

POWERFLEX



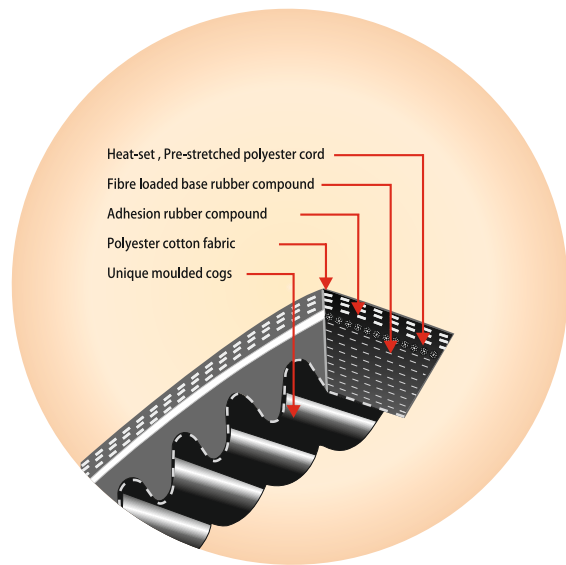
Raw Edge Cogged V-Belts

Raw edge V-Belts are also known as Cut edge Belts or simply Cut Belts. As the name signifies, the edges (sidewalls) are cut from sleeves and the sidewalls are not covered i.e. they are raw. There is no fabric wrapping on the sides as in the same of normal belts. Again Raw Edge Belts come in three basic designs. They are Raw Edge Plain (REP), Raw Edge Laminated (REL) and Raw Edge Cogged (REC).

Raw Edge Plain belt has one or two fabric layers situated above the cable cord and the bottom edge might or might not have a single fabric layer.

The efficiency of these belts has been so overwhelmingly attractive that these belts have started rapidly replacing other type of belts in the class of application for which they are suitable.

The cogged underside of the Raw Edge Cogged belts reduces bending resistance significantly, thereby enabling use of pulleys with even smaller diameters upto 20% less than for the same type of application. Further the decreased bending resistance reduces mechanical losses during bending. This means improved power transmission, lesser heat buildup and also reduced working temperature. Heat dissipation is expedited as the belt has a large surface area per unit



Belt Dimensions

Section	Dimensions (w x h)(mm)	Min. Pulley Diameter PCD (mm)	Std. Belt Lengths (mm)
ZX	10 x 6	40	500 - 2310
AX	13 x 8	64	640 - 4500
BX	17 x 11	100	720 - 4500
CX	22 x 14	160	820 - 4500
SPZX / 3VX	10 x 8	45	550 - 4500
SPAX	13 x 10	72	650 - 4500
SPBX / 5VX	16 x 13	128	650 - 4800
SPCX	22 x 18	221	2240 - 4750

STANDARDS: RMA IP 20, ISO 4184, RMA IP 22, DIN 2215, BS 3790

length. Lastly heat transfer is also accelerated due to cogs inducing turbulence in the surrounding air resulting in a swirling action which enhances cooling. Pulleys and bearings run cooler on account of this.

The absence of fabric wrapping on the sides allows more space for the cable cord reinforcement leading to higher rating for the same cross section. The absence of Fabric reinforcement joints normally found in the wrapped belt leads to smoother running. Further, Raw edge belt base consists of anisotropically oriented fibre filled rubber composite which improves transverse rigidity and traction. All these add up to better performance of not only the belt but also the pulley bearing.

The lighter and stronger construction of Raw edge belts enables surface speeds upto 45 metres/second for raw edge belts of the wedge belt design and 35 metres/second for Raw edge classical design belts. All these add up to compactness, considerably increased power rating, longer life, cooler running and lesser power loss or a combination of all.

Raw edge Cogged belts- the construction

The Raw Edge Cogged belts has moulded construction and transverse rigidity in the wedging direction. They have low slippage in running , reducing the losses in the drive. Considering the drive can also be redesigned to be compact, it will result in lower overhung load on the shaft and reduced bearing loads which substantially increase their life.

Special Features

Top Layer: Specially woven poly - cotton fabric rubberised with Polychloroprene rubber which imparts ozone resistance and hence better resistance to flex crack development.

Cord: Special adhesive treated - High Modulus - Low Stretch (HMLS) polyester cable cord provides high tensile strength with minimum stretch which in turn gives V-Belt with good tension retention, superior resistance to fatigue and shock loads.

