MODUTECH®

2"Radius Belt

Modular Belt Series

EC508T R
Sprockets & Accessories
Technical Specifications
- Drum Types, Wear Strip Placement, Support
Engineering Information
Radius Belt Calculation



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FDA





EC508T R

Modular Radius Belt Series

- **Meat Applications**

Spiral Freezer

- **Poultry Applications**

Spiral Freezer

- **Seafood Applications**

Freezing Lines, Spiral

- **Bakery Applications**

Spiral, Proofing, Cooling, Freezing Lines, Pan Handling

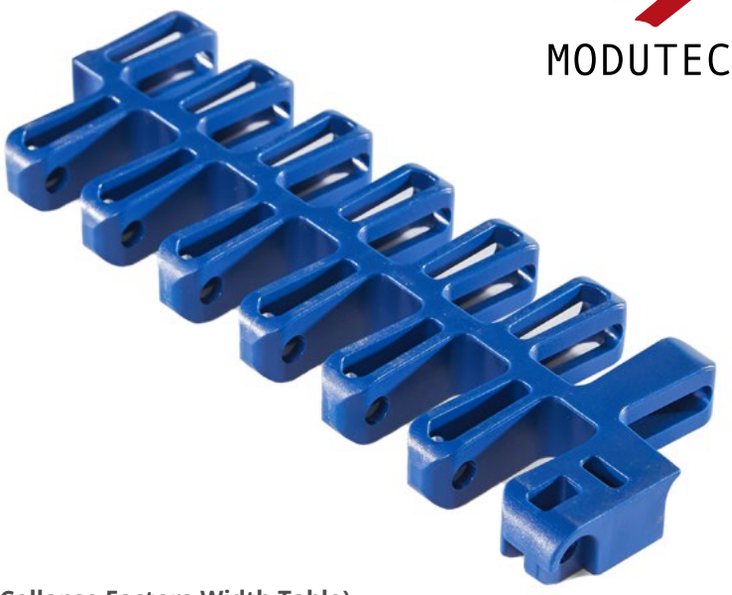
- **Fruits and Vegetables Applications**

Container Conveyence

EC508T R *(Tight Radius)*

MODUTECH

Pitch :	50,8 mm / **2 inch**
Belt Surface :	Open, Smooth Surface
Minimum Width :	508 mm / **20 inch**
Open Area (%) :	58%. (Biggest opening 15 x 17 mm)
Contact Area (%) :	85%. Open Contact Area
Flight :	No
Divider :	Yes (h=25 mm)
Rod :	Ø6 mm / **0.236 inch** - Self Lock
Approved :	FDA and EU
Curve :	Yes
Color :	Additional colors available
Cleanability :	Excellent
Application :	Straight and side flexing
Collapse Factor :	1.5 - 1.7 **(Please check page 185 to see Collapse Factors-Width Table)**
Belt Thickness:	16 mm / **0.630 inch**



Product Features and Functional Benefits

- Belt designed for tight radius applications.
- Available for medium and high load capacity.
- Stainless steel pins option for high temperature applications.
- Stainless steel pins option reduce belt elongation for high temperature application.
- High temperature and wear resistance. Unique locking system.
- Belt provides optimal open area for drainage and airflow.
- Suitable for proofer-cooling-freezing spiral towers.

Available Moulded Module Sizes

- 203,2 mm / **4 inch** module
- 184 mm / **7.24 inch** module
- 172 mm / **6.76 inch** module

