Fenner

MULTI - PULL
POLY - V BELTS

Standards : ISO 9982, RMA IP-26, DIN 7867

FENNER MULTI-PULL POLY-V BELTS

The name Fenner has been synonymous with quality and reliability in Mechanical Power Transmission Products for over 140 years. Fenner V-belts, Pulleys, Couplings and Gear Boxes have become the industry bench marks over the years manufactured in state-of-art facilities conforming to quality standards ISO-9001:2000 & ISO/TS-16949:2002 along with ISO 14001:1996 for Environmental Management System. Fenner has the unique distinction of being the only company in India to be accredited with API certification.

Multi-Pull Ribbed belts offer high power capacity in a single flexible low stretch belt. The continuous high tensile synthetic cord makes maximum utilization of the face width and ensures a uniform tension throughout the belt.

There are five sections available:

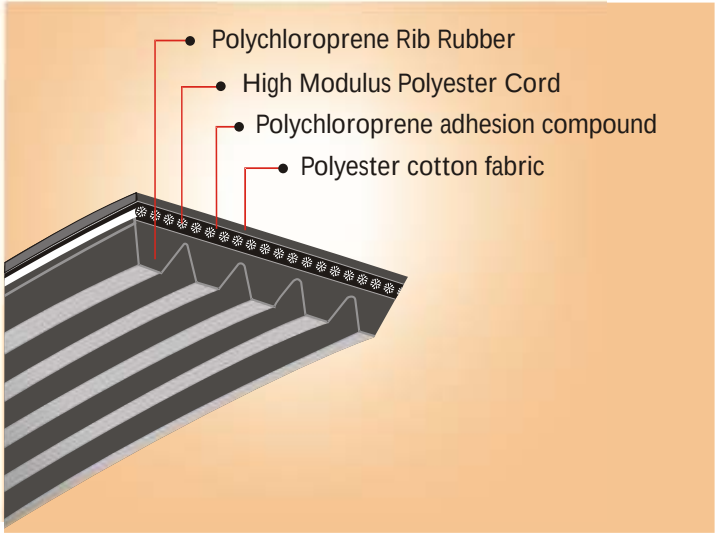
PH- Fractional Horse Power belt for very light duty applications.

PJ - Low cost belt for light duty applications.

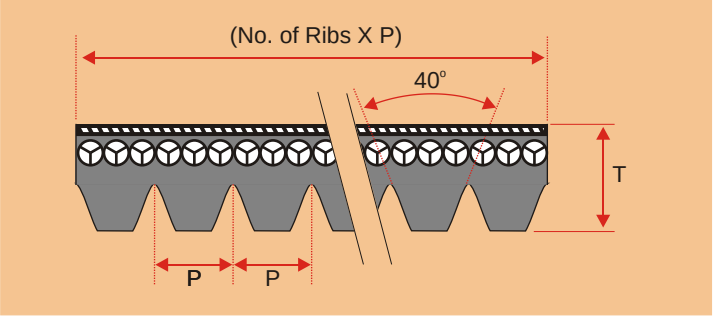
PK - Designed specifically for the automotive industry, it is also suitable for Machine Tool drives etc.

PL - Medium duty drive belt covering a wide range of applications.

PM - High performance makes this belt unrivalled for heavy duty applications.



SECTION	PITCH(P) (mm)	THICKNESS(T) (mm)	MAX .NO OF RIBS/SLEEVE
PH	1.60	2.90	24
PJ	2.34	3.80	96
PK	3.56	4.50	24
PL	4.70	7.00	50
PM	9.40	13.50	40



FEATURES

COMPACT DRIVE

POLY-V belt is highly flexible and hence can be used with smaller pulley diameters to give a lighter and compact drive.

HIGHER POWER

40% higher power rating per unit width compared to conventional V-belts.

ZERO SLIPPAGE

Almost eliminates the slippage due to maximum wedge contact on the pulleys.

