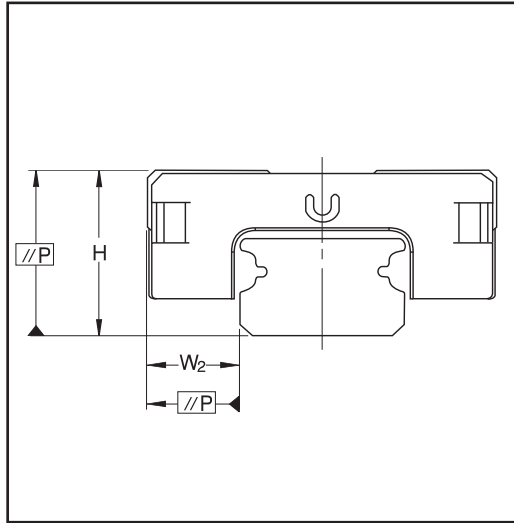


Technical Data

Accuracy

DP™ Miniature Linear Guides are available in 3 classes of accuracy. Precision (P), High (H), and Normal (N).



Speed

The maximum speed of the DP™ Miniature Linear Guide is $V_{max} = 3$ m/s and the maximum acceleration $a_{max} = 250$ m/s².

Table of Accuracy

Accuracy classes (μm)		Precision	High	Normal
		P	H	N
H Tolerance	H	± 10	± 20	± 40
Variation of height for different carriages on the same rail	Δ H	7	15	25
W Tolerance	W ₂	± 15	± 25	± 40
Variation of width for different carriages on the same rail	Δ W ₂	10	20	30

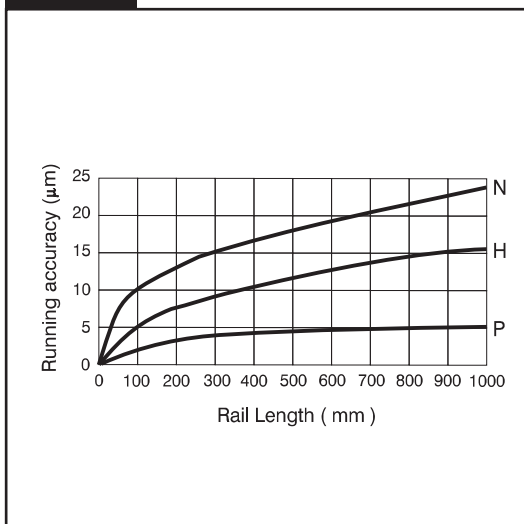
Preload

DP™ Miniature Linear Guides have 2 classes of preload. Proper preload can enhance the performance of the rigidity, precision, and torque resistance, but will also affect life, and friction.

Permissible Operating Temperature

DP™ Linear Guides can operate in a temperature range of -40° C–80° C and, for short periods can reach 100° C.

Parallelism



Preload

Preload Classes	Preload	Clearance (μm)					
		Size					
		3	5	7	9	12	15
standard	Small clearance to light preload	+1-0	+1.5-0	-2-0	+2-0	+3-0	+5-0
V1	Light preload 0.02C	0-(-.5)	0-(-1)	0-(-3)	0-(-4)	0-(-6)	0-(-10)

Moment Load Ratings

MODEL	M1	M2	M3	MODEL	M1	M2	M3
DP3	0.6	0.4	0.4	DP3W	1.6	0.9	0.9
DP3L	0.9	1.1	1.1	DP3WL	2.5	1.9	1.9
DP5	1.7	1	1	DP5W	4.6	2.2	2.2
DP5L	2.4	2.1	2.1	DP5WL	6.8	4.1	4.1
DP7	5.2	3.3	3.3	DP7W	7.8	7.3	7.3
DP7L	9	7.7	7.7	DP7WL	22.65	14.9	14.9
DP9	11.7	6.4	6.4	DP9W	33.2	13.7	13.7
DP9L	18.2	12.4	12.4	DP9WL	45.9	26.7	26.7
DP12	21.5	9.5	9.5	DP12W	63.7	26.3	26.3
DP12L	34.9	16	16	DP12WL	95.6	56.4	56.4
DP15	43.6	10.9	10.9	DP15W	127.9	45.7	45.7
DP15L	70	26.9	26.9	DP15WL	191.9	93.1	93.1

