



Miniature linear guideway systems are widely used throughout industry for precise, compact applications.

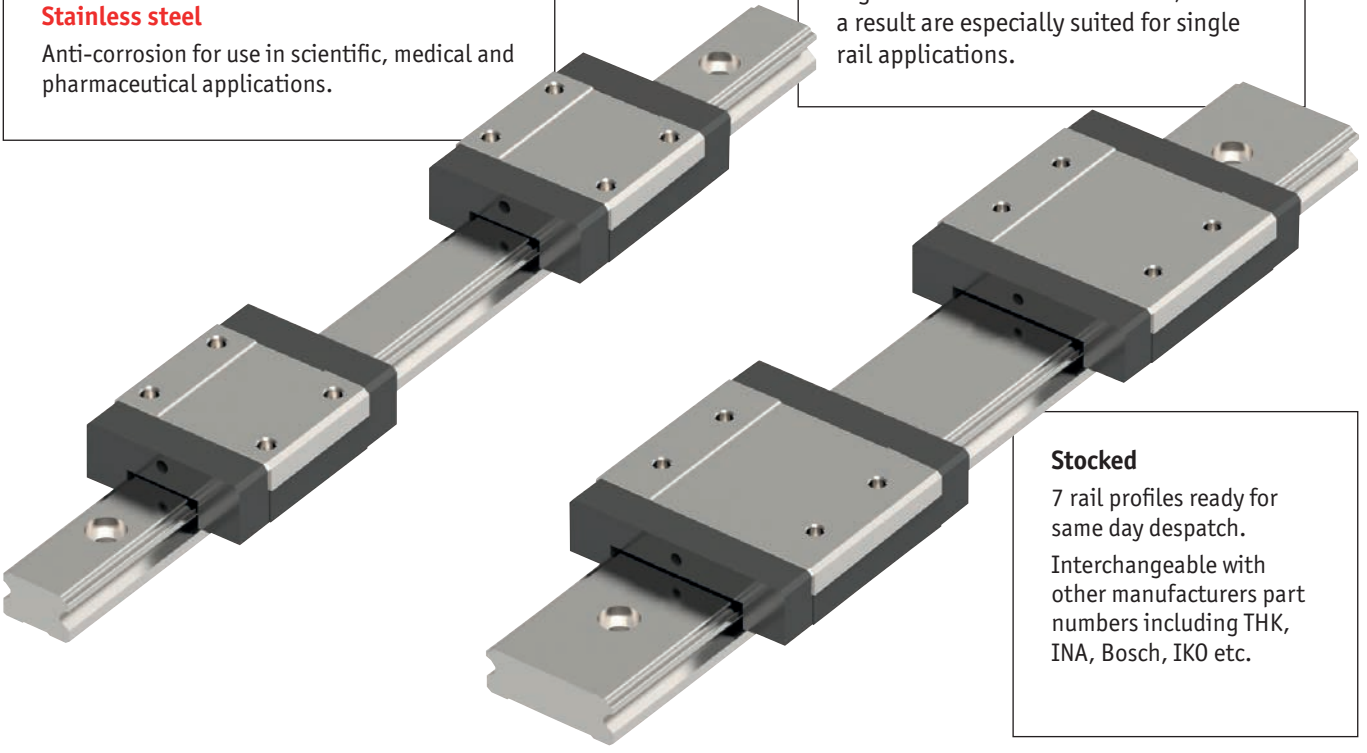
Precise and stainless

The gothic arch shape of the rails have a 45° contact ensuring similar load capacities in all directions. Use of a large number of stainless steel balls enables a high moment and load capacity within a compact space. These smooth running rails have low break-away forces and a low coefficient of friction.

LINEAR GUIDEWAYS

Stainless steel
Anti-corrosion for use in scientific, medical and pharmaceutical applications.

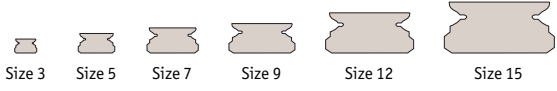
Standard and wide versions
Our standard width is a compact, high performance rail in six sizes.
The wide version can generally accept higher loads and moment forces, and as a result are especially suited for single rail applications.



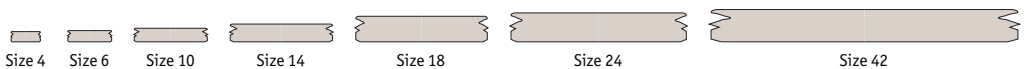
Stocked
7 rail profiles ready for same day despatch.
Interchangeable with other manufacturers part numbers including THK, INA, Bosch, IKO etc.

Rail sizes

L1010 Standard Version

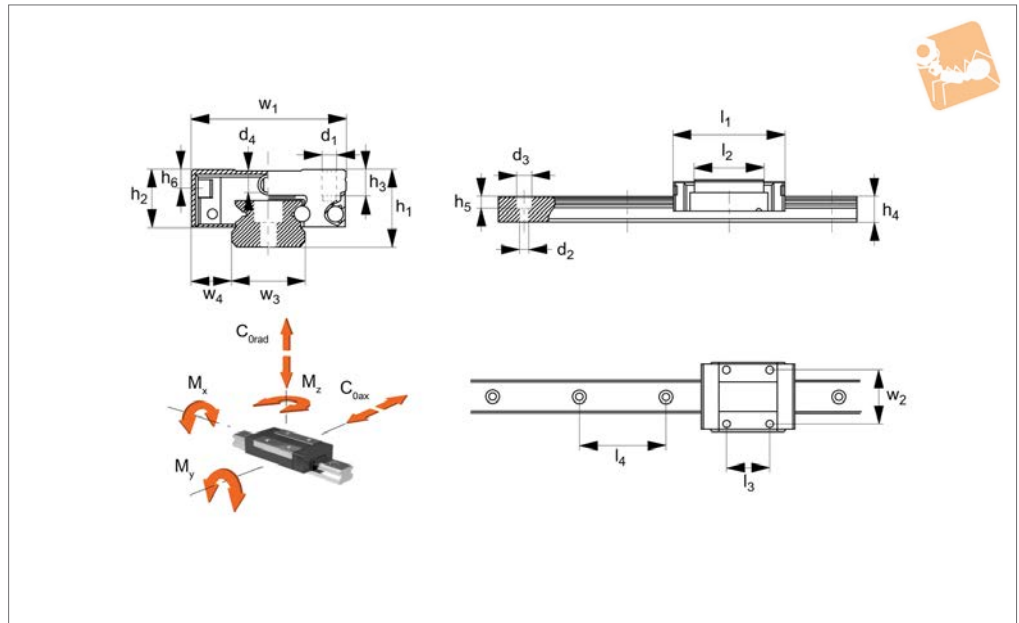


L1012 Wide Version





L1010.C



Material

Corrosion resistant stainless steel body (440C), with hardened stainless steel ball bearings. Black plastic end plates and ball bearing retainers.

Technical Notes

Max. speed 3 m/s. max. acceleration 40m/s².

Temperature range -40°C to +80°C.

Select the size and number of carriages to suit the required load then select the required rail length, (see part nos. L1010.07 through to L1010.15).

Tips

Carriages are supplied with a dummy plastic rail. When mounting carriages onto rail, slide directly from the dummy rail

onto the steel rail. Do not simply remove the carriage from the dummy rail - the balls will become loose making the carriage unusable.

Important Notes

*Size 3 and Size 5 carriage must be ordered with rails.

Order No.	For rail	l ₁	l ₂	l ₃	l ₄	h ₁	h ₂	h ₃	h ₄	h ₅	h ₆	d ₂	d ₃	d ₄	For screws d ₁	Weight g
L1010.C03	3*	11.9	6.7	3.5	10	4	3.2	1.1	2.6	-	1.5	-	M1,6	0.3	M1,6	0.9
L1010.C03L	3*	16.1	11.0	5.5	10	4	3.2	1.1	2.6	-	1.5	-	M1,6	0.3	M2	1.2
L1010.C05	5*	16.3	10.0	-	15	6	4.7	1.5	3.5	1.0	2.0	2.4	3.5	0.7	M2	3.5
L1010.C05L	5*	19.7	13.5	7	15	6	4.6	2.0	3.5	1.0	2.0	2.4	3.5	0.7	M2,6	4.0
L1010.C07	7	24.1	14.3	8	15	8	6.6	2.5	4.7	2.3	2.8	2.4	4.2	1.1	M2	8.0
L1010.C07L	7	31.5	21.8	13	15	8	6.7	2.5	4.7	2.3	2.8	2.4	4.2	1.1	M2	14.0
L1010.C09	9	30.9	20.5	10	20	10	7.9	3.0	5.5	3.5	3.3	3.5	6.0	1.3	M3	18.0
L1010.C09L	9	41.1	30.8	16	20	10	8.0	3.0	5.5	3.5	3.3	3.5	6.0	1.3	M3	28.0
L1010.C12	12	35.8	22.0	15	25	13	10.1	3.5	7.5	4.5	4.3	3.5	6.0	1.3	M3	34.0
L1010.C12L	12	47.8	34.0	20	25	13	10.2	3.5	7.5	4.5	4.3	3.5	6.0	1.3	M3	51.0
L1010.C15	15	43.4	27.0	20	40	16	12.2	5.5	9.5	4.5	4.3	3.5	6.0	1.8	M3	61.0
L1010.C15L	15	60.2	44.0	25	40	16	12.2	5.5	9.5	4.5	4.3	3.5	6.0	1.8	M3	90.0

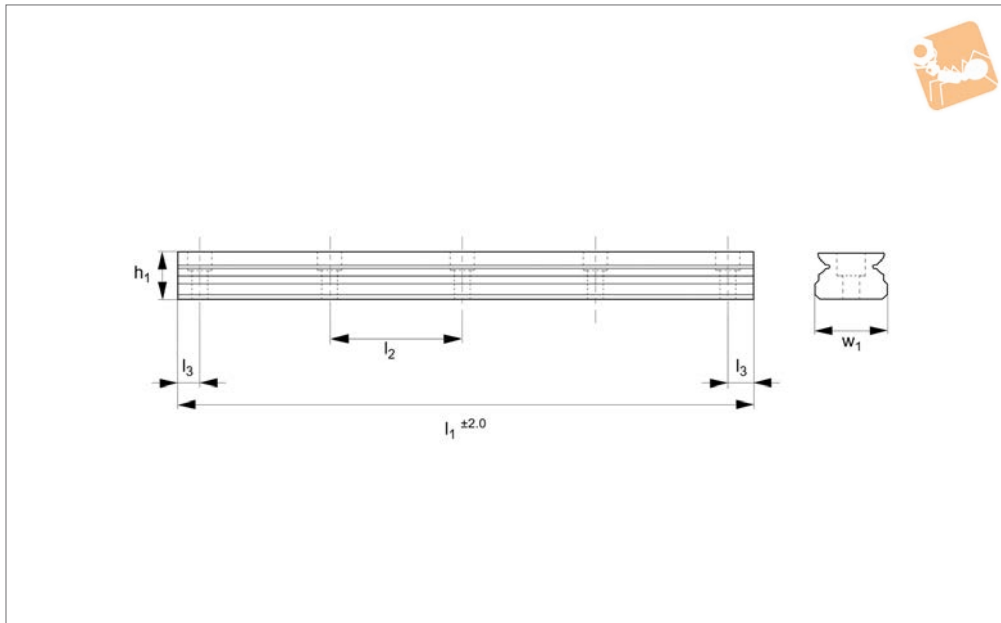
Order No.	Static load C _{Orad & ax} N	w ₁	w ₂	w ₃	w ₄	Dyn. load C _{rad & ax} N	M _x Nm	M _y Nm	M _z Nm
L1010.C03	310	8	-	3	2.5	190	0.6	0.4	0.4
L1010.C03L	575	8	-	3	2.5	295	0.9	1.1	1.1
L1010.C05	550	12	8	5	3.5	335	1.7	1.0	1.0
L1010.C05L	900	12	-	5	3.5	470	2.4	2.1	2.1
L1010.C07	1440	17	12	7	5.0	890	5.2	3.3	3.3
L1010.C07L	2440	17	12	7	5.0	1310	9.0	7.7	7.7
L1010.C09	2495	20	15	9	5.5	1570	11.7	6.4	6.4
L1010.C09L	3880	20	15	9	5.5	2135	18.2	12.4	12.4
L1010.C12	3465	27	20	12	7.5	2308	21.5	12.9	12.9
L1010.C12L	5630	27	20	12	7.5	3240	34.9	30.2	30.2
L1010.C15	5590	32	25	15	8.5	3810	43.6	27.0	27.0
L1010.C15L	9080	32	25	15	8.5	5350	70.0	63.3	63.3



3mm Miniature Linear Rail

standard width

Linear Guide-ways



L1010.03

LINEAR GUIDEWAYS

Material

Corrosion resistant stainless steel, hardened (similar to 440C).

Technical Notes

Supplied with special low profile hex

screws.

Select the size and number of carriages to suit the required load (see part L1010.C).

Other rail lengths on request.

Weight: 0,05 Kg/m.

Important Notes

This size rail has a through thread from underside.

Must be ordered with corresponding sized carriage.

Order No.	l_1	l_2	l_3	h_1	For screws	w_1
L1010.03-0025	25	10	2.5	2.6	M1,6	3
L1010.03-0035	35	10	2.5	2.6	M1,6	3
L1010.03-0045	45	10	2.5	2.6	M1,6	3
L1010.03-0055	55	10	2.5	2.6	M1,6	3
L1010.03-0065	65	10	2.5	2.6	M1,6	3
L1010.03-0075	75	10	2.5	2.6	M1,6	3
L1010.03-0085	85	10	2.5	2.6	M1,6	3
L1010.03-0095	95	10	2.5	2.6	M1,6	3
L1010.03-0105	105	10	2.5	2.6	M1,6	3
L1010.03-0115	115	10	2.5	2.6	M1,6	3
L1010.03-0125	125	10	2.5	2.6	M1,6	3
L1010.03-0135	135	10	2.5	2.6	M1,6	3
L1010.03-0145	145	10	2.5	2.6	M1,6	3
L1010.03-0155	155	10	2.5	2.6	M1,6	3
L1010.03-0165	165	10	2.5	2.6	M1,6	3
L1010.03-0175	175	10	2.5	2.6	M1,6	3
L1010.03-0185	185	10	2.5	2.6	M1,6	3
L1010.03-0195	195	10	2.5	2.6	M1,6	3
L1010.03-0205	205	10	2.5	2.6	M1,6	3
L1010.03-0215	215	10	2.5	2.6	M1,6	3
L1010.03-0225	225	10	2.5	2.6	M1,6	3
L1010.03-0235	235	10	2.5	2.6	M1,6	3
L1010.03-0245	245	10	2.5	2.6	M1,6	3
L1010.03-0255	255	10	2.5	2.6	M1,6	3
L1010.03-0265	265	10	2.5	2.6	M1,6	3
L1010.03-0275	275	10	2.5	2.6	M1,6	3
L1010.03-0285	285	10	2.5	2.6	M1,6	3
L1010.03-0295	295	10	2.5	2.6	M1,6	3
L1010.03-0305	305	10	2.5	2.6	M1,6	3
L1010.03-0315	315	10	2.5	2.6	M1,6	3
L1010.03-0325	325	10	2.5	2.6	M1,6	3
L1010.03-0335	335	10	2.5	2.6	M1,6	3
L1010.03-0345	345	10	2.5	2.6	M1,6	3



