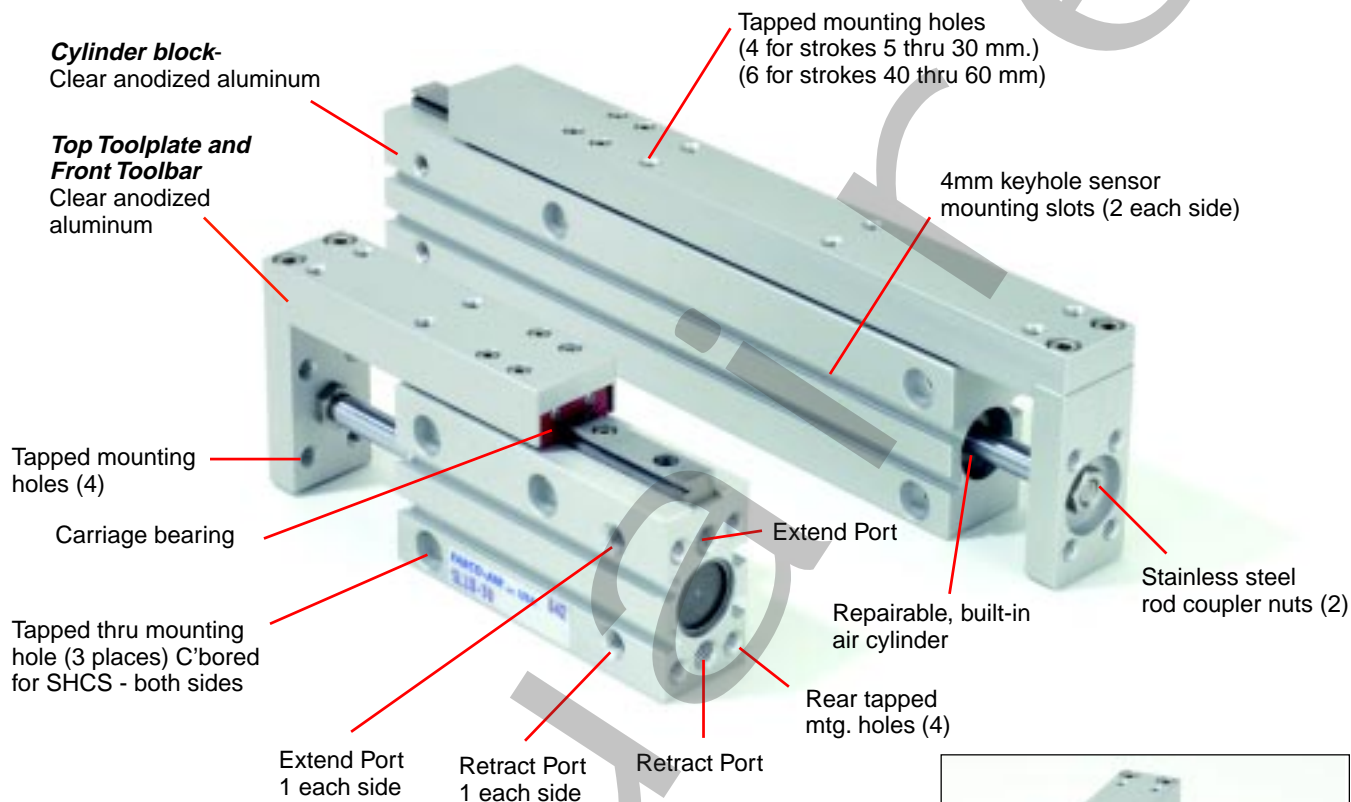




NEW PRODUCT BULLETIN

Finger Slides

"SL" Series Compact Finger Slides



Available in 3 Bores
10, 16 & 20 mm

Standard Strokes
5, 10, 15, 20, 25,
30, 40, 50, 60 mm

Magnetic piston is standard feature for position sensing

Now get directly interchangeable, universal mount, compact pneumatic slides!

