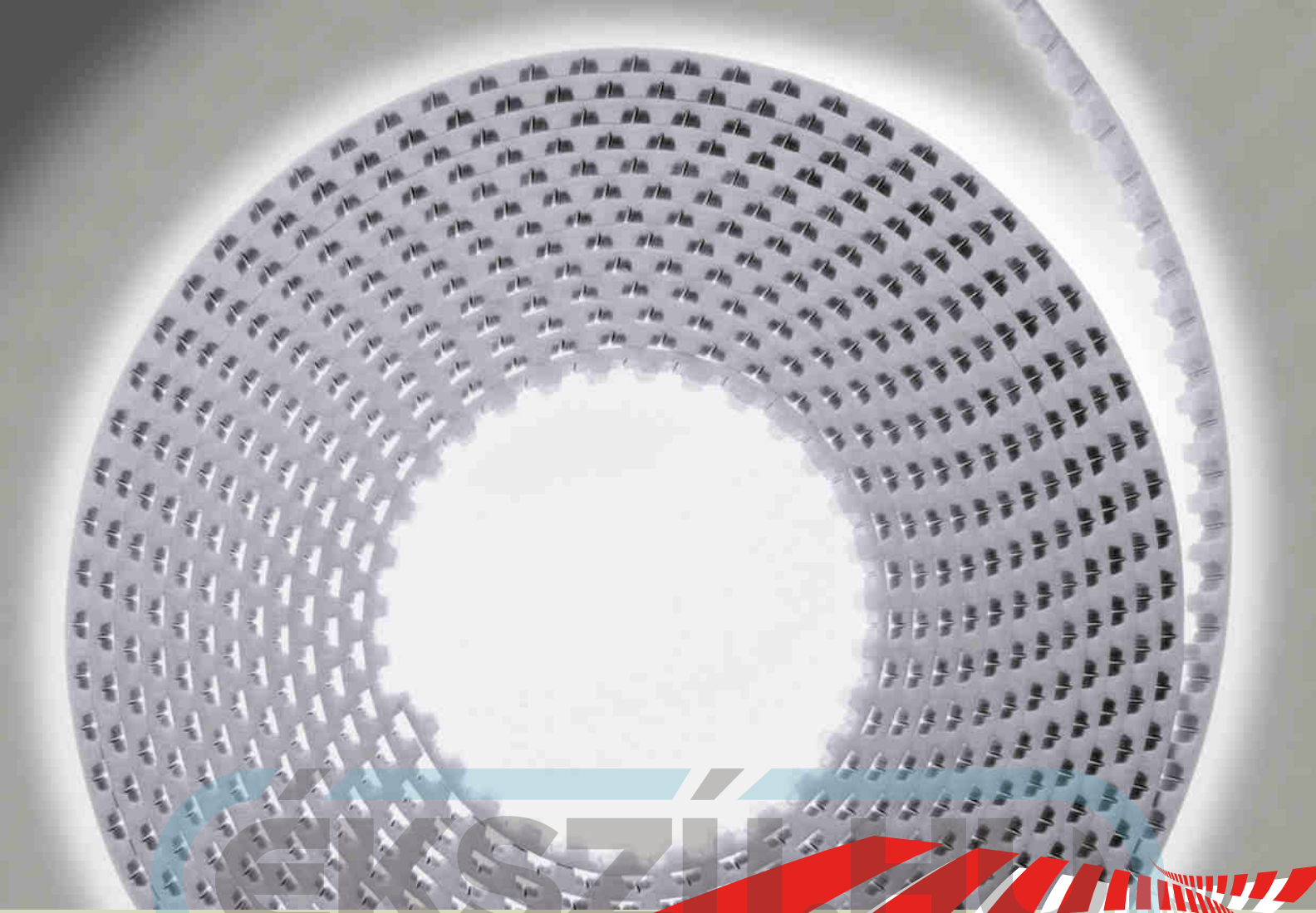
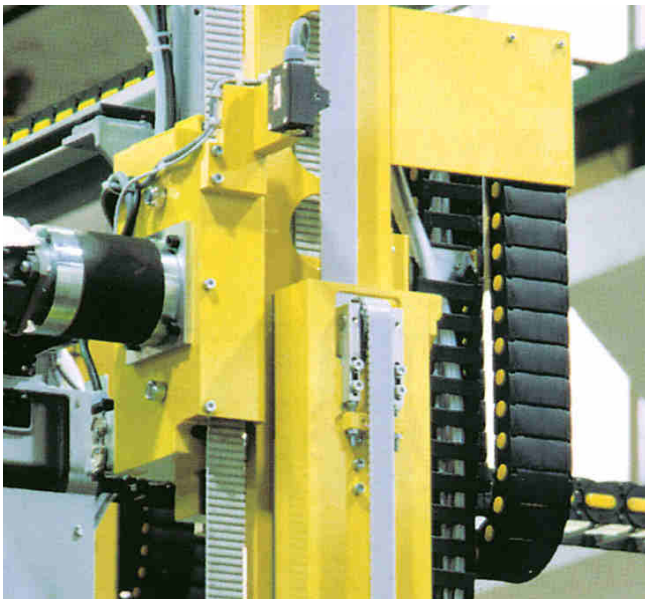


MEGALINEAR

MEGADYNE

INTRODUCTION TO OPEN-END BELTS

Megadyne started manufacturing moulded transmission belts in 1957 and extruding open ended belts in 1975. Megalinear open length belts are manufactured in thermoplastic polyurethane, that gives superior wear and abrasion resistance. Various types of steel cord, offer good running characteristics, even under high tractive loads. Advanced production processes, allow the ability to engineer bespoke technical design solutions to meet market demands. By selecting from a range of components and materials, Megalinear belts can be manufactured to perform in even the most demanding applications. **MEGALINEAR** open-end belts are particularly suited where the most precise accuracy of position, low noise and long maintenance free cycles are the key requirements.



Megadyne has expanded the Megalinear range to include:

- **MEGALINEAR QST**
- **MEGALINEAR GW**
- **MEGALINEAR FC - FCM - XMD**
- **MEGALINEAR** MEG***AC***4***T*** ™

Uniquely designed to reduce the noise levels, generated during high speed operations, **MEGALINEAR QST** is completely self-tracking without the need for flanged pulleys. The nylon faced helical offset teeth design, provides a high torque capacity.

For heavier applications, Megadyne have introduced the **MEGALINEAR GW**, a high performance thermoplastic polyurethane belt. Superior load capacities can be achieved due to the high shear strength of the tooth design, coupled with high tension, steel zinc coated cords, MEGALINEAR GW guarantees a greater transmittable power under continuous high loads.

MEGALINEAR FC is a new range of belts of the MEGALINEAR family. Specifically introduced for the food processing industry, MEGALINEAR FC is manufactured with Food Contact approved materials, according to European regulations EU 1935/2004, EU 10/2011 and EU 174/2015. It's manufactured in T5/T10 pitches without nose gap between the teeth and available with a variety of backing profiles, for all kinds of conveying and processing applications. These advanced FDA synchronous belts have excellent resistance to chemicals and corrosion, certified for wet and dry food contact. The homogenous belt design ensures a significantly greater service life, with a high level of hygienic integrity.

On request and with minimum quantity, it's possible to produce **MEGALINEAR FCM**, made in sky blue colour (RAL 5012) and certified for direct contact with dry and wet food.

Both MEGALINEAR FC AND FCM can be made with a special Metal and X-Ray detectable compound. **MEGALINEAR XMD** decreases the risk of contamination from belt fragments protecting Consumer Safety.

MEGAC4T Megalinear **A**daptable **C**leats For **T**ransport - is the most versatile belt ever!
Its design with quick and easy interchangeable profiles means you can use the same belt for a wide variety of applications, transporting goods of different shapes on a single transport system with a minimum of downtime!

Thanks to their features, Megalinear belts can be successfully used in a wide range of applications such as:

- automatic sliding doors and garage opening system
- elevators
- automated handling devices
- linear drivers
- positioning system
- conveyors
- wood industry
- textile machine
- serigraphic industry
- glass industry
- stone and marble industry
- packaging industry
- robot systems
- tobacco industry
- paper and carton industry
- chemist and pharmaceutical industry
- Food industry

Megadyne has developed a very wide range of solutions with numerous tooth designs, tensile members and compound, suitable for all applications.

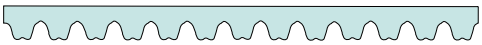
STANDARD RANGE

MXL • XL • L • H • XH

T2,5 • T5* • TT5 • T10* • T20

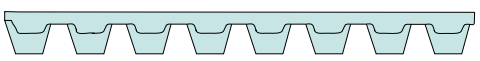
AT3 • AT5 • AT10 • MEGAC4T™ AT10 • AT20

MTD3 • MTD5 • MTD8 • MTD14

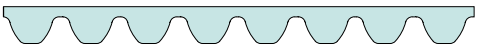


RPP5 • RPP8 • RPP14 • RPP14XHP

STD5 • STD8



HG • TG5 • TG10K6 • TG10K13 • TG20 • ATG5 • ATG10 • ATG20



QST5 • QST8 • QST14

GW14 • GW20

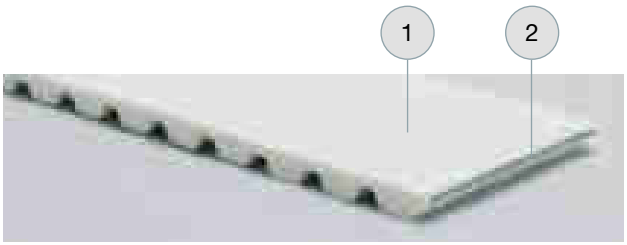
P1 • P2 • P3 • P4

* Available in Food Contact (FC) / X-Ray and Metal detectable (XMD) versions.

