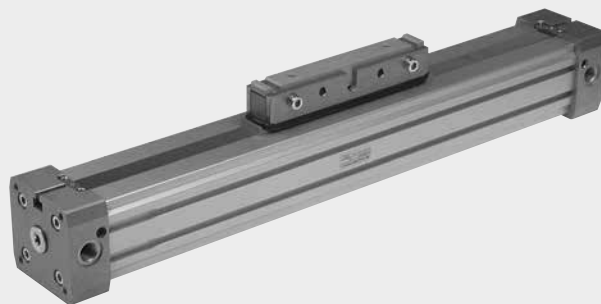


# RODLESS CYLINDER SERIES STD

Rodless cylinders come in five different bores - Ø 16, 25, 32, 40 and 63 mm – and the design incorporates numerous innovations.

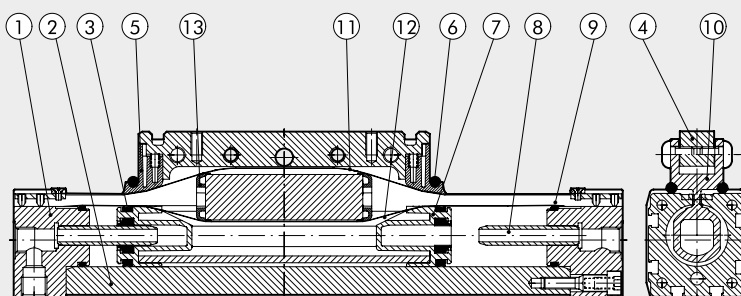
- Calibrated extruded anodized aluminium alloy barrel
- Sensor slots and accessory slots in the barrel itself
- Longitudinal seal by means of specially-shaped indeformable stainless steel strips
- Strokes 100 to 5700 mm with 1 mm intervals
- Adjustable integrated pneumatic cushioning
- Adjustable limit switches and decelerations can be applied at any time
- For this type of cylinder (size 32 and upwards), the valves can be fitted directly using the retracting sensors without requiring any intermediate brackets. Refer to the table on page A1.62



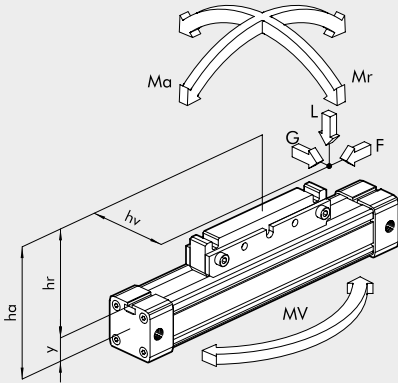
TECHNICAL DATA			Ø16	Ø25	Ø32	Ø40	Ø63
Operating pressure	bar				1 to 8		
	MPa				0.1 to 0.8		
	psi				14.5 to 116		
Temperature range	NBR - FKM/FPM	°C			-10 to +80		
		Design	Double-acting rodless cylinder with direct transmission system				
Fluid			50 µm unlubricated filtered air Lubrication, if used, must be continuous				
Standard strokes	mm		100 to 5000		100 to 5700		100 to 5500
Sensor magnet			Available magnetic and non-magnetic versions.				
Recommended speeds	NBR	m/s			<1		
	FKM/FPM	m/s			≥1		
Max. speed with decelerators	NBR	m/s			<1		
	FKM/FPM	m/s			2		
Weights			See cylinder "General technical data" at the beginning of the chapter				
Notes			For speeds lower than 0.2 m/s to prevent surging, use the version No stick-slip and non-lubricated air.				

## COMPONENTS

- 1 CYLINDER HEAD: aluminium alloy
- 2 BARREL: profiled anodized aluminium alloy
- 3 PISTON GASKET: NBR or FKM/FPM
- 4 CENTRAL ELEMENT: aluminium alloy
- 5 SCRAPER: Hostaform®
- 6 O-RING: FKM/FPM
- 7 PISTON: Hostaform®
- 8 CUSHIONING CONE: aluminium alloy
- 9 STATIC O-RINGS: NBR or FKM/FPM
- 10 SLIDE: aluminium alloy
- 11 OUTER STRIP: stainless steel
- 12 INNER STRIP: stainless steel
- 13 BAND SUPPORT: Hostaform®



**DIMENSIONING - FORCE AND TORQUE**



Bore	Centre Distance Y	Actual Force F at 6 bar [N]	Cushioning stroke L [mm]	Max. load L [N]	Ma max [Nm]	Mr max [Nm]	Mv max [Nm]
16	9	110	15	120	4	0.3	0.5
25	14	250	21	300	15	1	3
32	18	420	26	450	30	2	4
40	22	640	32	750	60	4	8
63	44	1550	40	1650	200	8	24

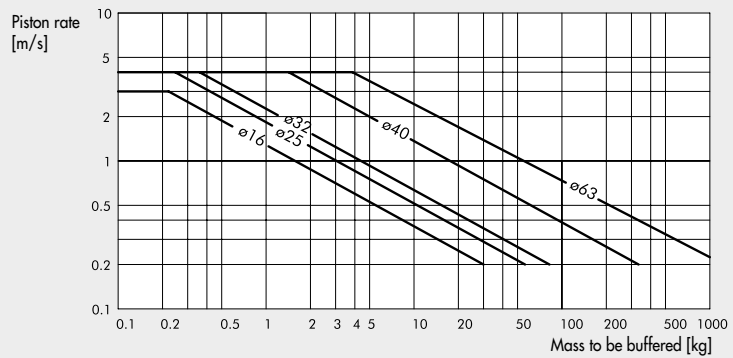
**N.B.:** When the cylinder is subjected simultaneously to torque and force, keep to the following equations, where the lengths have to be given in metres.

$$M_a = F \times h_a \quad M_r = L \times h_v + G \times h_r \quad M_v = F \times h_v$$

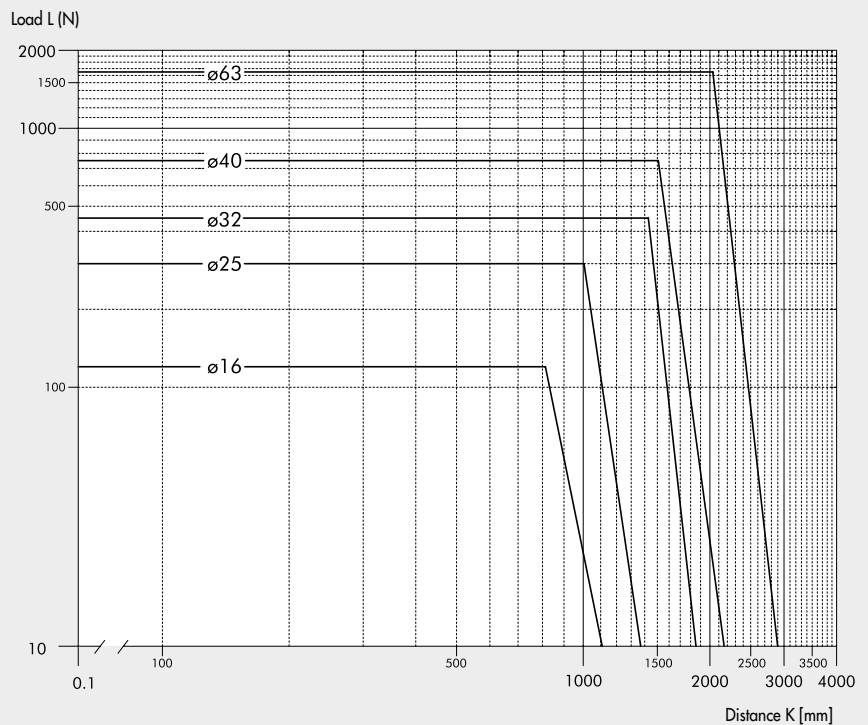
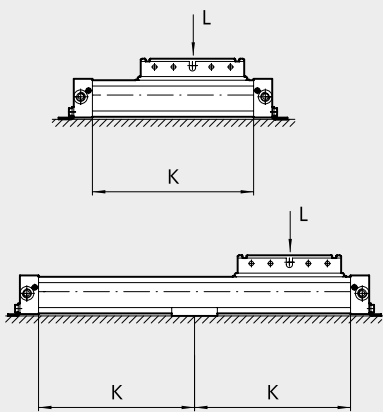
$$\frac{M_v}{M_{v \max}} \leq 1; \quad \frac{L}{L_{\max}} \leq 1; \quad \frac{M_a}{M_{a \max}} + \frac{M_r}{M_{r \max}} + 0.22 \times \frac{M_v}{M_{v \max}} + 0.4 \frac{L}{L_{\max}} \leq 1$$

**DIAGRAM OF SPEED AND MAXIMUM CUSHIONABLE LOAD**

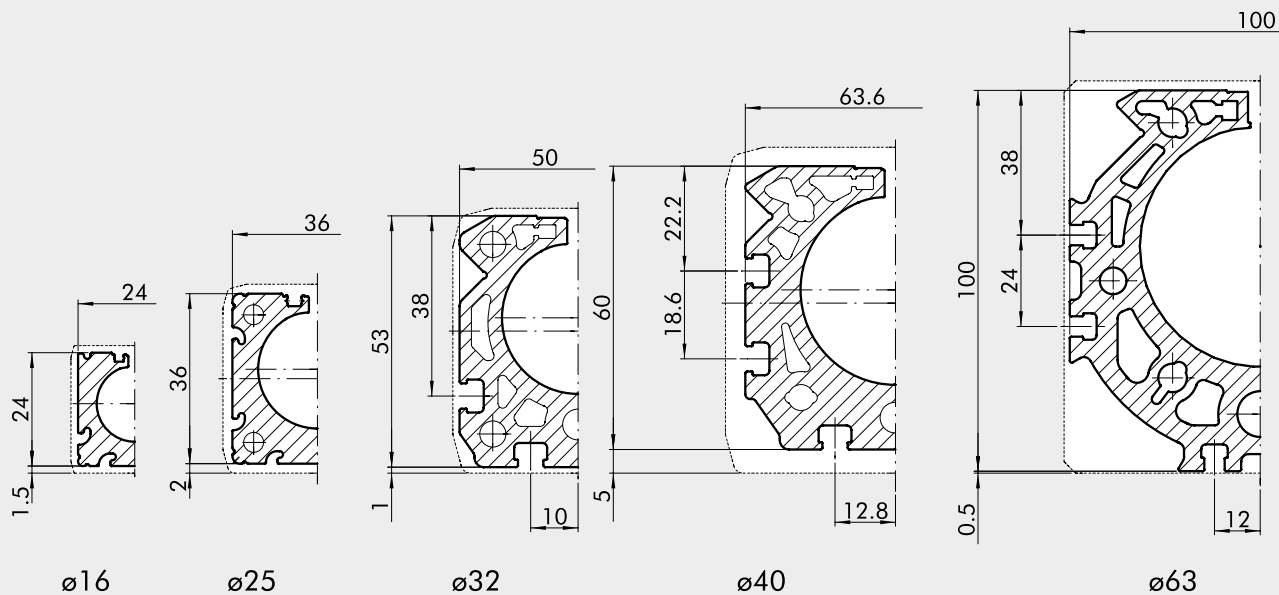
For the cylinder to reach the end-of-stroke position without intense or repeated impact which would damage it, it is necessary to annul the kinetic energy of the moving mass and the work generated. The maximum cushionable load depends on the traversing speed and the absorption of the air buffer supplied standard with the various cylinders. The diagram shows the speeds and cushionable mass for the various diameters at a pressure of 6 bar.



**MAXIMUM LOAD ACCORDING TO THE DISTANCE BETWEEN SUPPORTS**

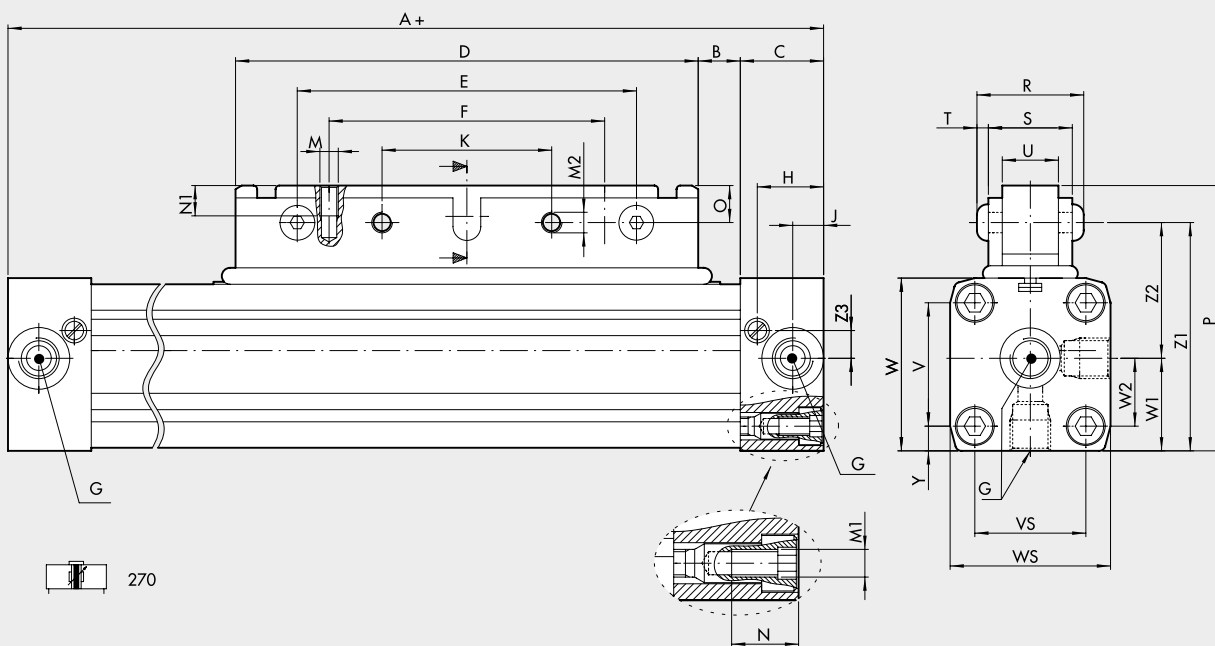


BARREL CROSS SECTION



DIMENSIONS Ø 16 to 40

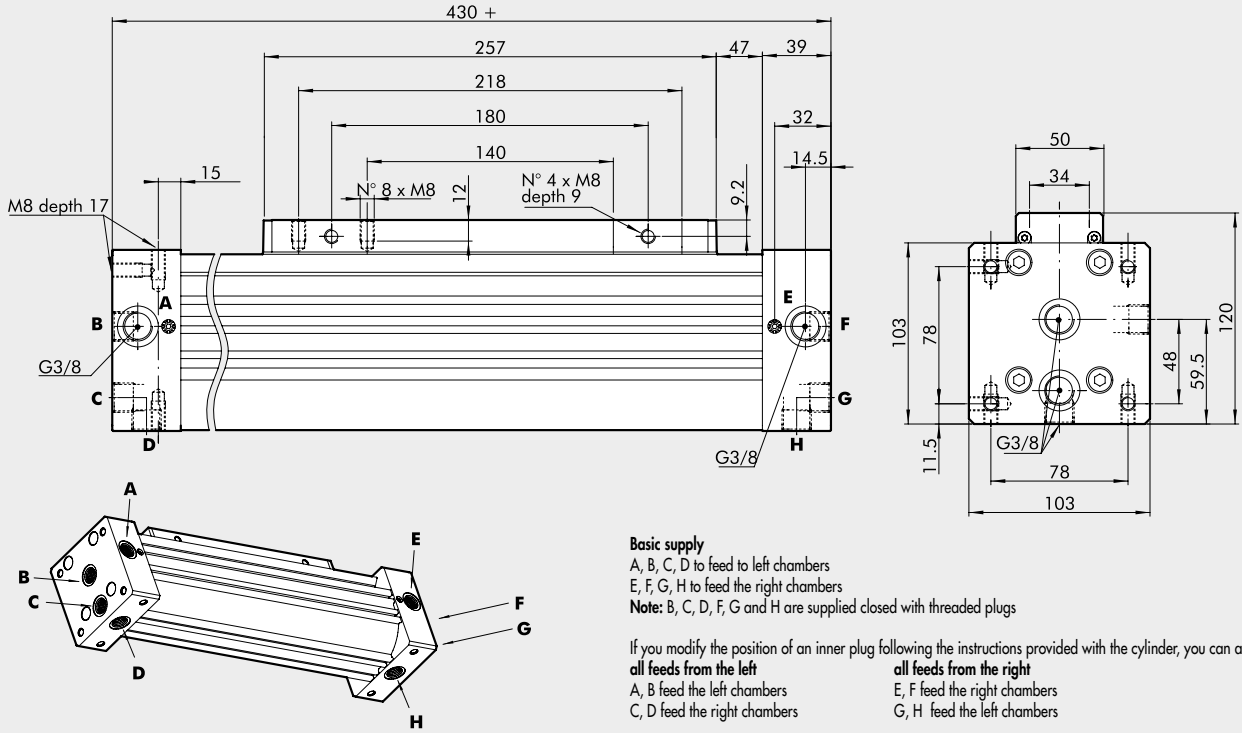
+ = ADDED STROKE



Ø	A	B	C	D	E	F	G	H	J	K	M	M1	M2	N	N1	O	P	R	S	T	U	V	VS	W	WS	W1	W2	Y	Z1	Z2	Z3	Z4
16	130	12	15	76	64	48	M5	12	6.4	32	M4	M3	M5	7	8	6	43.5	23.5	18	2.75	10	18	18	27	27	13.5	9	4.5	37.5	24	4.5	28
25	200	17	23	120	100	80	1/8	18.5	8.5	50	M5	M5	M6	12	11	13	66	29.6	23	3.3	15	27	27	40	40	20	13.5	6.5	53	33	6.5	42
32	250	23	27	150	110	90	1/4	22	10.5	55	M6	M6	M8	14	12	12	86	36	27	4.4	18	40	36	56	52	30	22	8	74	44	8	70
40	300	45	30	150	110	90	1/4	24	15	55	M6	M6	M8	17.5	12	12	97	36.8	28	4.4	18	54	54	69	72	36	27	9	85	49	11.8	70

**DIMENSIONS Ø 63**

+ = ADDED STROKE



**Basic supply**

A, B, C, D to feed to left chambers

E, F, G, H to feed the right chambers

Note: B, C, D, F, G and H are supplied closed with threaded plugs

If you modify the position of an inner plug following the instructions provided with the cylinder, you can arrange:

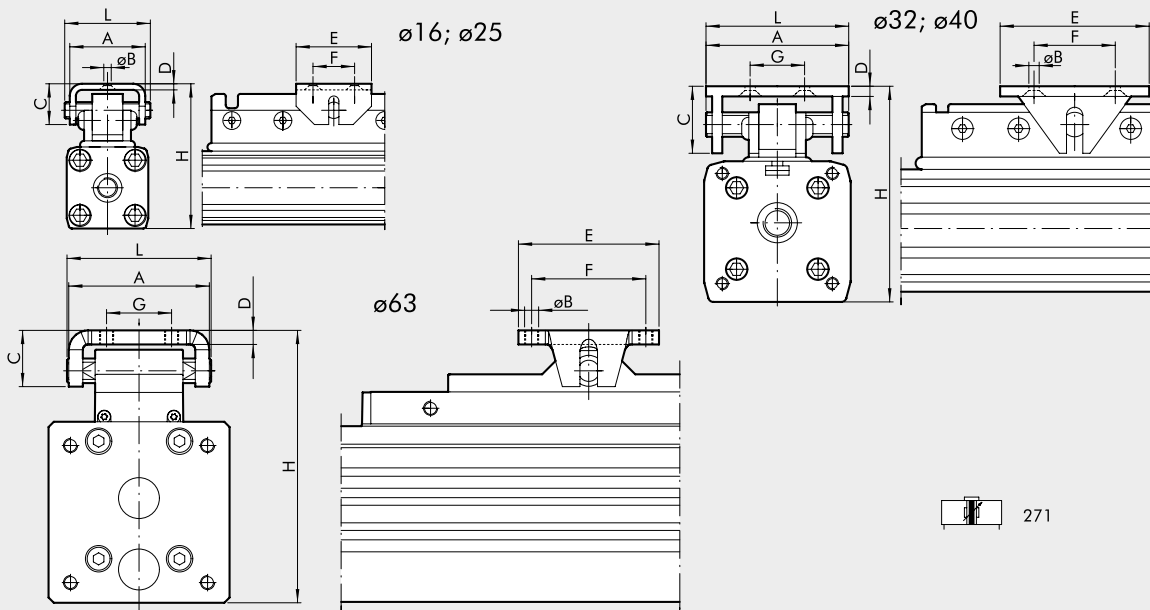
**all feeds from the left**

A, B feed the left chambers  
C, D feed the right chambers

**all feeds from the right**

E, F feed the right chambers  
G, H feed the left chambers

**VERSION WITH SWING CARRIAGE**

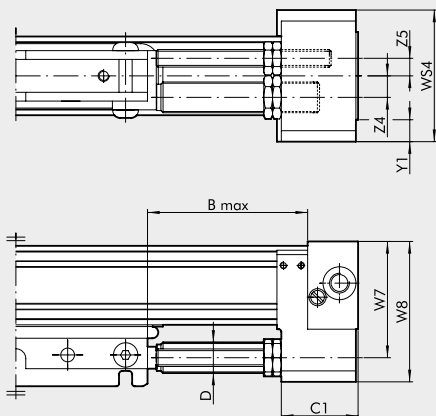


NOTE: For other dimensions see code 270

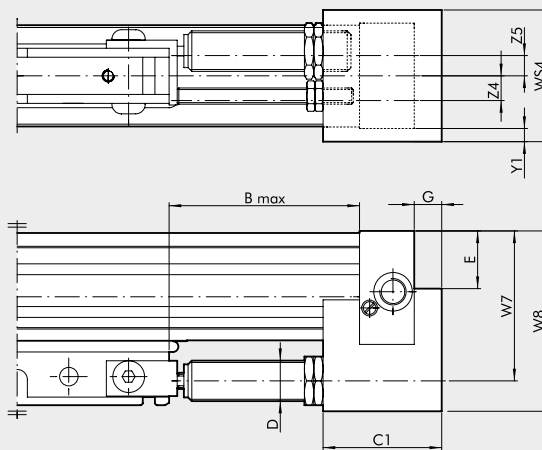
Ø	A	ØB	C	D	E	F	G	H	L
16	25	4.5	13	2	20	10	-	47-50	28
25	37	5.5	20	3	30	16	-	72-75	42
32	70	6.5	38	5	90	75	55	91-100	70
40	70	6.5	38	5	90	75	55	111-120	70
63	80	M8	32	8	80	65	37	155-162	82

DIMENSIONS VERSION WITH ADJUSTABLE LIMIT SWITCH AND SHOCK ABSORBERS

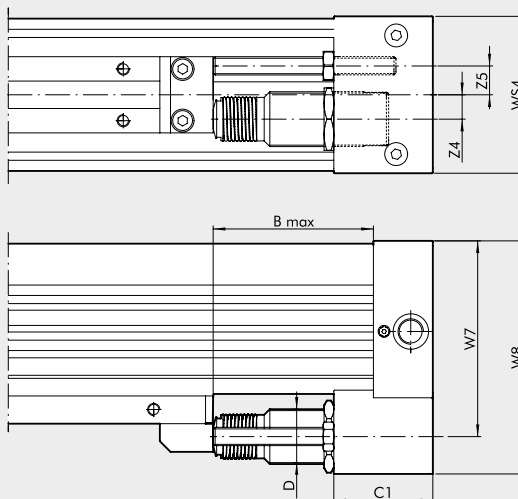
ø16



ø25 ÷ ø40



ø63



Ø	B Max	C1	D	E	G	W7	W8	WS4	Y1	Z4	Z5	Stroke	Max. cushioned force		Max. impact force [N]	Max. thrust force [N]
													For stroke [J]	For hour [J]		
16	42	22	M12x1	-	-	38	46	42	7.5	7	7.5	10.4	10	14125	1000	220
25	72	44	M14x1.5	17	9	53	67	50	5	8	9.8	16	26	34000	2800	530
32	90	56	M20x1.5	29	11	74	89	60	4	10	12.2	22	54	53700	3750	890
40	105	74	M25x1.5	32.8	14	89	108	75	1.5	12.5	12.7	25	90	70000	5500	1550
63	105	65	M36x1.5	-	-	128.5	153	103	-	16	19	25	160	91000	11120	2220

For graphs to help choose shock absorbers see page A1.195

KEY TO CODES

CYL	27 TYPE	0	0	2 5 BORE	0 1 5 0 STROKE	C	N GASKETS
	27 Rodless cylinder	0 Double-acting cushioned magnetic 1 Double-acting with swing carriage + 2 Twin cushioned series "Double" 3 Double-acting Magnetic + adjustable limit switches and shock absorbers	0 Magnetic S Non-magnetic ■ G No stick-slip	16 25 32 40 63	Ø 16: from 100 to 5000 mm Ø 25 to 40: from 100 to 5700 mm Ø 63 from 100 to 5500 mm		N NBR gasket ● V FKM/FPM gasket

■ For speeds lower than 0.2 m/s, to prevent surging. Use no-lubricated air only ● For speed ≥ 1/m/s + Available up to Ø 32

# RODLESS CYLINDER WITH "V" GUIDE

Two opposed V-shaped guide units are obtained directly in the anodized aluminium cylinder liner, on which a cover with two acetalic resin wear-resistant pads slides.