Check list of **Competitive Advantages** of "SL" Series Finger Slides

- ✓ Longer strokes for all models.
- ✓ New round profile sensors feature surge suppression, polarity protection, LED indicator, and extremely fast switching speeds.
- ✓ Rubber bumpers provide cushioned stop.

Check list of **Standard Features**

- ✓ Four 4mm keyhole sensor mounting slots, two on each side.
- ✓ Clear anodized toolbar and toolplate.
- ✓ Stainless steel coupler nuts.

Versatile load attachment

- ✓ Tapped holes on top toolplate: 4 on strokes 5 thru 30mm. 6 on strokes 40 thru 60 mm.
- ✓ Tapped holes on front toolbar (4).

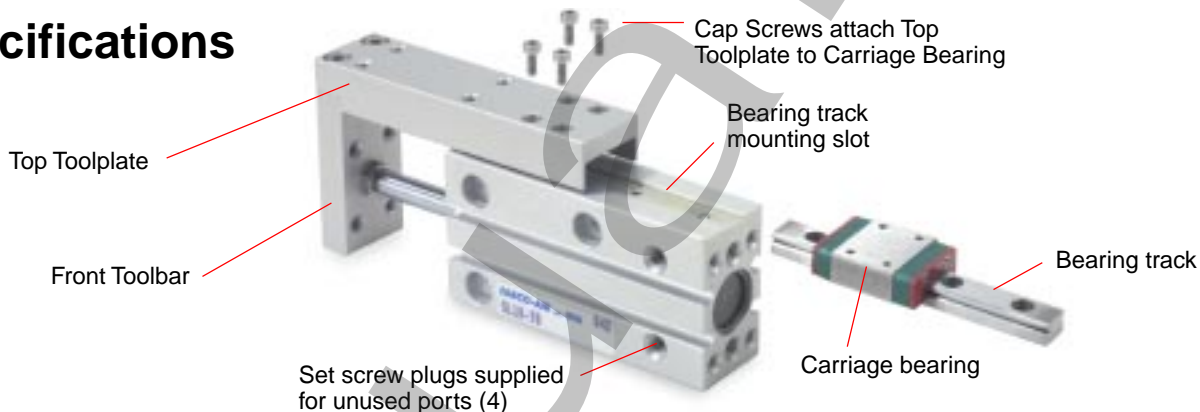
Easy, convenient slide mounting

- ✓ Side thru holes with C'bores in body.
- ✓ Side tapped mounting holes.
- ✓ Bottom tapped mounting holes.
- ✓ Rear tapped mounting holes.
- ✓ Toolbars are slightly narrower than body, allowing side mounting with clearance between toolbar and mounting surface.
- ✓ Ports accessed on either side and rear.