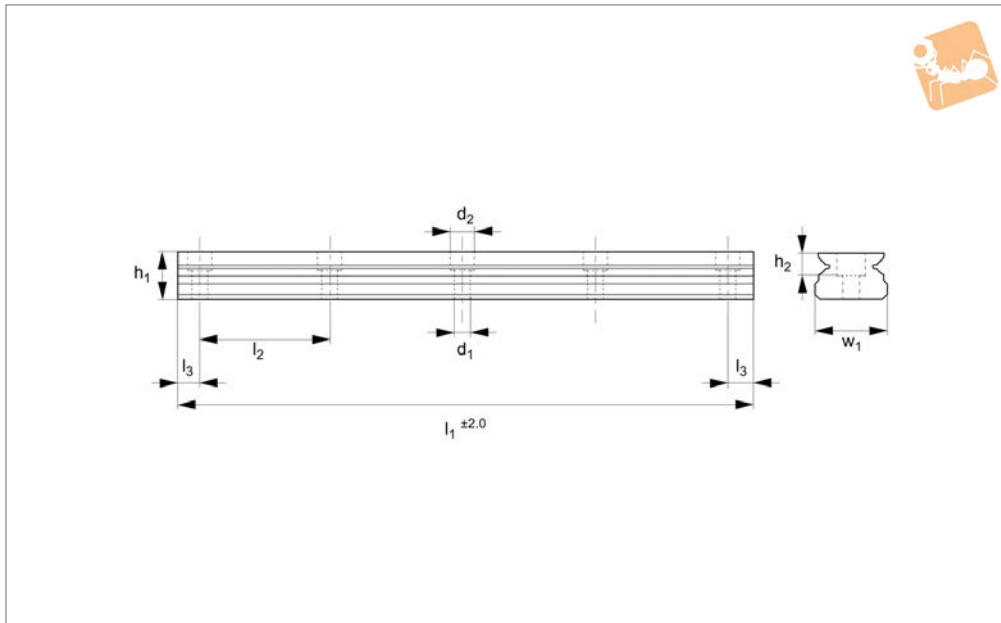
Order No.	l ₁	l ₂	l ₃	h ₁	For screws	w ₁
L1010.03-0355	355	10	2.5	2.6	M1,6	3
L1010.03-0365	365	10	2.5	2.6	M1,6	3
L1010.03-0375	375	10	2.5	2.6	M1,6	3
L1010.03-0385	385	10	2.5	2.6	M1,6	3
L1010.03-0395	395	10	2.5	2.6	M1,6	3
L1010.03-0405	405	10	2.5	2.6	M1,6	3
L1010.03-0415	415	10	2.5	2.6	M1,6	3
L1010.03-0425	425	10	2.5	2.6	M1,6	3
L1010.03-0435	435	10	2.5	2.6	M1,6	3
L1010.03-0445	445	10	2.5	2.6	M1,6	3
L1010.03-0455	455	10	2.5	2.6	M1,6	3
L1010.03-0465	465	10	2.5	2.6	M1,6	3
L1010.03-0475	475	10	2.5	2.6	M1,6	3
L1010.03-0485	485	10	2.5	2.6	M1,6	3
L1010.03-0495	495	10	2.5	2.6	M1,6	3
L1010.03-0505	505	10	2.5	2.6	M1,6	3
L1010.03-0515	515	10	2.5	2.6	M1,6	3
L1010.03-0525	525	10	2.5	2.6	M1,6	3
L1010.03-0535	535	10	2.5	2.6	M1,6	3
L1010.03-0545	545	10	2.5	2.6	M1,6	3
L1010.03-0555	555	10	2.5	2.6	M1,6	3
L1010.03-0565	565	10	2.5	2.6	M1,6	3
L1010.03-0575	575	10	2.5	2.6	M1,6	3
L1010.03-0585	585	10	2.5	2.6	M1,6	3
L1010.03-0595	595	10	2.5	2.6	M1,6	3
L1010.03-0605	605	10	2.5	2.6	M1,6	3
L1010.03-0615	615	10	2.5	2.6	M1,6	3
L1010.03-0625	625	10	2.5	2.6	M1,6	3
L1010.03-0635	635	10	2.5	2.6	M1,6	3
L1010.03-0645	645	10	2.5	2.6	M1,6	3
L1010.03-0655	655	10	2.5	2.6	M1,6	3
L1010.03-0665	665	10	2.5	2.6	M1,6	3
L1010.03-0675	675	10	2.5	2.6	M1,6	3
L1010.03-0685	685	10	2.5	2.6	M1,6	3
L1010.03-0695	695	10	2.5	2.6	M1,6	3
L1010.03-0705	705	10	2.5	2.6	M1,6	3
L1010.03-0715	715	10	2.5	2.6	M1,6	3
L1010.03-0725	725	10	2.5	2.6	M1,6	3
L1010.03-0735	735	10	2.5	2.6	M1,6	3
L1010.03-0745	745	10	2.5	2.6	M1,6	3
L1010.03-0755	755	10	2.5	2.6	M1,6	3
L1010.03-0765	765	10	2.5	2.6	M1,6	3
L1010.03-0775	775	10	2.5	2.6	M1,6	3
L1010.03-0785	785	10	2.5	2.6	M1,6	3
L1010.03-0795	795	10	2.5	2.6	M1,6	3
L1010.03-0805	805	10	2.5	2.6	M1,6	3
L1010.03-0815	815	10	2.5	2.6	M1,6	3
L1010.03-0825	825	10	2.5	2.6	M1,6	3
L1010.03-0835	835	10	2.5	2.6	M1,6	3
L1010.03-0845	845	10	2.5	2.6	M1,6	3
L1010.03-0855	855	10	2.5	2.6	M1,6	3
L1010.03-0865	865	10	2.5	2.6	M1,6	3
L1010.03-0875	875	10	2.5	2.6	M1,6	3
L1010.03-0885	885	10	2.5	2.6	M1,6	3
L1010.03-0895	895	10	2.5	2.6	M1,6	3
L1010.03-0905	905	10	2.5	2.6	M1,6	3
L1010.03-0915	915	10	2.5	2.6	M1,6	3
L1010.03-0925	925	10	2.5	2.6	M1,6	3
L1010.03-0935	935	10	2.5	2.6	M1,6	3
L1010.03-0945	945	10	2.5	2.6	M1,6	3
L1010.03-0955	955	10	2.5	2.6	M1,6	3
L1010.03-0965	965	10	2.5	2.6	M1,6	3
L1010.03-0975	975	10	2.5	2.6	M1,6	3
L1010.03-0985	985	10	2.5	2.6	M1,6	3
L1010.03-0995	995	10	2.5	2.6	M1,6	3



5mm Miniature Linear Rail

standard width

Linear Guide-ways



L1010.05

LINEAR GUIDEWAYS

Material

Corrosion resistant stainless steel, hardened (similar to 440C).

Technical Notes

Supplied with special low profile hex

screws.

Select the size and number of carriages to suit the required load (see part L1010.C).

Other rail lengths on request.

Weight: 0,12 Kg/m.

Important Notes

Must be ordered with corresponding sized carriage.

Order No.	l_1	l_2	l_3	h_1	h_2	d_1	d_2	For screws	w_1	Weight kg
L1010.05-0040	40	15	5	3.5	1	2.4	3.5	M2	5	4.8
L1010.05-0055	55	15	5	3.5	1	2.4	3.5	M2	5	6.6
L1010.05-0070	70	15	5	3.5	1	2.4	3.5	M2	5	8.4
L1010.05-0085	85	15	5	3.5	1	2.4	3.5	M2	5	10.2
L1010.05-0100	100	15	5	3.5	1	2.4	3.5	M2	5	12.0
L1010.05-0115	115	15	5	3.5	1	2.4	3.5	M2	5	13.8
L1010.05-0130	130	15	5	3.5	1	2.4	3.5	M2	5	15.6
L1010.05-0145	145	15	5	3.5	1	2.4	3.5	M2	5	17.4
L1010.05-0160	160	15	5	3.5	1	2.4	3.5	M2	5	19.2
L1010.05-0175	175	15	5	3.5	1	2.4	3.5	M2	5	21.0
L1010.05-0190	190	15	5	3.5	1	2.4	3.5	M2	5	22.8
L1010.05-0205	205	15	5	3.5	1	2.4	3.5	M2	5	24.6
L1010.05-0220	220	15	5	3.5	1	2.4	3.5	M2	5	26.4
L1010.05-0235	235	15	5	3.5	1	2.4	3.5	M2	5	28.2
L1010.05-0250	250	15	5	3.5	1	2.4	3.5	M2	5	30.0
L1010.05-0265	265	15	5	3.5	1	2.4	3.5	M2	5	31.8
L1010.05-0280	280	15	5	3.5	1	2.4	3.5	M2	5	33.6
L1010.05-0295	295	15	5	3.5	1	2.4	3.5	M2	5	35.4
L1010.05-0310	310	15	5	3.5	1	2.4	3.5	M2	5	37.2
L1010.05-0325	325	15	5	3.5	1	2.4	3.5	M2	5	39.0
L1010.05-0340	340	15	5	3.5	1	2.4	3.5	M2	5	40.8
L1010.05-0355	355	15	5	3.5	1	2.4	3.5	M2	5	42.6
L1010.05-0370	370	15	5	3.5	1	2.4	3.5	M2	5	44.4
L1010.05-0385	385	15	5	3.5	1	2.4	3.5	M2	5	46.2
L1010.05-0400	400	15	5	3.5	1	2.4	3.5	M2	5	48.0
L1010.05-0415	415	15	5	3.5	1	2.4	3.5	M2	5	49.8
L1010.05-0430	430	15	5	3.5	1	2.4	3.5	M2	5	51.6
L1010.05-0445	445	15	5	3.5	1	2.4	3.5	M2	5	53.4
L1010.05-0460	460	15	5	3.5	1	2.4	3.5	M2	5	55.2
L1010.05-0475	475	15	5	3.5	1	2.4	3.5	M2	5	57.0
L1010.05-0490	490	15	5	3.5	1	2.4	3.5	M2	5	58.8
L1010.05-0505	505	15	5	3.5	1	2.4	3.5	M2	5	60.6



LINEAR GUIDEWAYS

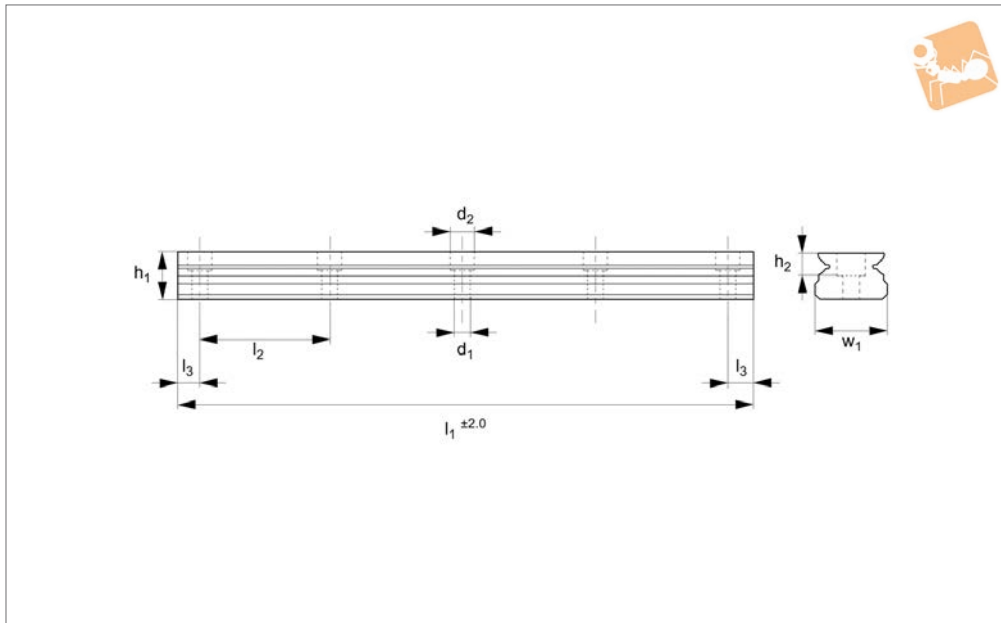
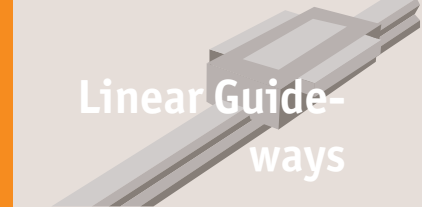
Order No.	l ₁	l ₂	l ₃	h ₁	h ₂	d ₁	d ₂	For screws	w ₁	Weight kg
L1010.05-0520	520	15	5	3.5	1	2.4	3.5	M2	5	62.4
L1010.05-0535	535	15	5	3.5	1	2.4	3.5	M2	5	64.2
L1010.05-0550	550	15	5	3.5	1	2.4	3.5	M2	5	66.0
L1010.05-0565	565	15	5	3.5	1	2.4	3.5	M2	5	67.8
L1010.05-0580	580	15	5	3.5	1	2.4	3.5	M2	5	69.6
L1010.05-0595	595	15	5	3.5	1	2.4	3.5	M2	5	71.4
L1010.05-0610	610	15	5	3.5	1	2.4	3.5	M2	5	73.2
L1010.05-0625	625	15	5	3.5	1	2.4	3.5	M2	5	75.0
L1010.05-0640	640	15	5	3.5	1	2.4	3.5	M2	5	76.8
L1010.05-0655	655	15	5	3.5	1	2.4	3.5	M2	5	78.6
L1010.05-0670	670	15	5	3.5	1	2.4	3.5	M2	5	80.4
L1010.05-0685	685	15	5	3.5	1	2.4	3.5	M2	5	82.2
L1010.05-0700	700	15	5	3.5	1	2.4	3.5	M2	5	84.0
L1010.05-0715	715	15	5	3.5	1	2.4	3.5	M2	5	85.8
L1010.05-0730	730	15	5	3.5	1	2.4	3.5	M2	5	87.6
L1010.05-0745	745	15	5	3.5	1	2.4	3.5	M2	5	89.4
L1010.05-0760	760	15	5	3.5	1	2.4	3.5	M2	5	91.2
L1010.05-0775	775	15	5	3.5	1	2.4	3.5	M2	5	93.0
L1010.05-0790	790	15	5	3.5	1	2.4	3.5	M2	5	94.8
L1010.05-0805	805	15	5	3.5	1	2.4	3.5	M2	5	96.6
L1010.05-0820	820	15	5	3.5	1	2.4	3.5	M2	5	98.4
L1010.05-0835	835	15	5	3.5	1	2.4	3.5	M2	5	100.2
L1010.05-0850	850	15	5	3.5	1	2.4	3.5	M2	5	102.0
L1010.05-0865	865	15	5	3.5	1	2.4	3.5	M2	5	103.8
L1010.05-0880	880	15	5	3.5	1	2.4	3.5	M2	5	105.6
L1010.05-0895	895	15	5	3.5	1	2.4	3.5	M2	5	107.4
L1010.05-0910	910	15	5	3.5	1	2.4	3.5	M2	5	109.2
L1010.05-0925	925	15	5	3.5	1	2.4	3.5	M2	5	111.0
L1010.05-0940	940	15	5	3.5	1	2.4	3.5	M2	5	112.8
L1010.05-0955	955	15	5	3.5	1	2.4	3.5	M2	5	114.6
L1010.05-0970	970	15	5	3.5	1	2.4	3.5	M2	5	116.4
L1010.05-0985	985	15	5	3.5	1	2.4	3.5	M2	5	118.2
L1010.05-1000	1000	15	5	3.5	1	2.4	3.5	M2	5	120.0



7mm Miniature Linear Rail

standard width

Linear Guide-ways



L1010.07

LINEAR GUIDEWAYS

Material

Corrosion resistant stainless steel, hardened (similar to 440C).

