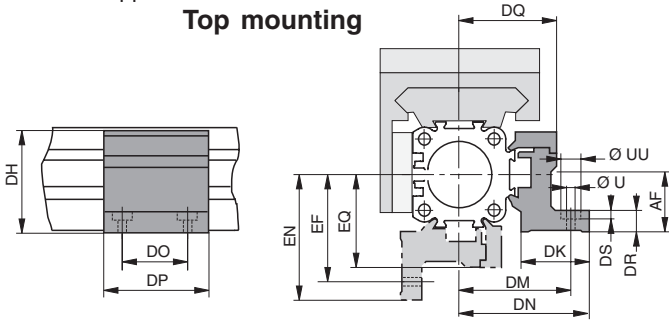
X = value in mm, mentioned with general cylinder dimensions

L = max. distance defined in the adjacent graph.

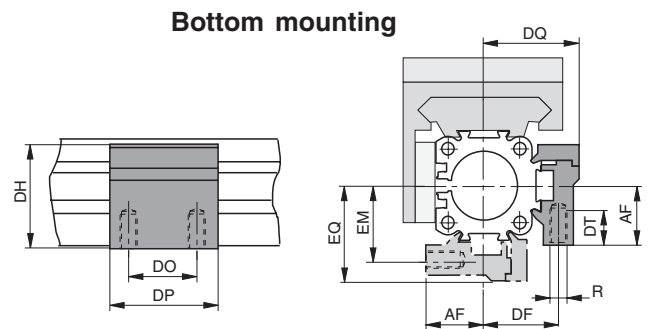
CHOICE OF EQUIPMENT

The tube supports must be mounted into the dovetail rails on the cylinder as shown below.

Top mounting



Bottom mounting

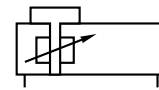


Bore (mm)	CODE	Weights (kg)
16	43400500	0,029
25	43400501	0,130
32	43400502	0,160
40	43400503	0,161
50	43400504	0,189
63	43400505	0,300
80	43400506	0,650

Bore (mm)	CODE	Weights (kg)
16	43400507	0,026
25	43400508	0,061
32	43400509	0,073
40	43400510	0,140
50	43400511	0,169
63	43400512	0,236
80	43400513	0,552

DIMENSIONS

Bore (mm)	DIMENSIONS (mm)																		
	R	U	UU	AF	DF	DH	DK	DM	DN	DO	DP	DQ	DR	DS	DT	EF	EM	EN	EQ
16	M3	3,4	6	15	20	29,2	24	32	36,4	18	30	27	6	3,4	6,5	32	20	36,4	27
25	M5	5,5	10	25	27	41	26	40	47,5	36	50	34,5	11	5,7	10	41,5	28,5	49	36
32	M5	5,5	10	33	33	49	27	46	54,5	36	50	40,5	13	5,7	10	48,5	35,5	57	43
40	M6	7	-	35,2	35	58,2	34	53	60	45	60	45	7,2	-	11	56	38	63	48
50	M6	7	-	46	40	69	34	59	67	45	60	52	8	-	11	64	45	72	57
63	M8	9	-	60,7	47,5	94,7	44	73	83	45	65	63	15,7	-	16	79	53,5	89	69
80	M10	11	-	72	60	111,5	63	97	112	55	80	81	15	-	25	103	66	118	87



APPLICATION PRINCIPLE

The brake is designed to stop the loaded cylinder carrier and hold it in the end-of-stroke position in case of power or pressure failure. The brake is a mechanical device that acts on the carrier's guide rail. It is released by pressurisation.

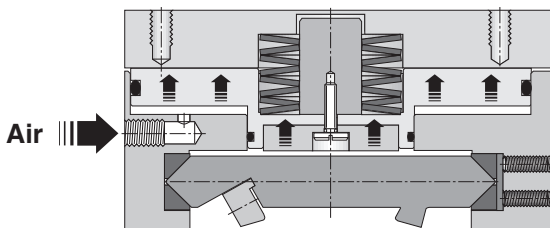
Advantages

- Stops and holds carrier in the end-of-stroke position.
- Intermediate stops possible.
- **Blocks in case of pressure loss.**
- Two-directional action.
- Any mounting position.

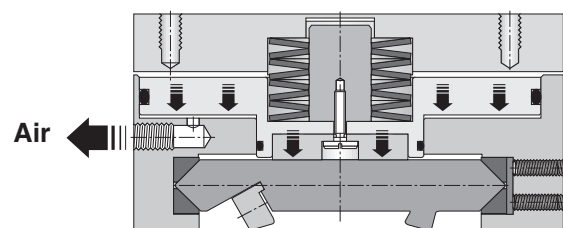
OPERATING PRINCIPLE



Pressure applied



No pressure applied



SPECIFICATIONS

CYLINDER: [see preceding pages](#)

PASSIVE BRAKE

FLUID : air or neutral gas, unlubricated
RELEASE PRESSURE : > 4,5 bar
ALLOWABLE PRESSURE : 8 bar max.
AMBIENT TEMPERATURE : -10°C to +80°C
MOUNTING POSITION : any
Loads, moments and forces :

Ø Cylinder (mm)	Bending moments (in N.m)			Load (in N)	Holding force (in N)
	M	M _s	M _v	L	
25	34	14	34	675	470
32	60	29	60	925	790
40	110	50	110	1500	1200
50	180	77	180	2000	1870
63	260	120	260	2500	2900
80	260	120	260	2500	2900

MECHANICAL CHARACTERISTICS: [see preceding pages](#)

CHOICE OF EQUIPMENT

Ø Cylinder (mm)	CYLINDER EQUIPPED FOR DETECTOR		Max. allowable stroke (mm)	Pipe size	Cushioning length (mm)
	CODE ⁽²⁾	REFERENCE			
25	44850024 ⁽¹⁾	STB 25 A - 0 ⁽³⁾ - PB - ⁽¹⁾ - DM	5500	G 1/8	17
32	44850025 ⁽¹⁾	STB 32 A - 0 ⁽³⁾ - PB - ⁽¹⁾ - DM	5500	G 1/4	20
40	44850026 ⁽¹⁾	STB 40 A - 0 ⁽³⁾ - PB - ⁽¹⁾ - DM	5500	G 1/4	27
50	44850027 ⁽¹⁾	STB 50 A - 0 ⁽³⁾ - PB - ⁽¹⁾ - DM	5500	G 1/4	30
63	44850028 ⁽¹⁾	STB 63 A - 0 ⁽³⁾ - PB - ⁽¹⁾ - DM	5500	G 3/8	32
80	44850029 ⁽¹⁾	STB 80 A - 0 ⁽³⁾ - PB - ⁽¹⁾ - DM	5500	G 1/2	39

For other strokes, contact us.

(1) Specify stroke (in mm)

(2) Position detectors are to be ordered separately


(3) 1 for slow speed option


When ordering, please specify the code of the STB cylinder with passive brake, its stroke, reference and any accessories you may require.

Example:

Cylinder Ø 25 mm, 200 mm stroke, with passive brake, without slow speed option: code **44850024200 - STB 25 A 0 PB 200 DM**

MOUNTINGS

∅ Cylinder (mm)	CODE  Low foot brackets (4)
25	43400494
32	43400495

	CODE  Flanges
40	43400496
50	43400497
63	43400498
80	43400499

Delivered with 2 foot brackets or 2 flanges plus cylinder mounting screws.

The mountings are delivered non assembled.

(4) Foot brackets for cylinders ∅ 25 and 32 allow height adjustment.

ACCESSORIES

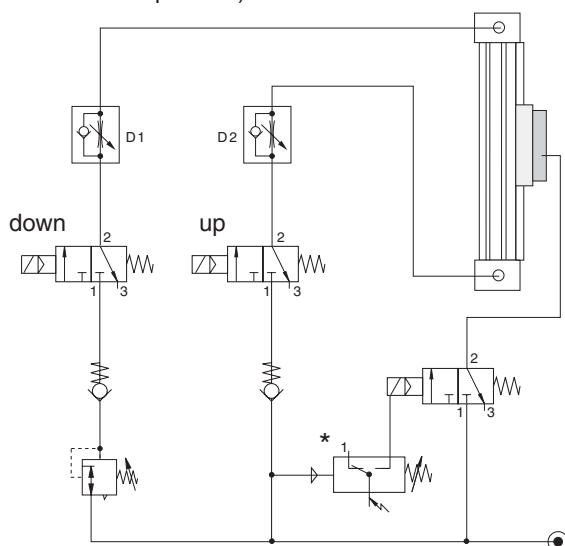
- [Tube support](#) (recommended to avoid buckling, depending on the stroke and load)
- [Shock absorbers](#)
- Magnetic detectors: [Reed switch](#) or [magneto-inductive](#) type

OPTION

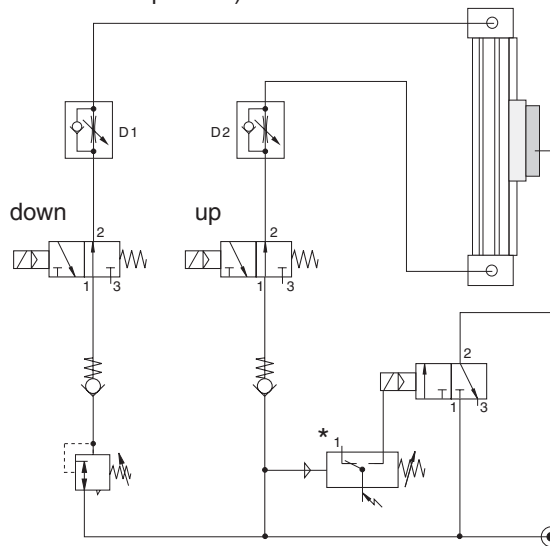
- Slow speeds from 5 mm/s to 0,2 m/s - code: ∅ 25 : **995083** ∅ 50 : **995086**
 ∅ 32 : **995084** ∅ 63 : **995087**
 ∅ 40 : **995085** ∅ 80 : **995088**
- (When selecting this option, you will have to change the cylinder reference to: STB .. A 1 ... DM)
- Pressure supply ports on same side as guide rail (contact us)

WIRING DIAGRAM VERTICAL APPLICATION

Control of a cylinder with normally closed (NC) 3/2 spool valves (the cylinder chambers are exhausted when in the reset position).



Control of a cylinder with normally open (NO) 3/2 spool valves (the cylinder chambers are pressurised when in the reset position).


DESCRIPTION

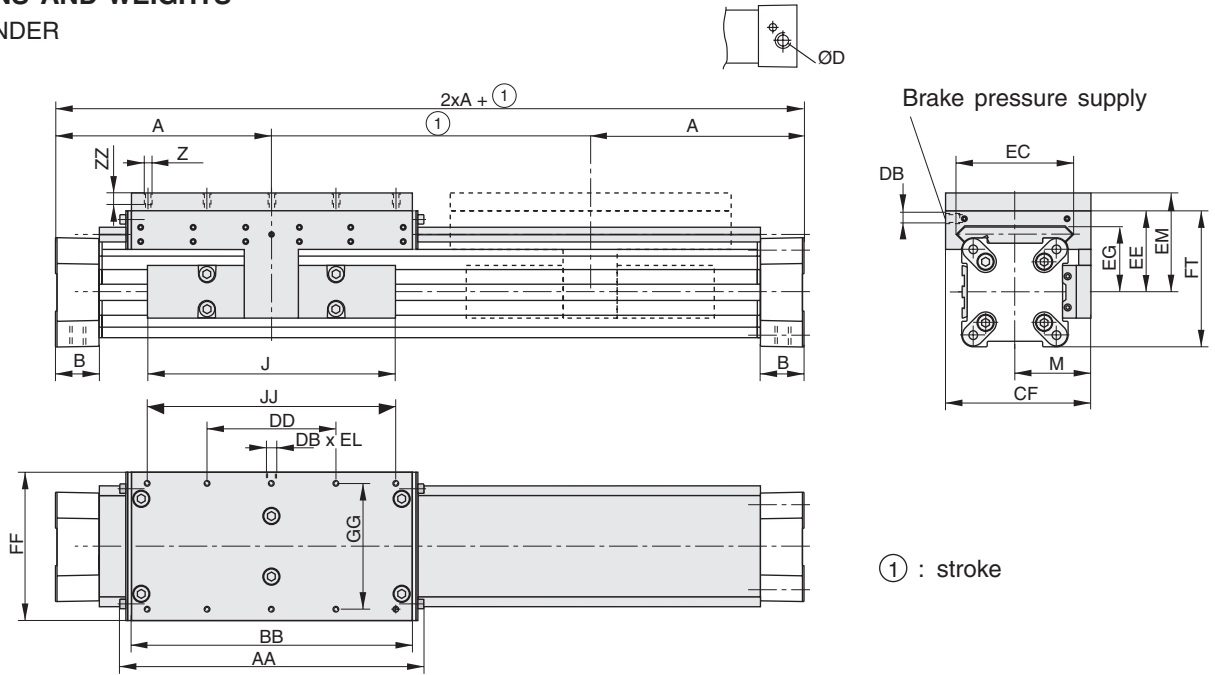
Under normal operating conditions, the pressure switch is closed. The 3/2 spool valve supplies air to the brake to release it and allow the cylinder to move. In the event of loss of pressure or pressure failure, the pressure switch activates the cylinder valve and locks the movement of the cylinder. When pressure is restored to the two cylinder chambers, the brake is once again released. The flow reducers D1 and D2 do not have any influence on the brake. The two non-return valves enhance the stability of the system. The pressure regulator is used to compensate the force of the load in vertical applications.

NOTE: Before releasing the brake, make sure both air chambers are pressurised. Pipe lengths and connection diameters have an influence on the reaction time of the brake. We recommend reducing piping lengths and using adequately sized fittings.

※ An adjustable pressure switch locks the brake when the pressure drops below a pre-set value.

DIMENSIONS AND WEIGHTS

BARE CYLINDER



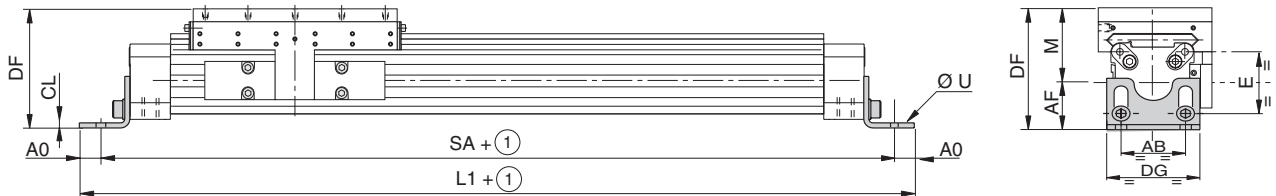
Bore (mm)	DIMENSIONS (mm)																				Cylinder weight (kg)		Carrier weight (kg)	
	A	B	D	J	M	Z	AA	BB	DB	DD	CF	EC	EE	EG	EL	EM	FF	FT	GG	JJ	ZZ	(1)		(2)
25	100,4	22	G1/8	117	40,5	M6	162	142	M5	60	72,5	47	53	39	5	73	64	73,5	50	120	12	2,04	0,39	1,10
32	125,2	25,5	G1/4	152	49	M6	205	185	G1/8	80	91	67	62	48	10	82	84	88	64	160	12	3,82	0,65	1,79
40	150	28	G1/4	152	55	M6	240	220	G1/8	100	102	77	64,3	50	10	84,3	94	98,8	78	200	12	5,16	0,78	2,34
50	175	33	G1/4	200	62	M6	284	264	G1/8	120	117	94	75	56	12	95	110	118,5	90	240	12	8,29	0,97	3,63
63	215	38	G3/8	256	79	M8	312	292	G1/8	130	152	116	86	66	12	106	152	139	120	260	13	13,31	1,47	4,97
80	260	47	G1/2	348	96	M8	312	292	G1/8	130	168	116	99	79	12	119	152	165	120	260	13	17,36	1,81	4,97

(1) Weight with 0 mm stroke

(2) Weight to be added per additional 100 mm length

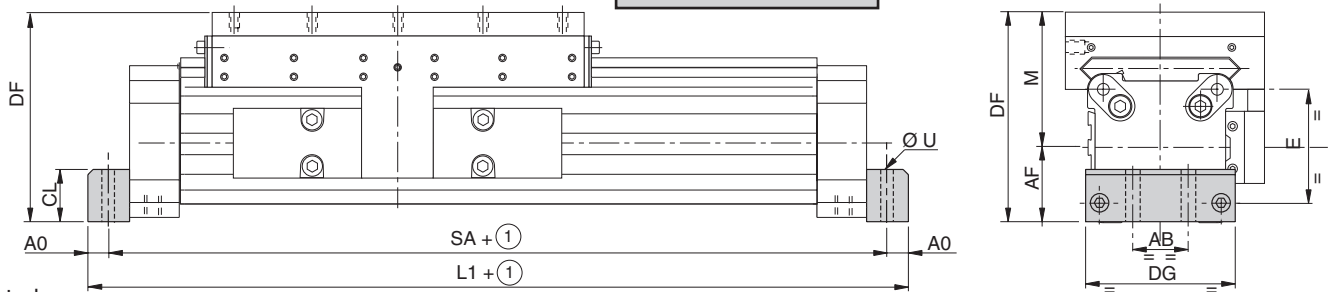
CYLINDER WITH MOUNTING BRACKETS

Ø25 - 32 mm



CYLINDER WITH MOUNTING FLANGES

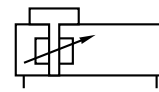
Ø40 - 80 mm



① : stroke

Bore (mm)	AB		AF		A0	CL	DIMENSIONS (mm)		DG	E	L1	M	SA	U	Weights (kg)	
	min	max	min	max			min	max							Brackets	Flanges
25	27	22,7	32,3	9,5	2,5	95,7	105,3	39	27	250,8	73	231,8	6,6	0,072	-	
32	36	32,5	45,2	9,3	3	114,5	127,2	50	36	292,4	82	273,8	7	0,117	-	
40	30	35,2	11,3	24	119,5	68	54	348	84,3	325,4	9	-	0,210	-		
50	31,8	46	16,2	30	141	86	70	398	95	365,6	10	-	0,308	-		
63	48	60,7	15	40	166,7	104	78	490	106	460	11	-	0,674	-		
80	60	72	17,5	50	191	130	96	590	119	555	14	-	1,218	-		

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APPLICATION PRINCIPLE

The brake is designed to stop the loaded cylinder carrier and hold it in the end-of-stroke position when it is supplied with pressure during machine operation.

The brake is a mechanical device which acts on the carrier's guide rail. It is released by spring actuation when the air pressure is removed.

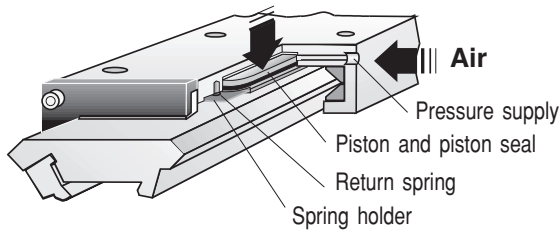
Advantages

- Stops and holds carrier in the end-of-stroke position.
- Holds maximum allowable cylinder load without slipping.
- Intermediate stops possible.
- **Blocks by pressurisation.**
- Two-directional action.
- Any mounting position.

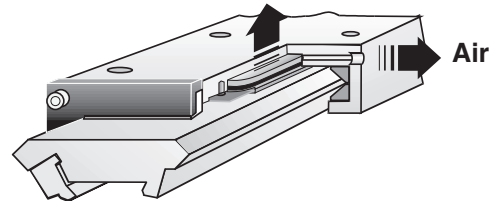


OPERATING PRINCIPLE

Pressure applied



No pressure applied



SPECIFICATIONS

CYLINDER: [see preceding pages](#)

ACTIVE BRAKE

FLUID : Air or neutral gas, unlubricated
ALLOWABLE PRESSURE : 8 bar max.
AMBIENT TEMPERATURE : -10°C to +80°C
MOUNTING POSITION : Any

Loads, moments and forces :

Ø Cylinder (mm)	Bending moments (in N.m)			Load (in N) L	Holding force at 6 bar (in N)
	M	M _s	M _v		
25	34	14	34	675	325
32	60	29	60	925	545
40	110	50	110	1500	835
50	180	77	180	2000	1200

MECHANICAL CHARACTERISTICS: [see preceding pages](#)

CHOICE OF EQUIPMENT

Ø Cylinder (mm)	CYLINDER EQUIPPED FOR DETECTOR		Max. allowable stroke (mm)	Pipe size	Cushioning length (mm)
	CODE ⁽²⁾	REFERENCE			
25	44850020 ⁽¹⁾	STB 25 A - 0 ⁽³⁾ - AB - ⁽¹⁾ - DM	5500	G 1/8	17
32	44850021 ⁽¹⁾	STB 32 A - 0 ⁽³⁾ - AB - ⁽¹⁾ - DM	5500	G 1/4	20
40	44850022 ⁽¹⁾	STB 40 A - 0 ⁽³⁾ - AB - ⁽¹⁾ - DM	5500	G 1/4	27
50	44850023 ⁽¹⁾	STB 50 A - 0 ⁽³⁾ - AB - ⁽¹⁾ - DM	5500	G 1/4	30

For other strokes, contact us.

(1) Specify stroke (in mm)

(2) Position detectors are to be ordered separately


(3) 1 for slow speed option


When ordering, please specify the code of the STB cylinder with active brake, its stroke, reference and any accessories you may require.

Example:

Cylinder Ø 25 mm, 200 mm stroke, with active brake, without slow speed option: code **44850020200 - STB 25 A 0 AB 200 DM**

MOUNTINGS

Ø Cylinder (mm)	CODE  Low foot brackets (4)
25	43400494
32	43400495

Ø Cylinder (mm)	CODE  Flanges
40	43400496
50	43400497

Delivered with 2 foot brackets or 2 flanges plus cylinder mounting screws.
The mountings are delivered non assembled.
(4) Foot brackets for cylinders Ø 25 and 32 allow height adjustment.

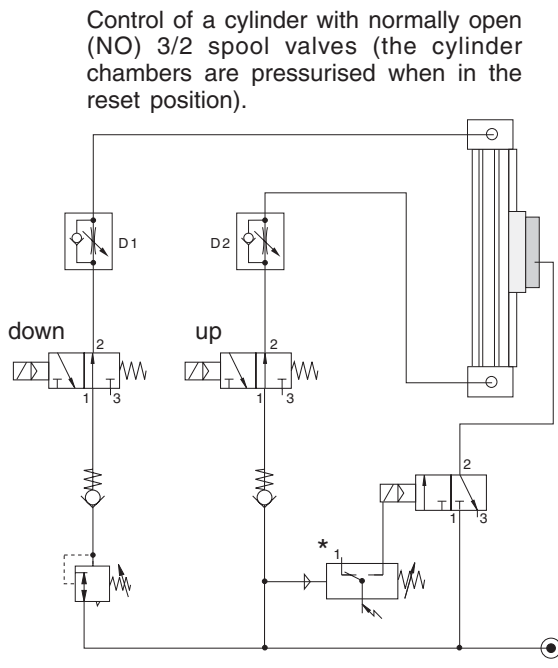
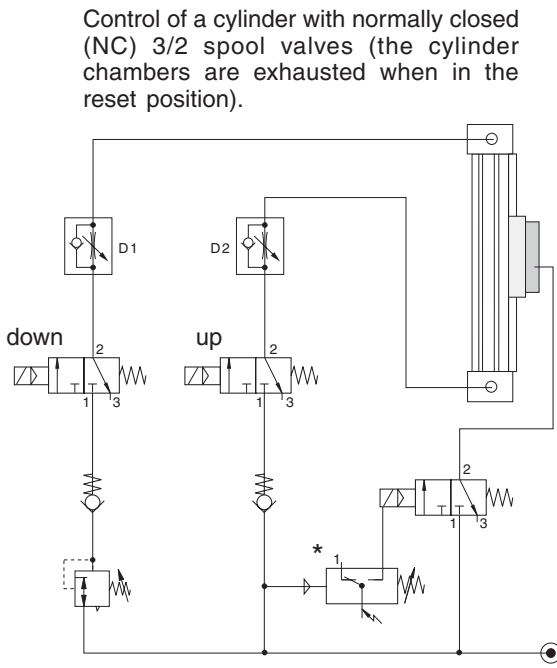
ACCESSORIES

- **Tube support** (recommended to avoid buckling, depending on the stroke and load)
- **Shock absorbers**
- Magnetic detectors: [Reed switch](#) or [magneto-inductive](#) type

OPTIONS

- Slow speeds from 5 mm/s to 0,2 m/s - code: Ø 25 : **995083** Ø 50 : **995086**
 Ø 32 : **995084** Ø 63 : **995087**
 Ø 40 : **995085** Ø 80 : **995088**
- (When selecting this option, you will have to change the cylinder reference to: STB .. A 1 ... DM)
- Pressure supply ports on same side as guide rail (contact us)

**WIRING DIAGRAM
VERTICAL APPLICATION**



DESCRIPTION

Under normal operating conditions, the pressure switch is closed. The 3/2 spool valve supplies air to the brake to release it and allow the cylinder to move. In the event of loss of pressure or pressure failure, the pressure switch activates the cylinder valve and locks the movement of the cylinder. When pressure is restored to the two cylinder chambers, the brake is once again released. The flow reducers D1 and D2 do not have any influence on the brake. The two non-return valves enhance the stability of the system. The pressure regulator is used to compensate the force of the load in vertical applications.

