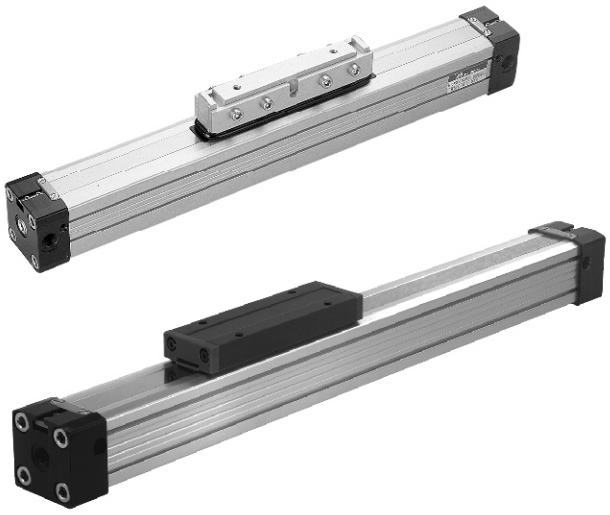
MCRPL* series

RODLESS CYLINDER

Mindman



Features:

- Equal forces on both ends of the piston.
- Force connection direct, torque safe.
- Magnetic piston standard.
- 50% space-savings.
- End caps with 3 air connections and adjustable cushioning.
- Fast acceleration and high piston velocity.

Specification :

Model		MCRPL			MCRPLF			
Acting type		Double acting			Double acting			
Tube I.D.(mm)		16	25	32,40	16	25	32,40,50	63
Port size		M5	G 1/8	G 1/4	M5	G 1/8	G 1/4	G 3/8
No. of port		3						
Medium		Air						
Operating pressure range		1~7.8 kgf/cm^2						
Stroke range※	ϕ 16	100~3300 mm						
	ϕ 25~63	100~5600 mm						
Ambient Temperature		−15℃~+80℃ (No freezing)						
Lubrication		With or Without lubrication						
Cushion		With adjustable cushion at both ends						
Sensor Switch		RCAL						
Sensor Switch Holder		HPL						

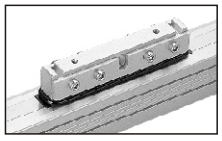
※In increments of 1mm.

Order example:

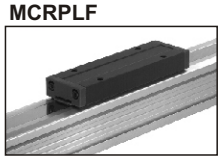
MCRPL – 90V – 25 – 0850 – S – 24/2

Model

MCRPL



MCRPLF



Type

90	standard type
98	long piston type ※only for MCRPL

Piston seals

—	NBR (for piston speeds V≦1 m/s)
V	VITON (for piston speeds V＞1m/s)

Tube I.D.

16
25
32
40
50
63

for MCRPLF

Stoke

100~5600 mm (four codes)

Grease lubrication

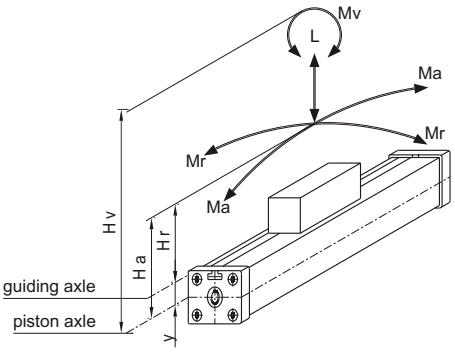
—	standard
S	slow motion grease

Accessory

※Speed range for the different greases:

- **Standard grease**:
  NBR piston seals: 0.1m/s≦V≦1m/s
  VITON piston seals: V＞1m/s
- **Slow motion grease**:
  NBR piston seals: V＜0.1m/s
  VITON piston seals: V＜0.2m/s

Forces and moments



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

MCRPL

Cylinder		Effect force (N) at 6 bar	Cushion (mm)	Max. allowed load (N)	Max. allowed bending moment (Nm)		Max. allowed torque (Nm)
ϕ	y	F	S	L	Ma axial	Mr radial	Mv central
16	9	110	15	120	4	0.3	0.5
16L	9	110	15	120	5	0.4	0.6
25	14	250	21	300	15	1.0	3.0
25L	14	250	21	300	20	1.5	6.0
32	18	420	26	450	30	2.0	4.5
32L	18	420	26	450	60	3.5	10.0
40	23	640	32	750	60	4.0	8.0
40L	23	640	32	750	130	7.0	20.0