Technical Notes

Select the size and number of carriages to suit the required load (see part L1010.C).

Other rail lengths on request.

Weight: 0,22 Kg/m.

Order No.	l_1	l_2	l_3	h_1	h_2	d_1	d_2	For screws	w_1	Weight kg
L1010.07-0040	40	15	5	4.7	2.3	2.4	4.2	M2	7	8.8
L1010.07-0055	55	15	5	4.7	2.3	2.4	4.2	M2	7	12.1
L1010.07-0070	70	15	5	4.7	2.3	2.4	4.2	M2	7	15.4
L1010.07-0085	85	15	5	4.7	2.3	2.4	4.2	M2	7	18.7
L1010.07-0100	100	15	5	4.7	2.3	2.4	4.2	M2	7	22.0
L1010.07-0115	115	15	5	4.7	2.3	2.4	4.2	M2	7	25.3
L1010.07-0130	130	15	5	4.7	2.3	2.4	4.2	M2	7	28.6
L1010.07-0145	145	15	5	4.7	2.3	2.4	4.2	M2	7	31.9
L1010.07-0160	160	15	5	4.7	2.3	2.4	4.2	M2	7	35.2
L1010.07-0175	175	15	5	4.7	2.3	2.4	4.2	M2	7	38.5
L1010.07-0190	190	15	5	4.7	2.3	2.4	4.2	M2	7	41.8
L1010.07-0205	205	15	5	4.7	2.3	2.4	4.2	M2	7	45.1
L1010.07-0220	220	15	5	4.7	2.3	2.4	4.2	M2	7	48.4
L1010.07-0235	235	15	5	4.7	2.3	2.4	4.2	M2	7	51.7
L1010.07-0250	250	15	5	4.7	2.3	2.4	4.2	M2	7	55.0
L1010.07-0265	265	15	5	4.7	2.3	2.4	4.2	M2	7	58.3
L1010.07-0280	280	15	5	4.7	2.3	2.4	4.2	M2	7	61.6
L1010.07-0295	295	15	5	4.7	2.3	2.4	4.2	M2	7	64.9
L1010.07-0310	310	15	5	4.7	2.3	2.4	4.2	M2	7	68.2
L1010.07-0325	325	15	5	4.7	2.3	2.4	4.2	M2	7	71.5
L1010.07-0340	340	15	5	4.7	2.3	2.4	4.2	M2	7	74.8
L1010.07-0355	355	15	5	4.7	2.3	2.4	4.2	M2	7	78.1
L1010.07-0370	370	15	5	4.7	2.3	2.4	4.2	M2	7	81.4
L1010.07-0385	385	15	5	4.7	2.3	2.4	4.2	M2	7	84.7
L1010.07-0400	400	15	5	4.7	2.3	2.4	4.2	M2	7	88.0
L1010.07-0415	415	15	5	4.7	2.3	2.4	4.2	M2	7	91.3
L1010.07-0430	430	15	5	4.7	2.3	2.4	4.2	M2	7	94.6
L1010.07-0445	445	15	5	4.7	2.3	2.4	4.2	M2	7	97.9
L1010.07-0460	460	15	5	4.7	2.3	2.4	4.2	M2	7	101.2
L1010.07-0475	475	15	5	4.7	2.3	2.4	4.2	M2	7	104.5
L1010.07-0490	490	15	5	4.7	2.3	2.4	4.2	M2	7	107.8
L1010.07-0505	505	15	5	4.7	2.3	2.4	4.2	M2	7	111.1
L1010.07-0520	520	15	5	4.7	2.3	2.4	4.2	M2	7	114.4
L1010.07-0535	535	15	5	4.7	2.3	2.4	4.2	M2	7	117.7



LINEAR GUIDEWAYS

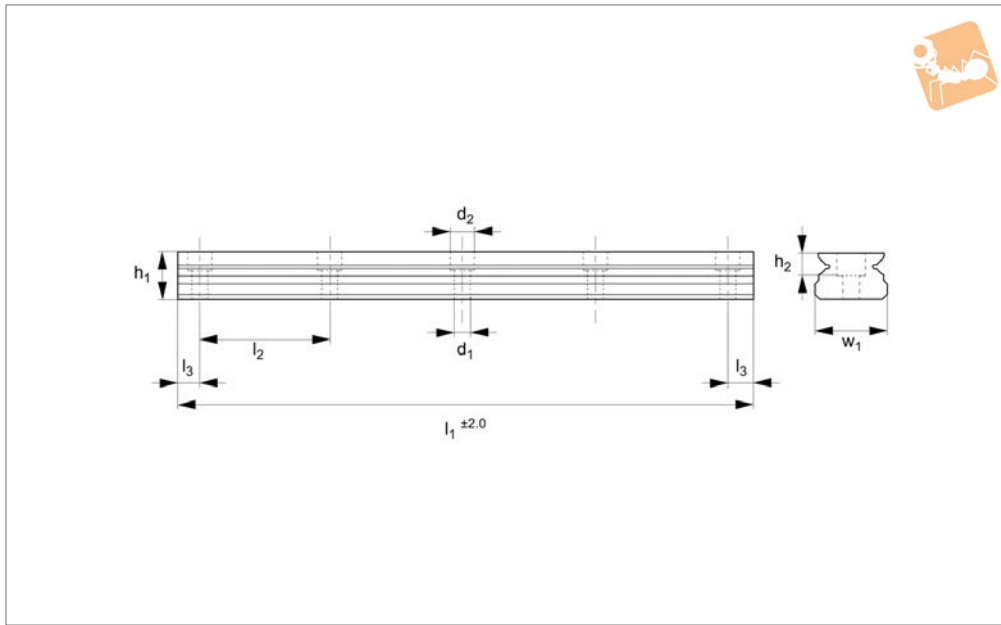
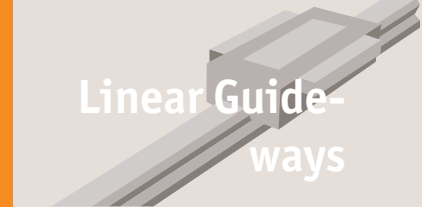
Order No.	l ₁	l ₂	l ₃	h ₁	h ₂	d ₁	d ₂	For screws	w ₁	Weight kg
L1010.07-0550	550	15	5	4.7	2.3	2.4	4.2	M2	7	121.0
L1010.07-0565	565	15	5	4.7	2.3	2.4	4.2	M2	7	124.3
L1010.07-0580	580	15	5	4.7	2.3	2.4	4.2	M2	7	127.6
L1010.07-0595	595	15	5	4.7	2.3	2.4	4.2	M2	7	130.9
L1010.07-0610	610	15	5	4.7	2.3	2.4	4.2	M2	7	134.2
L1010.07-0625	625	15	5	4.7	2.3	2.4	4.2	M2	7	137.5
L1010.07-0640	640	15	5	4.7	2.3	2.4	4.2	M2	7	140.8
L1010.07-0655	655	15	5	4.7	2.3	2.4	4.2	M2	7	144.1
L1010.07-0670	670	15	5	4.7	2.3	2.4	4.2	M2	7	147.4
L1010.07-0685	685	15	5	4.7	2.3	2.4	4.2	M2	7	150.7
L1010.07-0700	700	15	5	4.7	2.3	2.4	4.2	M2	7	154.0
L1010.07-0715	715	15	5	4.7	2.3	2.4	4.2	M2	7	157.3
L1010.07-0730	730	15	5	4.7	2.3	2.4	4.2	M2	7	160.6
L1010.07-0745	745	15	5	4.7	2.3	2.4	4.2	M2	7	163.9
L1010.07-0760	760	15	5	4.7	2.3	2.4	4.2	M2	7	167.2
L1010.07-0775	775	15	5	4.7	2.3	2.4	4.2	M2	7	170.5
L1010.07-0790	790	15	5	4.7	2.3	2.4	4.2	M2	7	173.8
L1010.07-0805	805	15	5	4.7	2.3	2.4	4.2	M2	7	177.1
L1010.07-0820	820	15	5	4.7	2.3	2.4	4.2	M2	7	180.4
L1010.07-0835	835	15	5	4.7	2.3	2.4	4.2	M2	7	183.7
L1010.07-0850	850	15	5	4.7	2.3	2.4	4.2	M2	7	187.0
L1010.07-0865	865	15	5	4.7	2.3	2.4	4.2	M2	7	190.3
L1010.07-0880	880	15	5	4.7	2.3	2.4	4.2	M2	7	193.6
L1010.07-0895	895	15	5	4.7	2.3	2.4	4.2	M2	7	196.9
L1010.07-0910	910	15	5	4.7	2.3	2.4	4.2	M2	7	200.2
L1010.07-0925	925	15	5	4.7	2.3	2.4	4.2	M2	7	203.5
L1010.07-0940	940	15	5	4.7	2.3	2.4	4.2	M2	7	206.8
L1010.07-0955	955	15	5	4.7	2.3	2.4	4.2	M2	7	210.1
L1010.07-0970	970	15	5	4.7	2.3	2.4	4.2	M2	7	213.4
L1010.07-0985	985	15	5	4.7	2.3	2.4	4.2	M2	7	216.7
L1010.07-1000	1000	15	5	4.7	2.3	2.4	4.2	M2	7	220.0



9mm Miniature Linear Rail

standard width

Linear Guide-ways



L1010.09

LINEAR GUIDEWAYS

Material

Corrosion resistant stainless steel, hardened (similar to 440C).

Technical Notes

Select the size and number of carriages to suit the required load (see part L1010.C).

Other rail lengths on request.

Weight: 0,30 Kg/m.

Order No.	l_1	l_2	l_3	h_1	h_2	d_1	d_2	For screws	w_1	Weight kg
L1010.09-0055	55	20	7.5	5.5	3.5	3.5	6	M3	9	16.5
L1010.09-0075	75	20	7.5	5.5	3.5	3.5	6	M3	9	22.5
L1010.09-0095	95	20	7.5	5.5	3.5	3.5	6	M3	9	28.5
L1010.09-0115	115	20	7.5	5.5	3.5	3.5	6	M3	9	34.5
L1010.09-0135	135	20	7.5	5.5	3.5	3.5	6	M3	9	40.5
L1010.09-0155	155	20	7.5	5.5	3.5	3.5	6	M3	9	46.5
L1010.09-0175	175	20	7.5	5.5	3.5	3.5	6	M3	9	52.5
L1010.09-0195	195	20	7.5	5.5	3.5	3.5	6	M3	9	58.5
L1010.09-0215	215	20	7.5	5.5	3.5	3.5	6	M3	9	64.5
L1010.09-0235	235	20	7.5	5.5	3.5	3.5	6	M3	9	70.5
L1010.09-0255	255	20	7.5	5.5	3.5	3.5	6	M3	9	76.5
L1010.09-0275	275	20	7.5	5.5	3.5	3.5	6	M3	9	82.5
L1010.09-0295	295	20	7.5	5.5	3.5	3.5	6	M3	9	88.5
L1010.09-0315	315	20	7.5	5.5	3.5	3.5	6	M3	9	94.5
L1010.09-0335	335	20	7.5	5.5	3.5	3.5	6	M3	9	100.5
L1010.09-0355	355	20	7.5	5.5	3.5	3.5	6	M3	9	106.5
L1010.09-0375	375	20	7.5	5.5	3.5	3.5	6	M3	9	112.5
L1010.09-0395	395	20	7.5	5.5	3.5	3.5	6	M3	9	118.5
L1010.09-0415	415	20	7.5	5.5	3.5	3.5	6	M3	9	124.5
L1010.09-0435	435	20	7.5	5.5	3.5	3.5	6	M3	9	130.5
L1010.09-0455	455	20	7.5	5.5	3.5	3.5	6	M3	9	136.5
L1010.09-0475	475	20	7.5	5.5	3.5	3.5	6	M3	9	142.5
L1010.09-0495	495	20	7.5	5.5	3.5	3.5	6	M3	9	148.5
L1010.09-0515	515	20	7.5	5.5	3.5	3.5	6	M3	9	154.5
L1010.09-0535	535	20	7.5	5.5	3.5	3.5	6	M3	9	160.5
L1010.09-0555	555	20	7.5	5.5	3.5	3.5	6	M3	9	166.5
L1010.09-0575	575	20	7.5	5.5	3.5	3.5	6	M3	9	172.5
L1010.09-0595	595	20	7.5	5.5	3.5	3.5	6	M3	9	178.5
L1010.09-0615	615	20	7.5	5.5	3.5	3.5	6	M3	9	184.5
L1010.09-0635	635	20	7.5	5.5	3.5	3.5	6	M3	9	190.5
L1010.09-0655	655	20	7.5	5.5	3.5	3.5	6	M3	9	196.5
L1010.09-0675	675	20	7.5	5.5	3.5	3.5	6	M3	9	202.5
L1010.09-0695	695	20	7.5	5.5	3.5	3.5	6	M3	9	208.5
L1010.09-0715	715	20	7.5	5.5	3.5	3.5	6	M3	9	214.5



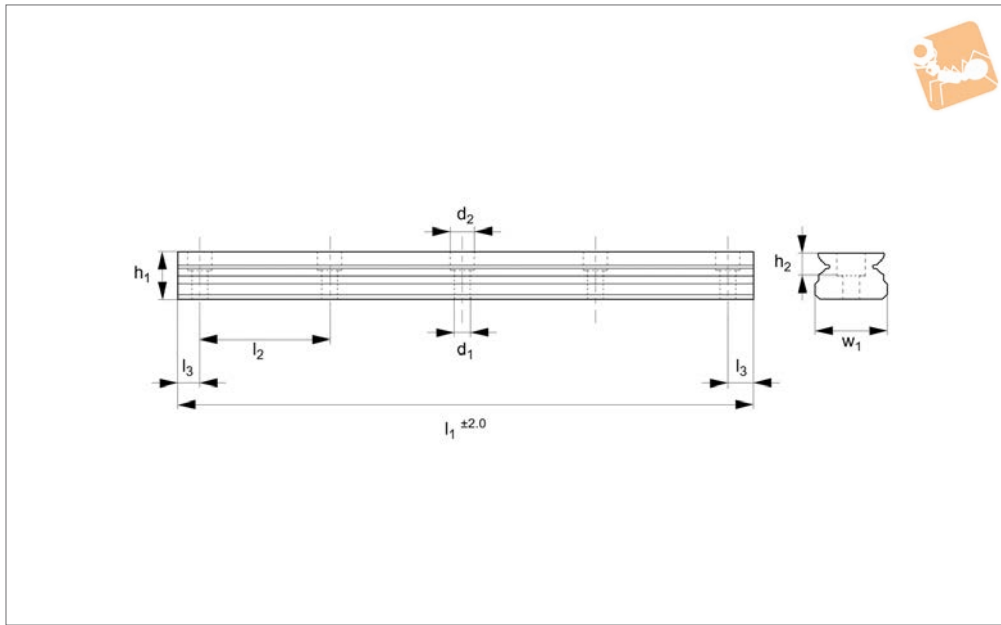
Order No.	l ₁	l ₂	l ₃	h ₁	h ₂	d ₁	d ₂	For screws	w ₁	Weight kg
L1010.09-0735	735	20	7.5	5.5	3.5	3.5	6	M3	9	220.5
L1010.09-0755	755	20	7.5	5.5	3.5	3.5	6	M3	9	226.5
L1010.09-0775	775	20	7.5	5.5	3.5	3.5	6	M3	9	232.5
L1010.09-0795	795	20	7.5	5.5	3.5	3.5	6	M3	9	238.5
L1010.09-0815	815	20	7.5	5.5	3.5	3.5	6	M3	9	244.5
L1010.09-0835	835	20	7.5	5.5	3.5	3.5	6	M3	9	250.5
L1010.09-0855	855	20	7.5	5.5	3.5	3.5	6	M3	9	256.5
L1010.09-0875	875	20	7.5	5.5	3.5	3.5	6	M3	9	262.5
L1010.09-0895	895	20	7.5	5.5	3.5	3.5	6	M3	9	268.5
L1010.09-0915	915	20	7.5	5.5	3.5	3.5	6	M3	9	274.5
L1010.09-0935	935	20	7.5	5.5	3.5	3.5	6	M3	9	280.5
L1010.09-0955	955	20	7.5	5.5	3.5	3.5	6	M3	9	286.5
L1010.09-0975	975	20	7.5	5.5	3.5	3.5	6	M3	9	292.5
L1010.09-0995	995	20	7.5	5.5	3.5	3.5	6	M3	9	298.5



12mm Miniature Linear Rail

standard width

Linear Guide-ways



L1010.12

LINEAR GUIDEWAYS

Material

Corrosion resistant stainless steel, hardened (similar to 440C).