"SL" Series Finger Slides

Specifications

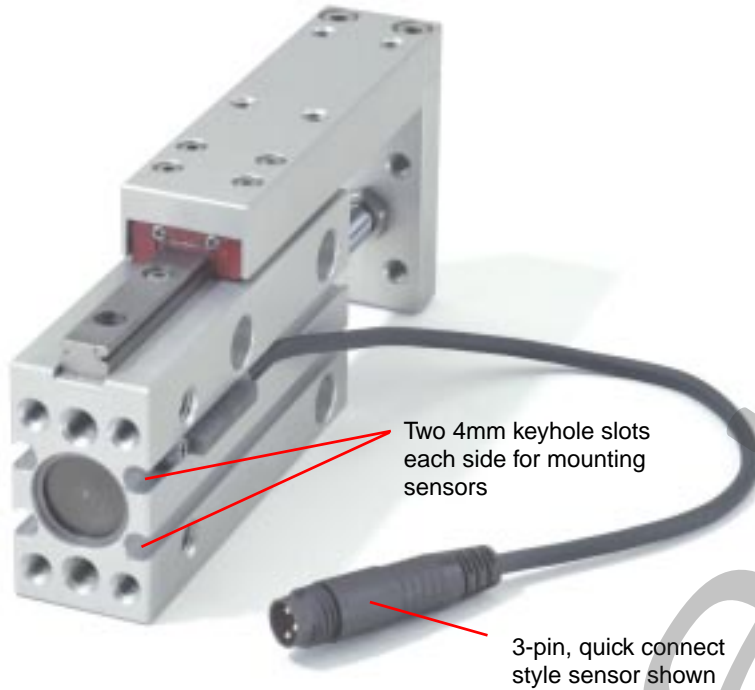


Specifications			
Bore Size (mm)	10	16	20
Bearing Track Width (mm)	7	9	12
Minimum Operating Pressure	10 psi 0.70 bar	10 psi 0.70 bar	10 psi 0.70 bar
Maximum Operating Pressure	140 psi 9.6 bar	140 psi 9.6 bar	140 psi 9.6 bar
Temperature Range	-10°C to 70°C (14°F to 158°F)		
Max. Recommended Speed	500 mm/sec. dependent on load values shown on pages 6 & 7		
Lubrication	Cylinder & Bearing: Factory Pre-lubed / Regular Lubrication Recommended		
Cushion	Rubber Bumpers both ends		
Cylinder seals	Buna-N		

Theoretical Force Output Guide			
Bore (Piston) Diameter (mm)	10	16	20
Rod Diameter (mm)	4	6	8
Extend Piston Area (in ²)	0.12	0.31	0.49
Retract Piston Area (in ²)	0.10	0.26	0.41

Weights (lbs)									
Model	Stroke (mm)								
	05	10	15	20	25	30	40	50	60
SL10	0.26	0.28	0.31	0.33	0.36	0.37	0.42	0.47	0.52
SL16	0.45	0.48	0.52	0.55	0.58	0.61	0.67	0.74	0.80
SL20	0.85	0.90	0.96	1.01	1.06	1.11	1.21	1.31	1.41

Magnetically Actuated Sensors



Two 4mm keyhole slots each side for mounting sensors

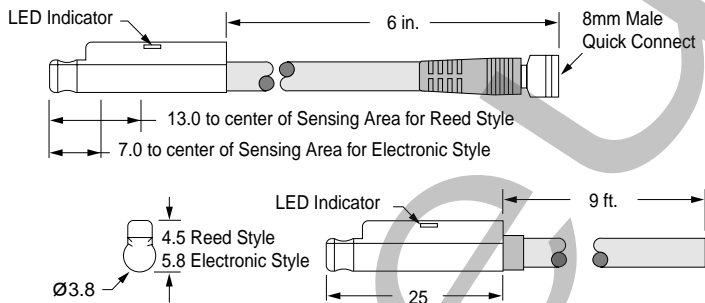
3-pin, quick connect style sensor shown

Round Profile Sensors feature surge suppression, polarity protection, LED indicator, and extremely fast switching speeds. They slide into mating 4mm keyhole slots on either side of the cylinder block and are easily positioned and locked in place with a set screw. They are offered in two styles: a quick connect style with a 6 inch pigtail and male connector, or a prewired style with a 9 foot lead.

Female Cordsets are available in both 3 and 4 pin configurations in 2 and 5 meter lengths.

Order sensors and cordsets separately from the tables below.

Sensor Dimensions (mm unless noted)



All sensors feature surge suppression, polarity protection, LED indicator, and extremely fast switching speeds.



