MCRPLR series

RODLESS CYLINDER

Mindman

Features

■ Solid steel spacer slide with hard wearing vee running surfaces.
■ Aluminium carriage plate, double row bearings for long and trouble free life.
■ Fitted cap seals prevent dirt ingress and ensure constant positive lubrication.
■ Quiet in operation.

Specification

Model	MCRPLR			
Acting type	Double acting			
Tube I.D. (mm)	25	32	40	50
Port size	G1/8	G1/4		
No. of port	3			
Medium	Air			
Operating pressure range	0.1~0.78 MPa			
Stroke range	100~5700mm (*1)			
Ambient temperature	-10~+80°C (No freezing)			
Lubrication	With or without lubrication			
Cushion	With adjustable cushion at both ends			
Sensor switch	RCAL (Please refer to page 6-9)			
Sensor switch holder	HPL			

*1. In increments of 1mm, long strokes on request.
*2. The tube isn't airtight, so the cylinder is allowed the leakage.
   Before the cylinder is sale, it has passed the standard of leakage test.

Order example

MCRPLR — 90 V — 25 — 0850 — S — 24/2

Model	Type	Piston seals	Tube I.D.	Stroke	Grease lubrication	Accessory
	90 Standard type	— NBR (for piston speeds V≤1 m/s)	25	0100~5700 mm (4 code)	— Standard grease	* Refer to 6-7 page code. Use the same accessory with **MCRPL***.
		V VITON (for piston speeds V>1 m/s)	32		S Slow motion grease	
			40			
			50			

* Speed range for the diffenent greases.

● **Standard grease**
NBR piston seals: 0.2 m/s ≤ V ≤ 1 m/s
VITON piston seals: 1 m/s < V
● **Slow motion grease**
NBR piston seals: V < 0.2 m/s
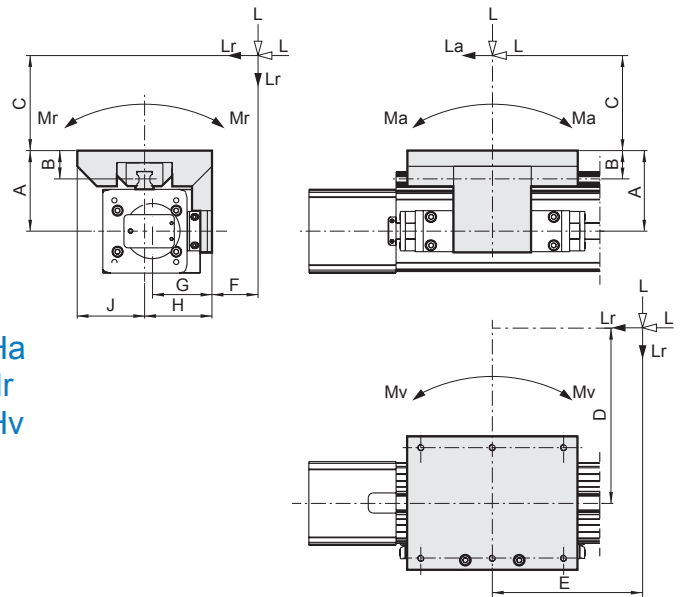VITON piston seals: V < 0.2 m/s

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Forces and moments
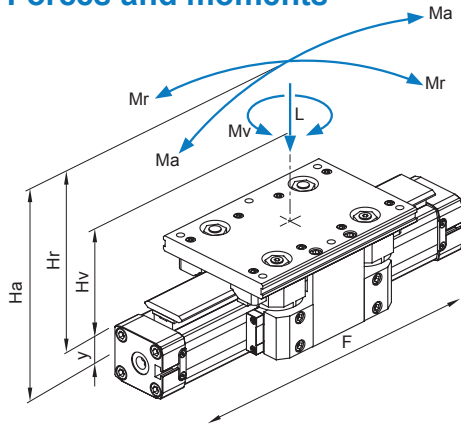
Formulas

