

RODLESS CYLINDER SERIES PU

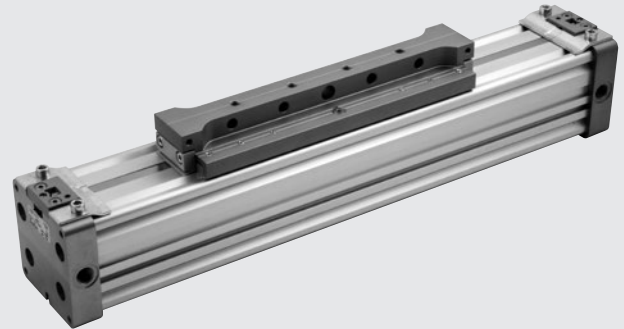


Series PU rodless cylinders have an internal strip for longitudinal tightness made of polyurethane (PU) with a harmonic steel wire core. This solution gives excellent air tightness values. It is particularly suitable for high-speed and highly cyclical applications, even with long strokes.

The external strip, which merely provides protection against of 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.

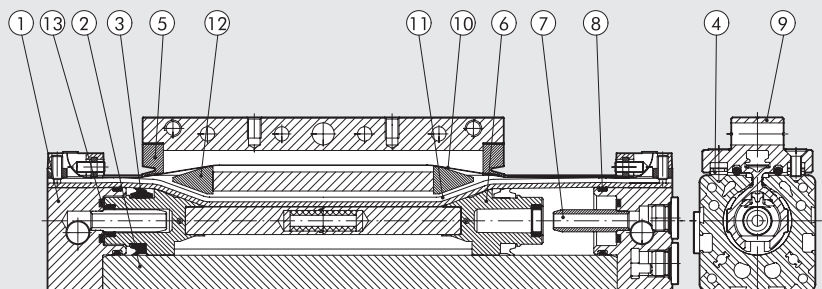
The balanced drive version avoids having to transmit transverse torques and forces to the carriage whenever the load is supported by guides outside the cylinder.



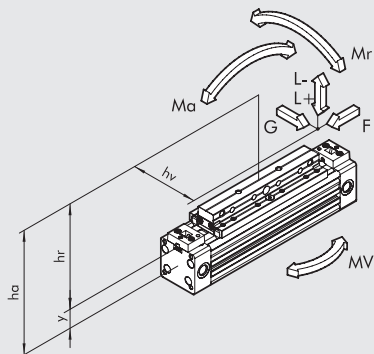
TECHNICAL DATA		Ø25	Ø32	Ø40	Ø50
Operating pressure	bar	1 to 8			
	MPa	0.1 to 0.8			
	psi	14.5 to 116			
Temperature range	°C	-10 to +80			
	Design	Double-acting rodless cylinder with direct transmission system			
Fluid		50 µm unlubricated filtered air Lubrication, if used, must be continuous			
Standard 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.

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

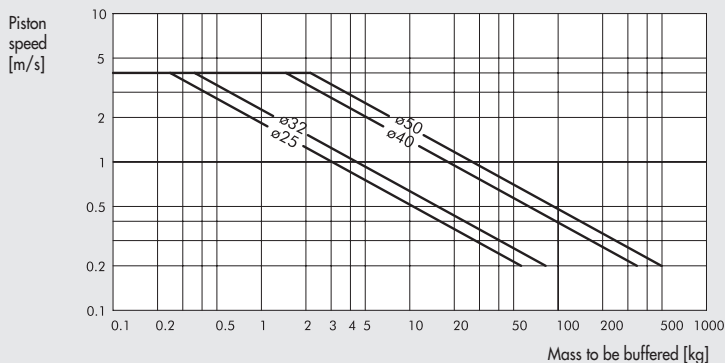
$$\frac{Mv}{Mv_{max}} \leq 1; \quad \frac{L}{L_{max}} \leq 1; \quad \frac{Ma}{Ma_{max}} + \frac{Mr}{Mr_{max}} + 0.22 \times \frac{Mv}{Mv_{max}} + 0.4 \frac{L}{L_{max}} \leq 1$$

DIAGRAM OF SPEED AND MAXIMUM CUSHIONABLE LOAD

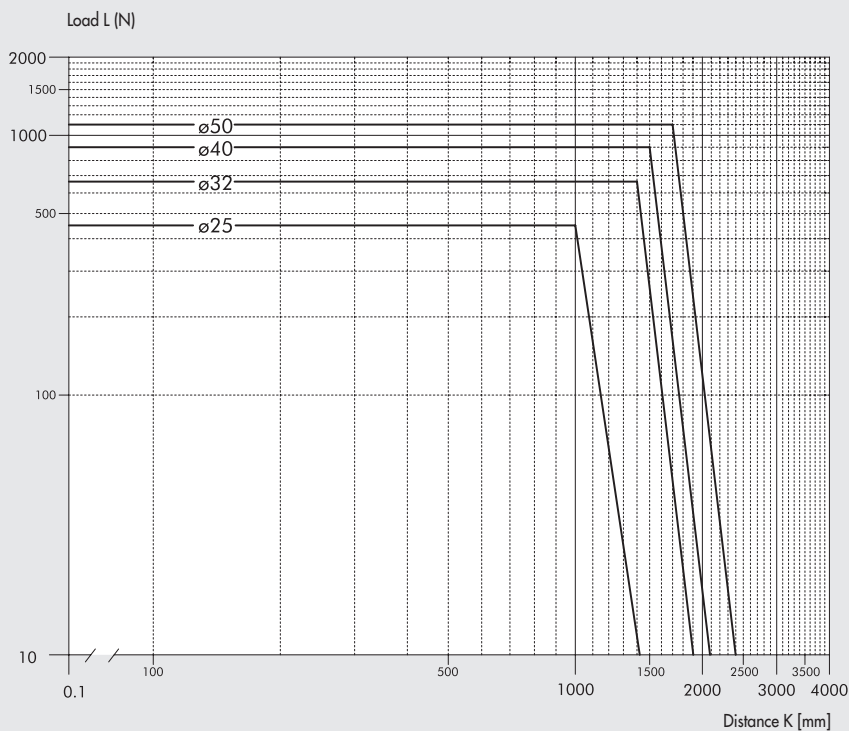
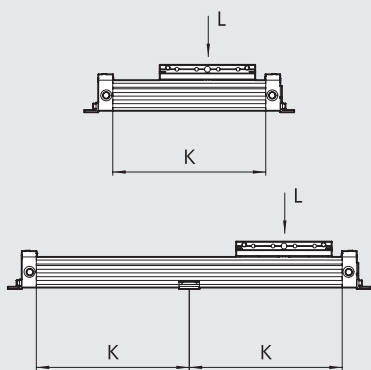
For the cylinder to reach the end-of-stroke position without intense or repeated impact which would damage it, it is necessary to annul the kinetic energy of the moving mass and the work generated.