Compound: a) Polychloroprene used throughout the belt provides oil and heat resistance.

b) Fibre filled polychloroprene base compound gives increased power transmission capability, superior transverse stiffness and high wear resistance.

Precision: The edges are precisely cut and ground to exact dimensions to ensure uniform fit along the sides of the pulley grooves.

Properties:

1. Very high flexibility due to moulded cogs.
2. Excellent transverse rigidity because of polychloroprene rubber based compound with anisotropic fibre orientation.
3. Very low stretch due to use of length stable polyester cords.
4. Higher power rating of upto 30% over wrapped V-Belts.
5. Low Slip due to better arc of contact and pulley to belt geometrical relationship.
6. Energy loss reduced to absolute minimum.

Advantages:

Cogged belts offer advantages to the existing users of V-Belts wanting to replace conventional wrapped belts with cogged belts as well as to the designers of new drives.

Replacement Drives

- a) **No drive modifications** are necessary to accommodate cogged belts on the existing pulleys.
- b) **Three times more life.** The higher power rating of powerflex means that they have more KW hours built into them. So they last three times longer when replacing conventional wrapped V- belts using existing pulleys.
- c) **Energy saving.** Field Tests under actual working conditions have shown an energy saving of as much as 6%. Less Energy is wasted because of the combination of moulded cog and Raw Edge construction, which allows Cogged belts to bend more easily along the pulley.

New Drives

- a) Less number of belts . The cogged belts transmit 28-30% more Kw Per Belt and therefore the number of belts for the same drives may be reduced from 4 to 3 or 3 to 2.
- b) Small pulley diameter can be used due to greater flexibility.
- c) Drive ratios of 1:12 are possible which can eliminate multistage drives.

Over and above these benefits, the ‘Fit and Forget” “PB” specifications also apply to **Powerflex** which means no re-tensioning and no matching of codes.

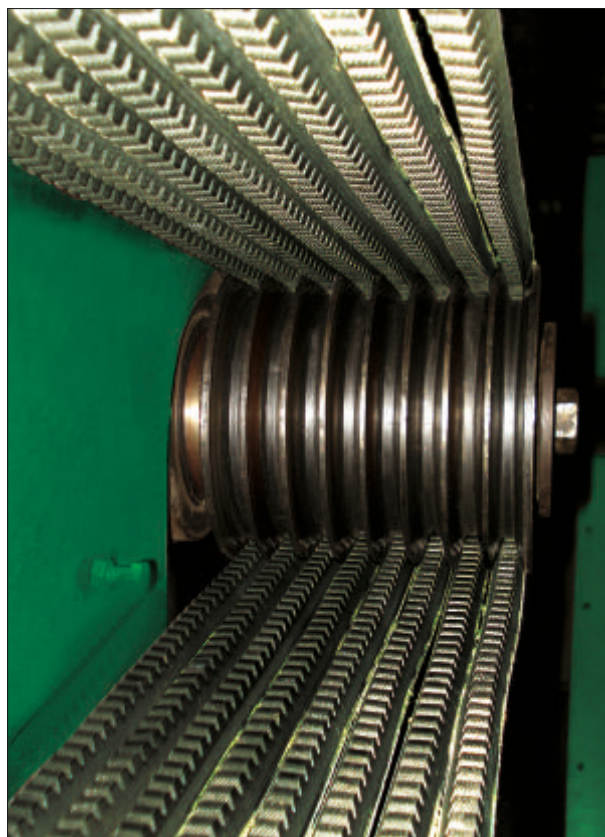
Available in **Sections ZX, AX, BX, CX, SPZX, SPAX, SPBX, & SPCX** for industrial applications and **Sections 13 A, 15 A, 17 A and 20 A** for HEMM applications.

Energy Earning through Cogged belts

Powerflex Raw Edge Cogged Belts ensure energy savings of 3-6% over conventional wrapped belts. This is achieved due to:

- Moulded construction reduces slippage to minimum. Power consumed per unit output is reduced.
- Reduced tension required to transmit same power compared to wrapped belts.
- The higher power carrying capacity of the cogged belts ensures that the drives are more compact. The shaft overhang and thereby the load on the bearings is reduced.

Energy saved is energy earned and more and more industries are switching over to cogged belts.