The cover has a tip-up-type carriage-piston rod coupling. In this way the carriage only transfers loads axially and does not support loads and moments in other directions.

The play of the pads can be adjusted by means of side threaded grub screws. Therefore, it is possible to recover the wear of pads, which can be replaced without the need for dismantling the cylinder.

This family of rodless cylinders has the same features as the basic versions: such as an integrated adjustable pneumatic cushioning, sensor slots and accessory holding slots.

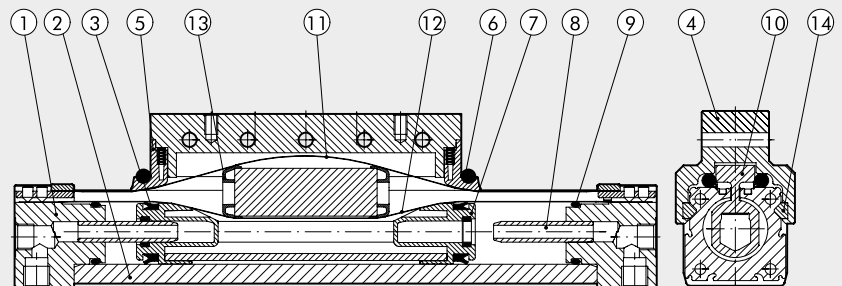
A version is available with adjustable limit switches and hydraulic decelerators. They can be purchased separately and applied at any time to the basic cylinders as well.



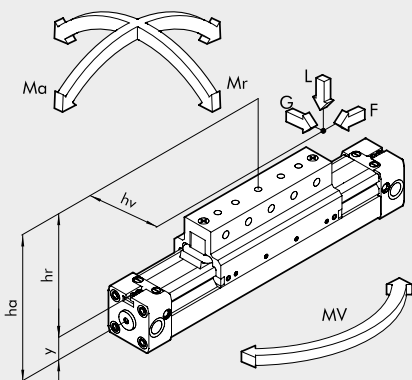
TECHNICAL DATA		Ø25	Ø32	Ø40	Ø63
Operating pressure	bar			1.5 to 8	
	MPa			0.15 to 0.8	
	psi			21.8 to 116	
Temperature range	NBR - FKM/FPM			-10 to +80	
	°C				
Design		Double-acting rodless cylinder with direct transmission system			
Fluid		50 µm unlubricated filtered air Lubrication, if used, must be continuous			
Standard strokes	mm	100 to 5700		100 to 5500	
Sensor magnet		Available magnetic and non-magnetic versions.			
Recommended speeds	NBR	m/s		<1	
	FKM/FPM	m/s		≥1	
	NBR	m/s		<1	
Max. speed with decelerators	FKM/FPM	m/s		2	
Weights		See cylinder "General technical data" at the beginning of the chapter			
Notes		For speeds lower than 0.2 m/s to prevent surging, use the version No stick-slip and non-lubricated air.			

## COMPONENTS

- ① CYLINDER HEAD: aluminium alloy
- ② BARREL: profiled anodized aluminium alloy
- ③ PISTON GASKET: NBR or FKM/FPM
- ④ CENTRAL ELEMENT: aluminium alloy
- ⑤ SCRAPER: Hostaform®
- ⑥ O-RING: FKM/FPM
- ⑦ PISTON: Hostaform®
- ⑧ CUSHIONING CONE: aluminium alloy
- ⑨ STATIC O-RINGS: NBR or FKM/FPM
- ⑩ SLIDE: aluminium alloy
- ⑪ OUTER STRIP: stainless steel
- ⑫ INNER STRIP: stainless steel
- ⑬ BAND SUPPORT: Hostaform®
- ⑭ "V" GUIDE PLATE: Hostaform®



**DIMENSIONING - FORCE AND TORQUE**



Bore	Centre Distance Y	Actual Force F at 6 bar [N]	Cushioning stroke [mm]	Max. load L [N]	Ma max [Nm]	Mr max [Nm]	Mv max [Nm]
25	14	200	21	350	22	5	22
32	18	300	26	400	40	10	40
40	22	490	32	700	70	26	70
63	44	1300	40	1800	250	80	250

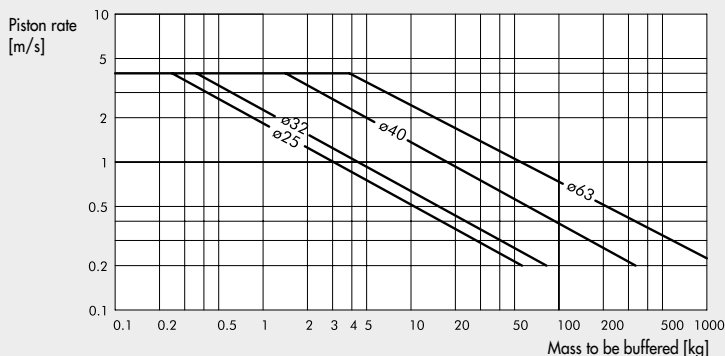
**N.B.:** The loads can be applied for speeds below 0.2 m/s. For higher speeds, it is advisable not to exceed 1 m/s  
**N.B.:** When the cylinder is subjected simultaneously to torque and force, keep to the following equations, where the lengths have to be given in metres.

$$Ma = F \times ha \quad Mr = L \times hv + G \times hr \quad Mv = F \times hv$$

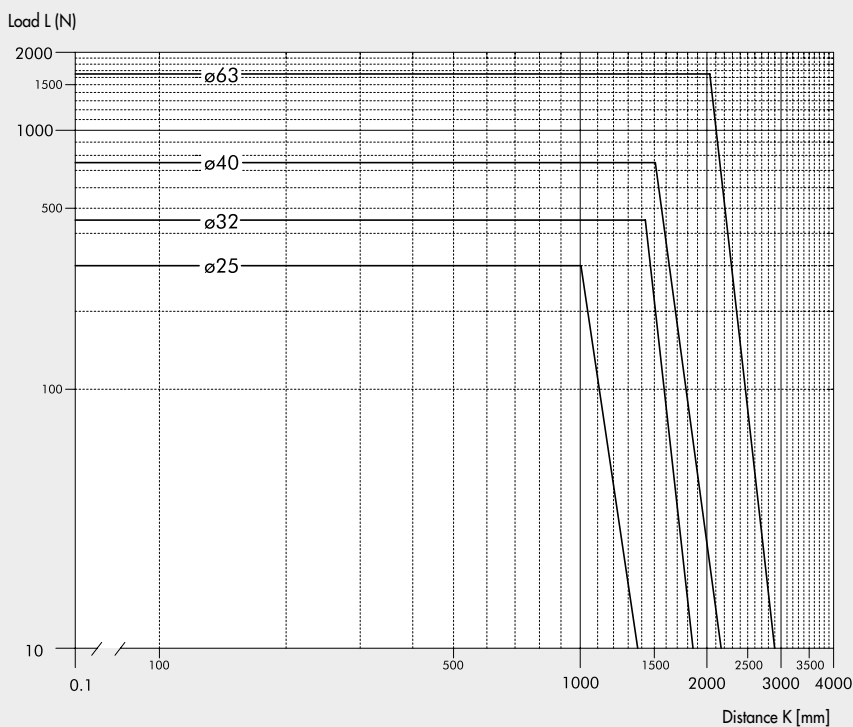
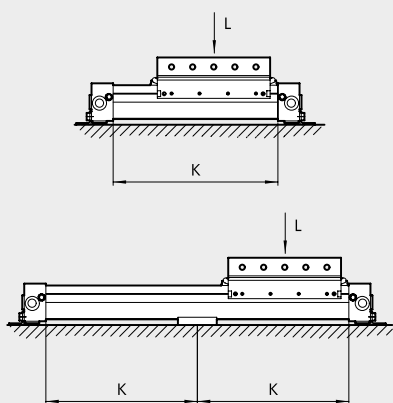
$$\frac{Mv}{Mv_{max}} \leq 1; \quad \frac{L}{L_{max}} \leq 1; \quad \frac{Ma}{Ma_{max}} + \frac{Mr}{Mr_{max}} + 0.22 \times \frac{Mv}{Mv_{max}} + 0.4 \frac{L}{L_{max}} \leq 1$$

**DIAGRAM OF SPEED AND MAXIMUM CUSHIONABLE LOAD**

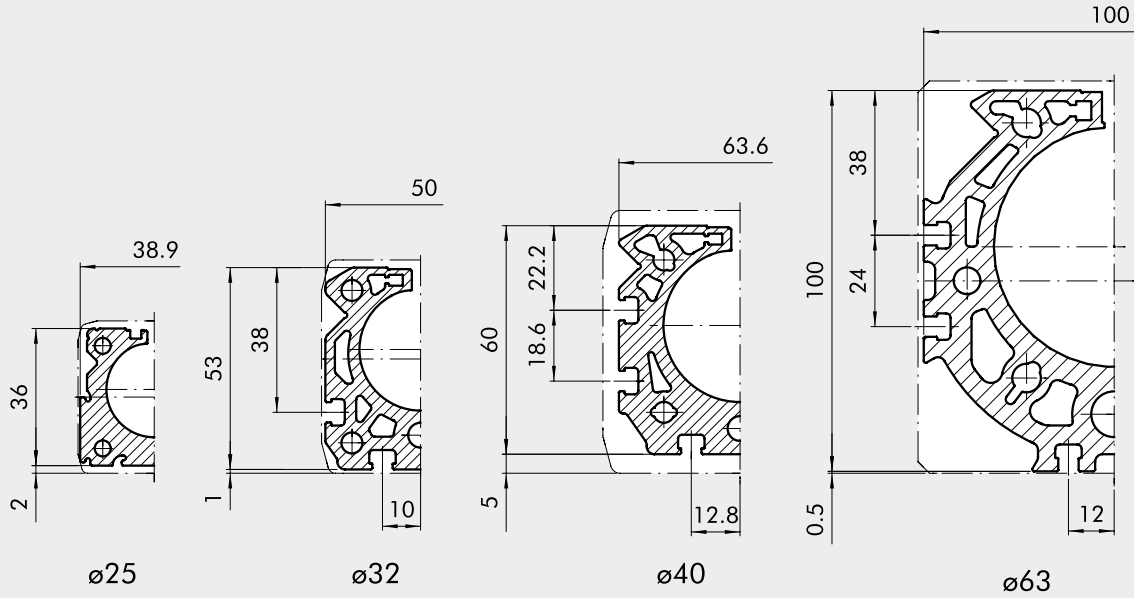
For the cylinder to reach the end-of-stroke position without intense or repeated impact which would damage it, it is necessary to annul the kinetic energy of the moving mass and the work generated. The maximum cushionable load depends on the traversing speed and the absorption of the air buffer supplied standard with the various cylinders. The diagram shows the speeds and cushionable mass for the various diameters at a pressure of 6 bar.



**MAXIMUM LOAD ACCORDING TO THE DISTANCE BETWEEN SUPPORTS**

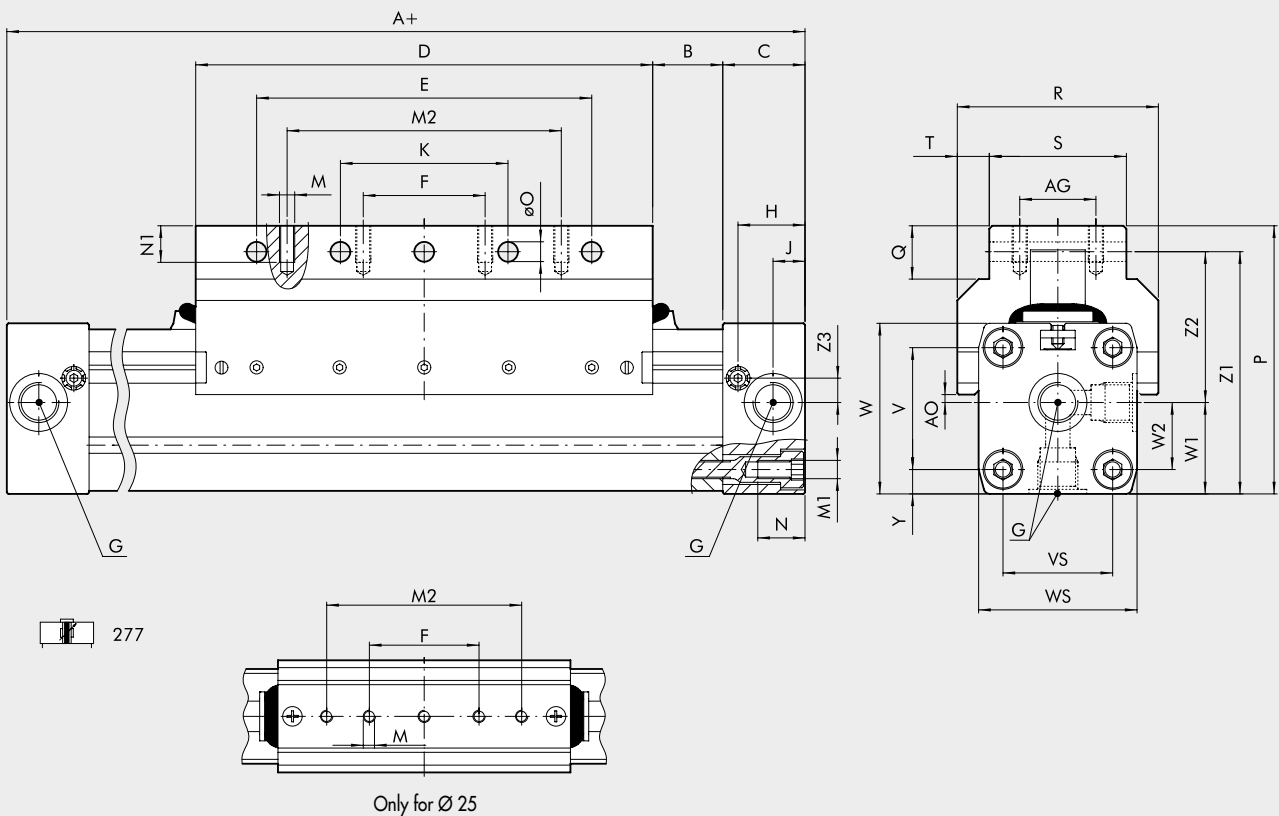


BARREL CROSS SECTION



DIMENSIONS Ø 25 to 40

+ = ADDED STROKE

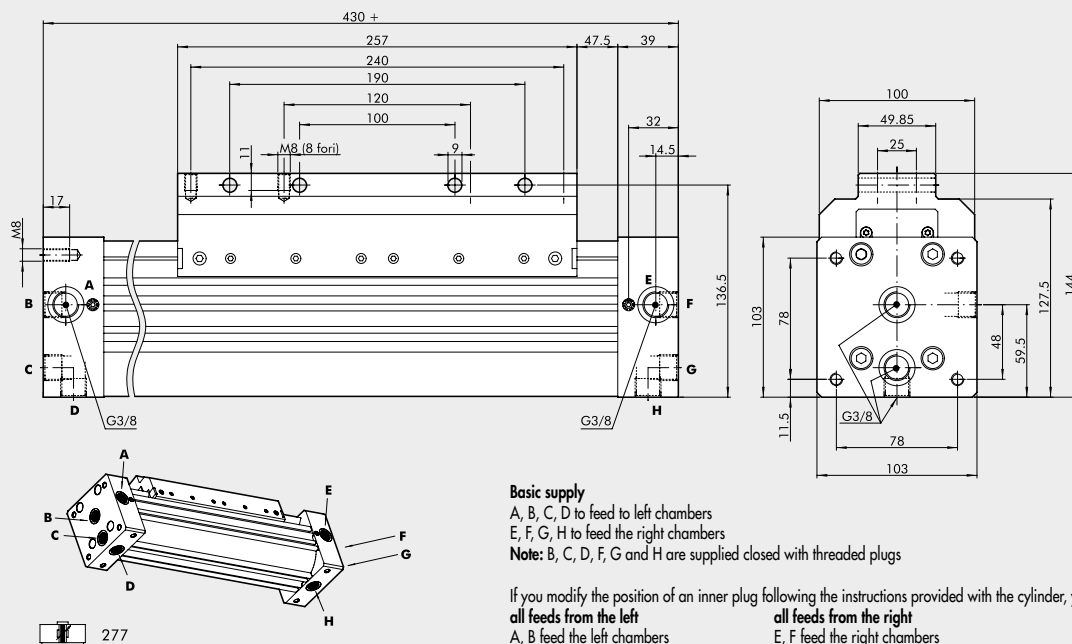


Ø	A	AG	AO	B	C	D	E	F	G	H	J	K	M	M1	M2	N	NI	øO	P	Q	R	S	T	V	VS	W	WS	W1	W2	Y	Z1	Z2	Z3
25	200	-	2	17	23	120	90	45	1/8	18.5	8.5	45	M5	M5	80	12	8	5.5	67.5	21	46	26	10	27	27	40	40	20	13.5	6.5	57.5	37.5	6.5
32	250	25	2.6	23	27	150	110	40	1/4	22	10.5	55	M5	M6	90	15	12	6.4	88	17.5	66	45	10.5	40	36	56	52	30	22	8	79.5	49.5	8
40	300	25	9.4	45	30	150	110	40	1/4	24	15	55	M6	M6	90	17.5	12	6.4	98.5	17.5	80	45	17.5	54	54	69	72	36	27	9	89.9	53.9	11.8



**DIMENSIONS Ø 63**

+ = ADDED STROKE



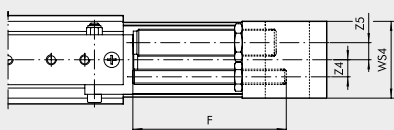
**Basic supply**

A, B, C, D to feed to left chambers  
 E, F, G, H to feed the right chambers  
**Note:** B, C, D, F, G and H are supplied closed with threaded plugs

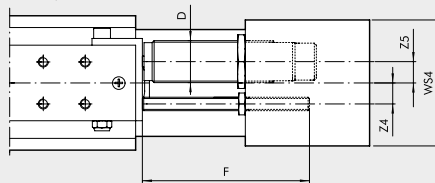
If you modify the position of an inner plug following the instructions provided with the cylinder, you can arrange:  
**all feeds from the left**  
 A, B feed the left chambers  
 C, D feed the right chambers  
**all feeds from the right**  
 E, F feed the right chambers  
 G, H feed the left chambers

**DIMENSIONS VERSION WITH ADJUSTABLE LIMIT SWITCH AND SHOCK ABSORBERS**

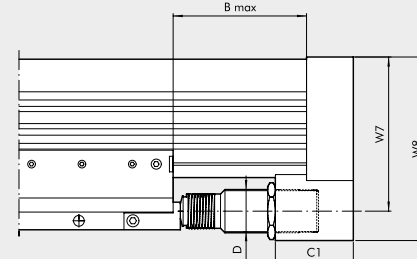
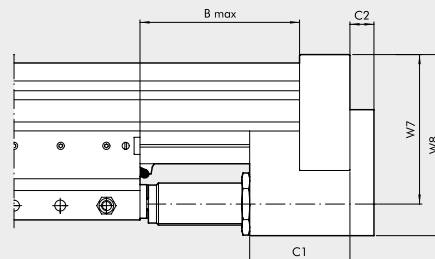
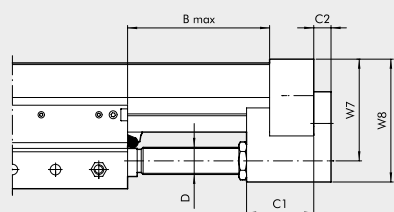
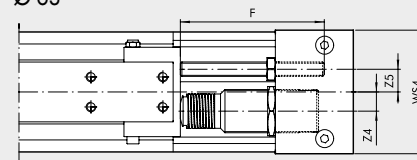
Ø 25



Ø 32; Ø 40



Ø 63



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Ø	B Max	C1	C2	D	F	W7	W8	WS4	Z4	Z5	Stroke	Max. cushioned force		Max. impact force [N]	Max. thrust force [N]
												For stroke [J]	For hour [J]		
25	84	35	9	M14x1.5	80	53	67	50	8	9.8	16	26	34000	2800	530
32	110	45	11	M20x1.5	100	74	89	60	10	12.2	22	54	53700	3750	890
40	120	60	14	M25x1.5	100	89	108	75	12.5	12.7	25	90	70000	5500	1550
63	122	65	-	M36x1.5	120	128.5	153	103	16	19	25	160	91000	11120	2220

For graphs to help choose shock absorbers see page A1.195

**KEY TO CODES**

CYL	27 TYPE	7	0	2 5 BORE	0 150 STROKE	C	N GASKETS
	27 Rodless cylinder	7 Double-acting cushioned Magnetic with "V" guide 8 Double-acting cushioned Magnetic with "V" guide + adjustable limit switches and decelerator	0 Magnetic S Non-magnetic * G No stick-slip	25 32 40 63	Ø 25 to 40: from 100 to 5700 mm Ø 63 from 100 to 5500 mm		N NBR gasket ● V FKM/FPM gasket

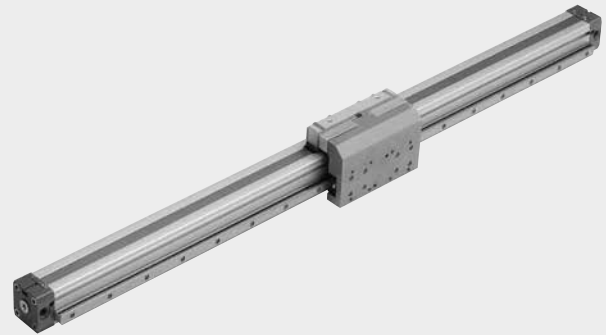
\* For speeds lower than 0.2 m/s, to prevent surging. Use no-lubricated air only ● For speed ≥ 1/m/s

# RODLESS CYLINDER WITH BALL RECIRCULATING GUIDE

The range of rodless cylinders with ball circulation guides is available with five different bores  $\varnothing$  16, 25, 32, 40 and 63. The bore 63 can be supplied in two versions: the "standard" one for intermediate loads and the "heavy" one for considerably weighty loads. Besides the general features specified for standard rodless cylinders, the other main features are:

- Very high load capacity, acting in all directions without discharging onto the cylinder slide.
- Hardened steel guide connected firmly to the cylinder barrel.
- Ball circulation pads constructed using special technology that make them very silent when the guide slides, with very long maintenance intervals. For example, they only need lubricating every 2000 km or once a year, using type 2 grease, preferably containing lithium soap.
- Extra sturdy slide support with various holes for fixing the loads. Holes for centring pins are also provided.
- 100 to 2650 stroke at intervals of 1 mm.
- Integrated pneumatic adjustable cushioning.
- Adjustable limit switches and decelerations can be applied at any time.