CLASSIFICATIONS

Megalinear Timing Belts are manufactured in thermoplastic polyurethane, with single parallel steel cords. This type of belts, developed by our Research & Development, offers good running characteristics and high traction loads. They are especially suited for power transmission and conveying with high loads and speeds. The addition of a nylon coating on the teeth during production enhances the running properties for specific applications and reduces the noise due to a lower frictional coefficient. An extra thickness of special coating is also possible on the back of the belt offering extra protection against aggressive or heavy products.

1. The body of the belts is white thermoplastic polyurethane 92 ShA, characterized by high levels of wear resistance even in the presence of shock and surge loading.
2. High strength S and Z parallel zinked steel tension members allow high breaking load and extremely low elongation. The combination of these high grade materials improves belt performances which can be summarised as follows:
   - exceptional resistance to abrasion and tooth shear
   - low coefficient of friction
   - high flexibility
   - ozone and temperature resistance (-25 °C / +80 °C)
   - oil, grease and gasoline resistance



MECHANICAL AND CHEMICAL CHARACTERISTICS

- Constant dimensions
- Noiseless
- Free maintenance
- High flexibility
- High resistance steel traction cords, with little stretching and top flexibility
- Linear speeds up to 20 m/s
- Low pretension
- Constant length
- High abrasion resistance
- Ageing, Hydrolysis, Ozone resistant
- Working temperature -25 °C / +80 °C
- High resistance to Oils, Greases and Gasoline
- Fairly Acid-proof and Alkali-proof

BODY

Megalinear belts are manufactured with white thermoplastic Polyurethane 92 ShA as standard.
Special compounds (different hardnesses, special properties) are available on request. Special compound and cords have to be tested and homologated on the application. Megadyne is not responsible for wrong functioning of special products. Here under some PU characteristics:

Water	No problem in normal or sea clean water, at room temperature. Over 60 °C there is a fast decrement of breaking strength.
Acids	In acid diluted proportions, at room temperature, this PU is moderately attacked. In high concentration acid solutions, this PU has a very short lifespan. Over 50 °C, acids are always dangerous for Thermoplastic PU.
Alkalis	In alkalis diluted proportions, at room temperature, this PU is moderately attacked. In high concentration alkaline solutions, this PU has a very short lifespan. Over 50 °C, alkalis are always dangerous for Thermoplastic PU.
Solvents	Thermoplastic PU is insoluble in the greater part of solvents. Only the very polar solvents (same as tetrahydrofuran, dimethylformamide, n-methylpyrrolidone) can dissolve or tight damage PU. The Esters or the Ketons (same as ethyl acetate or methylethylketene) can usually produce a bulge, decreasing mechanical characteristics. The Hydrocarbons aromatic and the Hydrocarbons aliphatic produce very high bulge. All the effects increase by increasing temperature.
Oils	PU has a high resistance to mineral pure oils (lubrificants, engine oils, combustible oils). Usually, high performance syntetic oils, due to special additives contained, can be incompatible with Thermoplastic PU, especially at high temperature.

Greases PU has a high resistance to mineral pure greases (lubrificants greases). Usually, high performance syntetic greases, due to special additives contained, can be incompatible with Thermoplastic PU, especially at high temperature.

Fuels Good resistance to petrols without Alcohols. In presence of Alcohols, Thermoplastic PU can suffer deterioration. Fuels including Aromatiche stuffs can produce reversible bulges.

Microorganisms In presence of grime, containing humidity, Microorganisms can develop. In case that Microbic attack can produce danger, you have to use a special kind of PU.

Weather agents Good resistance to atmospheric agents. White colour can change to light yellow under long UV exposure. In any case this hasn't influence on mechanical resistance.

CORDS

Standard cord Megalinear is manufactured with S and Z parallel zinked steel cords as standard.

Kevlar Kevlar tension cords are suggested for:

- Non magnetic, for use in drives with metal detectors
- Widely used in the food industry
- Applications in damp evoironement must be avoided

Kevlar cord belts have a lower dimentional stabiliy compared to stell cord belts. Length and tollerance may change.

HP High Performance cords have 25% more strength capacity than standard cords. They are recommended for high repeatability applications.

HF High Flexibility cords can accept smaller pulley and idler diameters than standard cords. They are suitable for multi-shaft drives with severe reverse bending.

HPF High Performance and Flexibility cords have 25% more strength capacity like the HP cords, but they are more flexible than the HP cords. They are suggested for high performance and multi-shaft drives.

Stainless steel Stainless steel cords have 25% less strength capacity than standard cords. They are recommended for water applications.

COATING

Megalinear can be manufactured with special coating on the teeth or on the back. Please check on page 120 and 121.

IDENTIFICATION CODE

Using the information in the table below, it is possible to identify the correct belt for every application.
The code is composed of letters and numbers as the following example::

1		2		3		4		5		6
J	**+**	**50**	**+**	**AT**	**+**	**10**	**+**	**10000**	**+**	**SPECIAL MANUFACTURES**

1) **J** joined belt.
ML Megalinear belt open-end.

2) **50** this number indicates the width of requested belt. The value is in mm for a belt with a pitch in mm, and in inches for a belt with a pitch in inches.

3) **AT** this code composed by letters indicates the selection of profile.

4) **10** this number indicates the standard pitch of the belt. It is expressed in mm.

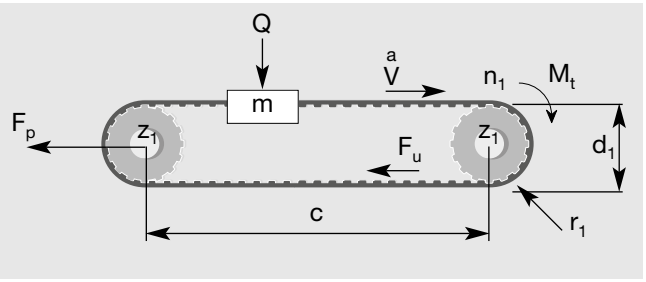
5) **10000** the last number indicates the length of the belt always in mm regardless of pitch.

6) **SPECIAL MANUFACTURES:**

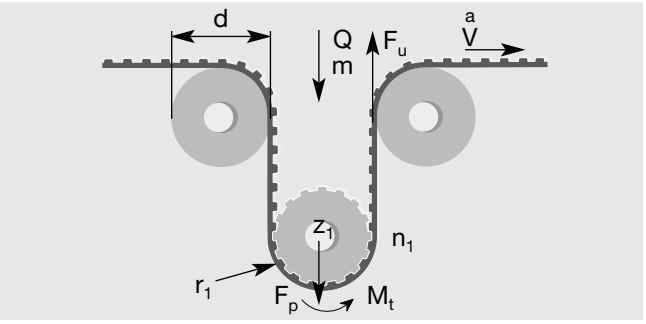
- special cords as Kevlar or HP or HF or HPF or stainless steel
- special compound as different hardness 85 ShA or different colours (black - red - yellow - blue)
- extra coating NFT or NFB or AVAFC or Tenax or Linatex or Honey comb or PU black cellulose or PU yellow or Neoprene rubber.

TECHNICAL CALCULATION

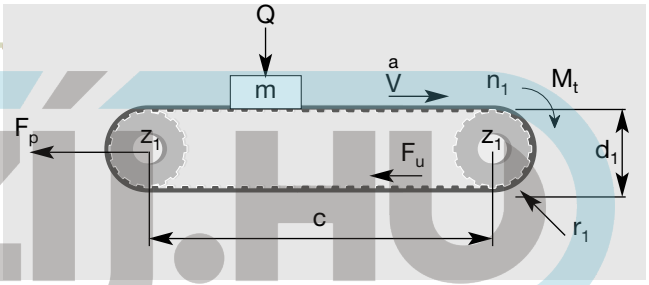
LINEAR MOTION BELT



OMEGA LINEAR MOTION BELT



CONVEYOR BELT



The following pages contain data, formulae and tables that are required to design a new belt drive.
For critical and difficult drives, it is raccomended that you contact our Application Department for advice.

Symbol	Unit	Definition	Symbol	Unit	Definition
a	m/s²	acceleration	**g**	m/s²	gravity (9,81)
b	mm	belt width	**μ**	–	friction coefficient
C	–	safety factor	**m**	Kg	conveyed mass
Δl/$_{oo}$	‰	elongation	**M$_t$**	Nm	drive torque
d	mm	idler pitch diameters	**n$_1$**	1/min	revs/min (RPM) of drive sprocket 1
d$_1$	mm	sprocket pitch diameter	**P**	KW	drive power
F$_p$	N	pretension	**Q**	N	force exerted by mass (m)
F$_u$	N	peripheral force	**V**	m/s	belt speed
F$_{p\ spec}$	N/cm	transmittable force per tooth per unit width	**Z$_i$**		number of teeth of sprocket
MTL	N	max traction load	**Z$_m$**		number of teeth in mesh on driver sprocket (12)
BS	N	breaking strength	**Z$_L$**		number of teeth of large pulley
c	mm	centre distance	**Z$_s$**		number of teeth of small pulley
			p		belt pitch

Max traction load is maximum acceptable traction on cords.
Breaking strength is necessary load to break belt cords.
Elongation is belt elongation under load.