Technical Notes

Select the size and number of carriages to suit the required load (see part L1010.C).

Other rail lengths on request.

Weight: 0,60 Kg/m.

Order No.	l_1	l_2	l_3	h_1	h_2	d_1	d_2	For screws	w_1	Weight kg
L1010.12-0070	70	25	10	7.5	4.5	3.5	6	M3	12	42
L1010.12-0095	95	25	10	7.5	4.5	3.5	6	M3	12	57
L1010.12-0120	120	25	10	7.5	4.5	3.5	6	M3	12	72
L1010.12-0145	145	25	10	7.5	4.5	3.5	6	M3	12	87
L1010.12-0170	170	25	10	7.5	4.5	3.5	6	M3	12	102
L1010.12-0195	195	25	10	7.5	4.5	3.5	6	M3	12	117
L1010.12-0220	220	25	10	7.5	4.5	3.5	6	M3	12	132
L1010.12-0245	245	25	10	7.5	4.5	3.5	6	M3	12	147
L1010.12-0270	270	25	10	7.5	4.5	3.5	6	M3	12	162
L1010.12-0295	295	25	10	7.5	4.5	3.5	6	M3	12	177
L1010.12-0320	320	25	10	7.5	4.5	3.5	6	M3	12	192
L1010.12-0345	345	25	10	7.5	4.5	3.5	6	M3	12	207
L1010.12-0370	370	25	10	7.5	4.5	3.5	6	M3	12	222
L1010.12-0395	395	25	10	7.5	4.5	3.5	6	M3	12	237
L1010.12-0420	420	25	10	7.5	4.5	3.5	6	M3	12	252
L1010.12-0445	445	25	10	7.5	4.5	3.5	6	M3	12	267
L1010.12-0470	470	25	10	7.5	4.5	3.5	6	M3	12	282
L1010.12-0495	495	25	10	7.5	4.5	3.5	6	M3	12	297
L1010.12-0520	520	25	10	7.5	4.5	3.5	6	M3	12	312
L1010.12-0545	545	25	10	7.5	4.5	3.5	6	M3	12	327
L1010.12-0570	570	25	10	7.5	4.5	3.5	6	M3	12	342
L1010.12-0595	595	25	10	7.5	4.5	3.5	6	M3	12	357
L1010.12-0620	620	25	10	7.5	4.5	3.5	6	M3	12	372
L1010.12-0645	645	25	10	7.5	4.5	3.5	6	M3	12	387
L1010.12-0670	670	25	10	7.5	4.5	3.5	6	M3	12	402
L1010.12-0695	695	25	10	7.5	4.5	3.5	6	M3	12	417
L1010.12-0720	720	25	10	7.5	4.5	3.5	6	M3	12	432
L1010.12-0745	745	25	10	7.5	4.5	3.5	6	M3	12	447
L1010.12-0770	770	25	10	7.5	4.5	3.5	6	M3	12	462
L1010.12-0795	795	25	10	7.5	4.5	3.5	6	M3	12	477
L1010.12-0820	820	25	10	7.5	4.5	3.5	6	M3	12	492
L1010.12-0845	845	25	10	7.5	4.5	3.5	6	M3	12	507
L1010.12-0870	870	25	10	7.5	4.5	3.5	6	M3	12	522
L1010.12-0895	895	25	10	7.5	4.5	3.5	6	M3	12	537



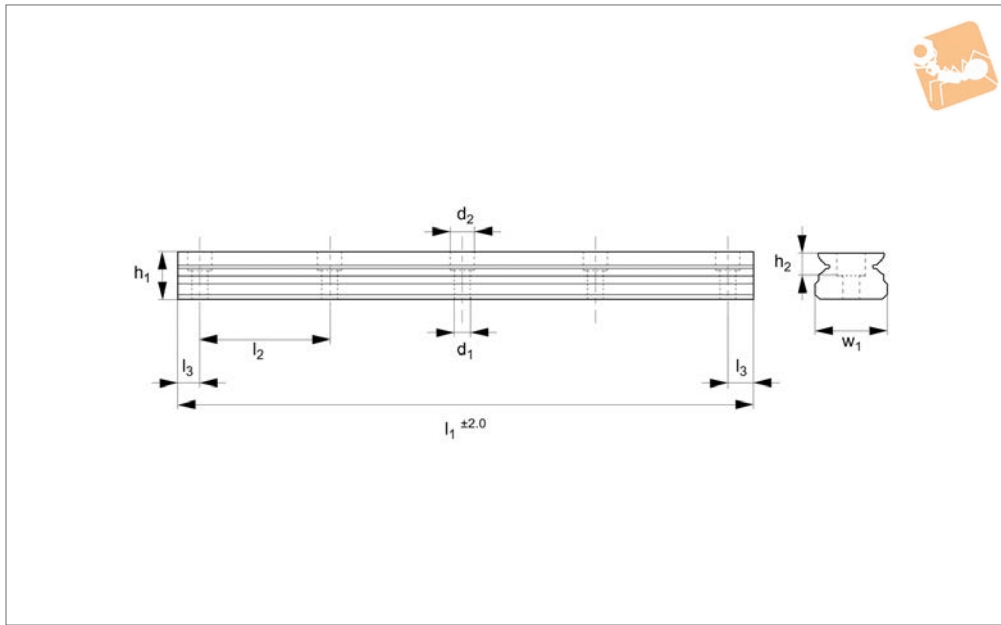
Order No.	l_1	l_2	l_3	h_1	h_2	d_1	d_2	For screws	w_1	Weight kg
L1010.12-0920	920	25	10	7.5	4.5	3.5	6	M3	12	552
L1010.12-0945	945	25	10	7.5	4.5	3.5	6	M3	12	567
L1010.12-0970	970	25	10	7.5	4.5	3.5	6	M3	12	582
L1010.12-0995	995	25	10	7.5	4.5	3.5	6	M3	12	597



15mm Miniature Linear Rail

standard width

Linear Guide-ways



L1010.15

LINEAR GUIDEWAYS

Material

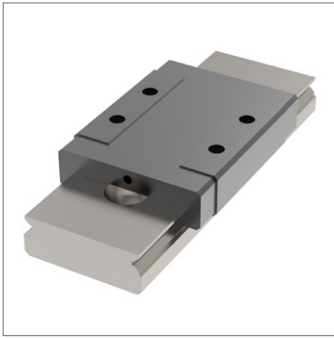
Corrosion resistant stainless steel, hardened to 58-60 HRC (similar to 440C).

Technical Notes

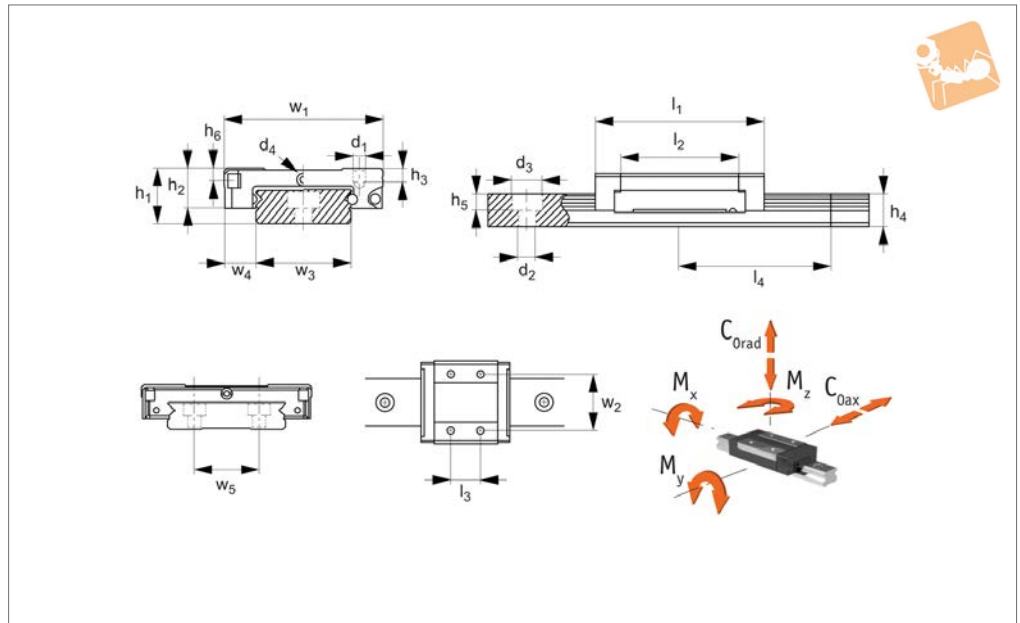
Select the size and number of carriages to suit the required load (see part L1010.C).

Other rail lengths on request.
Weight: 0,93 Kg/m.

Order No.	l_1	l_2	l_3	h_1	h_2	d_1	d_2	For screws	w_1	Weight kg
L1010.15-0070	70	40	15	9.5	4.5	3.5	6	M3	15	65.1
L1010.15-0110	110	40	15	9.5	4.5	3.5	6	M3	15	102.3
L1010.15-0150	150	40	15	9.5	4.5	3.5	6	M3	15	139.5
L1010.15-0190	190	40	15	9.5	4.5	3.5	6	M3	15	176.7
L1010.15-0230	230	40	15	9.5	4.5	3.5	6	M3	15	213.9
L1010.15-0270	270	40	15	9.5	4.5	3.5	6	M3	15	251.1
L1010.15-0310	310	40	15	9.5	4.5	3.5	6	M3	15	288.3
L1010.15-0350	350	40	15	9.5	4.5	3.5	6	M3	15	325.5
L1010.15-0390	390	40	15	9.5	4.5	3.5	6	M3	15	362.7
L1010.15-0430	430	40	15	9.5	4.5	3.5	6	M3	15	399.9
L1010.15-0470	470	40	15	9.5	4.5	3.5	6	M3	15	437.1
L1010.15-0510	510	40	15	9.5	4.5	3.5	6	M3	15	474.3
L1010.15-0550	550	40	15	9.5	4.5	3.5	6	M3	15	511.5
L1010.15-0590	590	40	15	9.5	4.5	3.5	6	M3	15	548.7
L1010.15-0630	630	40	15	9.5	4.5	3.5	6	M3	15	585.9
L1010.15-0670	670	40	15	9.5	4.5	3.5	6	M3	15	623.1
L1010.15-0710	710	40	15	9.5	4.5	3.5	6	M3	15	660.3
L1010.15-0750	750	40	15	9.5	4.5	3.5	6	M3	15	697.5
L1010.15-0790	790	40	15	9.5	4.5	3.5	6	M3	15	734.7
L1010.15-0830	830	40	15	9.5	4.5	3.5	6	M3	15	771.9
L1010.15-0870	870	40	15	9.5	4.5	3.5	6	M3	15	809.1
L1010.15-0910	910	40	15	9.5	4.5	3.5	6	M3	15	846.3
L1010.15-0950	950	40	15	9.5	4.5	3.5	6	M3	15	883.5
L1010.15-0990	990	40	15	9.5	4.5	3.5	6	M3	15	920.7



L1012.C



Material

Corrosion resistant stainless steel body (440C), with hardened stainless steel ball bearings.
Black plastic end plates and ball bearing retainers.

Technical Notes

Max. speed 3 m/s. max. acceleration 40m/s².

s².

Temperature range -40°C to +80°C.
Select the size and number of carriages to suit the required load then select the required rail length, (see part nos. L1012.10 through to L1012.42).

Tips

Carriages are supplied with a dummy

(plastic) rail. When mounting carriages onto rail, slide directly from the dummy rail onto the steel rail. Do not simply remove the carriage from the dummy rail - the balls will become loose making the carriage unusable.

Order No.	For rail	l ₁	l ₂	l ₃	l ₄	h ₁	h ₂	h ₃	h ₄	h ₅	h ₆	d ₁	d ₂	d ₃	d ₄	Static load C _{0rad & ax} N	Weight g
L1012.C10	10	21.1	15.1	6.5	20	6.5	5.0	1.5	4	1.6	2.3	M2,5	3.0	5.5	0.9	900	8
L1012.C10L	10	27.2	21.2	11	20	6.5	5.0	1.5	4	1.6	2.3	M2,5	3.0	5.5	0.9	1315	19
L1012.C14	14	31.6	21.2	10	30	9	7.0	3	5.2	3.5	3.2	M3	3.5	6	1.1	2095	27
L1012.C14L	14	40.5	30.1	19	30	9	7.0	3	5.2	3.5	3.2	M3	3.5	6	1.1	3140	37
L1012.C18	18	39.1	27.9	12	30	12	8.6	3.0	7.3	4.5	4.0	M3	3.5	6	1.3	3605	37
L1012.C18L	18	50.7	39.5	24	30	12	8.6	3.0	7.3	4.5	4.0	M3	3.5	6	1.3	4990	57
L1012.C24	24	44.4	31.0	15	40	14	10.1	3.5	8.5	4.5	4.5	M3	4.5	8	1.3	5200	65
L1012.C24L	24	59.4	46.0	28	40	14	10.1	3.5	8.5	4.5	4.5	M3	4.5	8	1.3	7800	93
L1012.C42	42	55.3	38.5	20	40	16	12.0	4.5	9.5	4.5	4.5	M4	4.5	8	1.8	8385	137
L1012.C42L	42	74.4	57.6	35	40	16	12.0	4.5	9.5	4.5	4.5	M4	4.5	8	1.8	12580	200