For this type of cylinder (size 32 and upwards), the valves can be fitted directly using the retracting sensors without requiring any intermediate brackets. Refer to the table on page A1.62



TECHNICAL DATA		$\varnothing$ 16	$\varnothing$ 25	$\varnothing$ 32	$\varnothing$ 40	$\varnothing$ 63	$\varnothing$ 63 heavy
Operating pressure	bar					1 to 8	
	MPa					0.1 to 0.8	
	psi					14.5 to 116	
Temperature range	NBR - FKM/FPM					-10 to +80	
	°C						
Design		Double-acting rodless cylinder with direct transmission system					
Fluid		50 $\mu$ m unlubricated filtered air Lubrication, if used, must be continuous					
Standard strokes	mm	100 to 1350	100 to 2300	100 to 2250	100 to 2100	100 to 2650	100 to 2650
Sensor magnet		Available magnetic and non-magnetic versions.					
Recommended speed	NBR	m/s <1					
	FKM/FPM	m/s $\geq$ 1					
Max. speed with decelerators	NBR	m/s <1					
	FKM/FPM	m/s 2					
Weights		See cylinder "General technical data" at the beginning of the chapter					
Notes		For speeds lower than 0.2 m/s to prevent surging, use the version No stick-slip and non-lubricated air.					

## COMPONENTS

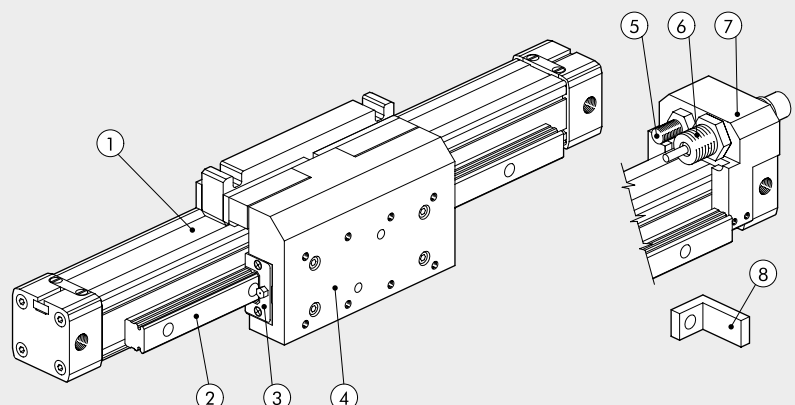
### For version 275

- ① CYLINDER: see components of **rodless cylinders - series STD**
- ② GUIDE: hardened steel
- ③ PAD: steel with hardened ball circulation
- ④ SLIDE SUPPORT: anodized aluminium

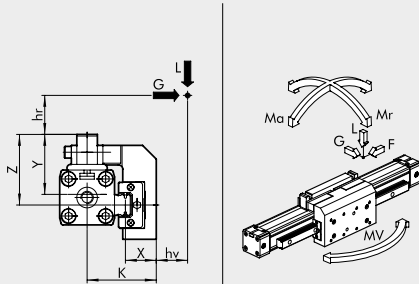
### For version 276

Besides the details specified above:

- ⑤ END-OF-STROKE STUD PIN: zinc-plated steel, complete with 2 zinc-plated nuts for fixing
- ⑥ DECELERATOR: burnished steel, complete with 2 zinc-plated or burnished nuts for fixing
- ⑦ DECELERATOR SUPPORT: anodized aluminium
- ⑧ BRACKET: hardened-and-tempered and zinc-plated steel



**DIMENSIONING - FORCES AND MOMENTS**



Ø	Version	Actual force F at 6 bar [N]	Cushioning stroke [mm]	K [mm]	X [mm]	Y [mm]	Z [mm]	Max load L [N]	Max load G [N]	Ma max [Nm]	Mr max [Nm]	Mv max [Nm]
16	-	110	15	35	16	29	33	500	500	16	15	16
25	-	250	21	50.5	21	44	51.5	1500	1500	100	50	100
32	-	420	26	59	22.5	53.5	70	3000	3000	200	100	200
40	-	640	32	68	24.7	58	73	4000	4000	200	140	200
63	standard	1550	40	84	23.1	79	100	6000	6000	400	140	400
63	heavy	1550	40	91	29.2	79	88	10000	10000	600	400	600

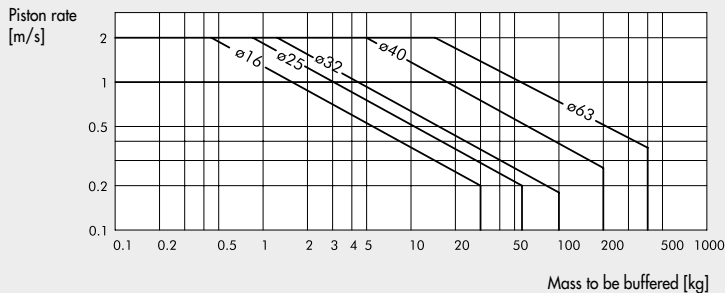
**N.B.:** When the cylinder is subjected simultaneously to torque and force, keep to the following equations, where the lengths have to be given in metres.

$$Ma = F \times (hr + Y) \quad Mr = G \times (hr + z) + Lx (hv + X) \quad Mv = F \times (K + hv)$$

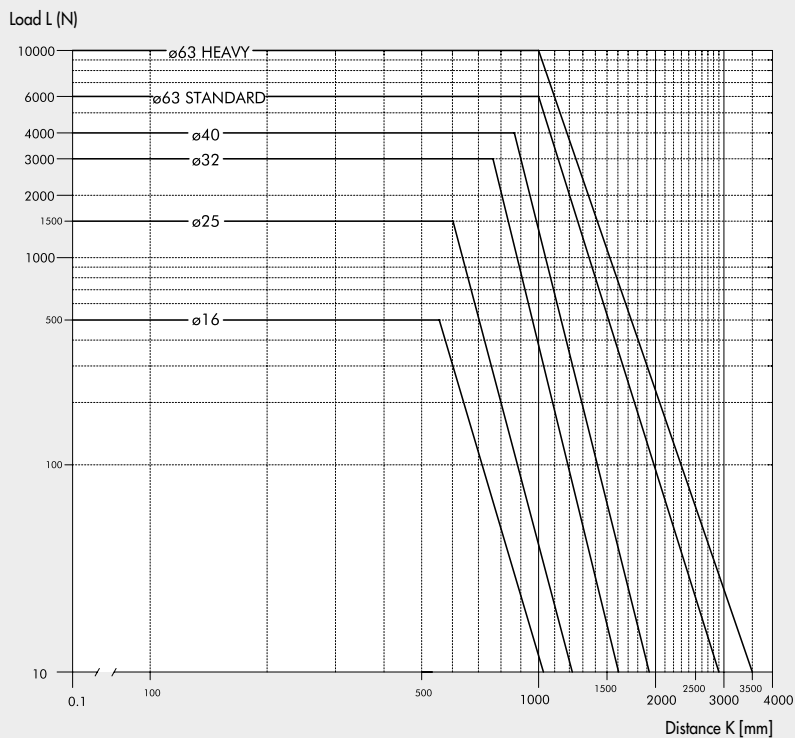
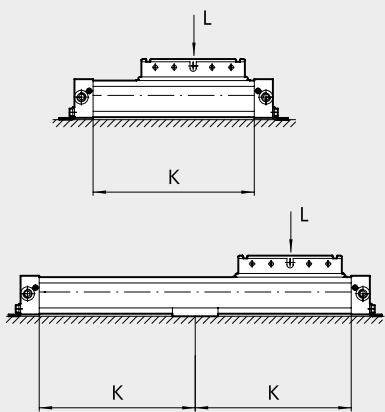
$$\frac{Ma}{Ma_{max}} + \frac{Mr}{Mr_{max}} + \frac{Mv}{Mv_{max}} + \frac{L}{L_{max}} + \frac{G}{G_{max}} \leq 1$$

**DIAGRAM OF SPEED AND MAXIMUM CUSHIONABLE LOAD**

For the cylinder to reach the end-of-stroke position without intense or repeated impact which would damage it, it is necessary to annul the kinetic energy of the moving mass and the work generated. The maximum cushionable load depends on the traversing speed and the absorption of the air buffer supplied standard with the various cylinders. The diagram shows the speeds and cushionable mass for the various diameters at a pressure of 6 bar.

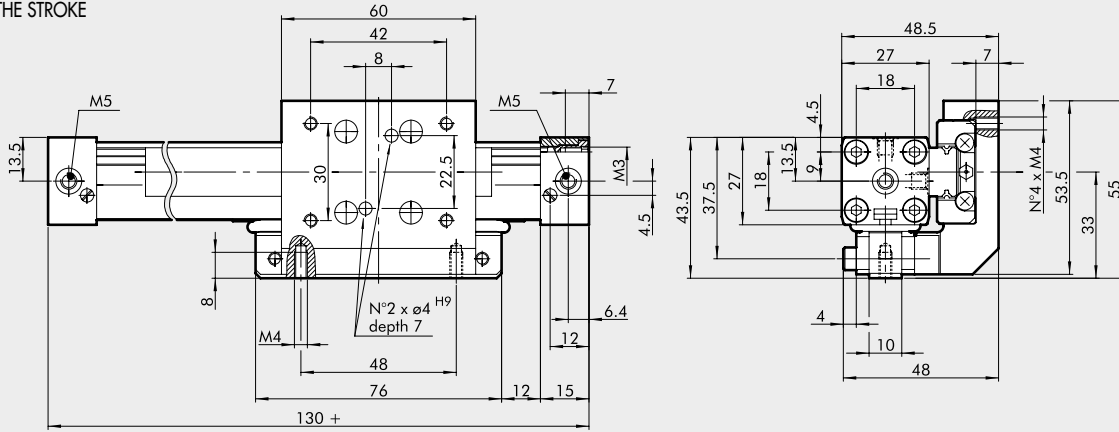


**MAXIMUM LOAD ACCORDING TO THE DISTANCE BETWEEN SUPPORTS**



**DIMENSIONS Ø 16**

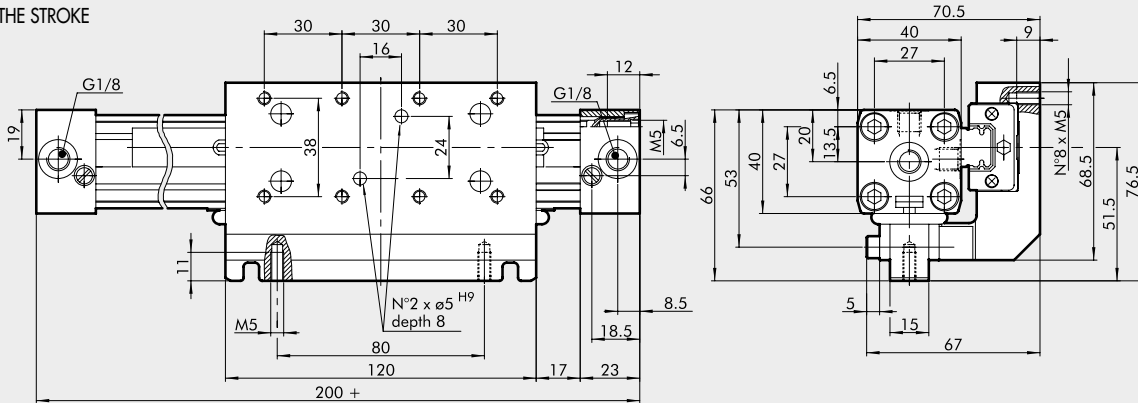
+ = ADD THE STROKE



275

**DIMENSIONS Ø 25**

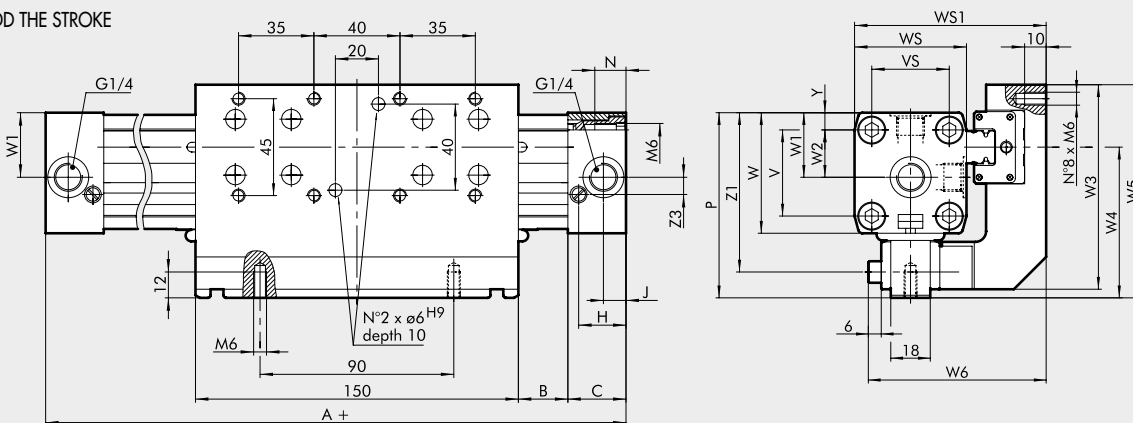
+ = ADD THE STROKE



275

**DIMENSIONS Ø 32; Ø 40**

+ = ADD THE STROKE

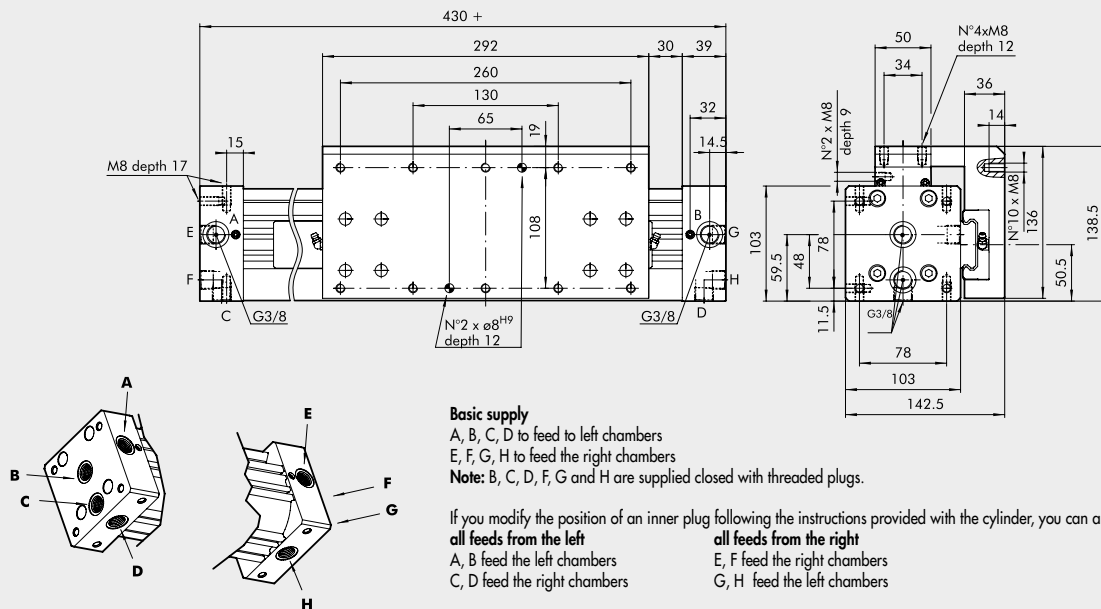


275

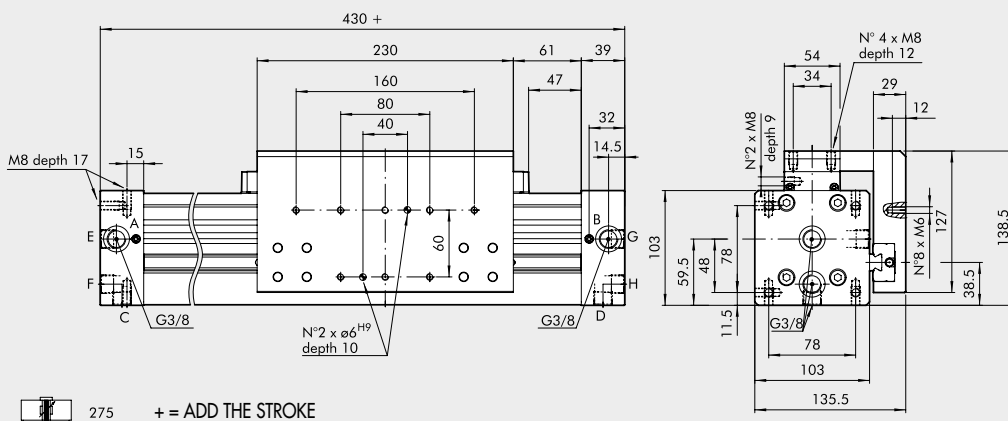
Ø	A	B	C	H	J	N	P	V	VS	W	WS	WS1	W1	W2	W3	W4	W5	W6	Y	Z1	Z3
32	250	23	27	22	10.5	14	86	40	36	56	52	85	30	22	95	70	99	78.5	8	74	8
40	300	45	30	24	15	17.5	97	54	54	69	72	104	36	27	98	73	102	88	9	85	11.8

