Modular belt conveyor WL678X

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System overview
FlexLink’s newly developed stainless steel conveyor is designed to fit into demanding primary and secondary packaging applications. It addresses important aspects of today’s packing processes, such as being easy to clean, smooth handling of products, safe for operators, robust design, long life, and easy to maintain with a low cost of ownership.

The modularized and standardized design ensures fast set up, and facilitates rapid future extensions and changes.

Technical specifications
Maximum speed: 40 m/min
Maximum conveyor length: 20 m
Max single item weight: up to 30 kg
Total load on a conveyor: 300 kg
Max product weight per belt pitch: 1.5 kg/slide rail
Max permissible pull force (with bends): 1000 N
Max permissible pull force (without bends): 1200 N
Conveyor sections

The modular plastic belt conveyor in five widths – 222, 273, 374, 526 and 678 mm – can be built as straight sections or in S, U or L-shape with 30, 45, 60, 90° (180° only for 222 and 273) horizontal bend, or combinations thereof. Vertical bends are available in 5° (3° only for 222 and 273) positive or negative.

Kit for conveyor beam end, always included in:
- End drive units
- Idler end units
- Plain bends
- Vertical bends

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Modular Belts - Introduction

Modular belt, Radius flush grid, curve-running

The belt consists of plastic hinged links connected by plastic rods. The wide belts are woven together by links that are 102 mm, 124 mm, and 180 mm wide. The assembled belt forms a wide, flat, and tight conveyor surface. Five standard widths of belt can be delivered: 152 mm, 203 mm, 304 mm, 456 mm, and 608 mm.

Standard belt color is white but blue belts can also be ordered.

Belts with polyamide pins are available for dry or semi-wet applications. In constant wet applications, belts with acetal pins must be used. This is due to the fact that polyamide pins will absorb water and swell in wet applications, and acetal pins will squeak in dry environments.

Flat top belt, straight running

The belt has a minimal number of seams and has open hinges that are easy to clean. The belt is white and is available with acetal pins for wet applications.

Travel direction of the belts:

- Radius flush grid
- Flat top belt

Technical characteristics

<table>
<thead>
<tr>
<th>Belt width</th>
<th>608 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modular belt weight (Acetal)</td>
<td>4.57 kg/m</td>
</tr>
<tr>
<td>Radius flush grid</td>
<td>4.78 kg/m</td>
</tr>
<tr>
<td>Flat top belt</td>
<td></td>
</tr>
<tr>
<td>Modular belt height</td>
<td></td>
</tr>
<tr>
<td>Radius flush grid</td>
<td>13 mm</td>
</tr>
<tr>
<td>Flat top belt</td>
<td>10 mm</td>
</tr>
<tr>
<td>Belt pitch</td>
<td>25.4 mm</td>
</tr>
<tr>
<td>Max. permissible belt tension</td>
<td></td>
</tr>
<tr>
<td>Belt width 304</td>
<td>670 N</td>
</tr>
<tr>
<td>Belt width 456 and 608</td>
<td>1000 N</td>
</tr>
<tr>
<td>With bend</td>
<td>1000 N</td>
</tr>
<tr>
<td>Without bend</td>
<td>1200 N</td>
</tr>
<tr>
<td>Temperature range (Acetal)</td>
<td>1 °C to +40 °C</td>
</tr>
<tr>
<td>For other temperatures request for quotation</td>
<td></td>
</tr>
</tbody>
</table>

Tools and accessories

The belt should be pretensioned with a return slack of about 25 mm. Too much belt slack is a safety risk as the belt can hang below the side of the conveyor beam. A belt tensioner tool (5118803) is available in order to facilitate installation of the belt and minimize the amount of slack in the return belt.

Ordering information

The belt is delivered in assembled 1 m lengths. To calculate the total length required, remember to add for belt consumed by the idler and drive units.
Modular belts

Radius flush grid belt, Wet

Plain belt
Belt material Acetal (POM)
Pin material Acetal (POM), white
Length 1 m
608 mm wide, White
608 mm wide, Blue
WLTP 1A608L W
WLTP 1A608L WB

Plane belt
Belt material Acetal (POM)
Pin material Polyamide (PA), brown
Length 1 m
608 mm wide, White
608 mm wide, Blue
WLTP 1A608L
WLTP 1A608L B

Radius flush grid belt, Wet

Plain belt
Belt material Acetal (POM)
Pin material Acetal (POM), white
Length 1 m
608 mm wide, White
608 mm wide, Blue
WLTP 1A608L W
WLTP 1A608L WB