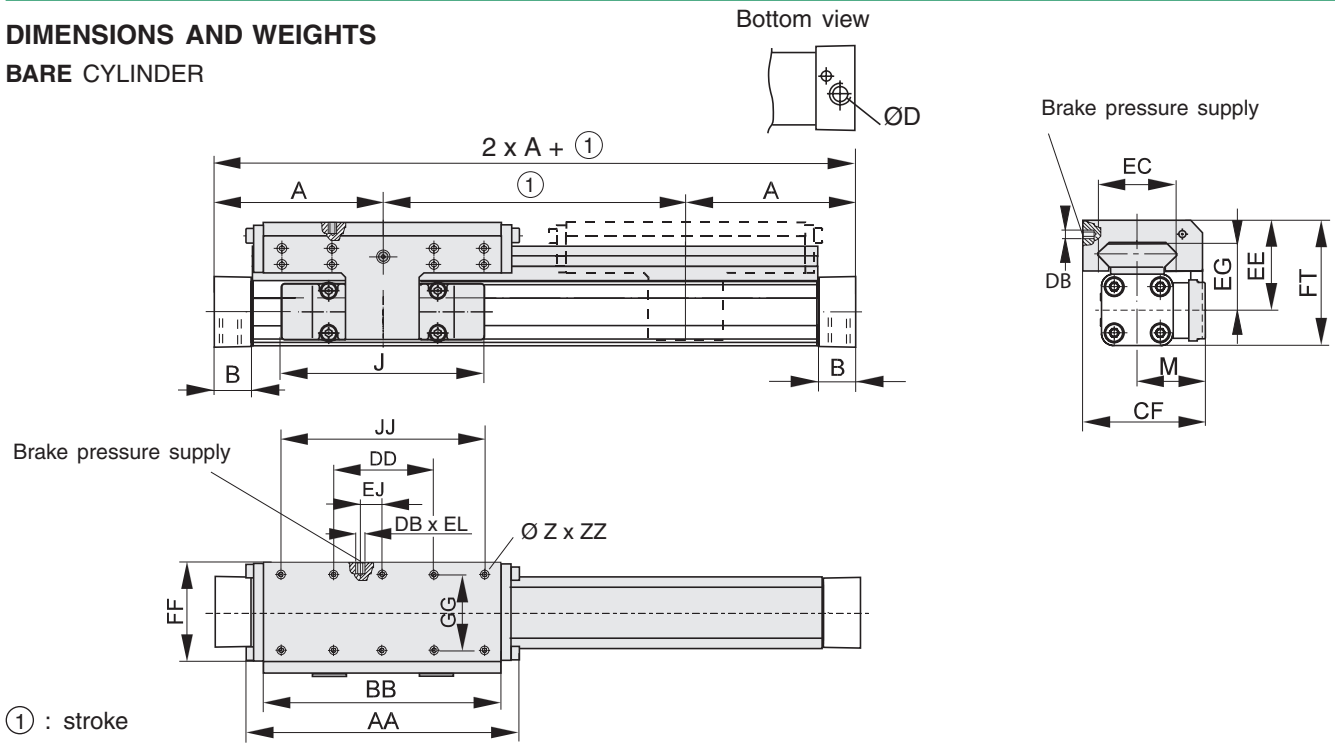
NOTE: Before releasing the brake, make sure both air chambers are pressurised. Pipe lengths and connection diameters have an influence on the reaction time of the brake. We recommend reducing piping lengths and using adequately sized fittings.

* An adjustable pressure switch locks the brake when the pressure drops below a pre-set value.

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DIMENSIONS AND WEIGHTS

BARE CYLINDER



① : stroke

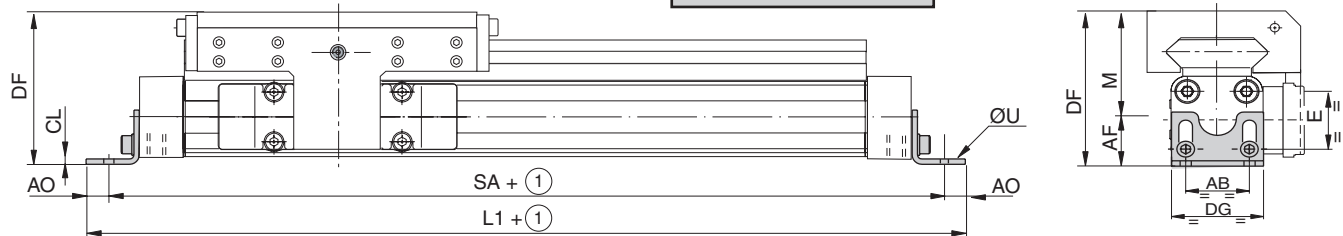
Bore (mm)	DIMENSIONS (mm)																			Weights (kg)				
	A	B	D	J	M	Z	AA	BB	DB	DD	CF	EC	EE	EG	EJ	EK	FF	FT	GG	JJ	ZZ	(1)	(2)	carrier
25	100,4	22	G1/8	117	40,5	M6	162	142	M5	60	72,5	47	53	39	22	6	64	73,5	50	120	12	1,55	0,39	0,61
32	125,2	25,5	G1/4	152	49	M6	205	185	M5	80	91	67	62	48	32	6	84	88	64	160	12	2,98	0,65	0,95
40	150	28	G1/4	152	55	M6	240	220	M5	100	102	77	64,3	50	58	6	94	98,8	78	200	12	4,05	0,78	1,22
50	175	33	G1/4	200	62	M6	284	264	M5	120	117	94	75	56	81	6	110	118,5	90	240	16	6,72	0,97	2,06

(1) Weight with 0 mm stroke

(2) Weight to be added per additional 100 mm length

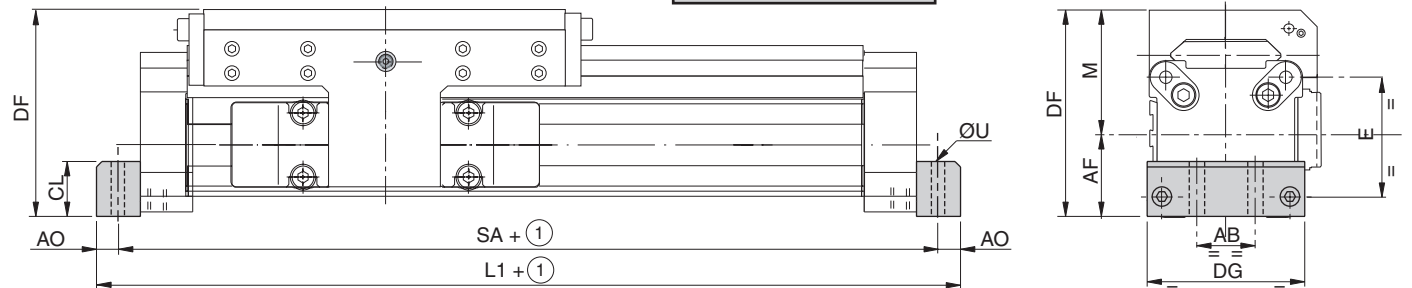
CYLINDER WITH MOUNTING BRACKETS

Ø25 - 32 mm



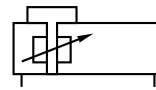
CYLINDER WITH MOUNTING FLANGES

Ø40 - 50 mm



① : stroke

Bore (mm)	DIMENSIONS (mm)												Weights (kg)		
	AB	AF min	AF max	A0	CL	DF min	DF max	DG	E	L1	M	SA	U	Brackets	Flanges
25	27	22,7	32,3	9,5	2,5	75,7	85,3	39	27	250,8	53	231,8	6,6	0,072	-
32	36	32,5	45,2	9,3	3	94,5	107,2	50	36	292,4	62	273,8	7	0,117	-
40	30	35,2	11,3	24	99,5	68	54	348	64,3	325,4	9	-	9	-	0,210
50	31,8	46	16,2	30	121	86	70	398	75	365,6	10	-	10	-	0,308

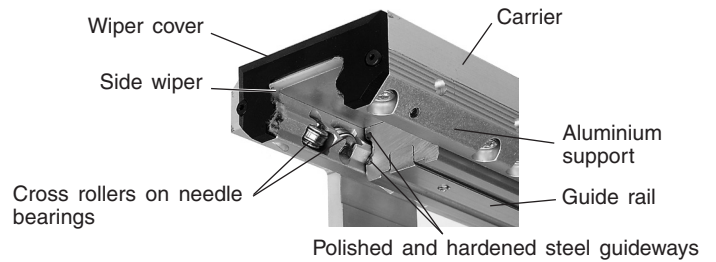


SPECIFICATIONS

FLUID	: Air or neutral gas, filtered, unlubricated
PRESSURE	: 8 bar max.
TEMPERATURE	: -10°C to +80°C
STROKE min.	: 5 mm (without detectors)
	: 100 mm (with detectors)
max. standard	: See below (contact us for longer strokes)
MAXIMUM VELOCITY	: 0,2 to 4 m/sec

CONSTRUCTION

Tube	: Anodised aluminium
Ends	: Anodised aluminium
Carrier (piston)	: Anodised aluminium
Piston seals	: Nitrile (NBR)
Piston brackets	: High resistance stamped steel
Bands	: Stainless steel
Magnet	: Placed inside the piston
Covers, wipers	: Plastic
Screws	: Galvanised steel
Cushioning	: With air, adjustable
Guide rail	: Aluminium with hardened and polished steel guideway
Guidance :	: 8 rollers arranged crosswise




CHOICE OF EQUIPMENT


Ø Cylinder (mm)	CYLINDER EQUIPPED FOR DETECTOR		Max. allowable stroke (mm)	Pipe size	Cushioning length (mm)
	CODE ⁽²⁾	REFERENCE			
25	44850016 ⁽¹⁾	STBB 25 A - 0 ⁽³⁾ - <u> </u> (1) - DM	3750	G 1/8	17
32	44850017 ⁽¹⁾	STBB 32 A - 0 ⁽³⁾ - <u> </u> (1) - DM	3750	G 1/4	20
40	44850018 ⁽¹⁾	STBB 40 A - 0 ⁽³⁾ - <u> </u> (1) - DM	3750	G 1/4	27
50	44850019 ⁽¹⁾	STBB 50 A - 0 ⁽³⁾ - <u> </u> (1) - DM	3750	G 1/4	30

For other strokes, contact us.

- (1) Specify stroke (in mm)
- (2) Position detectors are to be ordered separately
- (3) 1 for slow speed option

MOUNTINGS

Ø Cylinder (mm)	CODE
	 Low foot brackets (4)
25	43400494
32	43400495

Ø Cylinder (mm)	CODE
	 Flanges
40	43400496
50	43400497

Delivered with 2 foot brackets or 2 flanges plus cylinder mounting screws.

The mountings are delivered non assembled.

(4) Foot brackets for cylinders Ø 25 and 32 allow height adjustment.

ACCESSORIES

- **Tube support** (recommended to avoid buckling, depending on the stroke and load)
- [Shock absorbers](#)
- Magnetic detectors: [Reed switch](#) or [magneto-inductive](#) type

OPTIONS

- Slow speeds from 5 mm/s to 0,2 m/s - code: Ø 25 : **995083** Ø 40 : **995085**
 Ø 32 : **995084** Ø 50 : **995086**
 (When selecting this option, you will have to change the cylinder reference to: STBB .. A 1 ... DM)

Selecting the appropriate band cylinder is simple. The information you need includes:

- the stroke,
- the force required for moving the load,
- the weight of the load,
- the position of the load (centered on the carrier or elsewhere),
- the final or average velocity.

How to select

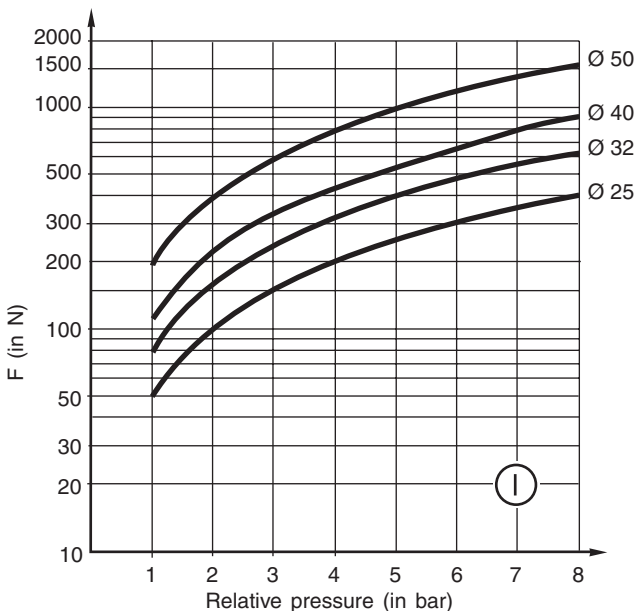
Graph (I) represents the theoretical force at various pressures. For the most efficient use of a cylinder, it is recommended to use a load rate of 70 %: the force needed to move the load therefore corresponds to 70% of the theoretical force.

After defining the cylinder diameter, you must determine if the cylinder's internal cushions can be used.

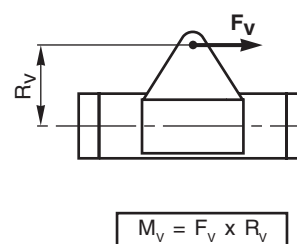
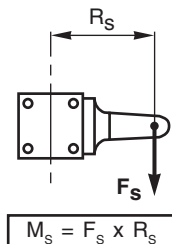
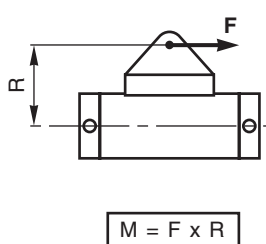
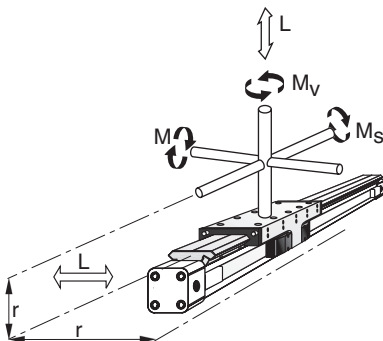
Allowable bending moments

A bending moment will occur if the load is not centered on the carrier (see bending moment data below).

THEORETICAL FORCE AT VARIOUS PRESSURES



ALLOWABLE BENDING/TWISTING MOMENTS



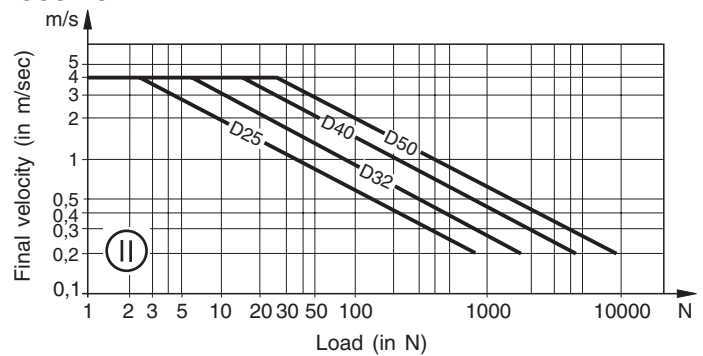
Cushioning capacity

Graph (II) is used to determine the type of cushioning needed. If the intersection point of the final velocity and the load falls below the curves, the internal cushions are adequate. If this is not the case, you must either choose a larger cylinder with greater cushion capacity, or use the shock absorbers which are available as an accessory. If you have determined that the internal cushions would be used near their maximum capacity and there is highly intense movement, it would be wise to use the optional shock absorbers.

OTHER ACCESSORIES:

- Tube support brackets: **You must determine if intermediate tube support brackets are required**, depending on the weight of the charge and the stroke. (see chart on tube support sheet).
- Reed switch or magneto-inductive detectors for position control.

CUSHION DATA



The velocities indicated in graph (II) represent **final velocities**. To properly determine the inertial forces for cushioning, it is important to know the **final velocity**.

If final (or impact) velocity cannot be calculated directly, a reasonable guideline is:

$$\text{Final V} = 1,5 \times \text{average velocity}$$

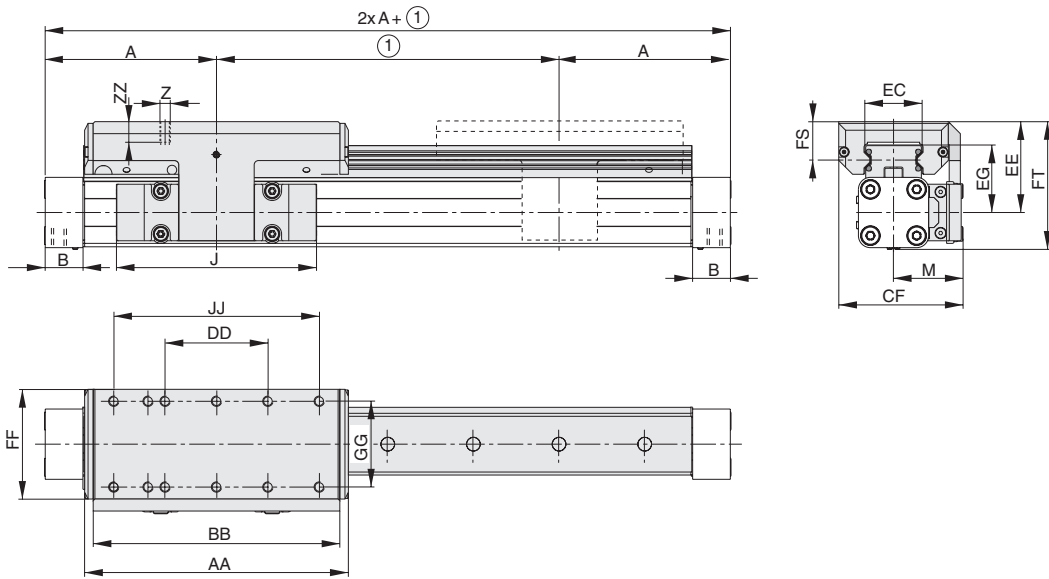
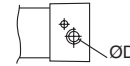
Ø Cylinder (mm)	Bending moments (in N.m)			Load (in N) L	Carrier weight (in kg)
	M	M _s	M _v		
25	39	16	39	857	0,75
32	73	29	73	1171	1,18
40	158	57	158	2074	1,70
50	249	111	249	3111	2,50

Note: When using the cushioning diagram, be sure to add the weight of the carrier (and that of the brake) to the weight of the load to be moved.

DIMENSIONS AND WEIGHTS

BARE CYLINDERS

Bottom view



① : stroke

Bore (mm)	DIMENSIONS (mm)																			Cylinder weight (kg)		Carrier weight (kg)
	A	B	D	J	M	Z	AA	BB	DD	CF	EC	EE	EG	FF	FS	FT	GG	JJ	ZZ	(1)	(2)	(3)
25	100,4	22	G1/8	117	40,5	M6	154	144	60	72,5	32,5	53	39	64	23	73,5	50	120	12	1,65	0,40	0,75
32	125,2	25,5	G1/4	152	49	M6	197	187	80	91	42	62	48	84	25	88	64	160	12	3,24	0,62	1,18
40	150	28	G1/4	152	55	M6	232	222	100	102	47	64	50,5	94	23,5	98,5	78	200	12	4,35	0,70	1,70
50	175	33	G1/4	200	62	M6	276	266	120	117	63	75	57	110	29	118,5	90	240	16	7,03	0,95	2,50

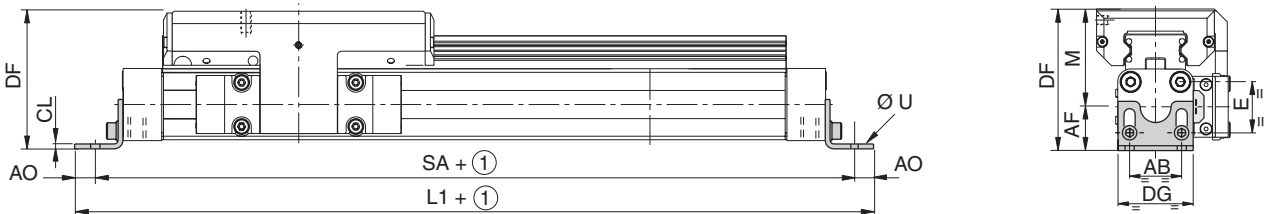
(1) Weight with 0 mm stroke

(2) Weight to be added per additional 100 mm length

(3) When using the cushioning diagram, be sure to add the weight of the carrier to the weight of the load to be moved.

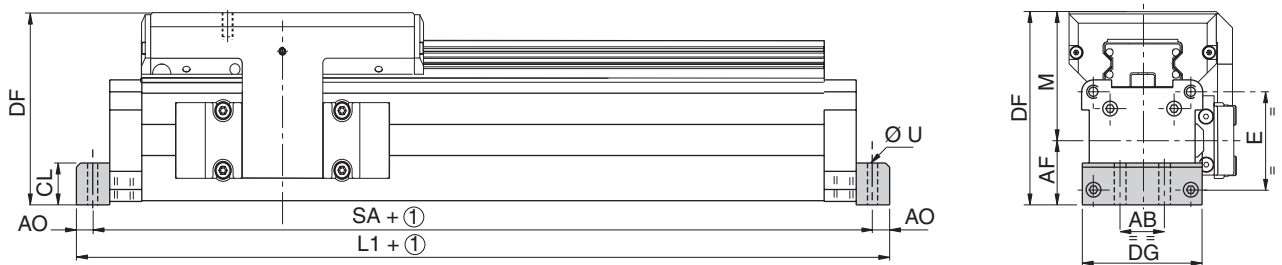
CYLINDER WITH MOUNTING BRACKETS

Ø25 - 32 mm



CYLINDER WITH MOUNTING FLANGES

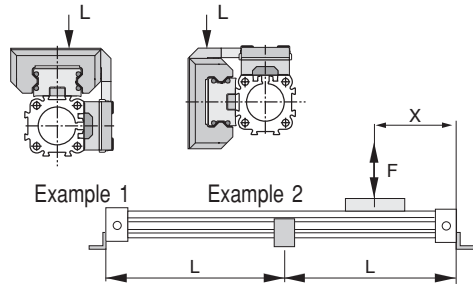
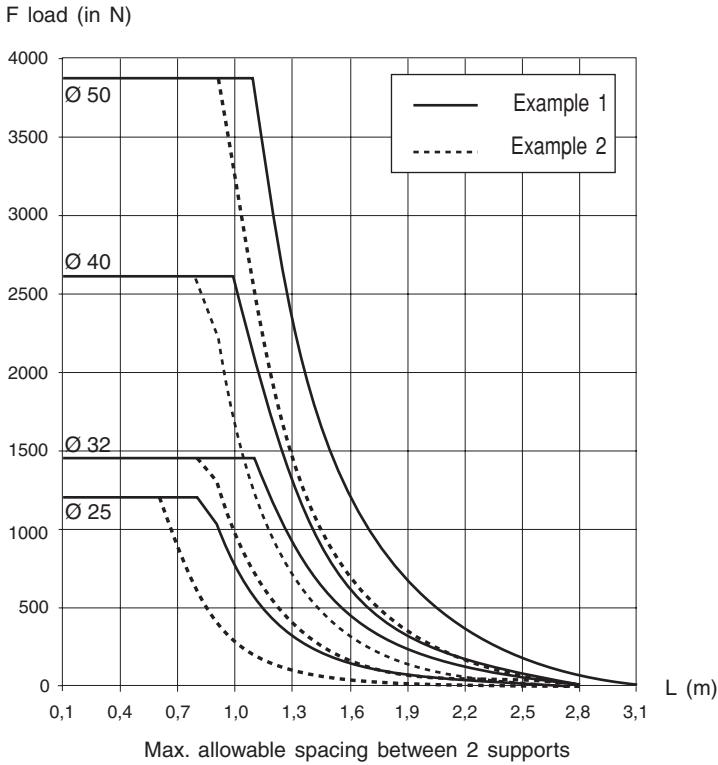
Ø40 - 50 mm



① : stroke

Bore (mm)	DIMENSIONS (mm)														Weights (kg)	
	AB	AF min	AF max	A0	CL	DF min	DF max	DG	E	L1	M	SA	U	Brackets	Flanges	
25	27	22,7	32,3	9,5	2,5	75,7	85,3	39	27	250,8	53	231,8	6,6	0,072	-	
32	36	32,5	45,2	9,3	3	94,5	107,2	50	36	292,4	62	273,8	7	0,117	-	
40	30	35,2	-	11,3	24	99,2	-	68	54	348	64	325,4	9	-	0,210	
50	31,8	46	-	16,2	30	121	-	86	70	398	75	365,6	10	-	0,308	

For certain strokes and loads, it is necessary to use tube support brackets for intermediate support. The graph below is used to determine the maximum allowable support spacings depending on the load and the number of supports required. These supports are made of treated light alloy and are designed to fit into the dovetail grooves which run the length of the cylinder tube.