**DIMENSIONS Ø 63**

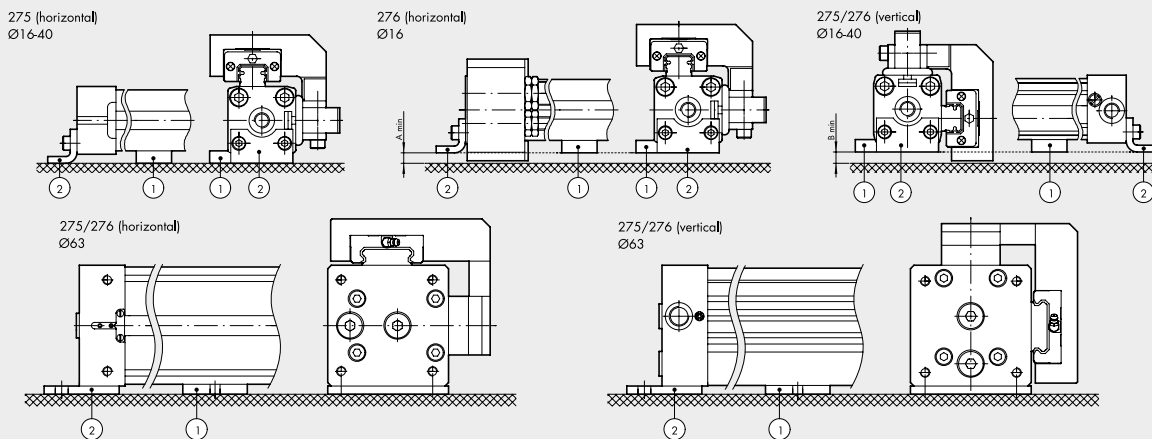
**HEAVY**



**STANDARD**

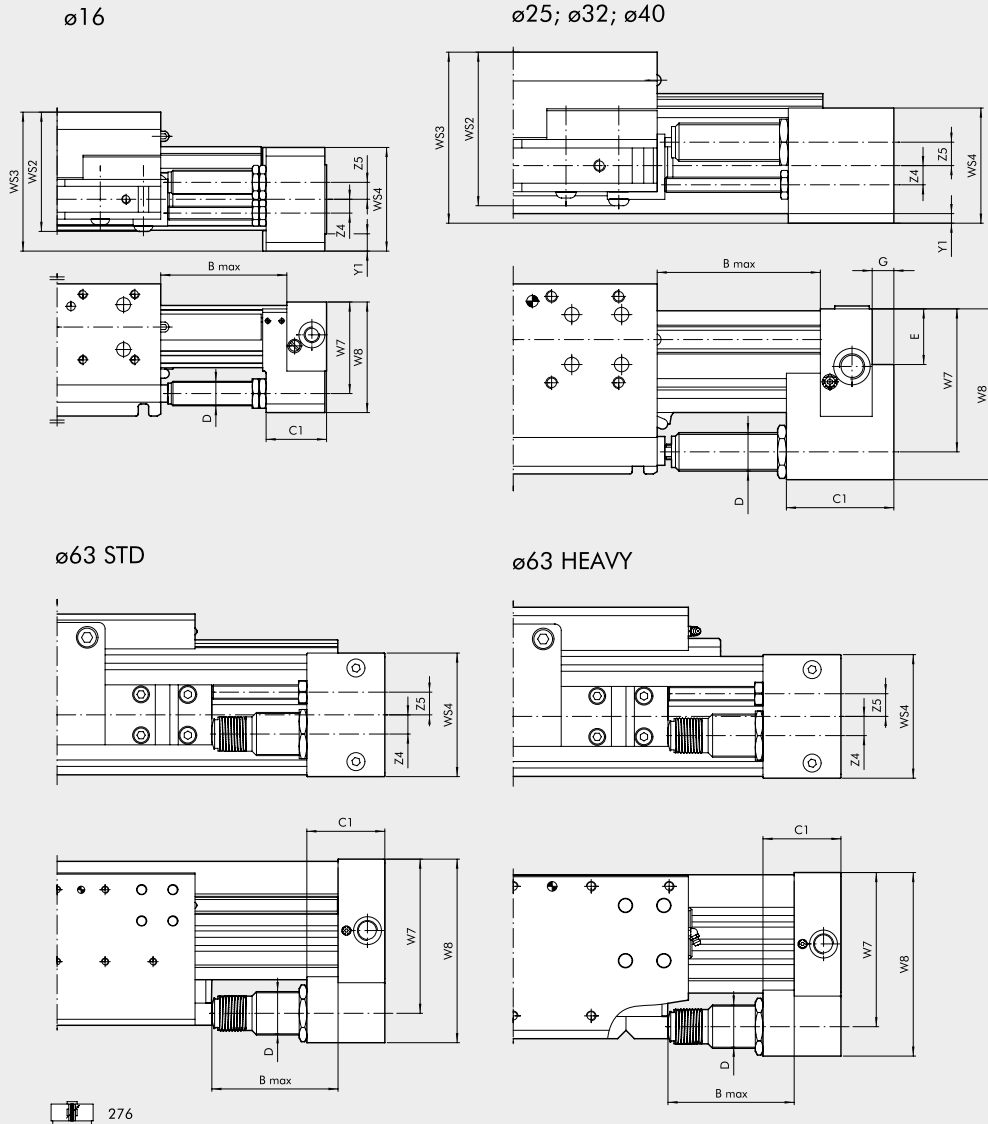


**ASSEMBLY DIAGRAMS**



Ø	Horizontal layout		Vertical layout	
	A min	Intern. support code (1)	B min	Intern. support code (1)
16	8	W0950164004	12	W0950164004
25	10	W0950254004	10	W0950254004
32	4	W0950324004	11	W0950324004
40	3	W0950404004	5	W0950404004
63	-	W0950637036	-	W0950637033

**DIMENSION VERSION WITH ADJUSTABLE LIMIT SWITCH AND SHOCK ABSORBERS Ø 16 to 63**



Ø	Version	B max	C1	D	E	G	W7	W8	WS2	WS3	WS4	Y1	Z4	Z5	Stroke	Max. cushioned force		Max. impact force [N]	Max. thrust force [N]
																Per stroke [J]	Per hour [J]		
16	-	50	22	M12x1	-	-	38	46	52	56	42	7.5	7	7.5	10.4	10	14125	1000	220
25	-	72	44	M14x1.5	17	9	53	67	71	80.5	50	5	8	9.8	16	26	34000	2800	530
32	-	90	56	M20x1.5	29	11	74	89	82.5	91	60	4	10	12.2	22	54	53700	3750	890
40	-	105	74	M25x1.5	32.8	14	89	108	92	108	75	1.5	12.5	12.7	25	90	70000	5500	1550
63	standard	105	65	M36x1.5	-	-	128.5	153	-	-	103	-	16	19	25	160	91000	11120	2220
63	heavy	105	65	M36x1.5	-	-	128.5	153	-	-	103	-	16	19	25	160	91000	11120	2220

For graphs to help choose shock absorbers see page A1.195

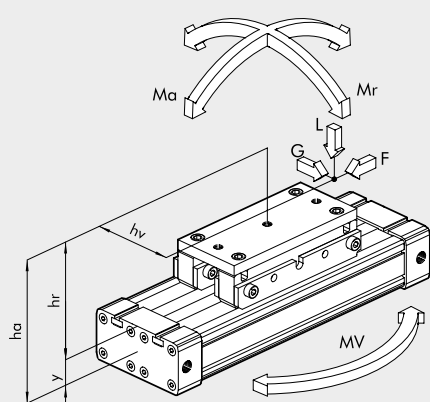
**KEY TO CODES**

CYL	2 7 TYPE	5	0	2 5 BORE	0 1 5 0 STROKE	C	N GASKETS
	27 Rodless cylinder	5 Double-acting cushioned magnetic with ball circulation guides 6 Double-acting cushioned magnetic with ball circulation guides + adjustable limit switch and shock absorbers	0 STD Magnetic S STD Non-magnetic ■ G STD No stick-slip A HEAVY Magnetic ■ B HEAVY No stick-slip C HEAVY Non-magnetic	16 25 32 40 63	Ø 16: 100 to 1350 mm Ø 25 - 32: 100 to 2300 mm Ø 40: 100 to 2250 mm Ø 63 std: 100 to 2100 mm Ø 63 heavy: 100 to 2650 mm		N NBR gasket ● V FKM/FPM gasket

■ For speeds lower than 0.2 m/s, to prevent surging. Use no-lubricated air only ● For speed ≥ 1/m/s

# RODLESS CYLINDER SERIES DOUBLE

## DIMENSIONING - FORCES AND MOMENTS



Bore	Actual force F at 6 bar [N]	Cushioning stroke [mm]	Max load L [N]	Ma max [Nm]	Mr max [Nm]	Mv max [Nm]
2x16	200	15	240	8	2.4	1
2x25	480	21	600	30	8	6
2x32	820	26	900	60	16.5	10

**N.B.:** When the cylinder is subjected simultaneously to torque and force, keep to the following equations, where the lengths have to be given in metres.

$$Ma = F \times ha \quad Mr = L \times hv + G \times hr \quad Mv = F \times hv$$

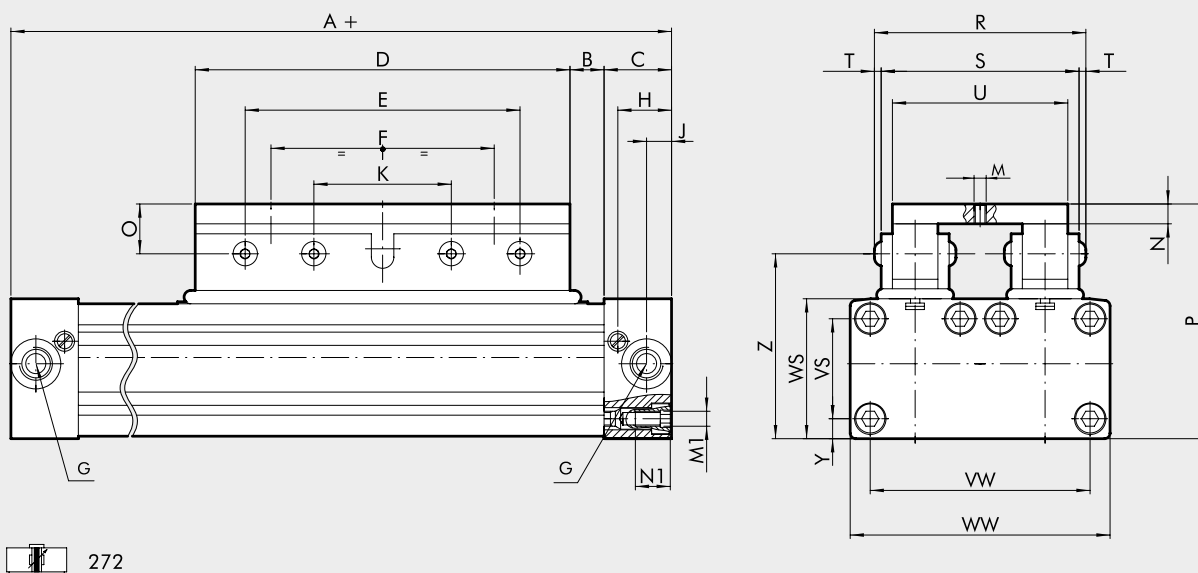
$$\frac{Mv}{Mv_{max}} \leq 1; \quad \frac{L}{L_{max}} \leq 1; \quad \frac{Ma}{Ma_{max}} + \frac{Mr}{Mr_{max}} + 0.22 \times \frac{Mv}{Mv_{max}} + 0.4 \times \frac{L}{L_{max}} \leq 1$$

For technical data, see **rodless cylinders - series STD**.

For weights, see cylinder **"General technical data"** at the beginning of the chapter.

## DIMENSIONS OF RODLESS CYLINDER, DOUBLE SERIES

+ = ADD THE STROKE

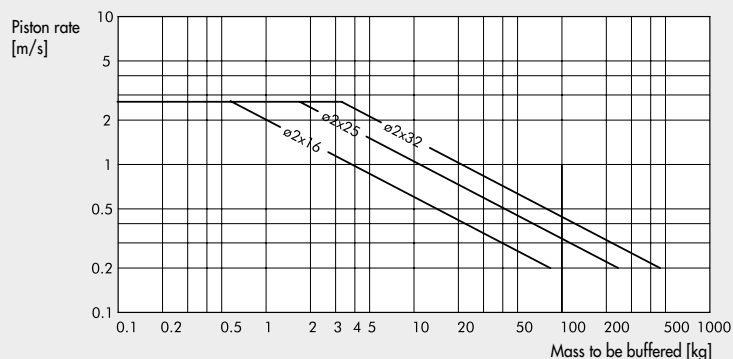


Ø	A	B	C	D	E	F	G	H	J	K	M	N	M1	N1	O	P	R	S	T	U	VW	VS	WW	WS	Y	Z
2x16	130	12	15	76	64	48	M5	12	6.4	32	M5	10	M3	7	16	53.5	48	42	3	34	42	18	51	27	4.5	37.5
2x25	200	17	23	120	100	80	1/8	18.5	8.5	50	M6	15	M5	12	20	74	66	59	3.5	50	63	27	72	41	7	53.5
2x32	250	23	27	150	110	90	1/4	22.5	10.5	55	M6	12	M6	14	20	95	86.5	77.5	4.5	70	86	40	100	56	8	74

## DIAGRAM OF SPEED AND MAXIMUM CUSHIONABLE LOAD

For the cylinder to reach the end-of-stroke position without intense or repeated impact which would damage it, it is necessary to annul the kinetic energy of the moving mass and the work generated.

The maximum cushionable load depends on the traversing speed and the absorption of the air buffer supplied standard with the various cylinders. The diagram shows the speeds and cushionable mass for the various diameters at a pressure of 6 bar.

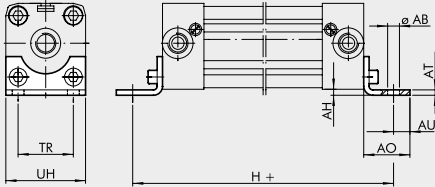


# ACCESSORIES AND SPARE PARTS FOR RODLESS CYLINDERS

## FIXINGS FOR RODLESS STD, "V" GUIDE, WITH BALL RECIRCULATING GUIDE CYLINDERS

### FOOT Ø 16; 25

+ = ADDED STROKE

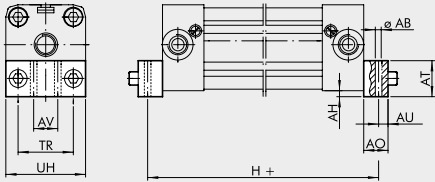


Code	Ø	ØAB	AH	AO	AT	AU	TR	UH	H	Weight [g]
W0950167001	16	3.6	1.5	14	1.6	4	18	26	150	10
W0950257001	25	5.5	2	22	2.5	6	27	40	232	32

Note: Individually packed with 2 screws

### FOOT Ø 32; 40

+ = ADDED STROKE

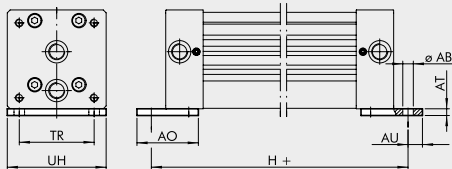


Code	Ø	ØAB	AH	AO	AT	AU	AV	TR	UH	H	Weight [g]
W0950327001	32	6.6	4	25	20	8	20	36	51	284	88
W0950407001	40	9	2	25	20	11.5	30	54	71	327	112

Note: Individually packed with 2 screws

### FOOT Ø 63

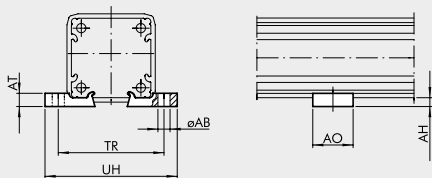
+ = ADDED STROKE



Code	Ø	ØAB	AT	AO	AU	TR	UH	H	Weight [g]
W0950637001	63	11	7	64	15	78	103	460	360

Note: Individually packed with 2 screws

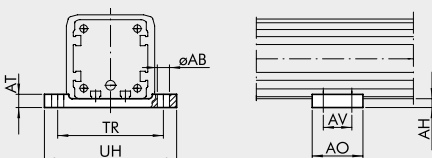
### INTERMEDIATE FOOT Ø 16; 25 FOR STD AND "V" GUIDE



Code	Ø	ØAB	AH	AO	AT	TR	UH	Weight [g]
W0950167031	16	5.5	3	20	5	41	53	4
W0950257031	25	5.5	4	20	6	48	60	6
0950254094*	25	5.5	4	20	6	48	60	6

Note: Individually packed.  
\* For the "V" guide version only

### INTERMEDIATE FOOT Ø 32; 40 FOR STD AND "V" GUIDE



Code	Ø	ØAB	AH	AO	AT	AV	TR	UH	Weight [g]
W0950327032	32	6.5	5	55	8	40	61.5	73	72
W0950407032	40	6.5	7	60	8	45	70-75	85	104

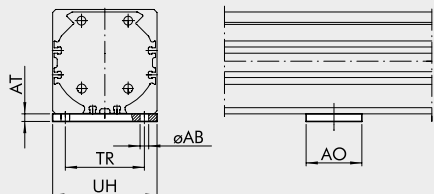
Note: plate supplied complete with 4 screws, 4 fixing plates



**INTERMEDIATE SUPPORT Ø 63 FOR VERSION STD, "V" GUIDE AND VERTICAL POSITION BALL RECIRCULATING**

Code	Ø	ØAB	AO	AT	TR	UH	Weight [g]
W0950637032	63	8.5	55	7.5	78	103	330

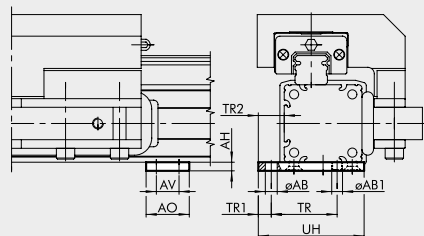
Note: plate supplied complete with 4 screws, 4 fixing plates



**INTERMEDIATE SUPPORT Ø 16 to 25 FOR BALL RECIRCULATING**

Code	Ø	ØAB	ØAB1	AH	AO	AV	TR	TR1	TR2	UH
W0950164004	16	3.5	M3	3	12	6	20	4	8	32.5
W0950254004	25	5.5	M5	4	20	10.5	30.5	6	12	49

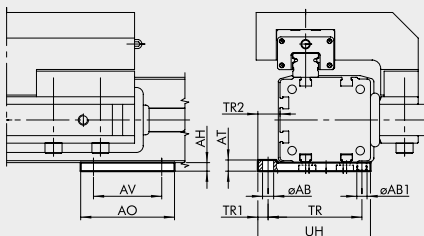
Note: Supplied complete with 4 screws



**INTERMEDIATE SUPPORT Ø 32 to 40 FOR BALL RECIRCULATING**

Code	Ø	ØAB	ØAB1	AH	AO	AT	AV	TR	TR1	TR2	UH
W0950324004	32	6.5	M6	5	55	5	40	55	6	13	66
W0950404004	40	6.5	M6	6.6	60	8	45	63	7.5	15	77

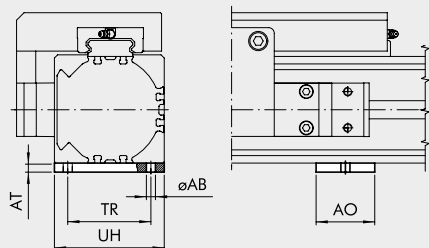
Note: Supplied complete with 4 screws, 4 plates.



**INTERMEDIATE SUPPORT KIT Ø 63 FOR HORIZONTAL POSITION BALL RECIRCULATING**

Code	Ø	ØAB	AH	AO	AT	TR	UH
W0950637036	63	8.5	7.5	55	8.5	78	103

Note: Supplied complete with 4 screws, 4 plates.

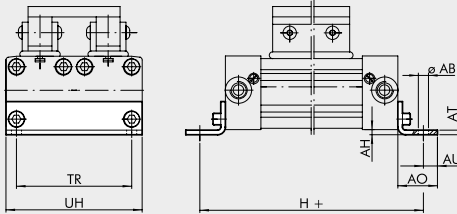


**NOTES**

## FIXINGS FOR RODLESS CYLINDER SERIE DOUBLE

### FOOT Ø 16; 25

+ = ADD STROKE

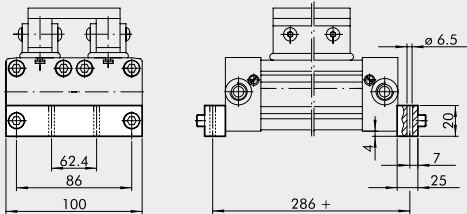


Code	Ø	ØAB	AH	AO	AT	AU	TR	UH	H	Weight [g]
W0950168001	2x16	3.6	1.5	14	1.6	4	42	51	150	18
W0950258001	2x25	5.5	2	22	2.5	6	63	72	232	54

Note: Individually packed complete with 2 screws

### FOOT Ø 32

+ = ADD STROKE

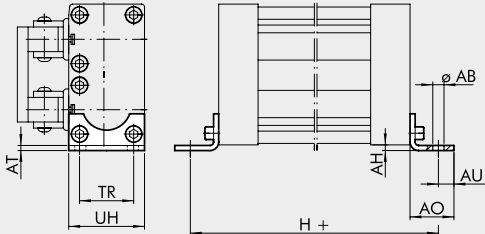


Code	Description	Weight [g]
W0950328036	Foot DOUBLE Ø 32	156

Note: Individually packed complete with 2 screws

### VERTICAL FOOT Ø 16; 25

+ = ADD STROKE

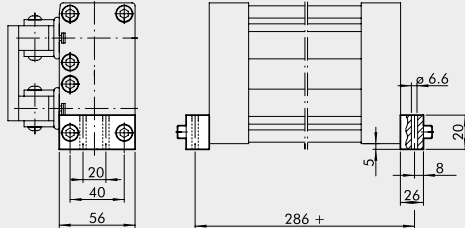


Code	Ø	ØAB	AH	AO	AT	AU	TR	UH	H	Weight [g]
W0950167001	2x16	3.6	1.5	14	1.6	4	18	26	150	10
W0950257001	2x25	5.5	4	22	2.5	6	27	40	232	32

Note: Individually packed complete with 2 screws

### VERTICAL FOOT Ø 32

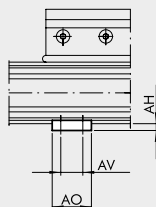
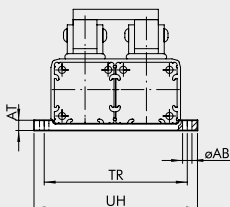
+ = ADD STROKE



Code	Description	Weight [g]
W0950328035	Vertical foot Ø 32	92

Note: Individually packed complete with 2 screws

### INTERMEDIATE FOOT Ø 16 to 32



Code	Ø	ØAB	AH	AO	AT	AV	TR	UH	Weight [g]
W0950168037	2x16	3.5	3	12	6	6	60.5	64	16
W0950258037	2x25	5.5	4	20	6	10.5	84.5	96	34
W0950328037	2x32	6.5	5	55	8	40	111.5	123	96

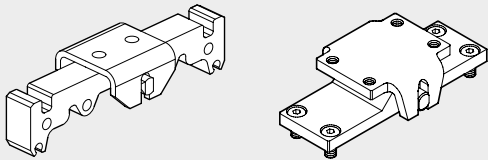
Note: Supplied complete with 8 screws, 8 fixing plates (plates for Ø 32 only)

## ACCESSORIES FOR CONVERTING STD RODLESS CYLINDERS INTO SWING CYLINDERS

### KIT TO TRANSFORM INTO SWING VERSION

Ø16 to 40

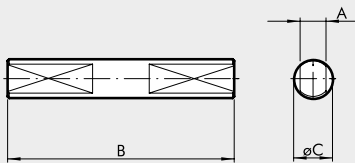
Ø63



Code	Ø	Weight [g]
W0950167035	16	34
W0950257035	25	118
W0950327035	32	450
W0950327035	40	450
W0950637035	63	810

Note: Ø 16 to 40: Supplied complete with 1 adaptor, 1 support, 1 pin, 1 bushing  
 Ø 63: Supplied complete with 1 plate, 1 support, 1 pin, 2 bushings, 4 screws

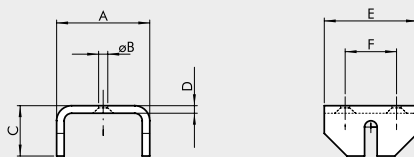
### DRIVE PIN



Code	Ø	A	B	ØC	Weight [g]
W0950167034	16	2.9	28	5	6
W0950257034	25	5	42	8	16
W0950327034	32	8	70	12	52
W0950327034	40	8	70	12	52
W0950637034	63	10	82	14	100

Note: Individually packed

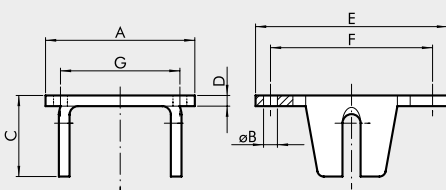
### SWING SUPPORT Ø 16; 25



Code	Ø	A	ØB	C	D	E	F	Weight [g]
W0950167033	16	25	4.5	13	2	20	10	14
W0950257033	25	37	5.5	20	3	30	16	40

Note: Individually packed

### SWING SUPPORT Ø 32; 40; 63



Code	Ø	A	ØB	C	D	E	F	G	Weight [g]
W0950327033	32	70	6.5	38	5	90	75	55	274
W0950327033	40	70	6.5	38	5	90	75	55	274
W0950637033	63	80	M8	32	8	80	65	37	400

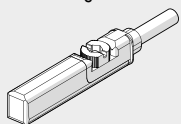
Note: Individually packed

## SENSOR MAGNETIC

### RETRACTABLE SENSOR

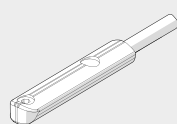
#### SENSOR, SQUARE TYPE

Latest generation, secure fixing



#### SENSOR, OVAL TYPE

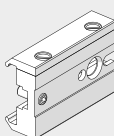
Traditional



For codes and technical data, see **chapter A6**.