Belt tensioner tool for radius flush grid

Belt tensioner tool
5118803

Flat top belt

Flat top belt
Belt material Acetal (POM)
Pin material Acetal (POM), white
Length 1 m
608 mm wide
WLTP 1B608 W

Belt tensioner tool
5118803
Radius flush grid belt, Wet (Spare part only)

Plain belt
Belt material Acetal (POM)
Pin material Acetal (POM), white
Length 1 m
608 mm wide, White
608 mm wide, Blue
WLTP 1A608 W
WLTP 1A608 WB

Note! For use with belt delivered before April 2019

Radius flush grid belt, Dry (Spare part only)

Plain belt
Belt material Acetal (POM)
Pin material Polyamide (PA), brown
Length 1 m
608 mm wide, White
608 mm wide, Blue
WLTP 1A608
WLTP 1A608 B

Note! For use with belt delivered before April 2019

Radius flush grid belt, Wet (Spare part only)

Plain belt
Belt material Acetal (POM)
Pin material Acetal (POM), white
Length 1 m
608 mm wide, White
608 mm wide, Blue
WLTP 1A608 W
WLTP 1A608 WB

Note! For use with belt delivered before April 2019
Conveyor Beams - Introduction

Frame profiles and cross bars
In order to facilitate cleaning, the top belt can be lifted up and the outer slide rails can be folded back.

For hygiene reasons, the WLX system is based on an easy-to-clean, free hanging return belt. Elongation of the belt due to load is normally evenly distributed on the return side and along the whole conveyor, and placement of the belt guides for the return belt is critically important for proper conveyor system performance. Conveyor beams can be ordered from 142 mm up to 3000 mm and are always pre-engineered and configured according to the rules that must be followed.

Conveyor beams are normally not symmetrical, which is why they have an upstream and downstream end. An arrow label on the conveyor beam side indicates the appropriate top belt travel direction to ensure correct assembly.

Components such as plain bends, etc., cannot be placed too close to an End drive unit. Therefore, the minimum permissible length for conveyor beam sections when connecting to an End drive unit is 844 mm. This ensures a sufficient amount of return belt tension directly after the drive sprocket to avoid slack close to the sprocket wheel. The return belt hanging between the first two belt guides provides this belt tension (called back tension). For more information see WLX Engineering guidelines.

Connecting brackets have to be ordered separately when joining End drives, idler ends, conveyor beams, etc.

When joining two conveyor beams, a beam spacer kit must be ordered separately.

Conveyor dimensions

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conveyor width</td>
<td>678 mm</td>
</tr>
<tr>
<td>Usable belt width</td>
<td>608 mm</td>
</tr>
<tr>
<td>Top of belt:</td>
<td></td>
</tr>
<tr>
<td>WLTP 1A</td>
<td>52 mm</td>
</tr>
<tr>
<td>WLTP 1B</td>
<td>49 mm</td>
</tr>
</tbody>
</table>

Conveyor frame structure

When joining two conveyor beams, a beam spacer kit must be ordered separately.
Technical specifications

Minimum permissible conveyor beam length to be connected:

In order to simplify the cleaning process, FlexLink can offer belt lift arms for straight conveyors. Contact FlexLink for more information.
Conveyor frame components

Conveyor beam, Easy Clean

Conveyor beam, WL678X
Length 3 m (3000 ±1,2 mm)
Length to order (142- 2999 mm)
Weight, 1 m, incl. belt: 25 kg/m

WLCBX 3A678
WLCB LA678

Connecting bracket kit

Connecting Bracket
For beam
Including 4 pcs M10 screws

WLCJX 10X56

Beam support brackets

Beam support bracket (A)
Including 6 pcs M10 screws

WLCSX 10X56

Beam support bracket (B)
Including 2 pcs M10 screws and
2 pcs spacer WLRDX M10X25

WLCSX 10

Beam support bracket (C)
Adjustable ±40°

WLCSX 10X56V40

Beam spacer Kit for WL678

Beam spacer kit

WLCEX A678

Recommended Torx tool for fasten spacer
Size T30

Torx Spacing
Slide rail

Slide rail, length 3 m
Slide rail (A)
Outer slide rail (B)

Connecting Strip

Connecting strip kit
Must be ordered in multiples of 10

Drill fixture for connecting strip

Contains drill fixtures for both
WLCRX 3 and WLCRX 3B

5118922
End Drive Units - Introduction

Technical specifications
Maximal speed: 40 m/min
Number of teeth on sprocket wheel: 16

