OPTIBELT

TECHNICAL MANUAL RUBBER TIMING BELTS



TECHNICAL MANUAL
TIMING BELTS RUBBER

Rubber timing belts in basic design optibelt OMEGA, optibelt STD and optibelt ZR were developed for use in low to medium power ranges. The drive speed is synchronously (i.e. without any speed loss) transmitted with a constant transmission ratio. These timing belts for use in low to medium power ranges offer optimal availability and economic efficiency for drives with low technical requirements.

Timing belts for higher power ranges such as OMEGA HP, OMEGA High Power and OMEGA High Load are particularly useful for drives subject to high loads as well as very technically demanding drives. These timing belts offer the highest performance while also reducing drive width. These products also allow users to react to special drive conditions (such as very high loads, shock loads inside the drive, etc.).

The tooth shape, specially designed by Optibelt, reduces the running noise and forms the basis of all performance classes. Tooth meshing is precise and low-friction. The Optibelt tooth profile runs in HTD and RPP timing belt pulleys.

All important information on intended and proper use as well as methods for calculating and setting correct pretension of rubber timing belts can be found in this technical manual.

The rubber timing belts of the Optibelt product family are available in the following power classes:

Basic design:	optibelt OMEGA
	optibelt STD
	optibelt ZR
HP design:	optibelt OMEGA HP
	optibelt STD HP
	optibelt FAN POWER
High Power design:	optibelt OMEGA High Power
	optibelt OMEGA High Power EPDM
High Load design:	optibelt OMEGA High Load
	optibelt OMEGA High Load EPDM

as well as linear timing belts derived from these.

The standard properties of timing belts can change due to different influences. This is why drives should be checked in conditions that correspond or are as close as possible to future use.

If you have any questions, please take advantage of the free service provided by our application engineers.



8 **PRODUCTION SITES**
IN 6 COUNTRIES

32

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SALES LOCATIONS
IN 27 COUNTRIES

26

LOGISTICS CENTRES
IN 21 COUNTRIES

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1 PRODUCT DESCRIPTION

1.1 OPTIBELT PROFILE, DIMENSIONS, AND TOLERANCES



The Optibelt profile is a further development of the HTD profile, that runs more quietly than other timing belt profiles. The optimised tooth shape and indentation in the tooth head of the Optibelt profile allows for significantly lower noise levels. In combination with the newly developed materials, it is possible to reduce noise levels further, even at high rotational speeds and with high pretension.
All timing belts with the Optibelt profile can be used in optibelt ZRS HTD or RPP timing belt pulleys. The profile is based on the ISO 13050 standard. Timing belts with the 2M, 3M and 5M profiles also run in MR timing belt pulleys.

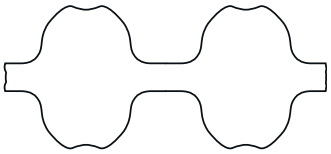
optibelt OMEGA timing belts with double-sided teeth in profiles D5M, D8M, and D14M are available for the implementation of drives with speed reversal. The construction of belts with double-sided teeth is analogous to that of the normal Optibelt profile. Because of the equal tooth design it is possible to choose any load distribution. The maximum admissible nominal power rating can thus be transmitted by both the inside and the outside tooth side alone. If there are several drive pulleys, the load can be distributed indiscriminately on both tooth sides; the sum of the distributed output shall however not exceed the admissible values.

Profiles

2M, 3M, 5M, 8M, 14M



D5M, D8M, D14M

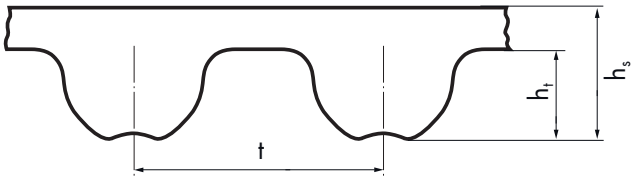


Timing belts in Optibelt profile are manufactured in a wide range of lengths and widths. There are several special lengths, widths and constructions available. Please contact our Optibelt Application Engineering department for more information. Timing belts with the Optibelt profile are manufactured as standard in grinding class G2, height tolerance ± 0.25 mm.

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1 PRODUCT DESCRIPTION

1.1 OPTIBELT PROFILE, DIMENSIONS, AND TOLERANCES



NOMINAL DIMENSIONS AND WEIGHTS

Profile	2M	3M	5M	8M	14M	D5M	D8M	D14M
Tooth height h_t [mm]	0.70	1.10	1.90	3.20	5.60	–	–	–
Overall belt height h_s [mm]	1.30	2.30	3.40	5.40	9.50	4.85	7.43	13.60
Tooth pitch t [mm]	2.00	3.00	5.00	8.00	14.00	5.00	8.00	14.00
Weight per metre [kg/m] per 1 mm of belt width	0.0013	0.0024	0.0035	0.0058	0.0100	0.0043	0.0067	0.0119

LENGTH TOLERANCES

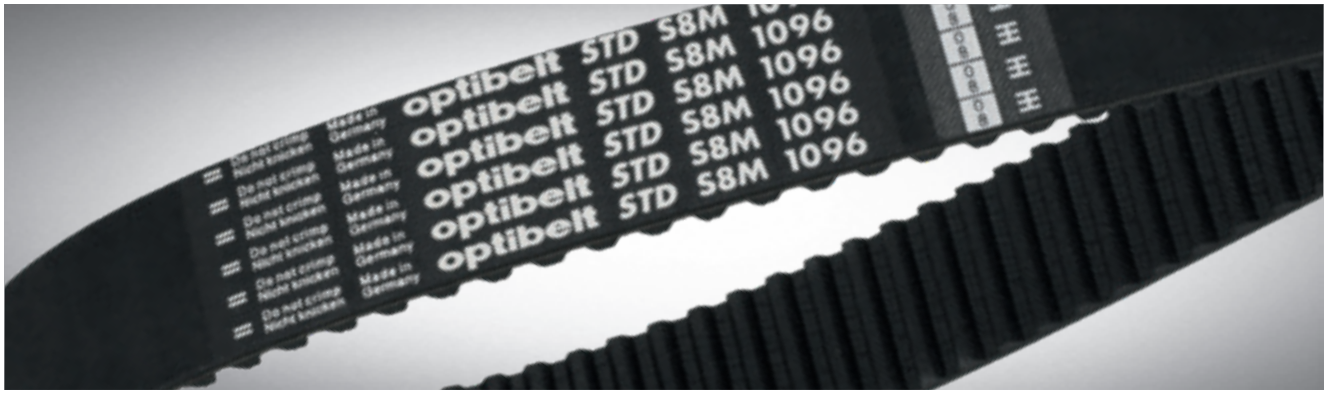
Pitch length [mm]	≤ 254	> 254 ≤ 381	> 381 ≤ 508	> 508 ≤ 762	> 762 ≤ 1016	> 1016 ≤ 1270	> 1270 ≤ 1524	> 1524 ≤ 1778	> 1778 ≤ 2032	> 2032
Length tolerance as deviation of the drive centre distance	± 0.20	± 0.23	± 0.275	± 0.30	± 0.33	± 0.36	± 0.41	± 0.43	± 0.46	± 0.49 ± 0.03*

*For longer lengths, 0.03 mm have to be added for each increment of 250 mm.

WIDTH TOLERANCES

Standard belt width	Permissible tolerances [mm] of timing belt widths		
Nominal width [mm]	Pitch length up to 838.2 mm	Pitch length 838.3 up to 1676.4 mm	Pitch length greater than 1676.4 mm
3.0 to 11.0	+ 0.4 – 0.8	+ 0.4 – 0.8	–
11.1 to 38.1	+ 0.8 – 0.8	+ 0.8 – 1.2	+ 0.8 – 1.2
38.2 to 50.8	+ 0.8 – 1.2	+ 1.2 – 1.2	+ 1.2 – 1.6
50.9 to 63.5	+ 1.2 – 1.2	+ 1.2 – 1.6	+ 1.6 – 1.6
63.6 to 76.2	+ 1.2 – 1.6	+ 1.6 – 1.6	+ 1.6 – 2.0
76.3 to 101.6	+ 1.6 – 1.6	+ 1.6 – 2.0	+ 2.0 – 2.0
101.7 to 177.8	+ 2.4 – 2.4	+ 2.4 – 2.8	+ 2.4 – 3.2
177.9 up to max.	–	–	+ 4.8 – 6.4

1 PRODUCT DESCRIPTION
1.2 STD PROFILE, DIMENSIONS, AND TOLERANCES

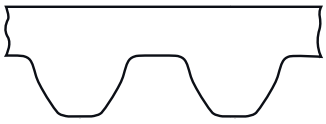


The STD profile has a special tooth form and was inspired by involute toothing, such as in gear wheels. This special tooth form minimises the friction of teeth against the timing belt pulley. This makes it possible to reach considerably lower noise levels as with HTD profile timing belts. The attainable noise level is of the same level as the Optibelt profile. The profile fulfils the requirements of the ISO 13050 standard.

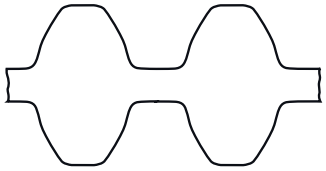
optibelt STD timing belts with double-sided teeth in profile DS8M are available for the implementation of drives with speed reversal. The construction of belts with double-sided teeth is analogous to that of the normal STD profile. Because of the equal tooth design it is possible to choose any load distribution. The maximum admissible nominal power rating can thus be transmitted by both the inside and the outside tooth side alone. If there are several drive pulleys, the load can be distributed indiscriminately on both tooth sides; the sum of the distributed output shall however not exceed the admissible values.

Profiles

S5M, S8M, S14M



DS8M

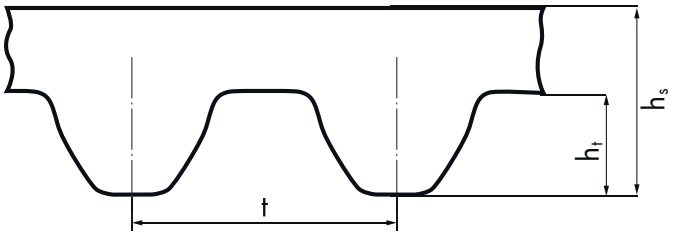


Timing belts in STD profile are manufactured in a wide range of lengths and widths. There are several special lengths, widths and constructions available. Please contact our Application Engineering department for more information. Timing belts with the STD profile are manufactured as standard in grinding class G2, height tolerance ± 0.25 mm.

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1 PRODUCT DESCRIPTION

1.2 STD PROFILE, DIMENSIONS, AND TOLERANCES



NOMINAL DIMENSIONS AND WEIGHTS

Profile	S5M	S8M	S14M	DS8M
Tooth height h_t [mm]	1.91	3.20	5.60	–
Overall belt height h_s [mm]	3.40	5.40	9.50	6.95
Tooth pitch t [mm]	5.00	8.00	14.00	8.00
Weight per metre [kg/m] per 1 mm of belt width	0.0038	0.0054	0.0094	0.0058

LENGTH TOLERANCES

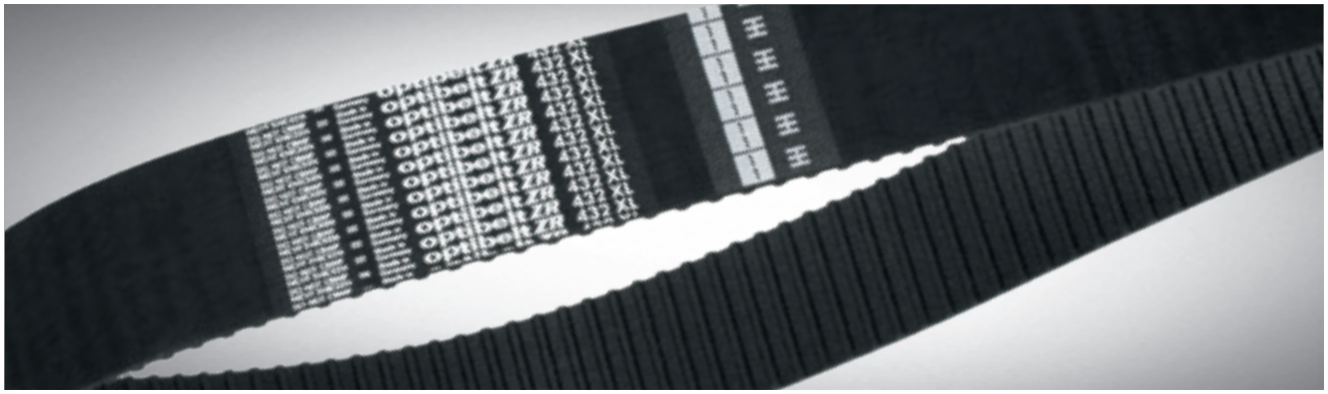
Pitch length [mm]	≤ 250	> 250 ≤ 500	> 500 ≤ 750	> 750 ≤ 1000	> 1000 ≤ 1250	> 1250 ≤ 1500	> 1500 ≤ 1750	> 1750 ≤ 2000	> 2000 ≤ 2250	> 2250 ≤ 2500	> 2500 ≤ 2750	> 2750 ≤ 3000	> 3000
Length tolerance as deviation of the drive centre distance	± 0.20	± 0.23	± 0.27	± 0.30	± 0.33	± 0.36	± 0.39	± 0.42	± 0.46	± 0.49	± 0.52	± 0.55	± 0.58 ± 0.03*

*For longer lengths, 0.03 mm have to be added for each increment of 250 mm.

WIDTH TOLERANCES

Standard belt width	Permissible tolerances [mm] of timing belt widths		
Nominal width [mm]	Pitch length up to 838.2 mm	Pitch length 838.3 up to 1676.4 mm	Pitch length greater than 1676.4 mm
3.0 to 11.0	+ 0.4 – 0.8	+ 0.4 – 0.8	–
11.1 to 38.1	+ 0.8 – 0.8	+ 0.8 – 1.2	+ 0.8 – 1.2
38.2 to 50.8	+ 0.8 – 1.2	+ 1.2 – 1.2	+ 1.2 – 1.6
50.9 to 63.5	+ 1.2 – 1.2	+ 1.2 – 1.6	+ 1.6 – 1.6
63.6 to 76.2	+ 1.2 – 1.6	+ 1.6 – 1.6	+ 1.6 – 2.0
76.3 to 101.6	+ 1.6 – 1.6	+ 1.6 – 2.0	+ 2.0 – 2.0
101.7 to 177.8	+ 2.4 – 2.4	+ 2.4 – 2.8	+ 2.4 – 3.2
177.9 up to max.	–	–	+ 4.8 – 6.4

1 PRODUCT DESCRIPTION
1.3 ZR PROFILE, DIMENSIONS, AND TOLERANCES



The ZR profile has trapezoidal toothing. Trapezoidal timing belts were first developed in the US. Due to their place of origin, these belts have standard dimensions that are expressed in inches instead of metres.
Considering the higher power ratings of timing belts with the Optibelt profile, it is advised to select these for new configurations. The profile fulfils the requirements of the ISO 19347 standard.

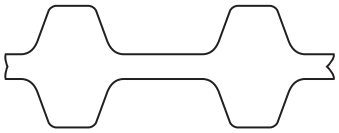
optibelt ZR timing belts with double-sided teeth in profiles DXL, DL, and DH are available for the implementation of drives with speed reversal.
The construction of belts with double-sided teeth is analogous to that of the normal ZR profile. Because of the equal tooth design it is possible to choose any load distribution. The maximum admissible nominal power rating can thus be transmitted by both the inside and the outside tooth side alone. If there are several drive pulleys, the load can be distributed indiscriminately on both tooth sides; the sum of the distributed output shall however not exceed the admissible values.

Profiles

MXL, XL, L, H, XH, XXH



DXL, DL, DH

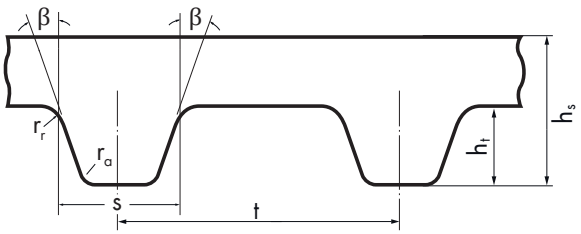


Timing belts in ZR profile are manufactured in a wide range of lengths and widths. There are several special lengths, widths and constructions available. Please contact our Application Engineering department for more information. Timing belts with the ZR profile are manufactured as standard in grinding class G2, height tolerance ± 0.25 mm.

TOOTH PITCHES, DESIGNATIONS

ZR timing belts pursuant to ISO 19347 are manufactured with six standard tooth pitches. Due to the American origin of this timing belt profile, length units are expressed in “in” (inches). Width and length codes were derived from the corresponding indications in inches.

1 PRODUCT DESCRIPTION
1.3 ZR PROFILE, DIMENSIONS, AND TOLERANCES



NOMINAL DIMENSIONS

Profile	MXL	XL	L	H	XH	XXH
Tooth pitch t [mm]	2.03	5.08	9.53	12.70	22.23	31.75
Tooth pitch t [in]	0.080 or $^{2}/_{25}$	0.200 or $^{1}/_{5}$	0.375 or $^{3}/_{8}$	0.500 or $^{1}/_{2}$	0.875 or $^{7}/_{8}$	1.250 or $1^{1}/_{4}$
Tooth angle 2β [°]	40	50	40	40	40	40
Tooth height h_t	0.51	1.27	1.91	2.29	6.35	9.53
Root radius r_r [mm]	0.13	0.38	0.51	1.02	1.57	2.29
Pitch 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 height h_s [mm]	1.20	2.30	3.60	4.00	11.20	15.70
Weight per metre [kg/m] per 1 mm of belt width	0.0012	0.0021	0.0035	0.0041	0.0110	0.0147

LENGTH TOLERANCES

Pitch length [mm]	≤ 254	> 254 ≤ 381	> 381 ≤ 508	> 508 ≤ 762	> 762 ≤ 990	> 990 ≤ 1219	> 1219 ≤ 1524	> 1524 ≤ 1778	> 1778 ≤ 2032	> 2032
Length tolerance as deviation of the drive centre distance	± 0.20	± 0.23	± 0.25	± 0.30	± 0.33	± 0.38	± 0.40	± 0.43	± 0.45	± 0.49* ± 0.03*

*For longer lengths, 0.03 mm have to be added for each increment of 254 mm.

WIDTH TOLERANCES FOR optibelt ZR TIMING BELTS PURSUANT TO ISO 19347

Profile	Standard widths		Permissible width deviations for belt pitch lengths		
	Dimensions	Width code	up to 838.20 mm	greater than 838.20 mm up to 1676.40 mm	greater than 1676.40 mm
	[mm]		[mm]	[mm]	[mm]
MXL	3.2 4.8 6.4	012 019 025	+0.5 –0.8	–	–
XL	6.4 7.9 9.5	025 031 037	+0.5 –0.8	+0.5 –0.8	–
L	12.7 19.1 25.4	050 075 100	+0.8 –0.8	+0.8 –1.3	+0.8 –1.2
H	19.1 25.4 38.1	075 100 150	+0.8 –0.8	+0.8 –1.3	+0.8 –1.3
	50.8	200	+0.8 –1.3	+1.3 –1.3	+1.3 –1.5
	76.2	300	+1.3 –1.5	+1.5 –1.5	+1.5 –2.0
XH	50.8 76.2 101.6	200 300 400	+4.8 –4.8	+4.8 –4.8	+4.8 –4.8
XXH	50.8 76.2 101.6 127.0	200 300 400 500	+4.8 –4.8	+4.8 –4.8	+4.8 –4.8

OMEGA 2 IN 1

PERFECT FIT IN HTD AND RPP

MINIMUM NOISE LEVEL
Lower noise emissions due to special Optibelt tooth shape

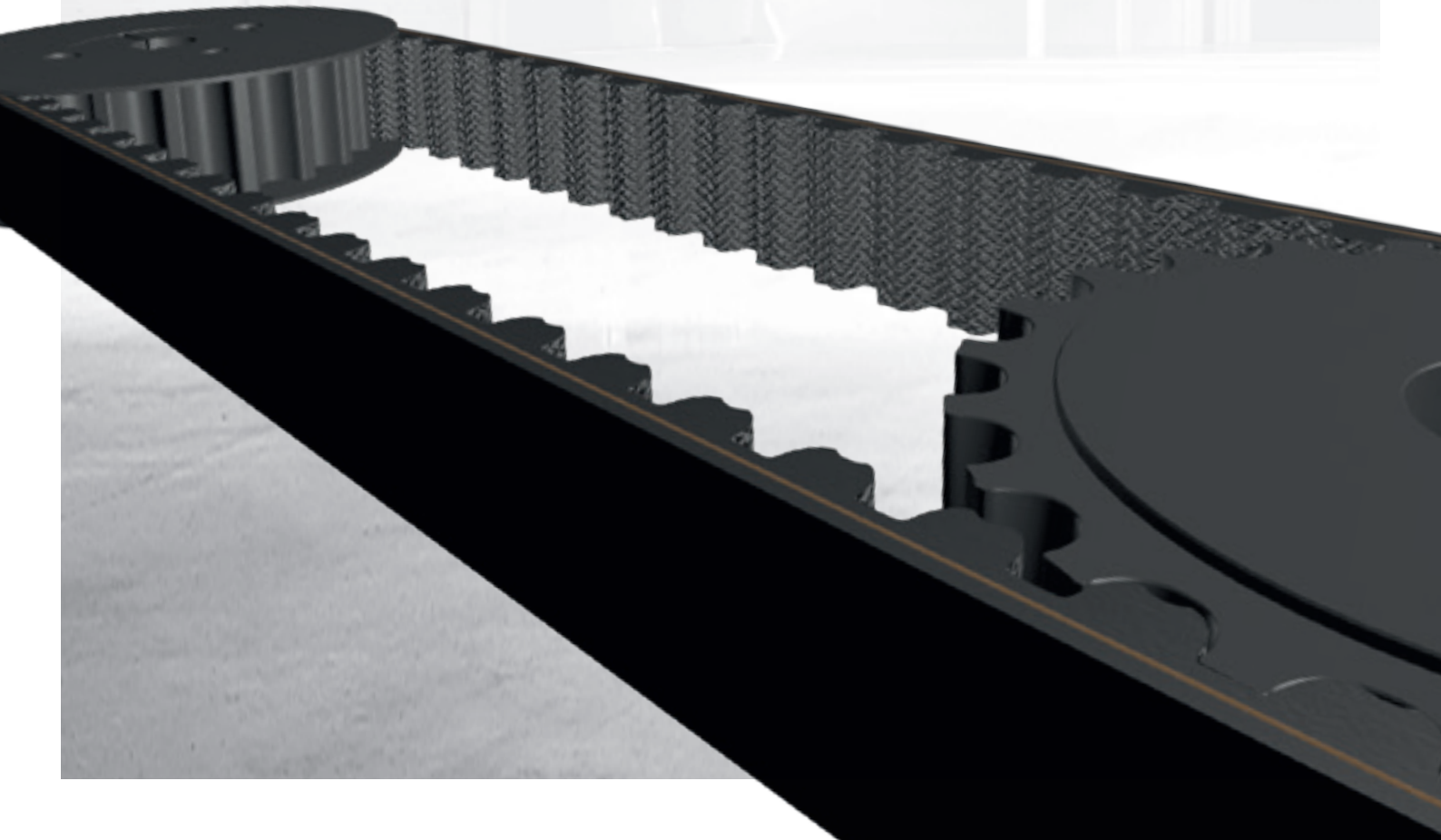
MORE EFFICIENT – MORE POWER
Up to 98 % efficiency

TEMPERATURE RESISTANCE
Temperature resistance from –30 °C to +100 °C

MAXIMUM ECONOMY
Maintenance-free

OPTIMAL COMPATIBILITY
Suitable in HTD and RPP pulleys

FLEXIBLE USE
No double stockholding



1 PRODUCT DESCRIPTION

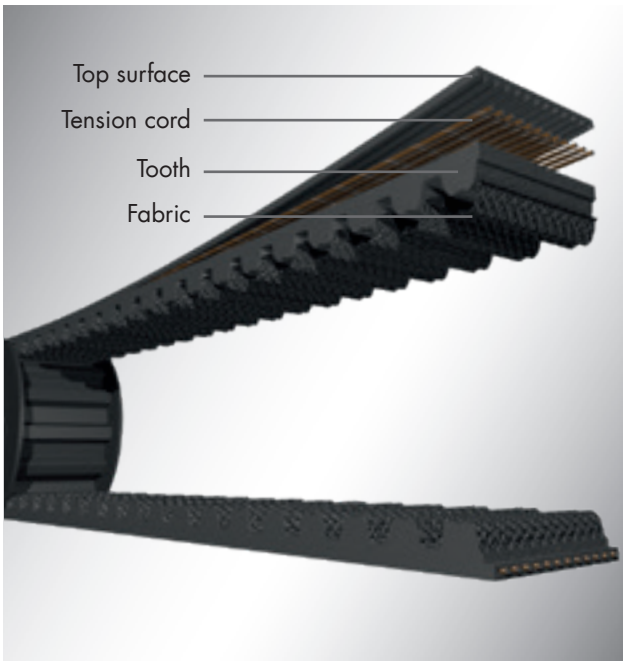
1.4 PRODUCTS IN BASIC DESIGN

optibelt OMEGA TIMING BELT



TOP SURFACE

The belt top surface is made from a flexible polychloroprene rubber compound that protects the tensile member from external influences. It has a limited resistance to mineral oils and humidity. The top surface protects the tension cord from wear and tear due to friction from using a tension idler, etc.



TENSION CORD

The tensile member consists of counter-twisted glass fibres that are helically coiled in pairs and integrated into the belt top surface. The glass fibre tension cord offers high tensile strength and is extremely flexible. The very low elongation ensures that the pitch of the belt corresponds to the pitch of the pulley even under load.

TEETH

Just like the top surface, the teeth are made from a polychloroprene rubber compound. In combination with the fabric on the tooth side, this leads to a high tooth shear strength. The indentation in the tooth enables quiet running.

FABRIC

The polyamide fabric safeguards the tooth from premature wear and prevents fraying. The low friction value also ensures a low operating temperature and reduces noise levels.

The powerful optibelt OMEGA timing belts are the result of consistent further development. The company's wide-ranging experience with its optibelt ZR and optibelt HTD timing belts has been incorporated in this belt generation. Endless optibelt OMEGA timing belts set accents for synchronous power and positioning drives.

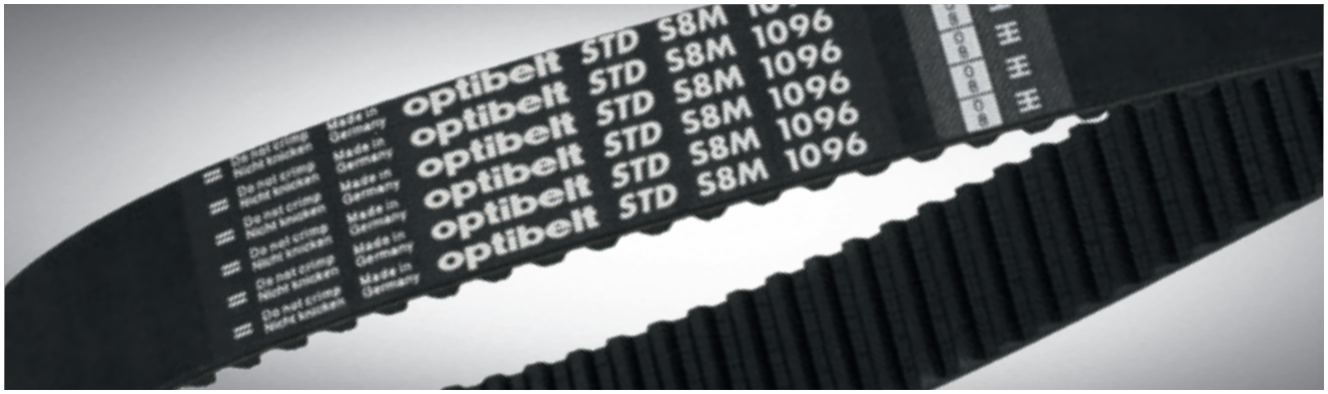
ADVANTAGES AND CHARACTERISTICS

- synchronous speed
- highest precision
- perceptibly lower noise level due to the optibelt OMEGA tooth profile
- for use in HTD and RPP timing belt pulleys
- maintenance-free
- temperature resistant from –30 °C to +100 °C
- up to 98 % efficiency

1 PRODUCT DESCRIPTION

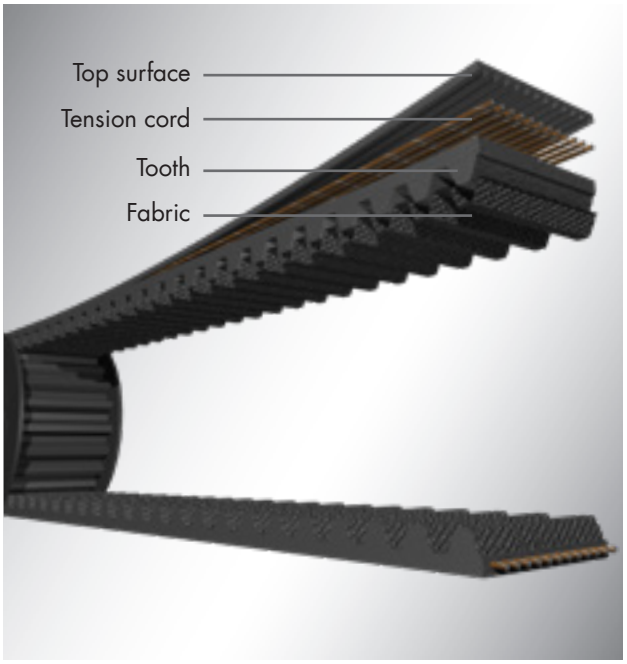
1.4 PRODUCTS IN BASIC DESIGN

optibelt STD TIMING BELT



TOP SURFACE

The belt top surface is made from a flexible polychloroprene rubber compound that protects the tensile member from external influences. It has a limited resistance to mineral oils and humidity. The top surface protects the tension cord from wear and tear due to friction from using a tension idler, etc.



TENSION CORD

The tension element consists of counter-twisted glass fibres that are helically coiled in pairs and integrated into the belt top surface. The glass fibre tension cord offers high tensile strength and is extremely flexible. The very low elongation ensures that the pitch of the belt corresponds to the pitch of the pulley even under load.

TEETH

Just like the top surface, the teeth are made from a polychloroprene rubber compound. In combination with the fabric on the tooth side, this leads to a high tooth shear strength. The STD tooth form enables quiet running.

FABRIC

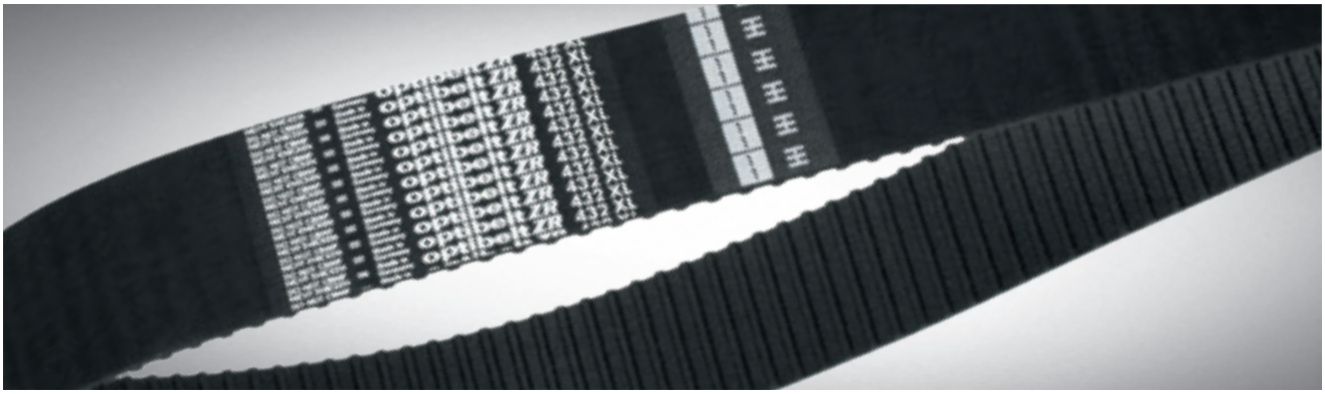
The polyamide fabric safeguards the tooth from premature wear and prevents fraying. The low friction value also ensures a low operating temperature and reduces noise levels.

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1 PRODUCT DESCRIPTION

1.4 PRODUCTS IN BASIC DESIGN

optibelt ZR TIMING BELT



TOP SURFACE

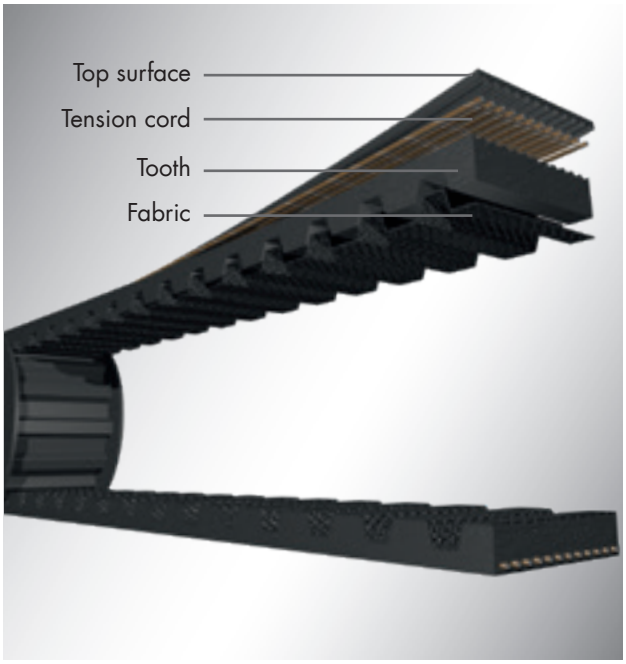
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FABRIC

The polyamide fabric safeguards the tooth from premature wear and prevents fraying. The low friction value also ensures a low operating temperature and reduces noise levels.

1 PRODUCT DESCRIPTION

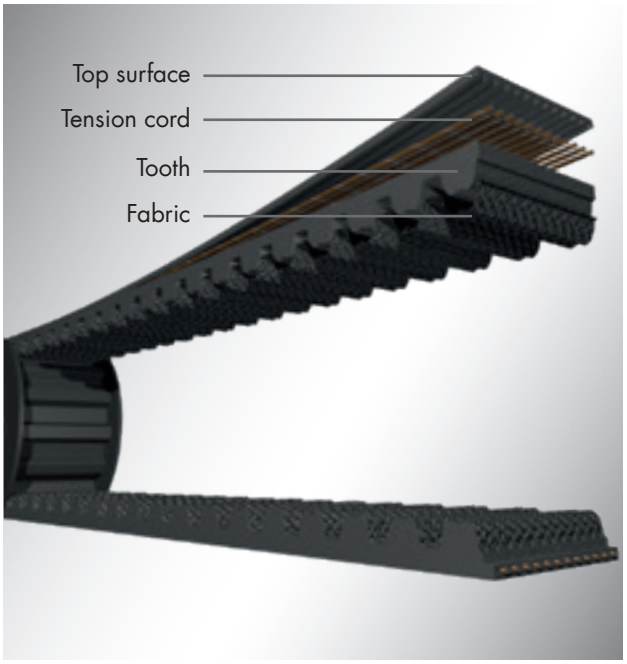
1.5 PRODUCTS IN HP DESIGN

optibelt OMEGA HP TIMING BELT



TOP SURFACE

The belt top surface is made from a flexible polychloroprene rubber compound that is reinforced with aramid fibres and protects the tensile member from external influences. It has a limited resistance to mineral oils and humidity. The top surface protects the tension cord from wear and tear due to friction from using a tension idler, etc.



TENSION CORD

The tension element consists of counter-twisted glass fibres that are helically coiled in pairs and integrated into the belt top surface. The glass fibre tension cord offers high tensile strength and is extremely flexible. The very low elongation ensures that the pitch of the belt corresponds to the pitch of the pulley even under load.

TEETH

Just like the top surface, the teeth are made from a polychloroprene rubber compound reinforced with aramid fibres. In combination with the fabric on the tooth side, this leads to a high tooth shear strength. The indentation in the tooth enables quiet running.

FABRIC

The tooth shear strength is enhanced with a strong fabric with good adhesion. The form of the optibelt profile and the friction-reducing fabric make the teeth comparably quieter when meshing in the tooth gap of the timing belt pulley. The polyamide fabric is also extremely resistant to wear and tear and prevents fraying.

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1 PRODUCT DESCRIPTION

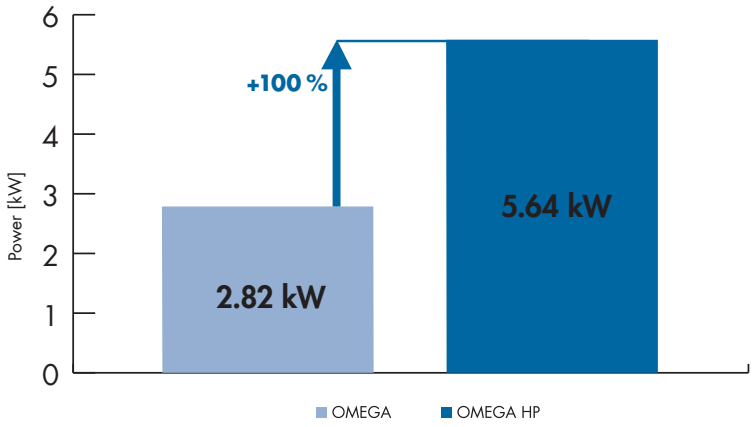
1.5 PRODUCTS IN HP DESIGN

optibelt OMEGA HP TIMING BELT

HIGH-PERFORMANCE TIMING BELTS FOR HEAVILY LOADED, FAST RUNNING MACHINE DRIVES WITH SMALL PROFILES

Compact synchronous drives are used throughout the entire spectrum of mechanical drive engineering. A high-performance capacity, good running behaviour and high operational reliability are just some of the requirements placed on timing belts. Modern manufacturing techniques and quality testing in all processing stages ensure products with maximum reliability and a consistently high-quality standard. optibelt OMEGA HP high-performance timing belts have been developed for heavily loaded, fast or slow running drives that are subject to even loading without heavy impacts. The profiles 2M, 3M and 5M in particular greatly surpass the performance of the basic version of the belt.

PERFORMANCE COMPARISON



ADVANTAGES AND CHARACTERISTICS

Due to the combination of a very dimensionally stable structure and good flexibility, very low permanent and elastic elongation of the cord, and a shear-resistant fabric with minimised friction and abrasion, it is possible to achieve the following:

- power transmission is approx. doubled; with the 5M HP profile, power transmission is approx. tripled in comparison with the basic version of the optibelt OMEGA timing belt
- suitable for low and high-speed drives with high dynamic loading
- good resistance during even running, with low and medium impact loading
- broad application spectrum
- electrical conductivity can be verified according to ISO 9563 on request

Since a lot less installation space is required compared to the basic version of the optibelt OMEGA timing belt, the following benefits arise:

- lower costs for belts and pulleys
- greater design freedom when configuring drives
- reduced shaft diameters and smaller bearings
- reduced noise
- improved efficiency

Significant system cost savings and high functional reliability can be obtained along with optimum efficiency in new drives.

1 PRODUCT DESCRIPTION

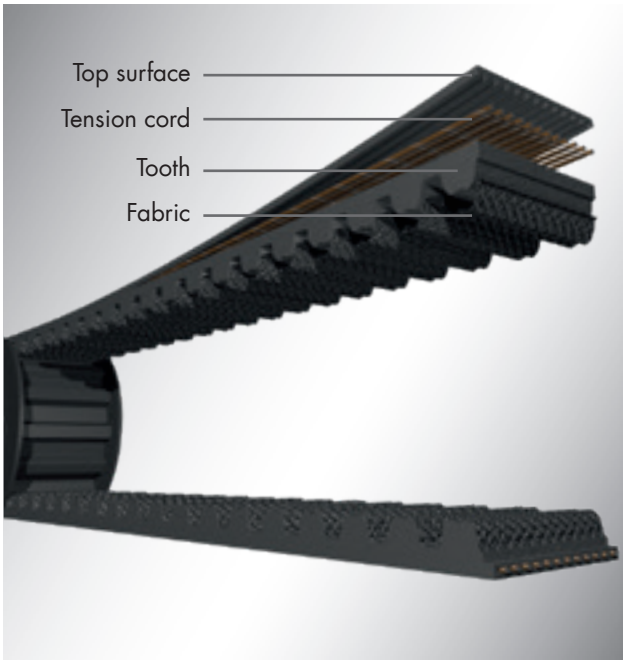
1.5 PRODUCTS IN HP DESIGN

optibelt STD HP TIMING BELT



TOP SURFACE

The belt top surface is made from a flexible polychloroprene rubber compound that is reinforced with aramid fibres and protects the tensile member from external influences. It has a limited resistance to mineral oils and humidity. The top surface protects the tension cord from wear and tear due to friction from using a tension idler, etc.



TENSION CORD

The tension element consists of counter-twisted glass fibres that are helically coiled in pairs and integrated into the belt top surface. The glass fibre tension cord offers high tensile strength and is extremely flexible. The very low elongation ensures that the pitch of the belt corresponds to the pitch of the pulley even under load.

TEETH

Just like the top surface, the teeth are made from a polychloroprene rubber compound reinforced with aramid fibres. In combination with the fabric on the tooth side, this leads to a high tooth shear strength. The STD tooth form enables quiet running.

FABRIC

The tooth shear strength is enhanced with a strong fabric with good adhesion. The form of the STD profile and the friction-reducing fabric make the teeth comparably quieter when meshing in the tooth gap of the timing belt pulley. The polyamide fabric is also extremely resistant to wear and tear and prevents fraying.

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1 PRODUCT DESCRIPTION

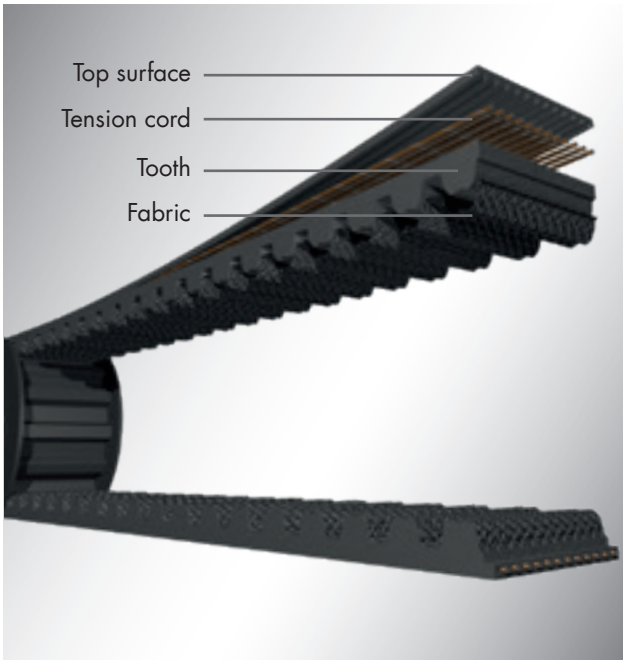
1.5 PRODUCTS IN HP DESIGN

optibelt OMEGA FAN POWER TIMING BELT



TOP SURFACE

The belt top surface is made from a flexible polychloroprene rubber compound that is reinforced with aramid fibres and protects the tensile member from external influences. It has a limited resistance to mineral oils and humidity. The top surface protects the tension cord from wear and tear due to friction from using a tension idler, etc.



TENSION CORD

The tension element consists of counter-twisted glass fibres that are helically coiled in pairs and integrated into the belt top surface. The glass fibre tension cord offers high tensile strength and is extremely flexible. The very low elongation ensures that the pitch of the belt corresponds to the pitch of the pulley even under load.

TEETH

Just like the top surface, the teeth are made from a polychloroprene rubber compound reinforced with aramid fibres. In combination with the fabric on the tooth side, this leads to a high tooth shear strength. The indentation in the tooth enables quiet running.

FABRIC

The tooth shear strength is enhanced with a strong fabric with good adhesion. The form of the Optibelt profile and the friction-reducing fabric make the teeth comparably quieter when meshing in the tooth gap of the timing belt pulley. The polyamide fabric is also extremely resistant to wear and tear and prevents fraying.

HIGH-PERFORMANCE TIMING BELTS FOR FAN DRIVES IN THE OIL INDUSTRY

Fan drives in the oil industry with medium to high transmission ratios face steep requirements:

- anti-static in accordance with ISO 9563
- optimised for low tooth meshing wear
- long service life
- maintenance-free
- high efficiency
- constant flow of air thanks to synchronous operation
- resistant to external influences such as variations in temperature and moisture

1 PRODUCT DESCRIPTION

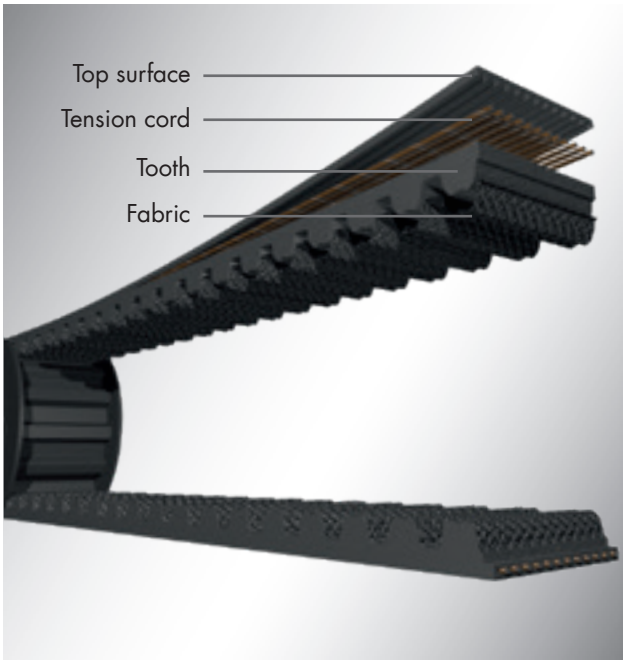
1.6 PRODUCTS IN HIGH POWER DESIGN

optibelt OMEGA High Power TIMING BELT



TOP SURFACE

The newly developed polychloroprene rubber compound with a very high proportion of aramid fibre reinforces the belt top surface and protects the tensile member against external influences. It has a limited resistance to mineral oils and humidity. The top surface protects the tension cord from wear and tear due to friction from using a tension idler, etc.



TENSION CORD

The newly developed glass fibre tension cord with even higher adherence offers high tensile strength and is extremely flexible. The tension cord consists of counter-twisted glass fibres that are helically coiled in pairs and integrated into the belt top surface. The very low elongation ensures that the pitch of the belt corresponds to the pitch of the pulley even under load.

TEETH

Just like the top surface, the teeth are made from a newly developed polychloroprene rubber compound reinforced with a particularly high proportion of aramid fibres. In combination with the fabric on the tooth side, this leads to a high tooth shear strength and performance is increased even further.
The indentation in the tooth enables quiet running.

FABRIC

The tooth shear strength is enhanced with a strong coated fabric with very good adhesion. The form of the optibelt profile and the friction-reducing fabric make the teeth comparably quieter when meshing in the tooth gap of the timing belt pulley. The polyamide fabric with the newly developed adherence system is also extremely resistant to wear and tear and prevents fraying.

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1 PRODUCT DESCRIPTION

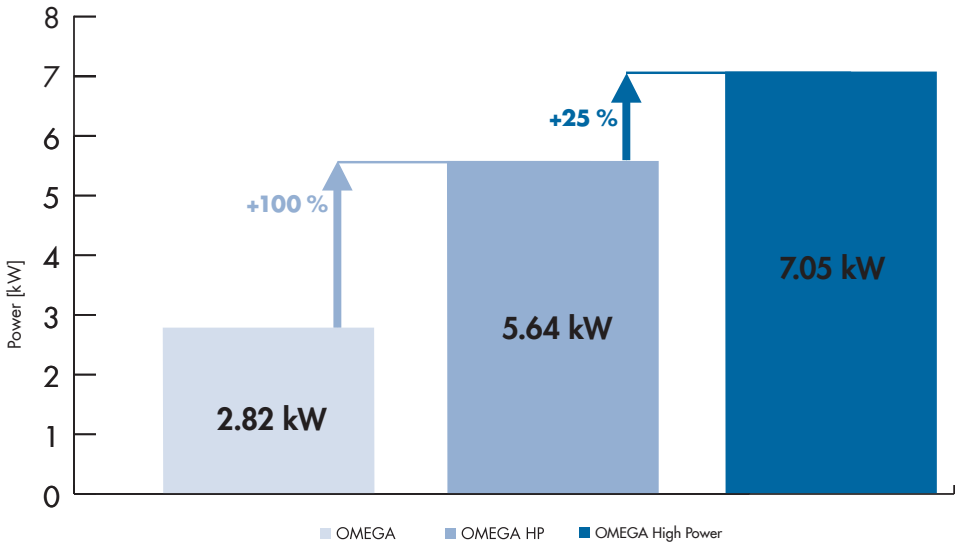
1.6 PRODUCTS IN HIGH POWER DESIGN

optibelt OMEGA High Power TIMING BELT

THE HIGH-PERFORMANCE TIMING BELT FOR HIGH LOAD, FAST-RUNNING MACHINE DRIVES

Compact synchronous drives are used throughout the entire spectrum of mechanical drive engineering. A high-performance capacity, good running behaviour and high operational reliability are just some of the requirements placed on timing belts. Modern manufacturing techniques and quality testing in all processing stages ensure products with maximum reliability and a consistently high-quality standard. optibelt OMEGA High Power high-performance timing belts have been specially developed for very heavily loaded, fast or slow running drives that are subject to even loading without heavy impacts. This extremely high level of performance is based on improved materials and an optimised combination of these materials.

PERFORMANCE COMPARISON



ADVANTAGES AND CHARACTERISTICS

Due to the combination of a very dimensionally stable structure and good flexibility, very low permanent and elastic elongation of the cord, and a shear-resistant fabric with minimised friction and abrasion, it is possible to achieve the following:

- up to 2.5 times the power transmission capacity of the basic OMEGA timing belts, or a performance increase of up to +150 %
- an increase of around 25 % in power transmission compared to the proven high-performance optibelt OMEGA HP
- suitable for low and high-speed drives with high dynamic loading
- good resistance during even running, with low and medium impact loading
- broad application spectrum
- electrical conductivity can be verified according to ISO 9563 on request

Since less installation space is required compared to the optibelt OMEGA HP, and especially compared to the basic version of the optibelt OMEGA timing belt, the following benefits arise:

- lower costs for belts and pulleys
- greater design freedom when configuring drives
- reduced shaft diameters and smaller bearings
- reduced noise
- improved efficiency

Significant system cost savings and high functional reliability can be obtained along with optimum efficiency in new drives.

1 PRODUCT DESCRIPTION

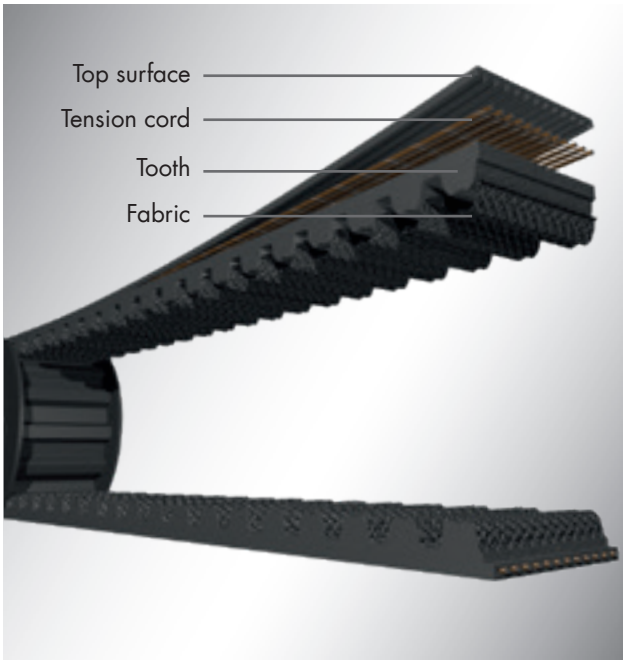
1.7 PRODUCTS IN HIGH LOAD DESIGN

optibelt OMEGA High Load TIMING BELT



TOP SURFACE

The newly developed polychloroprene rubber compound with a very high proportion of aramid fibre reinforces the belt top surface and protects the tensile member against external influences. It has a limited resistance to mineral oils and humidity. The top surface protects the tension cord from wear and tear due to friction from using a tension idler, etc.



TENSION CORD

In contrast to optibelt OMEGA High Power, optibelt OMEGA High Load contains a reinforced glass cord. The glass cord provides a higher breaking strength and lower stretch. This increases performance by up to another 30 % in comparison with optibelt OMEGA High Power. The tension cord is particularly resistant against shock loads.

TEETH

Just like the top surface, the teeth are made from a newly developed polychloroprene rubber compound reinforced with a particularly high proportion of aramid fibres. In combination with the fabric on the tooth side, this leads to a high tooth shear strength and performance is increased even further. The indentation in the tooth enables quiet running.

FABRIC

The tooth shear strength is enhanced with a strong coated fabric with very good adhesion. The form of the Optibelt profile and the friction-reducing fabric make the teeth comparably quieter when meshing in the tooth gap of the timing belt pulley. The polyamide fabric with the newly developed adherence system is also extremely resistant to wear and tear and prevents fraying.

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1 PRODUCT DESCRIPTION

1.7 PRODUCTS IN HIGH LOAD DESIGN

optibelt OMEGA High Load TIMING BELT

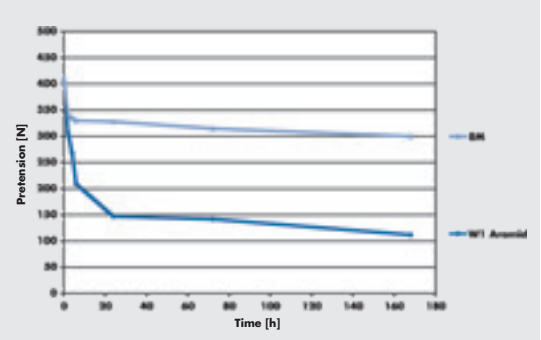
THE HIGH-PERFORMANCE TIMING BELT FOR PARTICULARLY HIGH LOADS ACROSS THE ENTIRE RANGE OF SPEEDS

The optibelt OMEGA High Load with 8M and 14M profiles has been specially designed for drives with high torques and high shock loads. The design and the material of the timing belt have been optimised so that the highest functional reliability and optimum efficiency are achieved when a drive is reconfigured.
The innovative glass cord used in the belt is characterised by the following properties:

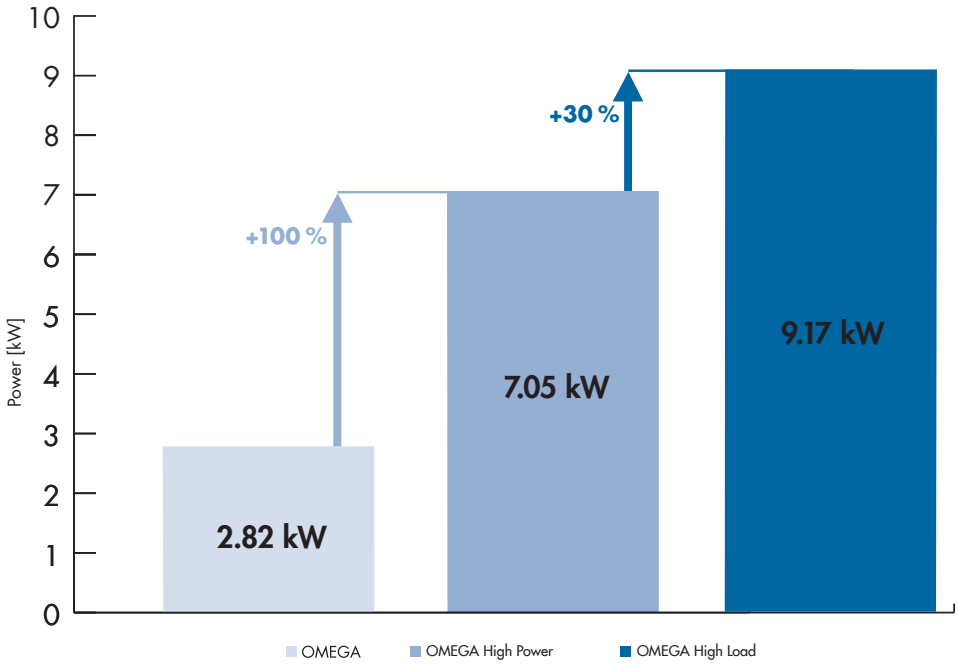
- good resistance to shock loads
- excellent resistance to dynamic loading
- very low permanent and elastic elongation

The diagram opposite shows the advantages of the reinforced glass-fibre tension cord compared to a rival aramid tension cord. The pretensioning loss of the optibelt OMEGA High Load under load is minimal compared to that of the aramid cord. This means that the pitch is maintained and the teeth are evenly loaded. The optibelt OMEGA High Load also demonstrates its strength in the medium and high-speed ranges – which expands its area of application even further.

TENSION LOSS



PERFORMANCE COMPARISON



ADVANTAGES AND CHARACTERISTICS

Due to the combination of a very dimensionally stable structure and good flexibility, very low permanent and elastic longation of the cord, and a shear-resistant fabric with minimised friction and abrasion, it is possible to achieve the following:

- up to 3 times the power transmission capacity of the basic OMEGA timing belts, or a performance increase of up to +222 %
- an increase of around 30 % in power transmission compared to the proven high-performance optibelt OMEGA High Power
- suitable for low and high-speed drives with high dynamic loading
- good resistance even to medium and high shock loads

1 PRODUCT DESCRIPTION

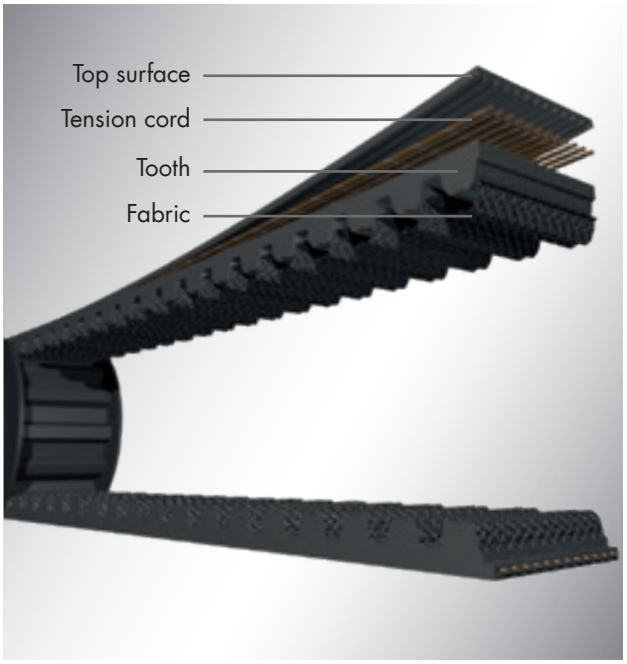
1.8 PRODUCTS IN EPDM DESIGN

optibelt OMEGA High Power/High Load EPDM TIMING BELT



TOP SURFACE

The flexible EPDM rubber compound with a high proportion of aramid fibre reinforces the belt top surface and protects against external influences. It has a limited resistance to humidity.
The top surface protects the tension cord from wear and tear due to friction from using a tension idler, etc. The EPDM material provides very high resistance to cold and heat.



TENSION CORD

The newly developed glass fibre tension cord with even higher adherence offers high tensile strength and is extremely flexible. The tension cord consists of counter-twisted glass fibres that are helically coiled in pairs and integrated into the belt top surface.

In contrast to optibelt OMEGA High Power EPDM, optibelt OMEGA High Load EPDM contains a reinforced glass cord. The glass cord provides a higher breaking strength and lower stretch. The tension cord is particularly resistant against shock loads.

TEETH

Just like the top surface, the teeth are made from a newly developed EPDM rubber compound reinforced with a particularly high proportion of aramid fibres. In combination with the fabric on the tooth side, this leads to a high tooth shear strength and performance is increased even further. The indentation in the tooth enables quiet running.

FABRIC

The tooth shear strength is enhanced with a strong coated fabric with very good adhesion. The form of the Optibelt profile and the friction-reducing fabric make the teeth comparably quieter when meshing in the tooth gap of the timing belt pulley.
The polyamide fabric with the newly developed adherence system is also extremely resistant to wear and tear and prevents fraying.

 © OPTIBELT GMBH, GERMANY

1 PRODUCT DESCRIPTION

1.8 PRODUCTS IN EPDM DESIGN

optibelt OMEGA High Power/High Load EPDM TIMING BELT

THE HIGH-PERFORMANCE TIMING BELT FOR AREAS OF APPLICATIONS WITH SPECIAL THERMAL REQUIREMENTS

The optibelt OMEGA High Power EPDM timing belt and the OMEGA High Load EPDM timing belt were specially developed for use in very cold or very hot areas of application. The used EPDM rubber compound makes the belts impervious to temperature ranges from –40 °C to +140 °C. In addition to temperature-specific advantages, they retain the level of performance of High Power or High Load timing belts.

Optibelt timing belts with EPDM rubber compound are available with the following profiles:

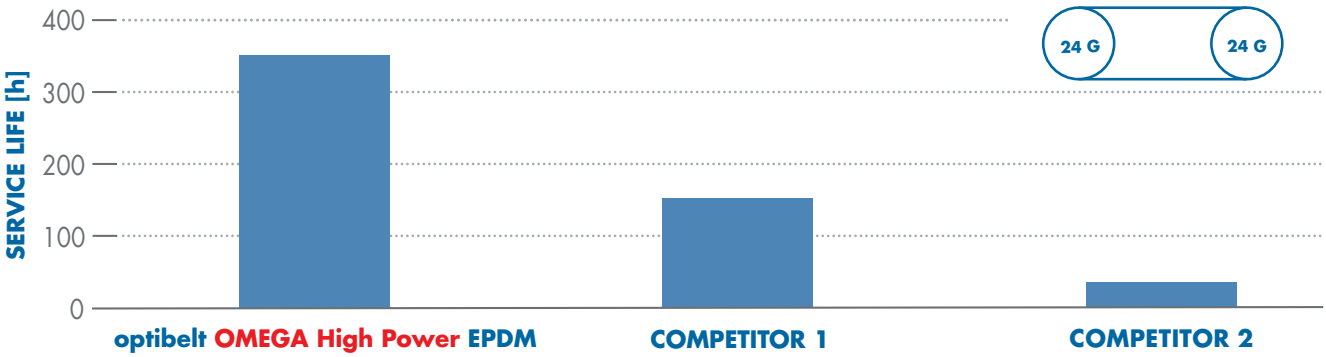
- optibelt OMEGA High Power EPDM with profiles 8M and 14M from a length of 600 mm
- optibelt OMEGA High Load EPDM with profiles 8M and 14M from a length of 600 mm
- shorter lengths available on request. For further information please contact the Optibelt Application Engineering department.

ADVANTAGES AND CHARACTERISTICS

Due to the combination of a very dimensionally stable structure and good flexibility, very low permanent and elastic elongation of the cord, and a shear-resistant fabric with minimised friction and abrasion, it is possible to achieve the following:

- performance analogous to High Power/High Load timing belts in 8M and 14M
- temperature resistant from –40 °C to +140 °C
- very good flexibility even after long periods of standing still at –40 °C, for lower power consumption of the drive motor
- meets ISO 9563 anti-static requirements
- complies with the requirements of RoHS and REACH
- ozone and UV-resistant

optibelt OMEGA High Power EPDM 8M ENDURANCE TEST AT –48 °C



AREAS OF APPLICATION

- train doors and steps in extremely cold areas
- shuttle systems and automatic doors in cold rooms
- fans in the oil and chemical industry in extremely cold areas



TRAIN DOORS



SHUTTLE SYSTEMS



FANS

Upon request, the profile 5M is available in basic design, as well as profiles 8M and 14M in HP design in EPDM.