Prewired sensor shown with 9 ft. lead



3 pin cordset shown with sensor pigtail

8mm Female Cordsets for Quick Connect Sensors

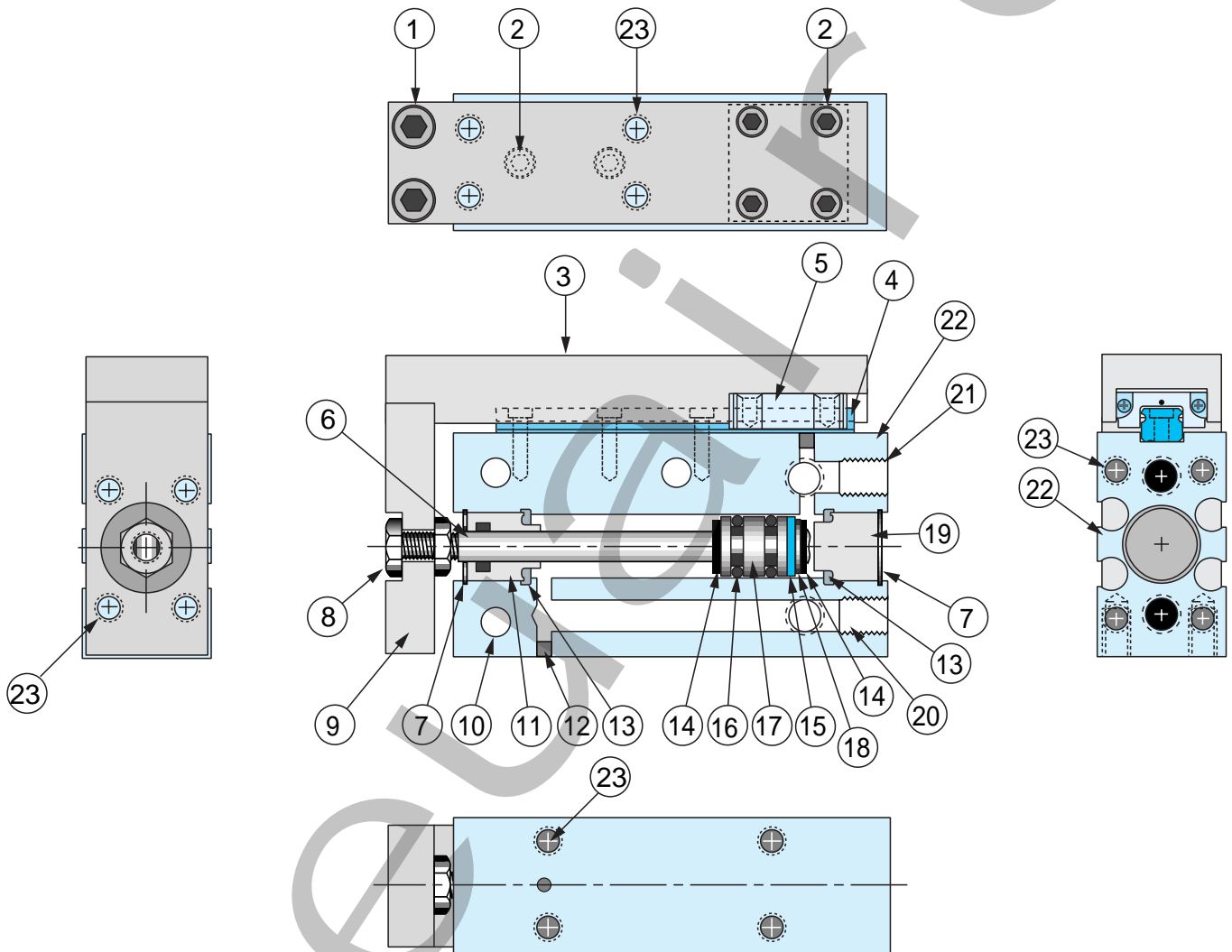
Cordset Description	Part No.	
2 meters, 3-Pin	CFC-2M	
5 meters, 3-Pin	CFC-5M	
2 meters, 4-Pin	CFC4-2M	
5 meters, 4-Pin	CFC4-5M	