ENERGY SAVING

Maximum returns with energy saving upto 6%.

REAR SIDE DRIVE

Being thinner the rear side can be used to drive additional accessories / idlers without affecting life.

HIGHER BEARING LIFE

Lesser static tension gives higher bearing life.

SILENT DRIVE

Gives vibration and noise free power transmission in every application.

SINGLE BELT

Eliminates the necessity to use multiple / matched set belts.

HIGHER SPEED

Can be used at higher speed more than 40 m/sec.

LONGER LIFE

Gives lesser wear and longer life to the pulleys due to lesser static tension and belt slippage.

LOW DOWNTIME & REPLACEMENT COST

Reduces downtime and also belt replacement cost.

FENNER MULTI-PULL POLY-V BELTS

STANDARD BELT LENGTHS

PH	
Effective Length	
mm	inch
1321	52
1346	53
1372	54
1397	55
1422	56
1473	58
1549	61
1588	62.5
1664	65.5
1753	69
1854	73
1892	74.5
1905	75
1930	76
1956	77
1969	77.5
1981	78
1994	78.5
2007	79
2032	80
2057	81
2083	82
2108	83
2134	84
2159	85
2184	86
2210	87
2235	88
2261	89
2286	90
2311	91
2337	92
2362	93
2388	94
2413	95
2438	96
2464	97
2489	98
2515	99
2540	100

PJ	
Effective Length	
mm	inch
483	19
508	20
559	22
584	23
610	24
660	26
711	28
724	28.5
762	30
813	32
864	34
914	36
940	37
965	38
1016	40
1054	41.5
1092	43
1105	43.5
1118	44
1130	44.5
1143	45
1168	46
1194	47
1219	48
1232	48.5
1245	49
1270	50
1283	50.5
1295	51
1308	51.5
1321	52
1346	53
1372	54
1397	55
1422	56
1473	58
1549	61
1588	62.5
1651	65
1664	65.5
1753	69
1854	73
1892	74.5
1905	75
1956	77
1969	77.5
1994	78.5
2083	82
2210	87
2261	89
2286	90
2337	92
2388	94
2438	96
2489	98
2540	100

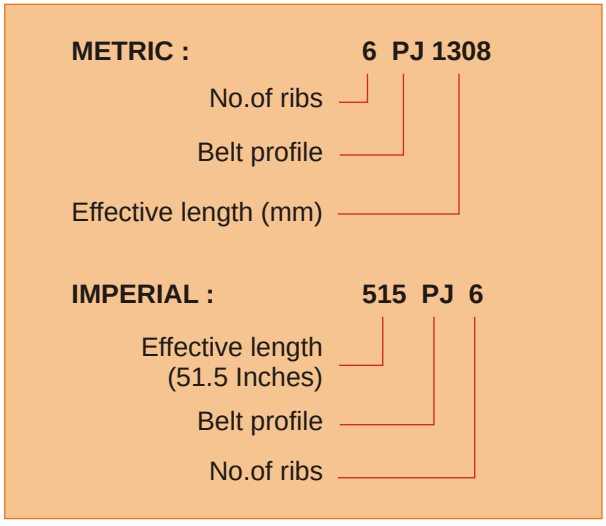
PK	
Effective Length	
mm	inch
610	24
660	26
673	26.5
686	27
699	27.5
711	28
739	29.1
762	30
775	30.5
790	31.1
818	32.2
841	33.1
871	34.3
884	34.8
902	35.5
914	36
927	36.5
940	37
955	37.6
970	38.2
991	39
1016	40
1031	40.6
1054	41.5
1080	42.5
1110	43.7
1146	45.1
1166	45.9
1194	47
1229	48.4
1257	49.5
1295	51
1334	52.5
1359	53.5
1387	54.6
1425	56.1
1461	57.5
1496	58.9
1529	60.2
1560	61.4
1626	64
1659	65.3
1681	66.2
1725	67.9
1760	69.3
1796	70.7
1829	72
1862	73.3
1900	74.8
1930	76
1948	76.7
1961	77.2
1981	78
2050	80.7
2101	82.7
2144	84.4
2205	86.8
2258	88.9
2329	91.7
2385	93.9
2441	96.1
2479	97.6
2522	99.3
2586	101.8
2611	102.8
2680	105.5
2835	111.6
2845	112
2896	114
2921	115
2997	118