Note: For rodless cylinders Ø25 having "V" guide use only the HS version of the oval type.

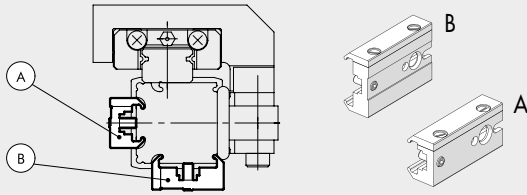
### SENSOR SUPPORT Ø 16; 25



Code	Description
0950164001	Sensor support STD

Note: Supplied with 1 stud pin, 2 screws

**SENSOR SUPPORT Ø 16 FOR RODLESS CYLINDER WITH BALL RECIRCULATING**

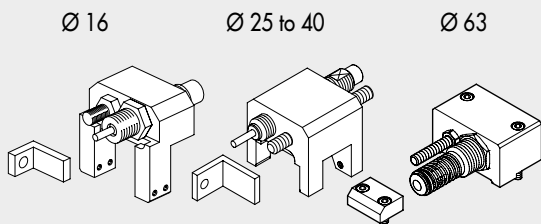


Code sensor support	Description sensor support	Type sensor support	Mounting on the carriage opposite side	Mounting on the guide opposite side
0950164003	Sensor support short	A	•	
0950164001	Sensor support std	B		•

Note: Supplied complete with 2 screws, 1 pin

**SHOCK ABSORBERS**

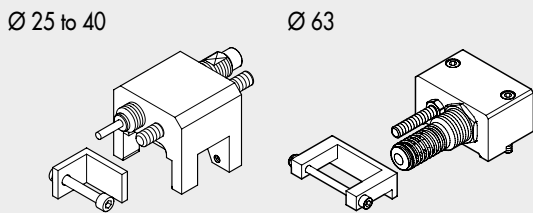
**ADJUSTABLE LIMIT SWITCH AND SHOCK ABSORBERS KIT**



Code	Description	Weight [g]
0950164002	Rodless cylinder limit switch and shock absorbers Ø 16	125
0950254002	Rodless cylinder limit switch and shock absorbers Ø 25	260
0950324002	Rodless cylinder limit switch and shock absorbers Ø 32	460
0950404002	Rodless cylinder limit switch and shock absorbers Ø 40	730
0950634002	Rodless cylinder limit switch and shock absorbers Ø 63	1620

Note: Supplied complete with 1 shock absorber support, 1 standard shock absorber, 1 shock absorber nut, 1 limit switch grub screw, 1 grub screw nut (2 for Ø 63), 1 bracket, 1 bracket screw, 4 locking grub screws (for Ø 16 and Ø 25), 4 locking plates and 4 screws (for Ø 32 and Ø 40)

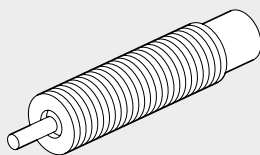
**ADJUSTABLE LIMIT SWITCH AND SHOCK ABSORBERS KIT FOR RODLESS CYLINDER WITH "V" GUIDE**



Code	Description	Weight [g]
0950254004	Rodless cylinder limit switch and shock absorbers Ø 25	260
0950324004	Rodless cylinder limit switch and shock absorbers Ø 32	460
0950404004	Rodless cylinder limit switch and shock absorbers Ø 40	730
0950634004	Rodless cylinder limit switch and shock absorbers Ø 63	1620

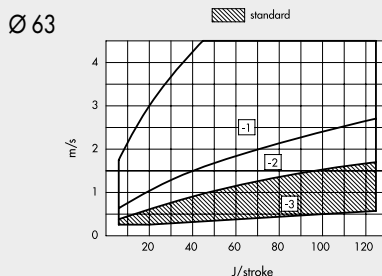
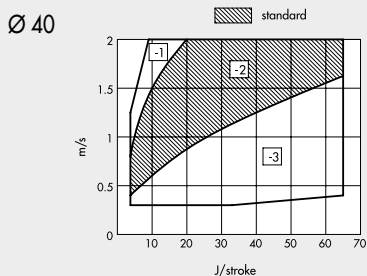
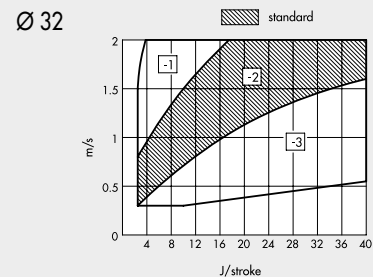
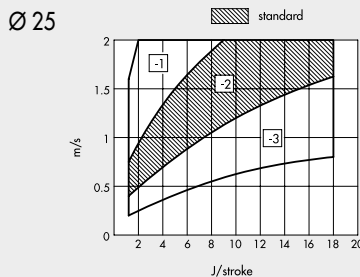
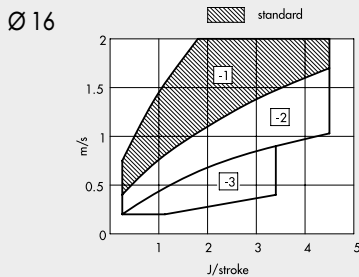
Note: Supplied complete with 1 shock absorber support, 1 standard shock absorber, 1 shock absorber nut, 1 limit switch grub screw, 1 grub screw nut (2 for Ø 63), 1 bracket, 1 bracket screw, 4 locking grub screws (for Ø 25), 4 locking plates and 4 screws (for Ø 32 and Ø 40)

**SHOCK ABSORBERS**



Code	Description	Ø
0950004003	Shock absorbers ECO15 MF1 + nut M12x1	16
0950004004	Shock absorbers ECO25 MC2 + nut M14x1.5	25
0950004005	Shock absorbers ECO50 MC2 + nut M20x1.5	32
0950004006	Shock absorbers ECO100 MF2 + nut M25x1.5	40
0950004007	Shock absorbers ECO125 MF3 + nut M36x1.5	63

**GRAPHS TO HELP CHOOSE THE RIGHT SHOCK ABSORBERS**



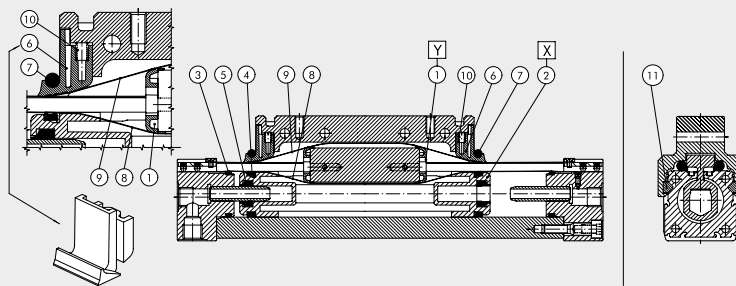
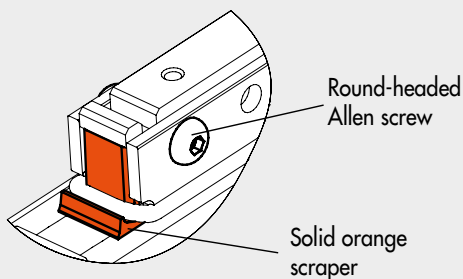
The dotted areas indicate that the SHOCK ABSORBERS is supplied standard. Other options can be selected depending on the speed [m/sec] and the maximum work force [J/stroke] to dissipate at each stroke. Refer to the diagrams above to select the correct option.

# SPARE PARTS FOR STD RODLESS CYLINDERS, "V" GUIDE, BALL RECIRCULATING GUIDE, DOUBLE

ACTUATORS

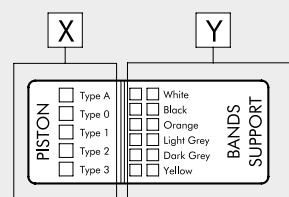
ACCESSORIES AND SPARE PARTS FOR RODLESS CYLINDERS

## "LAST RELEASE" CYLINDER



- ① Bands support Kit
- ② Piston kit
- ③ ④ ⑤ ⑥ ⑦ ⑩ NBR gaskets Kit (FKM/FPM for ⑦)
- ③ ④ ⑤ ⑥ ⑦ ⑩ FKM/FPM gaskets Kit
- ⑧ ⑨ Bands Kit (inner/outer)
- ⑪ "V" guide plate kit

Spare parts label on one cylinder side



### BANDS SUPPORT KIT POS 1 (Y)

Ø	Code White	Code Black	Code Orange	Code Light grey	Code Dark grey	Code Yellow
16	0090165080	0090165081	0090165082	0090165083	0090165084	0090165085
25	0090255080	0090255081	0090255082	0090255083	0090255084	0090255085
32	0090325080	0090325081	0090325082	0090325083	0090325084	0090325085
40	0090405080	0090405081	0090405082	0090405083	0090405084	0090405085
63	0090635080	0090635081	0090635082	0090635083	0090635084	0090635085

### BANDS KIT (INNER AND OUTER) POS 8-9

Ø	Code
16	0090166...
25	0090256...
32	0090326...
40	0090406...
63	0090636...

### "V" GUIDE PLATE KIT POS 11

Ø	Code
25	0090255060
32	0090325060
40	0090325060
63	0090635060

Complete the code with the 4 figure cylinder stroke

### PISTON KIT POS 2 (X)

Ø	Code Type 0 (0 rings)	Code Type 1 (1 rings)	Code Type 2 (2 rings)	Code Type 3 (3 rings)	Code Type A (4 rings)
16	0090165015	0090165016	0090165017	0090165018	-
25	0090255015	0090255016	0090255017	0090255018	0090255019
32	0090325015	0090325016	0090325017	0090325018	0090325019
40	0090405015	0090405016	0090405017	0090405018	-
63	0090635015	0090635016	0090635017	0090635018	-

### NBR GASKET KIT POS 3-4-5-6-7-10

Ø	Code
16	0090165022
25	0090255022
32	0090325022
40	0090405022
63	0090635022

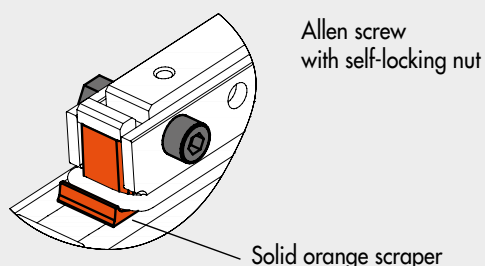
### FKM/FPM GASKET KIT POS 3-4-5-6-7-10

Ø	Code
16	0090165023
25	0090255023
32	0090325023
40	0090405023
63	0090635023

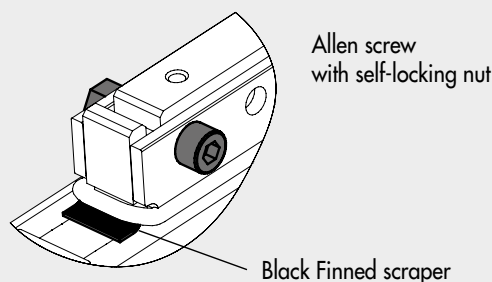
## NOTES

If the ends of the carriage appear as below indicated, please contact our commercial department for the spare parts

### "INTERMEDIATE RELEASE"



### "OLD RELEASE"



# RODLESS CYLINDER SERIES PU



Series PU rodless cylinders have an internal strip for longitudinal tightness made of polyurethane (PU) with a harmonic steel wire core. This solution gives excellent air tightness values. It is particularly suitable for high-speed and highly cyclical applications, even with long strokes.

The external strip, which merely provides protection against foreign bodies entry, is made of harmonic steel. The anodized aluminium cylinder liner has a T-slot on either side for housing the retracting sensors.

Cylinder control solenoid valves can also be housed in these slots and secured by means of plates and screws (see page A1.62). There are plastic anti-wear guide pads on either side of the carriage to increase the load capacity. They engage V-slots in the cylinder liner. All the cylinders incorporate adjustable pneumatic cushioning. One version has hydraulic decelerators + adjustable limit switches. These can also be added at a later stage by purchasing the relevant kit.

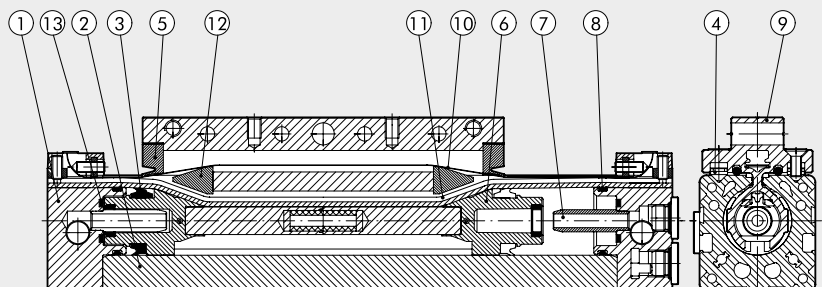
The balanced drive version avoids having to transmit transverse torques and forces to the carriage whenever the load is supported by guides outside the cylinder.



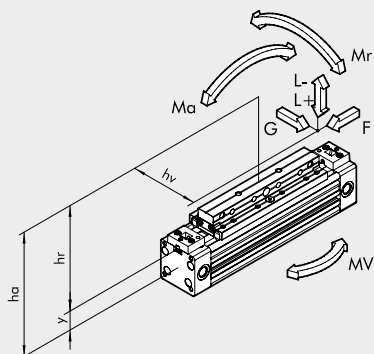
TECHNICAL DATA		Ø25	Ø32	Ø40	Ø50
Operating pressure	bar			1 to 8	
	MPa			0.1 to 0.8	
	psi			14.5 to 116	
Temperature range	°C			-10 to +80	
	Design	Double-acting rodless cylinder with direct transmission system			
Fluid		50 µm unlubricated filtered air Lubrication, if used, must be continuous			
Standard strokes	mm	100 to 5700			100 to 5600
Sensor magnet		Available magnetic and non-magnetic versions.			
Recommended speeds	m/s	< 2			
Max. speed with decelerators	m/s	< 2			
Weights		See cylinder "General technical data" at the beginning of the chapter			
Notes		For speeds lower than 0.2 m/s to prevent surging, use the version No stick-slip and non-lubricated air.			

## COMPONENTS

- ① CYLINDER HEAD: anodized aluminium alloy
- ② BARREL: profiled anodized aluminium alloy
- ③ PISTON GASKET: polyurethane
- ④ V-SHAPED GUIDE PAD: Hostaform®
- ⑤ DUST SCRAPER: Hostaform®
- ⑥ PISTON: Hostaform®
- ⑦ CUSHIONING CONE: anodized aluminium alloy
- ⑧ STATIC O-RINGS: NBR
- ⑨ SLIDE: anodized aluminium alloy
- ⑩ OUTER STRIP: stainless steel
- ⑪ INTERNAL STRAP: polyurethane + steel strands
- ⑫ DIRECTION CHANGE: Hostaform®
- ⑬ BUFFER: polyurethane



**DIMENSIONING - FORCE AND TORQUE**



Bore	Centre Distance Y	Cushioning stroke [mm]	Actual Force F at 6 bar [N]	G [N]	Max. load L+ [N]	Max. load L- [N]	Ma max [Nm]	Mr max [Nm]	Mv max [Nm]
25	16.5	20	250	350	480	350	22	5	10
32	20.1	24	420	450	650	450	40	10	20
40	25.3	33	640	750	900	750	70	26	35
50	30.4	39	1000	900	1100	900	90	32	45

**N.B.:** When the cylinder is subjected simultaneously to torque and force, keep to the following equations, where the lengths have to be given in metres.

$$Ma = F \times ha \quad Mr = L \times hv + G \times hr \quad Mv = F \times hv$$

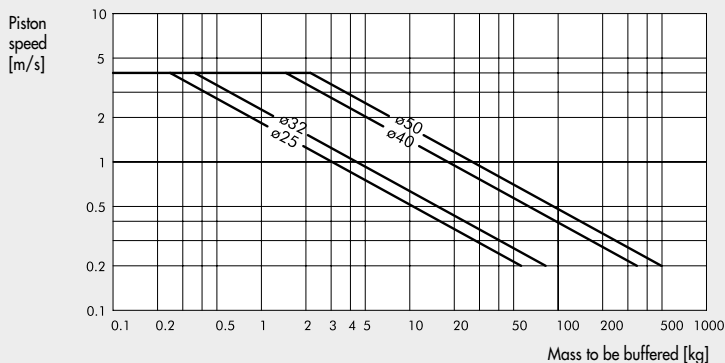
$$\frac{Mv}{Mv_{max}} \leq 1; \quad \frac{L}{L_{max}} \leq 1; \quad \frac{Ma}{Ma_{max}} + \frac{Mr}{Mr_{max}} + 0.22 \times \frac{Mv}{Mv_{max}} + 0.4 \frac{L}{L_{max}} \leq 1$$

**DIAGRAM OF SPEED AND MAXIMUM CUSHIONABLE LOAD**

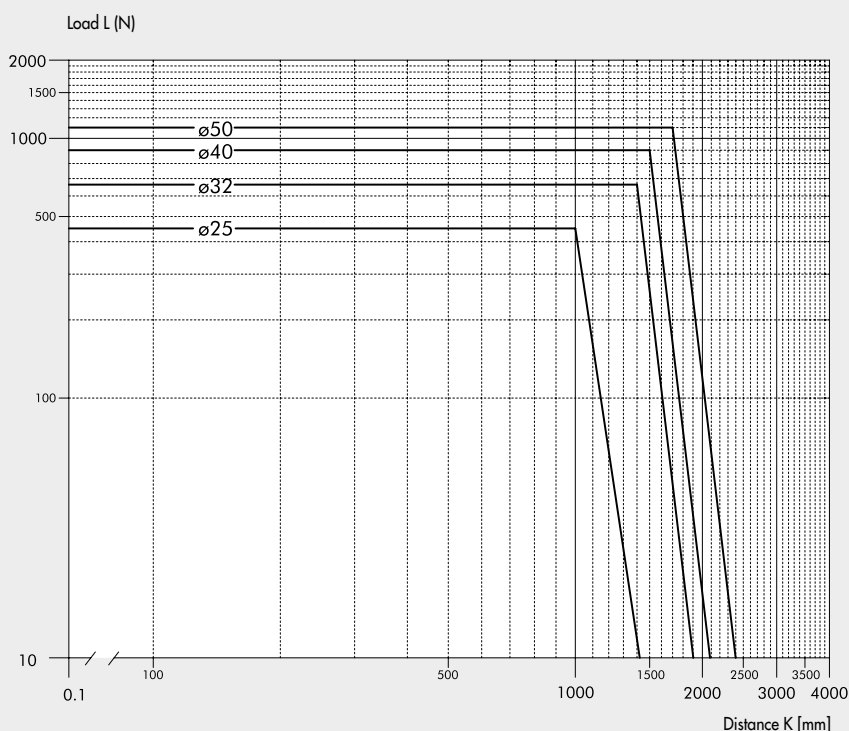
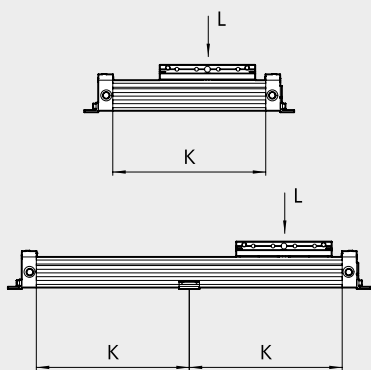
For the cylinder to reach the end-of-stroke position without intense or repeated impact which would damage it, it is necessary to annul the kinetic energy of the moving mass and the work generated.

The maximum cushionable load depends on the traversing speed and the absorption of the air buffer supplied standard with the various cylinders.

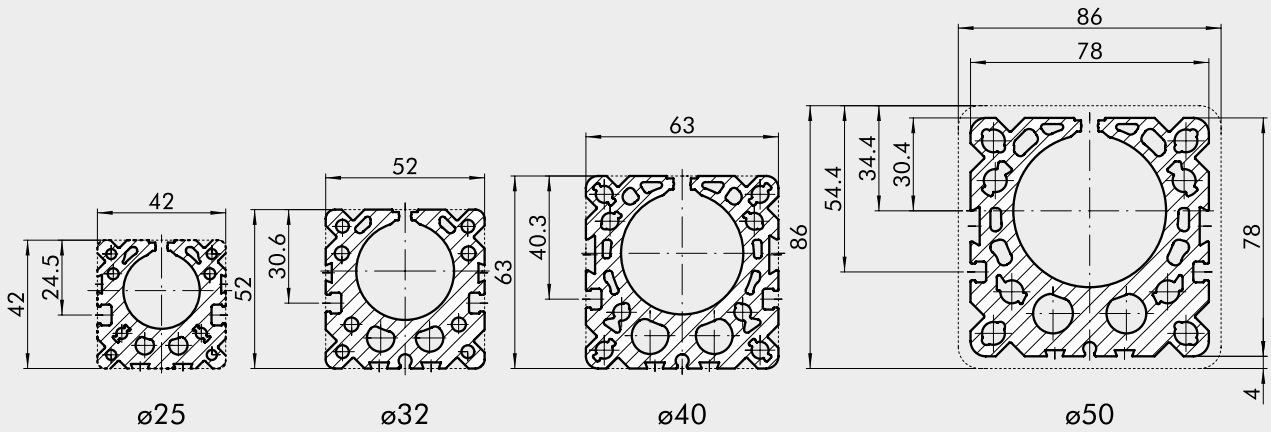
The diagram shows the speeds and cushionable mass for the various diameters at a pressure of 6 bar.