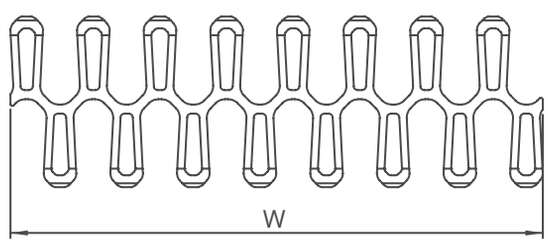
EC508T R / Technical Information

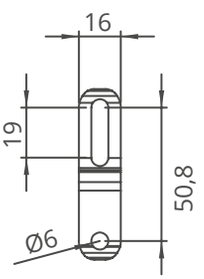
BELT MATERIAL	BELT STRENGTH				TEMPERATURE		BELT WEIGHT
	Straight		Curve		ºC (min.) - **ºF (min.)**	ºC (max.) - **ºF (max.)**	Kg/m² - lb/ft²
	N/m	**lb/ft**	N/m	**lb/ft**			
Polypropylene	16500	**1131**	2560	**568**	+5 / **+42.8**	+90 / **+194**	5,2 - **1.07**
Polyethylene	-	**-**	-	**-**	-	-	-
Acetal	23100	**1583**	3520	**792**	-43 / **-45.4**	+110 / **+230**	7,5 - **1.54**

- Belt strength and temperature values are maximum on the table.

EC508T R / Standard Belt Widths

BELT SERIES	WIDTH (W)				Belt With Tolerance (max.)
	PP		POM		
	mm	**inch**	mm	**inch**	
EC508T R	508,0	**20.0**	508,0	**20.0**	± 0,5 mm
EC508T R	558,8	**22.0**	558,8	**22.0**	± 2 mm
EC508T R	609,6	**24.0**	609,6	**24.0**	± 2 mm
EC508T R	660,4	**26.0**	660,4	**26.0**	± 3 mm
EC508T R	711,2	**28.0**	711,2	**28.0**	± 3 mm
EC508T R	762,0	**30.0**	762,0	**30.0**	± 3 mm
EC508T R	812,8	**32.0**	812,8	**32.0**	± 3 mm
EC508T R	863,6	**34.0**	863,6	**34.0**	± 4 mm
EC508T R	914,4	**36.0**	914,4	**36.0**	± 4 mm
EC508T R	965,2	**38.0**	965,2	**38.0**	± 4 mm
EC508T R	1016,0	**40.0**	1016,0	**40.0**	± 4 mm
EC508T R	1066,8	**42.0**	1066,8	**42.0**	± 4 mm
EC508T R	1117,6	**44.0**	1117,6	**44.0**	± 4 mm
EC508T R	1168,4	**46.0**	1168,4	**46.0**	± 4 mm

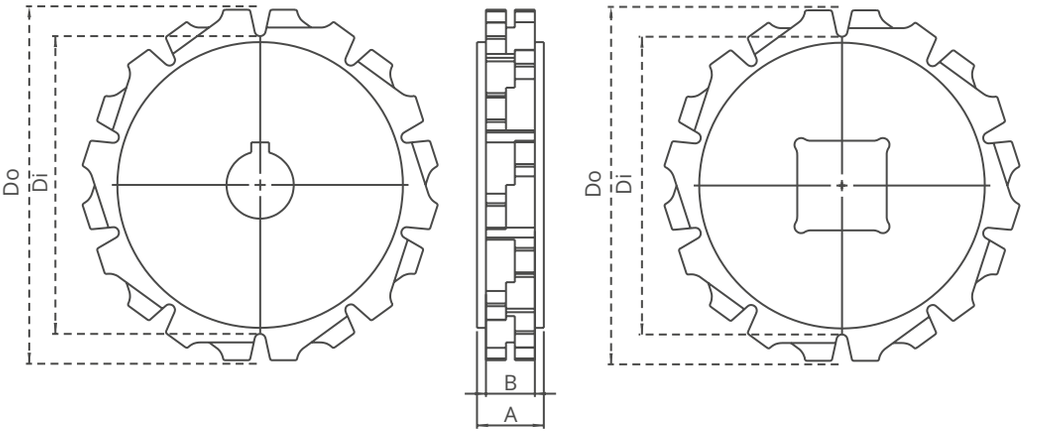




- Standard belt increments 50,8 mm.
- Non-standard increments 25,4 mm
- Please contact with customer service for precise belt measurements.
- For smaller and bigger sizes, please contact with customer service.

