Specification

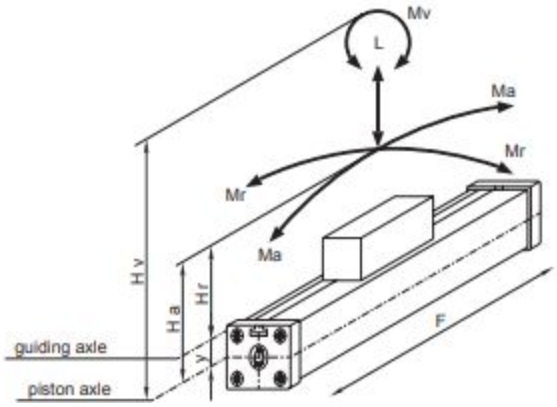
Acting type		Double acting			Double acting			
Tube I.D.(mm)		16	25	32,40	16	25	32,40,50	63
Port size		M5	G1/8	G1/4	M5	G1/8	G1/4	G3/8
No. of port		3						
Medium		Air						
Operating pressure range		0.1~0.78 MPa						
Stroke range (*1)	ø16	100~3300 mm						
	ø25~63	100~5600 mm						
Ambient Temperature		-10°C~+80°C (No freezing)						
Lubrication		With or without lubrication						
Cushion		With adjustable cushion at both ends						
Sensor Switch		RCAL						
Sensor Switch Holder		HPL						

*1. Minimum stroke unit 1mm.
*2. The tube isn't airtight, so the cylinder is allowed little leakage.
Before the cylinder is sale, it has passed the standard of leakage test.

Features

- Equal forces on both ends of the piston.
- High cantilever and direct loads can be taken on piston.
- Multi ported endcaps as standard.
- Self guiding.
- High temperature seals available as a standard option.
- Many mounting options available.
- 50% space saving when compared to conventional cylinders.
- Reed switches available.
- Magnetic as standard.
- Simple construction enables rapid servicing of cylinder
- Slow speed grease available as option to enable very slow and smooth piston movement.

Forces & Moments



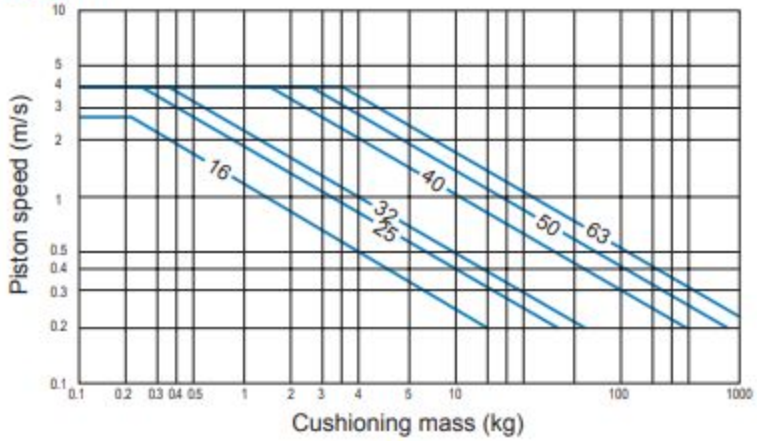
Formulas

Ma = F × Ha
Mr = F × Hr
Mv = F × Hv

Cylinder		Effect force (N) at 6 bar	Cushion (mm)	Max. allowed load (N)	Max. allowed bending moment (Nm)		Max. allowed torque (Nm)
ø	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 ≤ .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 exceeding 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 of more than ≥ 1m/s viton seals are recommended.
- For piston speeds ≤ 0.1m/s (NBR), ≤ 0.2m/s (VITON) slow speed lubrication is necessary see at sperpart kids.
- Maximum seal life will be achieved when piston speeds do not exceed 1m/s.