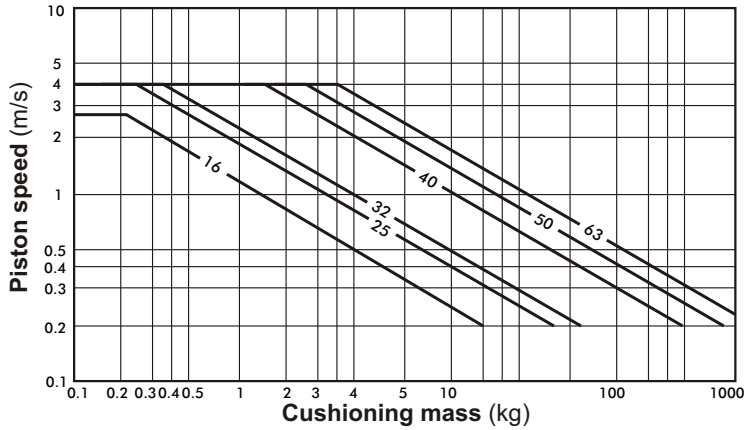
- 16L~40L: cylinder with long piston for heavy bending, torque moments and vertical movement.
- The figures above are max. values based on light shock free duty and speed of v≦0.2m/s. Max. pressure 6 bar.
- An exceeding of the values in dynamic operations, even for short moments, has to be avoided.
- Attention: Resulting forces could lead to extreme exceedings of the values. In case of undefinable situations the above max. values have to be reduced by 10-20%.

MCRPLF

Cylinder		Effect force (N) at 6 bar	Cushion (mm)	Max. allowed load (N)	Max. allowed bending moment (Nm)		Max. allowed torque (Nm)
ϕ	y	F	S	L	Ma axial	Mr radial	Mv central
16	9	110	15	120	4	0.45	0.5
25	14	250	21	300	15	1.5	3.0
32	18	420	26	450	30	3.0	4.5
40	23	640	32	750	60	6.0	8.0
50	28	1000	32	1200	115	10.0	15.0
63	36	1550	40	1650	200	12.0	24.0

- The figures above are max. values based on light shock free duty and speed of v≦0.2m/s. Max. pressure 6 bar.
- An exceeding of the values in dynamic operations, even for short moments, has to be avoided.
- Attention: Resulting forces could lead to extreme exceedings of the values. In case of undefinable situations the above max. values have to be reduced by 10-20%.

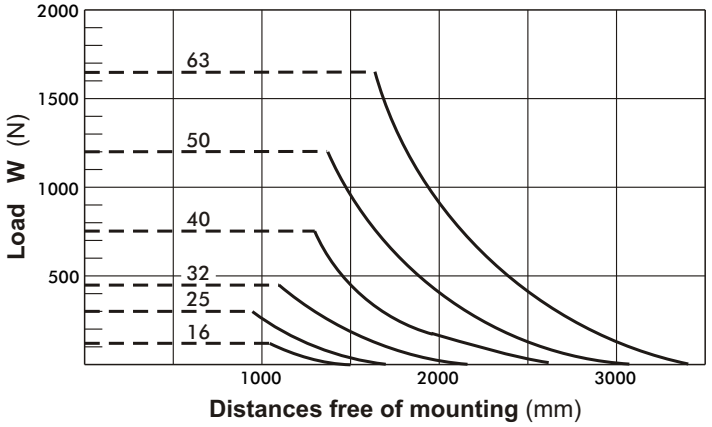
Cushioning diagram



Pay attention to the following points:

- If the limits above are exceeded additional shock absorbers are necessary.
- For piston speeds < 0.1m/s (NBR) ,< 0.2m/s (VITON) slow speed lubrication is necessary.
- Maximun seal life will be achieved when piston speeds do not exceed 1m/s.