USEFUL FORMULAE AND CONVERSION FACTORS

$$V = \frac{d_1 \cdot n_1}{19100} \qquad n_1 = \frac{V \cdot 19100}{d_1} \qquad d_1 = \frac{V \cdot 19100}{n_1} \qquad Q = m \cdot g$$

$$P = \frac{M_t \cdot n_1}{9550} \qquad M_t = \frac{9550 \cdot P}{n_1} \qquad M_t = \frac{F_u \cdot d_1}{2000}$$

CHOICE OF BELT PITCH AND SPROCKETS

For optimum belt pitch see tables on page 10.
For optimum choice of sprocket size, it is desiderable to have as near to 12 teeth in mesh as possible.

Knowing mass →	For horizontal & conveying drives	$F_u = (m \bullet a) + (m \bullet g \bullet \mu)$
	(Note: values of μ can be found in table 1 on page 11).	
→	For vertical drives	$F_u = (m \bullet a) + (m \bullet g)$
Knowing drive torque		$F_u = 2000\ M_t / d_1$
Knowing drive power		$F_u = 19.1 \bullet 10^6 \bullet P / (d_1 \bullet n_1)$

BELT WIDTH AND PROFILE ESTIMATION

The belt width b should be calculated using the following formula

$b = (F_u \bullet c_s \bullet 10) / (F_{p\ spec} \bullet Z_m)$

C_s = safety factor from page 11 table 4
F_u = from above calculation
Z_m = number of teeth in mesh on driver sprocket

$$Z_m = [0{,}5 - \frac{4 \bullet p}{79 \bullet c} (Z_L - Z_s)] \bullet Z_s$$

= (if calculated $Z_m >= 12$ for an open-end application use $Z_m = 12$)
= (if calculated $Z_m >= 6$ for a joined application use $Z_m = 6$)
$F_{p\ spec}$ = transmittable force per tooth per unit width (see table on belt data pages)

PRE-TENSIONING

The suggested installation tension:

$F_p = 2 \bullet F_u$ for linear and omega linear movement applications
$F_p = F_u$ for conveyor applications

CORD CHECK

The maximum allowable tensile load of the belt pitch/width combination selected (see tables on belt data pages):

$$\text{max traction load of choosen belt} > \frac{F_p}{2} + (F_u \bullet C_s)$$

SPROCKET AND IDLER DIAMETER CHECK

Ensure that all selected pulley and idler diameters are equal to or greater than the minimum values specified in corresponding belt data page.

ELONGATION

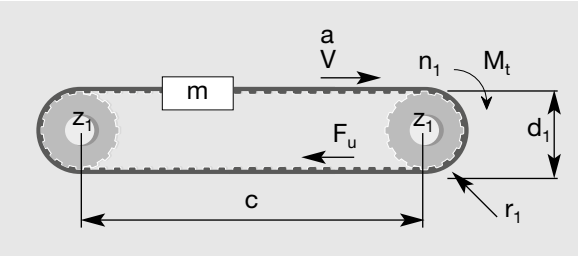
When the belt is operating there will be an elongation proportional to max traction load:

$$\Delta l/_{00} = (F_u \bullet 4) / \text{max traction load}$$

LINEAR MOTION CALCULATION EXAMPLE (OPEN-END BELT)

MACHINE DATA

C = 2.000 mm
d_1 = 76 mm
n_1 = 300 RPM
P = 1,8 KW
low fluctuating load



CHOICE OF BELT PITCH AND SPROCKETS

According to the belt pitch selection table n.1 on page 10 considering the values of P and n_1, we select RPP8 belt. Then we consider the pulley diameter nearest to the requested value and the corresponding n. of teeth (see technical information on page 65).
Therefore Z_1 = 30 teeth (with a pitch diameter of 76,4 mm).

CALCULATION OF THE EFFECTIVE TENSION

Since the drive power is known, F_u can be calculated

$$F_u = \frac{19{,}1 \cdot 10^6 \cdot P}{d_1 \cdot n_1} = \frac{19{,}1 \cdot 10^6 \cdot 1{,}8}{76{,}4 \cdot 300} = 1500 \text{ N}$$

DETERMINATION OF THE BELT WIDTH

$$b = \frac{F_u \cdot C_s \cdot 10}{F_{p\,spec} \cdot Z_m}$$

$$b = \frac{1500 \cdot 1{,}4 \cdot 10}{62 \cdot 12} = 28{,}2 \text{ mm}$$

F_u = from before (1500 N)
C_s = from page 11 table 4, for low fluctuating load C_s = 1,4
Z_m = given that driver pulley has 30 teeth and n. of teeth in mesh = 15 but max Z_m is 12, then Z_m = 12
n_1 = 300 RPM (given)
$F_{p\,spec}$ = 62N / cm (refer page 64 at 300 RPM)

Since the next closest width is 30 mm: 30 RPP8 is choosen.

PRE-TENSIONING

$F_p = 2 \cdot F_u$ F_p = 3000 N

CORD CHECK

From page 64, RPP8 pitch 30 mm wide: max traction load 4750 N

max traction load > $\frac{F_p}{2} + (F_u \cdot C_s)$ $\frac{F_p}{2} + (F_u \cdot C_s) = 1500 + 1500 \cdot 1{,}4$

4750 N > 3600 N selected belt is acceptable.

SPROCKET AND IDLER DIAMETER CHECK

Ensure that all selected pulley and idler diameters are greater than or equal the minimum values specified on page 65.

ELONGATION

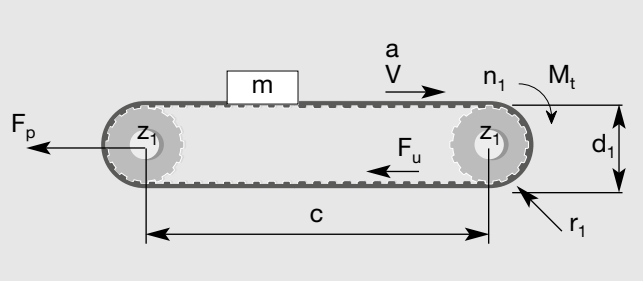
$$\Delta l/_{00} = \frac{F_u \cdot 4}{\text{max traction load}} = \frac{1500 \cdot 4}{4750} = 1{,}26 \text{ mm/m}$$

In the dynamic situations you will have an elongation of 1,26 mm per meter of operating belt.

CONVEYOR BELT CALCULATION EXAMPLE (JOINED BELT)

MACHINE DATA

C = 5.000 mm
d_1 = 100 mm
V = 0,5 m/s
a = 0,5 m/s²
Guide in nylon
Q = 4500 N
low fluctuating load



CALCULATION OF THE EFFECTIVE TENSION

Since the mass is known, F_u can be calculated $F_u = (m \cdot a) + (m \cdot g \cdot \mu)$ value of μ according to table 3 on page 11 = 0,35

$F_u = (460 \cdot 0,5) + (460 \cdot 9,81 \cdot 0,35) = 1810$ N

m = Q/g = 4500 / 9,81 = 460 kg

CHOICE OF BELT PITCH AND SPROCKETS

According to the belt selection table n. 2 on page 10, considering the values of F_u (for joined belts enter double of calculated F_u in table 2), we select T 10. Then we consider the pulley diameter nearest to the requested value and the corresponding n. of teeth (see technical information page 35). Therefore Z_1 = 32 teeth (with a pitch diameter of 101,86 mm).

DETERMINATION OF THE BELT WIDTH

$$b = \frac{F_u \cdot C_s \cdot 10}{F_{p\,spec} \cdot Z_m}$$

$$b = \frac{1810 \cdot 1,4 \cdot 10}{45 \cdot 6} = 93,85 \text{ mm}$$

F_u = from before (1810 N)
C_s = from page 11 table 4, for low fluctuating load C_s = 1,4
Z_m = given that driver pulley has 32 teeth and n. of teeth in mesh = 16 but max Z_m for joined belt is 6, hence, Z_m = 6
n_1 = (Vp • 60.000) / (π • d_1) = (0,5 • 60.000) / (π • 101,86) as d_1 = 101,86 from before = 94 RPM
$F_{p\,spec}$ = 45 N / cm (refer page 34, at 100 RPM)

Since the next closest width is 100 mm: 100 T10 is choosen.

PRE-TENSIONING

$F_p = F_u$ so F_p = 1810 N

CORD CHECK

From page 34, T10 pitch 100 mm wide joined: max traction load 5415 N

max traction load > $F_p + (F_u \cdot C_s)$ $Fp + (F_u \cdot C_s) = 1810 + (1810 \cdot 1,4)$

5415 N > 4344 N selected belt is acceptable.

SPROCKET AND IDLER DIAMETER CHECK

Checking technical data on page 35 for pulley and idlers, it can be seen that the drive has acceptable pulley diameters.

ELONGATION

$$\Delta l/_{00} = \frac{F_u \cdot 4}{\text{max traction load}} = \frac{1810 \cdot 4}{5415} = 1,33 \text{ mm/m}$$

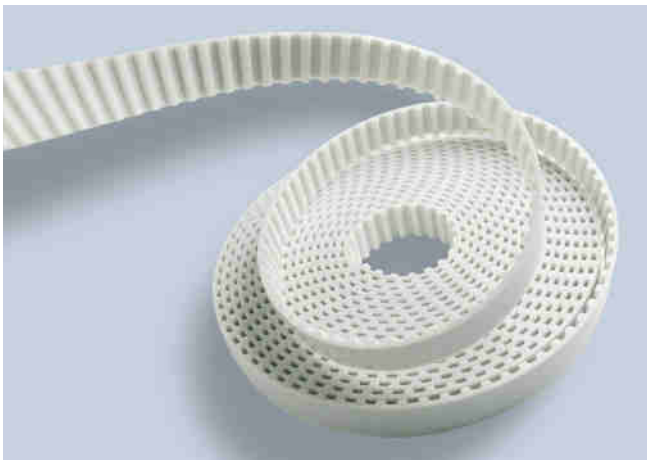
In the dynamic situations you will have an elongation of 1,33 mm per meter of operating belt.