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

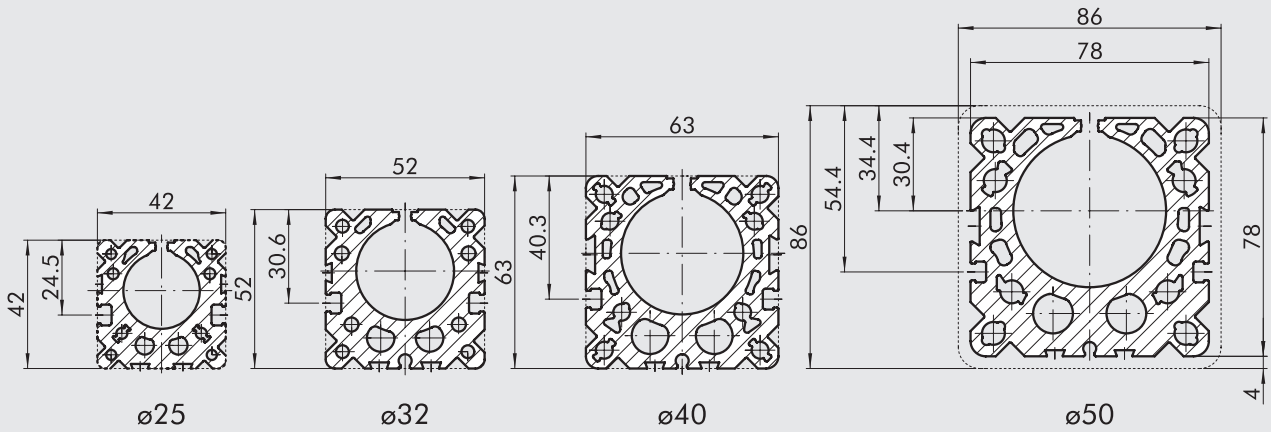
The diagram shows the speeds and cushionable mass for the various diameters at a pressure of 6 bar.



MAXIMUM LOAD ACCORDING TO THE DISTANCE BETWEEN SUPPORTS

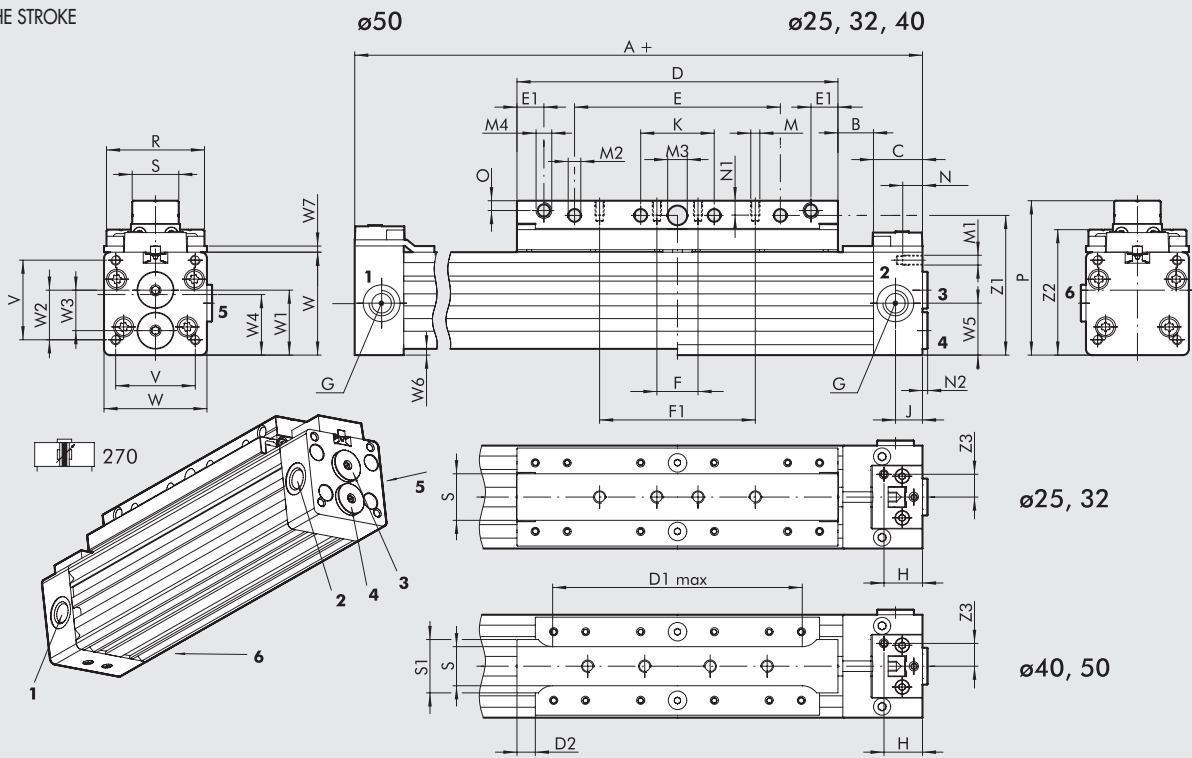


BARREL CROSS SECTION



DIMENSIONS

+ = ADD THE STROKE



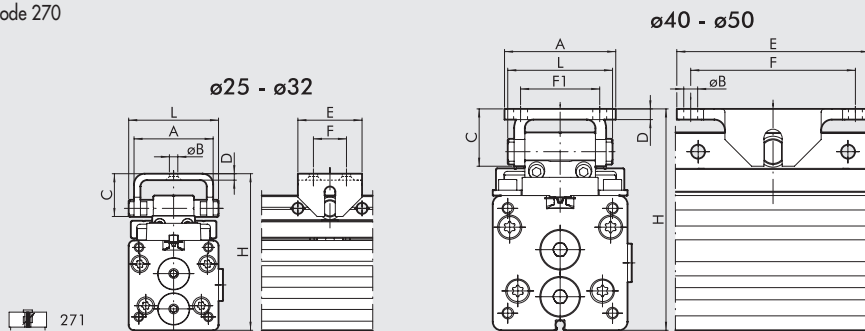
1 and 6 feed the left-hand chamber from the left side
 4 feeds the left-hand chamber from the right side
 2, 3 and 5 feed the right-hand chamber from the right side
 NOTE: 3, 4, 5 and 6 are closed with threaded caps