1 PRODUCT DESCRIPTION
1.9 PRODUCT PROFILE OVERVIEW

	Profile group	Optibelt profile							
Product group	Product/profile	2M	3M	5M	8M	14M	D5M	D8M	D14M
Basic design	OMEGA		X	X	X	X	X	X	X
	STD								
	ZR								
	OMEGA EPDM			X					
HP design	HP	X	X	X	X	X			
	STD HP								
	FAN POWER				X	X			
High Power design	High Power				X	X		X	X
	High Power EPDM				X	X			
High Load design	High Load				X	X			
	High Load EPDM				X	X			

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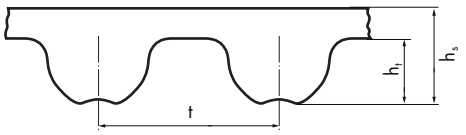
	Profile group	STD profile			ZR profile					
Product group	Product/profile	S5M	S8M	DS8M	MXL	XL	L	H	XH	XXH
Basic design	OMEGA									
	STD	X	X	X						
	ZR				X	X	X	X	X	X
	OMEGA EPDM									
HP design	HP									
	STD HP		X	X						
	Fan Power									
High Power design	High Power		X	X						
	High Power EPDM		X							
High Load design	High Load		X							
	High Load EPDM		X							

1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt OMEGA IN PROFILE 3M

Profile	3M
t [mm]	3.0
h_s [mm]	2.3
h_t [mm]	1.1



optibelt OMEGA in profile 3M					
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
111 3M	111.00	37	255 3M	255.00	85
117 3M (HTD)•	117.00	39	267 3M	267.00	89
120 3M (HTD)•	120.00	40	276 3M	276.00	92
123 3M (HTD)•	123.00	41	282 3M•	282.00	94
126 3M (HTD)•	126.00	42	285 3M	285.00	95
129 3M	129.00	43	288 3M	288.00	96
141 3M	141.00	47	291 3M	291.00	97
144 3M	144.00	48	294 3M	294.00	98
150 3M	150.00	50	300 3M	300.00	100
156 3M (HTD)•	156.00	52	306 3M (HTD)•	306.00	102
159 3M	159.00	53	312 3M	312.00	104
165 3M	165.00	55	315 3M	315.00	105
168 3M	168.00	56	318 3M	318.00	106
171 3M	171.00	57	330 3M	330.00	110
174 3M	174.00	58	333 3M	333.00	111
177 3M	177.00	59	336 3M (HTD)	336.00	112
180 3M	180.00	60	339 3M	339.00	113
183 3M	183.00	61	345 3M	345.00	115
186 3M	186.00	62	357 3M	357.00	119
192 3M	192.00	64	363 3M	363.00	121
195 3M	195.00	65	366 3M	366.00	122
201 3M	201.00	67	384 3M	384.00	128
204 3M	204.00	68	390 3M	390.00	130
207 3M	207.00	69	411 3M	411.00	137
210 3M	210.00	70	420 3M	420.00	140
213 3M	213.00	71	426 3M	426.00	142
216 3M (HTD)	216.00	72	435 3M•	435.00	145
219 3M•	219.00	73	447 3M	447.00	149
225 3M	225.00	75	462 3M	462.00	154
237 3M•	237.00	79	474 3M	474.00	158
240 3M	240.00	80	477 3M (HTD)•	477.00	159
243 3M (HTD)•	243.00	81	480 3M	480.00	160
246 3M	246.00	82	486 3M	486.00	162
249 3M•	249.00	83	489 3M (HTD)•	489.00	163
252 3M	252.00	84	495 3M	495.00	165

Standard widths: 6 mm, 9 mm, 15 mm
• Non stock item

Example order: Timing belt: optibelt OMEGA 150 3M 15

150 = 150 mm pitch length
3M = profile
15 = 15 mm belt width

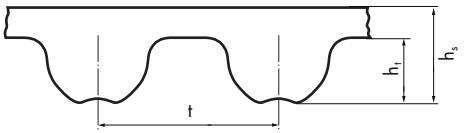
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1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt OMEGA IN PROFILE 3M

Profile	3M
t [mm]	3.0
h_s [mm]	2.3
h_t [mm]	1.1



optibelt OMEGA in profile 3M					
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
501 3M	501.00	167	1062 3M	1062.00	354
513 3M	513.00	171	1068 3M (HTD)•	1068.00	356
519 3M	519.00	173	1071 3M (HTD)	1071.00	357
522 3M	522.00	174	1125 3M (HTD)•	1125.00	375
525 3M	525.00	175	1176 3M (HTD)•	1176.00	392
531 3M	531.00	177	1245 3M (HTD)•	1245.00	415
537 3M	537.00	179	1263 3M (HTD)	1263.00	421
558 3M	558.00	186	1500 3M (HTD)•	1500.00	500
564 3M	564.00	188	1530 3M (HTD)•	1530.00	510
570 3M	570.00	190	1569 3M	1569.00	523
582 3M	582.00	194	1587 3M•	1587.00	529
591 3M (HTD)•	591.00	197	1692 3M•	1692.00	564
594 3M (HTD)•	594.00	198	1863 3M (HTD)	1863.00	621
597 3M	597.00	199			
600 3M	600.00	200			
606 3M	606.00	202			
612 3M (HTD)•	612.00	204			
615 3M	615.00	205			
633 3M	633.00	211			
648 3M (HTD)•	648.00	216			
669 3M	669.00	223			
672 3M (HTD)•	672.00	224			
675 3M	675.00	225			
708 3M (HTD)•	708.00	236			
711 3M	711.00	237			
738 3M	738.00	246			
753 3M (HTD)	753.00	251			
804 3M	804.00	268			
816 3M	816.00	272			
843 3M	843.00	281			
882 3M	882.00	294			
888 3M	888.00	296			
945 3M (HTD)	945.00	315			
960 3M (HTD)•	960.00	320			
1041 3M (HTD)•	1041.00	347			

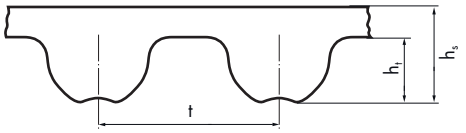
Standard widths: 6 mm, 9 mm, 15 mm
• Non stock item

1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt OMEGA IN PROFILE 5M

Profile	5M
t [mm]	5.00
h_s [mm]	3.40
h_t [mm]	1.90



optibelt OMEGA in profile 5M					
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
120 5M (HTD)	120.00	24	560 5M	560.00	112
180 5M	180.00	36	565 5M	565.00	113
225 5M	225.00	45	575 5M	575.00	115
255 5M	255.00	51	580 5M	580.00	116
265 5M	265.00	53	600 5M	600.00	120
270 5M	270.00	54	610 5M	610.00	122
275 5M	275.00	55	615 5M	615.00	123
280 5M	280.00	56	620 5M	620.00	124
295 5M	295.00	59	625 5M	625.00	125
300 5M	300.00	60	630 5M	630.00	126
305 5M	305.00	61	635 5M	635.00	127
325 5M	325.00	65	640 5M	640.00	128
330 5M	330.00	66	645 5M	645.00	129
340 5M	340.00	68	650 5M	650.00	130
345 5M (HTD)	345.00	69	655 5M	655.00	131
350 5M	350.00	70	665 5M	665.00	133
360 5M	360.00	72	670 5M	670.00	134
365 5M	365.00	73	700 5M	700.00	140
370 5M	370.00	74	710 5M	710.00	142
375 5M	375.00	75	720 5M	720.00	144
385 5M	385.00	77	740 5M	740.00	148
400 5M	400.00	80	745 5M•	745.00	149
415 5M	415.00	83	750 5M	750.00	150
420 5M	420.00	84	755 5M	755.00	151
425 5M	425.00	85	775 5M	775.00	155
450 5M	450.00	90	790 5M	790.00	158
460 5M	460.00	92	800 5M	800.00	160
475 5M	475.00	95	810 5M•	810.00	162
490 5M	490.00	98	825 5M	825.00	165
500 5M	500.00	100	830 5M	830.00	166
520 5M	520.00	104	835 5M	835.00	167
525 5M	525.00	105	845 5M•	845.00	169
535 5M	535.00	107	850 5M	850.00	170
540 5M	540.00	108	860 5M	860.00	172
550 5M	550.00	110	870 5M•	870.00	174

Standard widths: 9 mm, 15 mm, 25 mm
• Non stock item

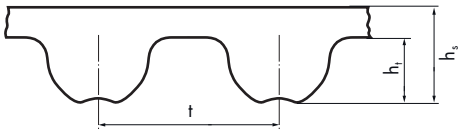
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1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt OMEGA IN PROFILE 5M

Profile	5M
t [mm]	5.00
h_s [mm]	3.40
h_t [mm]	1.90



optibelt OMEGA in profile 5M					
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
890 5M	890.00	178	2250 5M	2250.00	450
900 5M	900.00	180	2350 5M	2350.00	470
920 5M•	920.00	184	2525 5M	2525.00	505
925 5M	925.00	185			
935 5M	935.00	187			
940 5M	940.00	188			
950 5M	950.00	190			
960 5M•	960.00	192			
965 5M	965.00	193			
975 5M	975.00	195			
980 5M	980.00	196			
985 5M•	985.00	197			
1000 5M	1000.00	200			
1025 5M	1025.00	205			
1035 5M	1035.00	207			
1050 5M	1050.00	210			
1100 5M	1100.00	220			
1125 5M	1125.00	225			
1135 5M	1135.00	227			
1200 5M	1200.00	240			
1270 5M	1270.00	254			
1350 5M•	1350.00	270			
1380 5M	1380.00	276			
1400 5M	1400.00	280			
1420 5M	1420.00	284			
1425 5M	1425.00	285			
1500 5M	1500.00	300			
1595 5M	1595.00	319			
1690 5M	1690.00	338			
1790 5M	1790.00	358			
1800 5M	1800.00	360			
1870 5M	1870.00	374			
1895 5M	1895.00	379			
2000 5M	2000.00	400			
2110 5M	2110.00	422			

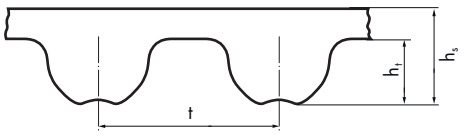
Standard widths: 9 mm, 15 mm, 25 mm
• Non stock item

1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt OMEGA IN PROFILE 8M

Profile	8M
t [mm]	8.00
h_s [mm]	5.40
h_t [mm]	3.20



optibelt OMEGA in profile 8M								
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
288 8M	288.00	36	912 8M	912.00	114	1432 8M (HTD)	1432.00	179
320 8M (HTD)	320.00	40	920 8M	920.00	115	1440 8M	1440.00	180
352 8M	352.00	44	936 8M	936.00	117	1480 8M	1480.00	185
376 8M	376.00	47	960 8M	960.00	120	1520 8M	1520.00	190
416 8M	416.00	52	968 8M	968.00	121	1552 8M	1552.00	194
424 8M	424.00	53	976 8M	976.00	122	1584 8M	1584.00	198
480 8M	480.00	60	1000 8M	1000.00	125	1600 8M	1600.00	200
512 8M	512.00	64	1040 8M	1040.00	130	1680 8M	1680.00	210
520 8M	520.00	65	1056 8M	1056.00	132	1696 8M	1696.00	212
536 8M	536.00	67	1064 8M	1064.00	133	1728 8M	1728.00	216
560 8M	560.00	70	1080 8M	1080.00	135	1760 8M	1760.00	220
576 8M	576.00	72	1096 8M	1096.00	137	1800 8M	1800.00	225
584 8M	584.00	73	1120 8M	1120.00	140	1896 8M	1896.00	237
600 8M	600.00	75	1128 8M	1128.00	141	1904 8M	1904.00	238
608 8M	608.00	76	1152 8M•	1152.00	144	1936 8M	1936.00	242
624 8M	624.00	78	1160 8M	1160.00	145	2000 8M	2000.00	250
632 8M	632.00	79	1168 8M	1168.00	146	2080 8M	2080.00	260
640 8M	640.00	80	1184 8M	1184.00	148	2104 8M	2104.00	263
656 8M	656.00	82	1192 8M•	1192.00	149	2240 8M	2240.00	280
672 8M•	672.00	84	1200 8M	1200.00	150	2248 8M	2248.00	281
680 8M	680.00	85	1216 8M	1216.00	152	2272 8M	2272.00	284
712 8M	712.00	89	1224 8M	1224.00	153	2400 8M	2400.00	300
720 8M	720.00	90	1248 8M	1248.00	156	2504 8M	2504.00	313
744 8M•	744.00	93	1256 8M	1256.00	157	2600 8M	2600.00	325
760 8M	760.00	95	1264 8M•	1264.00	158	2800 8M	2800.00	350
776 8M	776.00	97	1280 8M	1280.00	160	3048 8M	3048.00	381
784 8M	784.00	98	1296 8M•	1296.00	162	3280 8M	3280.00	410
792 8M•	792.00	99	1304 8M	1304.00	163	3600 8M	3600.00	450
800 8M	800.00	100	1320 8M	1320.00	165	4400 8M•*	4400.00	550
824 8M	824.00	103	1328 8M	1328.00	166			
840 8M	840.00	105	1344 8M	1344.00	168			
848 8M	848.00	106	1360 8M	1360.00	170			
856 8M	856.00	107	1392 8M	1392.00	174			
880 8M	880.00	110	1400 8M	1400.00	175			
896 8M	896.00	112	1424 8M	1424.00	178			

Standard widths: 20 mm, 30 mm, 50 mm, 85 mm
• Non stock item * Profile on request

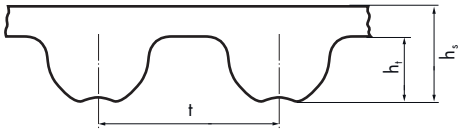
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1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt OMEGA IN PROFILE 14M

Profile	14M
t [mm]	14.00
h_s [mm]	9.50
h_t [mm]	5.60



optibelt OMEGA in profile 14M					
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
966 14M	966.00	69	2310 14M	2310.00	165
1092 14M	1092.00	78	2450 14M	2450.00	175
1190 14M	1190.00	85	2590 14M	2590.00	185
1344 14M	1344.00	96	2800 14M	2800.00	200
1400 14M	1400.00	100	3150 14M	3150.00	225
1456 14M	1456.00	104	3360 14M	3360.00	240
1512 14M	1512.00	108	3500 14M	3500.00	250
1610 14M	1610.00	115	3850 14M	3850.00	275
1680 14M	1680.00	120	4004 14M•*	4004.00	286
1778 14M	1778.00	127	4326 14M	4326.00	309
1890 14M	1890.00	135	4578 14M	4578.00	327
2100 14M	2100.00	150			

Standard widths: 40 mm, 55 mm, 85 mm, 115 mm, 170 mm

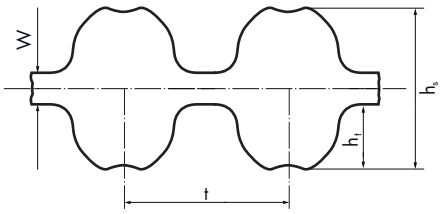
• Non stock item * Profile on request

1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt OMEGA IN PROFILE D5M

Profile	D5M
t [mm]	5.00
h_s [mm]	–
h_t [mm]	–



optibelt OMEGA in profile D5M					
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
565 D5M•	565.00	113			
600 D5M	600.00	120			
615 D5M	615.00	123			
630 D5M•	630.00	126			
635 D5M•	635.00	127			
665 D5M•	665.00	133			
700 D5M	700.00	140			
710 D5M•	710.00	142			
740 D5M •	740.00	148			
755 D5M	755.00	151			
800 D5M	800.00	160			
835 D5M	835.00	167			
890 D5M	890.00	178			
900 D5M•	900.00	180			
1000 D5M•	1000.00	200			
1050 D5M•	1050.00	210			
1125 D5M•	1125.00	225			
1200 D5M•	1200.00	240			

Standard widths: 9 mm, 15 mm, 25 mm
• Non stock item

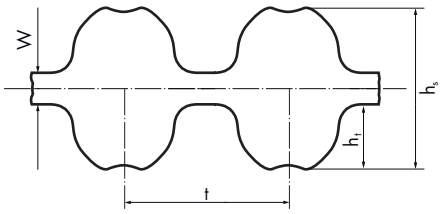
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1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt OMEGA IN PROFILE D8M

Profile	D8M
t [mm]	8.00
h_s [mm]	7.43
h_t [mm]	–



optibelt OMEGA in profile D8M					
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
600 D8M	600.00	75	1680 D8M •	1680.00	210
640 D8M	640.00	80	1696 D8M •	1696.00	212
656 D8M •	656.00	82	1728 D8M •	1728.00	216
720 D8M	720.00	90	1760 D8M	1760.00	220
776 D8M •	776.00	97	1800 D8M	1800.00	225
784 D8M	784.00	98	1904 D8M •	1904.00	238
800 D8M	800.00	100	1936 D8M •	1936.00	242
880 D8M	880.00	110	2000 D8M	2000.00	250
920 D8M	920.00	115	2080 D8M •	2080.00	260
960 D8M	960.00	120	2104 D8M •	2104.00	263
1040 D8M	1040.00	130	2240 D8M •	2240.00	280
1120 D8M	1120.00	140	2270 D8M •	2272.00	284
1128 D8M •	1128.00	141	2400 D8M	2400.00	300
1160 D8M •	1160.00	145	2504 D8M •	2504.00	313
1168 D8M •	1168.00	146	2600 D8M	2600.00	325
1184 D8M •	1184.00	148	2800 D8M	2800.00	350
1200 D8M	1200.00	150	3048 D8M •	3048.00	381
1224 D8M •	1224.00	153	3280 D8M	3280.00	410
1248 D8M	1248.00	156	3600 D8M	3600.00	450
1256 D8M •	1256.00	157			
1264 D8M •	1264.00	158			
1280 D8M	1280.00	160			
1304 D8M •	1304.00	163			
1320 D8M •	1320.00	165			
1328 D8M	1328.00	166			
1344 D8M •	1344.00	168			
1360 D8M	1360.00	170			
1400 D8M	1400.00	175			
1424 D8M	1424.00	178			
1440 D8M	1440.00	180			
1480 D8M •	1480.00	185			
1520 D8M	1520.00	190			
1552 D8M •	1552.00	194			
1584 D8M •	1584.00	198			
1600 D8M	1600.00	200			

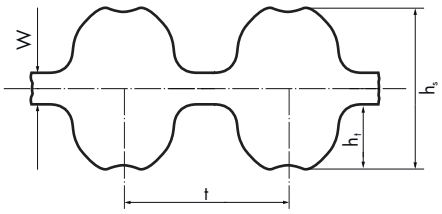
Standard widths: 20 mm, 30 mm, 50 mm, 85 mm
• Non stock item

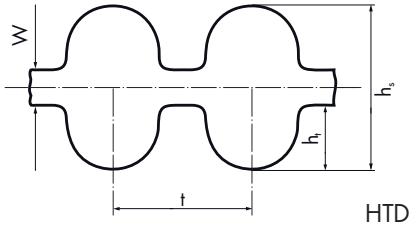
1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt OMEGA IN PROFILE D14M

Profile	D14M	D14M HTD
t [mm]	14.00	14.00
h_s [mm]	13.60	14.834
h_t [mm]	–	–





HTD

optibelt OMEGA in profile D14M					
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
966 D14M •(HTD)	966.00	69	2310 D14M	2310.00	165
1190 D14M	1190.00	85	2450 D14M	2450.00	175
1288 D14M	1288.00	92	2590 D14M	2590.00	185
1330 D14M	1330.00	95	2660 D14M	2660.00	190
1344 D14M	1344.00	96	2800 D14M	2800.00	200
1400 D14M	1400.00	100	2940 D14M	2940.00	210
1456 D14M	1456.00	104	2968 D14M •(HTD)	2968.00	212
1512 D14M	1512.00	108	3150 D14M	3150.00	225
1540 D14M	1540.00	110	3360 D14M	3360.00	240
1610 D14M	1610.00	115	3500 D14M	3500.00	250
1680 D14M	1680.00	120	3850 D14M	3850.00	275
1778 D14M	1778.00	127	4004 D14M	4004.00	286
1890 D14M	1890.00	135	4326 D14M	4326.00	309
2100 D14M	2100.00	150	4578 D14M	4578.00	327
			4956 D14M •(HTD)	4956.00	354

Standard widths: 40 mm, 55 mm, 85 mm, 115 mm, 170 mm
• Non stock item

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TIMING BELTS
FOR YOUR
SOLUTIONS

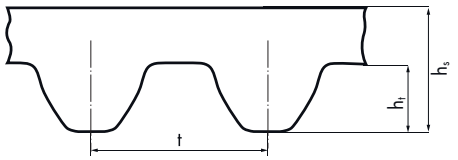


1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt STD IN PROFILE S5M

Profile	S5M
t [mm]	5.00
h_s [mm]	3.40
h_t [mm]	1.91



optibelt STD in profile S5M					
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
375 S5M	375.00	75			
390 S5M	390.00	78			
490 S5M	490.00	98			
520 S5M	520.00	104			
600 S5M •	600.00	120			
625 S5M	625.00	125			
640 S5M •	640.00	128			
650 S5M	650.00	130			
700 S5M •	700.00	140			
750 S5M	750.00	150			
1000 S5M •	1000.00	200			
1050 S5M •	1050.00	200			
2000 S5M •	2000.00	400			

Standard widths: 9 mm, 15 mm, 25 mm
(other dimensions and special widths on request) • Non stock item

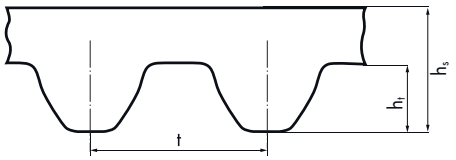
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1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt STD IN PROFILE S8M

Profile	S8M
t [mm]	8.00
h_s [mm]	5.30
h_t [mm]	3.05



optibelt STD in profile S8M								
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
440 S8M	440.00	55	1064 S8M •	1064.00	133	1552 S8M	1552.00	194
480 S8M	480.00	60	1072 S8M •	1072.00	134	1600 S8M	1600.00	200
560 S8M	560.00	70	1080 S8M	1080.00	135	1624 S8M •	1624.00	203
600 S8M	600.00	75	1096 S8M	1096.00	137	1760 S8M	1760.00	220
632 S8M	632.00	79	1104 S8M	1104.00	138	1776 S8M •	1776.00	222
640 S8M	640.00	80	1120 S8M	1120.00	140	1800 S8M	1800.00	225
656 S8M	656.00	82	1136 S8M	1136.00	142	1816 S8M	1816.00	227
680 S8M •	680.00	85	1152 S8M	1152.00	144	1832 S8M •	1832.00	229
688 S8M	688.00	86	1160 S8M	1160.00	145	1912 S8M	1912.00	239
696 S8M •	696.00	87	1168 S8M	1168.00	146	2000 S8M	2000.00	250
712 S8M	712.00	89	1176 S8M	1176.00	147	2024 S8M	2024.00	253
720 S8M	720.00	90	1184 S8M	1184.00	148	2240 S8M	2240.00	280
728 S8M	728.00	91	1192 S8M	1192.00	149	2392 S8M •	2392.00	299
736 S8M •	736.00	92	1200 S8M	1200.00	150	2400 S8M	2400.00	300
760 S8M	760.00	95	1208 S8M •	1208.00	151	2496 S8M	2496.00	312
768 S8M	768.00	96	1216 S8M	1216.00	152	2600 S8M •	2600.00	325
784 S8M •	784.00	98	1224 S8M	1224.00	153	2800 S8M •	2800.00	350
792 S8M •	792.00	99	1240 S8M	1240.00	155	3200 S8M	3200.00	400
800 S8M	800.00	100	1248 S8M	1248.00	156			
824 S8M	824.00	103	1256 S8M	1256.00	157			
840 S8M	840.00	105	1264 S8M •	1264.00	158			
848 S8M	848.00	106	1280 S8M	1280.00	160			
864 S8M •	864.00	108	1296 S8M •	1296.00	162			
880 S8M	880.00	110	1304 S8M	1304.00	163			
896 S8M	896.00	112	1312 S8M	1312.00	164			
912 S8M	912.00	114	1320 S8M •	1320.00	165			
920 S8M	920.00	115	1344 S8M	1344.00	168			
944 S8M	944.00	118	1352 S8M	1352.00	169			
960 S8M	960.00	120	1360 S8M	1360.00	170			
992 S8M •	992.00	124	1384 S8M •	1384.00	173			
1000 S8M	1000.00	125	1392 S8M •	1392.00	174			
1024 S8M	1024.00	128	1400 S8M	1400.00	175			
1032 S8M	1032.00	129	1408 S8M •	1408.00	176			
1040 S8M	1040.00	130	1440 S8M	1440.00	180			
1056 S8M	1056.00	132	1480 S8M	1480.00	185			

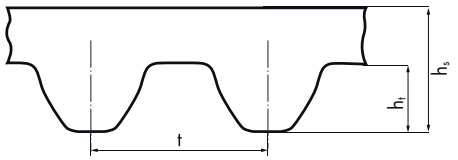
Standard widths: 20 mm, 30 mm, 50 mm, 85 mm
(other dimensions and special widths on request) • Non stock item

1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt STD IN PROFILE S14M

Profile	S14M
t [mm]	14.00
h_s [mm]	10.20
h_t [mm]	5.30



optibelt STD in profile S14M					
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
1400 S14M •	1400.00	100			
1540 S14M •	1540.00	110			
1610 S14M •	1610.00	115			
1890 S14M •	1890.00	135			
2002 S14M •	2002.00	143			
2100 S14M •	2100.00	150			
2240 S14M •	2240.00	160			
2310 S14M •	2310.00	165			
2450 S14M •	2450.00	175			
2590 S14M •	2590.00	185			
2800 S14M •	2800.00	200			
3150 S14M •	3150.00	225			
3500 S14M •	3500.00	250			
3850 S14M •	3850.00	275			
4004 S14M •	4004.00	286			
4508 S14M •	4508.00	322			
5012 S14M •	5012.00	358			

Standard widths: 40 mm, 55 mm, 85 mm, 115 mm, 170 mm
(other dimensions and special widths on request) • Non stock item

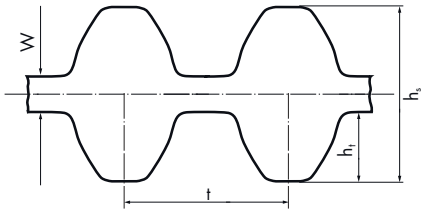
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1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt STD IN PROFILE DS8M

Profile	DS8M
t [mm]	8.00
h_s [mm]	6.95
h_t [mm]	–



optibelt STD in profile DS8M					
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
720 DS8M •	720.00	90			
960 DS8M •	960.00	120			
1160 DS8M •	1160.00	145			
1168 DS8M •	1168.00	146			
1176 DS8M •	1176.00	147			
1184 DS8M •	1184.00	148			
1200 DS8M •	1200.00	150			
1240 DS8M •	1240.00	155			
1256 DS8M •	1256.00	157			
1264 DS8M •	1264.00	158			
1304 DS8M •	1304.00	163			
1312 DS8M •	1312.00	164			
1400 DS8M •	1400.00	175			
1408 DS8M •	1408.00	176			
1440 DS8M •	1440.00	180			
1480 DS8M •	1480.00	185			
1760 DS8M •	1760.00	220			
1600 DS8M •	1600.00	200			
1800 DS8M •	1800.00	225			
1912 DS8M •	1912.00	239			
2000 DS8M •	2000.00	250			
2600 DS8M •	2600.00	325			

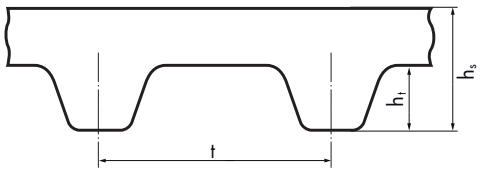
Standard widths: 20 mm, 30 mm, 50 mm, 85 mm
(other dimensions and special widths on request) • Non stock item

1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt ZR IN PROFILE MXL

Profile	MXL
t [mm]	2.032
h_s [mm]	1.14
h_t [mm]	0.51



optibelt ZR in profile MXL								
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
264 MXL•	67.06	33	808 MXL•	205.23	101	1320 MXL•	335.28	165
360 MXL	91.44	45	816 MXL•	207.26	102	1360 MXL•	345.44	170
432 MXL•	109.73	54	824 MXL•	209.30	103	1400 MXL	355.60	175
440 MXL	111.76	55	840 MXL•	213.36	105	1440 MXL•	365.76	180
448 MXL•	113.79	56	848 MXL•	215.39	106	1472 MXL•	373.89	184
456 MXL•	115.82	57	856 MXL•	217.42	107	1520 MXL•	386.08	190
464 MXL•	117.86	58	864 MXL•	219.46	108	1560 MXL•	396.24	195
480 MXL	121.92	60	880 MXL	223.52	110	1600 MXL•	406.40	200
488 MXL•	123.95	61	896 MXL•	227.58	112	1768 MXL•	449.07	221
536 MXL•	136.14	67	904 MXL•	229.62	113	1800 MXL•	457.20	225
544 MXL•	138.18	68	912 MXL•	231.65	114	1888 MXL•	479.55	236
560 MXL•	142.24	70	920 MXL•	233.68	115	1984 MXL•	503.94	248
568 MXL•	144.27	71	960 MXL•	243.84	120	1992 MXL•	505.97	249
576 MXL•	146.30	72	976 MXL•	247.90	122	2008 MXL•	510.03	251
600 MXL•	152.40	75	984 MXL•	249.94	123	2048 MXL•	520.19	256
608 MXL•	154.43	76	1000 MXL•	254.00	125	2144 MXL•	544.58	268
632 MXL•	160.53	79	1008 MXL•	256.03	126	2240 MXL•	568.96	280
640 MXL	162.56	80	1040 MXL•	264.16	130	2384 MXL•	605.54	298
656 MXL•	166.62	82	1056 MXL•	268.22	132	2480 MXL•	629.92	310
664 MXL•	168.66	83	1072 MXL•	272.29	134	2520 MXL•	640.08	315
672 MXL•	170.69	84	1080 MXL•	274.32	135	2680 MXL•	680.72	335
680 MXL•	172.72	85	1112 MXL•	282.45	139	2776 MXL•	705.10	347
704 MXL•	178.82	88	1120 MXL	284.48	140	2880 MXL•	731.52	360
720 MXL•	182.88	90	1136 MXL•	288.54	142	2920 MXL•	741.68	365
728 MXL•	184.91	91	1176 MXL•	298.70	147	3200 MXL•	812.80	400
736 MXL•	186.94	92	1184 MXL•	300.74	148	3472 MXL•	881.89	434
752 MXL•	191.01	94	1200 MXL•	304.80	150	3624 MXL•	920.50	453
760 MXL•	193.04	95	1224 MXL•	310.90	153	3704 MXL•	940.82	463
776 MXL•	197.10	97	1272 MXL•	323.09	159	3984 MXL•	1011.94	498
800 MXL•	203.20	100	1280 MXL•	325.12	160	4040 MXL•	1026.16	505

• Non stock item Other dimensions available on request.

Standard width	Width code
3.2 mm	**012**
4.8 mm	**019**
6.4 mm	**025**

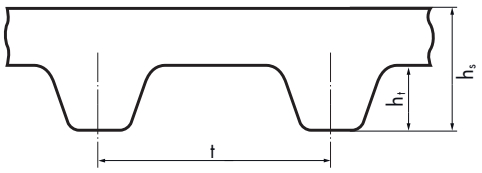
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1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt ZR IN PROFILE XL

Profile	XL
t [mm]	5.08
h_s [mm]	2.30
h_t [mm]	1.27



optibelt ZR in profile XL								
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
60 XL	152.40	30	156 XL	396.24	78	286 XL•	726.44	143
70 XL	177.80	35	160 XL	406.40	80	290 XL	736.60	145
80 XL	203.20	40	162 XL•	411.48	81	296 XL•	751.84	148
86 XL•	218.44	43	166 XL	421.64	83	300 XL	762.00	150
88 XL	223.52	44	168 XL•	426.72	84	306 XL•	777.24	153
90 XL	228.60	45	170 XL	431.80	85	310 XL	787.40	155
92 XL•	233.68	46	174 XL•	441.96	87	316 XL	802.64	158
94 XL•	238.76	47	176 XL	447.04	88	320 XL	812.80	160
96 XL•	243.84	48	178 XL•	452.12	89	322 XL	817.88	161
98 XL•	248.92	49	180 XL	457.20	90	330 XL	838.20	165
100 XL	254.00	50	182 XL	462.28	91	340 XL•	863.60	170
102 XL	259.08	51	184 XL•	467.36	92	344 XL•	873.76	172
106 XL	269.24	53	188 XL•	477.52	94	350 XL•	889.00	175
108 XL•	274.32	54	190 XL	482.60	95	360 XL	914.40	180
110 XL	279.40	55	192 XL•	487.68	96	380 XL	965.20	190
112 XL•	284.48	56	194 XL	492.76	97	382 XL•	970.28	191
116 XL	294.64	58	196 XL	497.84	98	388 XL•	985.52	194
118 XL•	299.72	59	200 XL	508.00	100	390 XL	990.60	195
120 XL	304.80	60	210 XL	533.40	105	392 XL•	995.68	196
124 XL•	314.96	62	220 XL	558.80	110	412 XL	1046.48	206
126 XL	320.04	63	230 XL	584.20	115	414 XL	1051.56	207
128 XL	325.12	64	240 XL	609.60	120	432 XL	1097.28	216
130 XL	330.20	65	244 XL•	619.76	122	434 XL	1102.36	217
134 XL	340.36	67	248 XL•	629.92	124	438 XL•	1112.52	219
136 XL	345.44	68	250 XL	635.00	125	460 XL	1168.40	230
138 XL•	350.52	69	260 XL	660.40	130	498 XL•	1264.92	249
140 XL	355.60	70	270 XL	685.80	135	506 XL•	1285.24	253
142 XL	360.68	71	272 XL•	690.88	136	514 XL	1305.56	257
148 XL•	375.92	74	274 XL•	695.96	137	580 XL•	1473.20	290
150 XL	381.00	75	280 XL	711.20	140	630 XL•	1600.20	315

• Non stock item Other dimensions available on request.

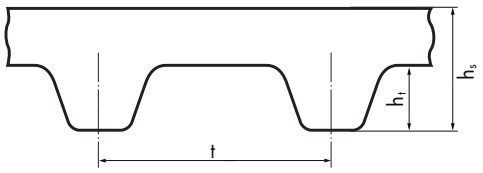
Standard width	Width code
6.4 mm	**025**
7.9 mm	**031**
9.5 mm	**037**
12.7 mm	**050**
19.1 mm	**075**
25.4 mm	**100**

1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt ZR IN PROFILE L

Profile	L
t [mm]	9.525
h_s [mm]	3.60
h_t [mm]	1.91



optibelt ZR in profile L					
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
109 L	276.23	29	439 L	1114.43	117
124 L	314.33	33	450 L	1143.00	120
150 L	381.00	40	454 L	1152.53	121
165 L	419.10	44	480 L	1219.20	128
169 L	428.63	45	510 L	1295.40	136
173 L	438.15	46	525 L	1333.50	140
187 L	476.25	50	540 L	1371.60	144
202 L	514.35	54	600 L	1524.00	160
210 L	533.40	56	630 L	1600.20	168
225 L	571.50	60	660 L	1676.40	176
232 L	590.55	62	817 L	2075.18	218
236 L	600.08	63			
240 L	609.60	64			
255 L	647.70	68			
259 L•	657.23	69			
263 L•	666.75	70			
270 L	685.80	72			
285 L	723.90	76			
300 L	762.00	80			
322 L	819.15	86			
345 L	876.30	92			
360 L	914.40	96			
367 L	933.45	98			
375 L	952.50	100			
390 L	990.60	104			
405 L	1028.70	108			
420 L	1066.80	112			
424 L•	1076.33	113			
427 L•	1085.85	114			
435 L	1104.90	116			

• Non stock item Other dimensions available on request.

Standard width	Width code
12.7 mm	**050**
19.1 mm	**075**
25.4 mm	**100**
38.1 mm	**150**
50.8 mm	**200**
76.2 mm	**300**

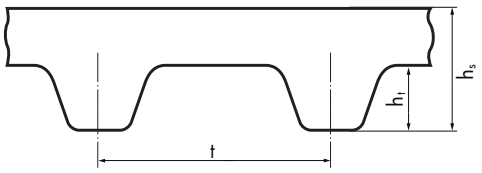
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1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt ZR IN PROFILE H

Profile	H
t [mm]	12.7
h_s [mm]	4.00
h_t [mm]	2.29



optibelt ZR in profile H					
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
230 H	584.20	46	570 H	1447.80	114
240 H	609.60	48	580 H	1473.20	116
255 H	647.70	51	600 H	1524.00	120
270 H	685.80	54	630 H	1600.20	126
280 H	711.20	56	650 H	1651.00	130
300 H	762.00	60	660 H	1676.40	132
310 H	787.40	62	670 H	1701.80	134
315 H	800.10	63	680 H	1727.20	136
320 H	812.80	64	700 H	1778.00	140
330 H	838.20	66	720 H	1828.80	144
335 H	850.90	67	730 H	1854.20	146
340 H	863.60	68	750 H	1905.00	150
350 H	889.00	70	770 H	1955.80	154
360 H	914.40	72	800 H	2032.00	160
370 H	939.80	74	810 H	2057.40	162
375 H	952.50	75	820 H	2082.80	164
390 H	990.60	78	850 H	2159.00	170
400 H	1016.00	80	860 H	2184.40	172
410 H	1041.40	82	900 H	2286.00	180
420 H	1066.80	84	950 H	2413.00	190
430 H	1092.20	86	1000 H	2540.00	200
450 H	1143.00	90	1100 H	2794.00	220
465 H	1181.10	93	1120 H	2844.80	224
480 H	1219.20	96	1140 H	2895.60	228
490 H	1244.60	98	1150 H	2921.00	230
510 H	1295.40	102	1250 H	3175.00	250
520 H	1320.80	104	1400 H	3556.00	280
530 H	1346.20	106	1700 H	4318.00	340
540 H	1371.60	108			
560 H	1422.40	112			
Further dimensions available on request.					

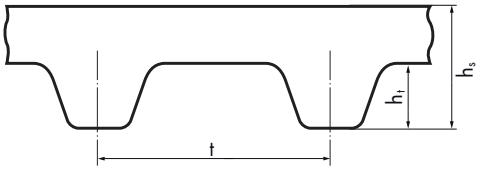
Standard width	Width code
19.1 mm	**075**
25.4 mm	**100**
38.1 mm	**150**
50.8 mm	**200**
76.2 mm	**300**

1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt ZR IN PROFILES XH, XXH

Profile	XH	XXH
t [mm]	22.23	31.75
h_s [mm]	11.20	15.70
h_t [mm]	6.35	9.53



optibelt ZR in profile XH			optibelt ZR in profile XXH		
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
507 XH	1289.05	58	700 XXH	1778.00	56
560 XH	1422.40	64	800 XXH	2032.00	64
630 XH	1600.20	72	900 XXH	2286.00	72
700 XH	1778.00	80	1000 XXH	2540.00	80
770 XH	1955.80	88	1200 XXH	3048.00	96
840 XH	2133.60	96	1400 XXH	3556.00	112
980 XH	2489.20	112	1600 XXH	4064.00	128
1120 XH	2844.80	128	1800 XXH	4572.00	144
1260 XH	3200.40	144			
1400 XH	3556.00	160			
1540 XH	3911.60	176			
1750 XH	4445.00	200			

Further dimensions available on request.

Standard width	Width code	Standard width	Width code
50.8 mm	**200**	50.8 mm	**200**
76.2 mm	**300**	76.2 mm	**300**
101.6 mm	**400**	101.6 mm	**400**
127.0 mm	**500**	127.0 mm	**500**

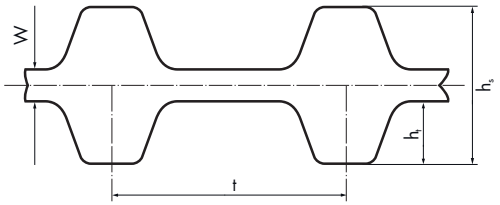
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1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt ZR IN PROFILES DXL, DL, DH

Profile	DXL	DL	DH
t [mm]	5.08	9.525	12.70
h_s [mm]	3.048 ± 0.178	4.572 ± 0.254	5.944 ± 0.127
h_t [mm]	–	–	–



optibelt ZR in profile DXL			optibelt ZR in profile DL			optibelt ZR in profile DH		
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
DXL 150	15.00	381.00	DL 187	18.75	476.25	DH 240	24.00	609.60
DXL 160	16.00	406.40	DL 210	21.00	533.40	DH 270	27.00	685.80
DXL 170	17.00	431.80	DL 225	22.50	571.50	DH 300	30.00	762.00
DXL 180	18.00	457.20	DL 240	24.00	609.60	DH 330	33.00	838.20
DXL 190	19.00	482.60	DL 255	25.50	647.70	DH 360	36.00	914.40
DXL 200	20.00	508.00	DL 270	27.00	685.80	DH 390	39.00	990.60
DXL 210	21.00	533.40	DL 285	28.50	723.90	DH 420	42.00	1066.80
DXL 220	22.00	558.80	DL 300	30.00	762.00	DH 450	45.00	1143.00
DXL 230	23.00	584.20	DL 322	32.25	819.15	DH 480	48.00	1219.20
DXL 240	24.00	609.60	DL 345	34.50	876.30	DH 510	51.00	1295.40
DXL 250	25.00	635.00	DL 367	36.75	933.45	DH 540	54.00	1371.60
DXL 260	26.00	660.40	DL 390	39.00	990.60	DH 570	57.00	1447.80
DXL 280	28.00	711.20	DL 420	42.00	1066.80	DH 600	60.00	1524.00
DXL 300	30.00	762.00	DL 450	45.00	1143.00	DH 630	63.00	1600.20
			DL 480	48.00	1219.20	DH 660	66.00	1676.40
			DL 510	51.00	1295.40	DH 700	70.00	1778.00
			DL 540	54.00	1371.60	DH 750	75.00	1905.00
			DL 600	60.00	1524.00	DH 800	80.00	2032.00
						DH 850	85.00	2159.00
						DH 900	90.00	2286.00
						DH 1000	100.00	2540.00
						DH 1100	110.00	2794.00
						DH 1250	125.00	3175.00
						DH 1400	140.00	3556.00
						DH 1700	170.00	4318.00

Further dimensions available on request.

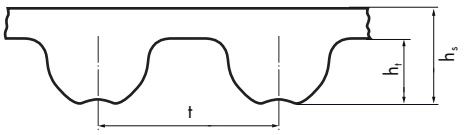
Standard width	Width code	Standard width	Width code	Standard width	Width code
6.4 mm	**025**	12.7 mm	**050**	19.1 mm	**075**
7.9 mm	**031**	19.1 mm	**075**	25.4 mm	**100**
9.5 mm	**037**	25.4 mm	**100**	38.1 mm	**150**
12.7 mm	**050**	38.1 mm	**150**	50.8 mm	**200**
19.1 mm	**075**	50.8 mm	**200**	76.2 mm	**300**
25.4 mm	**100**	76.2 mm	**300**		

1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt OMEGA HP IN PROFILE 2M

Profile	2M
t [mm]	2.00
h_s [mm]	1.30
h_t [mm]	0.70



optibelt OMEGA HP in profile 2M					
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
74 2MHP •	74.00	37	330 2MHP •	330.00	165
90 2MHP •	90.00	45	336 2MHP •	336.00	168
100 2MHP •	100.00	50	340 2MHP •	340.00	170
104 2MHP •	104.00	52	368 2MHP •	368.00	184
112 2MHP •	112.00	56	370 2MHP •	370.00	185
118 2MHP •	118.00	59	386 2MHP •	386.00	193
120 2MHP •	120.00	60	392 2MHP •	392.00	196
124 2MHP •	124.00	62	402 2MHP •	402.00	201
130 2MHP •	130.00	65	406 2MHP •	406.00	203
140 2MHP •	140.00	70	426 2MHP •	426.00	213
148 2MHP •	148.00	74	448 2MHP •	448.00	224
158 2MHP •	158.00	79	498 2MHP •	498.00	249
160 2MHP •	160.00	80	558 2MHP •	558.00	279
180 2MHP •	180.00	90	560 2MHP •	560.00	280
184 2MHP •	184.00	92	594 2MHP •	594.00	297
188 2MHP •	188.00	94	710 2MHP •	710.00	355
192 2MHP •	192.00	96	930 2MHP •	930.00	465
200 2MHP •	200.00	100	984 2MHP •	984.00	492
208 2MHP •	208.00	104	1066 2MHP •	1066.00	533
210 2MHP •	210.00	105	1110 2MHP •	1110.00	555
216 2MHP •	216.00	108	1224 2MHP •	1224.00	612
224 2MHP •	224.00	112			
232 2MHP •	232.00	116			
250 2MHP •	250.00	125			
256 2MHP •	256.00	128			
266 2MHP •	266.00	133			
274 2MHP •	274.00	137			
280 2MHP •	280.00	140			
288 2MHP •	288.00	144			
304 2MHP •	304.00	152			
308 2MHP •	308.00	154			
310 2MHP •	310.00	155			
314 2MHP •	314.00	157			
318 2MHP •	318.00	159			
328 2MHP •	328.00	164			

Standard widths: 3 mm, 6 mm, 9 mm
(other dimensions and special widths on request) • Non stock item

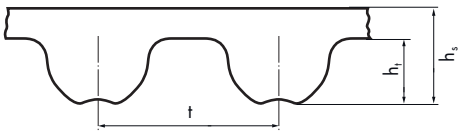
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1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt OMEGA HP IN PROFILE 3M

Profile	3M
t [mm]	3.00
h_s [mm]	2.30
h_t [mm]	1.10



optibelt OMEGA HP in profile 3M								
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
111 3MHP •	111.00	37	294 3MHP •	294.00	98	600 3MHP •	600.00	200
129 3MHP •	129.00	43	300 3MHP	300.00	100	606 3MHP •	606.00	202
141 3MHP •	141.00	47	312 3MHP	312.00	104	615 3MHP •	615.00	205
144 3MHP	144.00	48	315 3MHP •	315.00	105	633 3MHP •	633.00	211
150 3MHP •	150.00	50	318 3MHP	318.00	106	669 3MHP	669.00	223
159 3MHP •	159.00	53	330 3MHP	330.00	110	675 3MHP •	675.00	225
165 3MHP •	165.00	55	333 3MHP •	333.00	111	711 3MHP •	711.00	237
168 3MHP •	168.00	56	339 3MHP •	339.00	113	738 3MHP •	738.00	246
171 3MHP •	171.00	57	345 3MHP •	345.00	115	804 3MHP •	804.00	268
174 3MHP	174.00	58	357 3MHP	357.00	119	816 3MHP •	816.00	272
177 3MHP	177.00	59	363 3MHP	363.00	121	843 3MHP •	843.00	281
180 3MHP •	180.00	60	366 3MHP •	366.00	122	882 3MHP •	882.00	294
183 3MHP •	183.00	61	384 3MHP	384.00	128	888 3MHP •	888.00	296
186 3MHP •	186.00	62	390 3MHP •	390.00	130	1062 3MHP •	1062.00	354
192 3MHP •	192.00	64	420 3MHP	420.00	140	1569 3MHP •	1569.00	523
195 3MHP •	195.00	65	426 3MHP •	426.00	142	1587 3MHP •	1587.00	529
201 3MHP	201.00	67	435 3MHP •	435.00	145	1692 3MHP •	1692.00	564
204 3MHP •	204.00	68	447 3MHP	447.00	149			
207 3MHP	207.00	69	462 3MHP •	462.00	154			
210 3MHP	210.00	70	474 3MHP	474.00	158			
213 3MHP •	213.00	71	480 3MHP •	480.00	160			
219 3MHP •	219.00	73	486 3MHP •	486.00	162			
225 3MHP	225.00	75	495 3MHP •	495.00	165			
237 3MHP	237.00	79	501 3MHP	501.00	167			
240 3MHP	240.00	80	513 3MHP	513.00	171			
246 3MHP •	246.00	82	519 3MHP •	519.00	173			
249 3MHP •	249.00	83	522 3MHP •	522.00	174			
252 3MHP •	252.00	84	525 3MHP •	525.00	175			
255 3MHP	255.00	85	531 3MHP •	531.00	177			
267 3MHP •	267.00	89	537 3MHP •	537.00	179			
276 3MHP	276.00	92	558 3MHP •	558.00	186			
282 3MHP •	282.00	94	564 3MHP •	564.00	188			
285 3MHP	285.00	95	570 3MHP •	570.00	190			
288 3MHP •	288.00	96	582 3MHP •	582.00	194			
291 3MHP •	291.00	97	597 3MHP	597.00	199			

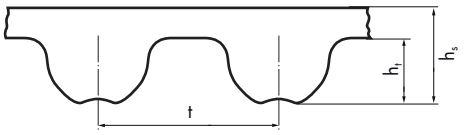
Standard widths: 6 mm, 9 mm, 15 mm
(other dimensions and special widths on request) • Non stock item

1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt OMEGA HP IN PROFILE 5M

Profile	5M
t [mm]	5.00
h_s [mm]	3.40
h_t [mm]	1.90



optibelt OMEGA HP in profile 5M								
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
180 5MHP	180.00	36	575 5MHP•	575.00	115	1000 5MHP	1000.00	200
225 5MHP	225.00	45	580 5MHP•	580.00	116	1025 5MHP•	1025.00	205
255 5MHP	255.00	51	600 5MHP	600.00	120	1035 5MHP•	1035.00	207
265 5MHP	265.00	53	610 5MHP•	610.00	122	1050 5MHP	1050.00	210
270 5MHP•	270.00	54	615 5MHP•	615.00	123	1100 5MHP•	1100.00	220
275 5MHP•	275.00	55	630 5MHP	630.00	126	1125 5MHP	1125.00	225
280 5MHP•	280.00	56	635 5MHP	635.00	127	1135 5MHP•	1135.00	227
295 5MHP•	295.00	59	640 5MHP•	640.00	128	1200 5MHP•	1200.00	240
300 5MHP•	300.00	60	645 5MHP	645.00	129	1270 5MHP•	1270.00	254
305 5MHP	305.00	61	650 5MHP•	650.00	130	1380 5MHP•	1380.00	276
325 5MHP	325.00	65	665 5MHP	665.00	133	1400 5MHP•	1400.00	280
330 5MHP	330.00	66	670 5MHP•	670.00	134	1420 5MHP	1420.00	284
340 5MHP•	340.00	68	700 5MHP	700.00	140	1425 5MHP•	1425.00	285
350 5MHP	350.00	70	710 5MHP	710.00	142	1500 5MHP•	1500.00	300
360 5MHP	360.00	72	720 5MHP•	720.00	144	1595 5MHP•	1595.00	319
365 5MHP•	365.00	73	740 5MHP	740.00	148	1690 5MHP•	1690.00	338
370 5MHP•	370.00	74	750 5MHP•	750.00	150	1790 5MHP•	1790.00	358
375 5MHP	375.00	75	755 5MHP	755.00	151	1870 5MHP•	1870.00	374
385 5MHP•	385.00	77	775 5MHP•	775.00	155	1895 5MHP•	1895.00	379
400 5MHP	400.00	80	790 5MHP•	790.00	158	2000 5MHP•	2000.00	400
415 5MHP•	415.00	83	800 5MHP	800.00	160	2110 5MHP•	2110.00	422
420 5MHP•	420.00	84	825 5MHP•	825.00	165	2350 5MHP•	2350.00	470
425 5MHP	425.00	85	830 5MHP•	830.00	166	2525 5MHP•	2525.00	505
450 5MHP	450.00	90	835 5MHP	835.00	167			
460 5MHP•	460.00	92	850 5MHP•	850.00	170			
475 5MHP	475.00	95	860 5MHP•	860.00	172			
490 5MHP•	490.00	98	890 5MHP	890.00	178			
500 5MHP	500.00	100	900 5MHP	900.00	180			
520 5MHP•	520.00	104	925 5MHP	925.00	185			
525 5MHP	525.00	105	935 5MHP•	935.00	187			
535 5MHP	535.00	107	940 5MHP•	940.00	188			
540 5MHP•	540.00	108	950 5MHP	950.00	190			
550 5MHP	550.00	110	965 5MHP•	965.00	193			
560 5MHP•	560.00	112	975 5MHP•	975.00	195			
565 5MHP	565.00	113	980 5MHP•	980.00	196			

Standard widths: 9 mm, 15 mm, 25 mm
(other dimensions and special widths on request) • Non stock item

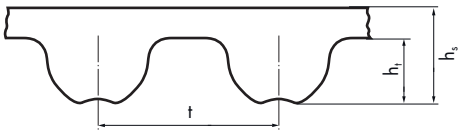
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1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt OMEGA HP IN PROFILE 8M

Profile	8M
t [mm]	8.00
h_s [mm]	5.40
h_t [mm]	3.20



optibelt OMEGA HP in profile 8M								
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
288 8MHP•	288.00	36	1000 8MHP	1000.00	125	2000 8MHP	2000.00	250
352 8MHP•	352.00	44	1040 8MHP	1040.00	130	2080 8MHP•	2080.00	260
376 8MHP•	376.00	47	1056 8MHP•	1056.00	132	2104 8MHP•	2104.00	263
416 8MHP•	416.00	52	1064 8MHP	1064.00	133	2240 8MHP	2240.00	280
424 8MHP	424.00	53	1080 8MHP	1080.00	135	2248 8MHP	2248.00	281
480 8MHP	480.00	60	1096 8MHP•	1096.00	137	2272 8MHP	2272.00	284
512 8MHP	512.00	64	1120 8MHP	1120.00	140	2400 8MHP	2400.00	300
520 8MHP	520.00	65	1128 8MHP	1128.00	141	2504 8MHP	2504.00	313
536 8MHP•	536.00	67	1160 8MHP	1160.00	145	2600 8MHP	2600.00	325
560 8MHP	560.00	70	1184 8MHP•	1184.00	148	2800 8MHP	2800.00	350
576 8MHP	576.00	72	1200 8MHP	1200.00	150	3048 8MHP	3048.00	381
584 8MHP•	584.00	73	1216 8MHP	1216.00	152	3280 8MHP	3280.00	410
600 8MHP	600.00	75	1224 8MHP	1224.00	153	3600 8MHP	3600.00	450
608 8MHP	608.00	76	1248 8MHP•	1248.00	156			
624 8MHP•	624.00	78	1256 8MHP	1256.00	157			
632 8MHP	632.00	79	1264 8MHP•	1264.00	158			
640 8MHP	640.00	80	1280 8MHP	1280.00	160			
656 8MHP	656.00	82	1304 8MHP	1304.00	163			
680 8MHP	680.00	85	1328 8MHP•	1328.00	166			
712 8MHP	712.00	89	1344 8MHP•	1344.00	168			
720 8MHP	720.00	90	1360 8MHP	1360.00	170			
760 8MHP	760.00	95	1400 8MHP	1400.00	175			
776 8MHP	776.00	97	1424 8MHP	1424.00	178			
784 8MHP	784.00	98	1440 8MHP	1440.00	180			
800 8MHP	800.00	100	1520 8MHP	1520.00	190			
824 8MHP	824.00	103	1552 8MHP	1552.00	194			
840 8MHP	840.00	105	1584 8MHP•	1584.00	198			
848 8MHP	848.00	106	1600 8MHP	1600.00	200			
856 8MHP	856.00	107	1680 8MHP•	1680.00	210			
880 8MHP	880.00	110	1696 8MHP	1696.00	212			
896 8MHP	896.00	112	1728 8MHP•	1728.00	216			
912 8MHP	912.00	114	1760 8MHP	1760.00	220			
920 8MHP	920.00	115	1800 8MHP	1800.00	225			
960 8MHP	960.00	120	1904 8MHP•	1904.00	238			
976 8MHP	976.00	122	1936 8MHP	1936.00	242			

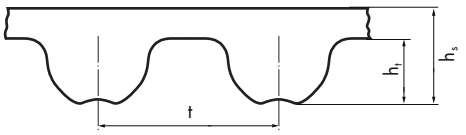
Standard widths: 20 mm, 30 mm, 50 mm, 85 mm
(other dimensions and special widths on request) • Non stock item

1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt OMEGA HP IN PROFILE 14M

Profile		14M
t	[mm]	14.00
h_s	[mm]	9.50
h_t	[mm]	5.60



optibelt OMEGA HP in profile 14M					
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
966 14MHP	966.00	69	2310 14MHP	2310.00	165
1092 14MHP	1092.00	78	2450 14MHP	2450.00	175
1190 14MHP	1190.00	85	2590 14MHP	2590.00	185
1344 14MHP•	1344.00	96	2800 14MHP	2800.00	200
1400 14MHP	1400.00	100	3150 14MHP	3150.00	225
1456 14MHP•	1456.00	104	3360 14MHP	3360.00	240
1512 14MHP•	1512.00	108	3500 14MHP	3500.00	250
1610 14MHP	1610.00	115	3850 14MHP	3850.00	275
1680 14MHP•	1680.00	120	4326 14MHP	4326.00	309
1778 14MHP	1778.00	127	4578 14MHP	4578.00	327
1890 14MHP	1890.00	135			
2100 14MHP	2100.00	150			

Standard widths: 40 mm, 55 mm, 85 mm, 115 mm, 170 mm
(other dimensions and special widths on request) • Non stock item

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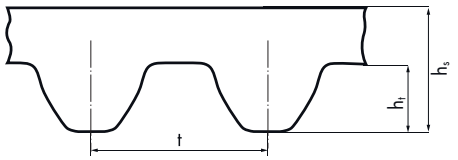


1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt STD HP IN PROFILE S8M

Profile	S8M
t [mm]	8.00
h_s [mm]	5.30
h_t [mm]	3.05



optibelt STD HP in profile S8M					
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
560 S8MHP •	560.00	70	1304 S8MHP •	1304.00	163
600 S8MHP •	600.00	75	1312 S8MHP •	1312.00	164
632 S8MHP •	632.00	79	1344 S8MHP •	1344.00	168
656 S8MHP •	656.00	82	1352 S8MHP •	1352.00	169
712 S8MHP •	712.00	89	1368 S8MHP •	1368.00	171
720 S8MHP •	720.00	90	1384 S8MHP •	1384.00	173
760 S8MHP •	760.00	95	1392 S8MHP •	1392.00	174
800 S8MHP •	800.00	100	1400 S8MHP •	1400.00	175
824 S8MHP •	824.00	103	1408 S8MHP •	1408.00	176
840 S8MHP •	840.00	105	1440 S8MHP •	1440.00	180
848 S8MHP •	848.00	106	1480 S8MHP •	1480.00	185
880 S8MHP •	880.00	110	1552 S8MHP •	1552.00	194
912 S8MHP •	912.00	114	1600 S8MHP •	1600.00	200
1000 S8MHP •	1000.00	125	1624 S8MHP •	1624.00	203
1024 S8MHP •	1024.00	128	1688 S8MHP •	1688.00	211
1032 S8MHP •	1032.00	129	1728 S8MHP •	1728.00	216
1040 S8MHP •	1040.00	130	1760 S8MHP •	1760.00	220
1056 S8MHP •	1056.00	132	1800 S8MHP •	1800.00	225
1064 S8MHP •	1064.00	133	1832 S8MHP •	1832.00	229
1072 S8MHP •	1072.00	134	1912 S8MHP •	1912.00	239
1080 S8MHP •	1080.00	135	2000 S8MHP •	2000.00	250
1096 S8MHP •	1096.00	137	2024 S8MHP •	2024.00	253
1104 S8MHP •	1104.00	138	2240 S8MHP •	2240.00	255
1120 S8MHP •	1120.00	140	2400 S8MHP •	2400.00	300
1136 S8MHP •	1136.00	142	2600 S8MHP •	2600.00	325
1152 S8MHP •	1152.00	144			
1160 S8MHP •	1160.00	145			
1168 S8MHP •	1168.00	146			
1176 S8MHP •	1176.00	147			
1184 S8MHP •	1184.00	148			
1200 S8MHP •	1200.00	150			
1216 S8MHP •	1216.00	152			
1224 S8MHP •	1224.00	153			
1256 S8MHP •	1256.00	157			
1296 S8MHP •	1296.00	162			

Standard widths: 20 mm, 30 mm, 50 mm, 85 mm
(other dimensions and special widths on request) • Non stock item

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TIMING BELTS
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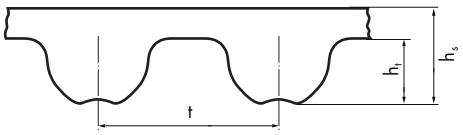


1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt OMEGA FAN POWER IN PROFILE 8M

Profile	8M
t [mm]	8.0
h_s [mm]	5.4
h_t [mm]	3.2



optibelt OMEGA FAN POWER in profile 8M		
Designation	Pitch length [mm]	Number of teeth
960 8MFP •	960.00	120
1064 8MFP •	1064.00	133
1200 8MFP •	1200.00	150
1256 8MFP •	1256.00	157
1328 8MFP •	1328.00	166
1440 8MFP •	1440.00	180
1600 8MFP •	1600.00	200
1760 8MFP •	1760.00	220
1800 8MFP •	1800.00	225
2000 8MFP •	2000.00	250
2240 8MFP •	2240.00	280
2400 8MFP •	2400.00	300
2600 8MFP •	2600.00	325
2800 8MFP •	2800.00	350
3048 8MFP •	3048.00	381

Standard widths: 20 mm, 30 mm, 50 mm, 85 mm
(other dimensions and special widths on request) • Non stock item

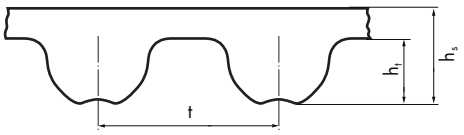
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1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt OMEGA FAN POWER IN PROFILE 14M

Profile	14M
t [mm]	14.0
h_s [mm]	9.5
h_t [mm]	5.6



optibelt OMEGA FAN POWER in profile 14M		
Designation	Pitch length [mm]	Number of teeth
1400 14MFP •	1400.00	100
1890 14MFP •	1890.00	135
2100 14MFP •	2100.00	150
2310 14MFP •	2310.00	165
2450 14MFP •	2450.00	175
2590 14MFP •	2590.00	185
2800 14MFP	2800.00	200
3150 14MFP	3150.00	225
3360 14MFP	3360.00	240
3500 14MFP	3500.00	250
3850 14MFP	3850.00	275
4326 14MFP	4326.00	309
4578 14MFP	4578.00	327

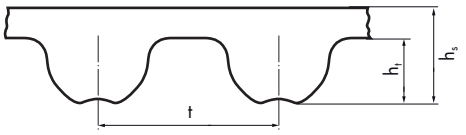
Standard widths: 40 mm, 55 mm, 85 mm, 115 mm, 170 mm
(other dimensions and special widths on request) • Non stock item

1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt OMEGA High Power IN PROFILE 8M

Profile	8M
t [mm]	8.0
h_s [mm]	5.4
h_t [mm]	3.2



optibelt OMEGA High Power in profile 8M								
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
288 8M •	288.00	36	1000 8M	1000.00	125	2000 8M	2000.00	250
352 8M •	352.00	44	1040 8M	1040.00	130	2080 8M •	2080.00	260
376 8M •	376.00	47	1056 8M •	1056.00	132	2104 8M •	2104.00	263
416 8M •	416.00	52	1064 8M	1064.00	133	2240 8M	2240.00	280
424 8M	424.00	53	1080 8M	1080.00	135	2248 8M	2248.00	281
480 8M	480.00	60	1096 8M •	1096.00	137	2272 8M	2272.00	284
512 8M	512.00	64	1120 8M	1120.00	140	2400 8M	2400.00	300
520 8M	520.00	65	1128 8M	1128.00	141	2504 8M	2504.00	313
536 8M •	536.00	67	1160 8M	1160.00	145	2600 8M	2600.00	325
560 8M	560.00	70	1184 8M •	1184.00	148	2800 8M	2800.00	350
576 8M	576.00	72	1200 8M	1200.00	150	3048 8M	3048.00	381
584 8M •	584.00	73	1216 8M	1216.00	152	3280 8M	3280.00	410
600 8M	600.00	75	1224 8M	1224.00	153	3600 8M	3600.00	450
608 8M	608.00	76	1248 8M •	1248.00	156			
624 8M •	624.00	78	1256 8M	1256.00	157			
632 8M	632.00	79	1264 8M •	1264.00	158			
640 8M	640.00	80	1280 8M	1280.00	160			
656 8M	656.00	82	1304 8M	1304.00	163			
680 8M	680.00	85	1328 8M •	1328.00	166			
712 8M	712.00	89	1344 8M •	1344.00	168			
720 8M	720.00	90	1360 8M	1360.00	170			
760 8M	760.00	95	1400 8M	1400.00	175			
776 8M	776.00	97	1424 8M	1424.00	178			
784 8M	784.00	98	1440 8M	1440.00	180			
800 8M	800.00	100	1520 8M	1520.00	190			
824 8M	824.00	103	1552 8M	1552.00	194			
840 8M	840.00	105	1584 8M •	1584.00	198			
848 8M	848.00	106	1600 8M	1600.00	200			
856 8M	856.00	107	1680 8M •	1680.00	210			
880 8M	880.00	110	1696 8M	1696.00	212			
896 8M	896.00	112	1728 8M •	1728.00	216			
912 8M	912.00	114	1760 8M	1760.00	220			
920 8M	920.00	115	1800 8M	1800.00	225			
960 8M	960.00	120	1904 8M •	1904.00	238			
976 8M	976.00	122	1936 8M	1936.00	242			

Standard widths: 20 mm, 30 mm, 50 mm, 85 mm
(other dimensions and special widths on request) • Non stock item

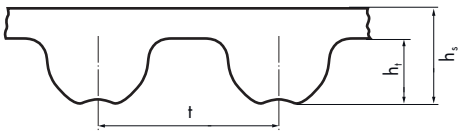
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1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt OMEGA High Power IN PROFILE 14M

Profile	14M
t [mm]	14.0
h_s [mm]	9.5
h_t [mm]	5.6



optibelt OMEGA High Power in profile 14M					
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
966 14M	966.00	69	2310 14M	2310.00	165
1092 14M	1092.00	78	2450 14M	2450.00	175
1190 14M	1190.00	85	2590 14M	2590.00	185
1344 14M •	1344.00	96	2800 14M	2800.00	200
1400 14M	1400.00	100	3150 14M	3150.00	225
1456 14M •	1456.00	104	3360 14M	3360.00	240
1512 14M •	1512.00	108	3500 14M	3500.00	250
1610 14M	1610.00	115	3850 14M	3850.00	275
1680 14M •	1680.00	120	4326 14M	4326.00	309
1778 14M	1778.00	127	4578 14M	4578.00	327
1890 14M	1890.00	135			
2100 14M	2100.00	150			

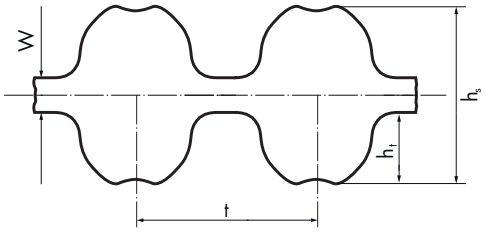
Standard widths: 40 mm, 55 mm, 85 mm, 115 mm, 170 mm
(other dimensions and special widths on request) • Non stock item

1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt OMEGA High Power IN PROFILE D8M

Profile	D8M
t	8.00
h_s [mm]	7.43
h_t [mm]	–



optibelt OMEGA High Power in profile D8M					
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
1120 D8M •	1120.00	140	1600 D8M •	1600.00	200
1160 D8M •	1160.00	145	1680 D8M •	1680.00	210
1168 D8M •	1168.00	146	1696 D8M •	1696.00	212
1184 D8M •	1184.00	148	1760 D8M •	1760.00	220
1200 D8M •	1200.00	150	1800 D8M •	1800.00	225
1224 D8M •	1224.00	153	1904 D8M •	1904.00	238
1248 D8M •	1248.00	156	1936 D8M •	1936.00	242
1264 D8M •	1264.00	158	2000 D8M •	2000.00	250
1280 D8M •	1280.00	160	2080 D8M •	2080.00	260
1304 D8M •	1304.00	163	2104 D8M •	2104.00	263
1320 D8M •	1320.00	165	2240 D8M •	2240.00	280
1344 D8M •	1344.00	168	2272 D8M •	2272.00	284
1360 D8M •	1360.00	170	2400 D8M •	2400.00	300
1400 D8M •	1400.00	175	2504 D8M •	2504.00	313
1424 D8M •	1424.00	178	2600 D8M •	2600.00	325
1440 D8M •	1440.00	180	2800 D8M •	2800.00	350
1480 D8M •	1480.00	185	3048 D8M •	3048.00	381
1520 D8M •	1520.00	190	3280 D8M •	3280.00	410
1552 D8M •	1552.00	194	3600 D8M •	3600.00	450

COMING SOON!

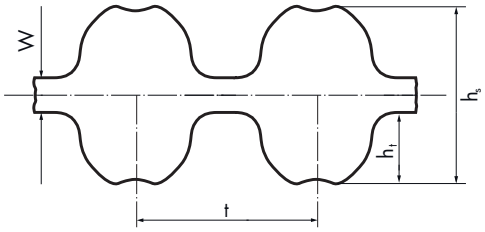
Standard widths: 20 mm, 30 mm, 50 mm, 85 mm
(other dimensions, special widths as well as **profile DS8M** available on request) • Non stock item

1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt OMEGA High Power IN PROFILE D14M

Profile	D14M
t	14.00
h_s [mm]	13.60
h_t [mm]	–



optibelt OMEGA High Power in profile D14M					
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
1190 D14M •	1190.00	85	2310 D14M •	2310.00	165
1288 D14M •	1288.00	92	2450 D14M •	2450.00	175
1330 D14M •	1330.00	95	2590 D14M •	2590.00	185
1344 D14M •	1344.00	96	2660 D14M •	2660.00	190
1400 D14M •	1400.00	100	2800 D14M •	2800.00	200
1456 D14M •	1456.00	104	2940 D14M •	2940.00	210
1512 D14M •	1512.00	108	3150 D14M •	3150.00	225
1540 D14M •	1540.00	110	3360 D14M •	3360.00	240
1610 D14M •	1610.00	115	3500 D14M •	3500.00	250
1680 D14M •	1680.00	120	3850 D14M •	3850.00	275
1778 D14M •	1778.00	127	4004 D14M •	4004.00	286
1890 D14M •	1890.00	135	4326 D14M •	4326.00	309
2100 D14M •	2100.00	150	4578 D14M •	4578.00	327

COMING SOON!

