

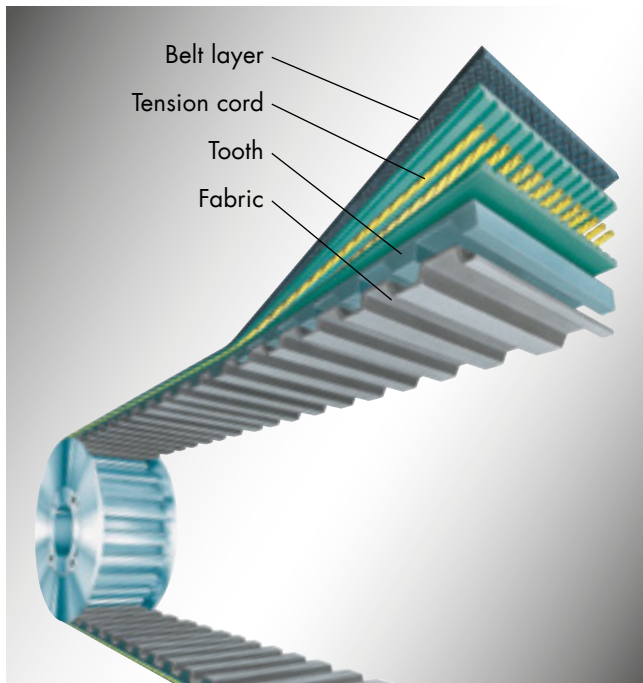
PRODUCT DESCRIPTION

optibelt ZR TIMING BELTS

ISO 5296



Structure



Top layer

A flexible belt backing embeds the tension element and supports it against the reverse idlers. The top layer consists of a flexible high quality chloroprene compound. This protects the tension cord from oil, humidity, friction and wear and tear.

This top layer has some inherent resistance to mineral oils, but not to vegetable oils and water soluble cooling and cutting oils.

Tension cord

The tension cord is a continuous, spirally wound glass fibre. This material has a high tensile strength and is extremely flexible. The low-stretch properties of the tension cord ensure that the pitch of the belt corresponds to the pitch of the pulley – even when under strain.

Teeth

The teeth are made of a shear and wear resistant rubber compound vulcanised to form a unit with the belt back. The shape and arrangement of the teeth are such that the pulley engages the belt teeth precisely and with minimum friction. As long as six teeth or more are in mesh on the small pulley, the complete capacity of the timing belt can be used without any deduction.

Fabric

In order to obtain a low level of wear on the running surfaces as well as achieving a high level of tooth shear strength, a tough, wear resistant fabric is applied to the outer tooth surface.

Tooth pitch, designations

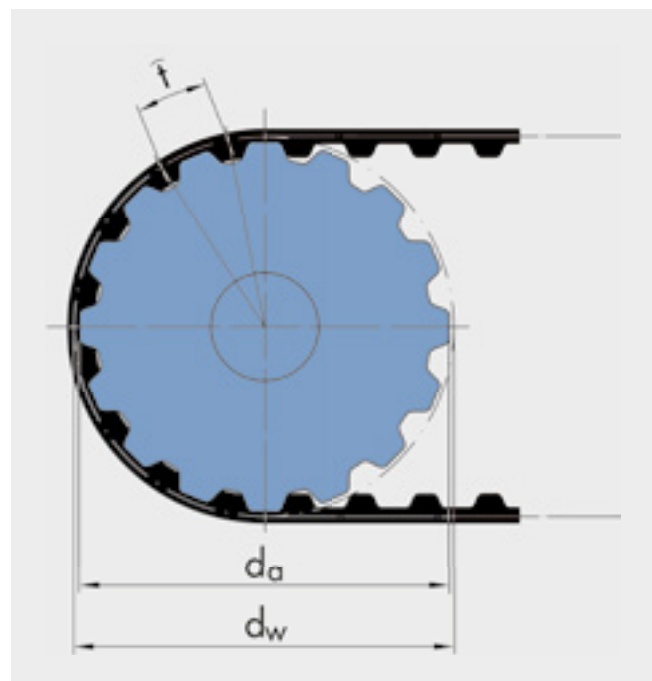
optibelt ZR timing belts are manufactured according to ISO 5296, timing belt pulleys according to ISO 5294. Both come in six standard profiles.