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

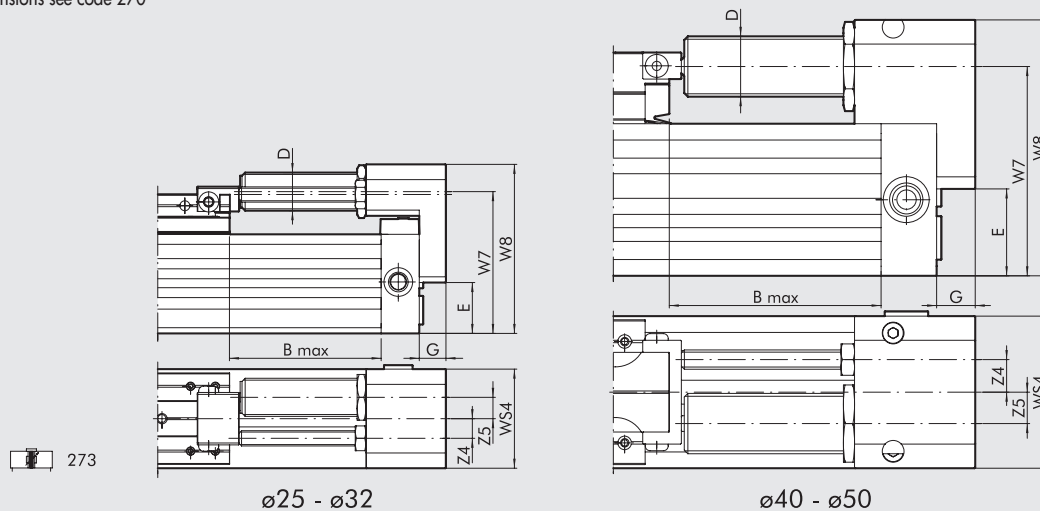
NOTE: For other dimensions see code 270



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



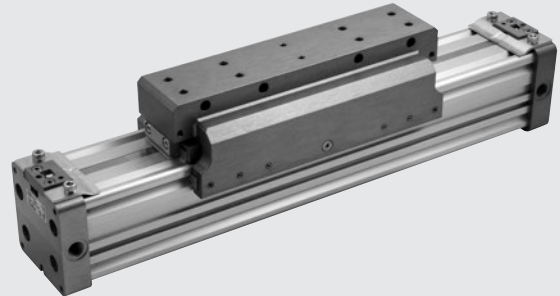
Series PU rodless cylinders have an internal strip for longitudinal tightness made of polyurethane (PU) with a harmonic steel wire core. This solution gives excellent air tightness values. It is particularly suitable for high-speed and highly cyclical applications, even with long strokes.

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.

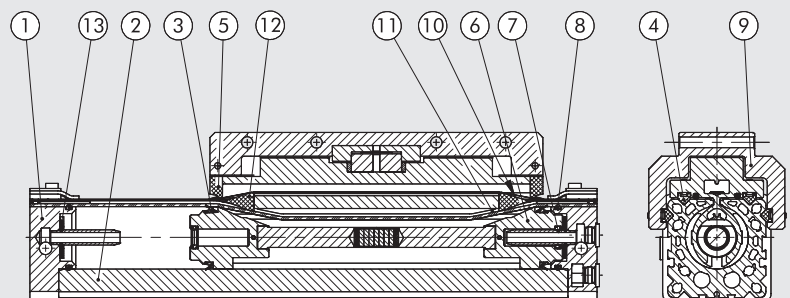
This means the carriage only transmits axial loads; it does not support loads and moments in other directions. Pad clearance can be adjusted by means of lateral threaded screws to reduce wear. The pads can be replaced without having to remove the cylinder. This family of cylinders has the same features 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.



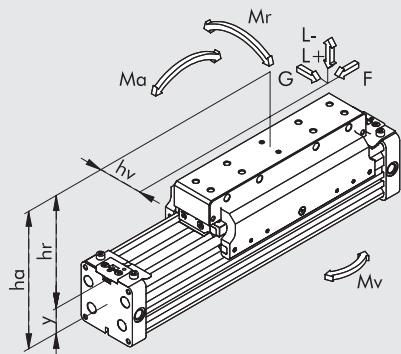
TECHNICAL DATA		Ø50
Operating pressure	bar	1 to 8
	MPa	0.1 to 0.8
	psi	14.5 to 116
Temperature range	°C	-10 to +80
	Design	Double-acting rodless cylinder with direct transmission system
Fluid		50 µm unlubricated filtered air Lubrication, if used, must be continuous
Standard strokes	mm	100 to 5600
Sensor 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.

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

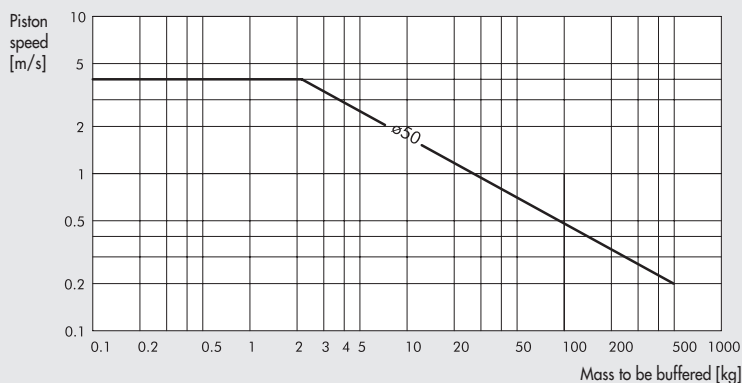
$$\frac{Mv}{Mv_{max}} \leq 1; \quad \frac{L}{L_{max}} \leq 1; \quad \frac{Ma}{Ma_{max}} + \frac{Mr}{Mr_{max}} + 0.22 \times \frac{Mv}{Mv_{max}} + 0.4 \frac{L}{L_{max}} \leq 1$$