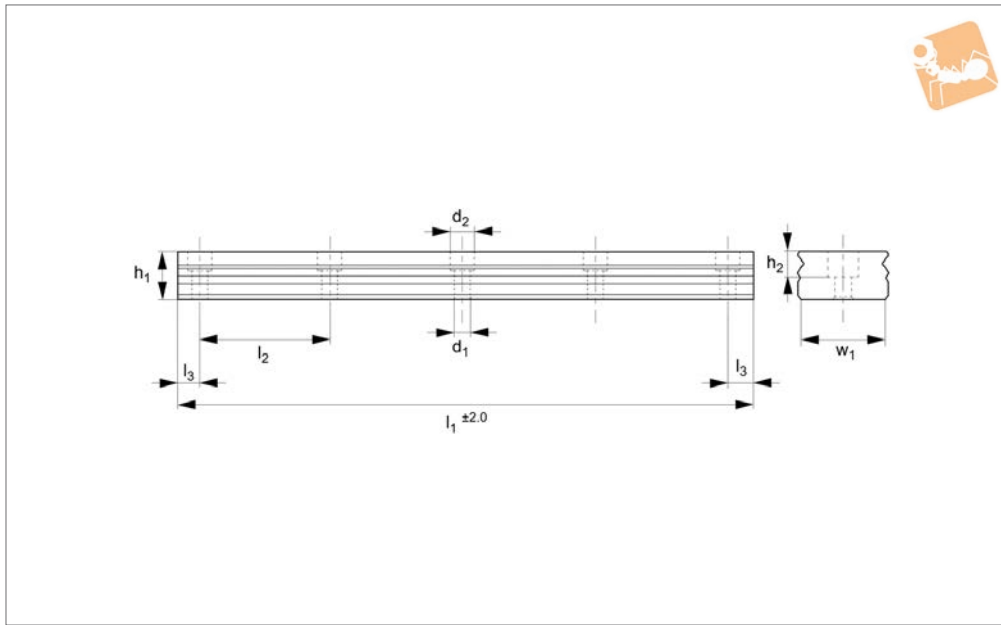
Order No.	w ₁	w ₂	w ₃	w ₄	w ₅	Dyn. load C _{rad & ax} N	M _x Nm	M _y Nm	M _z Nm
L1012.C10	17	13	10	3.5	-	475	4.6	2.2	2.2
L1012.C10L	17	13	10	3.5	-	615	6.8	4.1	4.1
L1012.C14	25	19	14	5.5	-	1180	15	7.3	7.3
L1012.C14L	25	19	14	5.5	-	1570	22.6	14.9	14.9
L1012.C18	30	21	18	6	-	2030	33.2	13.7	13.7
L1012.C18L	30	23	18	6	-	2550	45.9	26.7	26.7
L1012.C24	40	28	24	8	-	3065	63.7	26.3	26.3
L1012.C24L	40	28	24	8	-	4070	95.6	56.4	56.4
L1012.C42	60	45	42	9	23	5065	171.7	45.7	45.7
L1012.C42L	60	45	42	9	23	6725	257	93.1	93.1



10mm Miniature Linear Rail

wide version

Linear Guide-ways



L1012.10

LINEAR GUIDEWAYS

Material

Corrosion resistant stainless steel, hardened (similar to 440C).

Technical Notes

Select the size and number of carriages to suit the required load (see part L1012.C).

Other rail lengths on request.

Weight: 0,3 Kg/m.

Order No.	l_1	l_2	l_3	h_1	h_2	d_1	d_2	For screws	w_1	Weight kg
L1012.10-0055	55	20	7.5	4	1.6	3	5.5	M2,5	10	16.5
L1012.10-0075	75	20	7.5	4	1.6	3	5.5	M2,5	10	22.5
L1012.10-0095	95	20	7.5	4	1.6	3	5.5	M2,5	10	28.5
L1012.10-0115	115	20	7.5	4	1.6	3	5.5	M2,5	10	34.5
L1012.10-0135	135	20	7.5	4	1.6	3	5.5	M2,5	10	40.5
L1012.10-0155	155	20	7.5	4	1.6	3	5.5	M2,5	10	46.5
L1012.10-0175	175	20	7.5	4	1.6	3	5.5	M2,5	10	52.5
L1012.10-0195	195	20	7.5	4	1.6	3	5.5	M2,5	10	58.5
L1012.10-0215	215	20	7.5	4	1.6	3	5.5	M2,5	10	64.5
L1012.10-0235	235	20	7.5	4	1.6	3	5.5	M2,5	10	70.5
L1012.10-0255	255	20	7.5	4	1.6	3	5.5	M2,5	10	76.5
L1012.10-0275	275	20	7.5	4	1.6	3	5.5	M2,5	10	82.5
L1012.10-0295	295	20	7.5	4	1.6	3	5.5	M2,5	10	88.5
L1012.10-0315	315	20	7.5	4	1.6	3	5.5	M2,5	10	94.5
L1012.10-0335	335	20	7.5	4	1.6	3	5.5	M2,5	10	100.5
L1012.10-0355	355	20	7.5	4	1.6	3	5.5	M2,5	10	106.5
L1012.10-0375	375	20	7.5	4	1.6	3	5.5	M2,5	10	112.5
L1012.10-0395	395	20	7.5	4	1.6	3	5.5	M2,5	10	118.5
L1012.10-0415	415	20	7.5	4	1.6	3	5.5	M2,5	10	124.5
L1012.10-0435	435	20	7.5	4	1.6	3	5.5	M2,5	10	130.5
L1012.10-0455	455	20	7.5	4	1.6	3	5.5	M2,5	10	136.5
L1012.10-0475	475	20	7.5	4	1.6	3	5.5	M2,5	10	142.5
L1012.10-0495	495	20	7.5	4	1.6	3	5.5	M2,5	10	148.5
L1012.10-0515	515	20	7.5	4	1.6	3	5.5	M2,5	10	154.5
L1012.10-0535	535	20	7.5	4	1.6	3	5.5	M2,5	10	160.5
L1012.10-0555	555	20	7.5	4	1.6	3	5.5	M2,5	10	166.5
L1012.10-0575	575	20	7.5	4	1.6	3	5.5	M2,5	10	172.5
L1012.10-0595	595	20	7.5	4	1.6	3	5.5	M2,5	10	178.5
L1012.10-0615	615	20	7.5	4	1.6	3	5.5	M2,5	10	184.5
L1012.10-0635	635	20	7.5	4	1.6	3	5.5	M2,5	10	190.5
L1012.10-0655	655	20	7.5	4	1.6	3	5.5	M2,5	10	196.5
L1012.10-0675	675	20	7.5	4	1.6	3	5.5	M2,5	10	202.5
L1012.10-0695	695	20	7.5	4	1.6	3	5.5	M2,5	10	208.5
L1012.10-0715	715	20	7.5	4	1.6	3	5.5	M2,5	10	214.5



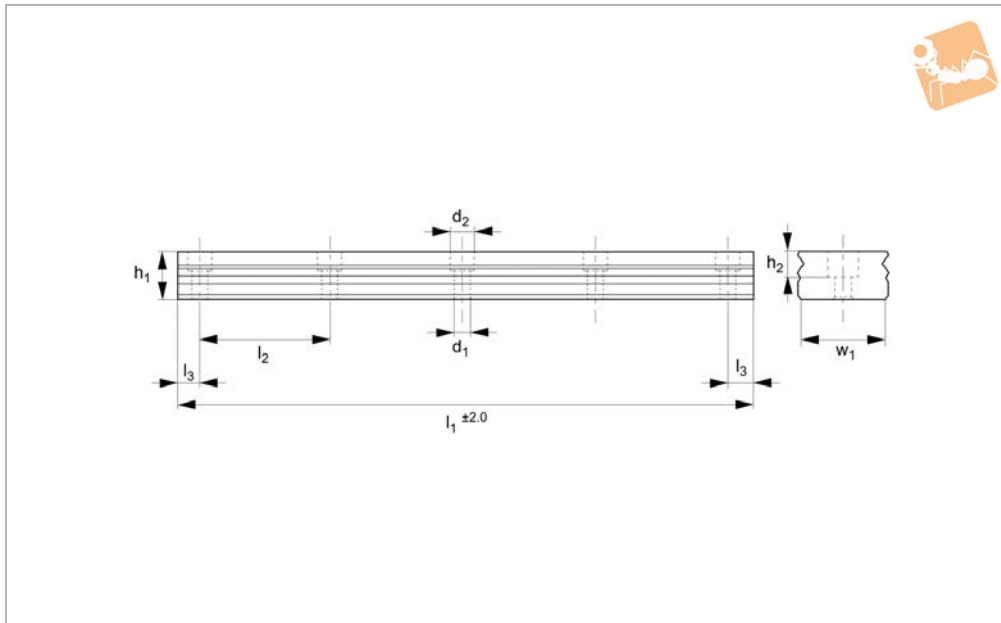
Order No.	l ₁	l ₂	l ₃	h ₁	h ₂	d ₁	d ₂	For screws	w ₁	Weight kg
L1012.10-0735	735	20	7.5	4	1.6	3	5.5	M2,5	10	220.5
L1012.10-0755	755	20	7.5	4	1.6	3	5.5	M2,5	10	226.5
L1012.10-0775	775	20	7.5	4	1.6	3	5.5	M2,5	10	232.5
L1012.10-0795	795	20	7.5	4	1.6	3	5.5	M2,5	10	238.5
L1012.10-0815	815	20	7.5	4	1.6	3	5.5	M2,5	10	244.5
L1012.10-0835	835	20	7.5	4	1.6	3	5.5	M2,5	10	250.5
L1012.10-0855	855	20	7.5	4	1.6	3	5.5	M2,5	10	256.5
L1012.10-0875	875	20	7.5	4	1.6	3	5.5	M2,5	10	262.5
L1012.10-0895	895	20	7.5	4	1.6	3	5.5	M2,5	10	268.5
L1012.10-0915	915	20	7.5	4	1.6	3	5.5	M2,5	10	274.5
L1012.10-0935	935	20	7.5	4	1.6	3	5.5	M2,5	10	280.5
L1012.10-0955	955	20	7.5	4	1.6	3	5.5	M2,5	10	286.5
L1012.10-0975	975	20	7.5	4	1.6	3	5.5	M2,5	10	292.5
L1012.10-0995	995	20	7.5	4	1.6	3	5.5	M2,5	10	298.5



14mm Miniature Linear Rail

wide version

Linear Guide-ways



L1012.14

LINEAR GUIDEWAYS

Material

Corrosion resistant stainless steel, hardened (similar to 440C).

Technical Notes

Select the size and number of carriages to suit the required load (see part L1012.C).

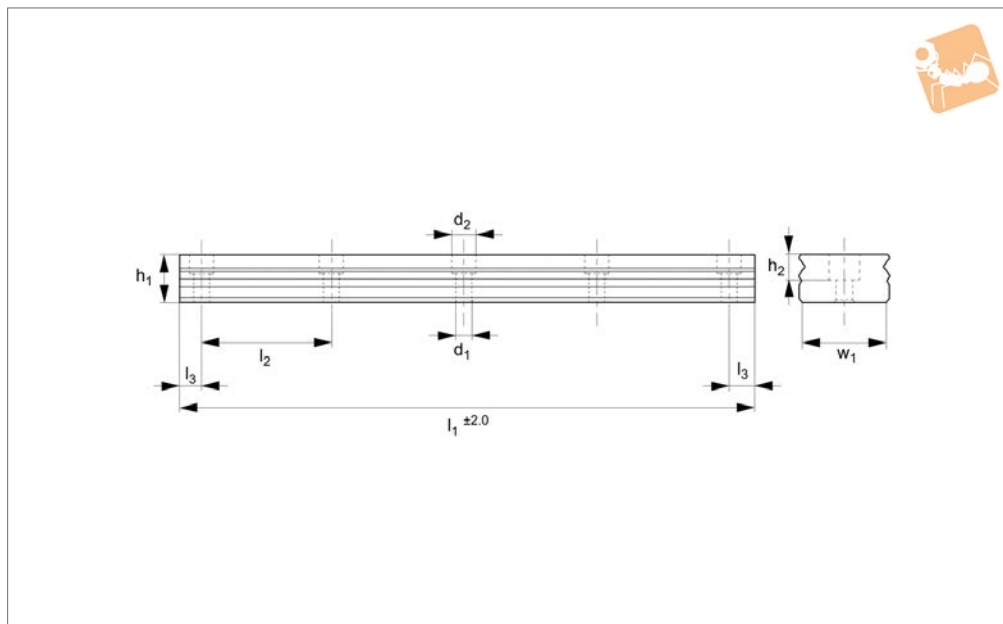
Other rail lengths on request.

Weight: 0,5 Kg/m.

Order No.	l_1	l_2	l_3	h_1	h_2	d_1	d_2	For screws	w_1	Weight kg
L1012.14-0050	50	30	10	5.2	3.5	3.5	6	M3	14	25
L1012.14-0080	80	30	10	5.2	3.5	3.5	6	M3	14	40
L1012.14-0110	110	30	10	5.2	3.5	3.5	6	M3	14	55
L1012.14-0140	140	30	10	5.2	3.5	3.5	6	M3	14	70
L1012.14-0170	170	30	10	5.2	3.5	3.5	6	M3	14	85
L1012.14-0200	200	30	10	5.2	3.5	3.5	6	M3	14	100
L1012.14-0230	230	30	10	5.2	3.5	3.5	6	M3	14	115
L1012.14-0260	260	30	10	5.2	3.5	3.5	6	M3	14	130
L1012.14-0290	290	30	10	5.2	3.5	3.5	6	M3	14	145
L1012.14-0320	320	30	10	5.2	3.5	3.5	6	M3	14	160
L1012.14-0350	350	30	10	5.2	3.5	3.5	6	M3	14	175
L1012.14-0380	380	30	10	5.2	3.5	3.5	6	M3	14	190
L1012.14-0410	410	30	10	5.2	3.5	3.5	6	M3	14	205
L1012.14-0440	440	30	10	5.2	3.5	3.5	6	M3	14	220
L1012.14-0470	470	30	10	5.2	3.5	3.5	6	M3	14	235
L1012.14-0500	500	30	10	5.2	3.5	3.5	6	M3	14	250
L1012.14-0530	530	30	10	5.2	3.5	3.5	6	M3	14	265
L1012.14-0560	560	30	10	5.2	3.5	3.5	6	M3	14	280
L1012.14-0590	590	30	10	5.2	3.5	3.5	6	M3	14	295
L1012.14-0620	620	30	10	5.2	3.5	3.5	6	M3	14	310
L1012.14-0650	650	30	10	5.2	3.5	3.5	6	M3	14	325
L1012.14-0680	680	30	10	5.2	3.5	3.5	6	M3	14	340
L1012.14-0710	710	30	10	5.2	3.5	3.5	6	M3	14	355
L1012.14-0740	740	30	10	5.2	3.5	3.5	6	M3	14	370
L1012.14-0770	770	30	10	5.2	3.5	3.5	6	M3	14	385
L1012.14-0800	800	30	10	5.2	3.5	3.5	6	M3	14	400
L1012.14-0830	830	30	10	5.2	3.5	3.5	6	M3	14	415
L1012.14-0860	860	30	10	5.2	3.5	3.5	6	M3	14	430
L1012.14-0890	890	30	10	5.2	3.5	3.5	6	M3	14	445
L1012.14-0920	920	30	10	5.2	3.5	3.5	6	M3	14	460
L1012.14-0950	950	30	10	5.2	3.5	3.5	6	M3	14	475
L1012.14-0980	980	30	10	5.2	3.5	3.5	6	M3	14	490



L1012.18



Material

Corrosion resistant stainless steel, hardened (similar to 440C).

Technical Notes

Select the size and number of carriages to suit the required load (see part L1012.C).

Other rail lengths on request.
Weight: 0,9 Kg/m.

