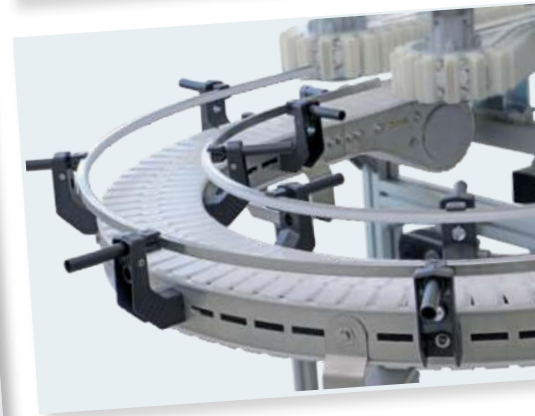
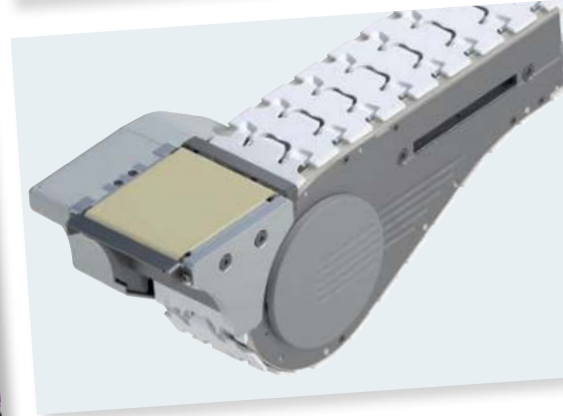
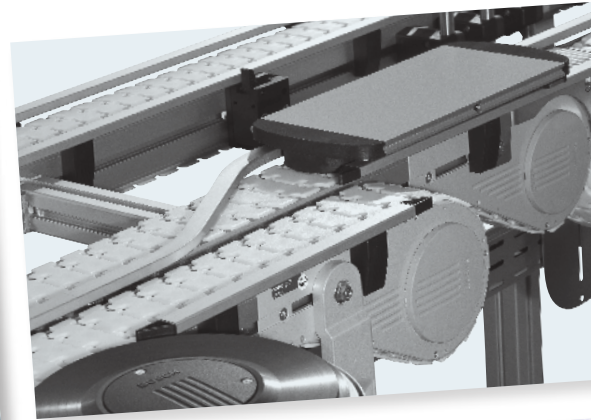


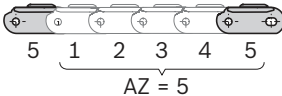


**Chain conveyor system**

**VarioFlow *plus***

3.0

Symbols

| Presentation                                                                                                                                                                                                                                                                                                             | Explanation                                                                                                                                                                                                                                      |                                                                                     |                                                                                     |                                                                                           |           |                      |      |                      |                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|-----------|----------------------|------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                          | Components for the aluminum system (AL)                                                                                                                                                                                                          |                                                                                     |                                                                                     |                                                                                           |           |                      |      |                      |                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                              |
|                                                                                                                                                                                                                                          | Components for the stainless steel system (STS)                                                                                                                                                                                                  |                                                                                     |                                                                                     |                                                                                           |           |                      |      |                      |                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                              |
|                                                                                                                                                         | <div>1. Profile with slot width 8 mm, 10 mm</div> <div>2. Accessories suitable for mounting to profiles with the specified slot width</div>                                                                                                      |                                                                                     |                                                                                     |                                                                                           |           |                      |      |                      |                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                              |
|                                                                                                                                                                                                                                         | Conductive material version in accordance with DIN EN 61340-5-1; suitable for use in ESD-sensitive areas                                                                                                                                         |                                                                                     |                                                                                     |                                                                                           |           |                      |      |                      |                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                              |
| <table><tr><th>Section profile VFplus AL open</th><th>L (mm)</th><th>No.</th></tr><tr><td> 12 pcs</td><td>6070</td><td><b>3 842 546 647</b></td></tr><tr><td>1 pc</td><td>50 ... 6000</td><td><b>3 842 996 026/L</b></td></tr></table> | Section profile VFplus AL open                                                                                                                                                                                                                   | L (mm)                                                                              | No.                                                                                 |  12 pcs | 6070      | <b>3 842 546 647</b> | 1 pc | 50 ... 6000          | <b>3 842 996 026/L</b>                                                                                                                                                                                                                                                                                                        | <div>Delivery unit  = delivery quantity (here: 12)</div> <div>Order: 1 x 3 842 546 647:</div> <div>Delivery: 12 x section profile VFplus AL open, L = 6070 mm</div> <div>11 x 3 842 546 647:</div> <div>Delivery: 132 x section profile VFplus AL open, L = 6070 mm</div> |
| Section profile VFplus AL open                                                                                                                                                                                                                                                                                           | L (mm)                                                                                                                                                                                                                                           | No.                                                                                 |                                                                                     |                                                                                           |           |                      |      |                      |                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                              |
|  12 pcs                                                                                                                                                                                                                                | 6070                                                                                                                                                                                                                                             | <b>3 842 546 647</b>                                                                |                                                                                     |                                                                                           |           |                      |      |                      |                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                              |
| 1 pc                                                                                                                                                                                                                                                                                                                     | 50 ... 6000                                                                                                                                                                                                                                      | <b>3 842 996 026/L</b>                                                              |                                                                                     |                                                                                           |           |                      |      |                      |                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                              |
| <table><tr><th>Cross connector AL</th><th>b (mm)</th><th></th><th>No.</th></tr><tr><td>VFplus 65</td><td>65</td><td>10</td><td><b>3 842 546 672</b></td></tr></table>                                                                 | Cross connector AL                                                                                                                                                                                                                               | b (mm)                                                                              |  | No.                                                                                       | VFplus 65 | 65                   | 10   | <b>3 842 546 672</b> | <div>Packing unit  = minimum order quantity (here: 10)</div> <div>Order: 1 x 3 842 546 672:</div> <div>Delivery: 10 x 3 842 546 672 (rounded up)</div> <div>15 x 3 842 546 672:</div> <div>Delivery: 20 x 3 842 546 672 (rounded up)</div> |                                                                                                                                                                                                                                                                                                                                                              |
| Cross connector AL                                                                                                                                                                                                                                                                                                       | b (mm)                                                                                                                                                                                                                                           |  | No.                                                                                 |                                                                                           |           |                      |      |                      |                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                              |
| VFplus 65                                                                                                                                                                                                                                                                                                                | 65                                                                                                                                                                                                                                               | 10                                                                                  | <b>3 842 546 672</b>                                                                |                                                                                           |           |                      |      |                      |                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                              |
|                                                                                                                                                                                                                                        | <div>Distance, in which the "special chain links" are inserted between the flat conveyor chain links.</div> <div>AZ = spacing distance</div> <div>Example:</div> <div>AZ = 5 = a special chain link follows four flat conveyor chain links</div> |                                                                                     |                                                                                     |                                                                                           |           |                      |      |                      |                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                              |

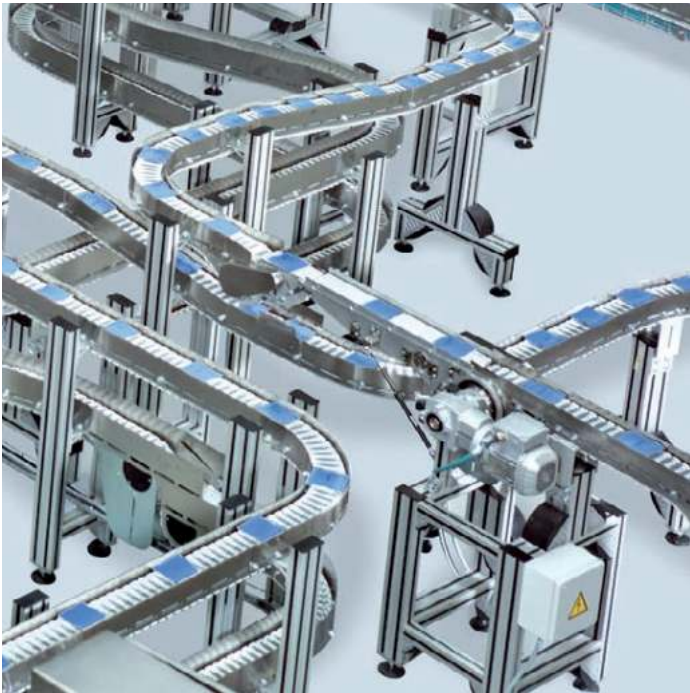


|                                                     |                                                                                                                                                                         |            |           |
|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------|
| <b>Introduction VarioFlow plus, System overview</b> |                                                                                                                                                                         | <b>4</b>   | <b>1</b>  |
| <b>Conveyor chains</b>                              |   | <b>16</b>  | <b>2</b>  |
| <b>Aluminum system (AL) VarioFlow plus</b>          |                                                                                      | <b>48</b>  | <b>3</b>  |
| <b>Stainless steel system (STS) VarioFlow plus</b>  |                                                                                      | <b>126</b> | <b>4</b>  |
| <b>ESD system VarioFlow plus</b>                    |                                                                                      | <b>184</b> | <b>5</b>  |
| <b>Wedge conveyor</b>                               |   | <b>204</b> | <b>6</b>  |
| <b>Product guide</b>                                |   | <b>212</b> | <b>7</b>  |
| <b>Workpiece pallet system (WT)</b>                 |                                                                                      | <b>236</b> | <b>8</b>  |
| <b>Tools</b>                                        |   | <b>286</b> | <b>9</b>  |
| <b>Technical data</b>                               |                                                                                                                                                                         | <b>292</b> | <b>10</b> |
| <b>Material number overview</b>                     |                                                                                                                                                                         | <b>324</b> | <b>11</b> |
| <b>Index</b>                                        |                                                                                                                                                                         | <b>328</b> | <b>12</b> |

# VarioFlow *plus* – the innovative chain conveyor system, easily installed, with low-noise operation

Today, user requirements for transport solutions are more demanding than ever. With the VarioFlow *plus*, Rexroth offers a powerful, standardized, and versatile conveyor system for use in the food & packaging industries, health care, assembly lines in automotive & electronics, and machine linking.





The construction kit of the Rexroth VarioFlow *plus* chain conveyor system consists of components that can be used universally for all system widths. This reduces the need for spare parts for the user.

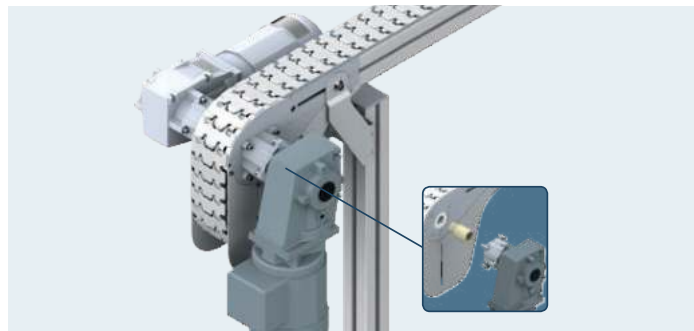
The stable chain permits tensile forces of up to 1250 N. The chain surface is nearly closed, allowing even the smallest of components to be transported safely and reliably. The concept for individual section routing comprises the sizes 65, 90, 120, 160, 240, and 320 in two materials: the basic aluminum version and the stainless steel version for applications with higher hygiene requirements, such as in the food industry. For this, Rexroth uses components made of FDA-compliant materials. Alternatively, Rexroth offers a workpiece pallet system suitable for transporting workpieces in the automotive and electronic industries.



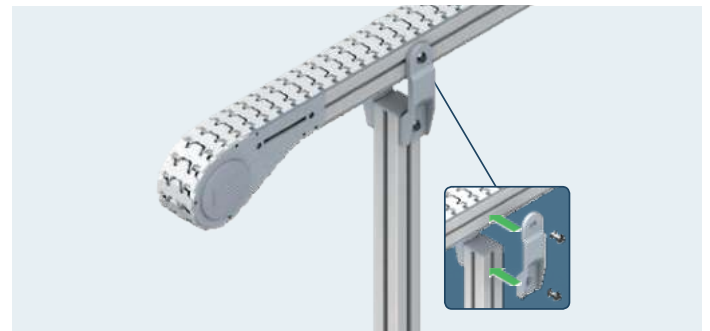
# The advantages of VarioFlow *plus*

## Flexible planning and fast commissioning thanks to intelligent solutions

The clever drive solution enables a great degree of planning freedom: the motor mounting position can be selected on-site.



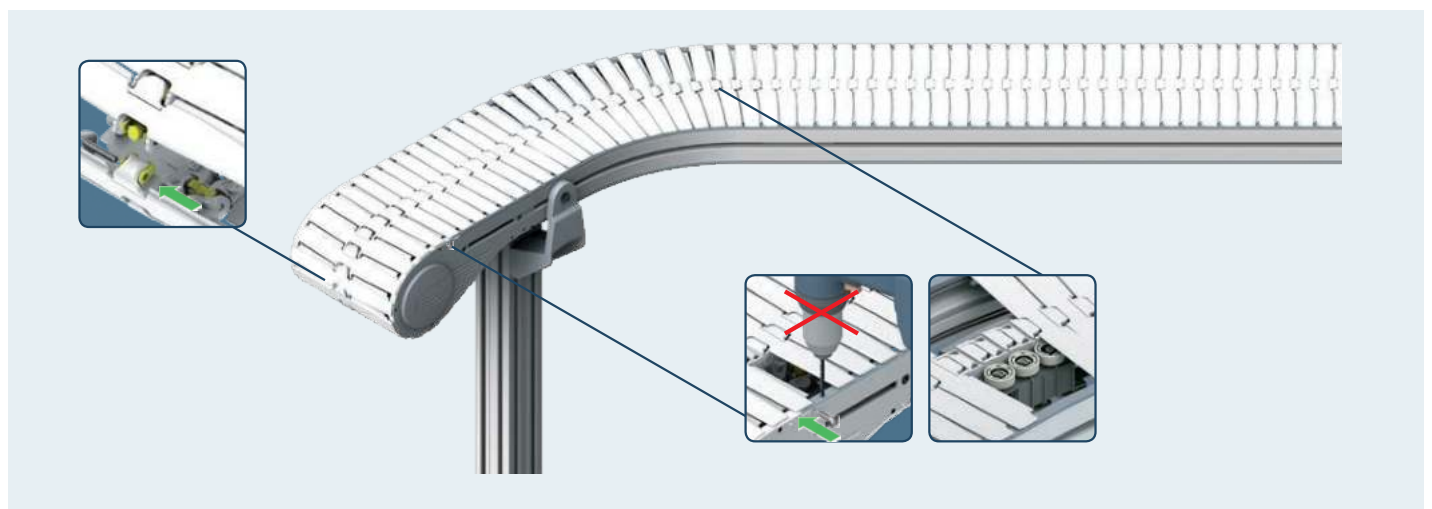
Smart connection technology saves time during assembly and allows for easy conversions and system extensions.



## Optimum working conditions thanks to smooth running and easy maintenance

The maintenance-friendly VarioFlow *plus* transport system ensures optimum working conditions. Thanks to improved sliding properties and low friction materials, the working

environment is relatively quiet (see p. 318). Fewer joints and the rolling friction in the horizontal curves ensure low wear and thus reduce downtimes.

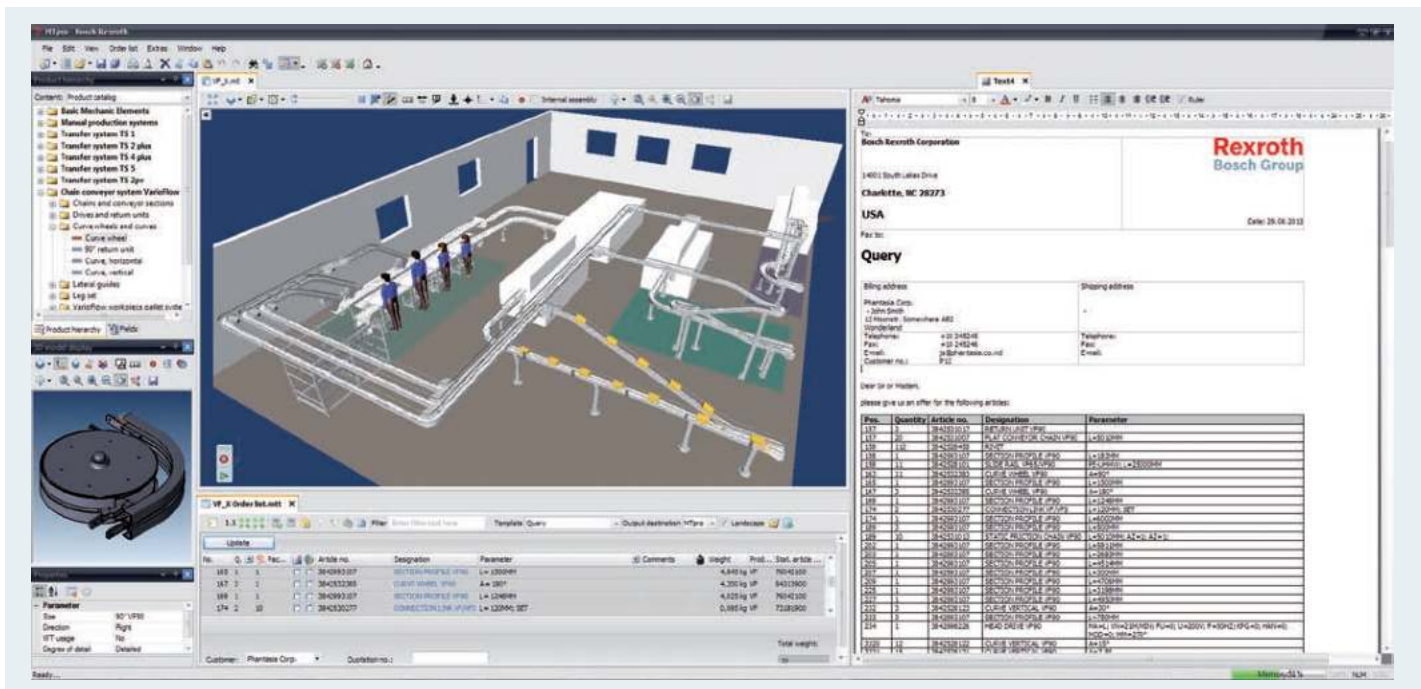




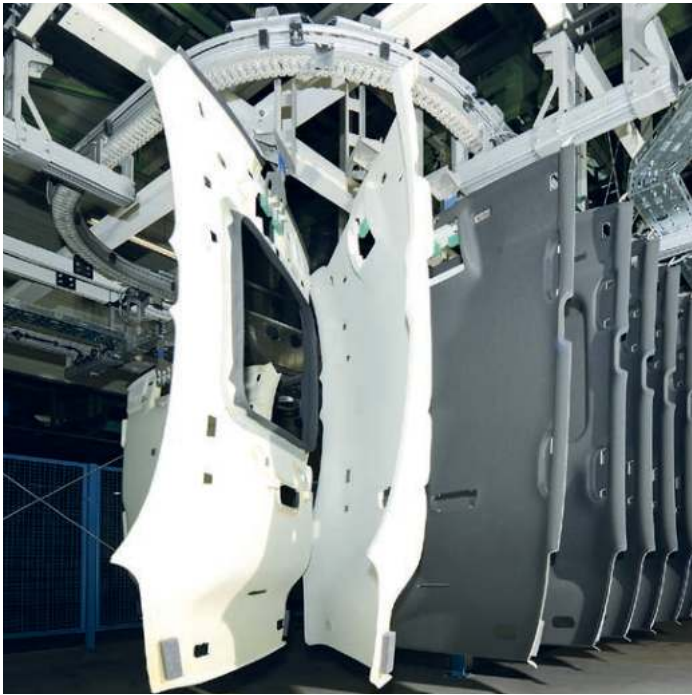
## Simple and fast project planning with MTpro

MTpro is an intuitive software program used for planning assembly systems. It assists you from selection to configuration and ordering of the Rexroth products. Components can be selected from the range via drag and drop and assembled quickly and easily using the snap function. Thanks to automatic parts list costing and electronic order integration, you can keep costs under

control and minimize time spent ordering. Numerous interfaces allow planning data to be used by other departments, such as Design, Purchasing and Service. With MTpro you can plan, calculate, and document your assembly systems in just a few steps. The Layout Designer lets you create even complex constructions and system layouts in no time at all.



## VarioFlow *plus* – for the economical, individual transport of parts

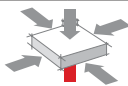
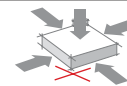






# Useful information for selecting and designing a chain conveyor system

## Chain conveyor or transfer system

|                      | TS1                                                                                                                                      | TS2 plus                       | VarioFlow                                                                                                                       |                                                                                                                                                        |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical applications | Linking assembly stations and assembly workstations<br> |                                | Horizontal and vertical product transport<br> |                                                                                                                                                        |
| Speed                | 4.5 ... 18 m/min                                                                                                                         | 4.5 ... 18 m/min               | 4 ... 60 m/min                                                                                                                  | 4 ... 18 m/min                                                                                                                                         |
| WT size (from ...to) | 80x80 mm ...<br>160x160 mm                                                                                                               | 160x160 mm ...<br>1200x1200 mm | Direct transport<br>without WT                                                                                                  | 65x76 mm ...<br>90x500 mm                                                                                                                              |
| Product weight       | 3 kg                                                                                                                                     | 240 kg                         | 3 kg/34.5 mm                                                                                                                    | 8 kg<br><b>with</b> function modules<br>(diverter, positioning unit...)<br>15 kg<br><b>without</b> function modules<br>(diverter, positioning unit...) |
| Accessibility        |                                                       |                                |                                            |                                                                                                                                                        |
| Section path         |                                                       |                                |                                            |                                                                                                                                                        |
| Positioning accuracy | 0.015 mm                                                                                                                                 | 0.1 mm                         | 0.15 mm                                                                                                                         | 0.15 mm                                                                                                                                                |

## Aluminum or stainless steel version

### Requirements

|                                           |                                  |                                                                                                                             |
|-------------------------------------------|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Harsh, normal (emulsions)                 | ← Ambient conditions →           | Clean                                                                                                                       |
| Yes                                       | ← Food and Drug Administration → | Yes                                                                                                                         |
| Yes                                       | ← Electrostatic discharge →      | No                                                                                                                          |
| Alcohol,<br>water<br>↓<br><b>Aluminum</b> | ← Cleaning agents →              | Wet cleaning/<br>use of acid-containing<br>or alkaline cleaning agents<br>(pH value: 5 to 8)<br>↓<br><b>Stainless steel</b> |



## Direct transport or WT transport

The center of gravity location, inherent stability, and the contour of a product determine whether direct transport on a chain conveyor system is suitable or a workpiece pallet is required.

Workpiece pallets can be used when:

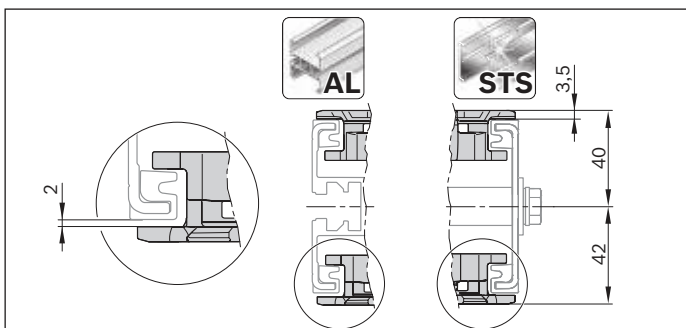
- The product has no static stability due to its geometry
- Transport can cause a change in position of the product
- The process requires it
- The product surface is very sensitive
- Accumulation is required and the product geometry does not allow for accumulation
- An exact positioning of the part is required
- The process is controlled via an ID system

## Track width

The selection of the chain conveyor system width is determined by the nature of the product and its dimensions. The maximum width of the conveyed goods is dependent on the form and location of its center of mass. If products are transported directly, the system width can differ greatly from the product width. It is important for direct transport that the center of the product is as close as possible to the center of the chain and that it has high inherent stability.

## System height

The stainless steel (STS) and aluminum (AL) versions have the same system height.



## Load and chain tensile force

The BKBsoft chain calculation program that is integrated into the MTpro planning software allows quick and efficient calculation of the maximum chain tensile force and the corresponding required drive torque.

If the permissible chain tensile force or the drive torque of the gear motor is exceeded then the conveyor section must be examined to determine if the layout can be adjusted accordingly. Among the possible adjustments are splitting of the conveyor section into smaller sections, reduction of the speed, shortening of accumulation sections, using curve wheels or roller curves instead of sliding curves. See also the section Stick-slip effect on page 298.

## Ambient conditions

### Abrasive ambient conditions

When fitting the chain conveyor, pay special attention to the cleanliness of the sliding rails and the section profile. Metal shavings and builder's dust are very abrasive and can cause extreme wear!

During operation, general cleanliness of the system and its environment should be emphasized. This will prolong the service life of sliding rails and chains. Dust and dirt particles, as well as chippings, salt, sugar, etc., are also very abrasive.

Using a chain conveyor system in critical environments is to be checked in each individual case. Please contact your Rexroth representative.

### Temperature

The area of application for VarioFlow *plus* is 0 °C to <60 °C (ESD: <40 °C). Temperatures < 0 °C require special gear motors with special lubrication, special seals and special ball bearings (available on request).

Temperatures > 40 °C reduce the performance of drive motors and increase the stretching of plastics.

This results in a lower chain tensile force.

See also section "Technical data" on page 298.

### Media resistance

The materials used are resistant to most chemicals used in industrial applications, even in case of longer contact.

See also "Resistance of the chain against chemicals" on page 320.

If in doubt, it is recommended that you ask the manufacturer of the cleaning agent whether the VF material (see material use) is resistant to the cleaning agent.

A resin in the lubricant oil can bond the chain to the sliding rail after longer downtimes. You can remedy this by continual (empty) runs or by cleaning with a normal emulsion on completion.

### Humidity

Operating the VarioFlow *plus* in dry rooms is not permitted; the relative air humidity must be at least 5 %.

### High-pressure cleaning

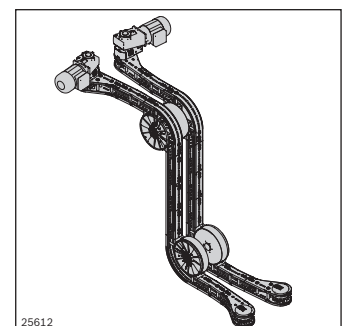
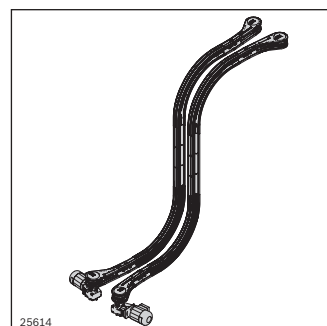
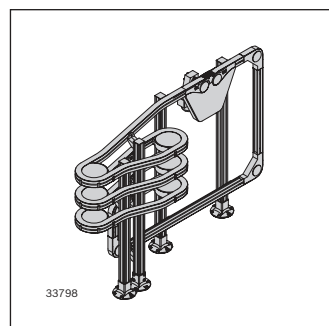
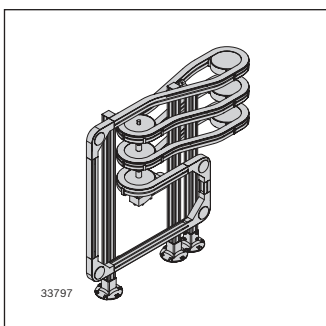
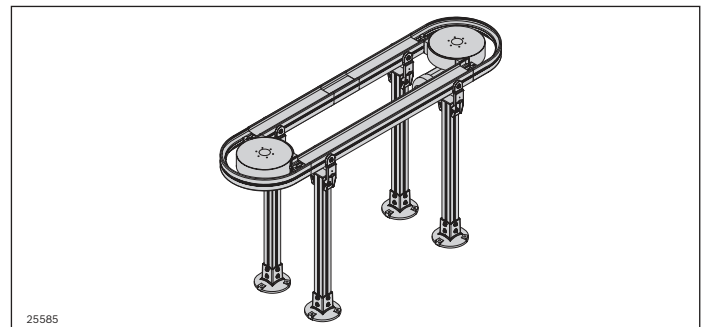
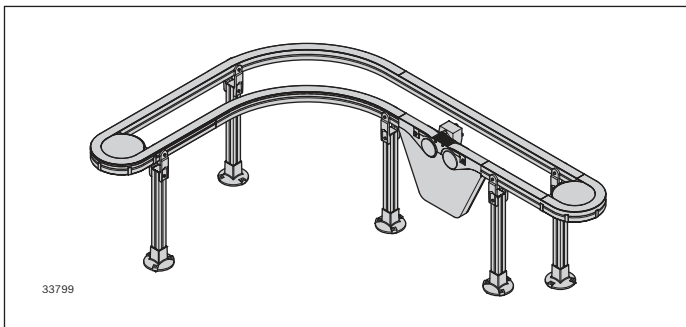
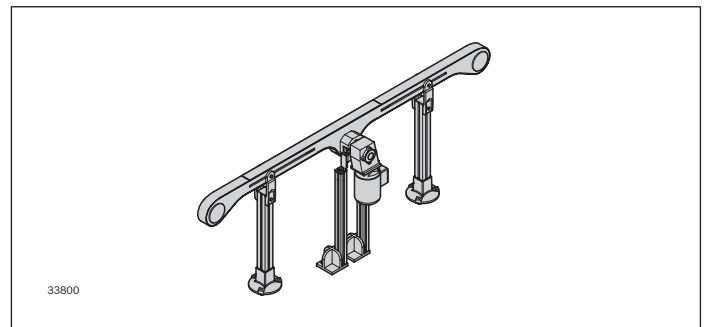
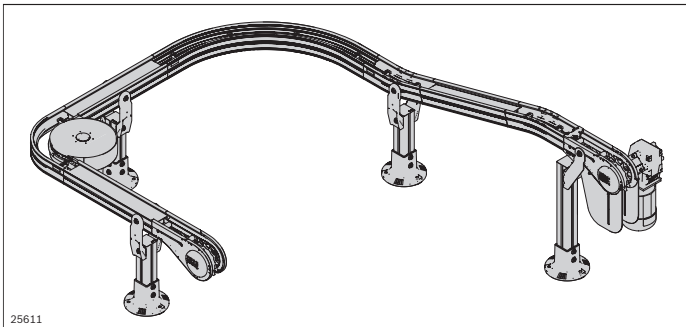
High-pressure cleaning of the chain conveyor ball bearing areas (e.g. in the drive, roller curves, etc.) is prohibited.

# System overview

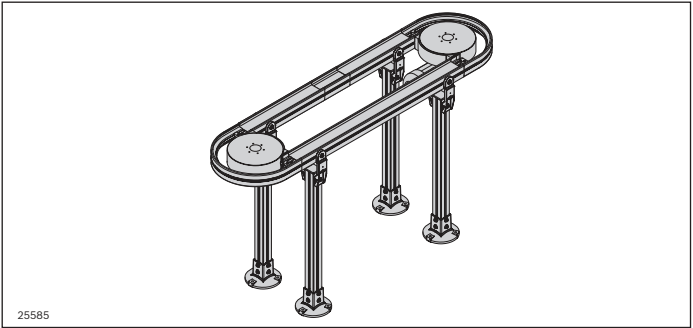
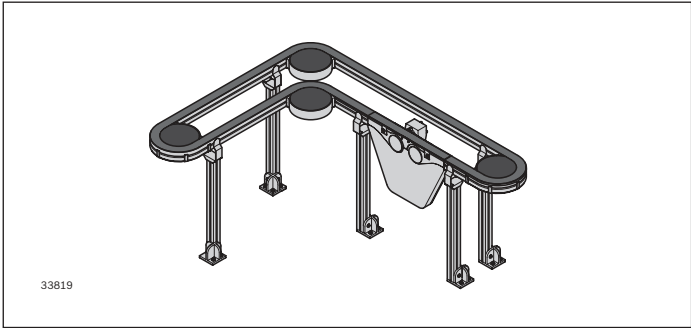
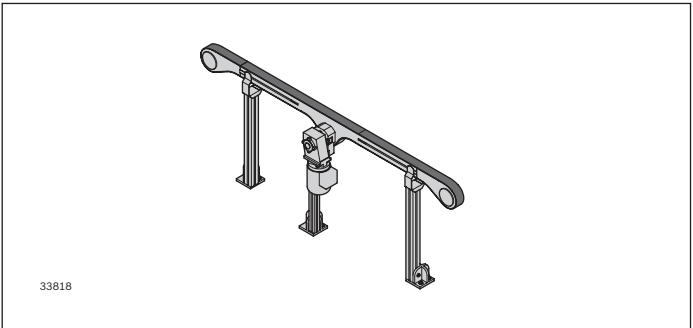
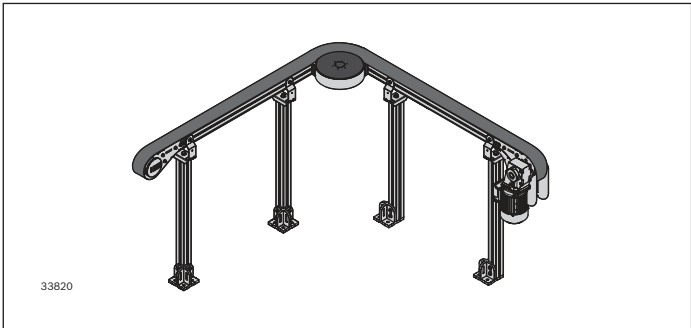
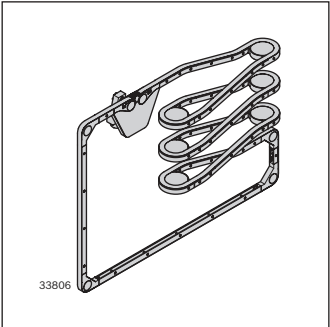
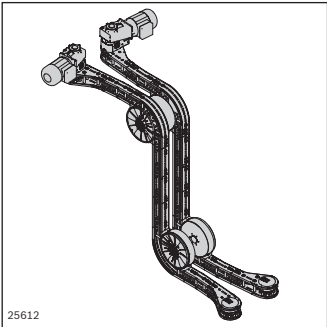
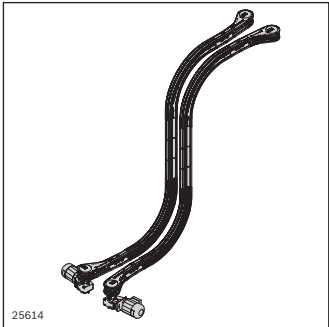
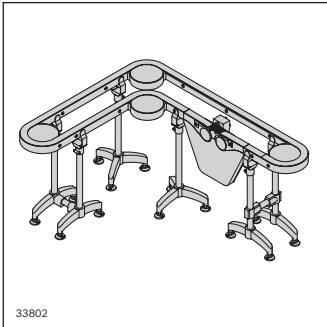
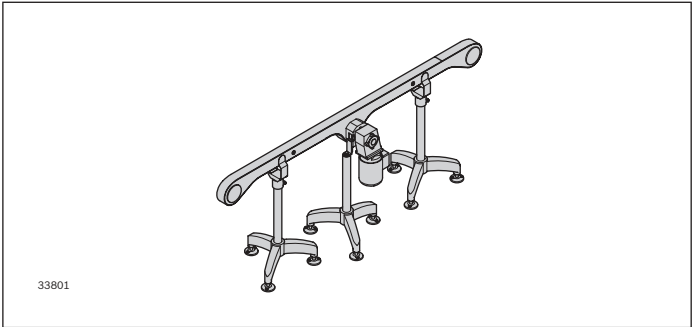
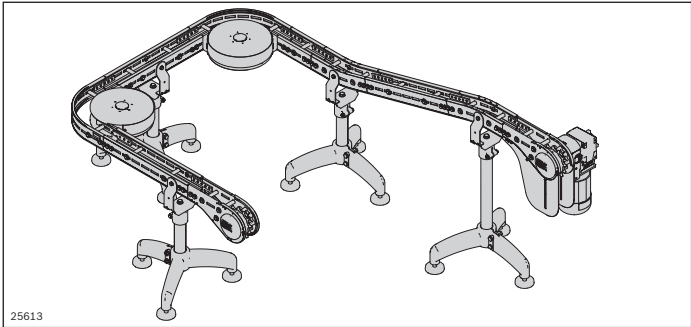
1

The construction kit with a few basic building blocks in six track widths and two material versions enables a transport system to be adapted to the most diverse requirements.

The system components are available in aluminum (AL) as a basic version or in stainless steel (STS) for increased hygiene requirements (e.g. in the food industry). The ESD system comprises AL, STS and special ESD components.



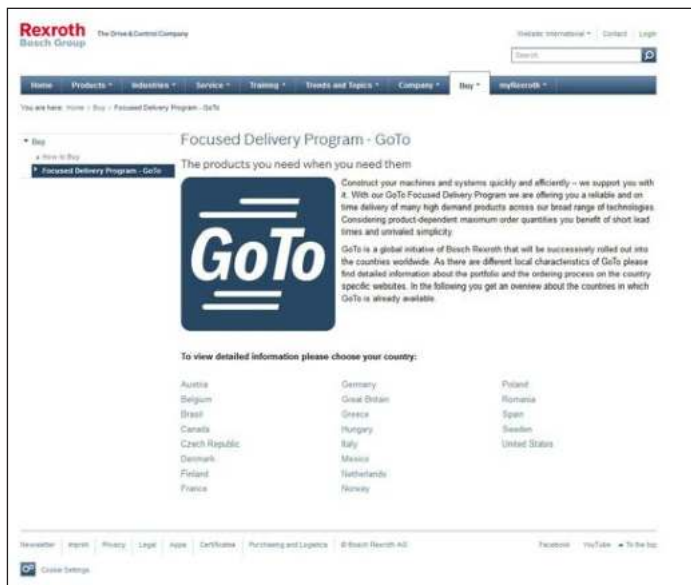




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The GoTo Focused Delivery Program offers a targeted selection of our most common products by means of a preferential service: As a result, you receive your products quickly and reliably, allowing you to respond to your market and customer requirements at any time.

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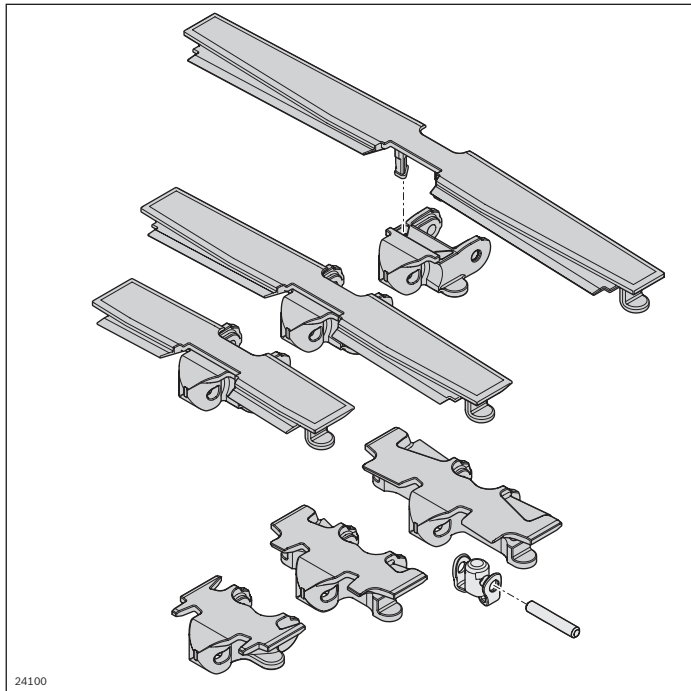
- ▶ Reduced inventory and capital due to short and reliable delivery times
- ▶ Flexible response to customer and market demands through high availability of many products
- ▶ Simple, quick ordering via e-mail, fax, mail, or eCommerce at Bosch Rexroth or its sales partners

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Visit the website for the Focused Delivery Program. It offers simple access to additional product information, including data sheets, part numbers, specifications, downloads and more.

[www.boschrexroth.com/goto](http://www.boschrexroth.com/goto)

# Conveyor chains

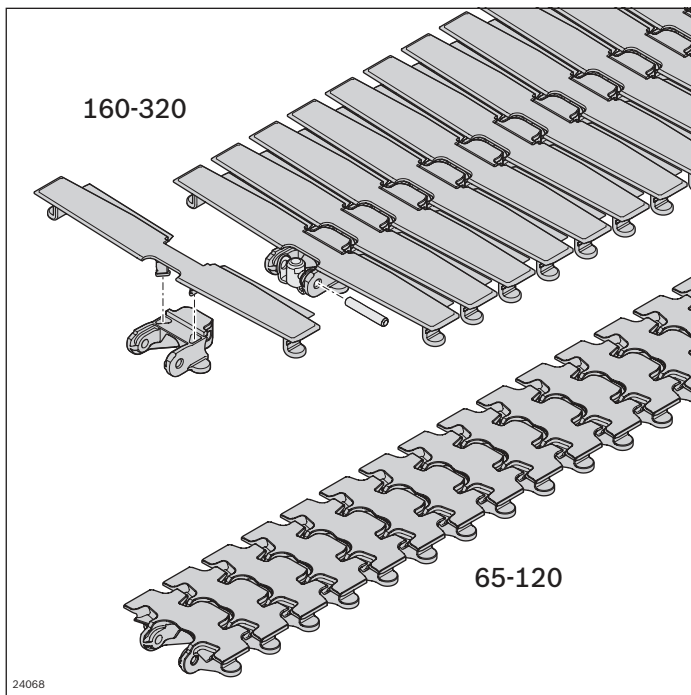


- ▶ Quiet and smooth-running parts transport thanks to patented conveyor chains
- ▶ Optimized antifriction properties of the chains
- ▶ Chain links uncoupled by means of different materials (patented)
- ▶ FDA-compliant materials
- ▶ Low-vibration transport of small parts and accumulation option by covering the chain links
- ▶ Easy-to-exchange chain plate from size 160
- ▶ Wide variety of chain types suitable for different applications

|                                                                                     |                                                                |           |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------|-----------|
|    | <b>Flat conveyor chain</b>                                     | <b>18</b> |
|    | <b>Static friction chain</b>                                   | <b>22</b> |
|    | <b>Accumulation roller chain D11, Roller cleated chain D11</b> | <b>26</b> |
|    | <b>Roller cleated chain D20</b>                                | <b>30</b> |
|   | <b>Roller cleat D35</b>                                        | <b>32</b> |
|  | <b>Cleated chain</b>                                           | <b>36</b> |
|  | <b>Universal chain</b>                                         | <b>38</b> |
|  | <b>Steel-plated conveyor chain</b>                             | <b>42</b> |
|  | <b>Flocked chain</b>                                           | <b>44</b> |
|  | <b>Clamping chain</b>                                          | <b>46</b> |



## Flat conveyor chain



- Drilling the flat conveyor chain links allows for the simple attachment of superstructures. Sizes 65-120 have a mold cavity for accommodating a flat M5 hexagon nut. Sizes 160-320 have a centering aid mounted on the underside of the chain plate. Max. drilling up to  $\varnothing 5$  mm, since at this point there are no interfering contours in the chain conveyor, see p. 21

### Required accessories for individual chain links:

- Chain pin and pivot pin, see p. 19

For base chain links 160-320, a chain plate is also required, see p. 20, 21

### Optional accessories:

- Static friction chain link, see p. 22
- Accumulation roller chain link D11, see p. 26
- Roller cleated chain link D20, see p. 30
- Cleated chain link, see p. 36
- Universal chain link, see p. 38

The flat conveyor chain is used to transport products directly or indirectly via workpiece pallets.

The gray conveyor chain is mainly used to transport products indirectly via workpiece pallets, in particular for steel wear pads. The dark coloring means that there is virtually no visual impairment of the chain surface.

- Transport on ascending or descending sections up to about 7° possible, depending on the product (test required)
- Accumulation operation permitted, depending on the product
- Maximum chain tensile force: 1250 N
- From size 160: Chain plate easy to replace
- Size gray chain: 65, 90
- Chain links can be combined with other types of chains of the same size
- Chain also available in ESD version, see conveyor chain ESD on page 190

- Extremely quiet chain running thanks to the patented chain design

- Materials meet the requirements of EU 10/2011 and FDA CFR 21 (does not apply for conveyor chain gray)

### Scope of delivery:

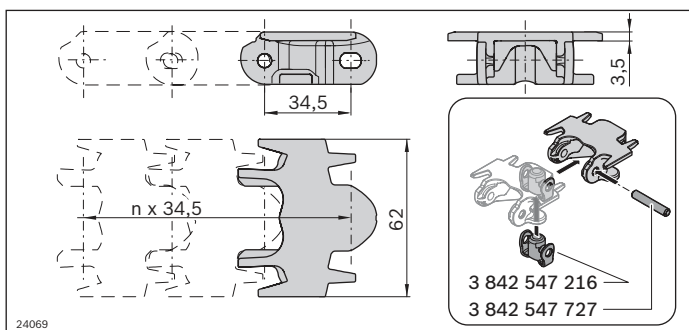
- Chain: Complete, incl. chain pin and pivot pin

### Condition on delivery:

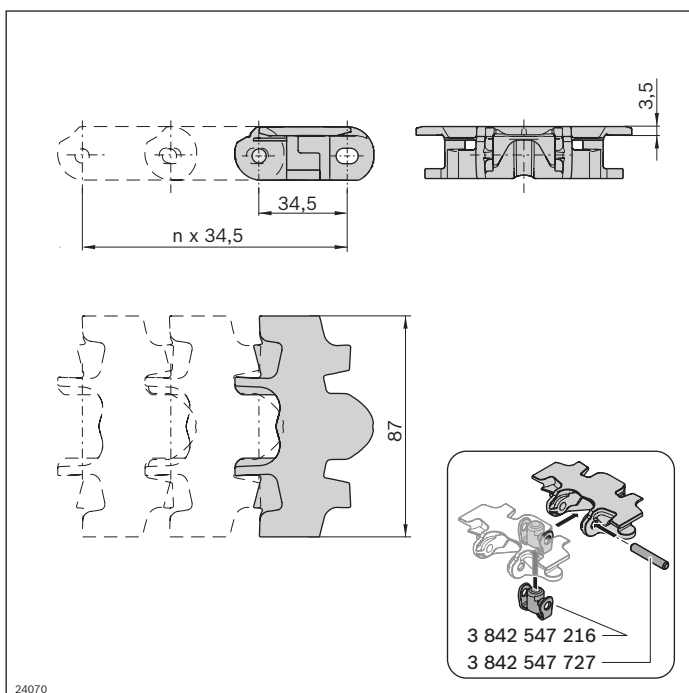
- Chain: Fully assembled

### Material:

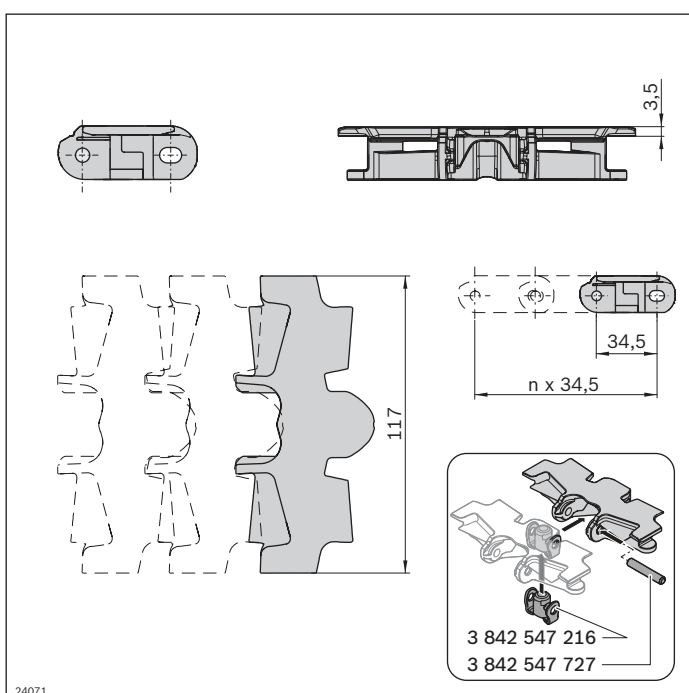
- Chain link: POM
- Chain plate: POM
- Chain pin: Non-rusting steel 1.4301
- Pivot pin: PA66



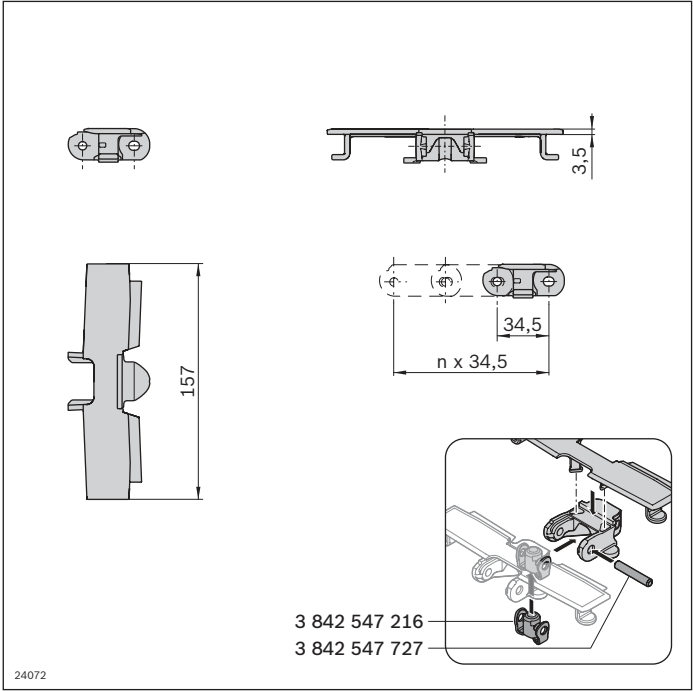
| <b>Flat conveyor chain VFplus 65</b> | <b>L (mm)</b> | <b>No.</b>             |
|--------------------------------------|---------------|------------------------|
| Conveyor chain                       | 4968          | 1 <b>3 842 546 069</b> |
| Chain link                           | 10            | <b>3 842 546 000</b>   |
| Conveyor chain, gray                 | 4968          | 1 <b>3 842 546 075</b> |
| Chain pin                            | 100           | <b>3 842 547 727</b>   |
| Pivot pin                            | 100           | <b>3 842 547 216</b>   |



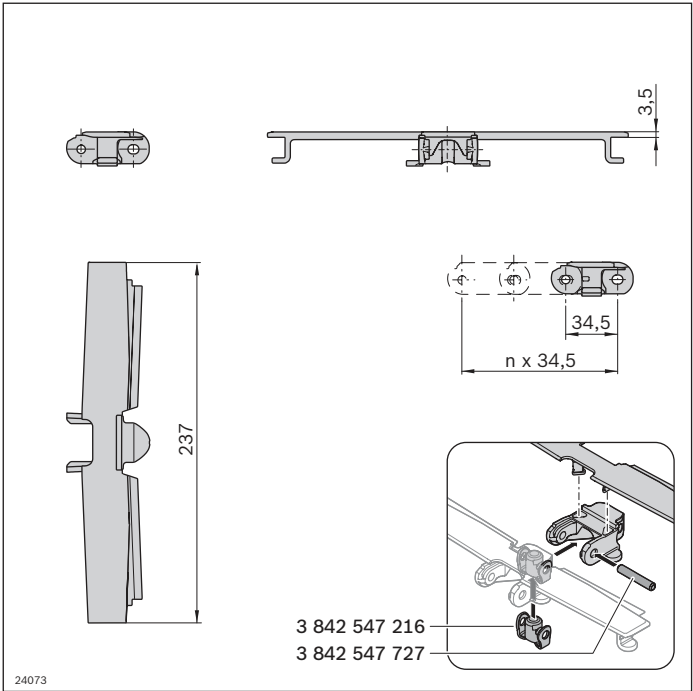
| <b>Flat conveyor chain VFplus 90</b> | <b>L (mm)</b> | <b>No.</b>             |
|--------------------------------------|---------------|------------------------|
| Conveyor chain                       | 4968          | 1 <b>3 842 546 070</b> |
| Chain link                           | 10            | <b>3 842 546 001</b>   |
| Conveyor chain, gray                 | 4968          | 1 <b>3 842 546 076</b> |
| Chain pin                            | 100           | <b>3 842 547 727</b>   |
| Pivot pin                            | 100           | <b>3 842 547 216</b>   |



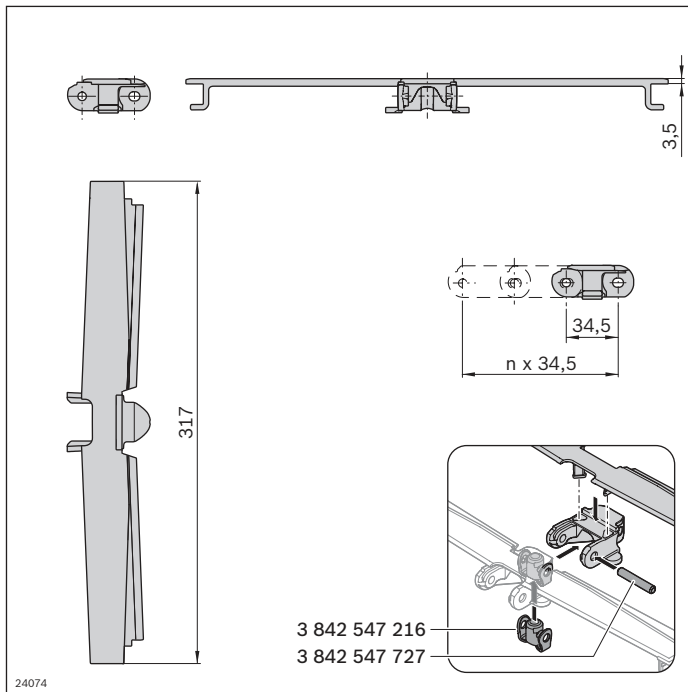
| <b>Flat conveyor chain VFplus 120</b> | <b>L (mm)</b> | <b>No.</b>             |
|---------------------------------------|---------------|------------------------|
| Conveyor chain                        | 4968          | 1 <b>3 842 546 071</b> |
| Chain link                            | 10            | <b>3 842 546 002</b>   |
| Chain pin                             | 100           | <b>3 842 547 727</b>   |
| Pivot pin                             | 100           | <b>3 842 547 216</b>   |



| Flat conveyor chain VFplus 160 | L (mm) |     | No.                  |
|--------------------------------|--------|-----|----------------------|
| Conveyor chain                 | 2898   | 1   | <b>3 842 546 072</b> |
| Basic chain link 160-320       |        | 10  | <b>3 842 546 028</b> |
| Chain plate 160                |        | 10  | <b>3 842 546 093</b> |
| Chain pin                      |        | 100 | <b>3 842 547 727</b> |
| Pivot pin                      |        | 100 | <b>3 842 547 216</b> |



| Flat conveyor chain VFplus 240 | L (mm) |     | No.                  |
|--------------------------------|--------|-----|----------------------|
| Conveyor chain                 | 2898   | 1   | <b>3 842 546 073</b> |
| Basic chain link 160-320       |        | 10  | <b>3 842 546 028</b> |
| Chain plate 240                |        | 10  | <b>3 842 546 094</b> |
| Chain pin                      |        | 100 | <b>3 842 547 727</b> |
| Pivot pin                      |        | 100 | <b>3 842 547 216</b> |

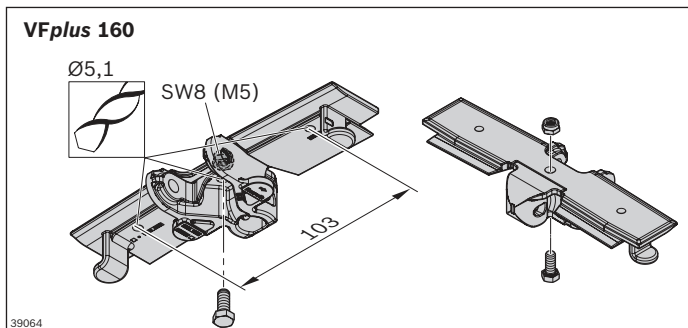


| Flat conveyor chain VFplus 320 | L (mm) | No.                    |
|--------------------------------|--------|------------------------|
| Conveyor chain                 | 2898   | 1 <b>3 842 546 074</b> |
| Basic chain link 160-320       | 10     | <b>3 842 546 028</b>   |
| Chain plate 320                | 10     | <b>3 842 546 095</b>   |
| Chain pin                      | 100    | <b>3 842 547 727</b>   |
| Pivot pin                      | 100    | <b>3 842 547 216</b>   |

2

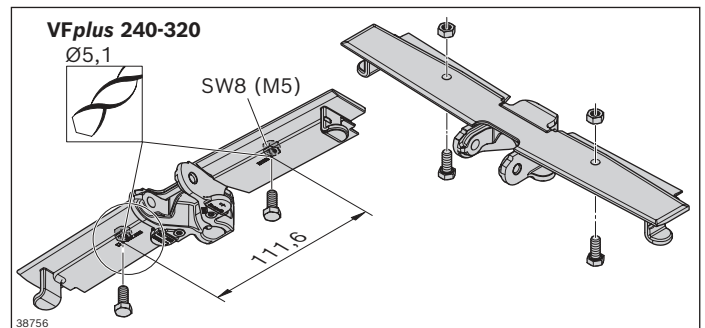
### Notice for the attachment of structures

#### VFplus 160

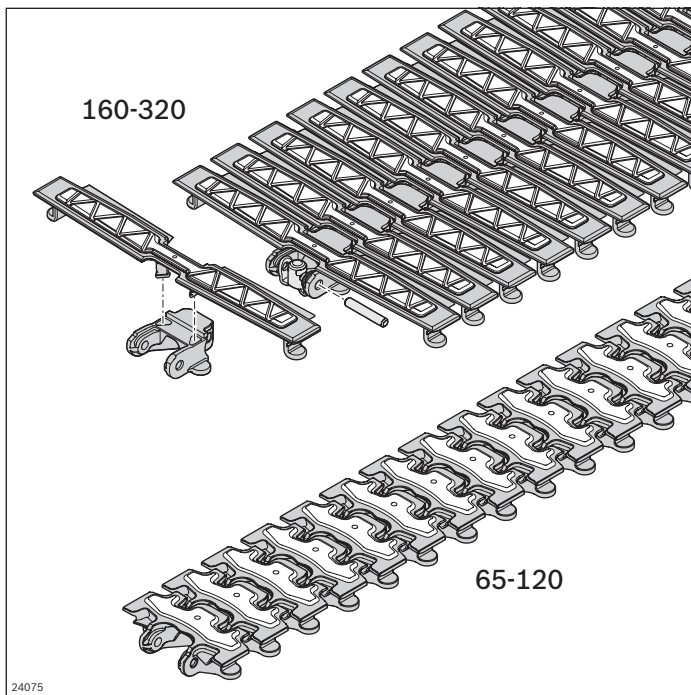


#### VFplus 240-320

**Notice:** Risk of collision! Only use the mounting points provided.



## Static friction chain



- ▶ Extremely quiet chain running thanks to the patented chain design
- ▶ Materials meet the requirements of EU 10/2011 and FDA CFR 21

Required accessories for individual chain links:

- Chain pin and pivot pin, see p. 23

For basic chain links 160-320, a chain plate is also required, see p. 24

Scope of delivery:

- Chain: Complete, incl. chain pin and pivot pin

Material:

- Chain link: POM
- Static friction coating: TPE Shore 70A
- Chain pin: Non-rusting steel 1.4301
- Pivot pin: PA66

The static friction chain enables the transport of products on ascending or descending sections.

The number of chain links with static friction lining can be specified by the user depending on the product size, weight and the inclination.