Magnetic Sensors – Electrical Characteristics							Part Numbers			
Sensor Type	Function	Switching Voltage	Switching Current	Switching Power	Switching Speed	Voltage Drop	Prewired 9 ft. Part No.		Quick Connect Part No.	
Reed Switch for PLC's w/LED (current limiting)	SPST Normally Open	5-120V AC/DC 50/60 Hz	0.04 Amp max 0.005 Amp min.	4 Watts max.	0.5 ms operate 0.1 ms release	2.5 Volts	9C49-000-002		9C49-000-302 Requires 3 pin cordset	
Electronic LED and Sourcing	PNP Normally Open	6-30 VDC	0.2 Amp max.	6 Watts max.	1.5µs operate 0.5µs release	1.5 Volts	9C49-000-031		9C49-000-331 Requires 3 pin cordset	
Electronic LED and Sinking	NPN Normally Open	6-30 VDC	0.2 Amp max.	6 Watts max.	1.5µs operate 0.5µs release	1.5 Volts	9C49-000-032		9C49-000-332 Requires 3 pin cordset	
Electronic LED & Dual Output Sinking or Sourcing	Normally Open NPN or PNP Output	6-30 VDC	0.2 Amp max.	6 Watts max.	1.5µs operate 0.5µs release	1.5 Volts	9C49-000-050		9C49-000-350 Requires 4 pin cordset	