MEGALINEAR T2,5 OPEN-END

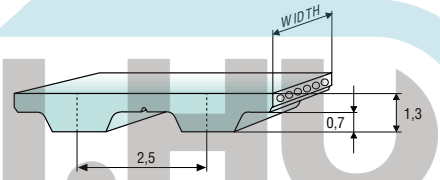
BELT CHARACTERISTICS

STANDARD WIDTHS (mm)	10	16	20
Weight (gr/m)	14	23	28

Standard compound: **white Polyurethane thermoplastic 92 ShA**
Standard back cover: **none**
Standard tooth cover: **none**
Standard cords: **one torsion zinked steel**
Standard width tolerance: **+/– 0,3 mm**
Standard thickness: **1,3 +/– 0,15 mm**
Standard length tolerance: **+/– 0,8 mm/m**
Standard roll length: **100 m**



TOOTH PROFILE ACCORDING ISO 17396



TOOTH RESISTANCE

RPM (1/min)	0	20	40	60	80	100	200	300	400	500	750	1000	1500	2000	3000	4000
$F_{p\ spec}$ (N/cm)	**9**	**8,7**	**8,4**	**8,2**	**8,1**	**7,9**	**7,3**	**7**	**6,7**	**6,4**	**6**	**5,7**	**5,2**	**4,9**	**4,4**	**4**

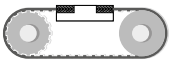
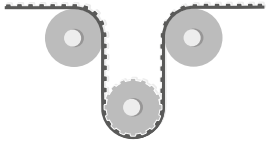
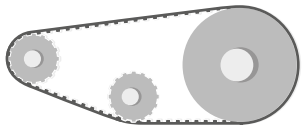
Minimum suggested number of teeth in clamp for linear movement: 7

TRACTION RESISTANCE

	Belt width (mm)	10	16	20
Steel	Max Traction Load (N)	105	170	215
	Breaking Strength (N)	435	695	870
	Elongation at MTL (mm/m)	4	4	4

Average values

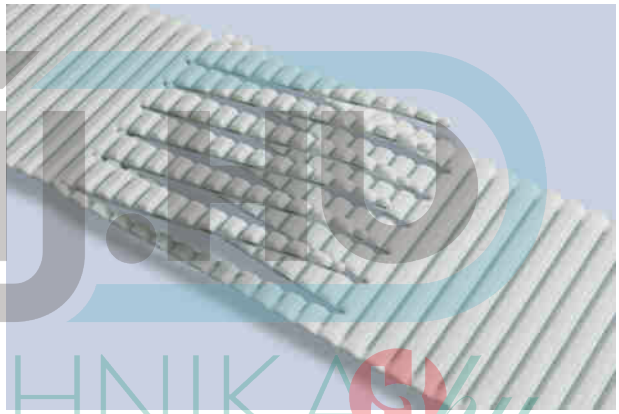
FLEXION RESISTANCE

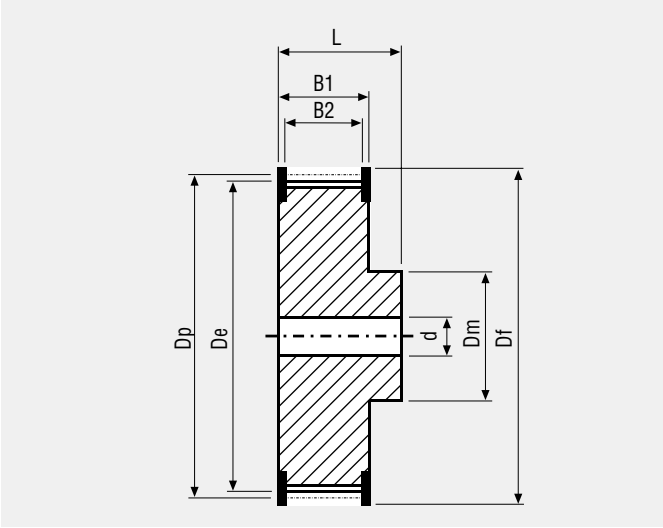
	z_{min}	z_{min}	Idler min dia (mm)	z_{min}	Idler min dia (mm)
Standard steel cord	10	18	15	10	18

JOINED BELT INFORMATION

- Minimum splice length 500 mm
- Traction and tooth resistances = 50% less than open-end
- Joined belt can be used only in conveyor systems
- Minimum diameters according above table



PULLEYS (for more details please see our pulleys catalogue)



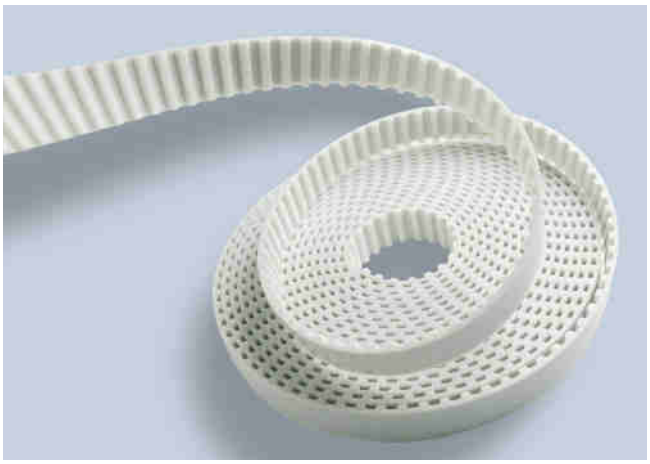
N° Teeth	Dp	De	N° Teeth	Dp	De
10	7,96	7,45	22	17,51	17,00
11	8,75	8,25	24	19,10	18,55
12	9,55	9,00	26	20,69	20,15
13	10,34	9,80	28	22,28	21,75
14	11,14	10,60	30	23,87	23,35
15	11,94	11,40	32	25,46	24,95
16	12,73	12,20	36	28,65	28,10
17	13,53	13,00	40	31,83	31,30
18	14,32	13,80	44	35,01	34,50
19	15,12	14,60	48	38,20	37,70
20	15,92	15,40	60	47,75	47,25
21	16,71	16,20	72	55,20	55,20

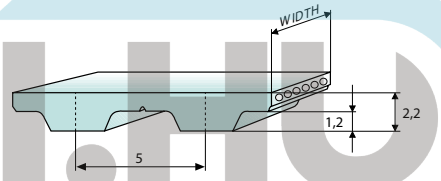
MEGALINEAR T5 OPEN-END

BELT CHARACTERISTICS

STANDARD WIDTHS (mm)	6	10	16	25	32	50	75	100	150
Weight (gr/m)	15	20	35	55	70	105	160	215	330

Standard compound: **white Polyurethane thermoplastic 92 ShA**
Standard back cover: **none**
Standard tooth cover: **none**
Standard cords: **S and Z torsion zinked steel**
Standard width tolerance: **+/– 0,5 mm**
Standard thickness: **2,2 +/– 0,15 mm**
Standard thickness with NFT-NFB: **2,4 +/-0,15 mm***
Standard length tolerance: **+/– 0,8 mm/m**
Standard roll length: **100 m**
Belt options on request with minimum quantity:
Nylon fabric back
Nylon fabric teeth
Antistatic nylon fabric
Transparent FDA compound
AVAFC 60/70/85 ShA
APL
Fishbone
Ribbed
Cleats





Different back coating materials see page 120

TOOTH PROFILE ACCORDING ISO 17396

TOOTH RESISTANCE

RPM (1/min)	0	20	40	60	80	100	200	300	400	500	750	1000	1500	2000	3000	4000	5000	8000
$F_{p\ spec}$ (N/cm)	**24**	**23**	**23**	**22**	**22**	**22**	**20**	**19**	**19**	**18**	**17**	**16**	**15**	**14**	**12**	**11**	**11**	**9**

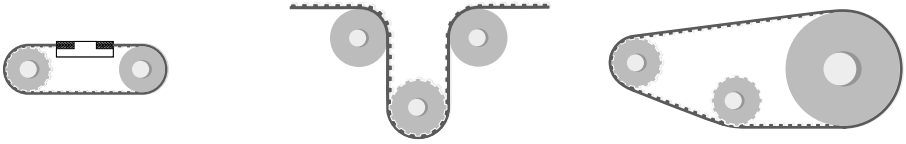
Minimum suggested number of teeth in clamp for linear movement: 7

TRACTION RESISTANCE

	Belt width (mm)	6	10	16	25	32	50	75	100	150
Steel	Max Traction Load (N)	185	375	500	840	1060	1750	2400	3220	3640
	Breaking Strength (N)	750	1500	2000	3375	4250	7000	9125	12250	12750
	Elongation at MTL (mm/m)	4	4	4	4	4	4	4	4	4
Kevlar	Max Traction Load (N)	490	985	1315	2225	2800	4615	6335	8505	9610
	Breaking Strength (N)	1975	3955	5275	8900	11210	18465	24075	32320	33635
	Elongation at MTL (mm/m)	8	8	8	8	8	8	8	8	8
HP	Max Traction Load (N)	–	585	780	1315	1655	2730	3745	5025	–
	Breaking Strength (N)	–	2340	3120	5265	6630	10920	14235	19110	–
	Elongation at MTL (mm/m)	–	4	4	4	4	4	4	4	–
HF	Max Traction Load (N)	–	490	655	1105	1390	2295	3150	4225	–
	Breaking Strength (N)	–	1965	2620	4425	5575	9180	11970	16070	–
	Elongation at MTL (mm/m)	–	5	5	5	5	5	5	5	–
Stainless	Max Traction Load (N)	155	305	410	695	–	–	–	–	–
	Breaking Strength (N)	615	1235	1645	2780	–	–	–	–	–
	Elongation at MTL (mm/m)	3,8	3,8	3,8	3,8	–	–	–	–	–

