

### L1039

LINEAR TABLES

#### Material

Base and carriage aluminium. Titanium shafting gib strips, silicone nitride ceramic balls, brass fasteners.

#### Technical Notes

Straight line accuracy:  $13\mu/25\text{mm}$  travel.

Positional repeatability:  $5\mu$ .

Coefficient of friction 0,003 typical.

#### Tips

Non-magnetic and no lubrication required due to the self-cleaning ball bearing design.

Stroke is centred on the mid-point of the slides (ie 50% of total stroke each way).

Order No.	Stroke	Load kg max.	$w_1$	$l_1$	$h_1$	$l_2$	$w_2$	$h_2$	$w_3$	$l_3$	Weight g
L1039.014-013	13	0.5	14.2	27.0	8.0	15.0	6.0	4.7	6.4	19.0	9
L1039.014-025	25	1.1	14.2	52.0	8.0	41.0	6.0	4.7	6.4	35.0	14
L1039.014-050	50	1.6	14.2	78.0	8.0	66.0	6.0	4.7	6.4	60.0	23
L1039.014-075	75	1.9	14.2	103.0	8.0	92.0	6.0	4.7	6.4	86.0	31
L1039.014-100	100	2.2	14.2	128.0	8.0	117.0	6.0	4.7	6.4	89.0	34
L1039.014-127	127	2.5	14.2	154.0	8.0	142.0	6.0	4.7	6.4	114.0	43
L1039.019-013	13	1.1	19.0	27.0	10.4	15.0	9.0	6.3	9.5	19.0	11
L1039.019-025	25	1.4	19.0	52.0	10.4	41.0	9.0	6.3	9.5	35.0	26
L1039.019-050	50	1.6	19.0	78.0	10.4	66.0	9.0	6.3	9.5	60.0	37
L1039.019-075	75	1.9	19.0	103.0	10.4	92.0	9.0	6.3	9.5	86.0	48
L1039.019-100	100	2.2	19.0	128.0	10.4	117.0	9.0	6.3	9.5	89.0	60
L1039.019-127	127	2.5	19.0	154.0	10.4	142.0	9.0	6.3	9.5	114.0	71
L1039.025-013	13	1.4	25.4	40.0	12.7	32.0	10.0	6.3	12.7	32.0	34
L1039.025-025	25	1.6	25.4	65.0	12.7	57.0	10.0	6.3	12.7	57.0	48
L1039.025-038	38	1.8	25.4	78.0	12.7	65.0	10.0	6.3	12.7	65.0	54
L1039.025-050	50	2.1	25.4	90.0	12.7	82.0	10.0	6.3	12.7	82.0	62
L1039.025-075	75	2.5	25.4	116.0	12.7	108.0	10.0	6.3	12.7	108.0	142
L1039.027-019	19	2.1	26.9	40.0	13.4	32.0	10.0	7.9	12.7	28.0	37
L1039.027-038	38	2.5	26.9	65.0	13.4	57.0	10.0	7.9	12.7	54.0	65
L1039.027-050	50	2.7	26.9	90.0	13.4	82.0	10.0	7.9	12.7	79.0	85
L1039.027-075	75	3.4	26.9	116.0	13.4	102.0	10.0	7.9	12.7	82.0	147
L1039.027-100	100	4.1	26.9	152.0	13.4	140.0	10.0	7.9	12.7	102.0	170
L1039.027-150	150	4.8	26.9	203.0	13.4	190.0	10.0	7.9	12.7	127.0	198
L1039.027-200	200	5.4	26.9	254.0	13.4	240.0	10.0	7.9	12.7	178.0	227
L1039.038-025	25	2.1	38.0	51.0	15.8	35.0	16.0	8.6	19.0	37.0	82
L1039.038-050	50	2.7	38.0	76.0	15.8	60.0	16.0	8.6	19.0	60.0	122
L1039.038-075	75	3.4	38.0	102.0	15.8	85.0	16.0	8.6	19.0	85.0	170
L1039.038-088	88	4.1	38.0	127.0	15.8	110.0	16.0	8.6	19.0	85.0	190
L1039.038-100	100	4.8	38.0	152.0	15.8	136.0	16.0	8.6	19.0	100.0	232
L1039.038-150	150	6.1	38.0	203.0	15.8	186.0	16.0	8.6	19.0	128.0	261