"SL" Series Finger Slides



Construction

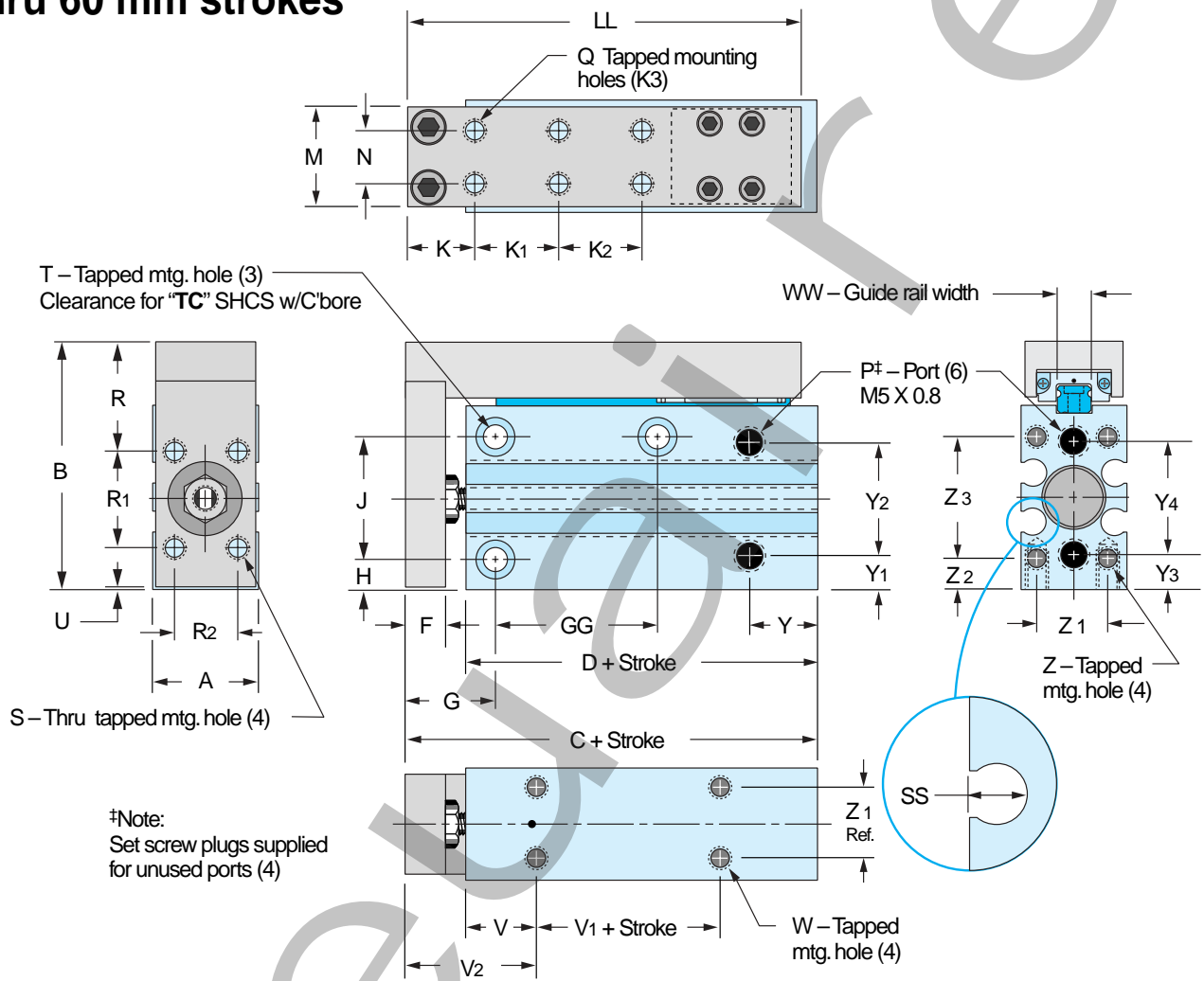


Quick Reference to Components

No.	Description	Material	No.	Description	Material
1	Hex socket head cap screw	stainless steel	14	Cushion/Bumper	Urethane
2	Hex socket head cap screw	stainless steel	15	Magnet for position sensors	plated neodymium
3	Top toolplate	anodized aluminum	16	Piston seal	Buna-N
4	Bearing track	precision bearing guide element	17	Piston	aluminum
5	Carriage bearing	recirculating ball bearing	18	Magnet retainer	
6	Piston rod	stainless steel	19	End cap	anodized aluminum
7	Retainer ring	plated carbon spring steel	20	Retract port	
8	Rod coupler nuts	stainless steel	21	Extend port	
9	Front toolbar	anodized aluminum	22	Cylinder block	anodized aluminum
10	Tapped mounting holes	w/counterbore for thru bolt	23	Tapped mounting holes	
11	Rod end cap	anodized aluminum			
12	Plug	stainless steel			
13	Cap seal	Buna-N			

Construction and Dimensions

5 thru 60 mm strokes



Bore	A	B	C	D	F	G	H	J	K	M	N	Q by depth	R	R1	R2	S	SS
10mm	20	47.0	46.5	35.0	7.5	16.5	5.0	23	11	19	11.0	M4 x 0.7 - 7	21.5	18	11	M4 x 0.7	3.8
16mm	25	53.5	56.0	42.0	10.0	19.0	5.5	27	14	24	16.0	M4 x 0.7 - 7	21.5	26	16	M4 x 0.7	4.6
20mm	32	64.5	68.0	52.5	11.0	21.5	6.0	34	14	31	20.0	M5 x 0.8 - 9.5	24.5	34	20	M5 x 0.8	5.9

Bore	T	TC	U	V	V1	V2	W by depth	WW	Y	Y1	Y2	Y3	Y4	Z by depth	Z1	Z2	Z3
10mm	M5 x 0.8	M4	0.5	12.0	5.0	23.5	M4 x 0.7 - 6	7.0	12.5	6.5	20	7.0	19	M4 x 0.7 - 6	13.0	5.0	23
16mm	M5 X 0.8	M4	1.0	12.0	10.0	26.0	M4 x 0.7 - 6	9.0	12.5	6.5	25	6.5	25	M4 x 0.7 - 6	17.0	5.5	27
20mm	M6 X 1.0	M5	1.0	15.0	10.0	30.5	M5 x 0.8 - 8	12.0	15.0	7.0	31	7.5	31	M5 x 0.8 - 5	20.0	6.0	34