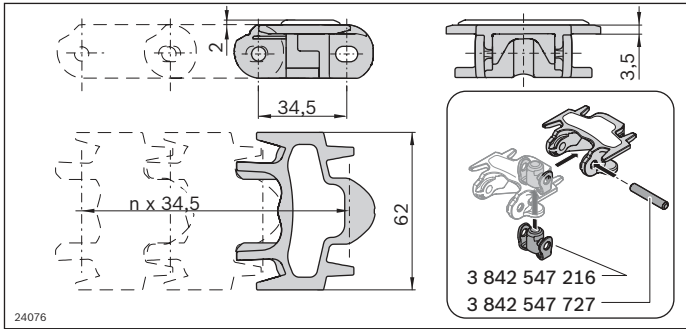
- Transport on ascending or descending sections up to about 30° possible. The maximum gradient depends on the product surface, section length, and speed (test required)
- Accumulation operation not permitted
- Maximum chain tensile force: 1250 N
- From size 160: Chain plate easy to replace
- Only suitable for dry operation
- $AZ \geq 2$ : Static friction chain supplemented with flat conveyor chain links ( $AZ$  = spacing distance)
- $AZ = 1$ : All links with static friction coating
- The grip is maintained through regular cleaning
- The chain coating is not suitable for transporting sharp-edged objects

- ▶ Extensive static friction lining for transporting product securely

Condition on delivery:

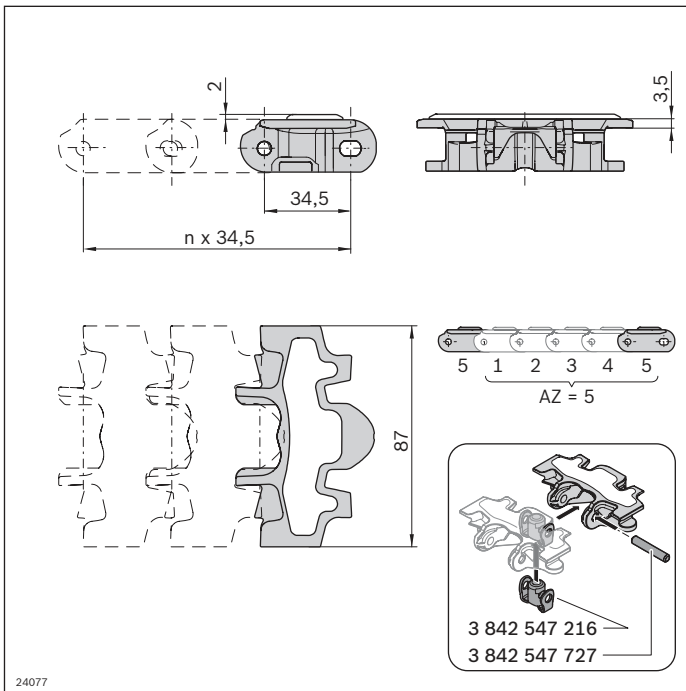
- Chain: Fully assembled



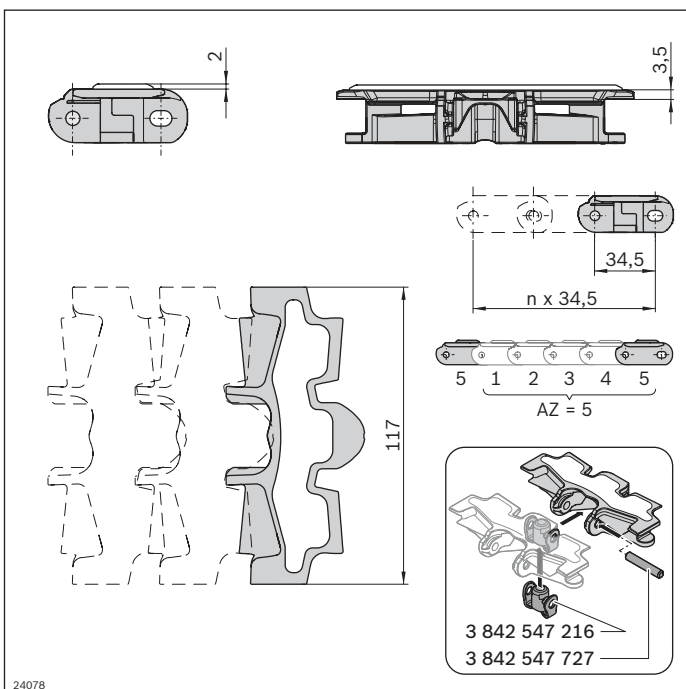


| Static friction chain VFplus 65 | L (mm) | No.                       |
|---------------------------------|--------|---------------------------|
| Conveyor chain; AZ = 1          | 4968   | 1 <b>3 842 546 077</b>    |
| Conveyor chain; AZ = 2 ... 84   | 2898   | 1 <b>3 842 998 706/AZ</b> |
| Chain link                      | 10     | <b>3 842 546 006</b>      |
| Chain pin                       | 100    | <b>3 842 547 727</b>      |
| Pivot pin                       | 100    | <b>3 842 547 216</b>      |

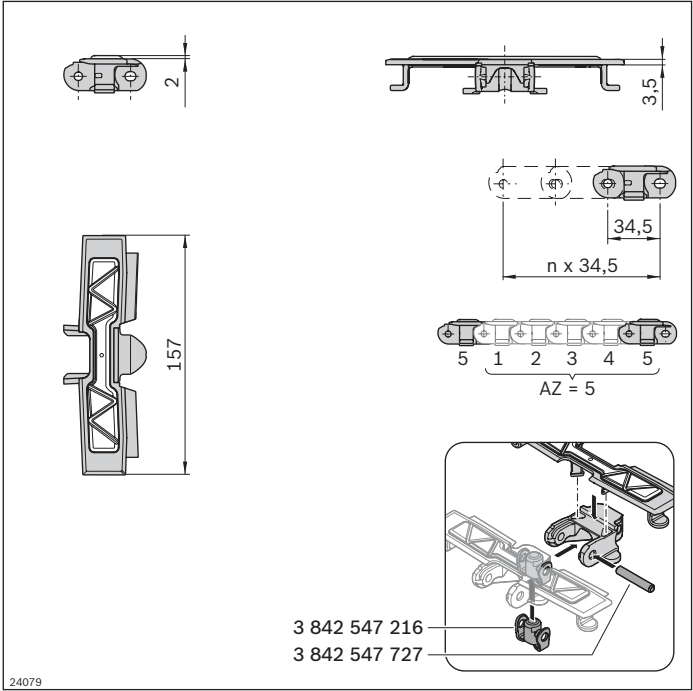
2



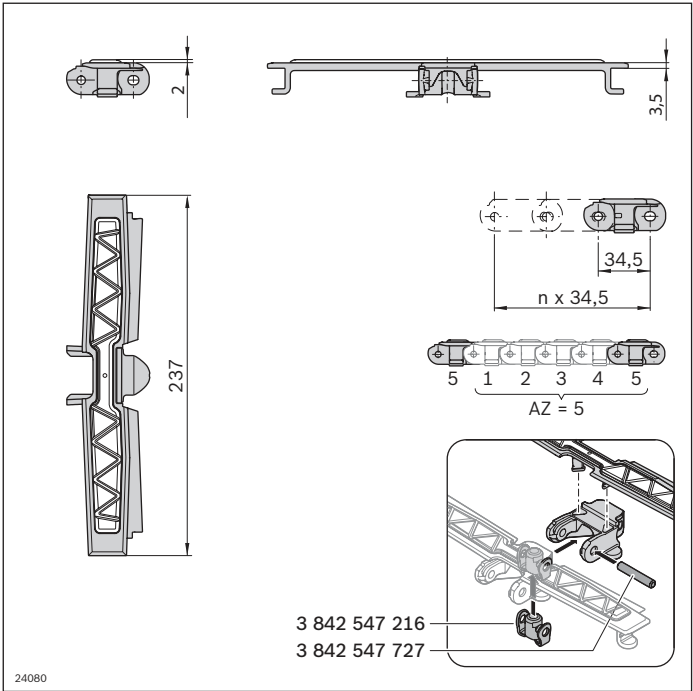
| Static friction chain VFplus 90 | L (mm) | No.                       |
|---------------------------------|--------|---------------------------|
| Conveyor chain; AZ = 1          | 4968   | 1 <b>3 842 546 078</b>    |
| Conveyor chain; AZ = 2 ... 84   | 2898   | 1 <b>3 842 998 707/AZ</b> |
| Chain link                      | 10     | <b>3 842 546 007</b>      |
| Chain pin                       | 100    | <b>3 842 547 727</b>      |
| Pivot pin                       | 100    | <b>3 842 547 216</b>      |



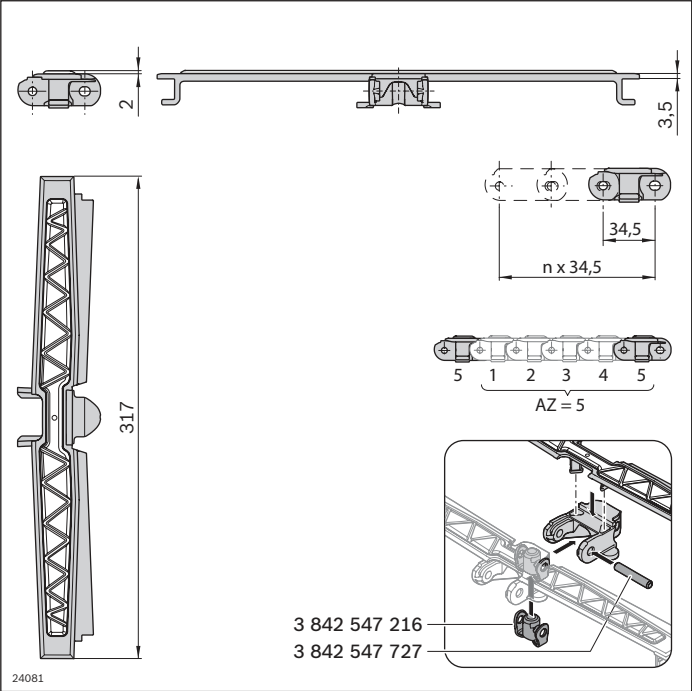
| Static friction chain VFplus 120 | L (mm) | No.                       |
|----------------------------------|--------|---------------------------|
| Conveyor chain; AZ = 1           | 4968   | 1 <b>3 842 546 079</b>    |
| Conveyor chain; AZ = 2 ... 84    | 2898   | 1 <b>3 842 998 708/AZ</b> |
| Chain link                       | 10     | <b>3 842 546 008</b>      |
| Chain pin                        | 100    | <b>3 842 547 727</b>      |
| Pivot pin                        | 100    | <b>3 842 547 216</b>      |



| Static friction chain VFplus 160 | L (mm) |     | No.                     |
|----------------------------------|--------|-----|-------------------------|
| Conveyor chain; AZ = 1           | 2898   | 1   | <b>3 842 546 080</b>    |
| Conveyor chain; AZ = 2 ... 84    | 2898   | 1   | <b>3 842 998 709/AZ</b> |
| Basic chain link 160-320         |        | 10  | <b>3 842 546 028</b>    |
| Chain plate 160                  |        | 10  | <b>3 842 546 096</b>    |
| Chain pin                        |        | 100 | <b>3 842 547 727</b>    |
| Pivot pin                        |        | 100 | <b>3 842 547 216</b>    |

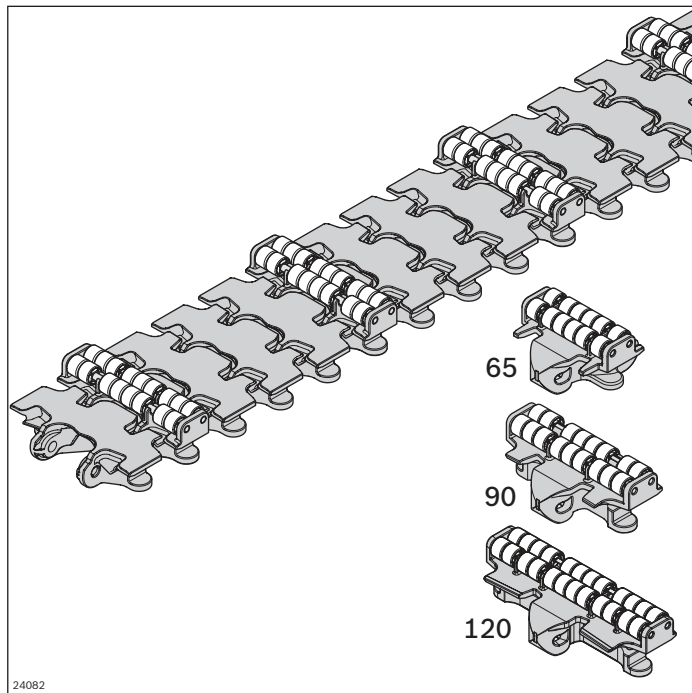


| Static friction chain VFplus 240 | L (mm) |     | No.                     |
|----------------------------------|--------|-----|-------------------------|
| Conveyor chain; AZ = 1           | 2898   | 1   | <b>3 842 546 081</b>    |
| Conveyor chain; AZ = 2 ... 84    | 2898   | 1   | <b>3 842 998 710/AZ</b> |
| Basic chain link 160-320         |        | 10  | <b>3 842 546 028</b>    |
| Chain plate 240                  |        | 10  | <b>3 842 546 097</b>    |
| Chain pin                        |        | 100 | <b>3 842 547 727</b>    |
| Pivot pin                        |        | 100 | <b>3 842 547 216</b>    |



| Static friction chain VFplus 320 | L (mm) |  | No.                     |
|----------------------------------|--------|-------------------------------------------------------------------------------------|-------------------------|
| Conveyor chain; AZ = 1           | 2898   | 1                                                                                   | <b>3 842 546 082</b>    |
| Conveyor chain; AZ = 2 ... 84    | 2898   | 1                                                                                   | <b>3 842 998 711/AZ</b> |
| Basic chain link 160-320         | 10     |                                                                                     | <b>3 842 546 028</b>    |
| Chain plate 320                  | 10     |                                                                                     | <b>3 842 546 098</b>    |
| Chain pin                        | 100    |                                                                                     | <b>3 842 547 727</b>    |
| Pivot pin                        | 100    |                                                                                     | <b>3 842 547 216</b>    |

# Accumulation roller chain D11, Roller cleated chain D11



The accumulation roller chain D11 ( $AZ = 1$ ) enables the surface-protecting and exclusively horizontal transport of sensitive products, even in accumulation operation. Use as a roller cleated chain ( $AZ \geq 2$ ) enables the vertical transport of small products. See also "Layout instructions for roller cleated chains", on page 34

- The maximum gradient when using cleats depends on the product geometry (test required)
- Accumulation operation permitted when used as an accumulation roller chain ( $AZ = 1$ )  
Accumulation operation not permitted when used as a roller cleated chain ( $AZ \geq 2$ )
- Maximum chain tensile force: 1250 N
- $AZ \geq 2$ : Roller cleated chain supplemented with flat chain links ( $AZ = \text{spacing distance}$ )  
 $AZ = 1$ : Continuous accumulation roller chain
- Product length for use with the accumulation roller chain:  $\geq 70 \text{ mm}$

- Extremely quiet chain running thanks to the patented chain design

- Materials meet the requirements of EU 10/2011 and FDA CFR 21

Required accessories for individual chain links:

- Chain pin and pivot pin, see p. 27

Scope of delivery:

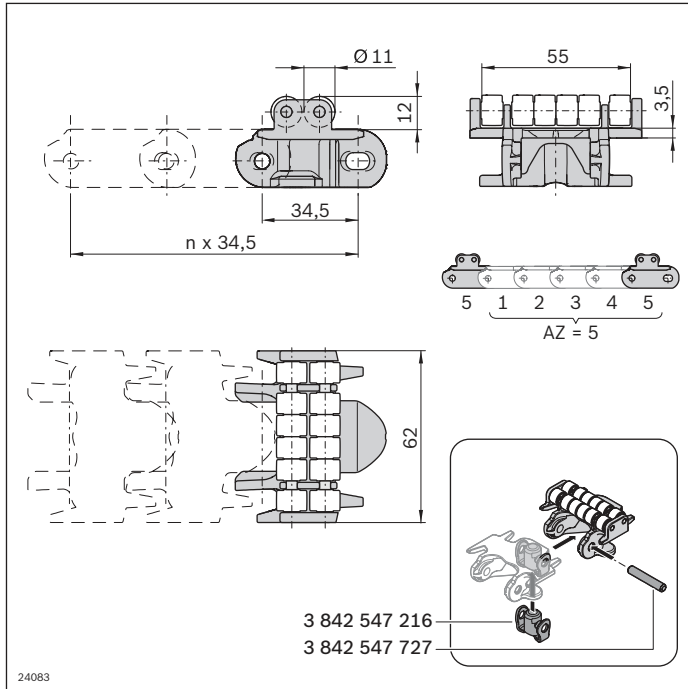
- Chain: Complete, incl. chain pin and pivot pin

Condition on delivery:

- Chain: Fully assembled

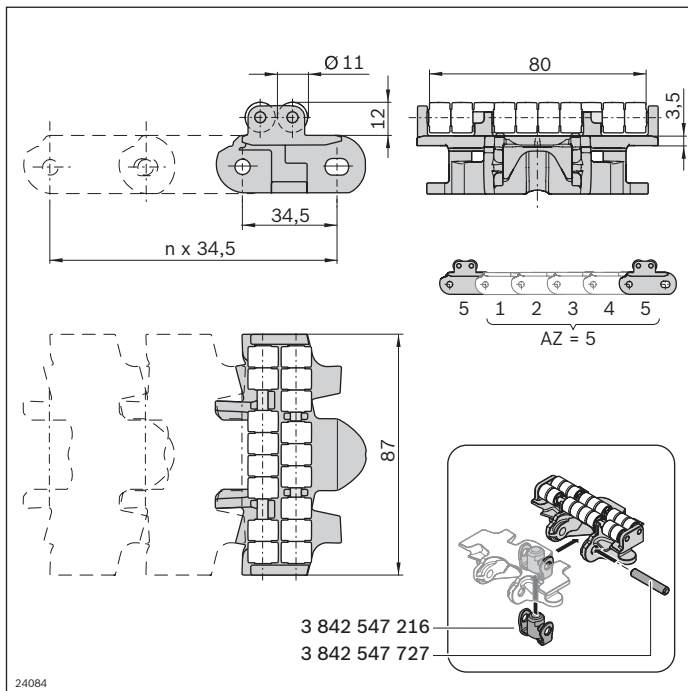
Material:

- Chain link: POM
- Roller: POM
- Chain pin: Non-rusting steel 1.4301
- Pivot pin: PA66


**Accumulation roller chain D11 L (mm) No.**  
**VFplus 65**

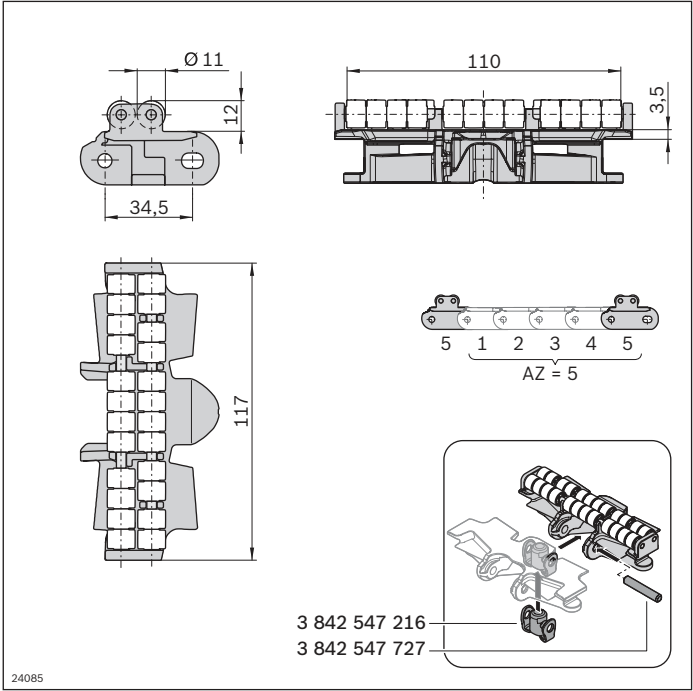
|                               |      |   |                         |
|-------------------------------|------|---|-------------------------|
| Conveyor chain; AZ = 1        | 2898 | 1 | <b>3 842 546 083</b>    |
| Conveyor chain; AZ = 2 ... 84 | 2898 | 1 | <b>3 842 998 717/AZ</b> |
| Chain link                    | 10   |   | <b>3 842 546 017</b>    |
| Chain pin                     | 100  |   | <b>3 842 547 727</b>    |
| Pivot pin                     | 100  |   | <b>3 842 547 216</b>    |

2


**Accumulation roller chain D11 L (mm) No.**  
**VFplus 90**

|                               |      |   |                         |
|-------------------------------|------|---|-------------------------|
| Conveyor chain; AZ = 1        | 2898 | 1 | <b>3 842 546 084</b>    |
| Conveyor chain; AZ = 2 ... 84 | 2898 | 1 | <b>3 842 998 718/AZ</b> |
| Chain link                    | 10   |   | <b>3 842 546 018</b>    |
| Chain pin                     | 100  |   | <b>3 842 547 727</b>    |
| Pivot pin                     | 100  |   | <b>3 842 547 216</b>    |

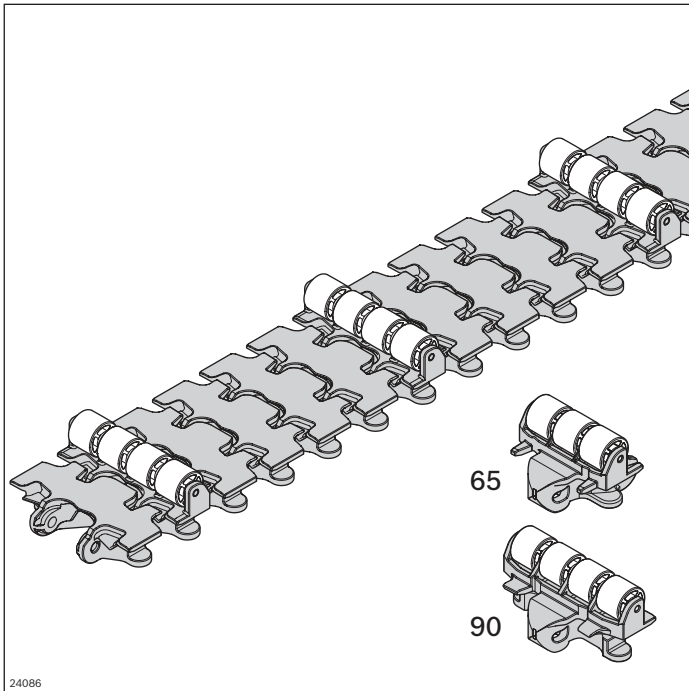




| Accumulation roller chain D11 | L (mm) |  | No.                     |
|-------------------------------|--------|-------------------------------------------------------------------------------------|-------------------------|
| <b>VFplus 120</b>             |        |                                                                                     |                         |
| Conveyor chain; AZ = 1        | 2898   | 1                                                                                   | <b>3 842 546 085</b>    |
| Conveyor chain; AZ = 2 ... 84 | 2898   | 1                                                                                   | <b>3 842 998 719/AZ</b> |
| Chain link                    |        | 10                                                                                  | <b>3 842 546 019</b>    |
| Chain pin                     |        | 100                                                                                 | <b>3 842 547 727</b>    |
| Pivot pin                     |        | 100                                                                                 | <b>3 842 547 216</b>    |



## Roller cleated chain D20



The roller cleated chain D20 enables the transport of products on ascending or descending sections. See also "Layout instructions for roller cleated chains", on page 34

- The maximum gradient depends on the product geometry (test required)
- Accumulation operation not permitted
- Maximum chain tensile force: 1250 N
- $AZ \geq 2$ : Roller cleated chain supplemented with flat conveyor chain links (AZ = spacing distance)

- Extremely quiet chain running thanks to the patented chain design
- Materials meet the requirements of EU 10/2011 and FDA CFR 21

- For feeding without any effort for cycle time adjustment

Required accessories for individual chain links:

- Chain pin and pivot pin, see p. 31

Scope of delivery:

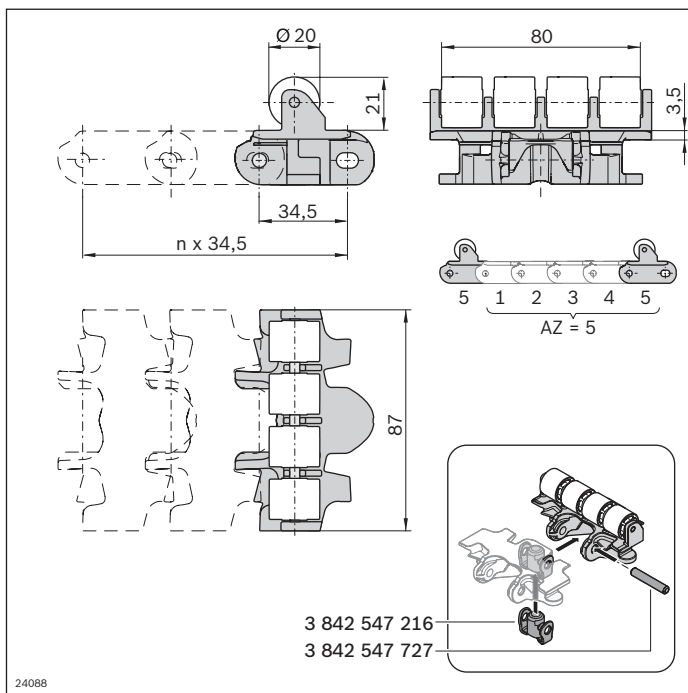
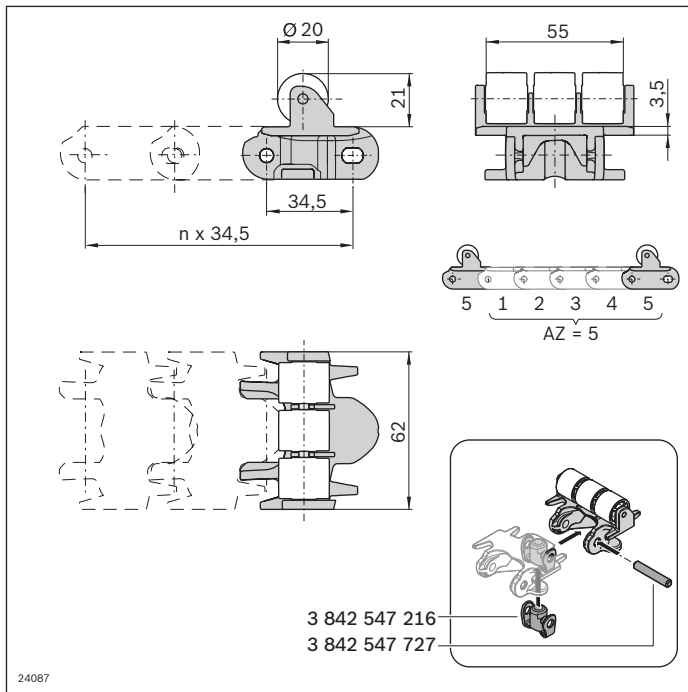
- Chain: Complete, incl. chain pin and pivot pin

Condition on delivery:

- Chain: Fully assembled

Material:

- Chain link: POM
- Roller: POM
- Chain pin: Non-rusting steel 1.4301
- Pivot pin: PA66



**Roller cleated chain D20  
VFplus 65**

| L (mm) |  | No. |
|--------|-------------------------------------------------------------------------------------|-----|
|--------|-------------------------------------------------------------------------------------|-----|

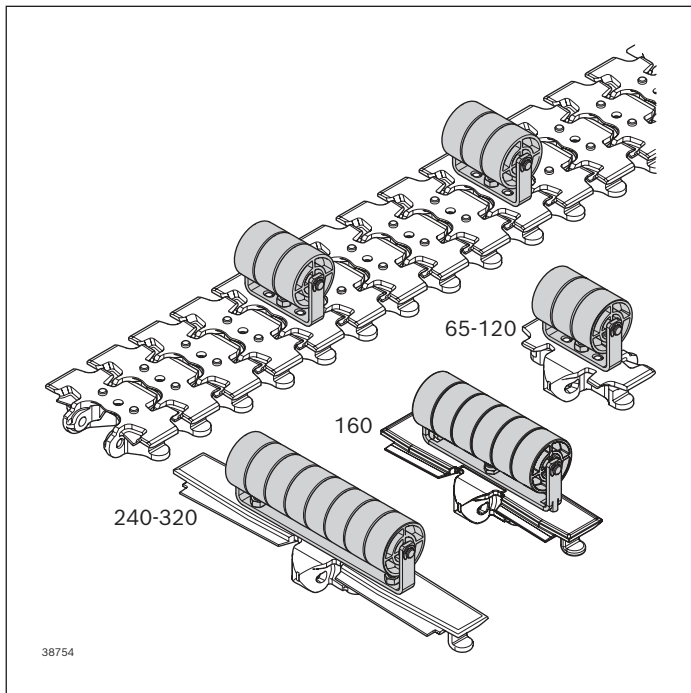
|                               |      |     |                         |
|-------------------------------|------|-----|-------------------------|
| Conveyor chain; AZ = 2 ... 84 | 2898 | 1   | <b>3 842 998 720/AZ</b> |
| Chain link                    |      | 10  | <b>3 842 546 020</b>    |
| Chain pin                     |      | 100 | <b>3 842 547 727</b>    |
| Pivot pin                     |      | 100 | <b>3 842 547 216</b>    |

## Roller cleated chain D20 VFplus 90

| L (mm) |  | No. |
|--------|-------------------------------------------------------------------------------------|-----|
|--------|-------------------------------------------------------------------------------------|-----|

|                               |      |     |                         |
|-------------------------------|------|-----|-------------------------|
| Conveyor chain; AZ = 2 ... 84 | 2898 | 1   | <b>3 842 998 721/AZ</b> |
| Chain link                    |      | 10  | <b>3 842 546 021</b>    |
| Chain pin                     |      | 100 | <b>3 842 547 727</b>    |
| Pivot pin                     |      | 100 | <b>3 842 547 216</b>    |

## Roller cleat D35



The roller cleat D35 enables the transport of large-volume products on ascending or descending sections. See also "Layout instructions for roller cleated chains", page 34.

- The maximum gradient depends on the product geometry (test required)
- Accumulation operation not permitted
- Maximum chain tensile force: 1250 N
- Static force: 100 N
- Dynamic force: 10 N
- 3 types:
  - For size 65-120
  - For size 160
  - For size 240-320

### Notice:

The chain plate with roller cleat must be screwed to the basic chain link.

- A roller cleated chain D35 is created easily by mounting the roller cleat on the universal chain link (65-120). Drilling the basic chain links (160-320) allows for the simple attachment of the roller cleat. A mold cavity for accommodating a flat hexagon nut/screw M5 is present, see p. 21, 40

- For feeding without any effort for cycle time adjustment
- Extremely quiet chain running thanks to the patented chain design
- Materials meet the requirements of EU 10/2011 and FDA CFR 21

### Required accessories:

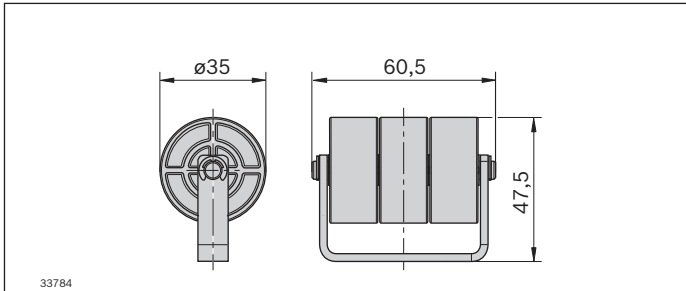
- Universal chain links 65-120, see p. 18 and p. 38,
- basic chain links 160-320, see p. 20

### Scope of delivery:

- Roll bar mounted, incl. fastening material

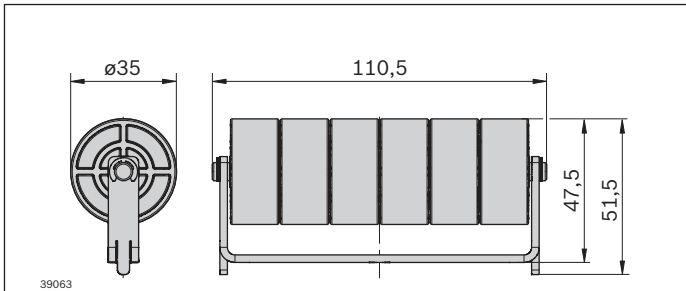
### Material:

- Roller: POM, white
- Roller bracket, axle: Non-rusting steel 1.4301

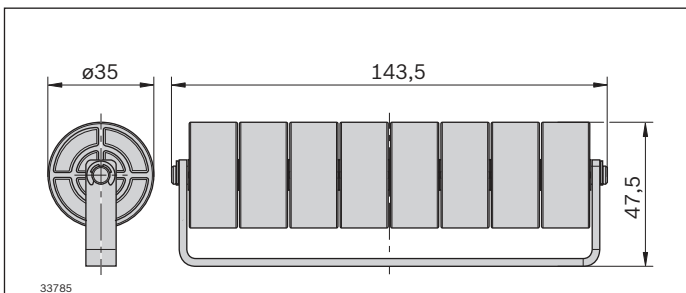


| Roller cleat D35 | No.             |
|------------------|-----------------|
| 65-120           | 1 3 842 546 107 |

2



| Roller cleat D35 | No.             |
|------------------|-----------------|
| 160              | 1 3 842 564 331 |

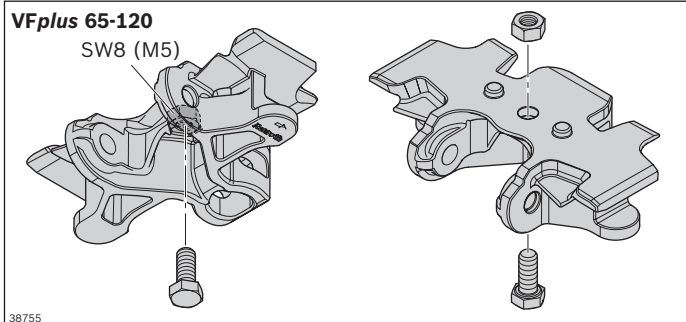


| Roller cleat D35 | No.             |
|------------------|-----------------|
| 240-320          | 1 3 842 553 028 |

### Notice for the attachment of structures

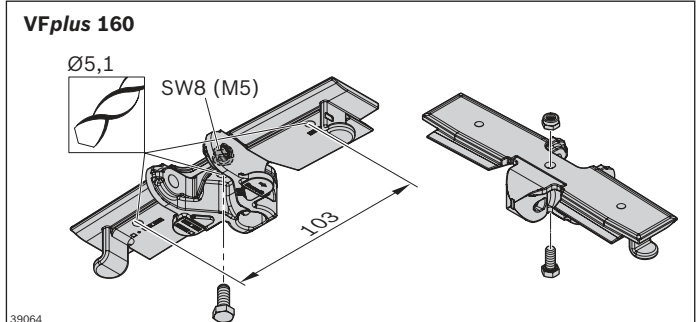
#### Notice VFplus 65-120:

For superstructures, use the universal chain link.



#### Notice VFplus 160:

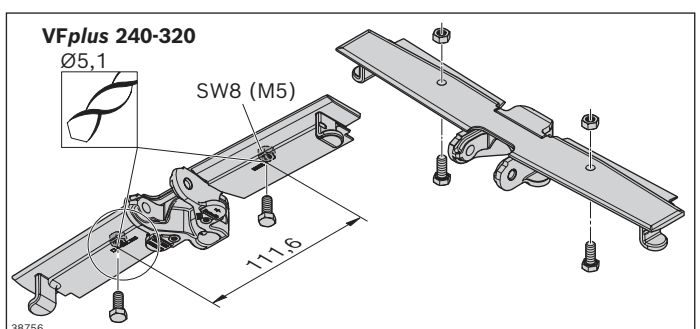
Roller cleat fixed with three bores



#### Note VFplus 240-320:

Risk of collision!

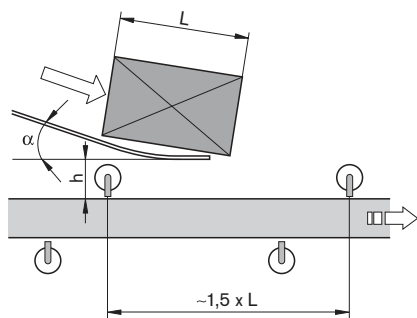
Only use the mounting points provided.



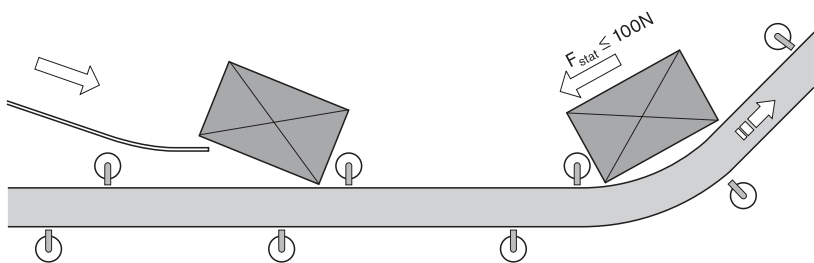


# Layout instructions for roller cleated chains

**Fig. A**

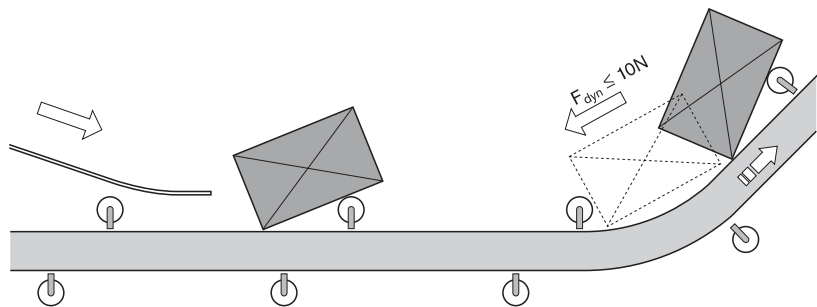


**Fig. B**



00123918

**Fig. C**



00123919

**Roller cleated chain**

During uphill transport of packaged, bulky products (e.g. boxes), the products can slide between the roller cleats via a chute to be diagonally "inserted" into the conveying direction from above. The product rolls into the next free pocket, which ensures continuous material flow without any expensive cycle time adjustment. The roller diameter is dependent on the size of the transported goods.

When planning, observe the following (see fig. **A**):

- Keep height of fall "h" and angle " $\alpha$ " as small as possible.
- The speed of the inserted product should be about the same as that of the conveyor system. Reduce higher speeds by braking (e.g. brushes) before inserting into the roller cleated chain.

Always prevent the product from transmitting its kinetic energy to the roller cleats

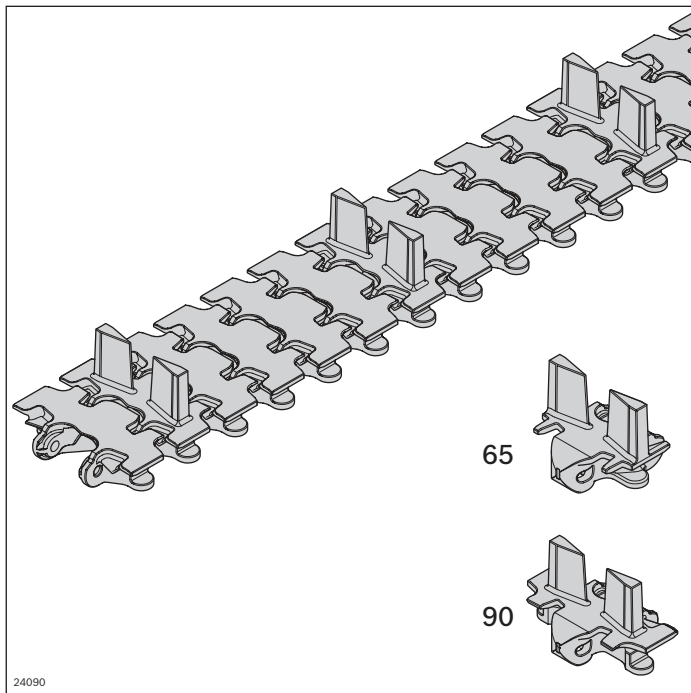
- Feeding in the conveying direction of the roller cleated chain
- The distance of the roller cleat is approx. 1.5x product length (ensures curve mobility in vertical curves)
- Removal speed:  
2x product length x 1.5x product quantity/min

This ensures that each product has two pockets available to slide into, either forwards or backwards (see fig. **B, C**).

- Max. dynamic force of product when sliding backwards against the roller cleat: 10 N
- Max. static force due to adjacent product: 100 N

At higher forces, decrease the angle of inclination or reduce the speed of impact by installing individual static friction chain links between the roller cleats.

## Cleated chain



The cleated chain facilitates the transport of products on uphill and downhill sections.

- The maximum gradient depends on the product geometry (test required)
- Accumulation operation not permitted
- Maximum chain tensile force: 1250 N
- $AZ \geq 2$ : Cleated chain supplemented with flat conveyor chain links ( $AZ$  = spacing distance)

- Extremely quiet chain running thanks to the patented chain design
- Materials meet the requirements of EU 10/2011 and FDA CFR 21

- The centrally divided cleat allows for the simple transfer of conveyed material at the section ends: A transfer area only needs to be recessed in the area of the cleat and can otherwise be used near to the submerging chain

Required accessories for individual chain links:

- Chain pin and pivot pin, see p. 37

Scope of delivery:

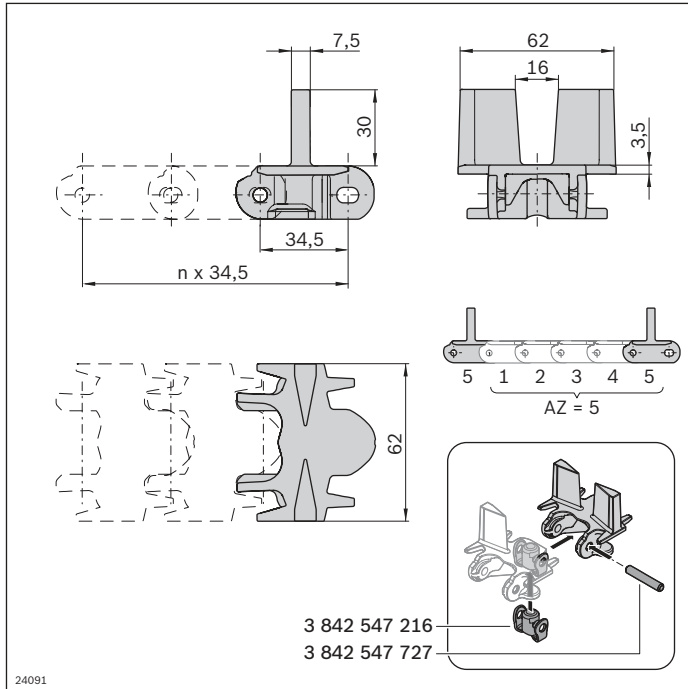
- Chain: Complete, incl. chain pin and pivot pin

Condition on delivery:

- Chain: Fully assembled

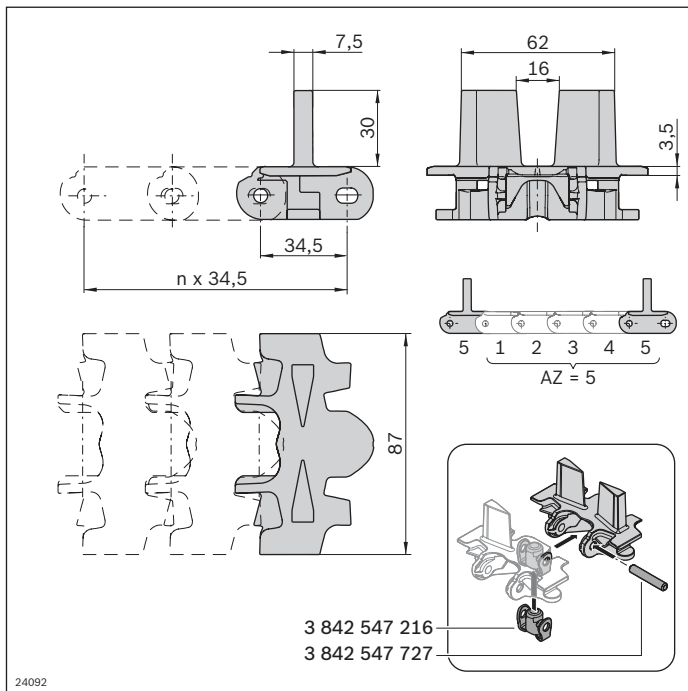
Material:

- Chain link: POM
- Chain pin: Non-rusting steel 1.4301
- Pivot pin: PA66



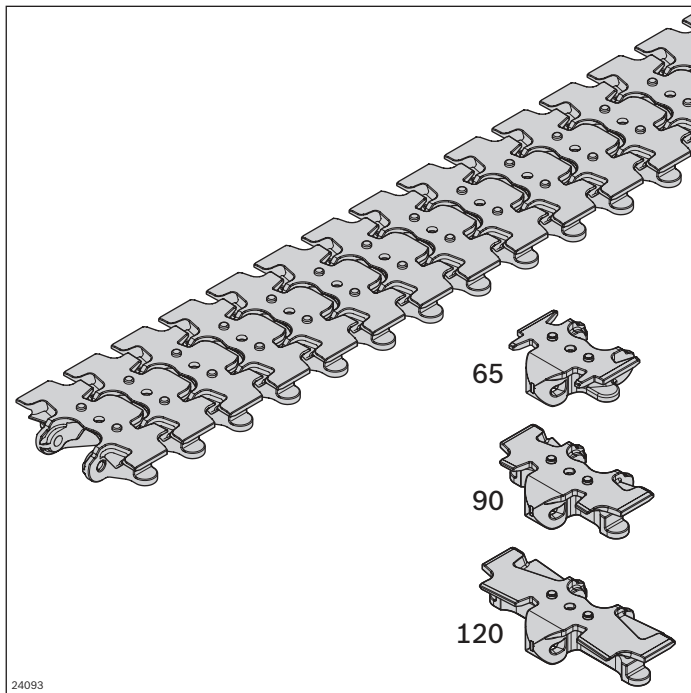
| <b>Cleated chain VFplus 65</b> | <b>L (mm)</b> | <b>No.</b>                |
|--------------------------------|---------------|---------------------------|
| Conveyor chain; AZ = 2 ... 84  | 2898          | 1 <b>3 842 998 715/AZ</b> |
| Chain link                     | 10            | <b>3 842 546 015</b>      |
| Chain pin                      | 100           | <b>3 842 547 727</b>      |
| Pivot pin                      | 100           | <b>3 842 547 216</b>      |

2



| <b>Cleated chain VFplus 90</b> | <b>L (mm)</b> | <b>No.</b>                |
|--------------------------------|---------------|---------------------------|
| Conveyor chain; AZ = 2 ... 84  | 2898          | 1 <b>3 842 998 716/AZ</b> |
| Chain link                     | 10            | <b>3 842 546 016</b>      |
| Chain pin                      | 100           | <b>3 842 547 727</b>      |
| Pivot pin                      | 100           | <b>3 842 547 216</b>      |

## Universal chain



- ▶ Extremely quiet chain running thanks to the patented chain design
- ▶ Materials meet the requirements of EU 10/2011 and FDA CFR 21

Required accessories for individual chain links:

- Chain pin and pivot pin, see p. 39

Scope of delivery:

- Chain: Complete, incl. chain pin and pivot pin

Material:

- Chain link: POM
- Chain pin: Non-rusting steel 1.4301
- Pivot pin: PA66

The universal chain serves as mounting base for the assembly of customer-specific cleats or superstructures.

- The maximum gradient depends on the customer-specific cleats (test required)
- Accumulation operation not permitted
- Maximum chain tensile force: 1250 N
- $AZ \geq 2$ : Universal chain supplemented with flat conveyor chain links
- $AZ = 1$ : Complete conveyor chain with universal chain links
- ( $AZ$  = spacing distance)

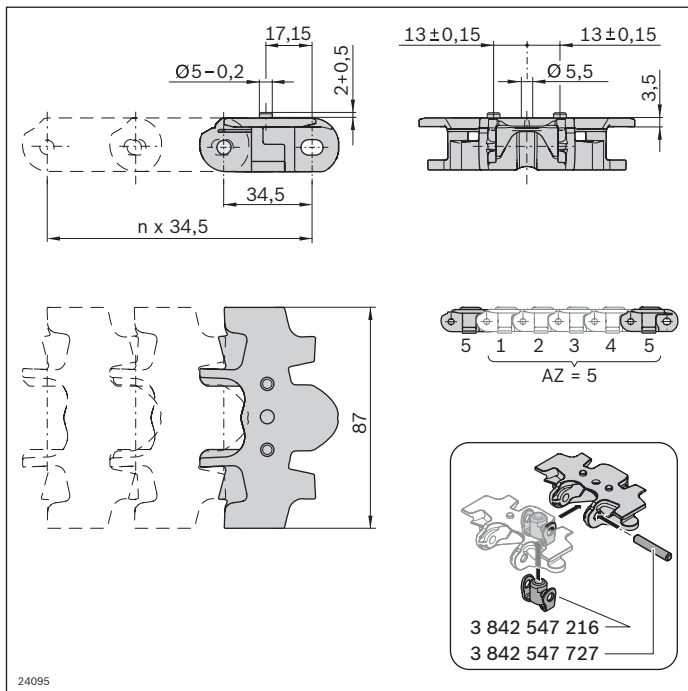
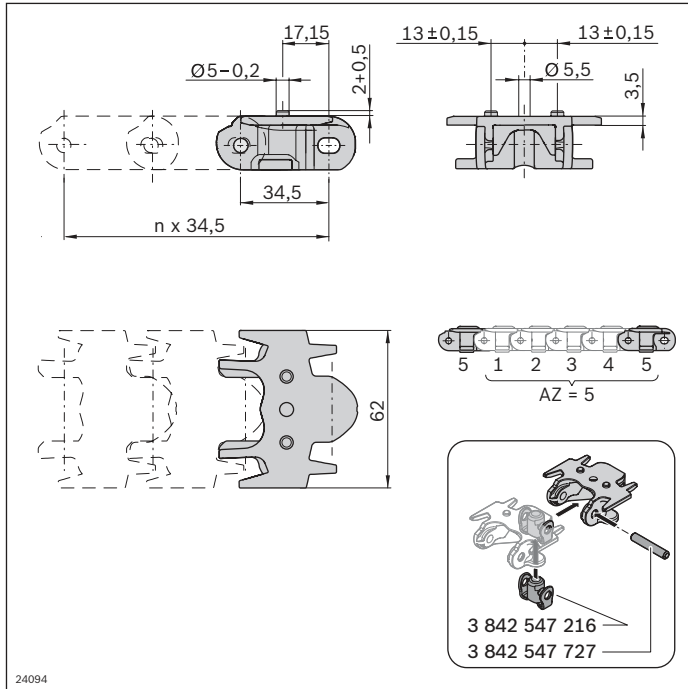
- ▶ A mold cavity for mounting a flat M5 hexagon nut on the underside of the chain plate as well as the integrated anti-torsion element (pin) facilitate the simple, centered attachment of superstructures, see p. 40

Optional accessories:

- Static friction chain link, see p. 22
- Accumulation roller chain link D11, see p. 26
- Roller cleated chain link D20, see p. 30
- Cleated chain link, see p. 36

Condition on delivery:

- Chain: Fully assembled



| Universal chain VFplus 65     | L (mm) |  No. |
|-------------------------------|--------|-----------------------------------------------------------------------------------------|
| Conveyor chain; AZ = 1 ... 84 | 2898   | 1 <b>3 842 998 712/AZ</b>                                                               |
| Chain link                    | 10     | <b>3 842 546 012</b>                                                                    |
| Chain pin                     | 100    | <b>3 842 547 727</b>                                                                    |
| Pivot pin                     | 100    | <b>3 842 547 216</b>                                                                    |

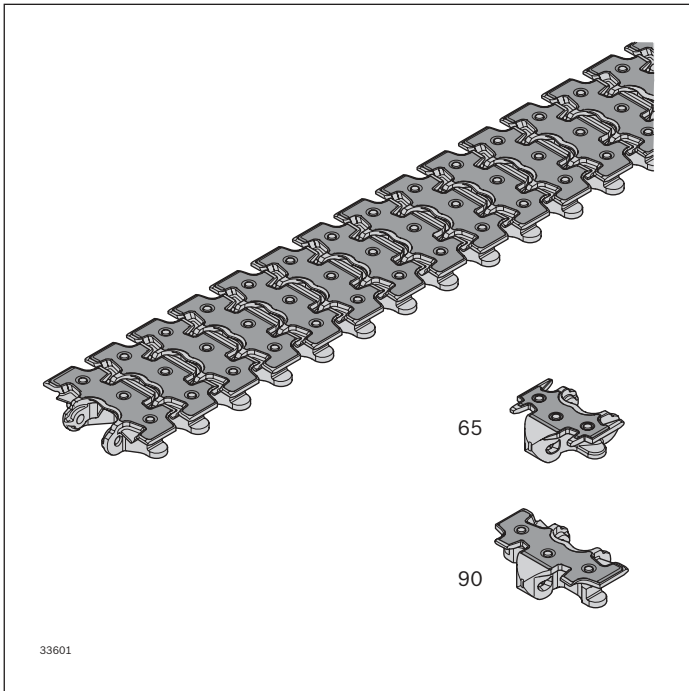
| Universal chain VFplus 90     | L (mm) |  No. |
|-------------------------------|--------|-----------------------------------------------------------------------------------------|
| Conveyor chain; AZ = 1 ... 84 | 2898   | 1 <b>3 842 998 713/AZ</b>                                                               |
| Chain link                    |        | 10 <b>3 842 546 013</b>                                                                 |
| Chain pin                     |        | 100 <b>3 842 547 727</b>                                                                |
| Pivot pin                     |        | 100 <b>3 842 547 216</b>                                                                |







## Steel-plated conveyor chain



- The stainless version is also suitable for use in wet ambient conditions
- This chain version offers smooth running and less maintenance (no lubrication) compared with completely steel chains

### Scope of delivery:

- Chain: Complete, incl. chain pin and pivot pin

### Material:

- Chain link: POM, white
- Steel coating: Non-rusting steel 1.4301, HV  $\geq$  480
- Chain pin: Non-rusting steel 1.4301
- Pivot pin: PA66

The steel-plated conveyor chain is used for sharp-edged parts and products with a rough surface.

- Transport on ascending or descending sections up to about 7° possible, depending on the product (test required)
- Accumulation operation permitted, depending on the product
- Maximum chain tensile force: 1250 N
- Size: 65, 90
- Combination with chain links of different chain types is not permitted

**Notice:** We recommend using steel sliding rails (see p. 58), as abrasive particles cause increased wear.

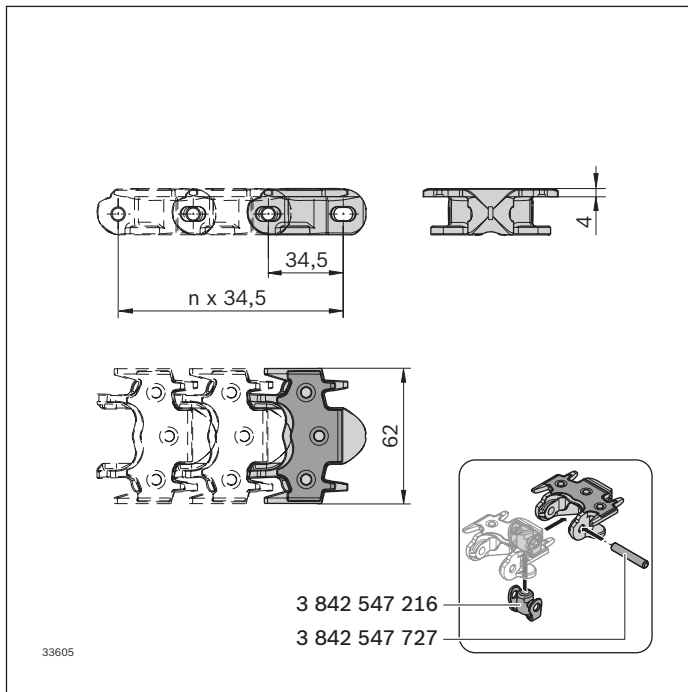
### Notice:

Not suitable for standard WT system VarioFlow *plus*.

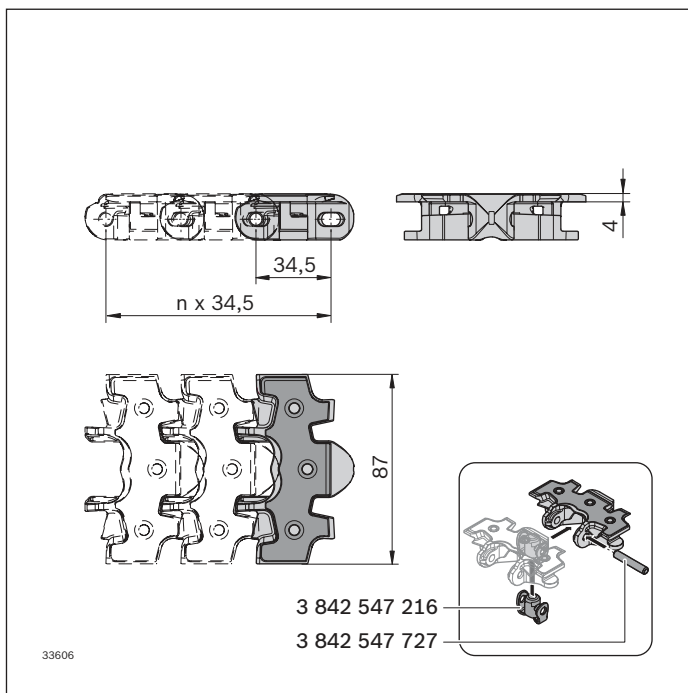
- Extremely quiet chain running thanks to the patented chain design
- Materials meet the requirements of EU 10/2011 and FDA CFR 21

### Condition on delivery:

- Chain: Fully assembled

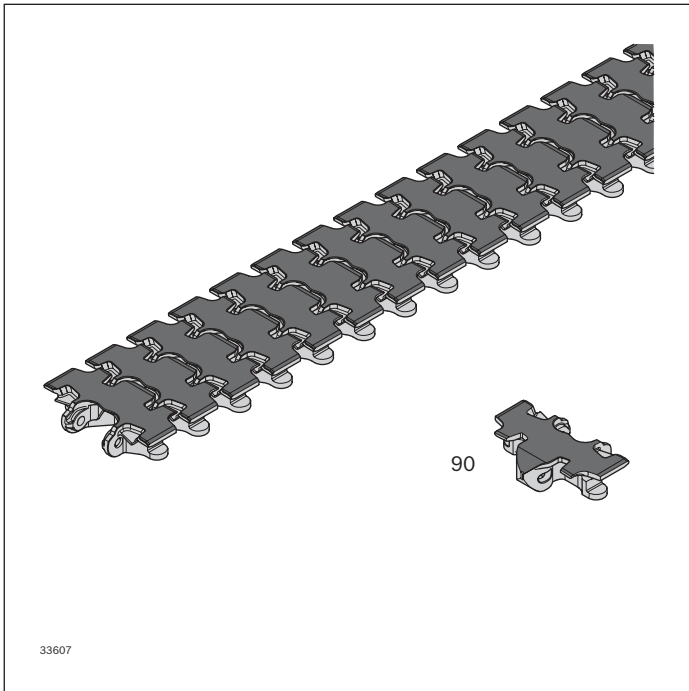


| Steel-plated conveyor chain | L (mm) | No.                    |
|-----------------------------|--------|------------------------|
| <b>VFplus 65</b>            |        |                        |
| Conveyor chain              | 4968   | 1 <b>3 842 546 090</b> |
| Chain pin                   | 100    | <b>3 842 547 727</b>   |
| Pivot pin                   | 100    | <b>3 842 547 216</b>   |



| Steel-plated conveyor chain | L (mm) | No.                    |
|-----------------------------|--------|------------------------|
| <b>VFplus 90</b>            |        |                        |
| Conveyor chain              | 4968   | 1 <b>3 842 546 091</b> |
| Chain pin                   | 100    | <b>3 842 547 727</b>   |
| Pivot pin                   | 100    | <b>3 842 547 216</b>   |

# Flocked chain



- Soft PA-flocking 3.3 dtex for sensitive product surfaces
- Extremely quiet chain running thanks to the patented chain design

## Scope of delivery:

- Chain: Complete, incl. chain pin and pivot pin

## Material:

- Chain link: POM, white
- Flocking: PA 3.3 dtex, anthracite
- Chain pin: Non-rusting steel 1.4301
- Pivot pin: PA66

The flocked chain is used on sensitive transport surfaces (e.g. gloss, clear, barcode, raised printing).

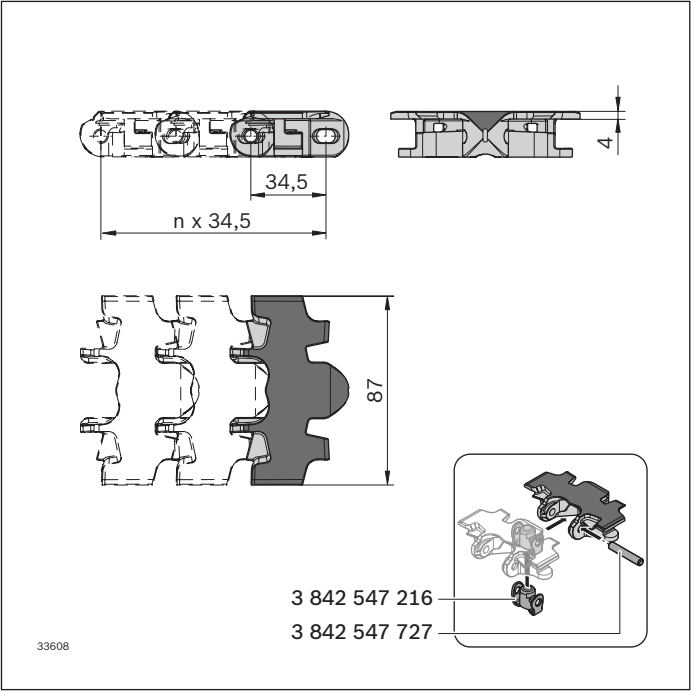
- Transport on ascending or descending sections up to about 7° possible, depending on the product (test required)
- For products susceptible to jams
- Only dry use
- Maximum permissible tracking force: 5 N/chain link
- Maximum chain tensile force: 1250 N
- Size: 90
- Not suitable for sharp-edged products
- Combination with chain links of different chain types is not permitted

## Notice:

Not suitable for standard VarioFlow *plus* WT system.

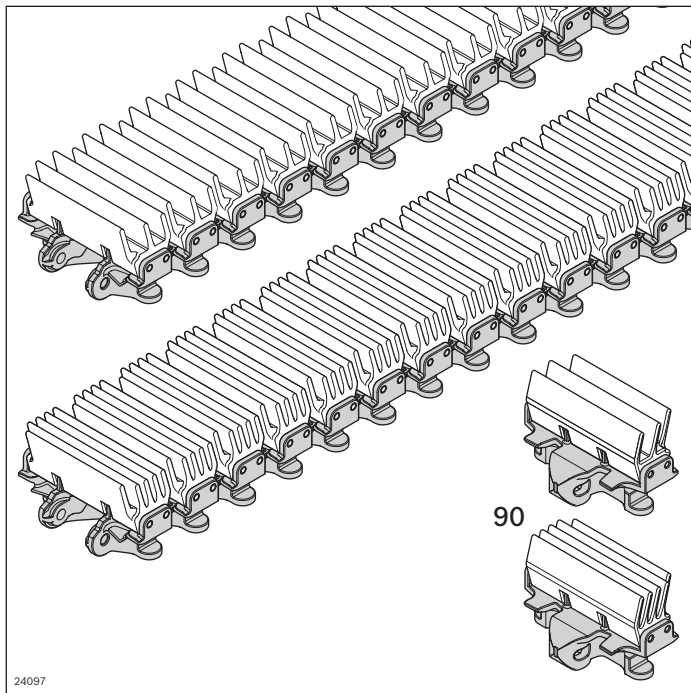
## Condition on delivery:

- Chain: Fully assembled



| Flocked chain VFplus 90 | L (mm) |  | No.                  |
|-------------------------|--------|-------------------------------------------------------------------------------------|----------------------|
| Conveyor chain          | 4968   | 1                                                                                   | <b>3 842 553 023</b> |
| Chain pin               | 100    |                                                                                     | <b>3 842 547 727</b> |
| Pivot pin               | 100    |                                                                                     | <b>3 842 547 216</b> |

## Clamping chain



- ▶ Extremely quiet chain running thanks to the patented chain design
- ▶ Materials comply with the requirements of FDA CFR 21

### Scope of delivery:

- Chain: Complete, incl. chain pin and pivot pin

### Condition on delivery:

- Chain: Fully assembled

The clamping chain clamps products to enable transport across different heights or distances.

Particularly when the product to be transported

- Cannot be transported vertically on a standard conveyor due to its design
- Cannot be transported up steep gradients with other chains due to its center of gravity
- Has sensitive surfaces that would be damaged by lateral or upper guides
- Must not slip during vertical transport
- Should be transported without synchronization

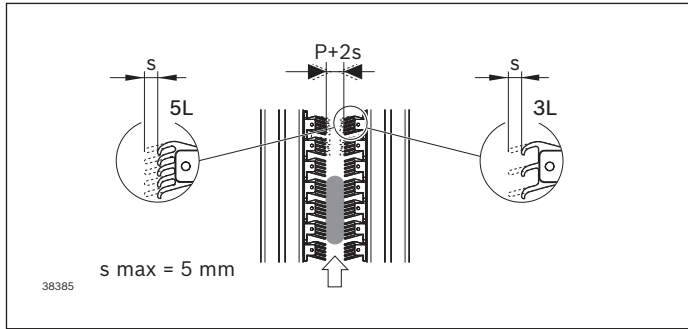
- Transport options with clamping chain depend on the product geometry (test required)
- Accumulation operation not permitted
- Maximum chain tensile force: 1250 N
- Only suitable for dry operation
- Chain available in two versions:  
5 plates (5L) for products insensitive to pressure  
3 plates (3L) for products sensitive to pressure  
For information on contact pressure in the wedge conveyor, see p. 47
- An assembly module is required for assembling and disassembling the chain
- The plates are not suitable for transporting sharp-edged objects

See also "Setting up a wedge conveyor" on page 206.

### Material:

- Chain link: POM
- Plates: TPE, Shore A 55
- Chain pin: Non-rusting steel 1.4301
- Pivot pin: PA66

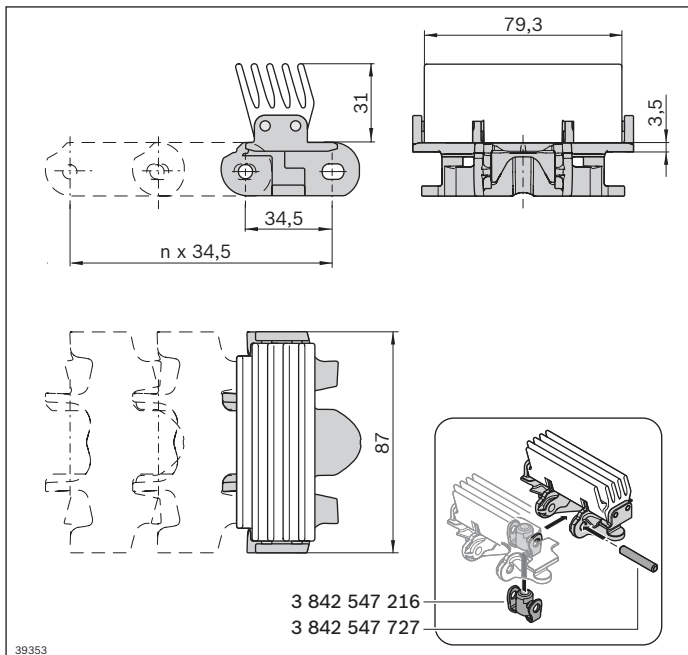




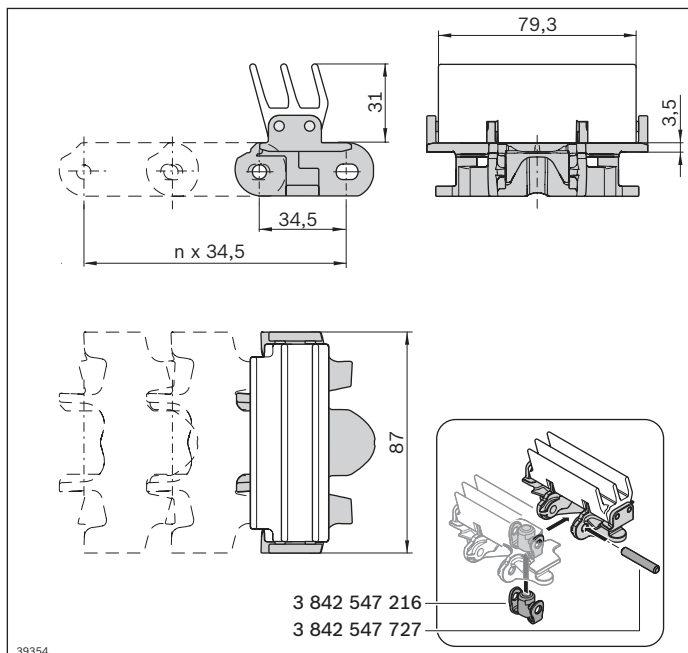
Permissible product weight per chain pair:  
5L: 15 N; 3L: 9 N

Max. product length (depending on the product height):  
in curve wheel: 100 mm  
in curve R500: 250 mm  
in curve R700: 400 mm

"s" (= pressing pressure) depends on size, weight, and surface finish of the product. Tests may be necessary.  
P = product width

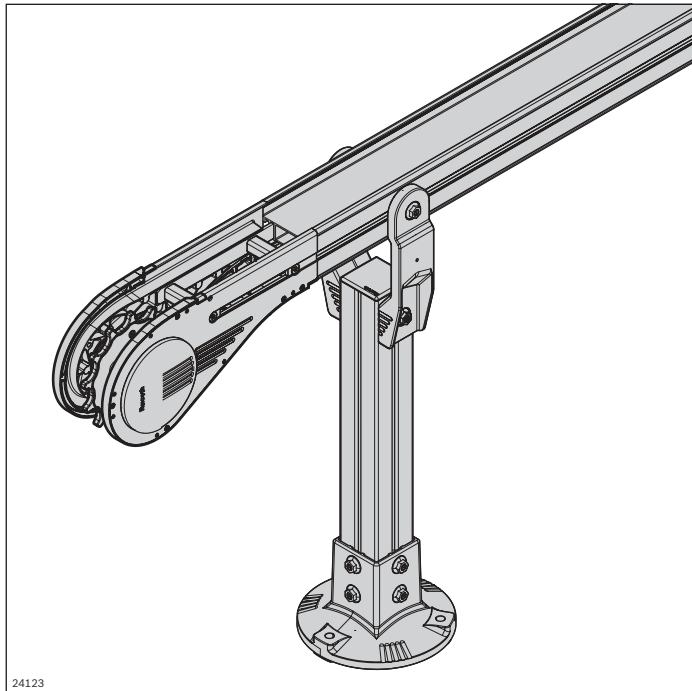


| Clamping chain VFplus 90 5L | L (mm) | No.                    |
|-----------------------------|--------|------------------------|
| Conveyor chain              | 2898   | 1 <b>3 842 546 086</b> |
| Chain pin                   | 100    | <b>3 842 547 727</b>   |
| Pivot pin                   | 100    | <b>3 842 547 216</b>   |



| Clamping chain VFplus 90 3L | L (mm) | No.                    |
|-----------------------------|--------|------------------------|
| Conveyor chain              | 2898   | 1 <b>3 842 546 087</b> |
| Chain pin                   | 100    | <b>3 842 547 727</b>   |
| Pivot pin                   | 100    | <b>3 842 547 216</b>   |

# Aluminum system (AL) VarioFlow *plus*

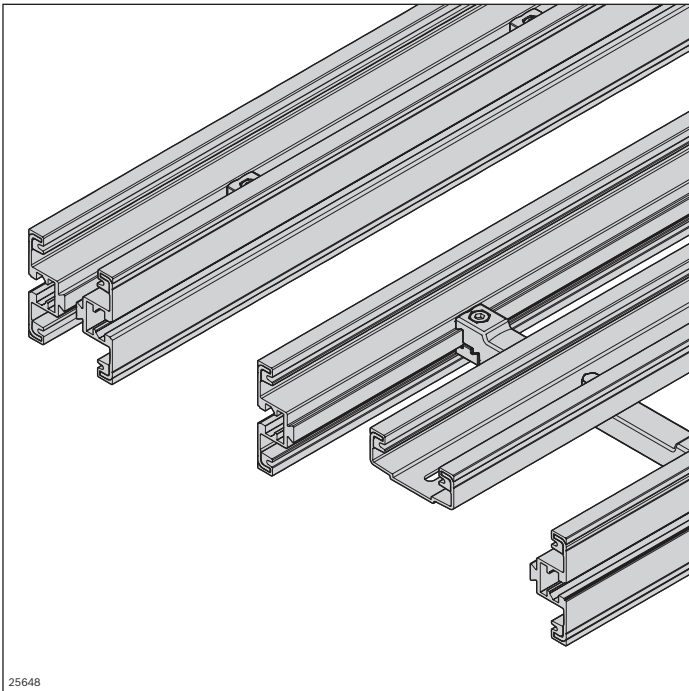


- ▶ Economical conveyor layout for a wide range of applications in the automotive and electronics industries, machine linking, or in the areas of food & packaging and health & care
- ▶ Mounting of sliding rails without rivets or the need to machine the track bearing surfaces
- ▶ Minimal sliding rail interruptions
- ▶ FDA-compliant, low-friction materials for components subject to constant friction
- ▶ Standardized components that can be used universally
- ▶ Continuous product range in the sizes 65, 90, 120, 160, 240, 320

24123

|                                                                                    |                                 |            |
|------------------------------------------------------------------------------------|---------------------------------|------------|
|   | <b>Sections AL</b>              | <b>50</b>  |
|   | <b>Curves AL</b>                | <b>66</b>  |
|   | <b>Drive and return unit AL</b> | <b>76</b>  |
|  | <b>Leg sets AL</b>              | <b>114</b> |

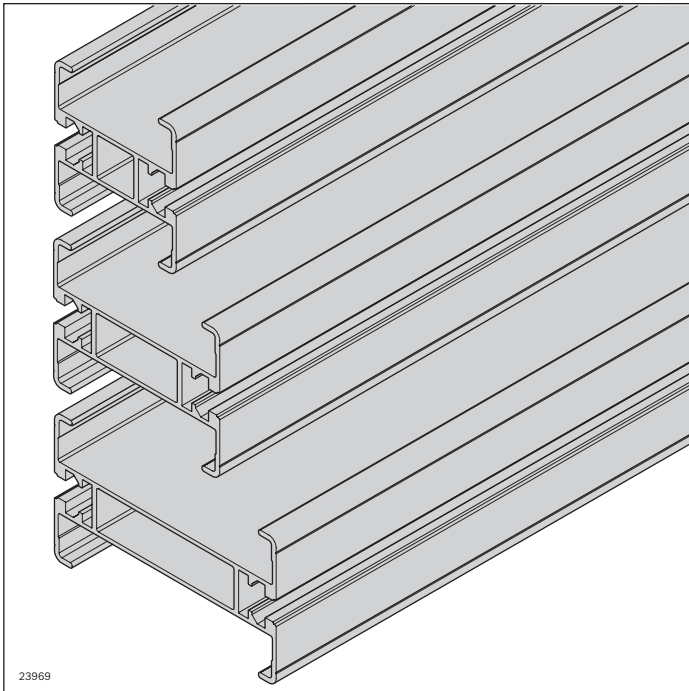
## Sections AL



- ▶ Simple assembly of sections thanks to smart connection technology
- ▶ Mounting of sliding rails without rivets or the need to machine the track bearing surfaces
- ▶ Sliding rails with optimized anti-friction properties and FDA-compliant materials
- ▶ One sliding rail cross-section for all sizes
- ▶ Connection technology with plug-through screws
- ▶ Few screwed connections
- ▶ Easy to clean thanks to ample draining surfaces
- ▶ One profile cross-section for open construction in all sizes
- ▶ Closed profile in the sizes 65, 90, 120
- ▶ Use of a support profile from size 160

|                                                                                     |                                  |           |
|-------------------------------------------------------------------------------------|----------------------------------|-----------|
|    | <b>Section profile AL closed</b> | <b>52</b> |
|    | <b>Section profile AL open</b>   | <b>54</b> |
|    | <b>Sliding rail</b>              | <b>56</b> |
|    | <b>Steel sliding rail</b>        | <b>58</b> |
|   | <b>Profile connector AL</b>      | <b>60</b> |
|  | <b>Assembly module AL</b>        | <b>62</b> |

## Section profile AL closed



The section profile is the supporting element for the construction of straight conveyor sections and allows for the attachment of all required components.

- Size: 65, 90, 120

- ▶ Slot on the inside for attaching main components such as drive/return unit, curves, etc.
- ▶ Slot on the outside for fastening lateral guides, supports, or other accessories
- ▶ If necessary, the sliding rail can be mounted laterally using the centering groove as a drilling aid

Required accessories:

- Sliding rail, see p. 56
- Profile connector, see p. 60

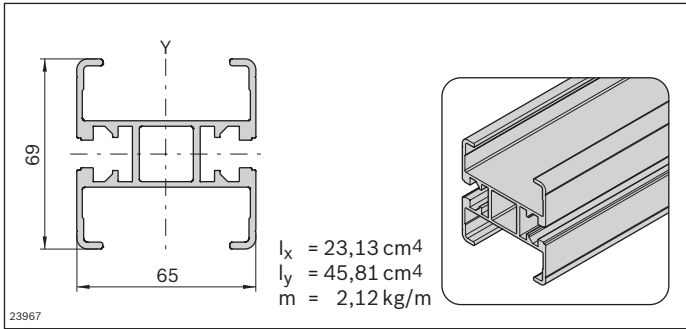
Material:

- Aluminum; natural, anodized

- ▶ Special constructions can be attached quickly and simply with components from the modular aluminum framing system through the 10 mm outside slot.