Positioning of cylinder mountings



Deflection 1 mm

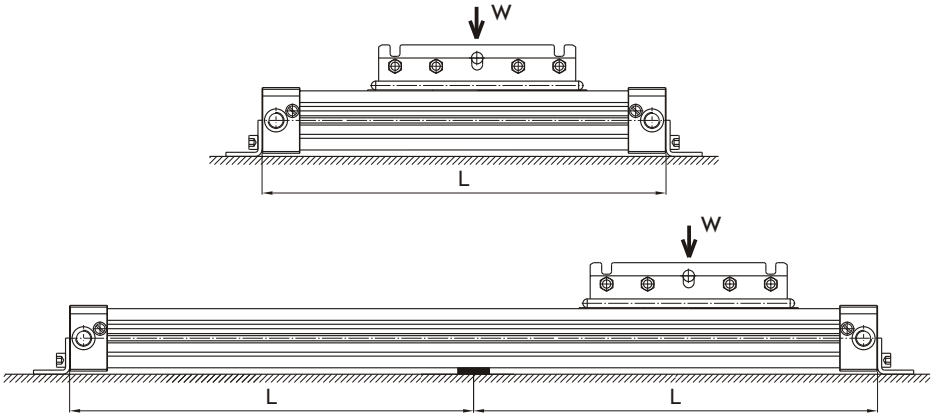
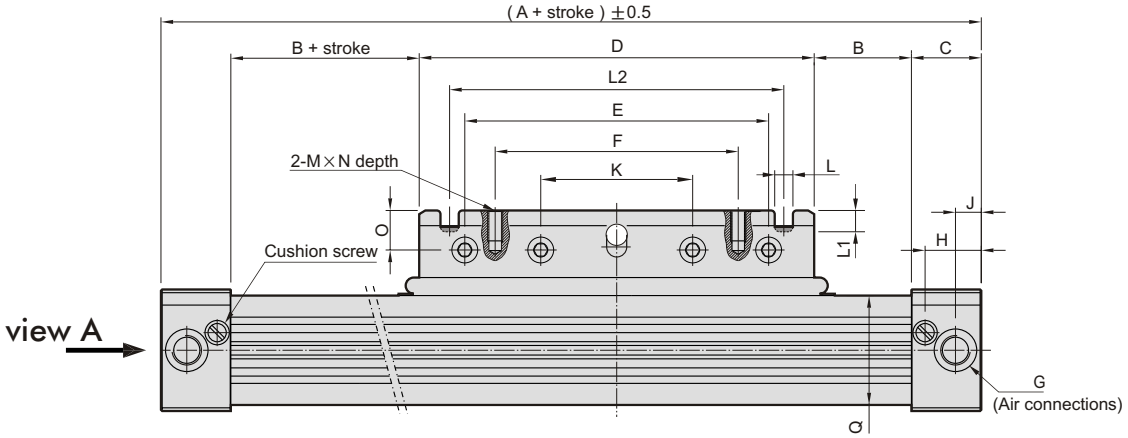


Diagram information :

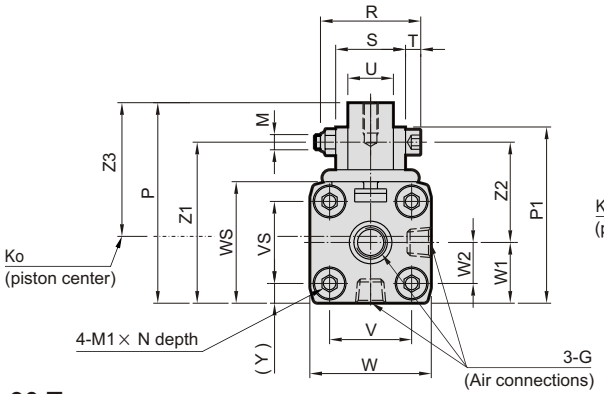
- Calculated deflections without support of 0.5-1 mm allow exceeding of the approved limits.
- Calculated deflections without support of >1-max.1.5mm require reduction of approved limits.