DIAGRAM OF SPEED AND MAXIMUM CUSHIONABLE LOAD

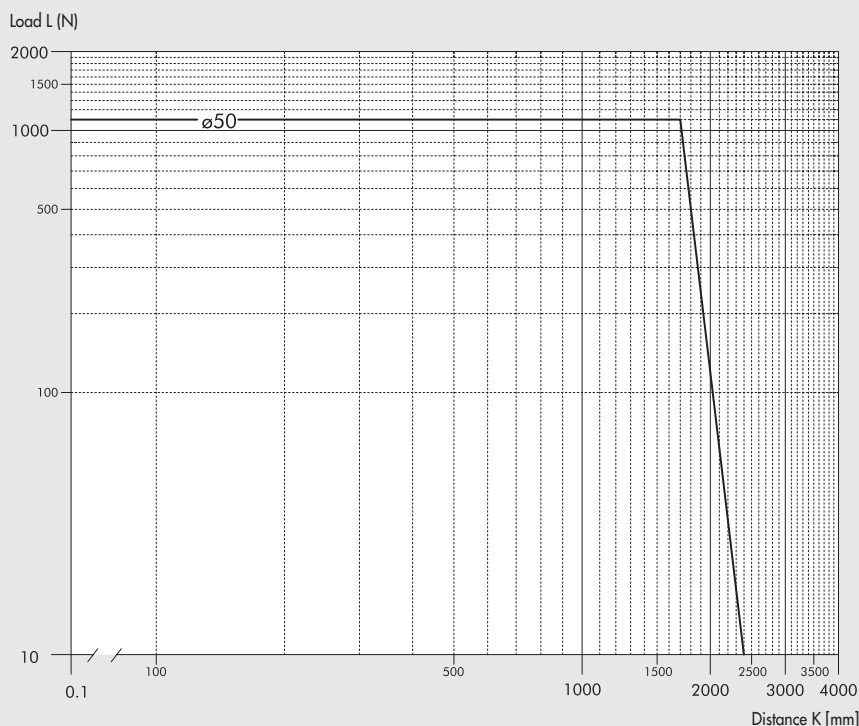
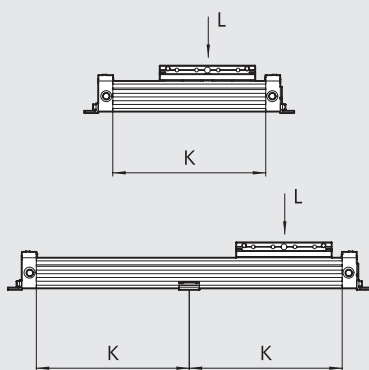
For the cylinder to reach the end-of-stroke position without intense or repeated impact which would damage it, it is necessary to annul the kinetic energy of the moving mass and the work generated.

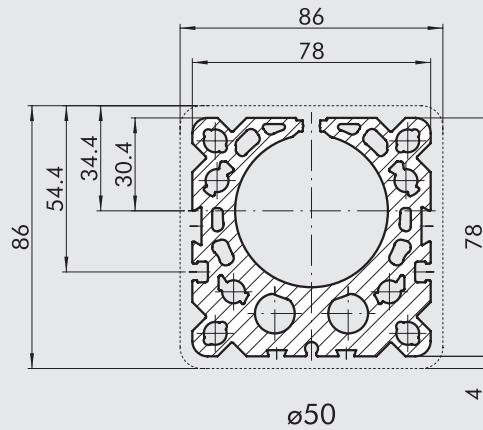
The maximum cushionable load depends on the traversing speed and the absorption of the air buffer supplied standard with the various cylinders.