EC508T R Serie *Sprockets and Accessories*

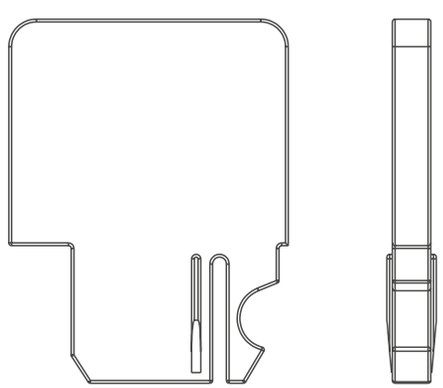

Z8

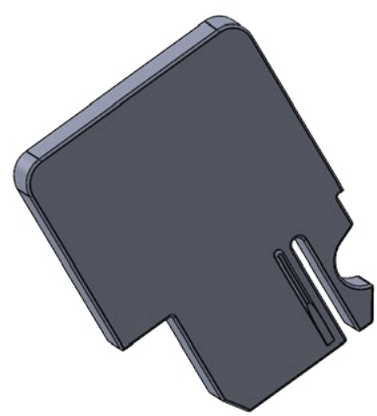


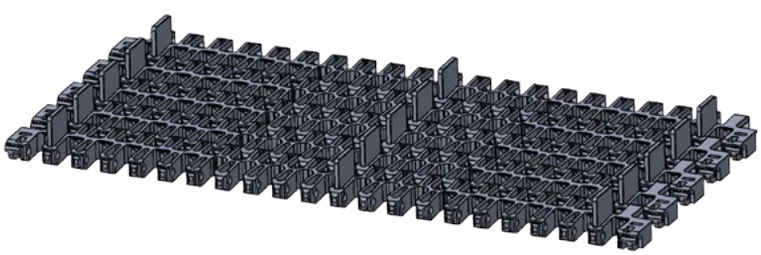
EC508T R Serie / Machined Sprocket Dimensions

NO.TEETH	Di mm/**inch**	Do mm/**inch**	B mm/**inch**	A mm/**inch**	Square Bore (Q) mm/**inch**	Round Bore (R) mm/**inch**	PRODUCT CODE	
							Square Type (Q)	Round Type (R)
Z8	99,7 / **3.93**	127,3 / **5.01**	22 / **0.87**	30 / **1.18**	40 / **1.5**	25-30 / **1-1.25**	EC508TRSQZ8*POM	EC508TRSRZ8*POM
Z10	133,6 / **5.26**	160,4 / **6.31**	22 / **0.87**	30 / **1.18**	40 / **1.5**	25-30 / **1-1.25**	EC508TRSQZ10*POM	EC508TRSRZ10*POM
Z12	167,1 / **6.58**	193,2 / **7.61**	22 / **0.87**	30 / **1.18**	40 / **1.5**	25-30 / **1-1.25**	EC508TRSQZ12*POM	EC508TRSRZ12*POM

*All required sprockets produced by CNC.
*Other sprockets and hub sizes are manufactured up to request.
*POM (Acetal) and PA (Polyamide) sprockets raw material is available on request.
***Machined Split Sprockets are avaliable for each size.**