Number of supports needed (n) given that the cylinder is fixed on the ends.

$$n = \left(\frac{\text{Stroke} + 2 X}{L} \right) - 1$$

n = whole number, rounded up.

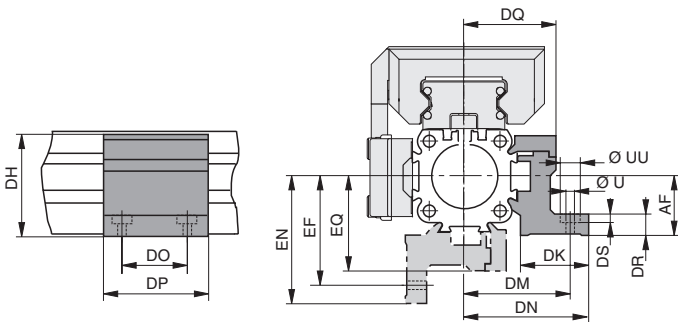
X = A dimension in mm, mentioned with general cylinder dimensions

L = max. distance defined in the adjacent graph.

CHOICE OF EQUIPMENT

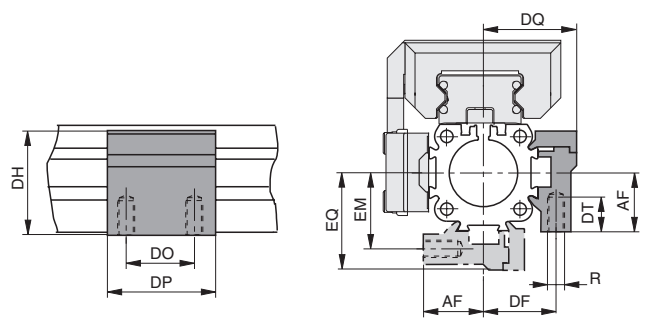
The tube supports must be mounted into the dovetail rails on the cylinder as shown below.

Top mounting



Bore (mm)	CODE	Weights (kg)
25	43400501	0,130
32	43400502	0,160
40	43400503	0,161
50	43400504	0,189

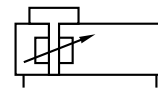
Bottom mounting



Bore (mm)	CODE	Weights (kg)
25	43400508	0,061
32	43400509	0,073
40	43400510	0,140
50	43400511	0,169

DIMENSIONS

Bore (mm)	DIMENSIONS (mm)																		
	R	U	UU	AF	DF	DH	DK	DM	DN	DO	DP	DQ	DR	DS	DT	EF	EM	EN	EQ
25	M5	5,5	10	25	27	41	26	40	47,5	36	50	34,5	11	5,7	10	41,5	28,5	49	36
32	M5	5,5	10	33	33	49	27	46	54,5	36	50	40,5	13	5,7	10	48,5	35,5	57	43
40	M6	7	-	35,2	35	58,2	34	53	60	45	60	45	7,2	-	11	56	38	63	48
50	M6	7	-	46	40	69	34	59	67	45	60	52	8	-	11	64	45	72	57



APPLICATION PRINCIPLE

The brake is designed to stop the loaded cylinder carrier and hold it in the end-of-stroke position in case of power or pressure failure. The brake is a mechanical device that acts on the carrier's guide rail. It is released by pressurisation.

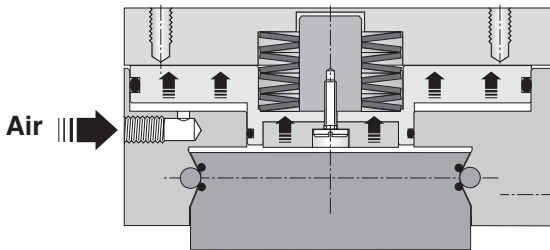
Advantages

- Stops and holds carrier in the end-of-stroke position.
- Intermediate stops possible.
- **Blocks in case of pressure loss.**
- Two-directional action.
- Any mounting position.

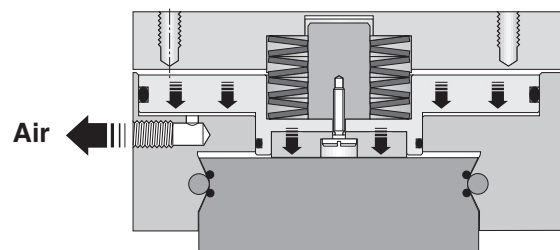


OPERATING PRINCIPLE

Pressure applied



No pressure applied



SPECIFICATIONS

CYLINDER: page 136 (www.asco.com)

PASSIVE BRAKE

FLUID : Air or neutral gas, unlubricated
RELEASE PRESSURE : > 4,5 bar
ALLOWABLE PRESSURE : 8 bar max.
AMBIENT TEMPERATURE : -10°C to +80°C
MOUNTING POSITION : Any

Loads, moments and forces :

Ø Cylinder (mm)	Bending moments (in N.m)			Load (in N)	Holding force (in N)
	M	M _s	M _v	L	
25	39	16	39	857	315
32	73	29	73	1171	490
40	158	57	158	2074	715
50	249	111	249	3111	1100

MECHANICAL CHARACTERISTICS: page 123 (www.asco.com)

CHOICE OF EQUIPMENT

Ø Cylinder (mm)	CYLINDER EQUIPPED FOR DETECTOR		Max. allowable stroke (mm)	Pipe size	Cushioning length (mm)
	CODE ⁽²⁾	REFERENCE			
25	44850034 ⁽¹⁾	STBB 25 A - 0 ⁽³⁾ - PB - ⁽¹⁾ - DM	3750	G 1/8	17
32	44850035 ⁽¹⁾	STBB 32 A - 0 ⁽³⁾ - PB - ⁽¹⁾ - DM	3750	G 1/4	20
40	44850036 ⁽¹⁾	STBB 40 A - 0 ⁽³⁾ - PB - ⁽¹⁾ - DM	3750	G 1/4	27
50	44850037 ⁽¹⁾	STBB 50 A - 0 ⁽³⁾ - PB - ⁽¹⁾ - DM	3750	G 1/4	30

For other strokes, contact us.

(1) Specify stroke (in mm)

(2) Position detectors are to be ordered separately

(3) 1 for slow speed option

When ordering, please specify the code of the STBB cylinder with passive brake, its stroke, reference and any accessories you may require.

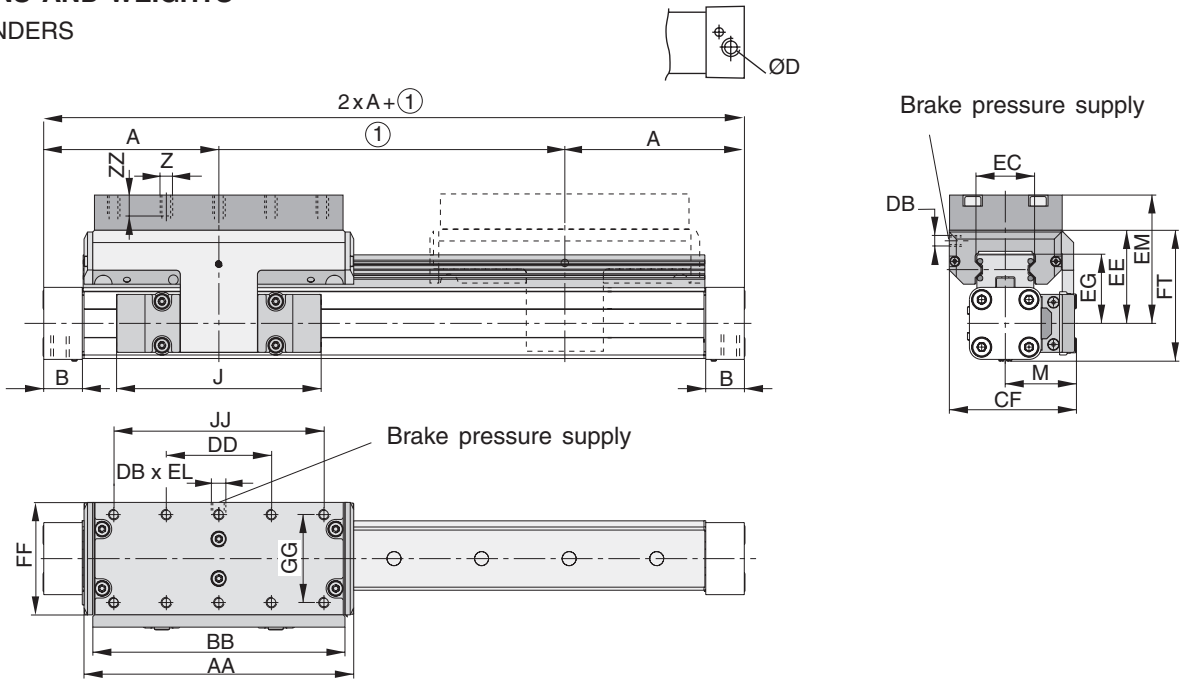
Example:

Cylinder Ø 25 mm, 200 mm stroke, with passive brake, without slow speed option: code **44850034200 - STBB 25 A 0 PB 200 DM**

DIMENSIONS AND WEIGHTS

BARE CYLINDERS

Bottom view

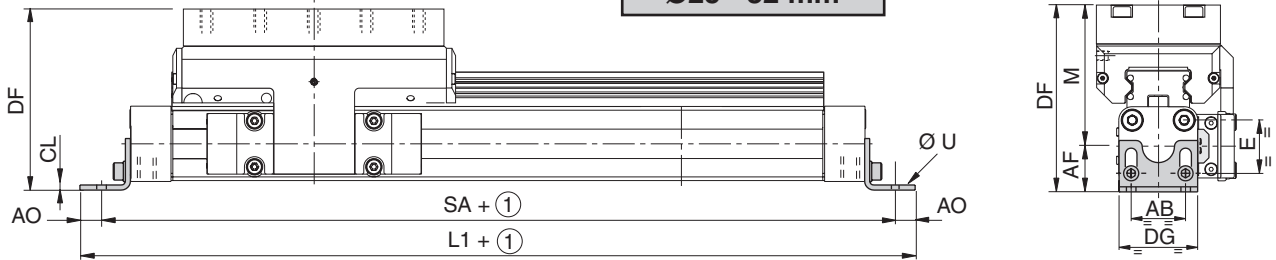


Bore (mm)	DIMENSIONS (mm)																			Cylinder weight (kg)		Carrier weight (kg)		
	A	B	D	J	M	Z	AA	BB	DB	DD	CF	EC	EE	EG	EL	EM	FF	FT	GG	JJ	ZZ		(1)	(2)
25	100,4	22	G1/8	117	40,5	M6	154	144	M5	60	72,5	32,5	53	39	5	73	64	73,5	50	120	12	2,14	0,40	1,24
32	125,2	25,5	G1/4	152	49	M6	197	187	G1/8	80	91	42	62	48	10	82	84	88	64	160	12	4,08	0,62	2,02
40	150	28	G1/4	152	55	M6	232	222	G1/8	100	102	47	64	50,5	10	84	94	98,5	78	200	12	5,46	0,70	2,82
50	175	33	G1/4	200	62	M6	276	266	G1/8	120	117	63	75	57	12	95	110	118,5	90	240	16	8,60	0,95	4,07

(1) Weight with 0 mm stroke
(2) Weight to be added per 100 mm length

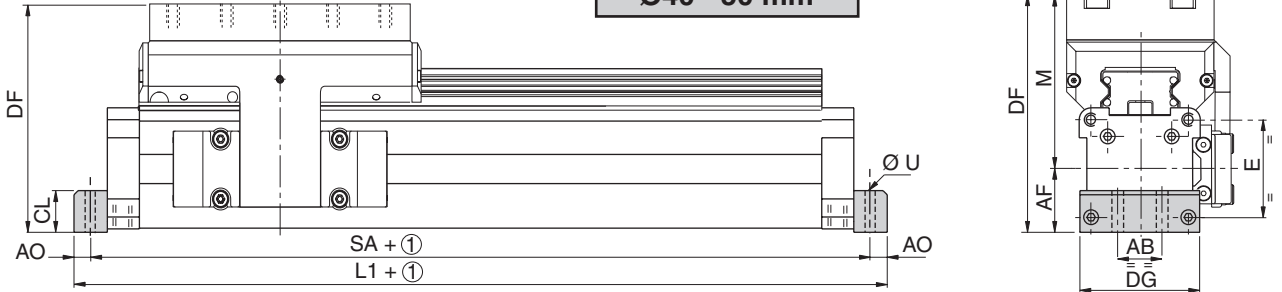
CYLINDER WITH MOUNTING BRACKETS

Ø25 - 32 mm



CYLINDER WITH MOUNTING FLANGES

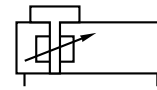
Ø40 - 50 mm



① : stroke

Bore (mm)	AB		AF		A0	CL	DIMENSIONS (mm)				Weights (kg)				
	min	max	min	max			DF	DG	E	L1	M	SA	U	Brackets	Flanges
25	27	22,7	32,3	9,5	2,5	95,7	105,3	39	27	250,8	73	231,8	6,6	0,072	-
32	36	32,5	45,2	9,3	3	114,5	127,2	50	36	292,4	82	273,8	7	0,117	-
40	30	35,2	11,3	24	119,2	68	54	348	84	325,4	9	-	0,210	-	-
50	31,8	46	16,2	30	141	86	70	398	95	365,6	10	-	-	0,308	-

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APPLICATION PRINCIPLE

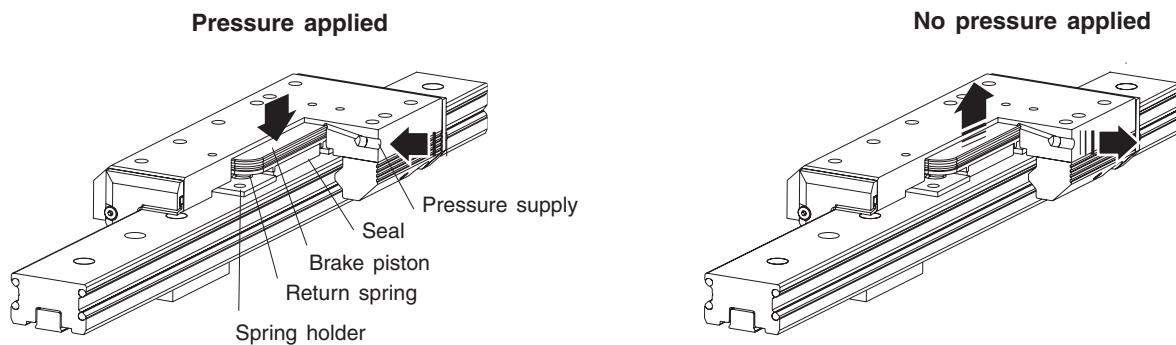
The brake is designed to stop the loaded cylinder carrier and hold it in the end-of-stroke position when it is supplied with pressure during machine operation.

The brake is a mechanical device which acts on the carrier's guide rail. It is released by spring actuation when the air pressure is removed.

Advantages

- Stops and holds carrier in the end-of-stroke position.
- Holds maximum allowable cylinder load without slipping.
- Intermediate stops possible.
- **Blocks by pressurisation.**
- Two-directional action.
- Any mounting position.

OPERATING PRINCIPLE



SPECIFICATIONS

CYLINDER: [see preceding pages](#)

ACTIVE BRAKE

FLUID : Air or neutral gas, unlubricated
ALLOWABLE PRESSURE : 8 bar max.
AMBIENT TEMPERATURE : -10°C to +80°C
MOUNTING POSITION : Any

Loads, moments and forces :

Ø Cylinder (mm)	Bending moments (in N.m)			Load (in N)	Holding force at 6 bar (in N)
	M	M _s	M _v	L	
25	39	16	39	857	consult us
32	73	29	73	1171	
40	158	57	158	2074	
50	249	111	249	3111	

MECHANICAL CHARACTERISTICS: [see preceding pages](#)

CHOICE OF EQUIPMENT

Ø Cylinder (mm)	CYLINDER EQUIPPED FOR DETECTOR		Max. allowable stroke (mm)	Pipe size	Cushioning length (mm)
	CODE ⁽²⁾	REFERENCE			
25	44850030 ⁽¹⁾	STBB 25 A - 0 ⁽³⁾ - AB - ⁽¹⁾ - DM	3750	G 1/8	17
32	44850031 ⁽¹⁾	STBB 32 A - 0 ⁽³⁾ - AB - ⁽¹⁾ - DM	3750	G 1/4	20
40	44850032 ⁽¹⁾	STBB 40 A - 0 ⁽³⁾ - AB - ⁽¹⁾ - DM	3750	G 1/4	27
50	44850033 ⁽¹⁾	STBB 50 A - 0 ⁽³⁾ - AB - ⁽¹⁾ - DM	3750	G 1/4	30

For other strokes, contact us.

(1) Specify stroke (in mm)

(2) Position detectors are to be ordered separately


(3) 1 for slow speed option


When ordering, please specify the code of the STTB cylinder with active brake, its stroke, reference and any accessories you may require.

Example:

Cylinder Ø 25 mm, 200 mm stroke, with active brake, without slow speed option: code **44850030200 - STB 25 A 0 AB 200 DM**

MOUNTINGS

Ø Cylinder (mm)	CODE  Low foot brackets (4)
25 32	43400494 43400495

Ø Cylinder (mm)	CODE  Flanges
40 50	43400496 43400497

Delivered with 2 foot brackets or 2 flanges plus cylinder mounting screws.
The mountings are delivered non assembled.
(4) Foot brackets for cylinders Ø 25 and 32 allow height adjustment.

ACCESSORIES

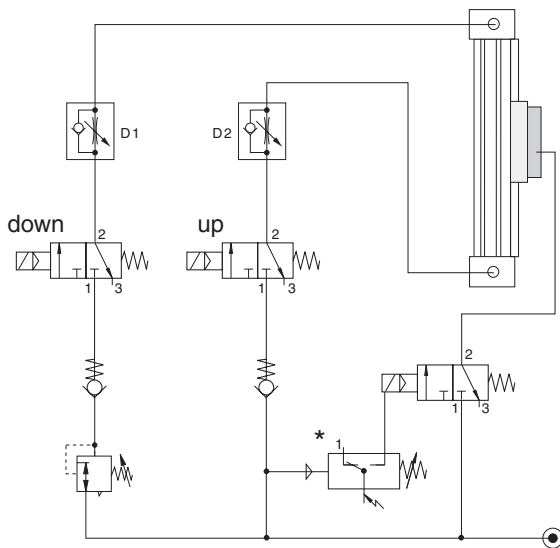
- **Tube support** (recommended to avoid buckling, depending on the stroke and load)
- **Shock absorbers**
- Magnetic detectors: **Reed switch** or **magneto-inductive** type

OPTIONS

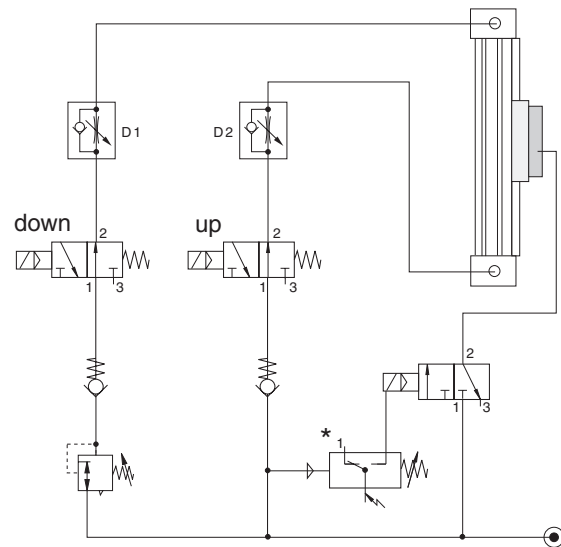
- Slow speeds from 5 mm/s to 0,2 m/s - code: Ø 25 : **995083** Ø 40 : **995085**
 Ø 32 : **995084** Ø 50 : **995086**
(When selecting this option, you will have to change the cylinder reference to: STBB .. A 1 ... DM)
- Pressure supply ports on same side as guide rail (contact us)

**WIRING DIAGRAM
VERTICAL APPLICATION**

Control of a cylinder with normally closed (NC) 3/2 spool valves (the cylinder chambers are exhausted when in the reset position).



Control of a cylinder with normally open (NO) 3/2 spool valves (the cylinder chambers are pressurised when in the reset position).



APPLICATION PRINCIPLE

Under normal operating conditions, the pressure switch is closed. The 3/2 spool valve supplies air to the brake to release it and allow the cylinder to move. In the event of loss of pressure or pressure failure, the pressure switch activates the cylinder valve and locks the movement of the cylinder. When pressure is restored to the two cylinder chambers, the brake is once again released. The flow reducers D1 and D2 do not have any influence on the brake. The two non-return valves enhance the stability of the system. The pressure regulator is used to compensate the force of the load in vertical applications.

NOTE: Before releasing the brake, make sure both air chambers are pressurised. Tube length and size as well as the size of the fittings influence the reaction time of the brake. We recommend reducing tubing lengths and using adequately sized fittings.

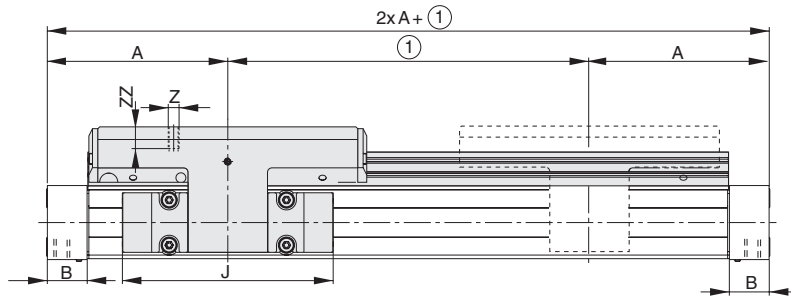
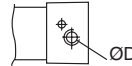
* An adjustable pressure switch locks the brake when the pressure drops below a pre-set value.