$$Ma = F \times Ha$$
$$Mr = F \times Hr$$
$$Mv = F \times Hv$$

Tube I.D. Code	25	32	40	50
Effect force (N)	250	420	640	1000
A (mm)	53.0	64.0	72.5	88.5
B (mm)	20.5	26.0	28.0	28.0
C/D/E/F (mm)	Dimensions according			
G (mm)	38.0	55.5	54.5	58.5
H (mm)	40.0	58.0	67.5	67.5
J (mm)	40.0	58.0	67.5	67.5
Load force max. L (N)	1400	3100	3100	3100
Moment forces max. La, Lr, Lv (N)	1400	3100	3100	3100
Axial moments max. Ma (Nm)	50	165	250	250
Radial moments max. Mr (Nm)	14	65	90	90
Torsion moments max. Mv (Nm)	50	165	250	250

● The above mentioned moments (Ma max, Mr max, Mv max) are related to the guide rail center. The load force (L) is the summary of all single forces related to the common center of the mass. The center of the mass can be placed inside or outside the surface area of the carriage.

● Normally the carriage would experience a dynamic load, which has to be considered with the calculation of needed piston force (F) and capacity of the ballguided system. Use the following calculation formular.

$$\frac{Ma}{Ma\ max} + \frac{Mr}{Mr\ max} + \frac{Mv}{Mv\ max} + \frac{L}{L\ max} \leq 1$$

Deflection diagram

● Max. distance (SL) in m — for ø25~40mm

40 Fall 1
32 Fall 1
40 Fall 2
32 Fall 2
25 Fall 1
25 Fall 2
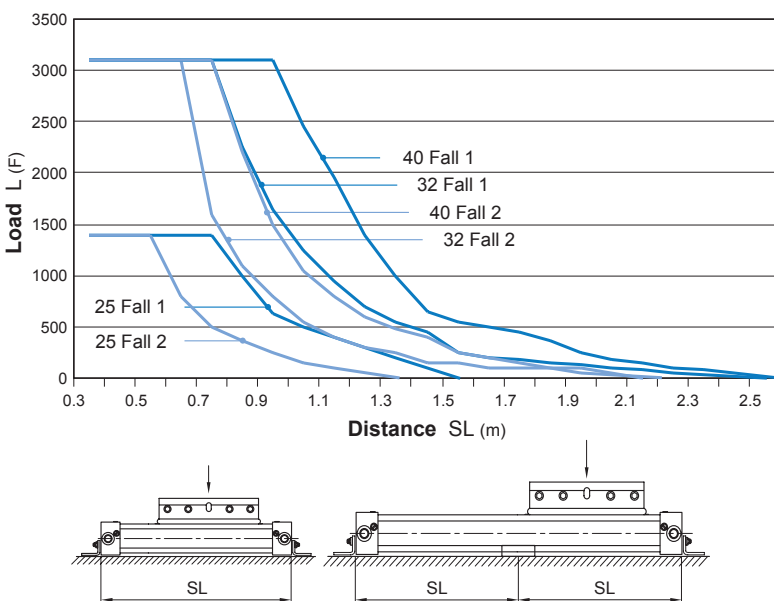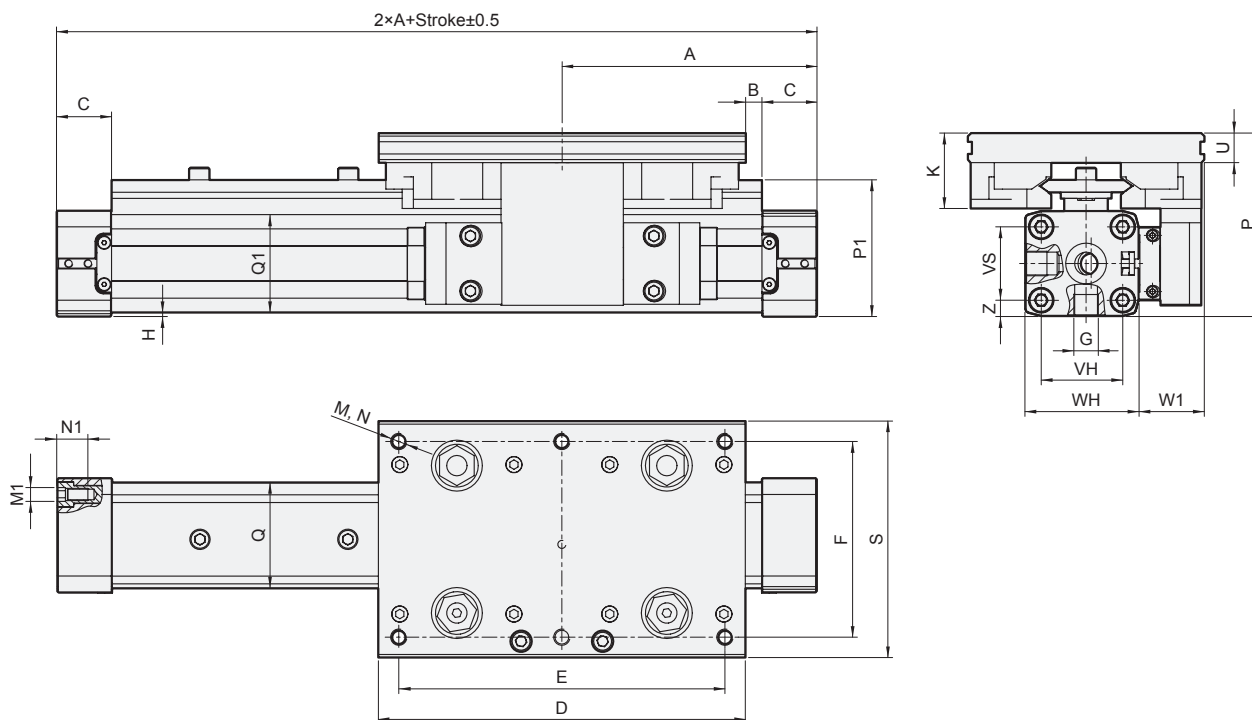
Diagram information

