



# ***EC381 R***

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## **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

- **Automotive Applications**

Car Part Manufacturing, Battery Filling

- **Packaging Applications**

Tray Packers, Box Transport Horizontal

- **Postal Applications**

Parcel Handling



**MODUTECH®**  
Movement Technologies

# EC381 R

|                         |                                                                         |
|-------------------------|-------------------------------------------------------------------------|
| <b>Pitch:</b>           | 38,1 mm / 1.5 inch                                                      |
| <b>Belt Surface:</b>    | Open, Smooth Surface                                                    |
| <b>Minimum Width:</b>   | 200 mm / 7.87 inch                                                      |
| <b>Open Area (%):</b>   | 30%. ( Biggest opening 7 x 19 mm )                                      |
| <b>Flight:</b>          | No                                                                      |
| <b>Sidewall:</b>        | No                                                                      |
| <b>Pin:</b>             | Ø6 mm / 0.296 inch - Self Lock                                          |
| <b>Approved:</b>        | FDA and EU                                                              |
| <b>Curve:</b>           | Yes                                                                     |
| <b>Color:</b>           | White                                                                   |
| <b>Cleanability:</b>    | Excellent                                                               |
| <b>Application:</b>     | Straight and side flexing                                               |
| <b>Collapse Factor:</b> | 1.85 - 2.13 (Please check page 211 to see Collapse Factors-Width Table) |
| <b>Belt Thickness:</b>  | 18 mm / 0.71 inch                                                       |

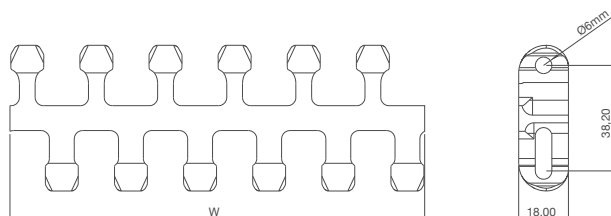


## EC381 R Technical Information

| Belt Material            |                  | POM                            | POM                            | PP                             | PP                            |
|--------------------------|------------------|--------------------------------|--------------------------------|--------------------------------|-------------------------------|
| Pin Material             |                  | PA                             | POM                            | PA                             | POM                           |
| Belt Strength (Straight) | N/m   lb/ft      | 32000 - <b>2192</b>            | 32000 - <b>2192</b>            | 23000 - <b>1575</b>            | 23000 - <b>1575</b>           |
| Belt Strength (Curve)    | N/m   lb/ft      | 2400 - <b>540</b>              | 2400 - <b>540</b>              | 2000 - <b>450</b>              | 2000 - <b>450</b>             |
| Temperature              | °C<br>°F         | -40 / +93<br><b>-40 / +200</b> | -40 / +93<br><b>-40 / +200</b> | +5 / +105<br><b>+40 / +220</b> | +5 / +93<br><b>+40 / +200</b> |
| Belt Weight              | kg/m²   lb/sqft² | 11.8 / <b>2.42</b>             | 11.8 / <b>2.42</b>             | 8.0 / <b>1.64</b>              | 8.0 / <b>1.64</b>             |

| Diameter of idling rollers (min.) |            | Diameter of support rollers (min.) |            | Diameter for gravity take up center drive rollers (min.) |          | Backbending radius for elevators without side guards or hold down devices (min.) |          | Backbending radius for elevators with side guards or hold down devices (min.) |           |
|-----------------------------------|------------|------------------------------------|------------|----------------------------------------------------------|----------|----------------------------------------------------------------------------------|----------|-------------------------------------------------------------------------------|-----------|
| mm                                | inch       | mm                                 | inch       | mm                                                       | inch     | mm                                                                               | inch     | mm                                                                            | inch      |
| 90                                | <b>3.5</b> | 90                                 | <b>3.5</b> | 150                                                      | <b>6</b> | 150                                                                              | <b>6</b> | 250                                                                           | <b>10</b> |