Energy saving Cogged Belt Drive
Textile Comber Toyoda CM 10

Belt Range - Raw Edge Cogged Belts

ZX Section				AX Section				BX Section				CX Section			
Size	Pitch Length (mm)	Size	Pitch Length (mm)	Size	Pitch Length (mm)	Size	Pitch Length (mm)	Size	Pitch Length (mm)	Size	Pitch Length (mm)	Size	Pitch Length (mm)		
ZX 18	480	ZX 64	1650	AX19	520	Ax65	1680	BX28	750	BX74	1920	CX32	870		
ZX 19	510	ZX 65	1670	AX20	540	Ax66	1710	BX29	780	BX75	1950	Cx33	890		
ZX 20	530	ZX 66	1700	AX21	570	AX67	1730	BX30	800	BX76	1970	CX34	920		
ZX 21	560	ZX 67	1720	AX22	590	AX68	1760	BX31	830	BX77	2000	CX35	940		
ZX 22	580	ZX 68	1750	AX23	620	AX69	1790	BX32	860	BX78	2020	CX36	970		
ZX 23	610	ZX 69	1780	AX24	640	AX70	1810	BX33	880	BX79	2050	CX37	1000		
ZX 24	630	ZX 70	1800	AX25	670	AX71	1840	BX34	910	BX80	2070	CX38	1020		
ZX 25	660	ZX 71	1830	AX26	690	AX72	1860	BX35	930	BX81	2100	CX39	1050		
ZX 26	680	ZX 72	1850	AX27	720	AX73	1890	BX36	960	BX82	2130	CX40	1070		
ZX 27	710	ZX 73	1880	AX28	740	AX74	1920	BX37	980	BX83	2150	CX41	1100		
ZX 28	730	ZX 74	1900	AX29	770	AX75	1940	BX38	1000	BX84	2180	CX42	1120		
ZX 29	760	ZX 75	1930	AX30	800	AX76	1960	BX39	1030	BX85	2200	CX43	1150		
ZX 30	790	ZX 76	1950	AX31	820	AX77	1990	BX40	1060	BX86	2230	CX44	1170		
ZX 31	810	ZX 77	1980	AX32	850	AX78	2020	BX41	1080	BX87	2250	CX45	1200		
ZX 32	840	ZX 78	2000	AX33	870	AX79	2050	BX42	1100	BX88	2280	CX46	1220		
ZX 33	860	ZX 79	2030	AX34	900	AX80	2070	BX43	1130	BX89	2300	CX47	1250		
ZX 34	890	ZX 80	2060	AX35	920	AX81	2090	BX44	1160	BX90	2330	CX48	1280		
ZX 35	910	ZX 81	2080	AX36	950	AX82	2120	BX45	1180	BX95	2460	CX49	1300		
ZX 36	940	ZX 82	2110	Ax37	970	AX83	2140	BX46	1210	BX100	2580	CX50	1330		
ZX 37	960	ZX 83	2130	AX38	1000	AX84	2170	BX47	1240	BX105	2710	CX51	1350		
ZX 38	990	ZX 84	2160	AX39	1020	Ax85	2200	BX48	1260	BX110	2840	CX52	1380		
ZX 39	1010	ZX 85	2180	AX40	1050	AX90	2320	BX49	1290	BX115	2960	CX53	1400		
ZX 40	1040	ZX 86	2210	AX41	1070	AX95	2450	BX50	1310	BX120	3090	CX54	1430		
ZX 41	1060	ZX 87	2230	AX42	1100	AX100	2570	BX51	1340	BX125	3220	CX55	1450		
ZX 42	1090	ZX 88	2260	AX43	1130	AX120	3080	BX52	1370	BX132	3400	CX56	1480		
ZX 43	1120	ZX 89	2280	AX44	1150			BX53	1390	BX150	3850	CX57	1500		
ZX 44	1140	ZX 90	2310	AX45	1180			BX54	1410	BX170	4360	Cx58	1530		
ZX 45	1170			AX46	1200			BX55	1440			CX59	1550		
ZX 46	1190			AX47	1230			BX56	1460			CX60	1580		
ZX 47	1220			Ax48	1250			BX57	1490			CX61	1610		
ZX 48	1240			AX49	1280			BX58	1510			CX62	1630		
ZX 49	1270			AX50	1300			BX59	1540			CX63	1660		
ZX 50	1290			AX51	1330			BX60	1560			CX64	1680		
ZX 51	1320			AX52	1350			BX61	1590			CX65	1710		
ZX 52	1340			AX53	1380			BX62	1620			CX66	1730		
ZX 53	1370			AX54	1400			BX63	1640			CX67	1760		
ZX 54	1390			AX55	1430			BX64	1670			CX68	1780		
ZX 55	1420			AX56	1460			BX65	1690			CX69	1810		
ZX 56	1450			AX57	1480			BX66	1720			CX70	1830		
ZX 57	1470			AX58	1510			BX67	1750			CX71	1860		
ZX 58	1500			AX59	1530			BX68	1760			CX72	1880		
ZX 59	1520			AX60	1560			BX69	1800			CX73	1910		
ZX 60	1550			AX61	1580			BX70	1820			CX74	1940		
ZX 61	1570			AX62	1610			BX71	1850			CX75	1960		
ZX 62	1600			AX63	1630			BX72	1870			CX76	1990		
ZX 63	1620			AX64	1660			BX73	1900						