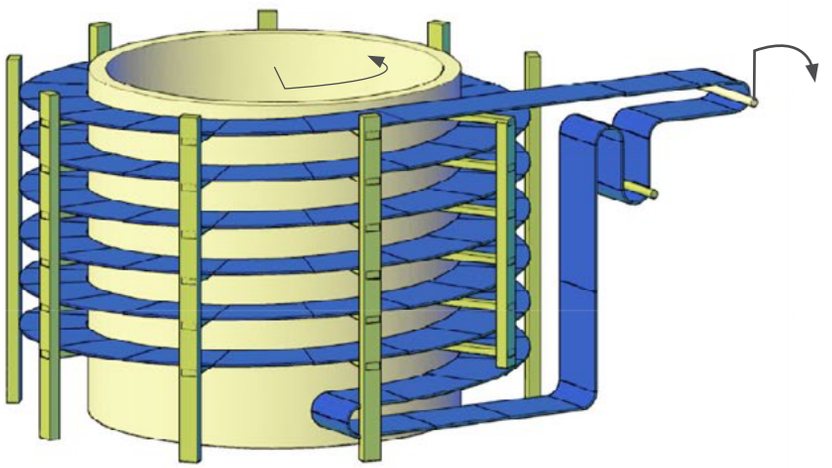


EC508T R Serie / Divider Technical Specifications

Divider	-	
	mm	**inch**
Standard	35,9	**1.41**
Standard	61,3	**2.41**
Standard	86,7	**3.41**
Standard	112,1	**4.41**

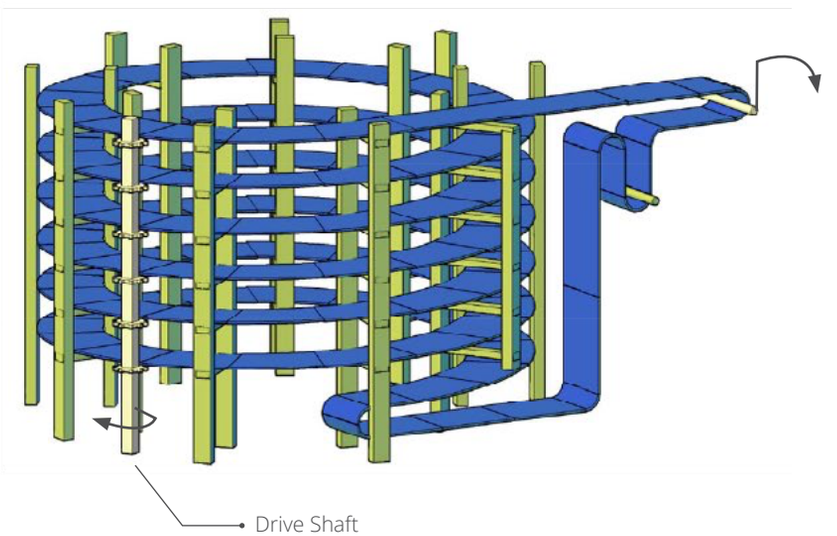
EC508T R Serie / Drum Types

Central Driver Drum



Spiral conveyor of this kind is made of modular belt that twisted around of special drum structure in the center. The belt is sliding on rails with plastic profile with low friction. The rails are fixed on external vertical support columns. The drive drum has a cylindrical shape and made of profiled pipes or plates, forming a continuous or rarefied surface.

Lateral Driver Drum



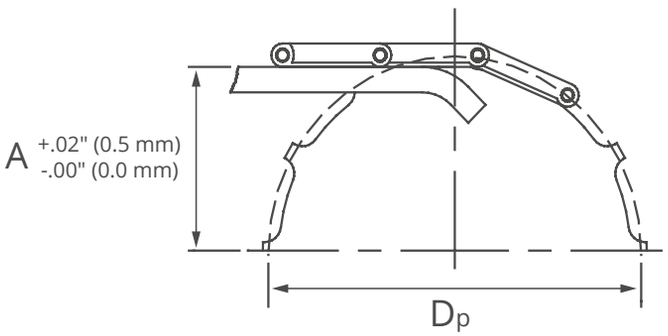
Lateral drive system has been implemented as a stainless steel structure with a gear motor located in a bottom part and connected with a vertical shaft that has driving sprockets, the number of which equals the number of tiers on the spiral conveyor. Belt received the teeth on the outer contour and through which carried out the movement from the sprockets, thus forming a multilevel gear transmission.

