



# Linear Belt Specifications

			XL	L	H	H-HF	XH	T5	AT5	ATL5	T10	T10-HF	AT10	ATL10	ATL10-HF	T20	AT20	ATL20	HTD5	HTD8	HTD14	HTDL14	STD5	STD8		
<b>Pitch (Imperial and Metric)</b>			<b>.200"</b>	<b>.375"</b>	<b>.500"</b>	<b>.500"</b>	<b>.875"</b>	<b>5 mm</b>	<b>5 mm</b>	<b>5 mm</b>	<b>10 mm</b>	<b>10 mm</b>	<b>10 mm</b>	<b>10 mm</b>	<b>10 mm</b>	<b>20 mm</b>	<b>20 mm</b>	<b>20 mm</b>	<b>5 mm</b>	<b>8 mm</b>	<b>14 mm</b>	<b>14 mm</b>	<b>5 mm</b>	<b>8 mm</b>		
Ultimate Tensile Strength per Inch or 25 mm Belt Width	Steel	lbf/in N/25 mm	759 3375	1474 6555	1605 7140	2369 10540	3204 14250	759 3375	1602 7125	2369 10540	1605 7140	2369 10540	3204 14250	5445 24220	6059 26950	3204 14250	5445 24220	7913 35200	2369 10540	3204 14250	4667 20760	7848 34909	2369 10540	3204 14250		
	Kevlar	lbf/in N/25 mm	1882 8370	1727 7682	1818 8085	N/A N/A	3639 16185	1200 5332	1877 8350	N/A N/A	1818 8085	N/A N/A	3639 16185	N/A N/A	N/A N/A	3639 16185	4900 21798	N/A N/A	1818 8085	3639 16185	4200 18684	N/A N/A	1818 8085	3639 16185		
	Stainless Steel	lbf/in N/25 mm	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	2403 10687	N/A N/A	N/A N/A	2403 10687	N/A N/A	N/A N/A	2403 10687	N/A N/A	N/A N/A	N/A N/A	N/A N/A		
Max. Allowable Belt Tension per Inch or 25 mm Belt Width	Steel	Open Ended	lbf/in N/25 mm	192 853	371 1652	436 1939	534 2377	854 3801	189 840	396 1761	526 2340	429 1908	526 2340	841 3741	1317 5860	1142 5079	841 3741	1317 5860	1732 7705	526 2340	841 3741	1159 5156	1718 7641	526 2340	841 3741	
		Welded	lbf/in N/25 mm	96 427	186 826	218 970	267 1189	427 1900	94 420	198 880	198 880	215 954	263 1170	421 1870	421 1870	421 1870	421 1870	659 2930	N/A N/A	263 1170	421 1870	580 2578	N/A N/A	263 1170	421 1870	
	Kevlar	Open Ended	lbf/in N/25 mm	209 930	276 1229	243 1081	N/A N/A	400 1778	180 801	272 1210	N/A N/A	239 1063	N/A N/A	393 1750	N/A N/A	N/A N/A	393 1750	393 1750	N/A N/A	239 1063	393 1750	341 1515	N/A N/A	239 1063	393 1750	
		Welded	lbf/in N/25 mm	157 698	207 922	182 810	N/A N/A	300 1334	140 687	204 908	N/A N/A	179 797	N/A N/A	295 1312	N/A N/A	N/A N/A	295 1312	295 1312	N/A N/A	179 797	295 1312	255 1136	N/A N/A	179 797	295 1312	
	Stainless Steel	Open Ended	lbf/in N/25 mm	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	631 2805	N/A N/A	N/A N/A	631 2805	N/A N/A	N/A N/A	N/A N/A	631 2805	N/A N/A	N/A N/A	N/A N/A	N/A N/A	
		Welded	lbf/in N/25 mm	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	315 1402	N/A N/A	N/A N/A	315 1402	N/A N/A	N/A N/A	N/A N/A	315 1402	N/A N/A	N/A N/A	N/A N/A	N/A N/A	
	Allowable Effective Tension for Belt Teeth (15 and more teeth in mesh)			lbf/in N/25 mm	180 800	360 1600	441 1960	441 1960	879 3910	200 890	290 1290	290 1290	380 1690	380 1690	580 2580	580 2580	580 2580	710 3160	1221 5430	1221 5430	229 1020	420 1870	771 3430	771 3430	220 980	409 1820