MCRPL Dimensions ϕ16~ϕ40

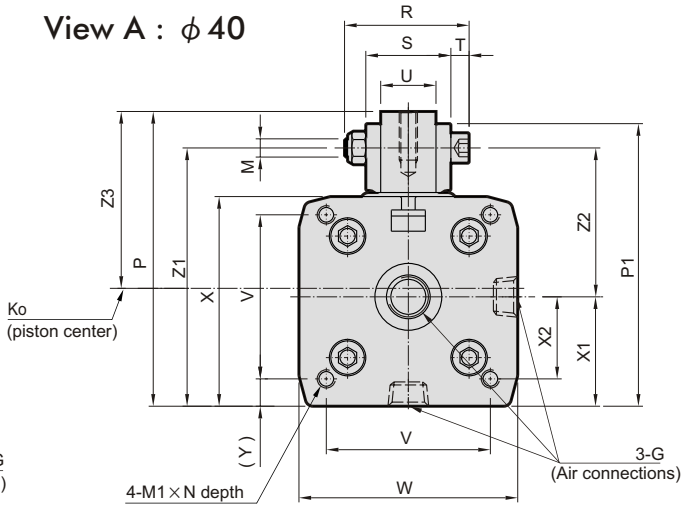
RODLESS CYLINDER



View A : ϕ16~32



View A : ϕ40



90 Type

Code / Tube I.D.	A	B	C	D	E	F	G	H	J	K	L	L1	L2	M	M1	N	O	P	P1
16	130	12	15	76	64	48	M5	12	5.5	32	-	-	-	M4	M3	7	6	43.5	42.3
25	200	17	23	120	100	80	G 1/8	18.5	8.5	50	6	7	100	M5	M5	11	13	66	58
32	250	23	27	150	110	90	G 1/4	22	10.5	55	6	7	130	M6	M6	14	12	86	82
40	300	45	30	150	110	90	G 1/4	24	15	55	6	7	130	M6	M6	15	12	97	93

Code / Tube I.D.	Q	R	S	T	U	V	VS	W	WS	W1	W2	X	X1	X2	Y	Z1	Z2	Z3
16	25×24.5	27	18	4	10	18	18	27	27	13.5	9	--	--	--	4.5	37.5	24	28.8
25	36×36	35	23	5	15	27	27	40	40	20	13.5	--	--	--	6.5	53	33	38.8
32	48×52	41	27	6	18	36	40	52	56	30	22	--	--	--	8	74	44	53.5
40	58×58	41	28	6	18	54	--	72	--	--	--	69	36	27	9	85	49	58.2