**MAXIMUM LOAD ACCORDING TO THE DISTANCE BETWEEN SUPPORTS**

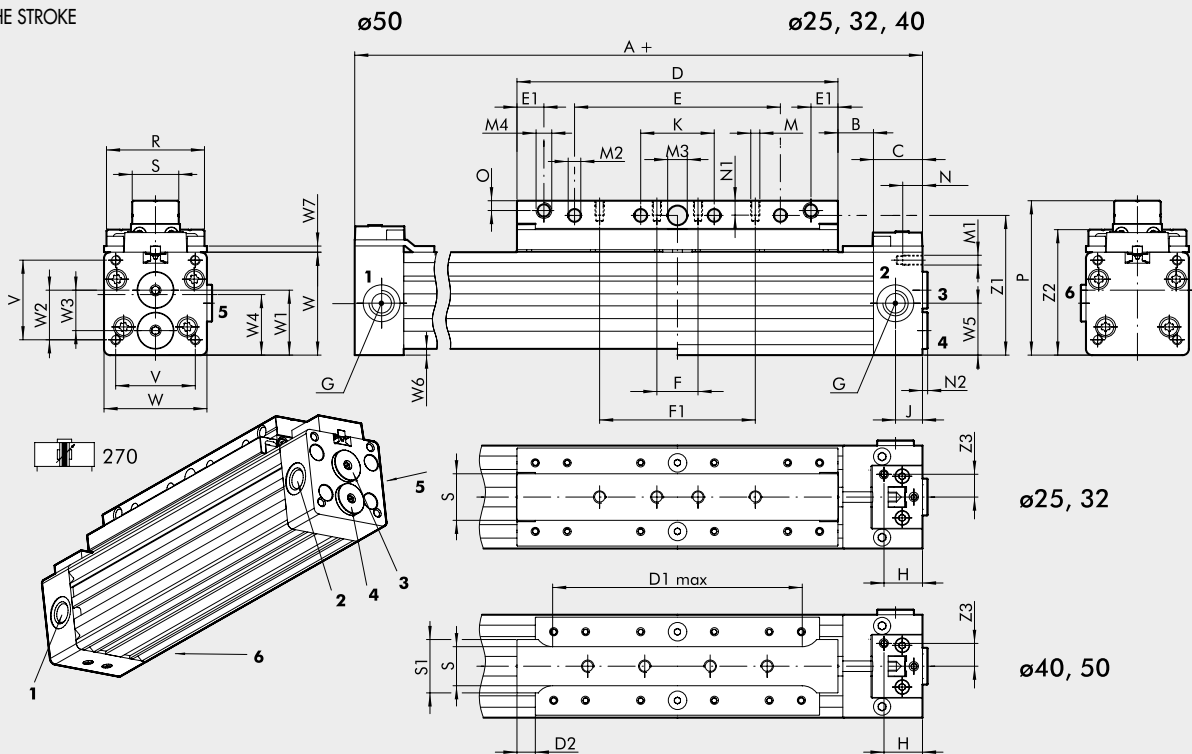


**BARREL CROSS SECTION**



**DIMENSIONS**

+ = ADD THE STROKE



1 and 6 feed the left-hand chamber from the left side  
 4 feeds the left-hand chamber from the right side  
 2, 3 and 5 feed the right-hand chamber from the right side  
 NOTE: 3, 4, 5 and 6 are closed with threaded caps

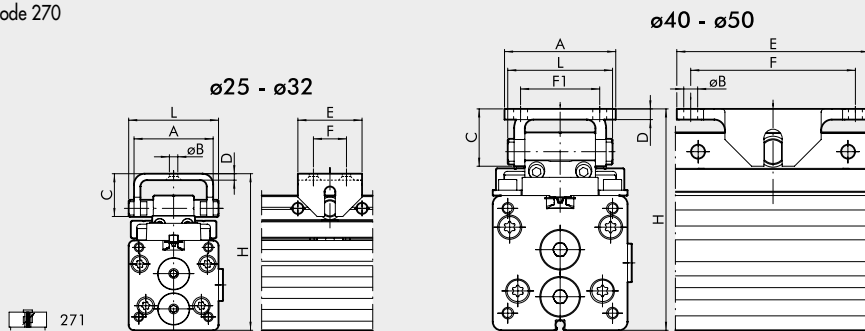
Ø	A	B	C	D	D1 max	D2	E	E1	F	F1	G	H	J	K	M	M1	M2	M3 H10	M4	N	N1	N2	O	P	R	S	S1	V	W	W1	W2
25	200	14.5	20	131	-	-	84	11	50	-	G1/8	15.7	11	30	M5	M4	5.2	8	M6	13	7.5	2.1	4	63	40	19	-	32.5	42	26.5	20.3
32	250	19.5	20	171	-	-	124	11	30	100	G1/8	15.7	11	50	M5	M5	5.2	8	M6	13.5	7.5	2.1	4	73	48	19	-	40	52	31.2	24.3
40	300	19.8	23	214.5	168	10	150	5.2	40	130	G1/4	18	12.5	70	M6	M5	6.5	10	M5	15	11	2	5.5	92.5	60	21	33	49	63	37.7	29.7
50	350	19.9	23	264.3	198	10	170	6.2	50	150	G1/4	18	12.5	80	M8	M6	8.5	12	M6	16	12.5	2	6.5	115	74	24	42	72	86	53.4	46.4

Ø	W3	W4	W5	W6	W7	Z1	Z2	Z3
25	16.5	25.5	21.2	-	2.5	57	51.2	9.3
32	19	31.9	27	-	2.5	67	61	9.3
40	22	37.7	31.5	-	2.5	83.5	75.7	11
50	31.8	51.6	43	4	2.5	106	97	11



**RODLESS CYLINDER WITH SWING CARRIAGE**

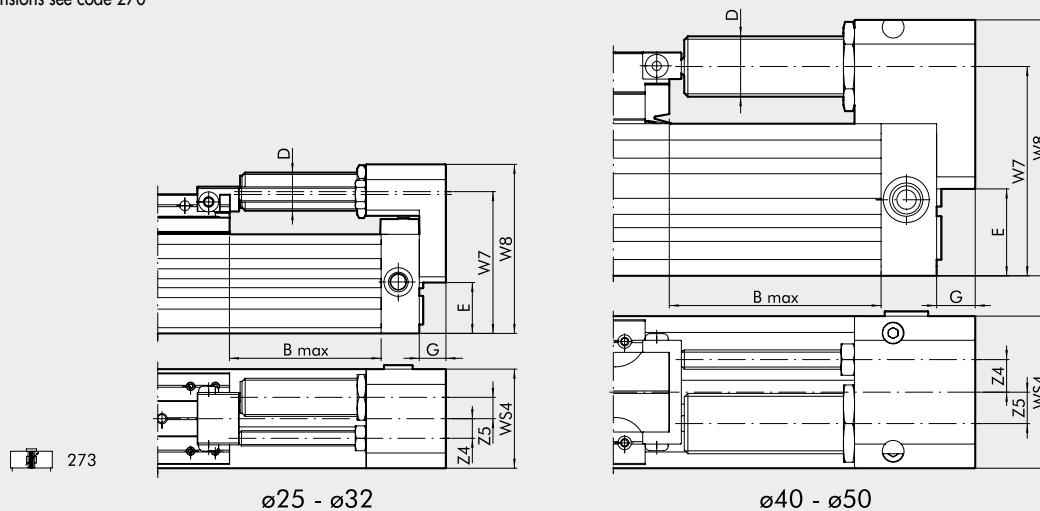
NOTE: For other dimensions see code 270



Ø	A	ØB	C	D	E	F	F1	H	L
25	37	5.5	20	3	30	16	-	73-75	42
32	37	5.5	20	3	30	16	-	83-85	42
40	52	6.5	26.8	5	90	77	37	103.5 - 105.5	49
50	52	6.5	26.8	5	90	77	37	125.3 - 128.3	49

**DIMENSIONS VERSION WITH ADJUSTABLE LIMIT SWITCH AND SHOCK ABSORBERS**

NOTE: For other dimensions see code 270



Ø	B Max	D	E	G	W7	W8	WS4	Z4	Z5	Stroke	Max. cushioned force		Max. impact force [N]	Max. thrust force [N]
											For stroke [J]	For hour [J]		
25	50	M14x1.5	21.5	12	61.5	72	42	9.2	6	16	26	34000	2800	530
32	75	M20x1.5	26.7	14	74.4	88.7	52	10.3	11.2	22	54	53700	3750	890
40	88	M25x1.5	36	16	86.7	106	63	13.5	13	25	90	70000	5500	1550
50	82	M25x1.5	49	20	108.5	129	86	17.5	9	25	90	70000	5500	1550

For graphs to help choose shock absorbers see page A1.211

**KEY TO CODES**

CYL	27 TYPE	0	3	2 5 BORE	0 100 STROKE	C	P GASKETS
	27 Rodless cylinder	0 Double-acting cushioned magnetic 1 Double-acting with swing carriage 3 Double-acting + adjustable limit switch and shock absorbers	3 Magnetic 4 No stick-slip 5 Non-magnetic	25 32 40 50	Ø 25 to 40: from 100 to 5700 mm Ø 50: from 100 to 5600 mm		P Polyurethane gaskets

■ For speeds lower than 0.2 m/s, to prevent surging. Use no-lubricated air only.

# RODLESS CYLINDER WITH "V" GUIDE SERIES PU



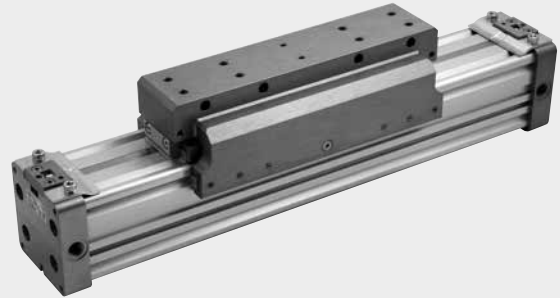
Series PU rodless cylinders have an internal strip for longitudinal tightness made of polyurethane (PU) with a harmonic steel wire core. This solution gives excellent air tightness values. It is particularly suitable for high-speed and highly cyclical applications, even with long strokes.

The external strip, which merely provides protection against foreign bodies entry, is made of harmonic steel. The anodized aluminium cylinder liner has a T-slot on either side for housing the retracting sensors.

Cylinder control solenoid valves can also be housed in these slots and secured by means of plates and screws (see page A1.62).

In order to increase the load capacity, side pads are mounted in addition to the guide pads normally present on the standard PU version. They run in grooves and support the central element (cap), which has a carriage-piston rocking coupling.

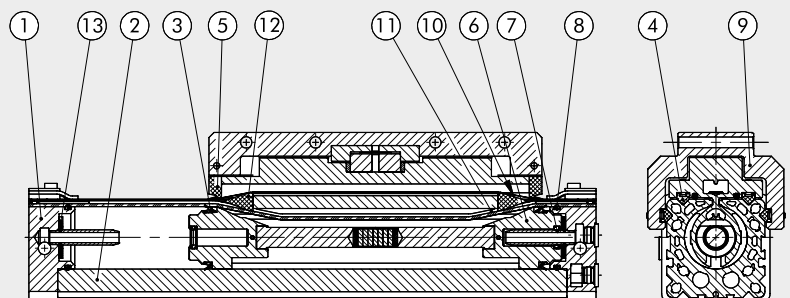
This means the carriage only transmits axial loads; it does not support loads and moments in other directions. Pad clearance can be adjusted by means of lateral threaded screws to reduce wear. The pads can be replaced without having to remove the cylinder. This family of cylinders has the same features as described for the basic version, such as built-in adjustable pneumatic cushioning and sensor and accessory slots. A version with adjustable limit switches and hydraulic decelerators is available. They can be purchased and added at any time, even to basic cylinders.



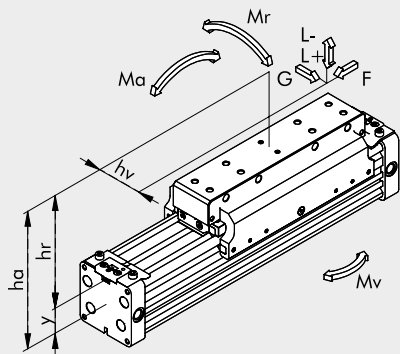
TECHNICAL DATA		Ø50
Operating pressure	bar	1 to 8
	MPa	0.1 to 0.8
	psi	14.5 to 116
Temperature range	°C	-10 to +80
	Design	Double-acting rodless cylinder with direct transmission system
Fluid		50 µm unlubricated filtered air Lubrication, if used, must be continuous
Standard strokes	mm	100 to 5600
Sensor magnet		Available magnetic and non-magnetic versions.
Recommended speeds	m/s	< 2
Max. speed with decelerators	m/s	< 2
Weights		See cylinder "General technical data" at the beginning of the chapter
Notes		For speeds lower than 0.2 m/s to prevent surging, use the version No stick-slip and non-lubricated air.

## COMPONENTS

- ① CYLINDER HEAD: anodized aluminium alloy
- ② BARREL: profiled anodized aluminium alloy
- ③ PISTON GASKET: polyurethane
- ④ V-SHAPED GUIDE PAD: Hostaform®
- ⑤ DUST SCRAPER: Hostaform®
- ⑥ PISTON: Hostaform®
- ⑦ CUSHIONING CONE: anodized aluminium alloy
- ⑧ STATIC O-RINGS: NBR
- ⑨ CENTRAL ELEMENT: anodized aluminium alloy
- ⑩ OUTER STRIP: stainless steel
- ⑪ INTERNAL STRAP: polyurethane + steel strands
- ⑫ DIRECTION CHANGE: Hostaform®
- ⑬ BUFFER: polyurethane



**DIMENSIONING - FORCE AND TORQUE**



Bore	Centre Distance Y	Cushioning stroke [mm]	Actual Force F at 6 bar [N]	G [N]	Max. load L+ [N]	Max. load L- [N]	Ma max [Nm]	Mr max [Nm]	Mv max [Nm]
50	30.4	39	850	1100	1400	1100	100	40	100

**N.B.:** When the cylinder is subjected simultaneously to torque and force, keep to the following equations, where the lengths have to be given in metres.

$$Ma = F \times ha \quad Mr = L \times hv + G \times hr \quad Mv = F \times hv$$

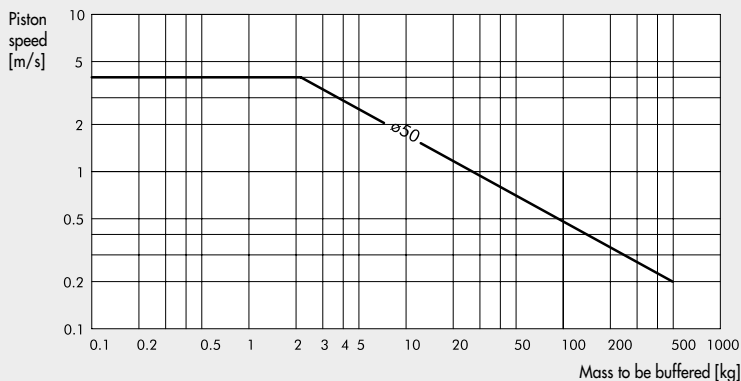
$$\frac{Mv}{Mv_{max}} \leq 1; \quad \frac{L}{L_{max}} \leq 1; \quad \frac{Ma}{Ma_{max}} + \frac{Mr}{Mr_{max}} + 0.22 \times \frac{Mv}{Mv_{max}} + 0.4 \frac{L}{L_{max}} \leq 1$$

**DIAGRAM OF SPEED AND MAXIMUM CUSHIONABLE LOAD**

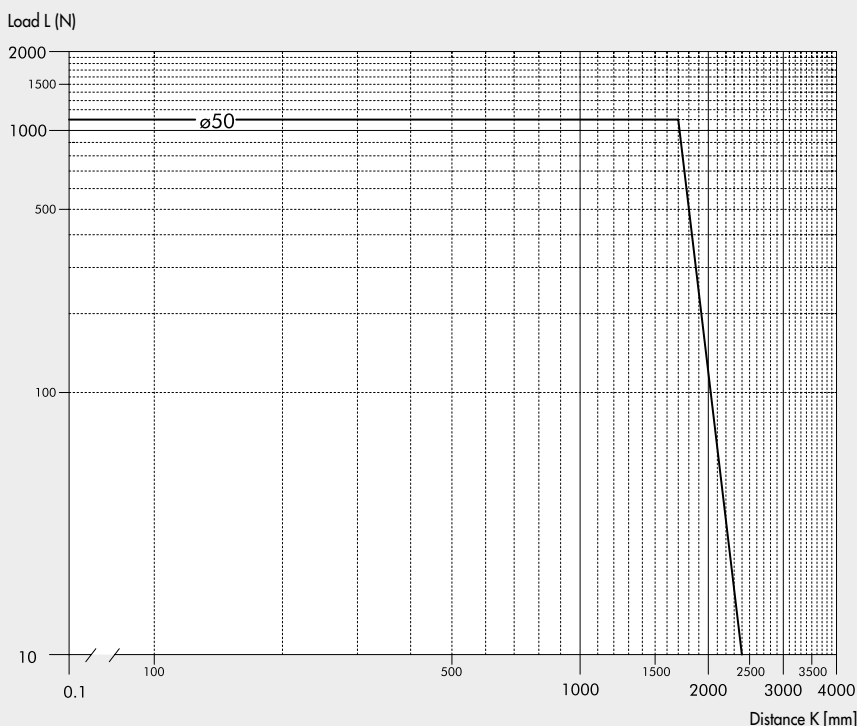
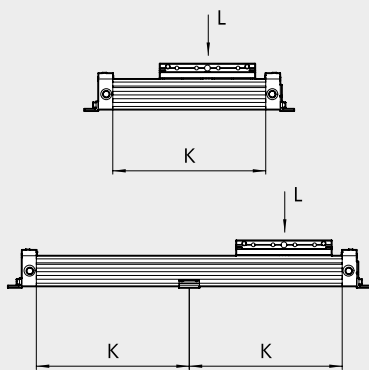
For the cylinder to reach the end-of-stroke position without intense or repeated impact which would damage it, it is necessary to annul the kinetic energy of the moving mass and the work generated.

The maximum cushionable load depends on the traversing speed and the absorption of the air buffer supplied standard with the various cylinders.

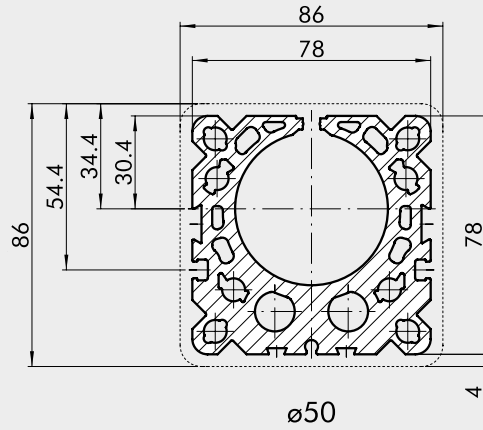
The diagram shows the speeds and cushionable mass for the various diameters at a pressure of 6 bar.



**MAXIMUM LOAD ACCORDING TO THE DISTANCE BETWEEN SUPPORTS**

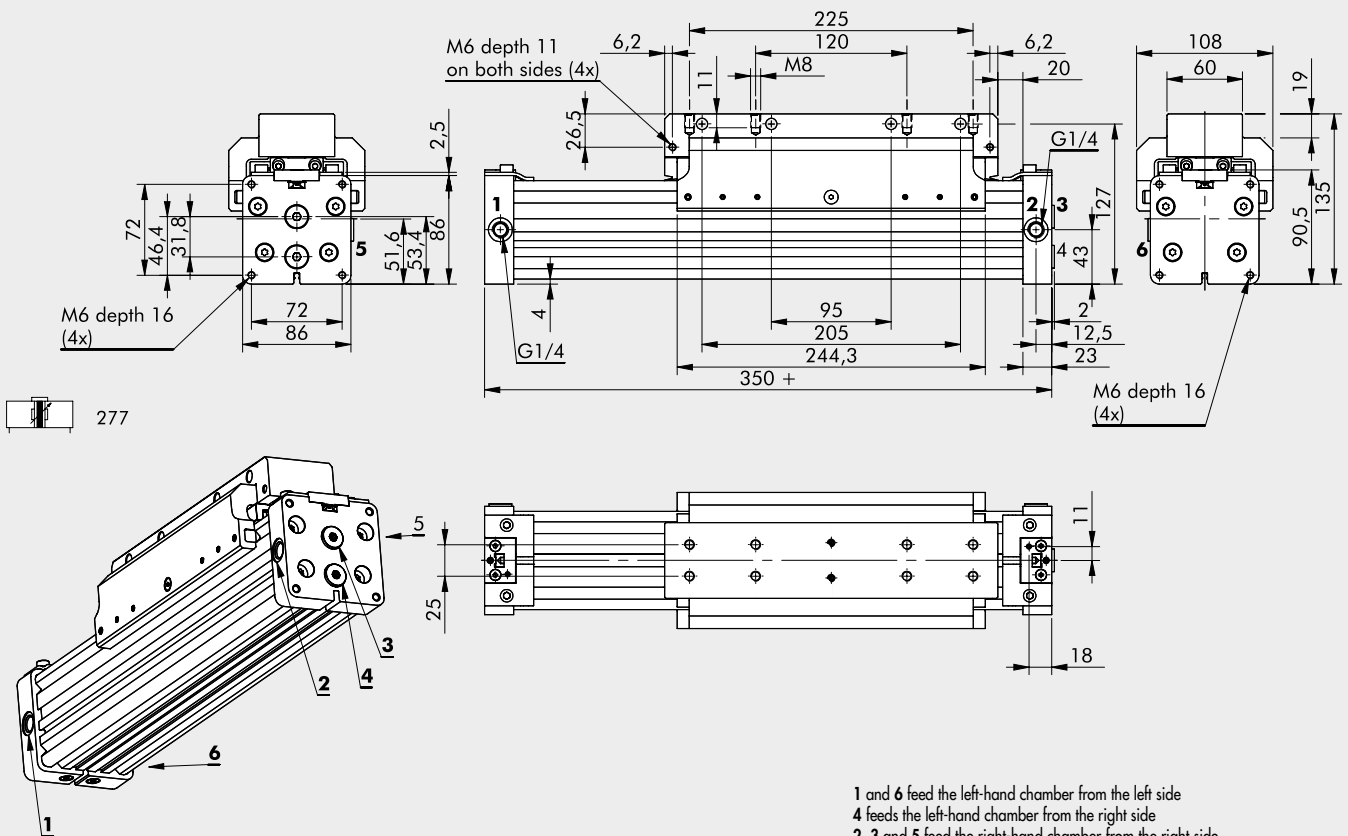


**BARREL CROSS SECTION**



**DIMENSIONS**

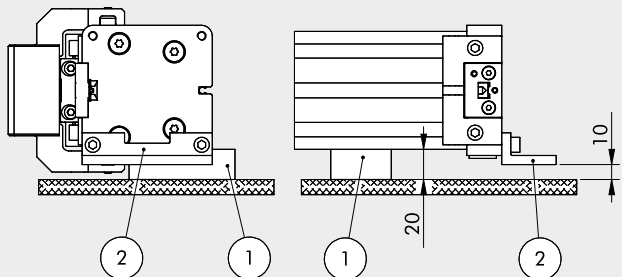
+ = ADD THE STROKE



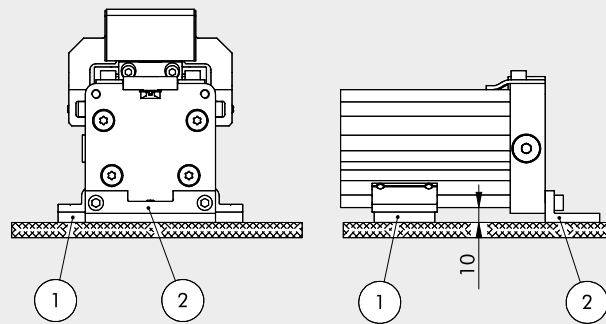
1 and 6 feed the left-hand chamber from the left side  
 4 feeds the left-hand chamber from the right side  
 2, 3 and 5 feed the right-hand chamber from the right side  
 NOTE: 3, 4, 5 and 6 are closed with threaded caps