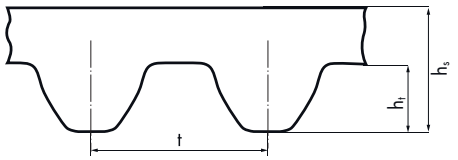
Standard widths: 40 mm, 55 mm, 85 mm, 115 mm, 170 mm
(other dimensions and special widths on request) • Non stock item

1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt OMEGA High Power IN PROFILE S8M

Profile	S8M
t [mm]	8.00
h_s [mm]	5.30
h_t [mm]	3.05



optibelt OMEGA High Power in profile S8M					
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
560 S8M •	560.00	70	1304 S8M •	1304.00	163
600 S8M •	600.00	75	1312 S8M •	1312.00	164
632 S8M •	632.00	79	1344 S8M •	1344.00	168
656 S8M •	656.00	82	1352 S8M •	1352.00	169
712 S8M •	712.00	89	1368 S8M •	1368.00	171
720 S8M •	720.00	90	1384 S8M •	1384.00	173
760 S8M •	760.00	95	1392 S8M •	1392.00	174
800 S8M •	800.00	100	1400 S8M •	1400.00	175
824 S8M •	824.00	103	1408 S8M •	1408.00	176
840 S8M •	840.00	105	1440 S8M •	1440.00	180
848 S8M •	848.00	106	1480 S8M •	1480.00	185
880 S8M •	880.00	110	1552 S8M •	1552.00	194
912 S8M •	912.00	114	1600 S8M •	1600.00	200
1000 S8M •	1000.00	125	1624 S8M •	1624.00	203
1024 S8M •	1024.00	128	1688 S8M •	1688.00	211
1032 S8M •	1032.00	129	1728 S8M •	1728.00	216
1040 S8M •	1040.00	130	1760 S8M •	1760.00	220
1056 S8M •	1056.00	132	1800 S8M •	1800.00	225
1064 S8M •	1064.00	133	1832 S8M •	1832.00	229
1072 S8M •	1072.00	134	1912 S8M •	1912.00	239
1080 S8M •	1080.00	135	2000 S8M •	2000.00	250
1096 S8M •	1096.00	137	2024 S8M •	2024.00	253
1104 S8M •	1104.00	138	2240 S8M •	2240.00	255
1120 S8M •	1120.00	140	2400 S8M •	2400.00	300
1136 S8M •	1136.00	142	2600 S8M •	2600.00	325
1152 S8M •	1152.00	144			
1160 S8M •	1160.00	145			
1168 S8M •	1168.00	146			
1176 S8M •	1176.00	147			
1184 S8M •	1184.00	148			
1200 S8M •	1200.00	150			
1216 S8M •	1216.00	152			
1224 S8M •	1224.00	153			
1256 S8M •	1256.00	157			
1296 S8M •	1296.00	162			

Standard widths: 20 mm, 30 mm, 50 mm, 85 mm
(other dimensions and special widths on request) • Non stock item

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TIMING BELTS FOR YOUR SOLUTIONS

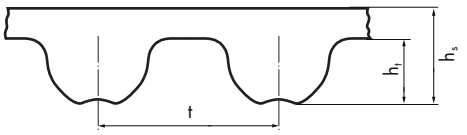


1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt OMEGA High Load IN PROFILE 8M

Profile		8M
t	[mm]	8.0
h_s	[mm]	5.4
h_t	[mm]	3.2



optibelt OMEGA High Load in profile 8M								
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
288 8M •	288.00	36	1064 8M •	1064.00	133	2800 8M	2800.00	350
352 8M •	352.00	44	1080 8M •	1080.00	135	3048 8M	3048.00	381
376 8M •	376.00	47	1096 8M •	1096.00	137	3280 8M •	3280.00	410
416 8M •	416.00	52	1120 8M	1120.00	140	3600 8M	3600.00	450
424 8M •	424.00	53	1128 8M •	1128.00	141			
480 8M	480.00	60	1160 8M •	1160.00	145			
536 8M •	536.00	67	1184 8M •	1184.00	148			
560 8M	560.00	70	1200 8M	1200.00	150			
576 8M •	576.00	72	1216 8M •	1216.00	152			
584 8M •	584.00	73	1224 8M •	1224.00	153			
600 8M •	600.00	75	1248 8M •	1248.00	156			
608 8M	608.00	76	1280 8M	1280.00	160			
632 8M •	632.00	79	1304 8M	1304.00	163			
640 8M	640.00	80	1344 8M •	1344.00	168			
656 8M	656.00	82	1360 8M	1360.00	170			
680 8M •	680.00	85	1400 8M •	1400.00	175			
712 8M •	712.00	89	1424 8M	1424.00	178			
720 8M	720.00	90	1440 8M	1440.00	180			
760 8M •	760.00	95	1520 8M •	1520.00	190			
776 8M	776.00	97	1552 8M •	1552.00	194			
784 8M	784.00	98	1584 8M •	1584.00	198			
800 8M	800.00	100	1600 8M	1600.00	200			
824 8M •	824.00	103	1680 8M •	1680.00	210			
840 8M •	840.00	105	1696 8M •	1696.00	212			
848 8M •	848.00	106	1728 8M •	1728.00	216			
856 8M •	856.00	107	1760 8M	1760.00	220			
880 8M	880.00	110	1800 8M	1800.00	225			
896 8M •	896.00	112	1936 8M •	1936.00	242			
912 8M	912.00	114	2000 8M	2000.00	250			
920 8M	920.00	115	2240 8M	2240.00	280			
960 8M	960.00	120	2248 8M •	2248.00	281			
976 8M •	976.00	122	2272 8M •	2272.00	284			
1000 8M •	1000.00	125	2400 8M	2400.00	300			
1040 8M	1040.00	130	2504 8M •	2504.00	313			
1056 8M •	1056.00	132	2600 8M	2600.00	325			

Standard widths: 20 mm, 30 mm, 50 mm, 85 mm
(other dimensions and special widths on request) • Non stock item

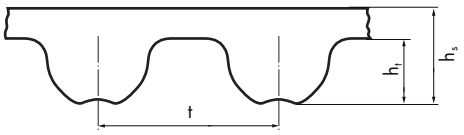
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1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt OMEGA High Load IN PROFILE 14M

Profile	14M
t [mm]	14.0
h_s [mm]	9.5
h_t [mm]	5.6



optibelt OMEGA High Load in profile 14M					
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
966 14M	966.00	69	2800 14M	2800.00	200
1092 14M	1092.00	78	3150 14M	3150.00	225
1190 14M	1190.00	85	3360 14M	3360.00	240
1400 14M	1400.00	100	3500 14M	3500.00	250
1456 14M •	1456.00	104	3850 14M	3850.00	275
1610 14M	1610.00	115	4326 14M	4326.00	309
1778 14M	1778.00	127	4578 14M	4578.00	327
1890 14M	1890.00	135			
2100 14M	2100.00	150			
2310 14M	2310.00	165			
2450 14M	2450.00	175			
2590 14M	2590.00	185			

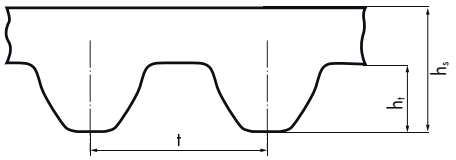
Standard widths: 40 mm, 55 mm, 85 mm, 115 mm, 170 mm
(other dimensions and special widths on request) • Non stock item

1 PRODUCT DESCRIPTION

1.10 TIMING BELT STANDARD RANGE

optibelt OMEGA High Load IN PROFILE S8M

Profile	S8M
t [mm]	8.00
h_s [mm]	5.30
h_t [mm]	3.05



optibelt OMEGA High Load in profile S8M					
Designation	Pitch length [mm]	Number of teeth	Designation	Pitch length [mm]	Number of teeth
560 S8MHL •	560.00	70	1216 S8MHL •	1216.00	152
600 S8MHL •	600.00	75	1224 S8MHL •	1224.00	153
632 S8MHL •	632.00	79	1256 S8MHL •	1256.00	157
656 S8MHL •	656.00	82	1296 S8MHL •	1296.00	162
712 S8MHL •	712.00	89	1304 S8MHL •	1304.00	163
720 S8MHL •	720.00	90	1344 S8MHL •	1344.00	168
760 S8MHL •	760.00	95	1352 S8MHL •	1352.00	169
800 S8MHL •	800.00	100	1400 S8MHL •	1400.00	175
824 S8MHL •	824.00	103	1408 S8MHL •	1408.00	176
840 S8MHL •	840.00	105	1440 S8MHL •	1440.00	180
848 S8MHL •	848.00	106	1480 S8MHL •	1480.00	185
880 S8MHL •	880.00	110	1552 S8MHL •	1552.00	194
1000 S8MHL •	1000.00	125	1600 S8MHL •	1600.00	200
1024 S8MHL •	1024.00	128	1760 S8MHL •	1760.00	220
1040 S8MHL •	1040.00	130	1800 S8MHL •	1800.00	225
1056 S8MHL •	1056.00	132	1912 S8MHL •	1912.00	239
1064 S8MHL •	1064.00	133			
1080 S8MHL •	1080.00	135			
1096 S8MHL •	1096.00	137			
1104 S8MHL •	1104.00	138			
1120 S8MHL •	1120.00	140			
1136 S8MHL •	1136.00	142			
1160 S8MHL •	1160.00	145			
1168 S8MHL •	1168.00	146			
1176 S8MHL •	1176.00	147			
1200 S8MHL •	1200.00	150			

Standard widths: 20 mm, 30 mm, 50 mm, 85 mm
(other dimensions and special widths on request) • Non stock item

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TIMING BELTS
FOR YOUR
SOLUTIONS



1 PRODUCT DESCRIPTION
1.11 PROPERTIES AND SPECIAL DESIGNS

Limited resistance to oil, heat, cold, and ozone, as well as limited suitability for tropical climates are standard features of all timing belts. There is no special marking.

SERVICE LIFE

Service life can be further increased thanks to new materials. Performance-enhanced belt designs greatly exceed the attainable service life of basic versions. Example: Dynamic controls with optibelt OMEGA HP provide a service life that is up to 18 times higher than basic timing belts. Service life can however greatly vary depending on use, torque, rotational speed, or external influences.

EFFICIENCY

The specially developed tooth fabric and the flexible belt design result in a virtually friction-free belt drive with an efficiency of up to 98 %.

OIL RESISTANCE

The limited 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. If you have higher resistance requirements, e.g. against mineral oils, special constructions can be used to increase the timing belt's area of application. For further information please contact the Optibelt Application Engineering department.

TEMPERATURE RESISTANCE

The timing belt is compatible with ambient temperatures of ≈ –30 °C to +100 °C. Temperatures beyond this range will lead to early aging and embrittlement of timing belts, thus to their early failure. The timing belt's temperature resistance can be extended by special constructions, e.g. by using an EPDM rubber compound, which increases the range to –40 °C to +140 °C. For further information please contact the Optibelt Application Engineering department.

ELECTRICAL CONDUCTIVITY

Electrical conductivity allows the belts to safely discharge electrostatic charges. In timing belts with insufficient electrical conductivity, these charges can be so high that sparking causes a risk of ignition. Electrical conductivity according to ISO 9563 is achieved via special rubber compounds and fabric types. It is established by an acceptance test certificate.

Specific Optibelt timing belts are already anti-static as standard in accordance with ISO 9563 and are marked as follows:

- optibelt OMEGA HP with profiles 8M and 14M
- optibelt OMEGA FAN POWER with profiles 8M and 14M
- optibelt OMEGA High Power with profiles 8M and 14M
- optibelt OMEGA High Load with profiles 8M and 14M
- optibelt OMEGA High Power/High Load EPDM with profiles 8M and 14M

For anti-static properties in other belt versions and/or profiles, please contact the Optibelt Applications Engineering department.

OTHER SPECIAL DESIGNS

In order to fulfil the special requirements of our customers, various special designs can be manufactured, such as:

- special tolerances for width, length and height
- special fabrics
- special cords such as aramide
- special profiles such as T2.5, T5, T10
- special compounds
- reinforced top surface
- top surface coatings
- Mechanical processing



Special rubber compounds, top surface coatings, and mechanical processing give timing belts special properties and allow customers to use them in additional areas of application, such as in conveying technology.

Special coating properties can be used to do so, such as:

- increase or reduction of friction between the belt top surface and the conveyed goods
- protection against wear and tear or damage
- protection of conveyed goods against stains
- high temperature resistance
- special chemical resistance
- damping properties





Coatings applied during the manufacturing process are inextricably joined with the base belt, there are no bonding surface or joints.

Coatings can also be added subsequently on a large number of base belts. We can create coatings that cannot be vulcanised together with the base belt, such as silicone rubber.

Mechanical processing enables the use of timing belts in even further areas of application, e.g.:

- timing belts with bores for vacuum applications
- timing belts with chamfered lateral faces for variator applications
- timing belts with longitudinal and transversal grooves for noise optimisation

For further information please contact the Optibelt Application Engineering department.

2 BASICS OF DRIVE DESIGN
2.1 GENERAL REMARKS

FORCES IN A TWO-PULLEY DRIVE

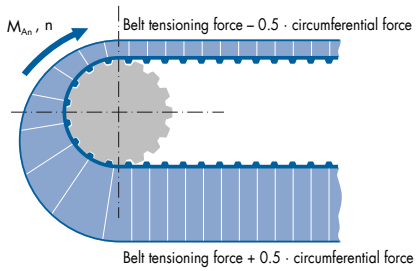
Representing all drive types, the forces in a timing belt drive are described for a drive with two pulleys.

CIRCUMFERENTIAL FORCE

The circumferential force transmitted by the timing belt F_U mainly depends on the load bearing capacity of the teeth and the tensile reinforcements.

The nominal power P_N produced by the tooth loading capacity can be found in chapter Power Ratings.
The rated load bearing capacity primarily depends on the diameter and the rotational speed of the small or, depending on the drive type, the driving pulley. In addition, the type of the external loads and the drive geometry of each individual drive must be taken into account.

TENSILE FORCE DISTRIBUTION IN TIMING BELTS



CENTRIFUGAL FORCES

Growing rotational speeds increase the centrifugal forces of the belt, with the shaft loads decreasing accordingly.
With timing belts, which are comparatively lighter than V-belts, the belt's centrifugal forces are not taken into account for the purpose of simplification.

TOOTH FORCES

Engaging belt teeth transmit the circumferential force from the teeth of the pulley proportionally to the tension cords and vice versa. The load bearing capacity of a tooth is determined by its abrasion and shear strength. The performance of the timing belt can be primarily derived through its width b_r and the sum of the engaging teeth z_e, which is limited for the calculation to a maximum of six teeth. As soon as six teeth and more have meshed on the small pulley, the timing belt's complete performance can be used without any deduction.

TENSION FORCES

The tension cord takes up the circumferential force tooth for tooth at the drive pulley and transmits it. At the driven pulley, the cord releases this circumferential force again through the tooth engagement. In addition, belt tension forces are applied to the tension cord that act in the same way in the spans as well as the areas in contact without an external load as static belt tension.

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2 BASICS OF DRIVE DESIGN
2.2 FORMULA SYMBOLS

The table defines the basic parameters and the associated units which are used in the formulas of this Technical Manual.

Formula symbols	Explanation	Unit	Formula symbols	Explanation	Unit
a	Centre distance	mm	i	Transmission ratio	–
a_{nom}	Centre distance with selected belt length	mm	L	Span length	mm
b_r	Belt width	mm	L_{wSt}	Standard pitch length of the timing belt	mm
β	Arc of contact	°	L_{wth}	Calculated pitch length of the timing belt	mm
c_0	Base service factor	–	m_k	Weight per metre per 1 mm of belt width	kg/m
c_1	Teeth in mesh factor	–	n_1	Speed of the driving timing belt pulley	min^{-1}
c_2	Total service factor	–	n_2	Speed of the driven timing belt pulley	min^{-1}
c_3	Speed correction factor	–	n_k	Speed of the small timing belt pulley	min^{-1}
c_6	Fatigue correction factor	–	P	Power to be transmitted from timing belt drive	kW
c_7	Belt length correction factor	–	P_B	Design power	kW
d_a	Outside diameter of timing belt pulley	mm	P_N	Nominal power	kW
d_w	Pitch diameter of timing belt pulley	mm	$P_Ü$	Transmissible power from a standard belt width [P_N * c_1 * c_7]	kW
d_{w1}	Pitch diameter of driving timing belt pulley	mm	t	Tooth pitch	mm
d_{w2}	Pitch diameter of driven timing belt pulley	mm	v	Belt speed	m/s
d_{wg}	Pitch diameter of large timing belt pulley	mm	x	Minimum adjustment of the drive centre distance a_{nom} for tensioning the timing belt	mm
d_{wk}	Pitch diameter of small timing belt pulley	mm	y	Minimum adjustment of the drive centre distance a_{nom} for installation of the timing belt	mm
f	Frequency	Hz	z_1	Number of teeth of the driving timing belt pulley	–
f_{Init}	Frequency, initial installation	N	z_2	Number of teeth of the driven timing belt pulley	–
F_A	Static shaft load	N	z_e	Number of meshed teeth on the small pulley	–
$F_{A\ Init}$	Static shaft load, initial installation	N	z_g	Number of teeth of the large timing belt pulley	–
F_T	Static belt tension	N	z_k	Number of teeth of the small timing belt pulley	–
$F_{T\ Init}$	Static belt tension, initial installation	N	z_r	Number of teeth of the timing belt	–
F_U	Circumferential force	N			

TOTAL SERVICE FACTOR c_2

The total drive service factor c_2 is composed of the base drive service factor c_0 and two further allowances c_3 and c_6.

$c_2 = c_0 + c_3 + c_6$

$c_2 \geq M_A/M_N$ Recommended for frequent starts and stops

BASIC DRIVE SERVICE FACTOR c_0

The basic drive service factor c_0 takes into account the daily operating time and the type of driver and driven units. As it is not possible to summarize any thinkable combination of driver, driven unit and operating conditions in one table, the basic drive service factors are to be considered as guide values. The assignment of the driven unit depends on the type of load that is present in each case. For slowly operating drives with a rotational speed of ≤ 100 min^{-1}, a basic drive service factor of at least 2 is to be recommended.

c_0	Load type and examples of driving machines			
	Continuous running Electric motor Fast-moving turbine Piston machine with high number of cylinders		**Non-continuous running** Hydraulic motor Slow-moving turbine Piston machine with low number of cylinders	
Type of base load and examples of a driven machine	Basic drive service factor c_0 for daily operating time			
	up to 16 h	above 16 h	up to 16 h	above 16 h
Light drives, joint-free and uniform running Measuring instruments Film cameras Office equipment Belt conveyors (light goods)	1.3	1.4	1.4	1.5
Medium drives, temporary operation with small to medium shock loads Mixing machines Food processors Printing machines Textile machines Packaging machines Belt conveyors (medium goods)	1.6	1.7	1.8	1.9
Heavy drives, operation with medium to strong temporary shock loads Machine tools Wood processing machines Eccentric drive Conveying systems (heavy goods)	1.8	1.9	2.0	2.1
Very heavy drives, operation with strong permanent shock loads Mills Extruders Piston pumps and compressors Lifting gear	2.0	2.1	2.2	2.3

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TEETH IN MESH FACTOR c_1

Number of meshed teeth	Tooth meshing factor c_1
≥ 6	1.00
5	0.80
4	0.60
3	0.40
2	0.20

SPEED CORRECTION FACTOR c_3 (for speed increasing drives)

Speed correction i	Speed correction factor c_3
1.00 – 0.80	0.00
0.79 – 0.57	0.10
0.56 – 0.40	0.20
0.39 – 0.28	0.30
0.27 and smaller	0.40

FATIGUE CORRECTION FACTOR c_6

Operating conditions	Fatigue correction factor c_6
Use of tension or idler pulleys	0.20
Operating time 16–24 h	0.20
Only rare or occasional operation	– 0.20

In the event of high switching frequency or of persistent reversing operation, the chosen total drive service factor c_2 should be larger than the ratio between start-up and nominal torque. This should also be applied to the braking torque in case of frequent braking with the motor brake. If you have any questions, please contact the Optibelt Applications Engineering department.

BELT LENGTH FACTOR c_7

Profile 2M	
Pitch length [mm]	Belt length factor c_7
≤ 190	0.80
> 190 ≤ 260	0.90
> 260 ≤ 400	1.00
> 400 ≤ 600	1.10
> 600	1.20

Profile 3M	
Pitch length [mm]	Belt length factor c_7
≤ 190	0.80
> 190 ≤ 260	0.90
> 260 ≤ 400	1.00
> 400 ≤ 600	1.10
> 600	1.20

Profile 5M	
Pitch length [mm]	Belt length factor c_7
≤ 440	0.80
> 440 ≤ 555	0.90
> 555 ≤ 800	1.00
> 800 ≤ 1100	1.10
>1100	1.20

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LENGTH FACTOR c_7

Profile 8M	
Pitch length [mm]	Belt length factor c_7
≤ 600	0.80
> 600 ≤ 880	0.90
> 880 ≤ 1200	1.00
> 1200 ≤ 1760	1.10
> 1760 ≤ 2240	1.20
> 2240 ≤ 2840	1.30
> 2840 ≤ 3600	1.40
> 3600 ≤ 1760	1.50

Profile 14M	
Pitch length [mm]	Belt length factor c_7
≤ 1190	0.80
> 1190 ≤ 1610	0.90
> 1610 ≤ 1890	0.95
> 1890 ≤ 2450	1.00
> 2450 ≤ 3150	1.05
> 3150 ≤ 3500	1.10
> 3500	1.20

MINIMUM ALLOWANCE y – WITHOUT FLANGE

Drive centre distances [mm]	Displacement for the installation of the timing belt [mm]
up to 1000	1.8
from 1000 to 1780	2.8
from 1780 to 2540	3.3
from 2540 to 3300	4.1
from 3300 to 4600	5.3

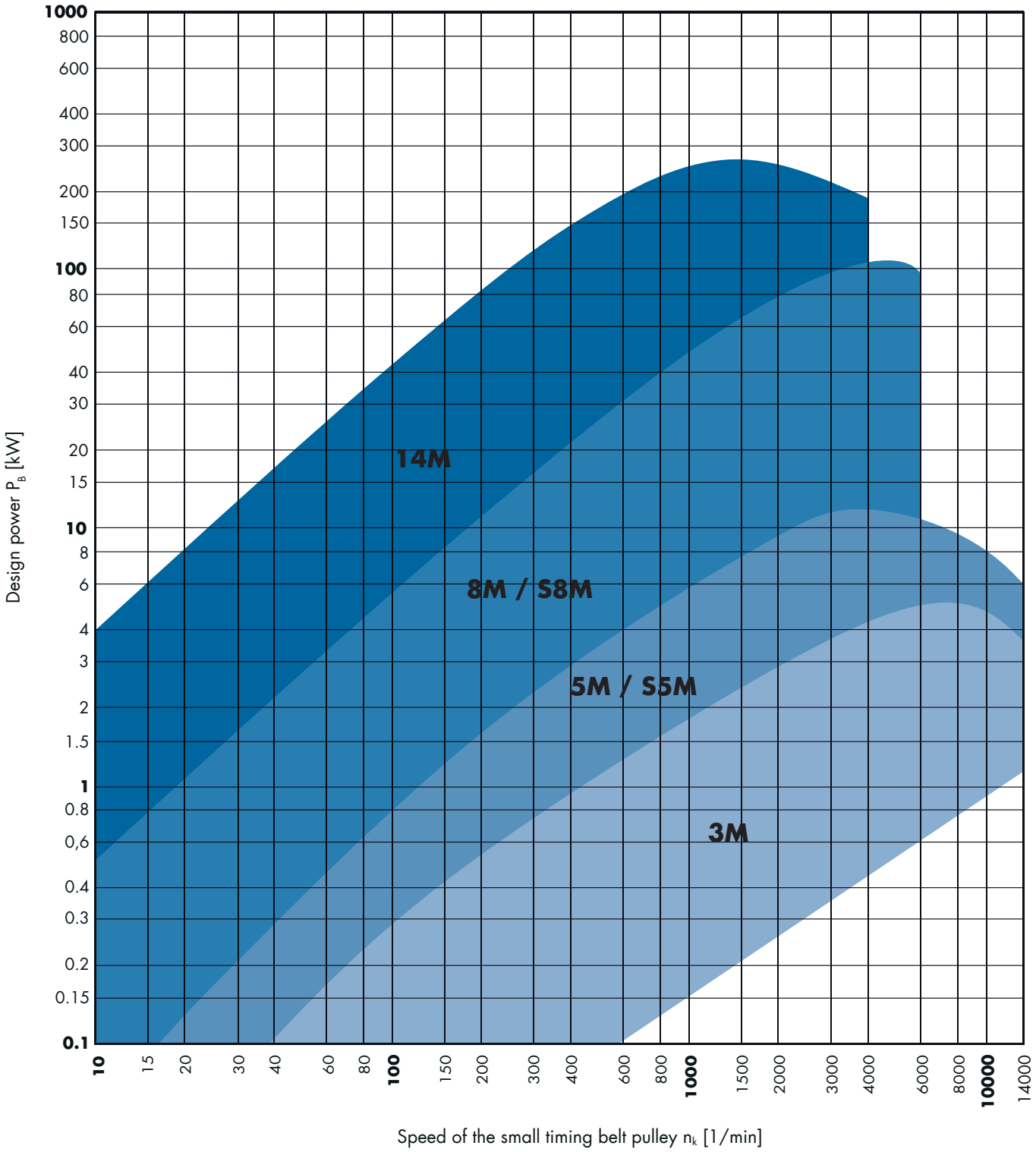
MINIMUM ALLOWANCE y – WITH FLANGE

Pitch [mm]	Flange on one timing belt pulley [mm]	Flanges on both timing belt pulleys [mm]
2	6	12
3	8	14
5	14	19
8	22	33
14	36	58

MINIMUM ALLOWANCE x FOR TENSIONING TIMING BELTS

$x = 0.004 \cdot a_{nom}$

Diagram 1



Design power $P_B = P * c_2$ [kW]

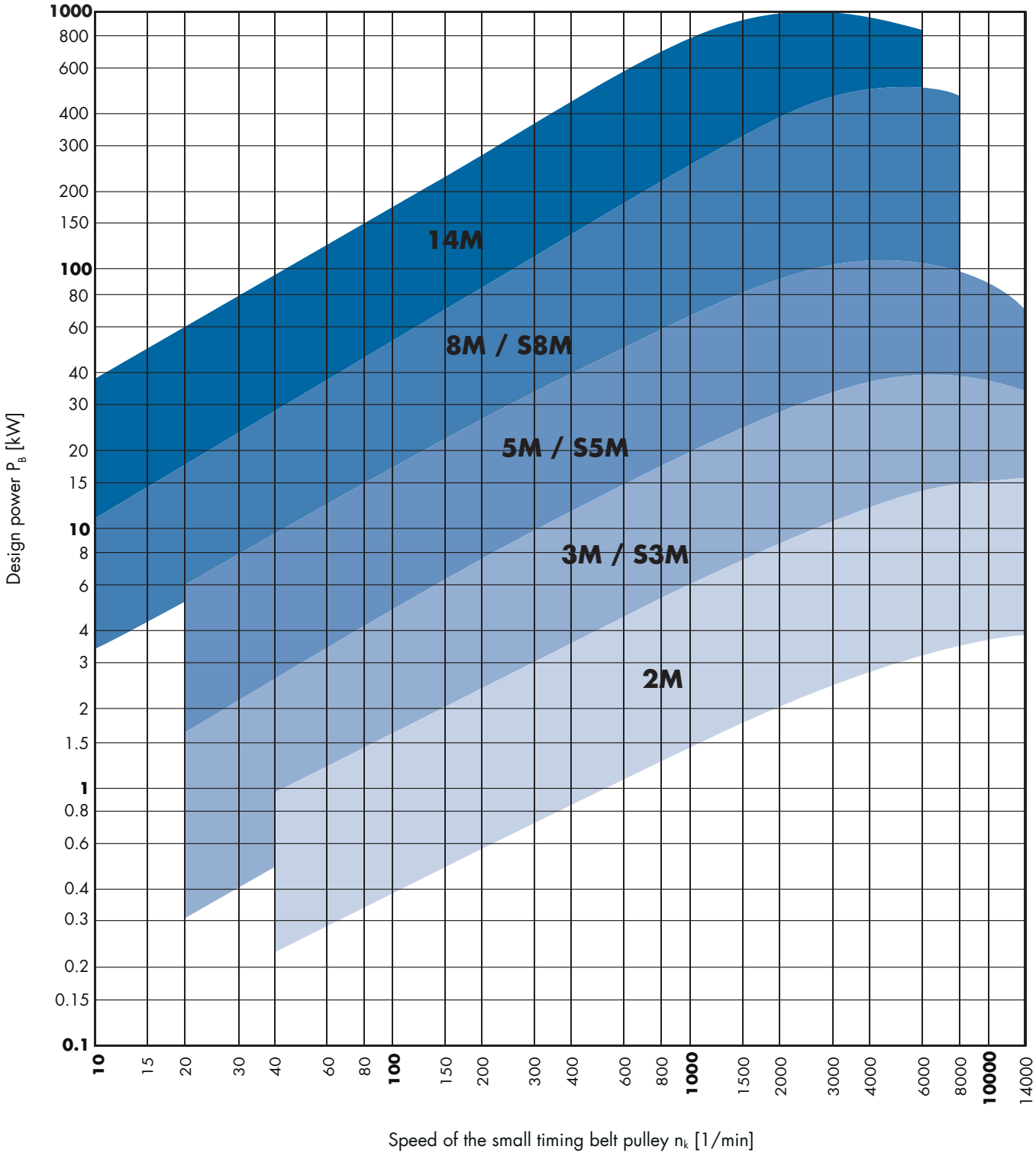
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2 BASICS OF DRIVE DESIGN

2.4 PRE-SELECTION OF THE PROFILES

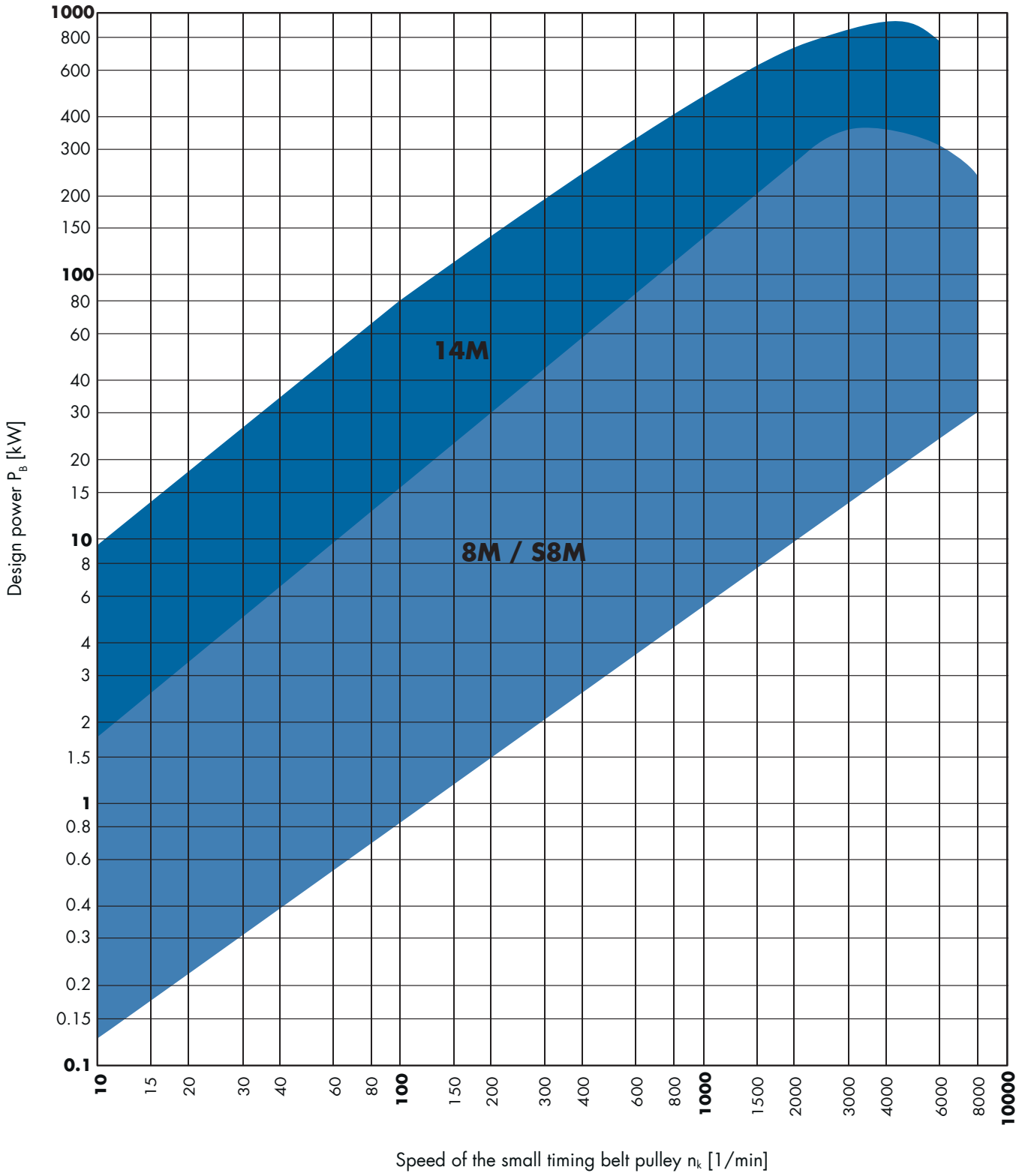
HP DESIGN

Diagram 2



Design power $P_B = P * c_2$ [kW]

Diagram 3



Design power $P_B = P * c_2$ [kW]

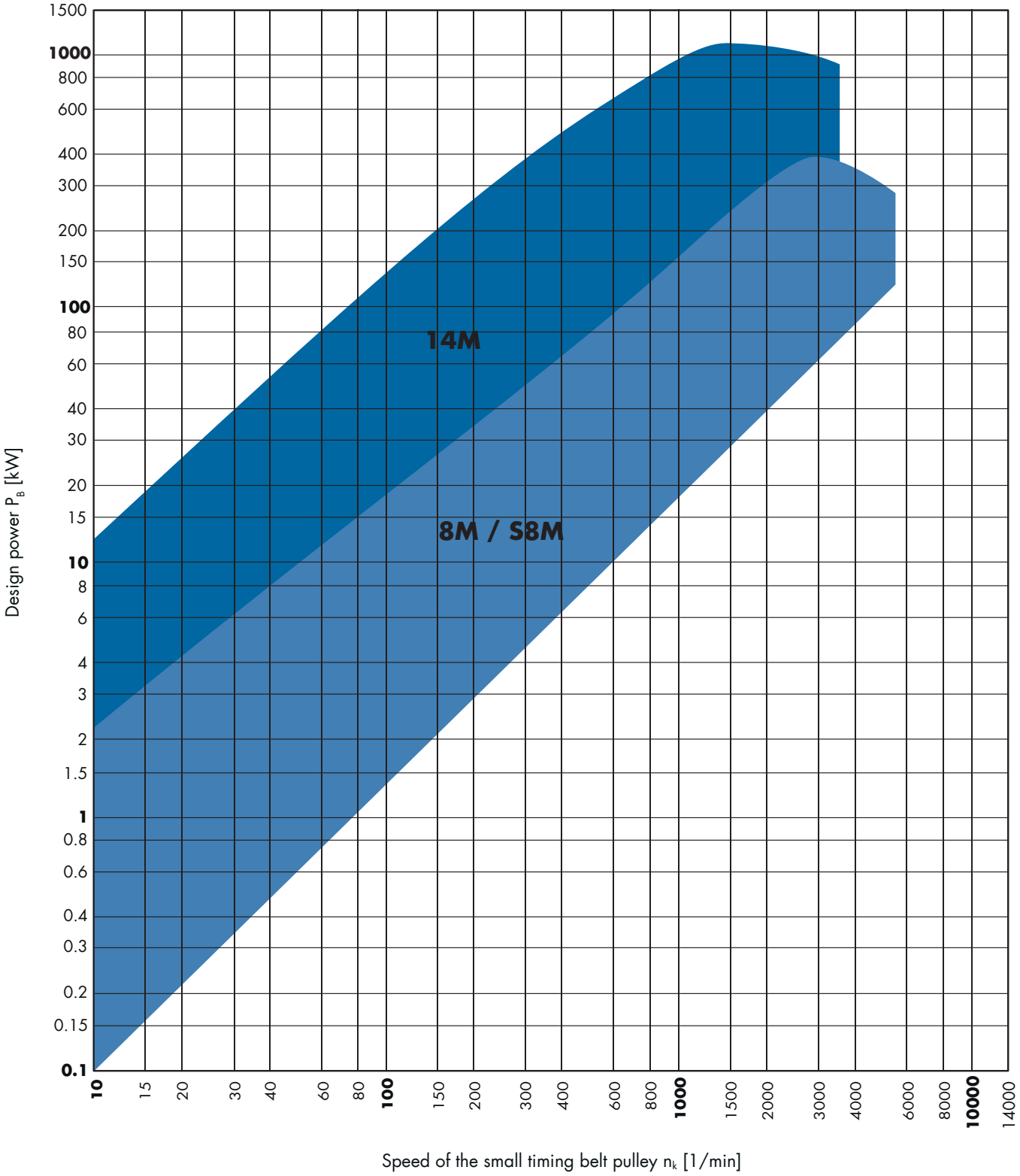
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2 BASICS OF DRIVE DESIGN

2.4 PRE-SELECTION OF THE PROFILES

HIGH LOAD DESIGN

Diagram 4



Design power $P_B = P * c_2$ [kW]

2 BASICS OF DRIVE DESIGN
2.5 FORMULAS AND CALCULATION EXAMPLE

DRIVING MACHINE

Electric motor 50 Hz
Star delta starting
P = 23 kW
n_1 = 2850 min^{-1}

DRIVEN MACHINE

Main drive of a
circular knitting machine
P = 15 kW
n_2 = 1830 min^{-1} ± 1 %
Type of load: constant

OPERATING CONDITIONS

Operational hours per day: 17 hours
Number of starts: Twice per day
Environmental influences: Ambient temperature, no influence of oil, water and dust
Drive centre distance: 400 mm to 450 mm
Maximum pulley diameter: 200 mm

FORMULAS	CALCULATION EXAMPLE
Total service factor	
$c_2 = c_0 + c_3 + c_6$ c_0 from table, page 72 c_3 from table, page 73 c_6 from table, page 73	c_2 = 1.7 + 0 + 0 = **1.7** c_0 = 1.7 c_3 = 0 c_6 = 0
Design power	
$P_B = P \cdot c_2$	P_B = 23.0 · 1.7 = **39.1 kW**
Timing belt profile	
from diagrams 1-4, pages 76-79	optibelt OMEGA High Power Profile 8M
Speed ratio	
$i = \frac{n_1}{n_2} = \frac{z_2}{z_1} = \frac{d_{w2}}{d_{w1}}$	$i = \frac{2850}{1830}$ = **1.557**
Number of teeth on the timing belt pulleys	
z_1, d_{w1} selected from the basic range of timing belt pulleys, page 131 $z_2 = z_1 \cdot i$ Please note the minimum diameter!	z_1 = **36** d_{w1} = 91.67 mm z_2 = 36 · 1.56 = 56.16 z_2 = **56** d_{w2} = 142.60 mm z_2 selected from the basic range of pulleys on page 131 Requirement $z_1 \geq 22$ (minimum number of teeth for profile 8M) met
Checking the driven speed	
$i = \frac{z_2}{z_1}$ $n_2 = \frac{n_1}{i}$	$i = \frac{56}{36}$ = 1.556 $n_2 = \frac{2850}{1.556}$ = **1832 min^{-1}** **Required: 1830 min^{-1}** ± 1 % met
Recommended centre distance	
Recommendation: $a > 0.5\ (d_{w1} + d_{w2}) + 15$ mm $a < 2.0\ (d_{w1} + d_{w2})$	$a > 0.5\ (91.67 + 142.60) + 15$ mm = 132.14 mm $a < 2.0\ (91.67 + 142.60)$ = 468.54 mm a = **425 mm** selected provisionally

See also optibelt CAP drive calculation software at www.optibelt.com

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FORMULAS

CALCULATION EXAMPLE

Pitch length of the timing belt

$$L_{wth} \approx 2a + \frac{\pi}{2}(d_{wg} + d_{wk}) + \frac{(d_{wg} - d_{wk})^2}{4\,a}$$

L_{wSt} see standard lengths, see pages 28-66

$$L_{wth} \approx 2 \cdot 425 + \frac{\pi}{2}(142.60 + 91.67) + \frac{(142.60 - 91.67)^2}{4 \cdot 425}$$

$L_{wth} \approx$ **1219.33 mm**

Nearest standard belt length selected from page 60

L_{wSt} = **1200 mm**

Centre distance from L_{wSt}

$$a_{nom} = K + \sqrt{K^2 - \frac{(d_{wg} - d_{wk})^2}{8}}$$

$$K = \frac{(L_{wSt})}{4} - \frac{\pi}{8}(d_{wg} + d_{wk})$$

$$a_{nom} = 208 + \sqrt{208^2 - \frac{(142.60 - 91.67)^2}{8}}$$

a_{nom} = **415,22 mm**

$$K = \frac{1200}{4} - \frac{\pi}{8}(142.60 + 91.67) = 208 \text{ mm}$$

Minimum adjustment for tensioning

$x = 0.004 \cdot a_{nom}$

$x \geq$ **1.66 mm**

Minimum adjustment for installation

y = from table, page 74

y = **22 mm** (with flanged pulley)

Number of meshed teeth on the small pulley

$$z_e = \frac{z_k}{6}\left(3 - \frac{d_{wg} - d_{wk}}{a_{nom}}\right)$$

$$z_e = \frac{36}{6}\left(3 - \frac{142.60 - 91.67}{415}\right) = 17.26$$

z_e = **17**

Belt length correction factor

c_7 from table, page 73-74

c_7 = **1.0**

Tooth meshing factor

c_1 from table, page 73

c_1 = **1.0**

Belt width over rated power

$P_Ü$ = transmissible power from a standard belt width

$P_Ü = P_N \cdot c_1 \cdot c_7$

P_N value and, if required, width correction factor (which is to be multiplied by the P_N value) see pages 86-113

$P_Ü = 44.84 \cdot 1.0 \cdot 1.0 =$ **44.84 kW**

P_N for 30 mm width = $28.38 \cdot 1.58 =$ **44.84 kW**

Required: $P_Ü \geq P_B$

44.84 kW > 39.10 kW **Requirement met!**

Design:

One optibelt OMEGA High Power timing belt	1200 8M 30
One optibelt ZRS HTD timing belt pulley	TB 36 8M 30
One optibelt ZRS HTD timing belt pulley	TB 56 8M 30

2 BASICS OF DRIVE DESIGN
2.6 PRETENSION AND CALCULATION

The correct level of belt tension is of crucial importance for trouble-free transmission of power, and for achieving an acceptable belt service life. Often, tension which is either too high or too low results in early timing belt failure.

Adjustment of the specified static belt tension, e.g. using the thumbprint method, is not a suitable means of tensioning drives correctly in order to fully utilize them economically. Instead, it is recommended to set the static belt tension by measuring the frequency of a swinging span, e.g. using the measuring equipment from the optibelt TT series.

Correct setting of pretension is crucial:
- to ensure functional safety and with few downtimes
- to obtain the highest possible drive efficiency
- to reach maximum timing belt service life
- to achieve good positioning accuracy
- to incur minimum operating costs (maintenance/replacement)

Effects of too low pretension:
A too lowly pretensed timing belt drive can in principle transmit less power, as there is always a risk of tooth jumping. If the timing belt jumps, it may get overstretched by the unforeseen elongation of the tension cord and rip, or the teeth can shear off due to the shock load. Jumping usually causes the timing belt to fail.

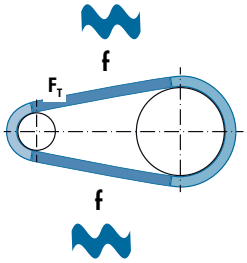
Effects of too high pretension:
A too highly pretensed timing belt drive causes increased wear and tear of the timing belt's tooth base. The wear and tear of the fabric between the teeth will eventually expose the timing belt's tension cord, which will get damaged and cause the belt to fail. Furthermore, excessive pretension increases load on individual teeth, which may be damaged. Moreover, this causes an increase in running noises as well as higher loads on shafts and bearings of the driving and/or driven machine.

CALCULATION OF PRETENSION

The default value for the frequency measurement can be determined using the following formulas:

FORMULA SYMBOLS

b_r	[mm]	Belt width	F_U	[N]	Circumferential force
ß	[°]	Arc of contact	L	[mm]	Span length
f	[Hz]	Frequency	m_k	[kg/m]	Weight per metre per 1 mm of belt width
f_{Init}	[N]	Frequency, initial installation	n_k	[min^{-1}]	Speed of small timing pulley
F_A	[N]	Static shaft load	P_N	[kW]	Nominal power
$F_{A\,Init}$	[N]	Static shaft load, initial installation	t	[mm]	Tooth Pitch
F_T	[N]	Static belt tension	v	[m/s]	Belt speed
$F_{T\,Init}$	[N]	Static belt tension, initial installation	z_k		Number of teeth of small timing pulley



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FORMULAS

CALCULATION EXAMPLE

ARC OF CONTACT

$$\beta = 2 \cdot \cos^{-1} \frac{d_{wg} - d_{wk}}{2 \cdot a_{nom}}$$

$$\beta = 2 \cdot \cos^{-1} \frac{142.60\ mm - 91.67\ mm}{2 \cdot 415.22\ mm} = \mathbf{172.97°}$$

CIRCUMFERENTIAL FORCE

$$F_U = \frac{60 \cdot 10^6 \cdot P_N \cdot \sin \frac{\beta}{2}}{t \cdot z_k \cdot n_k}$$

$$F_U = \frac{60 \cdot 10^6 \cdot 23\ kW \cdot \sin \frac{172.97°}{2}}{8\ mm \cdot 36 \cdot 2850\ min^{-1}} = \mathbf{1678.12\ N}$$

$$v = \frac{d_{wk} \cdot n_k}{19100}$$

$$v = \frac{91.67\ mm \cdot 2850\ min^{-1}}{19100} = \mathbf{13.68\ m/s}$$

$$F_U = \frac{P \cdot 1000 \cdot \sin \frac{\beta}{2}}{v}$$

$$F_U = \frac{23\ kW \cdot 1000 \cdot \sin \frac{172.97°}{2}}{13.68\ m/s} = \mathbf{1678.12\ N}$$

DRIVE CENTRE FORCE, STATIC – INITIAL INSTALLATION

$$F_{A\ Init} = 1.15 \cdot 1.1 \cdot F_U$$

$$F_{A\ Init} = 1.15 \cdot 1.1 \cdot 1678.12\ N = \mathbf{2122.83\ N}$$

DRIVE CENTRE FORCE, STATIC – USED

$$F_A = 1.1 \cdot F_U$$

$$F_A = 1.1 \cdot 1678.12\ N = \mathbf{1845.94\ N}$$

BELT TENSION, STATIC – INITIAL INSTALLATION

$$F_{T\ Init} = \frac{F_{A\ Init}}{2 \cdot \sin \frac{\beta}{2}}$$

$$F_{T\ Init} = \frac{2122.83\ N}{2 \cdot \sin \frac{172.97°}{2}} = \mathbf{1063.42\ N}$$

BELT TENSION, STATIC – USED

$$F_T = \frac{F_A}{2 \cdot \sin \frac{\beta}{2}}$$

$$F_T = \frac{1845.94\ N}{2 \cdot \sin \frac{172.97°}{2}} = \mathbf{924.71\ N}$$

FREQUENCY – INITIAL INSTALLATION

$$f_{Init} = \sqrt{\frac{F_{T\ Init} \cdot 10^6}{4 \cdot m_k \cdot b_r \cdot L^2}}$$

$$f_{Init} = \sqrt{\frac{1063.42\ N \cdot 10^6}{4 \cdot 0.0058 \frac{kg}{m \cdot mm} \cdot 30\ mm \cdot (414.44\ mm)^2}} = \mathbf{94.32\ Hz}$$

FREQUENCY – USED

$$f = \sqrt{\frac{F_T \cdot 10^6}{4 \cdot m_k \cdot b_r \cdot L^2}}$$

$$f = \sqrt{\frac{924.71\ N \cdot 10^6}{4 \cdot 0.0058 \frac{kg}{m \cdot mm} \cdot 30\ mm \cdot (414.44\ mm)^2}} = \mathbf{87.95\ Hz}$$

Optibelt-CAP Drive Calculation

Optibelt GmbH Corveyer Allee 15 D-37671 Höxter/Germany

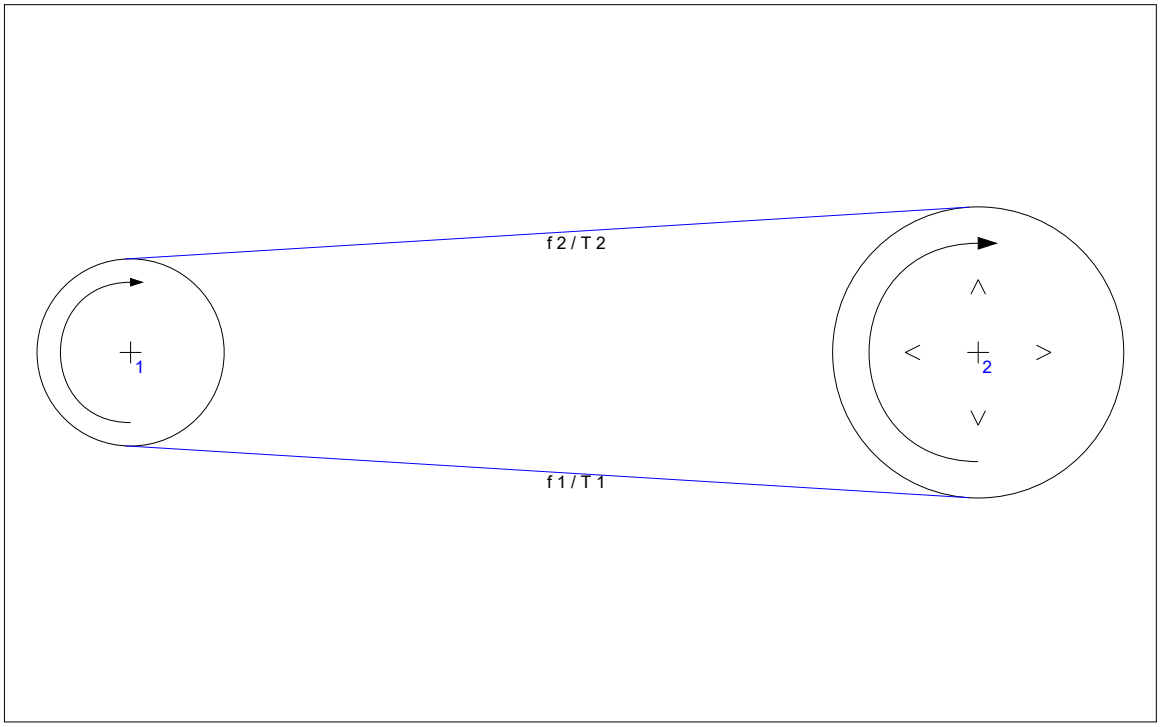
MusterFirma
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MusterStrasse
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Tel. No. : MusterTelefon
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E-Mail : MusterEmail
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Tel. No. : +49 5271 62 0
Fax No. : +49 5271 976200
E-Mail : info@optibelt.com
Internet : www.optibelt.com

Length-Calculation

Calc.-No.	: C000000001	Date	: DD.MM.YYYY	SN	:
Project	: 0001	Drawing No.	: 0001	Drive	: 0001



Timing belt profile optibelt OMEGA High Power 1200 8M 30

Standard pitch length	Lw	:	1200	mm
Number of teeth	zr	:	150	
Pitch	t	:	8	mm
Width	b	:	30	mm
Belt speed	v	:	13,68	m/s
Actual service factor	c2	:	1,97	
Transmitted power	PÜ	:	45,26	kW

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	Sender
MusterFirma	Optibelt GmbH
MusterBearbeiter	Anwendungstechniker
MusterAbteilung	Business Development und Anwendungstechnik



Length-Calculation

Calc.-No.	: C000000001	Date	: DD.MM.YYYY	SN	:
Project	: 0001	Drawing No.	: 0001	Drive	: 0001

pulley 1 TB 36-8M-30 optibelt TB taper bush 1615 (Bore-diameter 14-42 mm)

Diameter	dw_1 :	91,67	mm
Number of teeth	z :	36	
Teeth in mesh	ze :	18	
Speed	n_1 :	2850	1/min
Actual drive ratio	i :	---	
Power	P_{an} :	23,00	kW
Torque	Nm :	77,1	Nm
Static belt tension new	T_1 :	1063	N
Shaft load new	Sa :	2123	N
Frequency new	f_1 :	94,32	Hz
Static belt tension used	T_1 :	925	N
Shaft load used	Sa :	1846	N
Frequency used	f_1 :	87,95	Hz
Span length	L :	414,44	mm
X-coordinate	x :	0,00	mm
Y-coordinate	y :	0,00	mm

pulley 2 TB 56-8M-30 optibelt TB taper bush 2012 (Bore-diameter 14-50 mm)

Diameter	dw_2 :	142,60	mm
Number of teeth	z :	56	
Teeth in mesh	ze :	30	
Speed	n_2 :	1832	1/min
Actual drive ratio	i :	1,56	
Power	P_{ab} :	23,00	kW
Torque	Nm :	119,9	Nm
Static belt tension new	T_2 :	1063	N
Shaft load new	Sa :	2123	N
Frequency new	f_2 :	94,32	Hz
Static belt tension used	T_2 :	925	N
Shaft load used	Sa :	1846	N
Frequency used	f_2 :	87,95	Hz
Span length	L :	414,44	mm
X-coordinate	x :	415,22	mm
Y-coordinate	y :	0,00	mm
X-input coordinate	xs :	415,00	mm
Y-input coordinate	ys :	0,00	mm
X-deviation from theoretical	Dxs :	0,22	mm
Y-deviation from theoretical	Dys :	0,00	mm

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3 POWER RATINGS

3.1 TIMING BELTS IN BASIC DESIGN

PROFILE 2M

Nominal power P_N [W] for timing belt width of 9 mm																
Speed of small timing belt pulley n_k [min^{-1}]	Number of teeth of the small timing belt pulley z_k															
	10	12	14	16	18	20	24	28	32	36	40	48	56	64	72	80
	Pitch diameter of the small timing belt pulley d_{wk} [mm]															
	6.37	7.64	8.91	10.19	11.46	12.73	15.28	17.83	20.37	22.92	25.46	30.56	35.65	40.74	45.84	50.93
20	0.39	0.48	0.57	0.66	0.75	0.85	1.03	1.23	1.42	1.62	1.82	2.21	2.62	3.02	3.43	3.84
40	0.79	0.96	1.14	1.33	1.52	1.71	2.08	2.46	2.85	3.24	3.63	4.42	5.22	6.02	6.82	7.64
60	1.18	1.44	1.72	1.99	2.27	2.55	3.10	3.67	4.25	4.82	5.41	6.58	7.76	8.96	10.16	11.37
100	1.97	2.41	2.85	3.30	3.75	4.21	5.13	6.07	7.02	7.97	8.93	10.88	12.86	14.80	16.77	18.72
200	3.90	4.75	5.63	6.52	7.41	8.31	10.11	11.96	13.83	15.70	17.57	21.36	25.22	29.07	32.94	36.94
300	5.78	7.07	8.37	9.68	11.02	12.38	15.09	17.79	20.55	23.35	26.13	31.75	37.47	43.23	48.99	54.83
400	7.67	9.36	11.12	12.79	14.56	16.34	19.93	23.57	27.20	30.83	34.51	42.03	49.60	57.17	64.82	72.61
500	9.53	11.64	13.72	15.91	18.10	20.29	24.71	29.24	33.80	38.37	42.96	52.26	61.62	71.10	80.63	90.16
600	11.42	13.93	16.43	19.04	21.64	24.24	29.55	34.95	40.35	45.79	51.30	62.42	73.63	84.92	96.34	107.70
700	13.24	16.16	19.08	22.10	25.12	28.16	34.32	40.58	46.86	53.45	59.93	72.50	85.53	98.65	111.87	125.12
800	15.10	18.40	21.70	25.20	28.60	32.10	39.10	46.20	53.40	61.10	68.60	82.60	97.40	112.40	127.40	142.50
900	16.90	20.60	24.40	28.20	32.10	36.00	43.80	51.80	59.80	68.20	76.40	92.60	109.20	126.00	142.90	159.80
950	17.80	21.70	25.70	29.70	33.80	37.90	46.20	54.60	63.00	71.70	80.30	97.60	115.10	132.80	150.60	168.50
1000	18.70	22.90	27.00	31.20	35.60	39.90	48.50	57.40	66.30	75.20	84.30	102.60	121.00	139.60	158.30	177.10
1200	22.30	27.20	32.20	37.30	42.40	47.50	57.90	68.40	79.00	89.80	100.60	122.40	144.40	166.60	189.00	211.50
1400	25.90	31.60	37.40	43.30	49.20	55.20	67.30	79.50	91.80	104.30	116.80	142.20	167.80	193.60	219.50	245.60
1450	26.80	32.70	38.70	44.80	50.90	57.10	69.60	82.20	95.00	107.90	120.80	147.10	173.60	200.30	227.10	254.10
1600	29.40	36.00	42.50	49.20	55.90	62.80	76.60	90.50	104.50	118.70	133.00	161.90	190.90	220.40	249.90	279.60
1800	32.90	40.30	47.70	55.20	62.80	70.40	85.70	101.40	117.10	133.00	149.10	181.40	214.00	247.00	280.10	313.50
2000	36.50	44.60	52.80	61.00	69.40	77.90	95.00	112.30	129.70	147.30	165.10	200.90	237.00	273.50	310.20	347.20
2400	43.50	53.20	62.90	72.80	82.80	92.90	113.20	133.80	154.60	175.70	196.80	239.60	282.70	326.30	370.10	414.20
2850	51.30	62.70	74.20	85.90	98.00	109.80	133.60	158.00	182.50	207.40	232.40	282.90	333.80	385.20	436.90	489.00
3200	57.40	70.10	82.90	96.10	112.10	124.00	149.40	176.60	204.10	231.90	259.80	316.30	373.30	430.80	488.70	546.90
3600	64.20	78.50	92.90	107.50	122.20	137.20	167.30	197.80	228.60	259.60	291.00	354.30	418.10	482.60	547.40	612.60
4000	71.00	86.80	102.80	118.90	135.20	151.80	185.10	218.80	252.90	287.30	322.00	392.10	462.70	534.00	605.80	678.10
5000	87.90	107.40	127.20	147.10	167.50	187.90	229.10	270.70	313.00	355.80	398.80	485.70	573.10	661.70	750.50	840.20
6000	104.50	127.70	151.30	175.00	199.20	223.50	272.60	322.40	372.70	423.40	474.60	578.10	682.30	787.70	893.60	1000.40
7000	120.80	147.60	174.90	202.40	230.30	258.50	315.40	373.00	431.20	489.90	549.20	669.00	789.60	911.70	1034.40	1158.10
8000	137.10	167.50	198.50	229.80	261.40	293.50	358.10	423.50	489.70	556.40	623.80	759.90	897.00	1035.70	1175.20	1315.70
10000	169.00	206.00	245.00	283.00	322.00	362.00	442.00	522.00	604.00	687.00	770.00	938.00	1107.00	1279.00	1451.00	1625.00
12000	200.00	245.00	290.00	336.00	382.00	429.00	524.00	619.00	716.00	814.00	913.00	1113.00	1314.00	1517.00	1722.00	1928.00
14000	230.00	282.00	334.00	387.00	440.00	494.00	604.00	714.00	826.00	939.00	1053.00	1284.00	1516.00	1692.00	1751.00	1988.00

Further power ratings for other belt widths can be derived from multiplication with the width correction factors.

Width correction factor 2M				
Belt width [mm]	Standard 3	Standard 6	Standard 9	12
Factor	0.28	0.61	1.00	1.44

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3 POWER RATINGS

3.1 TIMING BELTS IN BASIC DESIGN

PROFILE 3M

Nominal power P_N [W] for timing belt width of 9 mm															
Speed of small timing belt pulley n_k [min^{-1}]	Number of teeth of the small timing belt pulley z_k														
	10	12	14	16	18	20	24	28	32	40	48	56	64	72	80
	Pitch diameter of the small timing belt pulley d_{wk} [mm]														
	9.55	11.46	13.37	15.28	17.19	19.10	22.92	26.74	30.56	38.20	45.84	53.48	61.12	68.75	76.39
20	1.6	1.6	1.6	1.6	3.2	3.2	3.2	4.8	4.8	6.4	9.6	11.2	12.8	12.8	14.4
40	3.2	3.2	3.2	4.8	4.8	4.8	6.4	8.0	9.6	14.4	17.6	20.9	24.1	27.3	31.0
60	3.2	4.8	4.8	6.4	8.0	8.0	11.2	12.8	16.0	20.9	27.3	32.6	37.4	40.6	45.5
100	6.4	8.0	9.6	11.2	12.8	14.4	17.6	20.9	25.7	34.2	45.5	53.5	62.0	68.4	76.5
200	12.8	16.0	17.6	20.9	24.1	27.3	35.8	43.9	51.9	70.1	89.8	107.5	122.5	136.9	153.5
300	17.6	20.9	25.7	29.4	34.2	39.0	48.7	58.8	70.1	94.7	120.9	142.2	163.1	182.9	204.3
400	20.9	25.7	31.0	37.4	42.2	48.7	60.4	73.3	86.6	116.0	147.1	174.9	199.5	225.7	249.7
500	25.7	31.0	37.4	43.9	50.3	57.2	71.7	86.6	101.1	135.3	173.3	204.3	233.7	263.1	292.5
600	29.4	35.8	43.9	50.3	57.2	65.2	81.3	97.9	116.0	155.1	196.3	232.1	266.3	298.9	331.6
700	32.6	40.6	48.7	57.2	65.2	73.3	91.4	110.7	130.5	173.3	218.7	259.9	295.7	333.2	371.1
800	37.4	45.5	53.5	63.6	71.7	81.3	101.1	122.5	143.9	190.9	241.7	284.5	325.1	366.3	407.0
900	40.6	48.7	58.8	68.4	78.1	89.8	110.7	133.7	156.7	207.5	261.5	309.1	352.9	397.3	441.2
950	42.2	51.9	62.0	71.7	81.3	93.0	116.0	138.5	163.1	215.5	272.7	321.9	367.9	413.4	459.4
1000	43.9	53.5	63.6	74.9	85.0	96.3	119.3	143.9	170.1	223.5	282.9	333.2	380.7	428.3	475.4
1200	50.3	62.0	73.3	85.0	97.9	110.7	136.9	164.7	194.1	255.1	321.9	379.1	433.2	487.2	539.6
1400	57.2	70.1	82.9	96.3	110.7	124.1	153.5	184.5	217.1	286.1	357.8	421.9	482.4	541.2	601.6
1450	58.8	71.7	85.0	99.5	112.8	127.3	158.3	189.3	223.5	292.5	367.9	431.6	493.6	554.0	616.0
1600	63.6	76.5	91.4	105.9	122.5	136.9	170.1	204.3	240.1	313.9	394.1	462.6	527.8	593.6	658.8
1800	68.4	85.0	101.1	117.6	133.7	150.3	186.1	221.9	261.5	341.7	426.7	501.6	573.8	643.9	714.4
2000	74.9	91.4	109.1	125.7	145.5	163.1	201.1	241.7	282.9	369.5	459.4	541.2	616.0	691.4	766.8
2400	86.0	106.0	126.0	145.0	167.0	188.0	231.0	277.0	323.0	421.0	523.0	614.0	700.0	785.0	869.0
2850	98.0	119.0	141.0	163.0	186.0	211.0	259.0	309.0	362.0	470.0	582.0	682.0	777.0	869.0	961.0
3200	108.0	132.0	157.0	182.0	206.0	232.0	286.0	342.0	398.0	516.0	637.0	746.0	847.0	947.0	1046.0
3600	119.0	144.0	172.0	198.0	226.0	254.0	313.0	372.0	434.0	560.0	690.0	806.0	915.0	1020.0	1123.0
4000	129.0	157.0	185.0	214.0	245.0	275.0	337.0	401.0	467.0	603.0	739.0	862.0	977.0	1087.0	1192.0
5000	154.0	186.0	219.0	254.0	290.0	324.0	398.0	472.0	547.0	700.0	854.0	988.0	1111.0	1228.0	1334.0
6000	177.0	214.0	252.0	291.0	331.0	372.0	454.0	536.0	619.0	788.0	952.0	1093.0	1218.0	1331.0	1428.0
7000	198.0	241.0	283.0	327.0	372.0	416.0	506.0	596.0	687.0	865.0	1034.0	1177.0	1295.0	1393.0	1469.0
8000	219.0	267.0	313.0	362.0	409.0	457.0	555.0	652.0	747.0	933.0	1103.0	1236.0	1338.0	1411.0	1451.0
10000	260.0	314.0	370.0	424.0	480.0	534.0	644.0	749.0	851.0	1034.0	1187.0	1280.0	1318.0	1298.0	1211.0
12000	298.0	360.0	421.0	483.0	544.0	603.0	718.0	828.0	928.0	1092.0	1195.0	1211.0	1133.0		
14000	334.0	401.0	469.0	536.0	600.0	662.0	780.0	887.0	977.0	1098.0	1120.0	1010.0			

Further power ratings for other belt widths can be derived from multiplication with the width correction factors.

Width correction factor 3M							
Belt width [mm]	3	Standard 6	Standard 9	12	Standard 15	20	25
Factor	0.28	0.61	1.00	1.44	1.87	2.63	3.40

3 POWER RATINGS

3.1 TIMING BELTS IN BASIC DESIGN

PROFILES 5M AND S5M

Nominal power P_N [W] for timing belt width of 9 mm															
Speed of small timing belt pulley n_k [min^{-1}]	Number of teeth of the small timing belt pulley z_k														
	14	16	18	20	24	28	32	36	40	44	48	56	64	72	80
	Pitch diameter of the small timing belt pulley d_{wk} [mm]														
	22.28	25.46	28.65	31.83	38.20	44.56	50.93	57.30	63.66	70.03	76.39	89.13	101.86	114.59	127.32
20	3.7	4.9	5.8	6.9	8.9	11.0	13.0	15.0	17.0	19.9	22.8	26.8	30.8	34.0	38.0
40	8.9	11.0	11.8	13.8	17.9	21.0	25.9	30.0	34.9	40.1	45.0	53.9	61.1	68.9	76.9
60	13.0	15.9	17.9	21.0	25.9	32.0	38.0	45.0	51.9	59.9	68.0	80.1	91.9	103.2	115.0
100	21.9	25.9	30.0	34.9	44.1	53.9	64.0	74.9	87.0	100.0	113.0	134.3	153.3	172.3	192.2
200	45.0	53.0	61.1	68.9	88.2	107.2	128.2	150.1	174.4	199.4	226.2	268.6	306.6	345.5	383.9
300	61.0	72.0	83.0	94.0	119.0	145.0	172.0	202.0	233.0	266.0	300.0	356.0	407.0	458.0	509.0
400	76.0	90.0	103.0	117.0	147.0	179.0	213.0	249.0	286.0	326.0	368.0	436.0	498.0	561.0	623.0
500	91.0	106.0	122.0	139.0	174.0	211.0	251.0	292.0	336.0	382.0	430.0	510.0	583.0	656.0	728.0
600	104.0	122.0	140.0	159.0	199.0	241.0	286.0	334.0	383.0	435.0	489.0	580.0	662.0	745.0	827.0
700	117.0	137.0	158.0	179.0	223.0	271.0	321.0	373.0	428.0	485.0	545.0	646.0	738.0	829.0	921.0
800	130.0	152.0	174.0	198.0	247.0	299.0	353.0	411.0	471.0	533.0	598.0	709.0	809.0	910.0	1010.0
900	142.0	166.0	191.0	216.0	269.0	326.0	385.0	447.0	512.0	580.0	650.0	769.0	879.0	987.0	1096.0
950	148.0	173.0	199.0	225.0	280.0	339.0	401.0	465.0	532.0	603.0	675.0	799.0	912.0	1025.0	1137.0
1000	154.0	180.0	206.0	234.0	291.0	352.0	416.0	483.0	552.0	625.0	699.0	828.0	945.0	1062.0	1178.0
1200	177.0	207.0	237.0	268.0	334.0	403.0	475.0	551.0	629.0	710.0	794.0	939.0	1072.0	1204.0	1334.0
1400	199.0	232.0	266.0	301.0	375.0	451.0	532.0	615.0	702.0	791.0	884.0	1044.0	1191.0	1336.0	1480.0
1450	205.0	239.0	274.0	309.0	384.0	463.0	545.0	631.0	720.0	811.0	905.0	1070.0	1220.0	1368.0	1515.0
1600	221.0	257.0	295.0	333.0	414.0	498.0	586.0	677.0	771.0	869.0	969.0	1144.0	1303.0	1461.0	1617.0
1800	242.0	281.0	322.0	364.0	451.0	543.0	638.0	736.0	838.0	943.0	1050.0	1239.0	1410.0	1578.0	1745.0
2000	262.0	305.0	349.0	394.0	488.0	586.0	688.0	794.0	902.0	1014.0	1128.0	1329.0	1511.0	1689.0	1864.0
2400	301.0	350.0	400.0	451.0	558.0	669.0	784.0	902.0	1024.0	1148.0	1274.0	1497.0	1697.0	1891.0	2079.0
2850	338.0	393.0	449.0	506.0	625.0	748.0	874.0	1004.0	1137.0	1272.0	1408.0	1649.0	1863.0	2067.0	2262.0
3200	374.0	434.0	496.0	559.0	688.0	822.0	960.0	1100.0	1242.0	1386.0	1531.0	1786.0	2008.0	2217.0	2411.0
3600	409.0	474.0	541.0	609.0	749.0	893.0	1040.0	1190.0	1340.0	1492.0	1644.0	1908.0	2134.0	2340.0	2526.0
4000	443.0	513.0	585.0	658.0	808.0	961.0	1116.0	1274.0	1431.0	1589.0	1745.0	2015.0	2238.0	2436.0	2604.0
5000	523.0	605.0	688.0	772.0	943.0	1115.0	1288.0	1459.0	1628.0	1792.0	1951.0	2212.0	2402.0	2541.0	2623.0
6000	598.0	690.0	783.0	877.0	1064.0	1250.0	1433.0	1610.0	1778.0	1937.0	2084.0	2301.0	2411.0	2434.0	2358.0
7000	669.0	769.0	870.0	971.0	1171.0	1365.0	1550.0	1722.0	1880.0	2019.0	2137.0	2268.0	2245.0		
8000	735.0	843.0	950.0	1057.0	1264.0	1459.0	1637.0	1794.0	1927.0	2031.0	2101.0	2100.0			
10000	854.0	972.0	1088.0	1199.0	1403.0	1577.0	1714.0	1804.0	1842.0	1819.0	1729.0				
12000	956.0	1078.0	1193.0	1299.0	1476.0	1594.0	1643.0	1609.0							
14000	1039.0	1158.0	1264.0	1354.0	1473.0	1495.0	1403.0								
Further power ratings for other belt widths can be derived from multiplication with the width correction factors.															