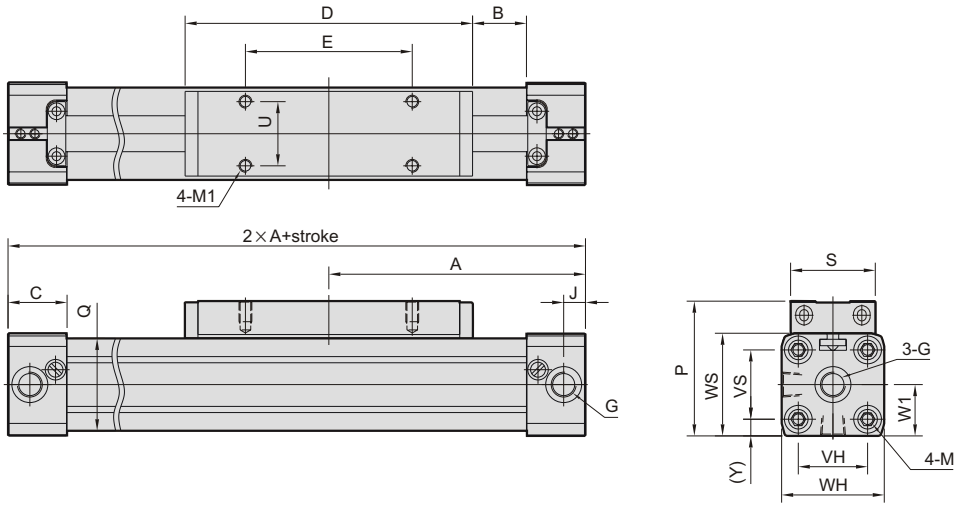
98 Type

Code / Tube I.D.	A	B	C	D	E	F	G	H	J	K	L	L1	L2	M	M1	N	O	P	P1
16L	180	37	15	76	64	48	M5	12	5.5	32	-	-	-	M4	M3	7	6	43.5	42.3
25L	300	67	23	120	100	80	G 1/8	18.5	8.5	50	6	7	100	M5	M5	11	13	66	58
32L	400	23	27	300	240	180	G 1/4	22	10.5	120	-	-	-	M6	M6	14	12	86	82
40L	500	70	30	300	240	180	G 1/4	24	15	120	-	-	-	M6	M6	15	12	97	93

Code / Tube I.D.	Q	R	S	T	U	V	VS	W	WS	W1	W2	X	X1	X2	Y	Z1	Z2	Z3
16L	25×24.5	27	18	4	10	18	18	27	27	13.5	9	--	--	--	4.5	37.5	24	28.8
25L	36×36	35	23	5	15	27	27	40	40	20	13.5	--	--	--	6.5	53	33	38.8
32L	48×52	41	27	6	18	36	40	52	56	30	22	--	--	--	8	74	44	53.5
40L	58×58	41	28	6	18	54	--	72	--	--	--	69	36	27	9	85	49	58.2

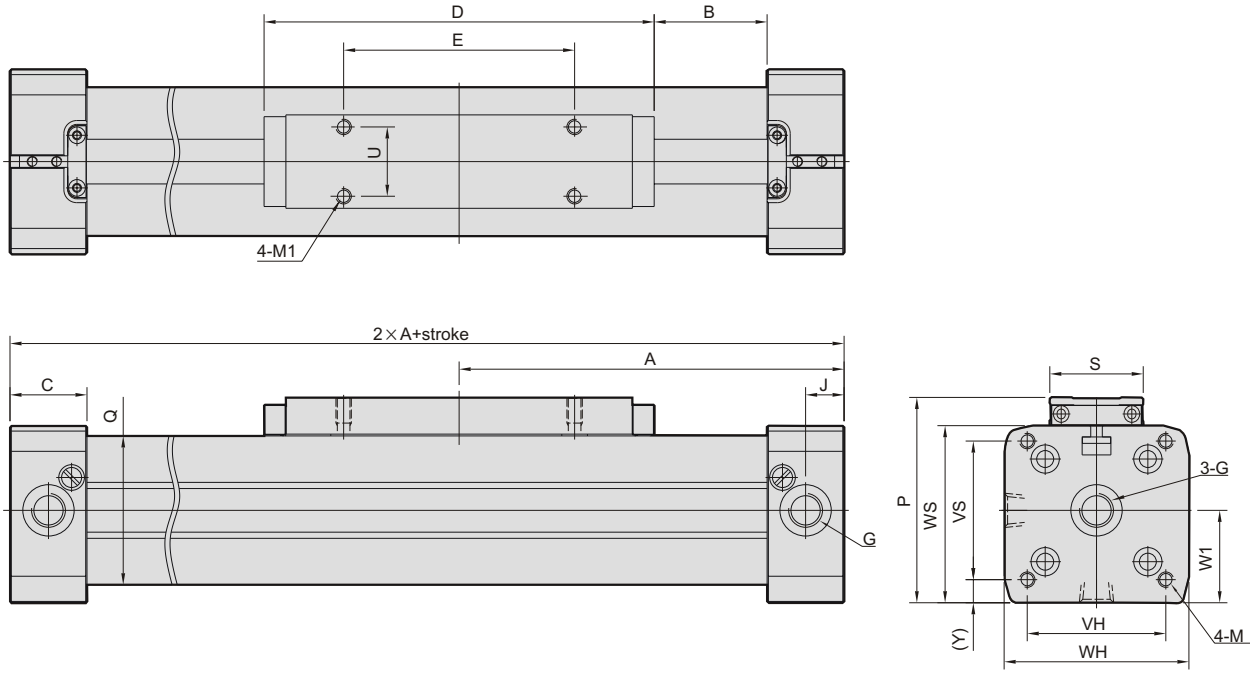
● 16L~40L: cylinder with long piston for heavy bending and torque moments.