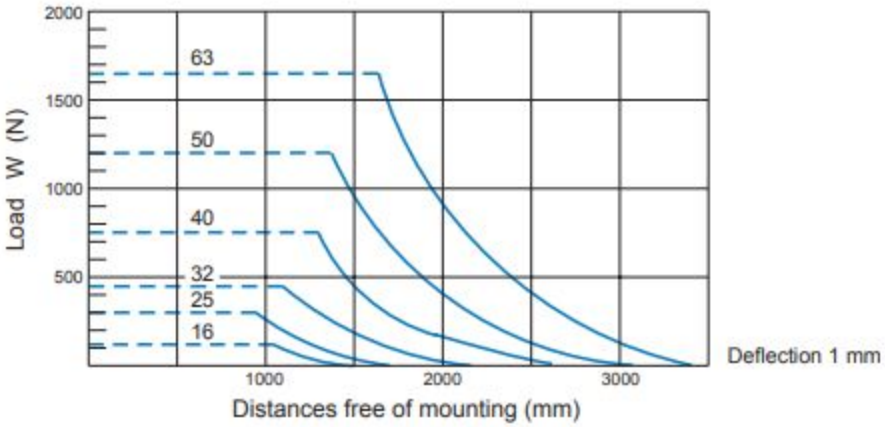
Cylinder weight

Unit: g

Model / Tube I.D.	Basic weight
ø16	240
ø25	760
ø32	1,670
ø40	2,760

Model / Tube I.D.	Basic weight
ø16	230
ø25	710
ø32	1,150
ø40	2,700
ø50	4,000
ø63	7,360

Positioning of cylinder mountings



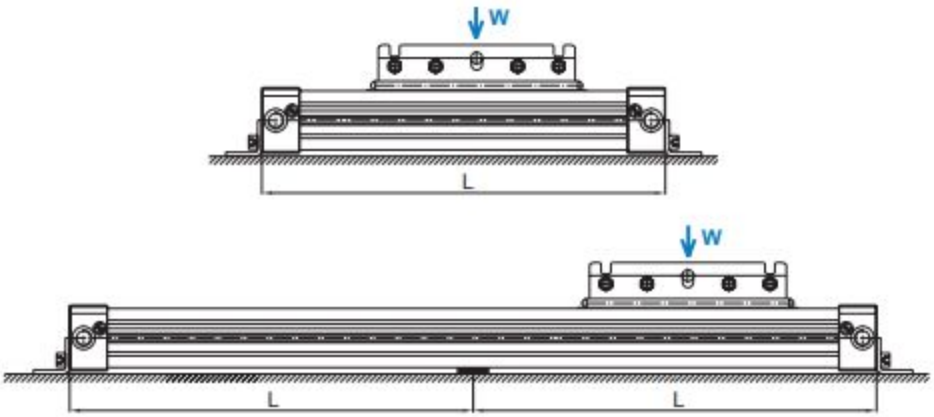
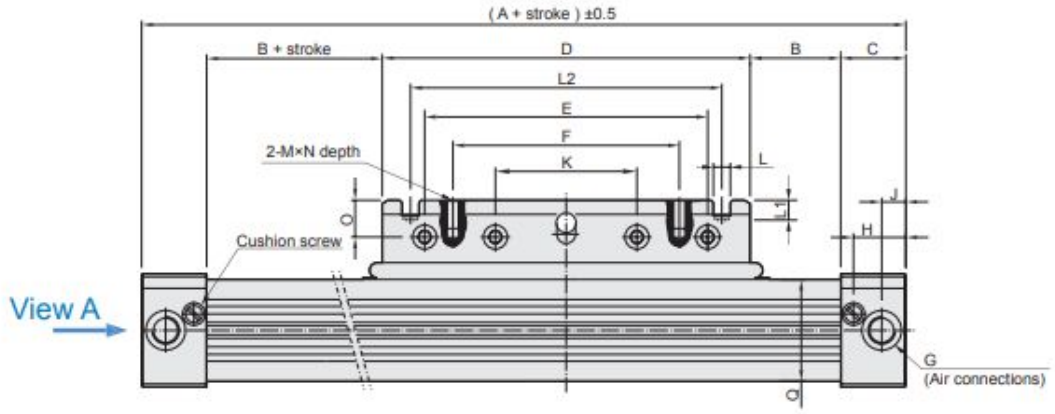
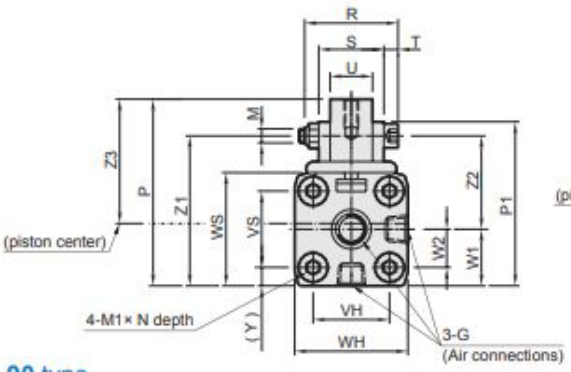