Width correction factor 5M and S5M							
Belt width [mm]	Standard 6	Standard 9	12	Standard 15	20	Standard 25	30
Factor	0.61	1.00	1.44	1.87	2.63	3.40	4.15

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3 POWER RATINGS

3.1 TIMING BELTS IN BASIC DESIGN

PROFILES 8M AND S8M

Nominal power P_N [kW] for timing belt width of 20 mm																	
Speed of small timing belt pulley n_k [min^{-1}]	Number of teeth of the small timing belt pulley z_k																
	22	24	26	28	30	32	34	36	38	40	44	48	52	56	64	72	80
	Pitch diameter of the small timing belt pulley d_{wk} [mm]																
	56.02	61.12	66.21	71.30	76.39	81.49	86.58	91.67	96.77	101.86	112.05	122.23	132.42	142.60	162.97	183.35	203.72
10	0.02	0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.06	0.06	0.07	0.07	0.08	0.09	0.10	0.11
20	0.03	0.04	0.04	0.05	0.06	0.07	0.08	0.09	0.11	0.11	0.13	0.14	0.14	0.15	0.17	0.19	0.21
50	0.08	0.09	0.11	0.13	0.15	0.18	0.21	0.23	0.26	0.28	0.31	0.34	0.36	0.39	0.44	0.48	0.53
100	0.17	0.18	0.22	0.26	0.31	0.36	0.41	0.47	0.53	0.57	0.62	0.67	0.72	0.77	0.87	0.97	1.06
200	0.33	0.37	0.45	0.53	0.62	0.72	0.82	0.93	1.05	1.13	1.24	1.34	1.44	1.54	1.74	1.93	2.13
300	0.49	0.54	0.65	0.77	0.90	1.04	1.19	1.34	1.51	1.64	1.78	1.93	2.07	2.22	2.50	2.77	3.05
400	0.65	0.71	0.84	0.99	1.17	1.34	1.54	1.74	1.96	2.12	2.31	2.50	2.68	2.87	3.23	3.59	3.94
500	0.81	0.89	1.02	1.22	1.42	1.64	1.88	2.13	2.39	2.59	2.82	3.05	3.27	3.50	3.94	4.37	4.80
600	0.98	1.07	1.21	1.43	1.67	1.93	2.21	2.51	2.82	3.05	3.32	3.59	3.85	4.11	4.63	5.13	5.63
700	1.14	1.24	1.38	1.64	1.92	2.22	2.54	2.88	3.23	3.50	3.81	4.11	4.41	4.71	5.30	5.87	6.44
800	1.30	1.42	1.56	1.85	2.17	2.50	2.86	3.24	3.64	3.94	4.28	4.63	4.97	5.30	5.96	6.60	7.23
950	1.55	1.69	1.83	2.16	2.52	2.91	3.33	3.77	4.24	4.58	4.99	5.38	5.77	6.16	6.91	7.65	8.37
1000	1.63	1.77	1.93	2.26	2.64	3.05	3.48	3.95	4.44	4.80	5.22	5.63	6.04	6.44	7.23	7.99	8.74
1200	1.95	2.13	2.31	2.65	3.10	3.58	4.09	4.63	5.21	5.63	6.12	6.60	7.07	7.54	8.44	9.32	10.17
1450	2.35	2.57	2.79	3.13	3.66	4.23	4.83	5.47	6.14	6.64	7.21	7.77	8.31	8.85	9.89	10.90	11.85
1600	2.59	2.83	3.07	3.42	3.99	4.61	5.26	5.96	6.69	7.23	7.84	8.44	9.03	9.61	10.73	11.79	12.80
1800	2.92	3.18	3.45	3.78	4.42	5.10	5.82	6.59	7.40	7.99	8.67	9.32	9.96	10.59	11.79	12.92	13.99
2000	3.23	3.52	3.82	4.18	4.84	5.58	6.37	7.21	8.09	8.74	9.47	10.17	10.86	11.53	12.80	13.99	15.09
2200	3.55	3.87	4.19	4.59	5.25	6.05	6.91	7.82	8.77	9.47	10.24	11.00	11.73	12.43	13.76	14.98	16.09
2500	4.02	4.38	4.75	5.19	5.84	6.74	7.69	8.69	9.75	10.52	11.36	12.18	12.95	13.70	15.09	16.32	17.40
2850	4.57	4.97	5.38	5.88	6.51	7.51	8.56	9.67	10.85	11.69	12.60	13.47	14.29	15.06	16.46	17.65	18.62
3000	4.80	5.22	5.65	6.17	6.79	7.82	8.92	10.08	11.30	12.18	13.11	13.99	14.82	15.60	16.99	18.14	19.04
3500					7.72	8.84	10.07	11.37	12.73	13.70	14.68	15.60	16.44	17.20	18.47	19.38	19.89
4000							9.78	11.13	12.55	14.04	15.09	16.09	16.99	17.79	18.47		
4500								12.09	13.62	15.23	16.32	17.30	18.14	18.84			
5000									14.58	16.27	17.40	18.31	19.04	19.57			
5500										17.17	18.31	19.10					
6000										17.91	19.04	19.65					
Further power ratings for other belt widths can be derived from multiplication with the width correction factors.																	

Width correction factor 8M and S8M				
Standard belt width [mm]	20	30	50	85
Factor	1.00	1.58	2.73	4.74

3 POWER RATINGS

3.1 TIMING BELTS IN BASIC DESIGN

PROFILE 14M

Nominal power P_N [kW] for timing belt width of 40 mm																	
Speed of small timing belt pulley n_k [min^{-1}]	Number of teeth of the small timing belt pulley z_k																
	28	29	30	32	34	36	38	40	42	44	46	48	52	56	64	72	80
	Pitch diameter of the small timing belt pulley d_{wk} [mm]																
	124.78	129.23	133.69	142.60	151.52	160.43	169.34	178.25	187.17	196.08	204.99	213.90	231.73	249.55	285.21	320.86	356.51
10	0.17	0.20	0.20	0.23	0.29	0.30	0.34	0.36	0.38	0.40	0.42	0.44	0.49	0.53	0.61	0.68	0.74
20	0.35	0.37	0.43	0.49	0.55	0.63	0.68	0.72	0.76	0.80	0.83	0.89	0.97	1.04	1.19	1.34	1.50
40	0.72	0.78	0.84	0.98	1.10	1.25	1.34	1.42	1.52	1.59	1.69	1.76	1.93	2.10	2.39	2.69	2.99
60	1.07	1.15	1.27	1.44	1.64	1.88	2.03	2.14	2.27	2.39	2.52	2.65	2.90	3.14	3.58	4.03	4.49
100	1.79	1.93	2.10	2.42	2.77	3.11	3.37	3.58	3.79	4.00	4.20	4.41	4.85	5.23	5.98	6.72	7.48
200	3.60	3.90	4.20	4.80	5.50	6.20	6.80	7.20	7.60	8.00	8.40	8.90	9.70	10.50	12.00	13.50	15.00
300	4.90	5.30	5.70	6.60	7.50	8.50	9.20	9.70	10.30	10.80	11.40	12.00	13.10	14.20	16.50	18.90	21.30
400	6.10	6.60	7.10	8.20	9.30	10.50	11.40	12.00	12.70	13.30	14.00	14.70	16.10	17.40	20.10	22.90	25.80
500	7.20	7.80	8.40	9.60	11.00	12.30	13.30	14.10	14.80	15.60	16.40	17.20	18.70	20.20	23.30	26.40	29.60
600	8.20	8.90	9.50	11.00	12.50	14.00	15.10	15.90	16.80	17.70	18.50	19.40	21.10	22.70	26.10	29.50	32.90
700	9.10	9.90	10.60	12.20	13.90	15.60	16.80	17.70	18.60	19.50	20.50	21.40	23.20	25.00	28.60	32.20	35.80
800	10.00	10.80	11.60	13.40	15.10	17.00	18.30	19.30	20.30	21.30	22.20	23.20	25.20	27.00	30.80	34.50	38.20
950	11.30	12.10	13.10	14.90	16.90	19.00	20.40	21.40	22.50	23.60	24.60	25.70	27.70	29.70	33.60	37.40	41.10
1000	11.60	12.60	13.50	15.40	17.50	19.60	21.00	22.10	23.20	24.30	25.40	26.50	28.50	30.50	34.40	38.20	41.90
1200	13.10	14.10	15.10	17.30	19.50	21.80	23.40	24.50	25.70	26.80	28.00	29.10	31.20	33.20	37.10	40.70	44.10
1450	14.60	15.70	16.90	19.20	21.70	24.20	25.90	27.10	28.30	29.40	30.60	31.70	33.80	35.70	39.20	42.30	44.80
1600	15.40	16.60	17.80	20.30	22.80	25.50	27.10	28.30	29.50	30.70	31.80	32.90	34.90	36.60	39.80	42.30	44.10
1800	16.40	17.70	18.90	21.50	24.10	26.80	28.50	29.70	30.90	32.00	33.00	34.00	35.80	37.30	39.80	41.30	43.00
2000	17.30	18.60	19.80	22.50	25.20	28.00	29.70	30.80	31.90	32.90	33.80	34.70	36.20	37.40	38.90		
2200	18.60	19.30	20.60	23.30	26.10	28.90	30.50	31.50	32.50	33.40	34.20	35.00	36.10	36.70			
2400	20.10	20.70	21.30	24.00	26.70	29.50	31.10	32.00	32.80	33.50	34.20	34.70	35.30	35.40			
2600	21.50	22.10	22.70	24.40	27.20	29.90	31.40	32.10	32.70	33.20	33.70	33.90	34.00				
2850	23.10	23.80	24.40	25.60	27.40	30.00	31.30	31.80	32.10	32.30	32.40	32.30	31.70				
3000	24.10	24.70	25.30	26.50	27.50	30.10	31.00	31.60	31.50	31.50	31.40	31.60					
3500			28.00	29.10	30.00	30.70	31.20	31.50	31.70								
4000				30.80	31.40												
Further power ratings for other belt widths can be derived from multiplication with the width correction factors.																	

Width correction factor 14M					
Standard belt width [mm]	40	55	85	115	170
Factor	1.00	1.50	2.50	3.47	5.28

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TIMING BELTS FOR YOUR SOLUTIONS



3 POWER RATINGS

3.1 TIMING BELTS IN BASIC DESIGN

PROFILE MXL

Nominal power P_N [kW] for timing belt width of 1" ≙ 25.4 mm										
Speed of small timing belt pulley n_k [min^{-1}]	Number of teeth of the small timing belt pulley z_k									
	10	12	14	15	16	18	20	22	24	28
	Pitch diameter of the small timing belt pulley d_{wk} [mm]									
	6.47	7.76	9.06	9.70	10.35	11.64	12.94	14.23	15.52	18.11
10	0.62	0.62	0.74	0.87	0.87	0.99	1.12	1.24	1.36	1.61
40	2.23	2.73	3.10	3.35	3.60	4.09	4.46	4.96	5.33	6.32
60	3.35	4.09	4.71	5.08	5.33	6.08	6.70	7.44	8.06	9.42
100	5.58	6.70	7.81	8.43	8.93	10.04	11.16	12.28	13.39	15.75
200	11.16	13.39	15.75	16.86	17.98	20.21	22.44	24.68	26.91	31.37
400	14.64	26.91	31.37	33.60	35.84	40.30	44.89	49.35	53.82	62.74
600	33.60	40.30	47.12	50.47	54.93	60.51	67.21	74.03	80.72	94.12
800	44.89	53.82	62.74	67.33	71.67	80.72	89.65	98.58	107.63	125.49
1000	56.05	67.21	78.49	84.07	89.65	100.81	112.10	123.26	134.54	156.86
1200	67.21	80.72	94.24	100.94	107.63	121.02	134.54	147.93	161.45	188.23
1400	78.49	94.12	109.86	117.30	125.49	141.24	156.86	172.61	188.23	219.73
1600	89.65	107.63	125.24	135.16	143.47	161.45	142.10	197.28	215.14	251.10
1800	100.81	121.02	141.36	151.28	161.45	181.54	201.75	221.96	242.05	282.47
2000	112.10	134.54	157.48	168.64	179.30	201.75	224.19	246.51	268.96	313.84
2400	134.54	161.45	188.48	202.12	215.14	242.05	268.96	295.86	322.77	376.59
2800	156.86	188.23	219.48	235.60	251.10	282.47	313.84	345.22	376.59	439.33
3200	179.30	215.14	251.72	269.08	286.94	322.77	358.61	394.44	430.40	502.08
3600	201.75	242.05	282.72	302.56	322.77	363.07	403.50	443.80	484.22	564.82
4000	224.19	268.96	313.72	336.04	358.61	403.50	448.26	493.15	537.91	627.56
5000	280.24	336.29	391.84	420.36	448.26	504.31	560.36	616.40	672.45	784.55
6000	336.29	403.50	471.20	504.68	537.91	605.24	672.45	739.66	806.99	941.41
8000	448.26	537.91	627.44	673.32	729.74	806.99	896.64	986.30	1075.95	1255.25
10000	560.36	672.45	784.92	840.72	896.64	1008.74	1120.71	1232.81	1344.90	1569.10
12000	672.45	806.99	942.40	1009.36	1075.95	1210.36	1344.90	1479.44	1613.86	1882.82
14000	784.55	941.41	1098.64	1176.76	1255.25	1412.11	1569.10	1725.96	1882.82	2196.66

Width correction factor MXL									
Belt code	012	019	025	031	037	043	050	063	075
Belt width [mm]	3.18	4.76	6.35	7.94	9.53	11.11	12.70	15.88	19.05
Factor	0.06	0.12	0.18	0.24	0.30	0.36	0.42	0.57	0.71

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3 POWER RATINGS

3.1 TIMING BELTS IN BASIC DESIGN

PROFILE MXL

Nominal power P_N [kW] for timing belt width of 1" ≙ 25.4 mm									
Speed of small timing belt pulley n_k [min^{-1}]	Number of teeth of the small timing belt pulley z_k								
	30	32	36	40	42	48	60	72	80
	Pitch diameter of the small timing belt pulley d_{wk} [mm]								
	19.40	20.70	23.29	25.87	27.17	31.05	38.81	46.57	51.74
10	1.74	1.74	1.98	2.23	2.36	2.73	3.35	4.09	4.46
40	6.70	7.19	8.06	8.93	9.42	10.79	13.39	16.12	17.98
60	10.04	10.79	12.15	13.39	14.14	16.12	20.21	24.18	26.91
100	16.86	17.98	20.21	22.44	23.56	26.91	33.60	40.30	44.89
200	33.60	35.84	40.30	44.89	47.12	53.82	67.21	80.72	89.65
400	67.21	71.67	80.72	89.65	94.12	107.63	134.54	161.45	179.30
600	100.81	107.63	121.02	134.54	141.24	161.45	201.75	242.05	268.96
800	134.54	143.47	161.45	179.30	188.23	215.14	268.96	322.77	358.61
1000	168.14	179.30	201.75	224.19	235.35	268.96	336.29	403.50	448.26
1200	201.75	215.14	242.05	268.96	282.47	322.77	403.50	484.22	537.91
1400	235.35	251.10	282.47	313.84	329.47	376.59	470.70	564.82	627.56
1600	268.96	286.94	322.77	358.61	376.59	430.40	537.91	645.54	717.34
1800	302.56	322.77	363.07	403.50	423.58	484.22	605.24	726.27	806.99
2000	336.29	358.61	403.50	448.26	470.70	537.91	672.45	806.99	896.64
2400	403.50	430.40	484.22	537.91	564.82	645.54	806.99	968.32	1075.95
2800	470.70	502.08	564.82	621.98	659.06	753.18	941.41	1129.76	1255.25
3200	537.91	573.87	645.54	717.34	753.18	860.68	1075.95	1291.09	1434.56
3600	605.24	645.54	726.27	806.99	847.29	968.32	1210.36	1452.54	1613.86
4000	672.45	717.34	806.99	896.64	941.41	1075.95	1344.90	1613.86	1793.16
5000	840.60	896.64	1008.74	1120.71	1176.76	1344.90	1681.19	2017.36	2241.55
6000	1008.74	1075.95	1210.36	1344.90	1412.11	1613.86	2017.36	2420.85	2689.81
8000	1344.90	1434.56	1613.86	1793.16	1882.82	2151.90	2689.81	3227.72	3586.45
10000	1681.19	1793.16	2017.36	2241.55	2353.64	2689.81	3362.26	4034.71	4482.97
12000	2017.36	2151.90	2420.85	2689.81	2824.35	3227.72	4034.71	4841.70	5379.62
14000	2353.64	2510.50	2824.35	3138.07	3295.05	3765.76	4707.16	5648.57	6276.26

Width correction factor MXL									
Belt code	012	019	025	031	037	043	050	063	075
Belt width [mm]	3.18	4.76	6.35	7.94	9.53	11.11	12.70	15.88	19.05
Factor	0.06	0.12	0.18	0.24	0.30	0.36	0.42	0.57	0.71

3 POWER RATINGS

3.1 TIMING BELTS IN BASIC DESIGN

PROFILE XL

Nominal power P_N [kW] for timing belt width of 1" ≙ 25.4 mm											
Speed of small timing belt pulley n_k [min^{-1}]	Number of teeth of the small timing belt pulley z_k										
	10	11	12	13	14	15	16	17	18	19	20
	Pitch diameter of the small timing belt pulley d_{wk} [mm]										
	16.17	17.79	19.40	21.02	22.64	24.26	25.87	27.49	29.11	30.72	32.34
100	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03
200	0.03	0.03	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.06	0.06
300	0.04	0.05	0.05	0.06	0.07	0.07	0.07	0.08	0.08	0.09	0.09
400	0.06	0.07	0.07	0.08	0.08	0.09	0.10	0.10	0.10	0.11	0.12
500	0.07	0.08	0.09	0.10	0.10	0.11	0.12	0.13	0.13	0.14	0.15
600	0.09	0.10	0.10	0.12	0.13	0.13	0.14	0.15	0.16	0.17	0.18
700	0.10	0.11	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.21
800	0.12	0.13	0.14	0.16	0.17	0.18	0.19	0.21	0.22	0.24	0.25
900	0.13	0.15	0.16	0.18	0.19	0.20	0.22	0.24	0.25	0.27	0.28
1000	0.15	0.16	0.18	0.20	0.22	0.23	0.25	0.27	0.28	0.30	0.31
1100	0.16	0.19	0.19	0.21	0.23	0.25	0.27	0.29	0.30	0.32	0.34
1200	0.18	0.20	0.22	0.24	0.25	0.28	0.29	0.31	0.33	0.35	0.37
1300	0.19	0.22	0.23	0.26	0.28	0.30	0.31	0.34	0.36	0.38	0.40
1400	0.21	0.23	0.25	0.28	0.30	0.32	0.34	0.37	0.39	0.41	0.43
1500	0.22	0.25	0.27	0.30	0.32	0.34	0.37	0.39	0.41	0.44	0.46
1600	0.25	0.27	0.30	0.32	0.34	0.37	0.40	0.42	0.44	0.46	0.48
1800	0.28	0.30	0.33	0.36	0.38	0.41	0.44	0.47	0.49	0.52	0.55
2000	0.31	0.34	0.37	0.40	0.43	0.46	0.48	0.52	0.55	0.58	0.61
2200	0.34	0.37	0.40	0.44	0.47	0.51	0.54	0.57	0.60	0.64	0.67
2400	0.37	0.40	0.44	0.48	0.51	0.55	0.59	0.63	0.66	0.70	0.73
2600	0.40	0.43	0.48	0.52	0.55	0.60	0.63	0.68	0.72	0.76	0.79
2800	0.43	0.47	0.51	0.56	0.60	0.64	0.69	0.73	0.77	0.82	0.86
3000	0.46	0.50	0.55	0.60	0.64	0.69	0.73	0.78	0.82	0.87	0.92
3200	0.48	0.54	0.59	0.64	0.68	0.73	0.78	0.83	0.88	0.93	0.97
3400	0.51	0.57	0.62	0.67	0 72	0.78	0.83	0.88	0.93	0.98	1.03
3600	0.55	0.60	0.66	0.72	0.77	0.82	0.88	0.93	0.98	1.04	1.09
3800	0.58	0.62	0.69	0.75	0.81	0.87	0.93	0.99	1.04	1.10	1.15
4000	0.61	0.67	0.73	0.80	0.86	0.92	0.97	1.03	1.09	1.16	1.22
4200	0.64	0.70	0.77	0.84	0.90	0.95	1.02	1.08	1.14	1.21	1.28
4400	0.67	0.74	0.81	0.87	0.93	1.00	1.07	1.14	1.20	1.27	1.33
4600	0.70	0.77	0.84	0.91	0.98	1.04	1.12	1.19	1.25	1.32	1.39
4800	0.73	0.80	0.88	0.95	1.02	1.09	1.16	1.24	1.31	1.38	1.45
5000	0.76	0.84	0.92	0.99	1.06	1.13	1.22	1.29	1.36	1.43	1.50
5500	0.86	0.93	1.01	1.09	1.18	1.25	1.33	1.41	1.49	1.57	1.64
6000	0.93	1.01	1.10	1.19	1.29	1.36	1.45	1.53	1.61	1.70	1.78
6500	1.01	1.10	1.20	1.29	1.38	1.46	1.56	1.66	1.75	1.84	1.92
7000	1.08	1.18	1.29	1.39	1.49	1.57	1.67	1.77	1.86	1.96	2.05
7500	1.16	1.27	1.37	1.47	1.58	1.68	1.78	1.88	1.98	2.08	2.18
8000	1.23	1.34	1.46	1.57	1.68	1.78	1 88	1.98	2.10	2.21	2.31
8500	1.30	1.42	1.54	1.65	1.77	1.88	2.00	2.10	2.22	2.33	2.43
9000	1.37	1.50	1.63	1.75	1.87	1.98	2.10	2.21	2.33	2.44	2.54
9500	1.44	1.57	1.71	1.83	1.96	2.08	2.20	2.32	2.45	2.56	2.66
10000	1.52	1.65	1.79	1.92	2.05	2.18	2.30	2.42	2.54	2.66	2.77

Width correction factor XL									
Belt code	019	025	031	037	043	050	063	075	100
Belt width [mm]	4.76	6.35	7.94	9.53	11.11	12.70	15.88	19.05	25.40
Factor	0.12	0.18	0.24	0.30	0.36	0.42	0.57	0.71	1.00

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3 POWER RATINGS

3.1 TIMING BELTS IN BASIC DESIGN

PROFILE XL

Nominal power P_N [kW] for timing belt width of 1" ≙ 25.4 mm										
Speed of small timing belt pulley n_k [min^{-1}]	Number of teeth of the small timing belt pulley z_k									
	21	22	23	24	25	26	27	28	29	30
	Pitch diameter of the small timing belt pulley d_{wk} [mm]									
	33.96	35.57	37.19	38.81	40.43	42.04	43.67	45.28	46.89	48.51
100	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
200	0.06	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.09	0.09
300	0.10	0.10	0.10	0.10	0.11	0.12	0.13	0.13	0.13	0.13
400	0.13	0.13	0.14	0.14	0.15	0.16	0.17	0.17	0.18	0.18
500	0.16	0.16	0.17	0.18	0.19	0.20	0.21	0.22	0.22	0.22
600	0.19	0.20	0.21	0.22	0.23	0.24	0.25	0.25	0.27	0.28
700	0.22	0.23	0.24	0.25	0.27	0.28	0.29	0.30	0.31	0.32
800	0.25	0.27	0.29	0.30	0.31	0.32	0.33	0.34	0.36	0.37
900	0.29	0.30	0.32	0.33	0.35	0.36	0.37	0.38	0.40	0.41
1000	0.32	0.34	0.36	0.37	0.39	0.40	0.42	0.43	0.45	0.46
1100	0.35	0.37	0.39	0.40	0.42	0.44	0.46	0.47	0.49	0.51
1200	0.39	0.40	0.42	0.44	0.46	0.48	0.50	0.51	0.53	0.55
1300	0.42	0.43	0.46	0.48	0.50	0.52	0.54	0.55	0.58	0.60
1400	0.45	0.47	0.49	0.51	0.54	0.56	0.58	0.60	0.62	0.64
1500	0.48	0.50	0.53	0.55	0.58	0.60	0.62	0.64	0.67	0.69
1600	0.51	0.54	0.57	0.59	0.62	0.64	0.66	0.68	0.71	0.73
1800	0.57	0.60	0.63	0.66	0.69	0.71	0.74	0.77	0.80	0.82
2000	0.64	0.67	0.70	0.73	0.77	0.80	0.83	0.86	0.89	0.92
2200	0.70	0.74	0.78	0.81	0.84	0.87	0.90	0.93	0.97	1.00
2400	0.77	0.80	0.84	0.88	0.92	0.95	0.99	1.02	1.06	1.09
2600	0.84	0.87	0.90	0.93	0.98	1.02	1.06	1.10	1.14	1.18
2800	0.90	0.94	0.98	1.02	1.07	1.11	1.15	1.19	1.24	1.28
3000	0.95	1.00	1.05	1.09	1.14	1.19	1.24	1.28	1.32	1.36
3200	1.02	1.07	1.12	1.16	1.21	1.26	1.31	1.35	1.40	1.45
3400	1.08	1.13	1.19	1.24	1.29	1.34	1.39	1.43	1.48	1.53
3600	1.15	1.20	1.26	1.31	1.36	1.41	1.46	1.51	1.56	1.61
3800	1.21	1.27	1.32	1.37	1.43	1.48	1.54	1.59	1.64	1.69
4000	1.29	1.33	1.39	1.45	1.51	1.56	1.62	1.67	1.73	1.78
4200	1.33	1.39	1.45	1.51	1.57	1.63	1.69	1.75	1.81	1.86
4400	1.39	1.45	1.52	1.58	1.65	1.71	1.77	1.83	1.89	1.95
4600	1.45	1.52	1.59	1.65	1.72	1.78	1.84	1.90	1.96	2.02
4800	1.51	1.59	1.66	1.72	1.79	1.85	1.92	1.98	2.04	2.10
5000	1.57	1.64	1.71	1.78	1.85	1.92	1.99	2.05	2.12	2.18
5500	1.72	1.80	1.88	1.95	2.02	2.09	2.16	2.23	2.30	2.37
6000	1.86	1.95	2.03	2.10	2.18	2.26	2.34	2.41	2.48	2.54
6500	2.01	2.09	2.18	2.26	2.34	2.41	2.48	2.55	2.64	2.72
7000	2.14	2.23	2.32	2.41	2.49	2.57	2.65	2.72	2.79	2.86
7500	2.28	2.37	2.46	2.54	2.62	2.70	2.78	2.86	2.94	3.01
8000	2.41	2.49	2.59	2.68	2.76	2.84	2.92	3.00	3.07	3.14
8500	2.53	2.63	2.72	2.80	2.89	2.97	3.05	3.13	3.20	3.26
9000	2.65	2.75	2.84	2.92	3.00	3.08	3.16	3.24	3.30	3.36
9500	2.76	2.86	2.95	3.04	3.12	3.19	3.26	3.33	3.39	3.45
10000	2.86	2.96	3.05	3.14	3.21	3.28	3.35	3.42	3.47	3.52

Width correction factor XL									
Belt code	019	025	031	037	043	050	063	075	100
Belt width [mm]	4.76	6.35	7.94	9.53	11.11	12.70	15.88	19.05	25.40
Factor	0.12	0.18	0.24	0.30	0.36	0.42	0.57	0.71	1.00

3 POWER RATINGS

3.1 TIMING BELTS IN BASIC DESIGN

PROFILE L

Nominal power P_N [kW] for timing belt width of 1" ≙ 25.4 mm																				
Speed of small timing belt pulley n_k [min^{-1}]	Number of teeth of the small timing belt pulley z_k																			
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
	Pitch diameter of the small timing belt pulley d_{wk} [mm]																			
	30.32	33.35	36.38	39.41	42.45	45.48	48.51	51.54	54.57	57.61	60.64	63.67	66.70	69.73	72.77	75.80	78.83	81.86	84.89	87.93
100	0.04	0.04	0.04	0.05	0.05	0.06	0.06	0.07	0.07	0.07	0.07	0.08	0.09	0.10	0.10	0.10	0.10	0.11	0.11	0.12
200	0.07	0.09	0.10	0.10	0.11	0.12	0.13	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.19	0.20	0.20	0.21	0.22	0.23
300	0.12	0.13	0.14	0.15	0.16	0.17	0.19	0.20	0.21	0.22	0.23	0.25	0.25	0.27	0.28	0.30	0.31	0.32	0.33	0.34
400	0.16	0.18	0.19	0.20	0.22	0.23	0.25	0.26	0.28	0.30	0.31	0.33	0.34	0.36	0.37	0.39	0.40	0.42	0.43	0.45
500	0.19	0.21	0.23	0.25	0.28	0.29	0.31	0.33	0.35	0.37	0.39	0.41	0.43	0.45	0.47	0.49	0.51	0.53	0.54	0.56
600	0.23	0.26	0.28	0.31	0.33	0.35	0.37	0.40	0.42	0.44	0.47	0.49	0.51	0.54	0.56	0.58	0.60	0.63	0.65	0.68
700	0.28	0.31	0.33	0.35	0.38	0.41	0.43	0.46	0.49	0.51	0.54	0.57	0.60	0.63	0.65	0.68	0.71	0.74	0.76	0.79
800	0.31	0.34	0.37	0.40	0.43	0.46	0.50	0.53	0.56	0.59	0.62	0.65	0.69	0.72	0.75	0.78	0.81	0.84	0.87	0.90
900	0.35	0.39	0.42	0.46	0.49	0.52	0.56	0.60	0.63	0.66	0.70	0.73	0.77	0.81	0.84	0.87	0.90	0.94	0.97	1.01
1000	0.39	0.43	0.46	0.51	0.54	0.58	0.62	0.66	0.70	0.74	0.78	0.81	0.85	0.89	0.93	0.97	1.00	1.04	1.08	1.12
1100	0.43	0.47	0.51	0.56	0.60	0.64	0.69	0.72	0.77	0.81	0.85	0.90	0.93	0.97	1.01	1.06	1.10	1.15	1.19	1.23
1200	0.47	0.52	0.56	0.60	0.66	0.70	0.75	0.79	0.84	0.88	0.93	0.97	1.01	1.06	1.11	1.16	1.20	1.25	1.29	1.34
1300	0.51	0.56	0.60	0.66	0.71	0.75	0.81	0.86	0.90	0.95	1.00	1.05	1.10	1.15	1.20	1.25	1.30	1.35	1.40	1.45
1400	0.54	0.60	0.65	0.71	0.76	0.81	0.87	0.92	0.97	1.03	1.08	1.13	1.19	1.24	1.29	1.35	1.40	1.45	1.50	1.55
1500	0.58	0.64	0.70	0.76	0.81	0.87	0.93	0.98	1.04	1.10	1.16	1.21	1.27	1.33	1.38	1.44	1.49	1.55	1.60	1.66
1600	0.62	0.69	0.75	0.81	0.87	0.93	0.98	1.05	1.11	1.17	1.23	1.29	1.35	1.41	1.47	1.53	1.59	1.65	1.70	1.76
1700	0.66	0.73	0.79	0.86	0.92	0.98	1.05	1.11	1.18	1.24	1.31	1.37	1.43	1.50	1.56	1.63	1.69	1.75	1.81	1.87
1800	0.70	0.77	0.84	0.90	0.97	1.04	1.11	1.18	1.25	1.31	1.38	1.45	1.51	1.58	1.65	1.72	1.78	1.85	1.91	1.98
1900	0.74	0.81	0.88	0.95	1.03	1.10	1.17	1.24	1.31	1.38	1.45	1.52	1.60	1.68	1.73	1.80	1.87	1.94	2.01	2.08
2000	0.77	0.86	0.93	1.01	1.08	1.16	1.23	1.31	1.38	1.45	1.53	1.60	1.68	1.75	1.82	1.89	1.96	2.03	2.10	2.18
2200	0.86	0.94	1.01	1.10	1.19	1.27	1.35	1.43	1.51	1.60	1.68	1.75	1.84	1.92	1.99	2.07	2.15	2.23	2.30	2.38
2400	0.93	1.01	1.11	1.20	1.29	1.38	1.47	1.56	1.65	1.73	1.82	1.91	1.99	2.08	2.16	2.25	2.33	2.41	2.49	2.58
2500	0.97	1.06	1.16	1.25	1.34	1.43	1.53	1.62	1.72	1.81	1.89	1.98	2.07	2.16	2.25	2.34	2.42	2.51	2.59	2.67
2600	1.00	1.11	1.20	1.30	1.40	1.49	1.59	1.69	1.78	1.87	1.96	2.06	2.15	2.24	2.33	2.42	2.51	2.60	2.68	2.76
2800	1.08	1.18	1.29	1.40	1.50	1.60	1.71	1.81	1.91	2.01	2.10	2.21	2.31	2.40	2.49	2.59	2.68	2.77	2.86	2.95
3000	1.17	1.28	1.38	1.49	1.60	1.71	1.82	1.93	2.04	2.14	2.25	2.35	2.45	2.55	2.65	2.75	2.84	2.94	3.03	3.12
3200	1.24	1.36	1.47	1.59	1.70	1.82	1.94	2.04	2.16	2.27	2.38	2.49	2.60	2.70	2.80	2.91	3.01	3.11	3.20	3.30
3400	1.31	1.44	1.56	1.69	1.81	1.92	2.05	2.17	2.29	2.40	2.51	2.63	2.74	2.85	2.96	3.06	3.16	3.26	3.36	3.46
3600	1.39	1.52	1.65	1.77	1.90	2.04	2.16	2.29	2.41	2.53	2.65	2.77	2.88	2.99	3.10	3.21	3.32	3.42	3.52	3.52
3800	1.46	1.60	1.73	1.87	2.01	2.13	2.26	2.40	2.54	2.66	2.78	2.90	3.02	3.14	3.25	3.36	3.46	3.56	3.66	3.76
4000	1.53	1.67	1.81	1.96	2.11	2.24	2.39	2.51	2.66	2.78	2.90	3.03	3.16	3.28	3.39	3.50	3.60	3.70	3.80	3.89
4200	1.61	1.75	1.90	2.05	2.21	2.35	2.49	2.63	2.78	2.89	3.03	3.16	3.28	3.40	3.52	3.63	3.74	3.84	3.94	4.03
4400	1.67	1.83	1.98	2.14	2.30	2.45	2.60	2.74	2.88	3.01	3.15	3.28	3.41	3.53	3.65	3.76	3.87	3.97	4.06	4.15
4600	1.76	1.92	2.07	2.23	2.40	2.54	2.71	2.85	2.99	3.13	3.27	3.40	3.53	3.65	3.77	3.88	3.98	4.08	4.17	4.26
4800	1.83	1.99	2.15	2.32	2.49	2.64	2.81	2.95	3.11	3.25	3.39	3.52	3.65	3.77	3.88	3.99	4.09	4.18	4.27	4.35
5000	1.91	2.08	2.24	2.41	2.58	2.74	2.92	3.06	3.22	3.36	3.49	3.63	3.76	3.88	3.99	4.10	4.20	4.29	4.37	4.45
5200	1.98	2.16	2.33	2.50	2.67	2.84	3.01	3.16	3.32	3.45	3.60	3.74	3.86	3.98	4.09	4.20	4.30	4.38	4.46	4.53
5400	2.05	2.24	2.41	2.59	2.77	2.93	3.11	3.26	3.42	3.56	3.70	3.83	3.96	4.08	4.19	4.29	4.39	4.46	4.53	4.59
5600	2.13	2.31	2.49	2.67	2.85	3.02	3.20	3.36	3.52	3.66	3.80	3.94	4.06	4.17	4.27	4.37	4.46	4.53	4.60	4.64
5800	2.19	2.38	2.57	2.76	2.93	3.11	3.30	3.45	3.61	3.76	3.89	4.03	4.16	4.26	4.36	4.45	4.53	4.59	4.65	4.68
6000	2.26	2.46	2.65	2.84	3.02	3.20	3.39	3.54	3.71	3.84	3.98	4.12	4.24	4.33	4.42	4.51	4.59	4.64	4.68	4.71

Width correction factor L									
Belt code	025	031	037	043	050	063	075	100	125
Belt width [mm]	6.35	7.94	9.53	11.11	12.70	15.88	19.05	25.40	31.75
Factor	0.18	0.24	0.30	0.36	0.42	0.57	0.71	1.00	1.29

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3 POWER RATINGS

3.1 TIMING BELTS IN BASIC DESIGN

PROFILE L

Nominal power P_N [kW] for timing belt width of 1" ≙ 25.4 mm																			
Speed of small timing belt pulley n_k [min^{-1}]	Number of teeth of the small timing belt pulley z_k																		
	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
	Pitch diameter of the small timing belt pulley d_{wk} [mm]																		
	90.96	93.99	97.02	100.05	103.08	106.12	109.15	112.18	115.21	118.24	121.28	124.31	127.34	130.37	133.40	136.44	139.47	142.50	145.53
100	0.12	0.13	0.13	0.13	0.14	0.14	0.14	0.15	0.15	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.18	0.19	0.19
200	0.23	0.24	0.25	0.26	0.27	0.28	0.28	0.29	0.30	0.31	0.31	0.32	0.33	0.34	0.34	0.35	0.36	0.37	0.37
300	0.35	0.36	0.37	0.39	0.40	0.41	0.42	0.44	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.53	0.54	0.55	0.56
400	0.46	0.48	0.50	0.52	0.53	0.55	0.56	0.58	0.59	0.61	0.62	0.64	0.66	0.68	0.69	0.71	0.72	0.74	0.75
500	0.58	0.60	0.62	0.64	0.66	0.68	0.70	0.72	0.74	0.76	0.78	0.80	0.82	0.84	0.85	0.85	0.89	0.91	0.93
600	0.70	0.73	0.75	0.78	0.80	0.82	0.84	0.86	0.89	0.91	0.93	0.95	0.97	0.99	1.01	1.04	1.06	10.9	1.11
700	0.81	0.84	0.87	0.90	0.92	0.95	0.97	1.00	1.03	1.06	1.08	1.11	1.14	1.17	1.19	1.22	1.24	1.27	1.29
800	0.93	0.96	0.98	1.02	1.05	1.08	1.11	1.14	1.17	1.20	1.23	1.26	1.29	1.32	1.35	1.38	1.41	1.44	1.47
900	1.04	1.08	1.11	1.14	1.18	1.22	1.25	1.29	1.32	1.35	1.38	1.42	1.45	1.48	1.51	1.55	1.58	1.62	1.65
1000	1.16	1.20	1.23	1.27	1.31	1.35	1.38	1.42	1.46	1.50	1.53	1.57	1.61	1.65	1.68	1.72	1.75	1.79	1.82
1100	1.27	1.31	1.35	1.39	1.43	1.47	1.51	1.56	1.60	1.64	1.68	1.72	1.76	1.80	1.84	1.88	1.92	1.96	1.99
1200	1.38	1.43	1.47	1.42	1.56	1.61	1.65	1.70	1.74	1.78	1.82	1.87	1.91	1.95	1.99	2.04	2.08	2.12	2.16
1300	1.49	1.54	1.59	1.64	1.69	1.74	1.78	1.83	1.87	1.92	1.96	2.01	2.06	2.11	2.15	2.20	2.24	2.29	2.33
1400	1.60	1.66	1.71	1.76	1.81	1.86	1.91	1.96	2.01	2.06	2.10	2.16	2.21	2.26	2.31	2.36	2.40	2.45	2.49
1500	1.72	1.77	1.82	1.88	1.93	1.99	2.04	2.10	2.15	2.20	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65
1600	1.82	1.88	1.94	2.00	2.05	2.11	2.16	2.22	2.28	2.34	2.39	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80
1700	1.93	1.99	2.05	2.11	2.17	2.23	2.29	2.35	2.41	2.47	2.52	2.58	2.64	2.70	2.75	2.81	2.86	2.91	2.96
1800	2.04	2.10	2.16	2.23	2.29	2.35	2.41	2.47	2.53	2.59	2.65	2.71	2.77	2.83	2.88	2.94	2.99	3.05	3.10
1900	2.14	2.21	2.28	2.35	2.41	2.47	2.53	2.60	2.66	2.72	2.78	2.84	2.90	2.96	3.02	3.08	3.14	3.20	3.25
2000	2.25	2.32	2.38	2.45	2.52	2.59	2.66	2.72	2.78	2.84	2.90	2.97	3.03	3.10	3.16	3.22	3.28	3.34	3.39
2200	2.45	2.53	2.60	2.67	2.74	2.81	2.88	2.95	3.02	3.09	3.16	3.23	3.29	3.35	3.41	3.47	3.53	3.59	3.65
2400	2.66	2.73	2.80	2.88	2.96	3.04	3.11	3.18	3.25	3.32	3.39	3.46	3.52	3.59	3.65	3.71	3.77	3.83	3.89
2500	2.75	2.83	2.91	2.99	3.06	3.14	3.21	3.29	3.36	3.43	3.50	3.57	3.63	3.70	3.76	3.82	3.88	3.94	3.99
2600	2.84	2.93	3.01	3.09	3.16	3.24	3.31	3.39	3.46	3.53	3.60	3.67	3.73	3.80	3.86	3.92	3.98	4.04	4.09
2800	3.03	3.12	3.20	3.28	3.36	3.44	3.51	3.59	3.66	3.73	3.80	3.87	3.93	4.00	4.06	4.12	4.17	4.22	4.27
3000	3.21	3.30	3.39	3.47	3.55	3.63	3.71	3.78	3.85	3.92	3.99	4.06	4.12	4.18	4.24	4.29	4.34	4.39	4.43
3200	3.39	3.48	3.56	3.64	3.72	3.80	3.88	3.95	4.02	4.09	4.16	4.22	4.28	4.34	4.39	4.44	4.48	4.52	4.56
3400	3.55	3.64	3.72	3.80	3.88	3.96	4.04	4.11	4.18	4.25	4.31	4.36	4.41	4.46	4.51	4.55	4.58	4.65	4.65
3600	3.71	3.80	3.89	3.97	4.04	4.12	4.19	4.26	4.32	4.38	4.44	4.49	4.53	4.57	4.61	4.66	4.69	4.71	4.71
3800	3.85	3.94	4.03	4.11	4.18	4.25	4.32	4.38	4.43	4.49	4.54	4.58	4.61	4.65	4.68	4.72	4.74	4.75	4.72
4000	3.98	4.07	4.16	4.23	4.30	4.37	4.43	4.48	4.53	4.58	4.63	4.66	4.68	4.70	4.72	4.73	4.74	4.73	4.71
4200	4.12	4.20	4.28	4.35	4.41	4.48	4.54	4.58	4.61	4.65	4.68	4.70	4.71	4.73	4.74	4.75	4.74	4.72	4.65
4400	4.24	4.32	4.39	4.45	4.50	4.56	4.61	4.64	4.67	4.70	4.72	4.72	4.72	4.74	4.71	4.71	4.69	4.65	4.54
4600	4.34	4.41	4.48	4.53	4.58	4.63	4.67	4.69	4.71	4.73	4.74	4.74	4.71	4.70	4.65	4.64	4.59	4.53	4.39
4800	4.43	4.50	4.57	4.61	4.64	4.68	4.71	4.71	4.71	4.71	4.71	4.72	4.69	4.65	4.55	4.53	4.46	4.37	4.20
5000	4.52	4.58	4.63	4.66	4.70	4.72	4.73	4.77	4.73	4.71	4.67	4.66	4.62	4.56	4.42	4.38	4.28	4.15	3.95
5200	4.59	4.64	4.68	4.70	4.72	4.74	4.73	4.74	4.72	4.70	4.60	4.57	4.50	4.41	4.24	4.19	4.05	3.90	3.66
5400	4.65	4.68	4.71	4.75	4.75	4.75	4.70	4.72	4.67	4.60	4.48	4.45	4.35	4.23	4.04	3.96	3.80	3.61	3.31
5600	4.68	4.71	4.73	4.77	4.75	4.73	4.66	4.64	4.58	4.49	4.35	4.30	4.16	4.02	3.77	3.67	3.47	3.26	2.90
5800	4.71	4.72	4.73	4.75	4.73	4.68	4.58	4.55	4.46	4.36	4.18	4.10	3.94	3.76	3.48	3.35	3.11	2.85	2.44
6000	4.74	4.73	4.72	4.72	4.67	4.61	4.48	4.44	4.32	4.19	3.97	3.87	3.69	3.46	3.13	2.97	2.69	2.39	1.92

Width correction factor L									
Belt code	025	031	037	043	050	063	075	100	125
Belt width [mm]	6.35	7.94	9.53	11.11	12.70	15.88	19.05	25.40	31.75
Factor	0.18	0.24	0.30	0.36	0.42	0.57	0.71	1.00	1.29

3 POWER RATINGS

3.1 TIMING BELTS IN BASIC DESIGN

PROFILE H

Nominal power P_N [kW] for timing belt width of 1" ≙ 25.4 mm																		
Speed of small timing belt pulley n_k [min^{-1}]	Number of teeth of the small timing belt pulley z_k																	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	Pitch diameter of the small timing belt pulley d_{wk} [mm]																	
	56.60	60.64	64.68	68.72	72.77	76.81	80.85	84.89	88.94	92.98	97.02	101.06	105.11	109.15	113.19	117.23	121.28	125.32
100	0.19	0.20	0.21	0.22	0.24	0.25	0.26	0.28	0.29	0.30	0.31	0.33	0.34	0.36	0.37	0.39	0.40	0.42
200	0.37	0.40	0.43	0.45	0.48	0.50	0.53	0.55	0.58	0.61	0.63	0.66	0.69	0.72	0.74	0.77	0.79	0.82
300	0.55	0.59	0.63	0.67	0.72	0.75	0.79	0.83	0.87	0.91	0.95	0.99	1.03	1.07	1.11	1.15	1.19	1.23
400	0.74	0.79	0.84	0.90	0.95	1.00	1.05	1.11	1.16	1.22	1.27	1.32	1.37	1.43	1.48	1.53	1.58	1.64
500	0.93	0.99	1.05	1.12	1.19	1.25	1.32	1.39	1.45	1.52	1.58	1.65	1.72	1.78	1.84	1.91	1.98	2.04
600	1.11	1.19	1.27	1.34	1.42	1.51	1.58	1.66	1.74	1.82	1.89	1.97	2.05	2.13	2.21	2.29	2.36	2.44
700	1.29	1.39	1.48	1.57	1.66	1.75	1.84	1.93	2.03	2.12	2.21	2.30	2.39	2.48	2.57	2.67	2.76	2.85
800	1.48	1.59	1.69	1.79	1.89	2.00	2.10	2.21	2.31	2.42	2.52	2.63	2.73	2.84	2.94	3.05	3.15	3.26
900	1.66	1.78	1.89	2.01	2.13	2.25	2.36	2.48	2.60	2.72	2.83	2.95	3.07	3.19	3.30	3.42	3.54	3.66
1000	1.84	1.97	2.10	2.24	2.36	2.50	2.63	2.76	2.89	3.02	3.15	3.28	3.41	3.54	3.66	3.79	3.92	4.05
1100	2.03	2.17	2.31	2.46	2.60	2.75	2.89	3.03	3.18	3.32	3.46	3.60	3.74	3.89	4.03	4.17	4.30	4.45
1200	2.21	2.36	2.52	2.68	2.83	2.99	3.15	3.30	3.46	3.62	3.77	3.92	4.07	4.23	4.39	4.54	4.69	4.84
1300	2.40	2.56	2.73	2.90	3.07	3.24	3.41	3.57	3.74	3.91	4.07	4.24	4.41	4.58	4.74	4.91	5.07	5.23
1400	2.58	2.76	2.94	3.13	3.30	3.48	3.66	3.84	4.02	4.20	4.38	4.56	4.74	4.92	5.10	5.28	5.45	5.63
1500	2.77	2.96	3.15	3.34	3.54	3.73	3.92	4.11	4.30	4.48	4.68	4.88	5.07	5.26	5.45	5.64	5.82	6.01
1600	2.96	3.15	3.36	3.57	3.77	3.98	4.18	4.38	4.59	4.79	4.99	5.19	5.39	5.60	5.80	6.00	6.19	6.39
1700	3.14	3.34	3.56	3.78	4.00	4.21	4.43	4.65	4.86	5.08	5.30	5.51	5.72	5.93	6.14	6.35	6.56	6.77
1800	3.34	3.54	3.77	4.00	4.23	4.46	4.68	4.92	5.14	5.37	5.59	5.82	6.04	6.26	6.48	6.70	6.92	7.14
1900	3.52	3.78	4.04	4.22	4.46	4.70	4.94	5.18	5.42	5.66	5.89	6.13	6.36	6.60	6.83	7.06	7.28	7.51
2000	3.70	3.88	4.18	4.44	4.68	4.94	5.19	5.45	5.69	5.94	6.18	6.43	6.68	6.92	7.16	7.40	7.64	7.88
2100	3.89	4.13	4.39	4.55	4.92	5.18	5.44	5.71	5.97	6.23	6.48	6.74	6.99	7.25	7.50	7.75	7.99	8.23
2200	4.08	4.22	4.59	4.86	5.14	5.42	5.69	5.97	6.24	6.51	6.77	7.04	7.30	7.57	7.83	8.09	8.34	8.59
2300	4.26	4.51	4.80	5.09	5.37	5.65	5.94	6.22	6.51	6.79	7.06	7.34	7.62	7.89	8.15	8.42	8.68	8.94
2400	4.44	4.61	5.00	5.30	5.59	5.89	6.18	6.48	6.77	7.06	7.35	7.64	7.92	8.20	8.48	8.75	9.02	9.29
2500	4.61	4.90	5.20	5.51	5.82	6.12	6.43	6.74	7.04	7.34	7.63	7.93	8.22	8.51	8.80	9.08	9.35	9.63
2600	4.50	5.09	5.41	5.72	6.04	6.36	6.68	6.99	7.30	7.61	7.92	8.22	8.52	8.82	9.12	9.35	9.58	9.91
2800	5.15	5.46	5.80	6.14	6.48	6.82	7.15	7.49	7.83	8.15	8.47	8.79	9.11	9.43	9.74	10.03	10.32	10.61
3000	5.50	5.84	6.19	6.55	6.92	7.27	7.63	7.98	8.34	8.68	9.01	9.30	9.58	9.96	10.33	10.61	10.94	11.24
3200	5.86	6.22	6.58	6.97	7.35	7.73	8.09	8.47	8.84	9.19	9.54	9.89	10.24	10.58	10.91	11.22	11.53	11.68
3400	6.20	6.58	6.96	7.27	7.78	8.17	8.56	8.94	9.33	9.70	10.06	10.42	10.78	11.13	11.47	11.79	12.10	12.40
3600	6.55	6.95	7.34	7.78	8.20	8.62	9.00	9.41	9.82	10.19	10.56	10.93	11.30	11.65	12.00	12.32	12.64	12.94
3800	6.96	7.31	7.73	8.17	8.61	9.04	9.45	9.87	10.29	10.67	11.05	11.43	11.80	12.16	12.52	12.84	13.15	13.45
4000	7.23	7.66	8.09	8.57	9.02	9.46	9.88	10.31	10.74	11.13	11.52	11.90	12.28	12.64	13.00	13.32	13.63	13.92
4200	7.58	8.01	8.46	8.94	9.42	9.88	10.30	10.75	11.19	11.58	11.97	12.36	12.74	13.11	13.47	13.78	14.08	14.36
4400	7.92	8.34	8.82	9.33	9.81	10.28	10.71	11.17	11.62	12.02	12.41	12.80	13.18	13.54	13.89	14.19	14.49	14.79
4600	8.25	8.71	9.19	9.70	10.18	10.68	11.12	11.58	12.03	12.43	12.82	13.21	13.59	13.94	14.29	14.57	14.85	15.14
4800	8.56	9.20	9.54	10.06	10.57	11.06	11.50	11.97	12.44	12.83	13.21	13.60	13.98	14.33	14.67	14.94	15.20	15.46
5000	8.90	9.38	9.89	10.42	10.93	11.44	11.88	12.35	12.82	13.21	13.59	13.97	14.35	14.68	15.01	15.26	15.49	15.71
5200	9.21	9.72	10.23	10.77	11.29	11.80	12.24	12.72	13.20	13.57	13.94	14.31	14.68	15.08	15.32	15.54	15.75	15.96
5400	9.53	10.04	10.57	11.12	11.64	12.16	12.60	13.08	13.55	13.91	14.27	14.63	14.99	15.31	15.59	15.80	15.96	16.14
5600	9.83	10.36	10.89	11.45	11.98	12.50	12.94	13.41	13.88	14.27	14.58	14.97	15.27	15.58	15.83	16.00	16.13	16.27
5800	10.15	10.67	11.22	11.78	12.31	12.82	13.26	13.73	14.20	14.59	14.87	15.26	15.52	15.80	16.03	16.16	16.25	16.36
6000	10.45	10.98	11.53	12.09	12.63	13.15	13.57	14.04	14.50	14.88	15.12	15.51	15.74	15.99	16.19	16.28	16.32	16.38

Width correction factor H										
Belt code	050	063	075	100	125	150	175	200	250	300
Belt width [mm]	12.70	15.88	19.05	25.40	31.75	38.10	44.45	50.80	63.50	76.20
Factor	0.42	0.57	0.71	1.00	1.29	1.58	1.84	2.14	2.72	3.36

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3 POWER RATINGS

3.1 TIMING BELTS IN BASIC DESIGN

PROFILE H

Nominal power P_N [kW] for timing belt width of 1" ≙ 25.4 mm																	
Speed of small timing belt pulley n_k [min^{-1}]	Number of teeth of the small timing belt pulley z_k																
	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
	Pitch diameter of the small timing belt pulley d_{wk} [mm]																
	129.36	133.40	137.45	141.49	145.53	149.57	153.62	157.66	161.70	165.74	169.79	173.83	177.87	181.91	185.96	190.00	194.04
100	0.43	0.45	0.46	0.47	0.48	0.50	0.51	0.52	0.53	0.55	0.56	0.57	0.58	0.60	0.61	0.62	0.63
200	0.84	0.87	0.90	0.93	0.95	0.98	1.00	1.03	1.05	1.08	1.11	1.14	1.16	1.19	1.22	1.25	1.27
300	1.27	1.31	1.35	1.39	1.42	1.46	1.50	1.54	1.58	1.62	1.66	1.70	1.74	1.78	1.82	1.86	1.89
400	1.69	1.74	1.79	1.84	1.89	1.95	2.00	2.05	2.10	2.16	2.21	2.26	2.31	2.37	2.42	2.47	2.52
500	2.10	2.17	2.23	2.30	2.36	2.43	2.50	2.57	2.63	2.70	2.76	2.83	2.89	2.96	3.02	3.09	3.15
600	2.52	2.59	2.68	2.76	2.83	2.91	2.99	3.07	3.15	3.23	3.31	3.39	3.46	3.54	3.62	3.70	3.77
700	2.94	3.03	3.12	3.21	3.30	3.39	3.48	3.57	3.66	3.76	3.85	3.94	4.03	4.12	4.21	4.30	4.39
800	3.36	3.47	3.57	3.67	3.77	3.88	3.98	4.08	4.18	4.29	4.39	4.49	4.59	4.69	4.79	4.89	4.99
900	3.77	3.89	4.00	4.12	4.23	4.35	4.46	4.58	4.69	4.81	4.92	5.03	5.14	5.26	5.37	5.48	5.59
1000	4.18	4.31	4.44	4.57	4.69	4.82	4.94	5.07	5.19	5.32	5.44	5.57	5.69	5.82	5.94	6.07	6.19
1100	4.59	4.73	4.87	5.01	5.15	5.29	5.42	5.56	5.69	5.83	5.97	6.11	6.24	6.38	6.51	6.64	6.77
1200	4.99	5.14	5.29	5.44	5.59	5.74	5.89	6.04	6.19	6.34	6.48	6.63	6.77	6.92	7.07	7.22	7.36
1300	5.39	5.56	5.72	5.88	6.04	6.20	6.36	6.52	6.68	6.84	6.99	7.15	7.30	7.46	7.61	7.77	7.92
1400	5.80	5.97	6.14	6.31	6.48	6.65	6.82	6.99	7.16	7.33	7.50	7.67	7.83	7.99	8.15	8.31	8.47
1500	6.19	6.38	6.56	6.74	6.92	7.10	7.28	7.46	7.64	7.82	7.99	8.17	8.34	8.51	8.68	8.85	9.02
1600	6.58	6.78	6.97	7.17	7.36	7.55	7.74	7.93	8.11	8.30	8.48	8.66	8.84	9.02	9.20	9.38	9.55
1700	6.97	7.18	7.38	7.58	7.78	7.98	8.18	8.38	8.57	8.76	8.95	9.14	9.33	9.52	9.70	9.89	10.07
1800	7.36	7.57	7.78	7.99	8.20	8.41	8.61	8.82	9.02	9.22	9.42	9.62	9.81	10.01	10.20	10.39	10.58
1900	7.73	7.96	8.18	8.40	8.62	8.84	9.05	9.26	9.47	9.68	9.88	10.08	10.28	10.48	10.67	10.87	11.06
2000	8.11	8.34	8.57	8.80	9.03	9.25	9.47	9.69	9.90	10.11	10.32	10.53	10.74	10.94	11.14	11.34	11.53
2100	8.47	8.71	8.95	9.19	9.42	9.65	9.87	10.10	10.32	10.54	10.75	10.97	11.18	11.39	11.59	11.80	12.00
2200	8.84	9.09	9.33	9.58	9.82	10.05	10.28	10.51	10.74	10.96	11.18	11.40	11.62	11.83	12.03	12.23	12.43
2300	9.20	9.46	9.71	9.96	10.21	10.45	10.68	10.92	11.15	11.37	11.59	11.81	12.03	12.24	12.44	12.65	12.85
2400	9.55	9.81	10.07	10.33	10.58	10.82	11.06	11.30	11.53	11.76	11.98	12.21	12.43	12.64	12.84	13.05	13.25
2500	9.90	10.17	10.43	10.69	10.95	11.20	11.44	11.68	11.92	12.15	12.38	12.61	12.83	13.03	13.23	13.43	13.63
2600	10.24	10.51	10.78	11.05	11.31	11.56	11.80	12.05	12.29	12.52	12.74	12.96	13.18	13.39	13.59	13.79	13.99
2800	10.90	11.18	11.45	11.73	12.00	12.25	12.50	12.75	12.99	13.22	13.44	13.66	13.88	14.07	14.26	14.45	14.64
3000	11.53	11.81	12.09	12.37	12.65	12.90	13.14	13.39	13.63	13.85	14.06	14.28	14.49	14.67	14.85	15.03	15.20
3200	12.14	12.42	12.70	12.98	13.26	13.50	13.74	13.98	14.22	14.42	14.62	14.82	15.02	15.20	15.36	15.53	15.66
3400	12.70	12.98	13.26	13.54	13.82	14.05	14.28	14.51	14.74	14.95	15.14	15.32	15.48	15.62	15.78	15.91	16.01
3600	13.24	13.52	13.79	14.07	14.34	14.56	14.77	14.99	15.20	15.40	15.50	15.59	15.67	15.82	15.96	16.07	16.14
3800	13.74	14.01	14.28	14.55	14.81	15.03	15.22	15.40	15.58	15.72	15.78	15.80	15.85	15.99	16.16	16.23	16.24
4000	14.20	14.49	14.74	14.98	15.22	15.42	15.60	15.76	15.90	15.97	16.03	16.11	16.11	16.20	16.29	16.35	16.35
4200	14.63	14.90	15.15	15.35	15.58	15.85	15.91	16.04	16.13	16.25	16.27	16.29	16.29	16.32	16.38	16.35	16.34
4400	15.01	15.27	15.49	15.67	15.87	16.01	1613	16.24	16.29	16.33	16.35	16.35	16.36	16.34	16.30	16.25	16.19
4600	15.35	15.58	15.78	15.93	16.10	16.21	16.29	16.35	16.35	16.38	16.38	16.36	16.32	16.28	16.22	16.12	15.90
4800	15.64	15.84	16.01	16.14	16.27	16.33	16.37	16.38	16.33	16.32	16.30	16.27	16.17	16.01	15.81	15.55	15.46
5000	15.88	16.07	16.19	16.29	16.37	16.38	16.38	16.33	16.21	16.15	16.07	15.99	15.89	15.72	15.49	15.23	14.87
5200	16.07	16.23	16.31	16.36	16.40	16.36	16.30	16.19	15.99	15.85	15.70	15.60	15.49	15.28	15.04	14.76	
5400	16.21	16.34	16.37	16.37	16.36	16.26	16.13	15.96	15.68	15.52	15.35	15.15	14.96	14.55	14.21		
5600	16.30	16.38	16.36	16.32	16.23	16.08	15.88	15.63	15.26	15.07	14.86	14.65					
5800	16.33	16.37	16.30	16.19	16.04	15.80	15.53	15.20	14.73	14.30	14.12						
6000	16.30	16.29	16.16	15.98	15.76	15.44	15.08	14.67									

Width correction factor H										
Belt code	050	063	075	100	125	150	175	200	250	300
Belt width [mm]	12.70	15.88	19.05	25.40	31.75	38.10	44.45	50.80	63.50	76.20
Factor	0.42	0.57	0.71	1.00	1.29	1.58	1.84	2.14	2.72	3.36

3 POWER RATINGS

3.1 TIMING BELTS IN BASIC DESIGN

PROFILE XH

Nominal power P_N [kW] for timing belt width of 1" ≙ 25.4 mm												
Speed of small timing belt pulley n_k [min^{-1}]	Number of teeth of the small timing belt pulley z_k											
	18	19	20	21	22	23	24	25	26	27	28	29
	Pitch diameter of the small timing belt pulley d_{wk} [mm]											
	127.34	134.41	141.49	148.56	155.64	162.71	169.79	176.86	183.94	191.01	198.08	205.16
100	0.57	0.60	0.63	0.66	0.69	0.73	0.75	0.79	0.83	0.86	0.88	0.91
200	1.13	1.19	1.25	1.32	1.38	1.45	1.51	1.57	1.63	1.70	1.76	1.82
300	1.70	1.79	1.88	1.98	2.07	2.17	2.26	2.36	2.45	2.55	2.64	2.73
400	2.26	2.39	2.51	2.59	2.76	2.89	3.01	3.14	3.26	3.39	3.51	3.63
500	2.82	2.98	3.13	3.25	3.44	3.59	3.74	3.90	4.06	4.21	4.36	4.52
600	3.38	3.57	3.74	3.90	4.12	4.30	4.48	4.67	4.85	5.03	5.21	539
700	3.93	4.15	4.36	4.55	4.79	5.00	5.21	5.42	5.62	5.83	6.04	6.25
800	4.48	4.62	4.97	5.21	5.45	5.69	5.93	6.17	6.41	6.64	6.87	7.10
900	5.03	5.30	5.57	5.84	6.11	6.37	6.64	6.90	7.15	7.42	7.68	7.93
1000	5.57	5.87	6.16	6.45	6.75	7.03	7.33	7.62	7.90	8.19	8.47	8.74
1100	6.11	6.43	6.75	7.07	7.39	7.70	8.02	8.32	8.62	8.93	9.24	9.53
1200	6.65	6.99	7.33	7.67	8.02	8.35	8.68	9.01	9.33	9.65	9.97	10.32
1300	7.17	7.54	7.90	8.27	8.63	8.98	9.33	9.68	10.03	10.36	10.68	11.00
1400	7.68	8.08	8.47	8.84	9.23	9.60	9.97	10.32	10.68	11.03	11.38	11.71
1500	8.21	8.60	9.01	9.40	9.81	10.19	10.59	10.94	11.32	11.68	12.04	12.37
1600	8.70	9.12	9.55	9.96	10.38	10.78	11.18	11.54	11.94	12.31	12.67	12.73
1700	9.18	9.63	10.07	10.49	10.94	11.33	11.76	12.13	12.53	12.90	13.26	13.60
1800	9.66	10.11	10.58	11.01	11.47	11.88	12.32	12.69	13.10	13.46	13.82	14.16
1900	10.13	10.60	11.06	11.52	11.99	12.41	12.85	13.36	13.91	14.12	14.35	14.89
2000	10.57	11.05	11.53	12.00	12.49	12.91	13.35	13.73	14.13	14.47	14.82	15.14
2100	11.02	11.50	11.99	12.48	12.97	13.40	13.82	14.20	14.59	14.93	15.28	15.57
2200	11.41	11.92	12.43	12.93	13.43	13.96	14.49	14.76	15.02	15.35	15.67	15.94
2300	11.87	12.36	12.86	13.38	13.87	14.29	14.70	15.05	15.42	15.71	16.02	16.26
2400	12.28	12.76	13.26	13.76	14.27	14.68	15.08	15.42	15.77	16.04	16.32	16.53
2500	12.67	13.15	13.64	14.14	14.66	15.06	15.45	15.76	16.09	16.33	16.58	16.74
2600	13.05	13.52	14.01	14.51	15.04	15.41	15.77	16.06	16.37	16.57	16.78	16.90
2800	13.73	14.20	14.66	15.16	15.69	16.02	16.33	16.56	16.78	16.89	17.0Z	17.03
3000	14.35	14.77	15.21	15.71	16.22	16.47	16.73	16.87	17.01	17.01	17.02	16.87
3200	14.90	15.28	15.66	16.14	16.63	16.81	16.97	17.01	17.02	16.90	16.76	16.45
3400	15.36	15.68	15.99	16.45	16.91	16.98	17.04	16.95	16.84	16.54	16.25	15.73
3600	15.82	16.03	16.23	16.64	17.06	17.01	16.94	16.68	16.43	15.94	15.46	14.72
3800	16.05	16.19	16.35	16.70	17.06	16.86	16.64	15.96	15.97	15.15	14.34	13.37
4000	16.26	16.29	16.33	16.62	17.89	16.53	16.15	15.50	14.86	13.91	12.94	
4200	16.35	16.35	16.16	16.37	16.58	16.01	15.45	14.75	13.67	12.60		
4400	16.26	16.22	15.83	15.96	16.08	15.30	14.52	13.24	11.94			

Width correction factor XH											
Belt code	100	125	150	175	200	250	300	400	500	700	1000
Belt width [mm]	25.40	31.75	38.10	44.45	50.80	63.50	76.20	101.60	127.00	177.80	254.00
Factor	1.00	1.29	1.58	1.84	2.14	2.72	3.36	4.76	6.15	8.89	13.10