Due to the American origin of the timing belt profile, the length unit is "in" for inch. The width/length codes have thus been derived from the imperial (inch) measurements of widths and lengths.

Table 1: Belt profiles and tooth pitch

Profile	Tooth pitch t	
	[mm]	[inches]
MXL	2.032	0.080 or $\frac{2}{25}$
XL	5.080	0.200 or $\frac{1}{5}$
L	9.525	0.375 or $\frac{3}{8}$
H	12.700	0.500 or $\frac{1}{2}$
XH	22.225	0.875 or $\frac{7}{8}$
XXH	31.750	1.250 or $1\frac{1}{4}$

Tooth pitch is the distance from the centre of one tooth to the centre of the next measured at the pitch line, which corresponds with the level of the tension cord. The pitch or datum diameter of the pulley is a theoretical dimension which lies outside the outer diameter.



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Nominal size

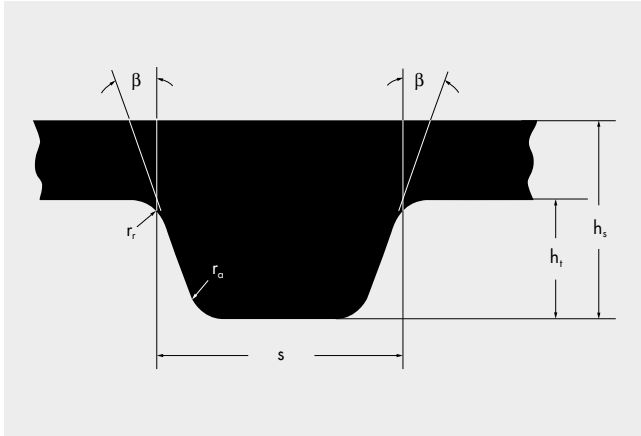


Table 2: Profile dimensions

Profile	MXL	XL	L	H	XH	XXH
Tooth angle 2β [°]	40	50	40	40	40	40
Tooth height h_t [mm]	0.51	1.27	1.91	2.29	6.35	9.53
Foot radius r_f [mm]	0.13	0.38	0.51	1.02	1.57	2.29
Head radius r_a [mm]	0.13	0.38	0.51	1.02	1.19	1.52
Tooth width s [mm]	1.14	2.57	4.65	6.12	12.57	19.05
Overall belt thickness h_s [mm]	1.2	2.3	3.6	4.0	11.2	15.7

Table 3: Width tolerances for optibelt ZR timing belts according to ISO 5296

Profile	Standard width		Allowed deviation of width for belt pitch lengths		
	Dimension [mm]	Width code	Up to 838.20 mm	Over 838.20 mm up to 1676.40 mm	Over 1676.40 mm
			[mm]	[mm]	[mm]
MXL	3.2	012	+ 0.5 - 0.8	-	-
	4.8	019			
	6.4	025			
XL	6.4	025	+ 0.5 - 0.8	+ 0.5 - 0.8	-
	7.9	031			
	9.5	037			
L	12.7	050	+ 0.8 - 0.8	+ 0.8 - 1.3	+ 0.8 - 1.2
	19.1	075			
	25.4	100			
H	19.1	075	+ 0.8 - 0.8	+ 0.8 - 1.3	+ 0.8 - 1.3
	25.4	100			
	38.1	150			
XH	50.8	200	+ 0.8 - 1.3	+ 1.3 - 1.3	+ 1.3 - 1.5
	76.2	300			
	101.6	400			
XXH	50.8	200	+ 1.3 - 1.5	+ 1.5 - 1.5	+ 1.5 - 2.0
	76.2	300			
	101.6	400			
XXH	50.8	200	+ 4.8 - 4.8	+ 4.8 - 4.8	+ 4.8 - 4.8
	76.2	300			
	101.6	400			
XXH	127.0	500	+ 4.8 - 4.8	+ 4.8 - 4.8	+ 4.8 - 4.8
	152.4	600			
	177.8	700			

Weight per metre

Profile	MXL	XL	L	H	XH	XXH
kg/m per 1 mm width	0.0012	0,0021	0.0035	0.0041	0.0110	0.0147

PRODUCT DESCRIPTION

STANDARD PROPERTIES / SPECIAL DESIGNS



All optibelt ZR timing belts are oil-, heat- and cold-resistant as standard. Special labelling is not required.