PL	
Effective Length	
mm	inch
1270	50
1334	52.5
1372	54
1397	55
1422	56
1473	58
1562	61.5
1613	63.5
1664	65.5
1715	67.5
1803	71
1842	72.5
1943	76.5
1981	78
2019	79.5
2070	81.5
2096	82.5
2134	84
2197	86.5
2235	88
2324	91.5
2362	93
2477	97.5
2515	99
2705	106.5
2743	108
2845	112
2896	114
2921	115
2997	118
3086	121.5
3124	123
3289	129.5
3327	131
3493	137.5
3696	145.5
4051	159.5
4191	165
4470	176
4623	182
5029	198
5385	212
6096	240
6121	241
6883	271
7645	301
8407	331
9169	361
9931	391
10693	421
12217	481
13741	541
13970	550
13995	551

PM	
Effective Length	
mm	inch
2311	91
2388	94
2515	99
2692	106
2832	111.5
2921	115
3010	118.5
3124	123
3327	131
3531	139
3734	147
4089	161
4191	165
4470	176
4648	183
5029	198
5410	213
6121	241
6883	271
7645	301
8407	331
9169	361
9931	391
10693	421
12217	481
13741	541
13970	550
13995	551

Sizes not listed can also be supplied subject to minimum order quantity. Consult Fenner

DESIGNATION OF BELTS



INSTALLATION INSTRUCTIONS

1. PULLEYS

Before assembling the drive, check the pulley grooves are free from scores or sharp edges, and are dimensionally correct.

2. ALIGNMENT

Good alignment of pulleys prior to belt installation is important. The pulleys may be aligned by placing a straight edge or cord along the edges. The shafts must also be parallel and in the same plane.

3. BELTS

When pulleys have been correctly positioned on the shafts, the belts can be installed to complete the drive. The drive centre distance should be reduced prior to the installation of the belts so that they may be fitted without the use of force. Under no circumstances must belts be prised into the grooves. Belt and pulley grooves can easily be damaged by using sharp tools to stretch the belts over the pulley rim.

The installation allowance given in the table below is the minimum recommended reduction in centre distance for the various belt section and lengths to allow for correct fitting.

The take-up allowance given in the same table should be added on to the calculated centre distance to allow for belt stretch. Rotate the drive while tightening the belt in order to equalize the tension.

The belt should be run under load and observed during the first few hours. After several hours running re-check the tension, it may be necessary to take up adjustment to compensate for normal drop in tension during the running in period.

4. GUARDS

Where guards are necessary it is desirable to use the mesh type to permit adequate ventilation.

5. IDLER PULLEYS

If idler pulleys are used it is recommended that they be as large a diameter as practical. All idlers should be located on the slack side of the drive. When used on the inside the idler should have the same groove profile as the driver and driven pulleys. The pulley should be positioned as close as possible to the large pulley. Minimum pitch diameters are listed in the table below. When using on the outside, the idler should be flat (not crowned) and positioned as close as possible to the small pulley.

Minimum effective diameter of Pulley (mm)	PH	PJ	PK	PL	PM
	13	20	50	75	180

Section	Minimum Diameter (mm)	
	Idler on Inside	Idler on Outside
PJ	20	40
PK	38	75
PL	100	200
PM	224	375

SERPENTINE DRIVES -
For selection Consult Fenner

Multi-Pull is a flexible belt and can be reverse bent round a pulley. The outside of the belt can be used to drive. This enables Multi-Pull to be used on Multi-Pulley or Serpentine Drives.

