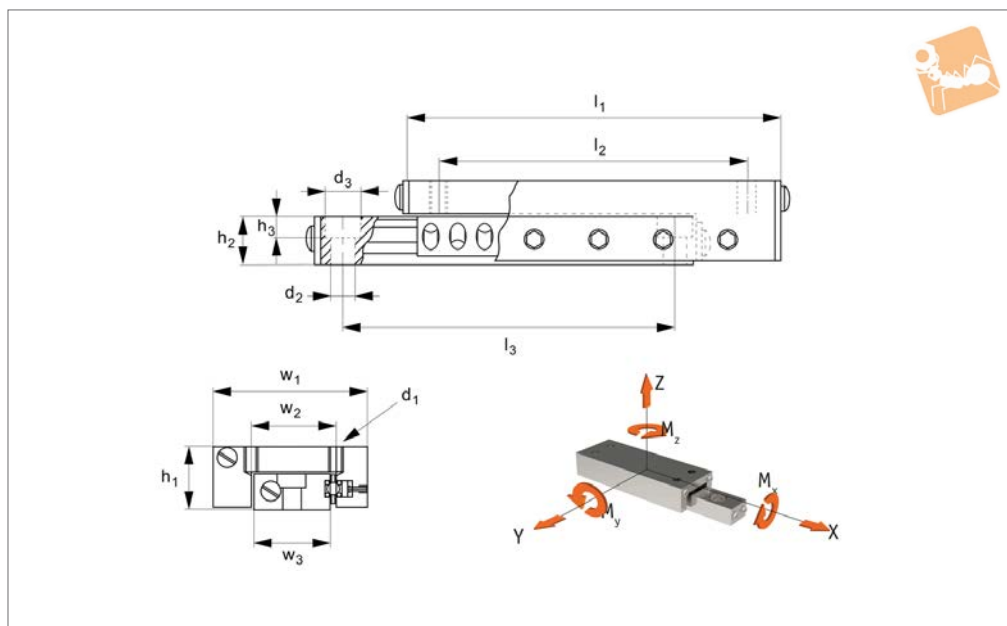


# Crossed Roller Slides

standard precision

## Linear Tables



## L1026

LINEAR TABLES

### Material

Aluminium carriage and base (black anodized).

Hardened steel rods and rollers, stainless steel end caps.

### Technical Notes

Straight line accuracy:  $3\mu/25\text{mm}$  of travel.

Positional repeatability:  $3\mu$ .

Coefficient of friction: 0,003 typical.

The slides are lightly lubricated during assembly.

Additional lubrication is required for speeds above 30m/min and is advisable at lower speeds where high loads are applied in continuous duty applications.

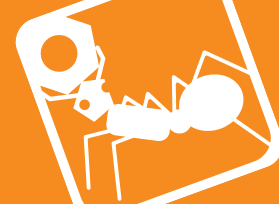
The slides should be mounted on flat surfaces to provide full support to the base.

At rated load capacity and moderate speeds, expected life is 250km of travel. At half the rated load the expected life is 2,500km.

### Tips

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
L1026.014-013	13	14	14.2	27.0	8.0	15.0	6.0	4.7	6.4	19.0	11
L1026.014-025	25	25	14.2	52.0	8.0	41.0	6.0	4.7	6.4	35.0	17
L1026.014-050	50	30	14.2	78.0	8.0	66.0	6.0	4.7	6.4	60.0	26
L1026.014-075	75	32	14.2	103.0	8.0	92.0	6.0	4.7	6.4	86.0	34
L1026.014-100	100	36	14.2	129.0	8.0	117.0	6.0	4.7	6.4	89.0	37
L1026.014-127	127	41	14.2	154.0	8.0	143.0	6.0	4.7	6.4	114.0	45
L1026.019-013	13	22	19.0	27.0	10.4	15.0	9.0	6.3	9.5	19.0	14
L1026.019-025	25	35	19.0	52.0	10.4	41.0	9.0	6.3	9.5	35.0	28
L1026.019-050	50	42	19.0	78.0	10.4	66.0	9.0	6.3	9.5	60.0	40
L1026.019-075	75	44	19.0	103.0	10.4	92.0	9.0	6.3	9.5	86.0	51
L1026.019-100	100	47	19.0	129.0	10.4	117.0	9.0	6.3	9.5	89.0	62
L1026.019-127	127	49	19.0	154.0	10.4	142.0	9.0	6.3	9.5	114.0	74
L1026.025-013	13	32	25.4	40.0	12.7	32.0	10.0	6.3	12.7	32.0	37
L1026.025-025	25	35	25.4	65.0	12.7	57.0	10.0	6.3	12.7	57.0	51
L1026.025-038	38	35	25.4	78.0	12.7	65.0	10.0	6.3	12.7	65.0	57
L1026.025-050	50	38	25.4	90.0	12.7	82.0	10.0	6.3	12.7	82.0	65
L1026.025-075	75	41	25.4	116.0	12.7	108.0	10.0	6.3	12.7	108.0	79
L1026.027-019	19	50	26.9	40.0	13.4	32.0	10.0	7.9	12.7	28.0	40
L1026.027-038	38	60	26.9	65.0	13.4	57.0	10.0	7.9	12.7	54.0	68
L1026.027-050	50	100	26.9	90.0	13.4	82.0	10.0	7.9	12.7	79.0	88
L1026.027-075	75	120	26.9	116.0	13.4	102.0	10.0	7.9	12.7	82.0	150
L1026.027-100	100	129	26.9	152.0	13.4	140.0	10.0	7.9	12.7	102.0	173
L1026.027-150	150	135	26.9	203.0	13.4	190.0	10.0	7.9	12.7	127.0	204
L1026.027-200	200	145	26.9	254.0	13.4	240.0	10.0	7.9	12.7	178.0	232
L1026.038-025	25	59	38.0	51.0	15.8	35.0	16.0	8.6	19.0	37.0	85
L1026.038-050	50	79	38.0	76.0	15.8	60.0	16.0	8.6	19.0	60.0	128
L1026.038-075	75	79	38.0	102.0	15.8	85.0	16.0	8.6	19.0	85.0	176