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3 POWER RATINGS

3.1 TIMING BELTS IN BASIC DESIGN

PROFILE XH

Nominal power P_N [kW] for timing belt width of 1" ≙ 25.4 mm											
Speed of small timing belt pulley n_k [min^{-1}]	Number of teeth of the small timing belt pulley z_k										
	30	31	32	33	34	35	36	37	38	39	40
	Pitch diameter of the small timing belt pulley d_{wk} [mm]										
	212.23	219.31	226.38	233.46	240.53	247.61	254.68	261.75	268.63	275.90	282.98
100	0.94	0.97	1.00	1.04	1.07	1.10	1.13	1.16	1.19	1.22	1.25
200	1.88	1.95	2.01	2.08	2.14	2.20	2.26	2.33	2.39	2.45	2.51
300	2.82	2.92	3.01	3.11	3.20	3.29	3.38	3.47	3.56	3.65	3.74
400	3.74	3.87	4.00	4.13	4.25	4.37	4.49	4.61	4.73	4.85	4.97
500	4.67	4.84	5.01	5.16	5.30	5.45	5.59	5.74	5.88	6.02	6.16
600	5.57	5.75	5.93	6.11	6.28	6.46	6.63	6.81	6.98	7.16	7.33
700	6.46	6.67	6.87	7.07	7.27	7.47	7.67	7.87	8.07	8.27	8.47
800	7.33	7.56	7.79	8.01	8.23	8.45	8.67	8.89	9.11	9.33	9.55
900	8.18	8.43	8.68	8.92	9.16	9.40	9.63	9.87	10.11	10.35	10.58
1000	9.01	9.28	9.55	9.81	10.06	10.31	10.56	10.82	11.07	11.32	11.57
1100	9.81	10.10	10.38	10.65	10.91	11.18	11.44	11.71	11.97	12.23	12.49
1200	10.66	10.92	11.18	11.46	11.73	12.00	12.27	12.54	12.81	13.08	13.35
1300	11.32	11.63	11.94	12.22	12.49	12.77	13.04	13.32	13.59	13.86	14.13
1400	12.04	12.36	12.67	12.94	13.21	13.48	13.75	14.02	14.29	14.56	14.82
1500	12.70	13.03	13.35	13.62	13.88	14.14	14.40	14.67	14.93	15.19	15.45
1600	12.79	13.42	14.04	14.29	14.53	14.77	15.01	15.26	15.50	15.74	15.98
1700	13.94	14.25	14.55	14.79	15.02	15.25	15.48	15.71	15.94	16.17	16.40
1800	14.49	14.79	15.08	15.28	15.48	15.68	15.88	16.08	16.28	16.48	16.67
1900	15.43	15.50	15.56	15.74	15.91	16.08	16.25	16.42	16.59	16.76	16.93
2000	15.45	15.72	15.98	16.12	16.25	16.38	16.51	16.65	16.78	16.91	17.04
2100	15.85	16.09	16.32	16.41	16.53	16.59	16.77	16.88	16.98	17.01	17.02
2200	16.20	16.41	16.61	16.72	16.82	16.84	16.95	17.03	17.01	16.98	16.87
2300	16.49	16.66	16.82	16.88	16.95	16.98	17.02	16.95	16.84	16.74	16.64
2400	16.73	16.85	16.97	17.03	17.04	17.01	16.98	16.83	16.66	16.40	16.15
2500	16.89	16.97	17.04	17.02	16.93	16.87	16.70	16.40	16.22	15.90	15.58
2600	17.01	17.02	17.02	16.95	16.83	16.68	16.55	16.15	15.80	15.31	14.86
2800	17.02	16.88	16.76	16.55	16.25	15.91	15.48	14.97	14.39	13.66	12.94
3000	16.74	16.44	16.15	15.76	15.25	14.69	13.99	13.27			
3200	16.15	15.65	15.17	14.56	13.81	12.98					
3400	15.23	14.46	13.79	12.94							
3600	13.97	13.10									
3800	12.41										

Width correction factor XH											
Belt code	100	125	150	175	200	250	300	400	500	700	1000
Belt width [mm]	25.40	31.75	38.10	44.45	50.80	63.50	76.20	101.60	127.00	177.80	254.00
Factor	1.00	1.29	1.58	1.84	2.14	2.72	3.36	4.76	6.15	8.89	13.10

3 POWER RATINGS

3.1 TIMING BELTS IN BASIC DESIGN

PROFILE XXH

Nominal power P_N [kW] for timing belt width of 1" ≙ 25.4 mm												
Speed of small timing belt pulley n_k [min^{-1}]	Number of teeth of the small timing belt pulley z_k											
	18	19	20	21	22	23	24	25	26	27	28	29
	Pitch diameter of the small timing belt pulley d_{wk} [mm]											
	181.91	192.02	202.13	212.23	222.34	232.45	242.55	252.66	262.77	272.87	282.98	293.08
100	0.99	1.05	1.10	1.16	1.22	1.27	1.32	1.38	1.43	1.49	1.54	1.60
200	1.98	1.09	2.20	2.31	2.42	2.53	2.64	2.75	2.86	2.97	3.08	3.19
300	2.97	3.14	3.30	3.46	3.62	3.79	3.95	4.11	4.27	4.44	4.60	4.76
400	3.95	4.17	4.38	4.59	4.80	5.02	5.24	5.46	5.67	5.88	6.09	6.30
500	4.95	5.21	5.45	5.73	5.98	6.25	6.51	6.77	7.03	7.29	7.55	7.81
600	5.88	6.20	6.51	6.83	7.14	7.45	7.76	8.07	8.37	8.67	8.97	9.27
700	6.83	7.19	7.56	7.92	8.27	8.62	8.97	9.32	9.67	10.01	10.35	10.69
800	7.76	8.18	8.57	8.98	9.37	9.77	10.16	10.54	10.92	11.29	11.66	12.03
900	8.72	9.18	9.57	10.01	10.44	10.88	11.30	11.71	12.11	12.51	12.91	13.31
1000	9.57	10.02	10.55	11.02	11.49	11.95	12.13	12.71	13.28	13.70	14.11	14.52
1100	10.44	10.97	11.49	12.05	12.64	13.04	13.43	13.90	14.37	14.79	15.21	15.63
1200	11.40	11.85	12.40	12.92	13.45	13.95	14.45	14.91	15.38	15.80	16.22	16.64
1300	12.12	12.70	13.28	13.81	14.37	14.60	14.83	15.57	16.32	16.73	17.14	17.55
1400	12.90	13.51	14.12	14.66	15.23	15.73	16.26	16.70	17.18	17.57	17.95	18.34
1500	13.66	14.28	14.91	15.46	16.04	16.54	17.05	17.71	17.96	18.31	18.66	19.01
1600	14.39	15.03	15.68	16.23	17.04	17.28	17.78	18.38	18.64	18.95	19.25	19.56
1700	15.07	15.73	16.40	16.93	17.49	17.95	18.43	18.81	19.21	19.46	19.70	19.95
1800	15.71	16.37	17.06	17.58	18.12	18.55	19.00	19.33	19.68	19.93	20.12	20.24
1900	16.31	16.98	17.67	18.16	18.68	19.07	19.48	19.74	20.04	20.13	20.25	20.30
2000	16.88	17.54	18.23	18.69	19.17	19.51	19.86	20.05	20.28	20.35	20.38	20.28
2100	17.39	18.05	18.73	19.14	19.58	19.84	20.14	20.25	20.39	20.29	20.18	20.00
2200	17.84	18.50	19.17	19.54	19.91	20.11	20.32	20.33	20.37	20.22	19.98	19.60
2300	18.25	18.90	19.55	19.84	20.16	20.28	20.39	20.30	20.21	19.76	19.45	18.94
2400	18.60	19.22	19.86	20.09	20.32	20.30	20.35	20.12	19.91	19.47	18.91	18.19
2500	18.90	19.50	22.34	21.37	20.39	20.28	20.19	19.80	19.45	18.75	18.00	17.11
2600	19.15	19.72	20.28	20.32	20.37	20.12	19.91	19.36	18.84	18.04	17.10	
2800	19.44	19.92	20.40	20.21	20.02	19.46	18.96	18.04	17.12	15.89		
3000	19.49	19.85	20.19	19.74	19.24	18.32	17.43	16.06	14.66			

Width correction factor XXH											
Belt code	100	125	150	175	200	250	300	400	500	700	1000
Belt width [mm]	25.40	31.75	38.10	44.45	50.80	63.50	76.20	101.60	127.00	177.80	254.00
Factor	1.00	1.29	1.58	1.84	2.14	2.72	3.36	4.76	6.15	8.89	13.10

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3 POWER RATINGS

3.1 TIMING BELTS IN BASIC DESIGN

PROFILE XXH

Nominal power P_N [kW] for timing belt width of 1" ≙ 25.4 mm											
Speed of small timing belt pulley n_k [min^{-1}]	Number of teeth of the small timing belt pulley z_k										
	30	31	32	33	34	35	36	37	38	39	40
	Pitch diameter of the small timing belt pulley d_{wk} [mm]										
	303.19	313.30	323.40	333.51	343.62	353.72	363.83	373.94	384.04	394.15	404.25
100	1.65	1.70	1.76	1.81	1.87	1.92	1.98	2.05	2.14	2.20	2.20
200	3.30	3.39	3.50	3.61	3.73	3.82	3.93	4.07	4.20	4.41	4.38
300	4.92	5.08	5.32	5.40	5.56	5.71	5.87	6.05	6.22	6.38	6.51
400	6.51	6.73	6.93	7.14	7.35	7.54	7.75	7.97	8.19	8.39	8.57
500	8.06	8.32	8.57	8.82	9.08	9.31	9.55	9.82	10.08	10.31	10.54
600	9.57	9.86	10.15	10.43	10.73	11.00	11.28	11.56	11.86	12.14	12.40
700	11.02	11.34	11.67	11.98	12.32	12.60	12.91	13.22	13.53	13.83	14.12
800	12.40	12.75	13.10	13.34	13.79	14.12	14.39	14.75	15.06	15.39	15.68
900	13.70	14.08	14.44	14.59	15.15	15.49	15.82	16.12	16.55	16.76	17.05
1000	14.93	15.30	15.67	16.02	16.40	16.72	16.98	17.24	17.65	17.94	18.23
1100	16.04	16.42	16.71	17.05	17.49	17.71	18.00	18.29	18.55	18.86	19.17
1200	17.05	17.41	17.76	18.08	18.43	18.71	18.97	19.23	19.45	19.65	19.86
1300	17.96	18.21	18.53	18.81	19.21	19.39	19.55	19.74	19.89	20.08	20.28
1400	18.72	19.01	19.29	19.34	19.80	19.97	20.08	20.20	20.32	20.36	20.39
1500	19.36	19.52	19.74	19.92	20.19	20.20	20.21	20.23	20.21	20.19	20.18
1600	19.86	20.03	20.19	20.29	20.38	20.33	20.28	20.23	20.05	19.86	19.64
1700	20.19	20.21	20.26	20.30	20.34	20.01	19.78	19.66	19.34	19.04	18.73
1800	20.37	20.38	20.33	20.28	20.06	19.73	19.40	19.07	18.59	18.02	17.43
1900	20.37	20.27	19.98	19.74	19.53	18.97	18.41	17.84	17.15	16.33	15.50
2000	20.19	19.95	19.63	19.16	18.73	18.03	17.33	16.62	15.70	14.65	13.58
2100	19.81	19.31	18.80	18.20	17.65	16.66	15.67	14.67			
2200	19.24	18.66	17.98	17.17	16.23	15.22					
2300	18.46	17.59	16.65								
2400	17.43	16.44									

Width correction factor XXH											
Belt code	100	125	150	175	200	250	300	400	500	700	1000
Belt width [mm]	25.40	31.75	38.10	44.45	50.80	63.50	76.20	101.60	127.00	177.80	254.00
Factor	1.00	1.29	1.58	1.84	2.14	2.72	3.36	4.76	6.15	8.89	13.10

3 POWER RATINGS
3.2 TIMING BELTS IN HP DESIGN
PROFILE 2M

Nominal power P_N [W] for timing belt width of 9 mm																
Speed of small timing belt pulley n_k [min^{-1}]	Number of teeth of the small timing belt pulley z_k															
	10	12	14	16	18	20	24	28	32	36	40	48	56	64	72	80
	Pitch diameter of the small timing belt pulley d_{wk} [mm]															
	6.37	7.64	8.91	10.19	11.46	12.73	15.28	17.83	20.37	22.92	25.46	30.56	35.65	40.74	45.84	50.93
40	4.15	5.13	6.09	7.04	7.97	8.88	10.66	12.44	14.17	15.87	17.53	20.70	23.87	27.04	30.21	33.22
60	5.86	7.26	8.64	9.98	11.30	12.60	15.13	17.66	20.11	22.51	24.86	29.32	33.79	38.25	42.71	46.96
100	9.02	11.20	13.33	15.43	17.48	19.49	23.40	27.31	31.09	34.80	38.41	45.25	52.09	58.92	65.76	72.21
200	15.97	19.93	23.80	27.57	31.28	34.88	41.89	48.89	55.63	62.21	68.61	80.65	92.68	104.72	116.76	128.02
300	22.16	27.75	33.18	38.48	43.67	48.72	58.51	68.30	77.68	86.84	95.73	112.34	128.95	145.57	162.18	177.64
400	27.85	34.95	41.85	48.59	55.17	61.56	73.93	86.30	98.13	109.66	120.83	141.61	162.40	183.19	203.98	223.23
500	33.16	41.71	50.00	58.09	65.98	73.65	88.45	103.26	117.38	131.14	144.43	169.09	193.76	218.43	243.09	265.77
600	38.18	48.11	57.74	67.11	76.27	85.14	102.26	119.37	135.68	151.54	166.84	195.14	223.45	251.75	280.06	306.04
700	42.84	54.08	64.98	75.58	85.92	95.93	115.22	134.50	152.85	170.67	187.84	219.50	251.15	282.81	314.47	343.42
800	47.50	60.05	72.22	84.05	95.57	106.72	128.18	149.63	170.01	189.79	208.84	243.85	278.86	313.87	348.88	380.80
900	51.79	65.58	78.94	91.91	104.55	116.76	140.24	163.72	185.98	207.58	228.34	266.40	304.46	342.53	380.59	415.19
950	53.93	68.35	82.30	95.84	109.04	121.78	146.27	170.76	193.97	216.47	238.09	277.68	317.27	356.86	396.45	432.38
1000	56.07	71.11	85.65	99.78	113.52	126.80	152.30	177.80	201.95	225.36	247.84	288.95	330.07	371.19	412.30	449.57
1200	64.05	81.45	98.26	114.55	130.40	145.68	174.99	204.30	231.98	258.77	284.45	331.19	377.94	424.68	471.42	513.50
1400	71.53	91.20	110.16	128.54	146.39	163.57	196.49	229.41	260.43	290.40	319.08	371.05	423.01	474.97	526.93	573.45
1450	73.30	91.20	110.16	128.54	146.39	163.57	196.49	229.41	260.43	290.40	319.08	371.05	423.01	474.97	526.93	573.45
1600	78.59	100.43	121.48	141.84	161.62	180.63	216.98	253.33	287.51	320.50	352.01	408.85	465.69	522.53	579.36	629.97
1800	85.28	109.22	132.28	154.56	176.17	196.93	236.57	276.21	313.41	349.27	383.45	444.86	506.27	567.69	629.10	683.48
2000	91.64	117.61	142.60	166.74	190.13	212.57	255.37	298.16	338.24	376.83	413.56	479.28	544.99	610.70	676.41	734.29
2400	103.49	133.37	162.06	189.73	216.50	242.13	290.89	339.65	385.14	428.85	470.32	543.91	617.51	691.11	764.70	828.84
2850	115.61	149.63	182.24	213.64	243.97	272.94	327.91	382.89	433.98	482.94	529.23	610.67	692.10	773.53	854.97	925.05
3200	124.37	161.49	197.01	231.18	264.14	295.58	355.12	414.66	469.84	522.61	572.39	659.35	746.31	833.27	920.23	994.34
3600	133.65	174.13	212.85	250.02	285.87	319.97	384.43	448.88	508.42	565.25	618.69	711.31	803.94	896.56	989.18	1067.19
4000	142.26	186.00	227.76	267.82	306.39	344.23	412.73	481.23	544.86	605.47	662.29	759.99	857.68	955.38	1053.07	1134.34
5000	161.62	212.69	261.57	308.32	353.21	395.70	475.39	555.08	627.90	696.90	761.12	869.16	977.21	1085.26	1193.30	1280.12
6000	177.38	235.78	291.19	344.04	394.64	442.34	531.38	620.43	701.15	777.25	847.52	962.96	1078.40	1193.84	1309.28	1398.21
7000	189.90	254.60	315.81	374.03	429.61	481.79	578.67	675.55	762.62	844.20	918.84	1037.74	1156.63	1275.53	1394.43	1480.66
8000	202.41	273.42	340.44	404.02	464.58	521.24	625.96	730.67	824.08	911.15	990.15	1112.51	1234.87	1357.23	1479.59	1563.10
10000	219.92	302.02	379.10	451.85	520.80	584.80	701.86	818.91	921.49	1015.85	1099.68	1219.28	1338.87	1458.46	1578.05	1643.48
12000	231.41	323.36	409.25	489.91	565.93	635.95	762.54	889.13	997.84	1096.27	1181.40	1288.82	1396.24	1503.67	1611.09	1645.28
14000	237.88	338.64	432.27	519.73	601.74	676.60	810.23	943.86	1055.93	1155.45	1238.51	1324.23	1409.96	1495.68	1581.41	1570.34

Further power ratings for other belt widths can be derived from multiplication with the width correction factors.

Width correction factor 2M				
Belt width [mm]	Standard 3	Standard 6	Standard 9	12
Factor	0.28	0.61	1.00	1.44

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3 POWER RATINGS
3.2 TIMING BELTS IN HP DESIGN
PROFILE 3M

Nominal power P_N [W] for timing belt width of 9 mm															
Speed of small timing belt pulley n_k [min^{-1}]	Number of teeth of the small timing belt pulley z_k														
	10	12	14	16	18	20	24	28	32	40	48	56	64	72	80
	Pitch diameter of the small timing belt pulley d_{wk} [mm]														
	9.55	11.46	13.37	15.28	17.19	19.10	22.92	26.74	30.56	38.20	45.84	53.48	61.12	68.75	76.39
20	2.7	3.4	4.1	4.8	5.6	6.4	8.0	9.8	11.5	14.9	18.4	21.6	24.5	27.3	30.0
40	5.2	6.5	7.8	9.2	10.7	12.1	15.2	18.6	21.8	28.5	35.0	41.2	46.7	52.0	57.3
60	7.6	9.5	11.4	13.4	15.5	17.7	22.2	27.0	31.8	41.4	51.0	60.1	68.0	75.8	83.5
100	12.3	15.3	18.4	21.7	25.1	28.7	36.0	43.5	50.9	66.1	81.6	96.3	109.3	122.2	134.7
200	23.3	28.9	34.8	40.9	47.4	54.1	67.7	81.9	95.5	125.0	154.7	183.0	207.1	231.6	255.9
300	31.6	39.4	47.7	56.3	65.6	74.7	93.8	113.6	133.0	173.9	215.1	253.9	287.6	321.9	354.5
400	39.6	49.4	59.7	70.6	82.0	93.3	116.7	141.0	165.6	216.0	268.0	315.6	358.2	400.2	441.5
500	46.3	58.1	70.6	83.6	97.3	111.3	138.6	167.6	197.0	255.8	317.1	372.8	423.0	473.3	521.3
600	52.3	65.6	80.1	95.3	112.1	128.1	160.0	192.4	226.5	294.0	363.6	426.9	485.0	541.8	597.5
700	58.6	73.9	90.0	106.9	125.6	143.7	180.5	217.4	254.7	330.1	407.7	478.8	544.0	607.6	669.7
800	66.1	82.8	100.2	118.6	138.5	158.5	199.2	240.6	281.3	365.0	451.0	529.0	601.0	671.0	739.0
900	71.5	89.0	109.3	129.7	152.0	173.5	217.4	262.8	307.9	399.0	491.0	577.0	655.0	731.0	807.0
950	74.0	92.7	113.3	135.0	157.8	180.8	226.5	273.4	320.6	415.0	512.0	600.0	682.0	761.0	839.0
1000	76.5	96.3	117.4	140.3	164.5	188.1	235.7	284.1	333.2	432.0	531.0	624.0	708.0	791.0	871.0
1200	86.3	109.3	133.7	160.0	187.7	214.8	270.7	326.5	382.2	496.0	609.0	713.0	809.0	902.0	994.0
1400	96.0	122.0	149.7	179.1	211.0	241.7	303.4	366.0	428.2	554.0	680.0	797.0	903.0	1009.0	1110.0
1450	98.5	124.8	153.7	183.6	216.8	247.8	311.9	375.0	439.1	569.0	698.0	818.0	927.0	1034.0	1139.0
1600	106.4	135.2	164.9	197.4	232.5	266.6	335.1	404.3	473.1	611.0	749.0	877.0	995.0	1110.0	1221.0
1800	117.0	148.0	180.0	215.0	253.0	290.0	365.0	440.0	515.0	667.0	816.0	955.0	1082.0	1207.0	1326.0
2000	125.0	158.0	193.0	231.0	272.0	312.0	395.0	475.0	557.0	718.0	879.0	1029.0	1165.0	1298.0	1427.0
2400	141.0	178.0	219.0	263.0	309.0	356.0	450.0	543.0	635.0	819.0	1000.0	1168.0	1322.0	1471.0	1613.0
2850	155.0	198.0	245.0	296.0	350.0	403.0	509.0	614.0	718.0	923.0	1125.0	1313.0	1484.0	1648.0	1792.0
3200	170.0	216.0	266.0	320.0	379.0	436.0	552.0	665.0	779.0	1001.0	1218.0	1419.0	1601.0	1775.0	1940.0
3600	182.0	233.0	287.0	347.0	411.0	473.0	599.0	722.0	845.0	1084.0	1317.0	1531.0	1724.0	1907.0	2079.0
4000	194.0	248.0	308.0	372.0	441.0	508.0	644.0	776.0	907.0	1163.0	1409.0	1635.0	1837.0	2028.0	2203.0
5000	221.0	284.0	352.0	427.0	507.0	587.0	743.0	896.0	1047.0	1335.0	1608.0	1853.0	2065.0	2257.0	2425.0
6000	246.0	317.0	395.0	479.0	571.0	661.0	838.0	1011.0	1178.0	1495.0	1788.0	2045.0	2257.0	2440.0	2587.0
7000	265.0	344.0	429.0	523.0	625.0	724.0	919.0	1105.0	1286.0	1621.0	1919.0	2169.0	2359.0	2506.0	2598.0
8000	284.0	368.0	462.0	564.0	676.0	784.0	994.0	1194.0	1385.0	1733.0	2030.0	2264.0	2420.0	2517.0	2537.0
10000	320.0	418.0	515.0	632.0	759.0	880.0	1114.0	1334.0	1534.0	1877.0	2128.0	2277.0	2393.0		
12000	349.0	452.0	566.0	690.0	822.0	954.0	1204.0	1428.0	1624.0	1920.0	2064.0				
14000	347.0	458.0	583.0	721.0	869.0	1006.0	1260.0	1476.0	1651.0	1856.0					

Further power ratings for other belt widths can be derived from multiplication with the width correction factors.

Width correction factor 3M							
Belt width [mm]	3	Standard 6	Standard 9	12	Standard 15	20	25
Factor	0.28	0.61	1.00	1.44	1.87	2.63	3.40

3 POWER RATINGS
3.2 TIMING BELTS IN HP DESIGN
PROFILE 5M

Nominal power P_N [kW] for timing belt width of 9 mm															
Speed of small timing belt pulley n_k [min^{-1}]	Number of teeth of the small timing belt pulley z_k														
	14	16	18	20	24	28	32	36	40	44	48	56	64	72	80
	Pitch diameter of the small timing belt pulley d_{wk} [mm]														
	22.28	25.46	28.65	31.83	38.20	44.56	50.93	57.30	63.66	70.03	76.39	89.13	101.86	114.59	127.32
20	0.01	0.02	0.02	0.02	0.03	0.03	0.05	0.06	0.06	0.07	0.07	0.09	0.10	0.12	0.14
40	0.03	0.03	0.05	0.05	0.06	0.08	0.09	0.10	0.12	0.13	0.14	0.17	0.20	0.22	0.25
60	0.05	0.06	0.06	0.07	0.09	0.10	0.13	0.15	0.16	0.18	0.21	0.24	0.28	0.32	0.37
100	0.07	0.08	0.10	0.12	0.14	0.17	0.20	0.23	0.26	0.29	0.32	0.38	0.45	0.51	0.58
200	0.13	0.15	0.18	0.21	0.26	0.31	0.37	0.43	0.48	0.54	0.60	0.71	0.83	0.94	1.07
300	0.17	0.22	0.25	0.30	0.37	0.45	0.53	0.61	0.69	0.77	0.85	1.01	1.18	1.36	1.52
400	0.22	0.28	0.32	0.38	0.47	0.58	0.68	0.78	0.89	0.99	1.09	1.30	1.52	1.74	1.94
500	0.26	0.33	0.39	0.46	0.58	0.70	0.82	0.94	1.07	1.20	1.32	1.58	1.83	2.09	2.35
600	0.31	0.39	0.46	0.53	0.68	0.82	0.95	1.10	1.25	1.39	1.54	1.84	2.14	2.44	2.73
700	0.36	0.44	0.53	0.61	0.77	0.93	1.09	1.25	1.43	1.59	1.76	2.09	2.43	2.76	3.09
800	0.39	0.49	0.59	0.68	0.86	1.04	1.22	1.40	1.59	1.77	1.96	2.33	2.70	3.07	3.44
900	0.44	0.54	0.64	0.75	0.94	1.15	1.35	1.55	1.75	1.96	2.16	2.56	2.97	3.37	3.77
950	0.45	0.56	0.68	0.78	0.99	1.20	1.40	1.62	1.83	2.05	2.25	2.68	3.09	3.52	3.92
1000	0.47	0.59	0.70	0.82	1.04	1.25	1.47	1.69	1.91	2.13	2.35	2.78	3.22	3.66	4.08
1200	0.54	0.68	0.82	0.94	1.20	1.45	1.70	1.96	2.21	2.46	2.71	3.21	3.70	4.20	4.67
1400	0.61	0.77	0.92	1.07	1.36	1.63	1.92	2.21	2.50	2.77	3.06	3.61	4.15	4.68	5.20
1450	0.62	0.79	0.94	1.09	1.39	1.68	1.98	2.27	2.56	2.85	3.14	3.70	4.26	4.80	5.32
1600	0.68	0.85	1.02	1.18	1.51	1.82	2.14	2.45	2.76	3.07	3.38	3.98	4.57	5.13	5.68
1800	0.74	0.93	1.12	1.30	1.64	1.99	2.33	2.68	3.01	3.35	3.68	4.32	4.95	5.54	6.12
2000	0.79	1.01	1.22	1.40	1.78	2.16	2.53	2.90	3.25	3.61	3.97	4.65	5.30	5.92	6.51
2400	0.91	1.16	1.39	1.61	2.05	2.47	2.89	3.30	3.70	4.11	4.49	5.22	5.92	6.57	7.15
2850	1.04	1.32	1.58	1.83	2.32	2.79	3.27	3.71	4.15	4.59	5.00	5.77	6.49	7.12	7.68
3200	1.12	1.44	1.71	1.99	2.52	3.02	3.53	4.00	4.47	4.92	5.35	6.14	6.84	7.44	7.95
3600	1.21	1.55	1.86	2.16	2.73	3.28	3.81	4.31	4.80	5.26	5.69	6.47	7.15	7.69	8.12
4000	1.30	1.67	2.00	2.32	2.92	3.51	4.06	4.59	5.08	5.55	5.98	6.75	7.37	7.83	8.14
5000	1.50	1.93	2.31	2.68	3.36	4.00	4.60	5.15	5.65	6.10	6.50	7.13	7.53	7.68	7.58
6000	1.67	2.16	2.59	2.99	3.73	4.39	5.00	5.54	6.01	6.41	6.73	7.12	7.16	6.85	6.19
7000	1.82	2.36	2.82	3.24	4.03	4.70	5.30	5.80	6.20	6.49	6.68	6.73	6.30	5.39	
8000	1.94	2.52	3.01	3.46	4.26	4.93	5.47	5.90	6.20	6.36	6.38	5.98			
10000	2.15	2.79	3.32	3.78	4.57	5.14	5.54	5.73	5.72	5.50	5.05				
12000	2.30	2.98	3.52	3.97	4.66	5.08	5.22	5.07	4.62	3.88					
14000	2.39	3.09	3.62	4.04	4.58	4.75	4.55	3.96	2.97						

Further power ratings for other belt widths can be derived from multiplication with the width correction factors.

Width correction factor 5M							
Belt width [mm]	6	Standard 9	12	Standard 15	20	Standard 25	30
Factor	0.61	1.00	1.44	1.87	2.63	3.40	4.15

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3 POWER RATINGS

3.2 TIMING BELTS IN HP DESIGN

PROFILES 8M AND S8M

Nominal power P_N [kW] for timing belt width of 20 mm																	
Speed of small timing belt pulley n_k [min^{-1}]	Number of teeth of the small timing belt pulley z_k																
	22	24	26	28	30	32	34	36	38	40	44	48	52	56	64	72	80
	Pitch diameter of the small timing belt pulley d_{wk} [mm]																
	56.02	61.12	66.21	71.30	76.39	81.49	86.58	91.67	96.77	101.86	112.05	122.23	132.42	142.60	162.97	183.35	203.72
10	0.06	0.07	0.08	0.08	0.09	0.10	0.11	0.12	0.13	0.13	0.15	0.17	0.19	0.20	0.24	0.27	0.30
20	0.11	0.13	0.15	0.16	0.18	0.19	0.22	0.24	0.25	0.27	0.30	0.33	0.36	0.39	0.46	0.52	0.58
50	0.28	0.31	0.35	0.39	0.43	0.47	0.51	0.55	0.58	0.62	0.71	0.78	0.86	0.93	1.09	1.24	1.38
100	0.51	0.59	0.67	0.75	0.82	0.90	0.97	1.04	1.13	1.20	1.35	1.50	1.64	1.79	2.08	2.38	2.66
200	0.97	1.13	1.27	1.41	1.57	1.71	1.85	2.00	2.15	2.29	2.58	2.87	3.15	3.43	4.00	4.56	5.12
300	1.41	1.63	1.84	2.06	2.27	2.49	2.70	2.92	3.13	3.34	3.77	4.19	4.61	5.02	5.85	6.67	7.49
400	1.83	2.12	2.40	2.68	2.97	3.25	3.53	3.81	4.09	4.36	4.93	5.47	6.02	6.57	7.65	8.74	9.80
500	2.24	2.59	2.95	3.30	3.65	4.00	4.34	4.69	5.03	5.38	6.05	6.74	7.42	8.09	9.44	10.76	12.08
600	2.64	3.06	3.48	3.90	4.31	4.72	5.14	5.55	5.96	6.36	7.18	7.99	8.79	9.59	11.18	12.76	14.32
700	3.11	3.62	4.11	4.61	5.10	5.59	6.08	6.57	7.05	7.54	8.50	9.46	10.41	11.36	13.25	15.12	16.98
800	3.43	3.98	4.53	5.07	5.61	6.16	6.70	7.23	7.78	8.31	9.37	10.43	11.48	12.53	14.61	16.67	18.72
1000	4.19	4.87	5.54	6.22	6.89	7.56	8.23	8.89	9.55	10.21	11.53	12.83	14.12	15.41	17.97	20.50	23.01
1200	4.94	5.74	6.55	7.35	8.14	8.93	9.72	10.51	11.30	12.08	13.64	15.17	16.70	18.24	21.26	24.26	27.22
1450	5.88	6.85	7.82	8.78	9.73	10.69	11.64	12.58	13.52	14.46	16.32	18.17	20.01	21.84	25.46	29.03	32.56
1600	6.38	7.44	8.49	9.54	10.58	11.62	12.65	13.68	14.70	15.73	17.75	19.76	21.76	23.75	27.68	31.55	35.39
1800	7.09	8.27	9.45	10.61	11.77	12.93	14.09	15.23	16.37	17.51	19.77	22.02	24.23	26.44	30.81	35.11	39.34
2000	7.78	9.09	10.38	11.67	12.95	14.23	15.50	16.76	18.02	19.27	21.76	24.23	26.66	29.10	33.89	38.59	43.21
2200	8.46	9.89	11.30	12.71	14.11	15.50	16.89	18.27	19.64	21.00	23.71	26.40	29.04	31.69	36.89	41.97	46.96
2400	9.14	10.69	12.22	13.75	15.27	16.77	18.28	19.77	21.26	22.73	25.66	28.56	31.42	34.28	39.88	45.35	50.70
2800	10.47	12.25	14.03	15.78	17.53	19.26	20.99	22.70	24.41	26.10	29.46	32.78	36.04	39.30	45.65	51.83	57.82
3000	10.86	12.71	14.55	16.38	18.20	20.00	21.79	23.57	25.35	27.10	30.59	34.02	37.40	40.78	47.34	53.71	59.88
3500	12.72	14.91	17.08	19.23	21.36	23.48	25.59	27.68	29.75	31.81	35.88	39.88	43.78	47.68	55.20		
4000	14.28	16.74	19.19	21.62	24.02	26.40	28.77	31.11	33.43	35.73	40.26	44.72	49.03	53.34			
4500	15.80	18.53	21.25	23.94	26.61	29.24	31.85	34.43	36.98	39.51	44.48	49.34	55.20				
5000	17.27	20.27	23.26	26.20	29.12	32.00	34.83	37.65	40.43	43.16	48.53	53.75					
5500	18.71	21.98	25.20	28.40	31.54	34.66	37.72	40.74	43.73	46.67	52.39	57.92					
6500	21.39	25.32	28.82	32.54	36.06	39.60	43.18	46.46	49.82	53.14	59.47						
7000	22.64	26.97	30.46	34.44	38.14	41.84	45.71	49.05	52.58	56.08							
8000	23.82	28.62	31.96	36.20	40.06	43.92	48.09	51.42	55.12								

Further power ratings for other belt widths can be derived from multiplication with the width correction factors.

Width correction factor 8M and S8M				
Standard belt width [mm]	20	30	50	85
Factor	1.00	1.58	2.73	4.76

3 POWER RATINGS
3.2 TIMING BELTS IN HP DESIGN
PROFILE 14M

Nominal power P_N [kW] for timing belt width of 40 mm																	
Speed of small timing belt pulley n_k [min^{-1}]	Number of teeth of the small timing belt pulley z_k																
	28	29	30	32	34	36	38	40	42	44	46	48	52	56	64	72	80
	Pitch diameter of the small timing belt pulley d_{wk} [mm]																
	124.78	129.23	133.69	142.60	151.52	160.43	169.34	178.25	187.17	196.08	204.99	213.90	231.73	249.55	285.21	320.86	356.51
10	0.46	0.49	0.51	0.54	0.58	0.62	0.67	0.70	0.74	0.78	0.82	0.86	0.93	1.00	1.15	1.30	1.44
20	0.88	0.91	0.94	1.02	1.11	1.17	1.25	1.32	1.39	1.47	1.54	1.61	1.75	1.90	2.17	2.46	2.73
40	1.62	1.69	1.76	1.90	2.04	2.17	2.32	2.45	2.58	2.72	2.85	2.99	3.25	3.52	4.05	4.56	5.08
60	2.37	2.47	2.57	2.78	2.97	3.18	3.38	3.58	3.78	3.98	4.17	4.36	4.75	5.14	5.92	6.67	7.43
100	3.73	3.89	4.06	4.38	4.71	5.03	5.34	5.67	5.98	6.30	6.61	6.92	7.54	8.16	9.37	10.58	11.78
200	6.91	7.21	7.52	8.12	8.74	9.33	9.93	10.52	11.12	11.71	12.29	12.87	14.03	15.19	17.47	19.71	21.93
300	9.87	10.30	10.74	11.62	12.50	13.36	14.22	15.08	15.93	16.78	17.62	18.46	20.12	21.78	25.05	28.28	31.46
400	12.68	13.26	13.83	14.96	16.08	17.21	18.33	19.42	20.53	21.63	22.71	23.80	25.95	28.09	32.31	36.47	40.56
500	15.40	16.09	16.79	18.17	19.56	20.92	22.28	23.64	24.97	26.30	27.63	28.95	31.56	34.18	39.31	44.36	49.33
600	18.02	18.85	19.67	21.30	22.91	24.53	26.12	27.70	29.28	30.86	32.40	33.95	37.02	40.09	46.09	51.99	57.80
700	21.08	22.05	23.01	24.93	26.83	28.73	30.60	32.46	34.31	36.15	37.97	39.79	43.38	46.96	53.99	60.87	67.63
800	23.08	24.14	25.20	27.29	29.38	31.45	33.51	35.56	37.58	39.60	41.59	43.59	47.51	51.43	59.11	66.62	73.99
1000	27.92	29.21	30.50	33.04	35.58	38.09	40.59	43.06	45.51	47.97	50.37	52.78	57.52	62.25	71.48	80.46	89.22
1200	32.57	34.08	35.59	38.57	41.54	44.48	47.40	50.28	53.14	56.00	58.81	61.61	67.10	72.60	83.25	93.56	103.56
1450	38.39	40.17	41.95	45.50	48.99	52.46	55.89	59.29	62.64	66.00	69.28	72.57	78.96	85.35	97.68	109.49	120.81
1600	41.42	43.35	45.27	49.09	52.86	56.60	60.30	63.97	67.58	71.18	74.71	78.23	85.08	91.93	105.03	117.53	129.41
1800	45.63	47.76	49.89	54.09	58.26	62.36	66.44	70.44	74.39	78.34	82.20	86.05	93.49	100.92	115.03	128.36	
2000	49.73	52.05	54.38	58.95	63.48	67.94	72.35	76.70	80.97	85.24	89.39	93.54	101.49	109.45	124.42		
2200	53.65	56.15	58.65	63.58	68.45	73.24	77.96	82.62	87.17	91.71	96.12	100.52	108.90	117.28			
2400	57.57	60.25	62.92	68.21	73.43	78.54	83.58	88.54	93.36	98.19	102.85	107.51	116.31	125.11			
2600	61.25	64.10	66.95	72.55	78.06	83.46	88.78	93.99	99.04	104.10	108.95	113.81					
2850	64.94	67.96	70.98	76.89	82.70	88.38	93.98	99.44	104.72	110.01	115.06	120.10					
3000	67.06	70.17	73.28	79.38	85.35	91.20	96.93	102.52	107.93	113.33	118.46	123.60					
3500	76.79	80.30	83.81	90.67	97.34	103.81	110.10	116.20	110.88	116.25	121.48						
4000	84.40	88.20	92.00	99.37	106.48	113.77	121.68	127.06	113.44	118.75							
4500	91.28	95.30	99.33	105.43	113.73	121.63	132.00	135.53									
5000	97.36	101.56	105.73	108.83	119.75	127.31											
5500	102.61	106.91	111.16	109.50													
6000	106.99	111.30															

Further power ratings for other belt widths can be derived from multiplication with the width correction factors.

Width correction factor 14M					
Standard belt width [mm]	40	55	85	115	170
Factor	1.00	1.44	2.50	3.50	5.32

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TIMING BELTS
FOR YOUR
SOLUTIONS



3 POWER RATINGS

3.3 TIMING BELTS IN HIGH POWER DESIGN

PROFILES 8M AND S8M

Nominal power P_N [kW] for timing belt width of 20 mm																	
Speed of small timing belt pulley n_k [min^{-1}]	Number of teeth of the small timing belt pulley z_k																
	22	24	26	28	30	32	34	36	38	40	44	48	52	56	64	72	80
	Pitch diameter of the small timing belt pulley d_{wk} [mm]																
	56.02	61.12	66.21	71.30	76.39	81.49	86.58	91.67	96.77	101.86	112.05	122.23	132.42	142.60	162.97	183.35	203.72
10	0.08	0.09	0.10	0.10	0.11	0.13	0.14	0.15	0.16	0.16	0.19	0.21	0.24	0.25	0.30	0.34	0.38
20	0.14	0.16	0.19	0.20	0.23	0.24	0.28	0.30	0.31	0.34	0.38	0.41	0.45	0.49	0.58	0.65	0.73
50	0.35	0.39	0.44	0.49	0.54	0.59	0.64	0.69	0.73	0.78	0.89	0.98	1.08	1.16	1.36	1.55	1.73
100	0.64	0.74	0.84	0.94	1.03	1.13	1.21	1.30	1.41	1.50	1.69	1.88	2.05	2.24	2.60	2.98	3.33
200	1.21	1.41	1.59	1.76	1.96	2.14	2.31	2.50	2.69	2.86	3.23	3.59	3.94	4.29	5.00	5.70	6.40
300	1.76	2.04	2.30	2.58	2.84	3.11	3.38	3.65	3.91	4.18	4.71	5.24	5.76	6.28	7.31	8.34	9.36
400	2.29	2.65	3.00	3.35	3.71	4.06	4.41	4.76	5.11	5.45	6.16	6.84	7.53	8.21	9.56	10.93	12.25
500	2.80	3.24	3.69	4.13	4.56	5.00	5.43	5.86	6.29	6.73	7.56	8.43	9.28	10.11	11.80	13.45	15.10
600	3.30	3.83	4.35	4.88	5.39	5.90	6.43	6.94	7.45	7.95	8.98	9.99	10.99	11.99	13.98	15.95	17.90
700	3.89	4.53	5.14	5.76	6.38	6.99	7.60	8.21	8.81	9.43	10.63	11.83	13.01	14.20	16.56	18.90	21.23
800	4.29	4.98	5.66	6.34	7.01	7.70	8.38	9.04	9.73	10.39	11.71	13.04	14.35	15.66	18.26	20.84	23.40
1000	5.24	6.09	6.93	7.78	8.61	9.45	10.29	11.11	11.94	12.76	14.41	16.04	17.65	19.26	22.46	25.63	28.76
1200	6.18	7.18	8.19	9.19	10.18	11.16	12.15	13.14	14.13	15.10	17.05	18.96	20.88	22.80	26.58	30.33	34.03
1450	7.35	8.56	9.78	10.98	12.16	13.36	14.55	15.73	16.90	18.08	20.40	22.71	25.01	27.30	31.83	36.29	40.70
1600	7.98	9.30	10.61	11.93	13.23	14.53	15.81	17.10	18.38	19.66	22.19	24.70	27.20	29.69	34.60	39.44	44.24
1800	8.86	10.34	11.81	13.26	14.71	16.16	17.61	19.04	20.46	21.89	24.71	27.53	30.29	33.05	38.51	43.89	49.18
2000	9.73	11.36	12.98	14.59	16.19	17.79	19.38	20.95	22.53	24.09	27.20	30.29	33.33	36.38	42.36	48.24	54.01
2200	10.58	12.36	14.13	15.89	17.64	19.38	21.11	22.84	24.55	26.25	29.64	33.00	36.30	39.61	46.11	52.46	58.70
2400	11.43	13.36	15.28	17.19	19.09	20.96	22.85	24.71	26.58	28.41	32.08	35.70	39.28	42.85	49.85	56.69	63.38
2800	13.09	15.31	17.54	19.73	21.91	24.08	26.24	28.38	30.51	32.63	36.83	40.98	45.05	49.13	57.06	64.79	72.28
3000	13.58	15.89	18.19	20.48	22.75	25.00	27.24	29.46	31.69	33.88	38.24	42.53	46.75	50.98	59.18	67.14	74.85
3500	15.90	18.64	21.35	24.04	26.70	29.35	31.99	34.60	37.19	39.76	44.85	49.85	54.73	59.60	69.00		
4000	17.85	20.93	23.99	27.03	30.03	33.00	35.96	38.89	41.79	44.66	50.33	55.90	61.29	66.68			
4500	19.75	23.16	26.56	29.93	33.26	36.55	39.81	43.04	46.23	49.39	55.60	61.68	69.00				
5000	21.59	25.34	29.08	32.75	36.40	40.00	43.54	47.06	50.54	53.95	60.66	67.19					
5500	23.39	27.48	31.50	35.50	39.43	43.33	47.15	50.93	54.66	58.34	65.49	72.40					
6000	25.10	29.58	33.83	38.15	42.33	46.50	50.64	54.61	58.58	62.50	70.06						
6500	26.74	31.65	36.03	40.68	45.08	49.50	53.98	58.08	62.28	66.43	74.34						
7000	28.30	33.71	38.08	43.05	47.68	52.30	57.14	61.31	65.73	70.10							
8000	29.78	35.78	39.95	45.25	50.08	54.90	60.11	64.28	68.90								

Further power ratings for other belt widths can be derived from multiplication with the width correction factors.

Width correction factor 8M and S8M				
Standard belt width [mm]	20	30	50	85
Factor	1.00	1.58	2.73	4.76

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3 POWER RATINGS

3.3 TIMING BELTS IN HIGH POWER DESIGN

PROFILE 14M

Nominal power P_N [kW] for timing belt width of 40 mm																	
Speed of small timing belt pulley n_k [min^{-1}]	Number of teeth of the small timing belt pulley z_k																
	28	29	30	32	34	36	38	40	42	44	46	48	52	56	64	72	80
	Pitch diameter of the small timing belt pulley d_{wk} [mm]																
	124.78	129.23	133.69	142.60	151.52	160.43	169.34	178.25	187.17	196.08	204.99	213.90	231.73	249.55	285.21	320.86	356.51
10	0.58	0.61	0.64	0.68	0.73	0.78	0.84	0.88	0.93	0.98	1.03	1.08	1.16	1.25	1.44	1.63	1.80
20	1.10	1.14	1.18	1.28	1.39	1.46	1.56	1.65	1.74	1.84	1.93	2.01	2.19	2.38	2.71	3.08	3.41
40	2.03	2.11	2.20	2.38	2.55	2.71	2.90	3.06	3.23	3.40	3.56	3.74	4.06	4.40	5.06	5.70	6.35
60	2.96	3.09	3.21	3.48	3.71	3.98	4.23	4.48	4.73	4.98	5.21	5.45	5.94	6.43	7.40	8.34	9.29
100	4.66	4.86	5.08	5.48	5.89	6.29	6.68	7.09	7.48	7.88	8.26	8.65	9.43	10.20	11.71	13.23	14.73
200	8.64	9.01	9.40	10.15	10.93	11.66	12.41	13.15	13.90	14.64	15.36	16.09	17.54	18.99	21.84	24.64	27.41
300	12.34	12.88	13.43	14.53	15.63	16.70	17.78	18.85	19.91	20.98	22.03	23.08	25.15	27.23	31.31	35.35	39.33
400	15.85	16.58	17.29	18.70	20.10	21.51	22.91	24.28	25.66	27.04	28.39	29.75	32.44	35.11	40.39	45.59	50.70
500	19.25	20.11	20.99	22.71	24.45	26.15	27.85	29.55	31.21	32.88	34.54	36.19	39.45	42.73	49.14	55.45	61.66
600	22.53	23.56	24.59	26.63	28.64	30.66	32.65	34.63	36.60	38.58	40.50	42.44	46.28	50.11	57.61	64.99	72.25
700	26.35	27.56	28.76	31.16	33.54	35.91	38.25	40.58	42.89	45.19	47.46	49.74	54.23	58.70	67.49	76.09	84.54
800	28.85	30.18	31.50	34.11	36.73	39.31	41.89	44.45	46.98	49.50	51.99	54.49	59.39	64.29	73.89	83.28	92.49
1000	34.90	36.51	38.13	41.30	44.48	47.61	50.74	53.83	56.89	59.96	62.96	65.98	71.90	77.81	89.35	100.58	111.53
1200	40.71	42.60	44.49	48.21	51.93	55.60	59.25	62.85	66.43	70.00	73.51	77.01	83.88	90.75	104.06	116.95	129.45
1450	47.99	50.21	52.44	56.88	61.24	65.58	69.86	74.11	78.30	82.50	86.60	90.71	98.70	106.69	122.10	136.86	151.01
1600	51.78	54.19	56.59	61.36	66.08	70.75	75.38	79.96	84.48	88.98	93.39	97.79	106.35	114.91	131.29	146.91	161.76
1800	57.04	59.70	62.36	67.61	72.83	77.95	83.05	88.05	92.99	97.93	102.75	107.56	116.86	126.15	143.79	160.45	
2000	62.16	65.06	67.98	73.69	79.35	84.93	90.44	95.88	101.21	106.55	111.74	116.93	126.86	136.81	155.53		
2200	67.06	70.19	73.31	79.48	85.56	91.55	97.45	103.28	108.96	114.64	120.15	125.65	136.13	146.60			
2400	71.96	75.31	78.65	85.26	91.79	98.18	104.48	110.68	116.70	122.74	128.56	134.39	145.39	156.39			
2600	76.56	80.13	83.69	90.69	97.58	104.33	110.98	117.49	123.80	130.13	136.19	142.26					
2850	81.18	84.95	88.73	96.11	103.38	110.48	117.48	124.30	130.90	137.51	143.83	150.13					
3000	83.83	87.71	91.60	99.23	106.69	114.00	121.16	128.15	134.91	141.66	148.08	154.50					
3500	95.99	100.38	104.76	113.34	121.68	129.76	137.63	145.25	138.60	145.31	151.85						
4000	105.50	110.25	115.00	124.21	133.10	142.21	152.10	158.83	141.80	148.44							
4500	114.10	119.13	124.16	131.79	142.16	152.04	165.00	169.41									
5000	121.70	126.95	132.16	136.04	149.69	159.14											
5500	128.26	133.64	138.95	136.88													
6000	133.74	139.13															

Further power ratings for other belt widths can be derived from multiplication with the width correction factors.

Width correction factor 14M					
Standard belt width [mm]	40	55	85	115	170
Factor	1.00	1.44	2.50	3.50	5.32

3 POWER RATINGS

3.4 TIMING BELTS IN HIGH LOAD DESIGN

PROFILES 8M AND S8M

Nominal power P_N [kW] for timing belt width of 20 mm																	
Speed of small timing belt pulley n_k [min^{-1}]	Number of teeth of the small timing belt pulley z_k																
	22	24	26	28	30	32	34	36	38	40	44	48	52	56	64	72	80
	Pitch diameter of the small timing belt pulley d_{wk} [mm]																
	56.02	61.12	66.21	71.30	76.39	81.49	86.58	91.67	96.77	101.86	112.05	122.23	132.42	142.60	162.97	183.35	203.72
10	0.10	0.11	0.13	0.13	0.15	0.17	0.18	0.20	0.21	0.21	0.25	0.28	0.31	0.34	0.38	0.43	0.48
20	0.18	0.21	0.25	0.27	0.29	0.31	0.35	0.38	0.39	0.43	0.48	0.53	0.57	0.63	0.74	0.84	0.94
50	0.42	0.46	0.52	0.59	0.64	0.70	0.77	0.83	0.87	0.94	1.05	1.17	1.27	1.39	1.63	1.86	2.07
100	0.77	0.88	1.00	1.12	1.22	1.35	1.46	1.56	1.69	1.79	2.03	2.24	2.46	2.68	3.11	3.55	3.98
200	1.46	1.69	1.90	2.12	2.34	2.56	2.77	2.99	3.21	3.43	3.86	4.29	4.71	5.14	5.97	6.81	7.66
300	2.12	2.43	2.76	3.08	3.41	3.72	4.04	4.37	4.69	4.99	5.64	6.27	6.89	7.50	8.75	9.97	11.19
400	2.74	3.17	3.59	4.02	4.45	4.85	5.28	5.69	6.11	6.53	7.37	8.18	9.00	9.82	11.44	13.07	14.66
500	3.35	3.87	4.41	4.93	5.45	5.97	6.50	7.02	7.51	8.05	9.05	10.08	11.09	12.10	14.11	16.08	18.06
600	3.65	4.22	4.81	5.39	5.95	6.52	7.09	7.67	8.23	8.78	9.91	11.03	12.13	13.24	15.42	17.60	19.76
700	4.30	4.99	5.66	6.36	7.04	7.72	8.39	9.06	9.73	10.40	11.74	13.04	14.36	15.68	18.28	20.87	23.42
800	4.74	5.48	6.25	7.00	7.75	8.50	9.25	9.98	10.73	11.46	12.94	14.39	15.84	17.29	20.16	23.00	25.84
1000	5.78	6.72	7.64	8.58	9.52	10.43	11.35	12.28	13.18	14.10	15.90	17.70	19.49	21.26	24.80	28.30	31.75
1200	6.82	7.92	9.04	10.14	11.24	12.32	13.42	14.51	15.60	16.67	18.82	20.94	23.05	25.16	29.34	33.48	37.56
1450	8.11	9.46	10.79	12.12	13.43	14.75	16.06	17.36	18.66	19.94	22.52	25.08	27.61	30.14	35.14	40.07	44.93
1600	8.81	10.26	11.72	13.16	14.60	16.03	17.46	18.88	20.29	21.70	24.50	27.28	30.02	32.77	38.20	43.55	48.83
1800	9.78	11.41	13.03	14.65	16.25	17.84	19.44	21.02	22.60	24.17	27.29	30.38	33.43	36.49	42.52	48.46	54.29
2000	10.73	12.54	14.32	16.10	17.87	19.63	21.40	23.12	24.86	26.59	30.02	33.43	36.79	40.15	46.76	53.26	59.64
2200	11.68	13.64	15.60	17.54	19.46	21.40	23.30	25.21	27.11	28.98	32.72	36.43	40.08	43.73	50.90	57.92	64.80
2400	12.61	14.75	16.87	18.97	21.06	23.15	25.22	27.29	29.34	31.37	35.41	39.42	43.36	47.30	55.04	62.59	69.97
2800	14.45	16.91	19.36	21.77	24.19	26.58	28.97	31.33	33.70	36.02	40.66	45.24	49.74	54.23	63.00	71.52	79.80
3000	14.99	17.54	20.08	22.61	25.10	27.60	30.07	32.53	34.98	37.39	42.22	46.96	51.61	56.27	65.33	74.12	82.63
3500	17.56	20.57	23.57	26.53	29.47	32.40	35.32	38.20	41.05	43.90	49.51	55.04	60.42	65.80	76.18		
4000	19.70	23.10	26.48	29.83	33.16	36.43	39.70	42.94	46.13	49.31	55.56	61.72	67.66	73.61			
4500	21.80	25.57	29.33	33.04	36.72	40.36	43.96	47.52	51.04	54.53	61.39	68.09	74.77				
5000	23.83	27.98	32.09	36.16	40.18	44.15	48.07	51.96	55.79	59.57	66.97	74.17	81.77				
5500	25.81	30.32	34.78	39.19	43.54	47.83	52.06	56.23	60.34	64.40	72.30						

Further power ratings for other belt widths can be derived from multiplication with the width correction factors.

Width correction factor 8M and S8M				
Standard belt width [mm]	20	30	50	85
Factor	1.00	1.58	2.73	4.76

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3 POWER RATINGS

3.4 TIMING BELTS IN HIGH LOAD DESIGN

PROFILE 14M

Nominal power P_N [kW] for timing belt width of 40 mm																	
Speed of small timing belt pulley n_k [min^{-1}]	Number of teeth of the small timing belt pulley z_k																
	28	29	30	32	34	36	38	40	42	44	46	48	52	56	64	72	80
	Pitch diameter of the small timing belt pulley d_{wk} [mm]																
	124.78	129.23	133.69	142.60	151.52	160.43	169.34	178.25	187.17	196.08	204.99	213.90	231.73	249.55	285.21	320.86	356.51
10	0.74	0.78	0.83	0.87	0.94	1.01	1.08	1.12	1.19	1.26	1.32	1.39	1.50	1.61	1.85	2.10	2.32
20	1.41	1.47	1.51	1.65	1.78	1.88	2.02	2.13	2.24	2.35	2.48	2.59	2.81	3.05	3.50	3.96	4.38
40	2.62	2.72	2.83	3.07	3.28	3.50	3.72	3.95	4.16	4.38	4.59	4.80	5.24	5.67	6.51	7.35	8.18
60	3.81	3.98	4.14	4.47	4.79	5.11	5.45	5.75	6.08	6.40	6.72	7.03	7.66	8.27	9.53	10.74	11.96
100	6.01	6.27	6.54	7.06	7.59	8.09	8.60	9.13	9.63	10.15	10.64	11.13	12.14	13.13	15.09	17.04	18.97
200	11.12	11.61	12.11	13.08	14.07	15.02	15.99	16.94	17.89	18.86	19.78	20.72	22.60	24.46	28.13	31.74	35.31
300	15.89	16.59	17.29	18.70	20.12	21.50	22.89	24.28	25.65	27.02	28.36	29.72	32.40	35.07	40.33	45.53	50.65
400	20.43	21.35	22.27	24.08	25.90	27.71	29.51	31.28	33.04	34.82	36.57	38.32	41.78	45.23	52.02	58.72	65.30
500	24.79	25.91	27.03	29.26	31.49	33.68	35.88	38.05	40.19	42.34	44.48	46.62	50.82	55.02	63.29	71.41	79.42
600	29.01	30.34	31.67	34.29	36.88	39.49	42.06	44.60	47.14	49.69	52.18	54.66	59.60	64.54	74.21	83.71	93.06
700	33.95	35.49	37.04	40.12	43.20	46.26	49.27	52.25	55.23	58.21	61.14	64.06	69.83	75.61	86.93	98.00	108.88
800	37.16	38.86	40.57	43.95	47.31	50.64	53.96	57.25	60.51	63.76	66.96	70.18	76.50	82.80	95.17	107.27	119.13
950	44.95	47.03	49.10	53.20	57.29	61.32	65.35	69.33	73.28	77.22	81.10	84.98	92.60	100.23	115.08	129.54	143.65
1000	52.43	54.87	57.30	62.10	66.88	71.62	76.31	80.95	85.55	90.16	94.68	99.20	108.04	116.89	134.04	150.63	166.73
1200	61.81	64.68	67.55	73.25	78.88	84.46	89.98	95.45	100.86	106.26	111.54	116.83	127.12	137.41	157.26	176.27	194.50
1450	66.68	69.79	72.88	79.04	85.11	91.13	97.09	103.00	108.79	114.60	120.27	125.96	136.98	148.01	169.11	189.22	208.36
1600	73.47	76.90	80.33	87.09	93.80	100.41	106.96	113.41	119.77	126.14	132.33	138.53	150.51	162.48	185.21	206.65	
1800	80.07	83.80	87.56	94.91	102.20	109.40	116.48	123.49	130.37	137.23	143.92	150.60	163.41	176.20	200.31		
2000	86.38	90.40	94.43	102.37	110.21	117.92	125.52	133.01	140.34	147.66	154.76	161.84	175.34	188.82			
2200	92.68	96.99	101.30	109.82	118.22	126.45	134.57	142.55	150.32	158.09	165.59	173.10	187.26	201.43			
2400	98.62	103.21	107.79	116.80	125.68	134.37	142.93	151.33	159.46	167.59	175.42	183.23					
2600	104.55	109.41	114.27	123.79	133.14	142.30	151.30	160.09	168.60	177.11	185.23	193.37					
2850	107.97	112.98	117.98	127.79	137.41	146.83	156.06	165.06	173.75	182.46	190.72	199.00					
3000	123.62	129.29	134.95	145.98	156.72	167.13	177.27	187.08									
3500	135.88	142.00	148.12	159.98	171.43												
Further power ratings for other belt widths can be derived from multiplication with the width correction factors.																	

Width correction factor 14M					
Standard belt width [mm]	40	55	85	115	170
Factor	1.00	1.44	2.50	3.50	5.32

LINEAR BELTS

HIGH POSITIONING PRECISION

MAINTENANCE-FREE

OPEN-ENDED TIMING BELTS



4 LINEAR BELTS RUBBER
4.1 PRODUCT DESCRIPTION



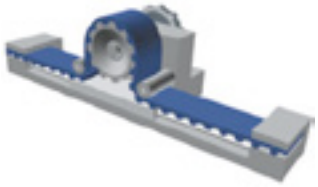
Open-ended Optibelt timing belts made from rubber with OMEGA, STD and ZR profiles are available for the implementation of linear drives.

The main function of linear drives is to convert a rotary movement (rotation) into a straight movement (translation).
We differentiate between two variants:

Linear drives with motor stopped



Linear drives with motor moving



APPLICATION EXAMPLES
- automatic door and gate drives
- incremental encoders for lifts
- linear shifting tables for machine tools
- linear positioning systems

Rubber linear timing belts from Optibelt are available in widths of up to 30 mm depending on the profile; standard roll length of 30 m. Higher positioning precision thanks to the used low-stretch glass cord is achieved.

PROFILES AND VERSIONS
Optibelt rubber linear timing belts are available with the following profiles and versions:
- optibelt OMEGA LINEAR with profiles 3M, 5M and 8M
- optibelt OMEGA HP LINEAR with profiles 3M, 5M and 8M

- optibelt STD LINEAR with profiles S5M and S8M
- optibelt STD HP LINEAR with profile S8M

- optibelt ZR LINEAR with profiles XL, L and H

Other profiles, versions and roll lengths available upon request.

FASTENING WITH CLAMPING PLATES
The timing belt ends of linear drives are primarily fastened using clamping plates. optibelt CP clamping plates included in the standard assortment ensure safe clamping of the timing belts up to the respective breakage limit.

4 LINEAR BELTS RUBBER

4.2 TIMING BELTS BASIC RANGE

optibelt OMEGA LINEAR / OMEGA HP LINEAR

optibelt ZR LINEAR / STD LINEAR

optibelt OMEGA LINEAR / OMEGA HP LINEAR	optibelt ZR LINEAR/ STD LINEAR
Designation	Designation
3M glass fibre	**MXL glass fibre**
3M 6 GLASS	MXL 025 GLASS
3M 9 GLASS	**XL glass fibre**
3M 15 GLASS	XL 025 GLASS
5M glass fibre	XL 031 GLASS
5M 6 GLASS	XL 037 GLASS
5M 9 GLASS	XL 050 GLASS
5M 10 GLASS	**L glass fibre**
5M 12 GLASS	L 037 GLASS
5M 15 GLASS	L 050 GLASS
5M 20 GLASS	L 075 GLASS
5M 25 GLASS	L 100 GLASS
8M glass fibre	**H glass fibre**
8M 10 GLASS	H 050 GLASS
8M 12 GLASS	H 075 GLASS
8M 15 GLASS	H 100 GLASS
8M 20 GLASS	H 150 GLASS
8M 25 GLASS	H 200 GLASS
8M 30 GLASS	**S8M glass fibre**
3MHP glass fibre	S8M 120 GLASS
3MHP 6 GLASS	S8M 150 GLASS
3MHP 9 GLASS	
3MHP 15 GLASS	
5MHP glass fibre	
5MHP 10 GLASS	
5MHP 15 GLASS	
5MHP 20 GLASS	
5MHP 25 GLASS	
8MHP Glass fibre	
8MHP 10 GLASS	
8MHP 15 GLASS	
8MHP 20 GLASS	
8MHP 25 GLASS	
8MHP 30 GLASS	

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FORMULA SYMBOLS

Formula symbols	Explanation	Unit	Formula symbols	Explanation	Unit
a	Intended drive centre distance	mm	F_H	Lifting or downward force	N
a_1	Acceleration	m/s^2	F_R	Friction force	N
a_2	Deceleration	m/s^2	F_T	Static belt tension	N
a_{nom}	Drive centre distance with selected belt length	mm	F_U	Circumferential force	N
α	Angle of inclination	°	$F_{U\ perm}$	Permissible circumferential force of the timing belt	N
b_r	Belt width	mm	L	Span length	mm
c_0	Base drive service factor	–	L_w	Pitch length of the timing belt	mm
c_2	Total drive service factor	–	m	Mass	kg
$c_{2\ actual}$	Actual drive service factor	–	m_k	Weight per metre per 1 mm of belt width	kg/m
c_6	Fatigue allowance	–	M_N	Drive torque	Nm
d_{max}	Maximum pulley diameter	mm	μ	Friction coefficient of slide guidance	–
$d_{w\ provisional}$	Provisionally selected diameter of timing belt pulleys	mm	n	Rotational speed	1/min
d_{w1}	Pulley diameter pulley 1	mm	P_N	Nominal power of timing belt	kW
d_{w2}	Pulley diameter pulley 2	mm	s	Distance of movement	mm
f	Frequency	Hz	v	Speed of movement	m/s
F_A	Static shaft load	N	z	Number of teeth on timing belt pulley	–
F_{acc}	Acceleration force	N			
F_{BU}	Design circumferential force including c_2	N			

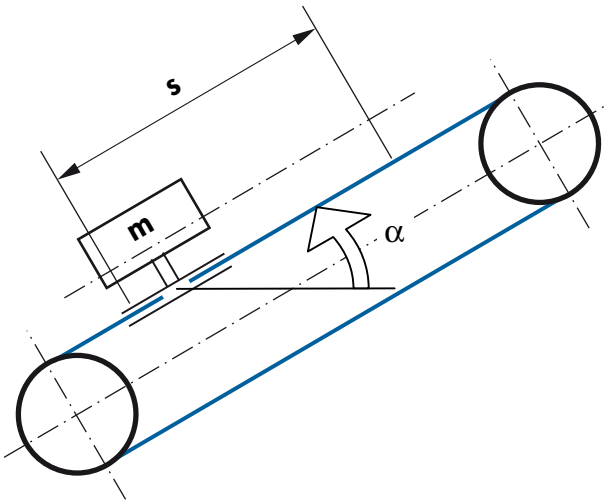
4 LINEAR BELTS RUBBER

4.3 BASICS OF DRIVE DESIGN

FORMULAS AND CALCULATION EXAMPLE

LINEAR CALCULATION

In linear drives, the highest load for timing belts occur during acceleration and deceleration phases. During the movement at constant speed, the load on the belt is the lowest in minimal throughout the motion cycle. Typically, only very low friction forces are at play, and, depending on the arrangement, output or lifting forces may be present. In the following calculation example, a mass "m" is moved back and forth at an inclined angle α to the horizontal.



DRIVE DATA

Driven mass m = 100 kg

Acceleration a_1 = 3 m/s²

Deceleration a_2 = 11 m/s²

Speed of movement v = 4 m/s

Friction coefficient of slide guidance μ = 0.1

Angle of inclination α = 30°

Intended drive centre distance a_a = 2600 mm

Distance of movement s = 2100 mm

Overall height: diameter d_{max} < 150 mm, $d_{w1} = d_{w2}$

Switching operations per day in three-shift operation: approx. 300

CALCULATION METHODS

The drive design is performed through the calculation of the circumferential force F_u. Basis for this are

- the drive torque M_N of the driver machine
- the acceleration and friction forces

If, as in this example, the calculation path is selected via the acceleration and friction forces, the drive machine selected later must be subsequently included in the drive design. The calculation circumferential force F_{BU} takes into account all loads acting in the belt.

FORMULAS

Total drive service factor

$$c_2 = c_0 + c_6 + c_7$$

c_0: medium drive
c_6: no OMEGA drive
c_7: high frequency

Circumferential force from the drive torque

$$F_U = \frac{M_N \cdot 2 \cdot 10^3}{d_w}$$

$$F_{BU} = F_U \cdot c_2$$

CALCULATION EXAMPLE

$c_2 = 1.7 + 0 + 0.3 = \mathbf{2.0}$

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Circumferential force from the acceleration and friction forces

The acceleration or deceleration at which the highest circumferential force is generated must be taken into account as the basis for the calculation. If the acceleration is greater than the deceleration by 2 * μ * g * cos α, F_R must be added, otherwise subtracted. Case differentiation with test:

$a_2 - a_1 < 2 \cdot \mu \cdot g \cdot \cos\alpha \rightarrow$ acceleration → $F_U = F_{acc} + F_H + F_R$

$a_2 - a_1 \geq 2 \cdot \mu \cdot g \cdot \cos\alpha \rightarrow$ deceleration → $F_U = F_{acc} + F_H - F_R$

$a_2 - a_1$ | $11\ m/s^2 - 3\ m/s^2$ | $= \mathbf{8\ m/s^2}$

$2 \cdot \mu \cdot g \cdot \cos(\alpha)$ | $2 \cdot 0.1 \cdot 9.81\ m/s^2 \cdot \cos 30°$ | $= \mathbf{1.669\ m/s^2}$

$8\ m/s^2 > 1.699\ m/s^2$ → **deceleration**

Calculation example: deceleration → $F_U = F_{acc} + F_H - F_R$

$F_U = m \cdot a + m \cdot g \cdot \sin\alpha - \mu \cdot m \cdot g \cdot \cos\alpha$

$F_U = m \cdot (a + g \cdot \sin\alpha - \mu \cdot g \cdot \cos\alpha)$

$F_U = 100\ kg \cdot (11\ m/s^2 + 9.81\ m/s^2 \cdot \sin 30° - 0.1 \cdot 9.81\ m/s^2 \cdot \cos 30°)$

$F_U = \mathbf{1505.5\ N}$

$= \mathbf{3011\ N}$

$F_{BU} = F_U \cdot c_2$ | $F_{BU} = 1505.5\ N \cdot 2.0$

Calculation of the pulley diameter

Provisional diameter of timing belt pulley selected: $d_{w\ provisional} = 100$ mm

$$z = \frac{d_{w\ provisional} \cdot \pi}{t} \qquad z = \frac{100\ mm \cdot \pi}{8\ mm}$$

$z = \mathbf{39.27\ mm}$ → The next largest standard tooth number is selected: $z = \mathbf{40\ mm}$

$$d_w = \frac{z_1 \cdot t}{\pi} \qquad d_w = \frac{40 \cdot 8\ mm}{\pi} = \mathbf{101.86\ mm}$$

Calculation of rotational speed

$$n = \frac{19100 \cdot v}{d_w} \qquad n = \frac{19100 \cdot 4 m/s}{101.86\ mm} = 750.05\ 1/min$$

Preselection from the diagram

$F_{BU} = 3011$ N

$n = 750.05$ 1/min

→ Profile and version 8MHP

Exact calculation

Power rating P_N from table, page 107, for 40 teeth, 750 1/min, width 30 mm

No power rating available for 750 1/min → average value approx. 8 kW · 1.58 ~ P_N = **12.64 kW**

$F_{U\ perm}$ = Permissible circumferential force of the timing belt

$$F_{U\ perm} = \frac{P_N \cdot 19.1 \cdot 10^6}{d_w \cdot n} \qquad F_{U\ perm} = \frac{12.64\ kW \cdot 19.1 \cdot 10^6}{101.86\ mm \cdot 750.05\ 1/min} = \mathbf{3160\ N}$$

$F_{BU} < F_{U\ perm}$ $\qquad$ F_{BU} = 3011 N < $F_{U\ perm}$ = 3160 N → Requirement met!