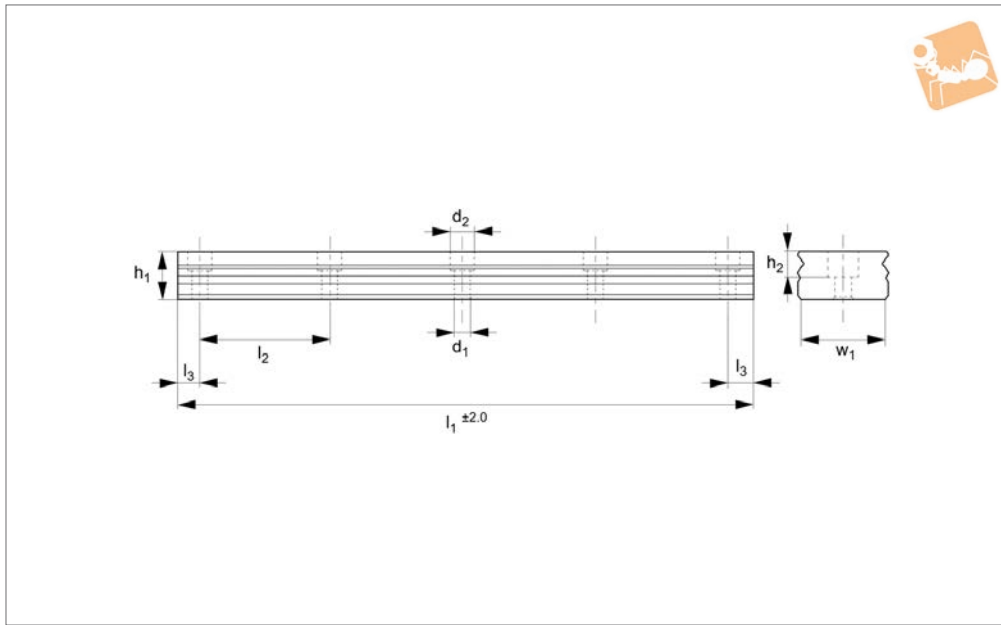
Order No.	l_1	l_2	l_3	h_1	h_2	d_1	d_2	For screws	w_1	Weight kg
L1012.18-0050	50	30	10	7.3	4.5	3.5	6	M3	18	45
L1012.18-0080	80	30	10	7.3	4.5	3.5	6	M3	18	72
L1012.18-0110	110	30	10	7.3	4.5	3.5	6	M3	18	99
L1012.18-0140	140	30	10	7.3	4.5	3.5	6	M3	18	126
L1012.18-0170	170	30	10	7.3	4.5	3.5	6	M3	18	153
L1012.18-0200	200	30	10	7.3	4.5	3.5	6	M3	18	180
L1012.18-0230	230	30	10	7.3	4.5	3.5	6	M3	18	207
L1012.18-0260	260	30	10	7.3	4.5	3.5	6	M3	18	234
L1012.18-0290	290	30	10	7.3	4.5	3.5	6	M3	18	261
L1012.18-0320	320	30	10	7.3	4.5	3.5	6	M3	18	288
L1012.18-0350	350	30	10	7.3	4.5	3.5	6	M3	18	315
L1012.18-0380	380	30	10	7.3	4.5	3.5	6	M3	18	342
L1012.18-0410	410	30	10	7.3	4.5	3.5	6	M3	18	369
L1012.18-0440	440	30	10	7.3	4.5	3.5	6	M3	18	396
L1012.18-0470	470	30	10	7.3	4.5	3.5	6	M3	18	423
L1012.18-0500	500	30	10	7.3	4.5	3.5	6	M3	18	450
L1012.18-0530	530	30	10	7.3	4.5	3.5	6	M3	18	477
L1012.18-0560	560	30	10	7.3	4.5	3.5	6	M3	18	504
L1012.18-0590	590	30	10	7.3	4.5	3.5	6	M3	18	531
L1012.18-0620	620	30	10	7.3	4.5	3.5	6	M3	18	558
L1012.18-0650	650	30	10	7.3	4.5	3.5	6	M3	18	585
L1012.18-0680	680	30	10	7.3	4.5	3.5	6	M3	18	612
L1012.18-0710	710	30	10	7.3	4.5	3.5	6	M3	18	639
L1012.18-0740	740	30	10	7.3	4.5	3.5	6	M3	18	666
L1012.18-0770	770	30	10	7.3	4.5	3.5	6	M3	18	693
L1012.18-0800	800	30	10	7.3	4.5	3.5	6	M3	18	720
L1012.18-0830	830	30	10	7.3	4.5	3.5	6	M3	18	747
L1012.18-0860	860	30	10	7.3	4.5	3.5	6	M3	18	774
L1012.18-0890	890	30	10	7.3	4.5	3.5	6	M3	18	801
L1012.18-0920	920	30	10	7.3	4.5	3.5	6	M3	18	828
L1012.18-0950	950	30	10	7.3	4.5	3.5	6	M3	18	855
L1012.18-0980	980	30	10	7.3	4.5	3.5	6	M3	18	882



24mm Miniature Linear Rail

wide version

Linear Guide-ways



L1012.24

LINEAR GUIDEWAYS

Material

Corrosion resistant stainless steel, hardened (similar to 440C).

Technical Notes

Select the size and number of carriages to suit the required load (see part L1012.C).

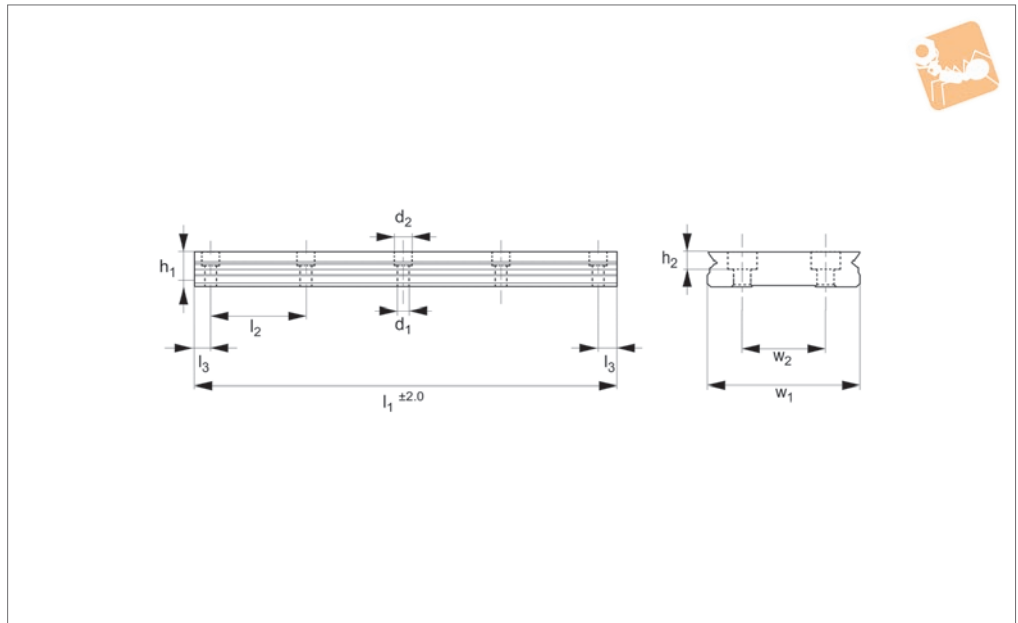
Other rail lengths on request.

Weight: 1,5 Kg/m.

Order No.	l_1	l_2	l_3	h_1	h_2	d_1	d_2	For screws	w_1	Weight kg
L1012.24-0070	70	40	15	8.5	4.5	4.5	8	M4	24	0.105
L1012.24-0110	110	40	15	8.5	4.5	4.5	8	M4	24	0.165
L1012.24-0150	150	40	15	8.5	4.5	4.5	8	M4	24	0.225
L1012.24-0190	190	40	15	8.5	4.5	4.5	8	M4	24	0.285
L1012.24-0230	230	40	15	8.5	4.5	4.5	8	M4	24	0.345
L1012.24-0270	270	40	15	8.5	4.5	4.5	8	M4	24	0.405
L1012.24-0310	310	40	15	8.5	4.5	4.5	8	M4	24	0.465
L1012.24-0350	350	40	15	8.5	4.5	4.5	8	M4	24	0.525
L1012.24-0390	390	40	15	8.5	4.5	4.5	8	M4	24	0.585
L1012.24-0430	430	40	15	8.5	4.5	4.5	8	M4	24	0.645
L1012.24-0470	470	40	15	8.5	4.5	4.5	8	M4	24	0.705
L1012.24-0510	510	40	15	8.5	4.5	4.5	8	M4	24	0.765
L1012.24-0550	550	40	15	8.5	4.5	4.5	8	M4	24	0.825
L1012.24-0590	590	40	15	8.5	4.5	4.5	8	M4	24	0.885
L1012.24-0630	630	40	15	8.5	4.5	4.5	8	M4	24	0.945
L1012.24-0670	670	40	15	8.5	4.5	4.5	8	M4	24	1.005
L1012.24-0710	710	40	15	8.5	4.5	4.5	8	M4	24	1.065
L1012.24-0750	750	40	15	8.5	4.5	4.5	8	M4	24	1.125
L1012.24-0790	790	40	15	8.5	4.5	4.5	8	M4	24	1.185
L1012.24-0830	830	40	15	8.5	4.5	4.5	8	M4	24	1.245
L1012.24-0870	870	40	15	8.5	4.5	4.5	8	M4	24	1.305
L1012.24-0910	910	40	15	8.5	4.5	4.5	8	M4	24	1.365
L1012.24-0950	950	40	15	8.5	4.5	4.5	8	M4	24	1.425
L1012.24-0990	990	40	15	8.5	4.5	4.5	8	M4	24	1.485



L1012.42



Material

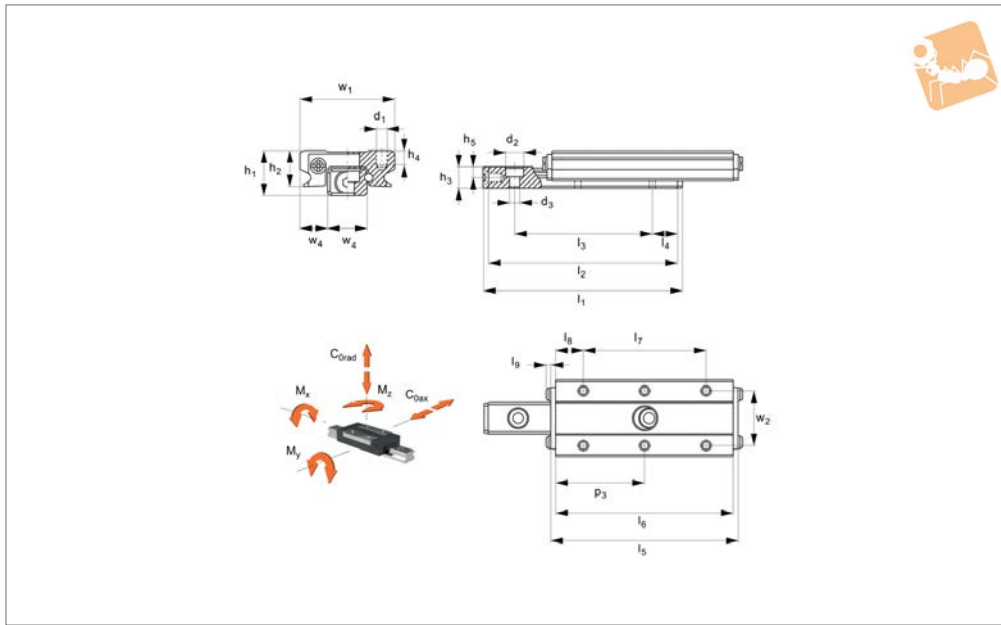
Corrosion resistant stainless steel, hardened (similar to 440C).

Technical Notes

Select the size and number of carriages to suit the required load (see part L1012.C).

Other rail lengths on request.
Weight: 2.8 Kg/m.

Order No.	l_1	l_2	l_3	h_1	h_2	d_1	d_2	For screws	w_1	w_2	Weight kg
L1012.42-0110	110	40	15	9.5	4.5	4.5	8	M 4	42	23	0.308
L1012.42-0150	150	40	15	9.5	4.5	4.5	8	M 4	42	23	0.420
L1012.42-0190	190	40	15	9.5	4.5	4.5	8	M 4	42	23	0.532
L1012.42-0230	230	40	15	9.5	4.5	4.5	8	M 4	42	23	0.644
L1012.42-0270	270	40	15	9.5	4.5	4.5	8	M 4	42	23	0.756
L1012.42-0310	310	40	15	9.5	4.5	4.5	8	M 4	42	23	0.868
L1012.42-0350	350	40	15	9.5	4.5	4.5	8	M 4	42	23	0.980
L1012.42-0390	390	40	15	9.5	4.5	4.5	8	M 4	42	23	1.092
L1012.42-0430	430	40	15	9.5	4.5	4.5	8	M 4	42	23	1.204
L1012.42-0470	470	40	15	9.5	4.5	4.5	8	M 4	42	23	1.316
L1012.42-0510	510	40	15	9.5	4.5	4.5	8	M 4	42	23	1.428
L1012.42-0550	550	40	15	9.5	4.5	4.5	8	M 4	42	23	1.540
L1012.42-0590	590	40	15	9.5	4.5	4.5	8	M 4	42	23	1.652
L1012.42-0630	630	40	15	9.5	4.5	4.5	8	M 4	42	23	1.764
L1012.42-0670	670	40	15	9.5	4.5	4.5	8	M 4	42	23	1.876
L1012.42-0710	710	40	15	9.5	4.5	4.5	8	M 4	42	23	1.988
L1012.42-0750	750	40	15	9.5	4.5	4.5	8	M 4	42	23	2.100
L1012.42-0790	790	40	15	9.5	4.5	4.5	8	M 4	42	23	2.212
L1012.42-0830	830	40	15	9.5	4.5	4.5	8	M 4	42	23	2.324
L1012.42-0870	870	40	15	9.5	4.5	4.5	8	M 4	42	23	2.436
L1012.42-0910	910	40	15	9.5	4.5	4.5	8	M 4	42	23	2.548
L1012.42-0950	950	40	15	9.5	4.5	4.5	8	M 4	42	23	2.660
L1012.42-0990	990	40	15	9.5	4.5	4.5	8	M 4	42	23	2.772



L1013

LINEAR GUIDEWAYS

Material

Rail and carriage: Hardened stainless steel.
Back plate and screws: Stainless steel.
Ball: Steel.

Technical Notes

The carriage has two rows of steel balls.
The ball track has a gothic profile with a

45° contact angle to achieve equal load capacity in a mono block.

This enables greater space to accommodate larger rolling elements.

The steel balls roll without recirculation resulting in smooth operation, low friction and no vibration.