LINEAR TABLES

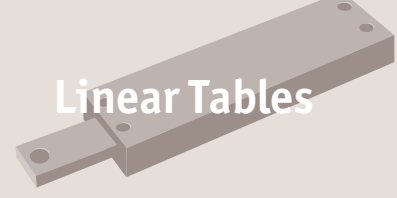
Order No.	Stroke	Load kg max.	w <sub>1</sub>	l <sub>1</sub>	h <sub>1</sub>	l <sub>2</sub>	w <sub>2</sub>	h <sub>2</sub>	w <sub>3</sub>	l <sub>3</sub>	Weight g
L1039.038-200	200	7.5	38.0	254.0	15.8	238.0	16.0	8.6	19.0	178.0	326
L1039.044-025	25	2.7	44.0	51.0	19.0	35.0	20.0	10.2	22.2	38.0	113
L1039.044-038	38	4.1	44.0	70.0	19.0	55.0	20.0	10.2	22.2	55.0	170
L1039.044-050	50	5.7	44.0	83.0	19.0	65.0	20.0	10.2	22.2	65.0	184
L1039.044-075	75	7.0	44.0	102.0	19.0	85.0	20.0	10.2	22.2	85.0	227
L1039.044-100	100	8.2	44.0	152.0	19.0	140.0	20.0	10.2	22.2	100.0	335
L1039.044-150	150	10.2	44.0	203.0	19.0	190.0	20.0	10.2	22.2	126.0	445
L1039.044-200	200	12.3	44.0	254.0	19.0	240.0	20.0	10.2	22.2	178.0	553
L1039.067-025	25	4.1	66.5	67.0	25.4	54.0	35.0	15.9	38.1	54.0	283
L1039.067-038	38	4.8	66.5	67.0	25.4	42.0	35.0	15.9	38.1	42.0	283
L1039.067-050	50	8.5	66.5	102.0	25.4	75.0	35.0	15.9	38.1	75.0	425
L1039.067-075	75	12.0	66.5	127.0	25.4	100.0	35.0	15.9	38.1	100.0	590
L1039.067-100	100	16.1	66.5	152.0	25.4	125.0	35.0	15.9	38.1	125.0	771
L1039.067-127	127	18.4	66.5	203.0	25.4	175.0	35.0	15.9	38.1	187.0	879
L1039.067-150	150	20.5	66.5	229.0	25.4	75.0	35.0	15.9	38.1	178.0	498
L1039.067-228	228	25.2	66.5	305.0	25.4	75.0	35.0	15.9	38.1	254.0	1318
L1039.067-304	304	28.0	66.5	381.0	25.4	75.0	35.0	15.9	38.1	330.0	1644

Order No.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	h <sub>3</sub>	Counterbore screw size	Moment M <sub>x</sub>	Moment M <sub>y</sub>	Moment M <sub>z</sub>
						Nm max.	Nm max.	Nm max.
L1039.014-013	M2	2.2	4.0	2.2	M2	0.02	0.03	0.03
L1039.014-025	M2	2.2	4.0	2.2	M2	0.03	0.15	0.15
L1039.014-050	M2	2.2	4.0	2.2	M2	0.06	0.30	0.30
L1039.014-075	M2	2.2	4.0	2.2	M2	0.06	0.45	0.48
L1039.014-100	M2	2.2	4.0	2.2	M2	0.06	0.18	0.63
L1039.014-127	M2	2.2	4.0	2.2	M2	0.09	0.78	0.81
L1039.019-013	M3	3.5	6.1	3.4	M3	0.06	0.06	0.06
L1039.019-025	M3	3.5	6.1	3.4	M3	0.06	0.15	0.18
L1039.019-050	M3	3.5	6.1	3.4	M3	0.09	0.09	0.30
L1039.019-075	M3	3.5	6.1	3.4	M3	0.09	0.45	0.48
L1039.019-100	M3	3.5	6.1	3.4	M3	0.09	0.18	0.63
L1039.019-127	M3	3.5	6.1	3.4	M3	0.12	0.78	0.81
L1039.025-013	M4	3.5	6.1	3.4	M3	0.09	0.12	0.72
L1039.025-025	M4	3.5	6.1	3.4	M3	0.09	0.09	0.09
L1039.025-038	M4	3.5	6.1	3.4	M3	0.12	0.36	0.36
L1039.025-050	M4	3.5	6.1	3.4	M3	0.12	0.45	0.48
L1039.025-075	M4	3.5	6.1	3.4	M3	0.15	0.69	0.72
L1039.027-019	M4	4.6	8.1	4.4	M4	0.12	0.15	0.15
L1039.027-038	M4	4.6	8.1	4.4	M4	0.15	0.36	0.39
L1039.027-050	M4	4.6	8.1	4.4	M4	0.18	0.18	0.63
L1039.027-075	M4	4.6	8.1	4.4	M4	0.21	0.93	0.99
L1039.027-100	M4	4.6	8.1	4.4	M4	0.04	1.53	1.59
L1039.027-150	M4	4.6	8.1	4.4	M4	0.09	2.25	2.37
L1039.027-200	M4	4.6	8.1	4.4	M4	0.36	3.09	3.27
L1039.038-025	M4	4.6	8.1	4.4	M4	0.18	0.21	0.21
L1039.038-050	M4	4.6	8.1	4.4	M4	0.24	0.42	0.42
L1039.038-075	M4	4.6	8.1	4.4	M4	0.09	0.69	0.72
L1039.038-088	M4	4.6	8.1	4.4	M4	0.36	1.11	1.17
L1039.038-100	M4	4.6	8.1	4.4	M4	0.45	1.65	1.74
L1039.038-150	M4	4.6	8.1	4.4	M4	0.57	2.73	2.88
L1039.038-200	M4	4.6	8.1	4.4	M4	0.69	4.08	4.29
L1039.044-025	M4	4.6	8.1	4.4	M4	0.30	0.27	0.27
L1039.044-038	M4	4.6	8.1	4.4	M4	1.1	0.60	0.63
L1039.044-050	M4	4.6	8.1	4.4	M4	0.60	0.99	1.05
L1039.044-075	M4	4.6	8.1	4.4	M4	0.75	1.41	1.47
L1039.044-100	M4	4.6	8.1	4.4	M4	0.87	3.00	3.00
L1039.044-150	M4	4.6	8.1	4.4	M4	1.08	4.56	4.8
L1039.044-200	M4	4.6	8.1	4.4	M4	1.29	6.69	7.02
L1039.067-025	M5	5.8	10.0	5.3	M5	0.75	0.57	0.6
L1039.067-038	M5	5.8	10.0	5.3	M5	0.87	0.57	0.6
L1039.067-050	M5	5.8	10.0	5.3	M5	1.53	2.07	2.16
L1039.067-075	M5	5.8	10.0	5.3	M5	2.16	3.75	3.93
L1039.067-100	M5	5.8	10.0	5.3	M5	2.91	6.15	6.45
L1039.067-127	M5	5.8	10.0	5.3	M5	3.33	9.60	10.08
L1039.067-150	M5	5.8	10.0	5.3	M5	3.69	12.09	12.69
L1039.067-228	M5	5.8	10.0	5.3	M5	4.56	18.42	19.35