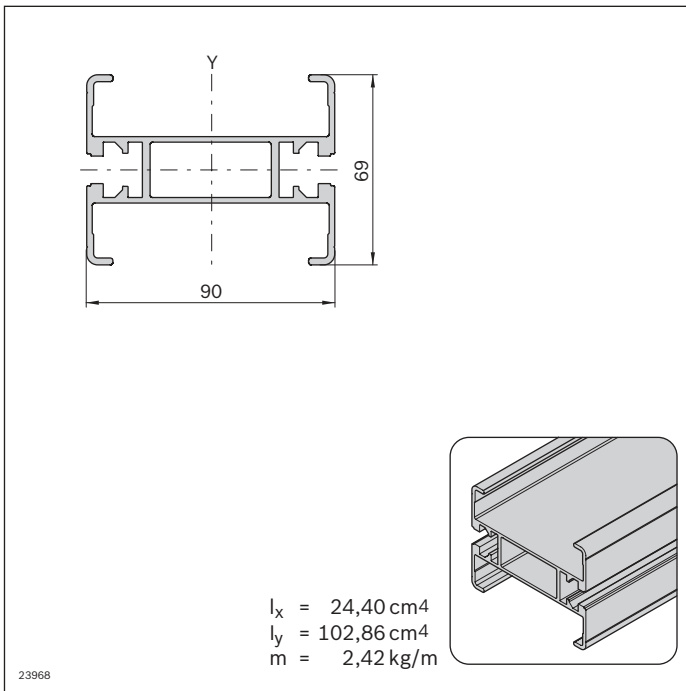
Optional accessories:

- Cover profile, see p. 63

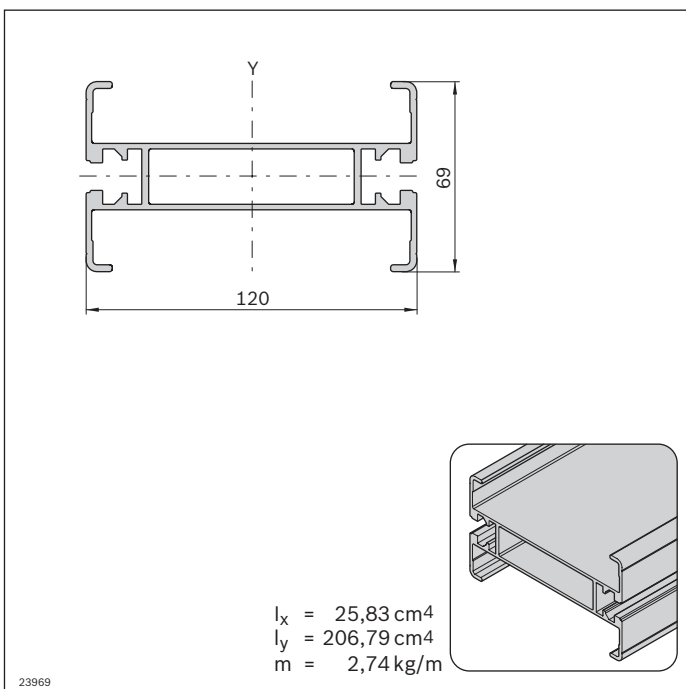


| Section profile VFplus 65 AL | L (mm)      | No.                    |
|------------------------------|-------------|------------------------|
| 12 pcs                       | 6070        | <b>3 842 546 643</b>   |
| 1 pc                         | 50 ... 6000 | <b>3 842 996 022/L</b> |

3



| Section profile VFplus 90 AL | L (mm)      | No.                    |
|------------------------------|-------------|------------------------|
| 12 pcs                       | 6070        | <b>3 842 546 644</b>   |
| 1 pc                         | 50 ... 6000 | <b>3 842 996 023/L</b> |



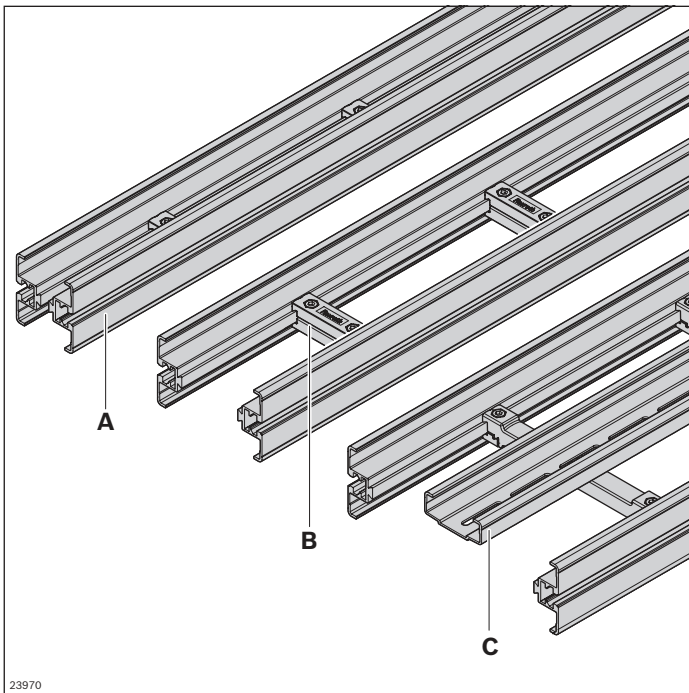
| Section profile VFplus 120 AL | L (mm)      | No.                    |
|-------------------------------|-------------|------------------------|
| 6 pcs                         | 6070        | <b>3 842 546 645</b>   |
| 1 pc                          | 50 ... 6000 | <b>3 842 996 024/L</b> |



# Section profile AL open

## Cross connector AL

## Support profile AL



### Section profile AL open (A)

- ▶ Slot on the inside for attaching main components such as drive/return unit, curves, etc.
- ▶ A 10 mm outside slot for simple fastening of lateral guides, leg sets, or components from the modular aluminum framing system
- ▶ If necessary, the sliding rail can be mounted laterally using the centering groove as a drilling aid

#### Required accessories:

- **A:** Cross connector, see p. 54; sliding rail, see p. 56; profile connector, see p. 60; support profile from size 160, see p. 55

#### Optional accessories:

- **A:** Cover profile, see p. 63

The open construction of the section profile (**A**) allows dirt or foreign particles to be removed directly.

To build a conveyor section, 2 open section profiles are required, which are connected by cross connectors.

A support profile is necessary for sizes 160 and up.

- Same profile cross-section across all sizes (65-320)

The cross connector (**B**) is the connection of two profile halves to make an open section profile. The size is determined by using cross connectors of different lengths.

From size 160, a support profile (**C**) is required.

The support profile is attached to the existing cross connectors.

### Cross connector AL (B)

- ▶ Cross connector with mounting option for support profile

### Support profile AL (C)

- ▶ Elongated holes at regular intervals for fastening

#### Scope of delivery:

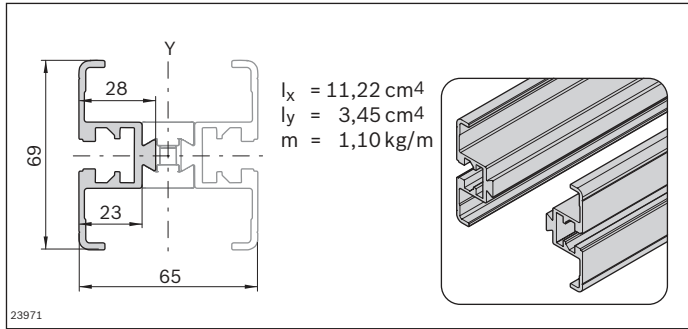
- **B:** Complete, incl. screw for attaching the support profile

#### Condition on delivery:

- **A, B:** Assembly required

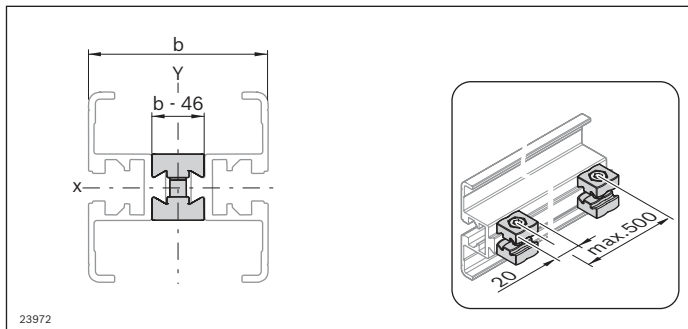
#### Material:

- **A, C:** Aluminum; natural, anodized
- **B:** Diecast aluminum

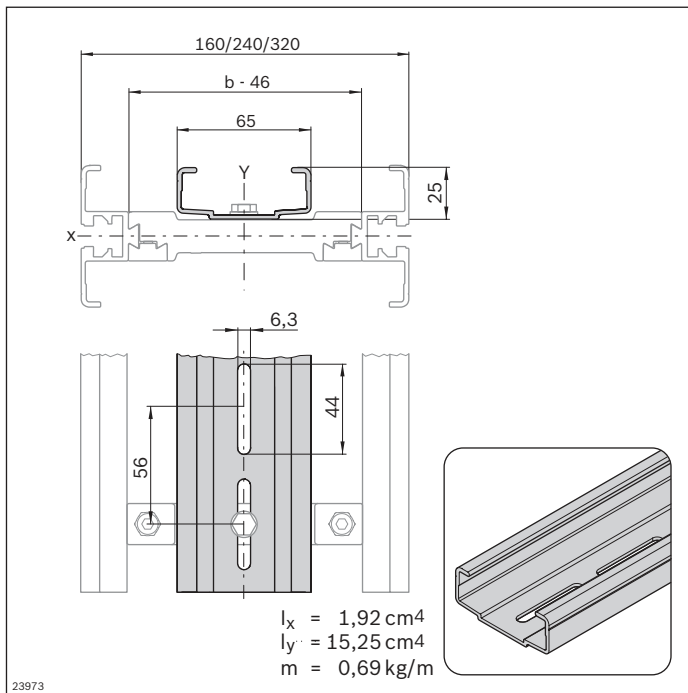


| Section profile VFplus AL open | L (mm)      | No.                    |
|--------------------------------|-------------|------------------------|
| 12 pcs                         | 6070        | <b>3 842 546 647</b>   |
| 2 pcs                          | 3000        | <b>3 842 546 670</b>   |
| 1 pc                           | 50 ... 6000 | <b>3 842 996 026/L</b> |

3

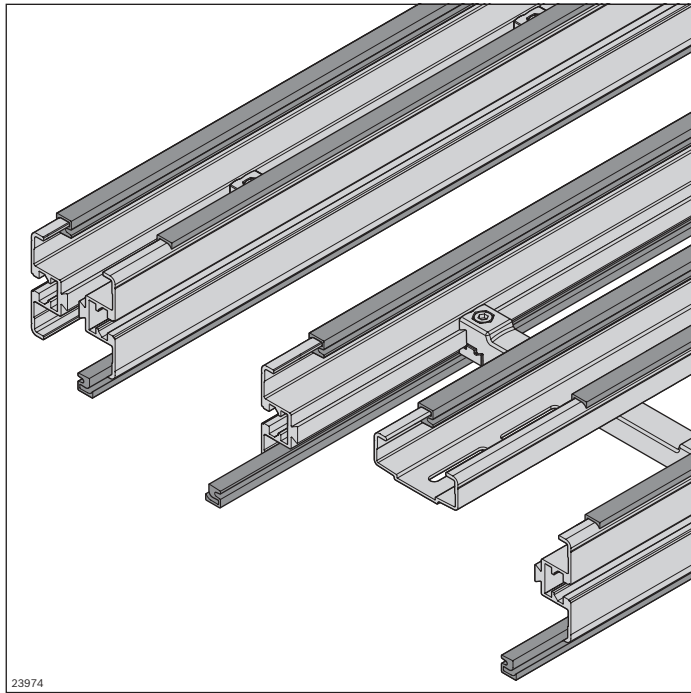


| Cross connector AL | b (mm) | No.                     |
|--------------------|--------|-------------------------|
| VFplus 65          | 65     | 10 <b>3 842 546 672</b> |
| VFplus 90          | 90     | 10 <b>3 842 546 673</b> |
| VFplus 120         | 120    | 10 <b>3 842 546 674</b> |
| VFplus 160         | 160    | 10 <b>3 842 546 675</b> |
| VFplus 240         | 240    | 10 <b>3 842 546 676</b> |
| VFplus 320         | 320    | 10 <b>3 842 546 677</b> |



| Support profile VFplus AL | L (mm)      | No.                    |
|---------------------------|-------------|------------------------|
| 12 pcs                    | 6070        | <b>3 842 546 705</b>   |
| 1 pc                      | 3000        | <b>3 842 547 904</b>   |
| 1 pc                      | 75 ... 6000 | <b>3 842 996 028/L</b> |

## Sliding rail



- ▶ Easy assembly – simply clip onto the section profile
- ▶ Secured against axial shifting with lateral screw fittings
- ▶ Gliding surface machining: Not required
- ▶ Material
  - with sliding rail Premium, Advanced: FDA CFR 21
  - with sliding rail Basic: EU 10/2011, FDA CFR 21
- ▶ One cross-section for all section profiles AL and STS

### Required accessories:

- Sliding rail assembly tool, see p. 288
- Sheet metal screw 2.9x9.5 DIN 7982;  
DIN EN ISO 7050 see p. 57
- 1 screw for each sliding rail section

### Material:

- PE-UHMW

The sliding rail is clipped into the section profile and guides the conveyor chain.

Lateral securing means the sliding surface does not need to be machined. Wear and noise level are thus reduced to a minimum.

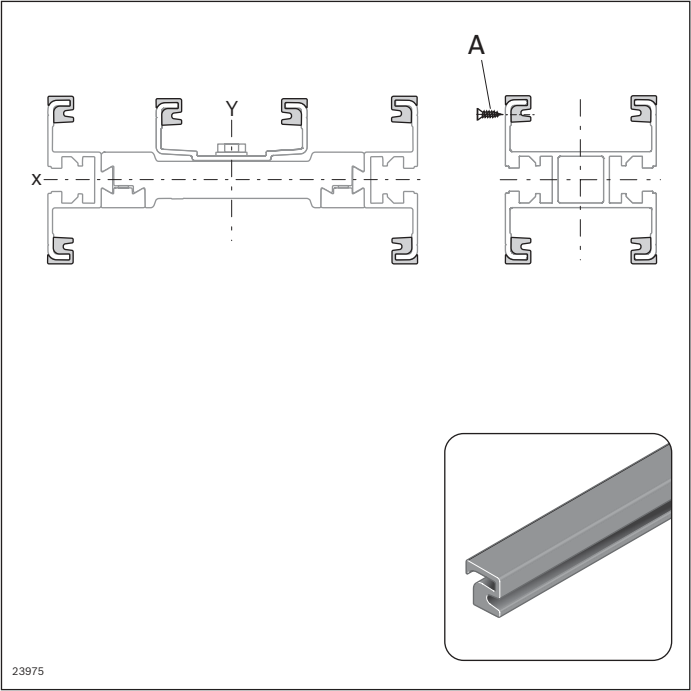
Three sliding rails with different main areas of application are available:

- Basic: Straight sections and curve wheels,  $v_{\max}$  60 m/min
- Advanced: Sections with sliding curves,  $v_{\max}$  60 m/min, clean room
- Premium: Sections with sliding curves,  $v_{\max}$  100 m/min, clean room

For the selection of sliding rails, see the "Technical data" chapter on page 300. See also sliding rails ESD on page 192 and steel sliding rails on page 58.

Extend the sliding rail over the component interfaces to ensure minimum wear and noise emissions. Interruptions to the profile or component connection must be avoided. If an interruption is necessary after 10 m, the sliding rail must be attached laterally with a sheet metal screw (**A**).

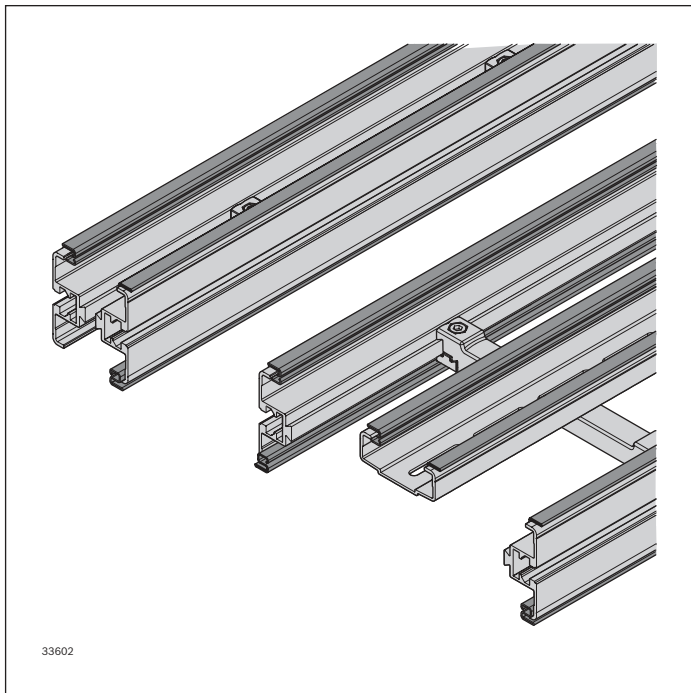
**Notice:** After the sliding curves, an interruption is provided as an expansion joint in the inner curve area.



| Sliding rail VFplus                                                         | Color | L (mm) |  | No.                  |
|-----------------------------------------------------------------------------|-------|--------|-------------------------------------------------------------------------------------|----------------------|
| Premium                                                                     | gray  | 30000  | 1                                                                                   | <b>3 842 546 116</b> |
| Advanced                                                                    | white | 30000  | 1                                                                                   | <b>3 842 549 727</b> |
| Basic                                                                       | blue  | 30000  | 1                                                                                   | <b>3 842 549 730</b> |
| See also sliding rail ESD, see p. 192<br>and steel sliding rail, see p. 58. |       |        |                                                                                     |                      |

| Sheet metal screw |  | No.                  |
|-------------------|-------------------------------------------------------------------------------------|----------------------|
| A                 | 100                                                                                 | <b>3 842 547 908</b> |

## Steel sliding rail



- ▶ Easy assembly - simply clip onto the section profile
- ▶ Secured against axial shifting via lateral fixing
- ▶ Gliding surface machining: Not required
- ▶ One cross-section for all AL and STS section profiles

### Required accessories:

- Pop rivet D3x8 mm, see p. 59
- Number of rivets:
  - Straight sliding rail section: 1 rivet
  - 30°/45° curves: 2 rivets
  - 90° curve: 3 rivets
  - 180° curve: 6 rivets

### Material:

- Non-rusting steel 1.4301

The steel sliding rail is suitable for use in abrasive ambient conditions (reduced service life of the conveyor chain). It is clipped in to the section profile and fixed in place at the side via a pop rivet.

The side fixing reduces the friction and the noise level to a minimum. The steel sliding rail butt joints are merely chamfered. The Advanced sliding rail is used in the lower run of the curve wheels.

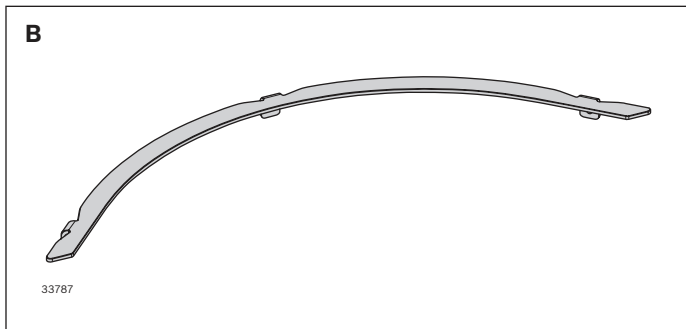
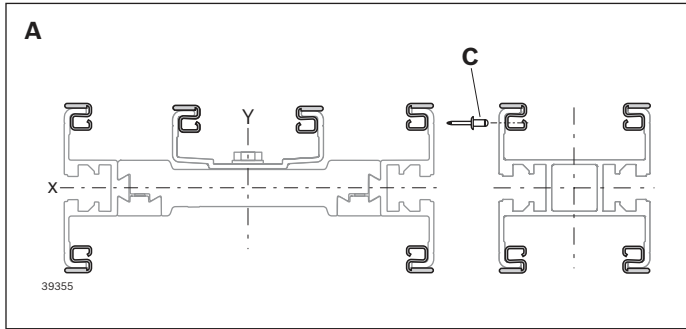
- Steel sliding rail straight section (**A**), not bendable
- Steel sliding rail curve wheels (**B**) 30°, 45°, 90°, 180°
- Dry, wet and abrasive environment
- Size:
  - Straight section: All track widths
  - Curve wheel 65, 90, 120
- Not suitable for use in horizontal sliding curves
- Only Advanced or Premium sliding rails can be used in vertical curves

For the selection of sliding rails, see the "Technical data" chapter on page 300.

**Notice:** Ensure gap-free assembly (without expansion joint), as foreign bodies could otherwise get trapped in the gap and damage the chain.

**Notice:** Non-destructive dismantling of the steel sliding rail is not possible. A target separation point of the system must therefore be defined before assembly. Overlap the steel sliding rail by 10 ... 15 mm on the section profile separation point. This ensures that it is still possible to pull apart the two parts.

Extend the steel sliding rail over the component interfaces to ensure minimum wear and reduced noise emissions. Interruptions directly on the profile or component connection must be avoided.



| Sliding rail VFplus Steel | L (mm) |  No. |
|---------------------------|--------|-----------------------------------------------------------------------------------------|
| A Straight section        | 3000   | 1 <b>3 842 552 970</b>                                                                  |

| Pop rivet D3x8mm |  No. |
|------------------|-----------------------------------------------------------------------------------------|
| C                | 100 <b>3 842 557 004</b>                                                                |

3

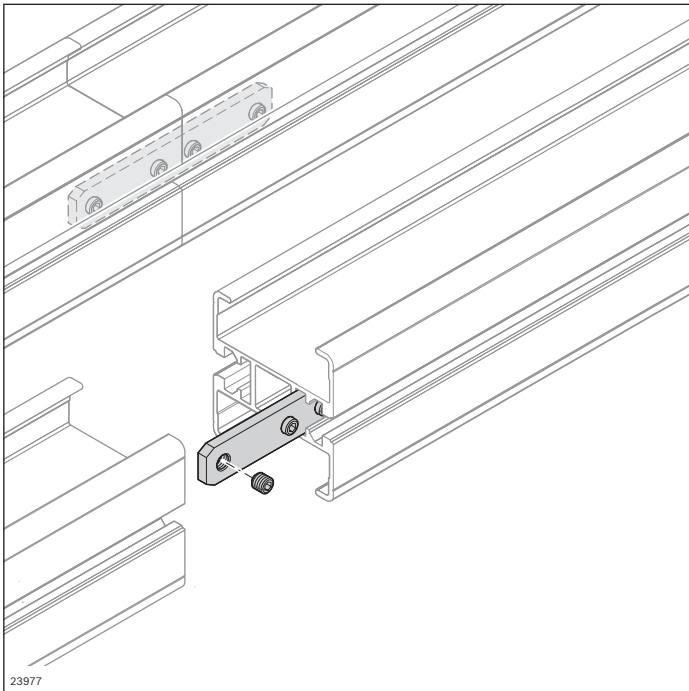
| Steel sliding rail; curve wheel VFplus 65 |  No. |
|-------------------------------------------|-----------------------------------------------------------------------------------------|
| B Steel 30°                               | 1 <b>3 842 557 030</b>                                                                  |
| B Steel 45°                               | 1 <b>3 842 557 031</b>                                                                  |
| B Steel 90°                               | 1 <b>3 842 552 972</b>                                                                  |
| B Steel 180°                              | 1 <b>3 842 552 973</b>                                                                  |

| Steel sliding rail; curve wheel VFplus 90 |  No. |
|-------------------------------------------|-----------------------------------------------------------------------------------------|
| B Steel 30°                               | 1 <b>3 842 557 032</b>                                                                  |
| B Steel 45°                               | 1 <b>3 842 557 033</b>                                                                  |
| B Steel 90°                               | 1 <b>3 842 552 974</b>                                                                  |
| B Steel 180°                              | 1 <b>3 842 552 975</b>                                                                  |

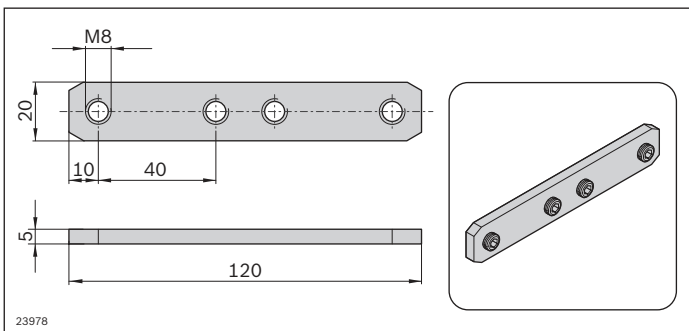
| Steel sliding rail; curve wheel VFplus 120 |  No. |
|--------------------------------------------|-------------------------------------------------------------------------------------------|
| B Steel 30°                                | 1 <b>3 842 557 034</b>                                                                    |
| B Steel 45°                                | 1 <b>3 842 557 035</b>                                                                    |
| B Steel 90°                                | 1 <b>3 842 557 036</b>                                                                    |
| B Steel 180°                               | 1 <b>3 842 557 037</b>                                                                    |

| Pop rivet D3x8mm |  No. |
|------------------|-------------------------------------------------------------------------------------------|
| C                | 100 <b>3 842 557 004</b>                                                                  |

# Profile connector AL



Two profile connectors are used to connect the end faces of the section profiles. The profile connector is fixed in the interior slot, so that the slot on the outside is available for all kinds of superstructures.



## Scope of delivery:

- Complete

## Material:

- Steel; zinc-plated

## Condition on delivery:

- Screws pre-assembled and secured

## Profile connector VFplus AL



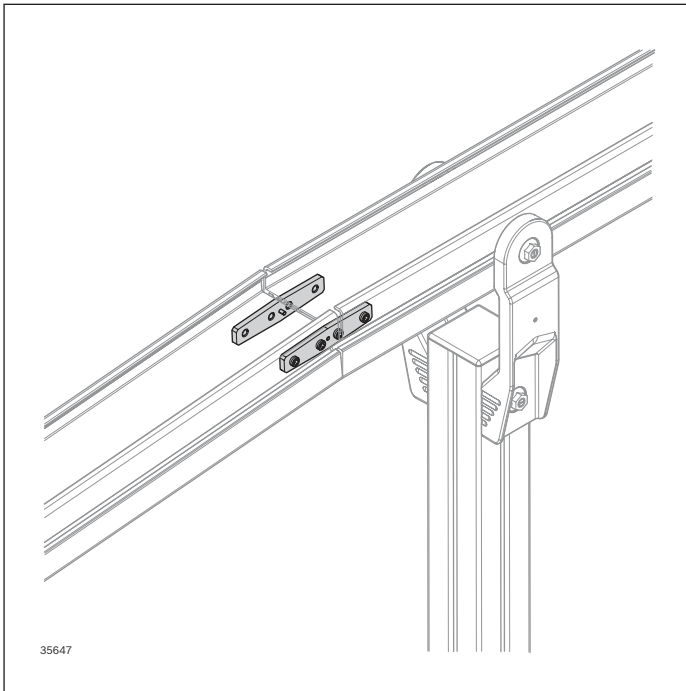
## No.

10 **3 842 530 277**

## Profile connector AL adjustable 0-5°



3



The adjustable profile connector is suitable for cost-effectively adjusting the vertical inclination of section profiles to an angle of 0-5°.

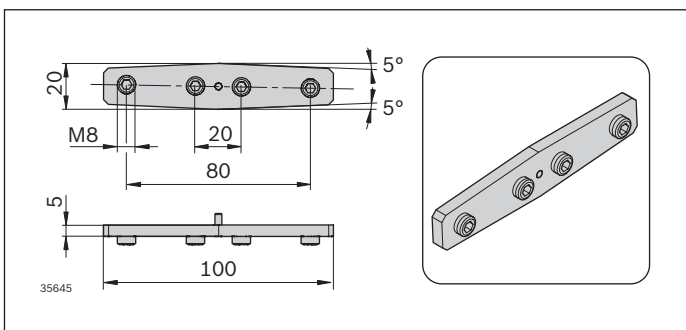
The section profiles do not require a miter cut.

For a smooth transition of the chain, only the sliding rail is pulled over the interfaces of the section profiles.

Thanks to the integrated stop, the profile connector can be fastened precisely in the central position.

The profile connector is fixed in the interior slot, so that the slot on the outside is available for all kinds of superstructures.

- Size: 65, 90, 120
- Leg distance max. 300 mm from the cut edge
- Requires the use of the sliding rails "Advanced" or "Premium"
- Only a rigid connection is permitted (not as a pivot point for height adjustment)
- Can only be connected to section profiles and horizontal sliding curves



### Profile connector ADJ 0-5° SET

**No.**
**Set 3 842 559 130**

#### Scope of delivery:

- Complete (set contains two profile connectors)

#### Condition on delivery:

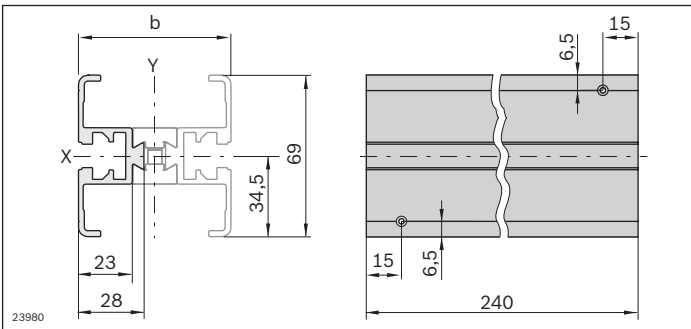
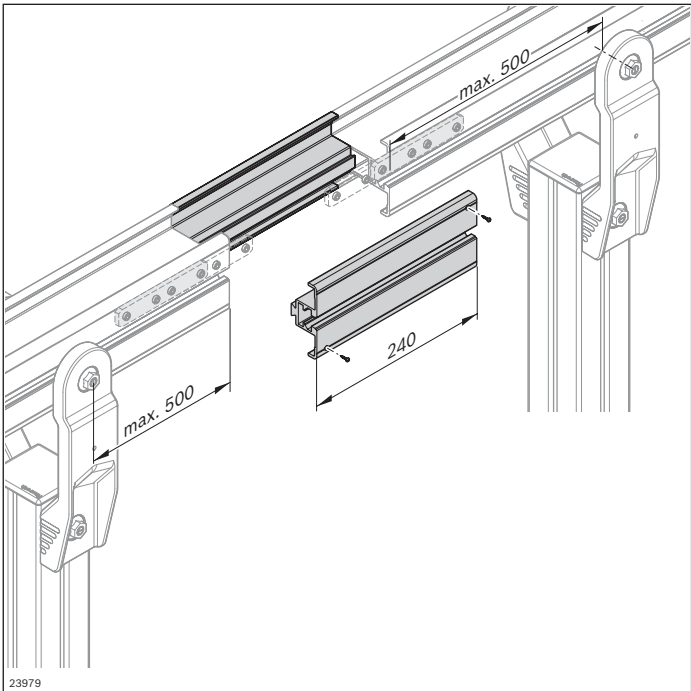
- Screws pre-assembled and secured

#### Material:

- Steel; zinc-plated



Assembly module AL



Required accessories:

- Sliding rail, see p. 56, 58, 192

Scope of delivery:

- Including 4 profile connectors and sheet-metal screws for fastening the sliding rail

Material:

- Aluminum; natural, anodized
- Profile connector: Steel; zinc-plated

The assembly module is used for inserting and closing or opening the chain. It can be installed at any point on the conveyor section that is easy to access in operation. The assembly module is intended for sections with drives without a chain bag (e.g. wedge conveyor, curve wheel drive).

For attachment options, see matrix on page 313

- Max. distance from the nearest leg sets on both sides is 500 mm
- The support profile with sliding rail is not interrupted in the assembly module to increase the smooth running
- Sliding rail interruption is only required on the side to be opened

|                              | L (mm) |  No. |
|------------------------------|--------|-------------------------------------------------------------------------------------------|
| Assembly module VFplus AL    |        | 1 <b>3 842 547 899</b>                                                                    |
| Sliding rail VFplus Premium  | 30000  | 1 <b>3 842 546 116</b>                                                                    |
| Sliding rail VFplus Advanced | 30000  | 1 <b>3 842 549 727</b>                                                                    |
| Sliding rail VFplus Basic    | 30000  | 1 <b>3 842 549 730</b>                                                                    |
| Sliding rail VFplus Steel    | 3000   | 1 <b>3 842 552 970</b>                                                                    |
| Sliding rail VFplus ESD      | 30000  | 1 <b>3 842 557 000</b>                                                                    |

Optional accessories:

- Cover profile, see p. 63

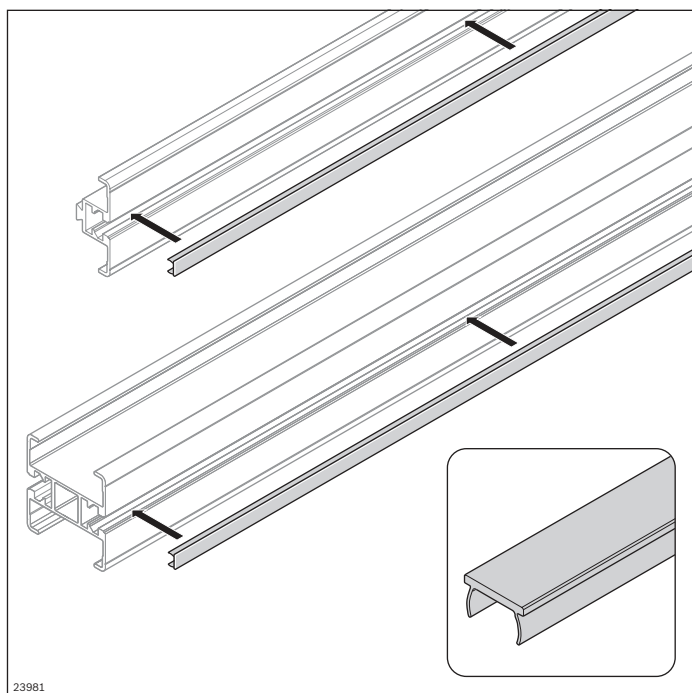
Condition on delivery:

- In single parts

# Cover profile



3



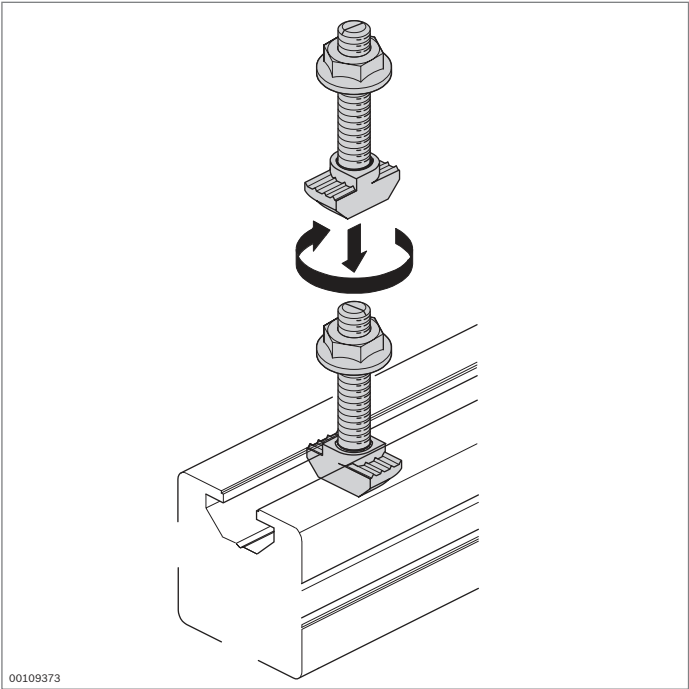
Cover profile to improve system design, to fix cables routed in the profile slot, and to protect the profile slot against contamination

## Material:

- AL: Aluminum; natural, anodized
- PVC: Hard PVC; colored

| Cover profile                                                                                                  | L (mm)                 |  | No.                  |
|----------------------------------------------------------------------------------------------------------------|------------------------|---------------------------------------------------------------------------------------|----------------------|
| <br><small>00109368</small> | AL                     | 2000 10                                                                               | <b>3 842 523 258</b> |
| <br><small>19502</small>    | PVC                    |                                                                                       |                      |
|                                                                                                                | Signal gray (RAL 7004) | 2000 10                                                                               | <b>3 842 548 876</b> |
|                                                                                                                | Black (RAL 9005)       | 2000 10                                                                               | <b>3 842 548 877</b> |
|                                                                                                                | Light gray (RAL 7035)  | 2000 10                                                                               | <b>3 842 518 367</b> |
|                                                                                                                | Red (RAL 3020)         | 2000 10                                                                               | <b>3 842 518 368</b> |
|                                                                                                                | Yellow (RAL 1023)      | 2000 10                                                                               | <b>3 842 518 369</b> |
|                                                                                                                | Green (RAL 6032)       | 2000 10                                                                               | <b>3 842 549 888</b> |
|                                                                                                                | Blue (RAL 5010)        | 2000 10                                                                               | <b>3 842 538 955</b> |
|                                                                                                                | Orange (RAL 2004)      | 2000 10                                                                               | <b>3 842 538 957</b> |
|                                                                                                                | Colorless, transparent | 2000 10                                                                               | <b>3 842 191 182</b> |

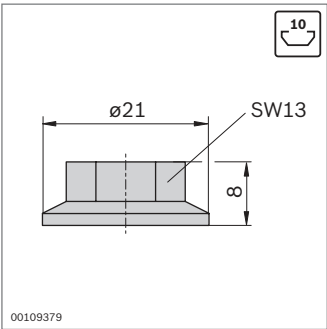
Flange nut  
 T-bolt



Fastening elements for mounting accessories on the profile slot

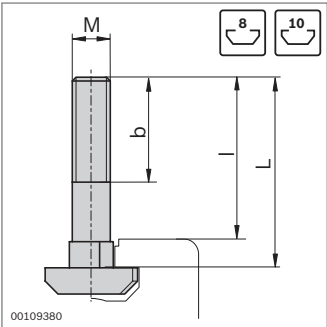
- Secure and conductive connection
- Notch at bolt end as marker for correct position recognition
- Profile finishing: Not required

There is a selection of different mounting options in the MGE catalog.



| Flange nut | Slot | M  | ESD | No.                      |
|------------|------|----|-----|--------------------------|
|            | 10   | M8 |     | 100 <b>3 842 345 081</b> |

Material: Steel; zinc-plated



| Slot |                                |
|------|--------------------------------|
| 10   | 6000 ... 18000 N <sup>1)</sup> |

<sup>1)</sup> Dependent on the profile (see also "Technical data" in the MGE catalog)

| T-bolt | Slot | MxL   | b (mm) | l (mm) | ESD | No.                      |
|--------|------|-------|--------|--------|-----|--------------------------|
|        | 10   | M8x20 | 14     | 14     |     | 100 <b>3 842 528 715</b> |
|        |      | M8x25 | 19     | 19     |     | 100 <b>3 842 528 718</b> |
|        |      | M8x30 | 24     | 24     |     | 100 <b>3 842 528 721</b> |
|        |      | M8x40 | 22     | 34     |     | 100 <b>3 842 528 724</b> |
|        |      | M8x50 | 22     | 44     |     | 100 <b>3 842 528 727</b> |

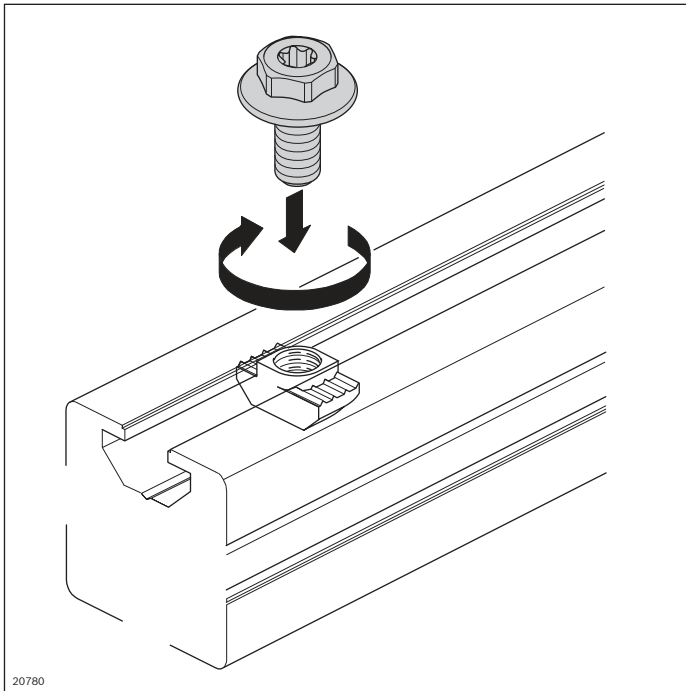
Material: Steel; zinc-plated

# Collar screw

## T-nut



3



20780

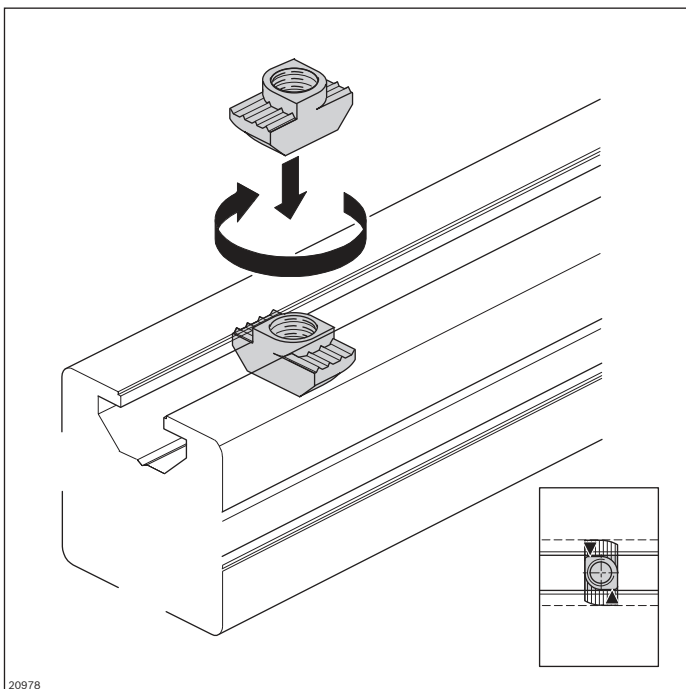
- Collar screw with multi-function head for tightening with ring/open-end wrench (WS 13) or Torx screwdriver (T40)
  - Machine tightening possible
  - Preferably to be used for fastening brackets
  - Quick and simple assembly
  - Excellent force transmission via the wide flange
  - With Polyfleck to secure the T-nut
- Tools: Offset screwdriver

| Collar screw                       | M  | L (mm) | ESD | No.                  |
|------------------------------------|----|--------|-----|----------------------|
| <b>M8x18-SW13-T40<sup>1)</sup></b> | M8 | 18     | 100 | <b>3 842 541 246</b> |
| <b>M8x20-SW13-T40<sup>2)</sup></b> | M8 | 20     | 100 | <b>3 842 541 409</b> |

<sup>1)</sup> For 40/40 and 60/60 brackets

<sup>2)</sup> For all other brackets for 10 mm slot

Material: Steel; zinc-plated



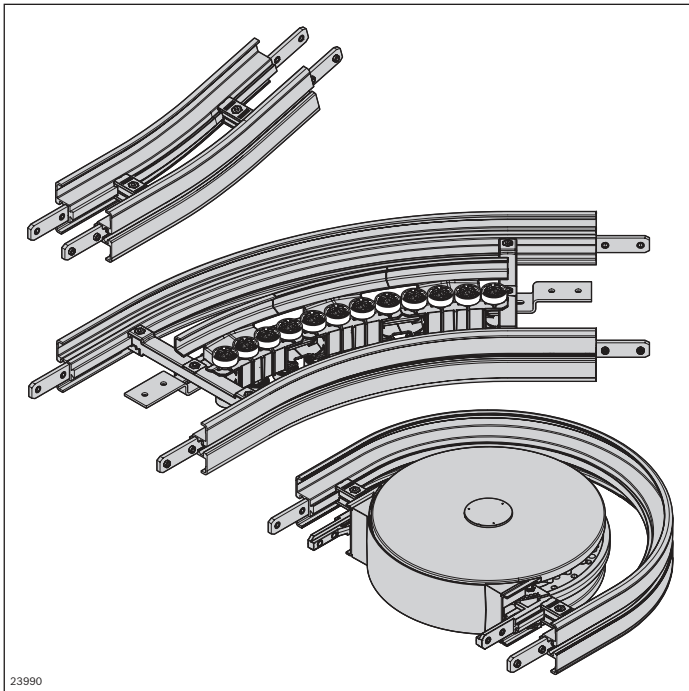
20978

Fastening elements for mounting accessories on the profile slot

- Standard element for a secure and conductive connection
- End stop for correct positioning in the profile slot
- Profile finishing: Not required

| T-nut, 10 mm slot  | Slot | M  | ESD | No.                  |
|--------------------|------|----|-----|----------------------|
| Steel; zinc-plated | 10   | M4 | 100 | <b>3 842 530 281</b> |
|                    |      | M5 | 100 | <b>3 842 530 283</b> |
|                    |      | M6 | 100 | <b>3 842 530 285</b> |
|                    |      | M8 | 100 | <b>3 842 530 287</b> |

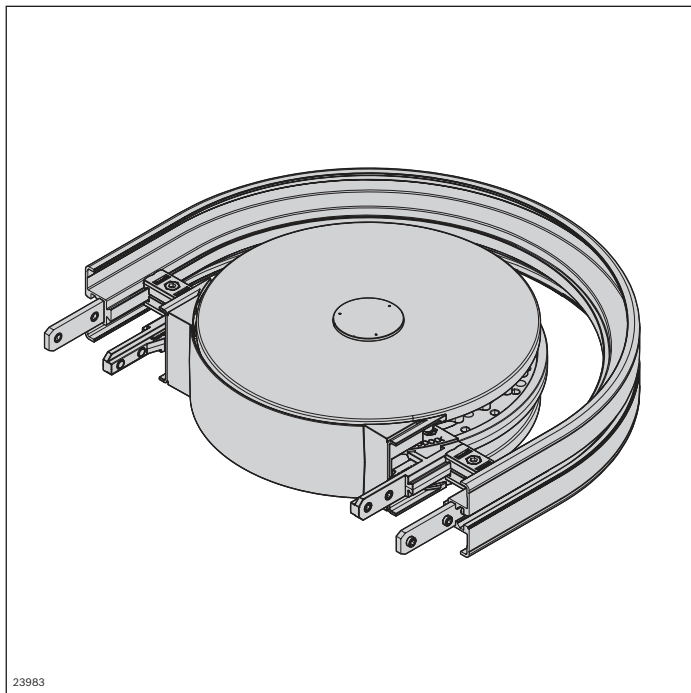
## Curves AL



- ▶ Longer service life and reduced downtimes thanks to low-friction curve technology
- ▶ Reduced friction on curve wheels and patented roller curves to minimize wear, meaning longer sections
- ▶ Components subject to constant friction feature FDA-compliant materials
- ▶ Easy to clean thanks to ample draining surfaces
- ▶ Capable of accumulation
- ▶ Ball bearings sealed on both sides of non-rusting steel (1.4301) with FDA-compliant special grease in curve wheels and patented roller curves
- ▶ Curve wheel can be upgraded to a curve wheel drive or alpine conveyor

|                                                                                    |                                                                         |           |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------|-----------|
|   | <b>Curve wheel AL</b><br><b>Protective cover for the curve wheel AL</b> | <b>68</b> |
|   | <b>Roller curve horizontal AL</b>                                       | <b>70</b> |
|   | <b>Sliding curve horizontal AL</b>                                      | <b>72</b> |
|  | <b>Vertical curve AL</b>                                                | <b>74</b> |

## Curve wheel AL



The curve wheel provides a horizontal direction change for the chain. It enables low-friction direction changes with very small radii.

For attachment options, see the matrix on page 313

- Size: 65, 90, 120
- Deflection angles see table on page 69, other deflection angles on request
- Suitable chain types: All
- For circuit systems without chain return in bottom run (using a curve wheel or connection drive), the appropriate cover must be used for personal safety reasons

For the selection of sliding rails, see the "Technical data" chapter on page 300.

**Notice:** High-pressure cleaning of the ball bearings is not permitted.

See also Curve wheel AL ESD, page 194.

- Ball bearing made of non-rusting steel (1.4301), with seal on both sides and FDA-compliant grease filling
- Surfaces in contact with chain made of FDA-compliant material

Scope of delivery:

- Including fastening material for mounting to the section profile AL

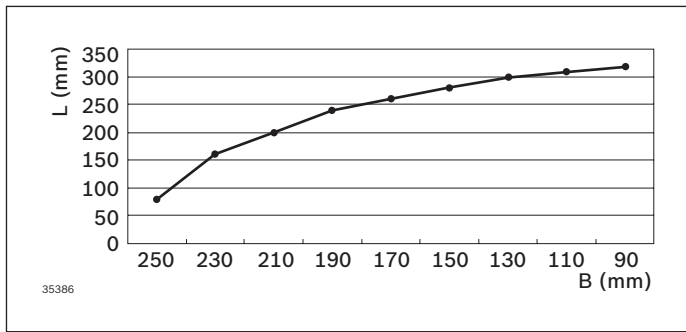
Material:

- Housing: Diecast aluminum
- Chain wheel: PA; white
- Ball bearing: Non-rusting steel 1.4301/FDA

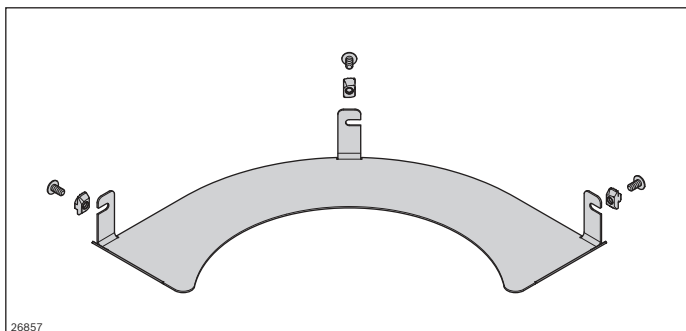
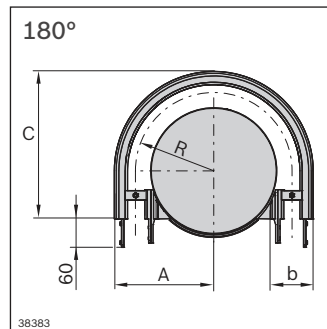
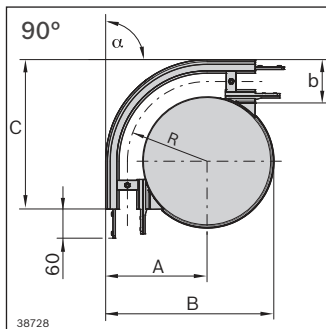
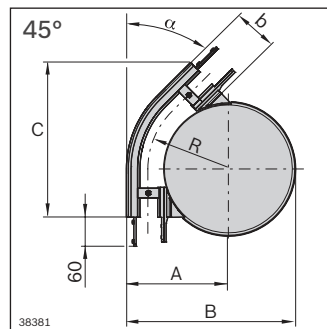
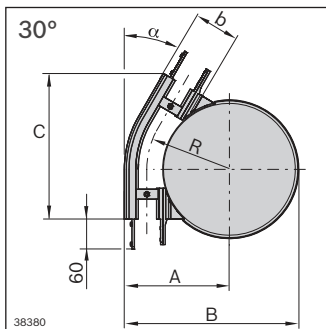
- No interfering contours above chain plate height
- Can be used horizontally and vertically (for wedge conveyors)

Condition on delivery:

- Assembled



L = product length in conveying direction  
B = product width



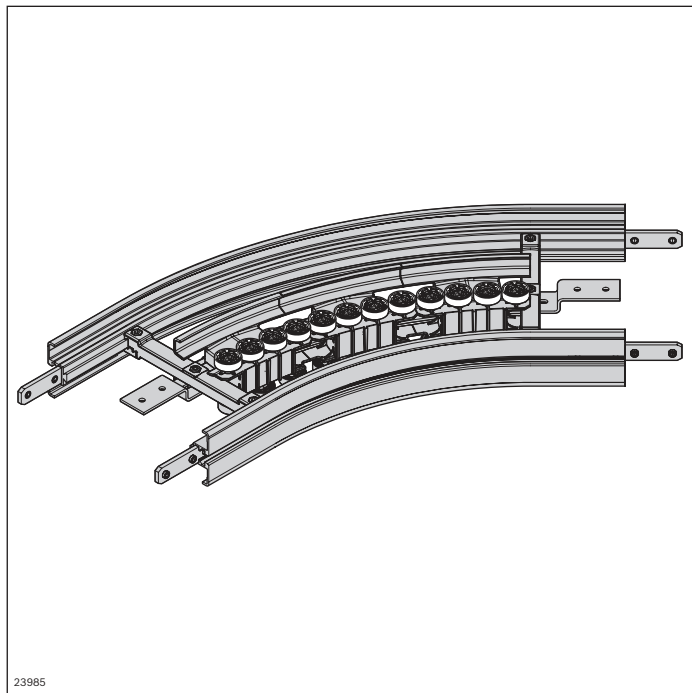
| Curve wheel AL | $\alpha$ (°) | No.                  |
|----------------|--------------|----------------------|
| VFplus 65      | 30           | <b>3 842 547 048</b> |
|                | 45           | <b>3 842 547 049</b> |
|                | 90           | <b>3 842 547 050</b> |
|                | 180          | <b>3 842 547 051</b> |
| VFplus 90      | 30           | <b>3 842 547 052</b> |
|                | 45           | <b>3 842 547 053</b> |
|                | 90           | <b>3 842 547 054</b> |
|                | 180          | <b>3 842 547 055</b> |
| VFplus 120     | 30           | <b>3 842 547 056</b> |
|                | 45           | <b>3 842 547 057</b> |
|                | 90           | <b>3 842 547 058</b> |
|                | 180          | <b>3 842 547 059</b> |

| b (mm) | $\alpha$ (°) | R (mm) | A (mm) | B (mm) | C (mm) |
|--------|--------------|--------|--------|--------|--------|
| 65     | 30           | 153.0  | 185.5  | 324.5  | 279.4  |
|        | 45           | 153.0  | 185.5  | 324.5  | 301.9  |
|        | 90           | 153.0  | 185.5  | 324.5  | 285.5  |
|        | 180          | 153.0  | 185.5  | –      | 287.5  |
| 90     | 30           | 165.5  | 210.5  | 349.5  | 291.9  |
|        | 45           | 165.5  | 210.5  | 349.5  | 319.6  |
|        | 90           | 165.5  | 210.5  | 349.5  | 310.5  |
|        | 180          | 165.5  | 210.5  | –      | 312.5  |
| 120    | 30           | 180.5  | 240.5  | 379.5  | 306.9  |
|        | 45           | 180.5  | 240.5  | 379.5  | 340.8  |
|        | 90           | 180.5  | 240.5  | 379.5  | 340.5  |
|        | 180          | 180.5  | 240.5  | –      | 342.5  |

| Protective cover AL | $\alpha$ (°) | No.                  |
|---------------------|--------------|----------------------|
| VFplus 65           | 30           | <b>3 842 551 545</b> |
|                     | 45           | <b>3 842 551 546</b> |
|                     | 90           | <b>3 842 551 547</b> |
|                     | 180          | <b>3 842 551 548</b> |
| VFplus 90           | 30           | <b>3 842 551 549</b> |
|                     | 45           | <b>3 842 551 550</b> |
|                     | 90           | <b>3 842 551 551</b> |
|                     | 180          | <b>3 842 551 552</b> |



## Roller curve horizontal AL



The low-friction roller curve provides a horizontal change in direction for the chain. Roller elements with ball bearings enable longer conveyor sections.

The service life of the chain is increased and system costs reduced.

For attachment options and length determination of the support profile, see matrix on page 313

- Size: 160, 240, 320
- Deflection angles, see table on p. 71
- Other deflection angles on request
- Suitable chain types: All
- Version with open section profiles

For the selection of sliding rails, see the "Technical data" chapter on page 300.

**Notice:** High-pressure cleaning of the ball bearings is not permitted.

- Patented roller elements for low-friction, quieter changes in chain direction
- Ball bearing made of non-rusting steel (1.4301), with seal on both sides and FDA-compliant grease filling

- Surfaces in contact with chain made of FDA-compliant materials

Required accessories:

- Sliding rail: Length calculation, see p. 302

Scope of delivery:

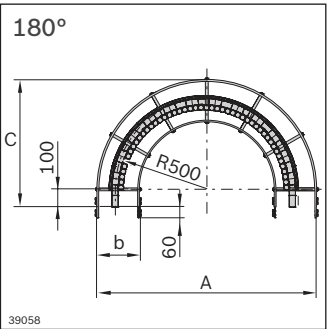
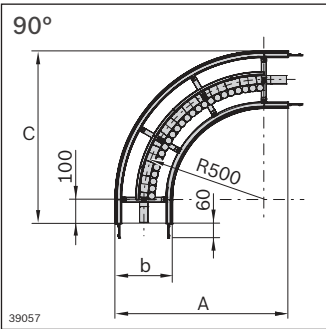
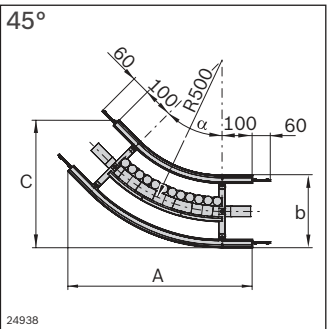
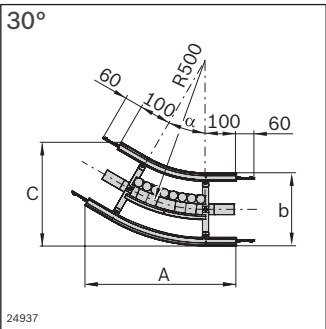
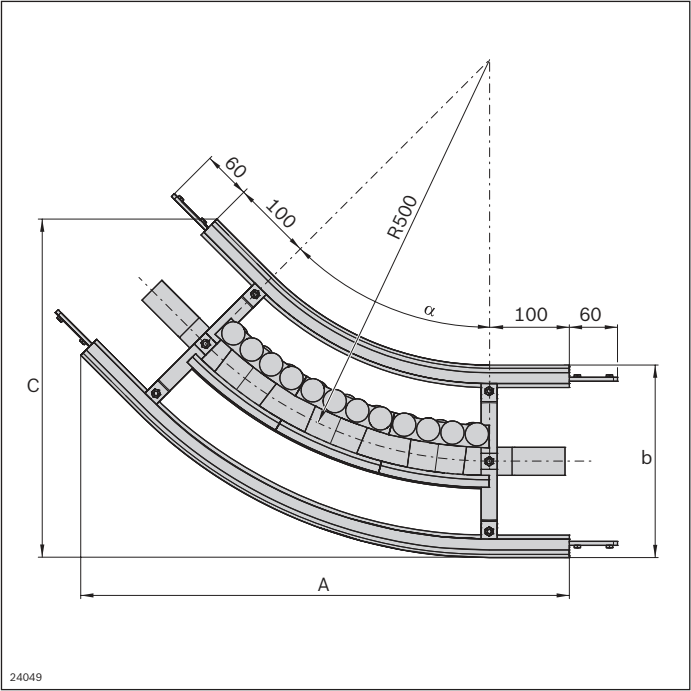
- Including fastening material for mounting to the section profile AL

Condition on delivery:

- Assembled

Material:

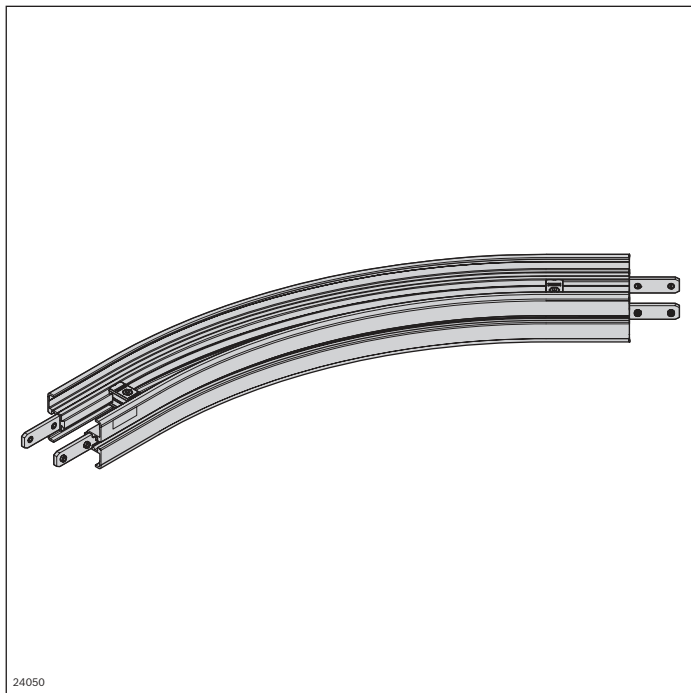
- Profile: Aluminum; anodized
- Roller carrier: PA66
- Ball bearing: Non-rusting steel 1.4301/FDA
- Connector: Steel; zinc-plated
- Rollers: PA



| Roller curve AL | $\alpha$ (°) | No.                  |
|-----------------|--------------|----------------------|
| VFplus 160      | 30           | <b>3 842 547 060</b> |
|                 | 45           | <b>3 842 547 061</b> |
|                 | 90           | <b>3 842 547 062</b> |
|                 | 180          | <b>3 842 547 063</b> |
| VFplus 240      | 30           | <b>3 842 547 064</b> |
|                 | 45           | <b>3 842 547 065</b> |
|                 | 90           | <b>3 842 547 066</b> |
|                 | 180          | <b>3 842 547 067</b> |
| VFplus 320      | 30           | <b>3 842 547 068</b> |
|                 | 45           | <b>3 842 547 069</b> |
|                 | 90           | <b>3 842 547 070</b> |
|                 | 180          | <b>3 842 547 071</b> |

| b (mm) | $\alpha$ (°) | A (mm) | C (mm) |
|--------|--------------|--------|--------|
| 160    | 30           | 476.6  | 266.3  |
|        | 45           | 580.8  | 353.7  |
|        | 90           | 680.0  | 680.0  |
|        | 180          | 1160.0 | 680.0  |
| 240    | 30           | 496.6  | 340.9  |
|        | 45           | 609.1  | 422.0  |
|        | 90           | 720.0  | 720.0  |
|        | 180          | 1240.0 | 720.0  |
| 320    | 30           | 516.6  | 415.6  |
|        | 45           | 637.4  | 490.3  |
|        | 90           | 760.0  | 760.0  |
|        | 180          | 1320.0 | 760.0  |

## Sliding curve horizontal AL



The sliding curve provides a horizontal change in direction for the chain, for when there is not enough space for a curve wheel or the speeds or product dimensions do not permit conveying over a curve wheel. The sliding curve is used to reduce noise at high speeds or when transporting long products in wedge conveyors. The chain tensile force is increased through the ensuing friction.

For attachment options, see the matrix on page 313

- Size: 65, 90, 120
- Deflection angles and radii see table on p. 73, other deflection angles and radii on request
- Suitable chain types: All
- Version with open section profiles
- Requires the use of the sliding rails "Advanced" or "Premium"
- Use in abrasive environments is not permissible

For the selection of sliding rails, see the "Technical data" chapter on page 300.

### Required accessories:

- Sliding rail: Length calculation, see p. 302

### Scope of delivery:

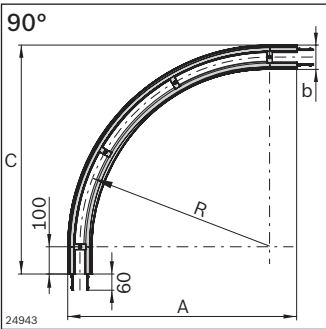
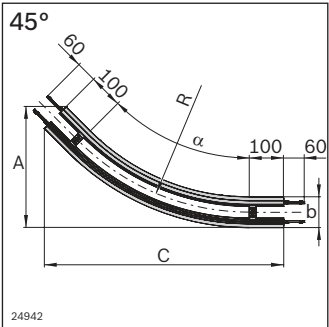
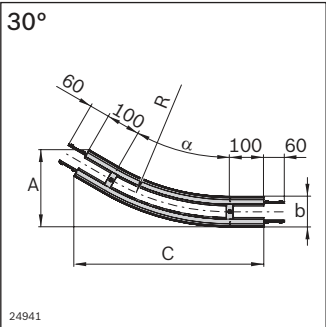
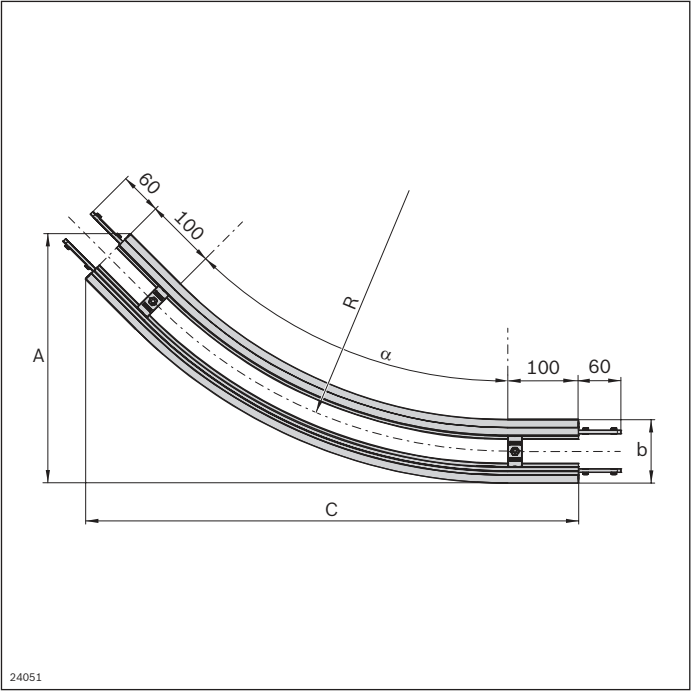
- Including fastening material for mounting to the section profile AL

### Condition on delivery:

- Assembled

### Material:

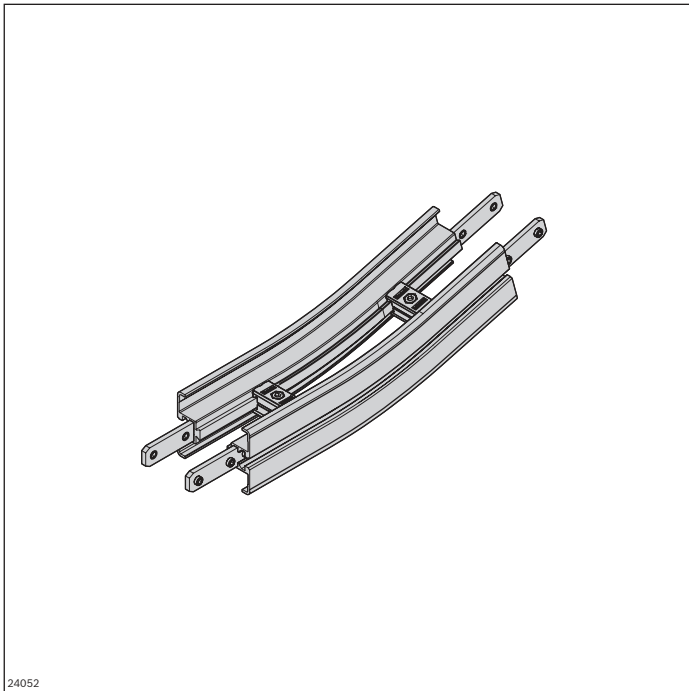
- Profile: Aluminum; anodized
- Profile connector: Steel; zinc-plated
- Cross connector: Diecast aluminum



| Sliding curve horizontal AL | $\alpha$ (°) | R (mm) | No.                  |
|-----------------------------|--------------|--------|----------------------|
| VFplus 65                   | 30           | 700    | <b>3 842 547 072</b> |
|                             | 45           | 700    | <b>3 842 547 073</b> |
|                             | 90           | 700    | <b>3 842 547 074</b> |
| VFplus 90                   | 45           | 500    | <b>3 842 547 075</b> |
|                             | 90           | 500    | <b>3 842 547 076</b> |
|                             | 30           | 700    | <b>3 842 547 077</b> |
|                             | 45           | 700    | <b>3 842 547 078</b> |
|                             | 90           | 700    | <b>3 842 547 079</b> |
|                             | 30           | 700    | <b>3 842 547 080</b> |
| VFplus 120                  | 45           | 700    | <b>3 842 547 081</b> |
|                             | 90           | 700    | <b>3 842 547 082</b> |

| b (mm) | $\alpha$ (°) | R (mm) | A (mm) | C (mm) |
|--------|--------------|--------|--------|--------|
| 65     | 30           | 700    | 204.4  | 552.9  |
|        | 45           | 700    | 331.2  | 688.7  |
|        | 90           | 700    | 832.5  | 832.5  |
| 90     | 45           | 500    | 294.0  | 556.1  |
|        | 90           | 500    | 645.0  | 645.0  |
|        | 30           | 700    | 227.8  | 559.1  |
|        | 45           | 700    | 352.6  | 697.5  |
|        | 90           | 700    | 845.0  | 845.0  |
|        | 30           | 700    | 255.7  | 566.6  |
| 120    | 45           | 700    | 378.2  | 708.1  |
|        | 90           | 700    | 860.0  | 860.0  |

## Vertical curve AL



The vertical curve is used for the transition from a horizontal conveyor section to an ascending section and vice versa. The chain tensile force is increased through the ensuing friction.

A vertical curve of 5° is recommended for the infeed and outfeed on the wedge conveyor, especially with small products.

For attachment options, see the matrix on page 313

- Size: All track widths
- Deflection angles and radii see table on page 75, other deflection angles and radii on request
- Suitable chain types: All
- Version with open section profiles
- Requires the use of the sliding rails "Advanced" or "Premium"
- For vertical sections  $\leq 5^\circ$ , the adjustable profile connectors AL can be used for sizes 65-120

For the selection of sliding rails, see the "Technical data" chapter on page 300.