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

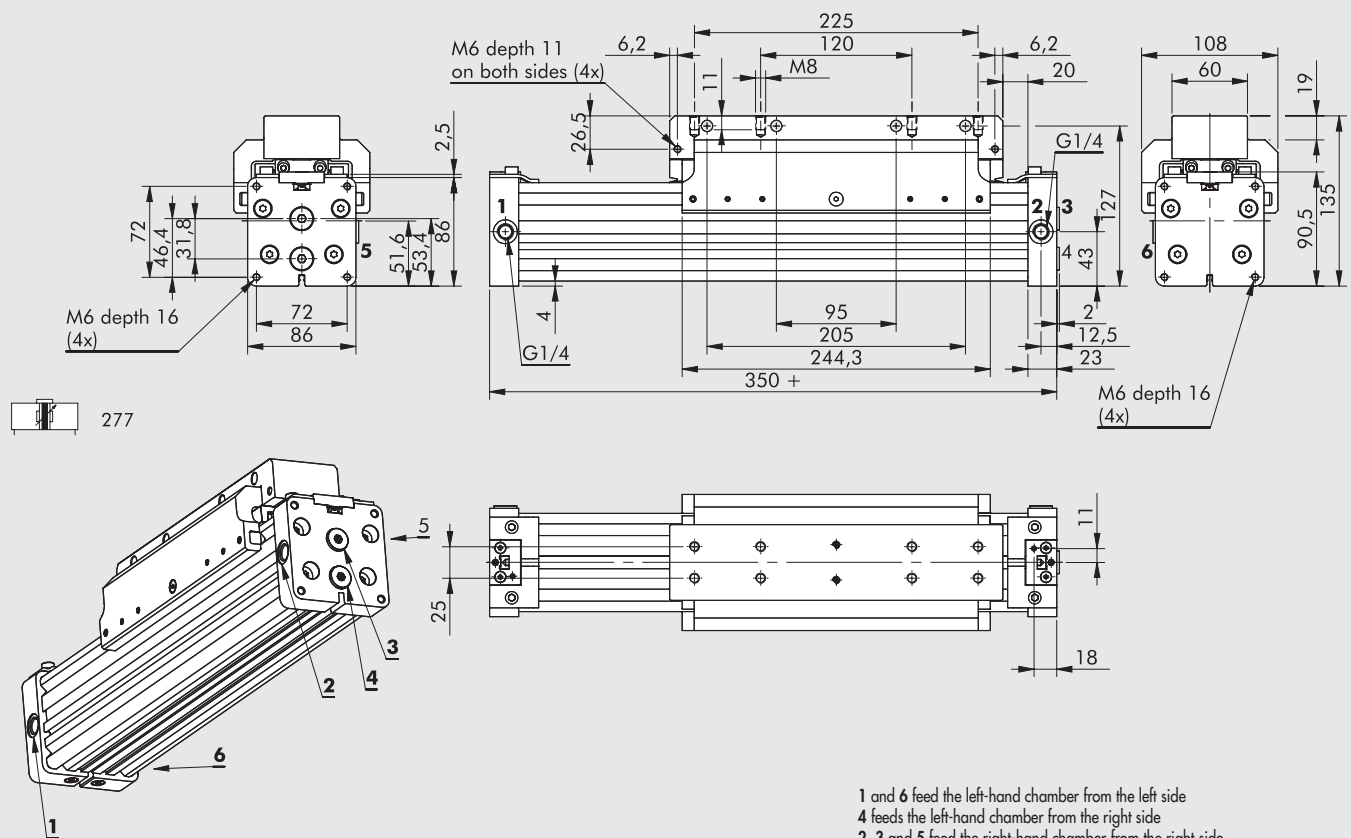


MAXIMUM LOAD ACCORDING TO THE DISTANCE BETWEEN SUPPORTS



BARREL CROSS SECTION

DIMENSIONS

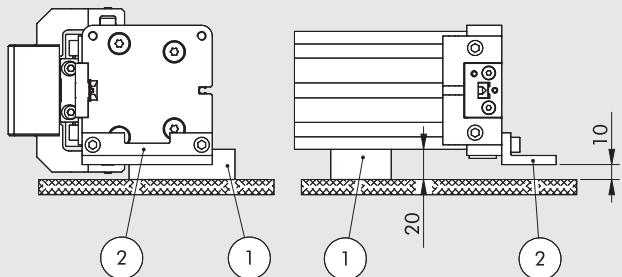
+ = ADD THE STROKE



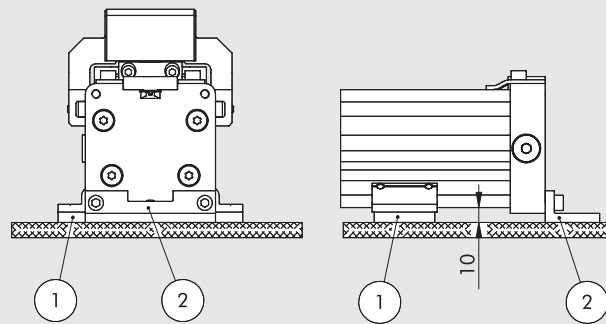
1 and 6 feed the left-hand chamber from the left side
 4 feeds the left-hand chamber from the right side
 2, 3 and 5 feed the right-hand chamber from the right side
 NOTE: 3, 4, 5 and 6 are closed with threaded caps

ASSEMBLY DIAGRAMS

277 (horizontal)



277/278 (vertical)



HORIZONTAL LAYOUT

0950504052 Intermediate support code (1)

0950504041 Leg code (2)

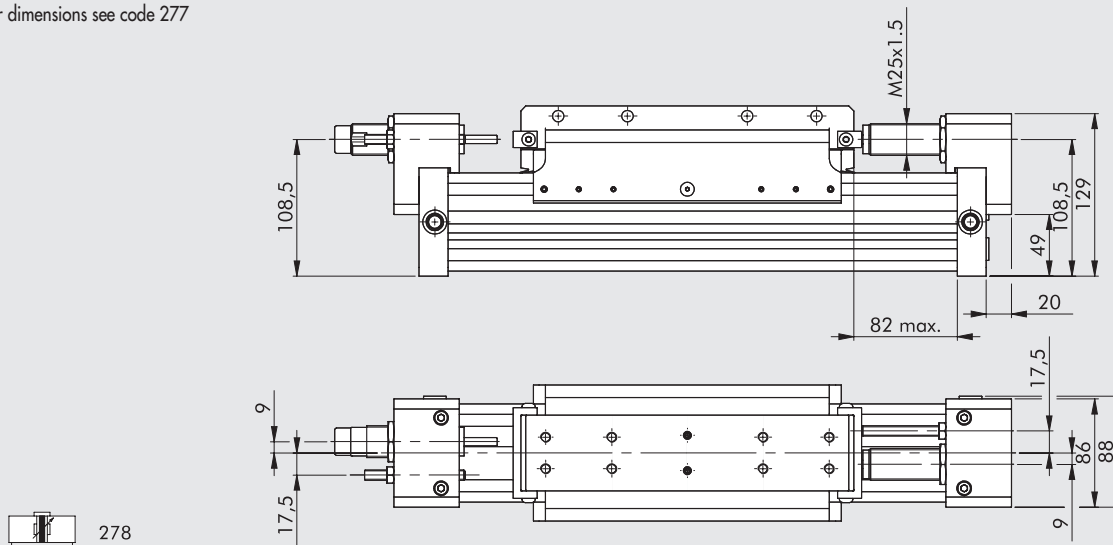
VERTICAL LAYOUT

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



278

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.

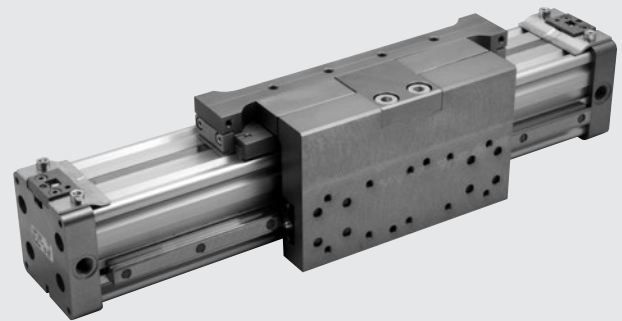
Cylinder control solenoid valves can also be housed in these slots and secured by means of plates and screws (see page A1.62).

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

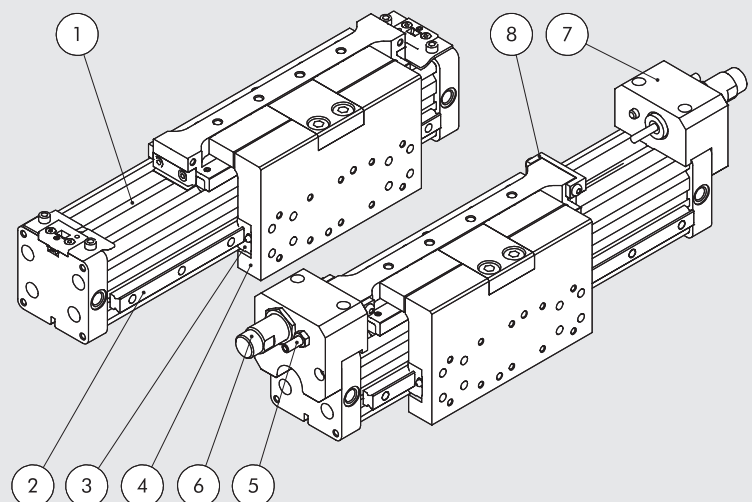
For version 275

- 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

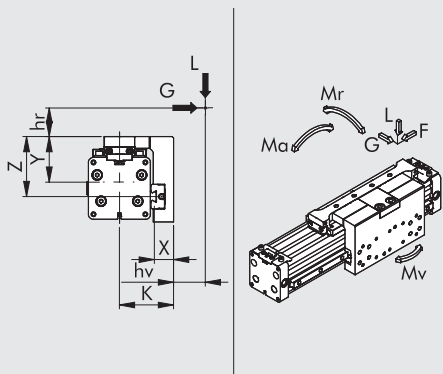
For version 276

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.