Wear Strip Placement Calculation

This formula is a general guideline and does not take into consideration belts traveling at speeds greater than 75 ft/min. (23 m/minute). For high speed applications, Modutech recommends increasing the height of "A" and shortening the wear strips as much as one belt pitch in length.

A = ½ x (Dp – BT)

A = Calculated Height
Dp = Sprocket Pitch Diameter
BT = Belt Thickness



EC508T R Serie *Technical Specifications*

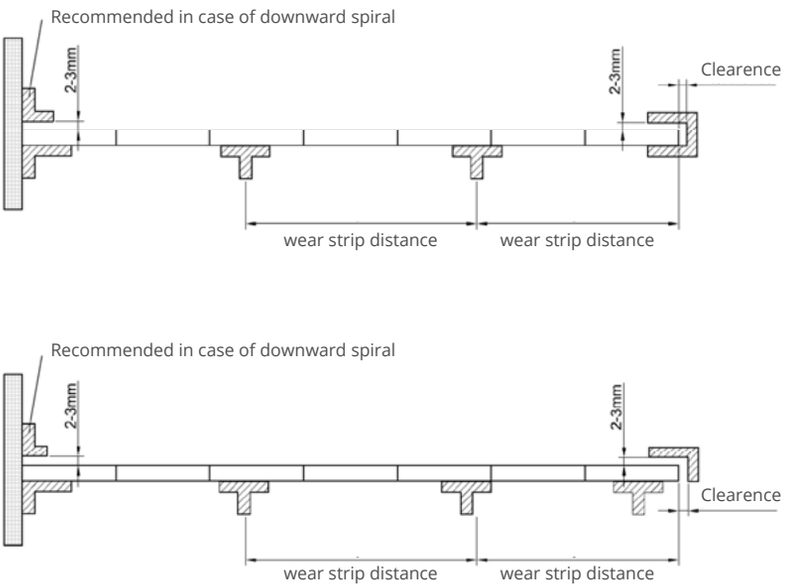
EC508T R Serie / Wear Strip Placement

Due to the strength and rigidity of the stainless steel pins the number of wear strip can be largely reduced compared to other belts with plastic pin.

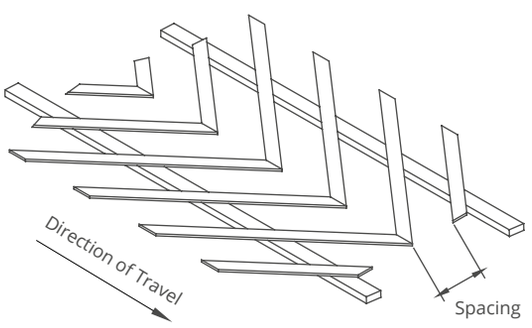
The wear strip distance is based on the product weight and how is distributed on the belt. a range between 250 and 400 mm is covering most of the case. on the return path the guides can be spaced up 1 meter apart.

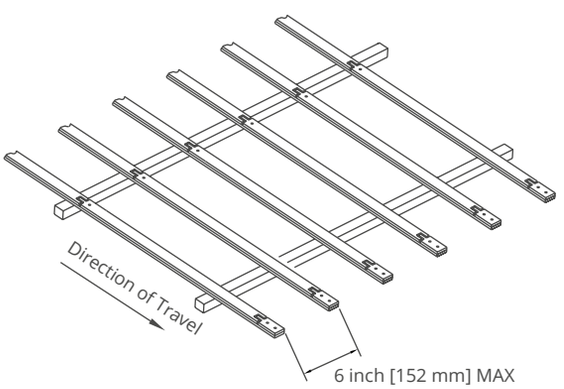
Due to excellent belt width tolerance the lateral gap between belt and guides can be few mm, anyhow it is important to keep into firm consideration the thermal dilatation of the belt that corresponds exactly to the dilatation of the stainless steel pin.