Technical Data

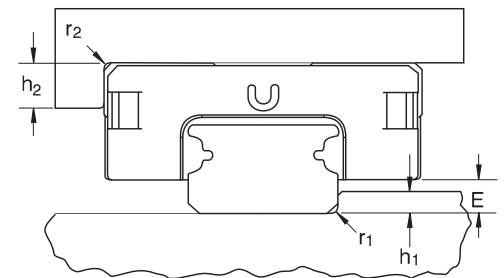
The DP Linear Guide must be lubricated before use.

Grease Lubrication

Mineral oil based lithium-soap grease with a viscosity between (ISO VG32-100) is recommended.

Oil Lubrication

Mineral oil CLP or CGLP or HLP with viscosity ranges between ISO VG32-100 for a working temperature between 0°C - 70°C is recommended. (We recommend ISO VG 10 for use in lower temperature environment.)



Mounting

Height and Fillet of the Fitting Edge

To avoid any interference, the corner of the fitting edge with a recess is recommended. If not so, please refer to the table to the right for the fillet of the fitting edge corner and the height of the fitting edge.

Dimensions of the fitting edge

Dimension	h1	r1max	h2	r2max	E	Dimension	h1	r1max	h2	r2max	E
3	0.5	0.2	1.5	0.3	0.7	3W	0.7	0.2	1.7	0.3	1
5	1.2	0.2	1.9	0.3	1.5	5W	1.2	0.2	2	0.3	1.5
7	1.2	0.3	2.8	0.3	1.5	7W	1.2	0.3	2.8	0.3	2
9	1.5	0.3	3	0.3	2.2	9W	1.5	0.3	3	0.3	4.2
12	2.5	0.5	4	0.5	3	12W	2.5	0.5	4	0.5	4
15	2.5	0.5	4.5	0.5	4	15W	2.5	0.5	4.5	0.5	4

Mounting Surface

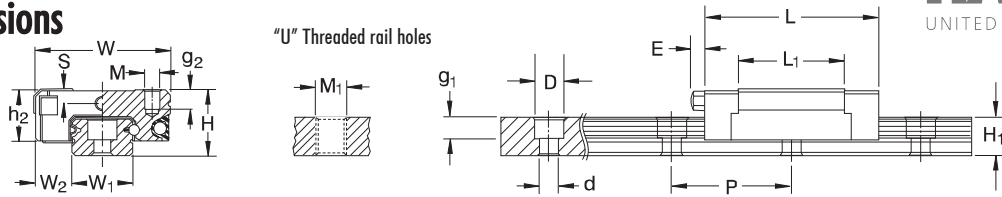
Surface roughness

The mounting surface should be ground or fine milled to reach a surface roughness Ra 1.6.

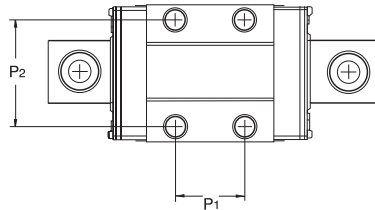
Screw Tightening Torque (Nm)

Screw grade	Steel	Cast Iron	Non Iron metal
12.9			
M2	0.6	0.4	0.3
M3	1.8	1.3	1.0
M4	4.0	2.5	2.0