$c_{2\ actual} = F_{U\ perm} / F_U$ $\qquad$ $c_{2\ actual}$ = 3160 N/1505.5 N = **2.10 N**

STATIC SHAFT LOAD – INITIAL INSTALLATION

$F_{A\ Init} = 1.1 \cdot 1.15 \cdot F_U$ $\qquad$ $F_{A\ Init} = 1.1 \cdot 1.15 \cdot 1505.50\ N$ = **1904.46 N**

STATIC SHAFT LOAD – USED

$F_A = 1{,}1 \cdot F_U$ $\qquad$ $F_A = 1{,}1 \cdot 1505{,}50\ N$ = **1656.05 N**

STATIC BELT TENSION – INITIAL INSTALLATION

$$F_{T\ Init} = \frac{F_{A\ Init}}{2} \qquad F_{T\ Init} = \frac{1904.46\ N}{2} = \mathbf{952.23\ N}$$

STATIC BELT TENSION – USED

$$F_T = \frac{F_A}{2} \qquad F_T = \frac{1656.05\ N}{2} = \mathbf{828.03\ N}$$

FREQUENCY – INITIAL INSTALLATION

For a selected span length of L = 1000 mm:

$$f_{Init} = \sqrt{\frac{F_{T\ Init} \cdot 10^6}{4 \cdot m_k \cdot b_r \cdot L^2}} \qquad f_{Init} = \sqrt{\frac{952.23\ N \cdot 10^6}{4 \cdot 0.0058\ \frac{kg}{m \cdot mm} \cdot 30\ mm \cdot (1000\ mm)^2}} = \mathbf{36.99\ Hz}$$

FREQUENCY – USED

For a selected span length of L = 1000 mm:

$$f = \sqrt{\frac{F_T \cdot 10^6}{4 \cdot m_k \cdot b_r \cdot L^2}} \qquad f = \sqrt{\frac{828.03\ N \cdot 10^6}{4 \cdot 0.0058\ \frac{kg}{m \cdot mm} \cdot 30\ mm \cdot (1000\ mm)^2}} = \mathbf{34.49\ Hz}$$

LENGTH CALCULATION

$L_w = 2 \cdot a + z \cdot t$ $\qquad$ $L_w = 2 \cdot 2600\ mm + 40 \cdot 8\ mm$ = **5520 mm**

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FINAL SELECTION

The following components are used for the implementation of the drive:

- an optibelt OMEGA 8MHP 30 timing belt with a length of 5520 mm
- two timing belt pulleys ZRS HTD TB 40 8M 30

METAL

DRIVE PULLEYS

Drive pulleys for force or form-fit connections as well as fastening elements in all common profiles and materials – V-grooved pulleys, V-ribbed pulleys, timing belt pulleys, taper bushes, clamping plates for timing belts, clamping bushings and elastic couplings.

CAD SERVICE TOOL

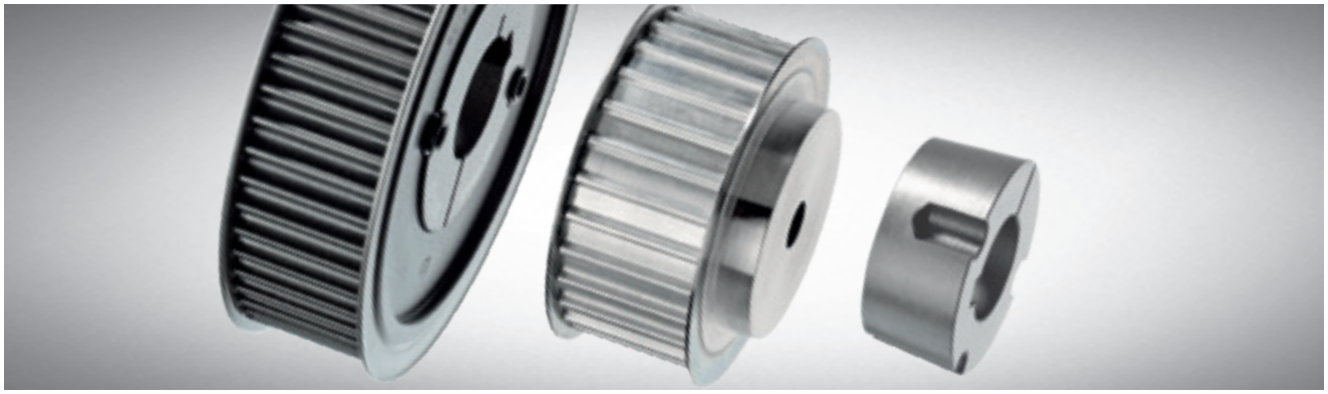
All information on our metal products, CAD data in all common formats, 3D models, as well as associated product data sheets can be found in our CAD Service Tool on our homepage.

Simply navigate to your desired product and complete the free registration process before the first download. You can then directly log in via our service partner CADENAS.



5 TIMING BELT PULLEYS

5.1 optibelt ZRS HTD TIMING BELT PULLEYS DIMENSIONS AND TOLERANCES



Optibelt timing belt pulleys are available in a wide range. A basic distinction is made between standard and special pulleys. The use of Optibelt timing belt pulleys from the standard range minimises costs and delivery times.

PROFILES

Standard timing belt pulleys are available with the following profiles:

- optibelt ZRS HTD with profiles 3M, 5M, 8M and 14M
- optibelt ZRS in inches with profiles XL, L, H and XH

Timing belt pulleys are manufactured with high pitch precision using a gear hobbing process in accordance with ISO 13050 and ISO 19347 standards. The distance between two neighbouring tooth space centres defines the pitch of the timing belt pulley. This is measured at the pitch diameter which always lies outside of the external diameter of the timing belt pulley and coincides with the timing belt pitch line. This precise manufacturing process allows for minimum backlash and precise tooth engagement.

VERSIONS

Standard timing belt pulleys are available from stock in the following versions:

- with cylindrical pre-boring/centering bore
- with optibelt TB taper bush

The Optibelt product range list includes the corresponding designs, drawings and dimensions of the standard timing belt pulleys. In addition, CAD data is available for standard timing belt pulleys in the common file formats. These are available on the internet at www.optibelt.com.

Depending on the version of standard timing belt pulleys, these are made from aluminium, steel or grey cast iron.

SPECIAL CONSTRUCTIONS

If the use of standard timing belt pulleys is not possible for design reasons, due to specific application requirements or as a result of environmental influences, special timing belt pulleys can be supplied on request in accordance with the drawings or descriptions. Standard timing belt pulleys with subsequently drilled finish bore with the tolerance field e.g. H7 and groove, e. g. as per DIN 6885 Part 1 are also considered as special pulleys.

Other materials such as plastic, sintered metal or die-cast are also available upon request for special applications.

5 TIMING BELT PULLEYS

5.1 optibelt ZRS HTD TIMING BELT PULLEYS DIMENSIONS AND TOLERANCES

PERMISSIBLE DEVIATION IN TOOTH PITCH

The permissible deviations in the tooth pitch between two consecutive teeth, and of the sum of deviations within a 90° arc, are indicated in the following table. These tolerances are the distance between the equivalent points on the right or left side of successive teeth.

Outside diameter d_a [mm]	Permissible deviation of the tooth spacing [mm]	
	between two consecutive teeth	Sum within a 90° arc
≤ 25	0.03	0.06
> 25 ≤ 50	0.03	0.09
> 50 ≤ 100	0.03	0.10
> 100 ≤ 175	0.03	0.13
> 175 ≤ 300	0.03	0.15
> 300 ≤ 500	0.03	0.18
> 500	0.03	0.20

PERMISSIBLE DEVIATIONS OF THE OUTSIDE DIAMETER

Outside diameter d_a [mm]	Permissible deviation [mm]
≤ 25	+ 0.05
> 25 ≤ 50	+ 0.07
> 50 ≤ 100	+ 0.10
> 100 ≤ 175	+ 0.13
> 175 ≤ 300	+ 0.15
> 300 ≤ 500	+ 0.18
> 500	+ 0.20

PULLEY WIDTH

Profile	Pulley width designation [mm]	Pulley nominal width [mm]	Smallest pulley width	
			with flanges b_f* [mm]	without flanges b [mm]
3 M	6 9 15	6 9 15	7 10 17	9 12 19
5 M	9 15 25	9 15 25	10 17 27	12 19 29
8 M	20 30 50 85	20 30 50 85	22 34 54 90	26 38 58 94
14 M	40 55 85 115 170	40 55 85 115 170	47 63 95 126 180	54 70 102 133 187

*b_f = pulley width between the flanges

NOTE

The minimum width b for pulleys without flanges can be reduced if there is no side wobble or run out; however, it may not fall below the minimum width b_f for pulleys with flanges.

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5 TIMING BELT PULLEYS

5.1 optibelt ZRS HTD TIMING BELT PULLEYS DIMENSIONS AND TOLERANCES

AXIAL RUN-OUT TOLERANCE

Outside diameter [mm]	Maximum total variation [mm]
≤ 100	0.10
> 100 ≤ 250	0.01 mm per 10 mm outside diameter
> 250	0.25 mm + 0.0005 mm per mm outside diameter above 250.00 mm

TOLERANCE OF ECCENTRICITY

Outside diameter [mm]	Maximum total variation [mm]
≤ 200	0.10
> 200	0.0005 mm per 10 mm outside diameter, however not larger than the outside diameter tolerance

PARALLELISM

The teeth should be parallel to the centre of the bore with a maximum deviation of 0.001 mm per millimetre of width.

CONICITY

The conicity must not be higher than 0.001 mm per millimetre of the width of the driving face and must not exceed the permissible outside diameter tolerance.

BALANCING

For timing belt pulleys processed on all sides (e.g. steel pulleys), no balancing is usually necessary up to a circumferential speed of 30 m/s. All cast pulleys are in principle statically balanced according to G16.

The following general rules apply:

- Balancing on one level. Quality grade Q 16 according to VDI 2060
  - at v = 30 m/s for d_w > 400 mm or
  - at n = 1500 1/min for d_w ≤ 400 mm
- Balancing on two levels according to recommendation Q 6.3
  - at v > 30 m/s or
  - at v > 20 m/s for a ratio between pitch diameter and timing belt pulley < 4

Balancing takes place on unused timing belt pulleys on a smooth balancing mandrel. Please refer to ISO 254 and VDI 2060 for further details. Balancing is only performed upon special request.

MINIMUM PULLEY DIAMETER

Profile	Minimum number of teeth	Minimum pulley diameter [mm]	Minimum diameter of a smooth backside idler [mm]*
2M	10	6.37	8.00
3M	10	9.55	12.00
5M	14	22.28	25.00
D5M	14	22.28	25.00
8M	22	56.02	60.00
D8M	22	56.02	60.00
14M	28	124.78	130.00
D14M	28	124.78	130.00

* The use of a backside idler can reduce the service life of the timing belt.

5 TIMING BELT PULLEYS

5.1 optibelt ZRS HTD TIMING BELT PULLEYS

PITCH AND OUTSIDE DIAMETER [mm]

Number of teeth	Profile 3M		Profile 5M		Profile 8M		Profile 14M	
	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]
10	9.55	8.79						
11	10.50	9.74						
12	11.46	10.70	19.10	17.96				
13	12.41	11.65	20.69	19.55				
14	13.37	12.61	22.28	21.14				
15	14.32	13.56	23.87	22.73				
16	15.28	14.52	25.46	24.32				
17	16.23	15.47	27.06	25.92				
18	17.19	16.43	28.65	27.51				
19	18.14	17.38	30.24	29.10				
20	19.10	18.34	31.83	30.69				
21	20.05	19.29	33.42	32.28				
22	21.01	20.25	35.01	33.87	56.02	54.65		
23	21.96	21.20	36.61	35.47	58.57	57.20		
24	22.92	22.16	38.20	37.05	61.12	59.75		
25	23.87	23.11	39.79	38.65	63.66	62.29		
26	24.83	24.07	41.38	40.24	66.21	64.84		
27	25.78	25.02	42.97	41.83	68.75	67.38		
28	26.74	25.98	44.56	43.42	71.30	69.93	124.78	122.12
29	27.69	26.93	46.15	45.01	73.85	72.48	129.23	126.57
30	28.65	27.89	47.75	46.60	76.39	75.13	133.69	130.99
31	29.60	28.84	49.34	48.20	78.94	77.65	138.15	135.46
32	30.56	29.80	50.93	49.79	81.49	80.16	142.60	139.88
33	31.51	30.75	52.52	51.38	84.03	82.68	147.06	144.35
34	32.47	31.71	54.11	52.97	86.58	85.22	151.51	148.79
35	33.42	32.66	55.70	54.56	89.13	87.76	155.97	153.24
36	34.38	33.62	57.30	56.16	91.67	90.30	160.43	157.68
37	35.33	34.57	58.89	57.75	94.22	92.85	164.88	162.13
38	36.29	35.53	60.48	59.34	96.77	95.39	169.34	166.60
39	37.24	36.48	62.07	60.93	99.31	97.94	173.80	171.02
40	38.20	37.44	63.66	62.52	101.86	100.49	178.25	175.49
41	39.15	38.39	65.25	64.11	104.41	103.03	182.71	179.92
42	40.11	39.35	66.85	65.71	106.95	105.58	187.17	184.37
43	41.06	40.30	68.44	67.30	109.50	108.13	191.62	188.83
44	42.02	41.26	70.03	68.89	112.05	110.67	196.08	193.28
45	42.97	42.21	71.62	70.48	114.59	113.22	200.53	197.74
46	43.93	43.17	73.21	72.07	117.14	115.77	204.99	202.30
47	44.88	44.12	74.80	73.66	119.68	118.31	209.45	206.65
48	45.84	45.08	76.39	75.25	122.23	120.86	213.90	211.11
49	46.79	46.03	77.99	76.85	124.78	123.41	218.36	215.57
50	47.75	46.99	79.58	78.43	127.32	125.95	222.82	220.02
51	48.70	47.94	81.17	80.03	129.87	128.50	227.27	224.48
52	49.66	48.90	82.76	81.62	132.42	131.05	231.73	228.94
53	50.61	49.85	84.35	83.21	134.96	133.59	236.19	233.39
54	51.57	50.81	85.94	84.80	137.51	136.14	240.64	237.85
55	52.52	51.76	87.54	86.40	140.06	138.68	245.10	242.30

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5 TIMING BELT PULLEYS

5.1 optibelt ZRS HTD TIMING BELT PULLEYS

PITCH AND OUTSIDE DIAMETER [mm]

Number of teeth	Profile 3M		Profile 5M		Profile 8M		Profile 14M	
	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]
56	53.48	52.72	89.13	87.98	142.60	141.23	249.55	246.76
57	54.43	53.67	90.72	89.58	145.15	143.78	254.01	251.22
58	55.39	54.63	92.31	91.17	147.70	146.32	258.47	255.67
59	56.34	55.58	93.90	92.76	150.24	148.87	262.92	260.13
60	57.30	56.54	95.49	94.35	152.79	151.42	267.38	264.59
61	58.25	57.49	97.08	95.94	155.34	153.96	271.84	269.04
62	59.21	58.45	98.68	97.54	157.88	156.51	276.29	273.50
63	60.16	59.40	100.27	99.13	160.43	159.06	280.75	277.95
64	61.12	60.36	101.86	100.72	162.97	161.60	285.21	282.41
65	62.07	61.31	103.45	102.31	165.52	164.15	289.66	286.87
66	63.03	62.27	105.04	103.90	168.07	166.70	294.12	291.32
67	63.98	63.22	106.63	105.49	170.61	169.24	298.57	295.78
68	64.94	64.18	108.23	107.09	173.16	171.79	303.03	300.24
69	65.89	65.13	109.82	108.68	175.71	174.34	307.49	304.69
70	66.85	66.09	111.41	110.27	178.25	176.88	311.94	309.15
71	67.80	67.04	113.00	111.86	180.80	179.43	316.40	313.61
72	68.75	67.99	114.59	113.45	183.35	181.97	320.86	318.06
73	69.71	68.95	116.18	115.04	185.89	184.52	325.31	322.52
74	70.66	69.90	117.77	116.63	188.44	187.07	329.77	326.97
75	71.62	70.86	119.37	118.23	190.99	189.61	334.22	331.43
76	72.57	71.81	120.96	119.82	193.53	192.16	338.68	335.89
77	73.53	72.77	122.55	121.41	196.08	194.71	343.14	340.34
78	74.48	73.72	124.14	123.00	198.62	197.25	347.59	344.80
79	75.44	74.68	125.73	124.59	201.17	199.81	352.05	349.26
80	76.39	75.63	127.32	126.18	203.72	202.35	356.51	353.71
81	77.35	76.59	128.92	127.78	206.26	204.89	360.96	358.17
82	78.30	77.54	130.51	129.37	208.81	207.44	365.42	362.63
83	79.26	78.50	132.10	130.96	211.36	209.99	369.88	367.08
84	80.21	79.45	133.69	132.55	213.90	212.53	374.33	371.54
85	81.17	80.41	135.28	134.14	216.45	215.08	378.79	375.99
86	82.12	81.36	136.87	135.73	219.00	217.63	383.24	380.45
87	83.08	82.32	138.46	137.32	221.54	220.17	387.70	384.91
88	84.03	83.27	140.06	138.92	224.09	222.72	392.16	389.36
89	84.99	84.23	141.65	140.51	226.54	225.27	396.61	393.82
90	85.94	85.18	143.24	142.10	229.18	227.81	401.07	398.28
91	86.90	86.14	144.83	143.69	231.73	230.36	405.53	402.73
92	87.85	87.09	146.42	145.28	234.28	232.90	409.98	407.19
93	88.81	88.05	148.01	146.87	236.82	235.45	414.44	411.64
94	89.76	89.00	149.61	148.47	239.37	238.00	418.90	416.10
95	90.72	89.96	151.20	150.06	241.92	240.54	423.35	420.56
96	91.67	90.91	152.79	151.65	244.46	243.09	427.81	425.01
97	92.63	91.87	154.38	153.24	247.01	245.64	432.26	429.47
98	93.58	92.82	155.97	154.83	249.55	248.18	436.72	433.93
99	94.54	93.78	157.56	156.42	252.10	250.73	441.18	438.38
100	95.49	94.73	159.15	158.01	254.65	253.28	445.63	442.84
101	96.45	95.69	160.75	159.61	257.19	255.82	450.09	447.30

5 TIMING BELT PULLEYS

5.1 optibelt ZRS HTD TIMING BELT PULLEYS

PITCH AND OUTSIDE DIAMETER [mm]

Number of teeth	Profile 3M		Profile 5M		Profile 8M		Profile 14M	
	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]
102	97.40	96.64	162.34	161.20	259.74	258.37	454.55	451.75
103	98.36	97.60	163.93	162.79	262.29	260.92	459.00	456.21
104	99.31	98.55	165.52	164.38	264.83	263.46	463.46	460.66
105	100.27	99.51	167.11	165.97	267.38	266.01	467.92	465.12
106	101.22	100.46	168.70	167.56	269.93	268.56	472.37	469.58
107	102.18	101.42	170.30	169.16	272.47	271.10	476.83	474.03
108	103.13	102.37	171.89	170.75	275.02	273.65	481.28	478.49
109	104.09	103.33	173.48	172.34	277.57	276.19	485.74	482.95
110	105.04	104.28	175.07	173.93	280.11	278.74	490.20	487.40
111	106.00	105.24	176.66	175.52	282.66	281.29	494.65	491.86
112	106.95	106.19	178.25	177.11	285.21	283.83	499.11	496.32
113	107.91	107.15	179.85	178.71	287.75	286.38	503.57	500.77
114	108.86	108.10	181.44	180.30	290.30	288.93	508.02	505.23
115	109.82	109.06	183.03	181.89	292.85	291.47	512.48	509.68
116	110.77	110.01	184.62	183.48	295.39	294.02	516.93	514.14
117	111.73	110.97	186.21	185.07	297.94	296.57	521.39	518.60
118	112.68	111.92	187.80	186.66	300.48	299.11	525.85	523.05
119	113.64	112.88	189.39	188.25	303.03	301.66	530.30	527.51
120	114.59	113.83	190.99	189.85	305.58	304.21	534.76	531.97
121	115.55	114.79	192.58	191.44	308.12	306.75	539.22	536.42
122	116.50	115.74	194.17	193.03	310.67	309.30	543.67	540.88
123	117.46	116.70	195.76	194.62	313.22	311.85	548.13	545.34
124	118.41	117.65	197.35	196.21	315.76	314.39	552.59	549.79
125	119.37	118.61	198.94	197.80	318.31	316.94	557.04	554.25
126	120.32	119.56	200.54	199.40	320.86	319.48	561.50	558.70
127	121.28	120.52	202.13	200.99	323.41	322.03	565.95	563.16
128	122.23	121.47	203.72	202.58	325.95	324.58	570.41	567.62
129	123.19	122.43	205.31	204.17	328.50	327.12	574.87	572.07
130	124.14	123.38	206.90	205.76	331.04	329.67	579.32	576.53
131	125.10	124.33	208.49	207.35	333.59	332.22	583.78	580.99
132	126.05	125.29	210.08	208.94	336.14	334.76	588.24	585.44
133	127.01	126.24	211.68	210.54	338.68	337.31	592.69	589.90
134	127.96	127.20	213.27	212.13	341.23	339.86	597.15	594.35
135	128.92	128.15	214.86	213.72	343.77	342.40	601.61	598.81
136	129.87	129.11	216.45	215.31	346.32	344.95	606.06	603.27
137	130.83	130.06	218.04	216.90	348.87	347.50	610.52	607.72
138	131.78	131.02	219.63	218.49	351.41	350.04	614.97	612.18
139	132.74	131.97	221.23	220.09	353.96	352.59	619.43	616.64
140	133.69	132.93	222.82	221.68	356.51	355.14	623.89	621.09
141	134.65	133.88	224.41	223.27	359.05	357.68	628.34	625.55
142	135.60	134.84	226.00	224.86	361.60	360.23	632.80	630.01
143	136.55	135.79	227.59	226.45	364.15	362.77	637.26	634.46
144	137.51	136.75	229.18	228.04	366.69	365.32	641.71	638.92
145	138.46	137.70	230.77	229.63	369.24	367.87	646.17	643.37
146	139.42	138.66	232.37	231.23	371.79	370.41	650.63	647.83
147	140.37	139.61	233.96	232.82	374.33	372.96	655.08	652.29

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5 TIMING BELT PULLEYS

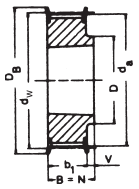
5.1 optibelt ZRS HTD TIMING BELT PULLEYS

PITCH AND OUTSIDE DIAMETER [mm]

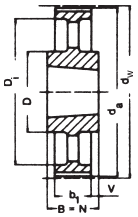
Number of teeth	Profile 3M		Profile 5M		Profile 8M		Profile 14M	
	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]
148	141.33	140.57	235.55	234.41	376.88	375.51	659.54	656.74
149	142.28	141.52	237.14	236.00	379.43	378.05	663.99	661.20
150	143.24	142.48	238.73	237.59	381.97	380.60	668.45	665.66
151					384.52	383.15	672.91	670.11
152					387.06	385.70	677.36	674.57
153					389.61	388.24	681.82	679.03
154					392.16	390.79	686.28	683.48
155					394.70	393.33	690.73	687.94
156					397.25	395.88	695.19	692.39
157					399.80	398.43	699.64	696.85
158					402.34	400.97	704.10	701.31
159					404.89	403.52	708.56	705.76
160					407.44	406.07	713.01	710.22
161					409.98	408.61	717.47	714.68
162					412.53	411.16	721.93	719.13
163					415.08	413.70	726.38	723.59
164					417.62	416.25	730.84	728.05
165					420.17	418.80	735.30	732.50
166					422.72	421.34	739.75	736.96
167					425.26	423.89	744.21	741.41
168					427.81	426.44	748.66	745.87
169					430.35	428.98	753.12	750.33
170					432.90	431.53	757.58	754.78
171					435.45	434.08	762.03	759.24
172					437.99	436.62	766.49	763.70
173					440.54	439.17	770.95	768.15
174					443.09	441.72	775.40	772.61
175					445.63	444.26	779.86	777.06
176					448.18	446.81	784.32	781.52
177					450.73	449.36	788.77	785.98
178					453.27	451.90	793.23	790.43
179					455.82	454.45	797.68	794.89
180					458.37	456.99	802.14	799.35
181					460.91	459.54	806.60	803.80
182					463.46	462.09	811.05	808.26
183					466.01	464.63	815.51	812.72
184					468.55	467.18	819.97	817.17
185					471.10	469.73	824.42	821.63
186					473.65	472.27	828.88	826.08
187					476.19	474.82	833.33	830.54
188					478.74	477.37	837.79	835.00
189					481.28	479.91	842.25	839.45
190					483.83	482.46	846.70	843.91
191					486.38	485.01	851.16	848.37
192					488.92	487.55	855.62	852.82
216							962.57	959.77

5 TIMING BELT PULLEYS

5.1 optibelt ZRS HTD TIMING BELT PULLEYS FOR TAPER BUSHES – PROFILE 5M



Design 8F



Design 7a

Profile 5M – Tooth pitch 5 mm for belt width 15 mm															
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	N [mm]	V [mm]	Z [mm]	D [mm]	D_i [mm]	Taper bush	Weight without bush ≈ [kg]
TB 34-5M-15	34	8F	St	54.11	52.97	57.0	20.5	22	22	1.5	–	43	–	1008	0.190
TB 36-5M-15	36	8F	St	57.30	56.16	60.0	20.5	22	22	1.5	–	44	–	1108	0.200
TB 38-5M-15	38	8F	St	69.48	59.34	66.0	20.5	22	22	1.5	–	48	–	1108	0.250
TB 40-5M-15	40	8F	St	63.66	62.52	71.0	20.5	22	22	1.5	–	52	–	1108	0.310
TB 44-5M-15	44	8F	St	70.03	68.89	75.0	20.5	22	22	1.5	–	54	–	1108	0.400
TB 48-5M-15	48	8F	St	76.39	75.25	83.0	20.5	25	25	4.5	–	64	–	1210	0.450
TB 56-5M-15	56	8F	GG	89.13	87.99	93.0	20.5	25	25	4.5	–	70	–	1210	0.670
TB 64-5M-15	64	8F	GG	101.86	100.72	106.0	20.5	25	25	4.5	–	78	–	1210	0.960
TB 72-5M-15	72	8F	GG	114.59	113.45	119.0	20.5	25	25	4.5	–	90	–	1610	1.190
TB 80-5M-15	80	8F	GG	127.32	126.18	135.0	20.5	25	25	4.5	–	92	–	1610	1.570
TB 90-5M-15	90	7A	GG	143.24	142.10	–	20.5	25	25	2.3	–	92	–	1610	1.147
TB 112-5M-15	112	7A	GG	178.25	177.11	–	20.5	25	25	2.3	–	92	–	1610	1.940
TB 136-5M-15	136	7A	GG	216.45	215.31	–	20.5	32	32	5.8	–	106	–	2012	3.060
TB 150-5M-15	150	7A	GG	238.73	237.59	–	20.5	32	32	5.8	–	106	–	2012	3.900

Taper bush	1008	1108	1210	1610	2012
Bore d_2 [mm] from ... to ...	10-25	10-28	11-32	14-42	14-50

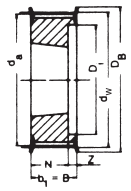
GG = Grey cast iron
St = Steel
Subject to changes due to production.

Bore diameter d_2 see page 168.

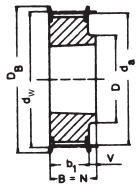
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5 TIMING BELT PULLEYS

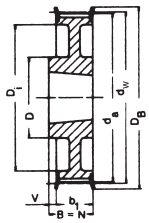
5.1 optibelt ZRS HTD TIMING BELT PULLEYS FOR TAPER BUSHES – PROFILE 8M



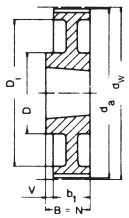
Design 5F



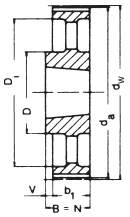
Design 8F



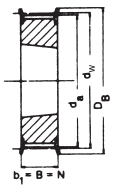
Design 8WF



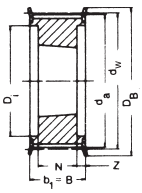
Design 8W



Design 8A



Design 3F



Design 4F

Profile 8M – Tooth pitch 8 mm for belt width 20 mm															
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	N [mm]	V [mm]	Z [mm]	D [mm]	D_i [mm]	Taper bush	Weight without bush ≈ [kg]
TB 22-8M-20	22	5F	GG	56.02	54.65	60.0	28	28	22	–	6	–	41	1008	0.24
TB 24-8M-20	24	5F	GG	61.12	59.75	66.0	28	28	22	–	6	–	42	1108	0.30
TB 26-8M-20	26	5F	GG	66.21	64.84	71.0	28	28	22	–	6	–	46	1108	0.36
TB 28-8M-20	28	5F	GG	71.30	69.93	75.0	28	28	22	–	6	–	50	1108	0.44
TB 30-8M-20	30	5F	GG	76.39	75.02	83.0	28	28	22	–	6	–	58	1108	0.53
TB 32-8M-20	32	5F	GG	81.49	80.12	87.0	28	28	25	–	3	–	62	1610	0.42
TB 34-8M-20	34	5F	GG	86.58	85.22	91.0	28	28	25	–	3	–	65	1610	0.55
TB 36-8M-20	36	5F	GG	91.67	90.30	98.5	28	28	25	–	3	–	68	1610	0.68
TB 38-8M-20	38	5F	GG	96.77	95.39	103.0	28	28	25	–	3	–	72	1610	0.80
TB 40-8M-20	40	5F	GG	101.86	100.49	106.0	28	28	25	–	3	–	76	1610	1.00
TB 44-8M-20	44	8F	GG	112.05	110.67	119.0	28	32	32	4	–	93	–	2012	1.20
TB 48-8M-20	48	8F	GG	122.23	120.86	127.0	28	32	32	4	–	96	–	2012	1.60
TB 56-8M-20	56	8F	GG	142.60	141.23	148.0	28	32	32	4	–	110	–	2012	2.40
TB 64-8M-20	64	8WF	GG	162.97	161.60	168.0	28	32	32	4	–	110	137	2012	2.70
TB 72-8M-20	72	8WF	GG	183.35	181.97	192.0	28	32	32	4	–	110	158	2012	3.30
TB 80-8M-20	80	8W	GG	203.72	202.35	–	28	32	32	4	–	110	180	2012	3.50
TB 90-8M-20	90	8A	GG	229.18	227.81	–	28	32	32	4	–	110	204	2012	3.65

Profile 8M – Tooth pitch 8 mm for belt width 30 mm															
TB 22-8M-30	22	5F	GG	56.02	54.65	60.0	38	38	22	–	16	–	41	1008	0.29
TB 24-8M-30	24	5F	GG	61.12	59.75	66.0	38	38	22	–	16	–	42	1108	0.38
TB 26-8M-30	26	5F	GG	66.21	64.84	71.0	38	38	22	–	16	–	46	1108	0.45
TB 28-8M-30	28	5F	St	71.30	69.93	75.0	38	38	25	–	13	–	50	1210	0.50
TB 30-8M-30	30	3F	St	76.39	75.02	83.0	38	38	38	–	–	–	–	1615	0.45
TB 32-8M-30	32	3F	GG	81.49	80.12	87.0	38	38	38	–	–	–	–	1615	0.59
TB 34-8M-30	34	3F	GG	86.58	85.22	91.0	38	38	38	–	–	–	–	1615	0.77
TB 36-8M-30	36	3F	GG	91.67	90.30	98.5	38	38	38	–	–	–	–	1615	0.96
TB 38-8M-30	38	3F	GG	96.77	95.39	103.0	38	38	38	–	–	–	–	1615	1.15
TB 40-8M-30	40	3F	GG	101.86	100.49	106.0	38	38	38	–	–	–	–	1615	1.34
TB 44-8M-30	44	4F	GG	112.05	110.67	119.0	38	38	32	–	3	–	91	2012	1.33
TB 48-8M-30	48	4F	GG	122.23	120.86	127.0	38	38	32	–	3	–	95	2012	1.78
TB 56-8M-30	56	4F	GG	142.60	141.23	148.0	38	38	32	–	3	–	117	2012	3.76
TB 64-8M-30	64	8F	GG	162.97	161.60	168.0	38	45	45	7	–	125	–	2517	4.20
TB 72-8M-30	72	8WF	GG	183.35	181.97	192.0	38	45	45	7	–	125	158	2517	4.30
TB 80-8M-30	80	8W	GG	203.72	202.35	–	38	45	45	7	–	125	180	2517	4.60
TB 90-8M-30	90	8A	GG	229.18	227.81	–	38	45	45	7	–	125	204	2517	5.00
TB 112-8M-30	112	8A	GG	285.21	283.83	–	38	45	45	7	–	125	260	2517	6.20
TB 144-8M-30	144	8A	GG	366.69	365.32	–	38	45	45	7	–	125	341	2517	9.00

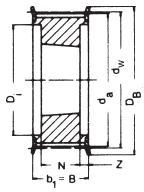
Taper bush	1008	1108	1210	1610	1615	2012	2517
Bore d_2 [mm] from ... to ...	10-25	10-28	11-32	14-42	14-42	14-50	16-60

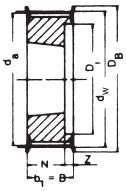
GG = Grey cast iron
St = Steel
Subject to changes due to production.

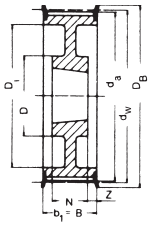
Bore diameter d_2 see page 168.

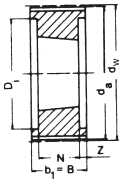
5 TIMING BELT PULLEYS

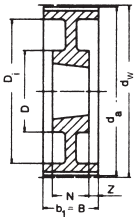
5.1 optibelt ZRS HTD TIMING BELT PULLEYS FOR TAPER BUSHES – PROFILE 8M

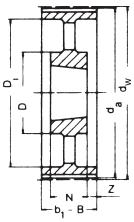

Design 4F

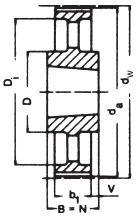

Design 5F


Design 9WF


Design 4


Design 9W


Design 9A


Design 7A

Profile 8M – Tooth pitch 8 mm for belt width 50 mm															
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	N [mm]	V [mm]	Z [mm]	D [mm]	D_i [mm]	Taper bush	Weight without bush ≈ [kg]
TB 28-8M-50	28	5F	St	71.30	69.93	75.0	60	60	25	–	35.0	–	50	1210	0.60
TB 30-8M-50	30	5F	St	76.39	75.02	83.0	60	60	38	–	22.0	–	58	1615	0.65
TB 32-8M-50	32	5F	GG	81.49	80.12	87.0	60	60	38	–	22.0	–	62	1615	0.82
TB 34-8M-50	34	5F	GG	86.58	85.22	91.0	60	60	38	–	22.0	–	65	1615	1.06
TB 36-8M-50	36	5F	GG	91.67	90.30	98.5	60	60	38	–	22.0	–	68	1615	1.30
TB 38-8M-50	38	5F	GG	96.77	95.39	103.0	60	60	38	–	22.0	–	72	1615	1.60
TB 40-8M-50	40	4F	GG	101.86	100.49	106.0	60	60	32	–	14.0	–	82	2012	1.71
TB 44-8M-50	44	4F	GG	112.05	110.67	119.0	60	60	32	–	14.0	–	91	2012	1.78
TB 48-8M-50	48	4F	GG	122.23	120.86	127.0	60	60	32	–	14.0	–	95	2012	2.30
TB 56-8M-50	56	4F	GG	142.60	141.23	148.0	60	60	45	–	7.5	–	116	2517	3.40
TB 64-8M-50	64	4F	GG	162.97	161.60	168.0	60	60	45	–	7.5	–	137	2517	5.00
TB 72-8M-50	72	9WF	GG	183.35	181.97	192.0	60	60	45	–	7.5	125	158	2517	6.70
TB 80-8M-50	80	4	GG	203.72	202.35	–	60	60	51	–	4.5	–	180	3020	8.80
TB 90-8M-50	90	9W	GG	229.18	227.81	–	60	60	51	–	4.5	170	204	3020	10.00
TB 112-8M-50	112	9W	GG	285.21	283.83	–	60	60	51	–	4.5	170	260	3020	12.00
TB 144-8M-50	144	9A	GG	366.69	365.32	–	60	60	51	–	4.5	170	341	3020	15.20
TB 168-8M-50	168	7A	GG	427.81	426.44	–	60	65	65	–	2.5	170	402	3525	16.40
TB 192-8M-50	192	7A	GG	488.92	487.55	–	60	65	65	–	2.5	170	460	3525	21.80

Profile 8M – Tooth pitch 8 mm for belt width 85 mm															
TB 34-8M-85	34	4F	GG	86.58	85.22	91.0	95	95	38	–	28.5	–	65	1615	1.43
TB 36-8M-85	36	4F	GG	91.67	90.30	98.5	95	95	38	–	28.5	–	68	1615	1.87
TB 38-8M-85	38	4F	GG	96.77	95.39	103.0	95	95	38	–	28.5	–	72	1615	2.20
TB 40-8M-85	40	4F	GG	101.86	100.49	106.0	95	95	32	–	31.5	–	82	2012	1.78
TB 44-8M-85	44	4F	GG	112.05	110.67	119.0	95	95	32	–	31.5	–	91	2012	2.30
TB 48-8M-85	48	4F	GG	122.23	120.86	127.0	95	95	45	–	25.0	–	100	2517	2.66
TB 56-8M-85	56	4F	GG	142.60	141.23	148.0	95	95	45	–	25.0	–	117	2517	4.45
TB 64-8M-85	64	4F	GG	162.97	161.60	168.0	95	95	45	–	25.0	–	137	2517	6.20
TB 72-8M-85	72	4F	GG	183.35	181.97	192.0	95	95	51	–	22.0	–	158	3020	8.00
TB 80-8M-85	80	4	GG	203.72	202.35	–	95	95	51	–	22.0	–	180	3020	10.00
TB 90-8M-85	90	9W	GG	229.18	227.81	–	95	95	51	–	22.0	170	204	3020	10.80
TB 112-8M-85	112	9W	GG	285.21	283.83	–	95	95	51	–	22.0	170	260	3020	15.00
TB 144-8M-85	144	9A	GG	366.69	365.32	–	95	95	76	–	15.0	170	341	3525	20.00
TB 168-8M-85	168	9A	GG	427.81	426.44	–	95	95	76	–	15.0	170	402	3525	23.00
TB 192-8M-85	192	9A	GG	488.92	487.55	–	95	95	76	–	15.0	170	460	3525	28.50

Taper bush	1210	1615	2012	2517	3020	3525
Bore d_2 [mm] from ... to ...	11-32	14-42	14-50	16-60	25-75	35-90

GG = Grey cast iron
St = Steel
Subject to changes due to production.

Bore diameter d_2 see page 168.

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5 TIMING BELT PULLEYS

5.1 optibelt ZRS HTD TIMING BELT PULLEYS FOR TAPER BUSHES – PROFILE 14M

Profile 14M – Tooth pitch 14 mm for belt width 40 mm															
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	N [mm]	V [mm]	Z [mm]	D [mm]	D_i [mm]	Taper bush	Weight without bush ≈ [kg]
TB 28-14M-40	28	4F	GG	124.78	122.12	127	54	54	32	–	11.0	–	98	2012	2.00
TB 29-14M-40	29	4F	GG	129.23	126.57	138	54	54	32	–	11.0	–	100	2012	2.38
TB 30-14M-40	30	4F	GG	133.69	130.99	138	54	54	32	–	11.0	–	100	2012	2.65
TB 32-14M-40	32	4F	GG	142.60	139.88	154	54	54	32	–	11.0	–	104	2012	3.40
TB 34-14M-40	34	4F	GG	151.52	148.79	160	54	54	45	–	4.5	–	110	2517	3.87
TB 36-14M-40	36	4F	GG	160.43	157.68	168	54	54	45	–	4.5	–	120	2517	4.80
TB 38-14M-40	38	4F	GG	169.34	166.60	183	54	54	45	–	4.5	–	130	2517	5.40
TB 40-14M-40	40	4F	GG	178.25	175.49	188	54	54	45	–	4.5	–	138	2517	6.00
TB 44-14M-40	44	4F	GG	196.08	193.28	211	54	54	51	–	1.5	–	155	3020	7.80
TB 48-14M-40	48	4F	GG	213.90	211.11	226	54	54	51	–	1.5	–	170	3020	9.40
TB 56-14M-40	56	9WF	GG	249.55	246.76	256	54	54	51	–	1.5	170	208	3020	10.80
TB 64-14M-40	64	9WF	GG	285.21	282.41	296	54	54	51	–	1.5	170	242	3020	13.40
TB 72-14M-40	72	9W	GG	320.86	318.06	–	54	54	51	–	1.5	170	280	3020	15.20
TB 80-14M-40	80	9A	GG	356.51	353.71	–	54	54	51	–	1.5	170	315	3020	16.00
TB 90-14M-40	90	9A	GG	401.07	398.28	–	54	54	51	–	1.5	170	360	3020	17.80
TB 112-14M-40	112	9A	GG	499.11	496.32	–	54	54	51	–	1.5	170	457	3020	25.60
TB 144-14M-40	144	9A	GG	641.71	638.92	–	54	54	51	–	1.5	170	600	3020	32.00
TB 168-14M-40	168	9A	GG	748.66	745.87	–	54	54	51	–	1.5	170	706	3020	44.00
TB 192-14M-40	192	9A	GG	855.62	852.82	–	54	54	51	–	1.5	170	813	3020	49.00
TB 216-14M-40	216	9A	GG	962.57	959.77	–	54	54	51	–	1.5	170	920	3020	55.00

Profile 14M – Tooth pitch 14 mm for belt width 55 mm															
TB 28-14M-55	28	4F	GG	124.78	122.12	127	70	70	32	–	19.0	–	98	2012	2.20
TB 29-14M-55	29	4F	GG	129.23	126.57	138	70	70	32	–	19.0	–	100	2012	2.74
TB 30-14M-55	30	4F	GG	133.69	130.99	138	70	70	45	–	12.5	–	100	2517	2.70
TB 32-14M-55	32	4F	GG	142.60	139.88	154	70	70	45	–	12.5	–	108	2517	3.66
TB 34-14M-55	34	4F	GG	151.52	148.79	160	70	70	45	–	12.5	–	110	2517	4.55
TB 36-14M-55	36	4F	GG	160.43	157.68	168	70	70	45	–	12.5	–	120	2517	5.20
TB 38-14M-55	38	4F	GG	169.34	166.60	183	70	70	45	–	12.5	–	130	2517	6.20
TB 40-14M-55	40	4F	GG	178.25	175.49	188	70	70	45	–	12.5	–	138	2517	7.00
TB 44-14M-55	44	4F	GG	196.08	193.28	211	70	70	51	–	9.5	–	155	3020	8.60
TB 48-14M-55	48	4F	GG	213.90	211.11	226	70	70	51	–	9.5	–	170	3020	10.40
TB 56-14M-55	56	9WF	GG	249.55	246.76	256	70	70	51	–	9.5	170	208	3020	12.00
TB 64-14M-55	64	9WF	GG	285.21	282.41	296	70	70	51	–	9.5	170	242	3020	14.50
TB 72-14M-55	72	9W	GG	320.86	318.06	–	70	70	51	–	9.5	170	280	3020	16.20
TB 80-14M-55	80	9A	GG	356.51	353.71	–	70	70	51	–	9.5	170	315	3020	17.50
TB 90-14M-55	90	9A	GG	401.07	398.28	–	70	70	51	–	9.5	170	360	3020	20.10
TB 112-14M-55	112	9A	GG	499.11	496.32	–	70	70	51	–	9.5	170	457	3020	28.40
TB 144-14M-55	144	9A	GG	641.71	638.92	–	70	70	51	–	9.5	170	600	3020	36.20
TB 168-14M-55	168	9A	GG	748.66	745.87	–	70	70	51	–	9.5	170	706	3020	49.00
TB 192-14M-55	192	9A	GG	855.62	852.82	–	70	70	51	–	9.5	170	813	3020	53.00
TB 216-14M-55	216	7A	GG	962.57	959.77	–	70	89	89	9.5	–	190	920	3535	65.80

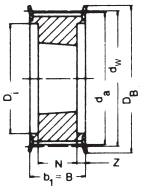
Taper bush	2012	2517	3020	3535
Bore d_2 [mm] from ... to ...	14-50	16-60	25-75	35-90

GG = Grey cast iron
Subject to changes due to production.

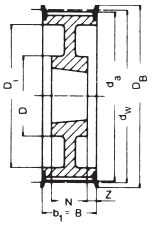
Bore diameter d_2 see page 168.

5 TIMING BELT PULLEYS

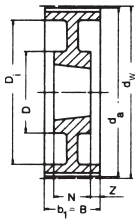
5.1 optibelt ZRS HTD TIMING BELT PULLEYS FOR TAPER BUSHES – PROFILE 14M



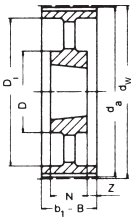
Design 4F



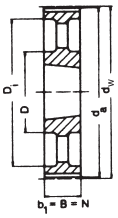
Design 9WF



Design 9W



Design 9A



Design 3A

Profile 14M – Tooth pitch 14 mm for belt width 85 mm															
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	N [mm]	V [mm]	Z [mm]	D [mm]	D_i [mm]	Taper bush	Weight without bush ≈ [kg]
TB 28-14M-85	28	4F	GG	124.78	122.12	127	102	102	45	–	28.5	–	98	2517	2.70
TB 29-14M-85	29	4F	GG	129.23	126.57	138	102	102	45	–	28.5	–	100	2517	3.40
TB 30-14M-85	30	4F	GG	133.69	130.99	138	102	102	45	–	28.5	–	100	2517	3.75
TB 32-14M-85	32	4F	GG	142.60	139.88	154	102	102	45	–	28.5	–	108	2517	4.80
TB 34-14M-85	34	4F	GG	151.52	148.79	160	102	102	45	–	28.5	–	110	2517	6.00
TB 36-14M-85	36	4F	GG	160.43	157.68	168	102	102	51	–	25.5	–	120	3020	5.80
TB 38-14M-85	38	4F	GG	169.34	166.60	183	102	102	51	–	25.5	–	130	3020	6.80
TB 40-14M-85	40	4F	GG	178.25	175.49	188	102	102	51	–	25.5	–	138	3020	8.00
TB 44-14M-85	44	4F	GG	196.08	193.28	211	102	102	76	–	13.0	–	155	3030	11.80
TB 48-14M-85	48	4F	GG	213.90	211.11	226	102	102	76	–	13.0	–	170	3030	15.10
TB 56-14M-85	56	4F	GG	249.55	246.76	256	102	102	65	–	18.5	190	210	3525	19.00
TB 64-14M-85	64	9WF	GG	285.21	282.41	296	102	102	65	–	18.5	190	242	3525	23.00
TB 72-14M-85	72	9W	GG	320.86	318.06	–	102	102	65	–	18.5	190	280	3525	25.00
TB 80-14M-85	80	9A	GG	356.51	353.71	–	102	102	65	–	18.5	190	315	3525	26.00
TB 90-14M-85	90	9A	GG	401.07	398.28	–	102	102	65	–	18.5	190	360	3525	27.80
TB 112-14M-85	112	9A	GG	499.11	496.32	–	102	102	65	–	18.5	190	457	3525	36.50
TB 144-14M-85	144	9A	GG	641.71	638.92	–	102	102	65	–	18.5	190	600	3525	48.00
TB 168-14M-85	168	9A	GG	748.66	745.87	–	102	102	65	–	18.5	190	706	3525	60.00
TB 192-14M-85	192	3A	GG	855.62	852.82	–	102	102	102	–	–	230	813	4040	86.00
TB 216-14M-85	216	3A	GG	962.57	959.77	–	102	102	102	–	–	230	920	4040	91.50

Taper bush	2517	3020	3030	3525	3535	4040
Bore d_2 [mm] from ... to ...	16-60	25-75	35-75	35-90	35-90	40-100

GG = Grey cast iron
Subject to changes due to production.

Bore diameter d_2 see page 168.

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5 TIMING BELT PULLEYS

5.1 optibelt ZRS HTD TIMING BELT PULLEYS FOR TAPER BUSHES – PROFILE 14M

Profile 14M – Tooth pitch 14 mm for belt width 115 mm															
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	N [mm]	V [mm]	Z [mm]	D [mm]	D_i [mm]	Taper bush	Weight without bush ≈ [kg]
TB 28-14M-115	28	4F	GG	124.78	122.12	127	133	133	45	–	44.0	–	98	2517	3.77
TB 29-14M-115	29	4F	GG	129.23	126.57	138	133	133	45	–	44.0	–	100	2517	4.00
TB 30-14M-115	30	4F	GG	133.69	130.99	138	133	133	45	–	44.0	–	100	2517	5.00
TB 32-14M-115	32	4F	GG	142.60	139.88	154	133	133	45	–	44.0	–	108	2517	6.80
TB 34-14M-115	34	4F	GG	151.52	148.79	160	133	133	45	–	44.0	–	110	2517	6.80
TB 36-14M-115	36	4F	GG	160.43	157.68	168	133	133	51	–	41.0	–	120	3020	7.00
TB 38-14M-115	38	4F	GG	169.34	166.60	183	133	133	51	–	41.0	–	130	3020	8.40
TB 40-14M-115	40	4F	GG	178.25	175.49	188	133	133	51	–	41.0	–	140	3020	9.20
TB 44-14M-115	44	4F	GG	196.08	193.28	211	133	133	76	–	28.5	–	155	3030	14.00
TB 48-14M-115	48	4F	GG	213.90	211.11	226	133	133	76	–	28.5	–	170	3030	17.10
TB 56-14M-115	56	4F	GG	249.55	246.76	256	133	133	89	–	22.0	–	210	3535	24.80
TB 64-14M-115	64	9WF	GG	285.21	282.41	296	133	133	89	–	22.0	190	242	3535	27.00
TB 72-14M-115	72	9W	GG	320.86	318.06	–	133	133	89	–	22.0	190	280	3535	29.00
TB 80-14M-115	80	9A	GG	356.51	353.71	–	133	133	89	–	22.0	190	315	3535	32.00
TB 90-14M-115	90	9A	GG	401.07	398.28	–	133	133	89	–	22.0	190	360	3535	36.50
TB 112-14M-115	112	9A	GG	499.11	496.32	–	133	133	89	–	22.0	190	457	3535	46.00
TB 144-14M-115	144	9A	GG	641.71	638.92	–	133	133	102	–	15.5	230	600	4040	68.00
TB 168-14M-115	168	9A	GG	748.66	745.87	–	133	133	102	–	15.5	230	706	4040	82.60
TB 192-14M-115	192	9A	GG	855.62	852.82	–	133	133	102	–	15.5	230	813	4040	96.00
TB 216-14M-115	216	9A	GG	962.57	959.77	–	133	133	102	–	15.5	230	920	4040	107.00

Profile 14M – Tooth pitch 14 mm for belt width 170 mm															
TB 38-14M-170 •	38	4F	GG	169.34	166.60	183	187	187	76	–	55.5	–	130	3030	11.70
TB 40-14M-170 •	40	4F	GG	178.25	175.49	188	187	187	76	–	55.5	–	140	3030	13.00
TB 44-14M-170 •	44	4F	GG	196.08	193.28	211	187	187	89	–	49.0	–	155	3535	15.00
TB 48-14M-170 •	48	4F	GG	213.90	211.11	226	187	187	89	–	49.0	–	175	3535	19.00
TB 56-14M-170 •	56	4F	GG	249.55	246.76	256	187	187	89	–	49.0	–	210	3535	28.50
TB 64-14M-170 •	64	4F	GG	285.21	282.41	296	187	187	102	–	42.5	–	240	4040	41.00
TB 72-14M-170 •	72	9W	GG	320.86	318.06	–	187	187	102	–	42.5	230	280	4040	46.90
TB 80-14M-170 •	80	9W	GG	356.51	353.71	–	187	187	102	–	42.5	230	315	4040	48.00
TB 90-14M-170 •	90	9A	GG	401.07	398.28	–	187	187	102	–	42.5	230	360	4040	52.50
TB 112-14M-170 •	112	9A	GG	499.11	496.32	–	187	187	127	–	30.0	265	457	5050	74.50
TB 144-14M-170 •	144	9A	GG	641.71	638.92	–	187	187	127	–	30.0	265	600	5050	91.00
TB 168-14M-170 •	168	9A	GG	748.66	745.87	–	187	187	127	–	30.0	265	706	5050	116.00
TB 192-14M-170 •	192	9A	GG	855.62	852.82	–	187	187	127	–	30.0	265	813	5050	134.00
TB 216-14M-170 •	216	9A	GG	962.57	959.77	–	187	187	127	–	30.0	265	920	5050	146.50

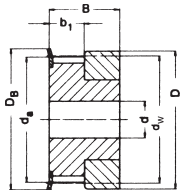
Taper bush	3030	3535	4040	5050
Bore d_2 [mm] from ... to ...	35-75	35-90	40-100	70-125

GG = Grey cast iron
Subject to changes due to production.
• Not available ex stock

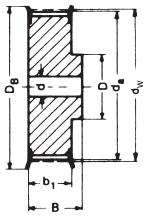
Bore diameter d_2 see page 168.

5 TIMING BELT PULLEYS

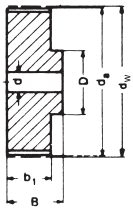
5.1 optibelt ZRS HTD TIMING BELT PULLEYS FOR CYLINDRICAL BORES – PROFILE 3M



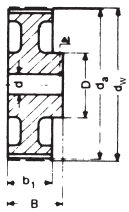
Design 1F



Design 6F



Design 6



Design 6W

Profile 3M – Tooth pitch 3 mm for belt width 6 mm												
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	D [mm]	Pilot bore d [mm]	Finished bore d_{max} [mm]	Weight ≈ [kg]
10-3M-6 •	10	1F	Al	9.55	8.79	13.0	7.2	14.5	13.0	–	3	–
12-3M-6 •	12	1F	Al	11.46	10.70	15.0	7.2	14.5	15.0	–	5	–
14-3M-6 •	14	1F	Al	13.37	12.61	16.0	7.2	14.5	16.0	–	6	–
15-3M-6 •	15	1F	Al	14.32	13.56	17.5	7.2	14.5	17.5	–	6	–
16-3M-6 •	16	6F	Al	15.28	14.52	18.0	9.8	17.5	10.0	4	7	–
18-3M-6 •	18	6F	Al	17.19	16.43	19.5	9.8	17.5	11.0	6	8	–
20-3M-6 •	20	6F	Al	19.10	18.34	23.0	9.8	17.5	13.0	6	9	–
21-3M-6 •	21	6F	Al	20.05	19.29	25.0	9.8	17.5	14.0	6	9	–
22-3M-6 •	22	6F	Al	21.01	20.25	25.0	9.8	17.5	14.0	6	9	–
24-3M-6 •	24	6F	Al	22.92	22.16	25.0	9.8	17.5	14.0	6	9	–
26-3M-6 •	26	6F	Al	24.83	24.07	28.0	9.8	17.5	16.0	6	11	–
28-3M-6 •	28	6F	Al	26.74	25.98	32.0	9.8	17.5	18.0	6	12	–
30-3M-6 •	30	6F	Al	28.65	27.89	32.0	9.8	17.5	20.0	6	14	–
32-3M-6 •	32	6F	Al	30.56	29.80	36.0	9.8	17.5	22.0	6	15	–
36-3M-6 •	36	6F	Al	34.38	33.62	38.0	10.3	18.0	26.0	6	16	–
40-3M-6 •	40	6F	Al	38.20	37.44	42.0	10.3	18.0	28.0	6	18	–
44-3M-6 •	44	6F	Al	42.02	41.26	48.0	10.3	18.0	33.0	6	20	–
48-3M-6 •	48	6	Al	45.84	45.08	–	10.3	18.6	33.0	8	20	–
60-3M-6 •	60	6	Al	57.30	56.54	–	10.3	18.6	33.0	8	20	–
72-3M-6 •	72	6	Al	68.75	67.99	–	10.3	18.6	33.0	8	20	–

• Not available ex stock Al = Aluminium Subject to changes due to production.

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5 TIMING BELT PULLEYS

5.1 optibelt ZRS HTD TIMING BELT PULLEYS FOR CYLINDRICAL BORES – PROFILE 3M

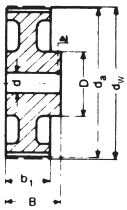
Profile 3M – Tooth pitch 3 mm for belt width 9 mm												
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	D [mm]	Pilot bore d [mm]	Finished bore d_{max} [mm]	Weight ≈ [kg]
10-3M-9	10	1F	Al	9.55	8.79	13.0	10.2	17.5	13.0	–	3	0.004
12-3M-9	12	1F	Al	11.46	10.70	15.0	10.2	17.5	15.0	–	5	0.006
14-3M-9	14	1F	Al	13.37	12.61	16.0	10.2	17.5	16.0	–	6	0.007
15-3M-9	15	1F	Al	14.32	13.56	17.5	10.2	17.5	17.5	–	6	0.008
16-3M-9	16	6F	Al	15.28	14.52	18.0	12.8	20.6	10.0	4	7	0.007
18-3M-9	18	6F	Al	17.19	16.43	19.5	12.8	20.6	11.0	6	8	0.008
20-3M-9	20	6F	Al	19.10	18.34	23.0	12.8	20.6	13.0	6	9	0.010
21-3M-9	21	6F	Al	20.05	19.29	25.0	12.8	20.6	14.0	6	9	0.013
22-3M-9	22	6F	Al	21.01	20.25	25.0	12.8	20.6	14.0	6	9	0.014
24-3M-9	24	6F	Al	22.92	22.16	25.0	12.8	20.6	14.0	6	9	0.016
26-3M-9	26	6F	Al	24.83	24.07	28.0	12.8	20.6	16.0	6	11	0.018
28-3M-9	28	6F	Al	26.74	25.98	32.0	12.8	20.6	18.0	6	12	0.024
30-3M-9	30	6F	Al	28.65	27.89	32.0	12.8	20.6	20.0	6	14	0.028
32-3M-9	32	6F	Al	30.56	29.80	36.0	12.8	20.6	22.0	6	15	0.032
36-3M-9	36	6F	Al	34.38	33.62	38.0	13.4	22.2	26.0	6	16	0.045
40-3M-9	40	6F	Al	38.20	37.44	42.0	13.4	22.2	28.0	6	18	0.055
44-3M-9	44	6F	Al	42.02	41.26	48.0	13.4	22.2	33.0	6	20	0.074
48-3M-9	48	6	Al	45.84	45.08	–	13.4	22.2	33.0	8	20	0.074
60-3M-9	60	6	Al	57.30	56.54	–	13.4	22.2	33.0	8	20	0.106
72-3M-9	72	6	Al	68.75	67.99	–	13.4	22.2	33.0	8	20	0.145

Profile 3M – Tooth pitch 3 mm for belt width 15 mm												
10-3M-15	10	1F	Al	9.55	8.79	13.0	17.0	26	13.0	–	3	0.006
12-3M-15	12	1F	Al	11.46	10.70	15.0	17.0	26	15.0	–	5	0.008
14-3M-15	14	1F	Al	13.37	12.61	16.0	17.0	26	16.0	–	6	0.010
15-3M-15	15	1F	Al	14.32	13.56	17.5	17.0	26	17.5	–	6	0.012
16-3M-15	16	6F	Al	15.28	14.52	18.0	19.5	26	10.0	4	7	0.010
18-3M-15	18	6F	Al	17.19	16.43	19.5	19.5	26	11.0	6	8	0.012
20-3M-15	20	6F	Al	19.10	18.34	23.0	19.5	26	13.0	6	9	0.014
21-3M-15	21	6F	Al	20.05	19.29	25.0	19.5	26	14.0	6	9	0.016
22-3M-15	22	6F	Al	21.01	20.25	25.0	19.5	26	14.0	6	9	0.018
24-3M-15	24	6F	Al	22.92	22.16	25.0	19.5	26	14.0	6	9	0.020
26-3M-15	26	6F	Al	24.83	24.07	28.0	19.5	26	16.0	6	11	0.027
28-3M-15	28	6F	Al	26.74	25.98	32.0	19.5	26	18.0	6	12	0.030
30-3M-15	30	6F	Al	28.65	27.89	32.0	19.5	26	20.0	6	14	0.035
32-3M-15	32	6F	Al	30.56	29.80	36.0	19.5	26	22.0	6	15	0.042
36-3M-15	36	6F	Al	34.38	33.62	38.0	20.0	30	26.0	6	16	0.060
40-3M-15	40	6F	Al	38.20	37.44	42.0	20.0	30	28.0	6	18	0.075
44-3M-15	44	6F	Al	42.02	41.26	48.0	20.0	30	33.0	6	20	0.100
48-3M-15	48	6	Al	45.84	45.08	–	20.0	30	33.0	8	20	0.103
60-3M-15	60	6	Al	57.30	56.54	–	20.0	30	33.0	8	20	0.150
72-3M-15	72	6	Al	68.75	67.99	–	20.0	30	33.0	8	20	0.212

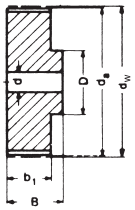
Al = Aluminium Subject to changes due to production.

5 TIMING BELT PULLEYS

5.1 optibelt ZRS HTD TIMING BELT PULLEYS FOR CYLINDRICAL BORES – PROFILE 5M



Design 6W



Design 6

Profile 5M – Tooth pitch 5 mm for belt width 9 mm												
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	D [mm]	Pilot bore d [mm]	Finished bore d_{max} [mm]	Weight ≈ [kg]
12-5M-9	12	6F	St	19.10	17.96	23	14.5	20.0	13.0	4	7	0.028
14-5M-9	14	6F	St	22.28	21.14	25	14.5	20.0	14.0	6	8	0.034
15-5M-9	15	6F	St	23.87	22.73	28	14.5	20.0	16.0	6	10	0.042
16-5M-9	16	6F	St	25.46	24.32	28	14.5	20.0	16.5	6	10	0.050
18-5M-9	18	6F	St	28.65	27.51	32	14.5	20.0	20.0	6	12	0.070
20-5M-9	20	6F	St	31.83	30.69	36	14.5	22.5	23.0	6	14	0.094
21-5M-9	21	6F	St	33.42	32.28	38	14.5	22.5	24.0	6	14	0.110
22-5M-9	22	6F	St	35.01	33.87	38	14.5	22.5	25.5	6	14	0.118
24-5M-9	24	6F	St	38.20	37.06	42	14.5	22.5	27.0	6	16	0.145
26-5M-9	26	6F	St	41.38	40.24	44	14.5	22.5	30.0	6	18	0.170
28-5M-9	28	6F	St	44.56	43.42	48	14.5	22.5	30.5	6	18	0.200
30-5M-9	30	6F	St	47.75	46.61	51	14.5	22.5	35.0	6	20	0.236
32-5M-9	32	6F	St	50.93	49.79	54	14.5	22.5	38.0	8	22	0.270
36-5M-9	36	6F	St	57.30	56.16	60	14.5	22.5	38.0	8	22	0.324
40-5M-9	40	6F	St	63.66	62.52	71	14.5	22.5	38.0	8	22	0.400
44-5M-9	44	6W	Al	70.03	68.89	–	14.5	25.5	38.0	8	22	0.170
48-5M-9	48	6W	Al	76.39	75.25	–	14.5	25.5	45.0	8	25	0.182
60-5M-9	60	6W	Al	95.49	94.35	–	14.5	25.5	45.0	8	25	0.230
72-5M-9	72	6W	Al	114.59	113.45	–	14.5	25.5	45.0	8	25	0.270

Profile 5M – Tooth pitch 5 mm for belt width 15 mm												
12-5M-15	12	6F	St	19.10	17.96	25	20.5	26	13.0	4	7	0.034
14-5M-15	14	6F	St	22.28	21.14	25	20.5	26	14.0	6	8	0.046
15-5M-15	15	6F	St	23.87	22.73	28	20.5	26	16.0	6	10	0.056
16-5M-15	16	6F	St	25.46	24.32	28	20.5	26	16.5	6	10	0.064
18-5M-15	18	6F	St	28.65	27.51	32	20.5	26	20.0	6	12	0.086
20-5M-15	20	6F	St	31.83	30.69	36	20.5	26	23.0	6	14	0.112
21-5M-15	21	6F	St	33.42	32.28	38	20.5	26	24.0	6	14	0.130
22-5M-15	22	6F	St	35.01	33.87	38	20.5	26	25.5	6	14	0.140
24-5M-15	24	6F	St	38.20	37.06	42	20.5	28	27.0	6	16	0.180
26-5M-15	26	6F	St	41.38	40.24	44	20.5	28	30.0	6	18	0.220
28-5M-15	28	6F	St	44.56	43.42	48	20.5	28	30.5	6	18	0.250
30-5M-15	30	6F	St	47.75	46.61	51	20.5	28	35.0	6	20	0.300
32-5M-15	32	6F	St	50.93	49.79	54	20.5	28	38.0	8	22	0.350
36-5M-15	36	6F	St	57.30	56.16	60	20.5	28	38.0	8	22	0.426
40-5M-15	40	6F	St	63.66	62.52	71	20.5	28	38.0	8	22	0.520
44-5M-15	44	6W	Al	70.03	68.89	–	20.5	30	38.0	8	22	0.225
48-5M-15	48	6W	Al	76.39	75.25	–	20.5	30	38.0	8	25	0.187
60-5M-15	60	6W	Al	95.49	94.35	–	20.5	30	50.0	8	25	0.305
72-5M-15	72	6W	Al	114.59	113.45	–	20.5	30	50.0	8	25	0.375

Al = Aluminium St = Steel Subject to changes due to production.