Note: Please contact with your sales representative for suitable wear strip types and location for spiral towers.



EC508T R Serie / Support





Herringbone rails: Modutech recommended. Flat wear strips in a "V" configuration with the point of the "V" pointing in the direction of travel. Low friction wear strip material preferred to minimize belt wear. Recommended spacing between rails of 100–300mm depending on belt type, load, and other factors. This configuration distributes the wear over the entire belt width.

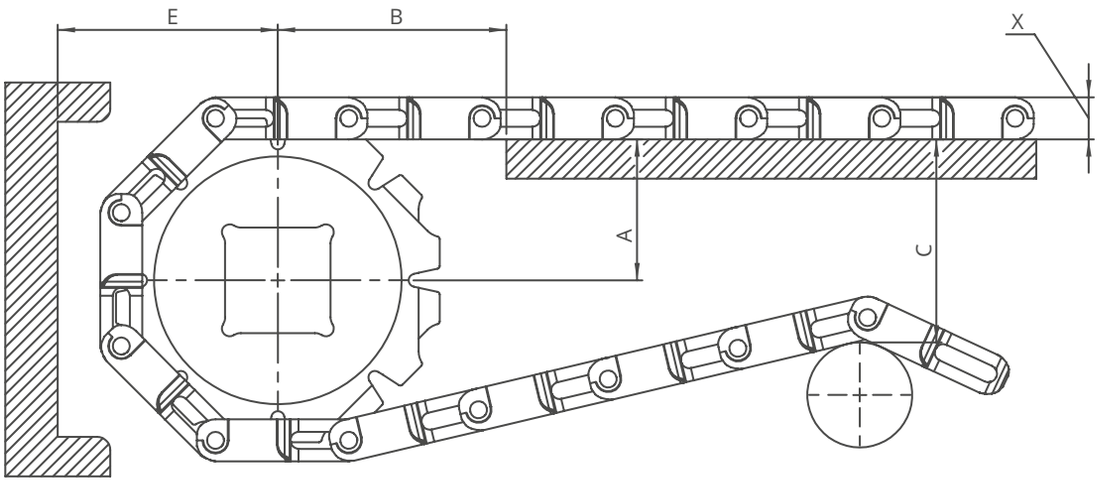
Longitudinal Rails: Flat wear strips the full length of the conveyor, parallel to each other and perpendicular to the terminal shafts. Low friction wear strip material preferred to minimize belt wear. Recommended spacing between rails of 100-300mm depending on belt type, load, and other factors. This configuration does not distribute wear over the full width of the belt.





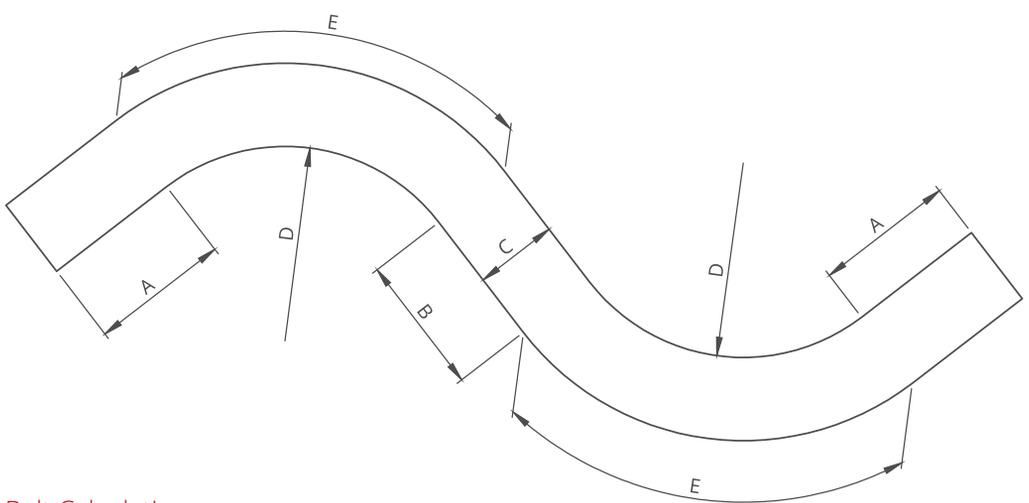
EC508T R Serie *Engineering Information*

A - ± 0,031" (1mm)
B - ± 0,125" (3mm)
C - ± (Max.)
E - ± (Min.)