### Required accessories:

- Sliding rail: Length calculation, see p. 302

### Scope of delivery:

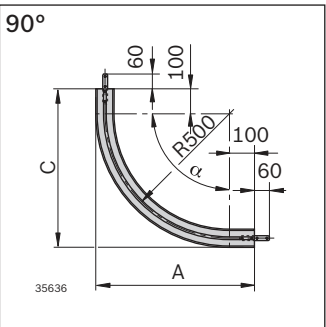
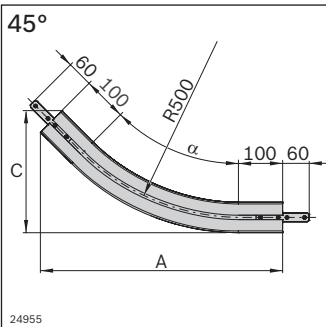
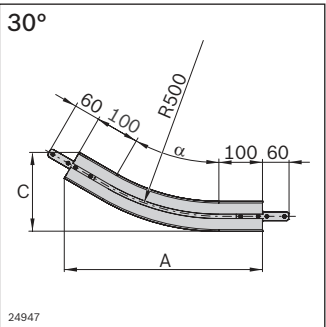
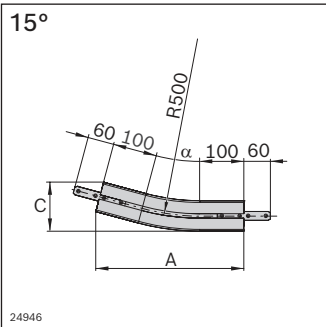
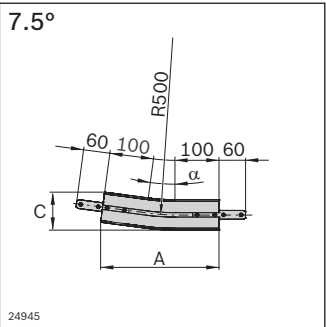
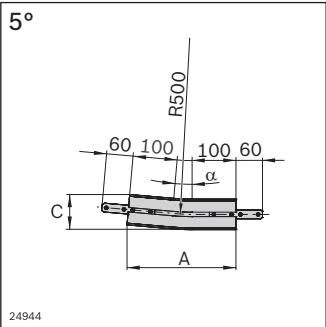
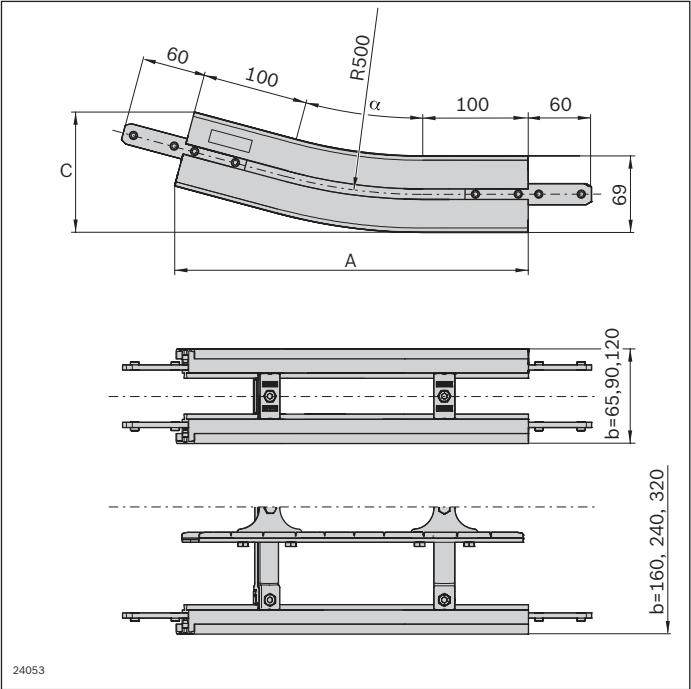
- Including fastening material for mounting to the section profile AL

### Condition on delivery:

- Assembled

### Material:

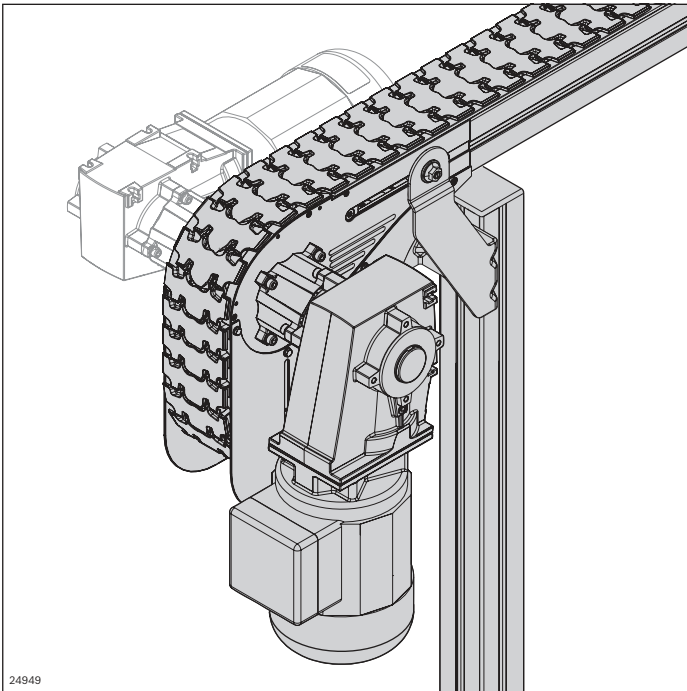
- Profile: Aluminum; anodized
- Profile connector: Steel; zinc-plated
- Cross connector: Diecast aluminum
- Support profile from size 160: Non-rusting steel 1.4301



| Vertical curve AL | $\alpha$ (°) | No.           |
|-------------------|--------------|---------------|
| VFplus 65         | 5            | 3 842 547 083 |
|                   | 7.5          | 3 842 547 084 |
|                   | 15           | 3 842 547 085 |
|                   | 30           | 3 842 547 086 |
|                   | 45           | 3 842 547 087 |
|                   | 90           | 3 842 559 126 |
| VFplus 90         | 5            | 3 842 547 088 |
|                   | 7.5          | 3 842 547 089 |
|                   | 15           | 3 842 547 090 |
|                   | 30           | 3 842 547 091 |
|                   | 45           | 3 842 547 092 |
|                   | 90           | 3 842 559 127 |
| VFplus 120        | 5            | 3 842 547 093 |
|                   | 7.5          | 3 842 547 094 |
|                   | 15           | 3 842 547 095 |
|                   | 30           | 3 842 547 096 |
|                   | 45           | 3 842 547 097 |
|                   | 90           | 3 842 559 128 |
| VFplus 160        | 5            | 3 842 547 098 |
|                   | 7.5          | 3 842 547 099 |
|                   | 15           | 3 842 547 100 |
|                   | 30           | 3 842 547 101 |
|                   | 45           | 3 842 547 102 |
|                   |              |               |
| VFplus 240        | 5            | 3 842 547 103 |
|                   | 7.5          | 3 842 547 104 |
|                   | 15           | 3 842 547 105 |
|                   | 30           | 3 842 547 106 |
| VFplus 320        | 5            | 3 842 547 107 |
|                   | 7.5          | 3 842 547 108 |
|                   | 15           | 3 842 547 109 |
|                   | 30           | 3 842 547 110 |

| b (mm) | $\alpha$ (°) | R (mm) | A (mm) | C (mm) |
|--------|--------------|--------|--------|--------|
| 65-320 | 5            | 500    | 246.2  | 79.5   |
|        | 7.5          | 500    | 268.9  | 86     |
|        | 15           | 500    | 334.9  | 110.7  |
|        | 30           | 500    | 453.9  | 181.4  |
| 65-160 | 45           | 500    | 548.7  | 276.1  |
| 65-120 | 90           | 500    | 636.3  | 636.3  |

## Drive and return unit AL



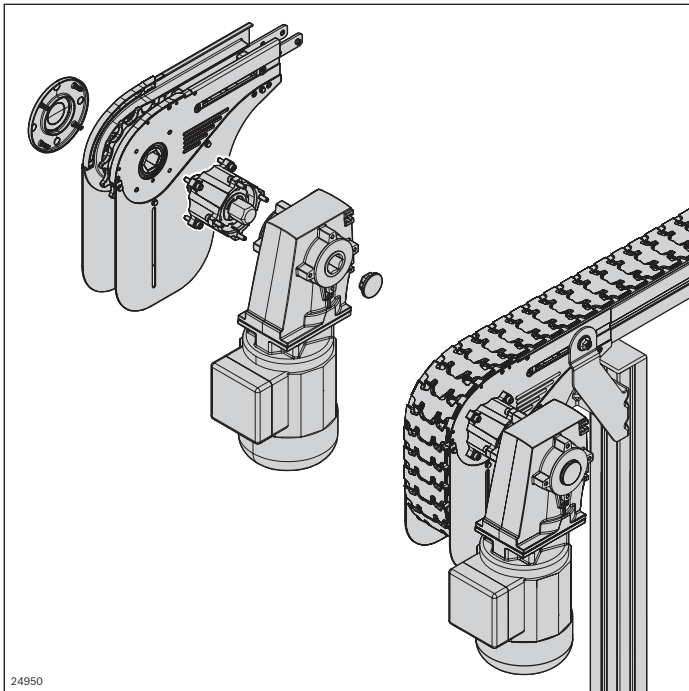
- ▶ High flexibility and short delivery times thanks to a novel drive concept
- ▶ Basic units with interfaces on both sides for drive kit and transmission (active bridges)
- ▶ Free choice of the motor mounting position on site
- ▶ Configurable drive kit (standard gear motor or round shaft)
- ▶ Multi-track systems with standard components possible
- ▶ Reduced noise emission due to sliding rails guided in the drive/return unit
- ▶ In-stock, standardized components
- ▶ Side elements with slots for accommodating holders
- ▶ Pulling section; pushing or reversible operation on request

24949

|                                                                                     |                                                                            |            |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------|------------|
|    | <b>Basic unit AL<br/>Head drive direct</b>                                 | <b>80</b>  |
|    | <b>Basic unit AL<br/>Connection drive</b>                                  | <b>82</b>  |
|    | <b>Basic unit<br/>Center drive</b>                                         | <b>84</b>  |
|    | <b>Return unit AL<br/>Closed head drive AL</b>                             | <b>86</b>  |
|   | <b>90° return unit</b>                                                     | <b>88</b>  |
|  | <b>Basic unit<br/>Curve wheel drive AL</b>                                 | <b>90</b>  |
|  | <b>Drive kit</b>                                                           | <b>92</b>  |
|  | <b>Drive kit curve wheel AL</b>                                            | <b>94</b>  |
|  | <b>Frequency converter motec 8400</b>                                      | <b>96</b>  |
|  | <b>Manual control unit<br/>Switching/potentiometer unit</b>                | <b>99</b>  |
|  | <b>Transmission kit</b>                                                    | <b>100</b> |
|  | <b>Passive/active bridges connection kit</b>                               | <b>102</b> |
|  | <b>Synchronous drive<br/>Connection kit, external motor/internal motor</b> | <b>110</b> |
|  | <b>Alpine conveyor connection kit</b>                                      | <b>112</b> |



## Innovative drive concept



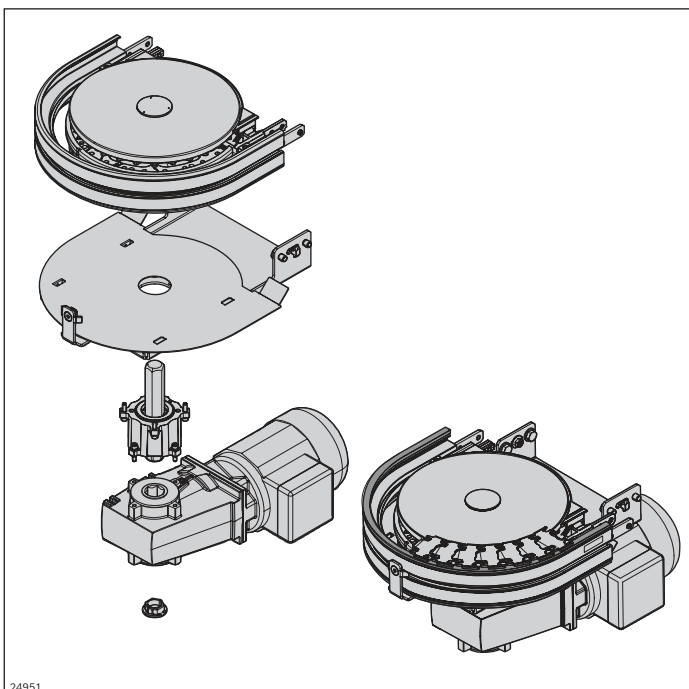
**Basic unit AL**  
(head drive direct, center  
or connection drive)  
**or return unit**

+

**Configurable drive kit**  
(standard gear motor or round shaft  
+ transmission kit where applicable)

=

**Complete drive**  
(transmission drive)



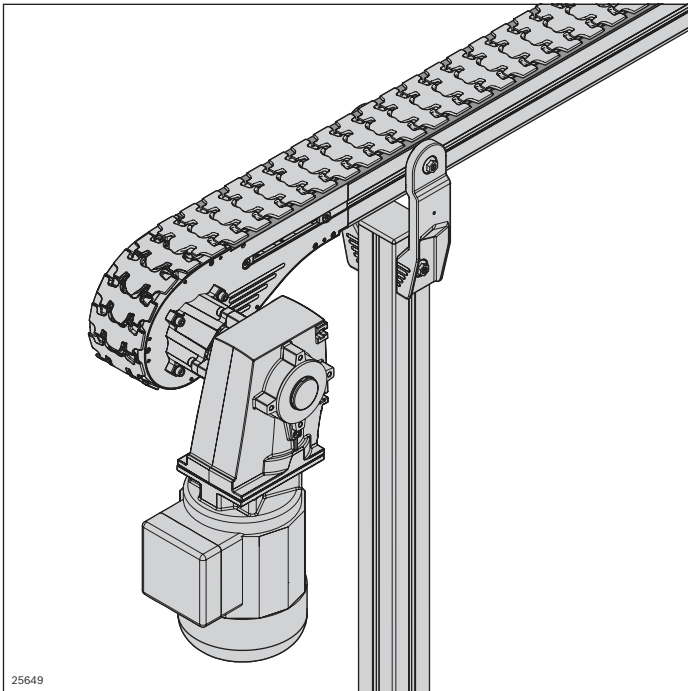
**Basic unit curve wheel drive AL**

+

**Configurable drive kit**  
(standard gear motor or round shaft)

=

**Complete drive**



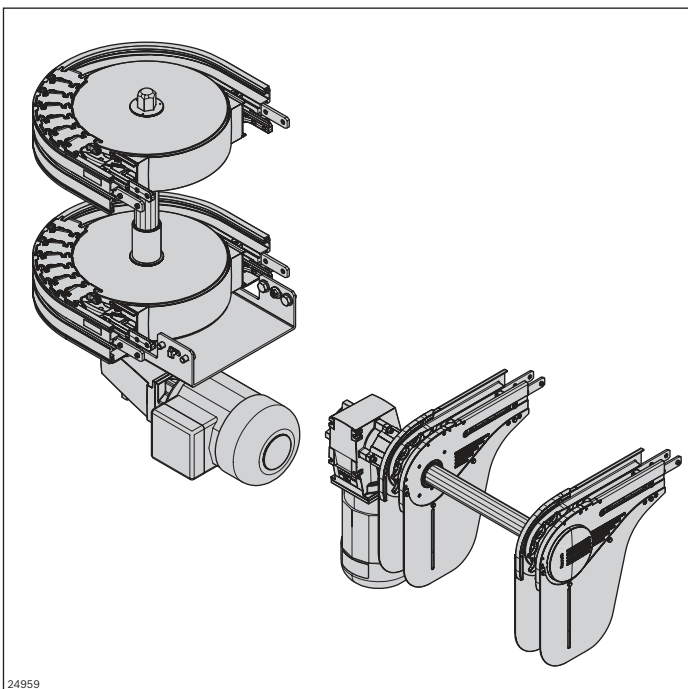
### The well thought-out drive solution enables high flexibility and planning freedom

The in-stock, standardized basic units

- Are quickly and easily combined with the configurable drive kit (standard gear motor or customer-specific interface) into a complete drive
- Guarantee fast availability of the few construction kit elements/spare parts

The interface on both sides in the basic unit and return unit

- Enables a free selection of the motor mounting position on-site
- Offers additional transmission interfaces (active bridges)



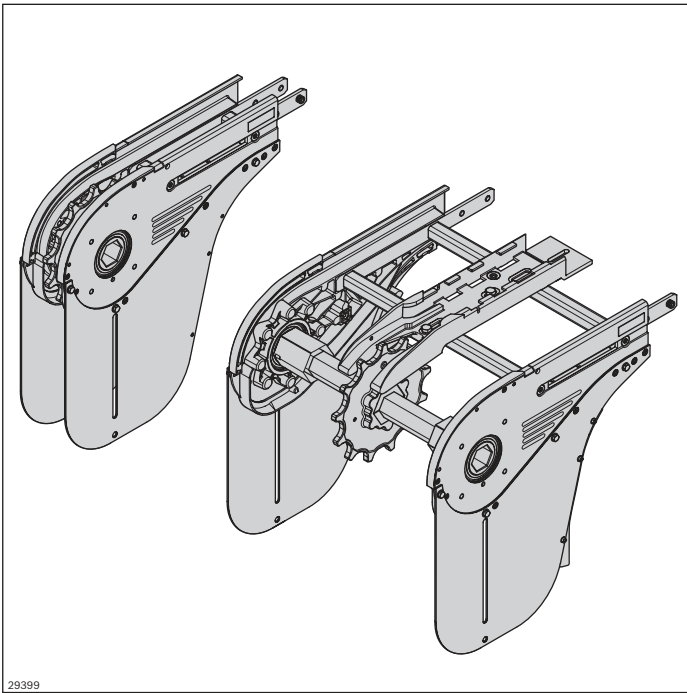
The simple, connectible curve wheel for standard drives and base units facilitates the easy implementation of multi-track systems and alpine conveyors

For attachment options, see the matrix on page 313

**Notice:** High-pressure cleaning of the ball bearing areas is not permitted.

## Basic unit AL

### Head drive direct



The basic unit is quickly turned into a head drive with variable mounting position by adding a drive kit. With the double-sided hexagonal hollow shaft, other components can be easily driven using a transmission (active bridges).

- Size: All track widths
- Suitable chain types: All
- Permissible chain tensile force:  $F_{\max} = 1250 \text{ N}$
- Section length:  $L \leq 30 \text{ m}$
- Conveying speed:  $v_N = 2 \dots 60 \text{ m/min}$ , other speeds available on request
- Chain bag to compensate for chain elongation during service life
- Not suitable for reversible operation

#### Notice:

- A chain sprocket must be used to limit the chain slipping back ascending or descending sections.
- Chain sprocket prevents the chain bag from swiveling out

- ▶ Reduced noise emission due to sliding rails guided in the head drive
- ▶ Installation of the drive kit possible on the right/left (motor, coupling, flange)
- ▶ Drive of a parallel conveyor section or bridge using a hexagonal hollow shaft integrated as standard

#### Required accessories:

- Drive kit, see p. 92
- Sliding rail: Length calculation, see p. 302
- Motor leg set, see p. 117/121

#### Optional accessories:

- Passive bridges connection kit, see p. 102ff.
- Active bridges connection kit, see p. 106ff.
- Synchronous drive connection kit, see p. 110
- Chain sprocket for inclined sections, see p. 81
- Transmission kit, see p. 100

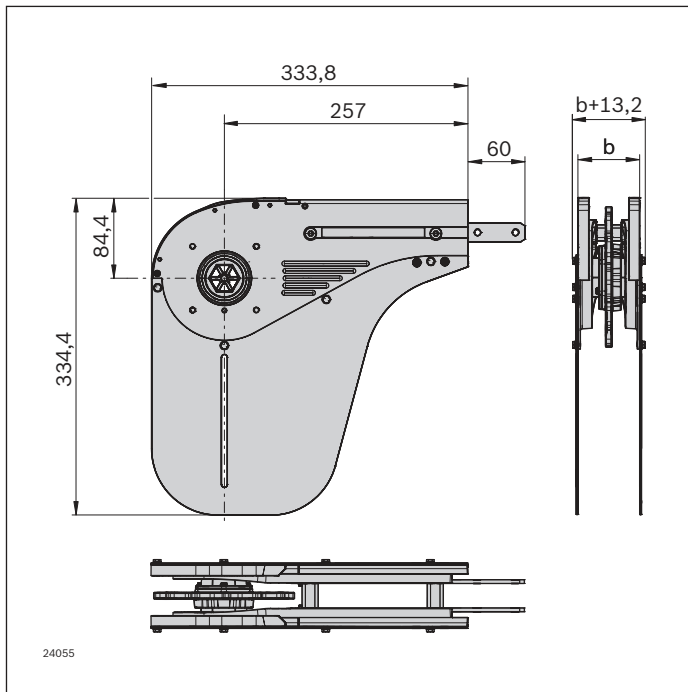
- ▶ Ball bearing made of non-rusting steel (1.4301), with seal on both sides and FDA-compliant grease filling
- ▶ Implementation of parallel sections with gap dimension down to zero
- ▶ Side elements with slot to attach holders for lateral guides, or similar

Scope of delivery: Including fastening material

Condition on delivery: Assembled: Chain guards enclosed

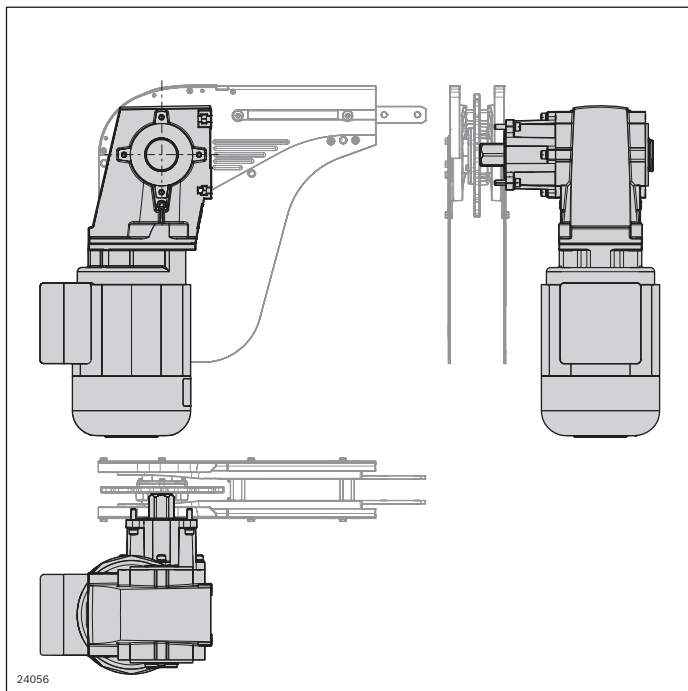
#### Material:

- Housing: Diecast aluminum, powder-coated, silver
- Chain wheel: PA
- Chain guide: PA
- Connector: Steel; zinc-plated
- Hexagonal shaft up to size 160: PA from size 160: Non-rusting steel 1.4301, PA
- Ball bearing: Non-rusting steel 1.4301/FDA



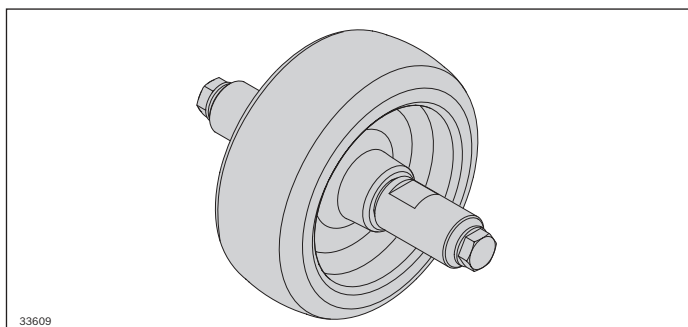
| Basic unit AL     | No.           |
|-------------------|---------------|
| VFplus 65 direct  | 3 842 546 120 |
| VFplus 90 direct  | 3 842 546 121 |
| VFplus 120 direct | 3 842 546 122 |
| VFplus 160 direct | 3 842 546 123 |
| VFplus 240 direct | 3 842 546 124 |
| VFplus 320 direct | 3 842 546 125 |

Order the drive kit in addition to the basic unit AL (see p. 92) to complete your drive.



| Drive kit VFplus | No.           |
|------------------|---------------|
|                  | 3 842 998 291 |

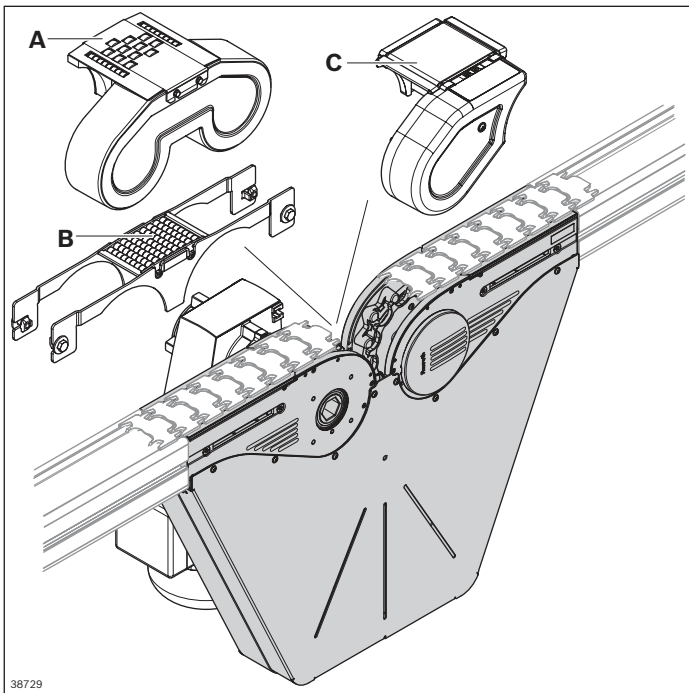
See p. 92



| Chain sprocket | No.           |
|----------------|---------------|
| VFplus 65      | 3 842 553 047 |
| VFplus 90      | 3 842 553 048 |
| VFplus 120     | 3 842 553 049 |
| VFplus 160     | 3 842 553 057 |
| VFplus 240     | 3 842 553 058 |
| VFplus 320     | 3 842 553 059 |

## Basic unit AL

### Connection drive



- ▶ Reduced noise emission due to sliding rails guided in the connection drive
- ▶ Installation of the drive kit possible on the right/left (motor, coupling, flange)
- ▶ Drive of a parallel conveyor section or bridge using a hexagonal hollow shaft integrated as standard
- ▶ Ball bearing made of non-rusting steel (1.4301), with seal on both sides and FDA-compliant grease filling
- ▶ Side elements with slot to attach holders for lateral guides, or similar

#### Required accessories:

- Drive kit, see p. 92
- Connection kit passive bridges, see p. 102ff.
- Connection kit active bridges, see p. 106ff.
- Sliding rail: Length calculation, see p. 302

#### Scope of delivery:

- Including fastening material

The connection drive is used for driving the conveyor chain in circuit systems with a top-running chain. Supplementing the basic unit connection drive with the drive kit quickly turns it into a complete connection drive with a variable mounting position. For transferring the conveyed material, an active (**A, C**) or passive bridge (**B**) must be added. The active bridge (**A, C**) is driven by a transmission from the connection drive

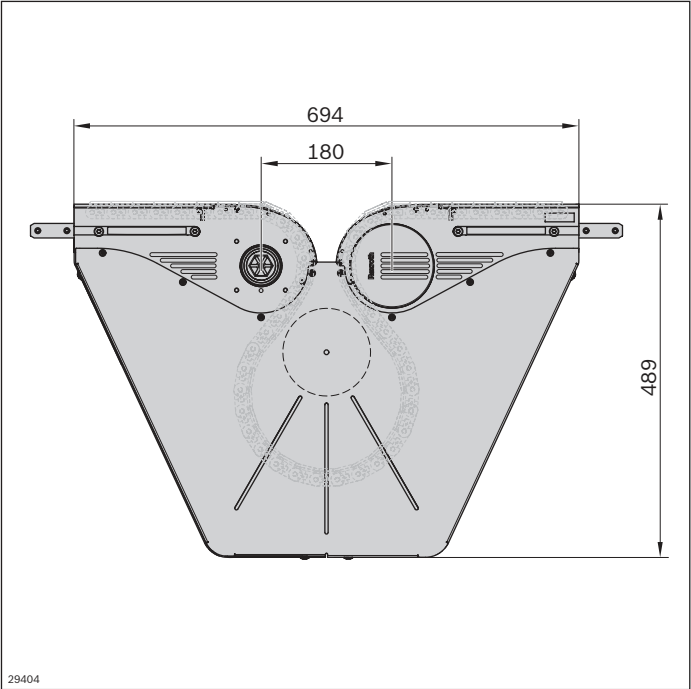
- Size: 65, 90
- Suitable chain types: Flat conveyor chain, static friction chain
- Permissible chain tensile force:  $F_{\max} = 1250 \text{ N}$
- Section length:  $L \leq 30 \text{ m}$
- Conveying speed:  $v_N = 2 \dots 27 \text{ m/min}$ , other speeds available on request
- Chain bag to compensate for chain elongation during service life
- Recommendation: No accumulation operation up to 1500 mm after the connection drive
- For safety reasons, only use with a closed profile
- Reversible operation not permitted
- Not permitted for wet operation or rough ambient conditions

#### Material:

- Housing: Diecast aluminum, powder-coated
- Chain wheel: PA
- Chain guide: PA
- Connector: Steel; zinc-plated
- Hexagonal shaft  
up to size 160: PA  
from size 160: Non-rusting steel 1.4301, PA
- Ball bearing: Non-rusting steel 1.4301/FDA
- Chain fender: Steel; zinc-plated

#### Condition on delivery:

- Assembled



| Basic unit connection drive AL | No.           |
|--------------------------------|---------------|
| VFplus 65                      | 3 842 547 712 |
| VFplus 90                      | 3 842 547 713 |

3

| Drive kit VFplus | No.           |
|------------------|---------------|
|                  | 3 842 998 291 |

See p. 92

| Active roller bridge connection kit (A) | No.           |
|-----------------------------------------|---------------|
| VFplus 65                               | 3 842 555 820 |
| VFplus 90                               | 3 842 555 821 |

See p. 108

| Active belt bridge connection kit (C) | No.             |
|---------------------------------------|-----------------|
| VFplus 65                             | L 3 842 558 000 |
| VFplus 65                             | R 3 842 558 001 |
| VFplus 90                             | L 3 842 558 002 |
| VFplus 90                             | R 3 842 558 003 |

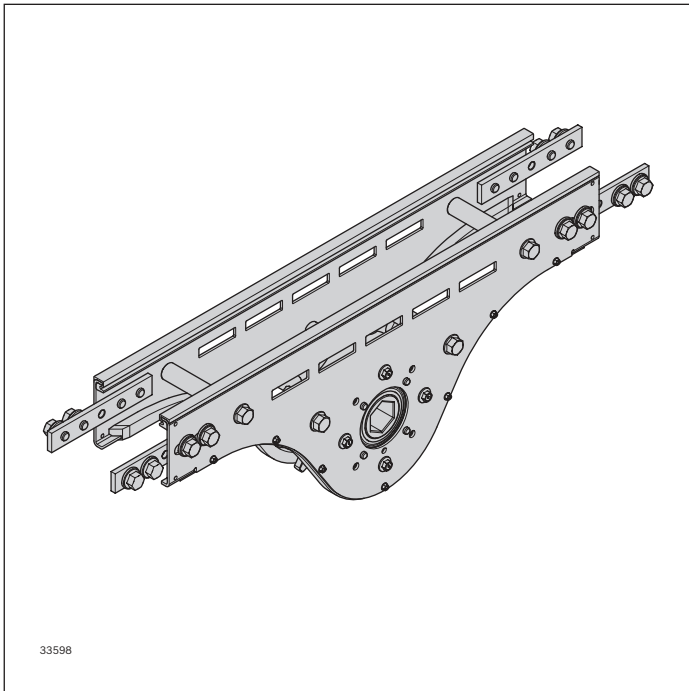
See p. 106

| Passive bridge connection kit (B) | No.           |
|-----------------------------------|---------------|
| VFplus 65                         | 3 842 549 015 |
| VFplus 90                         | 3 842 549 016 |

See p. 102

## Basic unit

### Center drive



- ▶ Reduced noise emission due to sliding rails guided in the center drive
- ▶ Installation of the drive kit possible on the right/left (motor, coupling, flange)
- ▶ Drive of a parallel conveyor section using a hexagonal hollow shaft integrated as standard

#### Required accessories:

- Drive kit, see p. 85
- Sliding rail, see p. 56
- Motor leg set/motor leg set ESD, see p. 121/202
- Assembly module, see p. 62

#### Scope of delivery:

- Including fastening material
- For systems AL: Adapter VFplus AL-STs

#### Condition on delivery:

- Assembled, (profile connector enclosed)

The center drive basic unit is used if the available space is limited at the ends of the sections.

It is quickly turned into a center drive with variable motor mounting position by adding the drive kit

- Size: 65-120
- Chain return on the underside of the profile
- Conveying speed:  $v_N = 2 \dots 60$  m/min, other speeds available on request
- Permissible chain tensile force:  $F_{max} = 600$  N
- Max. conveying length: 7 m
- Because no length compensation (chain bag) is present, the chain length must be checked regularly and shortened if necessary
- Recommendation: No accumulation operation until 1000 mm after the return unit
- An assembly module is required for assembling the chain

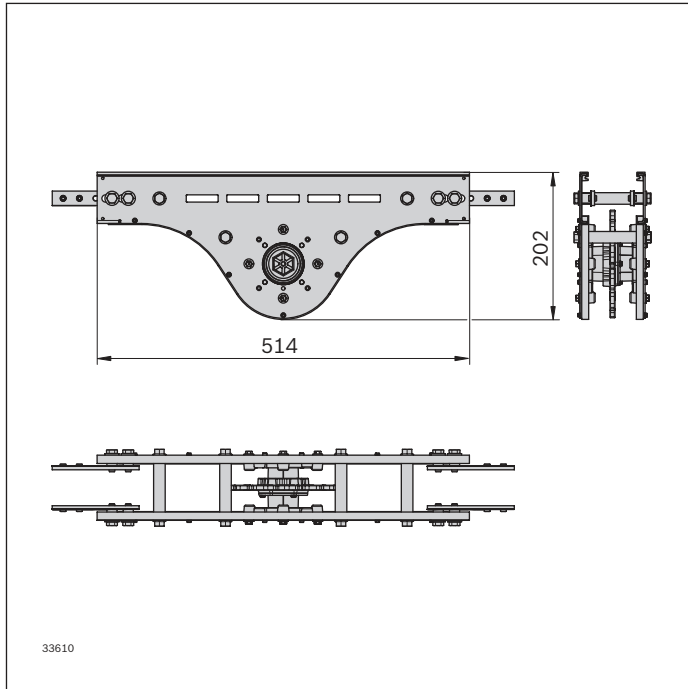
- ▶ Ball bearing made of non-rusting steel (1.4301), with seal on both sides and FDA-compliant grease filling
- ▶ Side elements with slot for attaching holders for lateral guides, or similar

#### Optional accessories:

- Synchronous drive connection kit, see p. 110
- Frequency converter, see p. 96
- Transmission kit, see p. 100

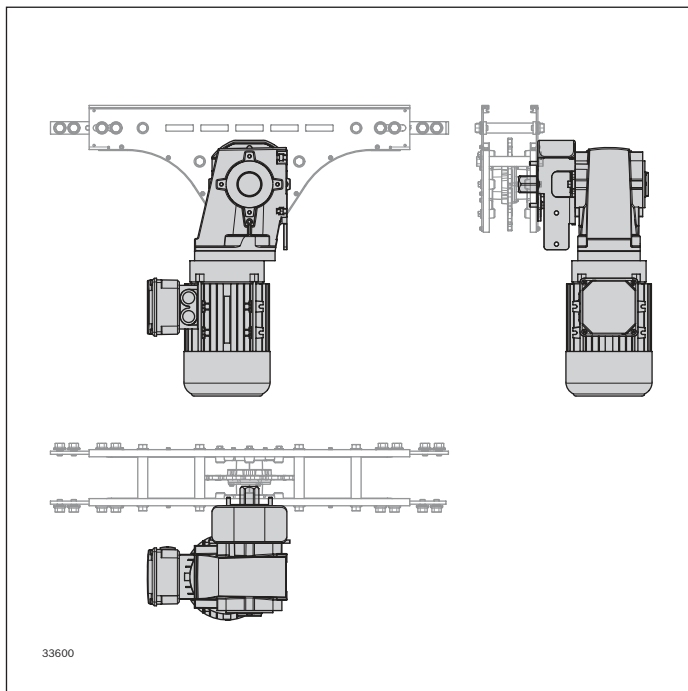
#### Material:

- Housing: Non-rusting steel 1.4301
- Chain wheel: PA
- Chain guide: PA
- Connector: Non-rusting steel 1.4301
- Hexagonal shaft, PA
- Ball bearing: Non-rusting steel 1.4301/FDA



| Basic unit with center drive | No.           |
|------------------------------|---------------|
| VFplus 65                    | 3 842 552 940 |
| VFplus 90                    | 3 842 552 941 |
| VFplus 120                   | 3 842 552 942 |

3



| Drive kit VFplus | No.           |
|------------------|---------------|
| VFplus 65        | 3 842 998 291 |

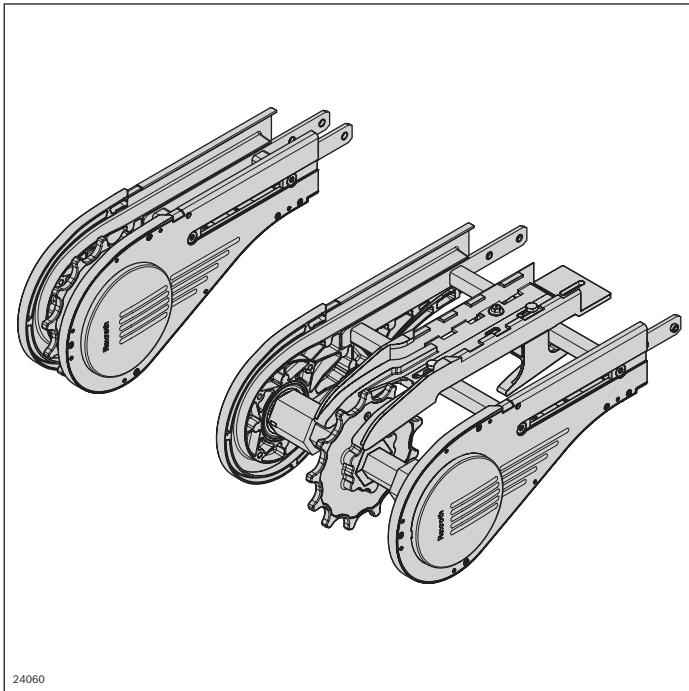
See p. 92

**Notice:** The selection of the parameter SP = STS is imperative. Even if an aluminum track is used because centering is not possible on an AL flange.



## Return unit AL

### Closed head drive AL



- ▶ Reduced noise emission due to sliding rails guided in the return unit
- ▶ Installation of the drive kit possible on the right/left (motor, coupling, flange)
- ▶ Drive of a parallel conveyor section or bridge using a hexagonal hollow shaft integrated as standard

#### Required accessories:

- Sliding rail: Length calculation, see p. 302

#### For use as a drive:

- Assembly module, see p. 62
- Drive kit, see p. 92
- Motor leg set, see p. 117/121

#### Scope of delivery:

- Including fastening material

#### Condition on delivery:

- Assembled

Thanks to the innovative drive concept, the return unit can be operated simply by itself or supplemented with a drive kit to be operated as a head drive without chain bag.

The section length is limited to a maximum of 7 m.

- Size: All track widths
- Suitable chain types: All
- Permissible chain tensile force

Return unit function:  $F_{\max} = 1250 \text{ N}$

Head drive without chain bag function:  $F_{\max} = 600 \text{ N}$

With shortened maintenance interval, due to chain elongation

- Section length for return unit function:  $L \leq 30 \text{ m}$   
Section length for function as drive:  $L \leq 7 \text{ m}$
- Conveying speed:  $v_N = 2 \dots 60 \text{ m/min}$ , other speeds available on request
- Use as a drive for wedge conveyors, when combined with a drive kit
- Reversible operation on request

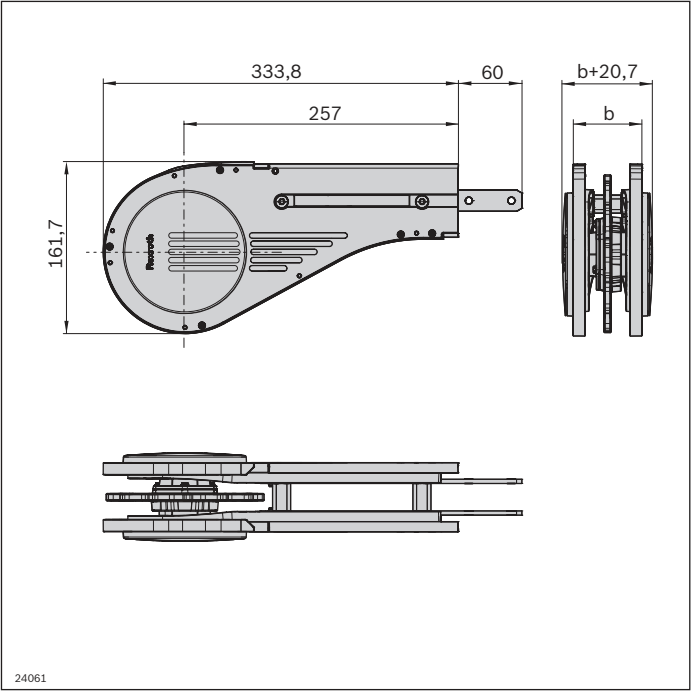
- ▶ Ball bearing made of non-rusting steel (1.4301), with seal on both sides and FDA-compliant grease filling
- ▶ Side elements with slot to attach holders for lateral guides, or similar

#### Optional accessories:

- Transmission kit, see p. 100

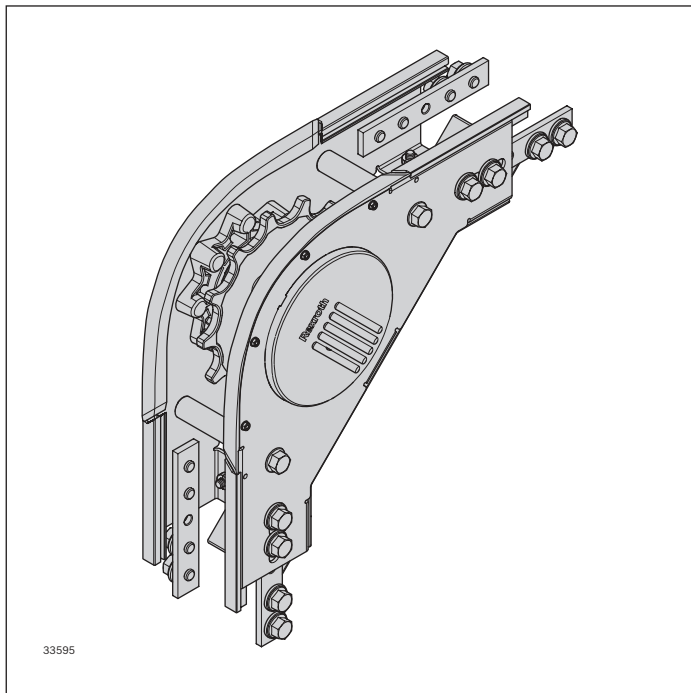
#### Material:

- Housing: Diecast aluminum, powder-coated
- Chain wheel: PA
- Chain guide: PA
- Connector: Steel; zinc-plated
- Hexagonal shaft  
up to size 160: PA  
from size 160: Non-rusting steel 1.4301, PA
- Ball bearing: Non-rusting steel 1.4301/FDA



| Return unit AL | No.           |
|----------------|---------------|
| VFplus 65      | 3 842 547 516 |
| VFplus 90      | 3 842 547 517 |
| VFplus 120     | 3 842 547 518 |
| VFplus 160     | 3 842 547 519 |
| VFplus 240     | 3 842 547 520 |
| VFplus 320     | 3 842 547 521 |

## 90° return unit



For building alpine conveyors with chain running only on the upper side.

- Only for use with:
  - Connection drive (AL and STS)
  - Curve wheel drive AL (drive kit parameter AC = 1)
- Size: 65, 90
- Section length:  $L_{\max} = 30 \text{ m}$
- Alpine conveyor for curve wheel drive or connection drive

**Notice:** When using conveyor systems without a returning chain, a cover must be mounted by the customer to ensure personal safety.

Advantage over alpine conveyor with head drive:

- ▶ Shorter chain return, so the required tensile force of the conveyor chain is lower and therefore the possible volume of the alpine conveyor is larger.
- ▶ No longer necessary to mount the sliding rails required for the chain return on the bottom side of the profile
- ▶ The required conveyor chain is shorter

Scope of delivery:

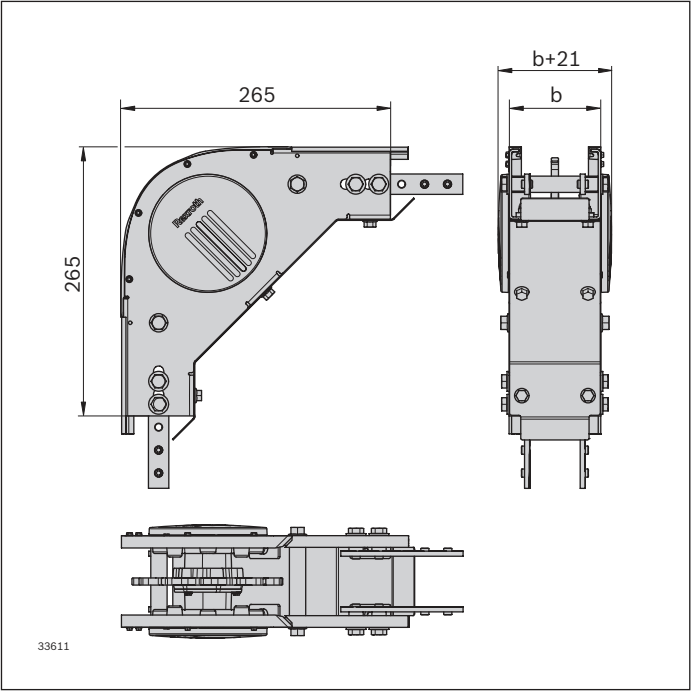
- Including fastening material
- For AL systems: Adapter AL-STs

Condition on delivery:

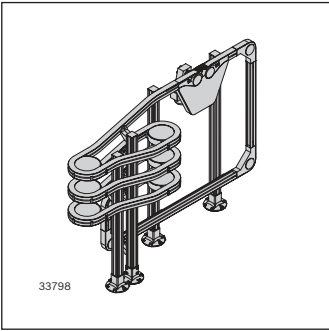
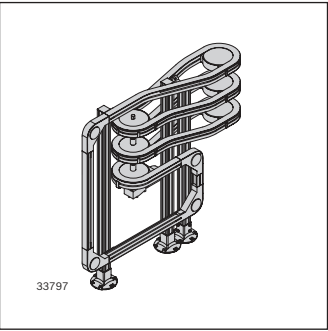
- Assembled

Material:

- Housing: Non-rusting steel 1.4301
- Chain wheel: PA
- Chain guide: PA
- Connector: Non-rusting steel 1.4301
- Hexagonal shaft, PA
- Ball bearing: Non-rusting steel 1.4301/FDA

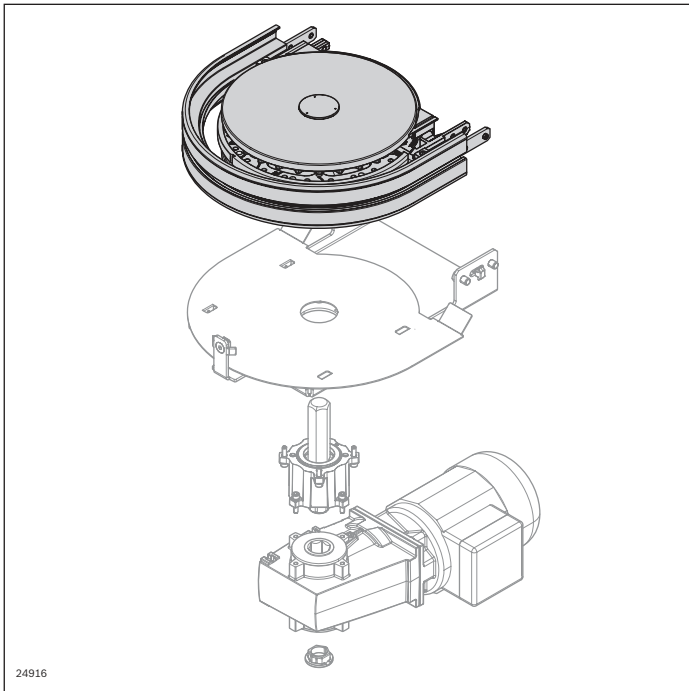


| 90° return unit |  | No.           |
|-----------------|-------------------------------------------------------------------------------------|---------------|
| VFplus 65       | 1                                                                                   | 3 842 552 984 |
| VFplus 90       | 1                                                                                   | 3 842 552 985 |



## Basic unit

### Curve wheel drive AL



The curve wheel drive is used for driving the conveyor chain in circuit systems with a top-running chain.

Combining the base unit curve wheel 180° AL with the

appropriate drive kit quickly turns it into a curve wheel drive.

- Size: 65, 90
- Suitable chain types: All
- Permissible chain tensile force:  $F_{\max} = 400 \text{ N}$  per level  
Section length for closed circuits:  $L \leq 10 \text{ m}$
- Permissible torque:  $M_{\max} = 60 \text{ Nm}$   
When combining several curve wheel base units, the motor torque must be distributed across the individual levels
- Conveying speed:  $v_N = 4 \dots 21 \text{ m/min}$   
For drives with frequency converters (FU), the speed must be limited to a maximum of 21 m/min using control technology
- Recommendation: No accumulation operation until 1000 mm after the curve wheel drive
- Can only be used with a closed profile

- Driving several superimposed basic curve wheel units (alpine conveyor) is easily implemented via the integrated hexagonal hollow shafts
- Ball bearing made of non-rusting steel (1.4301), with seal on both sides and FDA-compliant grease filling
- Side elements with slot to attach holders for lateral guides, or similar

#### Required accessories:

- Curve wheel drive kit, see p. 94
- Assembly module, see p. 62
- Sliding rail: Length calculation, see p. 302
- Leg set, see p. 119

#### Optional accessories:

- Alpine conveyor connection kit, see p. 112

#### Scope of delivery:

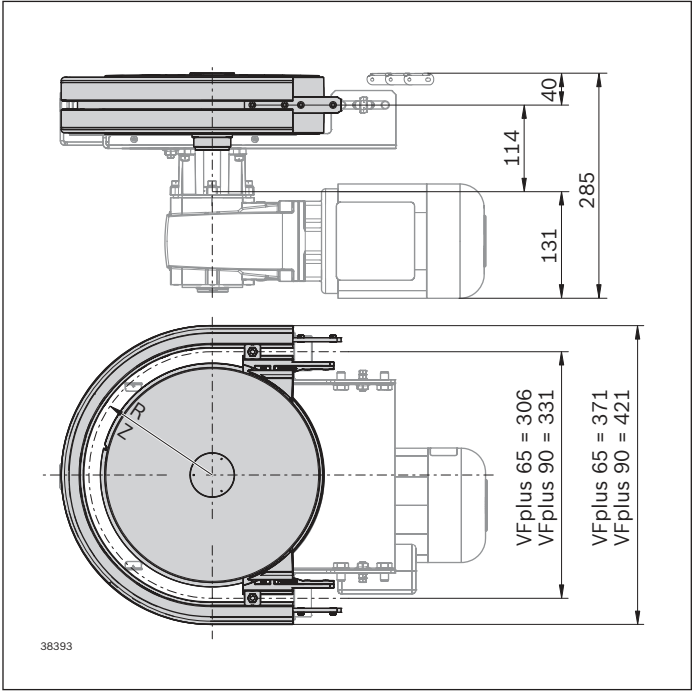
- Including fastening material

#### Condition on delivery:

- Assembly required

#### Material:

- Housing: Diecast aluminum
- Chain wheel: PA; white
- Ball bearing: Non-rusting steel 1.4301/FDA

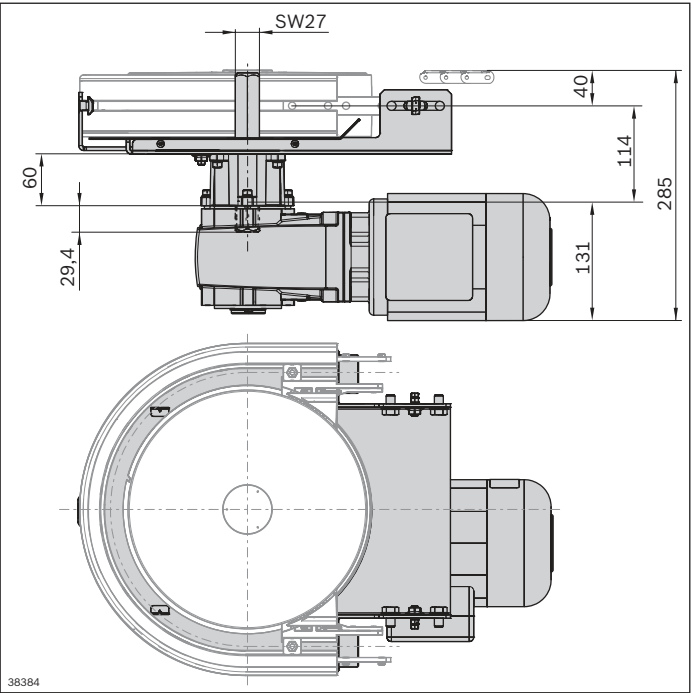


| Basic unit curve wheel AL | $\alpha$ (°) | No.           |
|---------------------------|--------------|---------------|
| VFplus 65                 | 180          | 3 842 547 380 |
| VFplus 90                 | 180          | 3 842 547 381 |

3

|           | R (mm) | Z <sup>1)</sup> |
|-----------|--------|-----------------|
| VFplus 65 | 153.0  | 28              |
| VFplus 90 | 165.5  | 30              |

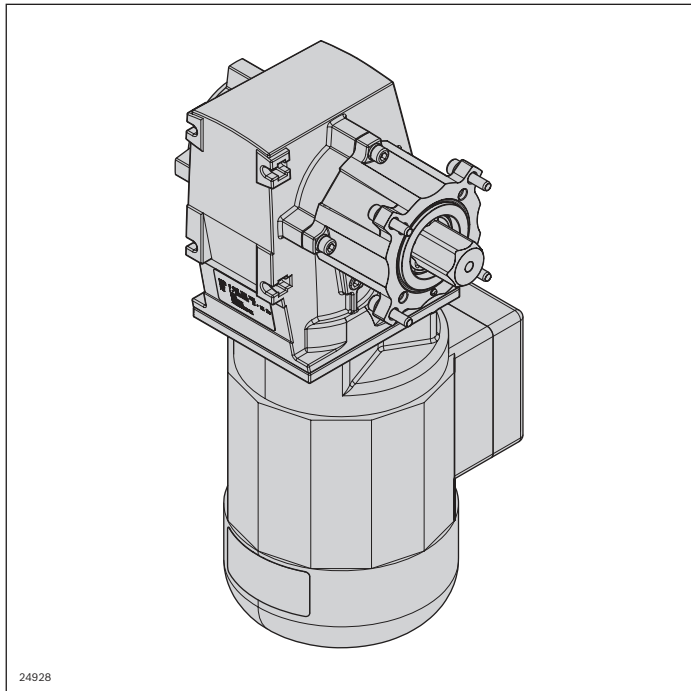
<sup>1)</sup> Number of teeth



| Drive kit curve wheel VFplus AL | No.           |
|---------------------------------|---------------|
|                                 | 3 842 998 742 |

See also page 94

## Drive kit



- The adjustable ball catch coupling is protected and integrated in the flange to save space.

The drive kit is designed to operate the basic head drive/connection drive units and the return unit (closed drive). It contains a flange for attaching the motor to the basic unit, a hexagonal shaft for transmission of force, as well as other optional equipment features.

- Versions in aluminum (SP = AL) or stainless steel (SP = STS)
- For SP = AL, with adjustable ball catch coupling (Kpg = 1) or without (Kpg = 0). The coupling does not provide personal safety. Preset to maximum chain tensile force at the factory
- With Lenze gear motor (GM = 1) or with an interface for attaching a gear motor SEW SA47 (GM = 2)  
An adaptation is required by the customer for attaching other gear motors (GM = 0), see p. 93
- Fixed or adjustable speed ( $v_N$ ). For an adjustable speed, gear motors must be retrofitted with an FU (frequency converter), see p. 96
- Different voltages and supply frequencies (U/f)
- Connections are made using terminal boxes (AT = K) or plugs (AT = S)
- GM = 1 without surface and corrosion protection

### Optional accessories:

- Frequency converter, see p. 96

### Scope of delivery:

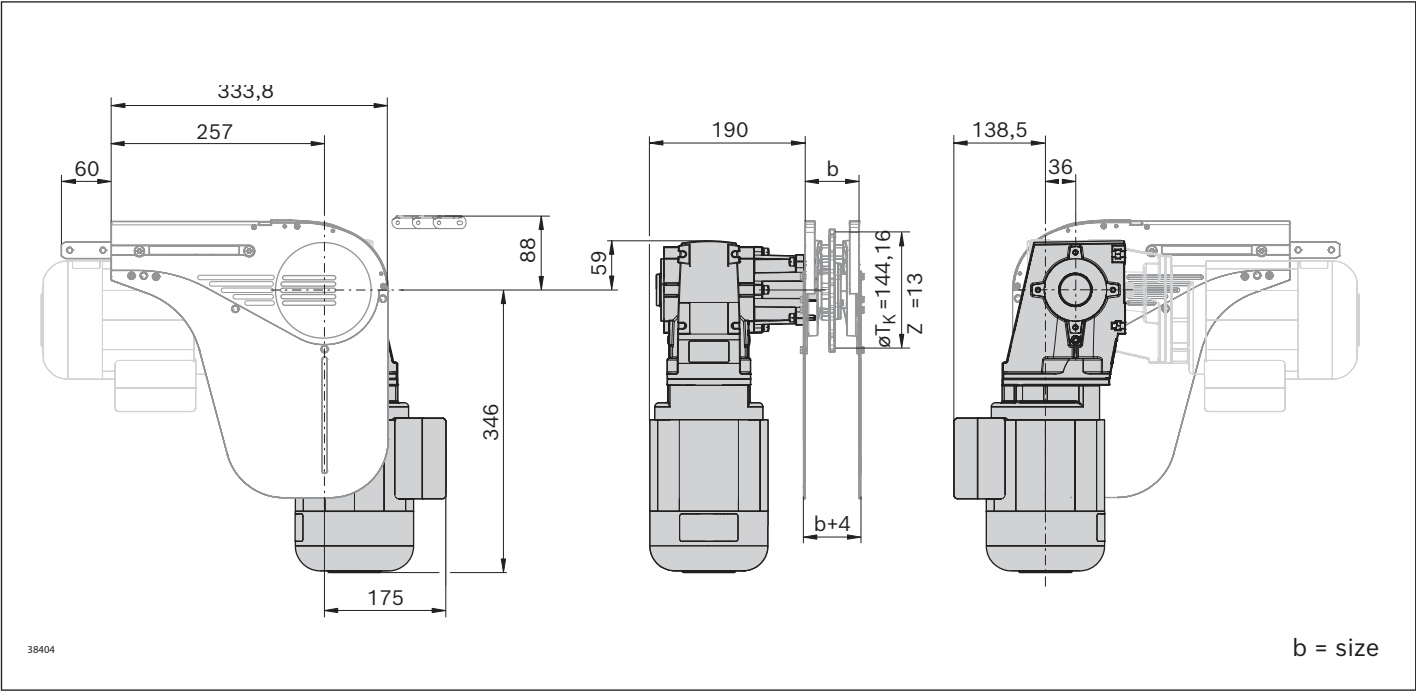
- Including fastening material
- Including flange, shaft and gear motor (GM = 1)

### Condition on delivery:

- Kit

### Material:

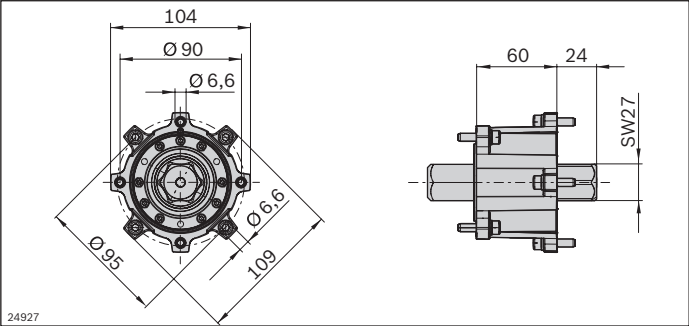
- Flange, motor: Diecast aluminum
- Shaft: Non-rusting steel 1.4301/PA
- Ball catch coupling: Steel



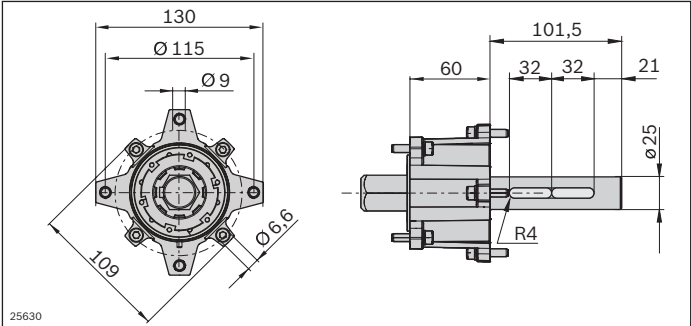
| Drive kit VFplus | SP          | GM      | Kpg  | v <sub>N</sub> (m/min)                  | U/f (V/Hz)<br>See p. 305 | AT   | No.                                                                                                        |
|------------------|-------------|---------|------|-----------------------------------------|--------------------------|------|------------------------------------------------------------------------------------------------------------|
|                  | AL;<br>STS* | 0: 1; 2 | 0; 1 | 5, 10, 13,<br>16, 21, 27,<br>33, 40, 50 |                          | K; S | <b>3 842 998 291</b><br>SP = ...<br>GM = ...<br>Kpg = ...<br>v <sub>N</sub> = ...<br>U/f = ...<br>AT = ... |

\* Version STS see p. 164

AL GM = 0

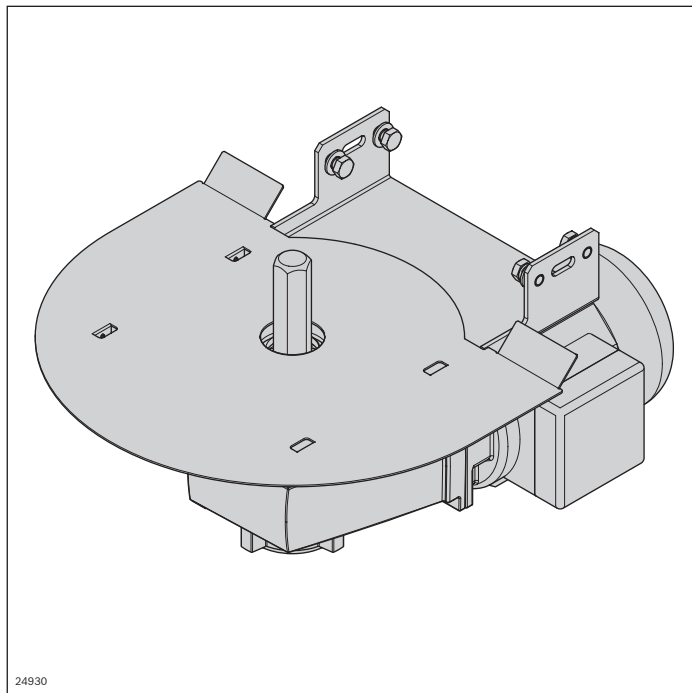


AL GM = 2





## Drive kit curve wheel AL



- The transmission of force of several superimposed curve wheels is possible. The motor torque then has to be distributed across all curve wheel levels.
- The adjustable ball catch coupling is protected and integrated in the flange to save space.

### Required accessories:

- Motor leg sets, see p. 121

### Scope of delivery:

- Including fastening material
- Including guard plates (contact protection from below)
- Including flange, shaft and gear motor (GM = 1)

### Material:

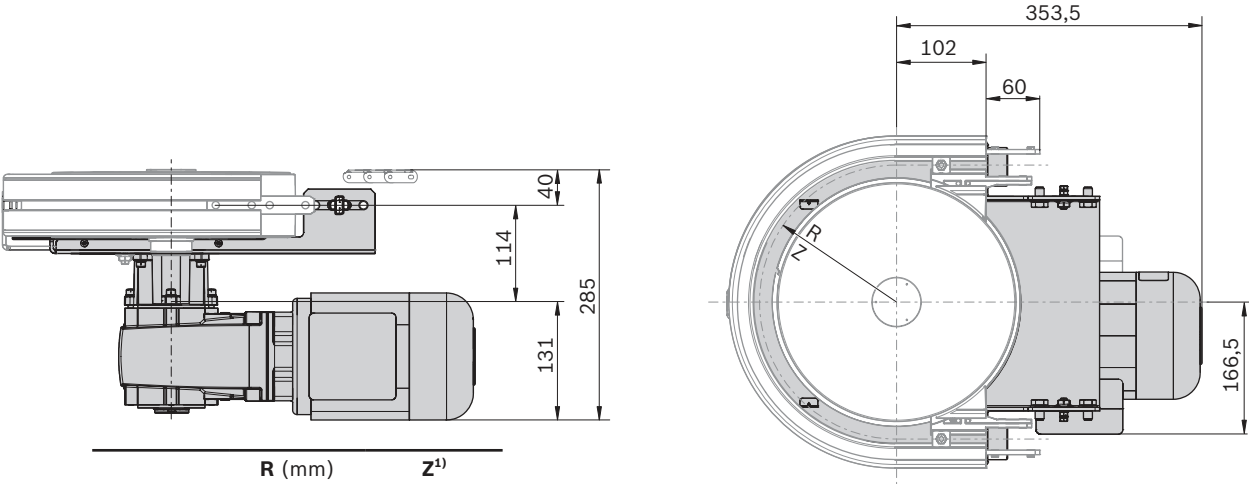
- Flange: Diecast aluminum
- Shaft: STS
- Connecting sheet, cover sheet: Steel; zinc-plated
- Ball catch coupling: Steel

The 180° curve wheel (aluminum version) is quickly transformed into a curve wheel drive by using a drive kit. It contains a flange for attaching the motor to the curve wheel, a hexagonal shaft for transmission of force, as well as other optional equipment features.