Dimensions



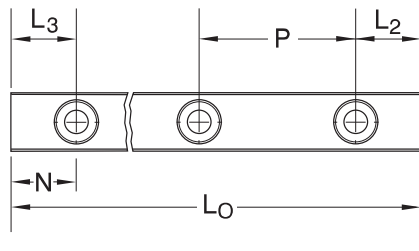
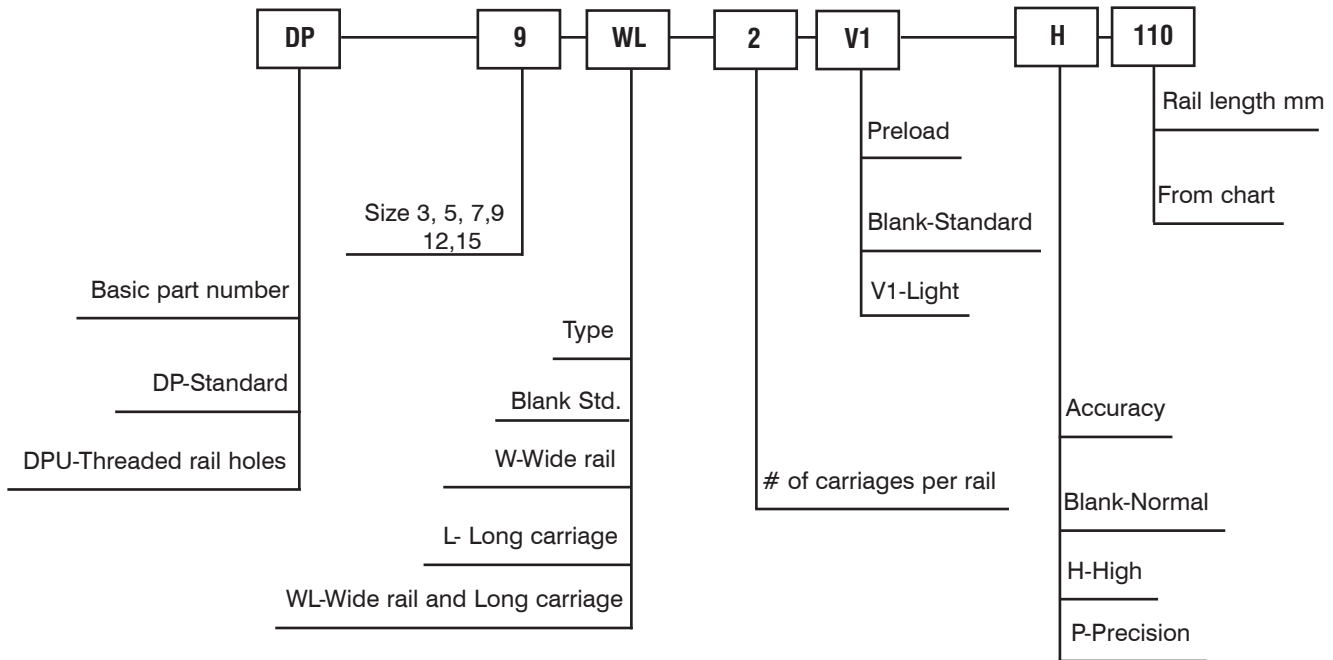
Size	Ass. Dimensions			Rail Dimensions (mm)					"U" Threaded rail holes	
	H	W ₂	W ₁	H ₁	P	D	d	g ₁	M ₁	
DP3	4	2.5	3	2.6	10	-	-	-	M1.6	
DP3L	4	2.5	3	2.6	10	-	-	-	M1.6	
DP5	6	3.5	5	3.5	15	3.5	2.4	1	M3x0.5	
DP5L	6	3.5	5	3.5	15	3.5	2.4	1	M3x0.5	
DP 7	8	5	7	4.7	15	4.2	2.4	2.3	M3x0.5	
DP7L	8	5	7	4.7	15	4.2	2.4	2.3	M3x0.5	
DP 9	10	5.5	9	5.5	20	6	3.5	3.5	M4x0.7	
DP 9L	10	5.5	9	5.5	20	6	3.5	3.5	M4x0.7	
DP 12	13	7.5	12	7.5	25	6	3.5	3.5	M4x0.7	
DP 12L	13	7.5	12	7.5	25	6	3.5	3.5	M4x0.7	
DP 15	16	8.5	15	9.5	40	6	3.5	4.5	M4x0.7	
DP 15L	16	8.5	15	9.5	40	6	3.5	4.5	M4x0.7	