Important Notes

Max. Temperature +150°C

Order No.	Stroke max.	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	l_9	h_1	h_2	h_3	h_4	h_5
L1013.07-030	27	30	28.0	15	6.5	30	28.0	15	6.5	1.0	8	6.5	4.7	2.5	2.3
L1013.07-045	41	45	43.0	30	6.5	45	43.0	30	6.5	1.0	8	6.5	4.7	2.5	2.3
L1013.07-060	55	60	58.0	45	6.5	60	58.0	45	6.5	1.0	8	6.5	4.7	2.5	2.3
L1013.09-040	38	40	38.0	20	9.0	40	38.0	20	9.0	1.3	10	7.8	5.5	3.0	3.5
L1013.09-060	58	60	58.0	40	9.0	60	58.0	40	9.0	1.3	10	7.8	5.5	3.0	3.5
L1013.09-080	78	80	78.0	60	9.0	80	78.0	60	9.0	1.3	10	7.8	5.5	3.0	3.5
L1013.12-050	44	50	47.4	25	11.2	50	47.4	25	11.2	1.3	13	10.0	7.5	3.5	4.5
L1013.12-075	69	75	72.4	50	11.2	75	72.4	50	11.2	1.3	13	10.0	7.5	3.5	4.5
L1013.12-100	94	100	97.4	75	11.2	100	97.4	75	11.2	1.3	13	10.0	7.5	3.5	4.5

Order No.	d_1	d_2	d_3	w_1	w_2	w_3	w_4	Static load C_0 N	M_y Nm	M_z Nm
L1013.07-030	M2	4.2	2.4	17	12	7	5.0	1580	5.9	3.4
L1013.07-045	M2	4.2	2.4	17	12	7	5.0	2500	3.1	8.0
L1013.07-060	M2	4.2	2.4	17	12	7	5.0	3330	12.4	14.6
L1013.09-040	M3	6.0	3.5	20	15	9	5.5	2773	13.1	6.8
L1013.09-060	M3	6.0	3.5	20	15	9	5.5	4170	19.7	16.0
L1013.09-080	M3	6.0	3.5	20	15	9	5.5	5547	26.2	29.2
L1013.12-050	M3	6.0	3.5	27	20	12	7.5	4340	27.0	16.0
L1013.12-075	M3	6.0	3.5	27	20	12	7.5	6510	40.1	35.6
L1013.12-100	M3	6.0	3.5	27	20	12	7.5	8670	54.0	62.8



Load capacities – explained

- A number of load figures are stated for load capacity:

Dynamic loads – this is the main figure considered for miniature linear guideways. It is the moving load that the system can bear. It takes account of the total moving load as well as considerations such as impact, vibration and fatigue.

Static loads – this is a load that is constant for an extended time (i.e. the dead load the system can bear before any movement). It can be in tension or compression.

For these miniature linear guideways the radial and axial load capacities are the same.

Moment loads are twisting loads generated by offset loads in either X, Y or Z planes. Moment loads can be reduced by adding further carriages or rails to reduce any twisting of the carriage due to the load offset.

Why is there a standard width and a wide version rail?

- The wider version system is generally used as a single rail system as it can accept higher loads and moment loads, whilst maintaining a very low height.
- The standard width rail can be used either as stand-alone rails or are more frequently used as a pair of rails in parallel.

Straightness of rails

- The measurements of the straightness of the system are taken from the running accuracy of the sliders over the length of the rails (given in microns) – see accuracy and preload page. For standard accuracy this equates to around 15µ for a 300mm length, increasing to 25µ for a 1 metre length.

What lengths can be provided?

- We have standard rail lengths. These are based on the hole pitch of the rails and end machining to provide an equidistant length to the first and last hole centre.
- However we can cut the rail (from stock) to any length required – we just need to know the distance required for the first hole.
- In general our cutting procedures allow for a ±2mm accuracy on the overall rail length. If greater accuracy than this is required then we have to machine the end accurately (rather than cut it) and this involves extra time and cost.
- Standard maximum length for each rail size is around 1 metre. Rails can be joined together but the preparation needs to be made in our workshop. The rails will be marked clearly with the ends to be placed adjacent to each other.

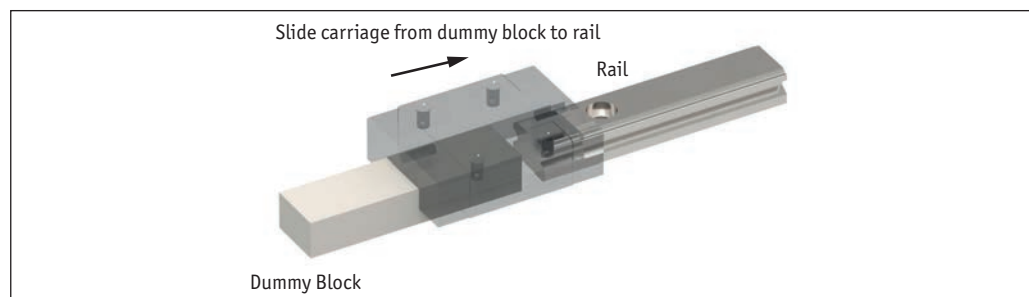
Installation

- The miniature linear guideways are very accurate and as a result need to be installed on accurately prepared surfaces - please see installation instructions. If two rails are installed in parallel, they need to be precisely aligned - see assembly precision page.

Mounting the carriages to the rails

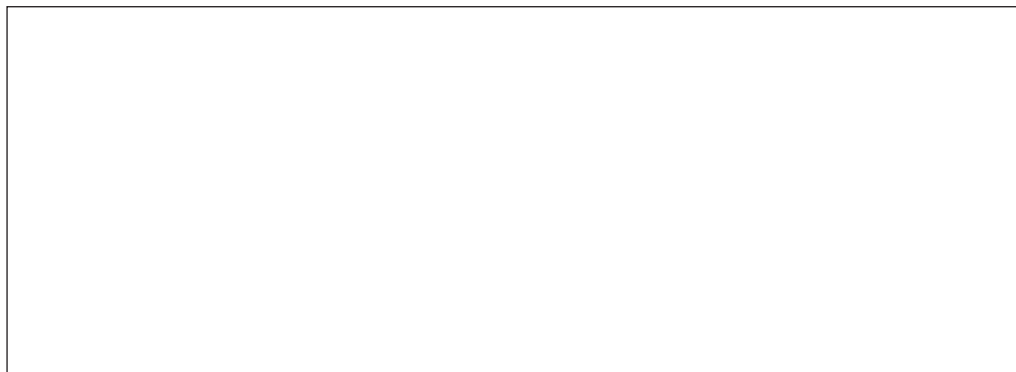
- In general the carriages will be supplied separately to the rails. The carriages are supplied mounted on plastic “dummy” blocks. To install the carriage onto the rails, offer the carriage (still on its dummy block) up to the rails and slide off the dummy block and onto the rail itself.

Do not simply remove the carriage from the dummy block, as some of the bearings might become displaced, rendering the carriage unusable.





Precision



	Dimensions	μ
h_1	Height tolerance h_1	± 40
h_1	Permissible height difference of different carriages at the same position on the rail	25
W_4	Width tolerance w_4	± 40
W_4	Permissible width difference of different carriages at the same position on the rail	30

Running accuracy

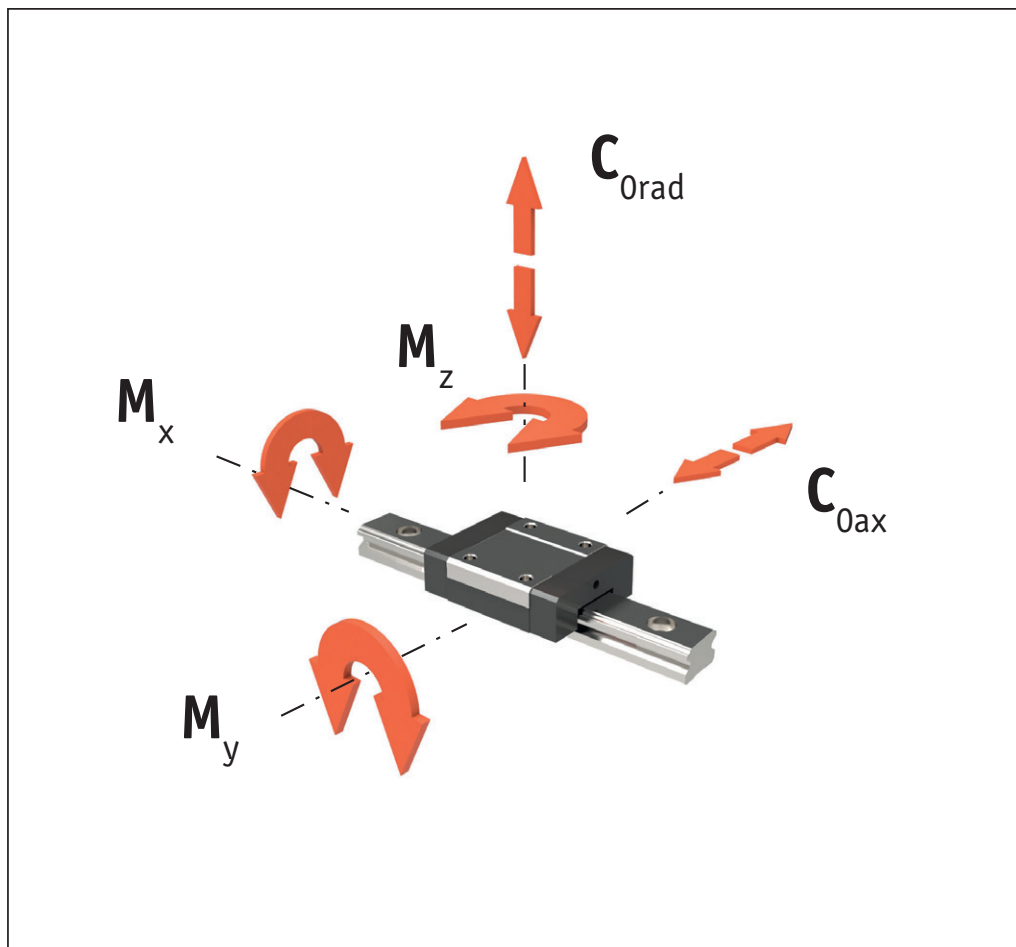
Preload

The miniature linear guideways are available in the two different preload classes K_0 and K_5 . The preload influences the rigidity, precision and torque resistance as well as offering the product service life and displacement force. The standard preload is K_0 .

Type	Preload classes	
	Small K_0	Standard K_5
	Very quiet running (μ)	Quiet and precise running (μ)
L1010.03 & L1012.06	+3 to 0	+1 to 0
L1010.05 & L1012.10	+3 to 0	+1 to 0
L1010.07 & L1012.14	+4 to 0	+2 to 0
L1010.09 & L1012.18	+4 to 0	+2 to 0
L1010.12 & L1012.24	+5 to 0	+2 to 0
L1010.15 & L1012.42	+6 to 0	+3 to 0



L1010 - Standard width



Miniature Linear Guideways from Automation Components

Type	Max. load capacities		Max. static moment loads		
	dyn. C_{rad} & C_{ax} N	stat. C_{0rad} & C_{0ax} N	M_x Nm	M_y Nm	M_z Nm
L1010.C03	190	310	0,6	0,4	0,4
L1010.C03L	295	575	0,9	1,1	1,1
L1010.C05	335	550	1,7	1,0	1,0
L1010.C05L	470	900	2,4	2,1	2,1
L1010.C07	890	1400	5,2	3,3	3,3
L1010.C07L	1310	2440	9,0	7,7	7,7
L1010.C09	1570	2495	11,7	6,4	6,4
L1010.C09L	2135	3880	18,2	12,4	12,4s
L1010.C12	2308	3465	21,5	12,9	12,9
L1010.C12L	3240	5630	34,9	30,2	30,2
L1010.C15	3810	5590	43,6	27,0	27,0
L1010.C15L	5350	9080	70,0	63,0	63,0

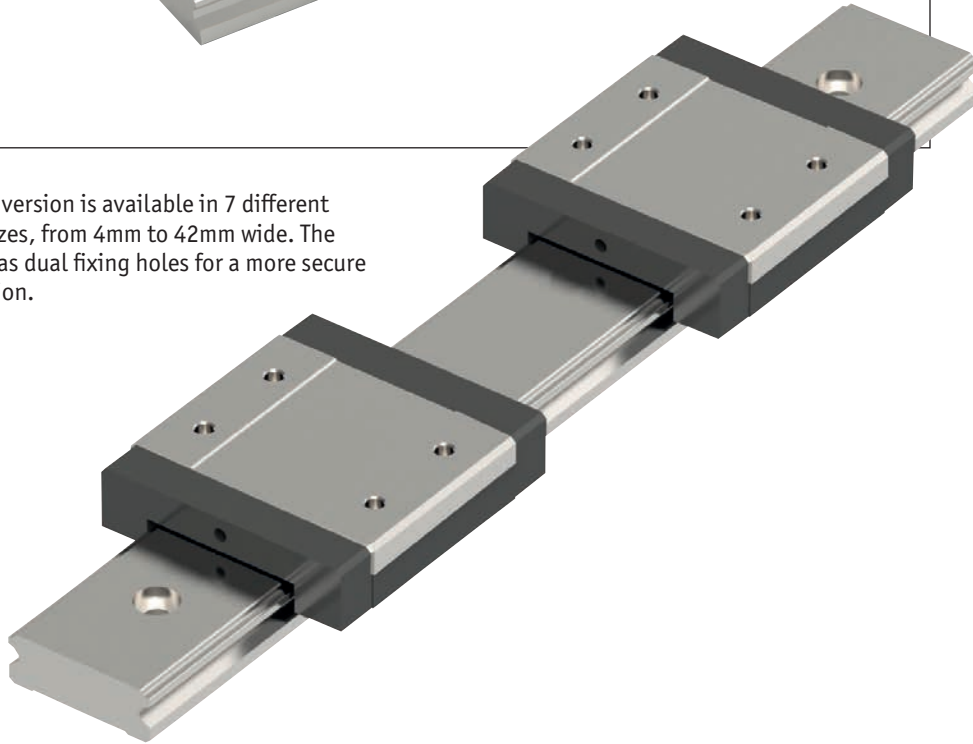


Wide version

Miniature linear guideways come in two types - standard width and wide version. The standard width is a compact, high performance rail, often used in pairs as it takes smaller load forces than the wide version. For standard width products, please see part no. L1010.



The wide version is available in 7 different profile sizes, from 4mm to 42mm wide. The size 42 has dual fixing holes for a more secure installation.



The wide version is often used in single rail applications due to its increase load capacities, unlike the standard width, which is predominately used in pairs.