Diagram information

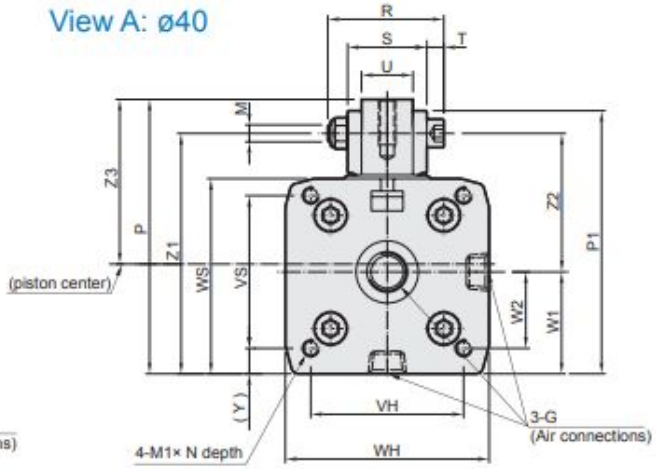
- Calculated deflections without support of 0.5-1 mm allow exceeding of the approved limits.
- Calculated deflections without support of > 1-max.1.5 mm require reduction of approved limits.



View A: ø16~32



View A: ø40



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	G1/8	18.5	8.5	50	6	7	100	M5	M5	11	13	66	58
32	250	23	27	150	110	90	G1/4	22	10.5	55	6	7	130	M6	M6	14	12	86	82
40	300	45	30	150	110	90	G1/4	24	15	55	6	7	130	M6	M6	15	12	97	93

Code / Tube I.D	Q	R	S	T	U	VH	VS	WH	WS	W1	W2	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	54	72	69	36	27	9	85	49	58.2

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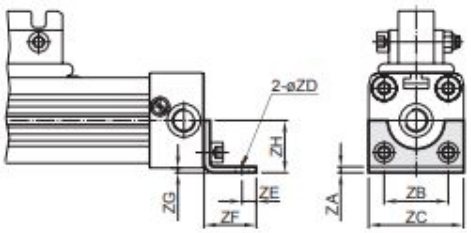
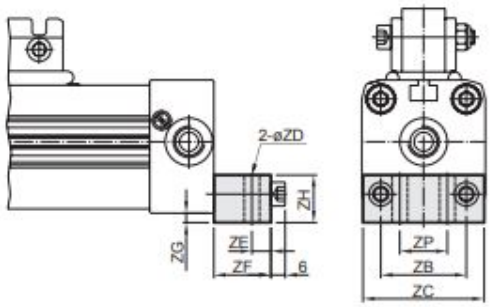
End cover bracket (foot)