|                 |        |        |        |        |       |       |       |       |       |       |       |       |       |       |       |       |        |
|-----------------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Belt Width mm   | 200,0  | 250,0  | 300,0  | 350,0  | 400,0 | 450,0 | 500,0 | 550,0 | 600,0 | 650,0 | 700,0 | 750,0 | 800,0 | 850,0 | 900,0 | 950,0 | 1000,0 |
| Belt Width inch | 7.87   | 9.84   | 11.81  | 13.78  | 15.75 | 17.72 | 19.69 | 21.65 | 23.62 | 25.59 | 27.56 | 29.53 | 31.50 | 33.46 | 35.43 | 37.40 | 41.34  |
| Belt Width mm   | 1050,0 | 1100,0 | 1150,0 | 1200,0 |       |       |       |       |       |       |       |       |       |       |       |       |        |
| Belt Width inch | 41.34  | 43.31  | 45.28  | 47.24  |       |       |       |       |       |       |       |       |       |       |       |       |        |



### Product Features and Functional Benefits

- Belt designed for tight radius applications.
- Available for light and medium load capacity.
- 180 degree high speed side flexing applications.
- High temperature and wear resistance.
- Unique locking system.
- Belt provides optimal open area for drainage airflow.

### Important Notes

- **Standard belt increments 50 mm.**
- **Non-standard belt increments 25 mm.**
- Special raw materials and additional colors available.
- Belt widths bigger than **1200 mm (48")** are not recommended. For further information, please contact Modutech Representatives.
- Physical belt widths are generally **0.1% to 0.3%** smaller.
- For PP & POM material up to **750 mm (30") -3 mm to 0mm** and **-0.4% to 0%** for wider belts.

# EC381 R Series

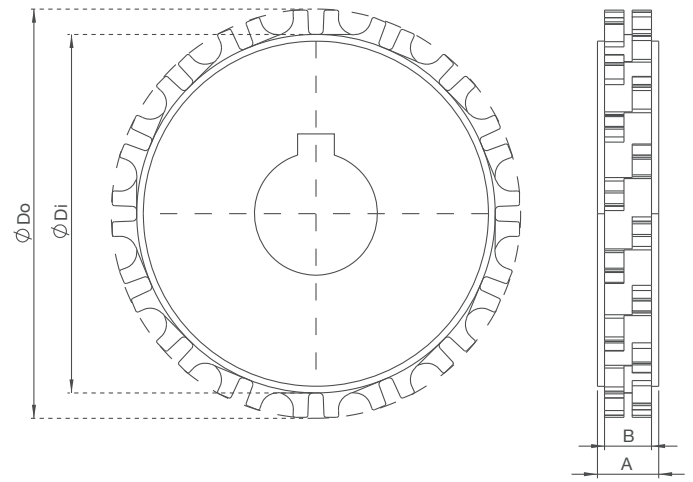
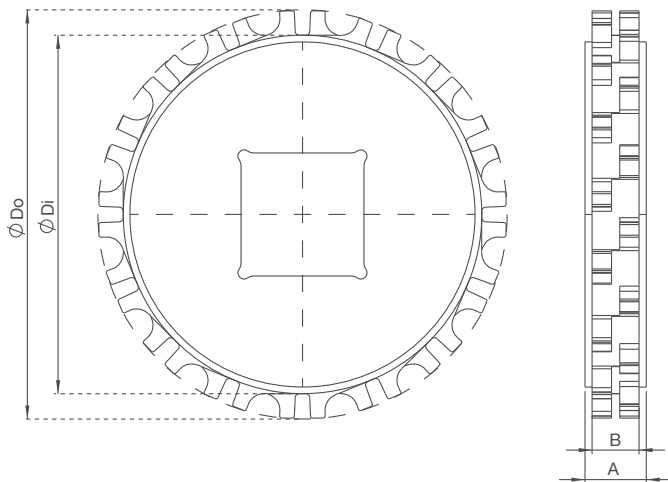
## Engineering Information