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
L1026.038-089	89	95	38.0	127.0	15.8	111.0	16.0	8.6	19.0	85.0	196
L1026.038-100	100	139	38.0	152.0	15.8	136.0	16.0	8.6	19.0	100.0	238
L1026.038-150	150	163	38.0	203.0	15.8	186.0	16.0	8.6	19.0	127.0	266
L1026.038-200	200	187	38.0	254.0	15.8	238.0	16.0	8.6	19.0	178.0	332
L1026.044-025	25	59	44.0	51.0	19.0	35.0	20.0	10.2	22.2	38.0	116
L1026.044-038	38	68	44.0	70.0	19.0	55.0	20.0	10.2	22.2	55.0	173
L1026.044-050	50	79	44.0	83.0	19.0	65.0	20.0	10.2	22.2	65.0	187
L1026.044-075	75	79	44.0	102.0	19.0	85.0	20.0	10.2	22.2	85.0	232
L1026.044-100	100	139	44.0	152.0	19.0	140.0	20.0	10.2	22.2	100.0	343
L1026.044-150	150	170	44.0	203.0	19.0	190.0	20.0	10.2	22.2	127.0	454
L1026.044-200	200	204	44.0	254.0	19.0	240.0	20.0	10.2	22.2	178.0	561
L1026.067-025	25	102	66.6	67.0	25.4	54.0	35.0	15.9	38.1	54.0	292
L1026.067-038	38	119	66.6	67.0	25.4	42.0	35.0	15.9	38.1	42.0	292
L1026.067-050	50	158	66.6	102.0	25.4	75.0	35.0	15.9	38.1	75.0	454
L1026.067-075	75	198	66.6	127.0	25.4	100.0	35.0	15.9	38.1	100.0	635
L1026.067-100	100	198	66.6	152.0	25.4	125.0	35.0	15.9	38.1	125.0	816
L1026.067-127	127	215	66.6	203.0	25.4	175.0	35.0	15.9	38.1	187.0	936
L1026.067-150	150	317	66.6	229.0	25.4	75.0	35.0	15.9	38.1	178.0	1089
L1026.067-228	228	336	66.6	305.0	25.4	75.0	35.0	15.9	38.1	254.0	1366
L1026.067-304	304	354	66.6	381.0	25.4	75.0	35.0	15.9	38.1	330.0	1729