"For all unlisted sizes please consult Fenner"

Belt Range - Raw Edge Cogged Wedge Belts

 SPZX	 SPAX	 SPBX	 SPCX	 3VX	 5VX	 AV10X	 AV13X
Size	Size	Size	Size	Size	Size	Size	Size
SPZX550	SPAX600	SPBX670	SPCX2300	3VX-200	5VX-320	AV10X-500	AV13X-500
SPZX600	SPAX650	SPBX780	SPCX2360	3VX-250	5VX-350	AV10X-520	AV13X-550
SPZX700	SPAX700	SPBX820	SPCX2400	3VX-280	5VX-380	AV10X-600	AV13X-650
SPZX750	SPAX750	SPBX940	SPCX2450	3VX-300	5VX-400	AV10X-800	AV13X-800
SPZX800	SPAX800	SPBX1030	SPCX2500	3VX-330	5VX-420	AV10X-1000	AV13X-1050
SPZX850	SPAX850	SPBX1060	SPCX2550	3VX-350	5VX-480	AV10X-1200	AV13X-1250
SPZX900	SPAX900	SPBX1120	SPCX2600	3VX-400	5VX-500	AV10X-1320	AV13X-1360
SPZX950	SPAX950	SPBX1260	SPCX2650	3VX-420	5VX-560	AV10X-1400	AV13X-1450
SPZX1000	SPAX1000	SPBX1300	SPCX2700	3VX-450	5VX-670	AV10X-1800	AV13X-1600
SPZX1060	SPAX1050	SPBX1320	SPCX2750	3VX-500	5VX-830	AV10X-2000	AV13X-2000
SPZX1080	SPAX1080	SPBX1360	SPCX2800	3VX-560	5VX-1000	AV10X-2120	AV13X-2360
SPZX1180	SPAX1120	SPBX1400	SPCX3000	3VX-630	5VX-1030	AV10X-2500	AV13X-2500
SPZX1200	SPAX1180	SPBX1500	SPCX3150	3VX-900	5VX-1040	AV10X-2800	AV13X-2750
SPZX1250	SPAX1200	SPBX1600	SPCX3350	3VX-1000	5VX-1060	AV10X-3000	AV13X-3000
SPZX1270	SPAX1250	SPBX1700	SPCX3500	3VX-1180	5VX-1080	AV10X-3150	AV13X-3150
SPZX1320	SPAX1300	SPBX1800	SPCX3750	3VX-1250	5VX-1120	AV10X-3350	AV13X-3350
SPZX1400	SPAX1320	SPBX1900	SPCX4000	3VX-1320	5VX-1150	AV10X-3500	AV13X-3500
SPZX1500	SPAX1360	SPBX2000	SPCX4250	3VX-1400	5VX-1180	AV10X-3850	AV13X-3850
SPZX1540	SPAX1400	SPBX2100	SPCX4500	3VX-1500	5VX-1220	AV10X-4000	AV13X-4000
SPZX1600	SPAX1450	SPBX2200		3VX-1600	5VX-1230	AV10X-4300	AV13X-4300
SPZX1700	SPAX1500	SPBX2360		3VX-1700	5VX-1250	AV10X-4500	AV13X-4500
SPZX1750	SPAX1580	SPBX2500		3VX-1800	5VX-1320	AV10X-4850	AV13X-4850
SPZX1800	SPAX1600	SPBX2580		3VX-1900	5VX-1400		
SPZX1900	SPAX1700	SPBX2650			5VX-1500		
SPZX2000	SPAX1750	SPBX2750			5VX-1600		
SPZX2120	SPAX1800	SPBX3000			5VX-1700		
SPZX2280	SPAX1900	SPBX3150			5VX-1800		
SPZX3000	SPAX1950	SPBX3350					
SPZX3150	SPAX2000	SPBX3500					
SPZX3350	SPAX2120	SPBX3550					
SPZX3500	SPAX2200	SPBX3750					
SPZX3750	SPAX2300	SPBX4000					
SPZX4000	SPAX2360	SPBX4500					
SPZX4500	SPAX2500						
	SPAX2750						
	SPAX3000						
	SPAX3150						
	SPAX3350						
	SPAX3500						
	SPAX3750						
	SPAX4000						
	SPAX4500						