- For building a circulation system with curve wheel (AC = 0) or a alpine conveyor (AC = 1)
- With preset ball catch coupling (KPG = 1) for limiting the torque or for the drive kit of the alpine conveyor (AC = 1) or without (KPG = 0). The coupling does not provide personal safety.
- With Lenze gear motor (GM = 1) or with an interface for attaching a gear motor SEW SA47 (GM = 2)  
An adaptation is required by the customer for attaching other gear motors (GM = 0), see p. 95
- Fixed or adjustable speed ( $v_N$ ). For an adjustable speed, gear motors must be retrofitted with an FU (frequency converter), see p. 96
- Different voltages and supply frequencies (U/f)
- Connections are made using terminal boxes (AT = K) or plugs (AT = S)
- GM = 1 without surface and corrosion protection
- Conveying speed:  $v_N = 4 \dots 21$  m/min. For drives with frequency converters (FU), the speed must be limited to a maximum of 21 m/min using control technology

### Condition on delivery:

- Kit

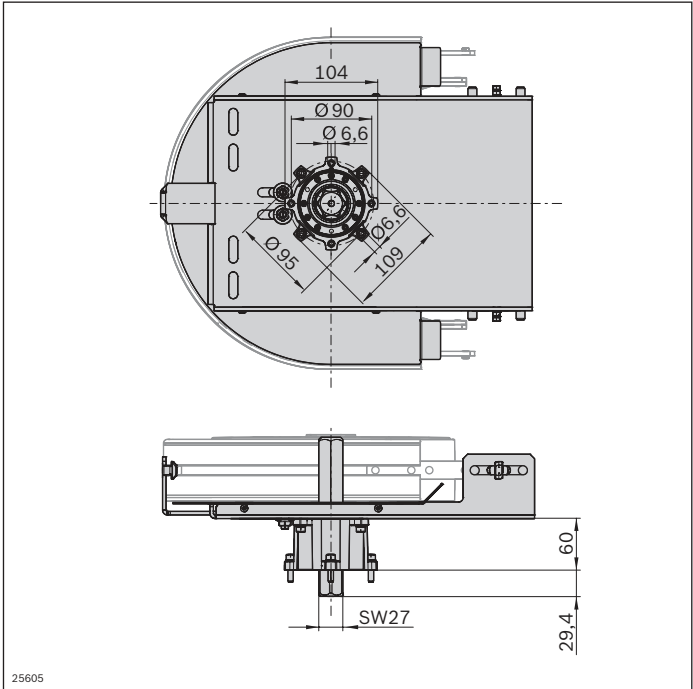


|           | R (mm) | Z <sup>1)</sup> |
|-----------|--------|-----------------|
| VFplus 65 | 153.0  | 28              |
| VFplus 90 | 165.5  | 30              |

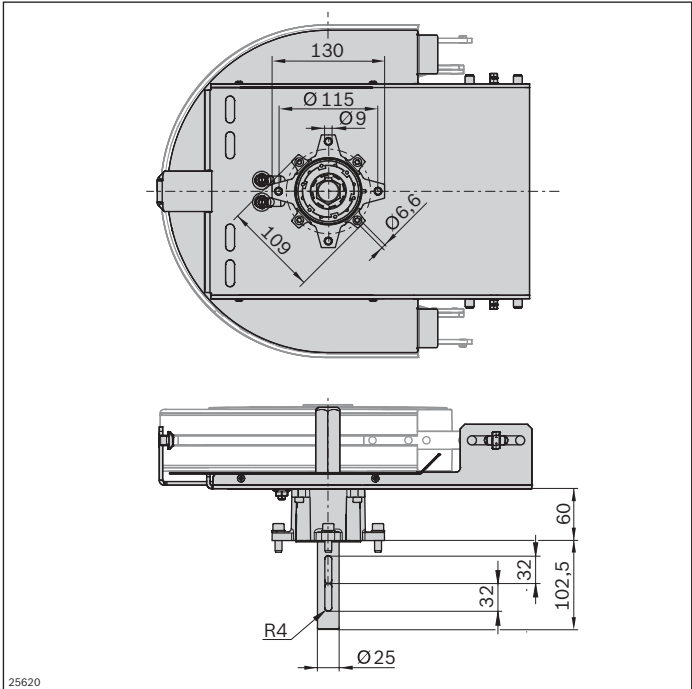
<sup>1)</sup> Number of teeth

| Drive kit curve wheel AL | GM      | AC   | b (mm) | Kpg  | v <sub>N</sub> (m/min) | U/f (V/Hz)<br>See p. 305 | AT   | No.                                                                                                                   |
|--------------------------|---------|------|--------|------|------------------------|--------------------------|------|-----------------------------------------------------------------------------------------------------------------------|
|                          | 0; 1; 2 | 0; 1 | 65; 90 | 0; 1 | 5, 10, 13, 21          |                          | K; S | <b>3 842 998 742</b><br>GM = ...<br>AC = ...<br>b = ...<br>Kpg = ...<br>v <sub>N</sub> = ...<br>U/f = ...<br>AT = ... |

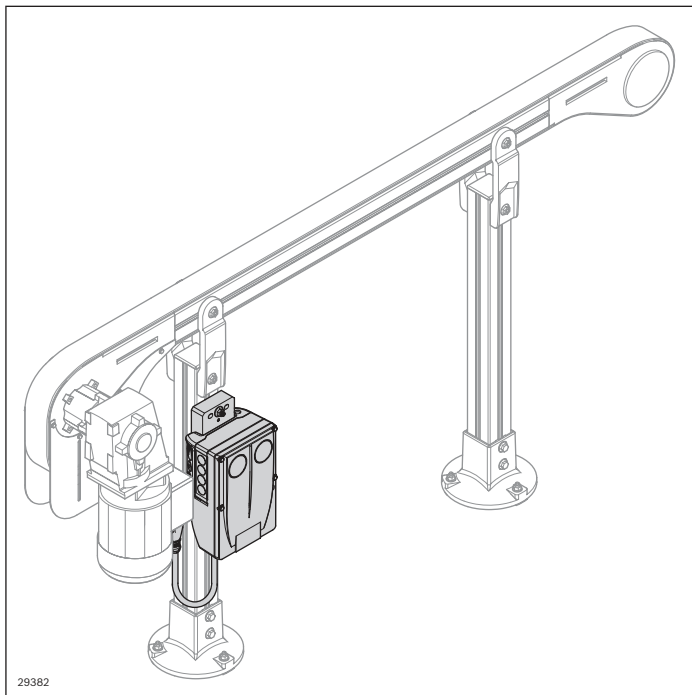
AL GM = 0



AL GM = 2

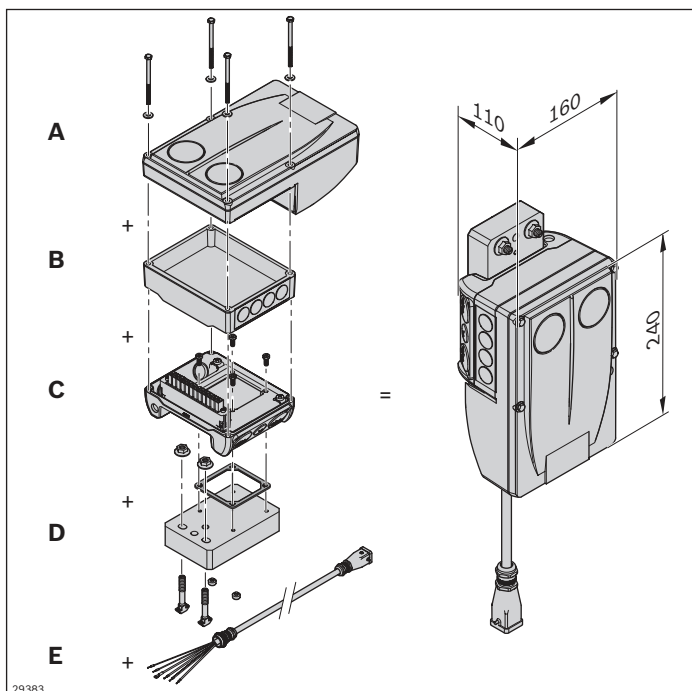


## Frequency converter motec 8400



In order to operate a gear motor with adjustable speed, the motor needs to be retrofitted with a frequency converter (FU). The frequency converter has a modular design so that it can be easily mounted on a leg set and connected to the motor by cable.

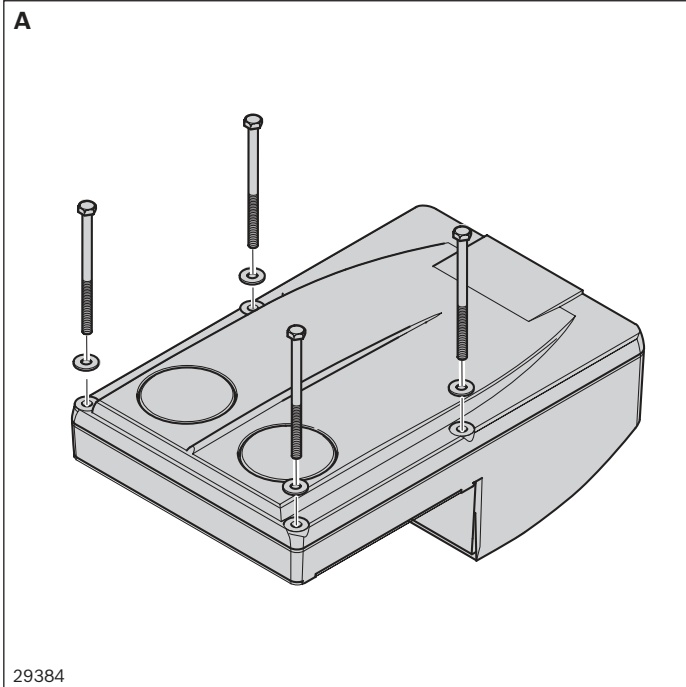
- Connected load: 0.55 kW
- Speed ( $v_N$ ) depending on the base speed of the gear motor used



### Complete frequency converter consisting of the modules

- Frequency converter power unit (A)
- Communication module (B)
- Connection unit (C)
- Attachment kit (D)
- Optional: Connection cable (E) for the plug-in connection to the gear motor (AT = S)

The individual modules can be ordered separately and are easy to connect with the screws supplied with the scope of delivery. For the internal and external voltage supply, the modules must be wired by the user (see terminal box assignment, page 309).



### Frequency converter (A)

Power unit: 0.55 kW

3/PE AC 320 V -0 % ... 528 V +0 %,

45 Hz -0 % .... 65 Hz +0 %

- Easy start-up via manual control unit
- Easy-to-replace memory module
- Large LED status indicator

| Frequency converter | No.                  |
|---------------------|----------------------|
| 0.55 kW power unit  | <b>3 842 553 447</b> |

The speed range of the frequency converter <sup>\*)</sup> is based on the base speed of the motor:

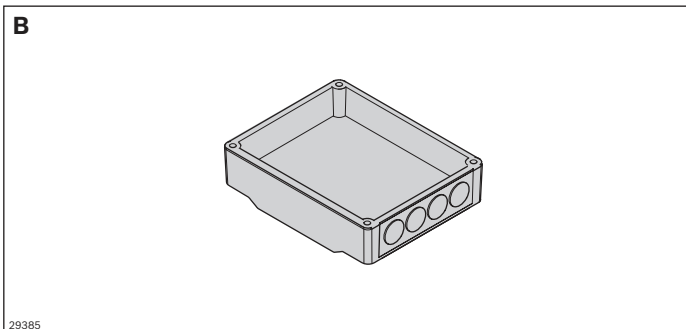
| Base speed of motor<br>(m/min) at 50 Hz | Min <sup>1)</sup><br>(m/min) | Max <sup>2)</sup><br>(m/min) |
|-----------------------------------------|------------------------------|------------------------------|
| 5 <sup>3)</sup>                         | 2                            | 6                            |
| 10 <sup>3)</sup>                        | 4                            | 12                           |
| 13                                      | 5                            | 15                           |
| 16                                      | 6                            | 19                           |
| 21                                      | 7                            | 25                           |
| 27                                      | 9                            | 32                           |
| 33                                      | 11                           | 39                           |
| 40                                      | 13                           | 48                           |
| 50                                      | 16                           | 60                           |

<sup>\*)</sup> By accepting a resulting loss of power, a higher bandwidth can be covered (see p. 309)

<sup>1)</sup> Min corresponds to approx. 16 Hz supply frequency

<sup>2)</sup> Max corresponds to approx. 60 Hz supply frequency

<sup>3)</sup> At 460 V/60 Hz max (m/min) 20 % higher

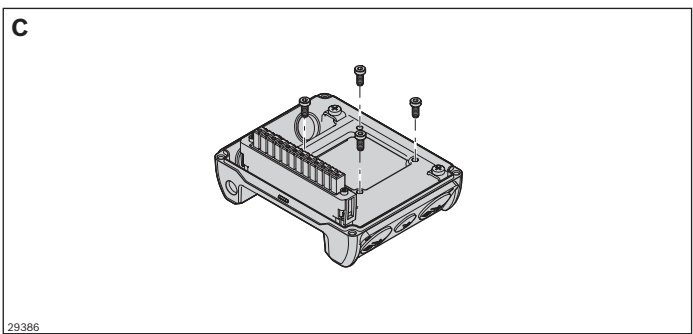


### Communication module (B)

- Used to control the frequency converter
- Cable connection options
- Standard version without "integrated safety system STO (safety torque off)" (available on request)

Depending on their function, the individual communication modules are provided with the corresponding connections.

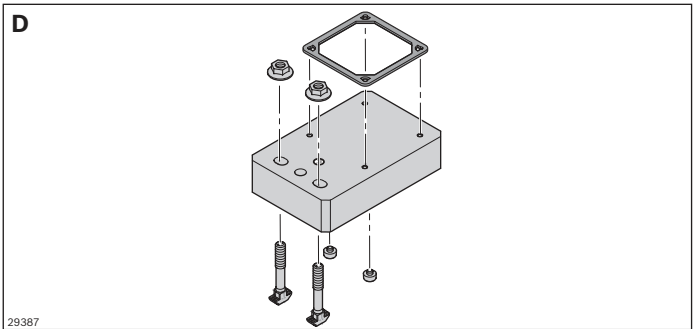
| Communication module | No.                  |
|----------------------|----------------------|
| Standard I/O         | <b>3 842 553 449</b> |
| AS-i                 | <b>3 842 553 453</b> |
| CANopen              | <b>3 842 553 454</b> |
| EtherNet/IP          | <b>3 842 553 451</b> |
| EtherCAT             | <b>3 842 553 459</b> |
| PROFIBUS             | <b>3 842 553 452</b> |
| PROFINET             | <b>3 842 553 450</b> |



**Connection unit (C)**

- Power grid connection options

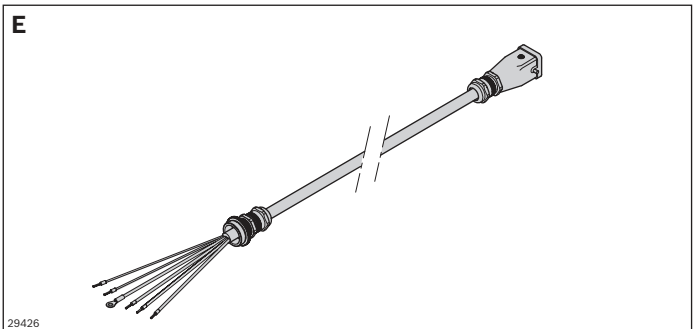
| Connection unit | No.           |
|-----------------|---------------|
|                 | 3 842 553 445 |



**Attachment kit (D)**

- For the simple attachment of the frequency converter to the leg set AL (slot/s with a 60 or 80 strut profile)

| Attachment kit | No.           |
|----------------|---------------|
|                | 3 842 553 457 |



**Connection cable (E)**

- For connecting the gear motor to the frequency converter (length: 1 m)
- For the drive kit AT = S (direct wiring with AT = K)

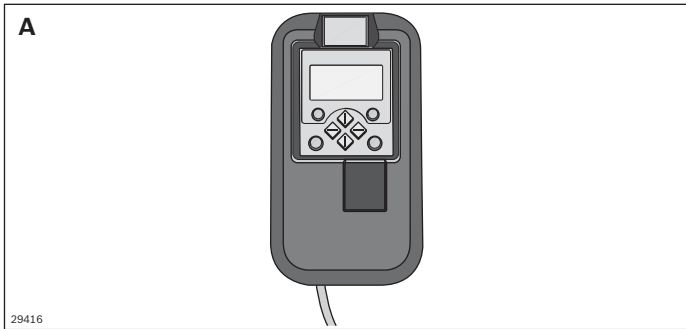
| Connection cable | No.           |
|------------------|---------------|
|                  | 3 842 553 512 |

# Manual control unit

## Switching/potentiometer unit



3



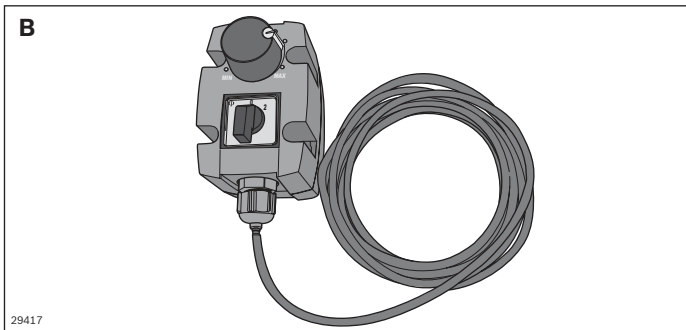
### Manual control unit

The manual control unit is required for the parameterization of drives with frequency converters.

In addition, you can:

- Control (e.g. block and release)
- Display operating data
- Steplessly regulate the transport speed
- Transfer parameter sets to other basic devices

| Manual control unit | No.           |
|---------------------|---------------|
|                     | 3 842 552 821 |



### Switching/potentiometer unit

The switching/potentiometer unit is used to fine tune the transport speed within a range that has been preset with the manual control unit. The switching/potentiometer unit is connected to the frequency converter by a cable. The drive can be started or stopped with the rotary switch.

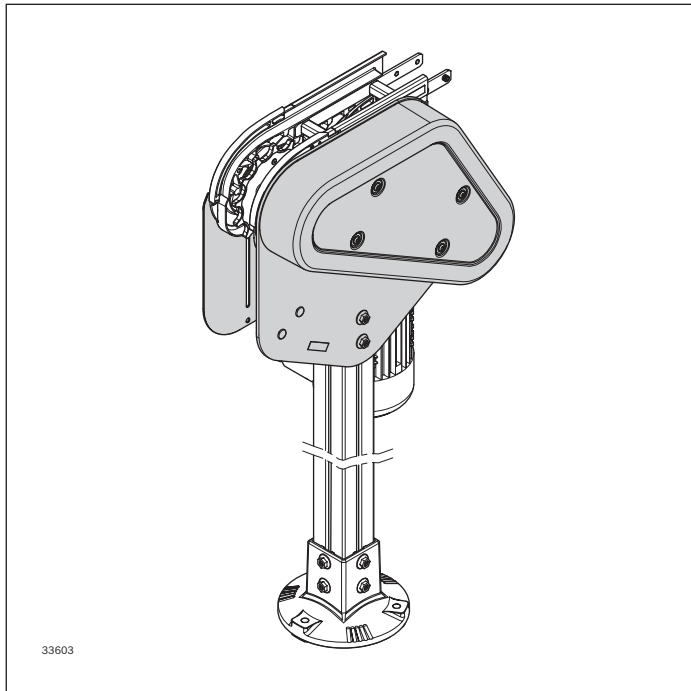
**Notice:** It is imperative that the running direction of the chain conveyor is checked prior to start-up.

| Switching/potentiometer unit | No.           |
|------------------------------|---------------|
|                              | 3 842 553 184 |

Scope of delivery:

- **A, B:** Including 2.5 m connection cable

## Transmission kit



If the available space is not sufficient for mounting the drive kit directly on the basic unit, the transmission kit also enables conversion to a transmission drive at a later date. The basic units head drive direct and closed head drive are quickly turned into a transmission drive with variable mounting position with the transmission kit and drive kit.

- Only for AL systems
- Size: 65, 90, 120
- Can also be used in sizes 160, 240, 320 with the additional adapter 3 842 559 108
- Permissible chain tensile force:  $F_{\max} = 1250 \text{ N}$
- Support required
- Not suitable for wet operation/cleaning
- Mounting on STS version on request

- Installation of the drive kit possible on the right/left (motor, coupling, flange)
- Very quiet, as transmission takes place through toothed belt

Required accessories:

- Leg set, see p. 117

Scope of delivery:

- Including fastening material

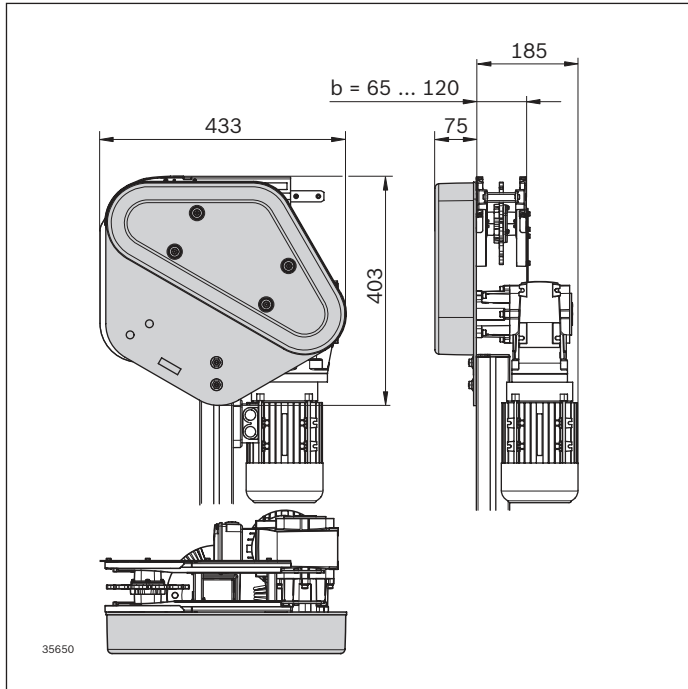
Material:

- Side plates: Non-rusting steel 1.4301
- Belt: Rubber compound
- Cover: ABS
- Connecting parts: Aluminum
- Adapter: POM, non-rusting steel 1.4301

- Ball bearing made of non-rusting steel (1.4301), with seal on both sides and FDA-compliant grease filling

Condition on delivery:

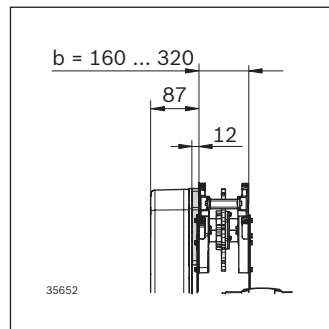
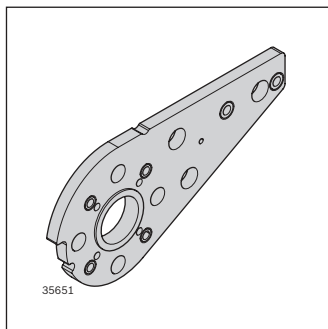
- Assembled



| Transmission kit VFplus | No.           |
|-------------------------|---------------|
|                         | 3 842 552 900 |

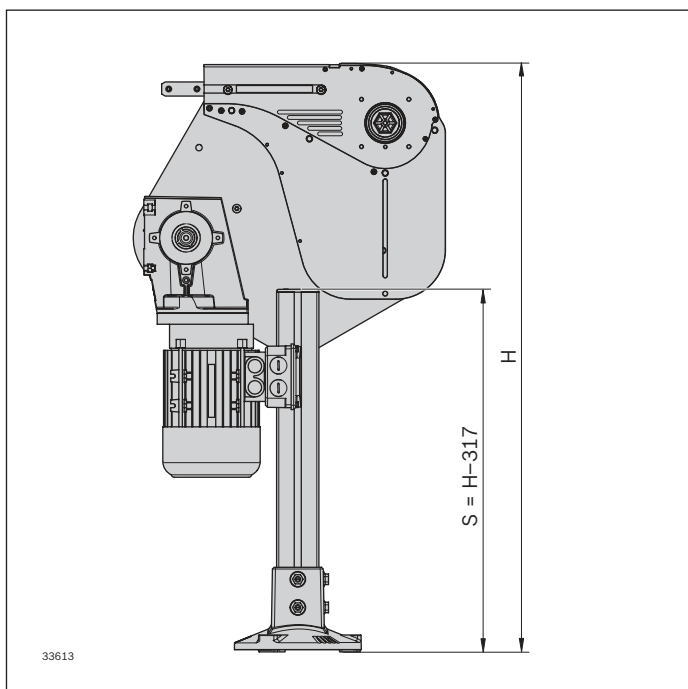
$b = 65, 90, 120$

3



| Adapter VFplus<br>Transmission AL 160-320 | No.           |
|-------------------------------------------|---------------|
|                                           | 3 842 559 108 |

$b = 160, 240, 320$



### Motor support

The support is mounted on the inside (below the chain).

**Notice:** The motor must be mounted so that there are no collisions with the support.

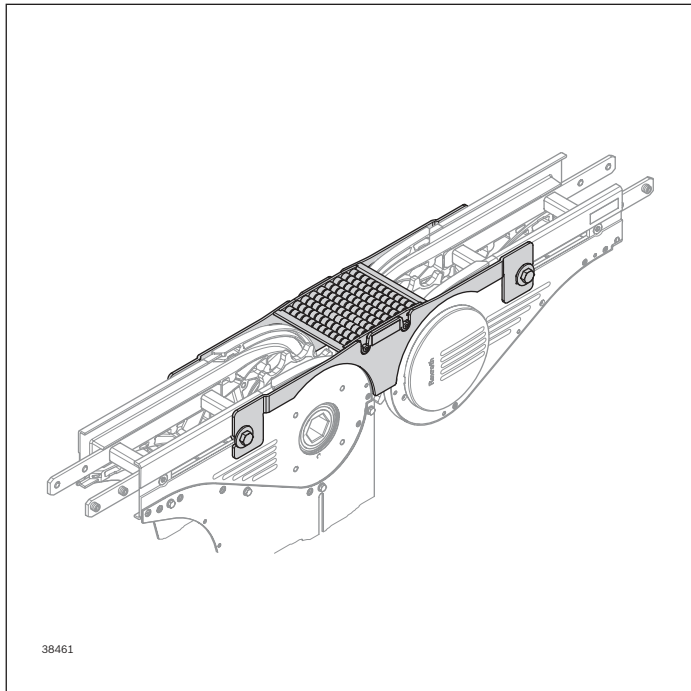
H: Transport height (top edge of chain)

S: Leg set height

L: Profile length ( $L = S - 15$ )



## Passive bridge connection kit



The passive bridge is used as a transfer unit between the basic unit and return unit or with the connection drive to bridge the conveyor trench.

- Size: 65-160
- Only for flat conveyor chain and static friction chain
- For dimensionally stable products with an even transport surface
- Height adjustment: Approx. 2 mm
- The conveyed goods are transferred via passive rollers
- Suitable for goods from approx. 300 mm length

- Can be retrofitted into a standard configuration at any time

Scope of delivery:

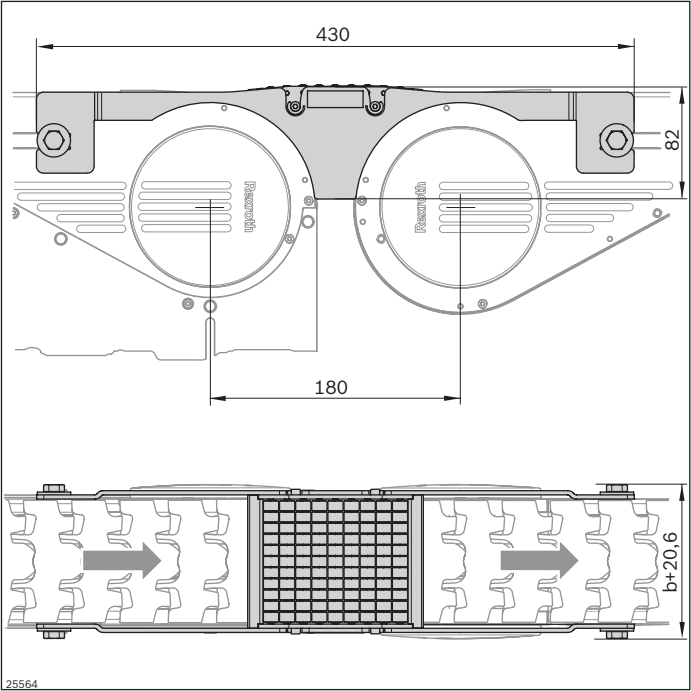
- Including fastening material

Material:

- Non-rusting steel 1.4301, POM

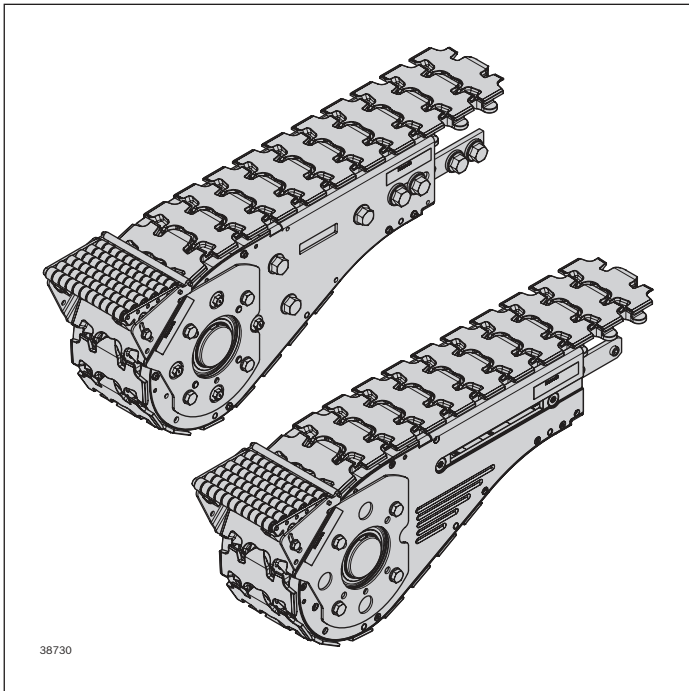
Condition on delivery:

- Some assembly required



| Passive bridge connection kit | No.           |
|-------------------------------|---------------|
| VFplus 65                     | 3 842 549 015 |
| VFplus 90                     | 3 842 549 016 |
| VFplus 120                    | 3 842 549 017 |
| VFplus 160                    | 3 842 549 018 |

## Short passive bridge connection kit



The short passive bridge is used as a transfer unit between the basic unit or return unit and a third-party conveyor to bridge the conveyor trench.

- Size: 65-160
- Each in a separate version for a flat conveyor chain and static friction chain
- For dimensionally stable products with an even transport surface
- The conveyed goods are transferred via passive rollers
- Suitable for goods from approx. 150 mm length
- Inclination adjustment  $\pm 15^\circ$  (only the gradient)

- Can be retrofitted into the basic unit and return unit at any time (cannot be combined with the transmission kit)
- Suitable for mounting on AL and STS

### Scope of delivery:

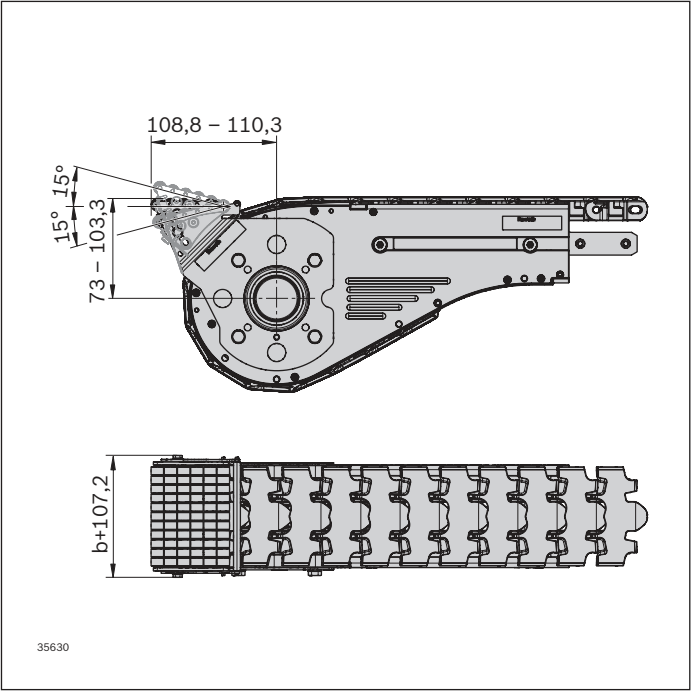
- Including fastening material

### Condition on delivery:

- Some assembly required

### Material:

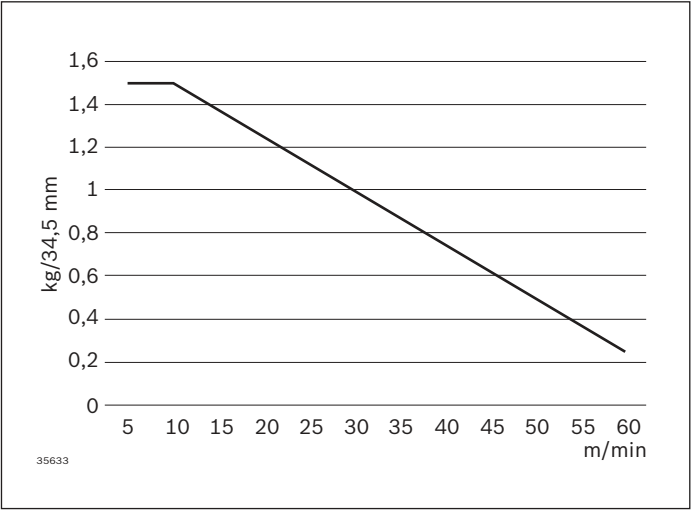
- Non-rusting steel 1.4301, POM



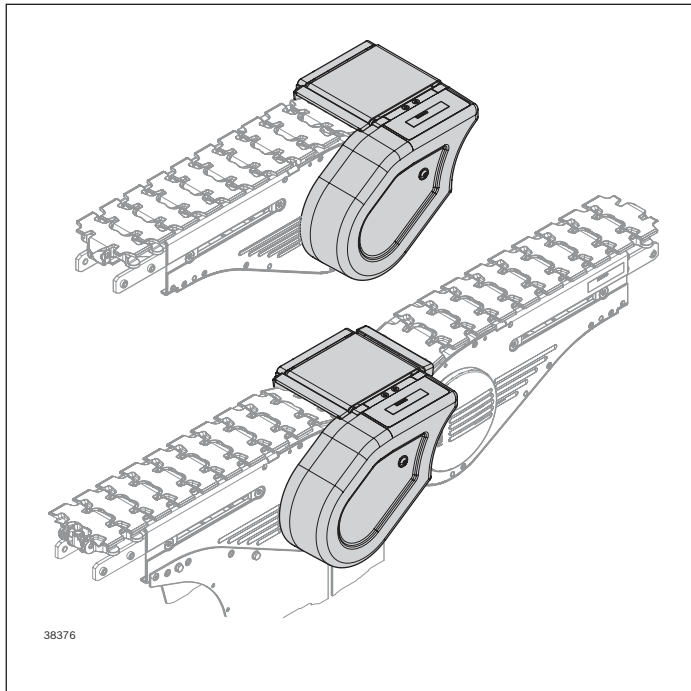
| Short passive bridge connection<br>kit for flat conveyor chain | No.           |
|----------------------------------------------------------------|---------------|
| VFplus 65                                                      | 3 842 558 050 |
| VFplus 90                                                      | 3 842 558 051 |
| VFplus 120                                                     | 3 842 558 052 |
| VFplus 160                                                     | 3 842 558 053 |

| Short passive bridge connection<br>kit for static friction chain | No.           |
|------------------------------------------------------------------|---------------|
| VFplus 65                                                        | 3 842 558 078 |
| VFplus 90                                                        | 3 842 558 079 |
| VFplus 120                                                       | 3 842 558 080 |
| VFplus 160                                                       | 3 842 558 081 |

**Permissible load depending on the speed**



## Connection kit active belt bridge



- ▶ Simple transmission of the drive force using hexagonal hollow shafts integrated into the base unit or return unit as standard
- ▶ Can be retrofitted into a standard configuration at any time
- ▶ Easy replacement of the belt from the top

### Scope of delivery:

- Including fastening material
- Transmission and protective cover

### Material:

- Aluminum, non-rusting steel 1.4301, PA, PE, ABS, PUR

The active belt bridge is used as a transfer unit for bridging the conveyor trench

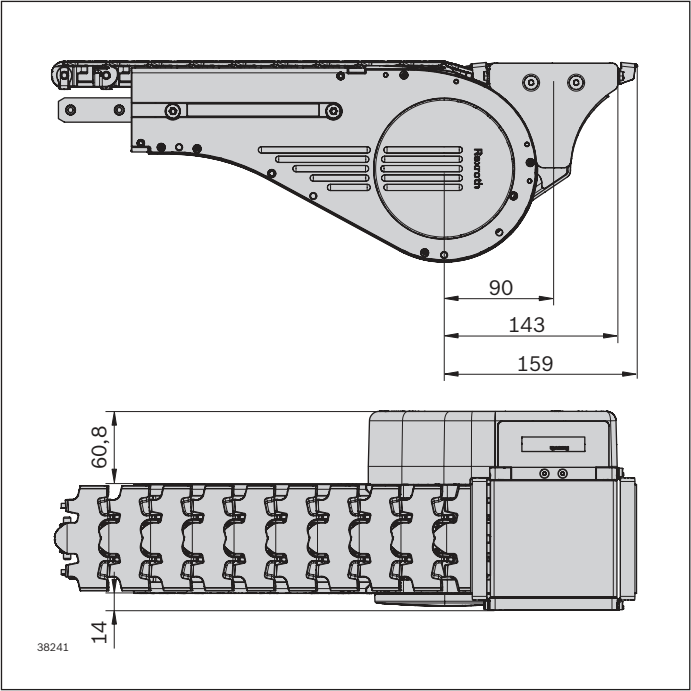
- between the basic unit and return unit
- between the start or end of a conveyor section and a third-party conveyor
- in the connection drive
- Size: 65, 90
- Only for flat conveyor chain and static friction chain

The active belt bridge is driven by a transmission (on the drive or return unit side).

- Suitable for conveyed materials from approx. 80 mm in length (depending on the speed, position of the center of gravity, product friction, etc.)
- Installation possible on both the drive and return side (make sure to use the correct L/R version)
- Not permitted for wet operation, rough ambient conditions or sharp-edged products
- Load depending on the speed (see diagram)
- The speed of the adjacent conveyor should be approximately the same to prevent premature wear

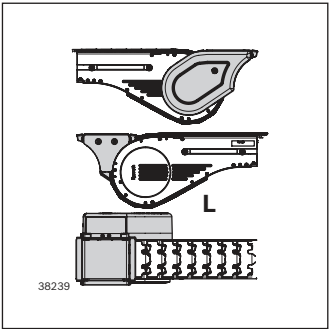
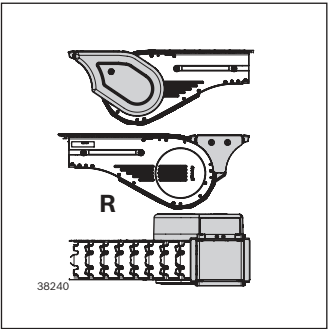
### Condition on delivery:

- Some assembly required

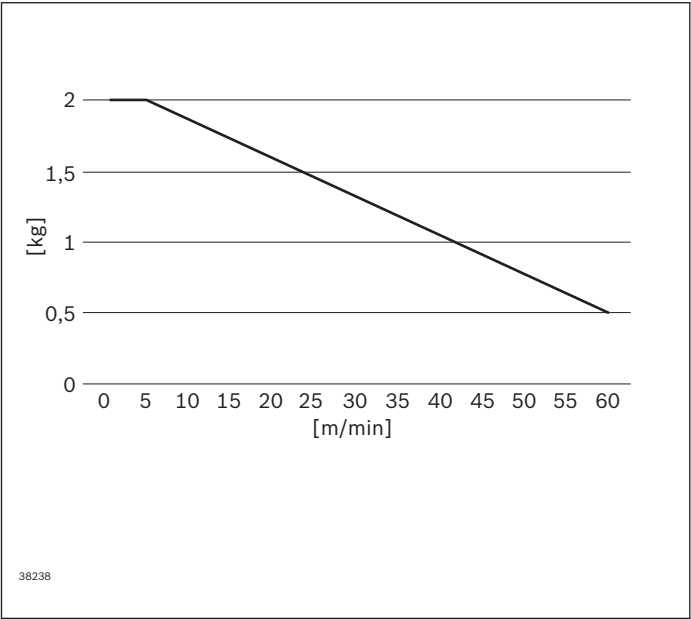


| Connection kit<br>active belt bridge |   | No.           |
|--------------------------------------|---|---------------|
| VFplus 65                            | L | 3 842 558 000 |
| VFplus 65                            | R | 3 842 558 001 |
| VFplus 90                            | L | 3 842 558 002 |
| VFplus 90                            | R | 3 842 558 003 |

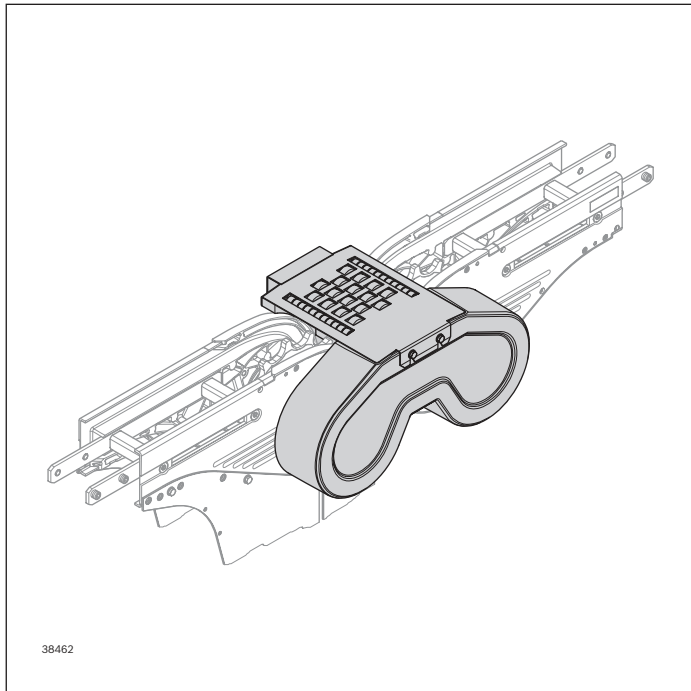
3



**Permissible load depending on the speed**



## Active roller bridge connection kit



The active roller bridge is used as a transfer unit between the basic unit and return unit or with the connection drive to bridge the conveyor trench. The active roller bridge is driven by a transmission (on the drive or return unit side).

- Size: 65-160
- Only for flat conveyor chain and static friction chain
- For dimensionally stable products with an even transport surface
- Height adjustment: Approx. 2 mm
- Additional versions (e.g. machine variants at the section end) available on request
- Suitable for conveyed materials from approx. 100 mm in length (depending on the speed, position of the center of gravity, product friction, etc.)
- Freely selectable mounting position (L/R)
- Not permitted for wet operation or rough ambient conditions

- Simple transmission of the drive force using hexagonal hollow shafts integrated into the base unit or return unit as standard

- Can be retrofitted into a standard configuration at any time

### Scope of delivery:

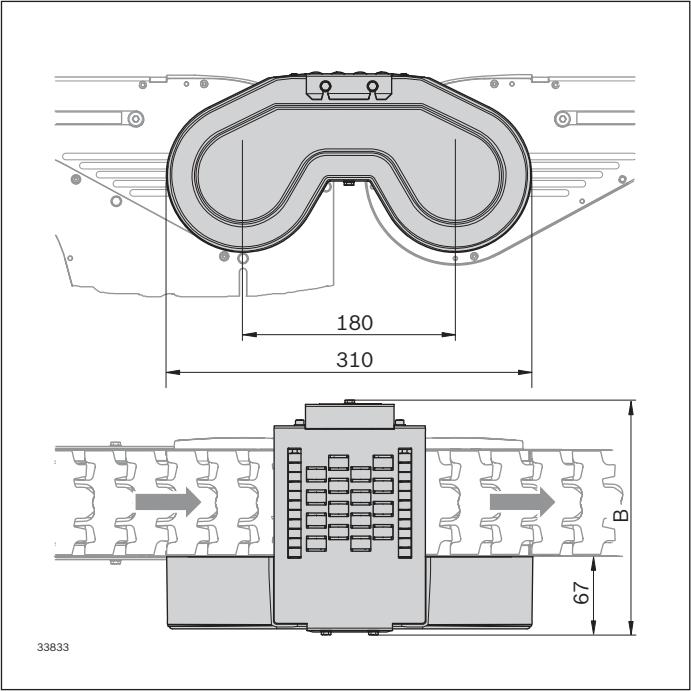
- Including fastening material
- Transmission and protective cover

### Condition on delivery:

- Some assembly required

### Material:

- Non-rusting steel 1.4301, PA, POM, ABS, PUR

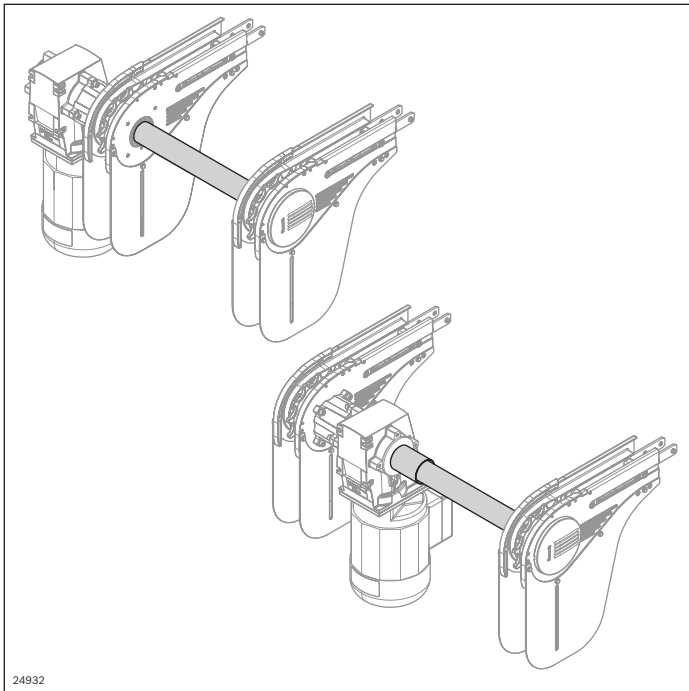


| Active roller bridge<br>connection kit | B   | No.           |
|----------------------------------------|-----|---------------|
| VFplus 65                              | 174 | 3 842 555 820 |
| VFplus 90                              | 199 | 3 842 555 821 |
| VFplus 120                             | 229 | 3 842 555 822 |
| VFplus 160                             | 269 | 3 842 555 823 |

3



## Synchronous drive Connection kit, external motor/internal motor



The connection kit for a synchronous drive is used to synchronously drive two conveyor sections with only one motor.

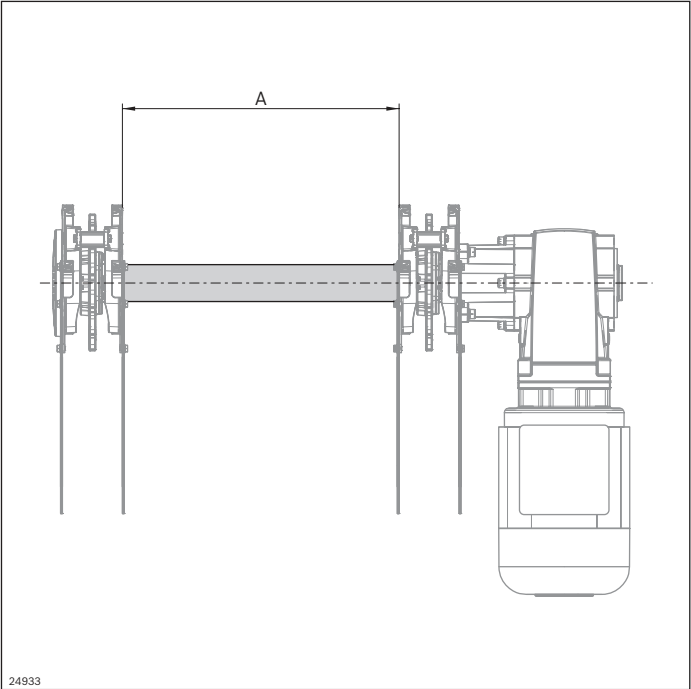
- Exterior synchronous drive:
  - Motor mounting position outside the parallel sections
  - Use of holders AL (see p. 117, 121), minimum distance between the sections:  
 $A_{\min AL} \geq 20 \text{ mm}$
- Internal synchronous drive:
  - Motor mounting position between the parallel sections for drive kit GM = 1 (see p. 92), customer check required for other motor types

Condition on delivery:

- Assembly required

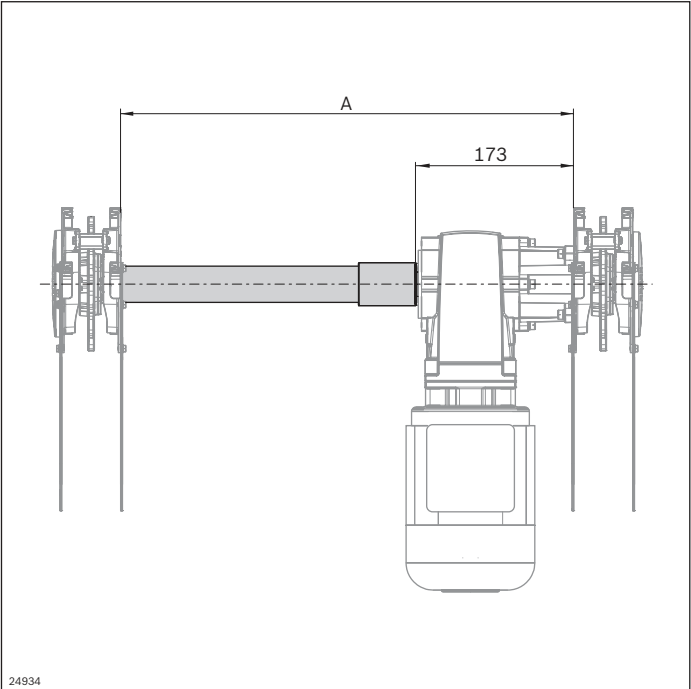
Material:

- Shaft: Non-rusting steel 1.4301
- Coupling: PA



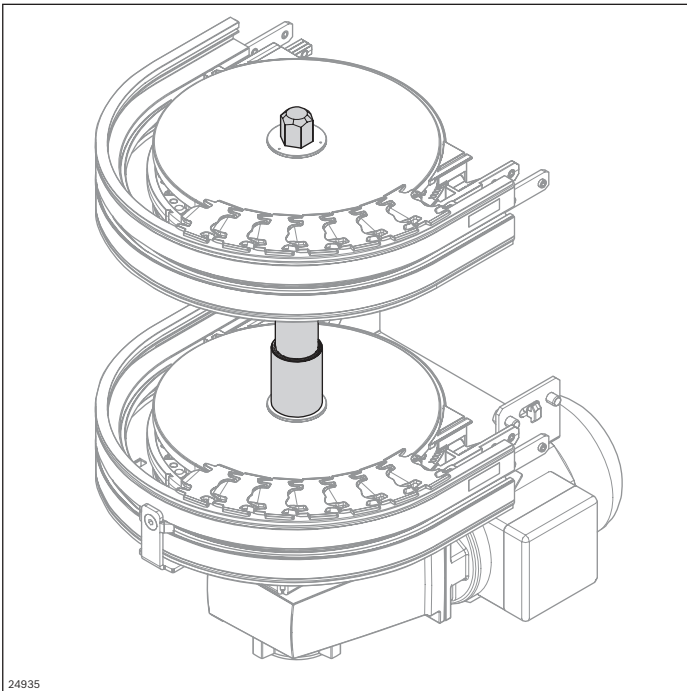
| Synchronous drive connection kit | A (mm)      | No.                  |
|----------------------------------|-------------|----------------------|
| VFplus external motor            | 15 ... 2940 | <b>3 842 998 774</b> |

3



| Synchronous drive connection kit | A (mm)       | No.                  |
|----------------------------------|--------------|----------------------|
| VFplus internal motor            | 240 ... 3160 | <b>3 842 998 775</b> |

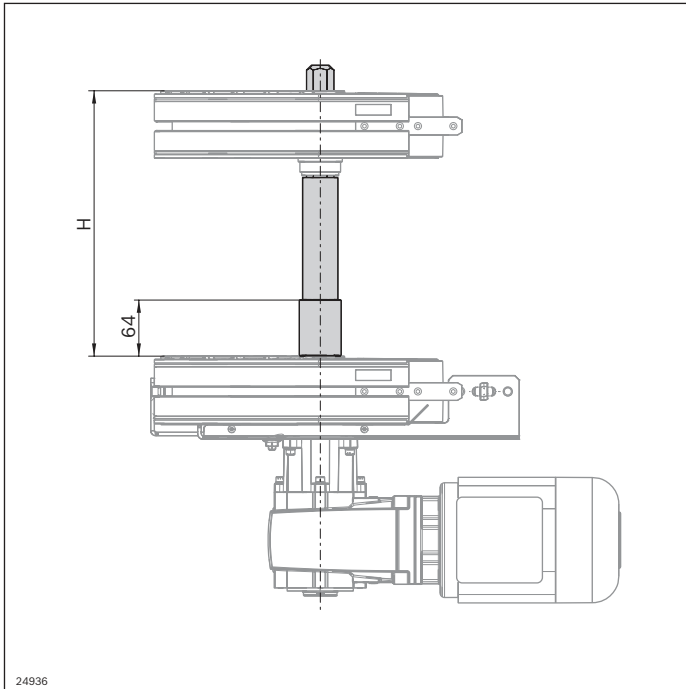
## Alpine conveyor connection kit



With the alpine conveyor connection kit, an alpine conveyor in the sizes 65 mm or 90 mm can be easily mounted by combining several basic units of curve wheel drive AL.

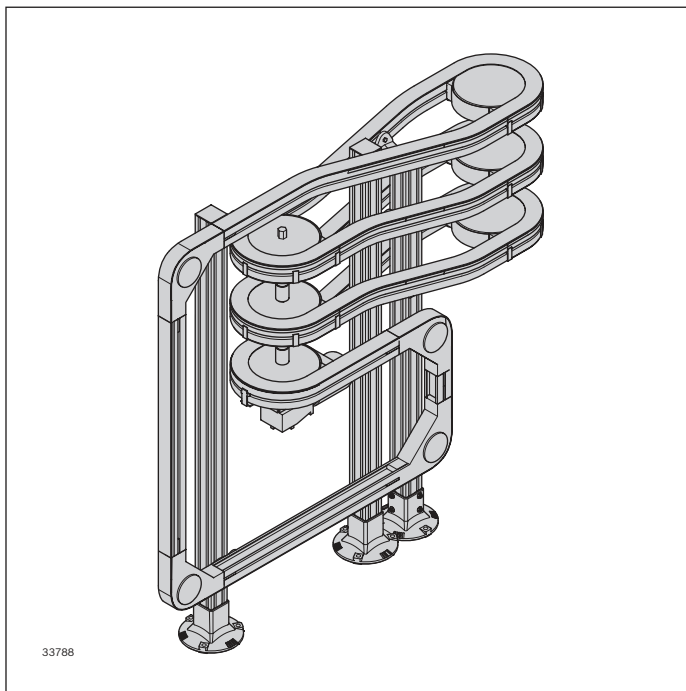
### Material:

- Shaft: Non-rusting steel 1.4301
- Coupling: Polyamide

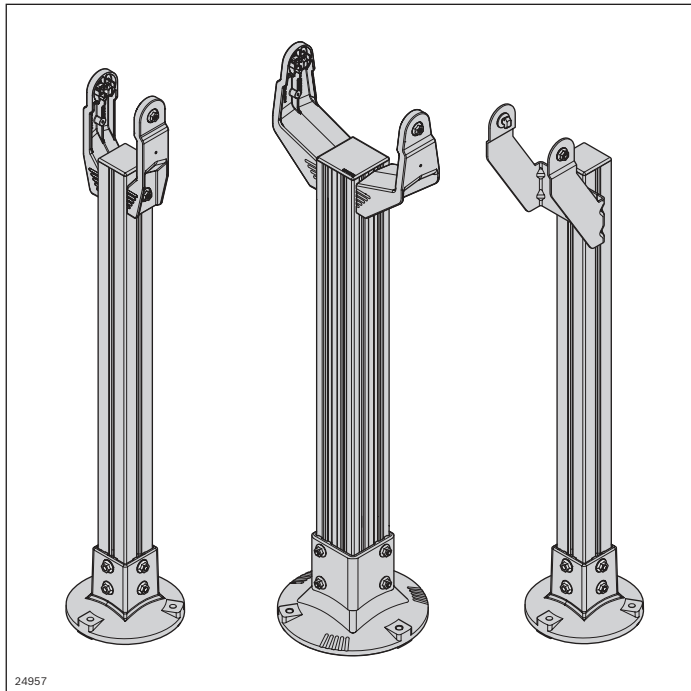


| Alpine conveyor AC connection kit | H (mm)       | No.                  |
|-----------------------------------|--------------|----------------------|
|                                   | 172 ... 1000 | <b>3 842 998 776</b> |

3

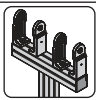


## Leg sets AL

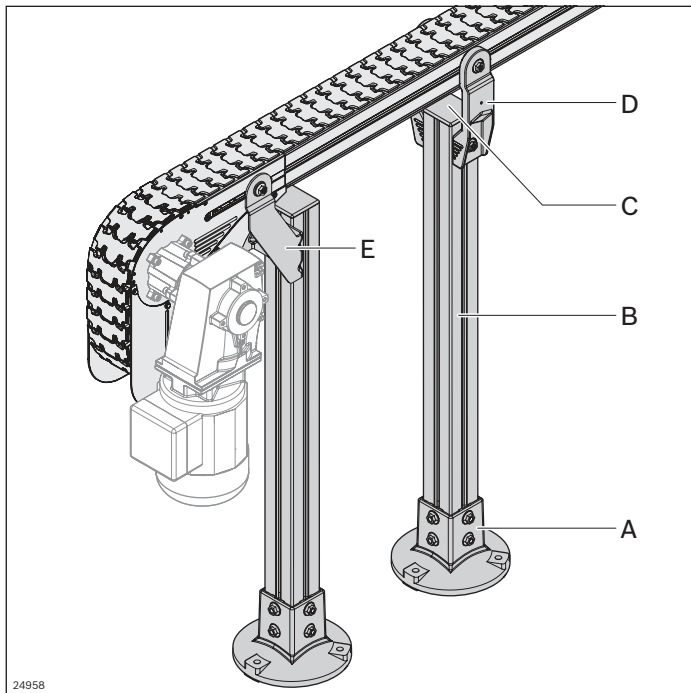


- ▶ Fast, simple leg set adjustment thanks to clever product details
- ▶ Plug-through screws, few screwed connections
- ▶ Easy to clean thanks to ample draining surfaces
- ▶ Simple realization of ascending and descending conveyor sections thanks to a holder with centering lugs that can be broken off
- ▶ Drill guide for simple fastening of drip trays, safety devices, etc.
- ▶ Supports can also be used in conjunction with sections STS

24957

|                                                                                    |                                       |            |
|------------------------------------------------------------------------------------|---------------------------------------|------------|
|   | <b>Leg set 65-120 AL</b>              | <b>116</b> |
|   | <b>Curve wheel drive leg set</b>      | <b>119</b> |
|   | <b>Leg set 160-320 AL</b>             | <b>120</b> |
|   | <b>Supporting bracket AL</b>          | <b>122</b> |
|  | <b>Supporting bracket, lateral AL</b> | <b>124</b> |

## Leg set 65-120 AL



- ▶ Holder is easily centered in the slot thanks to centering lugs (**D**)
- ▶ Very simple assembly with plug-in screwed connection (**D**)
- ▶ Easy-to-clean design with draining surfaces

### Optional accessories:

- Dowel, washer, see p. 118

Alternative feet (see MGE catalog, "Feet and wheels" section)

### Scope of delivery:

- **A, E:** Including fastening material
- **D:** Set (2 pcs) incl. fastening material

The chain conveyor is placed on the ground by means of supports (and fastened) or even suspended from the ceiling. The suspension is determined by the application. The floor supports for sizes 65, 90 and 120 are constructed from the following single parts:

Foot 60x60 (**A**), strut profile 60x60 (**B**), cover cap (**C**), holder for attaching the section profiles (**D**) 65, 90 or 120. A separate holder (**E**) is used to support the motors / drives.

- Depending on the speed, accumulation behavior and weight, the supports are to be fixed at a distance of approx. 2 ... 3 m
- The leg sets for the stainless steel system (see p. 182) may also be used for the aluminum system
- The holder (**E**) may only be used for AL systems
- The height adjustment range is up to 79 mm (**D**), depending on the return chain, see "Holder adjustment range" p. 118
- The holder (**D**) can also be used for ascending and descending conveyor sections (up to approx. 45°, depending on the return chain) by removing the centering lugs
- Holder (**D**) with drill guide for additional holes to fasten drip trays, trap guards for return chains, etc.

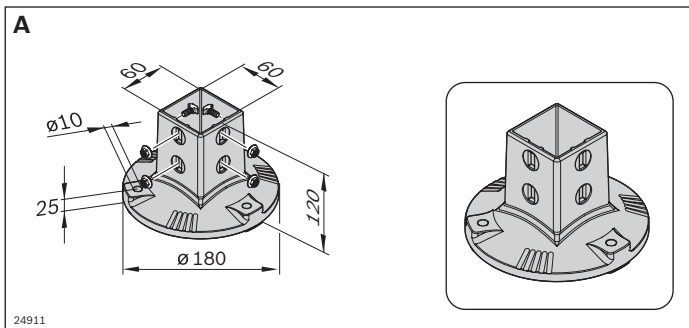
See also setting up the supports for systems ESD, page 202.

### Condition on delivery:

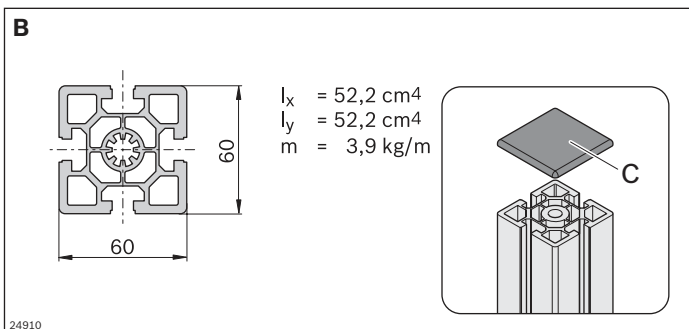
- Assembly required

### Material:

- **A, D:** Diecast aluminum; silver
- **B:** Aluminum; natural, anodized
- **C:** PA; black
- **E:** Steel; zinc-plated

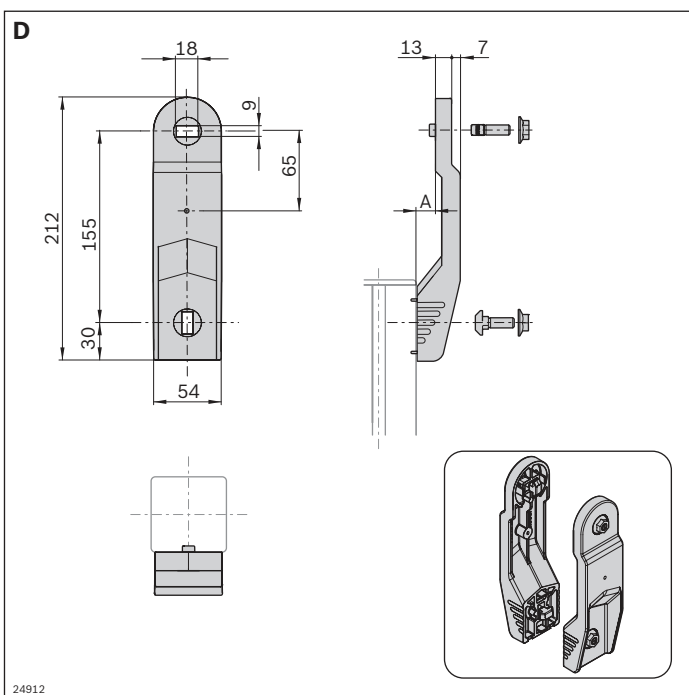


| Foot AL      |   | No.           |
|--------------|---|---------------|
| VFplus 60x60 | 1 | 3 842 544 875 |

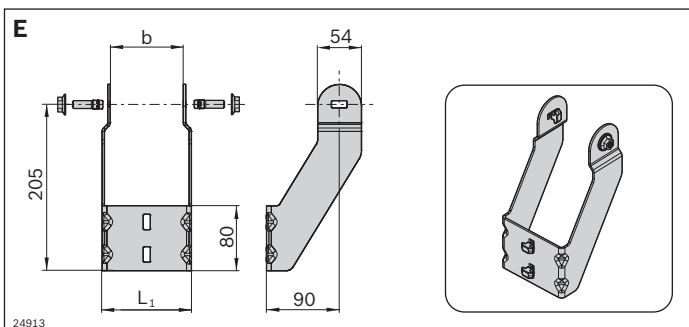


| Strut profile AL 60x60 | L (mm)      | No.             |
|------------------------|-------------|-----------------|
| 20 pcs                 | 6070        | 3 842 557 202   |
| 1 pc                   | 50 ... 6070 | 3 842 990 350/L |

| Cover cap                 | No.               |
|---------------------------|-------------------|
| VFplus 60x60, signal gray | 100 3 842 548 810 |

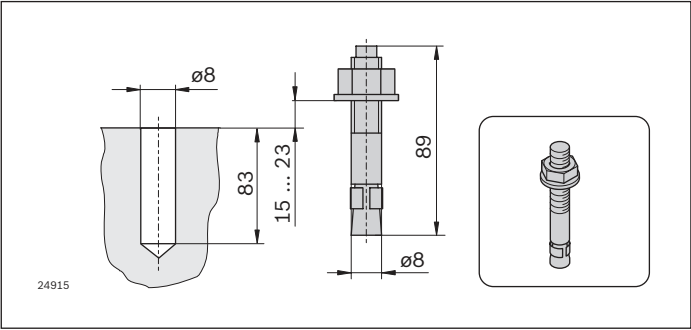


| Holder AL  | b (mm) | A (mm)  | No.           |
|------------|--------|---------|---------------|
| VFplus 65  | 65     | 2.5 Set | 3 842 546 625 |
| VFplus 90  | 90     | 15 Set  | 3 842 546 626 |
| VFplus 120 | 120    | 30 Set  | 3 842 546 627 |

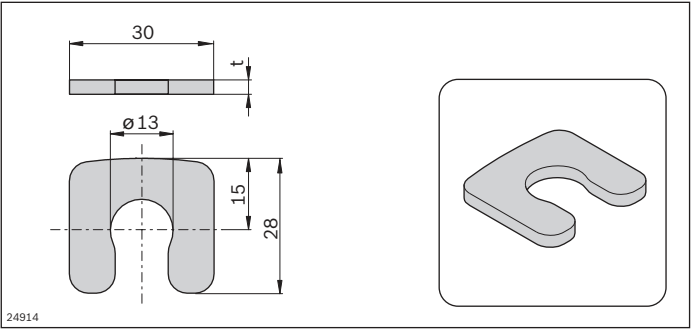


| Holder engine support AL | b (mm) | L <sub>1</sub> (mm) | No.           |
|--------------------------|--------|---------------------|---------------|
| VFplus 65                | 65     | 85 Set              | 3 842 547 442 |
| VFplus 90                | 90     | 110 Set             | 3 842 547 443 |
| VFplus 120               | 120    | 140 Set             | 3 842 547 444 |

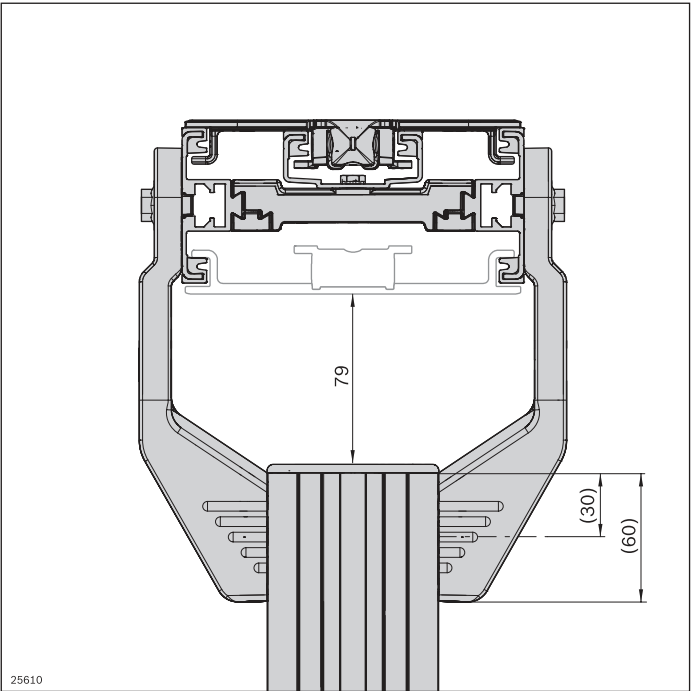




| Dowel |  | No.                  |
|-------|-------------------------------------------------------------------------------------|----------------------|
|       | 100                                                                                 | <b>3 842 540 668</b> |



| Washer | t (mm) |  | No.                  |
|--------|--------|-------------------------------------------------------------------------------------|----------------------|
|        | 1      | 100                                                                                 | <b>3 842 546 717</b> |
|        | 3      | 20                                                                                  | <b>3 842 546 718</b> |



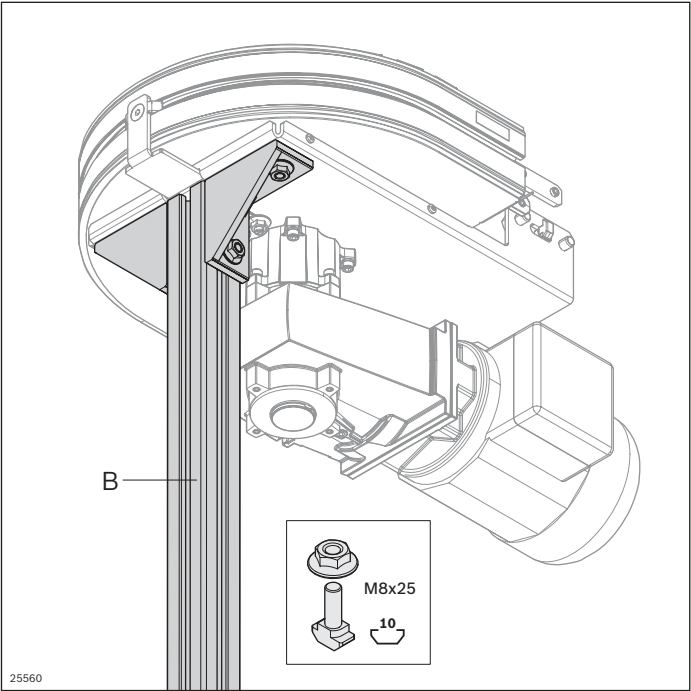
**Holder adjustment range**

The aluminum holder adjustment range shown relates to the standard installation position (holder flush with the profile end) and the use of a flat chain for horizontal running of the chain. For vertical use, the adjustment range is reduced depending on the angle.