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5 TIMING BELT PULLEYS

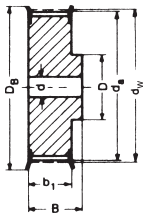
5.1 optibelt ZRS HTD TIMING BELT PULLEYS FOR CYLINDRICAL BORES – PROFILE 5M

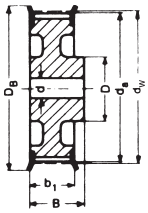
Profile 5M – Tooth pitch 5 mm for belt width 25 mm												
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	D [mm]	Pilot bore d [mm]	Finished bore d_{max} [mm]	Weight ≈ [kg]
12-5M-25	12	6F	St	19.10	17.96	25	30	36	13.0	4	7	0.050
14-5M-25	14	6F	St	22.28	21.14	25	30	36	14.0	6	8	0.070
15-5M-25	15	6F	St	23.87	22.73	28	30	36	16.0	6	10	0.080
16-5M-25	16	6F	St	25.46	24.32	28	30	36	16.5	6	10	0.100
18-5M-25	18	6F	St	28.65	27.51	32	30	36	20.0	6	12	0.120
20-5M-25	20	6F	St	31.83	30.69	36	30	36	23.0	6	14	0.160
21-5M-25	21	6F	St	33.42	32.28	38	30	38	24.0	6	14	0.190
22-5M-25	22	6F	St	35.01	33.87	38	30	38	25.5	6	14	0.210
24-5M-25	24	6F	St	38.20	37.06	42	30	38	27.0	6	16	0.250
26-5M-25	26	6F	St	41.38	40.24	44	30	38	30.0	6	18	0.300
28-5M-25	28	6F	St	44.56	43.42	48	30	38	30.5	6	18	0.350
30-5M-25	30	6F	St	47.75	46.61	51	30	38	35.0	6	20	0.420
32-5M-25	32	6F	St	50.93	49.79	54	30	38	38.0	8	22	0.480
36-5M-25	36	6F	St	57.30	56.16	60	30	38	38.0	8	22	0.590
40-5M-25	40	6F	St	63.66	62.52	71	30	38	38.0	8	22	0.740
44-5M-25	44	6W	Al	70.03	68.89	–	30	40	38.0	8	22	0.320
48-5M-25	48	6W	Al	76.39	75.25	–	30	40	38.0	8	25	0.275
60-5M-25	60	6W	Al	95.49	94.35	–	30	40	50.0	8	25	0.435
72-5M-25	72	6W	Al	114.59	113.45	–	30	40	50.0	8	25	0.525

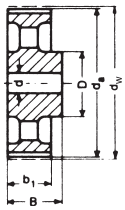
Al = Aluminium St = Steel Subject to changes due to production.

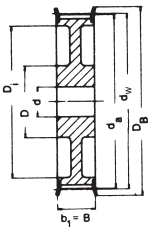
5 TIMING BELT PULLEYS

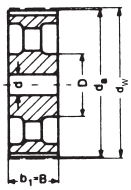
5.1 optibelt ZRS HTD TIMING BELT PULLEYS FOR CYLINDRICAL BORES – PROFILE 8M


Design 6F


Design 6WF


Design 6A


Design 10WF


Design 10A

Profile 8M – Tooth pitch 8 mm for belt width 20 mm													
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	D [mm]	D_i [mm]	Pilot bore d [mm]	Finished bore d_{max} [mm]	Weight ≈ [kg]
22-8M-20	22	6F	St	56.02	54.65	60.0	28	38	43	–	12	30	0.54
24-8M-20	24	6F	St	61.12	59.75	66.0	28	38	45	–	12	30	0.65
26-8M-20	26	6F	St	66.21	64.84	71.0	28	38	50	–	12	35	0.80
28-8M-20	28	6F	St	71.30	69.93	75.0	28	38	50	–	15	35	0.87
30-8M-20	30	6F	St	76.39	75.02	83.0	28	38	55	–	15	35	1.02
32-8M-20	32	6F	St	81.49	80.12	87.0	28	38	60	–	15	40	1.20
34-8M-20	34	6F	St	86.58	85.22	91.0	28	38	70	–	15	45	1.40
36-8M-20	36	6F	St	91.67	90.30	98.5	28	38	70	–	15	45	1.55
38-8M-20	38	6F	St	96.77	95.39	103.0	28	38	75	–	15	45	1.65
40-8M-20	40	6F	GG	101.86	100.49	106.0	28	38	75	–	15	45	1.80
44-8M-20	44	6F	GG	112.05	110.67	119.0	28	38	75	–	15	45	2.10
48-8M-20	48	6F	GG	122.23	120.86	127.0	28	38	75	–	15	45	2.44
56-8M-20	56	6WF	GG	142.60	141.23	148.0	28	38	80	117	15	45	2.60
64-8M-20	64	6WF	GG	162.97	161.60	168.0	28	38	80	137	15	45	2.90
72-8M-20	72	6WF	GG	183.35	181.97	192.0	28	38	80	158	15	45	3.10
80-8M-20	80	6A	GG	203.72	202.35	–	28	38	90	180	15	50	3.80
90-8M-20	90	6A	GG	229.18	227.81	–	28	38	90	204	15	50	4.20
112-8M-20	112	6A	GG	285.21	283.83	–	28	38	90	260	18	50	5.20
144-8M-20	144	6A	GG	366.69	365.32	–	28	38	90	341	20	50	7.50
168-8M-20	168	6A	GG	427.81	426.44	–	28	38	100	402	20	55	10.00
192-8M-20	192	6A	GG	488.92	487.55	–	28	38	100	463	20	55	14.40

Profile 8M – Tooth pitch 8 mm for belt width 30 mm													
22-8M-30	22	6F	St	56.02	54.65	60.0	38	48	43	–	12	30	0.69
24-8M-30	24	6F	St	61.12	59.75	66.0	38	48	45	–	12	30	0.84
26-8M-30	26	6F	St	66.21	64.84	71.0	38	48	50	–	12	35	1.00
28-8M-30	28	6F	St	71.30	69.93	75.0	38	48	50	–	15	35	1.12
30-8M-30	30	6F	St	76.39	75.02	83.0	38	48	55	–	15	35	1.32
32-8M-30	32	6F	St	81.49	80.12	87.0	38	48	60	–	15	40	1.50
34-8M-30	34	6F	St	86.58	85.22	91.0	38	48	70	–	15	45	1.80
36-8M-30	36	6F	St	91.67	90.30	98.5	38	48	70	–	15	45	1.99
38-8M-30	38	6F	St	96.77	95.39	103.0	38	48	75	–	15	45	2.27
40-8M-30	40	6F	GG	101.86	100.49	106.0	38	48	75	–	15	45	2.40
44-8M-30	44	6F	GG	112.05	110.67	119.0	38	48	75	–	15	45	2.80
48-8M-30	48	6F	GG	122.23	120.86	127.0	38	48	75	–	15	45	3.20
56-8M-30	56	6WF	GG	142.60	141.23	148.0	38	48	90	117	15	50	3.60
64-8M-30	64	6WF	GG	162.97	161.60	168.0	38	48	90	137	15	50	4.30
72-8M-30	72	6WF	GG	183.35	181.97	192.0	38	48	95	158	15	50	4.80
80-8M-30	80	6A	GG	203.72	202.35	–	38	48	100	180	15	55	5.10
90-8M-30	90	6A	GG	229.18	227.81	–	38	48	100	204	15	55	5.70
112-8M-30	112	6A	GG	285.21	283.83	–	38	48	100	260	18	55	6.80
144-8M-30	144	6A	GG	366.69	365.32	–	38	48	100	341	20	55	9.30
168-8M-30	168	6A	GG	427.81	426.44	–	38	48	100	402	20	55	11.40
192-8M-30	192	6A	GG	488.92	487.55	–	38	48	100	463	20	55	16.00

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5 TIMING BELT PULLEYS

5.1 optibelt ZRS HTD TIMING BELT PULLEYS FOR CYLINDRICAL BORES – PROFILE 8M

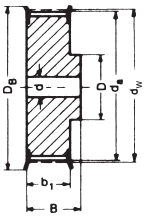
Profile 8M – Tooth pitch 8 mm for belt width 50 mm													
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	D [mm]	D_i [mm]	Pilot bore d [mm]	Finished bore d_{max} [mm]	Weight ≈ [kg]
22-8M-50	22	6F	St	56.02	54.65	60.0	60	70	43	–	12	30	1.00
24-8M-50	24	6F	St	61.12	59.75	66.0	60	70	45	–	12	30	1.20
26-8M-50	26	6F	St	66.21	64.84	71.0	60	70	50	–	12	35	1.50
28-8M-50	28	6F	St	71.30	70.08	75.0	60	70	50	–	15	35	1.67
30-8M-50	30	6F	St	76.39	75.13	83.0	60	70	55	–	15	35	1.97
32-8M-50	32	6F	St	81.49	80.16	87.0	60	70	60	–	15	40	2.27
34-8M-50	34	6F	St	86.58	85.22	91.0	60	70	70	–	15	45	2.69
36-8M-50	36	6F	St	91.67	90.30	98.5	60	70	70	–	15	45	2.97
38-8M-50	38	6F	St	96.77	95.39	103.0	60	70	75	–	15	45	3.23
40-8M-50	40	6F	GG	101.86	100.49	106.0	60	70	75	–	18	45	3.50
44-8M-50	44	6F	GG	112.05	110.67	119.0	60	70	75	–	18	45	3.90
48-8M-50	48	6F	GG	122.23	120.86	127.0	60	70	80	–	18	45	4.30
56-8M-50	56	10WF	GG	142.60	141.23	148.0	60	60	90	117	18	50	5.00
64-8M-50	64	10WF	GG	162.97	161.60	168.0	60	60	100	137	18	55	5.60
72-8M-50	72	10WF	GG	183.35	181.97	192.0	60	60	100	158	18	55	6.80
80-8M-50	80	10A	GG	203.72	202.35	–	60	60	110	180	18	60	6.90
90-8M-50	90	10A	GG	229.18	227.81	–	60	60	110	204	18	60	8.60
112-8M-50	112	10A	GG	285.21	283.83	–	60	60	110	260	18	60	9.60
144-8M-50	144	10A	GG	366.69	365.32	–	60	60	110	341	20	60	13.80
168-8M-50	168	10A	GG	427.81	426.44	–	60	60	120	402	20	65	16.00
192-8M-50	192	10A	GG	488.92	487.55	–	60	60	130	463	20	70	22.40

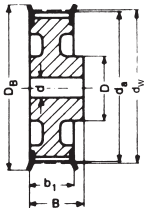
Profile 8M – Tooth pitch 8 mm for belt width 85 mm													
22-8M-85	22	6F	St	56.02	54.65	60.0	95	105	43	–	12	30	1.55
24-8M-85	24	6F	St	61.12	59.75	66.0	95	105	45	–	12	30	1.90
26-8M-85	26	6F	St	66.21	64.84	71.0	95	105	50	–	12	35	2.25
28-8M-85	28	6F	St	71.30	70.08	75.0	95	105	50	–	15	35	2.55
30-8M-85	30	6F	St	76.39	75.13	83.0	95	105	55	–	15	35	3.00
32-8M-85	32	6F	St	81.49	80.16	87.0	95	105	60	–	15	40	3.57
34-8M-85	34	6F	St	86.58	85.22	91.0	95	105	70	–	15	45	4.00
36-8M-85	36	6F	St	91.67	90.30	98.5	95	105	70	–	15	45	4.50
38-8M-85	38	6F	St	96.77	95.39	103.0	95	105	75	–	15	45	4.90
40-8M-85	40	6F	GG	101.86	100.49	106.0	95	105	75	–	18	45	5.20
44-8M-85	44	6F	GG	112.05	110.67	119.0	95	105	75	–	18	45	6.60
48-8M-85	48	6F	GG	122.23	120.86	127.0	95	105	80	–	18	45	7.60
56-8M-85	56	6F	GG	142.60	141.23	148.0	95	105	80	–	20	50	9.80
64-8M-85	64	10WF	GG	162.97	161.60	168.0	95	95	100	137	20	55	10.40
72-8M-85	72	10WF	GG	183.35	181.97	192.0	95	95	110	158	20	60	11.40
80-8M-85	80	10A	GG	203.72	202.35	–	95	95	110	180	20	60	11.10
90-8M-85	90	10A	GG	229.18	227.81	–	95	95	110	204	20	60	13.20
112-8M-85	112	10A	GG	285.21	283.83	–	95	95	110	260	24	60	16.30
144-8M-85 •	144	10A	GG	366.69	365.32	–	95	95	120	341	24	65	21.50
168-8M-85 •	168	10A	GG	427.81	426.44	–	95	95	120	402	24	65	26.10
192-8M-85 •	192	10A	GG	488.92	487.55	–	95	95	130	463	24	70	30.60

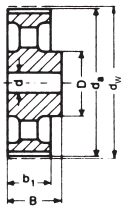
St = Steel GG = Grey cast iron • Not available ex stock Subject to changes due to production.

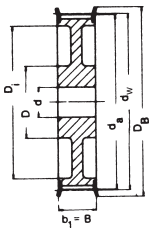
5 TIMING BELT PULLEYS

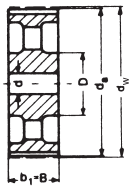
5.1 optibelt ZRS HTD TIMING BELT PULLEYS FOR CYLINDRICAL BORES – PROFILE 14M


Design 6F


Design 6WF


Design 6A


Design 10WF


Design 10A

Profile 14M – Tooth pitch 14 mm for belt width 40 mm													
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	D [mm]	D_i [mm]	Pilot bore d [mm]	Finished bore d_{max} [mm]	Weight ≈ [kg]
28-14M-40	28	6F	GG	124.78	122.12	127	54	69	100	–	24	60	4.73
29-14M-40	29	6F	GG	129.23	126.57	138	54	69	100	–	24	60	5.09
30-14M-40	30	6F	GG	133.69	130.99	138	54	69	100	–	24	60	5.45
32-14M-40	32	6F	GG	142.60	139.88	154	54	69	100	–	24	70	6.17
34-14M-40	34	6F	GG	151.52	148.79	160	54	69	100	–	24	70	6.88
36-14M-40	36	6F	GG	160.43	157.68	168	54	69	100	–	24	70	7.60
38-14M-40	38	6F	GG	169.34	166.60	183	54	69	120	–	24	70	8.28
40-14M-40	40	6F	GG	178.25	175.49	188	54	69	120	–	24	70	9.26
44-14M-40	44	6F	GG	196.08	193.28	211	54	69	120	–	24	70	10.32
48-14M-40	48	6WF	GG	213.90	211.11	226	54	69	135	172	24	70	11.50
56-14M-40	56	6WF	GG	249.55	246.76	256	54	69	135	207	28	70	13.05
64-14M-40	64	6WF	GG	285.21	282.41	296	54	69	135	242	28	70	14.40
72-14M-40	72	6A	GG	320.86	318.06	–	54	69	135	278	28	70	16.90
80-14M-40	80	6A	GG	356.51	353.71	–	54	69	135	314	28	70	18.50
90-14M-40	90	6A	GG	401.07	398.28	–	54	69	135	358	28	70	20.00
112-14M-40 •	112	6A	GG	499.11	496.32	–	54	69	135	456	28	70	26.70
144-14M-40 •	144	6A	GG	641.71	638.92	–	54	69	135	600	28	70	35.00
168-14M-40 •	168	6A	GG	748.66	745.87	–	54	69	135	706	28	70	44.20
192-14M-40 •	192	6A	GG	855.62	852.82	–	54	69	135	813	28	70	52.20
216-14M-40 •	216	6A	GG	962.57	959.77	–	54	69	150	920	28	80	60.00

Profile 14M – Tooth pitch 14 mm for belt width 55 mm													
28-14M-55	28	6F	GG	124.78	122.12	127	70	85	100	–	24	60	5.60
29-14M-55	29	6F	GG	129.23	126.57	138	70	85	100	–	24	60	6.10
30-14M-55	30	6F	GG	133.69	130.99	138	70	85	100	–	24	60	6.60
32-14M-55	32	6F	GG	142.60	139.88	154	70	85	100	–	24	70	7.60
34-14M-55	34	6F	GG	151.52	148.79	160	70	85	100	–	24	70	8.60
36-14M-55	36	6F	GG	160.43	157.68	168	70	85	100	–	24	70	9.60
38-14M-55	38	6F	GG	169.34	166.60	183	70	85	120	–	24	70	10.80
40-14M-55	40	6F	GG	178.25	175.49	188	70	85	120	–	24	70	11.20
44-14M-55	44	6F	GG	196.08	193.28	211	70	85	120	–	24	70	12.50
48-14M-55	48	10WF	GG	213.90	211.11	226	70	70	135	172	24	70	13.70
56-14M-55	56	10WF	GG	249.55	246.76	256	70	70	135	207	28	70	14.50
64-14M-55	64	10WF	GG	285.21	282.41	296	70	70	135	242	28	70	15.60
72-14M-55	72	10A	GG	320.86	318.06	–	70	70	135	278	28	70	18.50
80-14M-55	80	10A	GG	356.51	353.71	–	70	70	135	314	28	70	20.00
90-14M-55	90	10A	GG	401.07	398.28	–	70	70	135	358	28	70	22.60
112-14M-55 •	112	10A	GG	499.11	496.32	–	70	70	135	456	28	70	29.50
144-14M-55 •	144	10A	GG	641.71	638.92	–	70	70	135	600	28	70	39.00
168-14M-55 •	168	10A	GG	748.66	745.87	–	70	70	135	706	28	70	48.50
192-14M-55 •	192	10A	GG	855.62	852.82	–	70	70	135	813	28	70	57.80
216-14M-55 •	216	10A	GG	962.57	959.77	–	70	70	150	920	28	80	67.00

GG = Grey cast iron • Not available ex stock Subject to changes due to production.

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5 TIMING BELT PULLEYS

5.1 optibelt ZRS HTD TIMING BELT PULLEYS FOR CYLINDRICAL BORES – PROFILE 14M

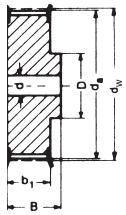
Profile 14M – Tooth pitch 14 mm for belt width 85 mm													
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	D [mm]	D_i [mm]	Pilot bore d [mm]	Finished bore d_{max} [mm]	Weight ≈ [kg]
28-14M-85	28	6F	GG	124.78	122.12	127	102	117	100	–	24	60	7.70
29-14M-85	29	6F	GG	129.23	126.57	138	102	117	100	–	24	60	8.40
30-14M-85	30	6F	GG	133.69	130.99	138	102	117	100	–	24	60	9.10
32-14M-85	32	6F	GG	142.60	139.88	154	102	117	100	–	24	60	10.50
34-14M-85	34	6F	GG	151.52	148.79	160	102	117	100	–	24	70	11.90
36-14M-85	36	6F	GG	160.43	157.68	168	102	117	100	–	32	70	13.20
38-14M-85	38	6F	GG	169.34	166.60	183	102	117	120	–	32	70	15.15
40-14M-85	40	6F	GG	178.25	175.49	188	102	117	135	–	32	70	17.10
44-14M-85	44	6F	GG	196.08	193.28	211	102	117	135	–	32	70	23.30
48-14M-85	48	6F	GG	213.90	211.11	226	102	117	150	–	32	80	25.00
56-14M-85	56	10WF	GG	249.55	246.76	256	102	102	150	207	32	80	25.00
64-14M-85	64	10WF	GG	285.21	282.41	296	102	102	150	242	32	80	28.20
72-14M-85	72	10A	GG	320.86	318.06	–	102	102	150	278	32	80	28.80
80-14M-85	80	10A	GG	356.51	353.71	–	102	102	150	314	32	80	30.10
90-14M-85	90	10A	GG	401.07	398.28	–	102	102	150	358	32	80	33.00
112-14M-85 •	112	10A	GG	499.11	496.32	–	102	102	150	456	32	80	41.80
144-14M-85 •	144	10A	GG	641.71	638.92	–	102	102	150	600	32	80	52.40
168-14M-85 •	168	10A	GG	748.66	745.87	–	102	102	150	706	32	80	60.30
192-14M-85 •	192	10A	GG	855.62	852.82	–	102	102	165	813	32	90	70.20
216-14M-85 •	216	10A	GG	962.57	959.77	–	102	102	165	920	32	90	81.00

Profile 14M – Tooth pitch 14 mm for belt width 115 mm													
28-14M-115	28	6F	GG	124.78	122.12	127	133	148	100	–	32	60	9.20
29-14M-115	29	6F	GG	129.23	126.57	138	133	148	100	–	32	60	10.20
30-14M-115	30	6F	GG	133.69	130.99	138	133	148	100	–	32	60	11.20
32-14M-115	32	6F	GG	142.60	139.88	154	133	148	100	–	32	60	13.20
34-14M-115	34	6F	GG	151.52	148.79	160	133	148	100	–	32	70	14.80
36-14M-115	36	6F	GG	160.43	157.68	168	133	148	120	–	32	70	16.60
38-14M-115	38	6F	GG	169.34	166.60	183	133	148	120	–	32	70	19.20
40-14M-115	40	6F	GG	178.25	175.49	188	133	148	135	–	32	70	22.10
44-14M-115	44	6F	GG	196.08	193.28	211	133	148	140	–	32	80	28.00
48-14M-115	48	6F	GG	213.90	211.11	226	133	148	150	–	32	80	35.00
56-14M-115	56	6F	GG	249.55	246.76	256	133	148	150	–	32	80	44.20
64-14M-115	64	10WF	GG	285.21	282.41	296	133	133	150	242	32	80	36.80
72-14M-115	72	10A	GG	320.86	318.06	–	133	133	150	278	32	80	36.10
80-14M-115	80	10A	GG	356.51	353.71	–	133	133	150	314	32	80	38.60
90-14M-115	90	10A	GG	401.07	398.28	–	133	133	150	358	32	80	41.00
112-14M-115 •	112	10A	GG	499.11	496.32	–	133	133	150	456	32	80	54.40
144-14M-115 •	144	10A	GG	641.71	638.92	–	133	133	165	600	32	90	67.80
168-14M-115 •	168	10A	GG	748.66	745.87	–	133	133	165	706	32	90	75.80
192-14M-115 •	192	10A	GG	855.62	852.82	–	133	133	165	813	32	90	88.30
216-14M-115 •	216	10A	GG	962.57	959.77	–	133	133	165	920	32	90	98.00

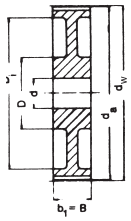
GG = Grey cast iron • Not available ex stock Subject to changes due to production.

5 TIMING BELT PULLEYS

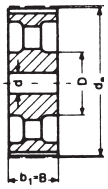
5.1 optibelt ZRS HTD TIMING BELT PULLEYS FOR CYLINDRICAL BORES – PROFILE 14M



Design 6F



Design 10W



Design 10A

Profile 14M – Tooth pitch 14 mm for belt width 170 mm													
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	D [mm]	D_i [mm]	Pilot bore d [mm]	Finished bore d_{max} [mm]	Weight ≈ [kg]
28-14M-170 •	28	6F	GG	124.78	122.12	127	187	202	100	–	32	60	13.80
29-14M-170 •	29	6F	GG	129.23	126.57	138	187	202	100	–	32	60	14.20
30-14M-170 •	30	6F	GG	133.69	130.99	138	187	202	100	–	32	60	15.60
32-14M-170 •	32	6F	GG	142.60	139.88	154	187	202	100	–	32	60	18.10
34-14M-170 •	34	6F	GG	151.52	148.79	160	187	202	100	–	32	60	20.40
36-14M-170 •	36	6F	GG	160.43	157.68	168	187	202	120	–	32	70	23.50
38-14M-170 •	38	6F	GG	169.34	166.60	183	187	202	135	–	32	70	26.50
40-14M-170 •	40	6F	GG	178.25	175.49	188	187	202	140	–	32	85	30.10
44-14M-170 •	44	6F	GG	196.08	193.28	211	187	202	160	–	32	85	37.80
48-14M-170 •	48	6F	GG	213.90	211.11	226	187	202	160	–	32	85	44.50
56-14M-170 •	56	6F	GG	249.55	246.76	256	187	202	160	–	32	85	61.00
64-14M-170 •	64	6F	GG	285.21	282.41	296	187	202	180	–	32	100	81.00
72-14M-170 •	72	10W	GG	320.86	318.06	–	187	187	180	278	32	100	61.40
80-14M-170 •	80	10W	GG	356.51	353.71	–	187	187	180	314	32	100	65.00
90-14M-170 •	90	10A	GG	401.07	398.28	–	187	187	180	358	38	100	68.00
112-14M-170 •	112	10A	GG	499.11	496.32	–	187	187	200	456	38	110	87.50
144-14M-170 •	144	10A	GG	641.71	638.92	–	187	187	220	600	38	120	114.80
168-14M-170 •	168	10A	GG	748.66	745.87	–	187	187	220	706	38	120	125.00
192-14M-170 •	192	10A	GG	855.62	852.82	–	187	187	220	813	38	120	136.40
216-14M-170 •	216	10A	GG	962.57	959.77	–	187	187	220	920	38	120	147.00

GG = Grey cast iron • Not available ex stock Subject to changes due to production.

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TIMING BELTS FOR YOUR SOLUTIONS



CAD SERVICE TOOL

5 TIMING BELT PULLEYS

5.2 optibelt ZRS IMPERIAL TIMING BELT PULLEYS DIMENSIONSAN D TOLERANCES

PERMISSIBLE DEVIATION IN TOOTH PITCH

The permissible deviations in the tooth pitch between two consecutive teeth, and of the sum of deviations within a 90° arc, are indicated in the following table. These tolerances are the distance between the equivalent points on the right or left side of successive teeth.

Outside diameter d_a [mm]	Permissible deviation of the tooth spacing [mm]	
	between two consecutive teeth [mm]	Sum within a 90° arc [mm]
≤ 25.40	0.03	0.05
> 25.40 ≤ 50.80	0.03	0.08
> 50.80 ≤ 101.60	0.03	0.10
> 101.60 ≤ 177.80	0.03	0.13
> 177.80 ≤ 304.80	0.03	0.15
> 304.80 ≤ 508.00	0.03	0.18
> 508.00	0.03	0.20

PERMISSIBLE DEVIATIONS OF THE OUTSIDE DIAMETER

Outside diameter d_a [mm]	Permissible deviation [mm]
≤ 25.40	+ 0.05
> 25.40 ≤ 50.80	+ 0.08
> 50.80 ≤ 101.60	+ 0.10
> 101.60 ≤ 177.80	+ 0.13
> 177.80 ≤ 304.80	+ 0.15
> 304.80 ≤ 508.00	+ 0.18
> 508.00	+ 0.20

PULLEY WIDTH

Profile	Pulley width designation	Pulley nominal width [mm]	Smallest pulley width	
			with flanges b_f* [mm]	without flanges b [mm]
MXL	012	3.2	3.8	5.6
	019	4.8	5.3	7.1
	025	6.4	7.1	8.9
XL	025	6.4	7.1	8.9
	031	7.9	8.6	10.4
	037	9.5	10.4	12.2
L	050	12.7	14.0	17.0
	075	19.1	20.3	23.3
	100	25.4	26.7	29.7
H	075	19.1	20.3	24.6
	100	25.4	26.7	31.2
	150	38.1	39.4	43.9
	200	50.8	52.8	57.3
	300	76.2	79.0	83.5
XH	200	50.8	56.6	62.6
	300	76.2	83.8	89.8
	400	101.6	110.7	116.7
XXH	200	50.8	56.6	64.1
	300	76.2	83.8	91.3
	400	101.6	110.7	118.2
	500	127.0	137.7	145.2

*b_f = pulley width between the flanges

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5 TIMING BELT PULLEYS

5.2 optibelt ZRS IMPERIAL TIMING BELT PULLEYS DIMENSIONS AND TOLERANCES

SIDE WOBBLE TOLERANCE

Outside diameter d_a [mm]	Maximum total variation [mm]
≤ 101.60	0.10 mm
> 101.60 ≤ 254.00	0.01 mm per 10 mm outside diameter
> 254.00	0.25 mm + 0.0005 mm per mm outside diameter above 254.00 mm

RUN OUT TOLERANCE

Outside diameter d_a [mm]	Maximum total variation [mm]
≤ 203.20	0.13 mm
> 203.20	0.13 mm + 0.0005 mm per mm outside diameter above 203.20 mm

PARALLELISM

The teeth should be parallel to the centre of the bore with a maximum deviation of 0.001 mm per millimetre of width.

CONICITY

The conicity must not be higher than 0.001 mm per millimetre of the head width and must not exceed the permissible outside diameter tolerance.

BALANCING

For timing belt pulleys processed on all sides (e.g. steel pulleys), no balancing is usually necessary up to a circumferential speed of 30 m/s. All cast pulleys are in principle statically balanced according to G16.

The following general rules apply:

- Balancing on one level. Quality grade Q 16 according to VDI 2060
  - at v = 30 m/s for d_w > 400 mm or
  - at n = 1500 1/min for d_w ≤ 400 mm
- Balancing on two levels according to recommendation Q 6.3
  - at v > 30 m/s or
  - at v > 20 m/s for a ratio between pitch diameter and timing belt pulley < 4

Balancing takes place on unused timing belt pulleys on a smooth balancing mandrel. Please refer to ISO 254 and VDI 2060 for further details. Balancing is only performed upon special request.

MINIMUM PULLEY DIAMETER

Profile	Minimum number of teeth	Minimum pulley diameter [mm]	Minimum diameter of a smooth idler [mm]
MXL	10	6.47	10.00
XL	10	16.17	20.00
L	10	30.32	30.00
H	14	56.60	60.00
XH	18	127.34	130.00
XXH	18	181.91	190.00

* The use of a backside idler can reduce the service life of the timing belt.

5 TIMING BELT PULLEYS

5.2 optibelt ZRS IMPERIAL TIMING BELT PULLEYS

PITCH AND OUTSIDE DIAMETER [mm]

Number of teeth	Profile MXL		Profile XL		Profile L		Profile H		Profile XH		Profile XXH	
	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]
10	6.47	5.96	16.17	15.66	30.32	29.56						
11	7.11	6.61	17.79	17.28	33.35	32.59						
12	7.76	7.25	19.40	18.89	36.38	35.62						
13	8.41	7.90	21.02	20.51	39.41	38.65						
14	9.06	8.55	22.64	22.13	42.45	41.69	56.60	55.23				
15	9.70	9.19	24.26	23.75	45.48	44.72	60.64	59.27				
16	10.35	9.84	25.87	25.36	48.51	47.75	64.68	63.31				
17	11.00	10.49	27.49	26.98	51.54	50.78	68.72	67.35				
18	11.64	11.14	29.11	28.60	54.57	53.81	72.77	71.40	127.34	124.55	181.91	178.87
19	12.29	11.78	30.72	30.21	57.61	56.85	76.81	75.44	134.41	131.62	192.02	188.98
20	12.94	12.43	32.34	31.83	60.64	59.88	80.85	79.48	141.49	138.70	202.13	199.09
21	13.58	13.08	33.96	33.45	63.67	62.91	84.89	83.52	148.56	145.77	212.23	209.18
22	14.23	13.72	35.57	35.06	66.70	65.94	88.94	87.57	155.64	152.83	222.34	219.29
23	14.88	14.37	37.19	36.68	69.73	68.97	92.98	91.61	162.71	159.92	232.45	229.40
24	15.52	15.02	38.81	38.30	72.77	72.01	97.02	95.65	169.79	167.00	242.55	239.50
25	16.17	15.66	40.43	39.92	75.80	75.04	101.06	99.69	176.86	174.07	252.66	249.61
26	16.82	16.31	42.04	41.53	78.83	78.07	105.11	103.74	183.94	181.13	262.77	259.72
27	17.46	16.96	43.67	43.16	81.86	81.10	109.15	107.78	191.01	188.22	272.87	269.82
28	18.11	17.60	45.28	44.77	84.89	84.13	113.19	111.82	198.08	195.29	282.98	279.93
29	18.75	18.24	46.89	46.38	87.93	87.17	117.23	115.86	205.16	202.37	293.08	290.03
30	19.40	18.90	48.51	48.00	90.96	90.20	121.28	119.91	212.23	209.44	303.19	300.14
31	20.04	19.53	50.13	49.62	93.99	93.23	125.32	123.95	219.31	216.52	313.30	310.25
32	20.70	20.19	51.74	51.23	97.02	96.26	129.36	127.99	226.38	223.59	323.40	320.35
33	21.34	20.83	53.36	52.85	100.05	99.29	133.40	132.03	233.46	230.67	333.51	330.46
34	21.99	21.49	54.98	54.47	103.08	102.32	137.45	136.08	240.53	237.74	343.62	340.57
35	22.63	22.12	56.60	56.09	106.12	105.36	141.49	140.12	247.61	244.82	353.72	350.67
36	23.29	22.78	58.21	57.70	109.15	108.39	145.53	144.16	254.68	251.89	363.83	360.78
37	23.93	23.42	59.83	59.32	112.18	111.42	149.57	148.20	261.75	258.95	373.94	370.89
38	24.59	24.08	61.45	60.94	115.21	114.45	153.62	152.25	268.83	266.04	384.04	380.99
39	25.22	24.71	63.06	62.55	118.24	117.48	157.66	156.29	275.90	273.11	394.15	391.10
40	25.87	25.36	64.68	64.17	121.28	120.52	161.70	160.33	282.98	280.19	404.25	401.21
41	26.52	26.00	66.30	65.79	124.31	123.55	165.74	164.37	290.05	287.26	414.36	411.31
42	27.18	26.67	67.91	67.40	127.34	126.58	169.79	168.42	297.13	294.34	424.47	421.42
43	27.81	27.30	69.53	69.02	130.37	129.61	173.83	172.46	304.20	301.41	434.57	431.52
44	28.45	27.94	71.15	70.64	133.40	132.64	177.87	176.50	311.28	308.48	444.68	441.63
45	29.11	28.60	72.77	72.26	136.44	135.68	181.91	180.54	318.35	315.54	454.79	451.74
46	29.74	29.23	74.38	73.87	139.47	138.71	185.96	184.59	325.42	322.63	464.89	461.84
47	30.40	29.89	76.00	75.49	142.50	141.74	190.00	188.63	332.50	329.69	475.00	471.95
48	31.05	30.54	77.62	77.11	145.53	144.76	194.04	192.67	339.57	336.78	485.11	482.07
49	31.70	31.19	79.23	78.72	148.56	147.80	198.08	196.71	346.65	343.86	495.21	492.16
50	32.33	31.83	80.85	80.34	151.60	150.84	202.13	200.76	353.72	350.93	505.32	502.27
51	33.00	32.50	82.47	81.96	154.63	153.87	206.17	204.80	360.80	358.01	515.42	512.37
52	33.63	33.12	84.08	83.57	157.66	156.90	210.21	208.84	367.87	365.07	525.53	522.48
53	34.29	33.79	85.70	85.19	160.69	159.93	214.25	212.88	374.95	372.16	535.64	532.59
54	34.94	34.43	87.32	86.81	163.72	162.96	218.30	216.93	382.02	379.22	545.74	542.70

Not all numbers of teeth are available as standard

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5 TIMING BELT PULLEYS

5.2 optibelt ZRS IMPERIAL TIMING BELT PULLEYS

PITCH AND OUTSIDE DIAMETER [mm]

Number of teeth	Profile MXL		Profile XL		Profile L		Profile H		Profile XH		Profile XXH	
	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]
55	35.60	35.09	88.94	88.43	166.75	165.99	222.34	220.97	389.09	386.30	555.85	552.81
56	36.22	35.72	90.55	90.04	169.79	169.03	226.38	225.01	396.17	393.38	565.96	562.91
57	36.86	36.36	92.17	91.66	172.82	172.06	230.42	229.14	403.24	400.45	576.06	573.01
58	37.52	37.02	93.79	93.28	175.85	175.09	234.47	233.10	410.32	407.53	586.17	583.12
59	38.16	37.65	95.40	94.89	178.88	178.12	238.51	237.14	417.39	414.60	596.27	593.22
60	38.81	38.30	97.02	96.51	181.91	181.15	242.55	241.18	424.47	421.67	606.38	603.33
61	39.46	38.95	98.64	98.13	184.95	184.19	246.59	245.22	431.54	428.75	616.49	613.44
62	40.10	39.59	100.25	99.74	187.98	187.22	250.64	249.27	438.62	435.83	626.59	623.54
63	40.73	40.22	101.87	101.36	191.01	190.25	254.68	253.31	445.69	442.90	636.70	633.65
64	41.39	40.89	103.49	102.98	194.04	193.28	258.72	257.35	452.76	449.96	646.81	643.76
65	42.04	41.53	105.11	104.60	197.07	196.31	262.77	261.40	459.84	457.05	656.91	653.86
66	42.69	42.18	106.72	106.21	200.11	199.35	266.81	265.44	466.91	464.12	667.02	663.97
67	43.32	42.82	108.34	107.83	203.14	202.38	270.85	269.48	473.99	471.20	677.13	674.08
68	43.97	43.46	109.96	109.45	206.17	205.41	274.89	273.52	481.06	478.27	687.23	684.18
69	44.62	44.11	111.57	111.06	209.20	208.44	278.94	277.57	488.14	485.34	697.34	694.29
70	45.29	44.78	113.19	112.68	212.23	211.47	282.98	281.61	495.21	492.42	707.44	704.39
71	45.92	45.41	114.81	114.30	215.27	214.51	287.02	285.65	502.29	499.49	717.55	714.50
72	46.57	46.06	116.43	115.92	218.30	217.54	291.06	289.69	509.36	506.57	727.66	724.61
73	47.22	46.71	118.04	117.53	221.33	220.57	295.11	293.74	516.43	513.64	737.76	734.71
74	47.85	47.39	119.66	119.15	224.36	223.60	299.15	297.78	523.51	520.72	747.87	744.82
75	48.51	48.00	121.28	120.77	227.39	226.63	303.19	301.82	530.58	527.79	757.98	754.93
76	49.15	48.64	122.89	122.38	230.42	229.66	307.23	305.86	537.66	534.87	768.08	765.03
77	49.81	49.30	124.51	124.00	233.46	232.70	311.28	309.91	544.73	541.93	778.19	775.14
78	50.43	49.93	126.13	125.62	236.49	235.73	315.32	313.95	551.81	549.02	788.30	785.25
79	51.10	50.60	127.74	127.23	239.52	238.76	319.36	317.99	558.88	556.08	798.40	795.35
80	51.73	51.22	129.36	128.85	242.55	241.79	323.40	322.03	565.96	563.17	808.51	805.46
81	52.39	51.88	130.98	130.47	245.58	244.82	327.45	326.08	573.03	570.24	818.61	815.56
82	53.04	52.54	132.60	132.09	248.62	247.86	331.49	330.12	580.10	577.31	828.72	825.67
83	53.68	53.18	134.21	133.70	251.65	250.89	335.53	334.16	587.18	584.39	838.83	835.78
84	54.32	53.81	135.83	135.32	254.68	253.92	339.57	338.20	594.25	591.46	848.93	845.88
85	55.00	54.49	137.45	136.94	257.71	256.95	343.62	342.25	601.33	598.54	859.04	855.99
86	55.62	55.11	139.06	138.55	260.74	259.98	347.66	346.29	608.40	605.61	869.15	866.10
87	56.25	55.73	140.68	140.17	263.78	263.02	351.70	350.33	615.48	612.69	879.25	876.20
88	56.93	56.41	142.30	141.79	266.81	266.05	355.74	354.37	622.55	619.76	889.36	886.31
89	57.55	57.04	143.91	143.40	269.84	269.08	359.79	358.42	629.63	626.84	899.46	896.42
90	58.20	57.69	145.53	145.02	272.87	272.11	363.83	362.46	636.70	633.91	909.57	906.53
91	58.85	58.34	147.15	146.64	275.90	275.14	367.87	366.50	643.71	640.98	919.68	916.64
92	59.51	59.00	148.77	148.26	278.94	278.18	371.91	370.54	650.85	648.06	929.78	926.73
93	60.14	59.62	150.38	149.87	281.97	281.21	375.96	374.59	657.92	655.13	939.89	935.54
94	60.81	60.30	152.00	151.49	285.00	284.24	380.00	378.63	665.00	662.20	949.99	946.94
95	61.44	60.93	153.62	153.11	288.03	287.27	384.04	382.67	672.07	669.28	960.10	957.05
96	62.08	61.57	155.23	154.72	291.06	290.30	388.08	386.71	679.15	676.35	970.21	967.16
97	62.74	62.23	156.85	156.34	294.09	293.33	392.13	390.76	686.22	683.43	980.32	977.27
98	63.40	62.88	158.47	157.96	297.13	296.37	396.17	394.80	693.30	690.51	990.42	987.37
99	64.01	63.50	160.08	159.57	300.16	299.40	400.21	398.84	700.37	697.58	1000.53	997.48

5 TIMING BELT PULLEYS

5.2 optibelt ZRS IMPERIAL TIMING BELT PULLEYS

PITCH AND OUTSIDE DIAMETER [mm]

Number of teeth	Profile MXL		Profile XL		Profile L		Profile H		Profile XH		Profile XXH	
	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]	Pitch diameter [mm]	Outside diameter [mm]
100	64.67	64.16	161.70	161.19	303.19	302.43	404.25	402.88	707.44	704.65	1010.63	1007.58
101	65.32	64.81	163.32	162.81	306.22	305.46	408.30	406.93	714.52	711.73	1020.74	1017.69
102	65.95	65.44	164.94	164.43	309.25	308.49	412.34	410.97	721.59	718.80	1030.85	1027.80
103	66.62	66.12	166.55	166.04	312.29	311.53	416.38	415.01	728.67	725.88	1040.95	1037.90
104	67.25	66.74	168.17	167.66	315.32	314.56	420.42	419.05	735.74	732.94	1051.06	1048.01
105	67.91	67.39	169.79	169.28	318.35	317.59	424.47	423.10	742.82	740.03	1061.17	1058.12
106	68.55	68.04	171.40	170.89	321.38	320.62	428.51	427.14	749.89	747.10	1071.27	1068.22
107	69.20	68.70	173.02	172.51	324.41	323.65	432.55	431.18	756.97	754.18	1081.38	1078.33
108	69.86	69.34	174.64	174.13	327.45	326.69	436.59	435.22	764.04	761.25	1091.49	1088.44
109	70.51	69.99	176.25	175.74	330.48	329.72	440.64	439.27	771.11	768.32	1101.59	1098.54
110	71.13	70.63	177.87	177.36	333.50	332.74	444.68	443.31	778.19	775.40	1111.70	1108.65
111	71.81	71.31	179.49	178.98	336.54	335.78	448.72	447.35	785.26	782.47	1121.80	1118.75
112	72.44	71.93	181.11	180.60	339.57	338.81	452.76	451.39	792.34	789.53	1131.91	1128.86
113	73.09	72.58	182.72	182.21	342.61	341.85	456.81	455.44	799.41	796.62	1142.02	1138.97
114	73.75	73.34	184.34	183.83	345.64	344.88	460.85	459.48	806.49	803.70	1152.12	1149.07
115	74.37	73.86	185.96	185.45	348.67	347.91	464.89	463.52	813.56	810.77	1162.23	1159.18
116	75.02	74.51	187.57	187.06	351.70	350.94	468.93	467.56	820.64	817.83	1172.34	1169.29
117	75.68	75.17	189.19	188.68	354.73	353.97	472.98	471.61	827.71	824.92	1182.44	1179.39
118	76.33	75.82	190.81	190.30	357.76	357.00	477.02	475.65	834.78	831.99	1192.55	1189.50
119	76.95	76.43	192.42	191.91	360.80	360.04	481.06	479.69	841.86	839.06	1202.66	1199.62
120	77.63	77.11	194.04	193.53	363.83	363.07	485.10	483.73	848.93	846.14	1212.76	1209.71

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TIMING BELTS FOR YOUR SOLUTIONS

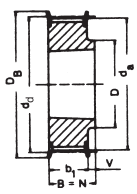


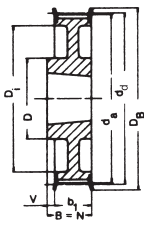
CAD SERVICE TOOL

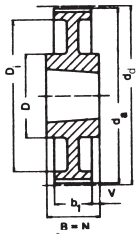
5 TIMING BELT PULLEYS

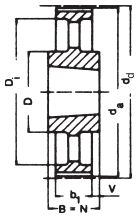
5.2 optibelt ZRS TIMING BELT PULLEYS FOR TAPER BUSHES

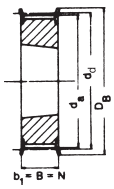
PROFILE L

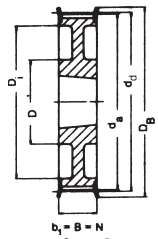

Design 8F

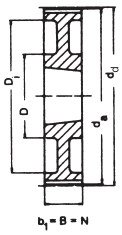

Design 8WF


Design 7W


Design 7A


Design 3F


Design 3WF


Design 3W

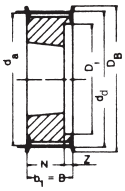
Profile L – Tooth pitch 9.525 mm and width code 050 – belt width 12.7 mm															
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	N [mm]	V [mm]	Z [mm]	D [mm]	D_i [mm]	Taper bush	Weight without bush ≈ [kg]
TB 18 L 050	18	8F	St	54.57	53.81	60	19	22	22	3.0	–	44	–	1108	0.2
TB 19 L 050	19	8F	St	57.61	56.84	60	19	22	22	3.0	–	44	–	1108	0.2
TB 20 L 050	20	8F	St	60.64	59.88	66	19	22	22	3.0	–	48	–	1108	0.2
TB 21 L 050	21	8F	St	63.67	62.91	71	19	22	22	3.0	–	48	–	1108	0.3
TB 22 L 050	22	8F	St	66.70	65.94	75	19	22	22	3.0	–	51	–	1108	0.3
TB 23 L 050	23	8F	St	69.73	68.97	79	19	22	22	3.0	–	54	–	1108	0.4
TB 24 L 050	24	8F	St	72.77	72.00	79	19	22	22	3.0	–	54	–	1108	0.4
TB 25 L 050	25	8F	St	75.80	75.04	83	19	22	22	3.0	–	56	–	1108	0.5
TB 26 L 050	26	8F	St	78.83	78.07	87	19	22	22	3.0	–	60	–	1108	0.5
TB 27 L 050	27	8F	St	81.86	81.10	87	19	22	22	3.0	–	65	–	1108	0.6
TB 28 L 050	28	8F	St	84.89	84.13	91	19	22	22	3.0	–	65	–	1108	0.6
TB 30 L 050	30	8F	St	90.96	90.20	97	19	22	22	3.0	–	70	–	1108	0.8
TB 32 L 050	32	8F	St	97.02	96.26	103	19	22	22	3.0	–	74	–	1108	0.9
TB 36 L 050	36	8F	GG	109.15	108.39	115	19	22	22	3.0	–	87	–	1108	1.2
TB 40 L 050	40	8F	GG	121.28	120.51	127	19	25	25	6.0	–	97	–	1610	1.5
TB 48 L 050	48	8WF	GG	145.53	144.77	152	19	25	25	6.0	–	88	124	1610	2.3
TB 60 L 050	60	7W	GG	181.91	181.15	–	19	25	25	3.0	–	92	166	1610	2.0
TB 72 L 050	72	7A	GG	218.30	217.53	–	19	25	25	3.0	–	92	202	1610	3.0
TB 84 L 050	84	7A	GG	254.68	253.90	–	19	25	25	3.0	–	92	236	1610	4.0
TB 96 L 050	96	7A	GG	291.06	290.30	–	19	32	32	6.5	–	106	270	2012	5.5
TB 120 L 050	120	7A	GG	363.83	363.07	–	19	32	32	6.5	–	106	343	2012	6.8

Profile L – Tooth pitch 9.525 mm and width code 075 – belt width 19.1 mm															
TB 18 L 075	18	3F	St	54.57	53.81	60	25	25	25	–	–	–	–	1108	0.2
TB 19 L 075	19	3F	St	57.61	56.84	60	25	25	25	–	–	–	–	1108	0.3
TB 20 L 075	20	3F	St	60.64	59.88	66	25	25	25	–	–	–	–	1108	0.3
TB 21 L 075	21	3F	St	63.67	62.91	71	25	25	25	–	–	–	–	1108	0.4
TB 22 L 075	22	3F	St	66.70	65.94	75	25	25	25	–	–	–	–	1108	0.4
TB 23 L 075	23	3F	St	69.73	68.97	79	25	25	25	–	–	–	–	1108	0.4
TB 24 L 075	24	3F	St	72.77	72.00	79	25	25	25	–	–	–	–	1108	0.5
TB 25 L 075	25	3F	St	75.80	75.04	83	25	25	25	–	–	–	–	1108	0.6
TB 26 L 075	26	3F	St	78.83	78.07	87	25	25	25	–	–	–	–	1108	0.6
TB 27 L 075	27	3F	St	81.86	81.10	87	25	25	25	–	–	–	–	1108	0.7
TB 28 L 075	28	3F	St	84.89	84.13	91	25	25	25	–	–	–	–	1108	0.7
TB 30 L 075	30	3F	St	90.96	90.20	97	25	25	25	–	–	–	–	1108	0.9
TB 32 L 075	32	3F	St	97.02	96.26	103	25	25	25	–	–	–	–	1108	1.0
TB 36 L 075	36	3F	GG	109.15	108.39	115	25	25	25	–	–	–	–	1610	1.2
TB 40 L 075	40	3F	GG	121.28	120.51	127	25	25	25	–	–	–	–	1610	1.7
TB 48 L 075	48	3WF	GG	145.53	144.77	152	25	25	25	–	–	92	124	1610	2.5
TB 60 L 075	60	3W	GG	181.91	181.15	–	25	25	25	–	–	92	166	1610	3.0
TB 72 L 075	72	3A	GG	218.30	217.53	–	25	25	25	–	–	92	202	1610	4.0
TB 84 L 075	84	7A	GG	254.68	253.90	–	25	32	32	3.5	–	106	236	2012	5.2
TB 96 L 075	96	7A	GG	291.06	290.30	–	25	32	32	3.5	–	106	270	2012	6.5
TB 120 L 075	120	7A	GG	363.83	363.07	–	25	32	32	3.5	–	106	343	2012	7.6

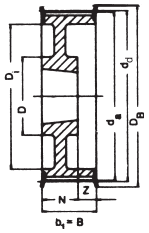
5 TIMING BELT PULLEYS

5.2 optibelt ZRS TIMING BELT PULLEYS FOR TAPER BUSHES

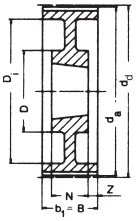
PROFILE L



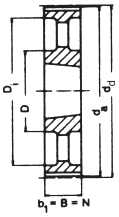
Design 5F



Design 5WF



Design 9W



Design 3A

Profile L – Tooth pitch 9.525 mm and width code 100 – belt width 25.4 mm															
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	N [mm]	V [mm]	Z [mm]	D [mm]	D_i [mm]	Taper bush	Weight without bush ≈ [kg]
TB 18 L 100	18	5F	St	54.57	53.81	60	31	31	22	–	9.0	–	38	1108	0.2
TB 19 L 100	19	5F	St	57.61	56.84	60	31	31	22	–	9.0	–	38	1108	0.3
TB 20 L 100	20	5F	St	60.64	59.88	66	31	31	22	–	9.0	–	45	1108	0.4
TB 21 L 100	21	5F	St	63.67	62.91	71	31	31	22	–	9.0	–	47	1108	0.4
TB 22 L 100	22	5F	St	66.70	65.94	75	31	31	22	–	9.0	–	51	1108	0.4
TB 23 L 100	23	5F	St	69.73	68.97	79	32	32	22	–	10.0	–	54	1108	0.5
TB 24 L 100	24	5F	St	72.77	72.00	79	32	32	22	–	10.0	–	54	1108	0.6
TB 25 L 100	25	5F	St	75.80	75.04	83	32	32	22	–	10.0	–	56	1108	0.6
TB 26 L 100	26	5F	St	78.83	78.07	87	32	32	22	–	10.0	–	60	1108	0.7
TB 27 L 100	27	5F	St	81.86	81.10	87	32	32	22	–	10.0	–	62	1108	0.8
TB 28 L 100	28	5F	St	84.89	84.13	91	32	32	22	–	10.0	–	65	1108	0.8
TB 30 L 100	30	5F	St	90.96	90.20	97	32	32	25	–	7.0	–	71	1210	0.9
TB 32 L 100	32	5F	St	97.02	96.26	103	32	32	25	–	7.0	–	75	1210	1.0
TB 36 L 100	36	5F	GG	109.15	108.39	115	32	32	25	–	7.0	–	89	1610	1.4
TB 40 L 100	40	5F	GG	121.28	120.51	127	32	32	25	–	7.0	–	101	1610	1.7
TB 48 L 100	48	5WF	GG	145.53	144.77	152	32	32	25	–	7.0	92	124	1610	2.7
TB 60 L 100	60	9W	GG	181.91	181.15	–	32	32	25	–	3.5	92	166	1610	2.4
TB 72 L 100	72	3A	GG	218.30	217.53	–	32	32	32	–	–	106	202	2012	4.4
TB 84 L 100	84	3A	GG	254.68	253.90	–	32	32	32	–	–	106	236	2012	6.0
TB 96 L 100	96	3A	GG	291.06	290.30	–	32	32	32	–	–	106	270	2012	7.1
TB 120 L 100	120	3A	GG	363.83	363.07	–	32	32	32	–	–	106	343	2012	8.5

Taper bush	1108	1210	1610	2012
Bore d_2 [mm] from ... to ...	10-28	11-32	14-42	14-50

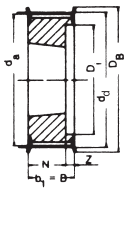
St = Steel
GG = Grey cast iron
Subject to changes due to production.

Bore diameter d_2 see page 168.

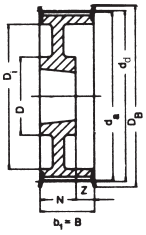
5 TIMING BELT PULLEYS

5.2 optibelt ZRS TIMING BELT PULLEYS FOR TAPER BUSHES

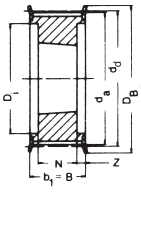
PROFILE H



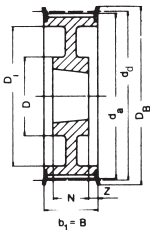
Design 5F



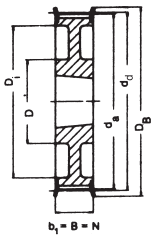
Design 5WF



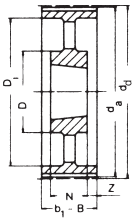
Design 4F



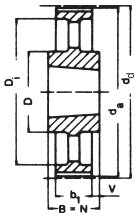
Design 4WF



Design 3WF



Design 9A



Design 7A

Profile H – Tooth pitch 12.7 mm and width code 100 – belt width 25.4 mm															
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	N [mm]	V [mm]	Z [mm]	D [mm]	D_i [mm]	Taper bush	Weight without bush ≈ [kg]
TB 16 H 100	16	5F	St	64.68	63.31	71	31	31	22	–	9	–	45	1108	0.4
TB 18 H 100	18	5F	St	72.77	71.39	79	31	31	25	–	6	–	52	1210	0.5
TB 19 H 100	19	5F	St	76.81	75.44	83	31	31	25	–	6	–	56	1210	0.6
TB 20 H 100	20	5F	St	80.55	79.48	87	31	31	25	–	6	–	60	1210	0.7
TB 21 H 100	21	5F	GG	84.89	83.52	91	32	32	25	–	7	–	63	1210	0.8
TB 22 H 100	22	5F	GG	88.94	87.56	93	32	32	25	–	7	–	67	1210	0.9
TB 23 H 100	23	5F	GG	92.98	91.61	97	32	32	25	–	7	–	71	1610	0.9
TB 24 H 100	24	5F	GG	97.02	95.65	103	32	32	25	–	7	–	75	1610	1.0
TB 25 H 100	25	5F	GG	101.06	99.69	106	32	32	25	–	7	–	79	1610	1.0
TB 26 H 100	26	5F	GG	105.11	103.73	111	32	32	25	–	7	–	83	1610	1.2
TB 27 H 100	27	5F	GG	109.15	107.78	115	32	32	25	–	7	–	87	1610	1.3
TB 28 H 100	28	5F	GG	113.19	111.82	119	32	32	25	–	7	–	91	1610	1.5
TB 30 H 100	30	5F	GG	121.28	119.90	127	32	32	25	–	7	–	99	1610	1.7
TB 32 H 100	32	5WF	GG	129.36	127.99	135	32	32	25	–	7	92	108	1610	2.0
TB 36 H 100	36	5WF	GG	145.53	144.16	152	32	32	25	–	7	92	124	1610	2.7
TB 40 H 100	40	5WF	GG	161.70	160.33	168	32	32	25	–	7	92	140	1610	3.6
TB 44 H 100	44	3WF	GG	177.87	176.50	184	32	32	32	–	–	106	153	2012	3.8
TB 48 H 100	48	3WF	GG	194.04	192.67	200	32	32	32	–	–	106	169	2012	3.2
TB 60 H 100	60	9A	GG	242.55	241.18	–	34	34	32	–	1	106	223	2012	4.8
TB 72 H 100	72	9A	GG	291.06	289.69	–	34	34	32	–	1	106	270	2012	5.7
TB 84 H 100 •	84	9A	GG	339.57	338.20	–	34	34	32	–	1	106	318	2012	6.8
TB 96 H 100 •	96	7A	GG	388.08	386.71	–	34	45	45	5.5	–	119	366	2517	8.2
TB 120 H 100 •	120	7A	GG	485.10	483.73	–	34	45	45	5.5	–	119	462	2517	12.1

Profile H – Tooth pitch 12.7 mm and width code 150 – belt width 38.1 mm															
TB 18 H 150	18	5F	St	72.77	71.39	79	45	45	25	–	20.0	–	53	1210	0.6
TB 19 H 150	19	5F	St	76.81	75.44	83	45	45	25	–	20.0	–	56	1210	0.7
TB 20 H 150	20	5F	St	80.55	79.48	87	45	45	25	–	20.0	–	60	1210	0.8
TB 21 H 150	21	5F	GG	84.89	83.52	91	45	45	25	–	20.0	–	64	1210	1.0
TB 22 H 150	22	5F	GG	88.94	87.56	93	45	45	25	–	20.0	–	68	1210	1.2
TB 23 H 150	23	5F	GG	92.98	91.61	97	45	45	25	–	20.0	–	71	1610	1.3
TB 24 H 150	24	5F	GG	97.02	95.65	103	45	45	25	–	20.0	–	74	1610	1.2
TB 25 H 150	25	5F	GG	101.06	99.69	106	45	45	25	–	20.0	–	78	1610	1.2
TB 26 H 150	26	5F	GG	105.11	103.73	111	45	45	25	–	20.0	–	82	1610	1.4
TB 27 H 150	27	5F	GG	109.15	107.78	115	45	45	25	–	20.0	–	87	1610	1.6
TB 28 H 150	28	5F	GG	113.19	111.82	119	45	45	25	–	20.0	–	91	1610	1.8
TB 30 H 150	30	5F	GG	121.28	119.90	127	45	45	25	–	20.0	–	99	1610	2.0
TB 32 H 150	32	5WF	GG	129.36	127.99	135	45	45	25	–	20.0	92	108	1610	2.3
TB 36 H 150	36	5WF	GG	145.53	144.16	152	45	45	25	–	20.0	92	124	1610	3.1
TB 40 H 150	40	5WF	GG	161.70	160.33	168	45	45	25	–	20.0	92	140	1610	4.0
TB 44 H 150	44	5WF	GG	177.87	176.50	184	45	45	32	–	13.0	106	153	2012	4.4
TB 48 H 150	48	5WF	GG	194.04	192.67	200	45	45	32	–	13.0	106	169	2012	4.8
TB 60 H 150	60	9A	GG	242.55	241.18	–	46	46	32	–	7.0	106	223	2012	5.4
TB 72 H 150	72	9A	GG	291.06	289.69	–	46	46	32	–	7.0	106	270	2012	6.5
TB 84 H 150 •	84	9A	GG	339.57	338.20	–	46	46	32	–	7.0	106	320	2012	8.4
TB 96 H 150 •	96	9A	GG	388.08	386.71	–	46	46	45	–	0.5	119	366	2517	11.0
TB 120 H 150 •	120	9A	GG	485.10	483.73	–	46	46	45	–	0.5	119	462	2517	14.8

5 TIMING BELT PULLEYS

5.2 optibelt ZRS TIMING BELT PULLEYS FOR TAPER BUSHES

PROFILE H

Profile H – Tooth pitch 12.7 mm and width code 200 – belt width 50.8 mm															
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	N [mm]	V [mm]	Z [mm]	D [mm]	D_i [mm]	Taper bush	Weight without bush ≈ [kg]
TB 18 H 200	18	5F	St	72.77	71.39	79	58	58	25	–	33.0	–	52	1210	0.8
TB 19 H 200	19	5F	St	76.81	75.44	83	58	58	25	–	33.0	–	56	1610	0.9
TB 20 H 200	20	5F	St	80.55	79.48	87	58	58	25	–	33.0	–	60	1610	1.0
TB 21 H 200	21	5F	GG	84.89	83.52	91	58	58	25	–	33.0	–	64	1610	1.7
TB 22 H 200	22	5F	GG	88.94	87.56	93	58	58	25	–	33.0	–	68	1610	1.5
TB 23 H 200	23	5F	GG	92.98	91.61	97	58	58	25	–	33.0	–	71	1610	1.8
TB 24 H 200	24	5F	GG	97.02	95.65	103	58	58	25	–	33.0	–	74	1610	1.5
TB 25 H 200	25	5F	GG	101.06	99.69	106	58	58	25	–	33.0	–	78	1610	1.5
TB 26 H 200	26	5F	GG	105.11	103.73	111	58	58	25	–	33.0	–	82	1610	1.8
TB 27 H 200	27	5F	GG	109.15	107.78	115	58	58	25	–	33.0	–	87	1610	1.9
TB 28 H 200	28	5F	GG	113.19	111.82	119	58	58	25	–	33.0	–	91	1610	1.9
TB 30 H 200	30	5F	GG	121.28	119.90	127	58	58	25	–	33.0	–	99	1610	2.3
TB 32 H 200	32	5F	GG	129.36	127.99	135	58	58	32	–	26.0	–	107	2012	3.0
TB 36 H 200	36	5WF	GG	145.53	144.16	152	58	58	32	–	26.0	102	124	2012	3.0
TB 40 H 200	40	5WF	GG	161.70	160.33	168	58	58	32	–	26.0	106	140	2012	3.6
TB 44 H 200	44	5WF	GG	177.87	176.50	184	58	58	32	–	26.0	106	153	2012	4.5
TB 48 H 200	48	5WF	GG	194.04	192.67	200	58	58	45	–	13.0	119	169	2517	4.6
TB 60 H 200	60	9A	GG	242.55	241.18	–	60	60	45	–	7.5	119	223	2517	7.0
TB 72 H 200	72	9A	GG	291.06	289.69	–	60	60	45	–	7.5	119	270	2517	8.0
TB 84 H 200 •	84	9A	GG	339.57	338.20	–	60	60	45	–	7.5	119	320	2517	9.0
TB 96 H 200 •	96	9A	GG	388.08	386.71	–	60	60	45	–	7.5	119	366	2517	11.5
TB 120 H 200 •	120	9A	GG	485.10	483.73	–	60	60	45	–	7.5	119	462	2517	15.4

Profile H – Tooth pitch 12.7 mm and width code 300 – belt width 76.2 mm															
TB 20 H 300	20	4F	St	80.55	79.48	87	84	84	38	–	23.0	–	65	1615	1.5
TB 21 H 300	21	4F	GG	84.89	83.52	91	84	84	38	–	23.0	–	66	1615	1.2
TB 22 H 300	22	4F	GG	88.94	87.56	93	84	84	38	–	23.0	–	67	1615	1.6
TB 23 H 300	23	4F	GG	92.98	91.61	97	84	84	38	–	23.0	–	71	1615	1.8
TB 24 H 300	24	4F	GG	97.02	95.65	103	84	84	38	–	23.0	–	75	1615	2.1
TB 25 H 300	25	4F	GG	101.06	99.69	106	84	84	38	–	23.0	–	79	1615	2.0
TB 26 H 300	26	4F	GG	105.11	103.73	111	84	84	38	–	23.0	–	83	1615	2.7
TB 27 H 300	27	4F	GG	109.15	107.78	115	84	84	32	–	26.0	–	87	2012	3.0
TB 28 H 300	28	4F	GG	113.19	111.82	119	84	84	32	–	26.0	–	91	2012	2.4
TB 30 H 300	30	4F	GG	121.28	119.90	127	84	84	32	–	26.0	–	99	2012	2.9
TB 32 H 300	32	4F	GG	129.36	127.99	135	84	84	45	–	19.5	–	107	2517	3.3
TB 36 H 300	36	4F	GG	145.53	144.16	152	84	84	45	–	19.5	–	124	2517	4.5
TB 40 H 300	40	4F	GG	161.70	160.33	168	84	84	45	–	19.5	–	137	2517	6.0
TB 44 H 300	44	4WF	GG	177.87	176.50	184	86	86	45	–	20.5	119	153	2517	6.6
TB 48 H 300	48	4WF	GG	194.04	192.67	200	86	86	45	–	20.5	119	169	2517	7.6
TB 60 H 300	60	9A	GG	242.55	241.18	–	86	86	45	–	20.5	119	223	2517	8.4
TB 72 H 300	72	9A	GG	291.06	289.69	–	86	86	45	–	20.5	119	270	2517	10.4
TB 84 H 300 •	84	9A	GG	339.57	338.20	–	86	86	45	–	20.5	119	320	2517	12.5
TB 96 H 300 •	96	9A	GG	388.08	386.71	–	86	86	76	–	5.0	150	362	3030	14.2
TB 120 H 300 •	120	9A	GG	485.10	483.73	–	86	86	76	–	5.0	150	460	3030	18.8

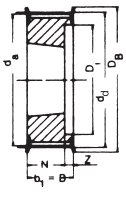
Taper bush	1108	1210	1610	1615	2012	2517	3030
Bore d_2 [mm] from ... to ...	10-28	11-32	14-42	14-42	14-50	16-60	35-75

St = Steel
GG = Grey cast iron
• Not available ex stock
Subject to changes due to production.

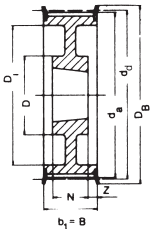
Bore diameter d_2 see page 168.

5 TIMING BELT PULLEYS

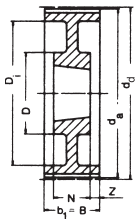
5.2 optibelt ZRS TIMING BELT PULLEYS FOR TAPER BUSHES PROFILE XH



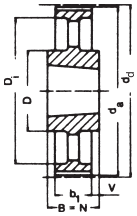
Design 5F



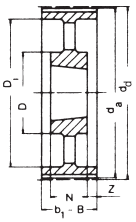
Design 4WF



Design 9W



Design 7A



Design 9A

Profile XH – Tooth pitch 22.225 mm and width code 200 – belt width 50.8 mm															
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	N [mm]	V [mm]	Z [mm]	D [mm]	D_i [mm]	Taper bush	Weight without bush ≈ [kg]
TB 18 XH 200 •	18	5F	GG	127.34	124.55	138	64	64	45	–	20.0	–	95	2517	2.6
TB 20 XH 200 •	20	5F	GG	141.49	138.69	154	64	64	45	–	20.0	–	110	2517	3.6
TB 22 XH 200 •	22	5F	GG	155.64	152.84	168	64	64	45	–	20.0	–	120	2517	4.8
TB 24 XH 200 •	24	5F	GG	169.79	166.69	183	64	64	45	–	20.0	–	135	2517	6.1
TB 26 XH 200 •	26	5F	GG	183.94	181.14	198	64	64	45	–	20.0	–	150	2517	7.4
TB 28 XH 200 •	28	4WF	GG	198.08	195.29	211	64	64	45	–	10.0	120	165	2517	9.0
TB 30 XH 200 •	30	4WF	GG	212.23	209.44	226	64	64	45	–	10.0	120	180	2517	8.6
TB 32 XH 200 •	32	4WF	GG	226.38	223.59	240	64	64	45	–	10.0	120	195	2517	9.8
TB 40 XH 200 •	40	4WF	GG	282.98	280.18	296	64	64	51	–	7.0	160	245	3020	13.3
TB 48 XH 200 •	48	9W	GG	339.57	336.78	–	64	64	51	–	6.5	160	300	3020	19.0

Profile XH – Tooth pitch 22.225 mm and width code 300 – belt width 76.2 mm															
TB 18 XH 300 •	18	5F	GG	127.34	124.55	138	90	90	45	–	45.0	–	95	2517	3.7
TB 20 XH 300 •	20	5F	GG	141.49	138.69	154	90	90	45	–	45.0	–	110	2517	4.7
TB 22 XH 300 •	22	5F	GG	155.64	152.84	168	90	90	45	–	45.0	–	120	2517	6.0
TB 24 XH 300 •	24	5F	GG	169.79	166.69	183	90	90	45	–	45.0	–	135	2517	7.6
TB 26 XH 300 •	26	5F	GG	183.94	181.14	198	90	90	45	–	45.0	–	150	2517	9.8
TB 28 XH 300 •	28	5F	GG	198.08	195.29	211	90	90	51	–	39.0	–	165	3020	11.6
TB 30 XH 300 •	30	5F	GG	212.23	209.44	226	90	90	51	–	39.0	–	180	3020	11.9
TB 32 XH 300 •	32	5F	GG	226.38	223.59	240	90	90	51	–	39.0	–	195	3020	13.8
TB 40 XH 300 •	40	4WF	GG	282.98	280.18	296	90	90	51	–	19.5	160	245	3020	19.5
TB 48 XH 300 •	48	9W	GG	339.57	336.78	–	90	90	51	–	19.5	160	300	3020	27.0

Taper bush	2012	2517	3020	3535
Bore d_2 [mm] from ... to ...	14-50	16-60	25-75	35-90

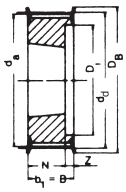
GG = Grey cast iron
• Not available ex stock
Subject to changes due to production.