Z16



Z12



### EC381 R Series / Machined Sprockets Dimensions

| NO.TEETH | Di<br>mm/inch | Do<br>mm/inch | B<br>mm/inch | A<br>mm/inch | Square Bore (Q)<br>mm/inch |         | Round Bore (R)<br>mm/inch |         | PRODUCT CODE    |                 |
|----------|---------------|---------------|--------------|--------------|----------------------------|---------|---------------------------|---------|-----------------|-----------------|
|          |               |               |              |              |                            |         |                           |         | Square Type (Q) | Round Type (R)  |
| Z8       | 77,3 / 3.04   | 102,4 / 4.03  | 23 / 0.9     | 30,0 / 1.18  | 40                         | 1.5     | 40                        | 1.5     | EC381RSQZ8*POM  | EC381RSRZ8*POM  |
| Z12      | 125,7 / 4.94  | 150,9 / 5.94  | 23 / 0.9     | 30,0 / 1.18  | 40-60                      | 1.5-2.5 | 40-60                     | 1.5-2.5 | EC381RSQZ12*POM | EC381RSRZ12*POM |
| Z16      | 175,5 / 6.90  | 200,4 / 7.88  | 23 / 0.9     | 30,0 / 1.18  | 40-60                      | 1.5-2.5 | 40-60                     | 1.5-2.5 | EC381RSQZ16*POM | EC381RSRZ16*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

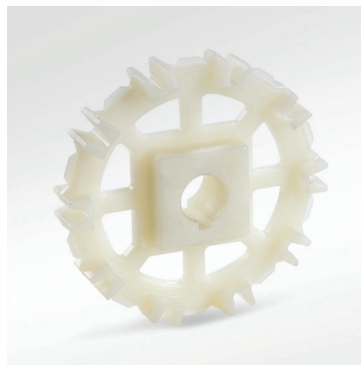
\*Machined Split Sprockets are available for each size.