ϕ16 ~ϕ32



Code / Tube I.D.	A	B	C	D	E	G	J	M	M1	P	Q	S	U	VH	VS	WH	WS	W1	Y
16	65	15.5	15	69	36	M5	5.5	M3×7depth	M4×7depth	36.5	25×24.5	22	16.5	18	18	27	27	13.5	4.5
25	100	21.5	23	112	65	G1/8	8.5	M5×12depth	M5×8depth	52.5	36×36	33	25	27	27	40	40	20	6.5
32	125	22.0	27	152	90	G1/4	10.5	M6×15depth	M6×8depth	66.5	48×52	36	27	36	40	52	56	30	8

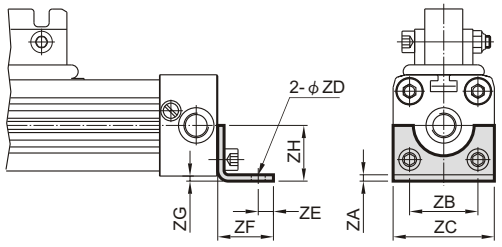
ϕ40~ϕ63



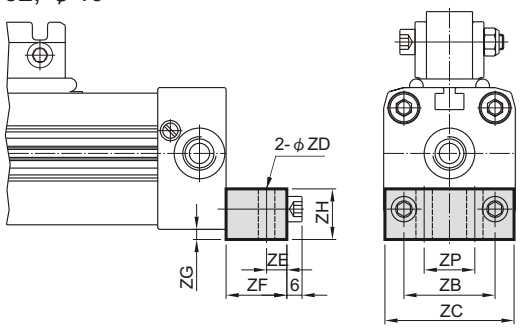
Code / Tube I.D.	A	B	C	D	E	G	J	M	M1	P	Q	S	U	VH	VS	WH	WS	W1	Y
40	150	44	30	152	90	G1/4	15	M6×15depth	M6×10depth	80	58×58	36.4	27	54	54	72	69	36	9
50	175	42	33	200	110	G1/4	11.7	M6×15depth	M6×10depth	89	77×78	56	27	70	70	80	80	43.6	5
63	215	47.5	50	235	155	G3/8	25	M8×17depth	M8×14depth	123	102×102	50	36	78	78	106	106	62.5	14.5