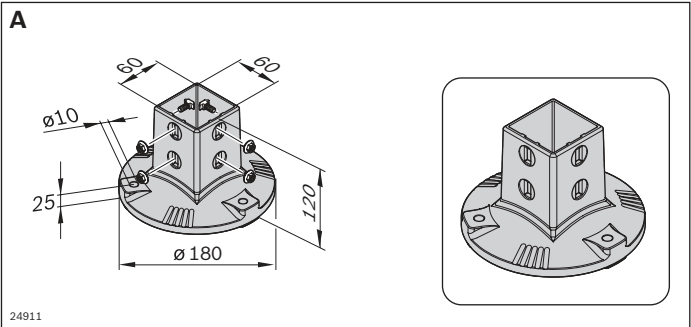
# Curve wheel drive leg set



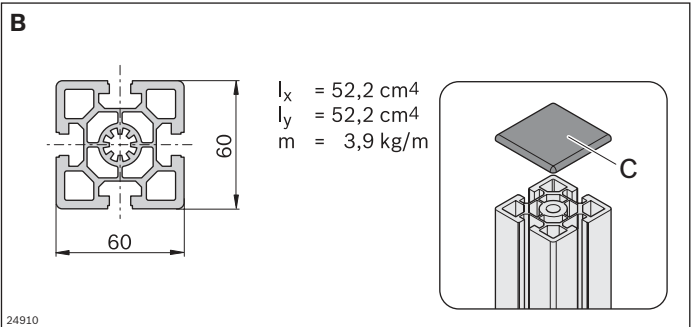
3



| Bracket 40/80  | Slot    | ESD |   | No.                  |
|----------------|---------|-----|---|----------------------|
| Set (standard) | 10 / 10 |     | 1 | <b>3 842 529 386</b> |
| designLINE set | 10 / 10 |     | 1 | <b>3 842 551 604</b> |



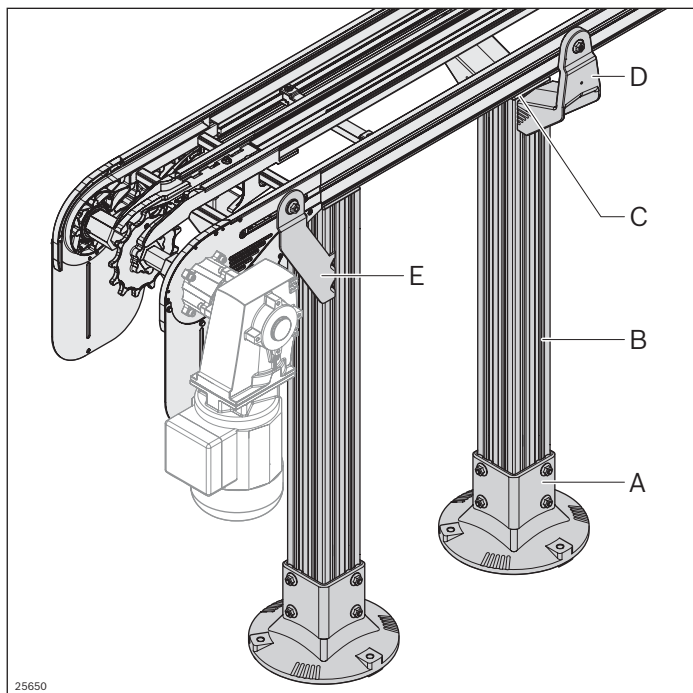
| Foot AL      |   | No.                  |
|--------------|---|----------------------|
| VFplus 60x60 | 1 | <b>3 842 544 875</b> |



| Strut profile AL 60x60 | L (mm)      | No.                    |
|------------------------|-------------|------------------------|
| 20 pcs                 | 6070        | <b>3 842 557 202</b>   |
| 1 pc                   | 50 ... 6070 | <b>3 842 990 350/L</b> |

| Cover cap                 |     | No.                  |
|---------------------------|-----|----------------------|
| VFplus 60x60, signal gray | 100 | <b>3 842 548 810</b> |

## Leg set 160-320 AL



- ▶ Holder is easily centered in the slot thanks to centering lugs (**D**)
- ▶ Very simple assembly with plug-in screwed connection (**D**)
- ▶ Easy-to-clean design with draining surfaces

### Optional accessories:

- Dowel, washer, see p. 118

### Alternative feet (see MGE catalog, "Feet and wheels" section)

### Scope of delivery:

- **A, E:** Including fastening material
- **D:** Set (2 pcs) incl. fastening material

The chain conveyor is placed on the ground by means of supports (and fastened) or even suspended from the ceiling. The suspension is determined by the application. The floor supports for sizes 160, 240 and 320 are constructed from the following individual parts: Foot 80x80 (**A**), strut profile 80x80L (**B**), cover cap (**C**), holder for attaching the section profiles (**D**) 160, 240 or 320.

A separate holder (**E**) is used to support the motors/drives

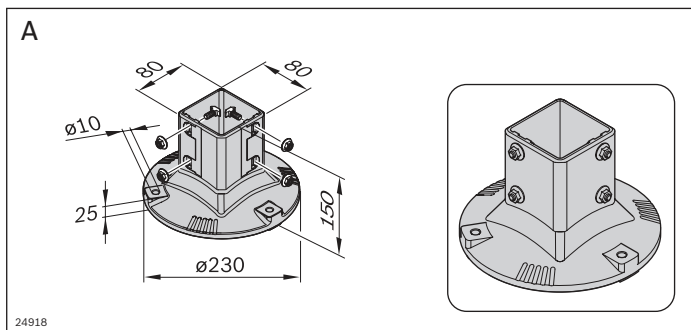
- Depending on the speed, accumulation behavior and weight, the supports are to be fixed at a distance of approx. 2 ... 3 m
- The leg sets for the stainless steel system (see p. 182) may also be used for the aluminum system
- The holder (**E**) may only be used for AL systems
- The height adjustment range is up to 79 mm (**D**), depending on the return chain, see p. 118
- The holder (**D**) can also be used for ascending and descending conveyor sections (up to approx. 45°, depending on the return chain) by removing the centering lugs
- Holder (**D**) with drill guide for additional holes to fasten drip trays, trap guards for return chains, etc.

### Condition on delivery:

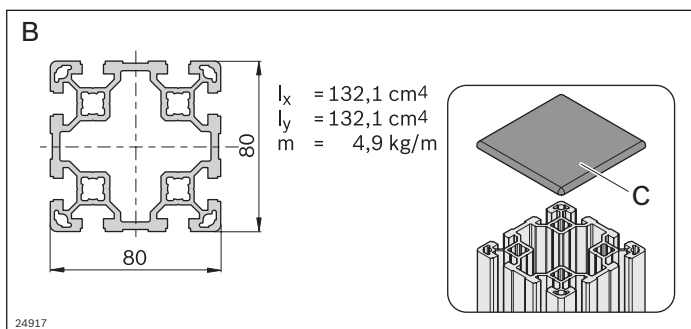
- Assembly required

### Material:

- **A, D:** Diecast aluminum; silver
- **B:** Aluminum; natural, anodized
- **C:** PA; black
- **E:** Steel; zinc-plated

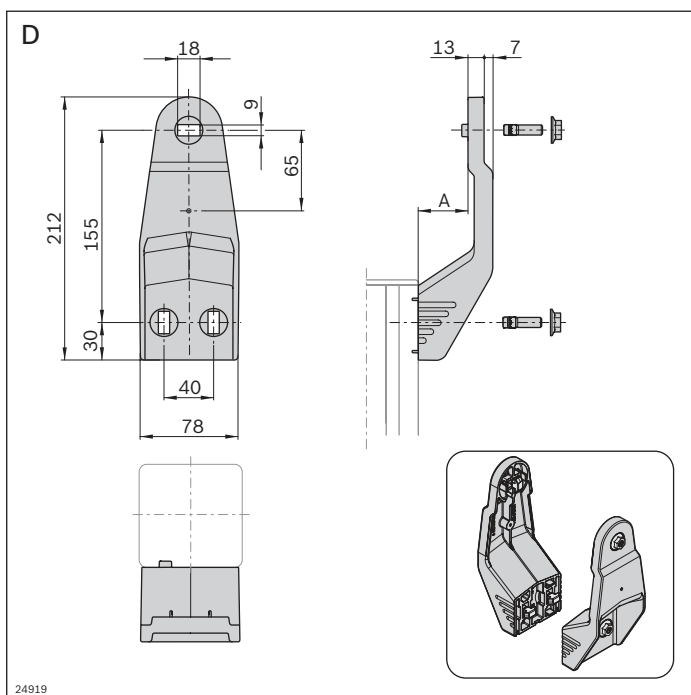


| Foot AL      | No.                    |
|--------------|------------------------|
| VFplus 80x80 | 1 <b>3 842 540 173</b> |

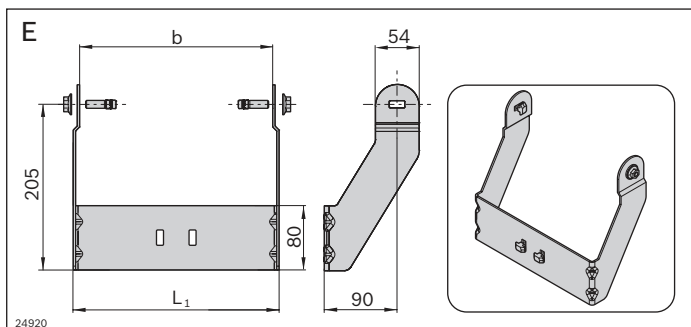


| Strut profile AL 80x80 L | L (mm)      | No.                    |
|--------------------------|-------------|------------------------|
| 6 pcs                    | 6070        | <b>3 842 529 347</b>   |
| 1 pc                     | 50 ... 6000 | <b>3 842 993 133/L</b> |

| Cover cap                 | No.                     |
|---------------------------|-------------------------|
| VFplus 80x80, signal gray | 20 <b>3 842 548 750</b> |

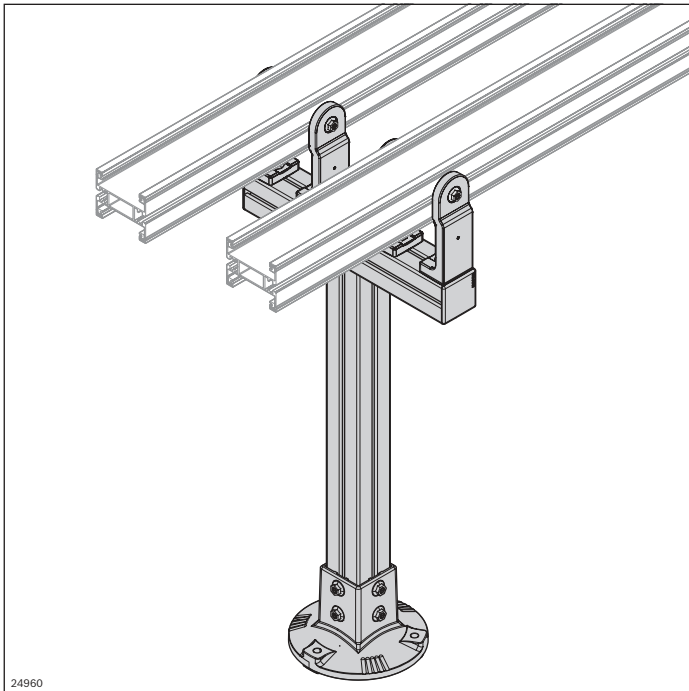


| Holder AL  | b (mm) | A (mm) | No.                      |
|------------|--------|--------|--------------------------|
| VFplus 160 | 160    | 40     | Set <b>3 842 546 628</b> |
| VFplus 240 | 240    | 80     | Set <b>3 842 546 629</b> |
| VFplus 320 | 320    | 120    | Set <b>3 842 546 630</b> |



| Holder engine support AL | b (mm) | L <sub>1</sub> (mm) | No.                      |
|--------------------------|--------|---------------------|--------------------------|
| VFplus 160               | 160    | 180                 | Set <b>3 842 547 445</b> |
| VFplus 240               | 240    | 260                 | Set <b>3 842 547 446</b> |
| VFplus 320               | 320    | 340                 | Set <b>3 842 547 447</b> |

## Supporting bracket AL



Several parallel sections can be assembled on a horizontal profile with the supporting bracket.

- The distance of the supporting bracket in the conveying direction is approx. 2-3 m, depending on the speed, accumulation behavior and weight
- The supporting brackets can also be used for ascending and descending conveyor sections (up to about 45°, depending on the returning chain) by removing the centering lugs

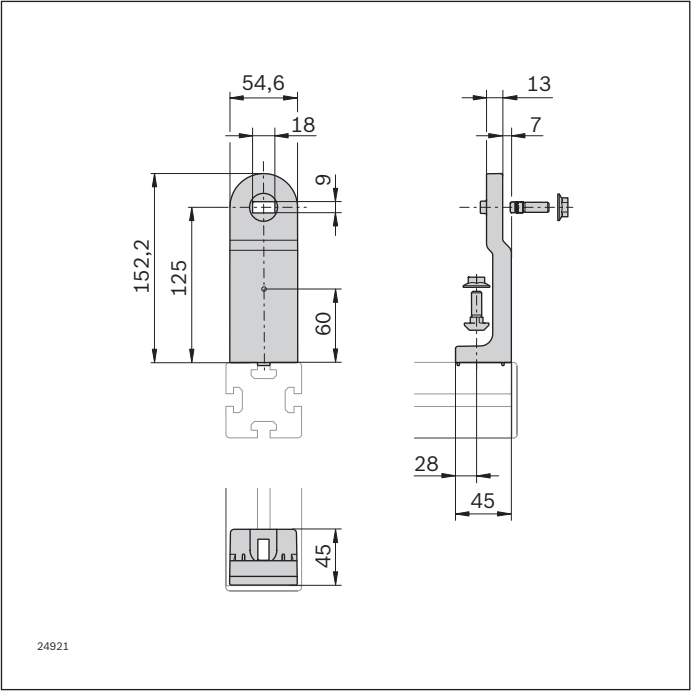
- ▶ Supporting bracket is easily centered in the slot thanks to centering lugs
- ▶ Very simple assembly thanks to pluggable screwed connection
- ▶ Easy-to-clean design with draining surfaces

Scope of delivery:

- Including fastening material

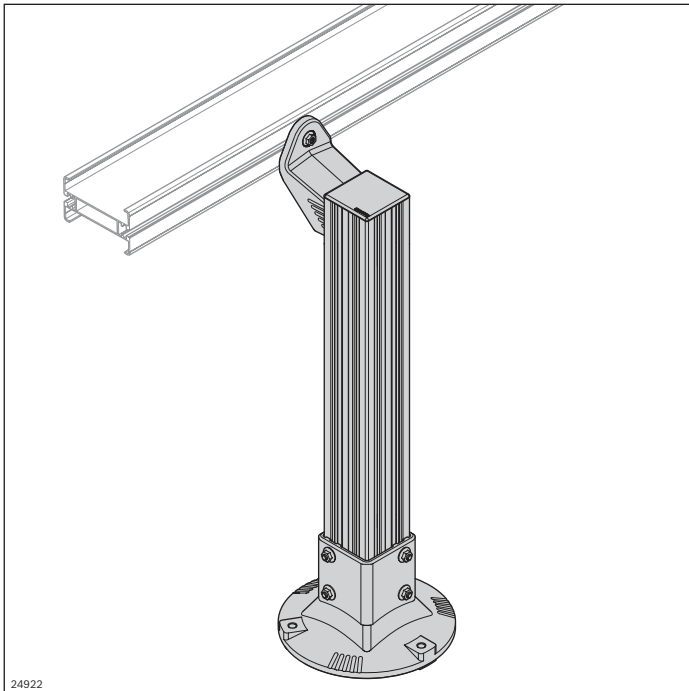
Material:

- Diecast aluminum; silver



| Supporting bracket VFplus AL |  | No.           |
|------------------------------|--|---------------|
| Set                          |  | 3 842 546 632 |

## Supporting bracket, lateral AL



The lateral supporting bracket is for mounting on a vertical strut profile 80x80. It is suitable for the construction of an alpine conveyor, for example.

- In the case of one-sided attachment, the lateral supporting bracket is only permitted for sizes up to 120
- The lateral supporting bracket can also be used for ascending and descending conveyor sections (up to approx. 45°) by removing the centering lugs

- Supporting bracket is easily centered in the slot thanks to centering lugs
- Very simple assembly thanks to pluggable screwed connection

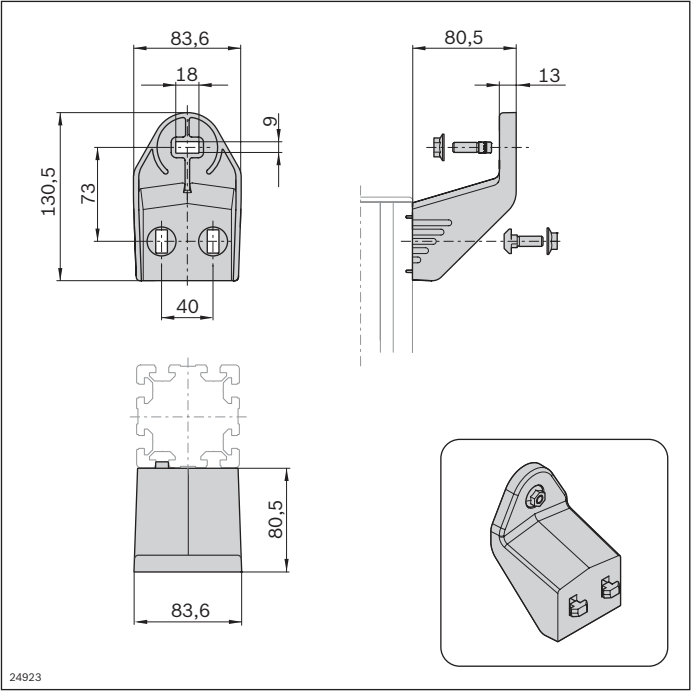
- Easy-to-clean design with draining surfaces

Scope of delivery:

- Including fastening material

Material:

- Diecast aluminum; silver

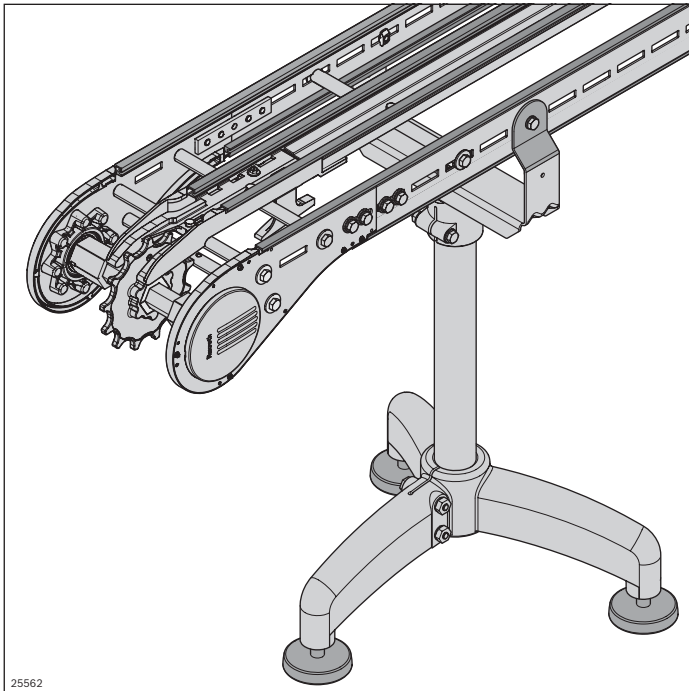


|                           |                                                                                                |
|---------------------------|------------------------------------------------------------------------------------------------|
| <b>Supporting bracket</b> |                                                                                                |
| <b>VFplus lateral AL</b>  |  <b>No.</b> |
| <hr/>                     |                                                                                                |
| Set <b>3 842 547 461</b>  |                                                                                                |
| <hr/>                     |                                                                                                |



# Stainless steel system (STS)

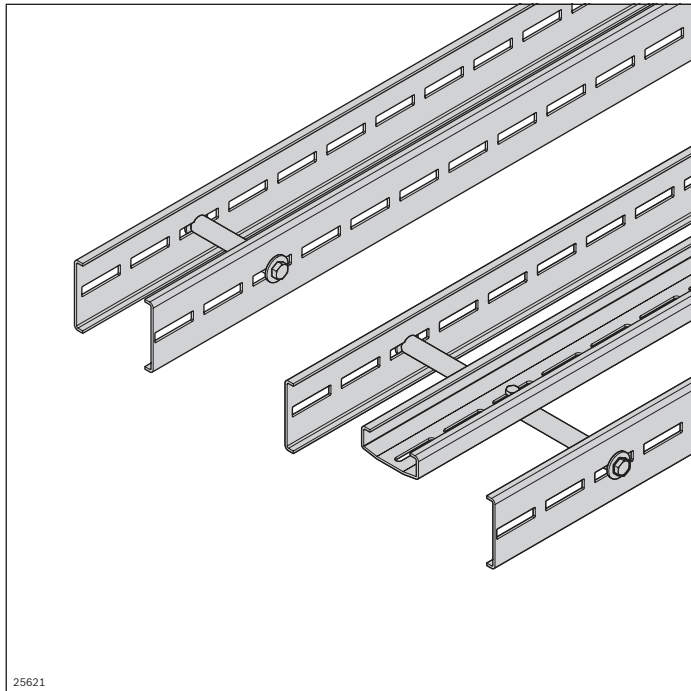
## VarioFlow *plus*



- ▶ FDA-compliant materials and easy-to-clean surfaces fulfill the high standards in the areas of the food & packaging and health & care industries where hygiene is crucial
- ▶ Mounting of sliding rails without rivets or the need to machine the track bearing surfaces
- ▶ Minimal sliding rail interruptions
- ▶ FDA-compliant, low-friction materials for components subject to constant friction
- ▶ Standardized components that can be used universally
- ▶ Continuous product range in the sizes 65, 90, 120, 160, 240, 320

|                                                                                   |                                  |            |
|-----------------------------------------------------------------------------------|----------------------------------|------------|
|  | <b>Sections STS</b>              | <b>128</b> |
|  | <b>Curves STS</b>                | <b>140</b> |
|  | <b>Drive and return unit STS</b> | <b>150</b> |
|  | <b>Leg set STS</b>               | <b>180</b> |

## Sections STS



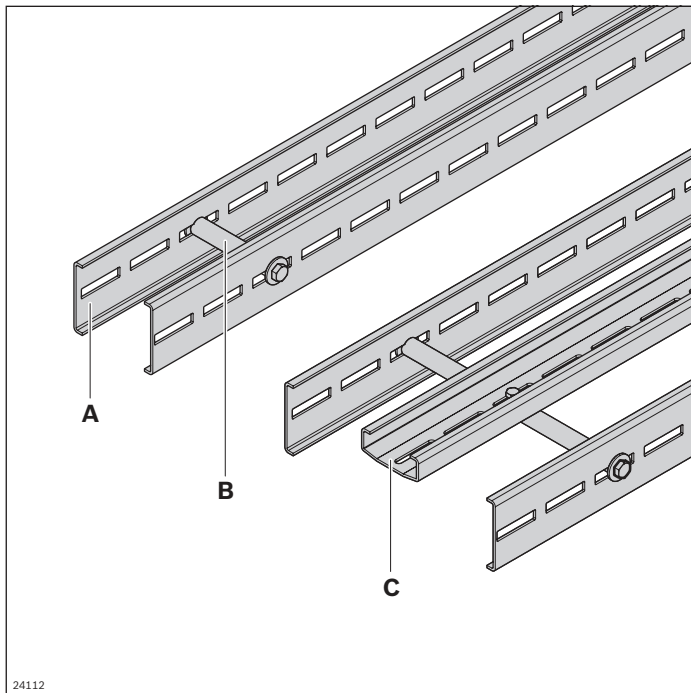
- ▶ Easy-to-clean sections due to largely media-resistant components
- ▶ Mounting of sliding rails without rivets or the need to machine the track bearing surfaces
- ▶ Sliding rails with optimized anti-friction properties and FDA-compliant materials
- ▶ One sliding rail cross-section for all sizes
- ▶ Few screwed connections
- ▶ One profile cross-section for all sizes
- ▶ Use of a support profile from size 160

|                                                                                     |                                  |            |
|-------------------------------------------------------------------------------------|----------------------------------|------------|
|    | <b>Section profile STS open</b>  | <b>130</b> |
|    | <b>Section profile STS Clean</b> | <b>132</b> |
|    | <b>Sliding rail</b>              | <b>134</b> |
|    | <b>Steel sliding rail</b>        | <b>136</b> |
|  | <b>Profile connector STS</b>     | <b>138</b> |
|  | <b>Assembly module STS</b>       | <b>139</b> |

# Section profile STS open

## Cross connector STS

## Support profile STS



The open construction of the section profile **(A)** allows dirt or foreign particles to be removed directly.

To build a conveyor section, 2 open section profiles are required, which are connected by cross connectors.

A support profile is necessary for sizes 160 and up.

- Same profile cross-section across all sizes (65-320)

The cross connector **(B)** is the connection of two profile halves to make an open section profile. The size is determined by using cross connectors of different lengths.

From size 160, a support profile **(C)** is required. The support profile is attached to the existing cross connectors.

### Open section profile STS (A)

- ▶ Elongated holes for attaching a drive/return unit, curves, lateral guides, leg sets, or other accessories
- ▶ Simple to clean

### Cross connector STS (B)

- ▶ Cross connector with mounting option for support profile

#### Required accessories:

- **A:** Sliding rail, see p. 134; profile connector, see p. 138; cross connector, see p. 130; support profile from size 160, see p. 130

#### Scope of delivery:

- **B:** Including fastening material

### Support profile STS (C)

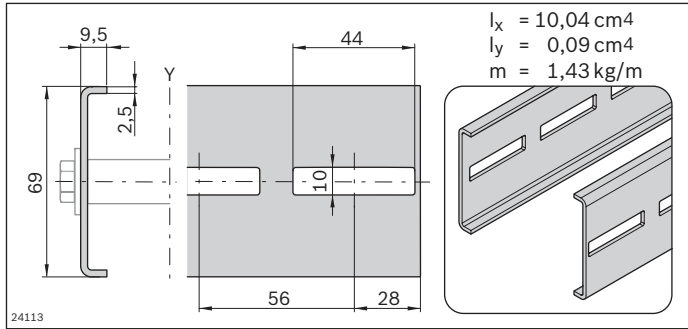
- ▶ With elongated holes for fastening in regular intervals
- ▶ Plug-through stainless steel T-nuts as mounting option on the section profile

#### Material:

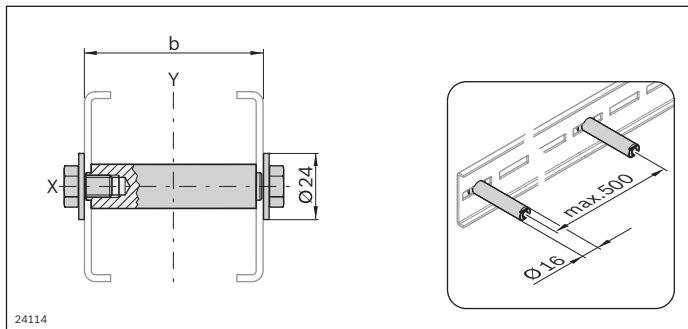
- **A, B, C:** Non-rusting steel 1.4301

#### Condition on delivery:

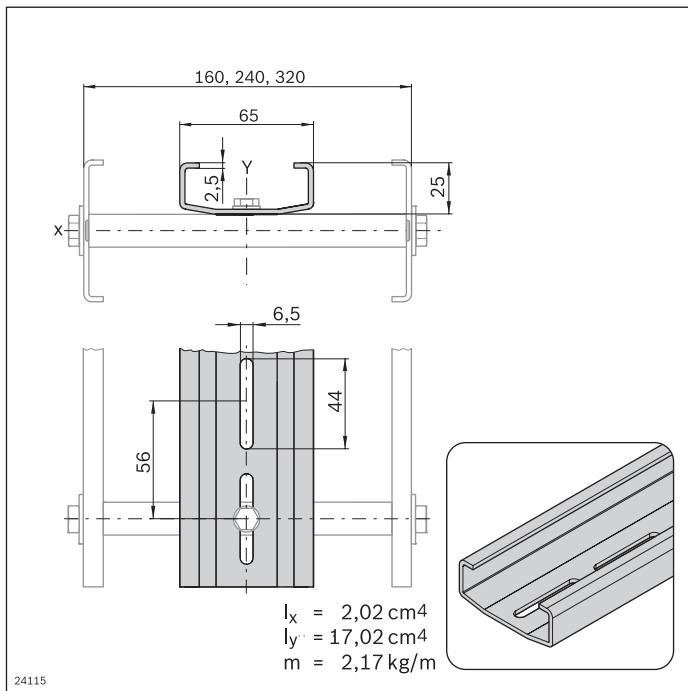
- **A, B:** Assembly required



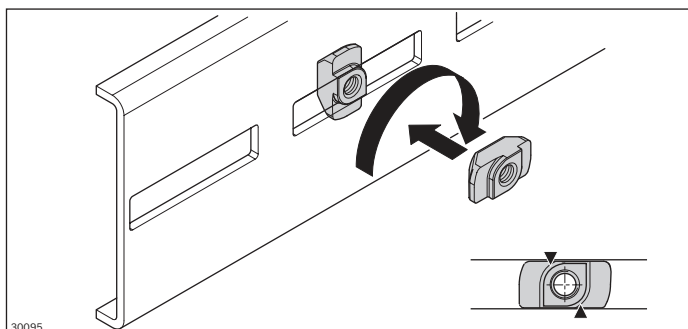
| Section profile VFplus STS open                                                          | L (mm)      | No.                    |
|------------------------------------------------------------------------------------------|-------------|------------------------|
|  12 pcs | 3024        | <b>3 842 546 649</b>   |
|  2 pcs  | 3024        | <b>3 842 547 905</b>   |
| 1 pc                                                                                     | 75 ... 3000 | <b>3 842 996 027/L</b> |



| Cross connector STS | b (mm) | No.                     |
|---------------------|--------|-------------------------|
| VFplus 65 STS       | 65     | 10 <b>3 842 546 684</b> |
| VFplus 90 STS       | 90     | 10 <b>3 842 546 685</b> |
| VFplus 120 STS      | 120    | 10 <b>3 842 546 686</b> |
| VFplus 160 STS      | 160    | 10 <b>3 842 546 687</b> |
| VFplus 240 STS      | 240    | 10 <b>3 842 546 688</b> |
| VFplus 320 STS      | 320    | 10 <b>3 842 546 689</b> |



| Support profile VFplus STS                                                                | L (mm)      | No.                    |
|-------------------------------------------------------------------------------------------|-------------|------------------------|
|  12 pcs | 3024        | <b>3 842 546 700</b>   |
| 1 pc                                                                                      | 3024        | <b>3 842 547 906</b>   |
| 1 pc                                                                                      | 75 ... 3000 | <b>3 842 996 029/L</b> |

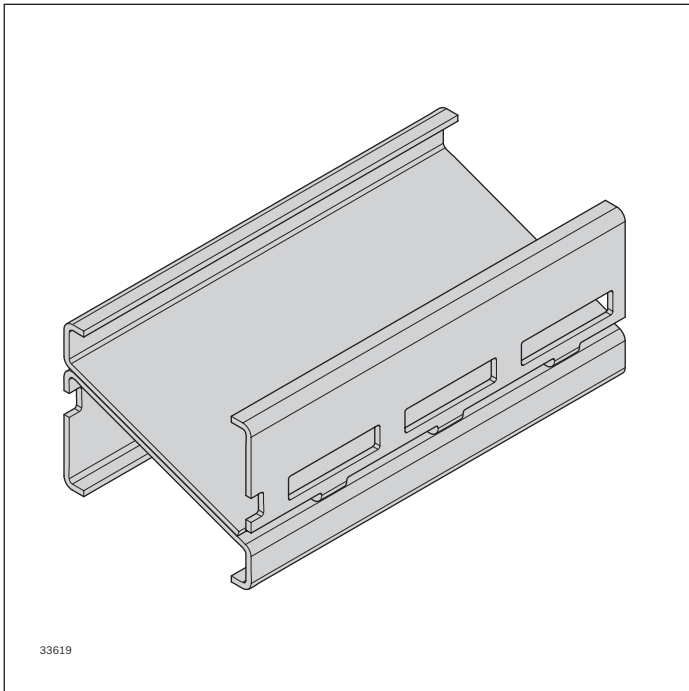


Standard element for the secure connection of accessory parts to the section profile

**Notice:** T-nuts MGE do not fit in the section profile STS.

| T-nut         | No.                     |
|---------------|-------------------------|
| VFplus STS M6 | 20 <b>3 842 546 706</b> |
| VFplus STS M8 | 20 <b>3 842 546 707</b> |

## Section profile STS Clean



The construction of the section profile STS Clean allows for the direct discharge of dirt or foreign particles without them reaching the returning chain.

- Size: 90
- For use in harsh production environments

**Notice:** Not compatible with the system AL.

- ▶ Elongated holes for attaching a drive/return unit, curves, lateral guides, supports and other accessories
- ▶ Simple to clean

Required accessories:

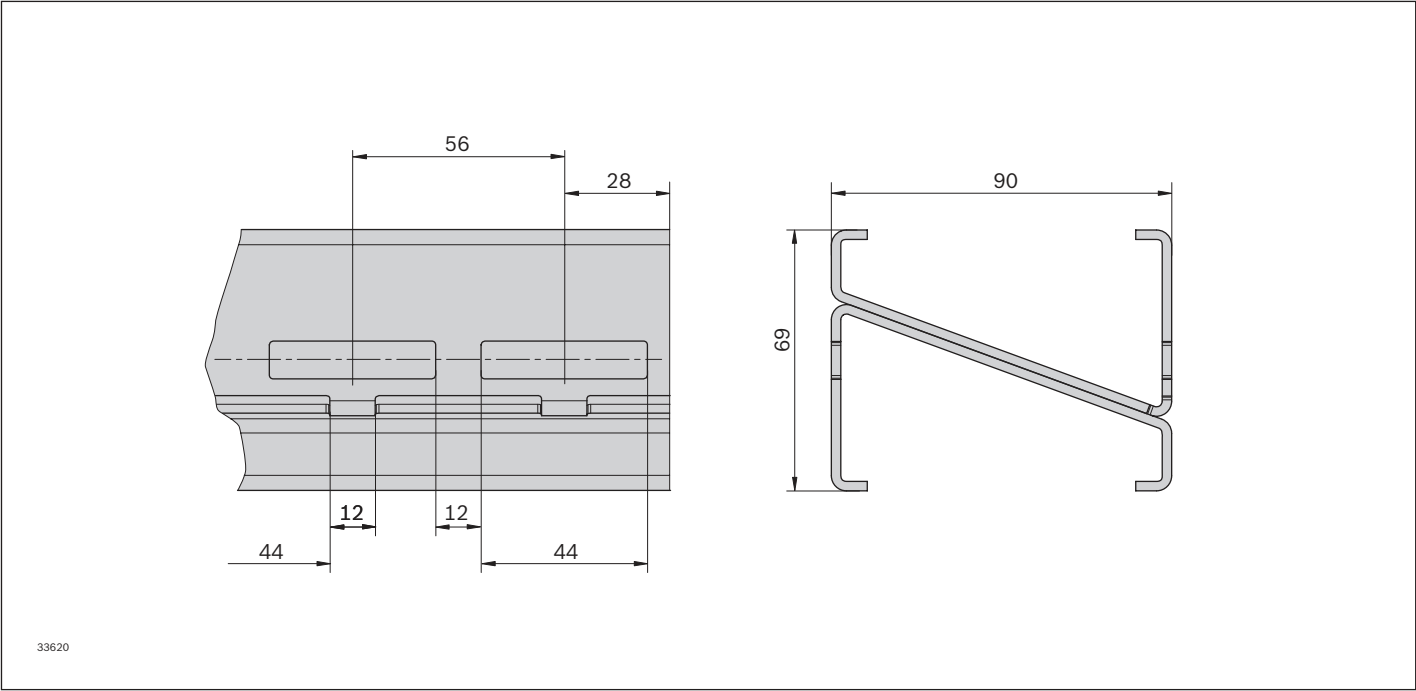
- Profile connector STS Clean Section, see p. 133
- Sliding rail, see p. 134

Optional accessories:

- T-nut VF*plus* STS, see p. 131

Material:

- Non-rusting steel 1.4301



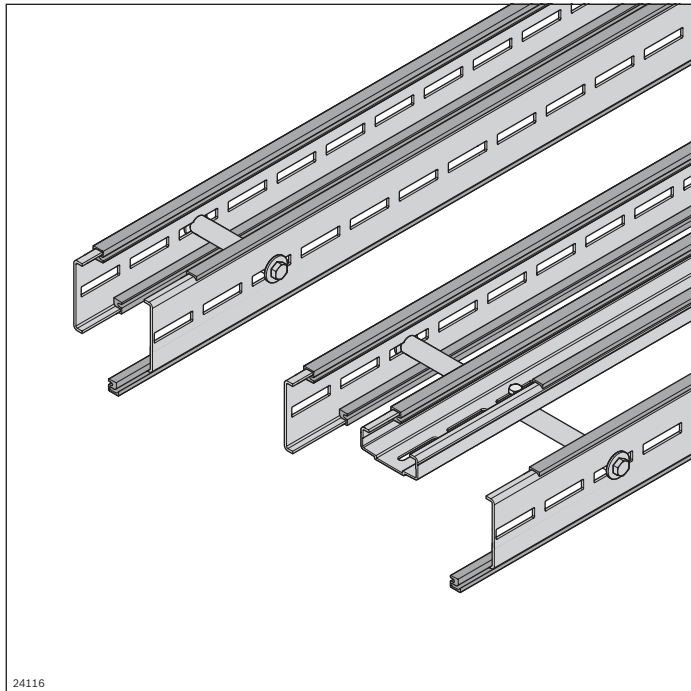
| Section profile STS Clean | L (mm)      |  | No.           |
|---------------------------|-------------|-------------------------------------------------------------------------------------|---------------|
|                           | 3024        | 1                                                                                   | 3 842 553 006 |
|                           | 75 ... 3000 | 1                                                                                   | 3 842 996 314 |

| Profile connector STS Clean Section | H (mm) |  | No.           |
|-------------------------------------|--------|---------------------------------------------------------------------------------------|---------------|
|                                     | 17     | 10                                                                                    | 3 842 552 927 |

**Notice:** When using the section profile STS Clean with the basic units (head drive, return unit, connection drive) the enclosed profile connector (H = 20 mm) must be replaced with the profile connector STS Clean Section (H = 17 mm) 3 842 552 927.



## Sliding rail



- ▶ Easy assembly – simply clip onto the section profile
- ▶ Secured against axial shifting with lateral screw fittings
- ▶ Gliding surface machining: Not required
- ▶ Material
  - with sliding rail Premium, Advanced: FDA CFR 21
  - with sliding rail Basic: EU 10/2011, FDA CFR 21
- ▶ One cross-section for all section profiles AL and STS

### Required accessories:

- Sliding rail assembly tool, see p. 288
- Oval-head screw 2.9x9.5 DIN 7981; DIN EN ISO 7049  
see p. 135  
1 screw for each sliding rail section

### Material:

- PE-UHMW

The sliding rail is clipped into the section profile and guides the conveyor chain.

Lateral securing means the sliding surface does not need to be machined. Wear and noise level are thus reduced to a minimum.

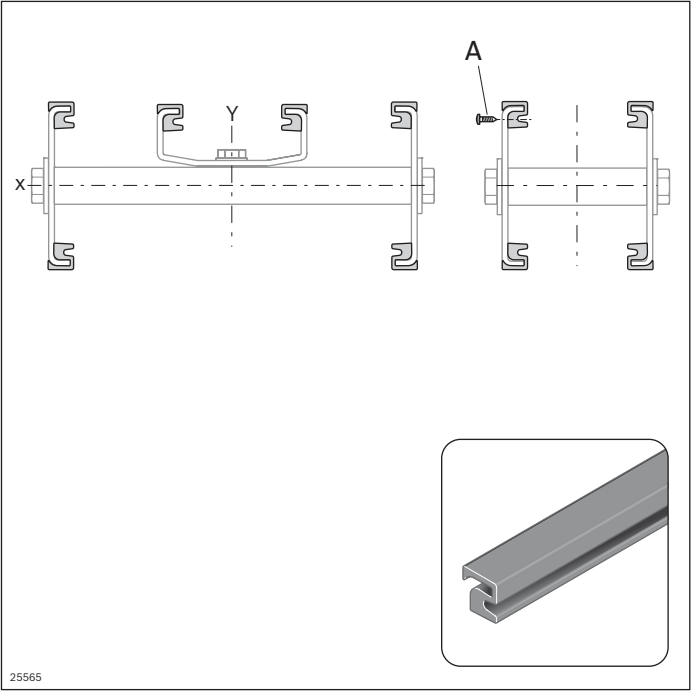
Three sliding rails with different main areas of application are available:

- Basic: Straight sections and curve wheels,  $v_{\max}$  60 m/min
- Advanced: Sections with sliding curves,  $v_{\max}$  60 m/min, clean room
- Premium: Sections with sliding curves,  $v_{\max}$  100 m/min, clean room

For the selection of sliding rails, see the "Technical data" chapter on page 300. See also sliding rails ESD on page 192 and steel sliding rail on page 136.

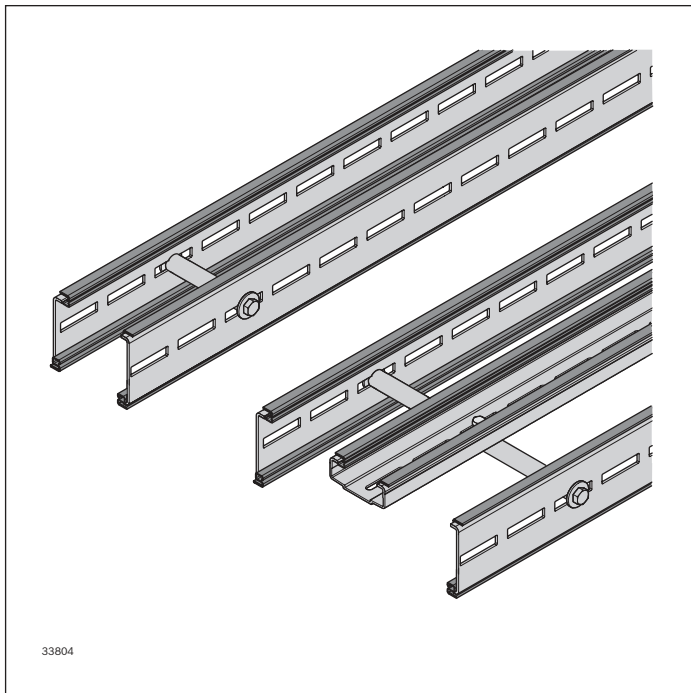
Extend the sliding rail over the component interfaces to ensure minimum wear and noise emissions. Interruptions to the profile or component connection must be avoided. If an interruption is necessary after 10 m, the sliding rail must be attached laterally with a sheet metal screw (**A**).

**Notice:** After the sliding curves, an interruption is provided as an expansion joint in the inner curve area.



| Sliding rail VFplus                                                          | Color | L (mm) |  | No.                  |
|------------------------------------------------------------------------------|-------|--------|-------------------------------------------------------------------------------------|----------------------|
| Premium                                                                      | gray  | 30000  | 1                                                                                   | <b>3 842 546 116</b> |
| Advanced                                                                     | white | 30000  | 1                                                                                   | <b>3 842 549 727</b> |
| Basic                                                                        | blue  | 30000  | 1                                                                                   | <b>3 842 549 730</b> |
| See also sliding rail ESD, see p. 192<br>and steel sliding rail, see p. 136. |       |        |                                                                                     |                      |
| Oval-head screw                                                              |       |        |  | No.                  |
| <b>A</b>                                                                     |       |        | 100                                                                                 | <b>3 842 533 915</b> |

## Steel sliding rail



- ▶ Easy assembly – simply clip onto the section profile
- ▶ Secured against axial shifting via lateral fixing
- ▶ Gliding surface machining: Not required
- ▶ One cross-section for all section profiles AL and STS

### Required accessories:

- Pop rivet D3x8 mm, see p. 137
- Number of rivets:
  - Straight sliding rail section: 1 rivet
  - 30°/45° curves: 2 rivets
  - 90° curve: 3 rivets
  - 180° curve: 6 rivets

### Material:

- Non-rusting steel 1.4301

The steel sliding rail is suitable for use in abrasive ambient conditions (reduced service life of the conveyor chain). It is clipped in to the section profile and fixed in place at the side via a pop rivet. The side fixing reduces the friction and the noise level to a minimum. The steel sliding rail butt joints are merely chamfered. The Advanced sliding rail is used in the lower run of the curve wheels.

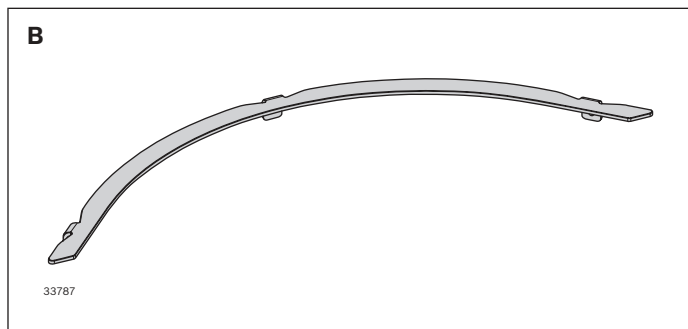
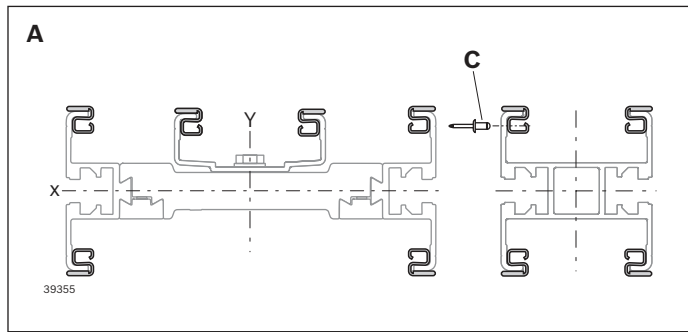
- Steel sliding rail straight section (**A**), not bendable
- Steel sliding rail curve wheels (**B**) 30°, 45°, 90°, 180°
- Dry, wet and abrasive environment
- Size:
  - Straight section: All track widths
  - Curve wheel 65, 90, 120
- Not suitable for use in horizontal sliding curves
- Only sliding rails Advanced or Premium can be used in vertical curves

For the selection of sliding rails, see the "Technical data" chapter on page 300.

**Notice:** Ensure gap-free assembly (without expansion joint), as foreign bodies could otherwise get trapped in the gap and damage the chain.

**Notice:** Non-destructive dismantling of the steel sliding rail is not possible. A target separation point of the system must therefore be defined before assembly. Overlap the steel sliding rail by 10 ... 15 mm on the section profile separation point. This ensures that it is still possible to pull apart the two parts.

Extend the steel sliding rail over the component interfaces to ensure minimum wear and reduced noise emissions. Interruptions directly on the profile or component connection must be avoided.



| Sliding rail VFplus Steel | L (mm) | No.                    |
|---------------------------|--------|------------------------|
| A Straight section        | 3000   | 1 <b>3 842 552 970</b> |

| Pop rivet D3x8mm | No.                      |
|------------------|--------------------------|
| C                | 100 <b>3 842 557 004</b> |

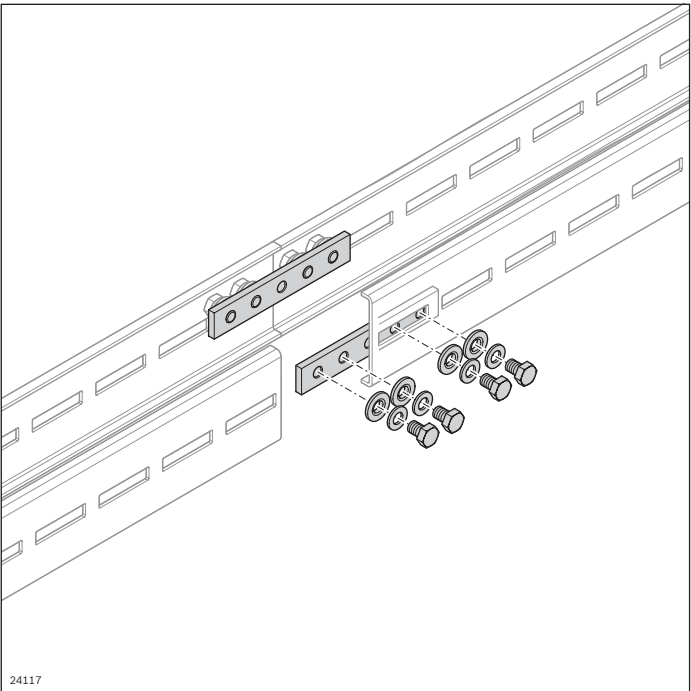
| Steel sliding rail; curve wheel VFplus 65 | No.                    |
|-------------------------------------------|------------------------|
| B Steel 30°                               | 1 <b>3 842 557 030</b> |
| B Steel 45°                               | 1 <b>3 842 557 031</b> |
| B Steel 90°                               | 1 <b>3 842 552 972</b> |
| B Steel 180°                              | 1 <b>3 842 552 973</b> |

| Steel sliding rail; curve wheel VFplus 90 | No.                    |
|-------------------------------------------|------------------------|
| B Steel 30°                               | 1 <b>3 842 557 032</b> |
| B Steel 45°                               | 1 <b>3 842 557 033</b> |
| B Steel 90°                               | 1 <b>3 842 552 974</b> |
| B Steel 180°                              | 1 <b>3 842 552 975</b> |

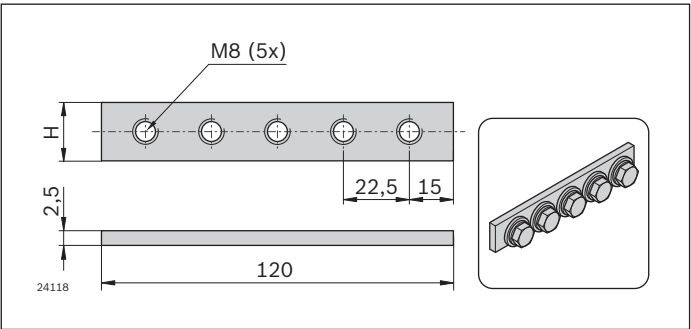
| Steel sliding rail; curve wheel VFplus 120 | No.                    |
|--------------------------------------------|------------------------|
| B Steel 30°                                | 1 <b>3 842 557 034</b> |
| B Steel 45°                                | 1 <b>3 842 557 035</b> |
| B Steel 90°                                | 1 <b>3 842 557 036</b> |
| B Steel 180°                               | 1 <b>3 842 557 037</b> |

| Pop rivet D3x8mm | No.                      |
|------------------|--------------------------|
| C                | 100 <b>3 842 557 004</b> |

Profile connector STS



Two profile connectors are used to connect the end faces of the section profiles.



| Profile connector VF <i>plus</i> STS | H (mm) |    | No.                  |
|--------------------------------------|--------|----|----------------------|
|                                      | 20     | 10 | <b>3 842 547 895</b> |

| Profile connector STS<br>Clean Section | H (mm) |    | No.                  |
|----------------------------------------|--------|----|----------------------|
|                                        | 17     | 10 | <b>3 842 552 927</b> |

Scope of delivery:

- Complete

Scope of delivery:

- Assembly required

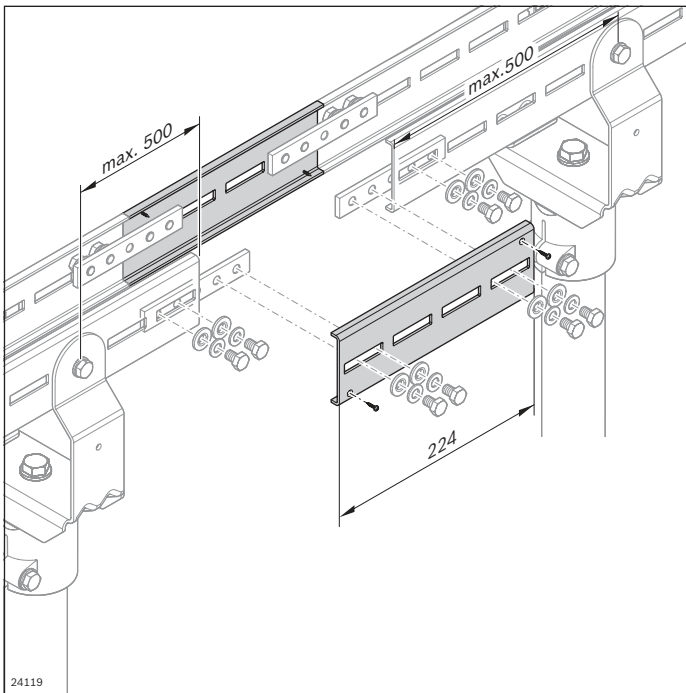
Material:

- Non-rusting steel 1.4301

## Assembly module STS

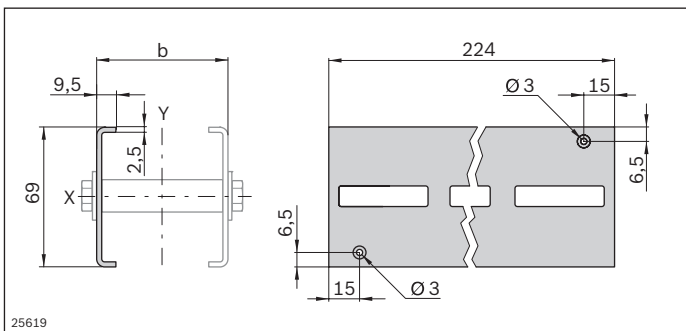


4



The assembly module is used for inserting and closing or opening the chain. It can be installed at any point on the conveyor section that is easy to access in operation. The assembly module is intended for sections with drives without a chain bag (e.g. wedge conveyor).

- Max. distance from the nearest leg sets on both sides is 500 mm
- The support profile with sliding rail is not interrupted in the assembly module to increase the smooth running
- Sliding rail interruption is only required on the side to be opened



|                              | L (mm) | No.                    |
|------------------------------|--------|------------------------|
| Assembly module VFplus STS   | 1      | <b>3 842 547 900</b>   |
| Sliding rail VFplus Premium  | 30000  | 1 <b>3 842 546 116</b> |
| Sliding rail VFplus Advanced | 30000  | 1 <b>3 842 549 727</b> |
| Sliding rail VFplus Basic    | 30000  | 1 <b>3 842 549 730</b> |
| Sliding rail VFplus Steel    | 3000   | 1 <b>3 842 552 970</b> |
| Sliding rail VFplus ESD      | 30000  | 1 <b>3 842 557 000</b> |

Required accessories:

- Sliding rail, see p. 134, 136, 192

Scope of delivery:

- Including 4 profile connectors and sheet-metal screws for fastening the sliding rail

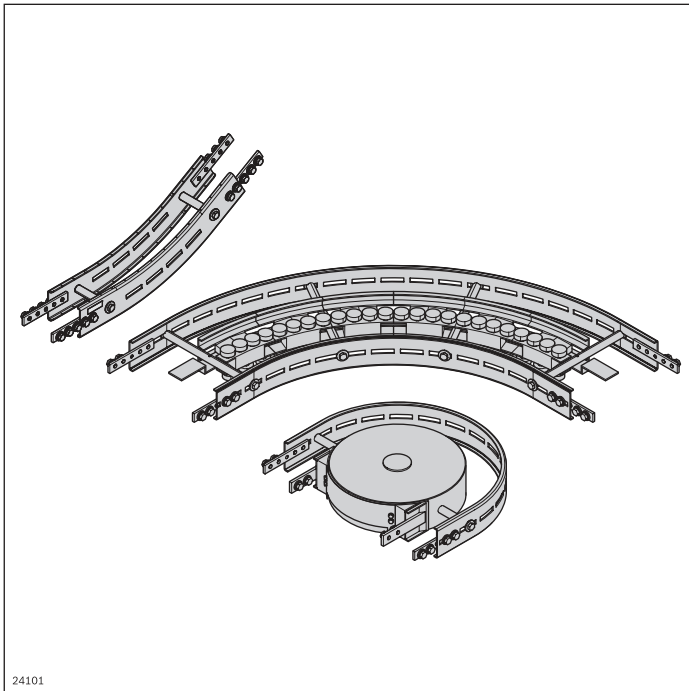
Condition on delivery:

- In single parts

Material:

- Non-rusting steel 1.4301

## Curves STS

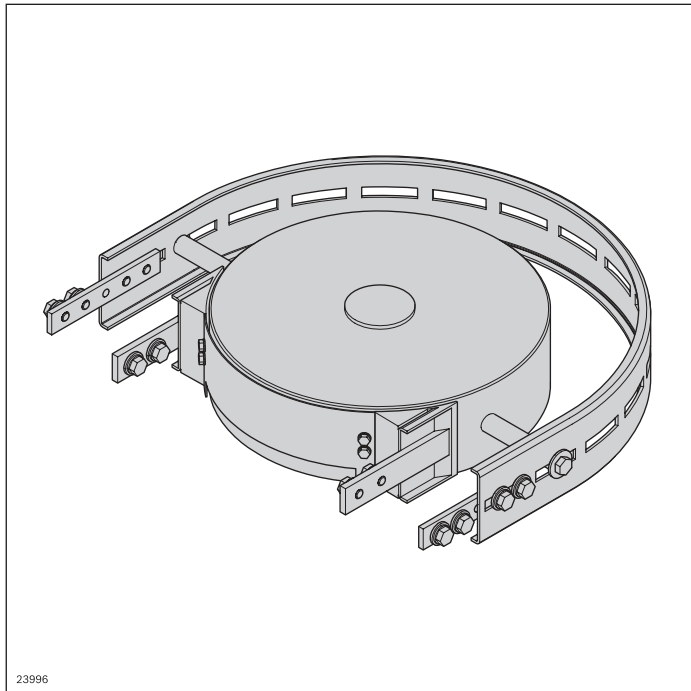


- ▶ Longer service life and reduced downtimes thanks to low-friction curve technology
- ▶ Components subject to constant friction feature FDA-compliant materials
- ▶ Easy to clean thanks to ample draining surfaces
- ▶ Capable of accumulation
- ▶ Reduced friction on curve wheels and patented roller curves to minimize wear to thereby realize longer sections
- ▶ Ball bearings sealed on both sides of non-rusting steel (1.4301) with FDA-compliant special grease in curve wheels and patented roller curves

|                                                                                   |                                     |            |
|-----------------------------------------------------------------------------------|-------------------------------------|------------|
|  | <b>Curve wheel STS</b>              | <b>142</b> |
|  | <b>Sliding curve horizontal STS</b> | <b>144</b> |
|  | <b>Roller curve horizontal STS</b>  | <b>146</b> |
|  | <b>Vertical curve STS</b>           | <b>148</b> |



## Curve wheel STS



The curve wheel provides a horizontal direction change for the chain. It enables low-friction direction changes with very small radii.

For attachment options, see the matrix on page 313

- Size: 65, 90, 120
- For deflection angles, see table
- Other deflection angles on request
- Suitable chain types: All

### Notice:

- High-pressure cleaning of the ball bearing areas is not permitted
- In combination with the connection drive STS, the lower branch must be covered by the customer

- ▶ Easy-to-clean design
- ▶ Ball bearing made of non-rusting steel (1.4301), with seal on both sides and FDA-compliant grease filling
- ▶ Surfaces in contact with chain made of FDA-compliant materials

- ▶ No interfering contours above chain plate height
- ▶ Can be used horizontally and vertically (for wedge conveyors)

### Scope of delivery:

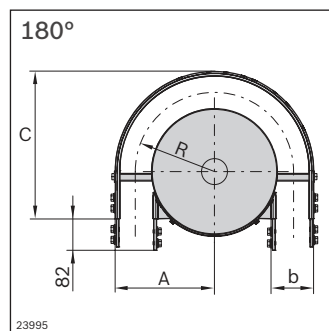
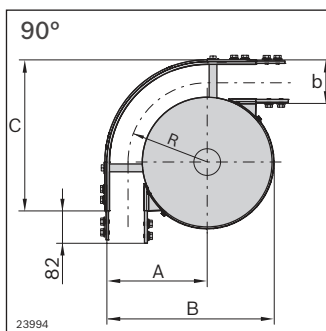
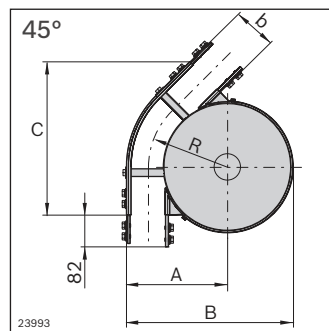
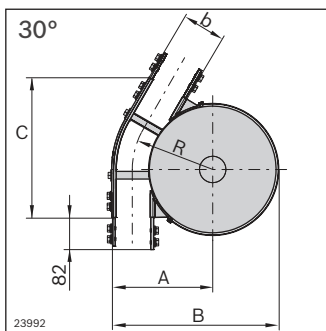
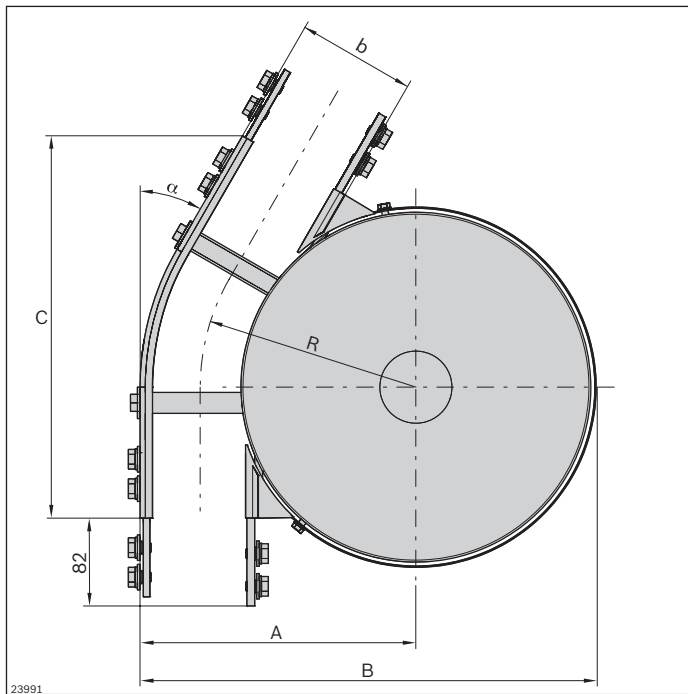
- Including fastening material for mounting to section profiles STS

### Condition on delivery:

- Assembled

### Material:

- Housing: Non-rusting steel 1.4301
- Chain wheel: PA; white
- Ball bearing: Non-rusting steel 1.4301/FDA

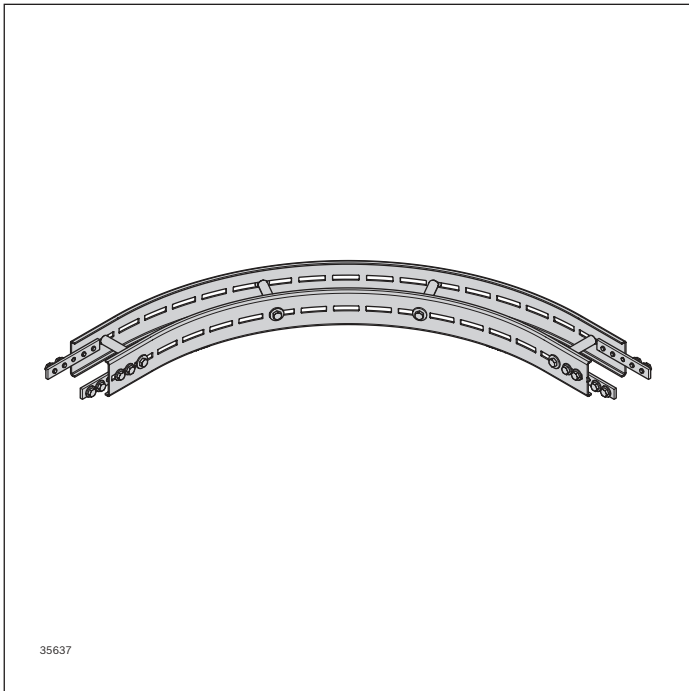


| Curve wheel STS | $\alpha$ (°) | No.                  |
|-----------------|--------------|----------------------|
| VFplus 65       | 30           | <b>3 842 547 111</b> |
|                 | 45           | <b>3 842 547 112</b> |
|                 | 90           | <b>3 842 547 113</b> |
|                 | 180          | <b>3 842 547 114</b> |
| VFplus 90       | 30           | <b>3 842 547 115</b> |
|                 | 45           | <b>3 842 547 116</b> |
|                 | 90           | <b>3 842 547 117</b> |
|                 | 180          | <b>3 842 547 118</b> |
| VFplus 120      | 30           | <b>3 842 547 119</b> |
|                 | 45           | <b>3 842 547 120</b> |
|                 | 90           | <b>3 842 547 121</b> |
|                 | 180          | <b>3 842 547 122</b> |

4

| b (mm) | $\alpha$ (°) | R (mm) | A (mm) | B (mm) | C (mm) |
|--------|--------------|--------|--------|--------|--------|
| 65     | 30           | 153.0  | 185.5  | 322.5  | 279.4  |
|        | 45           | 153.0  | 185.5  | 322.5  | 301.9  |
|        | 90           | 153.0  | 185.5  | 322.5  | 285.5  |
|        | 180          | 153.0  | 185.5  | –      | 287.5  |
| 90     | 30           | 165.5  | 210.5  | 347.5  | 291.9  |
|        | 45           | 165.5  | 210.5  | 347.5  | 319.6  |
|        | 90           | 165.5  | 210.5  | 347.5  | 310.5  |
|        | 180          | 165.5  | 210.5  | –      | 310.5  |
| 120    | 30           | 180.5  | 240.5  | 377.5  | 306.9  |
|        | 45           | 180.5  | 240.5  | 377.5  | 340.8  |
|        | 90           | 180.5  | 240.5  | 377.5  | 340.5  |
|        | 180          | 180.5  | 240.5  | –      | 340.5  |

## Sliding curve horizontal STS



The sliding curve provides a horizontal change in direction for the chain, for when there is not enough space for a curve wheel or the speeds or product dimensions do not permit conveying over a curve wheel. The sliding curve is used to reduce noise at high speeds or when transporting long products in wedge conveyors. The chain tensile force is increased through the ensuing friction.