Oil resistance

The inherent oil resistance prevents the damaging effects of mineral oils and greases, as long as these substances are not in permanent contact with the timing belt and/or are not present in large quantities. With increased demands for resistance, e.g. to mineral oils, the performance of the optibelt ZR timing belts can be improved by using special constructions. Please contact the optibelt Application Engineering Department for more details.

Temperature resistance

The timing belt can withstand ambient temperatures from $\approx -30^{\circ}\text{C}$ to $+100^{\circ}\text{C}$. Temperatures outside this range lead to premature ageing and embrittlement of the timing belts and thus to their premature failure. The temperature resistance of Optibelt ZR timing belts can be extended using special constructions, e.g. up to $+140^{\circ}\text{C}$. Please contact the Optibelt Application Engineering Department for more details.

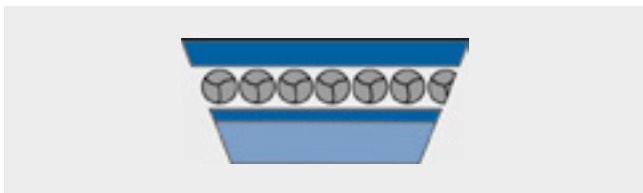
Anti-static properties

Anti-static properties enable the safe discharge of electrostatic charges. This charging can have such a strong impact on timing belts with insufficient electrical conductivity that there is the danger of ignition due to sparks. The use of anti-static timing belts requires that the properties be checked in accordance with ISO 9563 and is confirmed by the issue of an inspection certificate.

optibelt ZR timing belts with angled sides

optibelt ZR timing belts with angled sides can be customised for special applications.

Special lengths, widths, tooth pitch or open-ended versions of optibelt ZR timing belts and the minimum order quantities are available on request.



Possible combinations

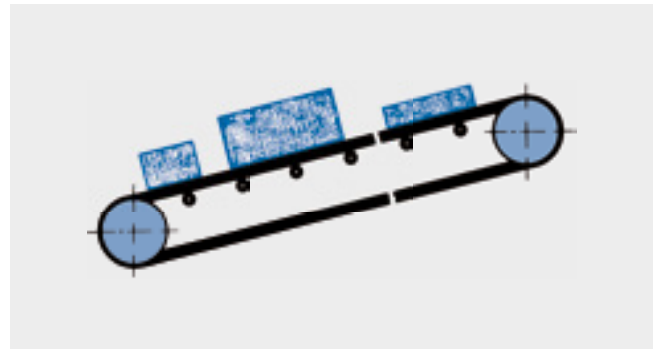
optibelt ZR timing belts with standard or special compounds can be combined with other special designs. However, the individual properties of the special compounds cannot be combined with each other. For example, the properties of an extra heat-resistant belt cannot be combined with those of an antistatic belt.

Further special constructions

optibelt ZR timing belts with reinforced top surfaces

If the timing belt is to be used for the conveyance of various goods, we recommend using optibelt ZR timing belts with reinforced top surfaces.

Please give the required overall thickness (h_s) of the belt when ordering.



optibelt ZR timing belts with ground top surfaces

When using back bend idlers, especially when dealing with high belt speeds and vibration, we recommend optibelt ZR timing belts with ground top surfaces. Available grinding tolerances are given in the following table 4:

Table 4: optibelt ZR timing belts according to ISO 5296

Profile	Overall belt thickness h_s [mm]		
	Standard design	Quality class G 1	Quality class G 2
MXL	1.20 ± 0.25	1.20 ± 0.13 (≥ 80 MXL)	1.20 ± 0.25 (≥ 80 MXL)
XL	2.30 ± 0.25	2.30 ± 0.13	2.30 ± 0.25
L	3.60 ± 0.25	3.60 ± 0.13	3.60 ± 0.25
H	4.00 ± 0.25	4.00 ± 0.13	4.00 ± 0.25
XH	11.20 ± 0.65	—	11.20 ± 0.25
XXH	15.70 ± 0.65	—	15.70 ± 0.25