Bore diameter d_2 see page 168.

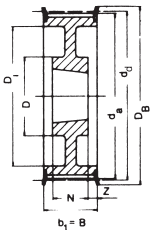
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5 TIMING BELT PULLEYS

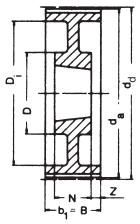
5.2 optibelt ZRS TIMING BELT PULLEYS FOR TAPER BUSHES PROFILE XH



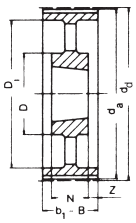
Design 5F



Design 4WF



Design 9W



Design 9A

Profile XH – Tooth pitch 22.225 mm and width code 400 – belt width 101.6 mm															
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	N [mm]	V [mm]	Z [mm]	D [mm]	D_i [mm]	Taper bush	Weight without bush ≈ [kg]
TB 20 XH 400 •	20	5F	GG	141.49	138.69	154	119	119	45	–	74.0	–	110	2517	6.0
TB 22 XH 400 •	22	5F	GG	155.64	152.84	168	119	119	45	–	74.0	–	120	2517	7.2
TB 24 XH 400 •	24	5F	GG	169.79	166.69	183	119	119	51	–	68.0	–	135	3020	8.4
TB 26 XH 400 •	26	5F	GG	183.94	181.14	198	119	119	51	–	68.0	–	150	3020	10.3
TB 28 XH 400 •	28	5F	GG	198.08	195.29	211	119	119	51	–	68.0	–	165	3020	12.3
TB 30 XH 400 •	30	5F	GG	212.23	209.44	226	119	119	51	–	68.0	–	180	3020	14.3
TB 32 XH 400 •	32	5F	GG	226.38	223.59	240	119	119	51	–	68.0	–	195	3020	19.9
TB 40 XH 400 •	40	4WF	GG	282.98	280.18	296	119	119	89	–	15.0	190	245	3535	24.6
TB 48 XH 400 •	48	9W	GG	339.57	336.78	–	119	119	89	–	15.0	190	300	3535	30.0

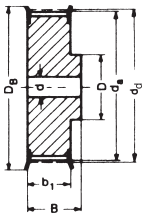
Taper bush	2517	3020	3535
Bore d_2 [mm] from ... to ...	16-60	25-75	35-90

GG = Grey cast iron
• Not available ex stock
Subject to changes due to production.

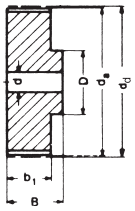
Bore diameter d_2 see page 168.

5 TIMING BELT PULLEYS

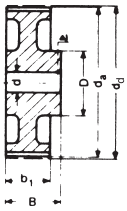
5.2 optibelt ZRS TIMING BELT PULLEYS FOR CYLINDRICAL BORES – PROFILE XL



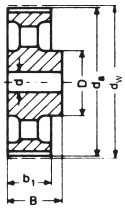
Design 6F



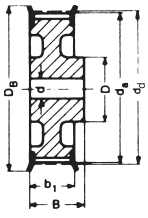
Design 6



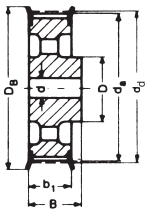
Design 6W



Design 6A



Design 6WF



Design 6AF

Profile XL – Tooth pitch 5.08 mm and width code 025, 031, 037 – belt width 6.4 mm, 7.9 mm, 9.5 mm															
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	N [mm]	V [mm]	Z [mm]	D [mm]	D_i [mm]	Taper bush	Weight without bush ≈ [kg]
10 XL 037	10	6F	St	16.17	15.66	23	14.3	19.8	9.5	5	6.4	M3	0.02	2517	2.6
11 XL 037	11	6F	St	17.79	17.28	23	14.3	19.8	9.5	5	6.4	M3	0.02	2517	3.6
12 XL 037	12	6F	St	19.40	18.89	25	14.3	19.8	12.7	5	7.9	M3	0.03	2517	4.8
14 XL 037	14	6F	St	22.64	22.13	28	14.3	19.8	14.3	6	9.5	M4	0.04	2517	6.1
15 XL 037	15	6F	St	24.26	23.75	28	14.3	19.8	15.9	6	11.1	M4	0.04	2517	7.4
16 XL 037	16	6F	St	25.87	25.36	32	14.3	19.8	17.5	6	12.7	M4	0.05	2517	9.0
18 XL 037	18	6F	St	29.11	28.60	36	14.3	19.8	19.0	6	14.3	M4	0.06	2517	8.6
20 XL 037	20	6F	St	32.34	31.83	38	14.3	22.2	23.8	6	17.5	M4	0.08	2517	9.8
21 XL 037	21	6F	St	33.96	33.45	38	14.3	22.2	23.8	6	17.5	M4	0.09	3020	13.3
22 XL 037	22	6F	St	35.57	35.06	42	14.3	22.2	25.4	6	19.1	M4	0.10	3020	19.0
24 XL 037	24	6F	St	38.81	38.30	44	14.3	22.2	27.0	6	20.6	M4	0.12		
26 XL 037	26	6F	St	42.04	41.53	48	14.3	22.2	30.0	6	23.0	M4	0.14		
28 XL 037	28	6F	St	45.28	44.77	51	14.3	22.2	30.2	6	23.0	M4	0.16		
30 XL 037	30	6F	St	48.51	48.00	54	14.3	22.2	34.9	6	23.0	M4	0.19		
32 XL 037	32	6	Al	51.74	51.23	–	14.3	25.4	38.0	8	23.0	M4	0.11		
36 XL 037	36	6	Al	58.21	57.70	–	14.3	25.4	38.0	8	23.0	M4	0.13		
40 XL 037	40	6	Al	64.68	64.17	–	14.3	25.4	38.0	8	23.0	M4	0.17		
42 XL 037	42	6W	Al	67.91	67.40	–	14.3	25.4	38.0	8	23.0	M4	0.13		
44 XL 037	44	6W	Al	71.15	70.64	–	14.3	25.4	38.0	8	23.0	M4	0.15		
48 XL 037	48	6W	Al	77.62	77.11	–	14.3	25.4	38.0	8	23.0	M4	0.16		
60 XL 037	60	6A	Al	97.02	96.51	–	14.3	25.4	38.0	8	23.0	M4	0.18		
72 XL 037	72	6A	Al	116.43	115.92	–	14.3	25.4	38.0	8	23.0	M4	0.23		

Al = Aluminium St = Steel Subject to changes due to production.

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5 TIMING BELT PULLEYS

5.2 optibelt ZRS TIMING BELT PULLEYS FOR CYLINDRICAL BORES – PROFILE L

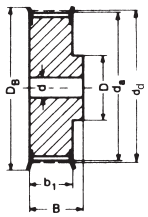
Profile L – Tooth pitch 9.525 mm and width code 050 – belt width 12.7 mm															
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	N [mm]	V [mm]	Z [mm]	D [mm]	D_i [mm]	Taper bush	Weight without bush ≈ [kg]
10 L 050	10	6F	St	30.32	29.56	36	19	26	22	6	13	–	0.11	2517	2.6
12 L 050	12	6F	St	36.38	35.62	42	19	26	28	6	17	–	0.19	2517	3.6
13 L 050	13	6F	St	39.41	38.65	44	19	26	30	6	19	–	0.21	2517	4.8
14 L 050	14	6F	St	42.45	41.68	48	19	26	33	8	20	–	0.25	2517	6.1
15 L 050	15	6F	St	45.48	44.72	51	19	26	36	8	23	–	0.30	2517	7.4
16 L 050	16	6F	St	48.51	47.75	54	19	26	38	8	23	–	0.33	2517	9.0
17 L 050	17	6F	St	51.54	50.78	57	19	26	40	10	24	–	0.36	2517	8.6
18 L 050	18	6F	St	54.57	53.81	60	19	26	40	10	24	–	0.41	2517	9.8
19 L 050	19	6F	St	57.61	56.84	60	19	26	40	10	24	–	0.45	3020	13.3
20 L 050	20	6F	St	60.64	59.88	66	19	26	46	10	28	–	0.50	3020	19.0
21 L 050	21	6F	St	63.67	62.91	71	19	26	46	10	28	–	0.55		
22 L 050	22	6F	St	66.70	65.94	75	19	26	50	10	30	–	0.62		
24 L 050	24	6F	St	72.77	72.00	79	19	26	50	12	30	–	0.68		
26 L 050	26	6F	St	78.83	78.07	87	19	26	50	12	30	–	0.82		
28 L 050	28	6F	St	84.89	84.13	91	19	26	50	12	30	–	0.92		
30 L 050	30	6F	St	90.96	90.20	97	19	26	50	12	30	–	1.10		
32 L 050	32	6F	St	97.02	96.26	103	19	26	50	12	30	–	1.20		
36 L 050	36	6WF	GG	109.15	108.24	115	19	26	50	12	30	–	1.00		
40 L 050	40	6WF	GG	121.28	120.51	127	19	26	50	12	30	–	1.10		
44 L 050	44	6AF	GG	133.40	132.64	140	19	26	50	12	30	–	1.20		
48 L 050	48	6AF	GG	145.53	144.77	152	19	26	50	12	30	–	1.30		
60 L 050	60	6A	GG	181.91	181.15	–	19	28	50	15	30	–	1.30		
72 L 050	72	6A	GG	218.30	217.53	–	19	28	50	15	30	–	1.70		
84 L 050	84	6A	GG	254.68	253.92	–	19	28	50	15	30	–	1.90		

Profile L – Tooth pitch 9.525 mm and width code 075 – belt width 19.1 mm															
10 L 075	10	6F	St	30.32	29.56	36	25	32	22	6	13	0.15	0.02	2517	2.6
12 L 075	12	6F	St	36.38	35.62	42	25	32	28	8	17	0.23	0.02	2517	3.6
13 L 075	13	6F	St	39.41	38.65	44	25	32	30	8	19	0.26	0.03	2517	4.8
14 L 075	14	6F	St	42.45	41.68	48	25	32	33	8	20	0.32	0.04	2517	6.1
15 L 075	15	6F	St	45.48	44.72	51	25	32	36	8	23	0.35	0.04	2517	7.4
16 L 075	16	6F	St	48.51	47.75	54	25	32	38	8	23	0.42	0.05	2517	9.0
17 L 075	17	6F	St	51.54	50.78	57	25	32	40	10	24	0.45	0.06	2517	8.6
18 L 075	18	6F	St	54.57	53.81	60	25	32	40	10	24	0.51	0.08	2517	9.8
19 L 075	19	6F	St	57.61	56.84	60	25	32	40	10	24	0.57	0.09	3020	13.3
20 L 075	20	6F	St	60.64	59.88	66	25	32	46	10	28	0.63	0.10	3020	19.0
21 L 075	21	6F	St	63.67	62.91	71	25	32	46	10	28	0.70	0.12		
22 L 075	22	6F	St	66.70	65.94	75	25	32	50	10	30	0.75	0.14		
24 L 075	24	6F	St	72.77	72.00	79	25	32	50	12	30	0.85	0.16		
26 L 075	26	6F	St	78.83	78.07	87	25	32	50	12	30	1.00	0.19		
28 L 075	28	6F	St	84.89	84.13	91	25	32	50	12	30	1.20	0.11		
30 L 075	30	6F	St	90.96	90.20	97	25	32	50	12	30	1.40	0.13		
32 L 075	32	6F	St	97.02	96.26	103	25	32	50	12	30	1.50	0.17		
36 L 075	36	6WF	GG	109.15	108.38	115	25	32	55	12	32	1.30	0.13		
40 L 075	40	6WF	GG	121.28	120.51	127	25	32	60	12	35	1.60	0.15		
44 L 075	44	6AF	GG	133.40	132.64	140	25	32	60	12	35	1.70	0.16		
48 L 075	48	6AF	GG	145.53	144.77	152	25	32	60	12	35	1.90	0.18		
60 L 075	60	6A	GG	181.91	181.15	–	26	35	60	15	35	1.80	0.23		
72 L 075	72	6A	GG	218.30	217.53	–	26	35	60	15	35	2.30			
84 L 075	84	6A	GG	254.68	253.92	–	26	35	60	15	35	2.50			

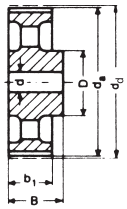
St = Steel GG = Grey cast iron Subject to changes due to production.

5 TIMING BELT PULLEYS

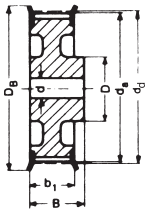
5.2 optibelt ZRS TIMING BELT PULLEYS FOR CYLINDRICAL BORES – PROFILE L



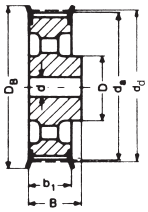
Design 6F



Design 6A



Design 6WF



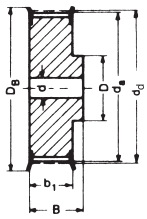
Design 6AF

Profile L – Tooth pitch 9.525 mm and width code 100 – belt width 25.4 mm															
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	N [mm]	V [mm]	Z [mm]	D [mm]	D_i [mm]	Taper bush	Weight without bush ≈ [kg]
10 L 100	10	6F	St	30.32	29.56	36	31	38	22	6	13	0.81	95	2517	3.7
12 L 100	12	6F	St	36.38	35.62	42	31	38	28	8	17	0.29	110	2517	4.7
13 L 100	13	6F	St	39.41	38.65	44	31	38	30	8	19	0.30	120	2517	6.0
14 L 100	14	6F	St	42.45	41.68	48	31	38	33	8	20	0.38	135	2517	7.6
15 L 100	15	6F	St	45.48	44.72	51	31	38	36	8	23	0.40	150	2517	9.8
16 L 100	16	6F	St	48.51	47.75	54	31	38	38	8	23	0.51	165	3020	11.6
17 L 100	17	6F	St	51.54	50.78	57	31	38	40	10	24	0.54	180	3020	11.9
18 L 100	18	6F	St	54.57	53.81	60	31	38	40	10	24	0.62	195	3020	13.8
19 L 100	19	6F	St	57.61	56.84	60	31	38	40	10	24	0.69	245	3020	19.5
20 L 100	20	6F	St	60.64	59.88	66	31	38	46	10	28	0.76	300	3020	27.0
21 L 100	21	6F	St	63.67	62.91	71	31	38	46	10	28	0.82			
22 L 100	22	6F	St	66.70	65.94	75	31	38	50	10	30	0.92			
24 L 100	24	6F	St	72.77	72.00	79	31	38	50	12	30	1.10			
26 L 100	26	6F	St	78.83	78.07	87	31	38	50	12	30	1.30			
28 L 100	28	6F	St	84.89	84.13	91	31	38	50	12	30	1.40			
30 L 100	30	6F	St	90.96	90.20	97	31	38	50	12	30	1.70			
32 L 100	32	6F	St	97.02	96.26	103	31	38	50	12	30	1.80			
36 L 100	36	6CWF	GG	109.15	108.38	115	32	32	55	12	32	1.50			
40 L 100	40	6CWF	GG	121.28	120.51	127	32	32	60	12	35	1.80			
44 L 100	44	10AF	GG	133.40	132.64	140	32	32	60	12	35	1.90			
48 L 100	48	10AF	GG	145.53	144.77	152	32	32	60	12	35	2.10			
60 L 100	60	6A	GG	181.91	181.15	–	32	35	60	15	35	2.00			
72 L 100	72	6A	GG	218.30	217.53	–	32	35	60	15	35	2.50			
84 L 100	84	6A	GG	254.68	253.92	–	32	35	60	15	35	2.70			

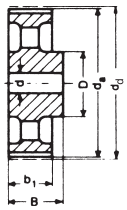
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5 TIMING BELT PULLEYS

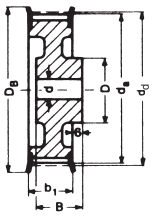
5.2 optibelt ZRS TIMING BELT PULLEYS FOR CYLINDRICAL BORES – PROFILE H



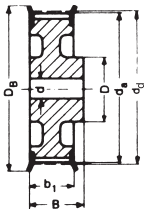
Design 6F



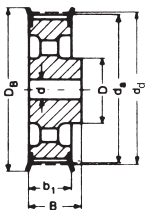
Design 6A



Design 6CWF



Design 6WF



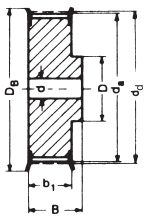
Design 6AF

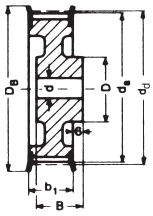
Profile H – Tooth pitch 12.7 mm and width code 075 – belt width 19.1 mm												
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	D [mm]	Pilot bore d [mm]	Finished bore d_{max} [mm]	Weight ≈ [kg]
14 H 075	14	6F	St	56.59	55.22	64.0	26.4	40	40	10	24	0.50
16 H 075	16	6F	St	64.67	63.31	70.0	26.4	40	46	10	26	0.60
18 H 075	18	6F	St	72.77	71.39	79.0	26.4	40	54	12	32	0.80
19 H 075	19	6F	St	76.81	75.44	82.5	26.4	40	58	12	35	1.00
20 H 075	20	6F	St	80.85	79.48	86.0	26.4	40	62	12	35	1.10
21 H 075	21	6F	St	84.89	83.52	91.0	26.4	40	67	12	38	1.20
22 H 075	22	6F	St	88.93	87.56	94.0	26.4	40	70	12	38	1.40
24 H 075	24	6F	St	97.03	95.65	102.0	26.4	40	75	12	42	1.60
26 H 075	26	6F	St	105.11	103.73	112.0	26.4	40	80	15	45	1.80
28 H 075	28	6F	St	113.18	111.82	120.0	26.4	40	80	15	45	2.00
30 H 075	30	6F	St	121.29	119.90	128.0	26.4	40	80	15	45	2.10
32 H 075	32	6F	St	129.30	127.99	135.0	26.4	40	70	15	45	2.20
36 H 075	36	6F	St	145.54	144.16	152.0	26.4	40	80	15	45	2.40
40 H 075	40	6F	St	161.70	160.33	168.0	26.4	40	80	20	45	2.80
44 H 075	44	6A	GG	177.88	176.50	184.0	26.4	40	80	20	45	2.70
48 H 075	48	6A	GG	194.03	192.67	200.0	26.4	40	90	20	50	3.00
Profile H – Tooth pitch 12.7 mm and width code 100 – belt width 25.4 mm												
14 H 100	14	6F	St	56.60	55.22	63	31	41	40	10	24	0.65
16 H 100	16	6F	St	64.68	63.31	71	31	41	46	10	28	0.85
18 H 100	18	6F	St	72.77	71.39	79	31	41	54	12	32	1.10
19 H 100	19	6F	St	76.81	75.44	83	31	41	58	12	34	1.20
20 H 100	20	6F	St	80.85	79.48	87	31	41	62	12	35	1.40
21 H 100	21	6F	St	84.89	83.52	91	31	41	67	12	38	1.60
22 H 100	22	6F	St	88.94	87.56	93	31	41	70	12	41	1.70
24 H 100	24	6F	St	97.02	95.65	103	31	41	75	12	45	2.00
26 H 100	26	6CWF	GG	105.11	103.73	111	32	32	55	15	32	1.40
28 H 100	28	6CWF	GG	113.19	111.82	119	32	32	60	15	35	1.60
30 H 100	30	6CWF	GG	121.28	119.90	127	32	32	60	15	35	1.70
32 H 100	32	6WF	GG	129.36	127.99	135	32	40	70	20	40	2.20
36 H 100	36	6WF	GG	145.53	144.16	152	32	40	80	20	45	3.00
40 H 100	40	6AF	GG	161.70	160.33	168	32	40	80	20	45	2.80
44 H 100	44	6AF	GG	177.87	176.50	184	32	40	80	20	45	3.10
48 H 100	48	6AF	GG	194.04	192.67	200	32	40	80	20	45	3.30
60 H 100	60	6A	GG	242.55	241.18	–	34	45	80	20	45	5.50
72 H 100	72	6A	GG	291.06	289.69	–	34	45	80	20	45	7.10
84 H 100 •	84	6A	GG	339.57	338.20	–	34	45	80	20	45	8.20
96 H 100 •	96	6A	GG	388.08	386.71	–	34	45	80	20	45	9.90
120 H 100 •	120	6A	GG	485.10	483.73	–	34	50	90	20	50	13.10

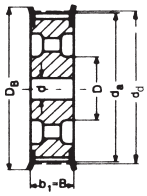
• Not available ex stock St = Steel GG = Grey cast iron Subject to changes due to production.

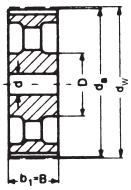
5 TIMING BELT PULLEYS

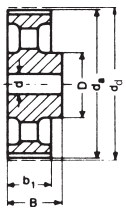
5.2 optibelt ZRS TIMING BELT PULLEYS FOR CYLINDRICAL BORES – PROFILE H

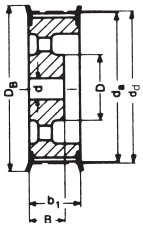

Design 6F

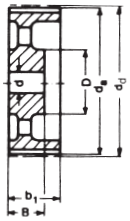

Design 6CWF


Design 10AF


Design 10A


Design 6A


Design 11AF


Design 11A

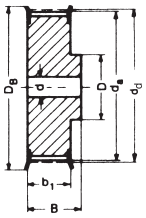
Profile H – Tooth pitch 12.7 mm and width code 150 – belt width 38.1 mm												
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	D [mm]	Pilot bore d [mm]	Finished bore d_{max} [mm]	Weight ≈ [kg]
14 H 150	14	6F	St	56.60	55.22	63	44	54	40	12	24	0.82
16 H 150	16	6F	St	64.68	63.31	71	44	54	46	12	28	1.10
18 H 150	18	6F	St	72.77	71.39	79	44	54	54	12	32	1.50
19 H 150	19	6F	St	76.81	75.44	83	44	54	58	12	34	1.70
20 H 150	20	6F	St	80.85	79.48	87	44	54	62	12	35	1.80
21 H 150	21	6F	St	84.89	83.52	91	44	54	67	12	38	2.20
22 H 150	22	6F	St	88.94	87.56	93	44	54	70	12	41	2.30
24 H 150	24	6F	St	97.02	95.65	103	44	54	75	12	45	2.60
26 H 150	26	6CWF	GG	105.11	103.73	111	45	35	55	15	32	1.70
28 H 150	28	6CWF	GG	113.19	111.82	119	45	35	60	15	35	1.90
30 H 150	30	6CWF	GG	121.28	119.90	127	45	35	60	15	35	2.10
32 H 150	32	6CWF	GG	129.36	127.99	135	45	45	70	20	40	2.60
36 H 150	36	6CWF	GG	145.53	144.16	152	45	45	80	20	45	3.20
40 H 150	40	10AF	GG	161.70	160.33	168	45	45	80	20	45	3.80
44 H 150	44	10AF	GG	177.87	176.50	184	45	45	80	20	45	3.70
48 H 150	48	10AF	GG	194.04	192.67	200	45	45	80	20	45	4.00
60 H 150	60	10A	GG	242.55	241.18	–	46	46	85	20	48	5.10
72 H 150	72	10A	GG	291.06	289.69	–	46	46	85	20	48	7.90
84 H 150 •	84	10A	GG	339.57	338.20	–	46	46	85	20	48	8.90
96 H 150 •	96	10A	GG	388.08	386.71	–	46	46	85	20	48	10.10
120 H 150 •	120	6A	GG	485.10	483.73	–	46	55	95	24	55	17.20

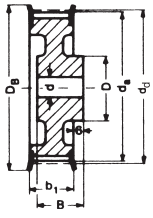
• Not available ex stock St = Steel GG = Grey cast iron Subject to changes due to production.

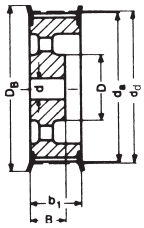
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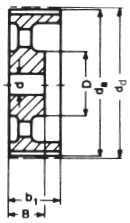
5 TIMING BELT PULLEYS

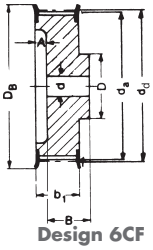
5.2 optibelt ZRS TIMING BELT PULLEYS FOR CYLINDRICAL BORES – PROFILE H

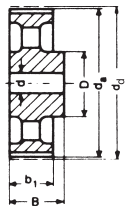

Design 6F


Design 6CWF


Design 11AF


Design 11A


Design 6CF


Design 6A

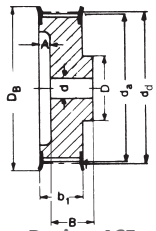
Profile H – Tooth pitch 12.7 mm and width code 200 – belt width 50.8 mm												
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	D [mm]	Pilot bore d [mm]	Finished bore d_{max} [mm]	Weight ≈ [kg]
14 H 200	14	6F	St	56.60	55.22	63	58	68	40	12	24	1.10
16 H 200	16	6F	St	64.68	63.31	71	58	68	46	15	28	1.40
18 H 200	18	6F	St	72.77	71.39	79	58	68	54	15	32	1.80
19 H 200	19	6F	St	76.81	75.44	83	58	68	58	15	34	2.10
20 H 200	20	6F	St	80.85	79.48	87	58	68	62	15	35	2.30
21 H 200	21	6F	St	84.89	83.52	91	58	68	67	15	38	2.60
22 H 200	22	6F	St	88.94	87.56	93	58	68	70	15	41	2.80
24 H 200	24	6F	St	97.02	95.65	103	58	68	75	15	45	3.40
26 H 200	26	6CWF	GG	105.11	103.73	111	58	42	60	15	35	2.30
28 H 200	28	6CWF	GG	113.19	111.82	119	58	42	60	15	35	2.50
30 H 200	30	6CWF	GG	121.28	119.90	127	58	42	70	15	40	2.90
32 H 200	32	6CWF	GG	129.36	127.99	135	58	47	70	20	40	3.20
36 H 200	36	6CWF	GG	145.53	144.16	152	58	47	80	20	45	3.80
40 H 200	40	11AF	GG	161.70	160.33	168	58	45	80	20	45	4.10
44 H 200	44	11AF	GG	177.87	176.50	184	58	45	80	20	45	4.40
48 H 200	48	11AF	GG	194.04	192.67	200	58	45	85	20	48	5.10
60 H 200	60	11A	GG	242.55	241.18	–	60	50	90	20	50	7.10
72 H 200	72	11A	GG	291.06	289.69	–	60	50	90	20	50	8.00
84 H 200 •	84	11A	GG	339.57	338.20	–	60	50	90	20	50	12.00
96 H 200 •	96	11A	GG	388.08	386.71	–	60	50	90	20	50	13.60
120 H 200 •	120	10A	GG	485.10	483.73	–	60	60	100	24	57	16.60

Profile H – Tooth pitch 12.7 mm and width code 300 – belt width 76.2 mm												
16 H 300	16	6F	St	64.68	63.31	71	84	94	46	15	28	2.0
18 H 300	18	6F	St	72.77	71.39	79	84	94	54	15	32	2.6
19 H 300	19	6F	St	76.81	75.44	83	84	94	58	15	34	2.9
20 H 300	20	6F	St	80.85	79.48	87	84	94	62	15	35	3.2
21 H 300	21	6F	St	84.89	83.52	91	84	94	67	15	38	3.6
22 H 300	22	6F	St	88.94	87.56	93	84	94	70	15	41	4.0
24 H 300	24	6F	St	97.02	95.65	103	84	94	75	15	45	4.7
26 H 300	26	6CWF	GG	105.11	103.73	111	84	57	60	15	35	3.3
28 H 300	28	6CWF	GG	113.19	111.82	119	84	57	60	15	35	3.6
30 H 300	30	6CWF	GG	121.28	119.90	127	84	57	70	15	40	4.2
32 H 300	32	6CWF	GG	129.36	127.99	135	84	57	70	20	40	4.3
36 H 300	36	6CWF	GG	145.53	144.16	152	84	57	80	20	45	5.2
40 H 300	40	11AF	GG	161.70	160.33	168	84	55	80	20	45	5.6
44 H 300	44	11AF	GG	177.87	176.50	184	84	55	80	20	45	5.9
48 H 300	48	11AF	GG	194.04	192.67	200	84	55	85	20	48	6.6
60 H 300	60	11A	GG	242.55	241.18	–	86	55	100	20	57	9.9
72 H 300	72	11A	GG	291.06	289.69	–	86	55	100	20	57	13.0
84 H 300 •	84	11A	GG	339.57	338.20	–	86	55	100	20	57	15.1
96 H 300 •	96	11A	GG	388.08	386.71	–	86	55	100	20	57	18.2
120 H 300 •	120	11A	GG	485.10	483.73	–	86	65	110	24	62	26.0

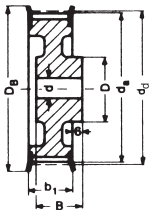
• Not available ex stock St = Steel GG = Grey cast iron Subject to changes due to production.

5 TIMING BELT PULLEYS

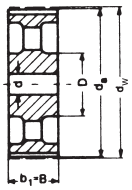
5.2 optibelt ZRS TIMING BELT PULLEYS FOR CYLINDRICAL BORES – PROFILE XH



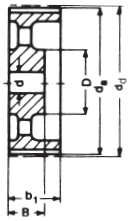
Design 6CF



Design 6CWF



Design 10A



Design 11A

Profile XH – Tooth pitch 22.225 mm and width code 200 – belt width 50.8 mm													
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	D [mm]	A [mm]	Pilot bore d [mm]	Finished bore d_{max} [mm]	Weight ≈ [kg]
18 XH 200 •	18	6CF	GG	127.34	124.55	142	64.4	60	85	18	20	50	5.0
20 XH 200 •	20	6CF	GG	141.49	138.69	155	64.4	60	95	18	20	55	6.0
22 XH 200 •	22	6CF	GG	155.64	152.84	170	64.4	60	110	18	20	65	7.2
24 XH 200 •	24	6CF	GG	169.79	166.69	184	64.4	60	125	18	25	70	8.6
26 XH 200 •	26	6CF	GG	183.94	181.14	198	64.4	60	140	18	25	80	10.1
28 XH 200 •	28	6CWF	GG	198.08	195.29	212	64.4	60	120	18	25	70	9.6
30 XH 200 •	30	6CWF	GG	212.23	209.44	227	64.4	60	120	18	25	70	10.4
32 XH 200 •	32	6CWF	GG	226.38	223.59	240	64.4	60	130	18	25	75	11.2
40 XH 200 •	40	6CWF	GG	282.98	280.18	297	64.4	60	140	18	25	80	16.0
48 XH 200 •	48	6A	GG	339.57	336.78	–	65.0	80	150	–	30	85	18.4
60 XH 200 •	60	6A	GG	424.47	421.67	–	65.0	80	150	–	30	85	24.3
72 XH 200 •	72	6A	GG	509.36	506.57	–	65.0	80	150	–	40	85	28.1
84 XH 200 •	84	6A	GG	594.25	591.46	–	65.0	80	160	–	40	90	31.9
96 XH 200 •	96	6A	GG	679.15	676.35	–	65.0	80	160	–	40	90	37.0

Profile XH – Tooth pitch 22.225 mm and width code 200 – belt width 50.8 mm													
18 XH 300 •	18	6CF	GG	127.34	124.55	142	91.4	70	85	35	20	50	6.8
20 XH 300 •	20	6CF	GG	141.49	138.69	155	91.4	70	95	35	20	55	7.4
22 XH 300 •	22	6CF	GG	155.64	152.84	170	91.4	70	110	35	20	65	9.0
24 XH 300 •	24	6CF	GG	169.79	166.69	184	91.4	70	125	35	25	70	10.6
26 XH 300 •	26	6CF	GG	183.94	181.14	198	91.4	70	140	35	25	80	13.0
28 XH 300 •	28	6CWF	GG	198.08	195.29	212	91.4	70	120	35	25	70	12.0
30 XH 300 •	30	6CWF	GG	212.23	209.44	227	91.4	70	120	35	25	70	13.0
32 XH 300 •	32	6CWF	GG	226.38	223.59	240	91.4	70	130	35	25	75	14.7
40 XH 300 •	40	6CWF	GG	282.98	280.18	297	91.4	70	140	35	25	80	19.9
48 XH 300 •	48	10A	GG	339.57	336.78	–	92.0	92	150	–	30	85	22.5
60 XH 300 •	60	10A	GG	424.47	421.67	–	92.0	92	150	–	30	85	31.5
72 XH 300 •	72	10A	GG	509.36	506.57	–	92.0	92	150	–	40	85	36.4
84 XH 300 •	84	10A	GG	594.25	591.46	–	92.0	92	160	–	40	90	43.4
96 XH 300 •	96	10A	GG	679.15	676.35	–	92.0	92	160	–	40	90	48.5

• Not available ex stock GG = Grey cast iron Subject to changes due to production.

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5 TIMING BELT PULLEYS

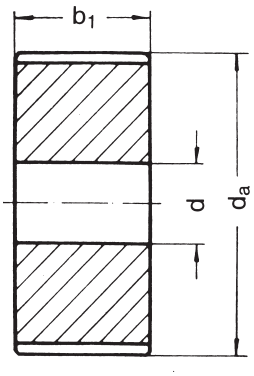
5.2 optibelt ZRS TIMING BELT PULLEYS FOR CYLINDRICAL BORES – PROFILE XH

Profile XH – Tooth pitch 22.225 mm and width code 400 – belt width 101.6 mm													
Designation	Number of teeth	Design	Material	d_w [mm]	d_a [mm]	D_B [mm]	b_1 [mm]	B [mm]	D [mm]	A [mm]	Pilot bore d [mm]	Finished bore d_{max} [mm]	Weight ≈ [kg]
18 XH 400 •	18	6CF	GG	127.34	124.55	142	118.4	85	85	47	20	50	8.5
20 XH 400 •	20	6CF	GG	141.49	138.69	155	118.4	85	95	47	20	55	9.4
22 XH 400 •	22	6CF	GG	155.64	152.84	170	118.4	85	110	47	20	65	11.5
24 XH 400 •	24	6CF	GG	169.79	166.69	184	118.4	85	125	47	25	70	13.4
26 XH 400 •	26	6CF	GG	183.94	181.14	198	118.4	85	140	47	25	80	15.6
28 XH 400 •	28	6CWF	GG	198.08	195.29	212	118.4	85	120	47	25	70	14.5
30 XH 400 •	30	6CWF	GG	212.23	209.44	227	118.4	85	120	47	25	70	16.0
32 XH 400 •	32	6CWF	GG	226.38	223.59	240	118.4	85	130	47	25	75	18.0
40 XH 400 •	40	6CWF	GG	282.98	280.18	297	118.4	85	140	47	25	80	24.0
48 XH 400 •	48	11A	GG	339.57	336.78	–	119.0	92	150	–	30	85	30.8
60 XH 400 •	60	11A	GG	424.47	421.67	–	119.0	92	150	–	30	85	36.2
72 XH 400 •	72	11A	GG	509.36	506.57	–	119.0	92	150	–	40	85	42.7
84 XH 400 •	84	11A	GG	594.25	591.46	–	119.0	92	160	–	40	90	49.7
96 XH 400 •	96	11A	GG	679.15	676.35	–	119.0	92	160	–	40	90	59.9

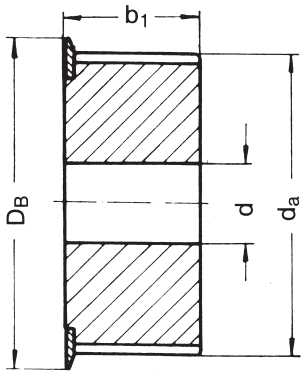
• Not available ex stock GG = Grey cast iron Subject to changes due to production.

5 TIMING BELT PULLEYS

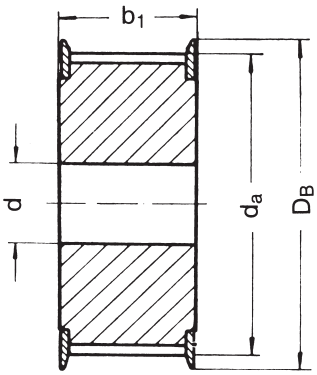
5.3 RECOMMENDED SPECIAL DESIGNS



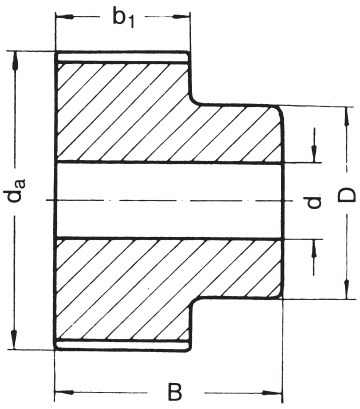
Design OB



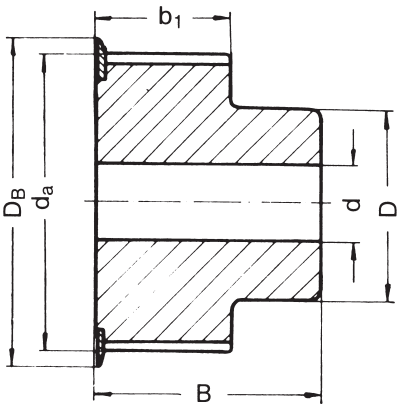
Design EB



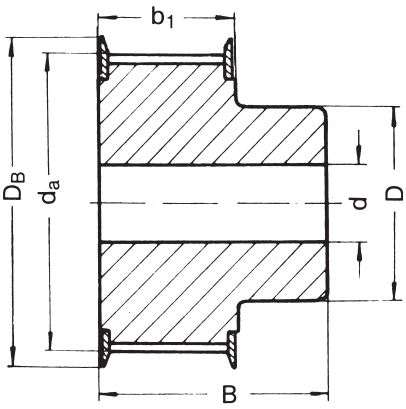
Design ZB



Design OBN



Design EBN



Design ZBN

EXPLANATION OF ABBREVIATIONS

OB = without flanges
EB = one flange
ZB = two flanges
OBN = without flanges, with hub
EBN = one flange, with hub
ZBN = two flanges, with hub

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Taper bushes with metric bore, keyway to DIN 6885 part 1 (Material: EN-GJL-200 – DIN EN 1561)																
Designation	1008	1108	1210	1215	1310	1610	1615	2012	2517	3020	3030	3525	3535	4040	4545	5050
Bore diameter d_2 [mm]	10	10	11	11	14	14	14	14	16	25	35	35	35	40	55	70
	11	11	12	12	16	16	16	16	18	28	38	38	38	42	60	75
	12	12	14	14	18	18	18	18	19	30	40	40	40	45	65	80
	14	14	16	16	19	19	19	19	20	32	42	42	42	48	70	85
	15	15	18	18	20	20	20	20	22	35	45	45	45	50	75	90
	16	16	19	19	22	22	22	22	24	38	48	48	48	55	80	95
	18	18	20	20	24	24	24	24	25	40	50	50	50	60	85	100
	19	19	22	22	25	25	25	25	28	42	55	55	55	65	90	105
	20	20	24	24	28	28	28	28	30	45	60	60	60	70	95	110
	22	22	25	25	30	30	30	30	32	48	65	65	65	75	100	115
	24▲	24	28	28	32	32	32	32	35	50	70	70	70	80	105	120
	25▲	25	30	30	35	35	35	35	38	55	75	75	75	85	110	125
		28▲	32	32		38	38	38	40	60		80	80	90		
						40	40	40	42	65		85	85	95		
						42▲	42▲	42	45	70		90	90	100		
								45	48	75						
								48	50							
								50	55							
									60							
Hexagon socket screws [inch]	$^1/_4$ x $^1/_2$	$^1/_4$ x $^1/_2$	$^3/_8$ x $^5/_8$	$^3/_8$ x $^5/_8$	$^3/_8$ x $^5/_8$	$^3/_8$ x $^5/_8$	$^3/_8$ x $^5/_8$	$^7/_{16}$ x $^7/_8$	$^1/_2$ x 1	$^5/_8$ x 1$^1/_4$	$^5/_8$ x 1$^1/_4$	$^1/_2$ x 1$^1/_2$	$^1/_2$ x 1$^1/_2$	$^5/_8$ x 1$^3/_4$	$^3/_4$ x 2	$^7/_8$ x 2$^1/_4$
Tightening torque [Nm]	5.7	5.7	20	20	20	20	20	31	49	92	92	115	115	172	195	275
Bush length [mm]	22.3	22.3	25.4	38.1	25.4	25.4	38.1	31.8	44.5	50.8	76.2	63.5	88.9	101.6	114.3	127.0
Weight at $d_{2\ min}$ [≈ kg]	0.12	0.16	0.28	0.39	0.32	0.41	0.60	0.75	1.06	2.50	3.75	3.90	5.13	7.68	12.70	15.17

From 3525: Hexagon head screw ▲ These bores have shallow keyways.
optibelt TB taper bushes are made of grey cast iron as standard.

SHALLOW KEYWAYS FOR TAPER BUSHES

Bore diameter d_2 [mm]	Keyway width b [mm]	Keyway depth t_2 [mm]	Bore diameter d_2 [mm]	Keyway width b [mm]	Keyway depth t_2 [mm]
24	8	2.0	28	8	2.0
25	8	1.3	42	12	2.2

5 TIMING BELT PULLEYS

5.4 optibelt TB TAPER BUSHES

Taper bushes with inch bore, keyway to British Standard BS 46 part 1 (Material: EN-GJL-200 – DIN EN 1561)

Designation	1008	1108	1210	1215	1310	1610	1615	2012	2517	3020	3030	3525	3535	4040	4545	5050
Bore diameter d_2 [inch]	3/8•	3/8•	1/2	5/8•	1/2•	1/2	1/2	5/8•	3/4	1 1/4	1 1/4	1 1/2	1 1/2	1 3/4•	2 1/4•	3•
	1/2	1/2	5/8	3/4	5/8•	5/8	5/8	3/4	7/8	1 3/8	1 3/8	1 5/8	1 5/8	1 7/8•	2 3/8•	3 1/4•
	5/8	5/8	3/4	7/8	3/4•	3/4	3/4	7/8	1	1 1/2	1 1/2	1 3/4	1 3/4	2•	2 1/2•	3 1/2•
	3/4	3/4	7/8	1	7/8•	7/8	7/8•	1	1 1/8	1 5/8	1 5/8	1 7/8	1 7/8	2 1/8•	2 3/4•	3 3/4•
	7/8	7/8	1	1 1/8	1•	1	1	1 1/8	1 1/4	1 3/4•	1 3/4•	2	2	2 1/4•	2 7/8•	4•
	1▲	1	1 1/8	1 1/4	1 1/8	1 1/8	1 1/8	1 1/4	1 3/8	1 7/8	1 7/8	2 1/8	2 1/8	2 3/8•	3•	4 1/4•
		1 1/8▲•	1 1/4		1 1/4	1 1/4	1 1/4	1 3/8	1 1/2	2	2	2 1/4	2 1/4	2 1/2•	3 1/4•	4 1/2•
					1 3/8	1 3/8	1 3/8	1 1/2	1 5/8	2 1/8•	2 1/8•	2 3/8	2 3/8	2 5/8•	3 3/8•	4 3/4•
					1 1/2	1 1/2	1 5/8	1 3/4	2 1/4	2 1/4	2 1/2	2 1/2	2 3/4•	3 1/2•	5▲•	
						1 5/8	1 5/8▲•	1 3/4	1 7/8	2 3/8	2 3/8	2 5/8	2 5/8	2 7/8•	3 3/4•	
								1 7/8	2	2 1/2	2 1/2	2 3/4	2 3/4	3*	4•	
								2	2 1/8	2 5/8	2 5/8•	2 7/8	2 7/8	3 1/8•	4 1/4▲•	
									2 1/4	2 3/4	2 3/4•	3	3	3 1/4•	4 1/2▲•	
									2 3/8	2 7/8	2 7/8	3 1/8	3 1/8	3 3/8•		
									2 1/2	3	3	3 1/4	3 1/4	3 1/2•		
											3 3/8	3 3/8	3 3/4▲•			
											3 1/2▲	3 1/2▲	4▲*			
Hexagon socket screws [inch]	1/4 x 1/2	1/4 x 1/2	3/8 x 5/8	3/8 x 5/8	3/8 x 5/8	3/8 x 5/8	3/8 x 5/8	7/16 x 7/8	1/2 x 1	5/8 x 1 1/4	5/8 x 1 1/4	1/2 x 1 1/2	1/2 x 1 1/2	5/8 x 1 3/4	3/4 x 2	7/8 x 2 1/4
Tightening torque [Nm]	5.7	5.7	20	20	20	20	20	31	49	92	92	115	115	172	195	275
Bush length [mm]	22.3	22.3	25.4	38.1	25.4	25.4	38.1	31.8	44.5	50.8	76.2	63.5	88.9	101.6	114.3	127.0
Weight at $d_{2\ min}$ [≈ kg]	0.12	0.16	0.28	0.39	0.32	0.41	0.60	0.75	1.06	2.50	3.75	3.90	5.13	7.68	12.70	15.17

From 3525: Hexagon head screw • Not available ex stock ▲ These bores have shallow keyways.

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5 TIMING BELT PULLEYS

5.4 optibelt TB TAPER BUSHES

PERMISSIBLE TORQUES FOR TAPER BUSHES

	Bore [mm]	Slipping torque without feather key [Nm]	Slipping torque with feather key [Nm]
1008	12	22	136
	19	37	
	24	58	
1108	19	40	147
	24	62	
	28	71	
1210 1215	16	82	407
	19	105	
	24	140	
	31	180	
1310	14	59	435
	25	120	
	35	240	
1610 1615	19	108	486
	24	135	
	38	240	
	42	264	
2012	24	165	808
	38	310	
	42	420	
2517 2525	38	380	1311
	48	510	
	60	690	
3020 3030	38	480	2712
	48	600	
	60	900	
	75	1300	
3525 3535	42	700	5062
	60	1450	
	90	2300	
4030 4040	48	1250	87735
	75	2200	
	100	3460	
4535 4545	55	1840	12430
	75	3000	
	100	4500	
5040 5050	75	3250	14238
	100	4800	
	125	5900	

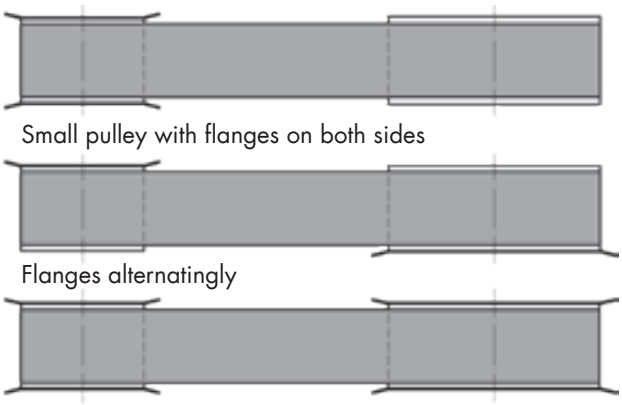
Safety factors	
Light start-up and even running	1.0
Light start-up and uneven running	1.5
Medium and even or uneven running	2.0
Light or heavy start-up and light to medium shock loads	2.5
Light or heavy start-up and heavy shock loads	3.0

6 DESIGN TIPS
6.1 FLANGES/TENSION IDLERS

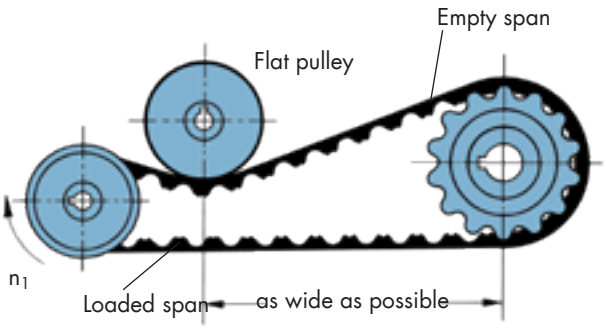
FLANGES
To guide Optibelt timing belts, timing belt pulleys must be provided with flanges on one or both sides.
For drive centre distances a > 8 d_w, both timing belt pulleys are to be equipped with flanges on both sides.
We recommend the use of standard timing belt pulleys. If this is not possible for design reasons, corresponding special timing belt pulley designs can be used.

TENSION IDLERS
Idlers are timing belt or flat pulleys that do not transmit power within a drive system. Because they create additional ending stresses within the belt, they should be used according to the following guidelines:
- Diameter of the tension idlers ≥ the smallest permitted pulley according to the profile
- Width of the tension idlers ≥ the timing belt pulleys present in the drive
- Always position tension idlers in the slack side
- Inside idlers:
  ≤ 40 teeth always use timing belt pulley
  > 40 teeth flat pulley possible
- As outside idlers, flat pulleys are to be used in general, as they run on the top surface of the belt
- Flat pulleys must not be of spherical shape
- The tension idlers must be attached in such a way that as many teeth as possible are meshed on the small pulley
- The arc of contact at the idler must be kept as low as possible

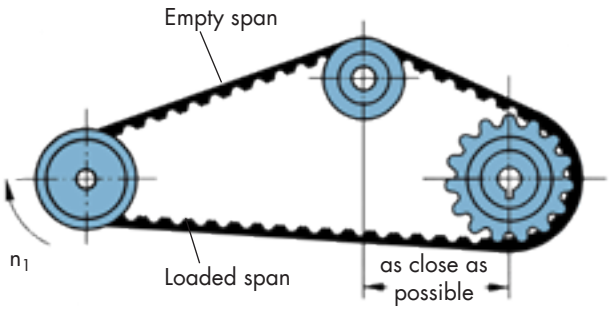
MAXIMUM TIMING BELT WIDTH
The maximum timing belt width should not be larger than the diameter of the smallest timing belt pulley present in the drive.



OUTSIDE TENSION IDLER



INSIDE IDLER



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6 DESIGN TIPS
6.2 INSTALLATION AND MAINTENANCE

SAFETY INFORMATION

Geometrically correct designing and power rating of drives with Optibelt timing belts ensures long belt service life and a high degree of operating safety.
Practice has shown that premature failure can very often be traced to faulty installation or maintenance. To prevent this, we recommend that you observe the following instructions:

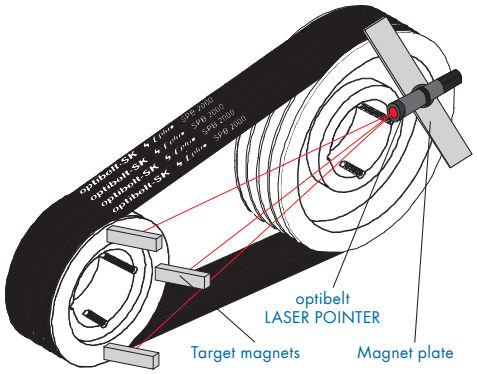
- **Timing belt pulleys**
  The teeth must be manufactured according to standard and also be clean.

- **Alignment**
  Shafts and pulleys should be correctly aligned prior to belt installation.

Maximum deviations of shaft parallelism:

Belt widths [mm]	Angular misalignment
≤ 25	± 1°
> 25 ≤ 50	± 0,5°
> 50 ≤ 100	± 0,25°
> 100	± 0,15°





CORRECT

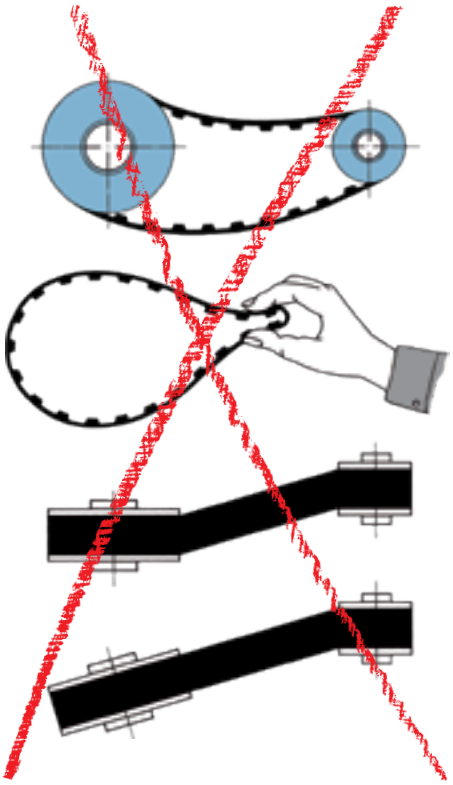
- **Timing belt sets**
  Timing belts which run in pairs or groups on one drive must always be ordered as a set. This guarantees that all belts originate from the same sleeve and are identical in length.

- **Installation**
  Prior to installation, the drive centre distance must be reduced to enable the timing belt to be fitted easily. If this is not possible, the timing belt must be installed together with one or both timing belt pulleys. Forcing belts over the pulley flanges must be avoided as the damage this causes to the high-quality low-stretch tension members is often not visible.
  If taper bushes are used, the studs used should be checked after an operating time of 0.5 to 1 hour with the aid of a torque spanner. Tightening torques see page 169.

- **Pretension**
  The pretension must correspond to the guidelines on page 82. Further inspections after installation are not necessary.

- **Tension idlers**
  Tension idlers are to be avoided. If this is not possible, refer to the recommendations on page 170 of this manual.

- **Maintenance**
  Optibelt timing belts are maintenance-free if used under normal ambient conditions.



INCORRECT

6 DESIGN TIPS
6.3 PROBLEMS – CAUSES – REMEDIES

Problem	Cause	Remedy
Heavy wear on the loaded tooth faces of the belt	Incorrect belt tension Pitch error Overload	Correct the tension Check profile and replace, if necessary Use wider belts with higher transmission power
Excessive wear between the teeth of the belt	Excessive belt tension Drive too weakly designed Faulty timing belt pulleys	Reduce tension Enlarge timing belts or pulleys Replace timing belt pulleys
Unusual wear on belt edges	Improper drive centre parallelism Faulty flanges Change of drive centre distance	Realign the shafts Replace the flanges Reinforce bearing or housing
Belt teeth shearing off	Number of meshed teeth too low Overload	Increase the diameter of the small pulley or choose wider belts Use wider belt or larger pulleys
Excessive lateral belt movement	Improper drive centre parallelism Timing belt pulleys are not aligned Shock loads with too high belt tension	Realign the shafts Align the pulleys Reduce belt tension
Detachment of flanges	Timing belt pulleys not in line Very high lateral pressure of the timing belt Incorrect flange installation	Realign the timing belt pulleys Realign the shafts Install flanges correctly
Apparent belt stretch	Incorrect storage	Correct the belt tension, reinforce and secure bearing
Excessive running noise	Incorrect shaft alignment Belt tension too high Pulley diameter too small Overloading of timing belt Belt width too wide with high speed	Realign the shafts Reduce the tension Increase pulley diameter Increase belt width or tooth meshing Reduce belt width by selecting larger belt types
Abnormal wear of timing belt pulleys	Unsuitable material Incorrect tooth meshing Insufficient surface hardness	Use stronger material Replace timing belt pulleys Use harder material or harden surface
Embrittlement of the belt top surface	Ambiant temperature of more than +100 °C Incompatible radiation	Choose extra heat resistant quality Shield from the media or use a suitable belt quality
Cracks on belt top surface	Ambient temperatures below –30 °C	Use extra cold resistant belt quality
Softening of the belt top surface	Influence of incompatible media	Shield from the media or use a suitable belt quality

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6 DESIGN TIPS
6.4 STORAGE OF DRIVE BELTS

- **Storage length**
  Properly stored drive belts retain their quality and properties for a period of up to 6 years if the following conditions are met.
  Under unfavorable storage conditions and improper handling, however, most rubber products change their physical properties.

- **Storage area**
  The storage area should be dry and dust-free. Drive belts must not be stored together with chemicals, solvents, fuels, lubricants, acids, etc.

- **Temperature**
  Drive belts should be stored at temperatures between +15 °C and +25 °C. Lower temperatures usually have no negative effect on the drive belts. However, since belts may become very rigid at low temperatures, they should be warmed to approximately +20 °C before installation and use to avoid breaking and cracking. Radiators and supply pipes must be shielded. Drive belts should be stored at least 1 metre away from heat sources.

- **Light**
  Drive belts should be protected from light, especially direct sunlight and strong artificial light with high ultraviolet radiation (ozone formation) such as naked fluorescent tubes. The use of suitable room lighting is advisable.

- **Ozone**
  To counteract the damaging influence of ozone, the storage rooms should not contain any ozone-generating equipment, such as fluorescent light sources, mercury vapor lamps or high-voltage electrical appliances. Combustion gases and vapors that can lead to ozone formation through photochemical processes should be avoided or eliminated.

- **Moisture**
  Damp storage rooms should be avoided. Condensation should not be able to form. The relative humidity is best below 65 %.

- **Proper storage**
  Care should be taken to ensure that drive belts are stored free of tension, i.e. without tension, pressure or other deformation, as tension promotes both permanent deformation and the formation of cracks. If drive belts are stored horizontally on top of each other, it is advisable not to exceed a stack height of 300 mm so that no permanent deformation occurs. If drive belts are stored hanging for space reasons, the diameter of the mandrel should be at least equal to the smallest permissible pulley diameter.

- **Cleaning**
  Dirty rubber drive belts can be cleaned with a mixture of glycerine and spirits in a ratio of 1:10, or brake cleaner. Petrol, benzene, turpentine etc. should not be used. Furthermore, sharp-edged objects such as wire brushes, sandpaper etc. must not be used under any circumstances in order to prevent mechanical damage.

- **Reference to standards**
  Further information can be found in DIN 7716.

FEDERAL REPUBLIC OF GERMANY

DIN 109 Sheet 1 – Drive Elements; Circumferential Speeds
DIN 109 Sheet 2 – Drive Elements; Centre Distances for V-Belt Drives
DIN 111 – Pulleys for Flat Transmission Belts; Dimensions, Nominal Torques
DIN 111 Sheet 2 – Pulleys for Flat Transmission Belts; Classification for Electrical Machines
DIN 2211 Sheet 1 – Grooved Pulleys for Narrow V-Belts; Dimensions, Materials
DIN 2211 Sheet 2 – Grooved Pulleys for Narrow V-Belts; Inspections of Grooves
DIN 2211 Sheet 3 – Grooved Pulleys for Narrow V-Belts; Classification for Electrical Machines
DIN 2215 – Endless V-Belts, Classic Profiles; Minimum Datum Diameter of the Pulleys, Internal and Datum Belt Length
DIN 2216 – Open-Ended V-Belts; Dimensions
DIN 2217 Sheet 1 – V-Belt Pulleys for Classic Profiles; Dimensions, Materials
DIN 2217 Sheet 2 – V-Belt Pulleys for Classical Profiles; Inspections of Grooves
DIN 2218 – Endless V-Belts, Classic Profiles for Mechanical Engineering; Calculation of Drives, Performance Data
DIN 7716 – Rubber Products; Requirements for Storage, Cleaning and Maintenance
DIN 7719 Part 1 – Endless Wide V-Belts for Industrial Speed Changers; Belts and Groove Profiles for Corresponding Pulleys
DIN 7719 Part 2 – Endless Wide V-Belts for Industrial Speed Changers; Measurement of Centre Distance Variations
DIN 7721 Part 1 – Synchronous Belt Drives, Metric Pitch; Synchronous Belts
DIN 7721 Part 2 – Synchronous Belt Drives, Metric Pitch; Tooth Space Profile of Synchronous Pulleys
DIN 7722 – Endless Hexagonal Belts for Agricultural Machines and Groove Profiles of Corresponding Pulleys
DIN 7753 Part 1 – Endless Narrow V-Belts for Mechanical Engineering; Dimensions
DIN 7753 Part 2 – Endless Narrow V-Belts for Mechanical Engineering; Drive Calculation, Performance Data
DIN 7753 Part 3 – Endless Narrow V-Belts for the Automotive Industry; Dimensions
DIN 7753 Part 4 – Endless Narrow V-Belts for the Automotive Industry; Fatigue Testing
DIN 7867 – V-Ribbed Belts and Pulleys
DIN/ISO 5290 – Grooved Pulleys for Joined Narrow V-Belts; Groove Profiles 9J; 15J; 20J; 25J
DIN/ISO 5294 – Synchronous Belt Drives; Pulleys
DIN/ISO 5296 – Synchronous Belt Drives; Belts
DIN 22100-7 – Articles from Synthetics for Use in Underground Mines, Paragraph 5.4 – V-Belts
DIN EN 60695-11-10 – Fire Hazard Testing

USA

RMA/MPTA IP-20 – Classic V-Belts and Sheaves (A; B; C; D; Cross Sections)
RMA/MPTA IP-21 – Double (Hexagonal) Belts (AA; BB; CC; DD Cross Sections)
RMA/MPTA IP-22 – Narrow Multiple V-Belts (3V; 5V; and 8V Cross Sections)
RMA/MPTA IP-23 – Single V-Belts (2L; 3L; 4L; and 5L Cross Sections)
RMA/MPTA IP-24 – Synchronous Belts (MXL; XL; L; H; XH; and XXH Belt Sections)
RMA/MPTA IP-25 – Variable Speed V-Belts (12 Cross Sections)
RMA/MPTA IP-26 – V-Ribbed Belts (PH; PJ; PK; PL; and PM Cross Sections)
RMA/MPTA IP-27 – Curvilinear Toothed Synchronous Belts (8M – 14M Pitches)
ASAE S 211.... – V-Belt Drives for Agricultural Machines
SAE J636b – V-Belts and Pulleys
SAE J637 – Automotive V-Belt Drives

ISO – International Organization for Standardization

ISO 22 – Widths of Flat Transmission Belts and Corresponding Pulleys
ISO 63 – Flat Belt Drives; Lengths
ISO 99 – Diameter of the Belt Pulleys for Flat Belts
ISO 100 – Bulging Height of the Belt Pulleys for Flat Belts
ISO 155 – Drive Pulleys; Limiting Values for Adjustment of Centre Distances
ISO 254 – Quality, Finish and Balance of Belt Pulleys
ISO 255 – Pulleys for Classic V-Belts and Narrow V-Belts; Geometric Testing of Grooves
ISO 1081 – Vocabulary from V-Belts, V-Ribbed Belts and Pulleys
ISO 1604 – Endless Speed Changer Belts and Pulleys for Mechanical Engineering
ISO 1813 – Electrical Conductivity of V-Belts, Kraftbands, V-Ribbed Belts, Wide V-Belts and Double Sided V-belts
ISO 2230 – Please Consult DIN 7716
ISO 2790 – Narrow V-Belt Drives for the Automotive Industry; Dimensions
ISO 3410 – Endless Speed Changer Belts and Pulleys for Agricultural Machinery
ISO 4183 – Grooved Pulleys for Classical V-Belts and Narrow V-Belts
ISO 4184 – Classical V-Belts and Narrow V-Belts; Lengths
ISO 5287 – Narrow V-Belt Drives for the Automotive Industry; Fatigue Test
ISO 5288 – Vocabulary from Timing Belt Drives
ISO 5289 – Endless Double Sided V-belts and Pulleys for Agricultural Machinery
ISO 5290 – Grooved Pulleys for Joined Narrow V-Belts; Profiles: 9J; 15J; 20J; 25J
ISO 5291 – Grooved Pulleys for Joined Classic V-Belts; Profiles: AJ; BJ; CJ; DJ
ISO 5292 – Industrial V-Belt Drives; Calculations of the Performance Data and Centre Distance
ISO 5294 – Synchronous Belt Drives; Pulleys – "Inch Pitch"
ISO 5295 – Timing Belts; Calculations of the Performance Data and Centre Distance – "Inch Pitch"
ISO 5296 – Synchronous Belt Drives; Belts – "Inch Pitch"
ISO 8370-1 – Dynamic Test to Determine Pitch Zone Location with V-Belts
ISO 8370-2 – Dynamic Test to Determine Pitch Zone Location with V-Ribbed Belts
ISO/DIS 8419 – Belt Drives; Joined Narrow V-Belts; Lengths in Effective System; 9N/J, 15N/J, 25N/J
ISO 9011 – Synchronous Belt Drives – Automotive Pulleys
ISO 9563 – Antistatic Endless Synchronous Belts; Electrical Conductivity; Characteristics and Testing Method
ISO 9980 – Belt Drives; V-Belt Pulleys, Geometric Inspection of Grooves
ISO 9981 – Belt Drives – Pulleys and V-Ribbed Belts for the Automotive Industry; PK Profile
ISO 9982 – Belt Drives; Pulleys and V-Ribbed Belts for Industrial Requirements; Geometric Data PH, PJ, PK, PL, PM
ISO 11749 – Belt Drives - V-Ribbed Belts for the Automotive Industry, Fatigue Testing
ISO 12046 – Synchronous Belt Drives – Automotive Belts – Physical Characteristics
ISO/CD 13050 – Synchronous Belt Drives, Curvilinear Timing Belts
ISO/CD 17396 – Synchronous Belts Drives, Metric Pitch, Profiles T and AT
ISO 21342 – Synchronous Belt Drives – Automotive Belts

6 DESIGN TIPS

6.6 DATA SHEET FOR CALCULATION / CHECKING OF TIMING BELT DRIVES

Company: _____

Street/PO Box: _____

Town or city/Post code: _____

Contact person: _____

Department: _____ Date: _____

Tel.: _____ Fax: _____

Email: _____

For trials ☐ New drive ☐

For pilot series ☐ Existing drive ☐

For series production ☐ Requirement_____ pieces/year

Fitted with

Pitch length	Profile	Width	Manufacturer

DRIVING MACHINE

Type (e.g. electric motor, diesel engine 3 cylinders) _____

Size of starting torque (e.g. MA = 1.8 MN) _____

Method of starting (e.g. star delta) _____

Daily operating time _____ _____ hours

Number of switching operations per hour ☐ per day ☐

Change in the direction of rotation per minute ☐ per hour ☐

Output: P normal _____ kW

P maximum _____ kW

or max. torque _____ Nm at n_1 _____ min^{-1}

Speed of driver pulley n_1 _____ min^{-1}

Position of shafts: horizontal ☐ vertical ☐

inclined ☐ <) _____ °

Maximum allowed static shaft loading $S_{a\ max}$ _____ N

Pitch diameter or number of teeth on the pulley:

d_{w1} _____ mm z_1 _____ mm

$d_{w1\ min}$ _____ mm $z_{1\ min}$ _____ mm

$d_{w1\ max}$ _____ mm $z_{1\ max}$ _____ mm

Maximum pulley face width _____ mm

DRIVEN MACHINE

Type (e.g. lathe, compressor) _____

Start: under load ☐ no load ☐

Type of load: steady ☐ pulsating ☐

shock ☐

Required power: P normal _____ kW

P maximum _____ kW

or max. torque _____ Nm at n_2 _____ min^{-1}

Driven speed n_2 _____ min^{-1}

$n_{2\ min}$ _____ min^{-1}

$n_{2\ max}$ _____ min^{-1}

Maximum allowed shaft loading $S_{a\ max}$ _____ N

Pitch diameter or number of teeth on the pulley:

d_{w2} _____ mm z_2 _____ mm

$d_{w2\ min}$ _____ mm $z_{2\ min}$ _____ mm

$d_{w2\ max}$ _____ mm $z_{2\ max}$ _____ mm

Maximum pulley face width _____ mm

Speed ratio i _____ i_{min} _____ i_{max} _____

Drive centre distance a _____ mm a_{min} _____ mm a_{max} _____ mm

Tension/guide idler pulley: inside idler ☐ in drive slack side ☐

outside idler ☐ in drive tight side ☐

d_w _____ mm timing belt pulley ☐ moveable ☐ (e.g. spring loaded) _____

d_a _____ mm flat pulley ☐ fixed ☐

OPERATING CONDITIONS: Ambient temperature _____ °C min.

_____ °C/F max.

Exposure to oil ☐ (e.g. oil mist, droplets) _____

water ☐ (e.g. spray water) _____

acid ☐ (type, concentration, temperature) _____

dust ☐ (type) _____

Special conditions: E.g. for drives with inside or outside tensioning/idler pulleys, three or more multi-pulley drives or for drives with contra-rotating pulleys drawings are necessary.

Drive Details: _____

Notes

Notes

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Print: 0926

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