	Specific Belt Weight	Steel	lbf/ft/in kgf/m/cm	0.036 0.021	0.059 0.035	0.066 0.039	0.072 0.042	0.180 0.105	0.037 0.022	0.055 0.032	0.062 0.036	0.074 0.043	0.079 0.046	0.096 0.056	0.114 0.067	0.118 0.069	0.125 0.073	0.169 0.099	0.185 0.108	0.07 0.041	0.101 0.059	0.182 0.107	0.21 0.123	0.067 0.039	0.087 0.051	
		Kevlar	lbf/ft/in kgf/m/cm	0.033 0.019	0.052 0.030	0.055 0.032	N/A N/A	0.155 0.091	0.033 0.020	0.046 0.027	N/A N/A	0.062 0.036	N/A N/A	0.071 0.042	N/A N/A	N/A N/A	0.101 0.059	0.124 0.073	N/A N/A	0.05 0.029	0.08 0.047	0.143 0.084	N/A N/A	0.05 0.029	0.074 0.043	
Stainless Steel		lbf/ft/in kgf/m/cm	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	0.096 0.056	N/A N/A	N/A N/A	0.125 0.073	N/A N/A	N/A N/A	N/A N/A	0.101 0.059	N/A N/A	N/A N/A	N/A N/A	N/A N/A		
Specific Belt Stiffness (Open Ended)	Steel	lbf/in N/mm	47950 8400	92800 16255	109000 19085	133600 23400	213600 37410	47950 8400	100500 17605	133600 23400	109000 19085	133600 23400	213600 37410	334600 58600	290000 50790	213600 37410	334600 58600	440000 77050	133600 23400	213600 37410	294400 51560	440000 77050	133600 23400	213600 37410		
	Kevlar	lbf/in N/mm	52250 9155	69100 12100	60700 10635	N/A N/A	100000 17500	52250 9155	69100 12100	N/A N/A	60700 10635	N/A N/A	100000 17500	N/A N/A	N/A N/A	100000 17500	100000 17500	N/A N/A	60700 10635	100000 17500	86500 15150	N/A N/A	60700 10635	100000 17500		
	Stainless Steel	lbf/in N/mm	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	160212 28057	N/A N/A	N/A N/A	160212 28057	N/A N/A	N/A N/A	160212 28057	N/A N/A	N/A N/A	N/A N/A	N/A N/A		
Min. No. of Pulley Teeth	Steel and Kevlar		10	10	14	12	18	10	15	15	14	12	15	25	20	15	18	30	14	20	28	43	14	20		
	Stainless Steel		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20	N/A	N/A	20	N/A	N/A	N/A	25	N/A	N/A	N/A	N/A		
Min. Pitch Diameter (Inch or mm)	Steel and Kevlar	inch or mm	.64" 16 mm	1.19" 30 mm	2.23" 57 mm	1.91" 48 mm	5.01" 127 mm	16 mm 40 mm	24 mm 61 mm	24 mm 61 mm	45 mm 114 mm	38 mm 97 mm	48 mm 122 mm	80 mm 203 mm	64 mm 163 mm	96 mm 244 mm	115 mm 292 mm	191 mm 485 mm	22 mm 56 mm	51 mm 130 mm	125 mm 318 mm	191 mm 485 mm	22 mm 56 mm	51 mm 130 mm		
	Stainless Steel	mm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	64 mm	N/A	N/A	127 mm	N/A	N/A	N/A	64 mm	N/A	N/A	N/A	N/A		
Min. Diameter of Tensioning Idler Running on Back of Belt	Steel and Kevlar	in/mm	1.125/30 mm	2.375/60 mm	3.125/80 mm	2.375/60 mm	5.875/150 mm	1.125/30 mm	2.375/60 mm	2.375/60 mm	3.125/80 mm	2.375/60 mm	4.75/120 mm	5.875/150 mm	5.125/130 mm	4.75/120 mm	7.125/180 mm	9.875/250 mm	2.375/60 mm	4.75/120 mm	7.875/200 mm	9.875/250 mm	2.375/60 mm	4.75/120 mm		
	Stainless Steel	in/mm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.25/160 mm	N/A	N/A	6.25/160 mm	N/A	N/A	N/A	6.00/150 mm	N/A	N/A	N/A	N/A		
Available in FDA Compliant Construction (85 Shore A Urethane)			Yes	Yes	Yes			Yes			Yes															
Standard Colors (N=Natural, W=White)			N	N	N,W	N	N	N,W	W	W	N,W	N	W	W	W	N,W	W	W	W	W	W	W	W	W		