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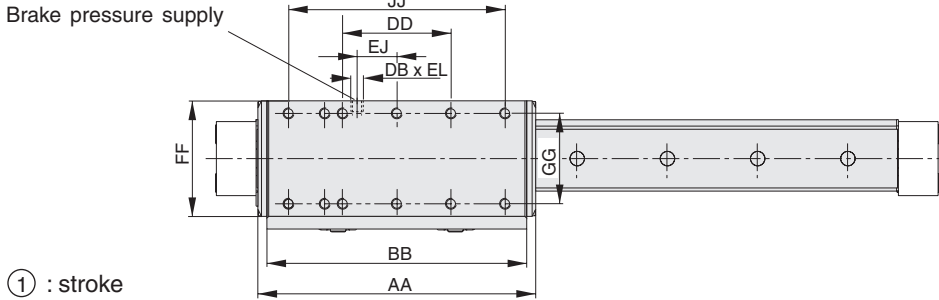
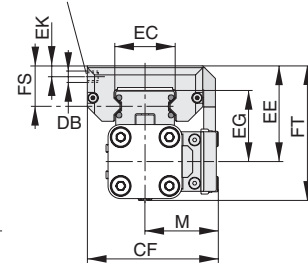
DIMENSIONS AND WEIGHTS

BARE CYLINDER

Bottom view



Brake pressure supply



Bore (mm)	Cylinder weight (1) (kg)	Carrier weight (3) (kg)
25	1,65	0,75
32	3,24	1,18
40	4,35	1,70
50	7,03	2,50

① : stroke

Bore (mm)	DIMENSIONS (mm)																						
	A	B	D	J	M	Z	AA	BB	DD	DB	CF	EC	EE	EG	EJ	EK	EL	FF	FS	FT	GG	JJ	ZZ
25	100,4	22	G1/8	117	40,5	M6	154	144	60	M5	72,5	32,5	53	39	22	6	6	64	23	73,5	50	120	12
32	125,2	25,5	G1/4	152	49	M6	197	187	80	M5	91	42	62	48	32	6	6	84	25	88	64	160	12
40	150	28	G1/4	152	55	M6	232	222	100	M5	102	47	64	50,5	58	9	6	94	23,5	98,5	78	200	12
50	175	33	G1/4	200	62	M6	276	266	120	M5	117	63	75	57	81	6	6	110	29	118,5	90	240	16

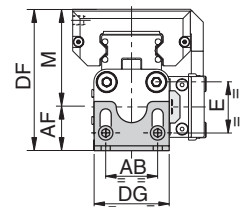
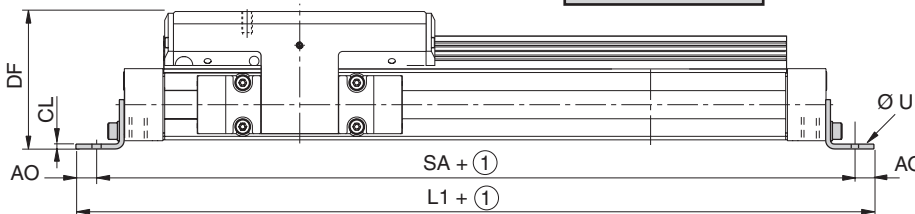
(1) Weight with 0 mm stroke

(2) Weight to be added per additional 100 mm length

(3) When using the cushioning diagram, be sure to add the weight of the carrier to the weight of the load to be moved.

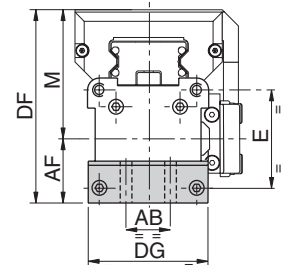
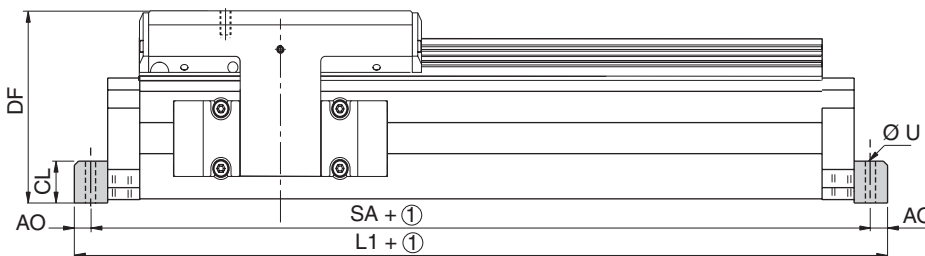
CYLINDER WITH MOUNTING BRACKETS

Ø25 - 32 mm



CYLINDER WITH MOUNTING FLANGES

Ø40 - 50 mm



① : stroke

Bore (mm)	DIMENSIONS (mm)												Weights (kg)		
	AB	AF min	AF max	A0	CL	DF min	DF max	DG	E	L1	M	SA	U	Brackets	Flanges
25	27	22,7	32,3	9,5	2,5	75,7	85,3	39	27	250,8	53	231,8	6,6	0,072	-
32	36	32,5	45,2	9,3	3	94,5	107,2	50	36	292,4	62	273,8	7	0,117	-
40	30	35,2	11,3	24	99,2	68	54	348	64	325,4	75	365,6	9	-	0,210
50	31,8	46	16,2	30	121	86	70	398	75	365,6	75	365,6	10	-	0,308

The standard rodless band cylinder are equipped with internal pneumatic cushioning. However, the band cylinder can bear heavier loads at higher velocities than that of which the cylinder cushion can absorb. Shock absorbers are used to increase the cylinder's service life and broaden the application range for the chosen cylinder.

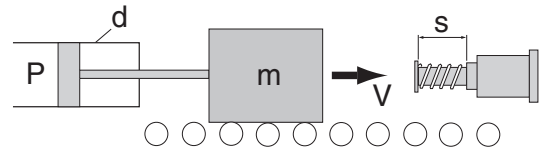
Selecting the necessary absorber :

- Define the following values:
 - Weight of the load **m** to be moved (in kg)
 - Final velocity **V** (in m/s)
 - Cylinder diameter **d** (mm)
 - Pressure **P** (bar)
 - Cycles per hour **C**
 - Cushioning length **s** (m)
- Calculate to determine the shock absorber for your application.



Example: Moving load with proportional force

m = 80 kg **P** = 6 bar
V = 1 m/s **C** = 100/h
d = 50 mm **s** = 0,02 m



Kinetic energy to be absorbed

$$W1 = \frac{m \times V^2}{2} = \frac{80 \times 1^2}{2} = 40 \text{ Nm}$$

$$F_p = 0,078 \times d^2 \times P$$

$$= 0,078 \times 50^2 \times 6$$

$$= 1170 \text{ Nm}$$

Propelling force to be absorbed

$$W2 = F_p \times s$$

$$= 1170 \times 0,02 = 23,4 \text{ Nm}$$

Total energy to be absorbed

$$W3 = W1 + W2 = 40 + 23,4 = 63,4 \text{ Nm}$$

Total energy to be absorbed per hour

$$W4 = W3 \times C = 63,4 \times 100 = 6340 \text{ Nm/h}$$

Effective weight

$$m. \text{ eff} = \frac{2 \times W3}{V^2} = \frac{2 \times 63,4}{1^2} = 126,8 \text{ Nm}$$

Selected type = **SAI 25 - code 88144810**

CHOICE OF EQUIPMENT

NON-ADJUSTABLE SHOCK ABSORBER							
Type	Stroke (mm)	Effective weight Me (kg)		Max. energy absorbed (Nm)		Ø Thread (mm)	CODE
		min.	max.	par course W3	par heure W4		
SA 14	12,5	0,9	10	17	34000	M14 x 1,5	88144804
SA 14 S	12,5	8,6	86	17	34000	M14 x 1,5	88144805
SA 14 S2	12,5	68	205	17	34000	M14 x 1,5	88144806
SA 20	12,5	2,3	25	25	45000	M20 x 1,5	88144807
SA 20 S	12,5	23	230	25	45000	M20 x 1,5	88144808
SA 20 S2	12,5	182	910	25	45000	M20 x 1,5	88144809
SAI 25	25,4	9	136	68	68000	M25 x 1,5	88144810
SAI 25 S	25,4	113	1130	68	68000	M25 x 1,5	88144811
SAI 25 S2	25,4	400	2273	68	68000	M25 x 1,5	88144812
ADJUSTABLE SHOCK ABSORBER							
SA 1/4 x 1/2	12,7	2,3	182	17	23000	M20 x 1,5	88144813
SA 3/8 x 1D	25,4	4,5	546	70	23000	M25 x 1,5	88144814

ACCESSORIES

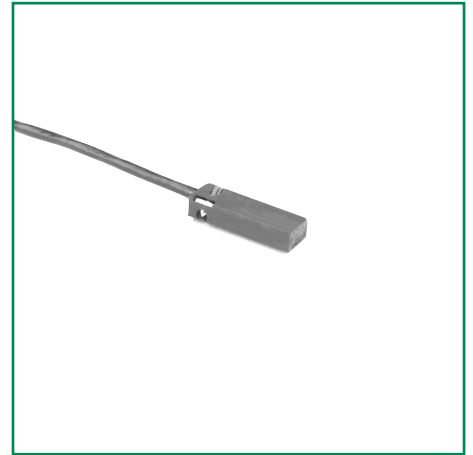
Designation	Type	Type of absorber	CODE
Fastening nut	M14 x 1,5	SA14	43400514
	M20 x 1,5	SA20 - SA1/4	43400515
	M25 x 1,5	SAI25 - SA3/8	43400516
Flexible stop for :	SP14	SA14	43400517
	SP 20	SA20 - SA1/4	43400518
	SP 25	SAI25 - SA3/8	43400519

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OPERATING PRINCIPLE

A permanent magnet (M) which is mounted on the piston of the air cylinder activates the reed switch of the non-contact magnetic position detector fastened in one of the dovetail rails in the non-magnetic cylinder body. One or more detectors can be mounted to control the cylinder's end-of-stroke or intermediate positions.



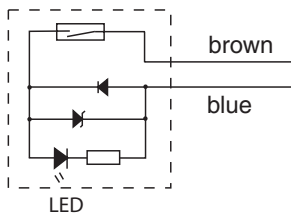
DETECTOR CHARACTERISTICS

MAX. SWITCHING CAPACITY	10 VA	
SWITCHING VOLTAGE	10 to 240 V DC and AC	10 to 70 V DC and AC
MAX. NOMINAL CURRENT	200 mA	
RESIDUAL VOLTAGE AT I_{Lmax}	< 3 v	
SWITCHING TIME	< 2 ms	
POLARITY REVERSAL	Led does not work	
SWITCHABLE CAPACITY	0,1 μ F at 100 Ω , 24 V DC	
SWITCHING DISTANCE	approx. 15 mm	
HYSTERESIS	< 2 mm	
LIFE	3 x 10 ⁶ operations	
WORKING TEMPERATURE	-25°C to +80°C	
HOUSING	PEI	
DEGREE OF PROTECTION (CEI 529)	IP67	
SIGNAL INDICATION	Yellow diode (LED) which lights up when the contact is established	
CONNECTION (2 possibilities / 2 types at option)	5 m PVC lead, 2 wires 0,14 mm ² , stripped ends	0,1 m PVC lead + 3-pin screw-type male connector, \varnothing M8
Weight (g)	57,4	6,3
CODE DETECTOR + MOUNTING KIT (1)	88144815	88144816

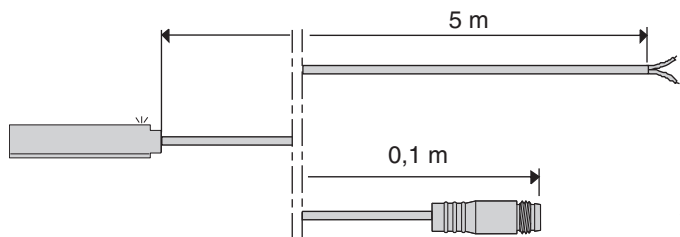
(1) Detector supplied with mounting kit for direct fitting into one of the dovetail rails on the rodless cylinder.

WIRING DIAGRAM OF REED-SWITCH TYPE POSITION DETECTOR

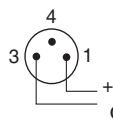
Detectors **88144815 - 88144816**
normally open (NO)



DETECTOR CONNECTION : 2 possibilities



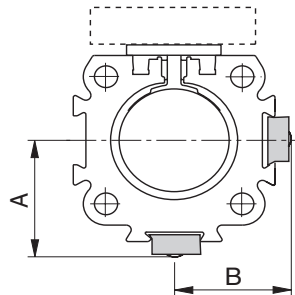
PVC lead outlet Ø 3 mm with stripped ends
2 wires 0,14 mm². brown = +
 blue = output



PVC lead outlet Ø 3 mm with 3-pin screw-type male
connector Ø M8 (2 pins connected)

View on pin side
of male connector

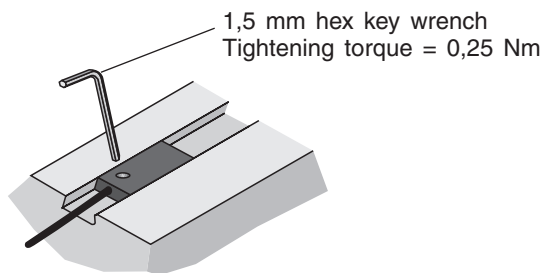
DIMENSIONS

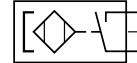


Bore (mm)	A	B
16	20,5	20
25	27	25
32	34	31
40	39	36
50	48	43
63	59	53
80	72	66

DETECTOR MOUNTING

The detector is directly fitted into one of the dovetail rails on the rodless cylinder using a hex key wrench. It is fastened with a locking screw after having been positioned at the point of detection.





OPERATING PRINCIPLE

The permanent magnet is mounted to the piston. When the magnet approaches the detector, its own magnetic field generates variations of the current within the detector oscillator. An amplifier converts them into switch signals.



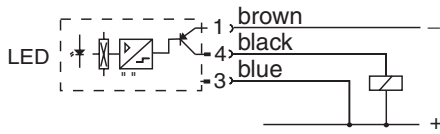
DETECTOR CHARACTERISTICS

MAX. SWITCHING CAPACITY	10 VA	
SWITCHING VOLTAGE	10 to 30 V DC	
FUNCTION	PNP or NPN on closing	
MAX. NOMINAL CURRENT	200 mA	
RESIDUAL VOLTAGE AT I _{Lmax}	< 3 v	
SWITCHING TIME	< 2 ms	
REVERSE POLARITY PROTECTION	integrated	
SHORT-CIRCUIT PROTECTION	integrated	
SWITCHABLE CAPACITY	0,1µF at 100 Ω, 24 V DC	
SWITCHING DISTANCE	approx. 15 mm	
HYSTERESIS	< 2 mm	
LIFE	practically unlimited	
WORKING TEMPERATURE	-25°C to +80°C	
HOUSING	PEI	
DEGREE OF PROTECTION(CEI 529)	IP67	
SIGNAL INDICATION	Yellow diode (LED) which lights up when the contact is established	
CONNECTION (2 possibilities / 2 types at option)	0,1 m PUR lead + 3-pin screw-type male connector, Ø M8 PNP function	0,145 m PUR lead + 3-pin screw-type male connector, Ø M8 NPN function
Weight (g)	5,4	6
CODE DETECTOR + MOUNTING KIT (1)	88144817	88144818

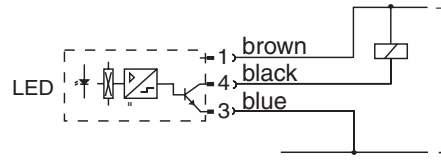
(1) Detector supplied with mounting kit for direct fitting into one of the dovetail rails on the rodless cylinder.

WIRING DIAGRAM OF MAGNETO-INDUCTIVE POSITION DETECTOR

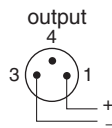
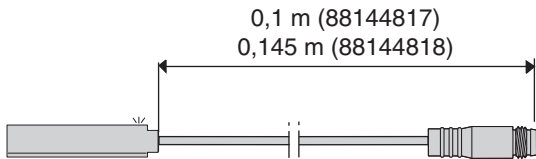
Detector **88144817**
PNP function on closing



Detector **88144818**
NPN function on closing



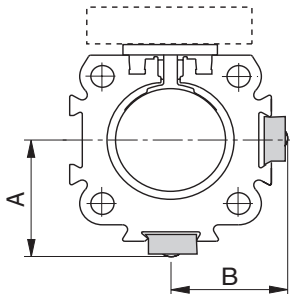
MAGNETO-INDUCTIVE DETECTOR CONNECTION: 1 possibility



PUR lead outlet Ø 3 mm with 3-pin screw-type male connector Ø M8

View on pin side of male connector

DIMENSIONS

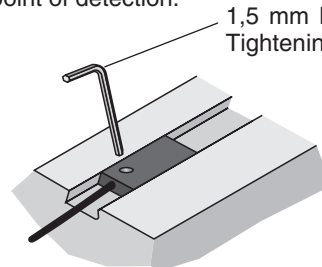




Bore (mm)	A	B
16	20,5	20
25	27	25
32	34	31
40	39	36
50	48	43
63	59	53
80	72	66

DETECTOR MOUNTING

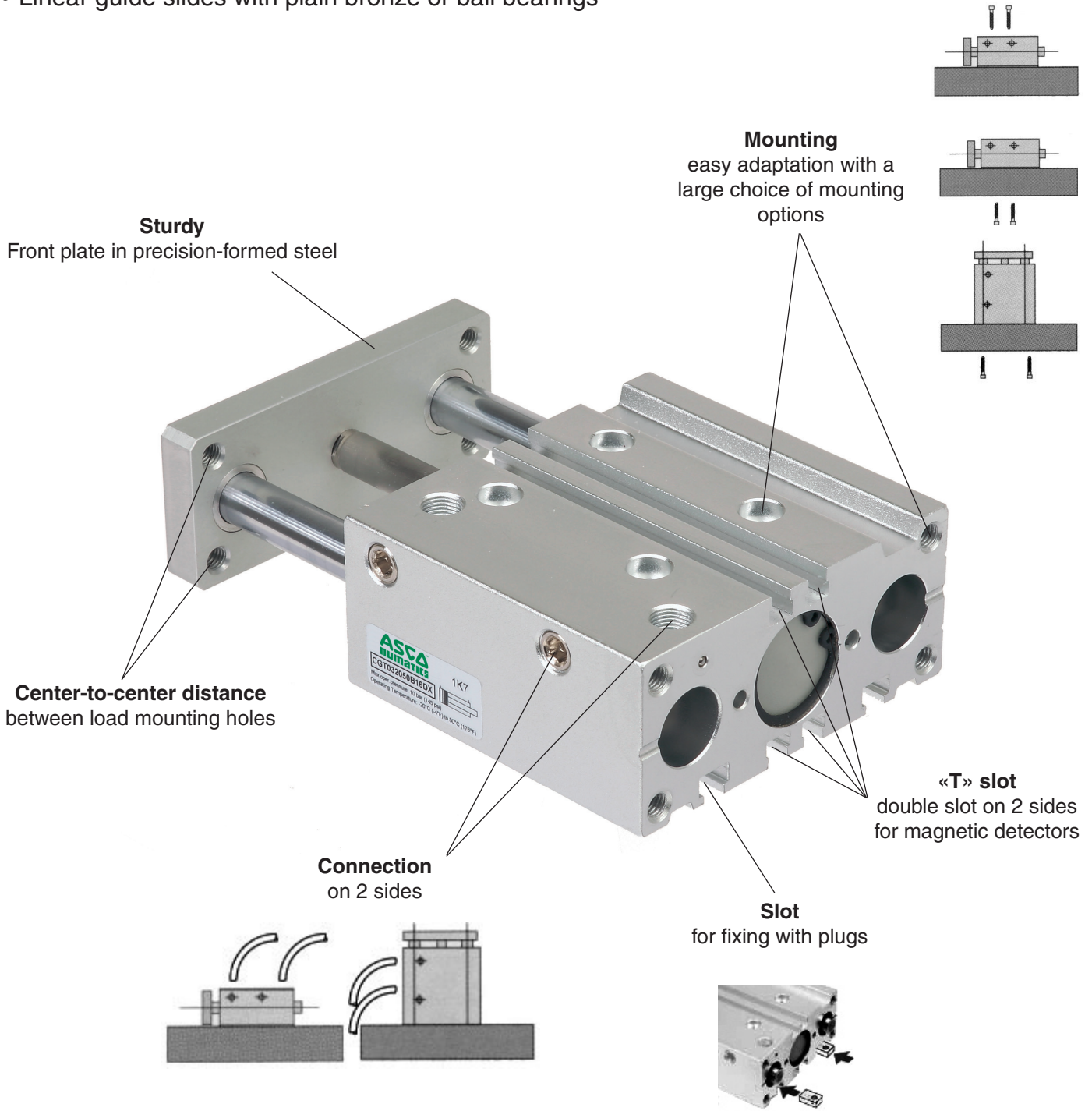
The detector is directly fitted into one of the dovetail rails on the rodless cylinder using a hex key wrench. It is fastened with a locking screw after having been positioned at the point of detection.