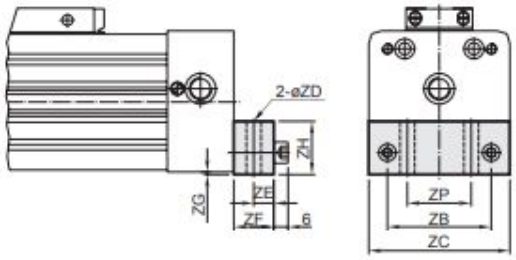
ø16, ø25
Material: Carbon steel



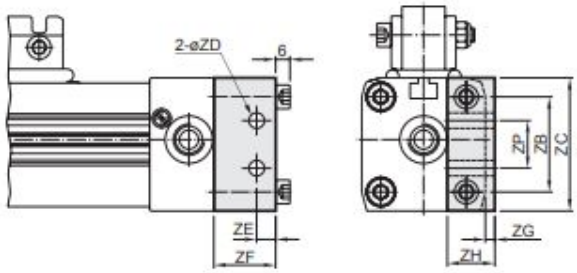
ø32, ø40
Material: Aluminum alloy



ø50, ø63
Material: Aluminum alloy



ø32*
Material: Aluminum alloy



Code / Tube I.D.	ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZH	ZP	Weight (g)
16	1.6	18	26	3.6	4	14	1.5	12.5	–	16
25	2.5	27	40	5.5	6	22	2.5	18	–	55
32	–	36	51	6.5	8	24	4	20	20	153
32*	–	40	56	6.5	8	26	4	20	20	177
40	–	54	71	9	11.5	24	2	20	30	198
50	–	70	80	9	12.5	25	2	25	45	283
63	–	78	106	11	15	30	2	40	48	715

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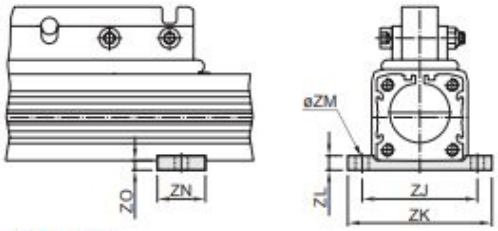
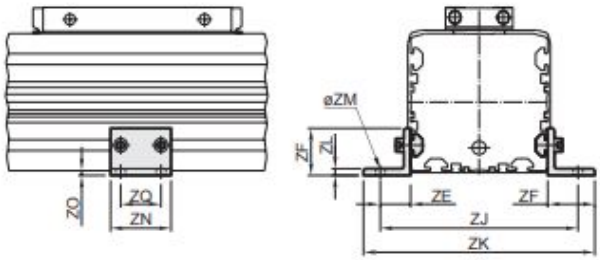
Mid section support

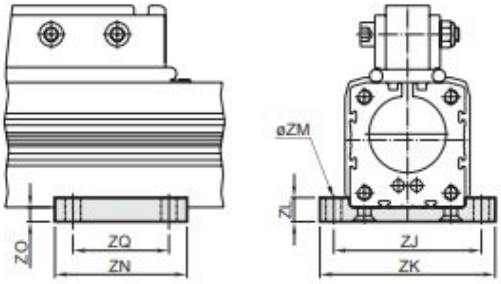
ø16, ø25
Material: Aluminum alloy



ø50, ø63
Material: Aluminum alloy



ø32, ø40
Material: Aluminum alloy



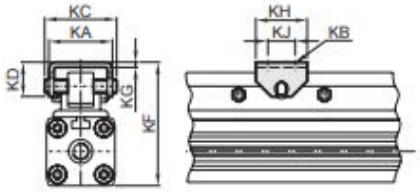
Code / Tube I.D.	ZE	ZF	ZJ	ZK	ZL	ZM	ZN	ZO	ZQ	Weight (g)
16	--	--	38	50	6	5.5	20	3	--	10
25	--	--	48	60	6	5.5	20	4	--	12
32	--	--	61	73	10	6.5	55	6	40	86
40	--	--	70	85	10	6.5	60	(7.2)	45	119
50	22.0	35	120	146	4.8	6.6	45	0.5	30	112
63	22.5	35	147	172	4.8	6.6	45	3.5	30	121