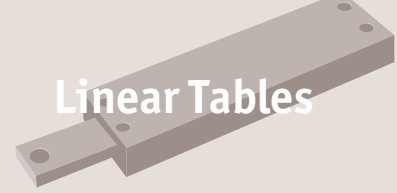
Order No.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	h <sub>3</sub>	Counterbore screw size	Moment M <sub>x</sub> Nm max.	Moment M <sub>y</sub> Nm max.	Moment M <sub>z</sub> Nm max.
L1026.014-013	M2	2.2	4.0	2.2	M2	0.4	0.8	0.8
L1026.014-025	M2	2.2	4.0	2.2	M2	0.7	2.7	2.8
L1026.014-050	M2	2.2	4.0	2.2	M2	0.9	4.9	5.2
L1026.014-075	M2	2.2	4.0	2.2	M2	1.0	7.6	8.0
L1026.014-100	M2	2.2	4.0	2.2	M2	1.1	10.1	10.6
L1026.014-127	M2	2.2	4.0	2.2	M2	1.3	13.0	13.6
L1026.019-013	M3	3.5	6.1	3.4	M3	1.0	1.3	1.4
L1026.019-025	M3	3.5	6.1	3.4	M3	1.5	3.8	4.0
L1026.019-050	M3	3.5	6.1	3.4	M3	2.1	7.0	7.4
L1026.019-075	M3	3.5	6.1	3.4	M3	2.1	10.6	11.1
L1026.019-100	M3	3.5	6.1	3.4	M3	2.3	13.1	13.8
L1026.019-127	M3	3.5	6.1	3.4	M3	2.37	15.6	16.4
L1026.025-013	M4	3.5	6.1	3.4	M3	2.0	2.6	2.8
L1026.025-025	M4	3.5	6.1	3.4	M3	2.2	6.3	6.7
L1026.025-038	M4	3.5	6.1	3.4	M3	2.2	7.0	7.4
L1026.025-050	M4	3.5	6.1	3.4	M3	2.3	8.2	8.6
L1026.025-075	M4	3.5	6.1	3.4	M3	2.5	11.3	11.9
L1026.027-019	M4	4.6	8.1	4.4	M4	3.2	3.7	3.5
L1026.027-038	M4	4.6	8.1	4.4	M4	3.8	8.3	8.8
L1026.027-050	M4	4.6	8.1	4.4	M4	5.7	17.3	18.2
L1026.027-075	M4	4.6	8.1	4.4	M4	7.0	27.3	28.7
L1026.027-100	M4	4.6	8.1	4.4	M4	8.3	48.3	50.7
L1026.027-150	M4	4.6	8.1	4.4	M4	8.6	63.8	67.0
L1026.027-200	M4	4.6	8.1	4.6	M4	9.3	83.1	87.3
L1026.038-025	M4	4.6	8.1	4.4	7.0	M4	5.5	6.7
L1026.038-050	M4	4.6	8.1	4.4	10.0	M4	6.3	9.5
L1026.038-075	M4	4.6	8.1	4.4	16.4	M4	7.3	15.6
L1026.038-089	M4	4.6	8.1	4.4	27.4	M4	8.8	26.1
L1026.038-100	M4	4.6	8.1	4.4	49.1	M4	12.8	46.8
L1026.038-150	M4	4.6	8.1	4.4	76.9	M4	15.0	73.2
L1026.038-200	M4	4.6	8.1	4.4	107	M4	17.2	102
L1026.044-025	M4	4.6	8.1	4.4	7.0	M4	6.3	6.7
L1026.044-038	M4	4.6	8.1	4.4	10.7	M4	7.2	10.2
L1026.044-050	M4	4.6	8.1	4.4	14.0	M4	8.5	13.4
L1026.044-075	M4	4.6	8.1	4.4	16.3	M4	8.5	15.6
L1026.044-100	M4	4.6	8.1	4.4	49.1	M4	14.8	46.8
L1026.044-150	M4	4.6	8.1	4.4	80.0	M4	18.0	76.3
L1026.044-200	M4	4.6	8.1	4.4	117	M4	21.6	111
L1026.067-025	M5	5.8	10.0	5.3	14.9	M5	18.5	14.2
L1026.067-038	M5	5.8	10.0	5.3	18.8	M5	21.5	17.9
L1026.067-050	M5	5.8	10.0	5.3	37.6	M5	28.7	35.8
L1026.067-075	M5	5.8	10.0	5.3	62.6	M5	35.9	59.7
L1026.067-100	M5	5.8	10.0	5.3	78.3	M5	35.9	74.6



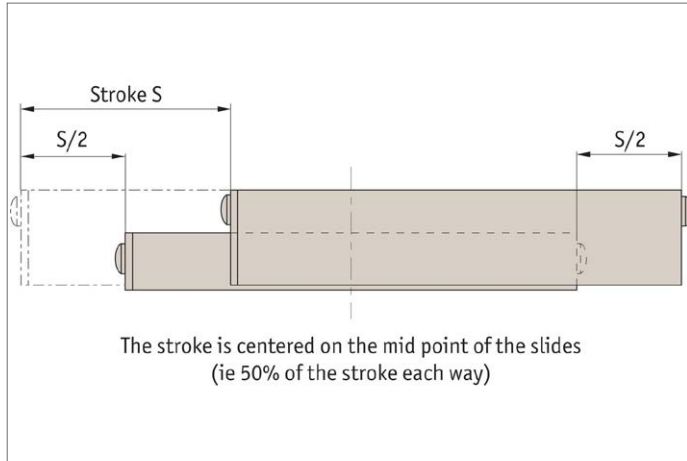
# Crossed Roller Slides

standard precision

## 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>L1026.067-127</b>	M5	5.8	10.0	5.3	117	M5	38.9	112
<b>L1026.067-150</b>	M5	5.8	10.0	5.3	175	M5	57.4	167
<b>L1026.067-228</b>	M5	5.8	10.0	5.3	258	M5	60.9	245
<b>L1026.067-304</b>	M5	5.8	10.0	5.3	323	M5	64.2	308



