Modular radius belt

ZERO 520 CONTACT

Movex
BELT SERVICE CORPORATION

PRODUCT MANUAL
The new modular radius belt Zero Contact™ is available in different widths with a closed-top surface capable of handling a variety of package sizes, types and configurations including delicate products and applications exiting a shrink wrapper.

**Design**
Innovative, robust construction, straight section eliminated before and after curve.

**Features**
Speed: Up to 70 meters per minute

**Product care**
Improved product handling, holding original orientation.

**Radius and Pitch**
Constant inner radius and reduced pitch.

**Safe design**
Closed-Top design and Improved Safety.

**Space**
Less floorspace required.

**...and reduced Maintenance Cost!**

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Minimum width: 200 mm (increments of 200 mm)
Maximum width: 1000 mm
Open Area: 0%
Possible conveyor angle: 90° and 180°
Other angles on request.
Min. inner radius: 600 mm (increments of 200 mm)
Max. inner radius: 1400 mm
Weight: 9.25 kg/m²
Max. work load: 2400 N per 200 mm of belt width.

Belt Material: LFA Low friction Acetal
Pin Material: PBT White

If you have questions about a specific application, contact our engineering department.
Zero Contact™ - Just the right choice, why...

- No straight section necessary.
- Safe product transfer with transfer modules.
- Ballbearings ensure a smooth and safe belt support.
- Easy implementation in existing layouts respectively easy replacement of existing conveyors.
- Low noise return with rubber coated return rollers, alternatively bearings.

Short transfer section allows for safe product transfer with fixed product orientation.
Sprockets

- All the sprockets have to be applied with the key way.
- Axial fixation of sprockets with locking collars or spacers is necessary.

How to select the sprocket?

- Based on the belt width and R min.
- One sprocket every 100 mm of belt width: starting from R min. + 50 mm
- Width 200 mm = 2 Sprockets per shaft
  Width 600 mm = 6 Sprockets per shaft - etc...

Example: R min. 800 mm / Belt width 600 mm

<table>
<thead>
<tr>
<th>Article-Nr.</th>
<th>Z-</th>
<th>Bore</th>
<th>R min.</th>
<th>Pitch Diam.</th>
<th>Ext. Diam.</th>
<th>L</th>
<th>S</th>
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<tbody>
<tr>
<td>162401</td>
<td>12</td>
<td>40</td>
<td>600</td>
<td>58.0</td>
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<tr>
<td>162410</td>
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<td>140.0</td>
<td>33.4</td>
<td>64.3</td>
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<td></td>
</tr>
</tbody>
</table>

Material: Polyamide / Screws: Stainless steel / Nuts: zinc plated steel

NOTE: in order to install the smallest sprockets a shaft key way continued to the end of the shaft is required.
Support guide and Return way

Install the shaft with an angle of 2.5° from horizontal structure.

Install the bearings with an angle of 5° from horizontal structure.

Support guides according to your specification.
Also in BluLub.

Guide position

Return way with Return rollers
Return way with Bearings

BluLub Guide
Movex
Inside rail

The inner edge of the belt should never touch the frame. Ensure a minimum gap of 6 mm.

Caused by the shaft alignment of 2.5° the inside edge of the belt gets closer to the rail frame on the return section than in the carryway.

All bearing must be placed at an angle of 5° as shown on picture. Ensure the optimum possible contact between belt and bearing.

Inside edge bearing reduce friction load on the belt, with this solution higher speed is possible.

Max distance between the bearings 200 mm. 5 bearings for 90° curve are recommended.

Belt return rollers/bearings have to be installed at the same position as inside rail bearings.

Recommendation for the bearings (inside and return support) - 12 mm double row 5201-2RS bearing - 12 x 18 SST shoulder bolt
Inside rail and Frame rail

- Inside edge bearing reduce friction load on the belt, with this solution higher speed is possible.
- All bearing must be placed at an angle of 5° as shown on picture. Ensure the optimum possible contact between belt and bearing.

<table>
<thead>
<tr>
<th>Inside belt radius</th>
<th>Vertical distance</th>
<th>HBD Horizontal belt displacement</th>
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<tbody>
<tr>
<td>mm</td>
<td>mm</td>
<td>mm</td>
</tr>
<tr>
<td>600</td>
<td>52,5</td>
<td>4,6</td>
</tr>
<tr>
<td>800</td>
<td>70,0</td>
<td>6,2</td>
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<td>87,5</td>
<td>7,7</td>
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<tr>
<td>1200</td>
<td>105,0</td>
<td>9,2</td>
</tr>
<tr>
<td>1400</td>
<td>122,5</td>
<td>10,7</td>
</tr>
</tbody>
</table>

Install with gap

Vertical distance between bearings

Finger safety
Belt guide
**Shaft bearings**

Recommended bearings with locking collars with a diameter of 40 mm.

For a longer bearing wear life it’s recommended to install an intermediate plate. Matching the bearing housing dimension and with an angle of 2.5°.

Create a flat mounting section for shaft bearing housing. The straight section should be 50 mm.

**Transfer plate**

Possible space covered by the transfer plate.
Catenary and Belt tension

- Catenary will form between return roller shafts.
- No specific catenary is necessary.
- Tensioning device is not necessary.
- If belt elongation is approaching the limit, just shorten the belt.