"For all unlisted sizes please consult Fenner"

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Variable Speed Cogged Belts

Variable speed belts are used in machines which require variations in driven speed during operation.

These belts are moulded cogged in construction. The variable speed belts are wider in proportion to their thickness, hence they must have extreme transverse rigidity to prevent the belt from dishing in. The variable speed belts also require lengthwise flexibility to bend around small sheaves without excess strain that will shorten belt life.

The cogged design of the belt provides excellent flexibility, without sacrificing the crosswise rigidity required to properly position the tensile cords. Highly efficient power transmission allows to smoothly follow

speed changes, creating excellent acceleration response. The result is precise speed control, a wide range of speed ratios and long dependable service.

Variable speed cogged belts are used in variety of applications:

1. Bottle filling and washing machines in soft drink bottling plants, Pharmaceutical units and breweries etc.
2. Painting presses
3. Cable industry for extruders and takeup drive.
4. Wire drawing industry
5. Paper Mills.
6. Coal feeders in Cement/ Thermal power plants.

Variable Speed Cogged Belt Range:

Top Width (mm)	Thickness (mm)	Inside Length Range (mm)
23	8	All sizes from 700 to 2260
28	8	All sizes from 700 to 2260
32	10	All sizes from 700 to 2260
38	10	All sizes from 700 to 2260
46	13	All sizes from 700 to 2260
50	14	All sizes from 700 to 2260
55	16	All sizes from 700 to 2260
65	16	All sizes from 700 to 2260



Variator Belts for Textile Ring

Frame Application:

62 X 22 X 1745 Li
70 X 22 X 1700 Li

HEMM Belts

Raw Edge Cogged Belts for Heavy Earth Moving Machinery (HEMM) Applications.

These belts find application on Dumpers, Dozers, Excavators, Graders, Loaders, Shovels etc., which are powered by mainly Cummins and Komatsu Engines and also Caterpillar and Kirloskar engines. The main users are Mining and Construction Industry.

Features:

1. Heavy Duty construction to withstand the rigor of hot and dusty HEMM applications.
2. Trapezoidal cogs for flexibility & durability
3. Bottom Fabric
4. Extra Layers of Jacket and Cords.

The HEMM belts conform to SAE standard J-636.



The sections and Dimensions of HEMM belts:

Cummins		Komatsu	
Section	Cross-section (mm)	Section	Cross Section(mm)
11 A	11.9 x 8.0	MX	18.5 x 12.5
13 A	13.6 x 9.4	TX	25.4 x 14.5
15 A	16.7 x 10.3		
17 A	18.3 x 11.0		
20 A	21.5 x 12.7		

Cummins Engines			
11A1092	17A1015	20A1003	20A1460
13A965	17A1118	20A1092	20A1560
15A800	17A1145	20A1130	20A1727
15A889	17A1156	20A1207	20A1791
15A1003	17A1892	20A1245	20A1867
15A1270		20A1283	20A2070
15A1549		20A1308	20A2200
		20A1397	20A2235

BEML Komatsu Engines			
MX30	BX28	CX58	TX59
	BX50	CX68	TX65
	BX56	CX70	TX67
		CX72	TX68
			TX71
			TX78
			TX81

"For all unlisted sizes please consult Fenner"