For attachment options, see the matrix on page 313

- Size: 65, 90, 120
- Deflection angles and radii see table on p. 145, other deflection angles and radii on request
- Suitable chain types: All
- Version with open section profiles
- Requires the use of the sliding rails "Advanced" or "Premium"
- Use in abrasive environments is not permissible

### Required accessories:

- Sliding rail: Length calculation, see p. 302

### Scope of delivery:

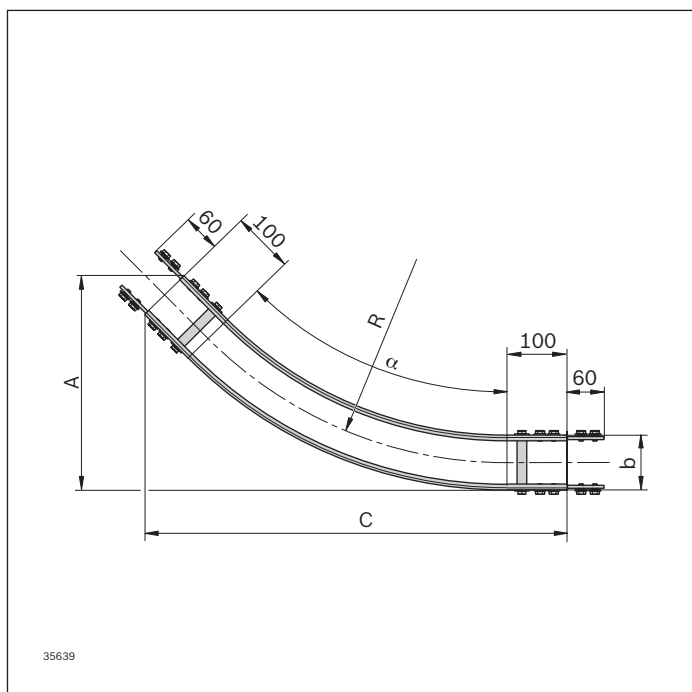
- Including fastening material for mounting to STS section profiles

### Condition on delivery:

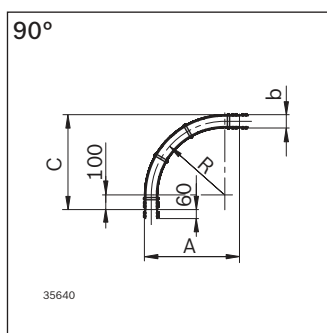
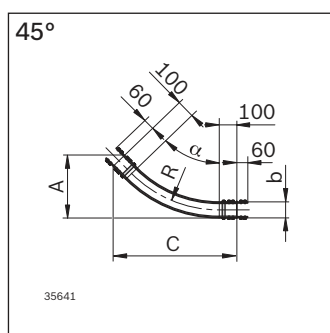
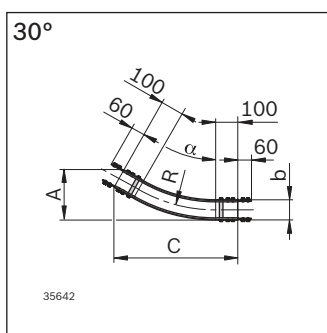
- Assembled

### Material:

- Non-rusting steel 1.4301

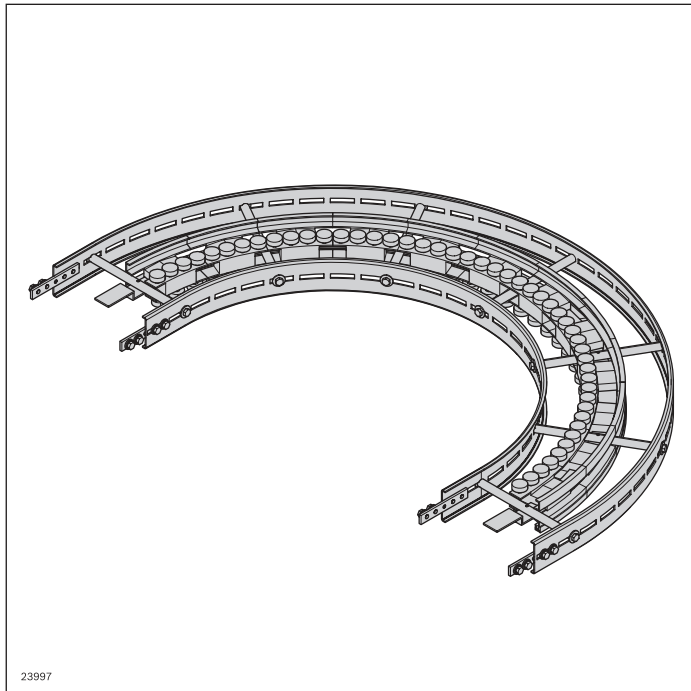


| Sliding curve horizontal AL | $\alpha$ (°) | R (mm) | No.                  |
|-----------------------------|--------------|--------|----------------------|
| VFplus 65                   | 30           | 700    | <b>3 842 557 051</b> |
|                             | 45           | 700    | <b>3 842 557 052</b> |
|                             | 90           | 700    | <b>3 842 557 053</b> |
| VFplus 90                   | 45           | 500    | <b>3 842 557 054</b> |
|                             | 90           | 500    | <b>3 842 557 055</b> |
|                             | 30           | 700    | <b>3 842 557 056</b> |
|                             | 45           | 700    | <b>3 842 557 057</b> |
|                             | 90           | 700    | <b>3 842 557 058</b> |
| VFplus 120                  | 30           | 700    | <b>3 842 557 059</b> |
|                             | 45           | 700    | <b>3 842 557 060</b> |
|                             | 90           | 700    | <b>3 842 557 061</b> |



| b (mm) | $\alpha$ (°) | R (mm) | A (mm) | C (mm) |
|--------|--------------|--------|--------|--------|
| 65     | 30           | 700    | 204.4  | 552.9  |
|        | 45           | 700    | 331.2  | 688.7  |
|        | 90           | 700    | 832.5  | 832.5  |
| 90     | 45           | 500    | 294.0  | 556.1  |
|        | 90           | 500    | 645.0  | 645.0  |
|        | 30           | 700    | 227.8  | 559.1  |
|        | 45           | 700    | 352.6  | 697.5  |
|        | 90           | 700    | 845.0  | 845.0  |
| 120    | 30           | 700    | 255.7  | 566.6  |
|        | 45           | 700    | 378.2  | 708.1  |
|        | 90           | 700    | 860.0  | 860.0  |

## Roller curve horizontal STS



The low-friction roller curve provides a horizontal change in direction for the chain. Plastic-coated roller elements with ball bearings enable longer conveyor sections. The service life of the chain is increased and system costs reduced. For attachment options and length determination of the support profile, see matrix on page 313

- Size: 160, 240, 320
- See table for the deflection angles, more deflection angles available on request
- Deflection radius: R500
- Suitable chain types: All
- Version with open section profiles

**Notice:** High-pressure cleaning of the ball bearing areas is not permitted.

- ▶ Patented roller elements for low-friction, quieter changes in chain direction
- ▶ Easy-to-clean design
- ▶ Ball bearing made of non-rusting steel (1.4301), with seal on both sides and FDA-compliant grease filling

- ▶ Surfaces in contact with chain made of FDA-compliant materials

Required accessories:

- Sliding rail: Length calculation, see p. 302

Scope of delivery:

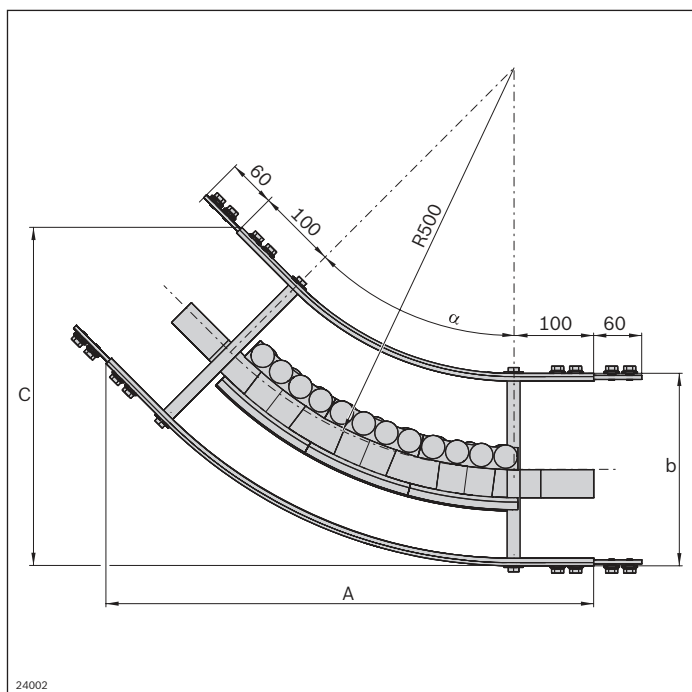
- Including fastening material for mounting to section profiles STS

Condition on delivery:

- Assembled

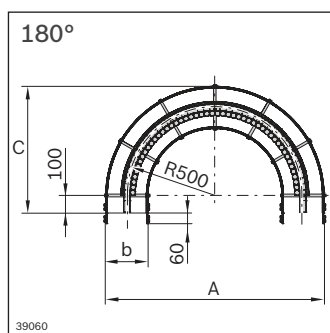
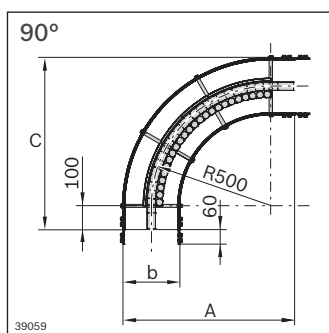
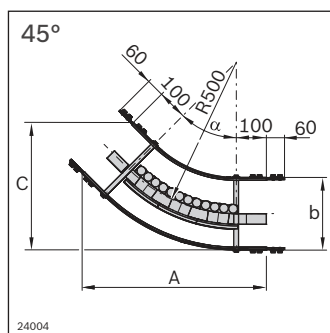
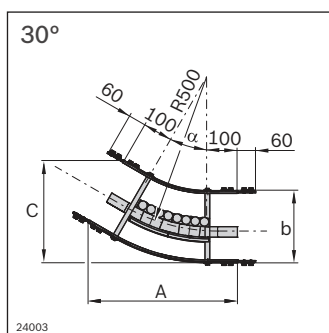
Material:

- Profile: Non-rusting steel 1.4301
- Roller carrier: PA66
- Ball bearing: Non-rusting steel 1.4301/FDA
- Connector: Non-rusting steel 1.4301
- Rollers: PA



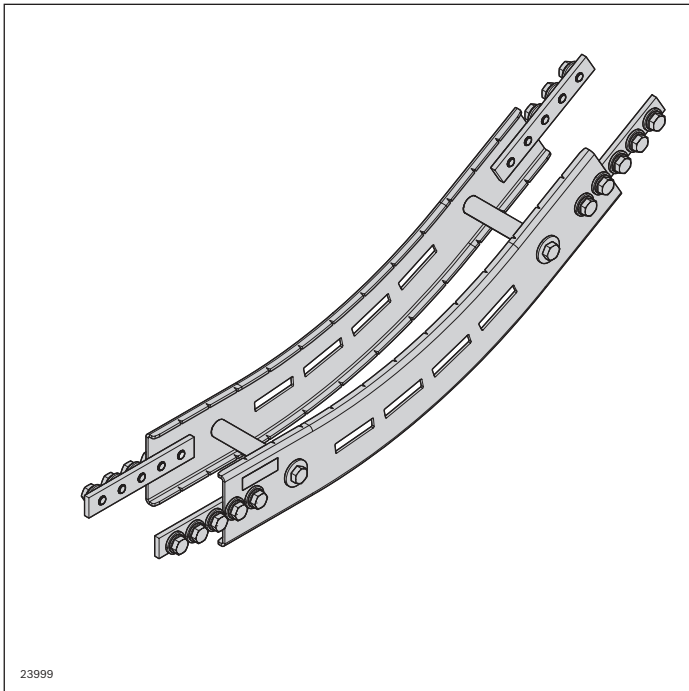
| Roller curve STS | $\alpha$ (°) | No.                  |
|------------------|--------------|----------------------|
| VFplus 160       | 30           | <b>3 842 547 123</b> |
|                  | 45           | <b>3 842 547 124</b> |
|                  | 90           | <b>3 842 547 125</b> |
|                  | 180          | <b>3 842 547 126</b> |
| VFplus 240       | 30           | <b>3 842 547 127</b> |
|                  | 45           | <b>3 842 547 128</b> |
|                  | 90           | <b>3 842 547 129</b> |
|                  | 180          | <b>3 842 547 130</b> |
| VFplus 320       | 30           | <b>3 842 547 131</b> |
|                  | 45           | <b>3 842 547 132</b> |
|                  | 90           | <b>3 842 547 133</b> |
|                  | 180          | <b>3 842 547 134</b> |

4



| b (mm) | $\alpha$ (°) | A (mm) | C (mm) |
|--------|--------------|--------|--------|
| 160    | 30           | 476.6  | 266.3  |
|        | 45           | 580.8  | 353.7  |
|        | 90           | 680.0  | 680.0  |
|        | 180          | 1160.0 | 680.0  |
| 240    | 30           | 496.6  | 340.9  |
|        | 45           | 609.1  | 422.0  |
|        | 90           | 720.0  | 720.0  |
|        | 180          | 1240.0 | 720.0  |
| 320    | 30           | 516.6  | 415.6  |
|        | 45           | 637.4  | 490.3  |
|        | 90           | 760.0  | 760.0  |
|        | 180          | 1320.0 | 760.0  |

## Vertical curve STS



The vertical curve is used for the transition from a horizontal conveyor section to an ascending section and vice versa. The chain tensile force is increased through the ensuing friction.

A vertical curve of 5° is recommended for the infeed and outfeed on the wedge conveyor, especially with small products.

For attachment options, see the matrix on page 313

- Size: All
- Deflection angles and radii see table, other deflection angles and radii on request
- Suitable chain types: All
- Version with open section profiles
- Requires the use of the sliding rails "Advanced" or "Premium"

Required accessories:

- Sliding rail: Length calculation, see p. 302

Scope of delivery:

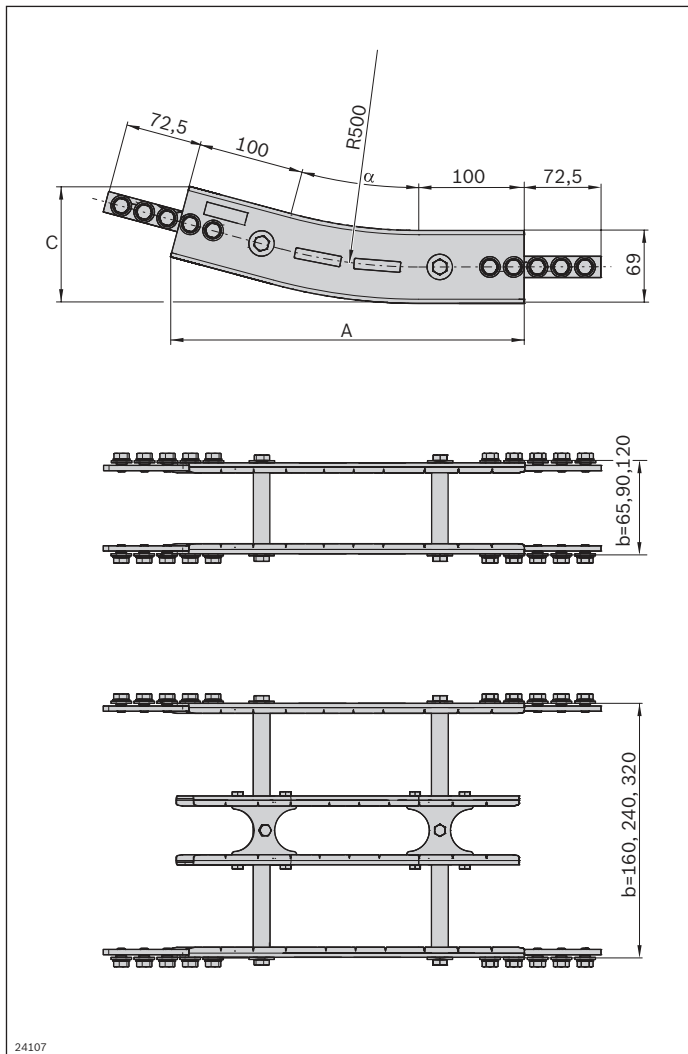
- Including fastening material for mounting to STS section profiles

Condition on delivery:

- Assembled

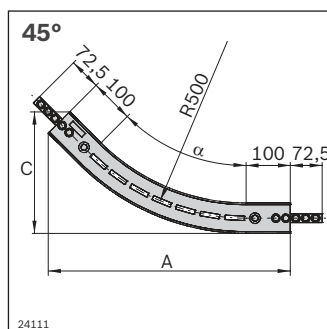
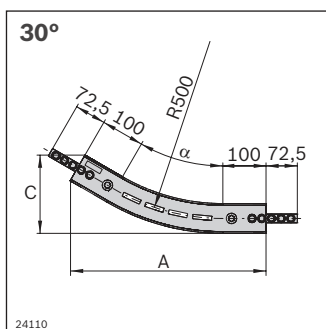
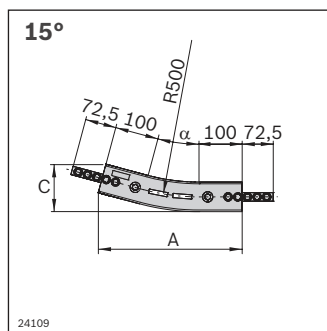
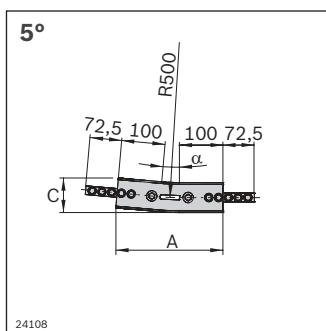
Material:

- Profile: Non-rusting steel 1.4301
- Connector: Non-rusting steel 1.4301
- Support profile from size 160: Non-rusting steel 1.4301



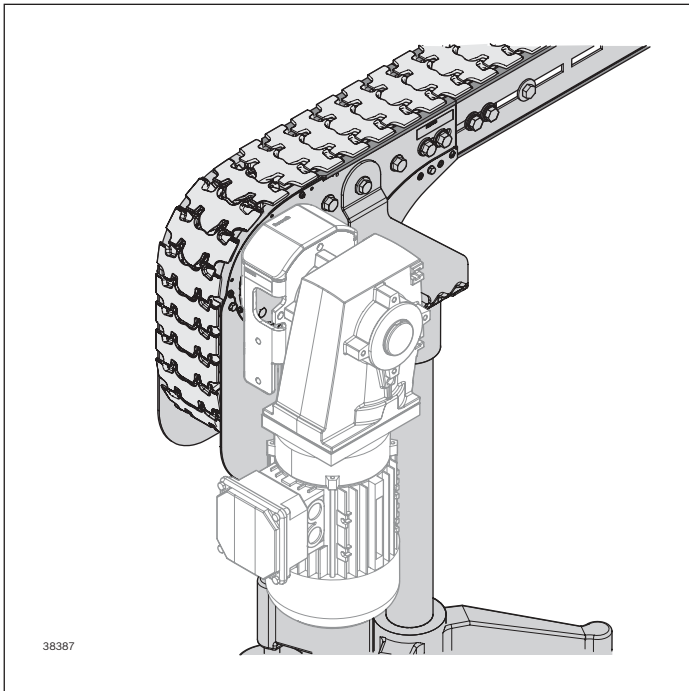
| Vertical curve STS | $\alpha$ (°) | No.           |
|--------------------|--------------|---------------|
| VFplus 65          | 5            | 3 842 547 135 |
|                    | 15           | 3 842 547 136 |
|                    | 30           | 3 842 547 137 |
|                    | 45           | 3 842 547 138 |
| VFplus 90          | 5            | 3 842 547 139 |
|                    | 15           | 3 842 547 140 |
|                    | 30           | 3 842 547 141 |
|                    | 45           | 3 842 547 142 |
| VFplus 120         | 5            | 3 842 547 143 |
|                    | 15           | 3 842 547 144 |
|                    | 30           | 3 842 547 145 |
|                    | 45           | 3 842 547 146 |
| VFplus 160         | 5            | 3 842 547 147 |
|                    | 15           | 3 842 547 148 |
|                    | 30           | 3 842 547 149 |
|                    | 45           | 3 842 547 150 |
| VFplus 240         | 5            | 3 842 547 151 |
|                    | 15           | 3 842 547 152 |
|                    | 30           | 3 842 547 153 |
| VFplus 320         | 5            | 3 842 547 154 |
|                    | 15           | 3 842 547 155 |
|                    | 30           | 3 842 547 156 |

| b (mm) | $\alpha$ (°) | R (mm) | A (mm) | C (mm) |
|--------|--------------|--------|--------|--------|
| 65-320 | 5            | 500    | 246.2  | 79.5   |
|        | 15           | 500    | 334.9  | 110.7  |
|        | 30           | 500    | 453.9  | 181.4  |
| 65-160 | 45           | 500    | 548.7  | 276.1  |





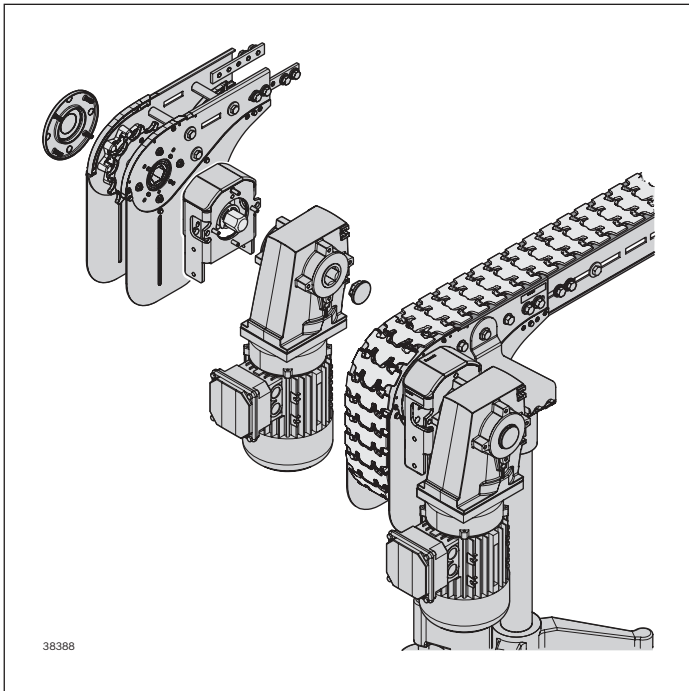
## Drive and return unit STS



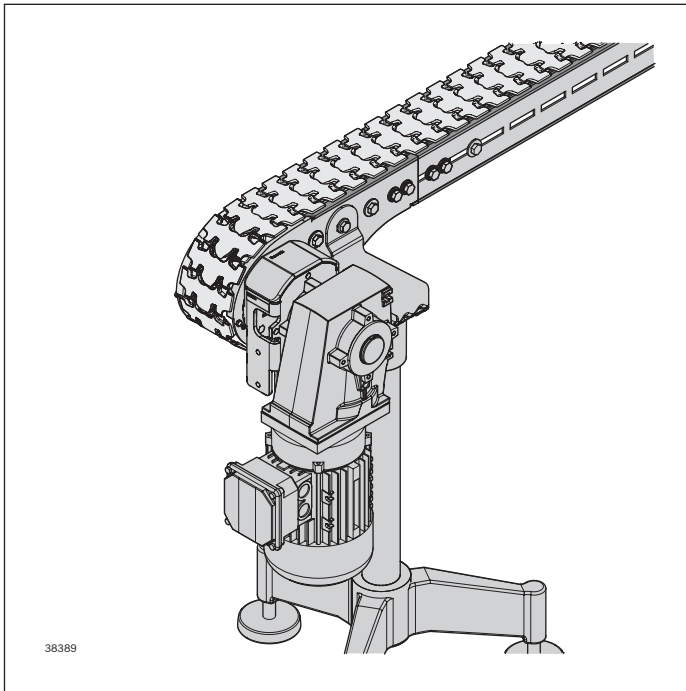
- ▶ High flexibility and short delivery times thanks to a novel drive concept
- ▶ Basic units with interfaces on both sides for drive kit and transmission (active bridges)
- ▶ Free choice of the motor mounting position on site
- ▶ Configurable drive kit (standard gear motor or round shaft)
- ▶ Multi-track systems with standard components possible
- ▶ Integrated sliding rail for reducing noise and wear
- ▶ In-stock, standardized components
- ▶ Side elements with slots for accommodating holders

|                                                                                     |                                                                            |            |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------|------------|
|    | <b>Basic unit STS<br/>Head drive direct</b>                                | <b>154</b> |
|    | <b>Basic unit STS<br/>Connection drive</b>                                 | <b>156</b> |
|    | <b>Basic unit<br/>Center drive</b>                                         | <b>158</b> |
|    | <b>Return unit STS<br/>Closed head drive STS</b>                           | <b>160</b> |
|   | <b>90° return unit</b>                                                     | <b>162</b> |
|  | <b>Drive kit</b>                                                           | <b>164</b> |
|  | <b>Frequency converter motec 8400</b>                                      | <b>166</b> |
|  | <b>Manual control unit<br/>Switching/potentiometer unit</b>                | <b>169</b> |
|  | <b>Passive/active bridges connection kit</b>                               | <b>170</b> |
|  | <b>Synchronous drive<br/>Connection kit, external motor/internal motor</b> | <b>178</b> |

## Innovative drive concept



**Basic unit STS**  
(head drive direct, center  
or connection drive)  
**or return unit**  
+  
**Configurable drive kit**  
(standard gear motor or round shaft)  
=  
**Complete drive**



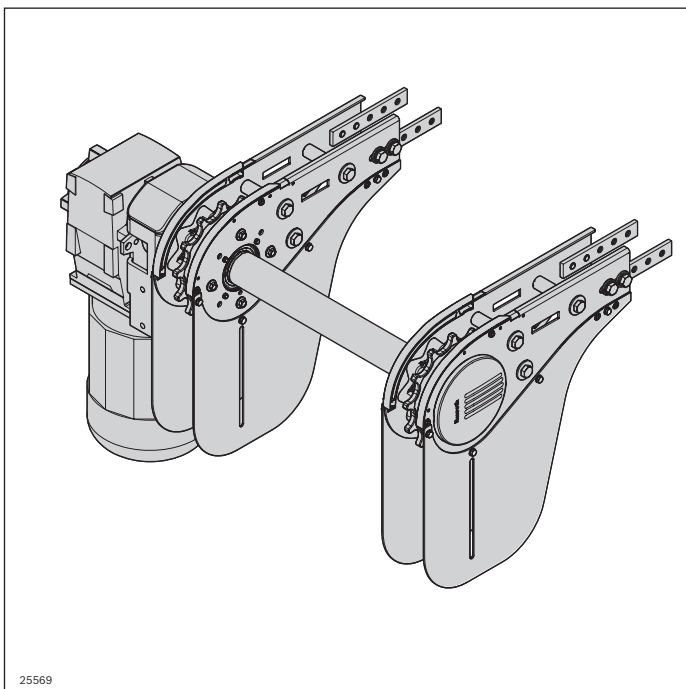
### The well thought-out drive solution enables high flexibility and planning freedom

The in-stock, standardized basic units

- Are quickly and easily combined with the configurable drive kit (standard gear motor or customer-specific interface) into a complete drive
- Guarantee fast availability of the few construction kit elements/spare parts

The hollow shaft on both sides in the basic unit and return unit

- Enables a free selection of the motor mounting position on-site
- Offers other interfaces for transmissions (active bridges)



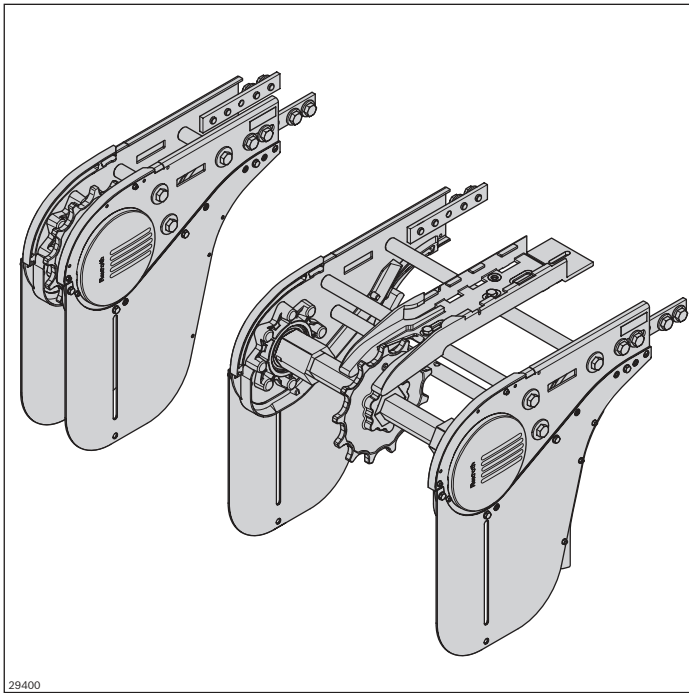
The standard drives are easy to couple and enable straightforward implementation of multi-track systems

For attachment options, see the matrix on page 313

**Notice:** High-pressure cleaning of the ball bearing areas is not permitted.

## Basic unit STS

### Head drive direct



The basic unit is quickly turned into a head drive with variable mounting position by adding a drive kit. With the double-sided hexagonal hollow shaft, other components can be easily driven using a transmission (active bridges).

- Size: All track widths
- Suitable chain types: All
- Permissible chain tensile force:  $F_{\max} = 1250 \text{ N}$
- Section length:  $L \leq 30 \text{ m}$
- Conveying speed:  $v_N = 2 \dots 60 \text{ m/min}$ , other speeds available on request
- Chain bag to compensate for chain elongation during service life
- Not suitable for reversible operation

#### Notice:

- A chain sprocket must be used to limit the chain slipping back ascending or descending sections.
- Chain sprocket prevents the chain bag from swiveling out

- ▶ Reduced noise emission due to sliding rails guided in the head drive
- ▶ Installation of the drive kit possible on the right/left (motor, coupling, flange)
- ▶ Drive of a parallel conveyor section or bridge using a hexagonal hollow shaft integrated as standard

#### Required accessories:

- Drive kit, see p. 164
- Sliding rail: Length calculation, see p. 302
- Motor leg sets, see p. 183

#### Optional accessories:

- Connection kit passive bridges, see p. 170ff.
- Connection kit active bridges, see p. 174ff.
- Synchronous drive connection kit, see p. 178
- Chain sprocket for inclined sections, see p. 155

#### Scope of delivery:

- Including fastening material

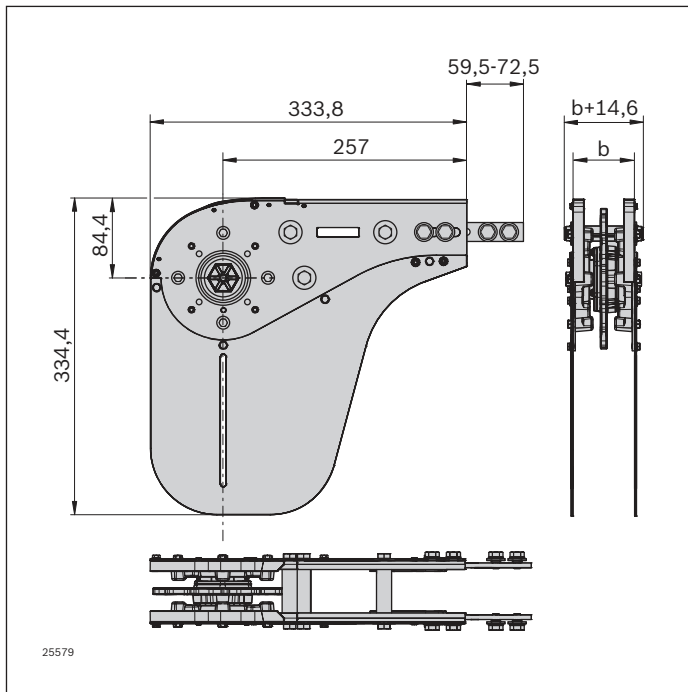
- ▶ Ball bearing made of non-rusting steel (1.4301), with seal on both sides and FDA-compliant grease filling
- ▶ Side elements with mounting option to attach holders for lateral guides, or similar

#### Condition on delivery:

- Assembled
- Connector, chain guard enclosed

#### Material:

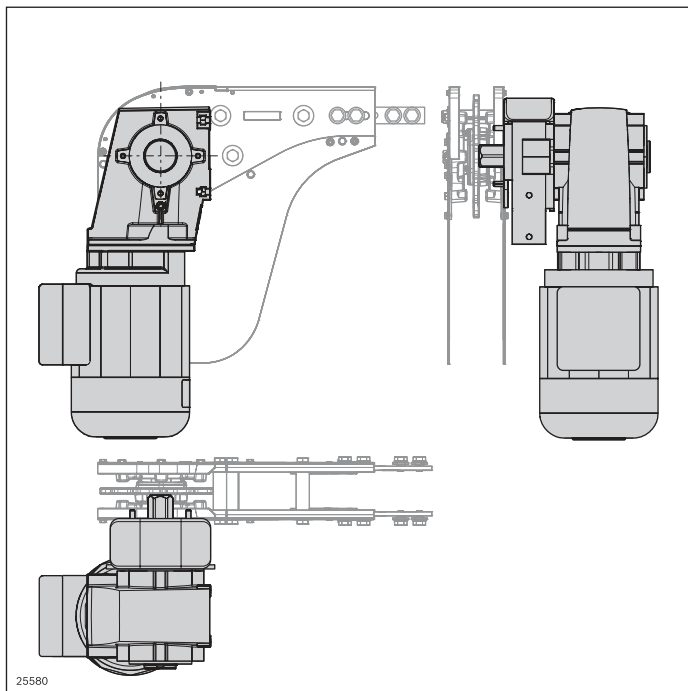
- Housing: Non-rusting steel 1.4301
- Chain wheel: PA
- Chain guide: PA
- Connector: Non-rusting steel 1.4301
- Hexagonal shaft up to size 160: PA  
from size 160: Non-rusting steel 1.4301, PA
- Ball bearing: Non-rusting steel 1.4301/FDA



| Basic unit STS    | No.           |
|-------------------|---------------|
| VFplus 65 direct  | 3 842 547 522 |
| VFplus 90 direct  | 3 842 547 523 |
| VFplus 120 direct | 3 842 547 524 |
| VFplus 160 direct | 3 842 547 525 |
| VFplus 240 direct | 3 842 547 526 |
| VFplus 320 direct | 3 842 547 527 |

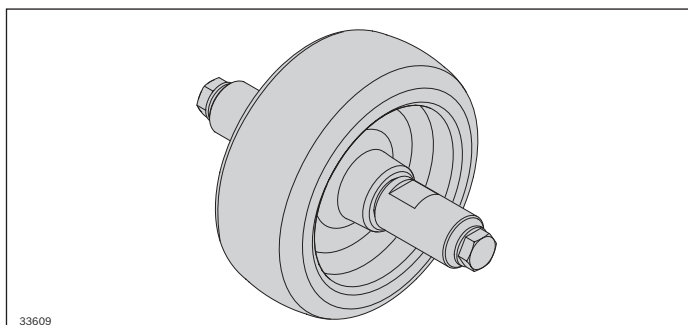
Order the drive kit in addition to the basic direct unit STS (see p. 164) to complete your drive.

4



| Drive kit VFplus | No.           |
|------------------|---------------|
|                  | 3 842 998 291 |

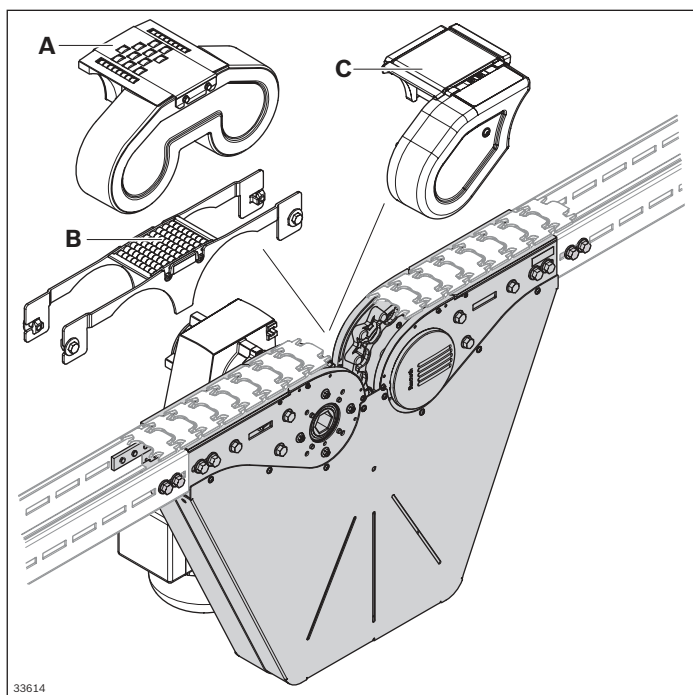
See p. 164



| Chain sprocket | No.           |
|----------------|---------------|
| VFplus 65      | 3 842 553 047 |
| VFplus 90      | 3 842 553 048 |
| VFplus 120     | 3 842 553 049 |
| VFplus 160     | 3 842 553 057 |
| VFplus 240     | 3 842 553 058 |
| VFplus 320     | 3 842 553 059 |

## Basic unit STS

### Connection drive



**Notice:** The selection of the parameter SP = STS for the drive kit 3 842 998 291 is imperative.

- ▶ Reduced noise emission due to sliding rails guided in the connection drive
- ▶ Drive kit (motor, coupling, flange) can be mounted right / left
- ▶ Drive of a parallel conveyor section or bridge using a hexagonal hollow shaft integrated as standard
- ▶ Ball bearing made of non-rusting steel (1.4301), with seal on both sides and FDA-compliant grease filling
- ▶ Side elements with slot for attaching holders for lateral guides, or similar

Required accessories:

- Drive kit, see p. 164
- Passive bridges connection kit, see p. 170ff.
- Active bridges connection kit, see p. 174ff.
- Sliding rail: Length calculation, see p. 302

The connection drive is used for driving the conveyor chain in circuit systems with a top-running chain. The basic unit is quickly turned into a connection drive with variable mounting position by adding a drive kit.

An active (**A, C**) or passive bridge (**B**) must be added for transferring the material being transported. The active bridge (**A, C**) is driven by a transmission from the connection drive

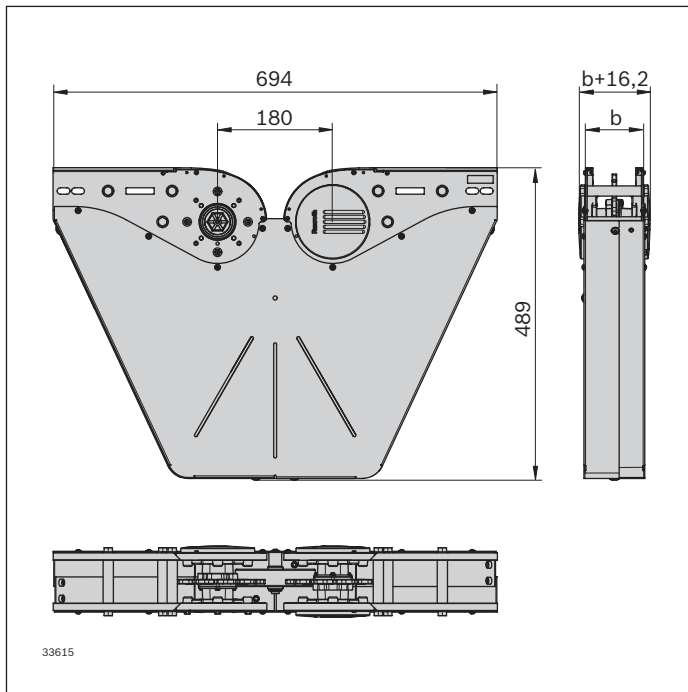
- Size: 65, 90
- Suitable chain types: Flat conveyor chain, static friction chain
- Permissible chain tensile force:  $F_{\max} = 1250 \text{ N}$
- Section length:  $L \leq 30 \text{ m}$
- Conveying speed:  $v_N = 2 \dots 25 \text{ m/min}$ , other speeds available on request
- Chain bag to compensate for chain elongation during service life
- Recommendation: No accumulation operation up to 1500 mm after the connection drive
- When using the section profile STS (open) in conveyor systems without a returning chain, a cover must be placed over the lower run by the customer to ensure personal safety
- Not suitable for reversible operation
- Use in applications ESD with accompanying adapter kit and closed section profiles AL (bridges not conductive!)

Scope of delivery: Including fastening material

Condition on delivery: Assembled

Material:

- Housing: Non-rusting steel 1.4301
- Sprocket, chain guide, hexagonal shaft: PA
- Connector + chain fender: Non-rusting steel 1.4301
- Ball bearing: Non-rusting steel 1.4301/FDA



| Basic unit connection drive STS | No.           |
|---------------------------------|---------------|
| VFplus 65 direct                | 3 842 553 914 |
| VFplus 90 direct                | 3 842 553 915 |

**Notice:** When using the section profile STS Clean with the basic units (head drive, return unit, connection drive) the enclosed profile connector (H = 20 mm) must be replaced with the profile connector STS Clean Section (H = 17 mm) 3 842 552 927.

4

| Drive kit VFplus | No.           |
|------------------|---------------|
|                  | 3 842 998 291 |

SP = STS; see p. 164

| Active roller bridge connection kit (A) | No.           |
|-----------------------------------------|---------------|
| VFplus 65                               | 3 842 555 820 |
| VFplus 90                               | 3 842 555 821 |

See p. 176

| Active belt bridge connection kit (C) | No.             |
|---------------------------------------|-----------------|
| VFplus 65                             | L 3 842 558 000 |
| VFplus 65                             | R 3 842 558 001 |
| VFplus 90                             | L 3 842 558 002 |
| VFplus 90                             | R 3 842 558 003 |

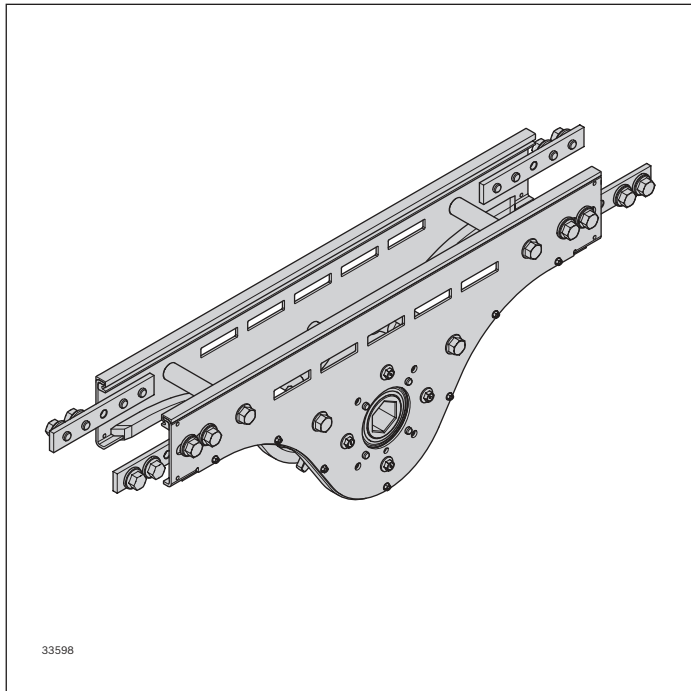
See p. 174

| Passive bridge connection kit (B) | No.           |
|-----------------------------------|---------------|
| VFplus 65                         | 3 842 549 015 |
| VFplus 90                         | 3 842 549 016 |

See p. 170



## Basic unit Center drive



- ▶ Reduced noise emission due to sliding rails guided in the center drive
- ▶ Installation of the drive kit possible on the right/left (motor, coupling, flange)
- ▶ Drive of a parallel conveyor section using a hexagonal hollow shaft integrated as standard

### Required accessories:

- Drive kit, see p. 159
- Sliding rail, see p. 134
- Motor leg sets, see p. 183
- Assembly module, see p. 139

### Scope of delivery:

- Including fastening material

### Condition on delivery:

- Assembled (profile connector enclosed)

The center drive basic unit is used if the available space is limited at the ends of the sections.

It is quickly turned into a center drive with variable motor mounting position by adding the drive kit

- Size: 65-120
- Chain return on the underside of the profile
- Conveying speed:  $v_N = 2 \dots 60$  m/min, other speeds available on request
- Permissible chain tensile force:  $F_{max} = 600$  N
- Max. conveying length: 7 m
- Because no length compensation (chain bag) is present, the chain length must be checked regularly and shortened if necessary
- Recommendation: No accumulation up to 1000 mm after the return unit
- An assembly module is required for assembling the chain

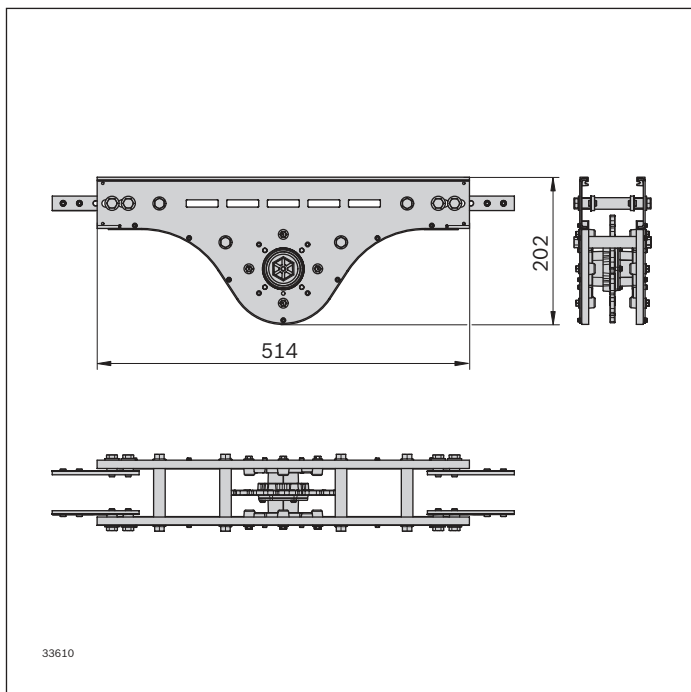
- ▶ Ball bearing made of non-rusting steel (1.4301), with seal on both sides and FDA-compliant grease filling
- ▶ Side elements with slot for attaching holders for lateral guides, or similar

### Optional accessories:

- Synchronous drive connection kit, see p. 178
- Frequency converter, see p. 166

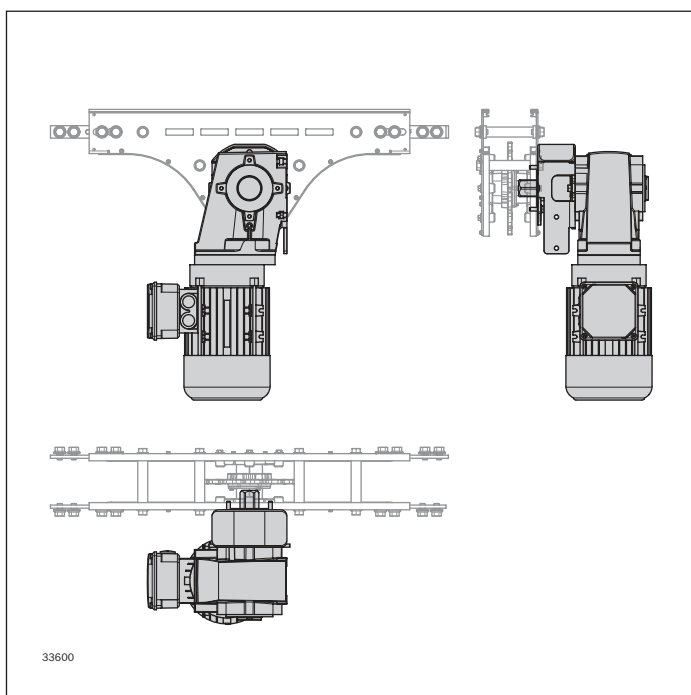
### Material:

- Housing: Non-rusting steel 1.4301
- Chain wheel: PA
- Chain guide: PA
- Connector: Non-rusting steel 1.4301
- Hexagonal shaft: PA
- Ball bearing: Non-rusting steel 1.4301/FDA



| Basic unit with center drive | No.           |
|------------------------------|---------------|
| VFplus 65                    | 3 842 552 940 |
| VFplus 90                    | 3 842 552 941 |
| VFplus 120                   | 3 842 552 942 |

4

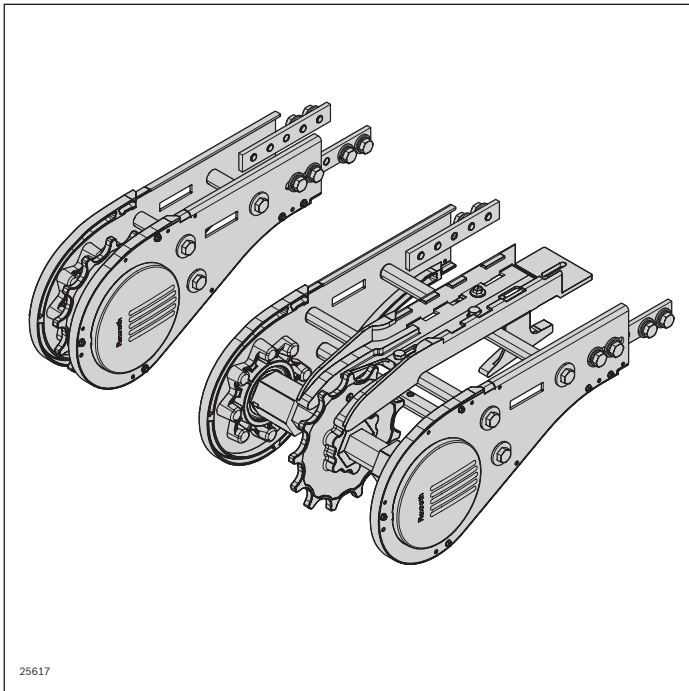


| Drive kit VFplus | No.           |
|------------------|---------------|
| VFplus 65        | 3 842 998 291 |

See p. 164

## Return unit STS

### Closed head drive STS



- ▶ Reduced noise emission due to sliding rails guided in the return unit
- ▶ Installation of the drive kit possible on the right/left (motor, coupling, flange)
- ▶ Drive of a parallel conveyor section or bridge using a hexagonal hollow shaft integrated as standard

#### Required accessories:

- Sliding rail: Length calculation, see p. 302

#### For use as a drive:

- Assembly module, see p. 139
- Drive kit, see p. 164
- Motor leg sets, see p. 183

#### Scope of delivery:

- Including fastening material

#### Condition on delivery:

- Assembled, connector enclosed

Thanks to the innovative drive concept, the return unit can be operated simply by itself or supplemented with a drive kit to be operated as a head drive without chain bag.

The section length is limited to a maximum of 7 m.

- Size: All track widths
- Suitable chain types: All
- Permissible chain tensile force

Return unit function:  $F_{\max} = 1250 \text{ N}$

Head drive without chain bag function:  $F_{\max} = 600 \text{ N}$

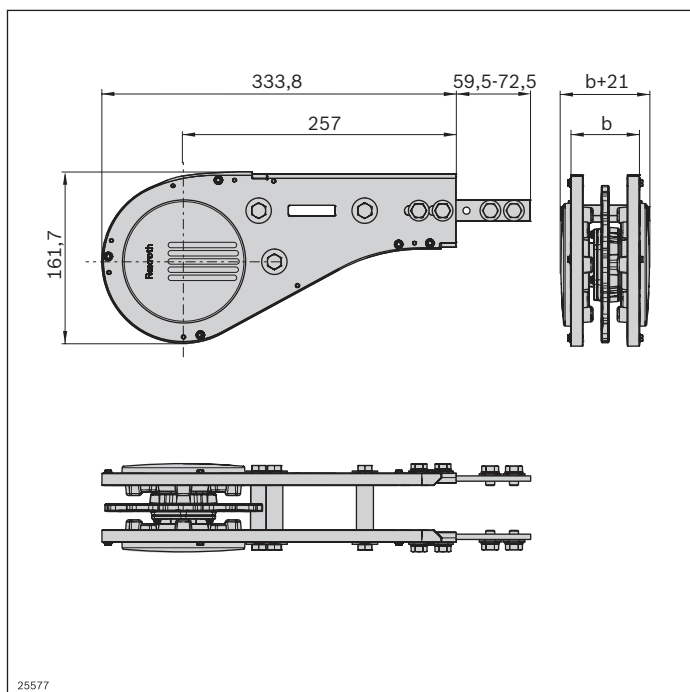
With shortened maintenance interval, due to chain elongation

- Section length for return unit function:  $L \leq 30 \text{ m}$   
Section length for function as drive:  $L \leq 7 \text{ m}$
- Conveying speed:  $v_N = 2 \dots 60 \text{ m/min}$ , other speeds available on request
- Use as a drive for wedge conveyors, when combined with a drive kit
- Not suitable for reversible operation

- ▶ Ball bearing made of non-rusting steel (1.4301), with seal on both sides and FDA-compliant grease filling
- ▶ Implementation of parallel sections possible through a pluggable shaft
- ▶ Side elements with mounting option to attach holders for lateral guides, or similar

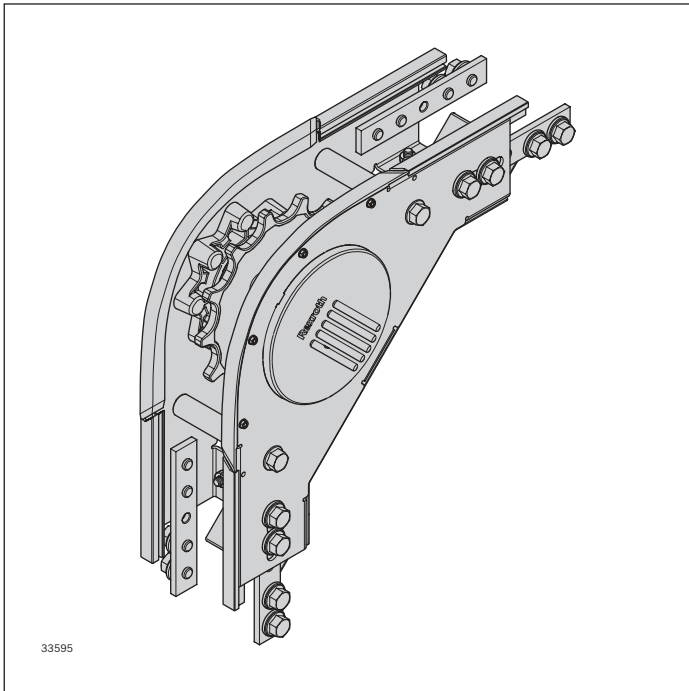
#### Material:

- Housing: Non-rusting steel 1.4301
- Chain wheel: PA
- Chain guide: PA
- Connector: Non-rusting steel 1.4301
- Hexagonal shaft  
up to size 160: PA  
from size 160: Non-rusting steel 1.4301, PA
- Ball bearing: Non-rusting steel 1.4301/FDA



| Return unit STS | No.           |
|-----------------|---------------|
| VFplus 65       | 3 842 547 528 |
| VFplus 90       | 3 842 547 529 |
| VFplus 120      | 3 842 547 530 |
| VFplus 160      | 3 842 547 531 |
| VFplus 240      | 3 842 547 532 |
| VFplus 320      | 3 842 547 533 |

## 90° return unit



For building alpine conveyors with chain running only on the upper side.

- Only for use with connection drive (AL and STS)
- Size: 65, 90
- Section length:  $L_{\max} = 30 \text{ m}$

**Notice:** When using conveyor systems without a returning chain, a cover must be mounted by the customer to ensure personal safety.

Advantage over alpine conveyor with head drive:

- Shorter chain return, so the required tensile force of the conveyor chain is lower and therefore the possible volume of the alpine conveyor is larger

- No longer necessary to mount the sliding rails required for the chain return on the bottom side of the profile
- The required conveyor chain is shorter

Scope of delivery:

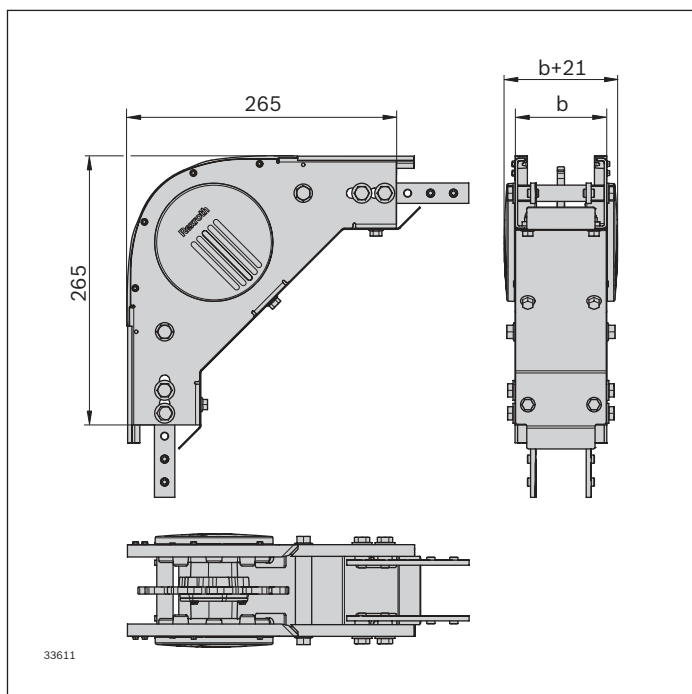
- Including fastening material

Condition on delivery:

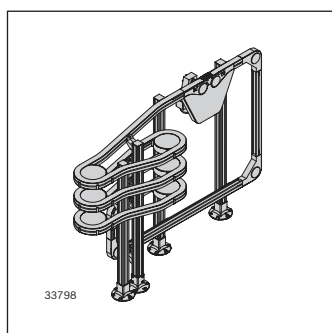
- Assembled

Material:

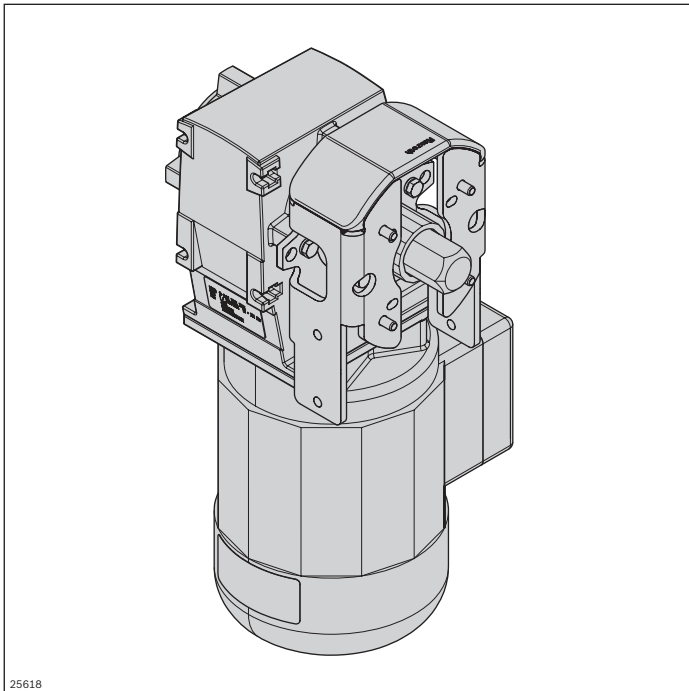
- Housing: Non-rusting steel 1.4301
- Chain wheel: PA
- Chain guide: PA
- Connector: Non-rusting steel 1.4301
- Hexagonal shaft, PA
- Ball bearing: Non-rusting steel 1.4301/FDA



| 90° return unit |   | No.           |
|-----------------|---|---------------|
| VFplus 65       | 1 | 3 842 552 984 |
| VFplus 90       | 1 | 3 842 552 985 |



## Drive kit



The drive kit is designed to operate the basic head drive unit. It contains a flange for attaching the motor to the basic unit, a hexagonal shaft for transmission of force, as well as other optional equipment features.

- Versions in aluminum (SP = AL) or stainless steel (SP = STS)
- With Lenze gear motor (GM = 1) or with an interface for attaching a gear motor SEW SA47 (GM = 2).  
For mounting other gear motors (GM = 0), an adaptation by the customer is required
- Fixed or adjustable speed ( $v_N$ ). For an adjustable speed, gear motors must be retrofitted with an FU (frequency converter), see p. 166
- Different voltages and supply frequencies (U/f)
- Connections are made using terminal boxes (AT = K) or plugs (AT = S)
- GM = 1 without surface and corrosion protection

### Required accessories:

- Motor leg sets, see p. 183

### Scope of delivery:

- Including fastening material
- Including flange, shaft and gear motor (GM = 1)

### Material:

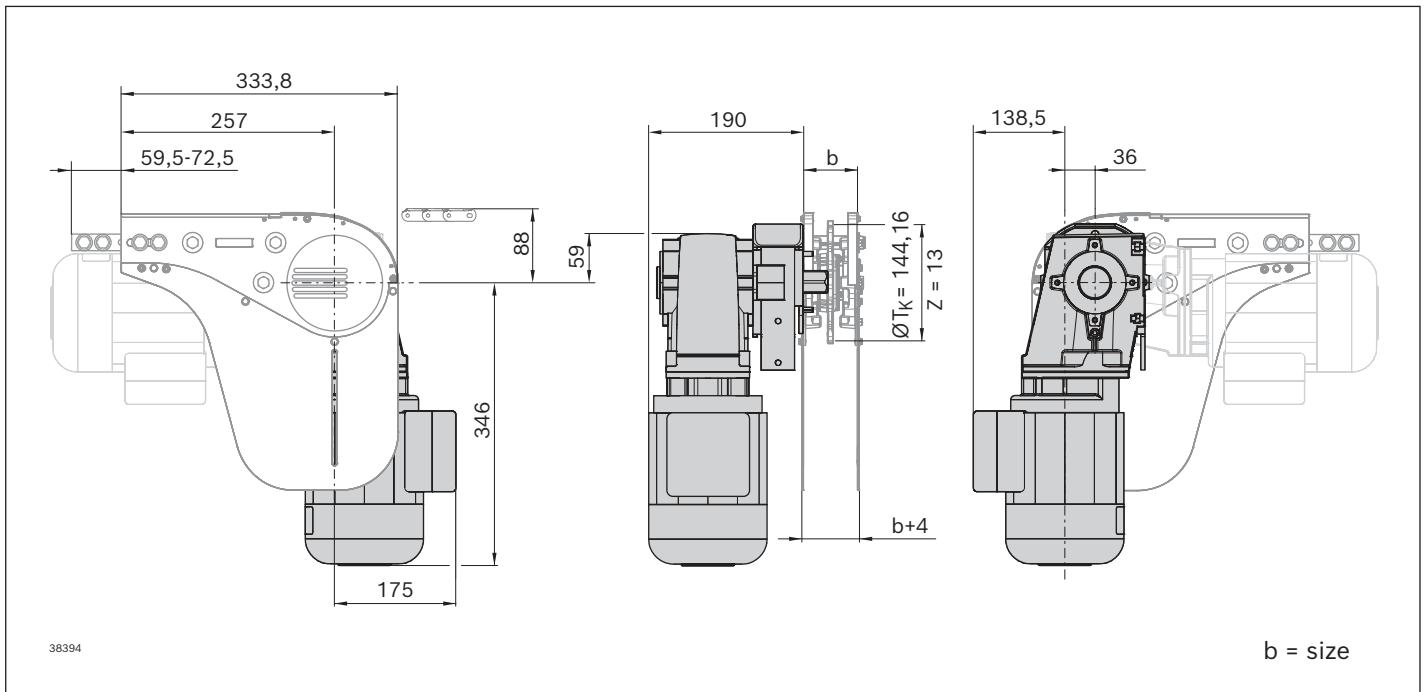
- Flange, shaft: Non-rusting steel 1.4301
- Motor: Die-cast aluminum
- Cover tube: PE

### Optional accessories:

- Frequency converter, see p. 166

### Condition on delivery:

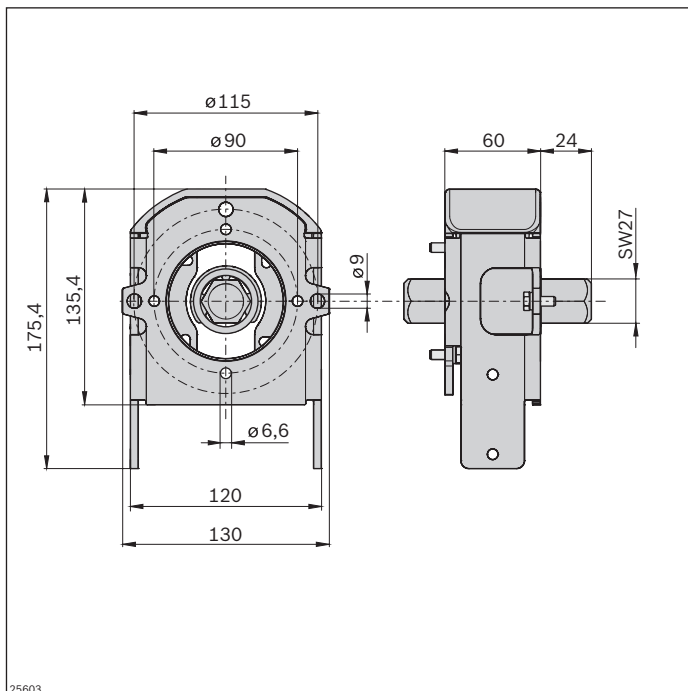
- Kit



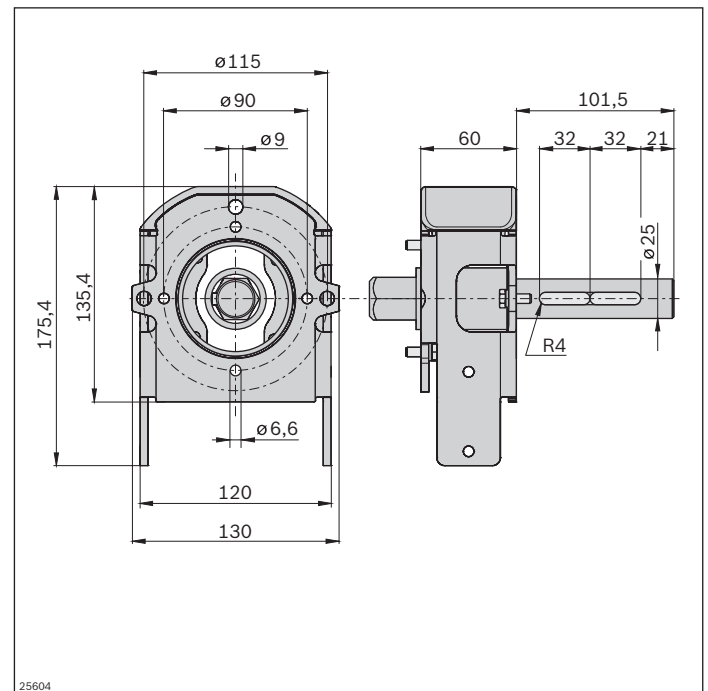
| Drive kit VFplus | SP          | GM      | $v_N$ (m/min)                           | U/f (V/Hz)<br>See p. 305 | AT   | No.                                                                                  |
|------------------|-------------|---------|-----------------------------------------|--------------------------|------|--------------------------------------------------------------------------------------|
|                  | STS;<br>AL* | 0: 1; 2 | 5, 10, 13,<br>16, 21, 27, 33,<br>40, 50 |                          | K; S | <b>3 842 998 291</b><br>SP = ...<br>GM = ...<br>$v_N$ = ...<br>U/f = ...<br>AT = ... |

\* Version AL see p. 92

STS GM = 0

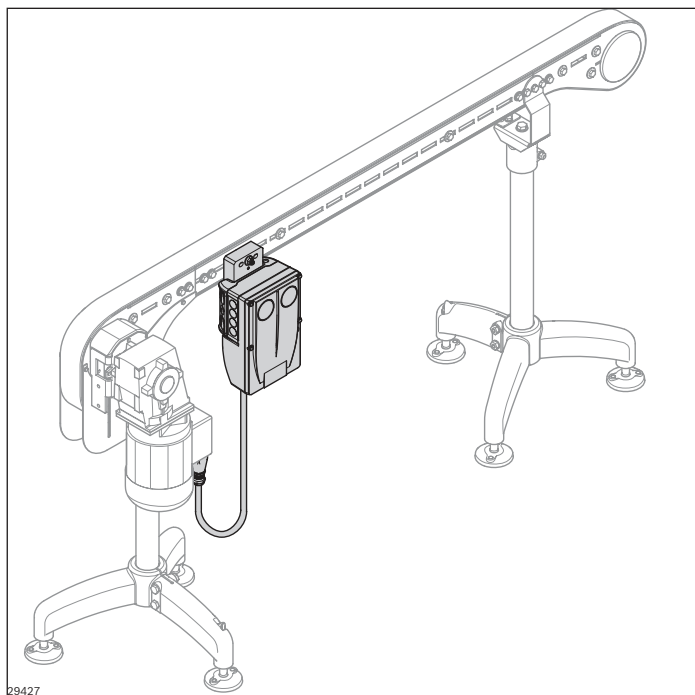


STS GM = 2



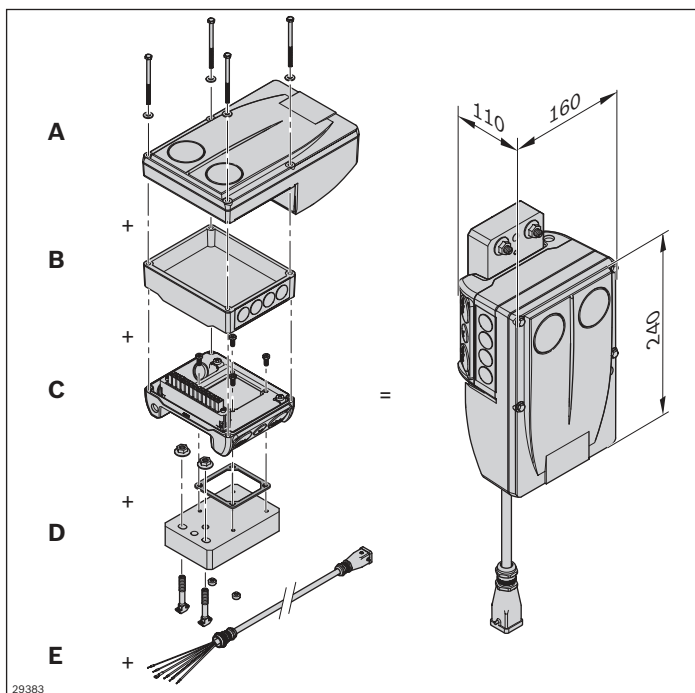


# Frequency converter motec 8400



In order to operate a gear motor with adjustable speed, the motor needs to be retrofitted with a frequency converter (FU). The frequency converter has a modular design, whereby it can be easily mounted on a section and connected to the motor by cable.

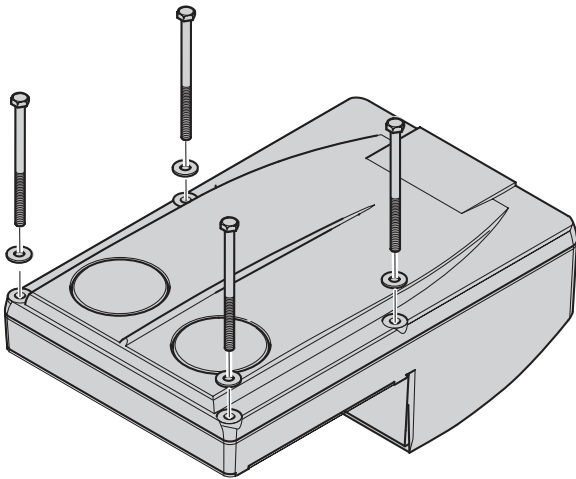
- Connected load: 0.55 kW
- Speed ( $v_N$ ) depending on the base speed of the gear motor used



## Complete frequency converter consisting of the modules

- Frequency converter power unit (A)
- Communication module (B)
- Connection unit (C)
- Attachment kit (D)
- Optional: Connection cable (E) for the plug-in connection to the gear motor (AT = S)

The individual modules can be ordered separately and are easy to connect with the screws supplied with the scope of delivery. For the internal and external voltage supply, the modules must be wired by the user (see terminal box assignment, page 309).