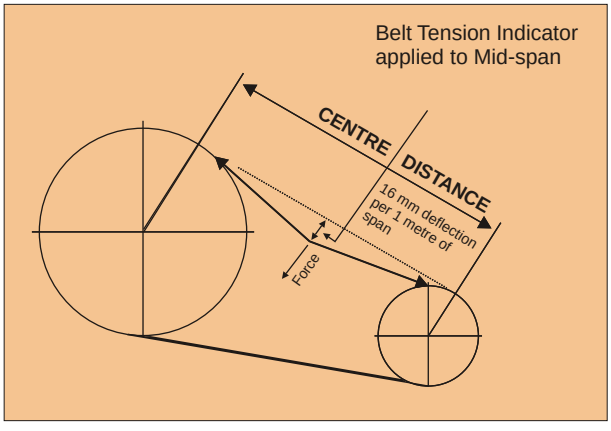
TENSIONING INSTRUCTIONS

DEFLECTION METHOD

Multi-Pull Drives will be sufficiently tensioned if the deflection force 'F' applied perpendicular at mid-span to produce a deflection equal to 16 mm per metre of span distance falls within the range given in the table below.

To improve tensioning accuracy the drive should be run briefly to seat the belt before making final measurement. A new belt should be tensioned to the higher value. Re-tensioning how-ever should be toward the lower value.

A straight edge should be placed across the pulleys to act as datum for measuring the amount of deflection. Calculate the deflection in mm on a basis of 16 mm per metre of centre distance.



TENSIONING FORCES

Belt Section	Force required to deflect belt 16 mm per metre of span		
	Small Pulley Diameter (mm)	Newton (N) per rib	Kilogram force (kgf) per rib
PJ	Below 45	1.6 to 3.0	0.16 to 0.30
	45 - 66	3.0 to 5.0	0.30 to 0.50
	67 - 125	4.0 to 7.0	0.40 to 0.70
PL	below 160	10 to 15	1.0 to 1.5
	160 - 224	12 to 20	1.2 to 2.0
PM	below 355	30 to 45	3.0 to 4.5
	355 - 560	35 to 60	3.5 to 6.0

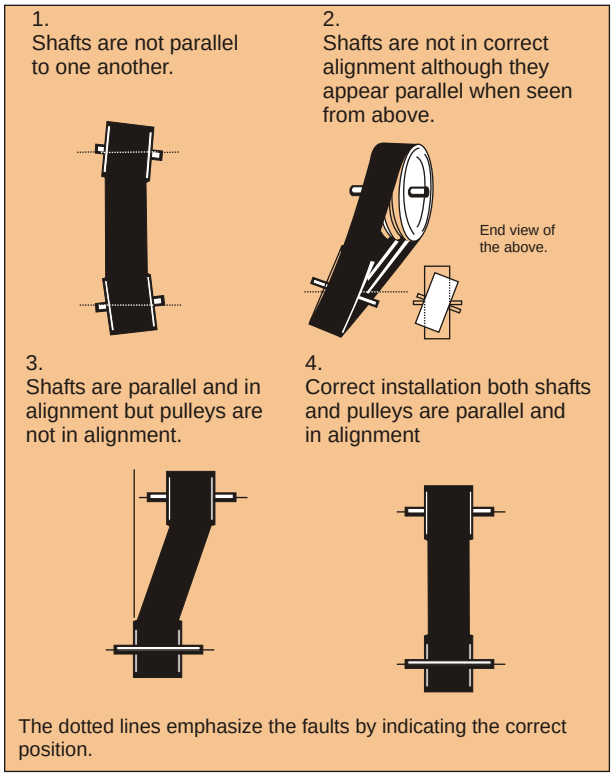
The above tensioning forces are for average drive conditions. A precise belt tensioning force can be calculated - contact Fenner Technical Services Although this is the preferred method of tensioning it may prove impractical. In this case the elongation method can be used.