Stroke	10 mm Bore					16 mm Bore					20 mm Bore				
	GG	K1	K2	K3	LL	GG	K1	K2	K3	LL	GG	K1	K2	K3	LL
5	14	10	-	4	49	20	10	-	4	58	20	10	-	4	64
10	14	10	-	4	49	20	10	-	4	58	20	10	-	4	64
15	24	20	-	4	59	30	20	-	4	68	25	20	-	4	74
20	24	20	-	4	59	30	20	-	4	68	25	20	-	4	74
25	30	30	-	4	69	40	30	-	4	78	40	30	-	4	84
30	30	30	-	4	69	40	30	-	4	78	40	30	-	4	84
40	45	20	20	6	79	50	20	20	6	88	50	20	20	6	94
50	55	25	25	6	89	60	25	25	6	98	70	25	25	6	104
60	60	30	30	6	99	60	30	30	6	108	70	30	30	6	114

"SL" Series Finger Slides

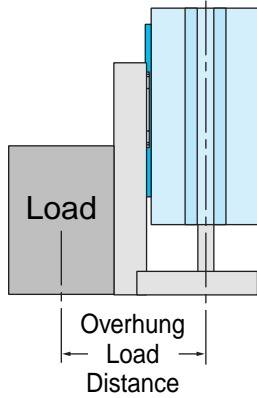


Horizontal Mounting



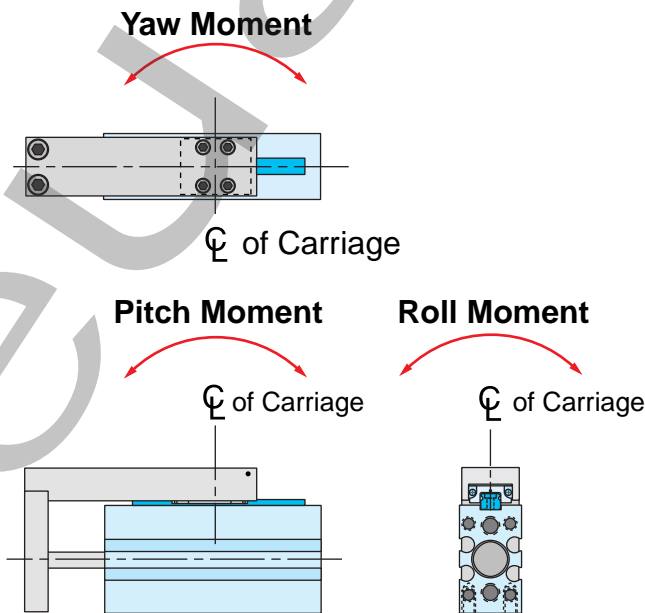
Maximum Safe Load in kg for 60mm stroke and shorter													
Bore	Speed mm/sec	Distance Lh in mm	Lv Distance in mm										
			0	10	20	30	40	50	60	70	80	90	100
10	100	50	1.70	1.30	0.91	0.78	0.65	0.56	0.50	0.43	0.40	0.36	0.33
		100	0.81	0.70	0.62	0.55	0.48	0.43	0.40	0.36	0.33	0.31	0.30
		200	0.42	0.39	0.35	0.32	0.30	0.28	0.26	0.25	0.23	0.22	0.20
	300	50	0.55	0.40	0.23	0.17	0.13	0.11	0.087	0.077	0.070	0.064	0.057
		100	0.55	0.31	0.21	0.16	0.11	0.09	0.078	0.068	0.059	0.052	0.050
		200	0.40	0.24	0.17	0.13	0.10	0.085	0.071	0.065	0.058	0.050	0.048
	500	50	0.20	0.16	0.09	0.06	0.048	0.039	0.032	0.028	0.024	0.021	0.020
		100	0.20	0.15	0.08	0.06	0.044	0.036	0.030	0.027	0.024	0.021	0.019
		200	0.17	0.13	0.07	0.05	0.037	0.031	0.026	0.023	0.020	0.018	0.015
16	100	50	3.20	2.30	1.90	1.50	1.30	1.10	0.97	0.90	0.80	0.73	0.67
		100	1.70	1.50	1.30	1.10	0.92	0.83	0.75	0.68	0.62	0.59	0.57
		200	0.95	0.88	0.80	0.76	0.70	0.67	0.61	0.59	0.54	0.50	0.49
	300	50	1.00	0.78	0.45	0.30	0.24	0.19	0.17	0.15	0.13	0.12	0.10
		100	1.00	0.61	0.39	0.28	0.22	0.18	0.17	0.14	0.12	0.11	0.10
		200	1.00	0.60	0.39	0.28	0.22	0.18	0.17	0.14	0.12	0.11	0.10
	500	50	0.40	0.30	0.18	0.12	0.09	0.08	0.062	0.051	0.046	0.040	0.038
		100	0.40	0.30	0.18	0.12	0.09	0.08	0.062	0.051	0.046	0.040	0.038
		200	0.34	0.25	0.15	0.10	0.076	0.068	0.052	0.043	0.039	0.034	0.032
20	100	50	5.30	3.80	3.00	2.50	2.20	1.90	1.70	1.50	1.40	1.20	1.10
		100	2.80	2.40	2.10	1.80	1.70	1.50	1.30	1.20	1.10	0.99	0.95
		200	1.40	1.30	1.20	1.10	0.98	0.91	0.89	0.81	0.78	0.72	0.70
	300	50	2.10	1.30	0.80	0.54	0.41	0.33	0.28	0.24	0.21	0.20	0.18
		100	2.10	1.30	0.72	0.50	0.39	0.31	0.27	0.23	0.21	0.19	0.18
		200	1.50	0.80	0.59	0.45	0.36	0.30	0.26	0.22	0.19	0.18	0.17
	500	50	0.73	0.59	0.32	0.20	0.17	0.14	0.11	0.092	0.086	0.078	0.070
		100	0.73	0.42	0.27	0.19	0.15	0.12	0.10	0.087	0.078	0.069	0.060
		200	0.62	0.36	0.23	0.16	0.13	0.10	0.085	0.074	0.066	0.059	0.051