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

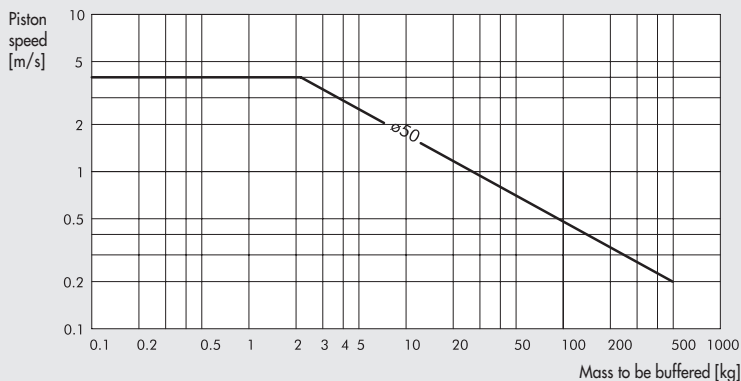
$$\frac{Ma}{Ma_{max}} + \frac{Mr}{Mr_{max}} + \frac{Mv}{Mv_{max}} + \frac{L}{L_{max}} + \frac{G}{G_{max}} \leq 1$$

DIAGRAM OF SPEED AND MAXIMUM CUSHIONABLE LOAD

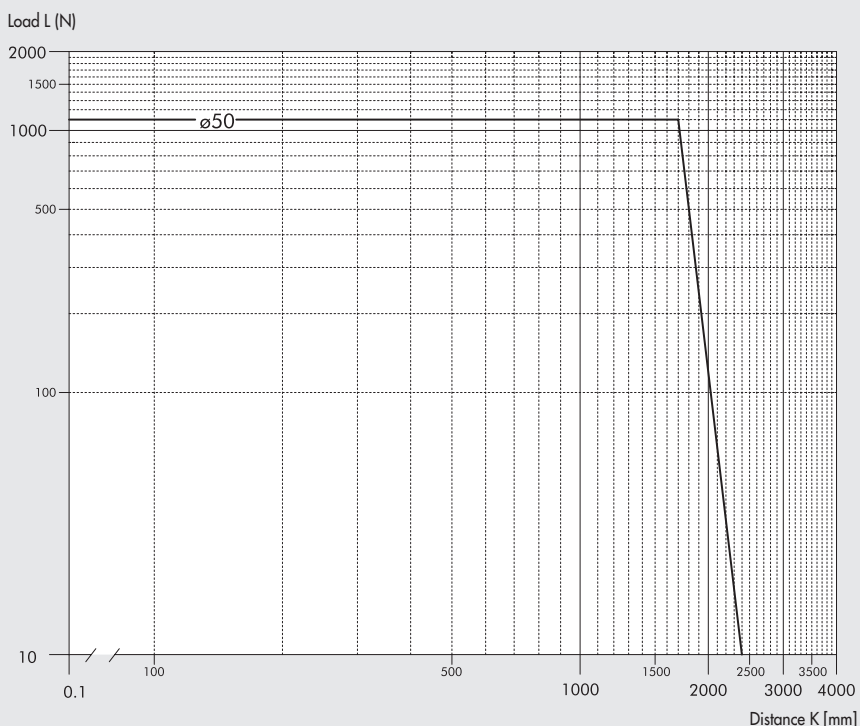
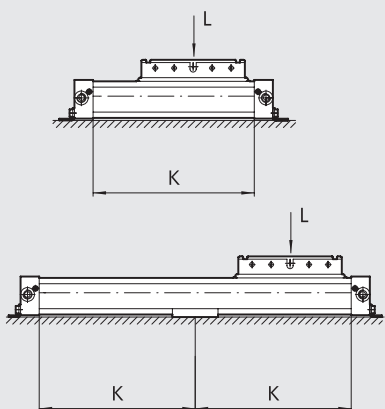
For the cylinder to reach the end-of-stroke position without intense or repeated impact which would damage it, it is necessary to annul the kinetic energy of the moving mass and the work generated.

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

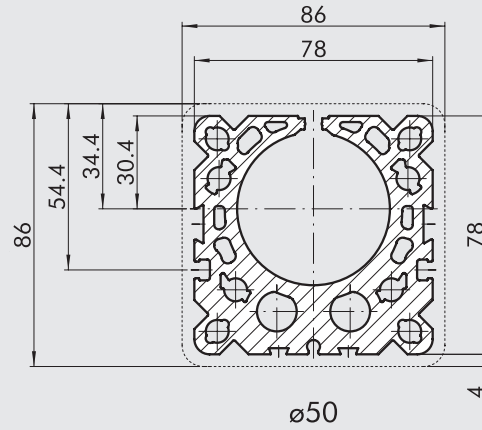
The diagram shows the speeds and cushionable mass for the various diameters at a pressure of 6 bar.