EC508T R Serie / Conveyor Frame Dimensions

Sprockets Description			A		B		C		E		X	
Pitch Diameter		No.Teeth	Range (Bottom to Top)									
inch	mm		**inch**	mm	**inch**	mm	**inch**	mm	**inch**	mm	**inch**	mm
EC508T R												
4.52	114,8	8	**2.36**	60,1	**1.85**	47,0	**4.47**	113,5	**3.36**	85,4	**0.63**	16,0
5.81	147,5	10	**2.96**	75,1	**2.31**	58,7	**5.85**	141,8	**4.01**	101,8	**0.63**	16,0
7.09	180,2	12	**3.55**	90,1	**2.77**	70,5	**6.70**	170,2	**4.65**	118,1	**0.63**	16,0



Radius Belt Example 90° S-Curve

EC508T R Serie / Radius Belt Calculation

A: Straight run pull and n = Belt width
B: Straight run between 2 curves = min. 2 x belt width
C: Belt width
D: Minimum inner radius
E: Curve length

$$\text{Collapse Factor} = \frac{\text{Min. inner radius}}{\text{Belt width}}$$

Minimum inner radius = Collapse Factor x Belt width

CALCULATION EXAMPLE

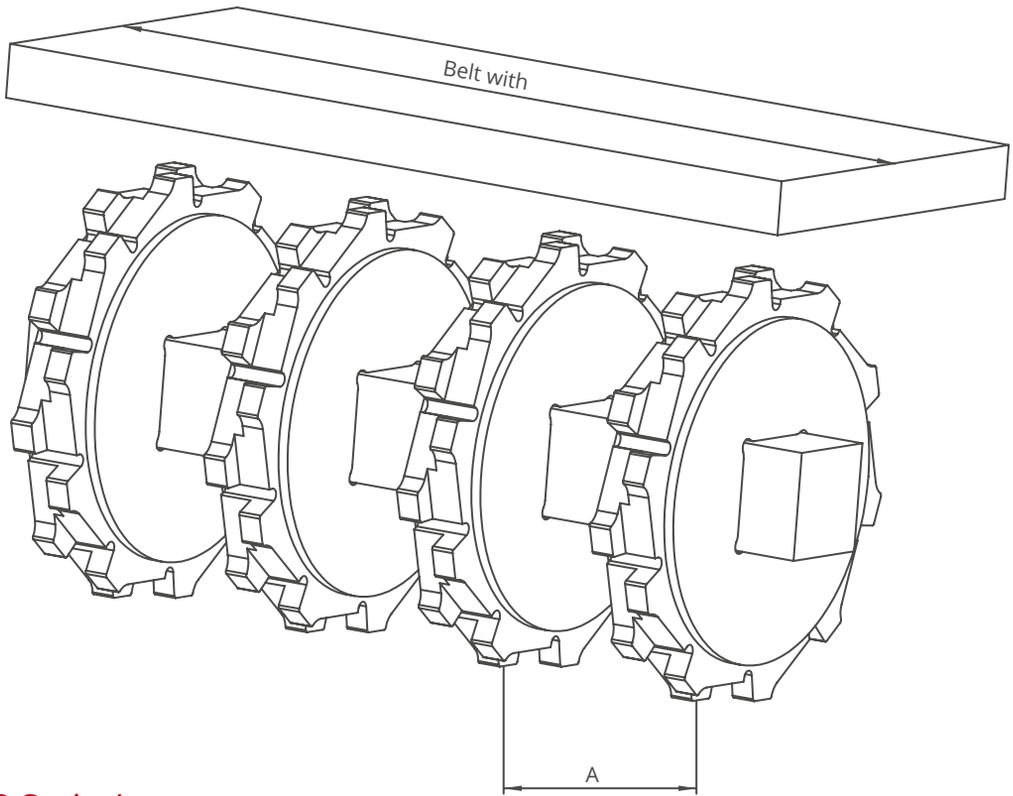
Belt width: 762 mm Radius Belt
Collapse Factor: 1.53