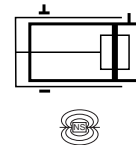
1,5 mm hex key wrench
Tightening torque = 0,25 Nm



cylinder	Ø (mm)	stroke (mm)	illustration	type	series	page
Air cylinder guide with plain or ball bearings guide	16 to 63	10 to 200		CGT	CGT	154
Twin piston air cylinder with plain bearings guide or ball bearings guide	16 to 32	10 to 160		P2L P2B	447	160 161

- Transfer and positioning of loads with accurate force, torque, speed and position control
- Compact design, ideally suited for installation in confined spaces
- Options for dusty environments, precision metal component manufacturing and welding applications
- Linear guide slides with plain bronze or ball bearings





FEATURES

- Compact guide slide with pneumatic ports on two sides
- Excellent resistance to radial loads and torque

GENERAL

Detection	Equipped for magnetic position detectors
Fluid	Air or neutral gas, filtered, lubricated or not
Operating pressure	10 bar max.
Ambient temperature	-20°C to +80°C
Max. speed	de 0,4 to 0,8 m/s

CONSTRUCTION

Body	Anodised aluminium alloy
Guiding rods	Hardened and polished steel
Wiper seals	Reinforced steel
Piston	Fitted with a permanent annular magnet
Front plate	Treated steel
Bearings	Plain bronze or ball



SPECIFICATIONS

How to order : (example)

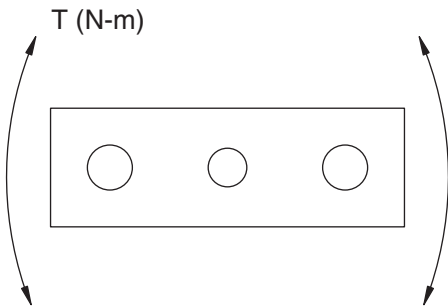
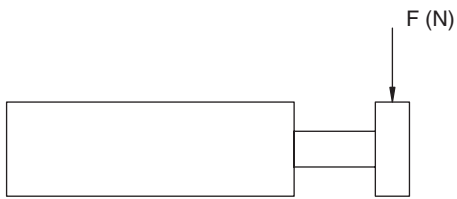
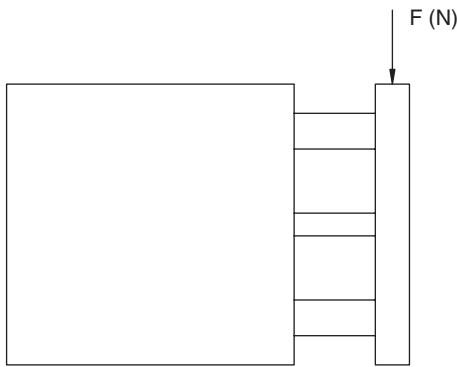
[Configurator - CAD Files](#)

CGT 032 050 B 1 6 D X

<table border="1"> <thead> <tr> <th colspan="2">Diameter</th> </tr> </thead> <tbody> <tr><td>016 =</td><td>16 mm</td></tr> <tr><td>020 =</td><td>20 mm</td></tr> <tr><td>025 =</td><td>25 mm</td></tr> <tr><td>032 =</td><td>32 mm</td></tr> <tr><td>040 =</td><td>40 mm</td></tr> <tr><td>050 =</td><td>50 mm</td></tr> <tr><td>063 =</td><td>63 mm</td></tr> </tbody> </table> <table border="1"> <thead> <tr> <th rowspan="2">Ø (mm)</th> <th colspan="11">Standard stroke (mm) (recommended standard strokes)</th> </tr> <tr> <th>10</th><th>20</th><th>25</th><th>30</th><th>40</th><th>50</th><th>75</th><th>100</th><th>125</th><th>150</th><th>175</th><th>200</th> </tr> </thead> <tbody> <tr><td>16</td><td>•</td><td>•</td><td></td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td></td><td></td><td></td><td></td></tr> <tr><td>20</td><td></td><td>•</td><td></td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>25</td><td></td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>32</td><td></td><td></td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>40</td><td></td><td></td><td></td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>50</td><td></td><td></td><td></td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>63</td><td></td><td></td><td>•</td><td></td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="2">Bearing option</th> </tr> </thead> <tbody> <tr><td>B</td><td>Plain bronze</td></tr> <tr><td>L</td><td>Linear ball bearing</td></tr> </tbody> </table>	Diameter		016 =	16 mm	020 =	20 mm	025 =	25 mm	032 =	32 mm	040 =	40 mm	050 =	50 mm	063 =	63 mm	Ø (mm)	Standard stroke (mm) (recommended standard strokes)											10	20	25	30	40	50	75	100	125	150	175	200	16	•	•		•	•	•	•	•					20		•		•	•	•	•	•	•	•	•	•	25		•	•	•	•	•	•	•	•	•	•	•	32			•	•	•	•	•	•	•	•	•	•	40				•	•	•	•	•	•	•	•	•	50				•	•	•	•	•	•	•	•	•	63			•		•	•	•	•	•	•	•	•	Bearing option		B	Plain bronze	L	Linear ball bearing	<table border="1"> <thead> <tr> <th colspan="2">Options</th> </tr> </thead> <tbody> <tr><td>X =</td><td>No option</td></tr> <tr><td>M =</td><td>Wiper seals metal, side plate front</td></tr> <tr><td>M2 =</td><td>Wiper seals metal, at both ends</td></tr> <tr><td>S =</td><td>Wiper seals reinforced, side plate front</td></tr> <tr><td>S2 =</td><td>Wiper seals reinforced, at both ends</td></tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="2">Detector position</th> </tr> </thead> <tbody> <tr><td>D =</td><td>No detector</td></tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="2">Detector type</th> </tr> </thead> <tbody> <tr><td>6 =</td><td>No detector</td></tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="2">Seals type</th> </tr> </thead> <tbody> <tr><td>1 =</td><td>Polyurethane</td></tr> </tbody> </table>	Options		X =	No option	M =	Wiper seals metal, side plate front	M2 =	Wiper seals metal, at both ends	S =	Wiper seals reinforced, side plate front	S2 =	Wiper seals reinforced, at both ends	Detector position		D =	No detector	Detector type		6 =	No detector	Seals type		1 =	Polyurethane
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■ **DETECTORS** : The magnetic position detectors must be ordered separately :
- "T" model, [magneto-resistive type](#)

MAXIMUM ADMISSIBLE LOAD



Load / Stroke

Load values = N

Ø (mm)	bearing type	stroke							
		10	20	25	30	40	50	75	100
16	Bronze	28,0	28,0	-	25,0	22,0	19,0	-	-
	Linear ball	35,0	30,0	-	26,0	37,0	33,0	-	-
20	Bronze	-	51,0	-	44,0	38,0	34,0	53,0	44,0
	Linear ball	-	55,0	-	47,0	78,0	69,0	57,0	49,0
25	Bronze	-	70,0	-	60,0	53,0	47,0	59,0	51,0
	Linear ball	-	71,0	-	61,0	77,0	72,0	77,0	65,0
32	Bronze	-	-	88,0	-	-	59,0	137,0	108,0
	Linear ball	-	-	196,0	-	-	167,0	275,0	216,0
40	Bronze	-	-	88,0	-	-	59,0	137,0	108,0
	Linear ball	-	-	196,0	-	-	167,0	275,0	216,0
50	Bronze	-	-	137,0	-	-	88,0	215,0	176,0
	Linear ball	-	-	294,0	-	-	255,0	392,0	313,0
63	Bronze	-	-	137,0	-	-	88,0	215,0	176,0
	Linear ball	-	-	294,0	-	-	255,0	392,0	313,0

Twisting moment / Stroke

Moment = Nm

Ø (mm)	bearing type	stroke							
		10	20	25	30	40	50	75	100
16	Bronze	0,51	0,43	-	0,35	0,31	0,27	-	-
	Linear ball	0,75	0,58	-	0,48	0,71	0,64	-	-
20	Bronze	-	0,91	-	0,78	0,71	0,63	1,04	0,88
	Linear ball	-	1,26	-	1,06	1,77	1,58	1,22	1,01
25	Bronze	-	1,53	-	1,31	1,16	1,03	1,65	1,41
	Linear ball	-	1,96	-	1,69	2,16	2,00	1,68	1,42
32	Bronze	-	-	1,96	-	-	2,94	2,45	1,96
	Linear ball	-	-	3,92	-	-	0,98	2,94	2,45
40	Bronze	-	-	2,45	-	-	1,45	2,94	2,45
	Linear ball	-	-	4,41	-	-	3,43	6,37	5,39
50	Bronze	-	-	3,43	-	-	2,45	4,90	4,41
	Linear ball	-	-	7,35	-	-	5,88	10,78	8,33
63	Bronze	-	-	3,43	-	-	2,45	4,90	4,41
	Linear ball	-	-	7,35	-	-	5,88	10,78	8,33

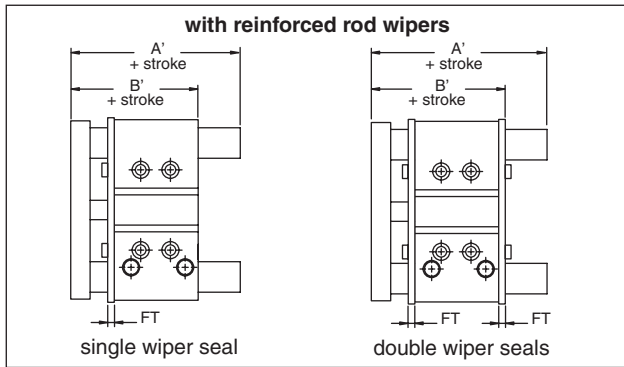
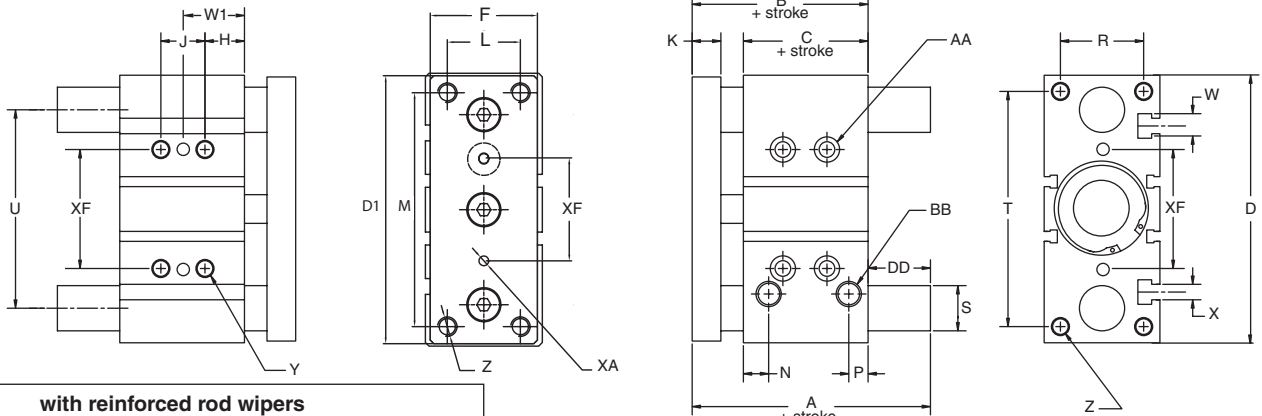
Output force / Pressure

	16	20	25	32	40	50	63
Extend force (N) at 6 bar	120 (N)	187 (N)	293 (N)	472 (N)	747 (N)	1161 (N)	1700 (N)
Retract force (N) at 6 bar	91 (N)	141 (N)	247 (N)	406 (N)	624 (N)	974 (N)	1540 (N)

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DIMENSIONS (mm), WEIGHT (kg)

[Configurator - CAD Files](#)



Ø (mm)	B	B'	C	D	D1	F	FT	H	K	L	M	N	P	R
16	46,0	-	33,0	64,0	62,0	25,0	-	5,0	8,0	16,0	54,0	11,0	8,0	22,0
20	53,0	63,0	37,0	83,0	81,0	30,0	5	17,0	10,0	18,0	70,0	10,5	8,5	24,0
25	53,5	63,5	37,5	93,0	91,0	38,0	5	17,0	10,0	26,0	78,0	11,5	9,0	30,0
32	59,5	69,5	37,5	112,0	110,0	44,0	6	21,0	12,0	30,0	96,0	12,5	9,0	34,0
40	66,0	76,0	44,0	120,0	118,0	44,0	6	22,0	12,0	30,0	104,0	14,0	10,0	40,0
50	72,0	82,0	44,0	148,0	146,0	60,0	6	24,0	16,0	40,0	130,0	14,0	11,0	46,0
63	77,0	87,0	49,0	162,0	158,0	70,0	6	24,0	16,0	50,0	130,0	16,5	13,5	58,0

Ø (mm)	S	T	U	W	X	Y	Z	AA	BB	CC	XA	XF
16	10,0	56,0	46,0	7,40	4,4	M5	M5	4 mm SHCS	M5	18,0	3	24,0
20	12,0	72,0	54,0	8,40	5,5	M6	M5	5 mm SHCS	G 1/8	24,5	3	28,0
25	16,0	82,0	64,0	8,40	5,5	M6	M6	5 mm SHCS	G 1/8	24,0	4	34,0
32	20,0	98,0	78,0	10,50	6,5	M8	M8	6 mm SHCS	G 1/8	30,5	4	42,0
40	20,0	106,0	86,0	10,50	6,5	M8	M8	6 mm SHCS	G 1/8	31,0	4	50,0
50	25,0	130,0	110,0	13,5	8,5	M10	M10	8 mm SHCS	G 1/4	35,0	5	66,0
63	25,0	142,0	124,0	17,8	11,0	M10	M10	8 mm SHCS	G 1/4	35,0	5	80,0

Ø (mm)	plain bronze bearing						stroke linear ball bearing						J			W1					
	A	A'	A	A'	DD	DD	A	A'	A	A'	DD	DD	J	J	J	W1	W1	W1			
16	46,0 (10-50)	-	64,5 (75-100)	-	0 (10-50)	18,5 (75-100)	46,0 (10-30)	-	66,0 (40-100)	-	0 (10-30)	20 (40-100)	24 (10-30)	44 (40-100)	-	17 (10-30)	27 (40-100)	-			
20	53,0 (20-50)	63,0 (20-50)	84,5 (75-200)	94,5 (75-200)	0 (20-50)	31,5 (75-200)	53,0 (20-30)	63,0 (20-30)	85,5 (40-200)	95,5 (40-200)	0 (20-30)	32,5 (40-200)	24 (20-30)	44 (40-100)	120 (125-200)	29 (20-30)	39 (40-100)	77 (125-200)			
25	53,5 (20-50)	63,5 (20-50)	85,0 (75-200)	95,0 (75-200)	0 (20-50)	31,5 (75-200)	53,5 (20-30)	63,5 (20-30)	86,0 (40-200)	96,0 (40-200)	0 (20-30)	32,5 (40-200)	24 (20-30)	44 (40-100)	120 (125-200)	29 (20-30)	39 (40-100)	77 (125-200)			
32	97,0 (25-50)	107,0 (25-50)	107,0 (75-200)	117,0 (75-200)	37,5 (25-50)	47,5 (75-200)	97,0 (25-50)	107,0 (25-50)	107 (75-200)	117 (75-200)	37,5 (25-50)	47,5 (75-200)	24 (25)	48 (50-100)	124 (125-200)	33 (25)	45 (50-100)	83 (125-200)			
40	97,0 (25-50)	107,0 (25-50)	107,0 (75-200)	117,0 (75-200)	31 (25-50)	41 (75-200)	97,0 (25-50)	107,0 (25-50)	107 (75-200)	117 (75-200)	31 (25-50)	41 (75-200)	24 (25)	48 (50-100)	124 (125-200)	34 (25)	46 (50-100)	84 (125-200)			
50	106,5 (25-50)	116,5 (25-50)	118,0 (75-200)	128,0 (75-200)	34,5 (25-50)	46 (75-200)	106,5 (25)	114 (50)	116,5 (25)	124 (50)	118 (25)	128 (50)	34,5 (25)	42 (50)	46 (75-200)	24 (25)	48 (50-100)	124 (125-200)	36 (25)	48 (50-100)	86 (125-200)
63	106,5 (25-50)	116,5 (25-50)	118,0 (75-200)	128,0 (75-200)	29,5 (25-50)	41 (75-200)	106,5 (25)	114 (50)	116,5 (25)	124 (50)	118 (25)	128 (50)	29,5 (25)	37 (50)	41 (75-200)	28 (25)	52 (50-100)	128 (125-200)	38 (25)	50 (50-100)	88 (125-200)

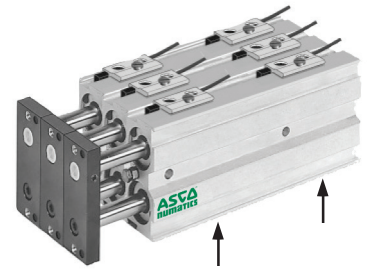
Weights (kg)

Ø (mm)	stroke												
	10	20	25	30	40	50	75	100	125	150	175	200	
16	0,350	0,400		0,450	0,500	0,550	0,750	0,900					
20		0,690		0,830	0,910	0,990	1,310	1,510	1,625	1,740	1,855	1,970	
25		0,870		0,990	1,080	1,260	1,680	2,100	2,500	2,900	3,300	3,700	
32			1,770			2,120	2,770	3,080	3,410	3,740	4,065	4,395	
40						2,390	2,940	3,050	3,460	3,880	4,300	4,720	
50						3,355	3,955	4,755	5,355	5,955	6,555	7,155	7,755
63						4,030	5,070	5,790	6,505	7,225	7,945	8,660	9,380

All leaflets are available on: www.asco.com

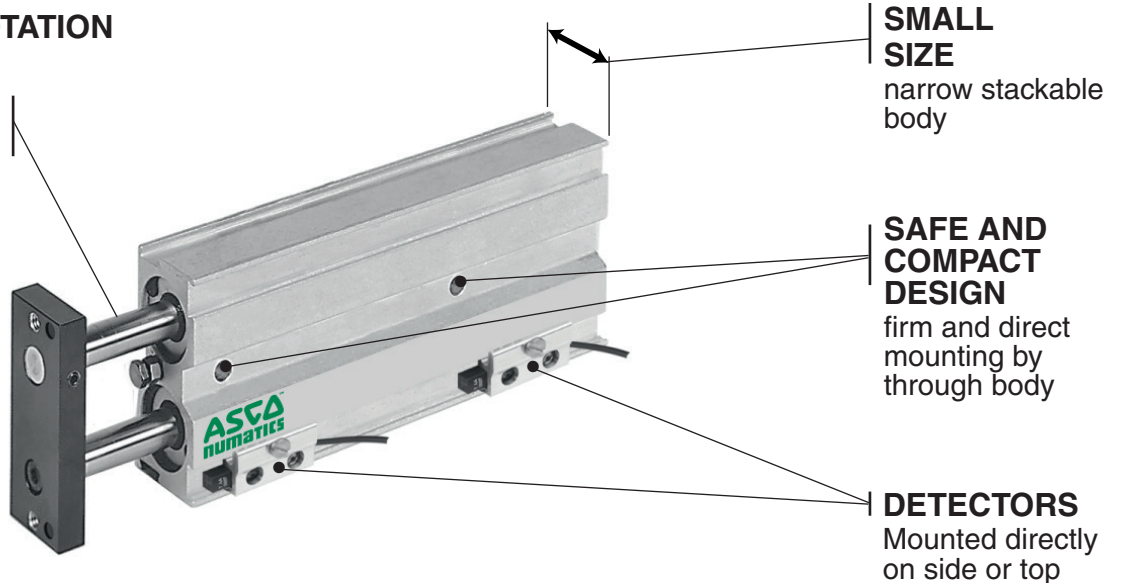
TWIN ROD / TWIN PISTON AIR CYLINDERS WITH PLAIN OR BALL BEARINGS LINEAR GUIDE Types: P2L and P2B

- **INTEGRAL LINEAR AND ANTI-ROTATION GUIDES**
- **EASY MOUNTING**
compact design, narrow body, stackable,
ambidextrous, standard detector mountable in any
position, adjustable stroke



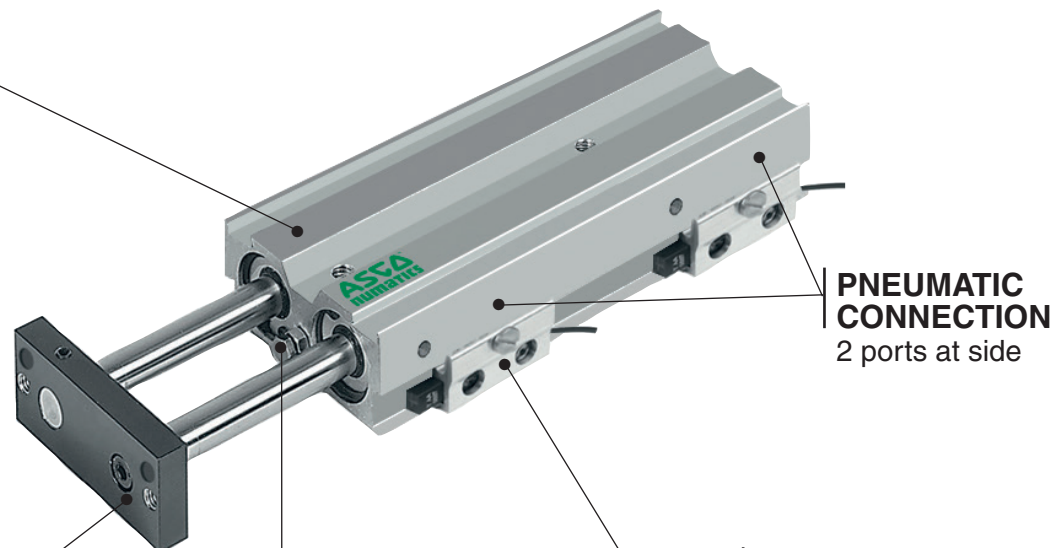
RUGGED ANTI-ROTATION SYSTEM

by two integral rods in actuator, precision-machined



HIGH PRECISION

with ball bearing linear guide version



EASE OF INSTALLATION

integral flange with calibrated holes for precise adaptation load

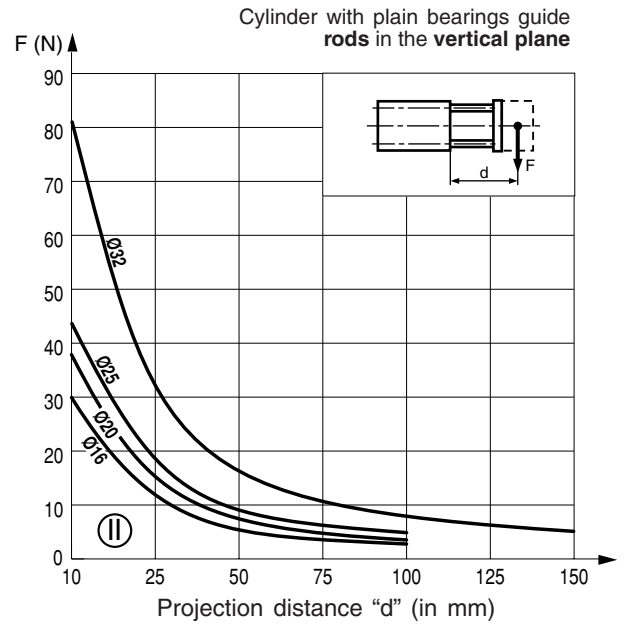
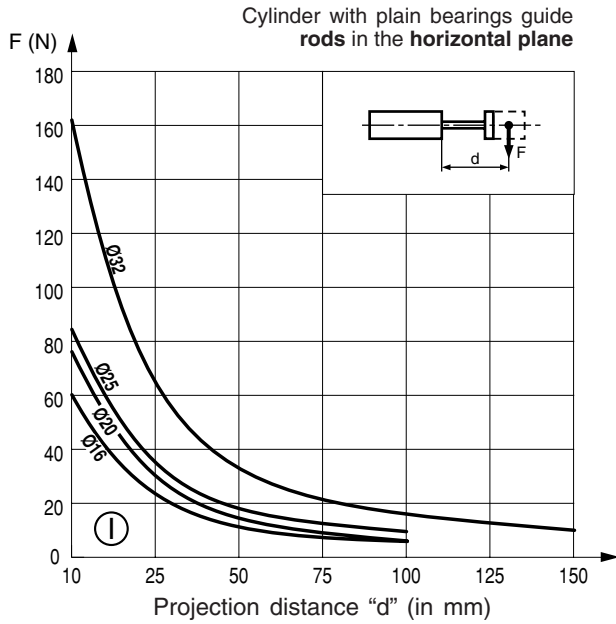
QUIET AND USER FRIENDLY

adjustable stop with elastic cushioning reducing noise, adjustable stroke

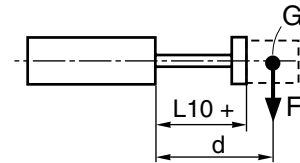
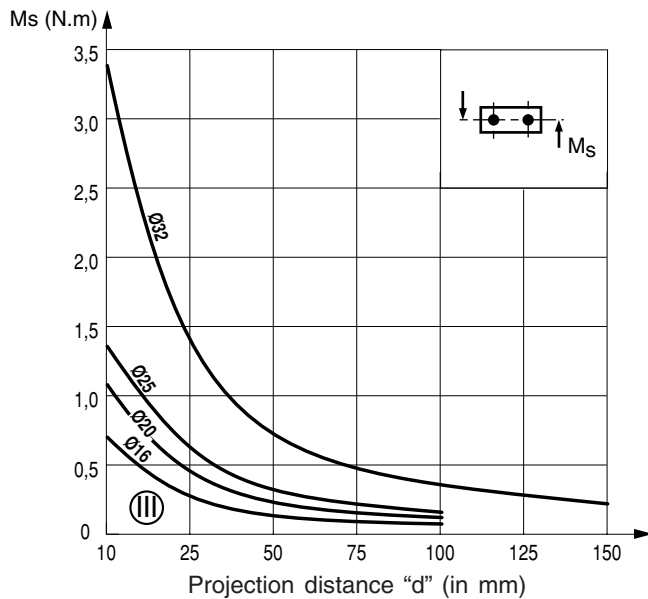
POSITION MONITORING

by standard reed switch or electronic magnetic detectors "T" types (common to all cylinders)