ELONGATION METHOD

Mark two reference lines on the back of the belt, at approximately 80% of the span length, tighten the belt until the extension of the reference lines correspond with values given in the table below. New belts should be installed with an elongation towards the higher value and re-tensioned towards the lower value.

Belt Section	Pulley Diameter Range mm	Elongation mm / metre
PJ	Below 45	3 - 4
	45 - 66	4 - 6
	67 - 125	6 - 7
PL	below 160	5 - 7
	160 - 224	7 - 9
PM	below 355	4 - 5
	355 - 560	5 - 7

SHAFT ALIGNMENT



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Pulleys should be mounted as close as possible to the bearings to reduce overhung load.

The maximum axial misalignment allowed is 3 mm per metre centre distance (maximum 15 mm).

Shaft parallelism must be kept within 2 degree.

TENSIONING THE BELT

Fenner Multipull Belts must be tensioned correctly and with great care. The under or over tensioning can cause functional problems and lead to premature belt failure.

We recommend the elongation method, which is simple and requires no special equipment.

1.Fit the belt on the pulleys with no tension.

2.Draw two lines perpendicularly across the back of the belt about 80% of the belt span apart (or one metre apart for very long spans).

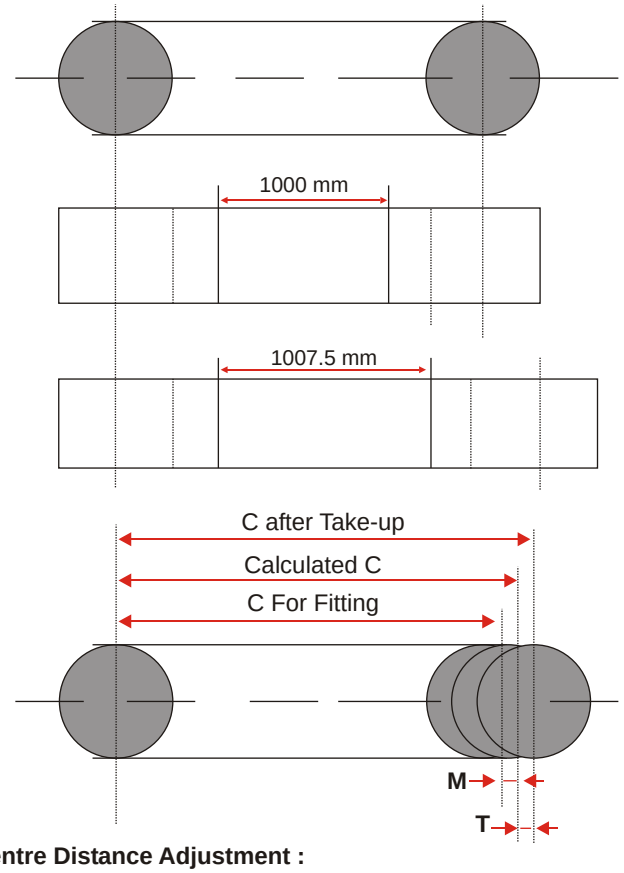
3.Increase the distance between the two lines by 0.5 to 0.75% i.e. by 5mm to 7.5mm for an initial spacing of 1000 mm.

4.Run the drive under load for about 10 minutes.

5.Check the tension of the belt (i.e. the spacing between the two lines) and readjust if necessary.

Generally the tensioning values for each section are maintained as under:

PJ	PK	PL	PM
0.5%	0.6%	0.6%	0.6%



Centre Distance Adjustment :
Fitting and Take-Up Recommendations

Belt Length (mm)	PJ		PK		PL		PM	
	M	T	M	T	M	T	M	T
< 750	-10	+10	-11	+13				
750 - 1200	-10	+15	-12	+16	-15	+20		
1200 - 2000	-15	+20	-16	+22	-20	+25		
2000 - 3500	-20	+30	-23	+32	-30	+35	-40	+50
3500 - 6000					-40	+50	-50	+70
> 6000							-100	+130

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