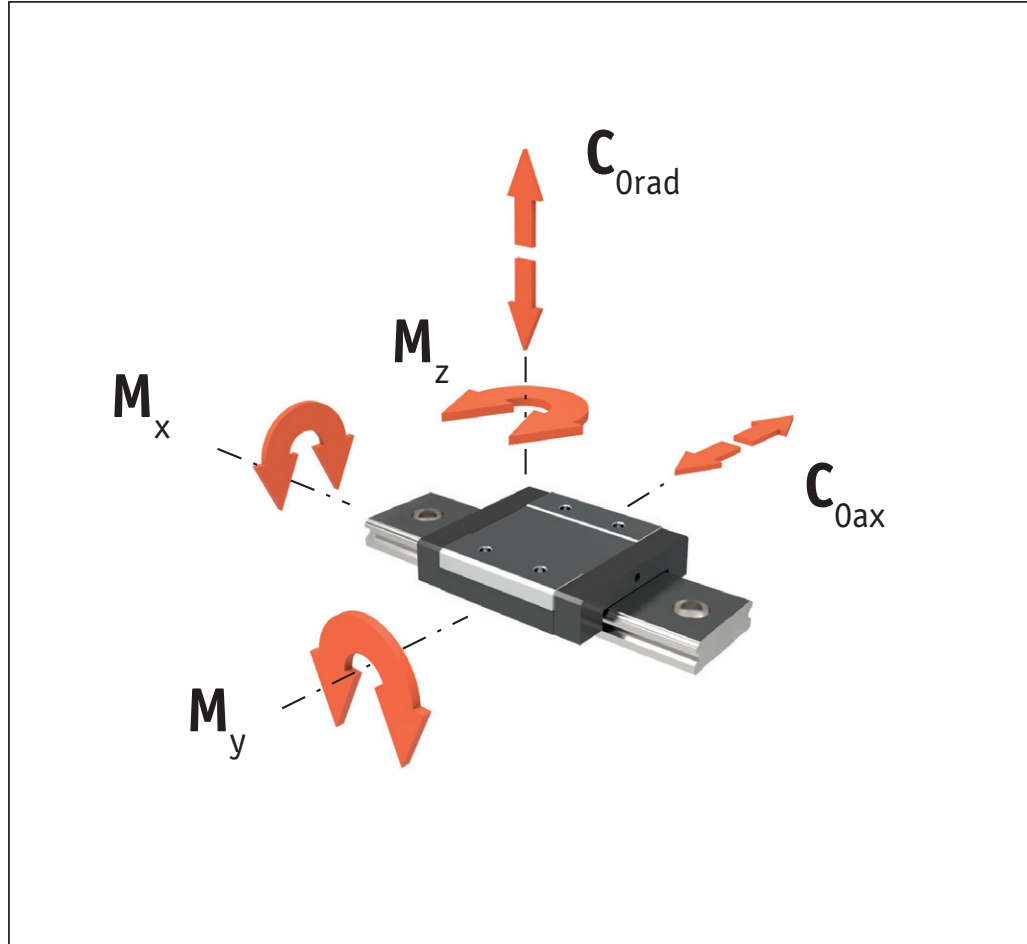


Miniature Linear Guideways from Automation Components

MINIATURE LINEAR GUIDEWAYS



L1012 - Wide version



Miniature Linear Guideways from Automation Components

Type	Max. load capacities		Max. static moment loads		
	dyn. C_{rad} & C_{ax} N	stat. C_{0rad} & C_{0ax} N	M_x Nm	M_y Nm	M_z Nm
L1012.C04L	310	625	1,6	1,2	1,2
L1012.C06	280	530	1,6	0,9	0,9
L1012.C06L	370	800	2,5	1,9	1,9
L1012.C10	475	900	4,6	2,2	2,2
L1012.C10L	615	1315	6,8	4,1	4,1
L1012.C14	1180	2095	15	7,3	7,3
L1012.C14L	1570	3140	22,6	14,9	14,9
L1012.C18	2030	3605	33,2	13,7	13,7
L1012.C18L	2550	4990	45,9	26,7	26,7
L1012.C24	3065	5200	63,7	26,3	26,3
L1012.C24L	4070	7800	33,2	13,7	13,7
L1012.C42	5065	8385	171,7	45,7	45,7
L1012.C42L	6725	12580	257	93,1	93,1



Friction

The miniature linear guideways profile system has a low friction characteristic with constant running resistance and low breakaway force.

Causes of friction

- Friction of the sealing system.
- Friction of the balls with each other.
- Friction between balls and redirection.
- Rolling resistance of the balls in the gothic arch running grooves.
- Resistance of lubricant in the carriage.
- Resistance caused by contamination in the lubricant.

Friction with lubricated end seal			
Type	N _{max.}	Type	N _{max.}
L1010.05	0,08	L1012.06	0,2
L1010.07	0,1	L1012.10	0,2
L1010.09	0,1	L1012.14	0,4
L1010.12	0,4	L1012.18	0,8
L1010.15	1,0	L1012.24	1,0
		L1012.42	1,0

$$F_m = \mu \cdot F$$

F_m = friction force (N)

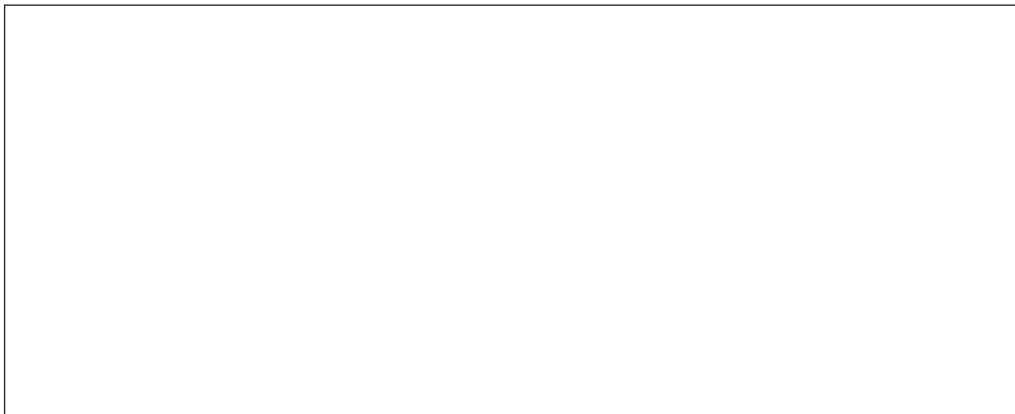
F = load (N)

Miniature linear guideways rails have a coefficient of friction of approximately
 $\mu = 0,002 - 0,003$

Seal

The carriages of the miniature linear guideways are equipped with end seals on both sides.

The design of the end seal ensures a good and dust-proof seal. This extends the product service life, reduces the loss of lubricant and guarantees the optimum system lubrication over a long time. The special design of the stripper allows a low seal resistance and has no adverse influence on the running of the system.



Miniature Linear Guideways from Automation Components

LINEAR GUIDEWAYS



Lubrication

The contact points between ball and track are separated from each other by a microscopically thin oil film. The lubrication ensures:

- Reduced friction.
- Reduced wear.
- Corrosion protection.
- Better thermal distribution and therefore increase in life.

Important instructions for lubrication

- The profile rails must be lubricated for operation.
- The carriage must be moved back and forth during lubrication.
- The lubricant can also be applied to the tracks.
- The lubricant can be injected into the lubrication holes on both sides of the carriage.
- There should be a thin film of lubricant on the rail surface at all times.
- If the stroke is <2 or >15 times the carriage length, the lubrication intervals should be more frequent.

Type	First lubrication cm ³
L1010.C05	0,04
L1010.C07	0,12
L1010.C09	0,23
L1010.C12	0,41
L1010.C15	0,78

Type	First lubrication cm ³
L1012.C10	0,05
L1012.C14	0,23
L1012.C18	0,30
L1012.C24	0,52
L1012.C42	0,87

Grease lubrication

When using grease lubrication, we recommend synthetic-oil based lithium grease with a viscosity according to ISO VG 32-100.

Oil lubrication

We recommend CLP or CGLP synthetic oil (DIN 51517) or HLP (DIN 51524) and a viscosity range conforming to ISO VG32-100 for operating temperatures between 0°C and +70°C. We recommend a viscosity according to ISO VG 10 for use at low temperatures. For application-specific special lubrication please contact the sales department.

Relubrication

- Relubrication of the system must be done before the lubricant has become dirty or shows signs of discolouration.
- An application of approx. 50% of the quantity used for first lubrication is sufficient for re-lubrication.
- Relubrication is performed at operating temperature. During relubrication, the carriage should be moved back and forth.
- If the stroke is <2 or >15 times the carriage length, the lubrication intervals should be more frequent.

Lubrication intervals

Operating speed, stroke length and ambient conditions influence the selection of time between lubrication intervals.

Establishing a safe lubrication interval is based on the specific applications and operating conditions. However, a lubrication interval should not be greater than one year.



Static Load (P_0) and static moment load (M_0)

Permissible static load

The permissible static load of the miniature linear guideways profile rail is limited by:

- Static load of each linear guide.
- Permissible load of the fixing screws.
- Permissible load of all components used in the surrounding construction.
- Static safety factor, which is required by the application.

The equivalent static load and the static moment are the largest load, or the largest moment load, which are calculated based on formulae 3 and 4.

Static load capacity C_0

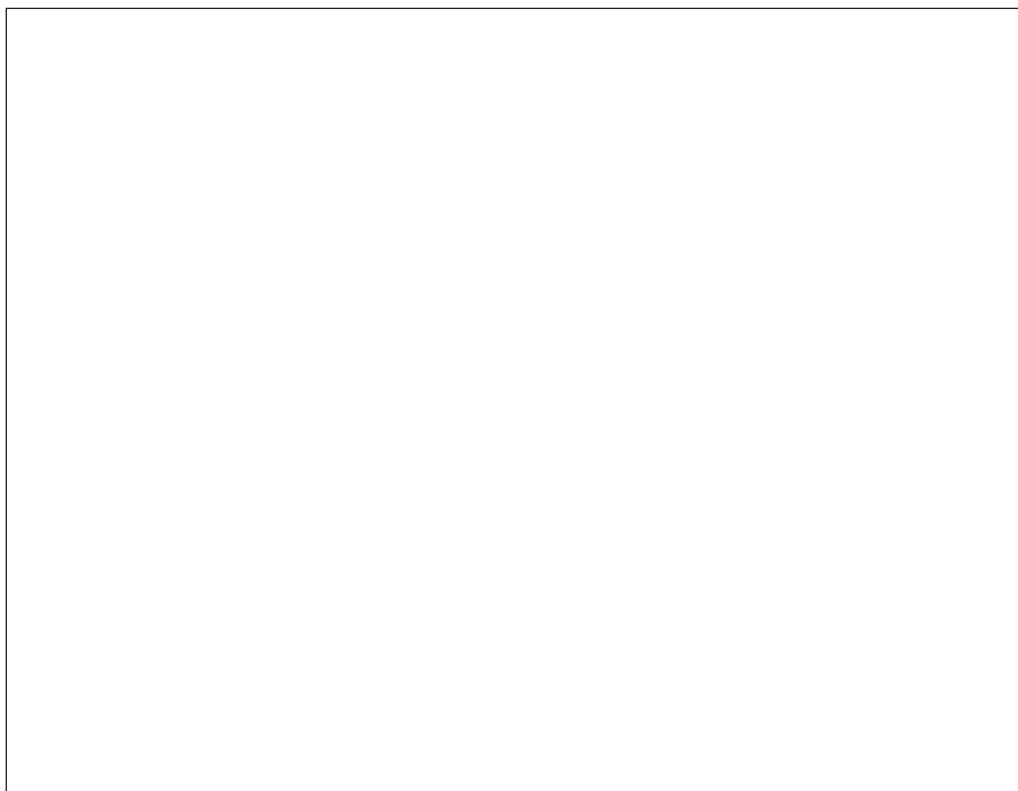
The static load capacity C_0 of ball recirculating guides is defined according to DIN 636, Part 2 as the load which gives a Hertzian stress of 4,200 MPa with the existing lubrication between track and balls in the centre of the highest loaded contact surface.

Note: In the loading centre, there is a permanent deformation of approx. 0.01 % of the ball diameter under this load (according to DIN 636, Part 2).

Static safety factor S_0

When observing the static safety factor S_0 the miniature linear guideways profile rails allow a permissible operation and high running precision as is required for each application.

For calculation of the static safety factor S_0 , see below.





Dynamic load capacity C

If the dynamic loads work vertically with equal size and direction, the calculated service life of the linear guide can theoretically reach 100 Km travel (as per DIN 636, Part 2).

Combined load in combination with a moment

If both load and moment loads work on the profile rails, the equivalent dynamic load is calculated with formula 9. According to DIN 636, Part 1, the equivalent load should not exceed 0.5 x C.

Equivalent dynamic load and speed

With changing load and speed, these must be considered individually since each parameter influences the service life.

Equivalent dynamic load

If only the load changes, the equivalent dynamic load can be calculated with formula 5.

Equivalent speed

If only the speed changes, the equivalent speed is calculated with formula 6.

If speed and load change, the equivalent dynamic load is calculated with formula 7.

Combined dynamic load

With combined exterior load in an arbitrary angle, the equivalent dynamic load is calculated with formula 8.

$$P = \sqrt[3]{\frac{q_1 \cdot F_1^3 + q_2 \cdot F_2^3 + \dots + q_n \cdot F_n^3}{100}}$$

Formula 5

$$\bar{v} = \frac{q_1 \cdot v_1 + q_2 \cdot v_2 + \dots + q_n \cdot v_n}{100}$$

Formula 6

$$P = \sqrt[3]{\frac{q_1 \cdot v_1 \cdot F_1^3 + q_2 \cdot v_2 \cdot F_2^3 + \dots + q_n \cdot v_n \cdot F_n^3}{100}}$$

Formula 7

$$P = |F_x| + |F_y|$$

Formula 8

$$P = |F_x| + |F_y| + \left(\frac{|M_x|}{M_x} + \frac{|M_y|}{M_y} + \frac{|M_z|}{M_z} \cdot C_0 \right)$$

Formula 9

- | | |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| P = equivalent dynamic load (N) | F _x = external dynamic load – horizontal (N) |
| q = stroke (in %) | C ₀ = static load capacity (N) |
| F ₁ = individual load levels (N) | M ₁ , M ₂ , M ₃ = external moments (Nm) |
| v = average speed (m/min) | M _x , M _y , M _z = maximum permissible moments in the different loading directions (Nm) |
| \bar{v} = individual speed levels (m/min) | |
| F = external dynamic load (N) | |
| F _y = external dynamic load – vertical (N) | |



An example of a profile rail or a batch of identical profile rails under the same running conditions, which use ordinary materials with normal service life and operating conditions, can reach 90% of the calculated service life (as per DIN 636 Part 2).

By taking 50 Km travel as a basis, the dynamic load capacity is usually 20% over the values as per the DIN standard. The relationship between the two load capacities can be seen from formulae 10 and 11.

Calculation of service life

Formulae 12 and 13 are used for calculating the service life, if equivalent dynamic load and average speed are constant.

$$C_{(50)} = 1,26 \cdot C_{(100)} \quad \text{Formula 10}$$

$$C_{(100)} = 0,79 \cdot C_{(50)} \quad \text{Formula 11}$$

$$L = \left(\frac{C_{(100)}}{P} \right)^3 \cdot 10^5 \quad \text{Formula 12}$$

$$L_h = \frac{L}{2 \cdot s \cdot n \cdot 60} = \frac{L}{V_m} \cdot \left(\frac{C}{P} \right)^3 \quad \text{Formula 13}$$

L = service life based on 100,000 (m)

L_h = service life (h)

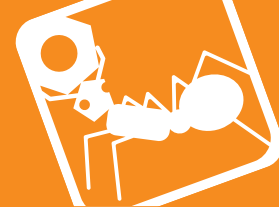
C = dynamic load capacity (N)

P = equivalent dynamic load (N)

s = stroke length (m)

n = stroke frequency (min^{-1})

V_m = average speed (m/min)



$$e1 \text{ (mm)} = b \text{ (mm)} \cdot f_1 \cdot 10^{-4}$$

Formula 14

$$e2 \text{ (mm)} = d \text{ (mm)} \cdot f_2 \cdot 10^{-5}$$

Formula 15

$$e3 \text{ (mm)} = f_3 \cdot 10^{-3}$$

Formula 16

Type	f_1	f_2	f_3
L1010.C05	4	8	2
L1010.C05L	3	5	2
L1010.C07	5	11	4
L1010.C07L	4	6	4
L1010.C09	5	11	6
L1010.C09L	5	7	5
L1010.C12	6	13	8
L1010.C12L	5	8	8
L1010.C15	7	11	12
L1010.C15L	7	8	11
L1012.C04	2	5	2
L1012.C04L	2	3	1
L1012.C06	2	5	2
L1012.C06L	2	3	2
L1012.C10	2	6	4
L1012.C10L	2	4	4
L1012.C18	2	7	6
L1012.C18L	2	5	5
L1012.C24	3	8	8
L1012.C24L	2	5	7
L1012.C42	2	9	11
L1012.C42L	2	5	10

Tightening torque for fixing screws Nm			
Screw Quality 12,9	Steel	Cast iron	Non-ferrous metal
M2	0,6	0,4	0,3
M3	1,8	1,3	1,0
M4	4,0	2,5	2,0