## Calculating Belt Weight

### Imperial Units

$$\text{Belt Weight} = (\text{Specific Belt Wt, lbf/ft/in}) \times (\text{Belt Length, ft}) \times (\text{Belt Width, in})$$

e.g. 200 ft of H600, Steel Cord

$$\text{Belt Weight} = 79 \text{ lbs} = (0.066 \text{ lbf/ft/in}) \times (200 \text{ ft}) \times (6 \text{ in})$$

### Metric Units

$$\text{Belt Weight} = (\text{Specific Belt Wt, kgf/m/cm}) \times (\text{Belt Length, m}) \times (\text{Belt Width, cm})$$

e.g. 100 meters of 150T10, Steel Cord

$$\text{Belt Weight} = 111 \text{ kg} = (0.074 \text{ kgf/m/cm}) \times (100 \text{ m}) \times (15 \text{ cm})$$

### Service Temperature Range

-5° C to 70° C (23° F to 158° F)

### Hardness

92 Shore A - Standard PU, 85 Shore A - FDA Compliant PU

### Coefficient of Friction

Urethane vs. UHMWPE (dry)

Urethane vs. Steel (dry) 0.5 to 0.7

Urethane vs. Aluminum (dry) 0.5 to 0.6

Urethane vs. UHMWPE (dry) 0.2 to 0.4

Nylon vs. Steel (dry) 0.2 to 0.4

Nylon vs. UHMWPE (dry) 0.1 to 0.3

The specifications listed are based on Gates Mectrol's experience. However, our specifications and data do NOT cover all possible belt drive conditions. It is the responsibility of the belt drive system designer to ensure Gates Mectrol's belts are appropriate for a given system and application. The provided data is representative of our in-house experience and does not necessarily match product performance in industrial use. Gates Mectrol cannot assume any liability concerning the suitability and process ability of our products. We also cannot assume liability for process results, damages or consequential damages associated with the use of our products. Note, ultimate tensile strengths are listed for reference purposes only. Ultimate tensile strength values listed above are a theoretical calculation based on average cord strength and may not represent actual tensile test results.

- HF designates high flex cords.
- Most belts are available with Nylon Fabric on either or both sides.  
For Nylon on the tooth side, specify "NT"  
For Nylon on the back side, specify "NB"  
For Nylon on both sides, specify "NTB"  
Note: Nylon on tooth side is NOT available on HTD5 Steel or Kevlar in widths greater than 50 mm.
- Belting produced to specific length tolerance is available upon request.
- Many linear positioning applications require belts of a specific length tolerance, or a "minus pitch tolerance." Gates Mectrol can produce belts to specific minus tolerances. Consult a Gates Mectrol Applications Engineer to determine the proper length tolerance calculation.