ASSEMBLY DIAGRAMS

277 (horizontal)



277/278 (vertical)



HORIZONTAL LAYOUT

0950504052 Intermediate support code (1)

0950504041 Leg code (2)

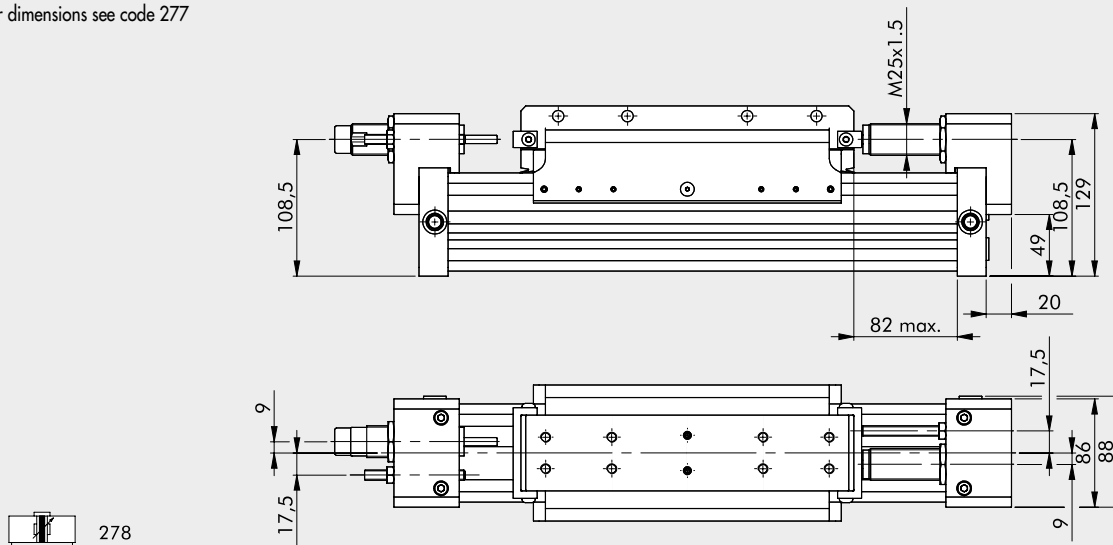
VERTICAL LAYOUT

W0950507038 Intermediate support code (1)

0950504041 Leg code (2)

DIMENSIONS VERSION WITH ADJUSTABLE LIMIT SWITCH AND SHOCK ABSORBERS

NOTE: For other dimensions see code 277



Ø	Cushioning stroke [mm]	Max. cushioned force		Max. impact force [N]	Max. thrust force [N]
		For stroke [J]	For hour [J]		
50	25	65	70000	5550	1500

For graphs to help choose shock absorbers see page A1.211

KEY TO CODES

CYL	27 TYPE	7	3	50 BORE	0100 STROKE	C	P GASKETS
	27 Rodless cylinder	7 Double acting cushioned magnetic with "V" guide 8 Double acting cushioned magnetic with "V" guide + adjustable limit switch and shock absorbers	3 Magnetic 4 No stick-slip 5 Non-magnetic	50	from 100 to 5600 mm		P Polyurethane gaskets

■ For speeds lower than 0.2 m/s, to prevent surging. Use no-lubricated air only.

# RODLESS CYLINDER WITH BALL RECIRCULATING GUIDE SERIES PU



Series PU rodless cylinders have an internal strip for longitudinal tightness made of polyurethane (PU) with a harmonic steel wire core. This solution gives excellent air tightness values. It is particularly suitable for high-speed and highly cyclical applications, even with long strokes.

The external strip, which merely provides protection against foreign bodies entry, is made of harmonic steel. The anodized aluminium cylinder liner has a T-slot on either side for housing the retracting sensors.

Cylinder control solenoid valves can also be housed in these slots and secured by means of plates and screws (see page A1.62).

A hardened and tempered steel guide is firmly connected to the side of the liner to increase overall performance. This gives the following features:

- very high load capacity with forces acting in any direction and no transmission to the cylinder carriage;
- ball recirculation pads constructed using special technology that makes them very silent during movement of the guide and gives very long maintenance time intervals; lubrication must be performed every 2000 km or once a year, using type 2 grease, preferably with a lithium soap base;
- extra-sturdy carriage support with numerous load fixing holes and centring pin holes;
- stroke range 100-2470 mm with 1 mm intervals.

One version has shock absorbers + adjustable limit switches.

These can also be added at a later stage by purchasing the relevant kit.



TECHNICAL DATA		Ø50
Operating pressure	bar	1 to 8
	MPa	0.1 to 0.8
	psi	14.5 to 116
Temperature range	°C	-10 to +80
Design		Double-acting rodless cylinder with direct transmission system
Fluid		50 µm unlubricated filtered air Lubrication, if used, must be continuous
Standard strokes	mm	100 to 2470
Sensor magnet		Available magnetic and non-magnetic versions.
Recommended speed	m/s	<2
Max. speed with decelerators	m/s	<2
Weights		See cylinder "General technical data" at the beginning of the chapter
Notes		For speeds lower than 0.2 m/s to prevent surging, use the version No stick-slip and non-lubricated air.

## COMPONENTS

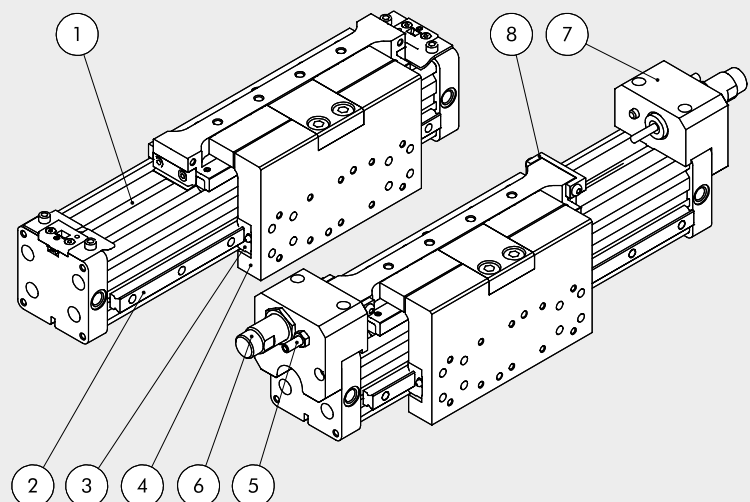
### For version 275

- ① CYLINDER: see components of rodless cylinders - series PU
- ② GUIDE: hardened steel
- ③ PAD: steel with hardened ball circulation
- ④ SLIDE SUPPORT: anodized aluminium

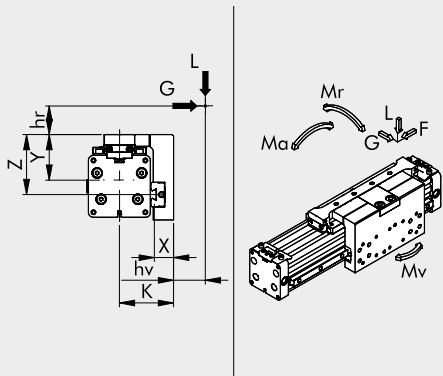
### For version 276

Besides the details specified above:

- ⑤ END-OF-STROKE STUD PIN: zinc-plated steel, complete with 2 zinc-plated nuts for fixing
- ⑥ SHOCK ABSORBER: burnished steel, complete with 2 zinc-plated or burnished nuts for fixing
- ⑦ DECELERATOR SUPPORT: anodized aluminium
- ⑧ BRACKET: hardened-and-tempered and zinc-plated steel



**DIMENSIONING - FORCES AND MOMENTS**



Bore	Actual force F at 6 bar [N]	Cushioning stroke [mm]	K [mm]	X [mm]	Y [mm]	Z [mm]	Max load L [N]	Max load G [N]	Ma max [Nm]	Mr max [Nm]	Mv max [Nm]
50	1000	39	75.1	26.6	63.3	83.3	4500	4500	260	140	260

**N.B.:** When the cylinder is subjected simultaneously to torque and force, keep to the following equations, where the lengths have to be given in metres.

$$Ma = F \times (hr + Y) \quad Mr = G \times (hr + z) + Lx (hv + X) \quad Mv = F \times (K + hv)$$

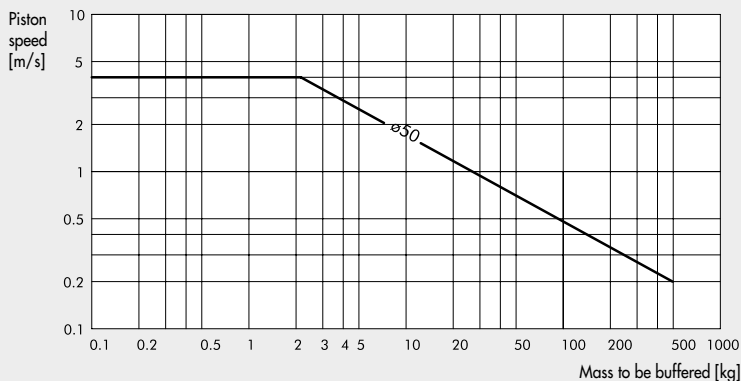
$$\frac{Ma}{Ma_{max}} + \frac{Mr}{Mr_{max}} + \frac{Mv}{Mv_{max}} + \frac{L}{L_{max}} + \frac{G}{G_{max}} \leq 1$$

**DIAGRAM OF SPEED AND MAXIMUM CUSHIONABLE LOAD**

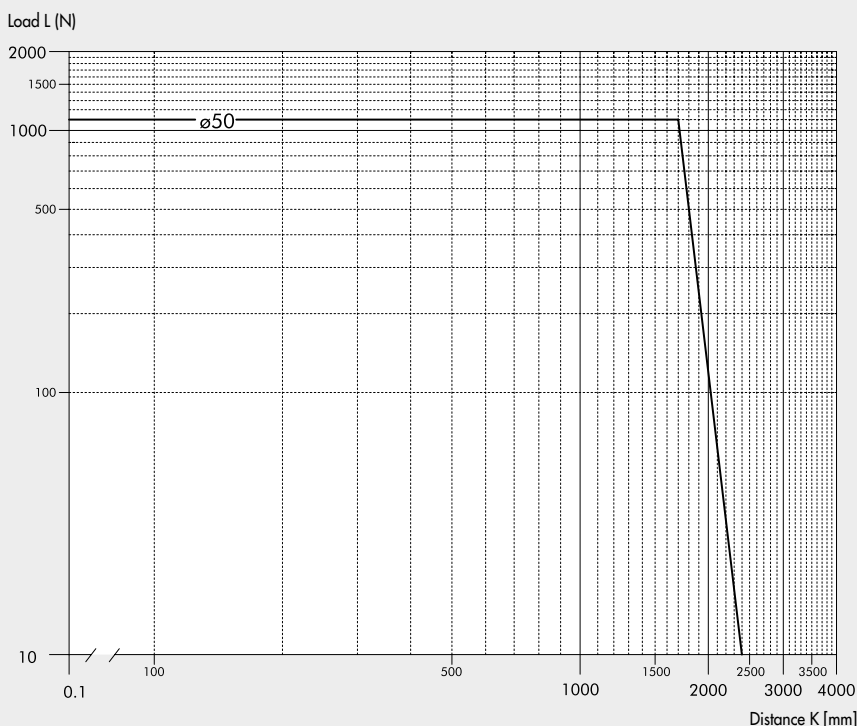
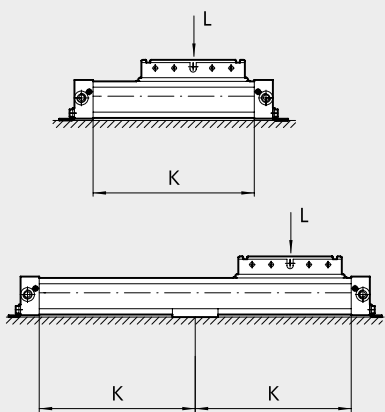
For the cylinder to reach the end-of-stroke position without intense or repeated impact which would damage it, it is necessary to annul the kinetic energy of the moving mass and the work generated.

The maximum cushionable load depends on the traversing speed and the absorption of the air buffer supplied standard with the various cylinders.

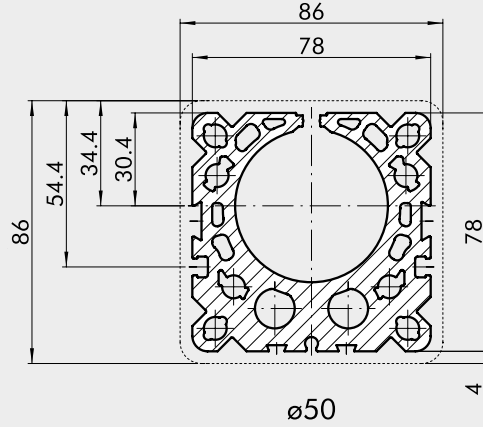
The diagram shows the speeds and cushionable mass for the various diameters at a pressure of 6 bar.



**MAXIMUM LOAD ACCORDING TO THE DISTANCE BETWEEN SUPPORTS**

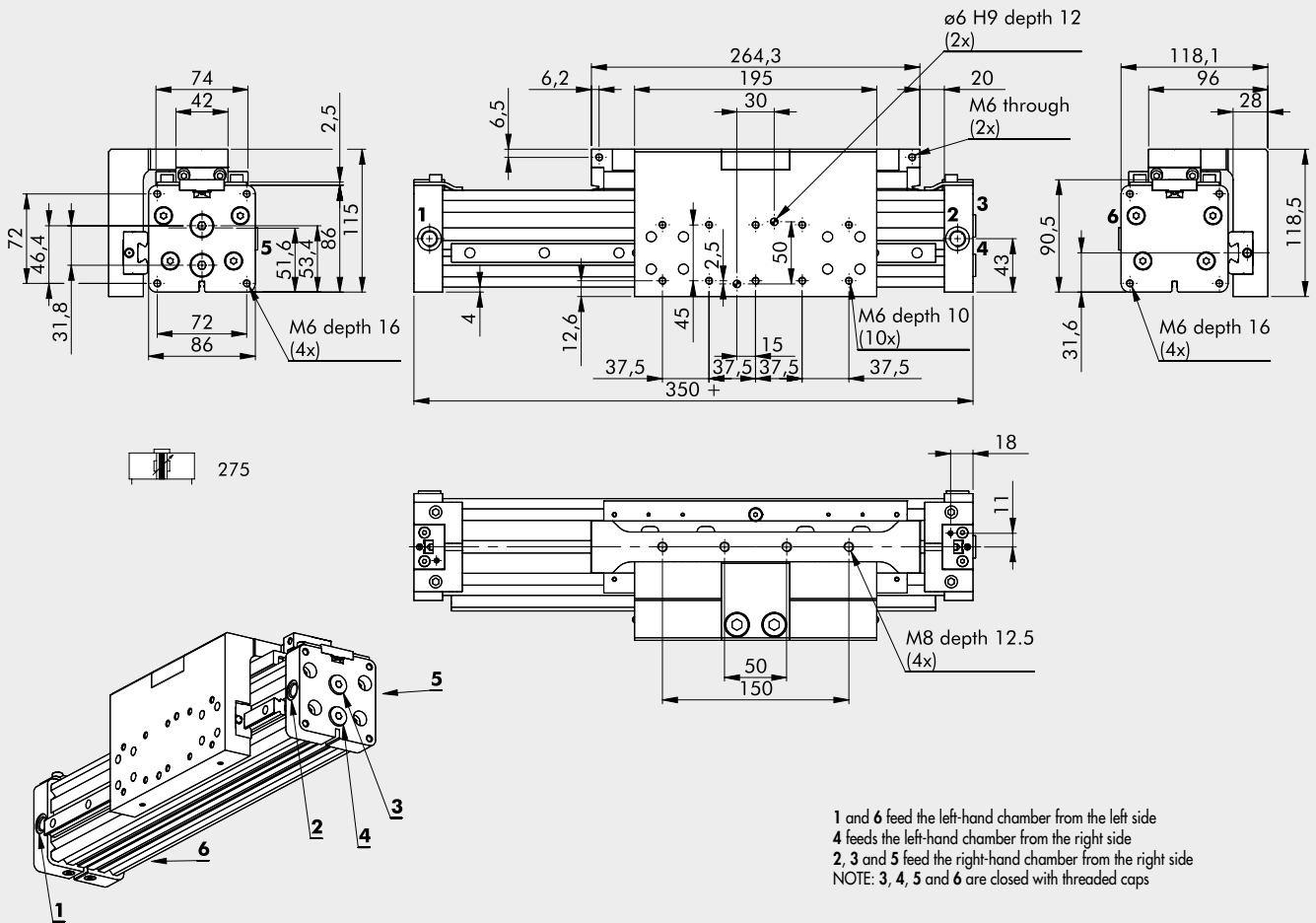


BARREL CROSS SECTION



DIMENSIONS

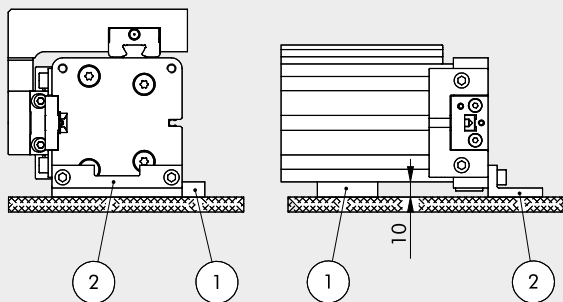
+ = ADD THE STROKE



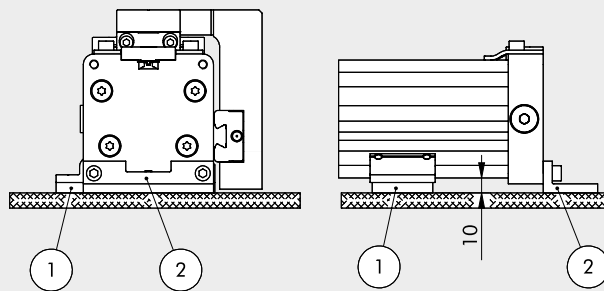


ASSEMBLY DIAGRAMS

275 (horizontal)



275/276 (vertical)



HORIZONTAL LAYOUT

0950504051 Intermediate support code (1)

0950504041 Leg code (2)

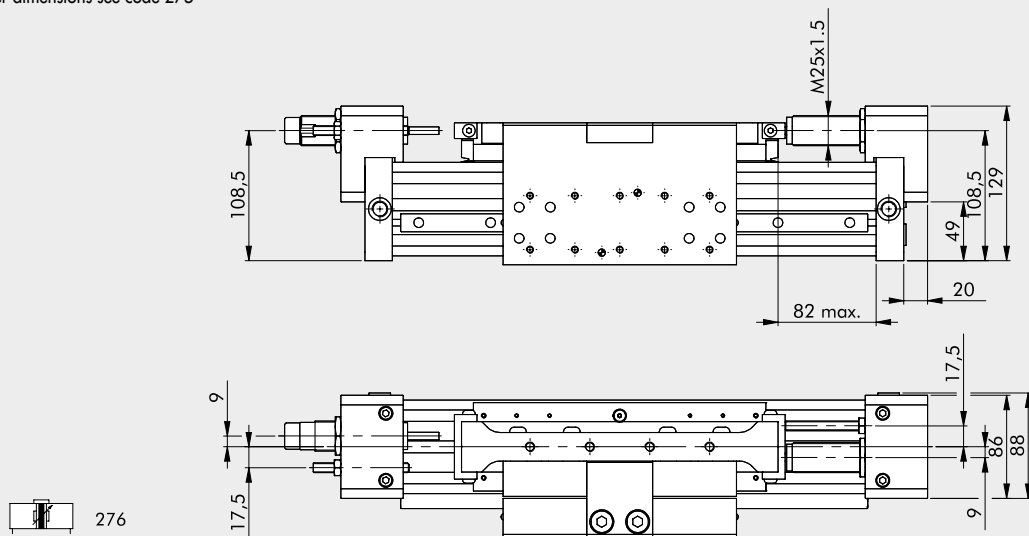
VERTICAL LAYOUT

0950504053 Intermediate support code (1)

0950504041 Leg code (2)

DIMENSION VERSION WITH ADJUSTABLE LIMIT SWITCH AND SHOCK ABSORBERS

NOTE: For other dimensions see code 275



Ø	Cushioning stroke [mm]	Max. cushioned force		Max. impact force [N]	Max. thrust force [N]
		Per stroke [J]	Per hour [J]		
50	25	65	70000	5550	1500

For graphs to help choose shock absorbers see page A1.211

KEY TO CODES

CYL	27 TYPE	5	3	50 BORE	0100 STROKE	C	P GASKETS
	27 Rodless cylinder	5 Double-acting cushioned magnetic with ball circulation guides 6 Double-acting cushioned magnetic with ball circulation guides + adjustable limit switch and shock absorbers	3 Magnetic 4 No stick-slip 5 Non-magnetic	50	from 100 to 2470 mm		P Polyurethane gaskets

■ For speeds lower than 0.2 m/s, to prevent surging. Use no-lubricated air only.