Belt speed

EXAMPLE:
\[ R_i = 600 \]
\[ W = 800, \ R_o = R_i + W, \ R_o = 600 + 800 = 1400 \]
\[ R_c = \frac{R_i + R_o}{2} = \frac{600 + 1400}{2} = 1000 \]

NOTE:
- Set speed of the drive relative to center line of the belt.
- Consider belt speed inside is less outside higher than center line speed.

\[ \begin{align*}
V_i &= V_c \times \frac{R_i}{R_c} \\
    &= 20 \times \frac{600}{1000} \\
    &= 12 \text{ m/min.}
\end{align*} \]

\[ \begin{align*}
V_o &= V_c \times \frac{R_o}{R_c} \\
    &= 20 \times \frac{1400}{1000} \\
    &= 28 \text{ m/min.}
\end{align*} \]

\[ \begin{align*}
V_c &= 20 \text{ m/min.} \\
V_i &= V_c \times \frac{R_i}{R_c} \\
V_o &= V_c \times \frac{R_o}{R_c}
\end{align*} \]

Troubleshooting

If you have some problem, contact our engineering department.
Recommended components

Return rollers
PART 220

Locking collars
PART 215

Flange bearings
PART 838
or PART 839

Profile
PART 1008
or PART 700
PART 153

Transfer modules
PART 371
or PART 369
or PART 342

Continue for more details >>
### Return roller

With rubber D=47 mm

### Locking collars

Max recommended tightening torque: 0.3 N·m

### Flange bearings

#### Insert with locking collar, sealed, close version - UCFA 208

<table>
<thead>
<tr>
<th>Part</th>
<th>Art-close</th>
<th>d</th>
<th>I</th>
<th>A</th>
<th>C</th>
<th>D</th>
<th>L</th>
<th>M</th>
<th>B</th>
<th>E</th>
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<td>50</td>
<td>164</td>
<td>20</td>
<td>9.5</td>
<td>54.7</td>
<td>66</td>
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</table>

#### Insert with locking collar, sealed, open version - UCFA 208

<table>
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<td>164</td>
<td>20</td>
<td>9.5</td>
<td>54.7</td>
<td>66</td>
</tr>
</tbody>
</table>

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**Material:**
- Clamps: Polyamide
- Screws and nuts: Stainless steel

**Watertight**

**Polyethylene (PE)**

**Rubber: TPR**
### Profile

<table>
<thead>
<tr>
<th>Part</th>
<th>Article-Nr.</th>
<th>L</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>1008</td>
<td>100803B</td>
<td>6  m</td>
<td>On request</td>
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**Material:** Polyethylene UHMW-PE with molecular density 5,600,000 g/mol

Linear expansion coefficient: $1.1 \times 10^{-4} \, ^\circ F^{-1}$ ($2 \times 10^{-4} \, ^\circ C^{-1}$)

Operating temperature: -40 to 176°F (-40 to +80°C)

*Fit on 5 mm*

<table>
<thead>
<tr>
<th>Part</th>
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<th>Availability</th>
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<tr>
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</tbody>
</table>

**Material:** Polyethylene UHMW-PE with molecular density 9,200,000 g/mol.

**BluLub,** new material with reduced coefficient of friction and higher wear resistance. BluLub complies with the code of Federal Regulations of FDA.

Linear expansion coefficient: $1.1 \times 10^{-4} \, ^\circ F^{-1}$ ($2 \times 10^{-4} \, ^\circ C^{-1}$)

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<thead>
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<th>Part</th>
<th>Article-Nr.</th>
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<th>Availability</th>
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**Material:** Polyethylene UHMW-PE with molecular density 9,200,000 g/mol.

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### Support Guide

**Zero Contact™**

**Material:** Polyethylene UHMW-PE with molecular density 9,200,000 g/mo.

**BluLub®** new material with reduced coefficient of friction and higher wear resistance. BluLub complies with the code of Federal Regulations of FDA.

Linear expansion coefficient: $1.1 \times 10^{-4} \, °F^{-1}$ ($2 \times 10^{-4} \, °C^{-1}$)

Operating temperature: -40 to 176°F (-40 to +80°C)

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### Recommended support position Kit

<table>
<thead>
<tr>
<th>Kit code</th>
<th>Kit code</th>
<th>Kit code</th>
<th>Kit code</th>
<th>Kit code</th>
</tr>
</thead>
<tbody>
<tr>
<td>W 200</td>
<td>Kit code: P700201</td>
<td>Kit code: P700202</td>
<td>Kit code: P700203</td>
<td>Kit code: P700204</td>
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<tr>
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<td>Kit code: P700402</td>
<td>Kit code: P700403</td>
<td>Kit code: P700404</td>
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<tr>
<td>W 600</td>
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<td>Kit code: P700602</td>
<td>Kit code: P700603</td>
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<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>W 1000</td>
<td>Kit code: P701001</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Includes the inside and outside edge-support of the belt, to guarantee the best possible result.

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**BluLub® Guide**

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**Movex®**
Transfer modules

Transfer modules L=115 mm

Material:
- Moduls: Acetal resin
- Pins, screws and nuts: Stainless steel
- Rollers: Acetal resin

Part | Article-Nr. | Type
--- | --- | ---
371 | 37102 | B

Transfer modules L=115 mm

Material:
- Moduls: Acetal resin
- Pins, screws and nuts: Stainless steel
- Rollers: Acetal resin

Part | Article-Nr. | Type
--- | --- | ---
369 | 36902 | B

Transfer modules L=200 mm

Material:
- Moduls: Acetal resin
- Pins, screws and nuts: Stainless steel
- Rollers: Stainless steel

Part | Article-Nr. | Type
--- | --- | ---
342 | 34201 | A