Average values

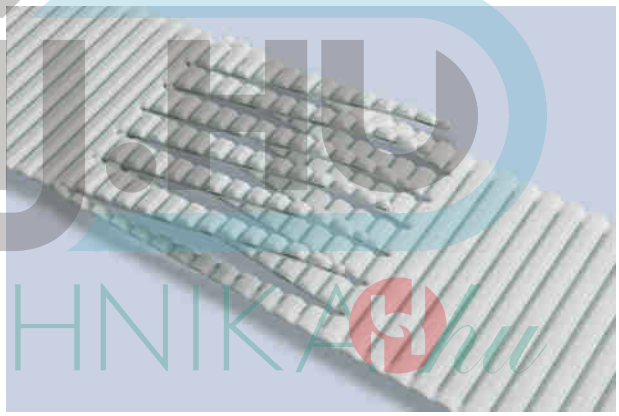
FLEXION RESISTANCE



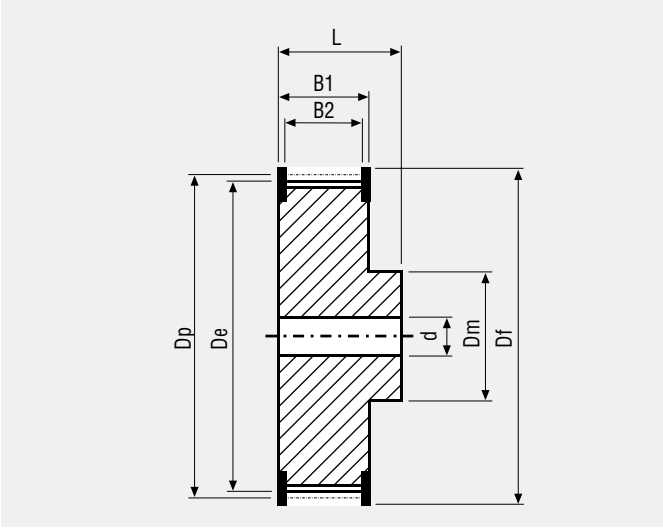
	z_{min}	z_{min}	Idler min dia (mm)	z_{min}	Idler min dia (mm)
Standard steel cords	10	15	30	10	30
Kevlar cords	12	15	30	12	30
High Power cords	15	15	40	15	60
High Flexibility cords	10	12	30	10	30
Stainless steel cords	15	18	40	15	40

JOINED BELT INFORMATION

- Minimum splice length 900 mm
- Traction and tooth resistances = 50% less than open-end
- Joined belt can be used only in conveyor systems
- Rolls with NFT, NFB, AVAFC and APL can be joined too
- Minimum diameters according above table
- For coated belts, minimum diameters on page 120



PULLEYS (for more details please see our pulleys catalogue)



N° Teeth	Dp	De	N° Teeth	Dp	De
10	15,92	15,09	25	39,79	38,96
12	19,10	18,27	28	44,56	43,73
14	22,28	21,45	30	47,75	46,92
15	23,87	23,04	32	50,93	50,10
16	25,46	24,64	36	57,30	56,47
18	28,65	27,82	40	63,66	62,93
19	30,24	29,41	42	66,85	66,02
20	31,83	31,00	44	70,03	69,20
22	35,01	34,19	48	76,39	75,57
24	38,20	37,37	60	95,49	94,67

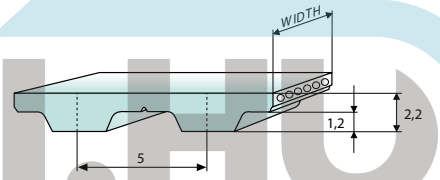
MEGALINEAR T5 WIDE OPEN-END

BELT CHARACTERISTICS

STANDARD WIDTHS (mm)	250	500
Weight (gr/m)	500	1000

Standard compound: **transparent Polyurethane thermoplastic 90 ShA**
Standard back cover: **none**
Standard tooth cover: **none**
Standard cords: **S and Z torsion Kevlar at pitch 3,5 mm**
Standard width tolerance: **+/– 2 mm**
Standard thickness: **2,2 +/– 0,15 mm**
Standard length tolerance: **+/– 0,8 mm/m**
Standard roll length: **100 m**
Belt options on request with minimum quantity:
Nylon fabric back
Nylon fabric teeth
Transparent FDA compound

TOOTH PROFILE ACCORDING ISO 17396



TOOTH RESISTANCE

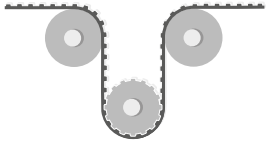
RPM (1/min)	0	20	40	60	80	100	200	300	400	500	750	1000
$F_{p\ spec}$ (N/cm)	**17**	**16**	**16**	**15**	**15**	**15**	**14**	**13**	**13**	**12**	**12**	**11**

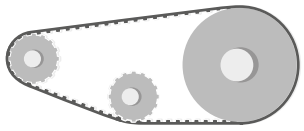
TRACTION RESISTANCE

	Belt width (mm)	250	500
Kevlar	Max Traction Load (N)	6595	13190
	Breaking Strength (N)	23085	46170
	Elongation at MTL (mm/m)	8	8

Average values

FLEXION RESISTANCE



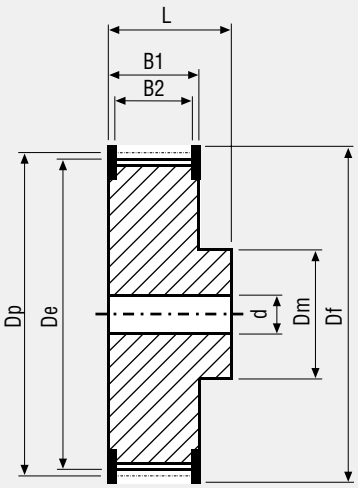


	z_{min}	Idler min dia (mm)	z_{min}	Idler min dia (mm)
Kevlar cords	15	45	12	45

JOINED BELT INFORMATION

- Traction and tooth resistances = 50% less than open-end
- Joined belt can be used only in conveyor systems
- Rolls with NFT and NFB can be joined too
- Minimum diameters according above table

PULLEYS (for more details please see our pulleys catalogue)



N° Teeth	Dp	De	N° Teeth	Dp	De
10	15,92	15,09	25	39,79	38,96
12	19,10	18,275	28	44,56	43,73
14	22,28	21,45	30	47,75	46,92
15	23,87	23,04	32	50,93	50,10
16	25,46	24,64	36	57,30	56,47
18	28,65	27,82	40	63,66	62,93
19	30,24	29,41	42	66,85	66,02
20	31,83	31,00	44	70,03	69,20
22	35,01	34,19	48	76,39	75,57
24	38,20	37,37	60	95,49	94,67

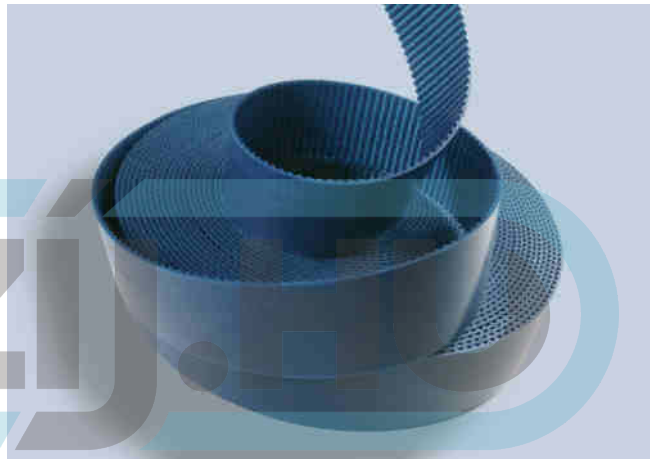
MEGALINEAR TT5 FOR KNITTING MACHINE

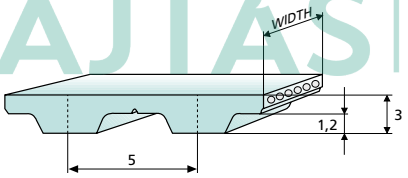
BELT CHARACTERISTICS

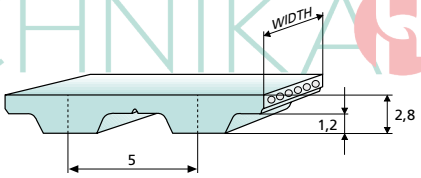
STANDARD WIDTHS (mm)	**10**
Weight (gr/m)	20

Standard compound:	**white Polyurethane thermoplastic 88 ShA**
Standard back cover:	**none**
Standard tooth cover:	**none**
Standard cords:	**S and Z torsion zinked steel**
Standard width tolerance:	**+/– 0,5 mm**
Standard thickness:	**3 + 0,2/– 0,1 mm**
Standard length tolerance:	**+/– 0,8 mm/m**
Standard roll length:	**100 m**

Standard compound:	**blue Polyurethane thermoplastic 88 ShA**
Standard back cover:	**none**
Standard tooth cover:	**none**
Standard cords:	**S and Z torsion kevlar**
Standard width tolerance:	**+/– 0,5 mm**
Standard thickness:	**2,8 +/– 0,15 mm**
Standard length tolerance:	**+/– 0,8 mm/m**
Standard roll length:	**100 m**