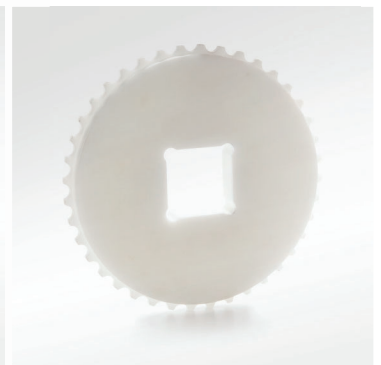
Clamp



Machined Split Sprocket



Moulded Sprocket

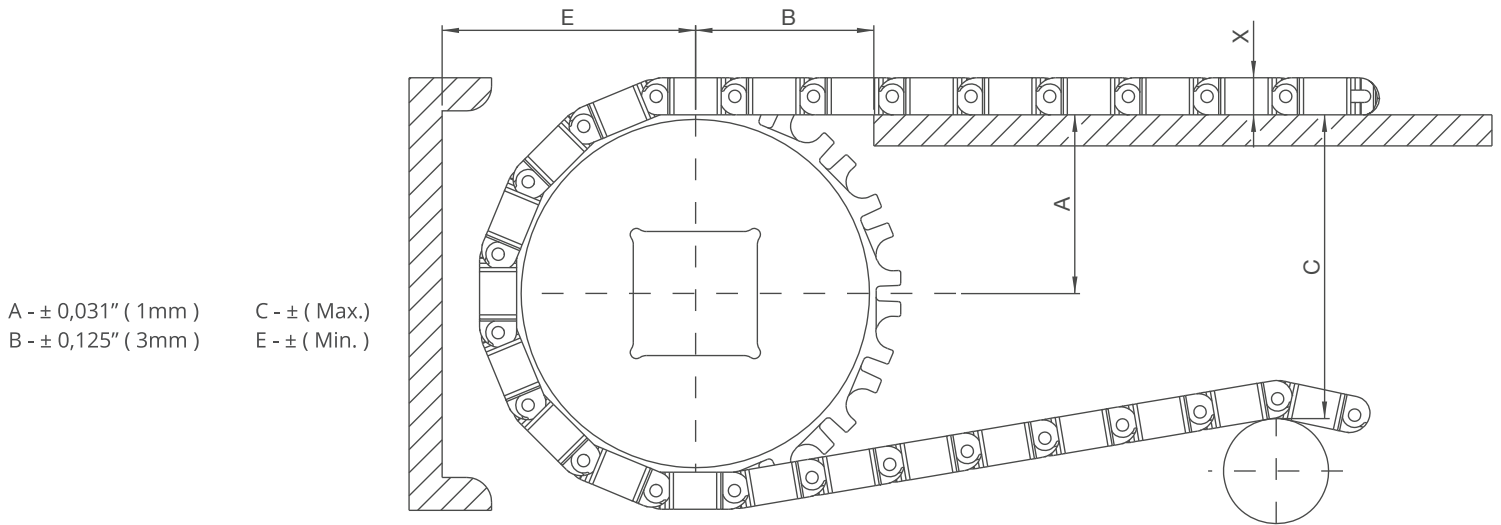


Machined Sprocket



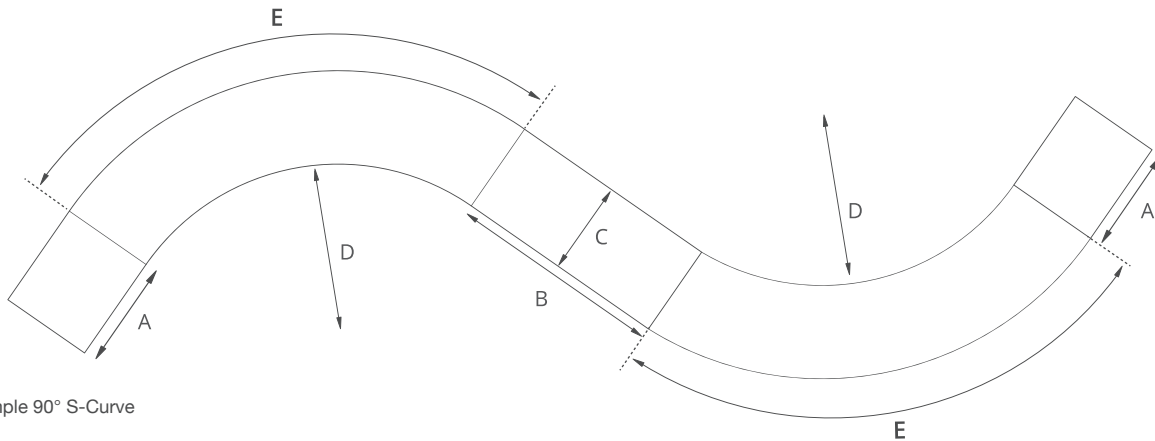
# EC381 R Series

## Engineering Information



### EC381 R Series / 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   |      |       |      |       |      |       |      |      |
| EC381 R               |       |          |                       |      |      |       |      |       |      |       |      |      |
| 3.96                  | 100,6 | 8        | 1.70                  | 43,2 | 2.63 | 66,8  | 3.01 | 76,4  | 4.11 | 104,4 | 0.71 | 18,0 |
| 5.86                  | 148,8 | 12       | 2.66                  | 67,6 | 3.01 | 76,5  | 4.93 | 125,2 | 6.03 | 153,2 | 0.71 | 18,0 |
| 7.77                  | 197,3 | 16       | 3.63                  | 92,3 | 4.23 | 107,4 | 6.87 | 174,6 | 7.98 | 202,6 | 0.71 | 18,0 |