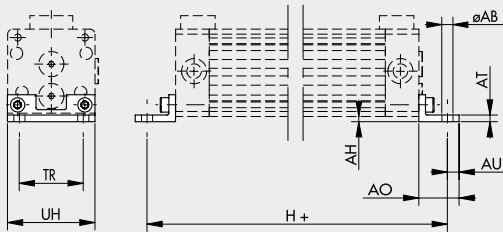
# ACCESSORIES AND SPARE PARTS FOR RODLESS CYLINDER SERIES PU



## FIXINGS

### FOOT

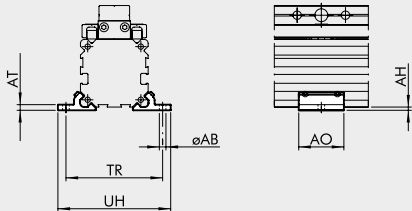
+ = ADD THE STROKE



Code	Ø	ØAB	AH	AO	AT	AU	TR	UH	H	Weight [g]
0950254041	25	5.5	2	19	3	6	32.5	42	226	30
0950324041	32	6.6	3	24	4	7	38	52	284	60
0950404041	40	6.6	3	26	5	8.5	45	63	335	90
0950504041	50	9	6-10	36	6	11	65	86	400	203

Note: Individually packed with 2 screws

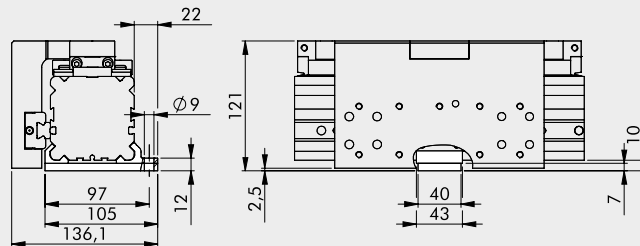
### INTERMEDIATE SUPPORT FOR VERSION STD, "V" GUIDE



Code	Ø	ØAB	AH	AO	AT	TR	UH	Weight [g]
W0950257038	25	5.5	2	28	3.5	60	70	16
W0950327038	32	6.6	3	33	4	73	85	30
W0950407038	40	9	3	38	4.5	90	105	42
W0950507038	50	9	10	43	12	106	122	121

Note: 2 support and 4 grub screws for pack (Ø 25-32-40);  
2 support, 4 grub screws and 2 plates for pack (Ø 50)

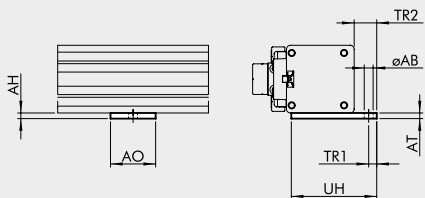
### INTERMEDIATE SUPPORT FOR BALL RECIRCULATING", CODE 0950504053



Weight = 132 g

Note: Individually packed with 4 grub screws, 3 screws, 1 plate, 2 intermediate supports

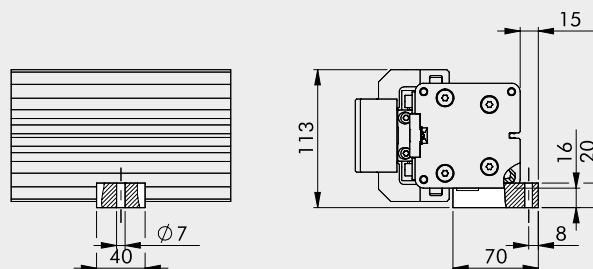
### INTERMEDIATE SIDE SUPPORT FOR STD AND BALL RECIRCULATING VERSIONS



Code	Ø	ØAB	AH	AO	AT	TR1	TR2	UH	Weight [g]
0950254051	25	5.5	3.5	28	3.5	5	14	57.5	20
0950324051	32	5.5	4	40	4	5	12	61	32
0950404051	40	7	4	40	4	8	16	75	36
0950504051	50	7	10	40	10	8	19	90	101

Note: Individually packed with 2 screws, 2 plates

### INTERMEDIATE SIDE SUPPORT FOR "V" GUIDE VERSION CODE 0950504052



Weight = 162 g

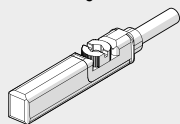
Note: Individually packed with 2 screws, 2 plates

## SENSOR

### RETRACTABLE SENSOR

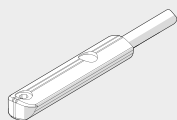
#### SENSOR, SQUARE TYPE

Latest generation,  
secure fixing



#### SENSOR, OVAL TYPE

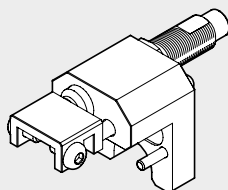
Traditional



For codes and technical data, see **chapter A6**.

## SHOCK ABSORBERS

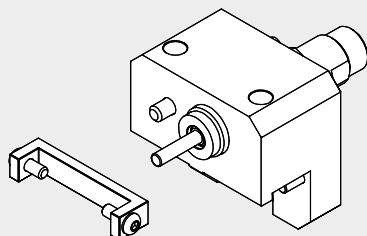
### ADJUSTABLE LIMIT SWITCH AND SHOCK ABSORBERS KIT



Code	Ø	Description	Weight [g]
0950254013	25	Rodless cylinder limit switch and shock absorbers Ø 25 series PU	220
0950324013	32	Rodless cylinder limit switch and shock absorbers Ø 32 series PU	420
0950404013	40	Rodless cylinder limit switch and shock absorbers Ø 40 series PU	675
0950504013	50	Rodless cylinder limit switch and shock absorbers Ø 50 series PU	967

Note: supplied complete with 1 decelerator bracket, 1 standard decelerator, 1 decelerator nut, 1 limit switch grub screw, 1 limit switch grub screw nut, 1 limit switch block, 2 block screws and 2 decelerator bracket screws (nr 4 decelerator bracket screw for Ø 40 and Ø 50)

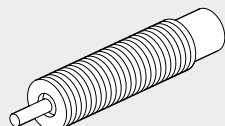
### ADJUSTABLE LIMIT SWITCH AND SHOCK ABSORBERS KIT FOR VERSION "V" GUIDE



Code	Ø	Description	Weight [g]
0950504014	50	Rodless cylinder limit switch and shock absorbers Ø 50	967

Note: supplied complete with 1 decelerator bracket, 1 standard decelerator, 1 decelerator nut, 1 limit switch grub screw, 1 limit switch grub screw nut, 1 limit switch block, 2 block screws and 4 decelerator bracket screws

### SHOCK ABSORBERS

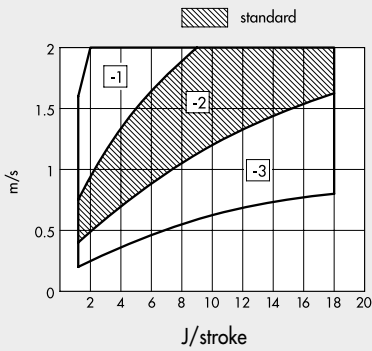


Code	Ø	Description
0950004004	25	Shock absorbers ECO 25 MC2 + nut M14x1.5
0950004005	32	Shock absorbers ECO 50 MC2 + nut M20x1.5
0950004006	40-50	Shock absorbers ECO 100 MF2 + nut M25x1.5

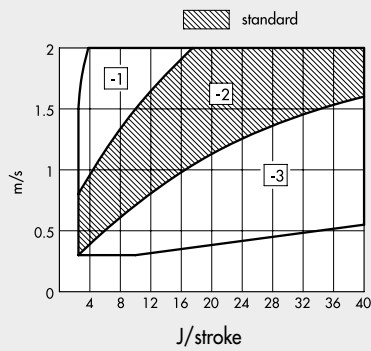
### NOTES

**GRAPHS TO HELP CHOOSE THE RIGHT SHOCK ABSORBERS**

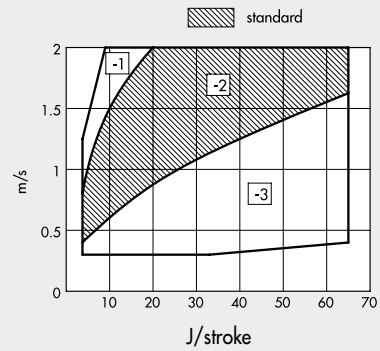
Ø 25



Ø 32

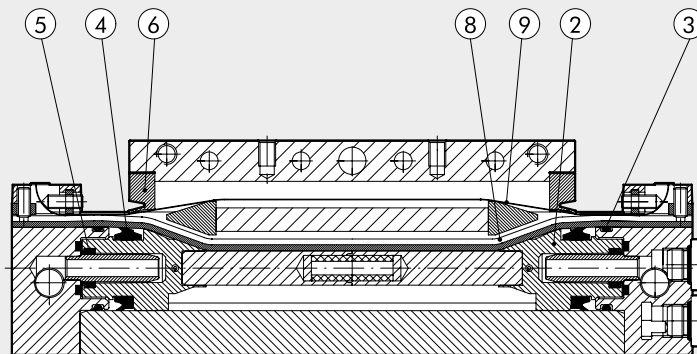


Ø 40-50



The dotted areas indicate that the SHOCK ABSORBERS is supplied standard.  
Other options can be selected depending on the speed [m/sec] and the maximum work force [J/stroke] to dissipate at each stroke.  
Refer to the diagrams above to select the correct option.

**SPARE PARTS**



**DUST SCRAPER KIT  
POS. 6**

Code	Ø
0090255025P	25
0090255025P	32
0090405025P	40
0090505025P	50

Note: 2 dust scrapers

**GASKET KIT  
POS. 3-4-5**

Code	Ø
0090255024P	25
0090325024P	32
0090405024P	40
0090505024P	50

Note: 2 gasket for position

**BANDS KIT  
(inner and outer) POS. 8-9**

Code	Ø
0090256___P	25
0090326___P	32
0090406___P	40
0090506___P	50

Complete the code with the 4-figure cylinder stroke

**NOTES**

# RODLESS CYLINDER WITH MAGNETIC SLIDING SERIES MAGNETIC SLIDE

The magnetic-slide rodless cylinder operates pneumatically and is equipped with a piston and a slide with magnets. The slide runs freely along the liner, following the piston movements, thanks to the magnetic coupling force between the two. If an axial force exceeding the magnetic coupling force is applied to the slide, it disengages. It is therefore important to operate within the pressure, force and speed ranges shown in the catalogue.

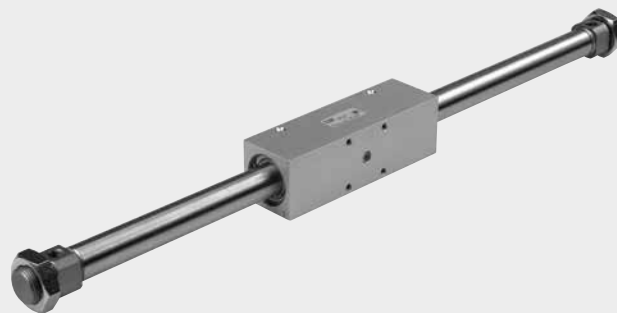
The load is fixed onto the slide using four threaded holes.

The cylinder is secured at the ends by means of nuts, flanges and brackets.

This solution is recommended when there is limited space for assembly, there must be no air leaks or impurities must be prevented from entering.

Available with three bores  $\varnothing$  16-20-25, in the basic or swinging versions, with adjustable pneumatic cushioning or non-adjustable cushioning.

Designed for use with magnetic sensors.

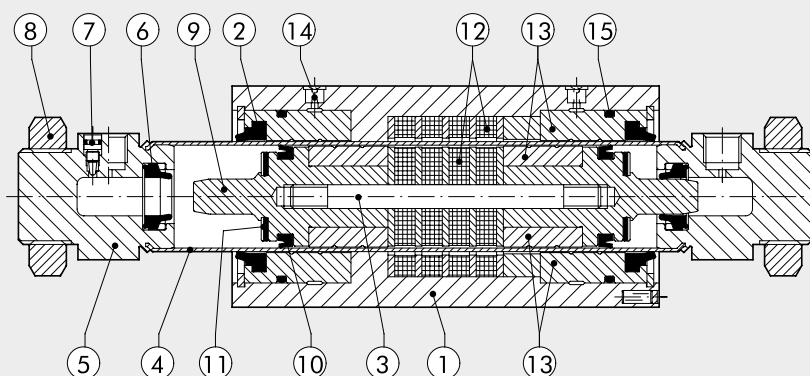


**N.B.:** We always suggest to use flow microregulators. During the setup of the actuator, start with CLOSE flow microregulators, and open gradually till the achievement of the required speed.

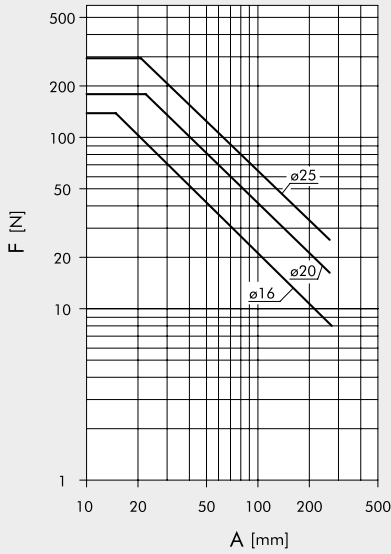
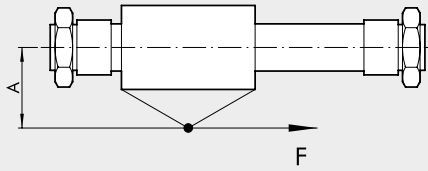
TECHNICAL DATA		$\varnothing$ 16	$\varnothing$ 20	$\varnothing$ 25
Operating pressure	bar		2 to 7	
	MPa		0.2 to 0.7	
	psi		29 to 101	
Temperature range	$^{\circ}$ C		-10 to +60	
	Design	Double-acting rodless cylinder, with magnetic coupling transmission system		
Fluid		50 $\mu$ m unlubricated filtered air Lubrication, if used, must be continuous		
Standard strokes	mm	10 to 1000		
		Magnetic uncushioned/cushioned		
Versions		Swinging magnet uncushioned/cushioned		
		Magnet for limit switch sensor		
Position sensing		Hex nuts (supplied standard) - Legs - Flanges		
Fixing				
Theoretic force at 6 bar	N	118	185	288
Magnetic coupling force (static condition)	N	200	300	500
Recommended speed	m/s	0.4	0.4	0.4
Weights		See cylinder "General technical data" at the beginning of the chapter		
Notes		Lubricate the slide every 2000 km or once a year, through the lubricators		

## COMPONENTS

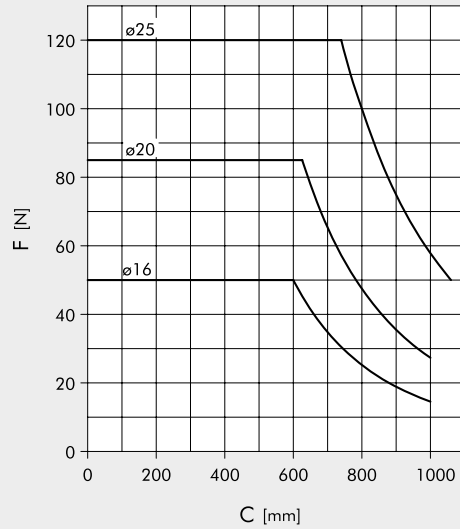
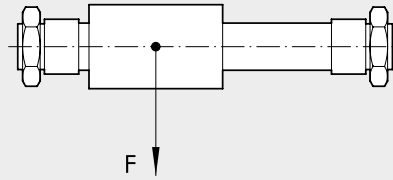
- ① SLIDE: anodized aluminium alloy
- ② WIPER RING: polyurethane
- ③ TIE ROD: stainless steel, thick-chromed
- ④ BARREL: AISI 304 stainless steel
- ⑤ HEAD: anodized aluminium alloy
- ⑥ CUSHIONING GASKET: NBR
- ⑦ NEEDLE: OT 58 with needle-out movement safety system, even when fully open
- ⑧ HEAD NUT: OT 58 nickel-plated
- ⑨ HALF-PISTON: aluminium alloy
- ⑩ PISTON GASKET: polyurethane
- ⑪ BUFFER: NBR
- ⑫ INT/EXT MAGNETS: neodymium
- ⑬ INT/EXT GUIDES: thermoplastic resin with lubricating additive
- ⑭ GREASE NIPPLE: steel
- ⑮ Static O-rings: NBR



**ADMISSIBLE AXIAL FORCE "F" AS A FUNCTION OF THE LEVER ARM "A"**

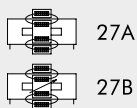
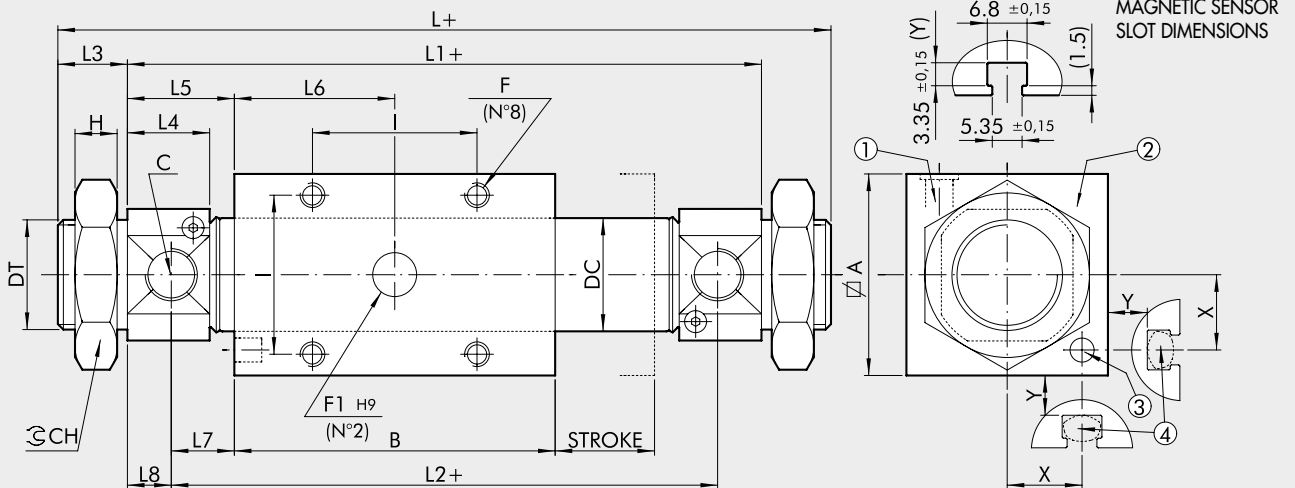


**ADMISSIBLE RADIAL FORCE "F" AS A FUNCTION OF THE STROKE "C"**



**DIMENSIONS**

+ = ADD STROKE



- ① Grease nipple
- ② External cursor, 360° adjustment
- ③ Sensor magnet
- ④ Position for magnetic sensors  
(N.B. customer must provide supports)

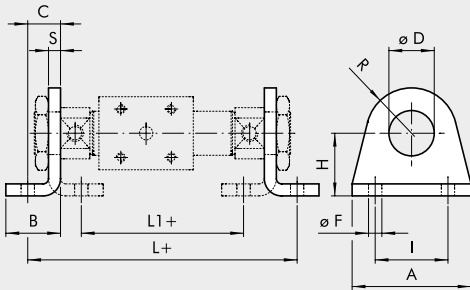
Ø	A	B	C	DC	DT	F	F1	I	L	L1	L2	L3	L4	L5	L6	L7	L8	CH	H	X	Y
16	35	125	M5	17.3	M16x1.5	M5x7	8x3	26	205	181	169	12	10	28	62.5	22	6	24	8	14	9
20	42	135	G1/8	21.3	M22x1.5	M5x10	8x3	32	217	185	169	16	15.5	25	67.5	17	8	32	7	17.5	9
25	50	150	G1/8	26.5	M22x1.5	M6x11	10x4	36	238	206	188	16	17.1	28	75	19	9	32	7	21.5	9



## ACCESSORIES FOR RODLESS CYLINDER WITH MAGNETIC SLIDING: FIXING

### FOOT

+ = ADD STROKE

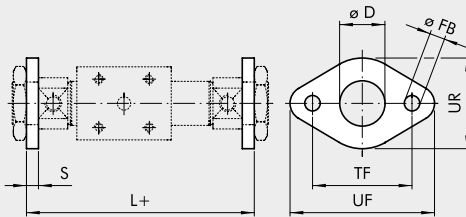


Code	Ø	D	A	B	C	H ±0.3	R	F ±0.2	I ±s	L	L1	S	Weight [g]
0950164040	16	16	42	20	14	27	13	5.5	32	209	161	4	50
0950204040	20	22	54	25	17	30	20	6.5	40	219	161	5	105
0950204040	25	22	54	25	17	30	20	6.5	40	240	182	5	105

Note: individually pocket

### FLANGE MODEL C

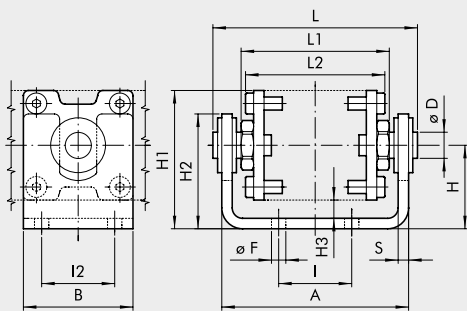
+ = ADD STROKE



Code	Ø	D	FB H13	TF ±14	UF	UR	L	S	Weight [g]
W0950120002	16	16	5.5	40	52	30	189	4	26
W0950200002	20	22	6.5	50	66	40	195	5	52
W0950200002	25	22	6.5	50	66	40	216	5	52

Note: individually pocket

### KIT FOR SWING VERSION



Code	Ø	A	B	D	F ±0.1	H	H1	H2	H3	I	I2	L	L1	L2	S	Weight [g]
0950164050	16	67	40	10	5.5	28.5	46	40	7	26	26	73.5	53	52	4	288
0950204050	20	74	42	10	5.5	32	53	43	7	32	32	80.5	60	59	4	345
0950254050	25	87	50	12	6.5	38	63	50	8	36	36	96.5	68	68	5	576

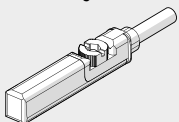
Note: individually pocket. Supplied with 8 screws.

The swinging version kit can be used to avoid bending moments and lateral loads on the slide. It can also be used to compensate for misalignments with respect to the load guide. Max alignment error ±1mm.

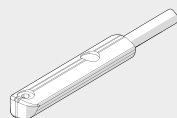
## ACCESSORIES: MAGNETIC SENSOR

### RETRACTABLE SENSOR

**SENSOR, SQUARE TYPE** Latest generation, secure fixing



**SENSOR, OVAL TYPE** Traditional



For codes and technical data, see **chapter A6**.