TOOTH PROFILE ACCORDING ISO 17396

TOOTH RESISTANCE

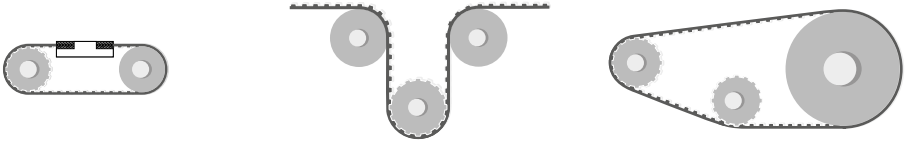
RPM (1/min)	0	20	40	60	80	100	200	300	400	500	750	1000	1500	2000	3000	4000	5000	8000
$F_{p\ spec}$ (N/cm)	**24**	**23**	**23**	**22**	**22**	**22**	**20**	**19**	**19**	**18**	**17**	**16**	**15**	**14**	**12**	**11**	**11**	**9**

TRACTION RESISTANCE

	Belt width (mm)	**10**
Steel	Max Traction Load (N)	375
	Breaking Strength (N)	1500
	Elongation at MTL (mm/m)	4
Kevlar	Max Traction Load (N)	795
	Breaking Strength (N)	3190
	Elongation at MTL (mm/m)	8

Average values

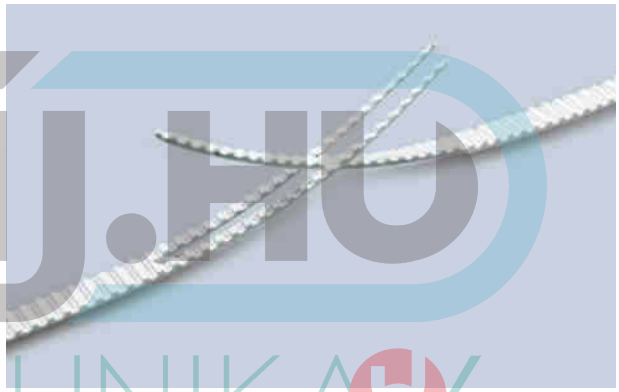
FLEXION RESISTANCE



	z_{min}	z_{min}	Idler min dia (mm)	z_{min}	Idler min dia (mm)
Standard steel cords	10	15	30	10	30
Kevlar cords	12	15	30	12	30

JOINED BELT INFORMATION

- Minimum splice length 900 mm
- Traction and tooth resistances = 50% less than open-end
- Joined belt can be used only in conveyor systems
- Rolls with NFT, and NFB can be joined too
- Minimum diameters according above table

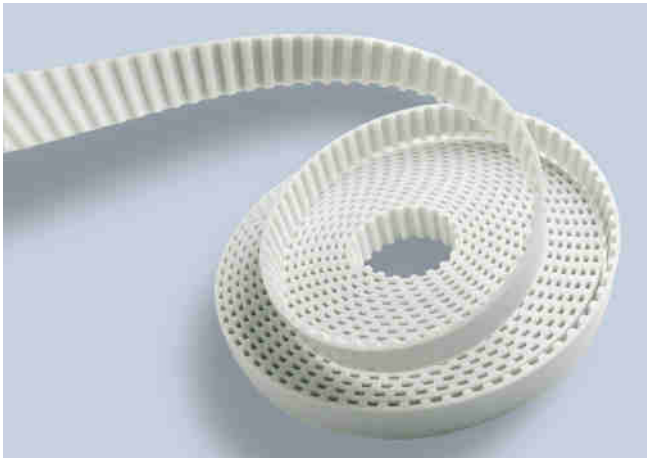


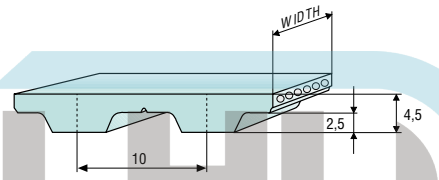
MEGALINEAR T10 OPEN-END

BELT CHARACTERISTICS

STANDARD WIDTHS (mm)	12	16	25	32	50	75	100	150
Weight (gr/m)	50	75	115	145	225	340	435	680

Standard compound: **white Polyurethane thermoplastic 92 ShA**
Standard back cover: **none**
Standard tooth cover: **none**
Standard cords: **S and Z torsion zinked steel**
Standard width tolerance: **+/– 0,5 mm**
Standard thickness: **4,5 +/– 0,3 mm**
Standard length tolerance: **+/– 0,8 mm/m**
Standard roll length: **100 m**
Belt options on request with minimum quantity:
Nylon fabric back
Nylon fabric teeth
Antistatic nylon fabric
Transparent FDA compound
AVAFC 60/70/85 ShA
APL
Fishbone
Ribbed
SUPERGRIP PVC
Cleats





Different back coating materials see page 120
TOOTH PROFILE ACCORDING ISO 17396

TOOTH RESISTANCE

RPM (1/min)	0	20	40	60	80	100	200	300	400	500	750	1000	1500	2000	3000	4000	5000	8000
$F_{p\ spec}$ (N/cm)	**51**	**49**	**48**	**47**	**46**	**45**	**41**	**39**	**37**	**36**	**33**	**31**	**28**	**25**	**22**	**20**	**18**	**14**

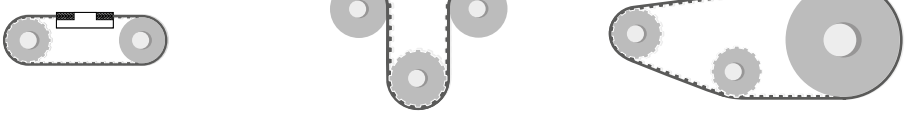
Minimum suggested number of teeth in clamp for linear movement: 7

TRACTION RESISTANCE

	Belt width (mm)	12	16	25	32	50	75	100	150
Steel	Max Traction Load (N)	1050	1470	2410	3045	5040	8065	10830	12480
	Breaking Strength (N)	4200	5880	9660	12180	20160	30660	41160	43680
	Elongation at MTL (mm/m)	4	4	4	4	4	4	4	4
Kevlar	Max Traction Load (N)	915	1175	2095	2615	4450	7165	9645	15560
	Breaking Strength (N)	3665	4710	8380	10475	17805	27235	36665	54475
	Elongation at MTL (mm/m)	8	8	8	8	8	8	8	8
HP	Max Traction Load (N)	1660	2135	3800	4750	8075	13000	17500	28225
	Breaking Strength (N)	6650	8550	15200	19000	32300	49400	66500	98800
	Elongation at MTL (mm/m)	4	4	4	4	4	4	4	4
HF	Max Traction Load (N)	1100	1540	2530	3190	5280	8450	11345	13070
	Breaking Strength (N)	4400	6160	10120	12760	21120	32120	43120	45760
	Elongation at MTL (mm/m)	5	5	5	5	5	5	5	5
HPF	Max Traction Load (N)	–	2385	4240	5300	9010	14505	19525	31495
	Breaking Strength (N)	–	9540	16960	21200	36040	55120	74200	110240
	Elongation at MTL (mm/m)	5	5	5	5	5	5	5	5
Stainless	Max Traction Load (N)	950	1330	2190	2760	4570	–	–	–
	Breaking Strength (N)	3810	5330	8760	11045	18285	–	–	–
	Elongation at MTL (mm/m)	3,8	3,8	3,8	3,8	3,8	–	–	–

Average values

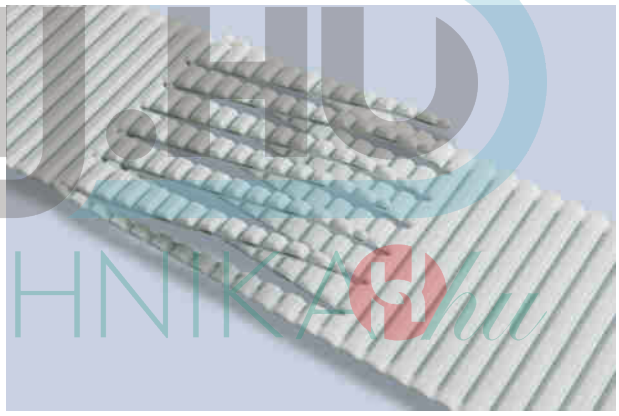
FLEXION RESISTANCE



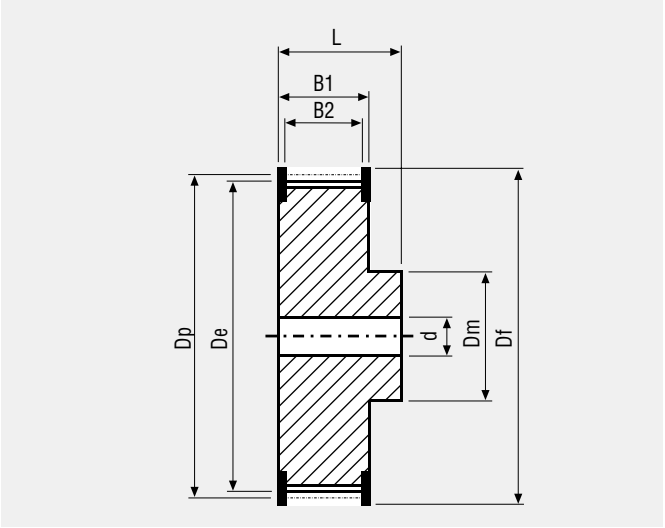
	z_{min}	z_{min}	Idler min dia (mm)	z_{min}	Idler min dia (mm)
Standard steel cords	12	20	60	12	60
Kevlar cords	15	20	60	15	60
High Power cords	15	20	100	15	100
High Flexibility cords	12	15	50	12	50
High Power Flexible cords	14	20	80	14	80
Stainless steel cords	15	20	70	15	70