Radius Belt Example 90° S-Curve

### EC381 R Series / Radius Belt Calculation

- A:** Straight run pull and  $n = \min. 1,5 \times \text{belt width recommended}$
- B:** Straight run between 2 curves =  $\min. 2 \times \text{belt width}$
- C:** Belt width
- D:** Minimum inner radius
- E:** Curve length

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

$$\text{Minimum inner radius} = \text{Collapse Factor} \times \text{Belt width}$$

#### CALCULATION EXAMPLE

**Belt width:** 600 mm 90° Radius Belt

**Collapse Factor:** 2.07

**D:**  $600 \times 2.07 = 1242 \text{ mm}$

**A:** 600 (Min.)

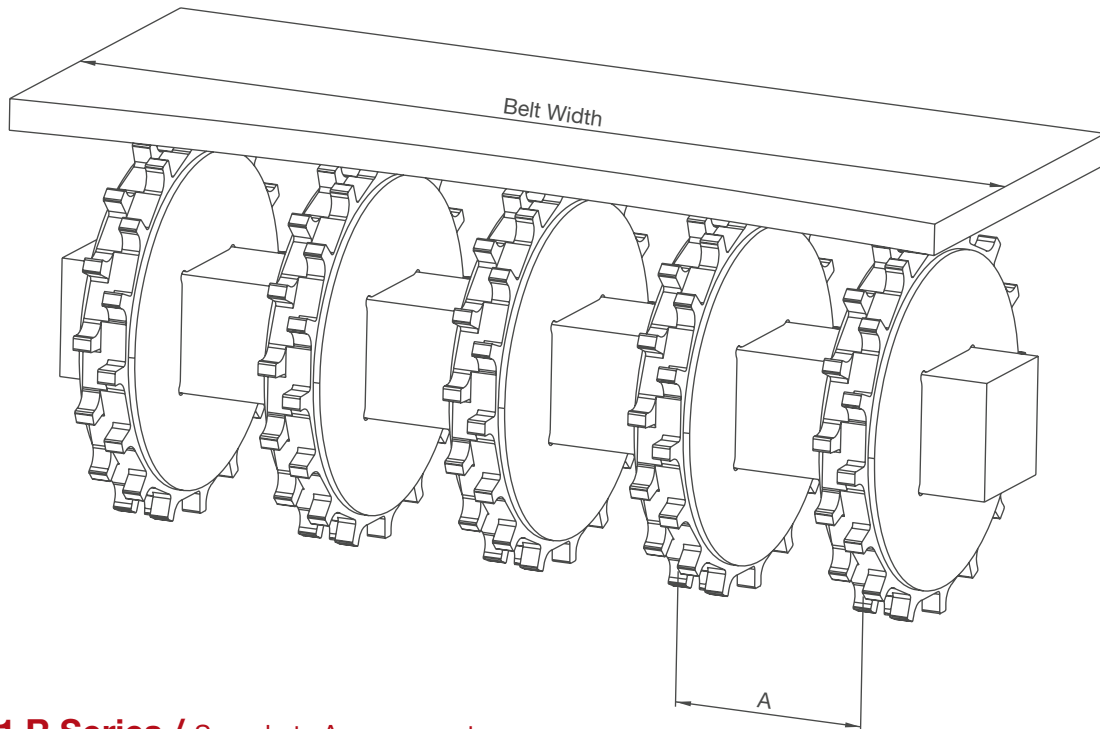
**B:**  $2 \times 600 = 1200 \text{ mm (Min.)}$