Belt tensioner unit
A belt tensioner unit should always be placed near the End drive unit and its use is recommended:
- for long conveyors >20 meters
- for long conveyors >15 m and a speed of >30 m/min
- for conveyors with frequent starts/stops, especially if the load is high
- if an End drive unit needs to be placed close to a plain bend
- if an End drive unit needs to be placed on the lower part next to a conveyor slope section
- for short conveyors where the belt slack length is insufficient to lift the belt for cleaning

Drive unit types
A soft motor start is recommended for use with high-speed and long conveyors. This is because these types of modular belts are quite heavy, and the free hanging return belt can begin to oscillate momentarily during startup.

A grease nipple is included in all flange bearings. The bearings are initially filled with FDA-approved, food-grade grease (NSF H1).

End drive units including SEW motors IP 65, can be ordered with food-grade oil and stainless steel hollow shafts in the web-based configurator.

Motor specifications
Motors are available for 230/400 V, 50 Hz and 230/460 V or 330/575 V, 60 Hz. All motors can be connected for delta or star configuration by means of jumpers.

Variable speed motors are SEW Movimot, 380–500 V. Note that variable speed motors include a control box that adds 93 mm to the width of the motor.

Ordering information
Drive units with motors must be specified using the web-based configurator. The configurator provides detailed information and step-by-step guidance in the specification process. A product code string is generated, containing the specification details. See next page for examples of code strings.

Drive units without motors can be ordered using the designations in the catalogue.

- Connecting brackets have to be ordered separately.
- Slide rail must be ordered separately.

Dimension drawings in catalogue
Note that dimensions relating to drive unit motors depend on the motor specified during the configuration. In most cases, the motors shown in the catalogue drawings represent the largest size. If variable speed motors are used, some dimensions may increase, indicated by dimension values xxx (V: yyy). V represents the max dimension using variable speed motor.
Drive units – configuration strings

Below are two examples of text strings obtained from the configurator with explanations.

Drive unit with fixed speed motor

<table>
<thead>
<tr>
<th>Item no</th>
<th>A</th>
<th>B</th>
<th>D</th>
<th>E</th>
<th>G</th>
<th>H</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>HNP</td>
<td>L</td>
<td>V4</td>
<td>SA37</td>
<td>50/230</td>
<td>0,18kW</td>
<td>TF</td>
<td></td>
</tr>
</tbody>
</table>

Drive unit with variable speed motor

<table>
<thead>
<tr>
<th>Item no</th>
<th>A</th>
<th>B</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>J</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPV</td>
<td>L</td>
<td>V6-15</td>
<td>SA37</td>
<td>MM03</td>
<td>50/380-500</td>
<td>C</td>
<td>P</td>
<td></td>
</tr>
</tbody>
</table>

Item no - Drive type

WLEBX:   End drive

A – 0-Unit

HNP: Direct drive, no slip clutch
....V: Variable speed

B – Motor position

L: Left
R: Right

D – Speed

V...: Fixed speed... m/min
V... -...: Variable speed range...-... m/min

E – Gearbox

SA37: SEW motor type SA37

F – Movimot size

MM03: SEW Movimot type, 0,37 kW
MM05: SEW Movimot type, 0,55 kW
MM07: SEW Movimot type, 0,75 kW
(position is omitted for fixed speed motors)

G – Electrical environment

50/230: 50 Hz, 230 V
50/400: 50 Hz, 400 V
60/230: 60 Hz, 230 V
60/460: 60 Hz, 460 V
60/575: 60 Hz, 575 V
50/380-500: SEW Movimot variable speed motor
60/380-500: SEW Movimot variable speed motor

H – Motor power

... kW: Motor power, kW
(position is omitted for variable speed motors
see position F)

I – Thermal protection

No: No thermal protection
TF: Thermal protection type TF
TH: Thermal protection type TH
(position is omitted for variable speed motors)

J – Hybrid cable

No: No hybrid cable
C: Hybrid cable included in SEW Movimot
(position is omitted for fixed speed motors)

K – Fieldbus

No: No fieldbus
P: Profibus fieldbus, maintenance switch
D: DeviceNet fieldbus, maintenance switch
(position is omitted for fixed speed motors)
**End drive unit Easy Clean, Radius flush grid 678**

- Fixed/variable speed*
- Without motor:
  - Transmission on left side
  - Transmission on right side