● **MAXIMUM ADMISSIBLE LOAD "F" ON THE ROD END**



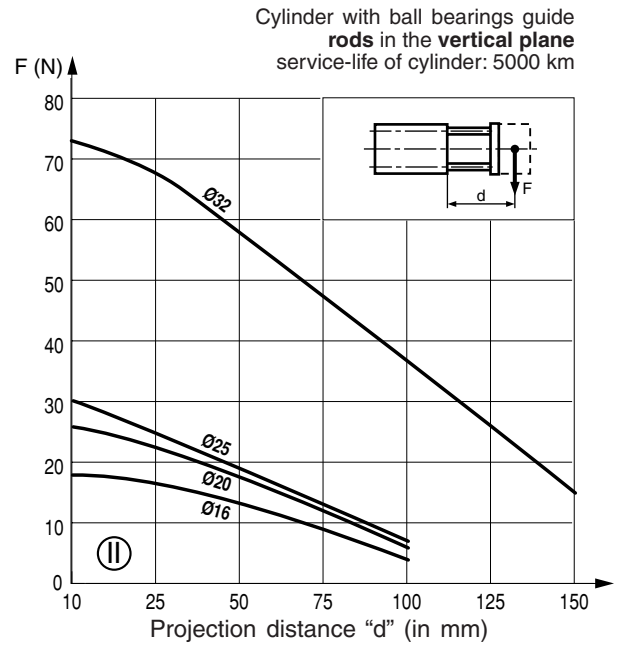
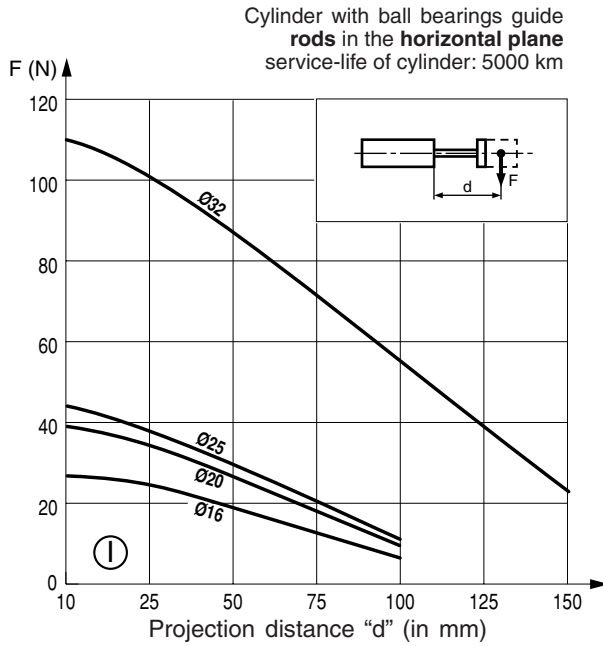
● **MAXIMUM ALLOWABLE MOMENTS "Ms" AT ROD END**



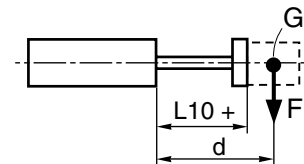
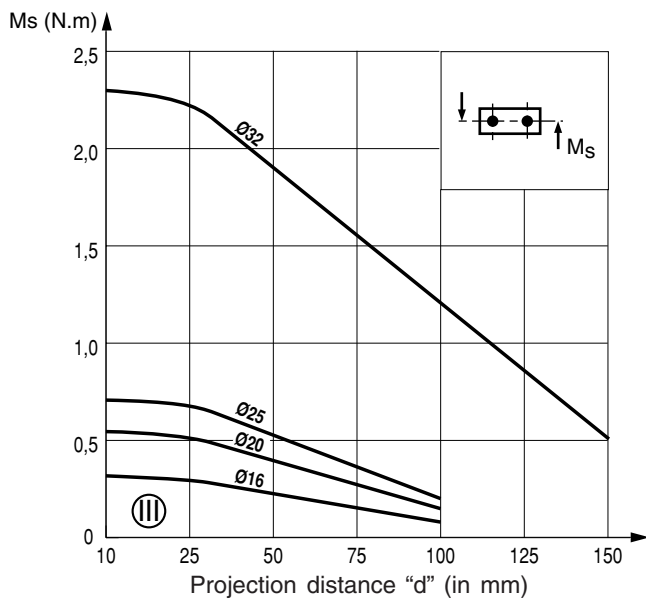
d = the projection distance (in mm) corresponding to the dimension $L10$ + the stroke length + the distance from the load centre of gravity (G) to the mating surface of the cylinder flange

Note: the values in charts (I), (II) and (III) correspond to those in regular horizontal movement. In the event of vibration or jerky movement, **halve** the maximum allowable values.

● **MAXIMUM ADMISSIBLE LOAD "F" ON THE ROD END**



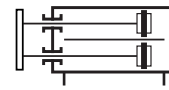
● **MAXIMUM ALLOWABLE MOMENTS "Ms" AT ROD END**



d = the projection distance (in mm) corresponding to the dimension L10 + the stroke length + the distance from the load centre of gravity (G) to the mating surface of the cylinder flange

Note: the values in charts (I), (II) and (III) correspond to those in regular horizontal movement. In the event of vibration or jerky movement, **halve** the maximum allowable values.

Whatever the stroke of the cylinder, its movement is only a small proportion of the travel (not more than 30 mm), it is necessary to reduce the maximum allowable torques and loads by multiplying the values taken from charts (I), (II) and (III) by coefficient 0.6. The curves allow for this reduction in performance.



SPECIFICATION

TYPE OF CYLINDER	: double acting, double piston
FLUID	: air or neutral gas, filtered, lubricated or not
PRESSURE	: 2 to 7 bar
AMBIENT TEMPERATURE	: + 5 °C, + 60 °C
CUSHIONING	: elastic
MAXIMUM SPEED	: 0,5 m/s
MAX. STROKE	: 100 mm (Ø16 ... 25) - 160 (Ø32)
STROKE ADJUST RANGE	: nominal stroke +0 to -5 mm (retracted rods)
POSITIONS CONTROL	: with Reed switches or electronic (magnetoresistant) detectors



FORCE DEVELOPED BY CYLINDER

Bore Ø (mm)	Rod Ø (mm)	Piston cross-section (cm ²)		Dynamic force developed (daN) as a function of input pressure (bar)							
				1		3		5		7	
				●	○	●	○	●	○	●	○
16	8	4	3	3,4	2,5	11,3	8	16,7	13,6	26,4	18,6
20	10	6,3	4,7	5,6	4,3	18,2	13,8	27	23	40,8	32,3
25	12	9,8	7,55	8,5	6,5	27	20,9	45,1	36,4	66,6	50,4
32	16	16,1	12,1	13,1	10	45,2	32,8	77	58,2	109	79,5

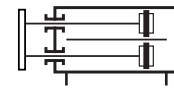
- Force developed with rod out (rod extending)
- Force developed with rod returned (rod retracting)

CHOICE OF EQUIPMENT

Bore Ø (mm)	CODES (1)	RÉFÉRENCES (1) (2)	Standard stroke (mm)							Ø Connection		
			10	25	40	50	80	100	125		160	
16	44750034 ⁽¹⁾	P2L 16 NA ⁽¹⁾ - DM	●	●	●	●	●	●				M5
20	44750035 ⁽¹⁾	P2L 20 NA ⁽¹⁾ - DM	●	●	●	●	●	●				M5
25	44750036 ⁽¹⁾	P2L 25 NA ⁽¹⁾ - DM	●	●	●	●	●	●				M5
32	44750037 ⁽¹⁾	P2L 32 NA ⁽¹⁾ - DM	●	●	●	●	●	●	●	●	●	G 1/8

- (1) State the stroke (in mm) preferably selecting the above standard strokes. Other strokes on request. Max. strokes capability: Ø 16-20-25: 100 mm, Ø 32 : 160 mm
 (2) **Magnetic detectors are to be ordered separately**

MOUNTING DETECTORS ON P2L (see following page)



SPECIFICATION

TYPE OF CYLINDER	: double acting, double piston
FLUID	: air or neutral gas, filtered, lubricated or not
PRESSURE	: 2 to 7 bar
AMBIENT TEMPERATURE	: + 5 °C, + 60 °C
CUSHIONING	: elastic
MAXIMUM SPEED	: 0,5 m/s
MAX. STROKE	: 100 mm (Ø16 ... 25) - 160 (Ø32)
STROKE ADJUST RANGE	: nominal stroke +0 to -5 mm (retracted rods)
POSITIONS CONTROL	: with Reed switches or electronic (magneto-resistant) detectors



FORCE DEVELOPED BY CYLINDER

Bore Ø (mm)	Rod Ø (mm)	Piston cross-section (cm ²)		Dynamic force developed (daN) as a function of input pressure (bar)							
				1		3		5		7	
				●	○	●	○	●	○	●	○
16	8	4	3	3,4	2,5	11,3	8	16,7	13,6	26,4	18,6
20	10	6,3	4,7	5,6	4,3	18,2	13,8	27	23	40,8	32,3
25	12	9,8	7,55	8,5	6,5	27	20,9	45,1	36,4	66,6	50,4
32	16	16,1	12,1	13,1	10	45,2	32,8	77	58,2	109	79,5

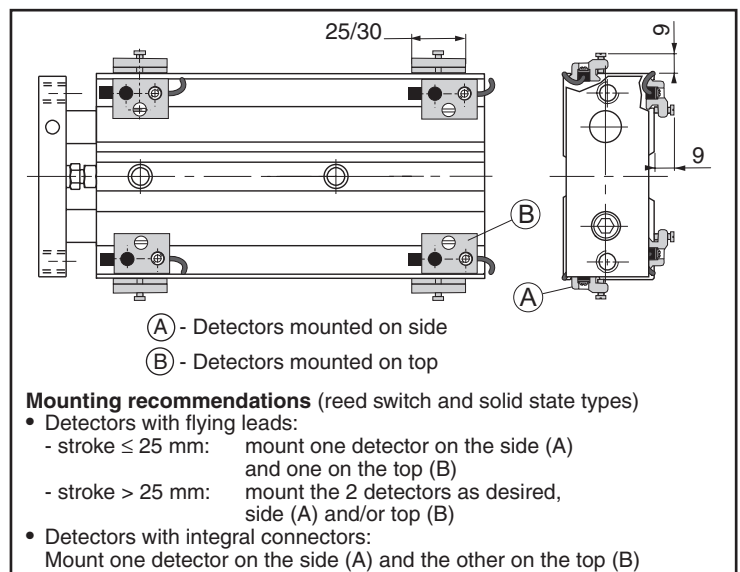
- Force developed with rod out (rod extending)
- Force developed with rod returned (rod retracting)

CHOICE OF EQUIPMENT

Bore Ø (mm)	CODES (1)	RÉFÉRENCES (1) (2)	Standard stroke (mm)								Ø Connection	
			10	25	40	50	80	100	125	160		
16	44750030 ⁽¹⁾	P2B 16 NA ⁽¹⁾ - DM	●	●	●	●	●	●	●			M5
20	44750031 ⁽¹⁾	P2B 20 NA ⁽¹⁾ - DM	●	●	●	●	●	●	●			M5
25	44750032 ⁽¹⁾	P2B 25 NA ⁽¹⁾ - DM	●	●	●	●	●	●	●			M5
32	44750033 ⁽¹⁾	P2B 32 NA ⁽¹⁾ - DM	●	●	●	●	●	●	●	●	●	G 1/8

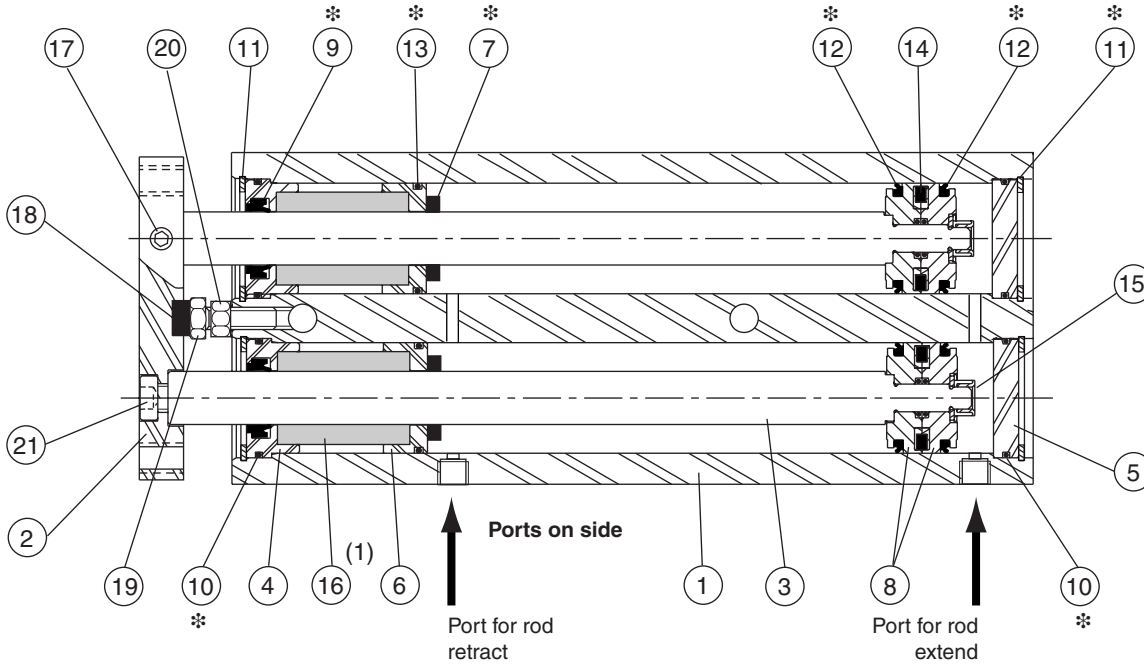
- (1) State the stroke (in mm) preferably selecting the above standard strokes. Other strokes on request. Max. strokes capability: Ø 16-20-25: 100 mm, Ø 32 : 160 mm
 (2) Magnetic detectors are to be ordered separately

MOUNTING DETECTORS ON P2L - P2B



CONSTRUCTION - LOCATION OF AIR INLET PORTS

• The air inlet ports are located on the side of the cylinder



Item	Description	Material
1	Body	Aluminium alloy
2	Plate	Aluminium alloy
3	Piston rod	Bearing steel hard chrome
4	Inner guide support	Aluminium alloy
5	End plug	Aluminium alloy
6	Inner guide support	Aluminium alloy
7	Elastic stop	TPE*
8	Piston	POM (polyacetal)
9	Rod seal	PUR (polyurethane)
10	O-ring	NBR (nitrile)
11	Circlip	Steel

Item	Description	Material
12	Piston seal	PUR (polyurethane)
13	O-ring	NBR (nitrile)
14	Magnet	Ferrite
15	Nut	Steel
16 ⁽¹⁾	Linear motion guide	Steel (balls) / bronze (bush)
17	Hexsocket head screw	Steel
18	Elastic stop	NBR (nitrile)
19	Adjustable stop	Steel
20	Back-nut	Steel
21	Hexsocket head screw	Steel

(1) Plain bearing (P2L) or ball bearing (P2B) linear motion guides

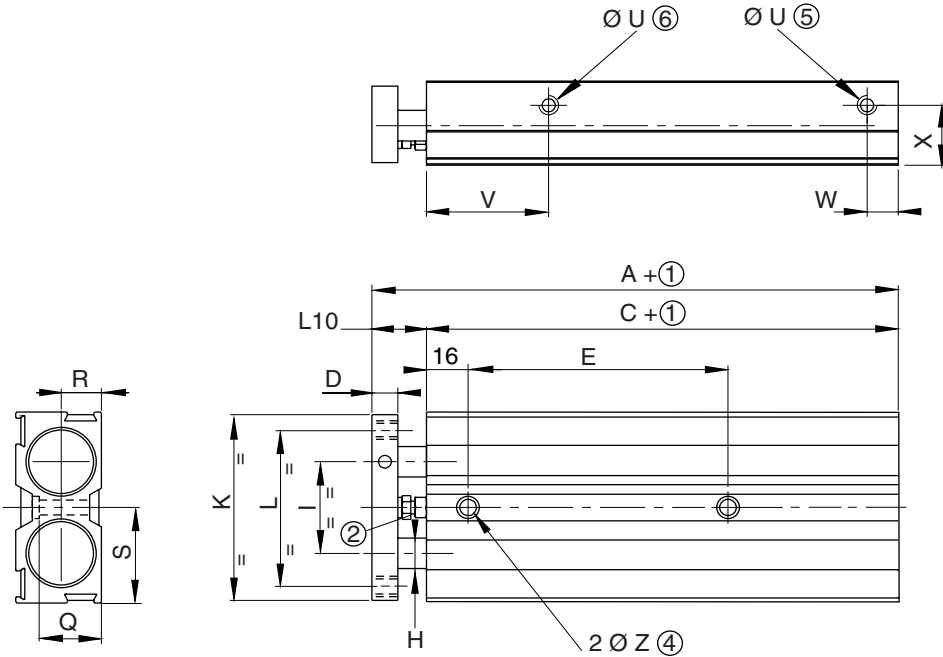
* (thermoplastic polyester elastomer)

SPARE PARTS KITS

CYLINDER BORE	Cylinder type P2B - P2L	CODES (items marked with a *: 7 and 9 to 13)
16	Designed for detector	97802175
20	Designed for detector	97802176
25	Designed for detector	97802177
32	Designed for detector	97802178

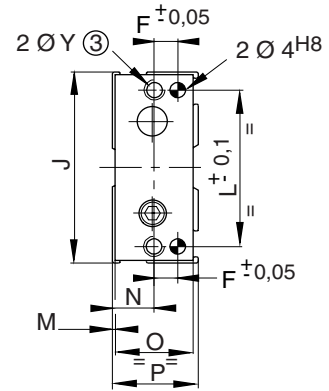
NOTE: For best results, use grease supplied in each kit. Supplementary tube available (11 cm³) on request, code: 97802100

DIMENSIONS



- ① : + 1 stroke (rod retracted)
+ 2 strokes (rod extended)
- ② : Stroke adjustment
- ③ : Through hole
- ④ : Through hole
- counterbore dia./depth (16 mm dia.)
- ⑤ : Ports for extension
- ⑥ : Ports for retraction
- ⊕ : 2 holes Ø 4 H8 for centering pins

Mounting of position detectors:
see below



(mm)

bore (mm)	DIMENSIONS (mm)																Screws recommended for the cylinder installation	
	A (depending on stroke)	C (depending on stroke)	D	E (depending on stroke) **								F	H	I	J	K		L
				10	25	40	50	80	100	125	160							
16	85,7	67,2	8	34,5	34,5	42	47	75	85	-	-	6	8	24	52	50	42	Ø 5 - Ø7,5 / 3,5 Ø 5,4 Ø 5,4 Ø 6,4
20	96,2	77,2	8	51	38,5	46	51	81	91	-	-	7,5	10	30	63	61	52	
25	101	80	10	57	44,5	52	57	90	100	-	-	9	12	36	75	73	64	
32	116,9	92,1	12	60	75	90	100	130	150	175	210	11	16	44	98	88	72	

bore (mm)	L10	M	N	O	P	Q	R	S	U	V	W	X	Y	Z (4)
16	18,5	1	10,5	19	24,5	16,5	10,5	26	M5	37,5	10	17	M5	Ø 5 - Ø7,5 / 3,5 Ø 5,4 Ø 5,4 Ø 6,4
20	19	1	13	24	28	20,5	12,5	31,5	M5	46	13	18,5	M5	
25	21	1	16	30	33	26,5	15,5	37,5	M5	47	11	23,5	M6	
32	24,8	1	20	38	40	33,5	19,5	49	G1/8	56,5	13	30	M6	

** Dimensions for P2L/P2B with non-standard strokes.

bore (mm)	E (depending on stroke)				
	(0...11)	(12...24)	(26...79)	(81...99)	(101...159)
16	34,5	47	22 + (8)	35 + (8)	-
20	38,5	51	26 + (8)	41 + (8)	-
25	44,5	57	32 + (8)	50 + (8)	-
32	50 + (9)	50 + (9)	50 + (9)	50 + (9)	50 + (9)

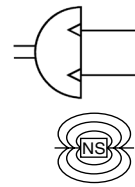
(8) : + 1/2 stroke

(9) : + stroke

WEIGHTS

(kg)

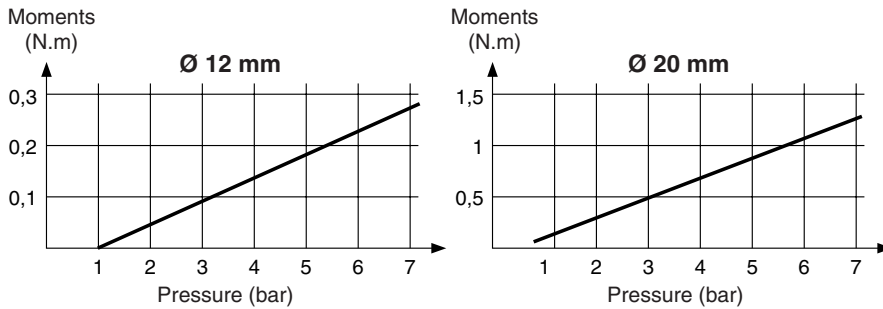
bore (mm)	STROKE (mm)							
	10	25	40	50	80	100	125	160
16	0,280	0,320	0,360	0,380	0,460	0,510	-	-
20	0,440	0,490	0,540	0,580	0,690	0,760	-	-
25	0,660	0,740	0,810	0,860	1,020	1,120	-	-
32	1,160	1,280	1,400	1,480	1,720	1,880	2,080	2,360



GENERAL

Detection	Equipped for magnetic position detectors
Fluid	Air or neutral gas, filtered, lubricated or not
Operating pressure	1 to 7 bar
Ambient temperature	+ 5°C, +60°C
Rotation	90° - 180° (±5°)
Cushioning	Non cushioned

DEVELOPED MOMENTS



For an optimum installation of a cylinder, we recommend a cylinder with the necessary moment equal to 70% of the developed moment.

MAXIMUM ALLOWABLE MOMENTUM

Maximum allowable momentum **Ø12 = 4 x 10-3J**
Ø20 = 1x10-2J

In case of heavy load and high speed rotation, momentum at stroke end may exceed the above limits and damage the rotatable cylinder. To limit momentum, reduce the rotation speed with flow regulators (as close to the cylinder as possible).