**E:**  $\frac{2 \times (C+D) \times 3.14}{4} = 2893 \text{ mm}$

**Total length** =  $(2 \times A) + B + (2 \times E)$

# EC381 R Series

## Engineering Information



### EC381 R Series / Sprockets Arrangement

| Standard Belt Width |      | Number of sprockets per shaft |              | A (mm/inch) |         |
|---------------------|------|-------------------------------|--------------|-------------|---------|
| mm                  | inch | Drive Shaft                   | Return Shaft | Min.        | Max.    |
| 200,0               | 7.9  | 2                             | 2            | 50/2        | 120/4.7 |
| 250,0               | 9.8  | 2                             | 2            | 50/2        | 120/4.7 |
| 300,0               | 11.8 | 2                             | 2            | 50/2        | 120/4.7 |
| 350,0               | 13.8 | 3                             | 3            | 50/2        | 120/4.7 |
| 400,0               | 15.7 | 3                             | 3            | 50/2        | 120/4.7 |
| 450,0               | 17.7 | 3                             | 3            | 50/2        | 120/4.7 |
| 500,0               | 19.7 | 3                             | 3            | 50/2        | 120/4.7 |
| 550,0               | 21.7 | 3                             | 3            | 50/2        | 120/4.7 |
| 600,0               | 23.6 | 5                             | 5            | 50/2        | 120/4.7 |
| 650,0               | 25.6 | 5                             | 5            | 50/2        | 120/4.7 |
| 700,0               | 27.6 | 5                             | 5            | 50/2        | 120/4.7 |
| 750,0               | 29.5 | 5                             | 5            | 50/2        | 120/4.7 |
| 800,0               | 31.5 | 5                             | 5            | 50/2        | 120/4.7 |
| 850,0               | 33.5 | 7                             | 7            | 50/2        | 120/4.7 |
| 900,0               | 35.4 | 7                             | 7            | 50/2        | 120/4.7 |
| 950,0               | 37.4 | 7                             | 7            | 50/2        | 120/4.7 |
| 1000,0              | 39.4 | 7                             | 7            | 50/2        | 120/4.7 |
| 1050,0              | 41.3 | 7                             | 7            | 50/2        | 120/4.7 |
| 1100,0              | 43.3 | 9                             | 9            | 50/2        | 120/4.7 |
| 1150,0              | 45.3 | 9                             | 9            | 50/2        | 120/4.7 |
| 1200,0              | 47.2 | 9                             | 9            | 50/2        | 120/4.7 |

**Note:** Number of sprockets depends on the belt load.

### EC381 R Series / Collapse Factors per width for EC381 R Series

| Nom. Belt Width (mm)     | 200,0 | 250,0 | 300,0 | 350,0 | 400,0 | 450,0 | 500,0  | 550,0  | 600,0  | 650,0  | 700,0  | 750,0  | 800,0  | 850,0  | 900,0  | 950,0  | 1000,0 | 1050,0 | 1100,0 | 1150,0 | 1200,0 |
|--------------------------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Nom. Belt Width (inch)   | 7.9   | 9.8   | 11.8  | 13.8  | 15.7  | 17.7  | 19.7   | 21.7   | 23.6   | 25.6   | 27.6   | 29.5   | 31.5   | 33.5   | 35.4   | 37.4   | 39.4   | 41.3   | 43.3   | 45.3   | 47.2   |
| Collapse Factor          | 1,85  | 1,92  | 1,96  | 1,99  | 2,02  | 2,03  | 2,05   | 2,06   | 2,07   | 2,08   | 2,09   | 2,09   | 2,10   | 2,10   | 2,11   | 2,11   | 2,11   | 2,12   | 2,12   | 2,12   | 2,13   |
| Min. Inner Radius (mm)   | 370,0 | 480,0 | 588,0 | 696,5 | 808,0 | 913,5 | 1025,0 | 1133,0 | 1242,0 | 1352,0 | 1463,0 | 1567,5 | 1680,0 | 1785,0 | 1899,0 | 2004,5 | 2110,0 | 2226,0 | 2332,0 | 2438,0 | 2556,0 |
| Min. Inner Radius (inch) | 14.6  | 18.9  | 23.1  | 27.4  | 31.8  | 36.0  | 40.4   | 44.6   | 48.9   | 53.2   | 57.6   | 61.7   | 66.1   | 70.3   | 74.8   | 78.9   | 83.1   | 87.6   | 91.8   | 96.0   | 100.6  |

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