End cover bracket (foot) for MCRPL / MCPRLF

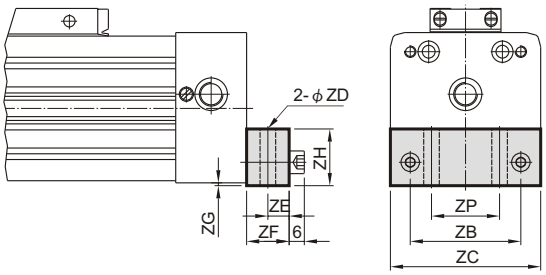
ϕ16, ϕ25



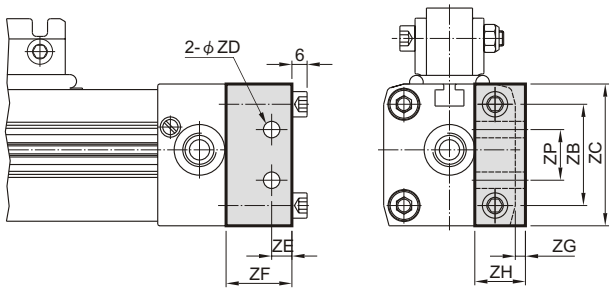
ϕ32, ϕ40



ϕ50, ϕ63



ϕ32※

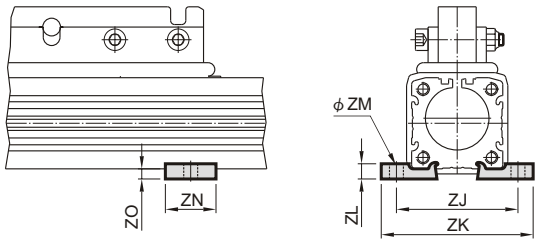


Code / Tube I.D.	ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZH	ZP	order number
16	1.6	18	26	3.6	4	14	1.5	12.5	--	PL 24/1
25	2.5	27	40	5.5	6	22	2	18	--	PL 24/2
32	--	36	51	6.5	8	24	4	20	20	PL 24/3
32※	--	40	56	6.5	8	26	4	20	20	PL 24/3.1

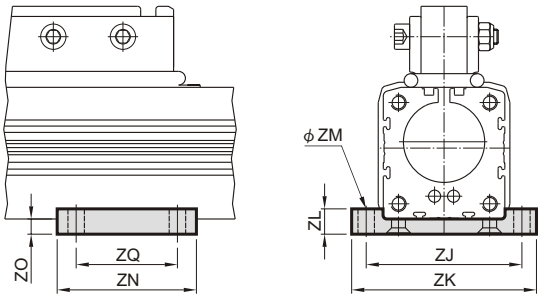
Code / Tube I.D.	ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZH	ZP	order number
40	--	54	71	9	11.5	24	2	20	30	PL 24/4
50	--	70	80	9	12.5	25	2	25	45	PL 24/5
63	--	78	106	11	15	30	2	40	48	PL 24/6

Mid section support for MCRPL / MCPRLF

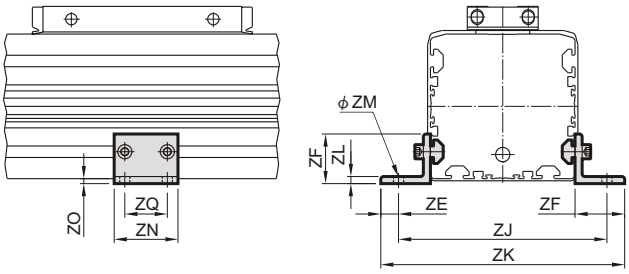
ϕ16, ϕ25



ϕ32, ϕ40



ϕ50, ϕ63



Code / Tube I.D.	ZE	ZF	ZJ	ZK	ZL	ZM	ZN	ZO	ZQ	order number
16	--	--	41.5	53	5	5.5	20	3	--	PL 25/1
25	--	--	48	60	6	5.5	20	4	--	PL 25/2
32	--	--	61	73	10	6.5	55	6	40	PL 25/3
40	--	--	70	85	10	6.5	60	7.2	45	PL 25/4
50	12.8	35	120	147	5	6.6	45	3.5	30	PL 25/5
63	12.5	35	147	172	5	6.6	45	3.5	30	PL 25/6

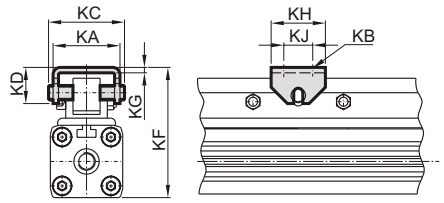
MCRPL* Accessories for mounting & sensor switch