● Calculated deflections without support of 0.5~1 mm allow exceeding of supporting distance.

● Calculated deflections without support of 1 mm ~ max. 1.5 mm require reduction of the supporting distance.

Fall 1

Fall 2
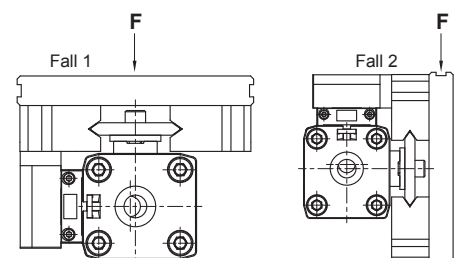
Code / Tube I.D.	A	B	C	D	E	F	G	H	K	M	N	M1	N1
25/25	100	9.5	23	135	120	65	1/8	2.0	29.5	M6	11.0	M5	10
32/44	125	8.0	27	180	160	96	1/4	2.0	37.0	M8	14.5	M6	14
40/60	150	0.0	30	240	216	115	1/4	6.75	39.0	M8	16.5	M6	17
50/60	175	22.0	33	240	216	115	1/4	1.0	39.0	M8	16.5	M6	18

Code / Tube I.D.	P	P1	Q×Q1	S	U	VH	VS	WH	W1	Z
25/25	73.5	50.5	36×36	80	11.0	27	27	40	22.0	6.5
32/44	90.0	64.5	52×48	116	14.5	40	36	56	32.0	8.0
40/60	108.5	84.0	58.5×59	135	16.5	54	54	69	34.5	9.0
50/60	122.0	97.5	77×78	135	16.5	70	70	80	31.0	5.0