( ) Reference

Articulated carrier

The material of articulated carrier and pin: Carbon steel

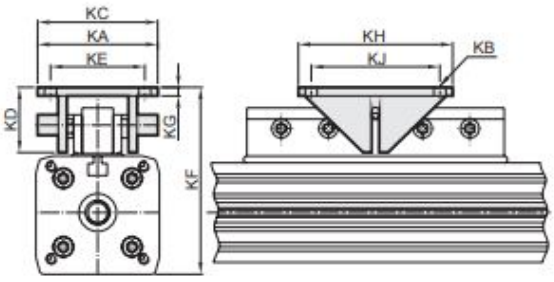
ø16, ø25



KA	KB	KC	KD	KE	KF**	KG	KH	KJ	KY**	Weight (g)
25	4.5	28	13	–	47-50	2	20	10	33	36
37	5.5	42	20	–	72-75	3	30	16	50	114
70	6.5	70	38	55	91-100	5	90	75	102.3	450
70	6.5	70	38	55	111-120	5	90	75	102	–
90	9	–	43.7	70	136-151	6.4	120	100	93-108	–
90	9	–	43.7	70	152	6.4	120	100	99	–

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

ø32, ø40



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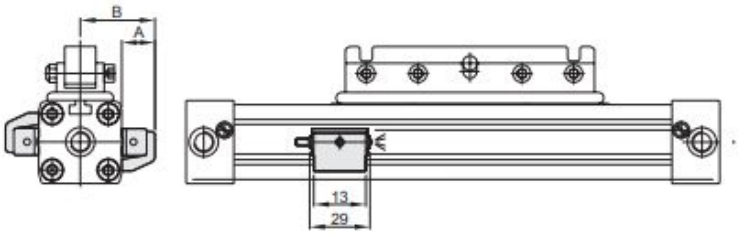
Sensor switch

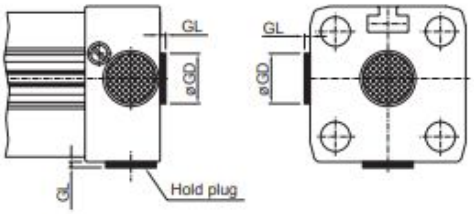
Specification

Model	
Switch type	Reed switch
Contracts	Normal open
Voltage range	DC/AC 5~240V
Current range	100 mA max.
Switch range	10W max.
Shock resistance	30 G
Voltage drop	2.5V max.
Response time	Max. 1ms
Temperature	-10~70°C
Lead wire	ø4, 2C, PVC
Lead wire length	2 m
Indicator lamp	LED lights up when ON
Enclosure classification	IP 67 (NEMA 6)
Indicator	Green LED



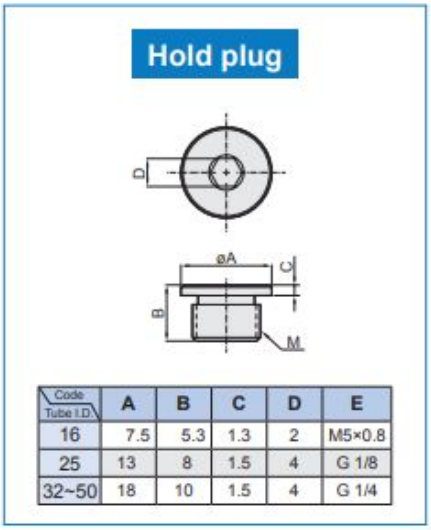
Code / Tube I.D	A	B
16	16	29.5
25	15.5	35.5
32	15.5	41.5
40	10.5	46.5
50	16.5	56
63	15.5	68.5

Hold plug



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.



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