Size	Carriage Dimensions (mm)										Load Capacities (N)		Weight	
	W	L	L ₁	P ₁	P ₂	E	h ₂	M	g ₂	S	C(dyn.)	C ₀ (stat.)	Block g	Rail g/m
DP3	8	11.4	6.7	3.5	-	-	3.3	M1.6	1.1	-	190	310	.9	53
DP3L	8	15.7	11	5.5	-	-	3.3	M2	1.1	-	295	575	1.2	53
DP5	12	16.1	10	-	8	-	4.5	M2	1.5	1.1	335	550	3	120
DP5L	12	19.6	13.5	7	-	-	4.5	M2.6	2.0	1.1	470	900	3.3	120
DP 7	17	21.0	14.3	8	12	-	6.5	M2	2.5	1.7	890	1400	9	230
DP7L	17	32.4	21.8	13	12	-	6.5	M2	2.5	1.7	1310	2440	16	230
DP 9	20	30.8	20.5	10	15	-	7.8	M3	2.8	2.2	1570	2495	17	330
DP 9L	20	40.9	30.8	16	15	-	7.8	M3	2.8	2.2	2135	3880	25	330
DP 12	27	35.4	22	15	20	-	10	M3	3.5	2.6	2308	3465	34	600
DP 12L	27	47.6	34	20	20	-	10	M3	3.5	2.6	3240	5630	51	600
DP 15	32	43.5	27.2	20	25	3.6	12	M3	5.5	2.8	3810	5590	53	1010
DP 15L	32	60.1	44	25	25	3.6	12	M3	5.5	2.8	5350	9080	90	1010

Ordering Information

Nomenclature

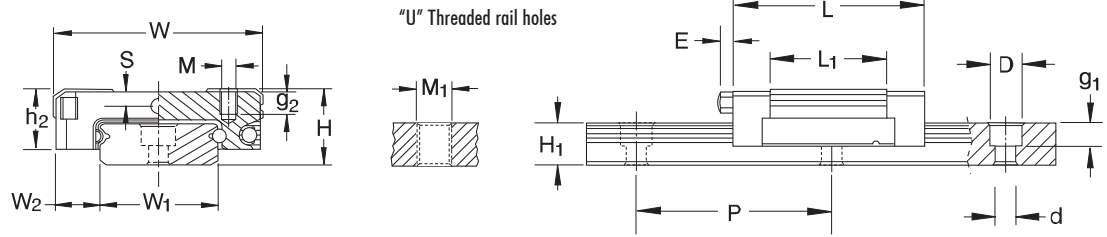


Rail Length- L ₀	Size					
	3W	5W	7W	9W	12W	15W
Single piece standard rail length (mm)	40	50	50	50	70	110
	55	70	80	80	110	150
	70	90	110	110	150	190
		110	140	140	190	230
		130	170	170	230	270
		150	200	200	270	310
		170	260	260	310	430
			290	290	390	550
Hole pitch (mm) P	15	20	30	30	40	40
L ₂ , L ₃ min	3	4	3	4	4	4
L ₂ , L ₃ max	10	15	25	25	35	35
L ₀ max	940	940	940	940	940	940
N	5	5	10	10	15	15