Vertical Mounting



Maximum Safe Load in kg for 60mm stroke and shorter												
Bore	Speed mm/sec	Overhung Load Distance in mm										
		0	10	20	30	40	50	60	70	80	90	100
10	100	2.80	2.20	1.30	0.87	0.69	0.59	0.48	0.39	0.35	0.31	0.29
	300	0.58	0.50	0.25	0.16	0.11	0.087	0.077	0.070	0.063	0.058	0.053
	500	0.21	0.19	0.09	0.06	0.047	0.037	0.032	0.028	0.025	0.022	0.020
16	100	7.40	4.20	2.10	1.60	1.25	1.00	0.87	0.77	0.69	0.64	0.58
	300	1.10	0.93	0.46	0.32	0.22	0.19	0.16	0.13	0.11	0.094	0.090
	500	0.40	0.36	0.18	0.13	0.09	0.073	0.060	0.051	0.046	0.042	0.037
20	100	10.10	7.00	3.60	2.40	2.00	1.70	1.50	1.30	1.10	1.00	0.95
	300	2.20	1.70	0.85	0.55	0.42	0.32	0.28	0.23	0.21	0.18	0.17
	500	0.80	0.60	0.31	0.20	0.16	0.13	0.11	0.088	0.080	0.070	0.065

Pitch, Yaw, Roll Moments



Safe Dynamic Carriage Loading			
Bore / Stroke Range	Pitch Moment (kgf – m)	Yaw Moment (kgf – m)	Roll Moment (kgf – m)
10 (5-60mm strokes)	0.098	0.084	0.140
16 (5-60mm strokes)	0.19	0.16	0.28
20 (5-60mm strokes)	0.32	0.28	0.56

1 kgf – m = 9.8 N-m
1 kgf – m = 7.2 ft-lbs