LINEAR TABLES



### Size + Weight

For light/medium loads

L1020-L1037

Ball roller versions



L1024 - L1038

Cross roller versions



L1020 - L1026

Stainless steel versions

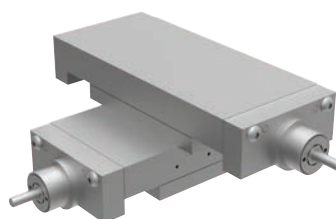


L1022 - L1023

For heavy duty loads and motorised

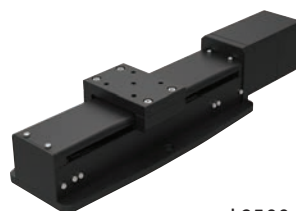
L3000-L3500

Needle roller & dovetail stage



L3170 - L3194

Motorised stages

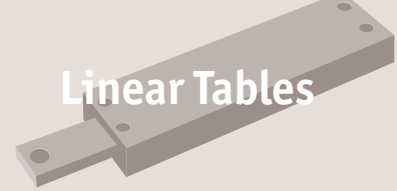


L3500 - L3510

Micrometer driven stages

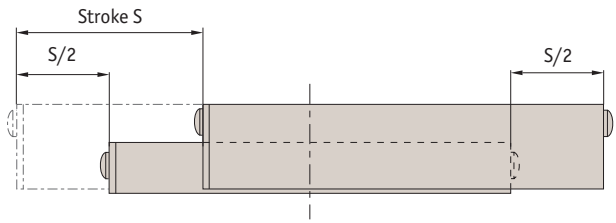


L3100 - L3123



### 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



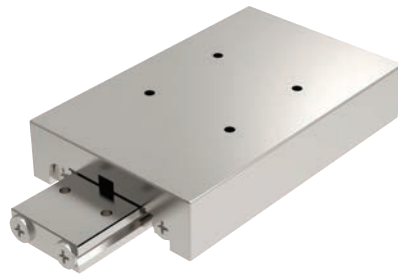
### Aluminium - L1021

- Lower weight, lower profile
- Good for high accelerations



### Stainless steel - L1022 + L1023

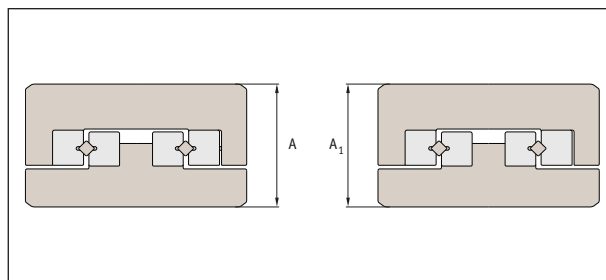
- Stainless steel (440C+Ni) corrosion resistant



### 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)

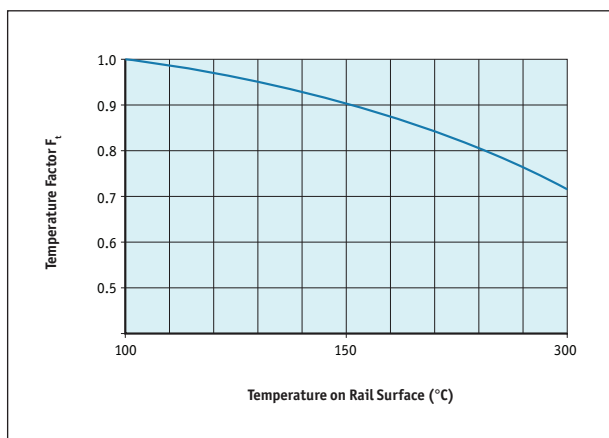


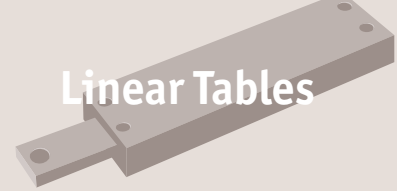
### Height tolerance:

- 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