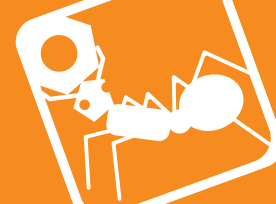
# Non-Magnetic Ball Slide Assemblies

## Linear Tables



Order No.	$d_1$	$d_2$	$d_3$	$h_3$	Counterbore screw size	Moment $M_x$ Nm max.	Moment $M_y$ Nm max.	Moment $M_z$ Nm max.
<b>L1039.067-304</b>	M5	5.8	10.0	5.3	M5	5.04	24.3	25.53

LINEAR TABLES



### Size + Weight

For light/medium loads

L1020-L1037

Ball roller versions



L1024 - L1038

Cross roller versions



L1020 - L1026

Stainless steel versions

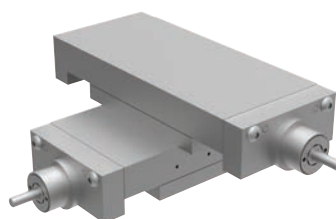


L1022 - L1023

For heavy duty loads and motorised

L3000-L3500

Needle roller & dovetail stage



L3170 - L3194

Motorised stages

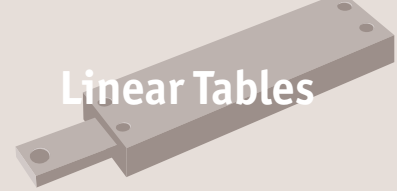


L3500 - L3510

Micrometer driven stages

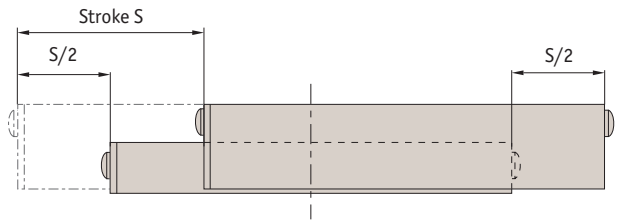


L3100 - L3123



### Factors affecting stage selections...


- Size and weight of load
- Moment loads
- Stroke required
- Accuracy required
- Usage conditions of water, chemicals, shock loads etc.



Generally ball slides are less expensive but cross roller slides can carry 8 to 10 times the load of ball slides.

The stroke is centred on the mid point of the slides (i.e. 50% of the stroke each way).