JOINED BELT INFORMATION

- Minimum splice length 900 mm
- Traction and tooth resistances = 50% less than open-end
- Joined belt can be used only in conveyor systems
- Rolls with NFT, NFB, AVAFC and APL can be joined too
- Minimum diameters according above table
- For coated belts, minimum diameters on page 120



PULLEYS (for more details please see our pulleys catalogue)



N° Teeth	Dp	De	N° Teeth	Dp	De
12	38,20	36,35	26	82,76	80,91
14	44,56	42,71	27	85,94	84,10
15	47,75	45,90	28	89,13	87,28
16	50,93	49,08	30	95,49	93,65
18	57,30	55,45	32	101,86	100,01
19	60,48	58,63	36	114,59	112,74
20	63,66	61,81	40	127,32	125,48
22	70,03	68,18	44	140,06	138,21
24	76,39	74,55	48	152,79	150,94
25	79,58	77,73	60	190,99	189,14

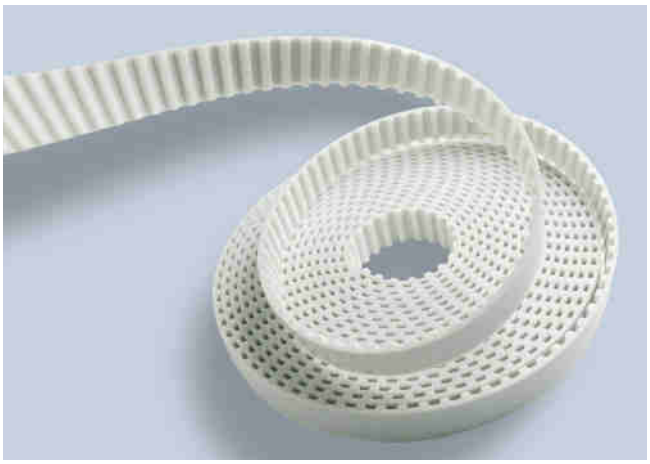
MEGALINEAR T10 WITHOUT GAP OPEN-END

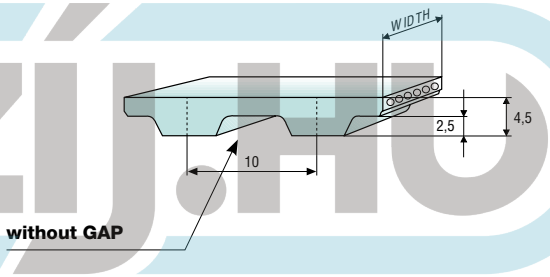
BELT CHARACTERISTICS

STANDARD WIDTHS (mm)	16	25	32	50	75
Weight (gr/m)	74	115	148	230	345

Standard compound: **white Polyurethane thermoplastic 92 ShA**
Standard back cover: **none**
Standard tooth cover: **none**
Standard cords: **S and Z torsion zinked steel**
Standard width tolerance: **+/– 0,5 mm**
Standard thickness: **4,5 +/– 0,3 mm**
Standard length tolerance: **+/– 0,8 mm/m**
Standard roll length: **100 m**

TOOTH PROFILE ACCORDING ISO 17396





TOOTH RESISTANCE

RPM (1/min)	0	20	40	60	80	100	200	300	400	500	750	1000	1500	2000	3000	4000	5000	8000
$F_{p\ spec}$ (N/cm)	**51**	**49**	**48**	**47**	**46**	**45**	**41**	**39**	**37**	**36**	**33**	**31**	**28**	**25**	**22**	**20**	**18**	**14**

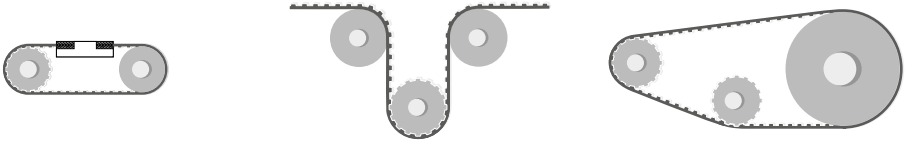
Minimum suggested number of teeth in clamp for linear movement: 7

TRACTION RESISTANCE

	Belt width (mm)	16	25	32	50	75
Steel	Max Traction Load (N)	1365	2310	2940	4830	7955
	Breaking Strength (N)	5460	9240	11760	19320	30240
	Elongation at MTL (mm/m)	4	4	4	4	4
Kevlar	Max Traction Load (N)	1700	2880	3665	6020	9920
	Breaking Strength (N)	6805	11520	14665	24090	37710
	Elongation at MTL (mm/m)	8	8	8	8	8

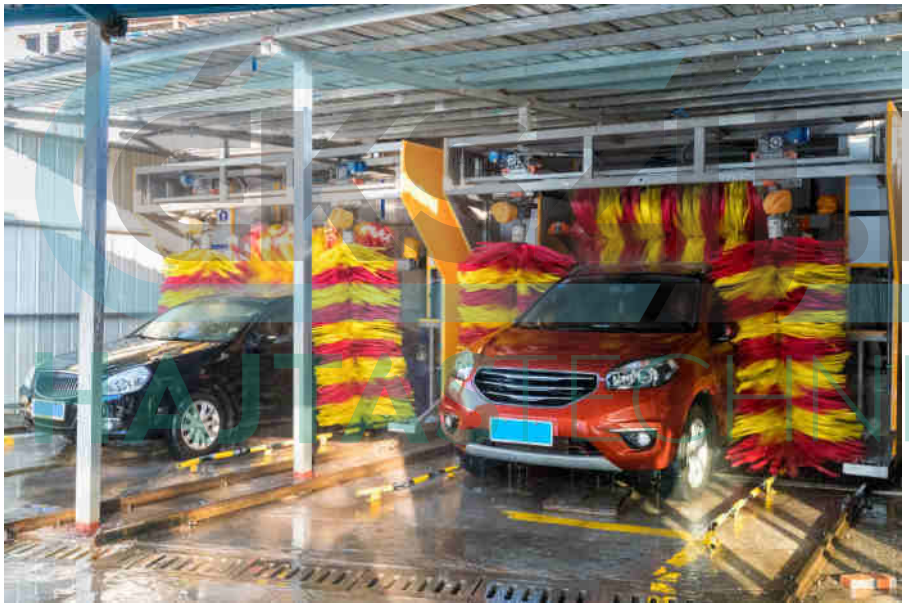
Average values

FLEXION RESISTANCE

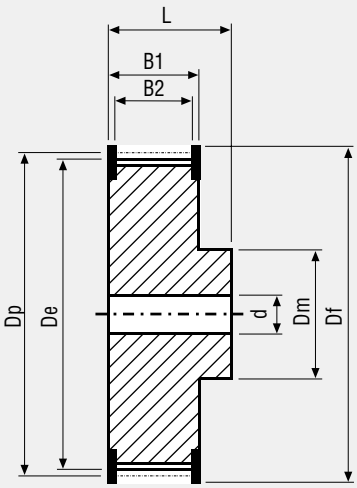


	z_{min}	z_{min}	Idler min dia (mm)	z_{min}	Idler min dia (mm)
Standard steel cords	12	20	60	12	60
Kevlar cords	15	20	60	15	60

TYPICAL APPLICATION - CAR WASHING MACHINE



PULLEYS (for more details please see our pulleys catalogue)



N° Teeth	Dp	De	N° Teeth	Dp	De
12	38,20	36,35	26	82,76	80,91
14	44,56	42,71	27	85,94	84,10
15	47,75	45,90	28	89,13	87,28
16	50,93	49,08	30	95,49	93,65
18	57,30	55,45	32	101,86	100,01
19	60,48	58,63	36	114,59	112,74
20	63,66	61,81	40	127,32	125,48
22	70,03	68,18	44	140,06	138,21
24	76,39	74,55	48	152,79	150,94
25	79,58	77,73	60	190,99	189,14

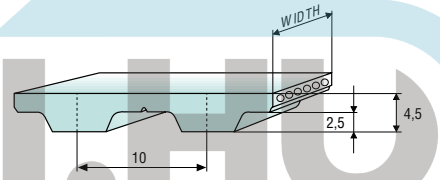
MEGALINEAR T10 WIDE OPEN-END

BELT CHARACTERISTICS

STANDARD WIDTHS (mm)	200	250	300	400	450	500
Weight (gr/m)	410	510	615	820	920	1020

Standard compound: **transparent Polyurethane thermoplastic 90 ShA**
Standard back cover: **none**
Standard tooth cover: **none**
Standard cords: **S and Z torsion Kevlar at pitch 3,5 mm**
Standard width tolerance: **+/– 2 mm**
Standard thickness: **4,5 +/– 0,3 mm**
Standard length tolerance: **+/– 0,8 mm/m**
Standard roll length: **100 m**
Belt options on request with minimum quantity:
Nylon fabric back
Nylon fabric teeth
Antistatic Nylon fabric
Transparent FDA compound

TOOTH PROFILE ACCORDING ISO 17396



TOOTH RESISTANCE

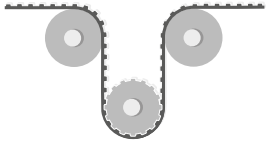
RPM (1/min)	0	20	40	60	80	100	200	300	400	500	750	1000
$F_{p\ spec}$ (N/cm)	**36**	**34**	**34**	**33**	**32**	**31**	**29**	**27**	**26**	**25**	**23**	**22**