MAXIMUM LOAD ACCORDING TO THE DISTANCE BETWEEN SUPPORTS

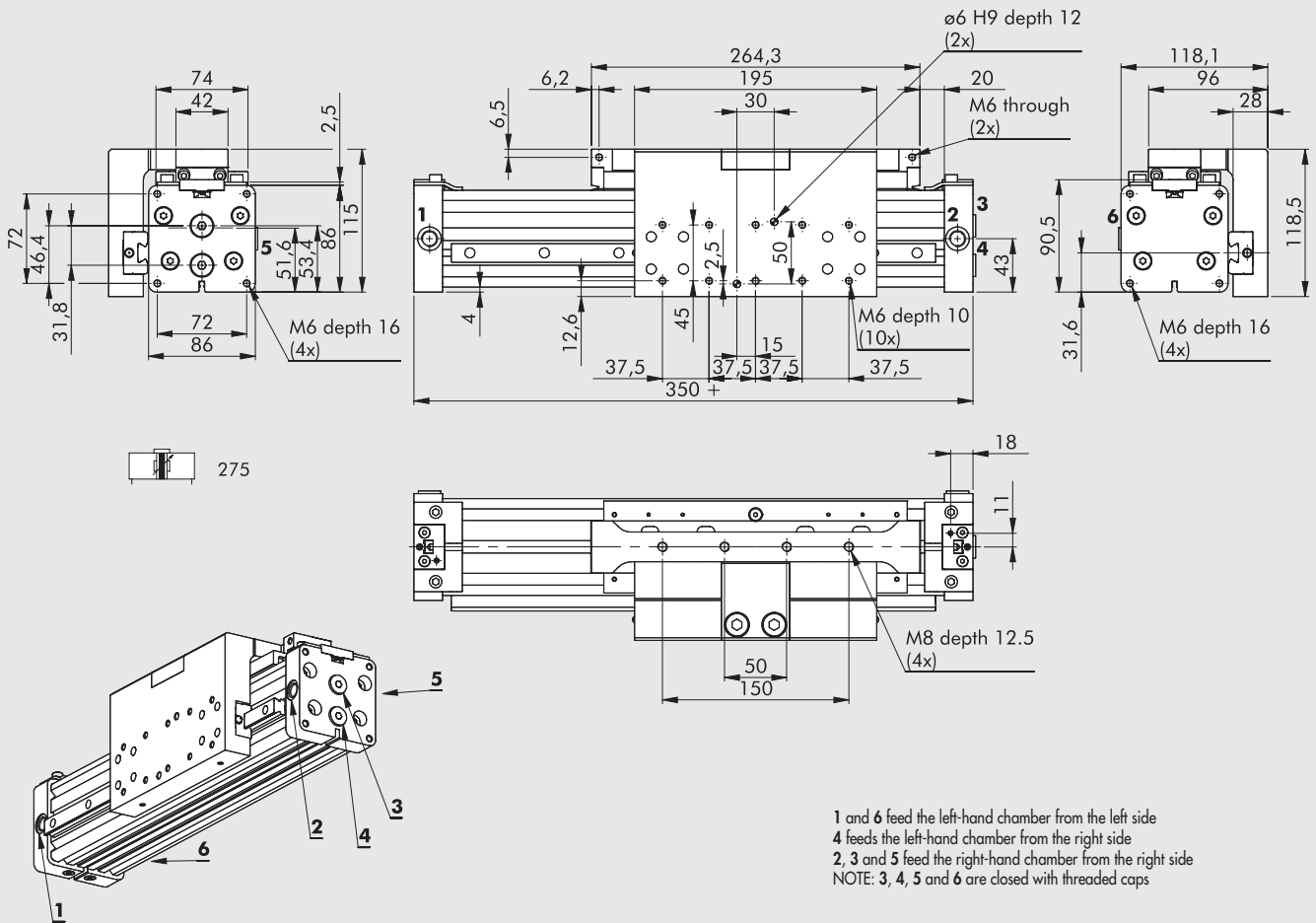


BARREL CROSS SECTION



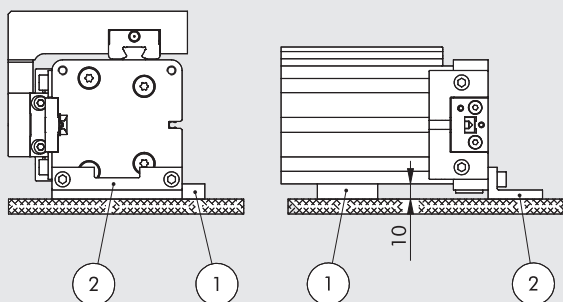
DIMENSIONS

+ = ADD THE STROKE

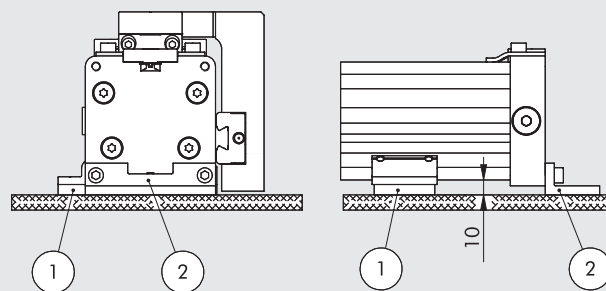


ASSEMBLY DIAGRAMS

275 (horizontal)



275/276 (vertical)



HORIZONTAL LAYOUT

0950504051 Intermediate support code (1)

0950504041 Leg code (2)

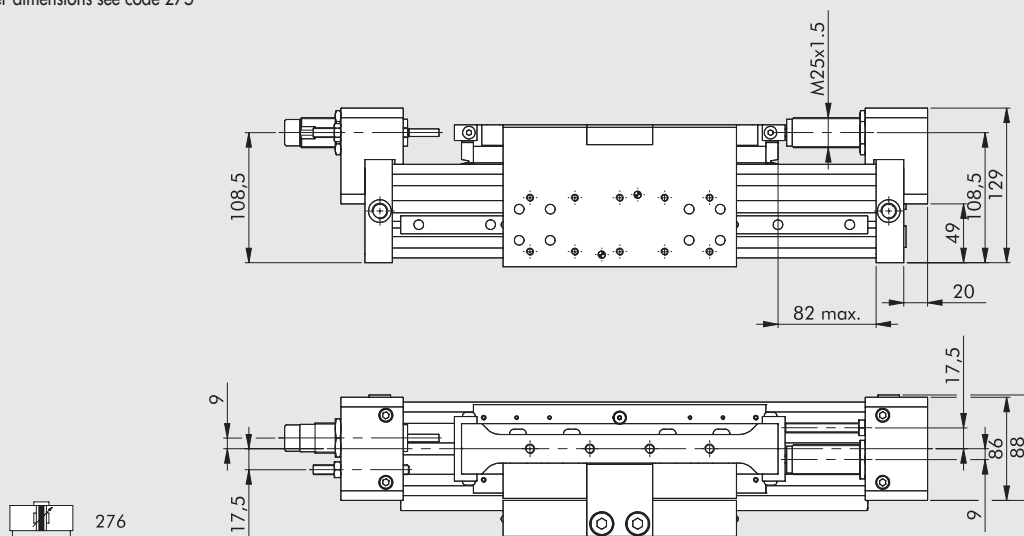
VERTICAL LAYOUT

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.