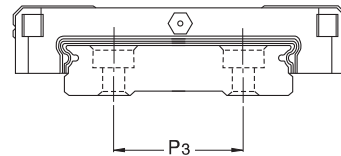
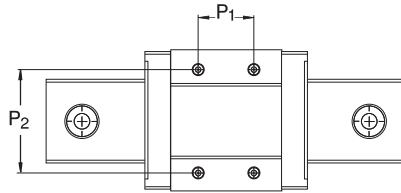
Rail Length- L ₀	Size					
	3	5	7	9	12	15
Single piece standard rail length (mm)	30	40	40	55	70	70
	40	55	55	75	95	110
	40	70	70	95	120	150
	50	85	85	115	145	190
		100	100	135	170	230
			130	155	195	270
				175	220	310
				195	245	350
				275	270	390
				375	320	430
Hole pitch (mm) P	10	15	15	20	25	40
L ₂ , L ₃ min	3	3	3	4	4	4
L ₂ , L ₃ max	5	10	10	15	20	35
L ₀ max	300	930	930	920	930	930
N	5	5	5	7.5	10	15

N = Nominal dimension from end to 1st counterbore hole for standard lengths listed above.
 L₂, L₃ Min = For non standard lengths is minimum length from end to 1st counterbore.
 L₂, L₃ Max = For non standard lengths is maximum length from end to 1st counterbore.

Wide Type Dimensions



Size	Ass. Dimensions			Rail Dimensions (mm)						"U" Threaded Rail Holes
	H	W ₂	W ₁	H ₁	P	P ₃	D	d	g ₁	M ₁
DP3W	4.5	3	6	2.6	15	-	4	2.4	1.5	-
DP3WL	4.5	3	6	2.6	15	-	4	2.4	1.5	-
DP5W	6.5	3.5	10	4	20	-	5.5	3	3	M4X0.7
DP5WL	6.5	3.5	10	4	20	-	5.5	3	3	M4X0.7
DP 7W	9	5.5	14	5.2	30	-	6	3.5	3.5	M4x0.7
DP7WL	9	5.5	14	5.2	30	-	6	3.5	3.5	M4X0.7
DP 9W	12	6	18	7.5	30	-	6	3.5	3.5	M4x0.7
DP 9WL	12	6	18	7.5	30	-	6	3.5	3.5	M4x0.7
DP 12W	14	8	24	8.5	40	-	8	4.5	4.5	M4x0.7
DP 12WL	14	8	24	8.5	40	-	8	4.5	4.5	M4x0.7
DP 15W	16	9	42	9.5	40	23	8	4.5	4.5	M5x0.8
DP 15WL	16	9	42	9.5	40	23	8	4.5	4.5	M5x0.8



Size	Carriage Dimensions (mm)										Load Capacities (N)		Weight	
	W	L	L ₁	P ₁	P ₂	E	h ₂	M	g ₂	S	C(dyn.)	Co(stat.)	Carriage g	Rail g/m
DP3W	12	15.2	10	4.5	-	-	3.5	M2	1.6	0.8	280	530	2.4	130
DP3WL	12	20.1	15	8	-	-	3.5	M2	1.6	0.8	370	800	3.4	130
DP5W	17	21.1	15.1	6.5	13	-	5	M2.5	1.5	1.2	475	900	5.9	280
DP5WL	17	27.2	21.2	11	13	-	5	M2.5	1.5	1.2	615	1315	7.5	280
DP 7W	25	31.6	21.2	10	19	-	7	M3	3	1.6	1180	2095	17	460
DP 7WL	25	40.6	30.1	19	19	-	7	M3	3	1.6	1570	3140	31	460
DP 9W	30	39.2	27.4	12	21	-	8.6	M3	3	2	2030	3605	33	660
DP 9WL	30	50.9	39.5	24	23	-	8.6	M3	3	2	2550	4990	47	660
DP 12W	40	44.5	31	15	28	-	10	M3	3.5	3	3065	5200	63	1200
DP 12WL	40	59.4	46	28	28	-	10	M3	3.5	3	4070	7800	94	1200
DP 15W	60	55.7	38.5	20	45	3.6	12	M4	4.5	3.5	5065	8385	128	2828
DP 15WL	60	74.4	57.6	35	45	3.6	12	M4	4.5	3.5	6725	12580	210	2828