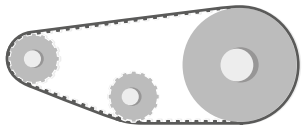
TRACTION RESISTANCE

	Belt width (mm)	200	250	300	400	450	500
Kevlar	Max Traction Load (N)	8530	10475	12570	16910	19005	20950
	Breaking Strength (N)	29855	36665	43995	69185	66520	73330
	Elongation at MTL (mm/m)	8	8	8	8	8	8

Average values

FLEXION RESISTANCE



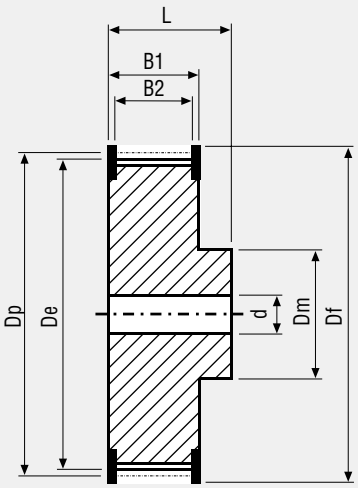


	z_{min}	Idler min dia (mm)	z_{min}	Idler min dia (mm)
Kevlar cords	20	60	15	60

JOINED BELT INFORMATION

- Traction and tooth resistances = 50% less than open-end
- Joined belt can be used only in conveyor systems
- Rolls with NFT and NFB can be joined too
- Minimum diameters according above table

PULLEYS (for more details please see our pulleys catalogue)



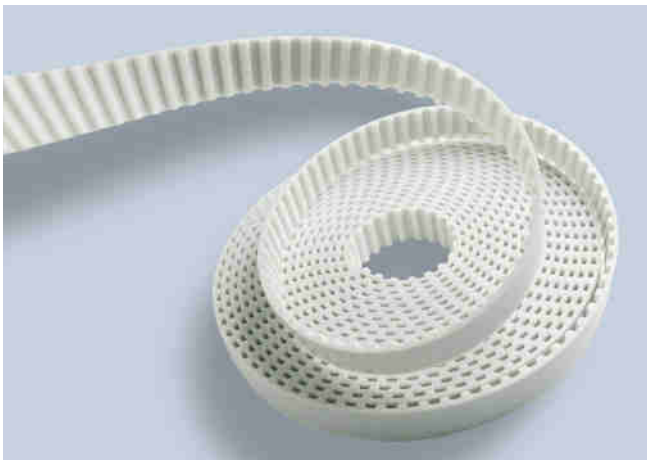
N° Teeth	Dp	De	N° Teeth	Dp	De
12	38,20	36,35	26	82,76	80,91
14	44,56	42,71	27	85,94	84,10
15	47,75	45,90	28	89,13	87,28
16	50,93	49,08	30	95,49	93,65
18	57,30	55,45	32	101,86	100,01
19	60,48	58,63	36	114,59	112,74
20	63,66	61,81	40	127,32	125,48
22	70,03	68,18	44	140,06	138,21
24	76,39	74,55	48	152,79	150,94
25	79,58	77,73	60	190,99	189,14

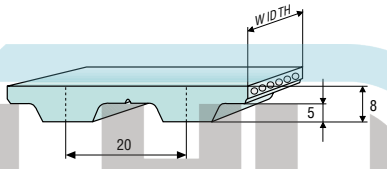
MEGALINEAR T20 OPEN-END

BELT CHARACTERISTICS

STANDARD WIDTHS (mm)	25	32	50	75	100	150
Weight (gr/m)	185	235	370	550	735	1095

Standard compound: **white Polyurethane thermoplastic 92 ShA**
Standard back cover: **none**
Standard tooth cover: **none**
Standard cords: **S and Z torsion zinked steel**
Standard width tolerance: **+/– 1 mm**
Standard thickness: **8 +/– 0,45 mm**
Standard length tolerance: **+/– 0,8 mm/m**
Standard roll length: **100 m**
Belt options on request with minimum quantity:
Nylon fabric back
Nylon fabric teeth
Antistatic nylon fabric
Transparent FDA compound
AVAFC 60/70/85 ShA
APL
Fishbone
Ribbed
Cleats





Different back coating materials see page 120

TOOTH PROFILE ACCORDING ISO 17396

TOOTH RESISTANCE

RPM (1/min)	0	20	40	60	80	100	200	300	400	500	750	1000	1500	2000	3000	4000	5000
$F_{p\ spec}$ (N/cm)	**102**	**98**	**95**	**93**	**91**	**89**	**81**	**76**	**72**	**68**	**62**	**57**	**50**	**45**	**38**	**33**	**29**

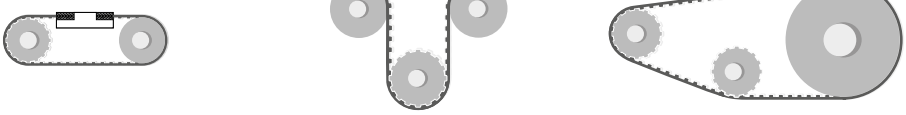
Minimum suggested number of teeth in clamp for linear movement: 7

TRACTION RESISTANCE

	Belt width (mm)	25	32	50	75	100	150
Steel	Max Traction Load (N)	3800	4750	8075	13000	17500	28225
	Breaking Strength (N)	15200	19000	32300	49400	66500	98800
	Elongation at MTL (mm/m)	4	4	4	4	4	4
Kevlar	Max Traction Load (N)	5045	6730	10935	17715	23915	39425
	Breaking Strength (N)	20195	26925	43755	67315	90875	138000
	Elongation at MTL (mm/m)	8	8	8	8	8	8
HP	Max Traction Load (N)	5190	6920	11245	18210	24580	40530
	Breaking Strength (N)	20760	27680	44980	69200	93420	141860
	Elongation at MTL (mm/m)	4	4	4	4	4	4
HF	Max Traction Load (N)	4240	5300	9090	14505	–	–
	Breaking Strength (N)	16960	21200	36040	55120	–	–
	Elongation at MTL (mm/m)	5	5	5	5	–	–
HPF	Max Traction Load (N)	5775	7700	12510	20260	–	–
	Breaking Strength (N)	23100	30800	50050	77000	–	–
	Elongation at MTL (mm/m)	5	5	5	5	–	–
Stainless	Max Traction Load (N)	3175	3970	6745	–	–	–
	Breaking Strength (N)	12700	15880	26995	–	–	–
	Elongation at MTL (mm/m)	3,8	3,8	3,8	–	–	–

Average values

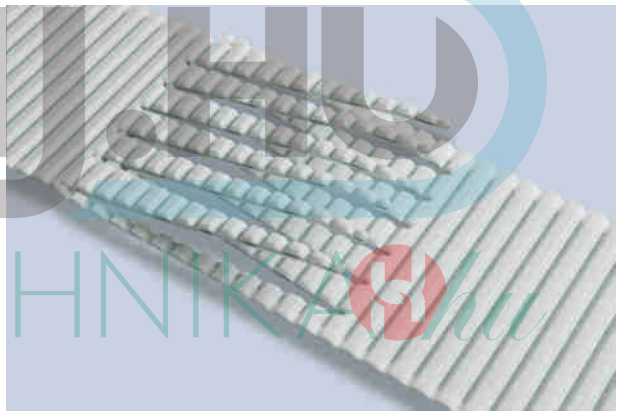
FLEXION RESISTANCE



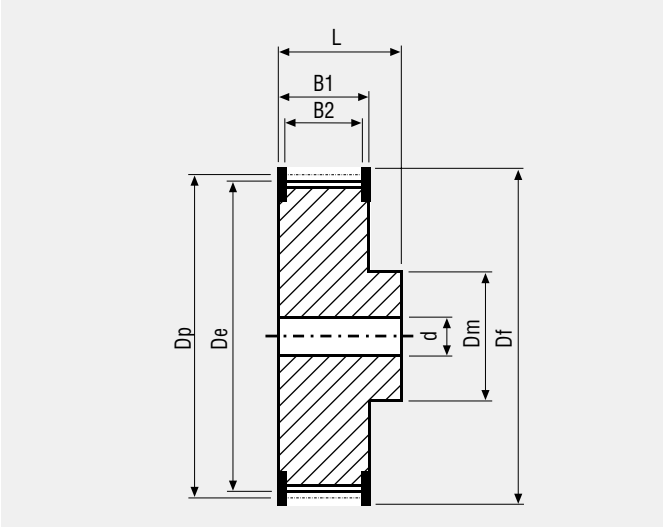
	z_{min}	z_{min}	Idler min dia (mm)	z_{min}	Idler min dia (mm)
Standard steel cords	15	25	120	15	120
Kevlar cords	15	25	120	15	120
High Power cords	20	25	150	20	150
High Flexibility cords	15	20	120	15	120
High Power Flexible cords	18	25	120	18	120
Stainless steel cords	20	25	130	20	130

JOINED BELT INFORMATION

- Minimum splice length 900 mm
- Traction and tooth resistances = 50% less than open-end
- Joined belt can be used only in conveyor systems
- Rolls with NFT, NFB, AVAFC and APL can be joined too
- Minimum diameters according above table
- For coated belts, minimum diameters on page 120



PULLEYS (for more details please see our pulleys catalogue)



N° Teeth	Dp	De	N° Teeth	Dp	De
15	95,54	92,69	30	190,99	188,13
18	114,59	111,73	32	203,72	200,86
20	127,32	124,47	36	229,18	226,33
22	140,06	137,20	40	254,65	251,80
24	152,79	149,93	48	305,58	302,73
25	159,15	156,30	60	381,97	379,12