CONSTRUCTION

Body	Light alloy
Stop	Steel
Rod	Steel
Seals	NBR (nitrile)

SPECIFICATIONS (SINGLE ROD CYLINDER)

Ø (mm)	rotation	catalogue number	reference	weight (kg)
12	90°	42900042	R12 D 90-M	0,130
	180°	42900043	R12 D 180-M	0,130
20	90°	42900046	R20 D 90-M	0,250
	180°	42900047	R20 D 180-M	0,320

POSITION DETECTORS

Magnetic position detectors must be ordered separately:
"T" model, [reed switch](#) or [magneto-resistive](#) type

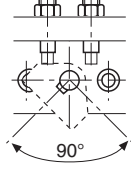
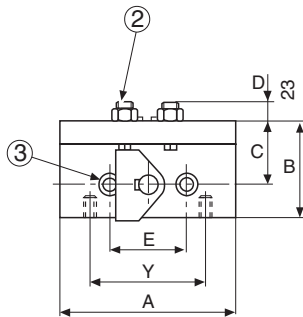
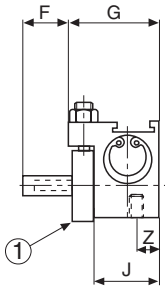
Sensor bracket for 429 rotative cylinders:
catalogue number: **P4945256760N001**



DIMENSIONS (mm) 

Rotatable 180°

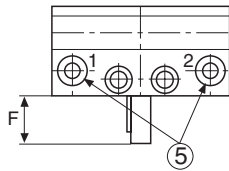
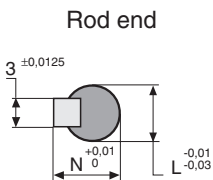
Rotatable 90°



Ø (mm)	A		B	C	D	E	F
	90°	180°					
12	55	55	30	20	6	24	15
20	53	72	42	30	10	35	20

Ø (mm)	G	J	L	N	P	Y	Z
	12	28	20	6	7,2	16,5	34
20	35	25,5	8	9,2	21	43	12

- ① : Stop boss
- ② : Rotation adjusting screw $\pm 5^\circ$
- ③ : Front mounting (see possible mountings below)
- ⑤ : Two Ø M5 supply ports
Port 1 : clockwise, rod side with pin
Port 2 : counterclockwise, rod side with pint



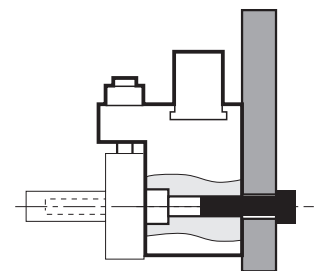
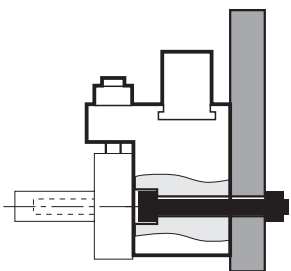
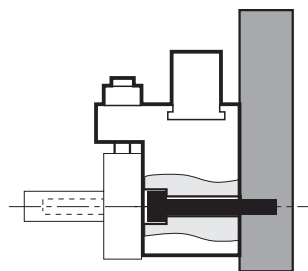
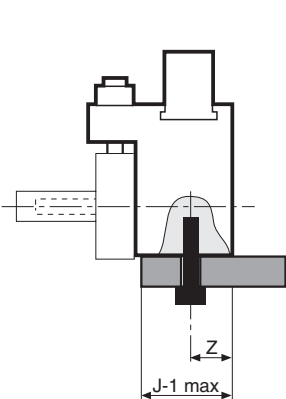
POSSIBILITIES MOUNTINGS

• Bottom mounting

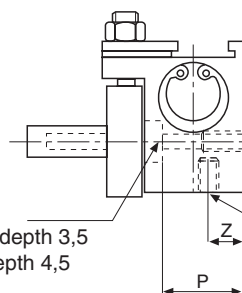
• Front mounting

• Front mounting

• Rear mounting

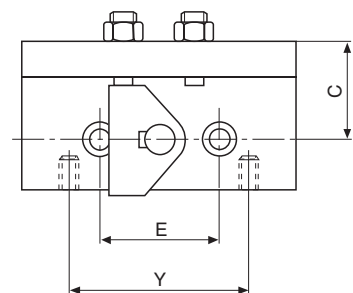


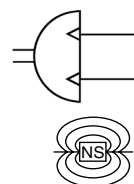
Front mounting
 $\text{Ø } 12$: 2 x $\text{Ø } 3,3$ counterbored $\text{Ø } 6,5$ depth 3,5
 $\text{Ø } 20$: 2 x $\text{Ø } 4,2$ counterbored $\text{Ø } 8$ depth 4,5



Rear side mounting
 $\text{Ø } 12$: 2 Ø M4 depth 8
 $\text{Ø } 20$: 2 Ø M5 prof. 10

Bottom mounting
 $\text{Ø } 12$: 2 Ø M4 depth 7
 $\text{Ø } 20$: 2 Ø M5 depth 8





GENERAL

Detection
Fluid
Operating pressure
Ambient temperature
Rotation

Equipped for magnetic position detectors

Air or neutral gas, filtered, lubricated or not
2 to 7 bar
+ 5°C, +60°C

position number	rotation possibilities	total rotation
2	90°	90°
2	180°	180°
3	90° + 90°	180°
4	2α + β	180°

Adjustment of angular movement on extreme 2 positions (see below).

Cushioning

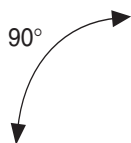
- 2 position models
- 3 and 4 position models

Adjustable pneumatic cushioning
No cushioning

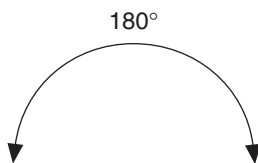


ANGULAR MOVEMENT

2 position model

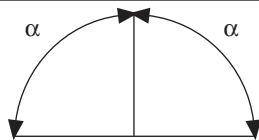


Adjustment range* : 70° — 95°

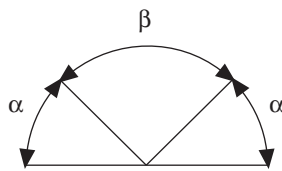


Adjustment range* : 160° — 185°

3 and 4 position model

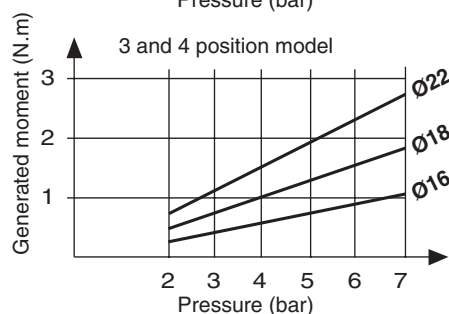
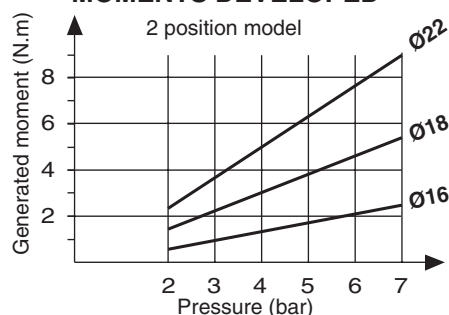


α 90°
Adjustment range* : 120° — 185°



2 α + β
Adjustment range* : 120° — 185°
Any values α and β, 2 α + β having to be equal to 180°.

MOMENTS DEVELOPED



For an optimum use, it is recommended to define a rotatable cylinder whose moment is 70 % of the developed moment.

* Movement limits to be distributed to both ends.

SPECIFICATIONS

position number	rotation angle	Ø (mm)	catalogue number	reference	connection Ø
2	90°	16	42900052	RS16 A2. 90 /M	M5
		18	42900056	RS18 A2. 90 /M	
		22	42900060	RS22 A2. 90 /M	
2	180°	16	42900053	RS16 A2. 180 /M	M5
		18	42900057	RS18 A2. 180 /M	
		22	42900061	RS22 A2. 180 /M	
3	90° + 90°	16	42900054	RS16 NA3. 90+90 /M	M5
		18	42900058	RS18 NA3. 90+90 /M	
		22	42900062	RS22 NA3. 90+90 /M	
4	α + β + α	16	42900055*	RS16 NA4. α + β /M*	M5
		18	42900059*	RS18 NA4. α + β /M*	
		22	42900063*	RS22 NA4. α + β /M*	

* Define angles α + β (2 α + β = 180°). Typical Codification Base code + α α β β α α
Example: 429000634509045 or 429000633012030

POSITION DETECTORS

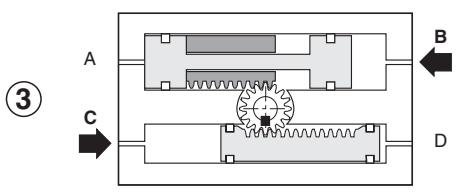
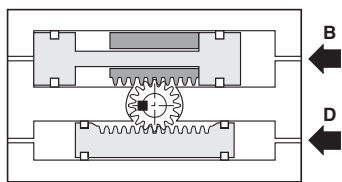
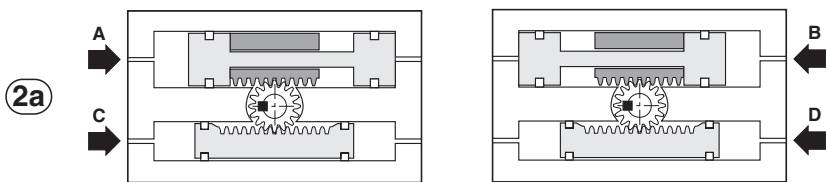
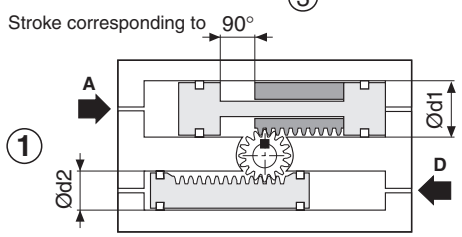
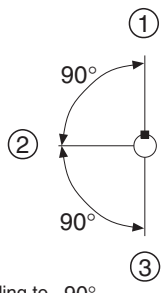
Magnetic position detectors must be ordered separately:
"T" model, [reed switch](#) or [magneto-resistive](#) type

Sensor bracket for 429 rotative cylinders:
catalogue number: **P4945256760N001**

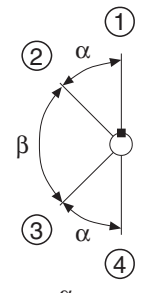


FUNCTIONING PRINCIPLE

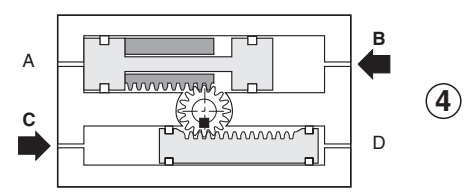
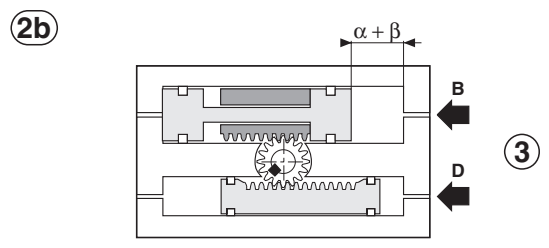
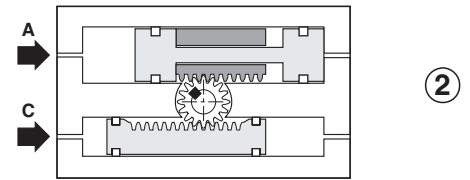
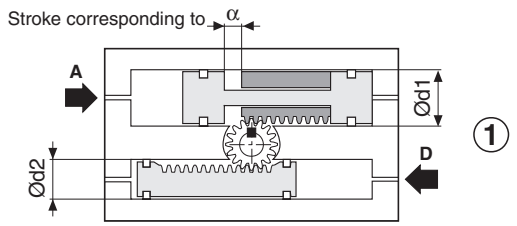
3 position model



4 position model



$\varnothing d1 > \varnothing d2$



Two choices, to obtain position 2 (2a or 2b). From a given position, the rotatable cylinder may be placed on any other 2 positions.

From a given position, the rotatable cylinder may be placed on any other 2 positions.

Pneumatic command table

outlets	positions			
	1	2a	2b	3
A	—	—		
B			—	—
C		—		—
D	—		—	

Pneumatic command table

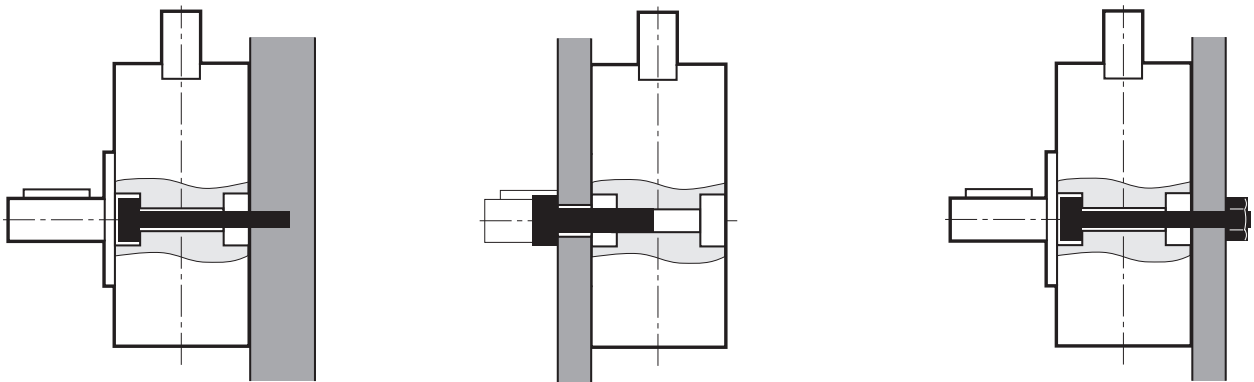
outlets	positions			
	1	2	3	4
A	—	—		
B			—	—
C		—		—
D	—		—	

model		Ø 16			Ø 18			Ø 22		
position number		2	3-4		2	3-4		2	3-4	
Ø bores (mm)	Ø d1	24			26			30		
	Ø d2	16			18			22		
crossrod Ø	(mm)	Ø 10 ^{h7}			Ø 12 ^{h7}			Ø 15 ^{h7}		
moment developed	N.m	see chart			see chart			see chart		
rotation angle	(°)	90°	180°	180°	90°	180°	180°	90°	180°	180°
adjustable angle	(°)	70—95	160—185	120—185	70—95	160—185	120—185	70—95	160—185	120—185
pneumatic cushioning		yes	yes	no	yes	yes	no	yes	yes	no
cushioning angle	(°)	60	60	—	40	40	—	40	40	—
maximum momentum	J	14x10 ⁻²	14x10 ⁻²	3,5x10 ⁻²	28x10 ⁻²	28x10 ⁻²	7x10 ⁻²	42x10 ⁻²	42x10 ⁻²	11x10 ⁻²

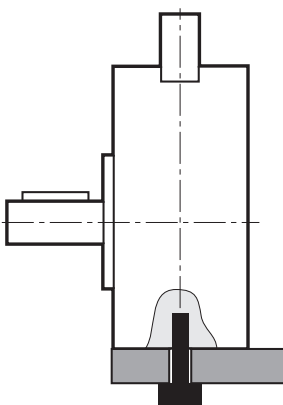
If the momentum generated by the application exceeds the above defined maximum values, rotation speed must be reduced with flow regulators (to be placed at closest to the cylinder) or with shock absorbers.

POSSIBLE MOUNTING OF ROTATABLE CYLINDERS

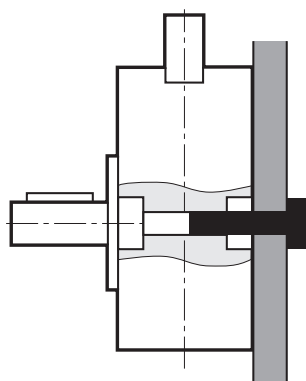
• Front mounting



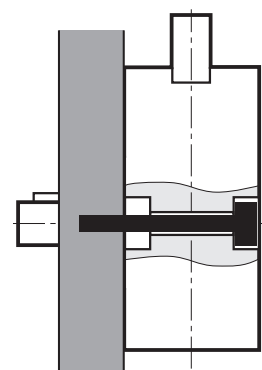
• Bottom mounting



• Rear mounting



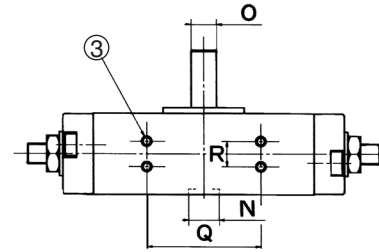
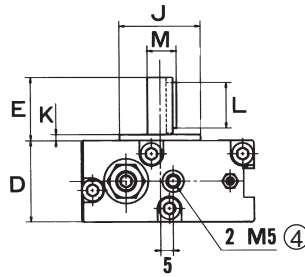
• Rear mounting



DIMENSIONS (mm), WEIGHT (kg)

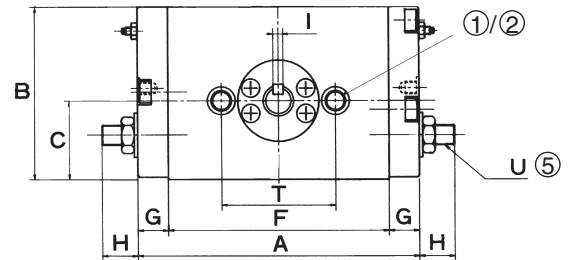
2 positions

- ① : Front mounting :
2 - Ø S1, counterbore Ø S2,
depth S3
- ② : Rear mounting :
2 - Ø S4
- ③ : Bottom mounting :
4 - Ø P1, depth P2,
- ④ : 2 pneumatic supply
ports Ø M5
- ⑤ : 2 angle movement adjustment screws



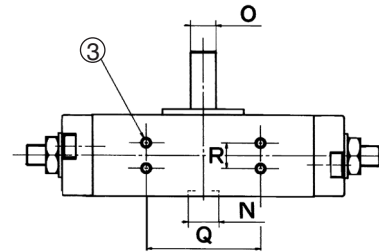
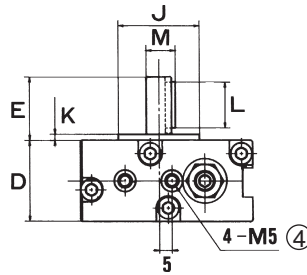
⑥

	weight		
	Ø 16	Ø 18	Ø 22
90°	0,7	1,0	1,6
180°	0,8	1,2	1,8

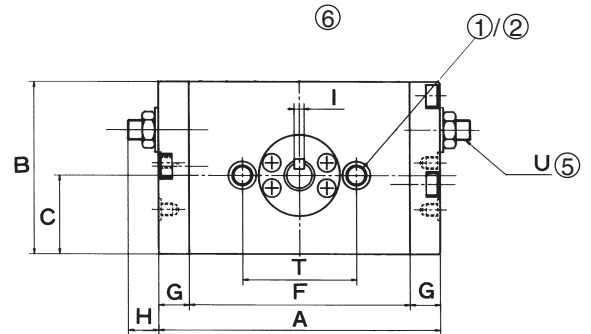


3 or 4 positions

- ① : Front mounting :
2 - Ø S1, counterbore Ø S2,
depth S3
- ② : Rear mounting :
2 - Ø S4
- ③ : Bottom mounting :
4 - Ø P1, depth P2,
- ④ : 4 pneumatic supply
ports Ø M5
- ⑤ : 2 angle movement adjustment screws



⑥



	weight		
	Ø 16	Ø 18	Ø 22
180°	0,8	1,2	1,8

Ø (mm)	A			B	C	D	E	F			G	H			I
	2 positions		3-4 pos.					2 positions		3-4 pos.		2 positions		3-4 pos.	
	90°	180°	180°					90°	180°	180°		90°	180°	180°	
16	98	111	111	68	31	32	25	74	87	87	12	14	14	12	4 ^{0.003}
18	103	135	135	75	34,5	34	30	79	111	111	12	13	14	15	4 ^{0.003}
22	115	158	158	87,5	41	39	35	87	130	130	14	15	15	15	5 ^{0.003}

Ø (mm)	Ø J	K	L	M	Ø N ^{0.05}	Ø O	Ø P1	P2	Q	R	Ø S1	Ø S2	S3	Ø S4	T	U
16	32 ^{0.05}	2,5	18	11,5	12 (*2)	10 ^{h7}	M4x0,7	6	45	10	6,5	11	6,5	M8x1,25	45	M8x1,25
18	37 ^{0.05}	3	18	13,5	14 (*1,8)	12 ^{h7}	M5x0,8	7	52	12	8,5	14	8,5	M10x1,50	52	M10x1,50
22	44 ^{0.05}	3	20	17	17 (*2)	15 ^{h7}	M6x1	8	60	14	8,5	14	8,5	M10x1,50	60	M10x1,50

*: depth

All leaflets are available on: www.asco.com

CHOICE OF MODEL

Choose a model so that the necessary moment is 70 % of the developed moment.

ROTATION TIME

HOW TO READ DIAGRAMS

Rotation time with respect to moment of inertia

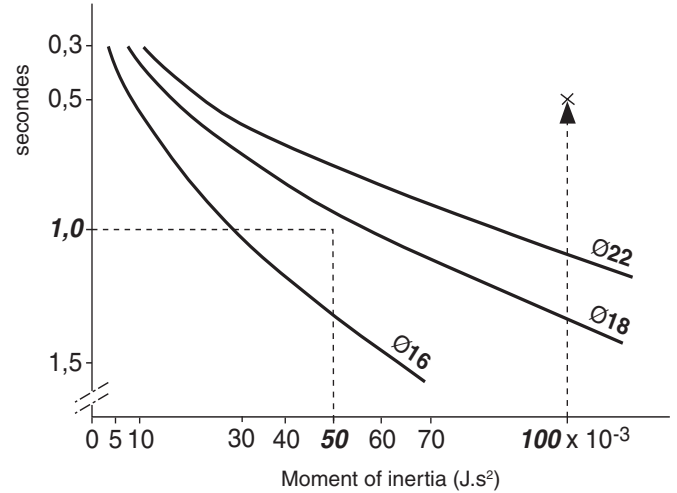
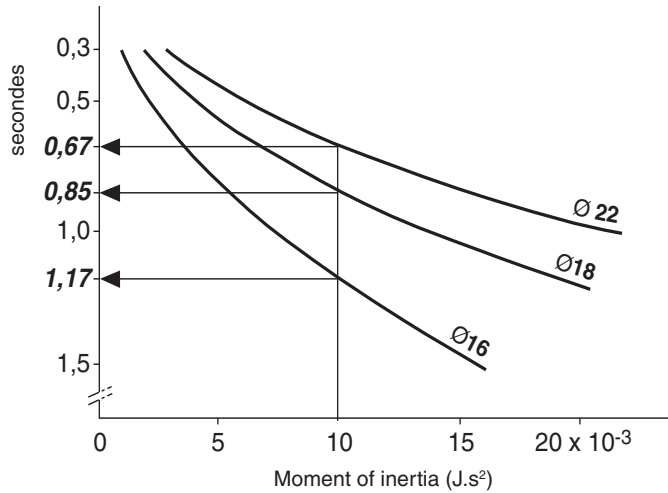
Example : With a $10 \times 10^{-3} \text{ J.s}^2$ moment, rotation time must be greater than :

- 1.17 s for model Ø 16,
- 0.85 s for model Ø 18,
- 0.67 s for model Ø 22.

Maximum momentum

Example : With a momentum of $50 \times 10^{-3} \text{ J.s}^2$ and a rotation time of 1 s/180°, model Ø 18 may be used with end stroke pneumatic cushioning, since the intersection point is below the maximum momentum.

Example : With a momentum of $100 \times 10^{-3} \text{ J.s}^2$ and a rotation time of 0,5 s/180°, no model is satisfactory since the intersection point is above all maximum momentums.



CALCULATION OF MOMENTUM

Momentum is calculated according to the following equation :

$$E = \frac{1}{2} I \omega^2$$

- E = momentum, in Joules
- I = moment of inertia, in kg.m^2
- ω = axis angular speed of rod at boss stop, in radians / second ($\omega = \theta / t$ rad/s)
- θ = rotation angle in radians ($180^\circ = 3,14$ rad)
- t = rotation time, in seconds

If the actual momentum is greater than the admissible maximum values, rotation speed must be reduced or shock absorbers must be installed.

LOAD ON AXIS

Avoid applying the load directly on the axis, by using a bearing or a stop.

If it cannot be avoided, it must be limited as follows.

type of cylinder	Ø cylinder (mm)	max. radial load (N)	max. axial load (N)
R	12	3	1,5
	20	5	2,5
RS	16	20	10
	18	40	20
	22	60	30

DEFINITION OF MOMENT OF INERTIA

	$I = \frac{m \cdot d^2}{8}$
	$I = \frac{1}{8} (m_1 \cdot d_1^2 + m_2 \cdot d_2^2)$
	$I = \frac{1}{3} (m_1 \cdot Q_1^2 + m_2 \cdot Q_2^2)$
	$I = \frac{m \cdot Q^2}{12}$
	$I = \frac{1}{12} \{m_1 \cdot (4a_1^2 + b^2) + m_2 \cdot (4a_2^2 + b^2)\}$

	$I = \frac{m \cdot a^2}{12}$
	$I = \frac{m \cdot (a^2 + b^2)}{12}$
	$I = \frac{m}{12} \cdot \left(\frac{d^2}{3} + \frac{Q^2}{4} \right)$
	$I = \frac{m \cdot d^2}{16}$
	$I = \{m_1 \cdot (Q^2 + \frac{d^2}{2}) + \frac{m_2 \cdot Q^2}{3}\}$

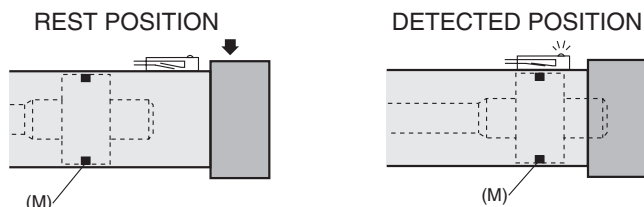


FEATURE

- **An universal detector** for any range of cylinders and actuators (cylinders with tie rods, profiled barrels, rounds...)

FUNCTIONAL DESCRIPTION

A permanent magnet (M) which is mounted on the piston of the air cylinder activates the reed switch of the non-contact magnetic position detector fastened on the outside of the non-magnetic cylinder barrel.