* Use online configurator when ordering

- Effective track length: 0.80 m
- Weight, incl. belt: 24 kg

- Model: WLEBX A678
- Part numbers: WLEBX0A678NLP, WLEBX0A678NRP

**End drive unit Easy Clean, Flat top 678**

- Fixed/variable speed*
- Without motor:
  - Transmission on left side
  - Transmission on right side

* Use online configurator when ordering

- Effective track length: 0.80 m
- Weight, incl. belt: 25 kg

- Model: WLEBX B678
- Part numbers: WLEBX0B678NLP, WLEBX0B678NRP
End drive unit S, Radius flush grid 678

End drive unit
Fixed/variable speed*
Without motor:
Transmission on left side
Transmission on right side

WLEBX A678 S
WLEBX0A678NLP S
WLEBX0A678NRP S

* Use online configurator when ordering
Effective track length: 0,75 m
Weight, incl belt: 23,2 kg

End drive unit J, Radius flush grid 678

End drive unit
Fixed/variable speed*
Without motor:
Transmission on left side
Transmission on right side

WLEBX A678 J
WLEBX0A678NLPJ
WLEBX0A678NRPJ

* Use online configurator when ordering
Effective track length: 1,5 m
Weight, incl belt: 39,1 kg

Belt tensioner unit

Belt tensioner for: WL678X
Required extra belt length 0,55 m
Weight, incl belt: 23 kg

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End drive units 151
Idler end units – Introduction

Chain guidance at end of conveyor
The idler end unit is used to guide the chain from the return side of the conveyor up to the top side with a minimum of friction. The chain is guided by two or more idler wheels on a common, rotating shaft supported by ball bearings.

Ordering information
- Connecting strips are included with the idler end units.
- Slide rail must be ordered separately.

Idler units

Idler end unit, WL678
Idler end unit (For conveyors with plain bends)
WLEJX 300A678
* Use online configurator when ordering
Effective track length: 0.80 m
Weight, incl belt: 22 kg

Idler end unit, WL678 S
Idler end unit (Only for straight conveyors)
WLEJX 300B678
* Use online configurator when ordering
Effective track length: 0.75 m
Weight, incl belt: 18.2 kg
Plain Bends - Introduction

When using radius flush grid belts in plain bends, the belt pull force will be concentrated on the outer part of the belt. A certain straight section is needed before and after the bend in order to transfer the load between the outer belt section and evenly distribute it to the straight belt section. This is critical before entering another plain bend, end drive unit, etc. This required straight section is always integrated in the plain bend itself (300 mm for WL374X, 450 mm for WL526X, and 600 mm for WL678X).

Plain bend placement, as for all other Flexlink conveyors, should always be considered. A plain bend placed too far downstream on a conveyor generates unnecessary belt pull. Also, placement of a plain bend too close to an end drive unit can lead to an unnecessary slack increase and a separate slack unit must be added. Always use the Flexlink calculation tool (FLCT) to calculate the resulting pull forces.

Plain bend, Easy Clean 30°

Plain bend, Easy Clean 60°
Plain Bends (continued)

**Plain bend, Easy Clean 90°**

**Vertical bends**

**Vertical bend, Easy Clean, 5° (pos.)**

**Vertical bend, Easy Clean, 5° (neg.)**

Plain bend, 90°±1°
R=1650±10 mm
WLBPX 90A678
* Use online configurator when ordering
Effective track length: 8.6 m
Weight, incl belt: 113 kg

Vertical bend 5°, pos
WLBVX 5A678P
* Use online configurator when ordering
Effective track length: 2.1 m
Weight, incl belt: 39 kg

Vertical bend 5°, neg
WLBVX 5A678N
* Use online configurator when ordering
Effective track length: 2.1 m
Weight, incl belt: 39 kg
Support System Modules - Introduction

Conveyor supports
Support modules must be specified using the web-based configurator. There, a product code string is generated that contains the specification details (E.g., WLUFX S01-WL374X-900).

Support module, single leg WLUFX S04

Parameter | Option
---|---
Top of belt: | 660-1500 mm
Foot type: | XCFSX 16x80 H
 | XCFSX 16x80 HA
 | XCFSX 16x80
 | XCFSX 16x80 A
Bracket type: | WLCSX 10X56
 | WLCSX 10

Foot holder for adjustable foot

XCFCX 16x100

Including 2 pcs M10 screws

Adjustable foot

M16

M16, Anchoring

M16, EHEDG/3A

M16, EHEDG/3A, Anchoring

XCFX 16x80

XCFX 16x80 A

XCFX 16x80 H

XCFX 16x80 HA

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