LINEAR TABLES

A selection...		
<p>L1020 Crossed roller tables</p>  <p>Steel and aluminium, accuracy typically 5µ.</p>	<p>L1022/23 Cross roller table</p>  <p>Stainless Steel, accuracy typically 3µ.</p>	<p>L1024 Ball slide tables</p>  <p>Aluminium, accuracy typically 12µ.</p>
<p>L1026 Crossed roller slide tables</p>  <p>Aluminium, accuracy typically 5µ.</p>	<p>L1028 Precision ball slide tables</p>  <p>Aluminium, accuracy typically 3µ.</p>	<p>L1029 Precision crossed roller tables</p>  <p>Aluminium, accuracy typically 3µ.</p>
<p>L1034 Flanged ball slide tables - precision</p>  <p>With flange accuracy to 1µ.</p>	<p>L1038 Anti-creep ball slide tables</p>  <p>Special anti-creep function prevents cage misalignment.</p>	<p>L1039 Non-magnetic ball slide</p>  <p>Non-magnetic accuracy typically 3µ.</p>



### Steel - L1020

- Standard steel / cast iron



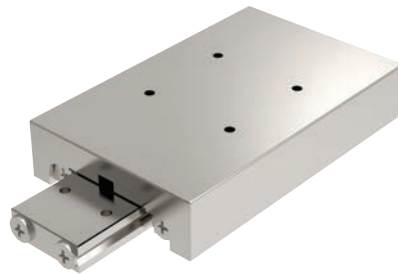
### Aluminium - L1021

- Lower weight, lower profile
- Good for high accelerations



### Stainless steel - L1022 + L1023

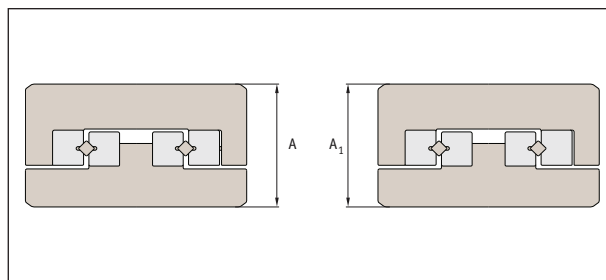
- Stainless steel (440C+Ni) corrosion resistant



### Rated life

$$L \text{ (Km)} = \left( \frac{F_t \cdot C}{F_w \cdot P_c} \right)^{3.33} \times 100$$

- $F_t$  = temperature factor
- $F_w$  = load factor
- $C$  = basic dynamic load (kN) see tables
- $P_c$  = radial load (kN)

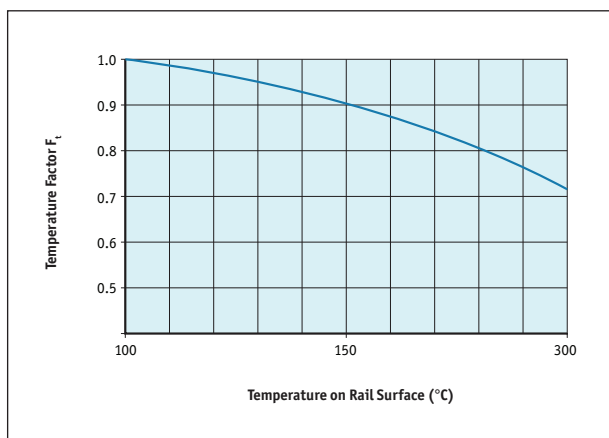


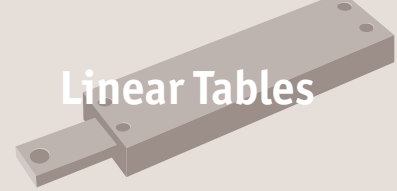
### Height tolerance:

- Height  $\pm 100\mu$
- Motorised parts  $\pm 10\mu$
- Strokes from 10 to 950mm
- Loads to 48kN

### Load factor $F_w$

Shock	Speed	$F_w$
None	Very slow	1.0 - 1.2
Small	Slow	1.2 - 1.5





### Technical accuracy measurements

- High accuracy.
- Low friction: virtually frictionless. Providing stable performance at lower high speeds.
- Rigid: incorporating cross roller linear rails to provide high load capacity as well as high moment load capacity.
- Installation: easy to install with pre-drilled holes in carriage and base. Ensure mounting surface faces are accurately machined.

Table accuracy ( $\mu$ )			Rail accuracy ( $\mu$ )		
Table length	Carriage top parallelism	Carriage side parallelism	N tolerance	M tolerance	Straightness
0-50	2	4	-15  -35	-30  -70	2
50-100	2	5			2
100-150	3	6			3
150-200	3	7			3
200-250	3	7			3
250-300	3	7			3
300-350	4	8			4
350-400	4	8			4
400-450	4	8			4
450-500	4	8			4
500-550	4	9			4
550-600	4	9			4