DETECTOR CHARACTERISTICS

MAX. SWITCHING POWER max.	DC = 5 W - AC = 5 VA
SWITCHING VOLTAGE	see below
MAX. SWITCHING CURRENT	100 mA
SHORT-CIRCUIT PROTECTION	no
REVERSE POLARITY PROTECTION	yes (without LED function)
OVERLOAD PROTECTION	no
VOLTAGE DROP (EN 60947-5-2)	< 5 volt
BREAKDOWN VOLTAGE	230 V DC
CONTACT RESISTANCE	0,2 ohm max.
INSULATION RESISTANCE	10 ⁸ ohms at 100 V
SENSITIVITY	2,1 mTesla (21 Gauss)
RESPONSE TIME	0,1 ms opening - 0,6 ms closing
REPEATABILITY	< ± 0,2 mm
WORKING TEMPERATURE	- 25°C , + 70°C
HOUSING	PA + FG overmolding
CABLE	PUR, resistant to cutting oils
DEGREE OF PROTECTION (CEI 60529)	IP 67
PROTECTION CLASS	cable outlet: class II, M8 and M12 connection: class III
APPROVAL	CE
SIGNAL INDICATION	yellow diode (LED) which lights up when the contact is established

CHOICE OF DETECTOR

Voltage	5 to 120 Volt AC/DC		5 to 50 Volt CA 5 to 60 Volt CC			
	Raccordement	PUR lead, 2 or 5 m long, 2 wires 0.14 mm ² , stripped ends		3 pin screw-type male connector Ø M8	0.3 m PUR lead + 3-pin plug-in male connector and Ø M8	
		connection of pins				
		2 m	5 m	1 - 4	1 - 4	1 - 3
		22	50	-	0,3 m	0,3 m
weight (g)			5	7	7	16
compatible cylinders series:	STANDARD CATALOGUE NUMBER detector detector supplied with cable holding clip (versions with lead outlet only) and adjustment position stop (all versions)					
449 ⁽¹⁾ 453						
435 - 438 ⁽²⁾ 441 - 447 (P2L-P2B) 450 - 454 437 (PCN)	P494A0021300A00	P494A0021100A00	P494A0021400A00	P494A0021500A00	P494A0021600A00	P494A0021700A00
						⁽³⁾

⁽¹⁾ Detector allow direct fitting on "T" cylinder grooves

⁽²⁾ Need a kit of fixation, see following pages (454 Series, see preceding pages)

⁽³⁾ U.S. market

MAXIMUM ELECTRICAL CHARACTERISTICS AND PROTECTION OF MAGNETIC DETECTOR (REED SWITCH)

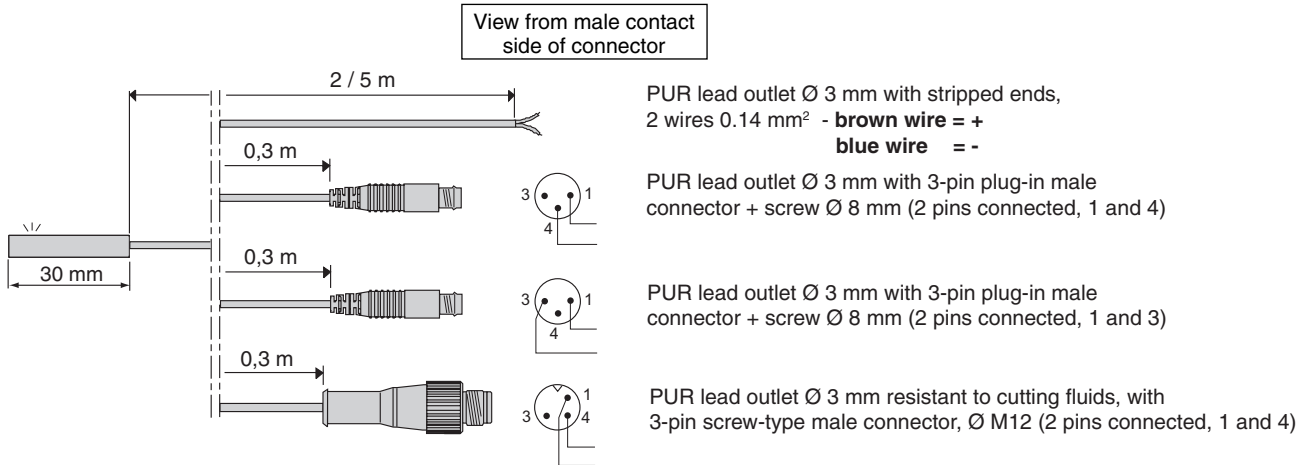
Maxi switching current : 100 mA

For inductive loads (valves, contactors, ...), external protection is required to avoid damage caused by switch-off voltage peaks. Use freewheeling diode, transil diode, varistor or similar.

PARTICULAR APPLICATIONS (valid for all models)

- Detectors used for direct control of incandescent lamps:
The capacity specified on the lamp is based on its resistance when hot. When switched on, the resistance of the cold lamp is very low. Therefore, the current rises quickly and may exceed the reed switch rating. Allowance should therefore be made for the real power of the cold lamp.
- With leads longer than 10 m, a 200 Ω resistor must be fitted in series with the detector to reduce the capacitive effect caused by the wiring.

REED SWITCH CONNECTION : 4 possibilities

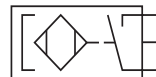


Mounting recommendation:

Do not subject the detector's power supply cable to damaging traction / torsion during its service life.

ACCESSORIES

description	catalogue number
extension consisting of PVC, length 5 m, 3 wire conductors 0.25 mm ² with 1 screw-on female M8 connector (other end plain), IP67	 P4994406200N001
extension consisting of PVC, length 5 m, 3 wire conductors 0.25 mm ² with 1 screw-on female M12 connector (other end plain), IP67	 P4994406210N001
straight 3-pin female connector Ø M8, IP67	 P4994406220N001
Right angle 3-pin female connector Ø M8, orientable 90° x 90°, IP67	 P4994406230N001
Block of memorizing position of adjustment detector	 P4994406160N001



FEATURE

- **An universal detector** for any range of cylinders and actuators (cylinders with tie rods, profiled barrels, rounds...)

PRINCIPLE

Static non-contact proximity switch on air cylinders equipped with built-in permanent magnets.

FUNCTIONAL DESCRIPTION

When the permanent magnet which is mounted on the piston approaches the detector the magnetic field it generates causes the semiconductors' resistors to change. This current variation increases the resistance and a switching signal is generated.



DETECTOR CHARACTERISTICS

MAX. SWITCHING POWER	3 W
SWITCHING VOLTAGE	10 to 30 V DC
MAX. SWITCHING CURRENT	100 mA
WIRING	PNP - NPN (3)
REVERSE POLARITY PROTECTION	yes
OVERLOAD PROTECTION	yes
SHORT-CIRCUIT PROTECTION	yes
VOLTAGE DROP (EN 60947-5-2)	< 1,5 volt (I = 50 mA) < 2,5 volts (I = 100 mA)
MAX. LEAKAGE CURRENT	< 50 µA
MAX. ALLOWABLE OVERVOLTAGE	32 VCC max. (100 ms)
SENSITIVITY	2 mTesla (20 Gauss)
RESPONSE TIME	110 µs opening - 220 µs closing
REPEATABILITY	< 0,2 mm
WORKING TEMPERATURE	- 25°C , + 85°C
HOUSING	PA + FG overmolding
CABLE	PUR, resistant to cutting oils (PVC for M12 IP69K version)
DEGREE OF PROTECTION (CEI 60529)	IP67 / IP69K
PROTECTION CLASS	class III
SIGNAL INDICATION	yellow diode (LED) which lights up during switching
APPROVAL	CE - UL and cUL for 2 m and M8 connection

CHOICE OF DETECTOR

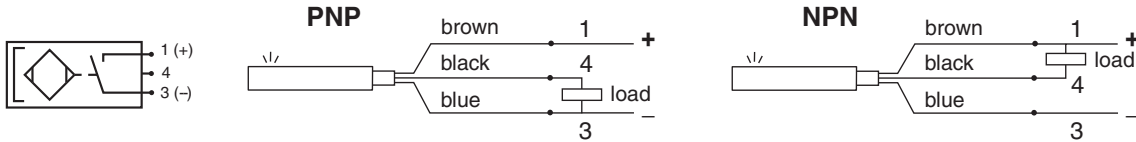
Voltage		10 to 30 Volt DC								
Raccordement	PUR lead, 2 or 5 m long, 3 wires 0.14 mm ² , stripped ends, IP67		3 pin screw-type male connector Ø M8		0,3 m PUR lead + 3-pin plug-in male connector and Ø M8, IP67		0,3 m PUR lead + 3-pin screw-type male connector, Ø M12, IP67		0,3 m PVC lead + 3-pin screw-type male connector, Ø M12, IP69K	
	2 m		5 m		-		0,3 m		0,3 m	
	PNP	NPN	PNP	PNP	PNP	NPN	PNP	PNP	PNP	
weight (g)	22	22	50	5	7	7	16	25		
compatible series:	STANDARD CATALOGUE NUMBER detector detector supplied with cable holding clip (versions with lead outlet only) and adjustment position stop (all versions)									
449 ⁽¹⁾ 453										
435 - 438 ⁽²⁾ 441 - 447 450 - 454 437 (PCN) 431 (IP69K)	P494A0022300A00	P494A0022400A00	P494A0022100A00	P494A0022500A00	P494A0022600A00	P494A0022700A00	P494A0022800A00	P494A0022900A00		
		(3)				(3)				

⁽¹⁾ Detector allow direct fitting on "T" cylinder grooves
⁽²⁾ Need a kit of fixation, see following pages (454 Series, see preceding pages)
⁽³⁾ U.S. market

ELECTRICAL PROTECTION

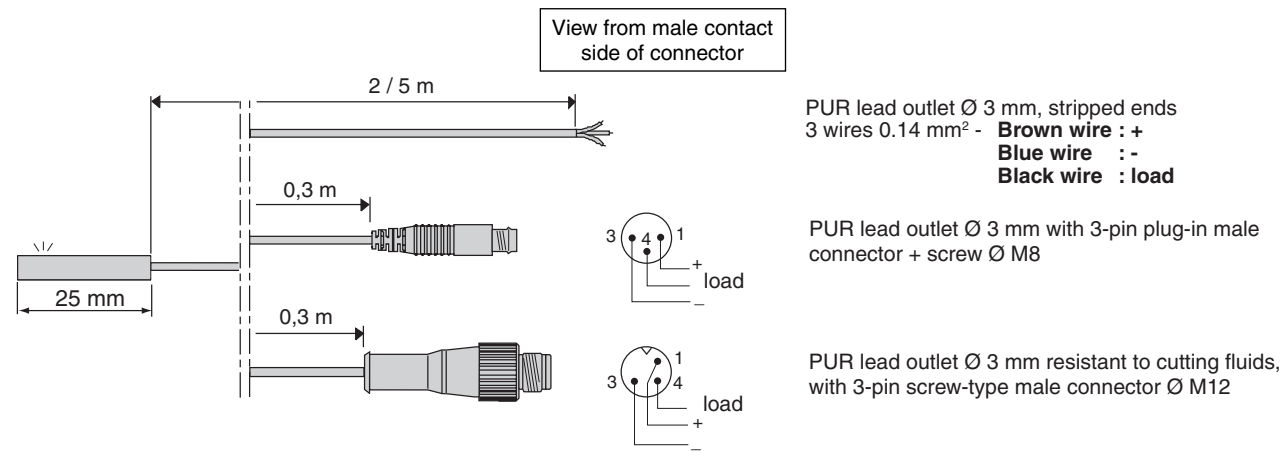
- Output protected against short-circuit as long as the output current is restricted to 0.1 A.
- Improper wire connection may prevent the detector from operating or even destroy it.
- It is recommended to install a protection diode (mounted in parallel) on an inductive load in spite of the internal protection.

CONNECTION



**Polarities
to be observed**

CONNECTION OF MAGNETO-RESISTIVE DETECTORS: 3 possibilities



Mounting recommendation:

Do not subject the detector's power supply cable to damaging traction / torsion during its service life.

ACCESSORIES

description		catalogue number
extension consisting of PVC, length 5 m, 3 wire conductors 0.25 mm ² with 1 screw-on female M8 connector (other end plain) (1)		P4994406200N001
extension consisting of PVC, length 5 m, 3 wire conductors 0.25 mm ² with 1 screw-on female M12 connector (other end plain) (1)		P4994406210N001
straight 3-pin female connector Ø M8, IP67		P4994406220N001
Right angle 3-pin female connector Ø M8, orientable 90° x 90°, IP67		P4994406230N001
Block of memorizing position of adjustment detector		P4994406160N001

(1) Detector connection, brown wire = +, blue wire = -, black wire = load

FOR "T" GROOVE CYLINDERS

series	Ø (mm)	code fastening kit
441	32 ... 100	(1)
449	32 ... 100	
453	32 ... 100	

(1) Fastening mini-kit (special nut + screw) supplied **with** detectors



NOTE:

Series 441 cylinders Ø 32-100 mm : 6 "T" grooves

Series 449 cylinders Ø 20-25 mm : 4 "T" grooves
Ø 32-100 mm : 5 "T" grooves

Series 453 cylinders Ø 32-100 mm : 5 "T" grooves

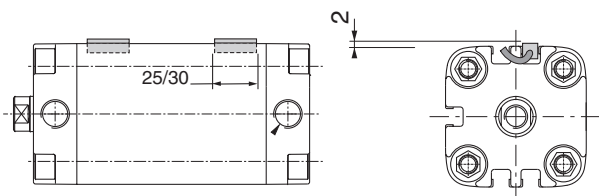
In order to control the **max. end** of cylinder stroke, the detectors must be mounted in the following direction:

Series 441-449 cylinders:

Ø32-40: cable oriented towards the middle of the cylinder
Ø50-100: any position

Series 453 cylinder:

Ø32-40: cable oriented towards the middle of the cylinder
Ø50-100: any position



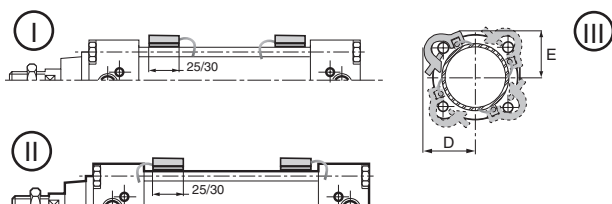
FOR TIE RODS CYLINDERS



series	Ø (mm)	code fastening kit	
		lead outlet version	M8 connector integrated version
437	25	P494AM129200A00	P499440617MN001
450	32-40	P494A3129200A00	
	50-63-80	P494A5129200A00	
	100	P494A8129200A00	
437	125	P494AP129200A00	P4994406183N001
	160-200	P494AP129200A00	-



Ø cylinder	25	32	40	50	63	80	100	125	160	200
D	24	30	33	38	44	50	69	77	89	104
E	24	26	30	35	39	49	61	69	87	101



Ⓘ It is possible to fasten the detector with its electric outlet to the centre of the cylinder (in order to be able to control the **max. end** of travel of the cylinder)

Ⓙ In order to fasten the detector with its electric outlet to the rear, rotate the **unit** detector + collar by 180°

Ⓚ The detectors can be mounted on any one of the 4 **tie rods**.

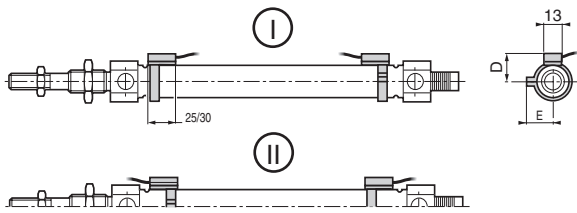
FOR ROUND CYLINDERS



series	Ø (mm)	code fastening kit	
		plastic	stainless steel (AISI 303 + 304)
435 438 431	8-10	-	P494AG129600A00
	12	P494AJ129300A00	P494AK129600A00
	16	P494AK129300A00	P494AK129600A00
	20	P494AL129300A00	P494AL129600A00
	25	P494AM129300A00	P494AL129600A00
	32	P494A3129300A00	P494A3129600A00
	40	P494A4129300A00	P494A4129600A00
	50	-	P494A5129600A00
	63	-	P494A6129600A00
80	-	P494A8129600A00	
436	250	-	P494AS129200A00

Ø 12 to 40 mm

Ø 8 to 80 mm



I On all diameters, it is possible to mount the detector with its electrical outlet facing towards the cylinder **barrel** (in order to be able to control the **max. end** of travel of the cylinder).

II In order to fasten the detector on cylinder diameters 25 to 63 with its electrical outlet facing towards the cylinder **ends**, rotate the detector + collar **unit** by 180°.

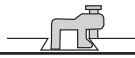
It is possible to mount magnetic detectors for **intermediate** position indication : mounting by collar

Ø 8-20 : any position.

Ø 25-80 : cable oriented towards the cylinder ends

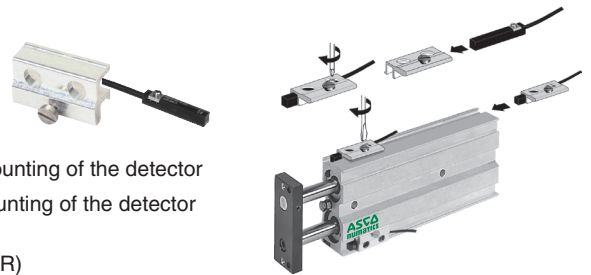
Ø cylinder	8	10	12	16	20	25	32	40	50	63
D	14,5	15,5	15	16,5	19	21,5	26,5	31	38	45
E	13,5	14,5	16,5	19	20,5	23	29,5	31,5	36,5	43,5

ACTUATORS



series	Ø (mm)	code fastening kit ⁽¹⁾
447 / 492	12 ... 32	P494A0029400A00

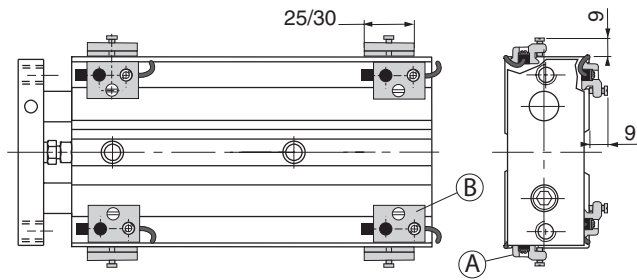
⁽¹⁾ Designed for "dove tail" grooves.



A - Lateral mounting of the detector
B - Upper mounting of the detector

(type ILS or MR)

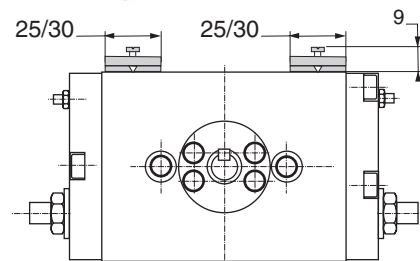
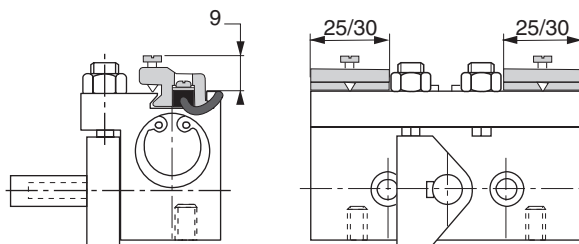
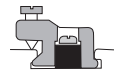
- Detector, lead with stripped ends :
 - stroke ≤ 25 mm: a detector following (A) mounting and the other following (B) mounting
 - stroke > 25 mm: mounting of the 2 detectors following (A) and/or (B) mounting
- Detector with lead and connector: a detector following (A) mounting and the other following (B) mounting

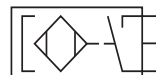


R (Ø12 - 20 mm)



series	Ø (mm)	code fastening kit
429	12-20 / 16-18-22	P4945256760N001





FEATURES

- A detector for actuator with "C" grooves, mounted sliding across the tube slot.
- Static non-contact proximity switch on pneumatic cylinders equipped with built-in permanent magnets.

FUNCTIONAL DESCRIPTION

When the permanent magnet which is mounted on the piston approaches the detector, the magnetic field it generates causes the semiconductors' resistors to change. This current variation increases the resistance and a switching signal is generated.



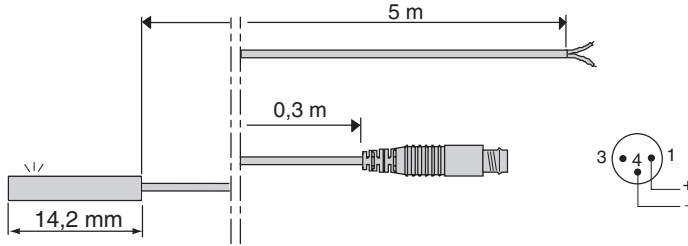
ELECTRICAL CHARACTERISTICS

	10-28 VDC	4,5-28 VDC
Max. switching power	0,6 W	1,5 W
Max. switching current	4-20 mA	50 mA
Number of wires	2	3
Reverse polarity protection	NO	YES
Overload protection	NO	NO
Short-circuit protection	NO	NO
Voltage drop	3,5V	0,5V (50 mA)
Max. leakage current	0,8 mA	0,01 mA
Max. allowable overvoltage		30V DC
Sensitivity		40 Gauss
Response time		1000 Hz
Repeatability		0,5 mm
Working temperature		-10 + 70 °C
Housing material		ABS
Cable material		PVC
Degree of protection		IP67
Signal indication		red LED
Approval		CE RoHS

SPECIFICATIONS

Operating voltage	10-28 V DC		4,5-28 V DC	
	2 wires		3 wires	
Connection				
	5 metre cable	0,3 metre cable + M8 connector	5 metre cable	0,3 metre cable + M8 connector
Weight (g)	50 / 12			
Compatible cylinders:	15-DIGIT PRODUCT CODE detector supplied with cable holding clip (versions with lead outlet only) and adjustment position stop (all versions)			
Series G441	P494A0011100A00	P494A0011200A00	P494A0012100A00	P494A0012200A00

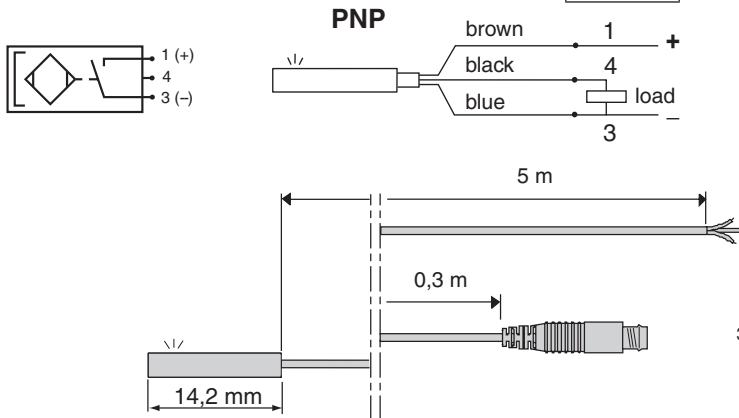
CONNECTION



Lead outlet Ø 3 mm, stripped ends
2 wires 0,14 mm² -
brown : +
blue : -

Lead outlet Ø 3 mm with 3-pin plug-in male connector + screw Ø M8

2 wires 0,14 mm²
brown : + (Pin 1)
blue : - (Pin 4)
Pin 3 : No used



**Polarities
to be observed**

Lead outlet Ø 3 mm, stripped ends
3 wires 0,14 mm² -
brown : +
blue : -
black : load

Lead outlet Ø 3 mm with 3-pin plug-in male connector + screw Ø M8

3 wires 0,14 mm²
brown : + (Pin 1)
blue : -(Pin 4)
black : load (Pin 3)

Mounting recommendation:

Do not subject the power supply cable to damaging traction / torsion during its service life.

ACCESSORIES

description		catalogue number
extension consisting of PVC, length 5 m, 3 wire conductor 0.25 mm ² with 1 screw-on female M8 connector (other end plain)		P4994406200N001
straight 3-pin female connector Ø M8, IP67		P4994406220N001
right angle 3-pin female connector Ø M8, orientable 90° x 90°, IP67		P4994406230N001