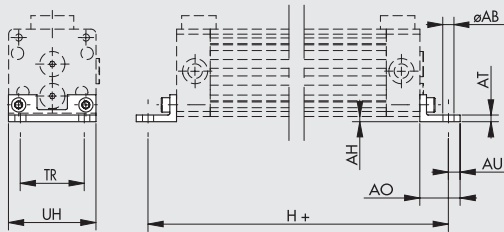
ACCESSORIES AND SPARE PARTS FOR RODLESS CYLINDER SERIES PU



FIXINGS

FOOT

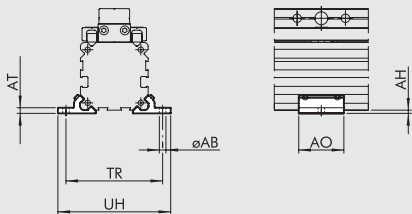
+ = ADD THE STROKE



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

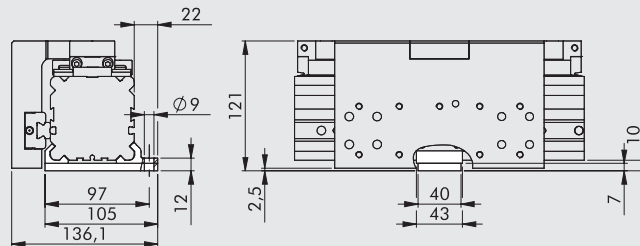
INTERMEDIATE SUPPORT FOR VERSION STD, "V" GUIDE



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)

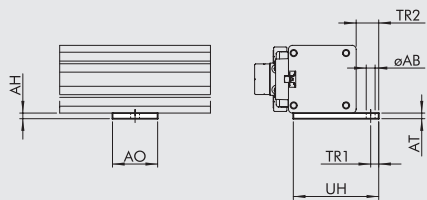
INTERMEDIATE SUPPORT FOR BALL RECIRCULATING", CODE 0950504053



Weight = 132 g

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

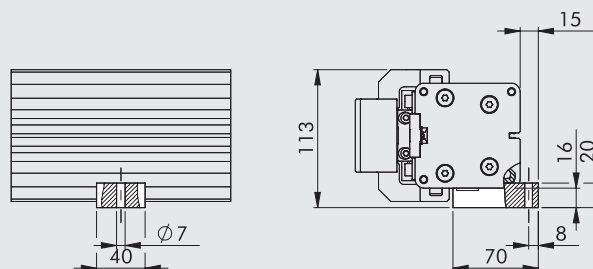
INTERMEDIATE SIDE SUPPORT FOR STD AND BALL RECIRCULATING VERSIONS



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

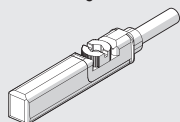
Note: Individually packed with 2 screws, 2 plates

SENSOR

RETRACTABLE SENSOR

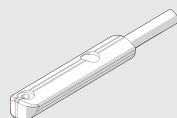
SENSOR, SQUARE TYPE

Latest generation,
secure fixing



SENSOR, OVAL TYPE

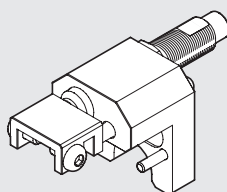
Traditional



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

SHOCK ABSORBERS

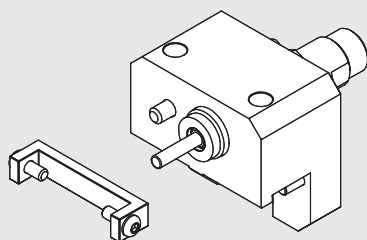
ADJUSTABLE LIMIT SWITCH AND SHOCK ABSORBERS KIT



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)

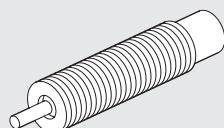
ADJUSTABLE LIMIT SWITCH AND SHOCK ABSORBERS KIT FOR VERSION "V" GUIDE



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

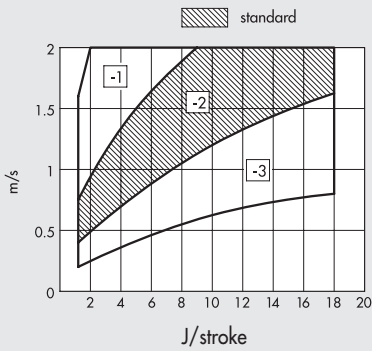


Code	Ø	Description
0950004004	25	Shock absorbers ECO 25 MC2 + nut M14x1.5
0950004005	32	Shock absorbers ECO 50 MC2 + nut M20x1.5
0950004006	40-50	Shock absorbers ECO 100 MF2 + nut M25x1.5

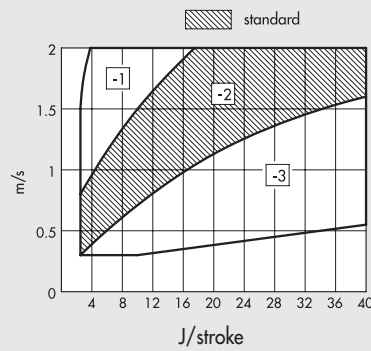
NOTES

GRAPHS TO HELP CHOOSE THE RIGHT SHOCK ABSORBERS

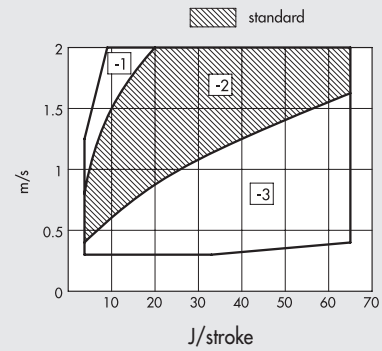
Ø 25



Ø 32

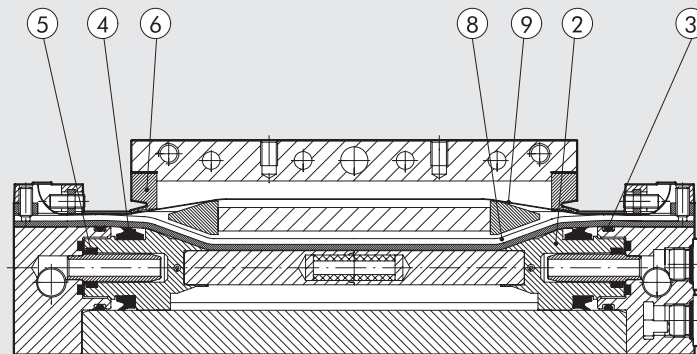


Ø 40-50



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