RODLESS CYLINDER

Articulated carrier

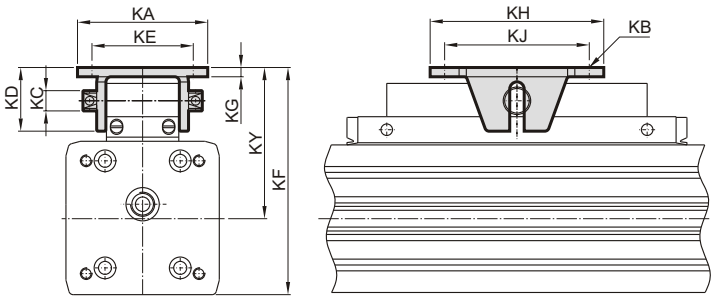
MCRPL

ϕ16, ϕ25



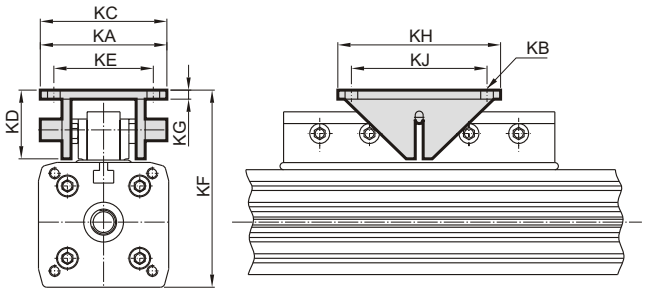
MCRPLF

ϕ63



MCRPL

ϕ32, ϕ40



Code / Tube I.D.	KA	KB	KC	KD	KE	KF**	KG	KH	KJ	KY**	order number
16	25	4.5	28	13	--	47-50	2	20	10	33	PL 225/1
25	37	5.5	42	20	--	72-75	3	30	16	50	PL 225/2
32	70	6.5	70	38	55	91-100	5	90	75	102.3	PL 225/3
40	70	6.5	70	38	55	111-120	5	90	75	102	PL 225/3
63	90	9	14	43.7	70	152-164	6	120	100	104.5	PL 225/6

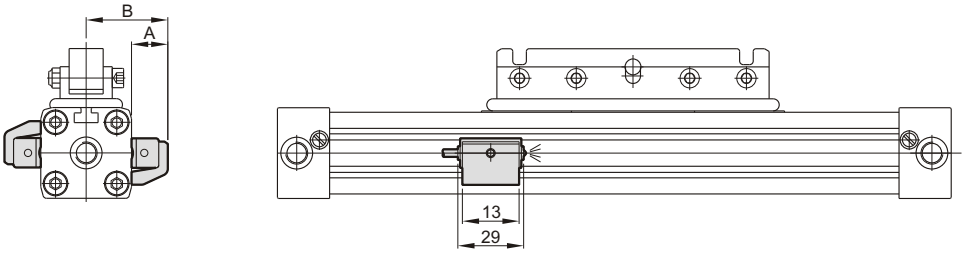
** KF / KY dimension are variable within the length of the slot of the load friction.

Sensor switch

Specification:

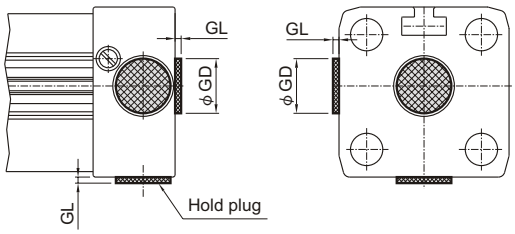
Model	RCAL
Switch type	Reed switch
Contracts	Normal open
Voltage range	DC/AC 5~240V
Current range	100mA max.
Switch range	10W max.
Shock resistance	30 G
Voltage drop	2.5V max.
Response time	Max. 1ms
Temperature	-10~70℃
Lead wire	ϕ4, 2C, PVC
Lead wire length	2 m
Indicator lamp	LED lights up when ON
Enclosure classification	IP 67 (NEMA 6)
Indicator	green LED

Code / Tube I.D.	A	B	Switch holder
16	16	29.5	HPL
25	15.5	35.5	
32	15.5	41.5	
40	10.5	46.5	
50	16.5	56	
63	15.5	68.5	



MCRPL Hold plug ϕ16~ϕ50

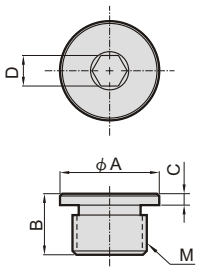
RODLESS CYLINDER



Code / Tube I.D.	GL	GD
16	0.7	7.5
25	1.0	13
32	0.7	18
40	0.7	18
50	0.8	18

Note：The dimension of end cap which lock hold plug.

Hold plug



Code / Tube I.D.	A	B	C	D	E
16	7.5	5.3	1.3	2	M5×0.8
25	13	8	1.5	4	G 1/8
32~50	18	10	1.5	4	G 1/4