D: 762 mm x 1.53 = 1166 mm
A: 762 mm
B: 2 x 762 mm = 1524 mm (min.)
E: $\frac{2 \times (C+D) \times 3.14}{4}$ = 3027 mm

Total length = (2 x A) + B + (2 x E)

EC508T R Serie *Engineering Information*

MODUTECH



EC508T R Serie / Sprockets Arrangement

Standard Belt Width		Number of sprockets per shaft		A (mm/**inch**)	
mm	**inch**	Drive Shaft	Return Shaft	Min.	Max.
508,0	**20.0**	6	5	50/**2**	120/**4.7**
558,8	**22.0**	7	6	50/**2**	120/**4.7**
609,6	**24.0**	8	7	50/**2**	120/**4.7**
660,4	**26.0**	8	7	50/**2**	120/**4.7**
711,2	**28.0**	9	8	50/**2**	120/**4.7**
762,0	**30.0**	10	9	50/**2**	120/**4.7**
812,8	**32.0**	10	9	50/**2**	120/**4.7**
863,6	**34.0**	11	10	50/**2**	120/**4.7**
914,4	**36.0**	11	10	50/**2**	120/**4.7**
965,2	**38.0**	12	11	50/**2**	120/**4.7**
1016,0	**40.0**	13	12	50/**2**	120/**4.7**
1066,8	**42.0**	13	12	50/**2**	120/**4.7**
1117,6	**44.0**	14	13	50/**2**	120/**4.7**
1168,4	**46.0**	15	14	50/**2**	120/**4.7**

Note: Number of sprockets depends on the belt load.

EC508T R Serie / Collapse Factors per width for EC508T R Serie

Nom. Belt Width (mm)	355,6	406,4	457,2	508,0	558,8	609,6	660,4	711,2	762,0	812,8	863,6	914,4	965,2	1016,0	1066,8	1117,6	1168,4	1219,2	1270,0	1320,8
Nom. Belt Width **(inch)**	**14.0**	**16.0**	**18.0**	**20.0**	**22.0**	**24.0**	**26.0**	**28.0**	**30.0**	**32.0**	**34.0**	**36.0**	**38.0**	**40.0**	**42.0**	**44.0**	**46.0**	**48.0**	**50.0**	**52.0**
Collapse Factor	1,49	1,49	1,49	1,49	1,50	1,51	1,52	1,53	1,53	1,54	1,54	1,55	1,56	1,56	1,57	1,57	1,58	1,60	1,62	1,63
Min. Inner Radius (mm)	529,8	605,5	681,2	756,9	838,2	920,5	1003,8	1088,1	1165,9	1251,7	1329,9	1417,3	1505,7	1585,0	1674,9	1754,6	1846,1	1950,7	2057,4	2152,9
Min. Inner Radius **(inch)**	**20.9**	**23.8**	**26.8**	**29.8**	**33.0**	**36.2**	**39.5**	**42.8**	**45.9**	**49.3**	**52.4**	**55.8**	**59.3**	**62.4**	**65.9**	**69.1**	**72.7**	**76.8**	**81.0**	**84.8**

Standard range of belt width and collapse factor (Min. Inner radius = Collapse factor x Standard belt width)