**A**

29384

**Frequency converter (A)**

Power unit: 0.55 kW

3/PE AC 320 V -0 % ... 528 V +0 %,

45 Hz -0 % .... 65 Hz +0 %

- Easy start-up via manual control unit
- Easy-to-replace memory module
- Large LED status indicator

| Frequency converter | No.                  |
|---------------------|----------------------|
| 0.55 kW power unit  | <b>3 842 553 447</b> |

The speed range of the frequency converter <sup>\*)</sup> is based on the base speed of the motor:

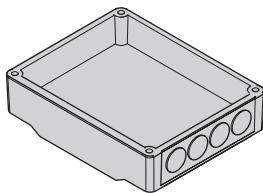
| Base speed of motor<br>(m/min) at 50 Hz | Min <sup>1)</sup><br>(m/min) | Max <sup>2)</sup><br>(m/min) |
|-----------------------------------------|------------------------------|------------------------------|
| 5 <sup>3)</sup>                         | 2                            | 6                            |
| 10 <sup>3)</sup>                        | 4                            | 12                           |
| 13                                      | 5                            | 15                           |
| 16                                      | 6                            | 19                           |
| 21                                      | 7                            | 25                           |
| 27                                      | 9                            | 32                           |
| 33                                      | 11                           | 39                           |
| 40                                      | 13                           | 48                           |
| 50                                      | 16                           | 60                           |

<sup>\*)</sup> By accepting a resulting loss of power, a higher bandwidth can be covered (see p. 309)

<sup>1)</sup> Min corresponds to approx. 16 Hz supply frequency

<sup>2)</sup> Max corresponds to approx. 60 Hz supply frequency

<sup>3)</sup> At 460 V/60 Hz max (m/min) 20 % higher

**B**

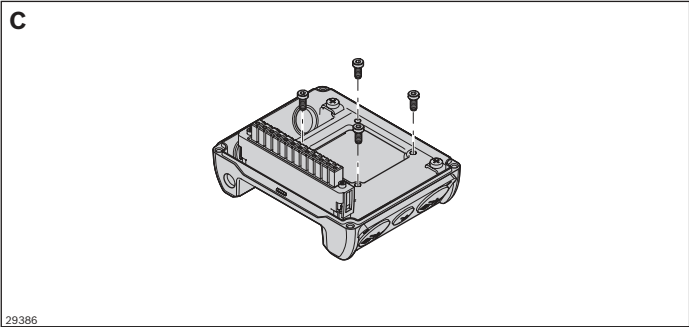
29385

**Communication module (B)**

- Used to control the frequency converter
- Cable connection options
- Standard version without "integrated safety system STO (safety torque off)" (available on request)

Depending on their function, the individual communication modules are provided with the corresponding connections.

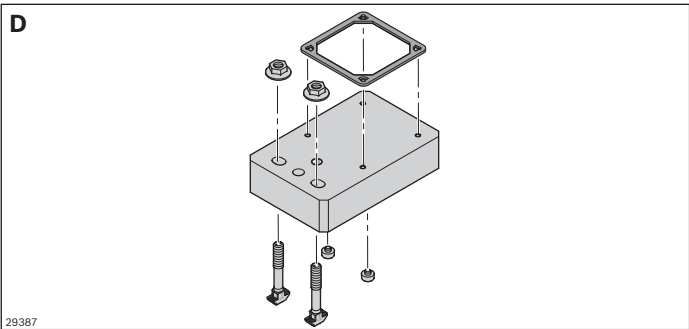
| Communication module | No.                  |
|----------------------|----------------------|
| Standard I/O         | <b>3 842 553 449</b> |
| AS-i                 | <b>3 842 553 453</b> |
| CANopen              | <b>3 842 553 454</b> |
| EtherNet/IP          | <b>3 842 553 451</b> |
| EtherCAT             | <b>3 842 553 459</b> |
| PROFIBUS             | <b>3 842 553 452</b> |
| PROFINET             | <b>3 842 553 450</b> |



**Connection unit (C)**

- Power grid connection options

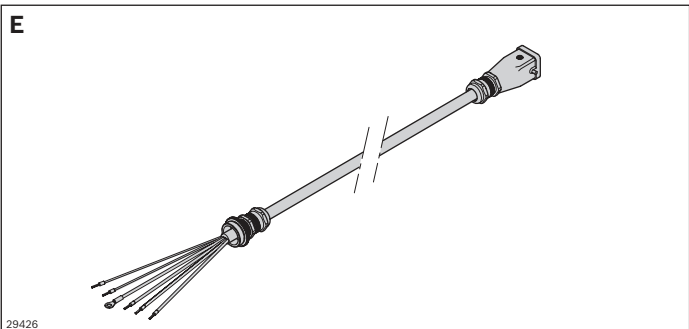
| Connection unit | No.           |
|-----------------|---------------|
|                 | 3 842 553 445 |



**Attachment kit (D)**

- For the simple attachment of the frequency converter to the section STS

| Attachment kit | No.           |
|----------------|---------------|
|                | 3 842 553 457 |



**Connection cable (E)**

- For connecting the gear motor to the frequency converter (length: 1 m)
- For the drive kit AT = S (direct wiring with AT = K)

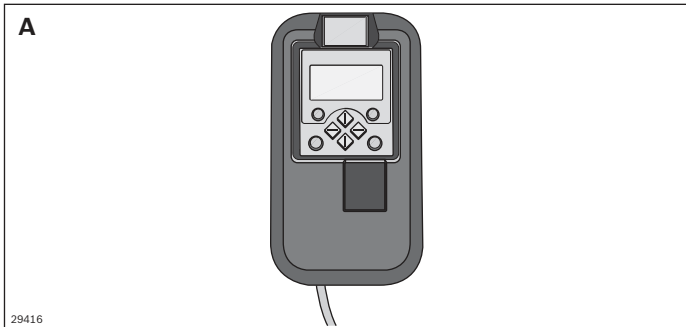
| Connection cable | No.           |
|------------------|---------------|
|                  | 3 842 553 512 |

# Manual control unit

## Switching/potentiometer unit



4



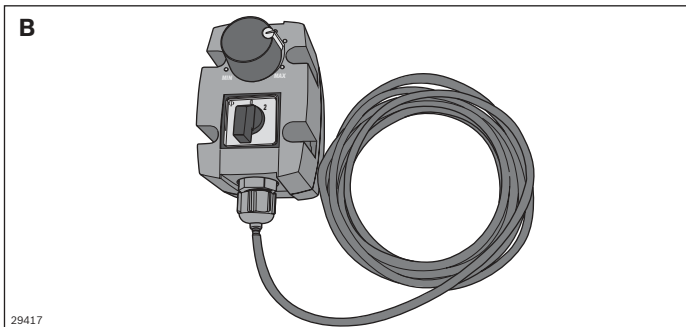
### Manual control unit

The manual control unit is required for the parameterization of drives with frequency converters.

In addition, you can:

- Control (e.g. block and release)
- Display operating data
- Steplessly regulate the transport speed
- Transfer parameter sets to other basic devices

| Manual control unit | No.                  |
|---------------------|----------------------|
|                     | <b>3 842 552 821</b> |



### Switching/potentiometer unit

The switching/potentiometer unit is used to fine tune the transport speed within a range that has been preset with the manual control unit. The switching/potentiometer unit is connected to the frequency converter by a cable. The drive can be started or stopped with the rotary switch.

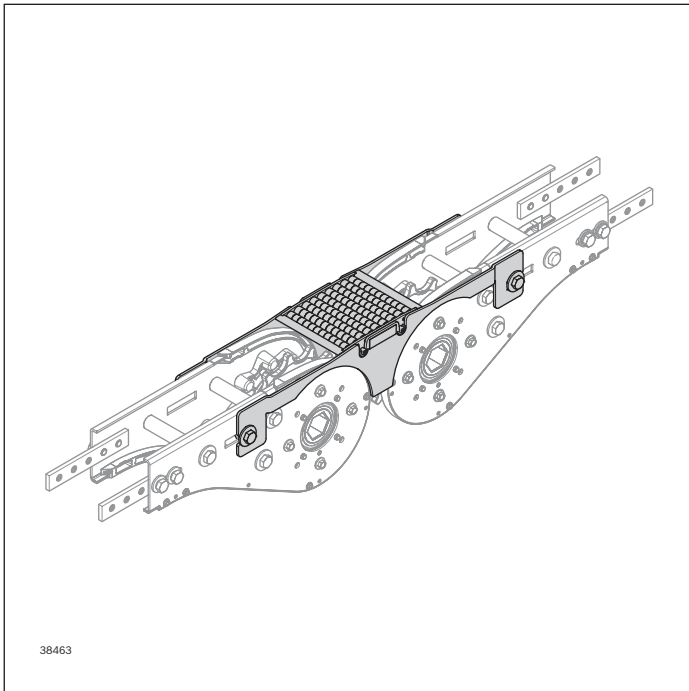
**Notice:** It is imperative that the running direction of the chain conveyor is checked prior to start-up.

| Switching/potentiometer unit | No.                  |
|------------------------------|----------------------|
|                              | <b>3 842 553 184</b> |

Scope of delivery:

- **A, B:** Including 2.5 m connection cable

## Passive bridge connection kit



The passive bridge is used as a transfer unit between the basic unit and return unit or with the connection drive to bridge the conveyor trench.

- Size: 65-160
- Only for flat conveyor chain and static friction chain
- For dimensionally stable products with an even transport surface
- Height adjustment: Approx. 2 mm
- The conveyed goods are transferred via passive rollers
- Suitable for goods from approx. 300 mm length

- Can be retrofitted into a standard configuration at any time

### Scope of delivery:

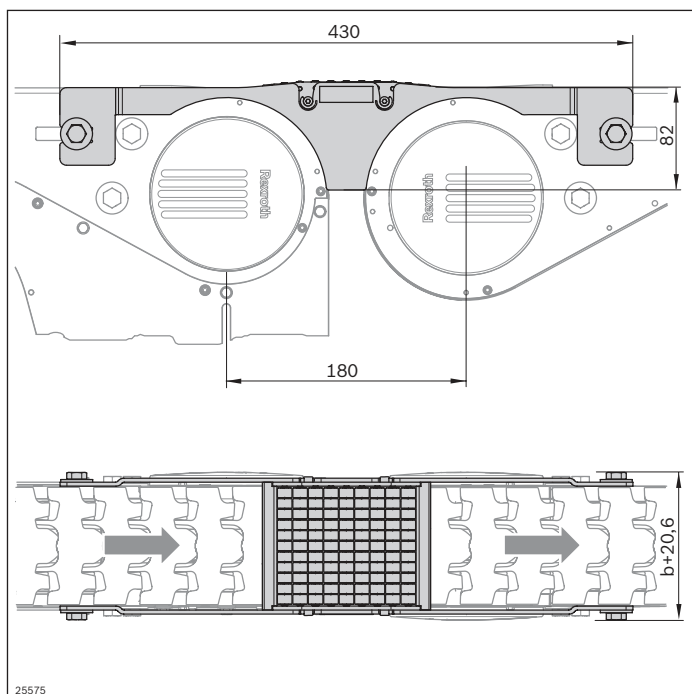
- Including fastening material

### Condition on delivery:

- Some assembly required

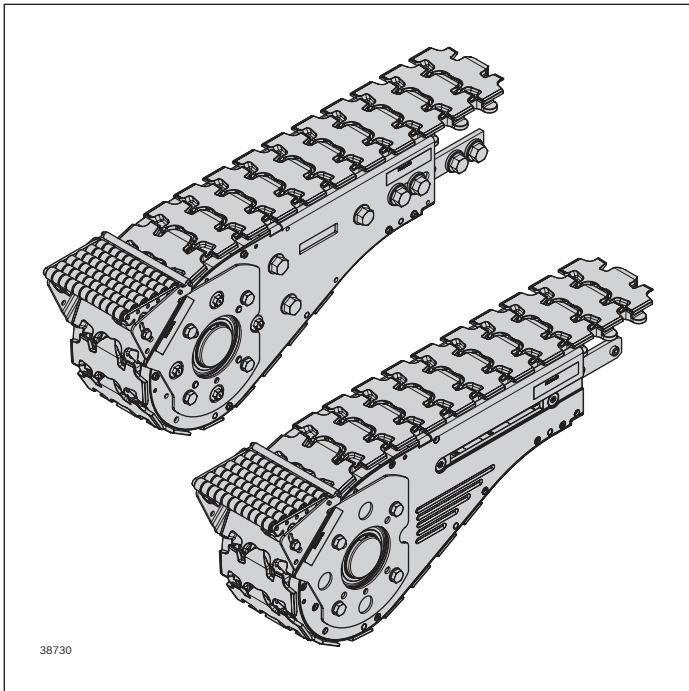
### Material:

- Non-rusting steel 1.4301, POM



| Passive bridge connection kit | No.           |
|-------------------------------|---------------|
| VFplus 65                     | 3 842 549 015 |
| VFplus 90                     | 3 842 549 016 |
| VFplus 120                    | 3 842 549 017 |
| VFplus 160                    | 3 842 549 018 |

## Short passive bridge connection kit



The short passive bridge is used as a transfer unit between the basic unit or return unit and a third-party conveyor to bridge the conveyor trench.

- Size: 65-160
- Each in a separate version for a flat conveyor chain and static friction chain
- For dimensionally stable products with an even transport surface
- The conveyed goods are transferred via passive rollers
- Suitable for goods from approx. 150 mm length
- Inclination adjustment  $\pm 15^\circ$  (only the gradient)

- Can be retrofitted into the basic unit and return unit at any time (cannot be combined with the transmission kit)
- Suitable for mounting on AL and STS

### Scope of delivery:

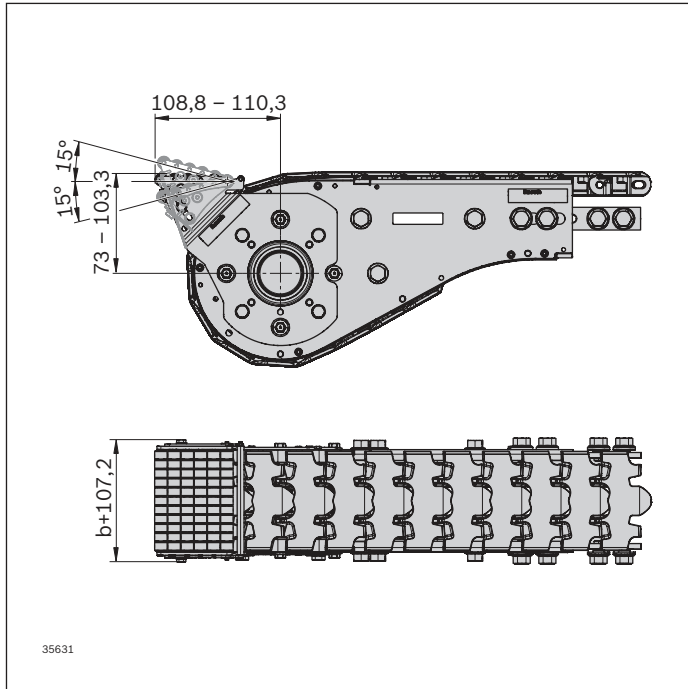
- Including fastening material

### Condition on delivery:

- Some assembly required

### Material:

- Non-rusting steel 1.4301, POM

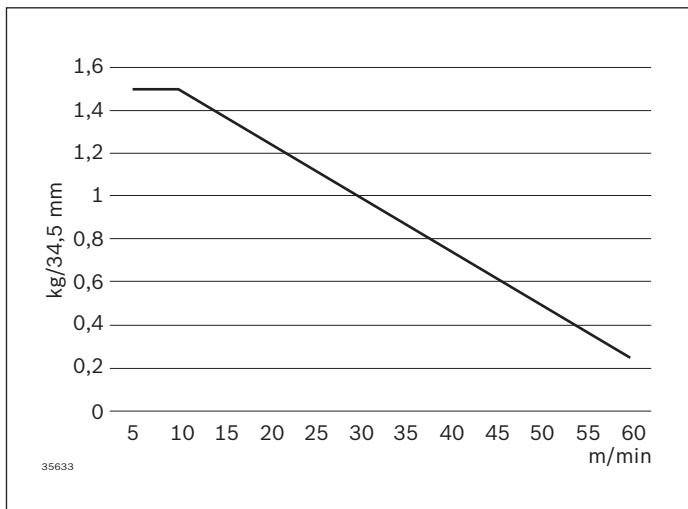


| Short passive bridge connection<br>kit for flat conveyor chain | No.           |
|----------------------------------------------------------------|---------------|
| VFplus 65                                                      | 3 842 558 050 |
| VFplus 90                                                      | 3 842 558 051 |
| VFplus 120                                                     | 3 842 558 052 |
| VFplus 160                                                     | 3 842 558 053 |

| Short passive bridge connection<br>kit for static friction chain | No.           |
|------------------------------------------------------------------|---------------|
| VFplus 65                                                        | 3 842 558 078 |
| VFplus 90                                                        | 3 842 558 079 |
| VFplus 120                                                       | 3 842 558 080 |
| VFplus 160                                                       | 3 842 558 081 |

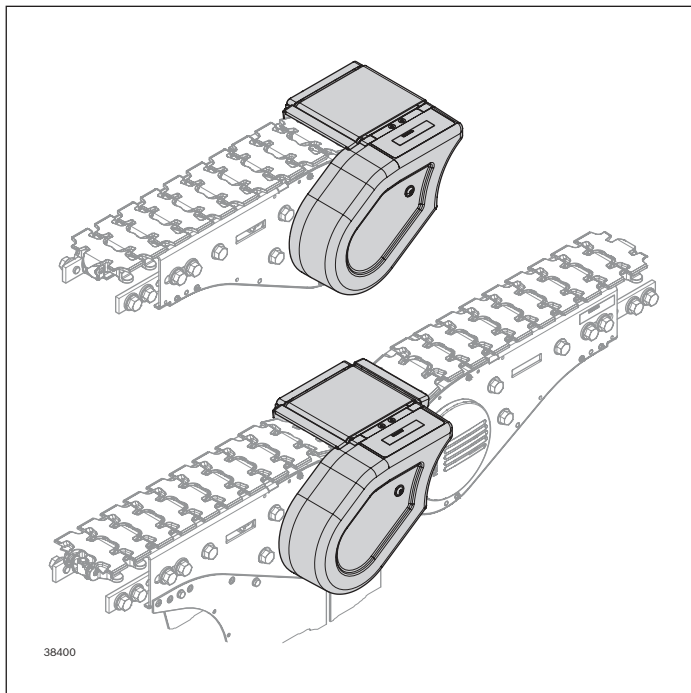
4

### Permissible load depending on the speed





## Connection kit active belt bridge



- ▶ Simple transmission of the drive force using hexagonal hollow shafts integrated into the base unit or return unit as standard
- ▶ Can be retrofitted into a standard configuration at any time
- ▶ Easy replacement of the belt from the top

### Scope of delivery:

- Including fastening material
- Transmission and protective cover

### Material:

- Aluminum, non-rusting steel 1.4301, PA, PE, ABS, PUR

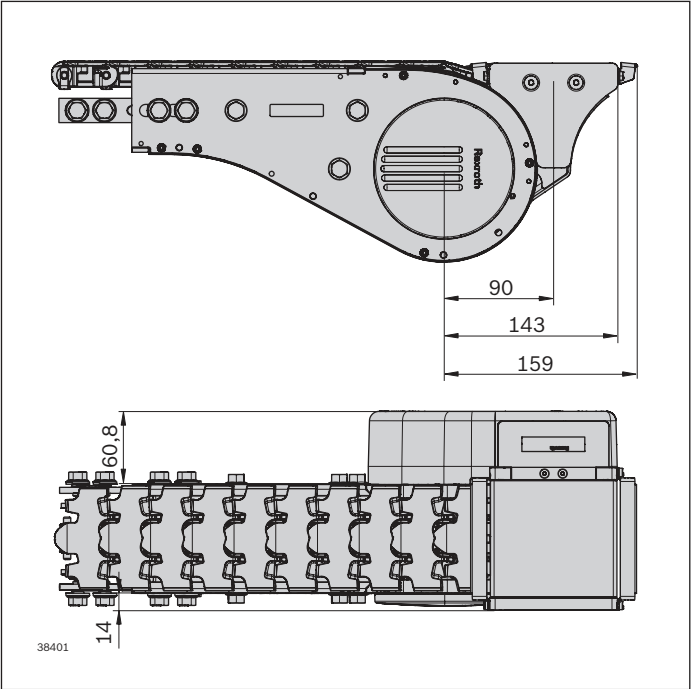
- ▶ The active belt bridge is used as a transfer unit for bridging the conveyor trench
  - between the basic unit and return unit
  - between the start or end of a conveyor section and a third-party conveyor
  - in the connection drive
- ▶ Size: 65, 90
- ▶ Only for flat conveyor chain and static friction chain

The active belt bridge is driven by a transmission (on the drive or return unit side).

- ▶ Suitable for conveyed materials from approx. 80 mm in length (depending on the speed, position of the center of gravity, product friction, etc.)
- ▶ Installation possible on both the drive and return side (make sure to use the correct L/R version)
- ▶ Not permitted for wet operation, rough ambient conditions or sharp-edged products
- ▶ Load depending on the speed (see diagram)
- ▶ The speed of the adjacent conveyor should be approximately the same to prevent premature wear

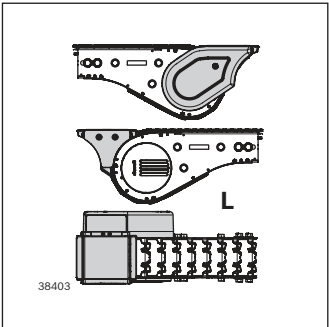
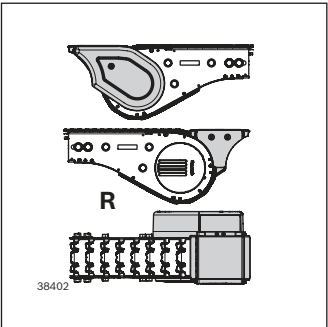
### Condition on delivery:

- Some assembly required

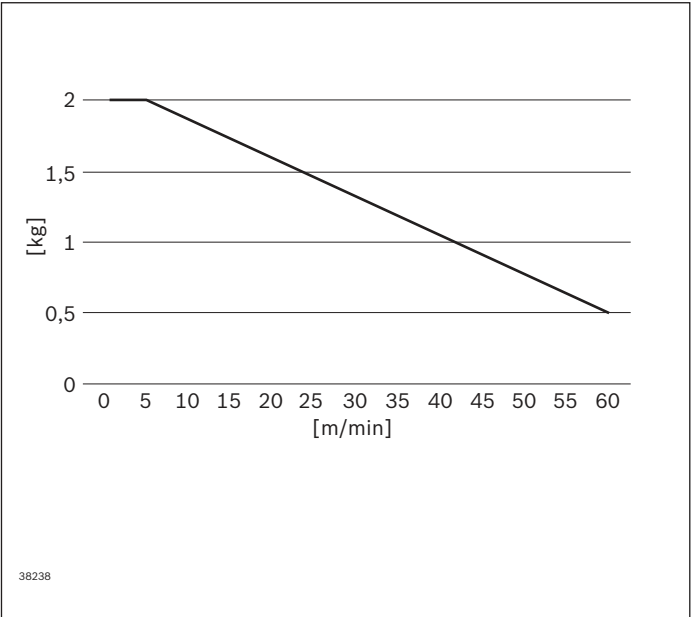


| Connection kit<br>active belt bridge |   | No.           |
|--------------------------------------|---|---------------|
| VFplus 65                            | L | 3 842 558 000 |
| VFplus 65                            | R | 3 842 558 001 |
| VFplus 90                            | L | 3 842 558 002 |
| VFplus 90                            | R | 3 842 558 003 |

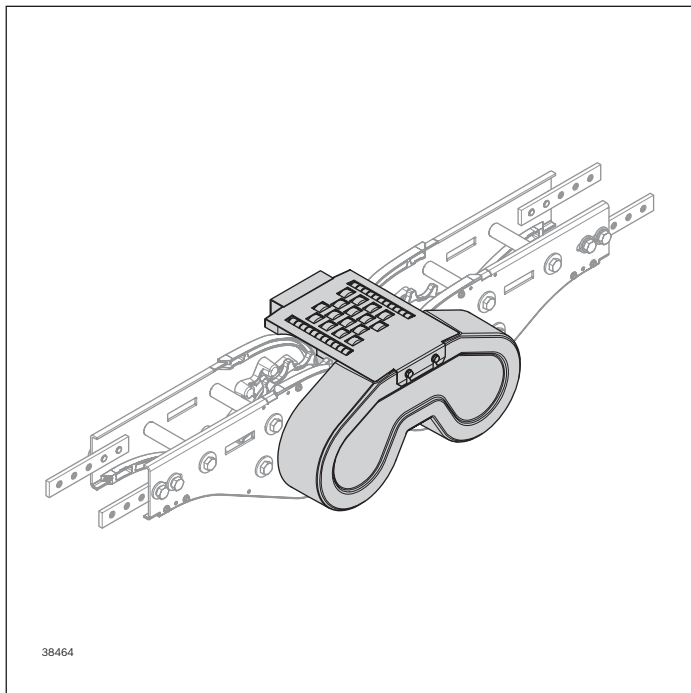
4



**Permissible load depending on the speed**



## Active roller bridge connection kit



The active roller bridge is used as a transfer unit between the basic unit and return unit or with the connection drive to bridge the conveyor trench. The active roller bridge is driven by a transmission (on the drive or return unit side).

- Size: 65-160
- Only for flat conveyor chain and static friction chain
- For dimensionally stable products with an even transport surface
- Height adjustment: Approx. 2 mm
- Additional versions (e.g. machine variants at the section end) available on request
- Suitable for conveyed materials from approx. 100 mm in length (depending on the speed, position of the center of gravity, product friction, etc.)
- Freely selectable mounting position (L/R)
- Not permitted for wet operation or rough ambient conditions

- Simple transmission of the drive force using hexagonal hollow shafts integrated into the base unit or return unit as standard

- Can be retrofitted into a standard configuration at any time

### Scope of delivery:

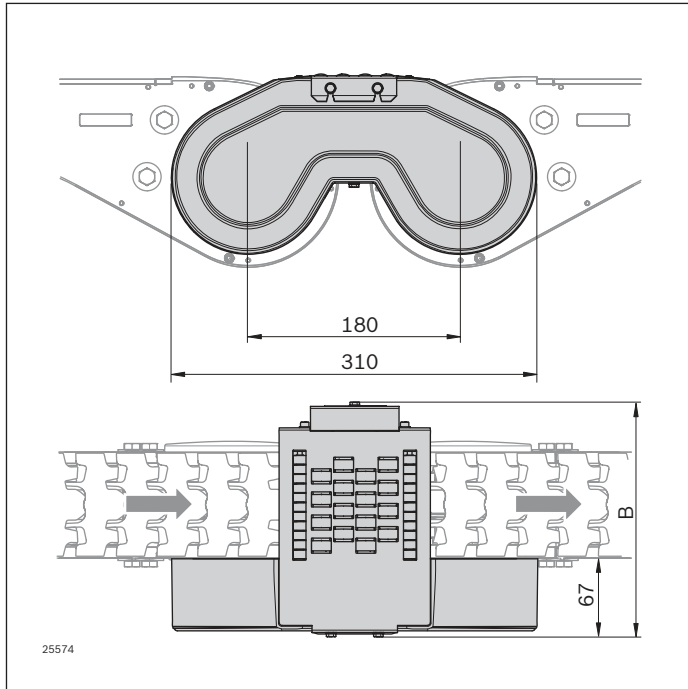
- Including fastening material
- Transmission and protective cover

### Condition on delivery:

- Some assembly required

### Material:

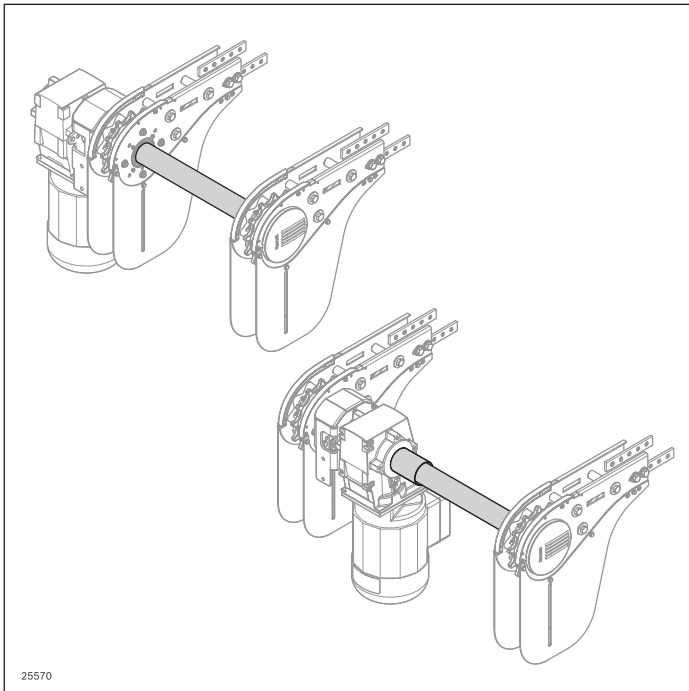
- Non-rusting steel 1.4301, PA, POM, ABS, PUR



| Active roller bridge connection kit | B   | No.                  |
|-------------------------------------|-----|----------------------|
| VFplus 65                           | 174 | <b>3 842 555 820</b> |
| VFplus 90                           | 199 | <b>3 842 555 821</b> |
| VFplus 120                          | 229 | <b>3 842 555 822</b> |
| VFplus 160                          | 269 | <b>3 842 555 823</b> |

## Synchronous drive

### Connection kit, external motor/internal motor



The connection kit for a synchronous drive is used to synchronously drive two conveyor sections with only one motor.

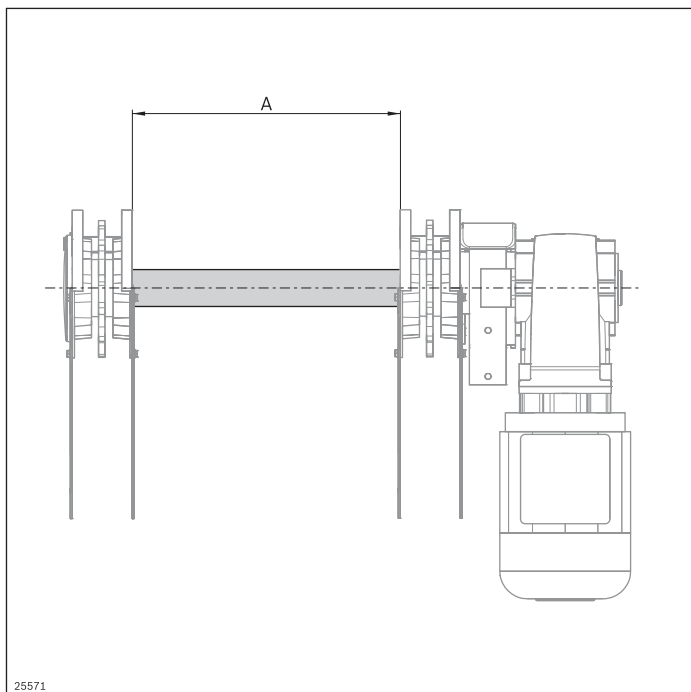
- Exterior synchronous drive:
  - Motor mounting position outside the parallel sections
- Internal synchronous drive:
  - Motor mounting position between the parallel sections for drive kit GM = 1 (see p. 164), customer check required for other motor types

Condition on delivery:

- Assembly required

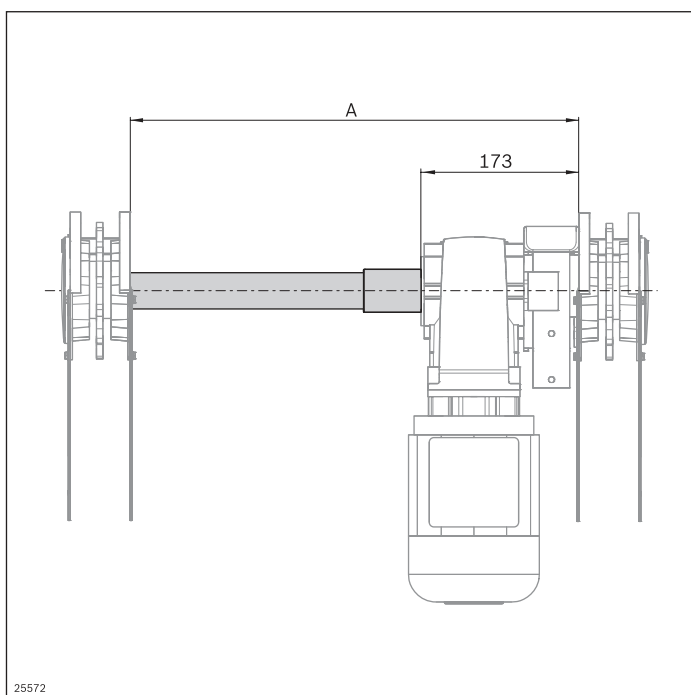
Material:

- Shaft: Non-rusting steel 1.4301
- Coupling: PA



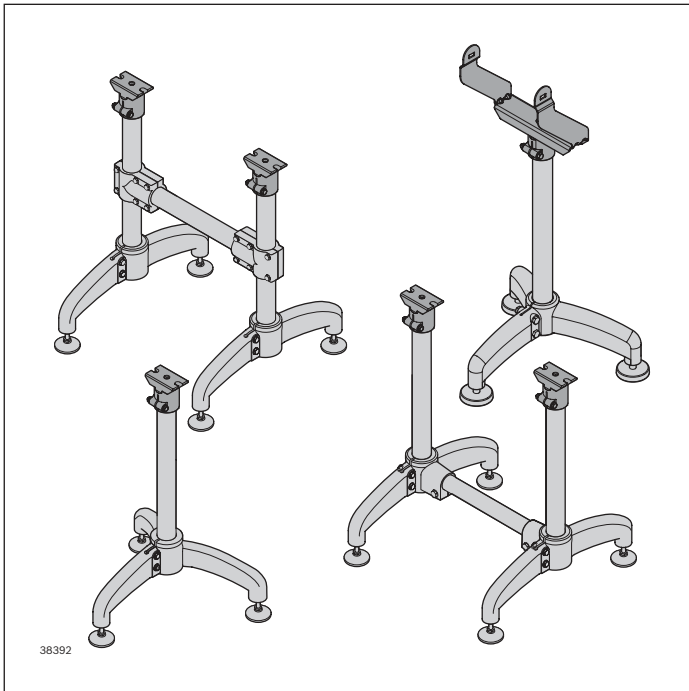
| Synchronous drive connection kit | A (mm)      | No.                  |
|----------------------------------|-------------|----------------------|
| VFplus external motor            | 15 ... 2940 | <b>3 842 998 774</b> |

4



| Synchronous drive connection kit | A (mm)       | No.                  |
|----------------------------------|--------------|----------------------|
| VFplus internal motor            | 240 ... 3160 | <b>3 842 998 775</b> |

## Leg sets STS



- ▶ Fast, simple leg set adjustment thanks to clever product details
- ▶ Few screwed connections
- ▶ Easy to clean thanks to ample draining surfaces
- ▶ Bore for the easy attachment of drop trays, protective devices, etc.
- ▶ Supports can also be used in conjunction with sections AL

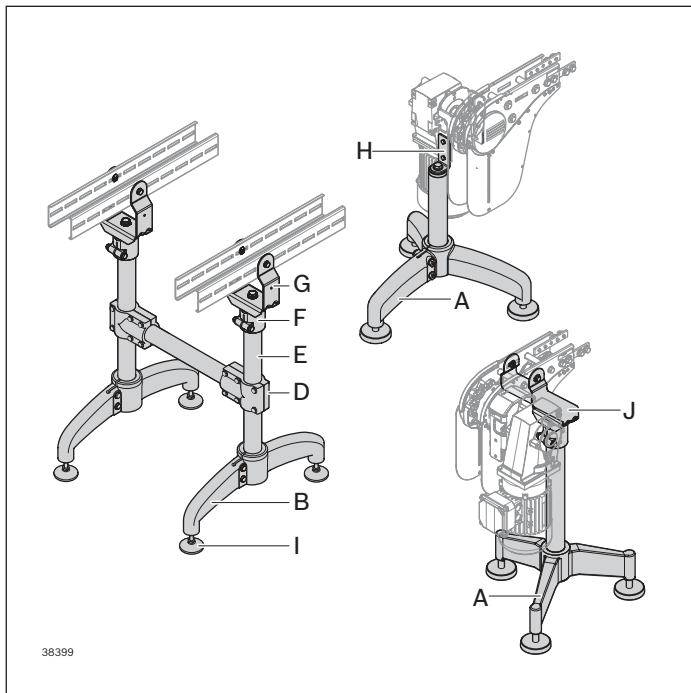


**Leg set STS**

**182**



## Leg set STS



- For dowelling the leveling feet (**I**) drill guides are available on the underside
- Easy-to-clean design with draining surfaces

### Scope of delivery:

- Including fastening material

### Material:

- **A, B, C, D, F:** PA
- **E, G, J:** Non-rusting steel 1.4301
- **H:** Non-rusting steel 1.4301 with PA
- **I:** STS with PA

The chain conveyor is placed on the ground by means of supports and fastened.

The support is constructed from single parts:

Foot in three different versions (**A, B, C**) tube (**E**), flange (**F**) for mounting the holder and holder (**G**) for mounting the section profile.

It is imperative that a separate holder (**J**) is used to support the motors/drives. Holder (**H**) as an additional or optional support on the flange.

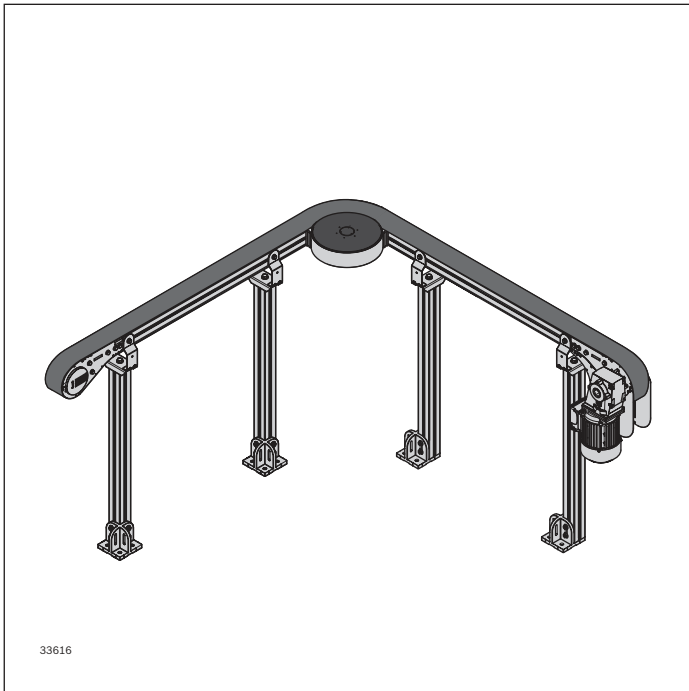
- Depending on the speed, accumulation behavior and weight, the supports are to be fixed at a distance of approx. 2 ... 3 m
- The leg sets for the aluminum system (see p. 116, 120) can also be used on the stainless steel system. The holders (**G+J**) can be connected directly to a strut profile 60x60 and a S12x30-T50 (MGE catalog **3 842 530 236**)
- Holders (**J+H**) can only be used for the system STS
- Holder (**G**) can also be used for ascending and descending conveyor sections (up to approx. 28°, depending on the return chain)
- Holder (**G**) with drill guide to fasten drip trays, trap guards for return chains etc., also suitable for section profile 60x60
- Due to stability reasons, cross reinforcements are absolutely necessary when using feet B and C

### Condition on delivery:

- Assembly required



# ESD system VarioFlow *plus*



- ▶ Components and parts suitable for use in an EPA (ESD Protected Area)
- ▶ Conductive components
- ▶ Dissipative connection technology
- ▶ Size: 65, 90
- ▶ Max. speed: 30 m/min
- ▶ Max. chain tensile force: 600 N

**Notice:**

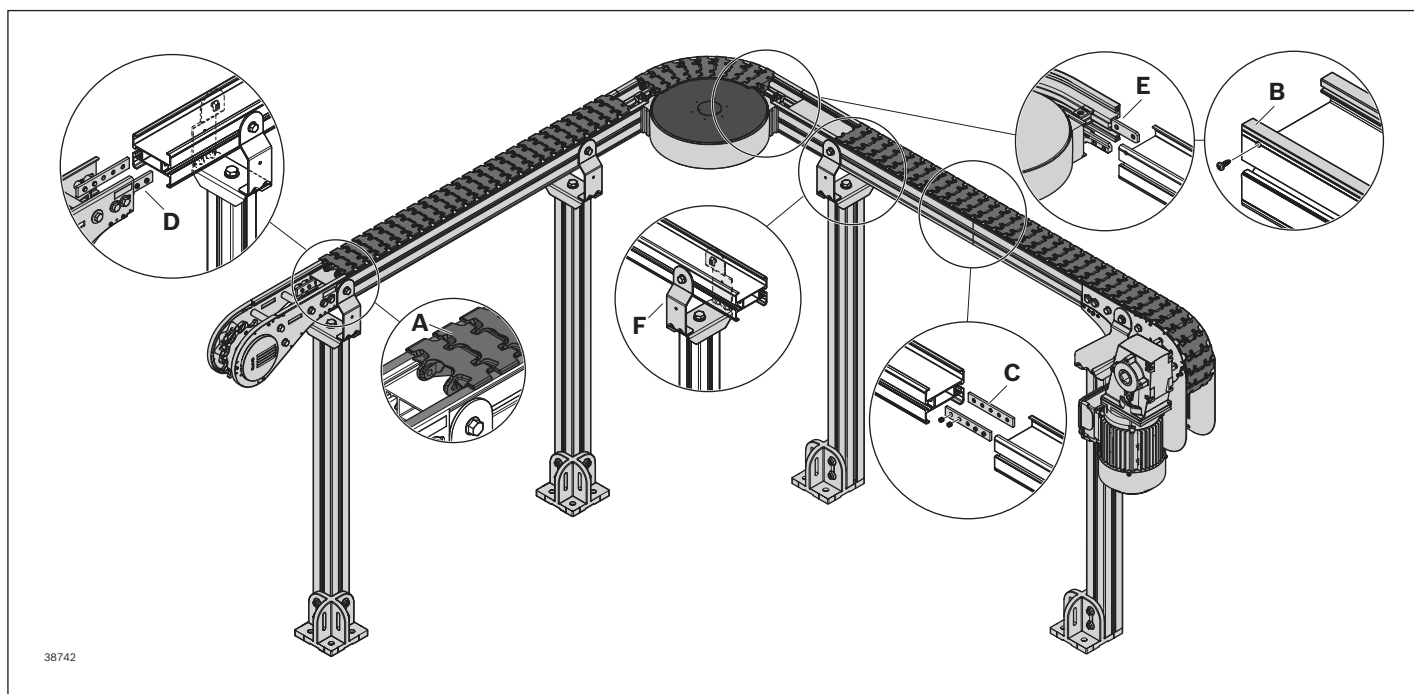
Because sliding friction is involved with the transport medium (chain), static charges cannot be completely avoided. Depending on customer requirements, additional measures may be necessary.

|                                                                                     |                                                      |            |
|-------------------------------------------------------------------------------------|------------------------------------------------------|------------|
|    | <b>Design of an ESD system</b>                       | <b>186</b> |
|    | <b>Conveyor chain ESD</b>                            | <b>190</b> |
|    | <b>Sliding rail ESD</b>                              | <b>192</b> |
|    | <b>Curve wheel AL ESD</b>                            | <b>194</b> |
|   | <b>Drive and return unit ESD</b>                     | <b>196</b> |
|  | <b>Basic unit</b><br><b>Curve wheel drive AL ESD</b> | <b>198</b> |
|  | <b>Adapter AL-STS</b>                                | <b>200</b> |
|  | <b>Leg set ESD</b><br><b>Motor leg set ESD</b>       | <b>202</b> |

## Design of an ESD system



The ESD system comprises a combination of AL, STS and special ESD components.



- **A:** The conveyor chain ESD is deflected to the sliding rail ESD via the extensive support.
- **B:** The sliding rail ESD is deflected to the section profile AL (see p. 54) via the side standard mount<sup>1)</sup>
- **C:** The section profile AL is mounted using the profile connector AL<sup>1)</sup>
- **D:** The drive/return unit STS are mounted on the section profile AL using the adapter AL-STS<sup>1)</sup>. The use of the drive/return unit STS instead of the version AL is necessary to minimize the load creation
- **E:** The curve wheel AL ESD (see p. 194) is screwed with the section profile AL<sup>1)</sup>
- **F:** The leg sets AL are mounted on the section profile AL via holders STS (screws in the slot)<sup>1)</sup>

<sup>1)</sup> T-bolts, nuts and self-tapping screws break through the anodized layer and form a connection to the conductive aluminum core.

**Notice:**

When assembling an ESD system, ensure that all components are conductively connected to each other. Horizontal sliding curves are not suitable for use in an EPA due to the high friction.

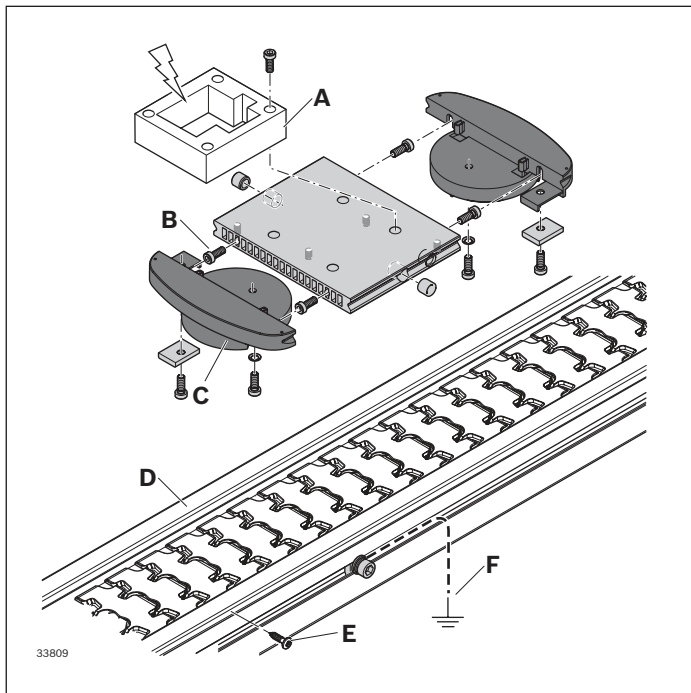
In an environment designed for ESD, all components should be made from volume or surface conductive material. Since this is not always possible in the VarioFlow *plus* system for technical and economic reasons, the occurrence of charges (that are strongly dependent on the humidity – 40 % minimum should not be fallen short of) cannot be completely excluded for certain components.

No ESD critical processes should be carried out in the vicinity of components such as drives, return units, or bridges. You should move processing-related processes into straight sections and design the complete system according to what your ESD coordinator thinks.

Charges occurring can be discharged through the use of conductive brushes. For machining processes involving particularly sensitive parts, there are numerous components that can be found in Rexroth's Manual Production Systems product range with which individual workstations can be integrated in a VarioFlow *plus* system. These workstations can be implemented, both simply and economically, as completely conductive "islands" according to the ESD requirements.

**Caution:**

Personal safety always comes before ESD safety!

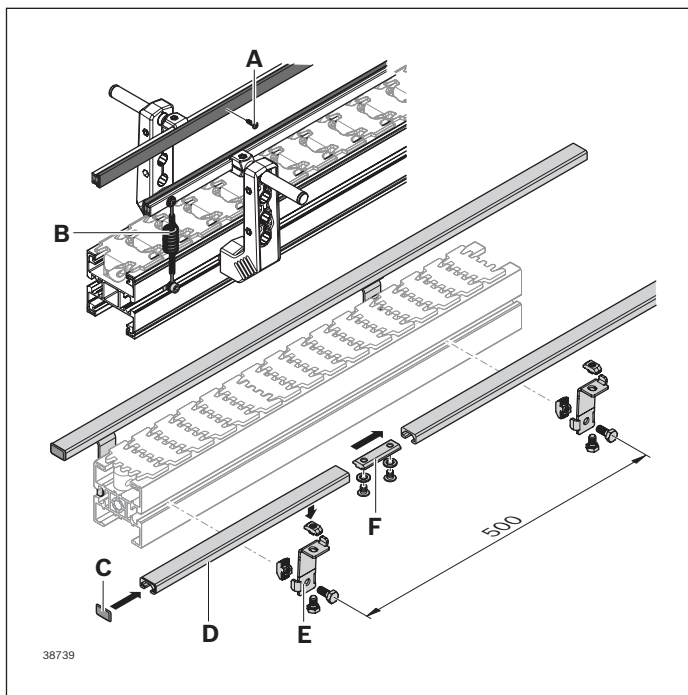


### Workpiece pallets

- Product carrier connection made of metal or conductive plastic connections to the plate WT via screw **(A)** (pierced anodized coating)
- Connection to the end caps and the steel wear pad via screws **(B)**
- Connection to the conveyor chain via a large contact area **(C)**
- Connection between the conveyor chain and the sliding rail via a large contact area **(D)**
- Sliding rail connection with section profile via screws **(E)**
- Example connection to the hall potential equalizer with a 1 MΩ protective resistor **(F)**

### Notice:

Only the steel wear pad is ESD capable.

**Product guide**

- Sliding rail connection narrow with profile rail AL via sheet metal screw (3 842 547 908) (**A**)
- Connection between profile rail – section profile AL using a screw (3 842 547 908 or 3 842 533 915), cable and T-nut (**B**) (piercing through the anodized coating and establishing a connection to the conductive aluminum core)

**Workpiece pallet product guide**

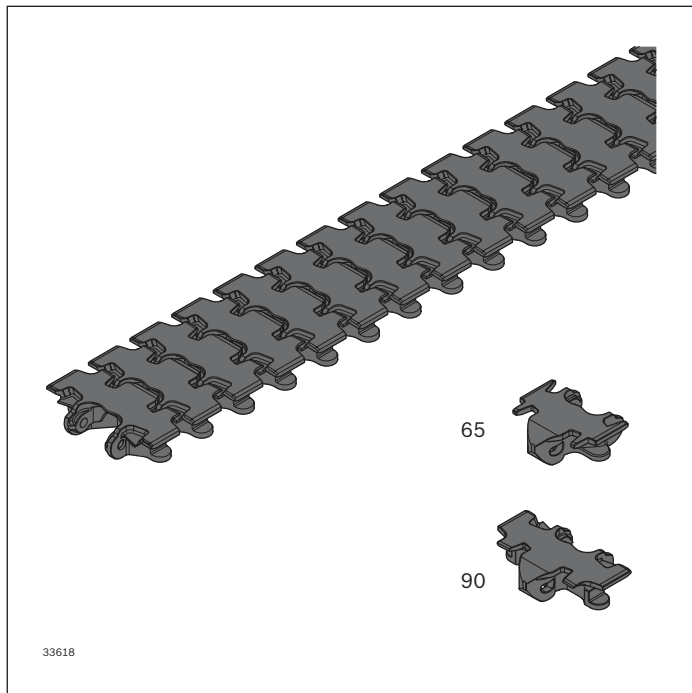
- Connection of lateral guide profile (**D**) with holder (**E**) using T-nuts (broken eloxal layer)
- Connection between 2 lateral guide profiles via profile connector (**F**) with T-nuts (broken anodized layer)

**Notice:**

The extension of the profile rail AL is only permitted with the profile connector on the outside (see p. 218).



## Conveyor chain ESD



The conveyor chain ESD is used to transport products directly or indirectly via workpiece pallets in electrostatically dissipative systems.

- Transport on ascending or descending sections up to about 7° possible, depending on the product (test required)
- Accumulation operation permitted, depending on the product
- Maximum chain tensile force: 600 N
- Conduction resistance:  $< 10^8 \Omega$
- Size: 65, 90
- A combination with other types of chains is not permitted, since these are non-conductive

- Drilling the flat conveyor chain links allows for the simple attachment of superstructures.  
A mold cavity for accommodating a flat hexagon nut/screw M5 is present.  
Max. drilling up to  $\varnothing 5$  mm since at this point there are no interfering contours in the chain conveyor.

- Extremely quiet chain running thanks to the patented chain design

Required accessories for individual chain links:

- Chain pin and pivot pin, see p. 191

Scope of delivery:

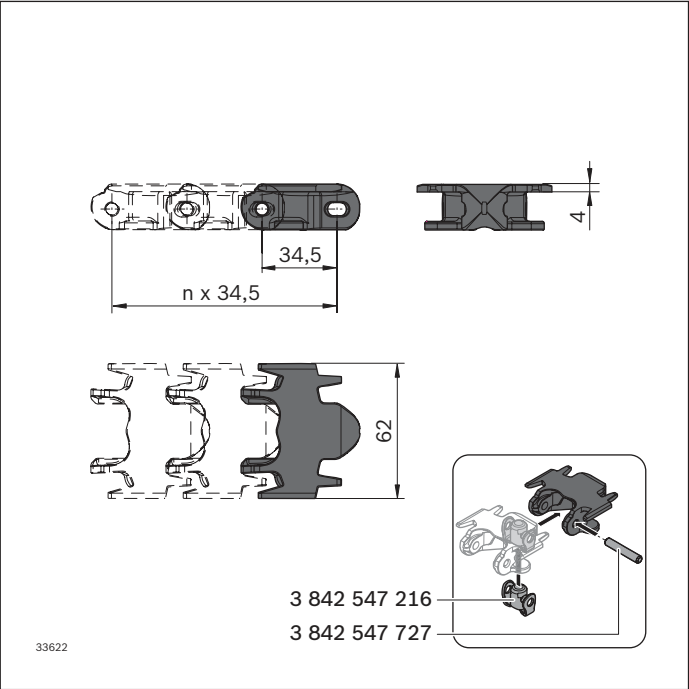
- Chain: Complete, incl. chain pin and pivot pin

Condition on delivery:

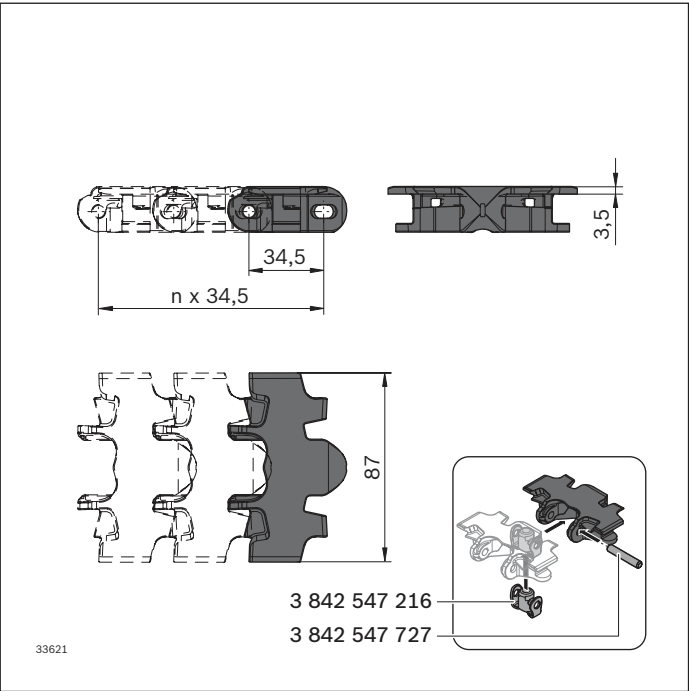
- Chain: Fully assembled

Material:

- Chain link: POM; black
- Chain pin: Non-rusting steel 1.4301
- Pivot pin: PA66

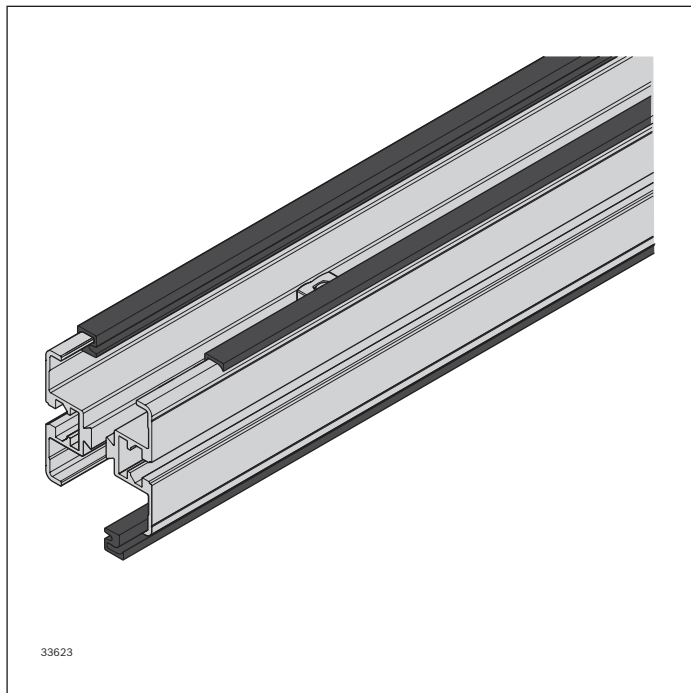


| Conveyor chain ESD VFplus 65 | L (mm) |     | No.                  |
|------------------------------|--------|-----|----------------------|
| Conveyor chain               | 4968   | 1   | <b>3 842 546 088</b> |
| Chain pin                    |        | 100 | <b>3 842 547 727</b> |
| Pivot pin                    |        | 100 | <b>3 842 547 216</b> |



| Conveyor chain ESD VFplus 90 | L (mm) |     | No.                  |
|------------------------------|--------|-----|----------------------|
| Conveyor chain               | 4968   | 1   | <b>3 842 546 089</b> |
| Chain pin                    |        | 100 | <b>3 842 547 727</b> |
| Pivot pin                    |        | 100 | <b>3 842 547 216</b> |

## Sliding rail ESD



- ▶ Easy assembly – simply clip onto the section profile
- ▶ Secured against axial shifting with lateral screw fittings
- ▶ Gliding surface machining: Not required

### Required accessories:

- Sliding rail assembly tool, see p. 288
- Sheet metal screw 2.9x9.5 DIN 7982; DIN EN ISO 7050  
1 screw for each sliding rail section

### Material:

- PE-UHMW

The sliding rail ESD is clipped into the section profile and guides the conveyor chain.

Lateral securing means the sliding surface does not need to be machined. Wear and noise level are thus reduced to a minimum.

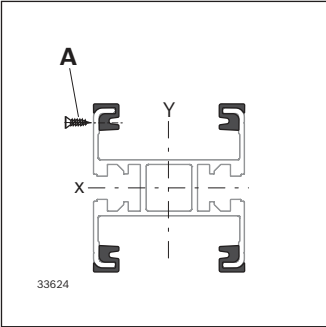
The ESD sliding rail screwed to the section profile helps to safely discharge loads.

- Size: 65, 90
- Only for systems AL
- $V_{\max}$ : 30 m/min
- Conduction resistance:  $< 10^8 \Omega$
- Only suitable for dry operation

Extend the sliding rail over the component interfaces to ensure minimum wear and noise emissions.

Interruptions to the profile or component connection must be avoided. If an interruption is necessary after 10 m and to ensure that charges are transferred safely, the sliding rail must be attached laterally with a sheet metal screw (**A**).

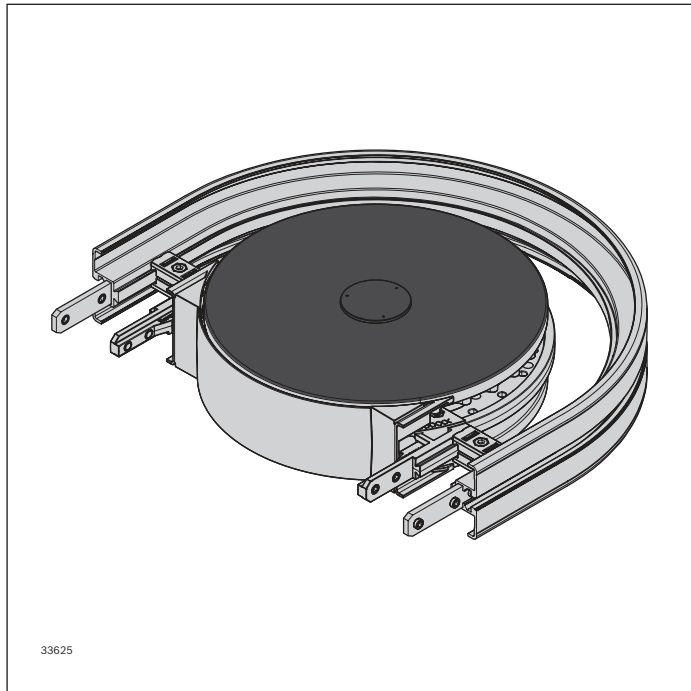
**Notice:** No horizontal sliding curves allowed.



| Sliding rail ESD VFplus | L (mm) |  | No.           |
|-------------------------|--------|-------------------------------------------------------------------------------------|---------------|
|                         | 30000  | 1                                                                                   | 3 842 557 000 |

| Sheet metal screw |  |  | No.           |
|-------------------|--|-------------------------------------------------------------------------------------|---------------|
| A                 |  | 100                                                                                 | 3 842 547 908 |

## Curve wheel AL ESD



The curve wheel AL ESD provides a horizontal direction change for the conveyor chain. It enables low-friction direction changes with very small radii. For attachment options, see the matrix on page "Combination matrix" of page 313

- Size: 65, 90
- Deflection angles see table on page 195, other deflection angles on request
- Suitable chain type: Conveyor chain ESD
- For circuit systems without conveyor chain return in bottom run (using a curve wheel or connection drive), the appropriate cover must be used for personal safety reasons
- With conductive wheel

**Notice:** High-pressure cleaning of the ball bearings is not permitted.

- No interfering contours above chain plate height

### Scope of delivery:

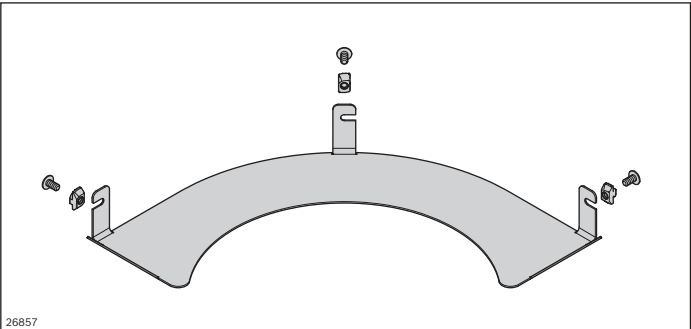
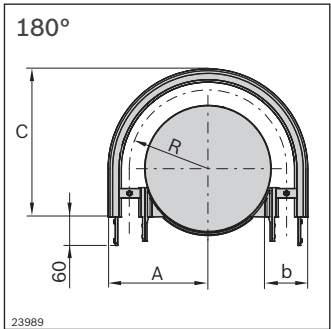
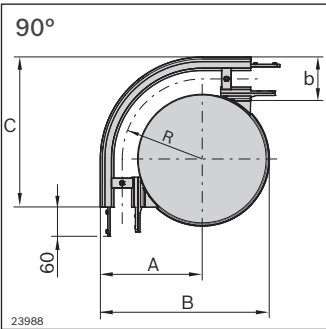
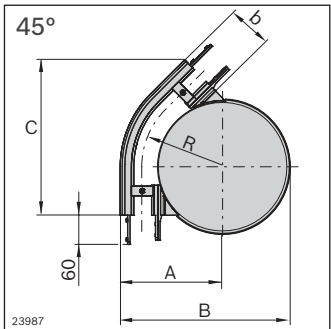
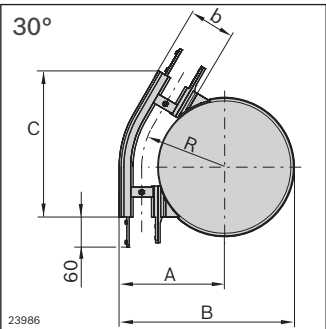
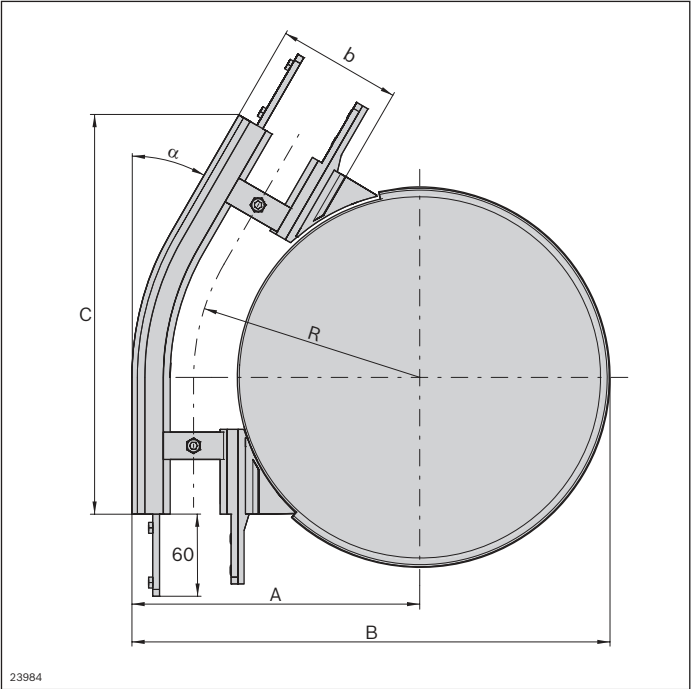
- Including fastening material for mounting to the section profile AL

### Condition on delivery:

- Assembled

### Material:

- Housing: Diecast aluminum
- Chain wheel: PA ESD; black
- Ball bearing: Non-rusting steel 1.4301/FDA

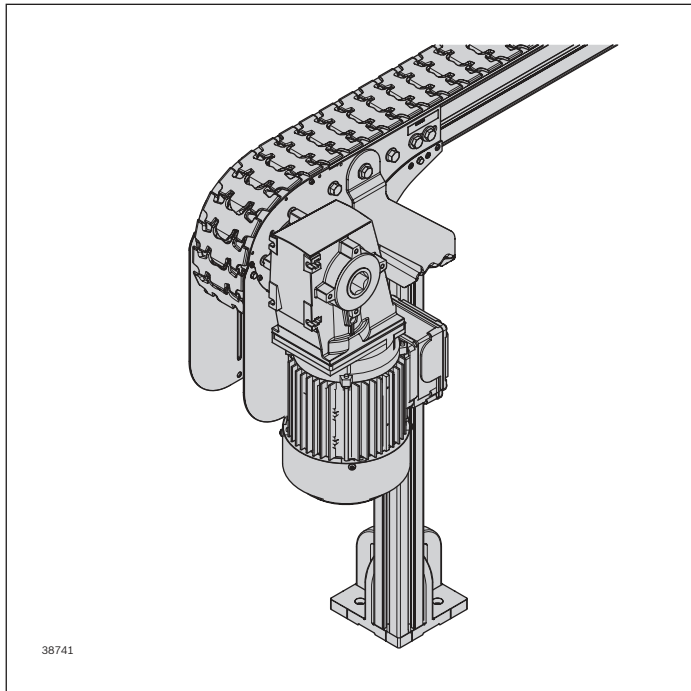


| Curve wheel AL ESD | $\alpha$ (°) | No.                  |
|--------------------|--------------|----------------------|
| VFplus 65          | 30           | <b>3 842 553 029</b> |
|                    | 45           | <b>3 842 553 030</b> |
|                    | 90           | <b>3 842 553 031</b> |
|                    | 180          | <b>3 842 553 032</b> |
| VFplus 90          | 30           | <b>3 842 553 033</b> |
|                    | 45           | <b>3 842 553 034</b> |
|                    | 90           | <b>3 842 553 035</b> |
|                    | 180          | <b>3 842 553 036</b> |

| b (mm) | $\alpha$ (°) | R (mm) | A (mm) | B (mm) | C (mm) |
|--------|--------------|--------|--------|--------|--------|
| 65     | 30           | 153.0  | 185.5  | 324.5  | 279.4  |
|        | 45           | 153.0  | 185.5  | 324.5  | 301.9  |
|        | 90           | 153.0  | 185.5  | 324.5  | 285.5  |
|        | 180          | 153.0  | 185.5  | –      | 285.5  |
| 90     | 30           | 165.5  | 210.5  | 349.5  | 291.9  |
|        | 45           | 165.5  | 210.5  | 349.5  | 319.6  |
|        | 90           | 165.5  | 210.5  | 349.5  | 310.5  |
|        | 180          | 165.5  | 210.5  | –      | 310.5  |

| Protective cover AL | $\alpha$ (°) | No.                  |
|---------------------|--------------|----------------------|
| VFplus 65           | 30           | <b>3 842 551 545</b> |
|                     | 45           | <b>3 842 551 546</b> |
|                     | 90           | <b>3 842 551 547</b> |
|                     | 180          | <b>3 842 551 548</b> |
| VFplus 90           | 30           | <b>3 842 551 549</b> |
|                     | 45           | <b>3 842 551 550</b> |
|                     | 90           | <b>3 842 551 551</b> |
|                     | 180          | <b>3 842 551 552</b> |

## Drive and return unit ESD



**Base unit STS**  
(head drive direct or  
connection or center drive)  
**or return unit STS**

+

**Configurable drive kit STS**  
(standard gear motor or round shaft)

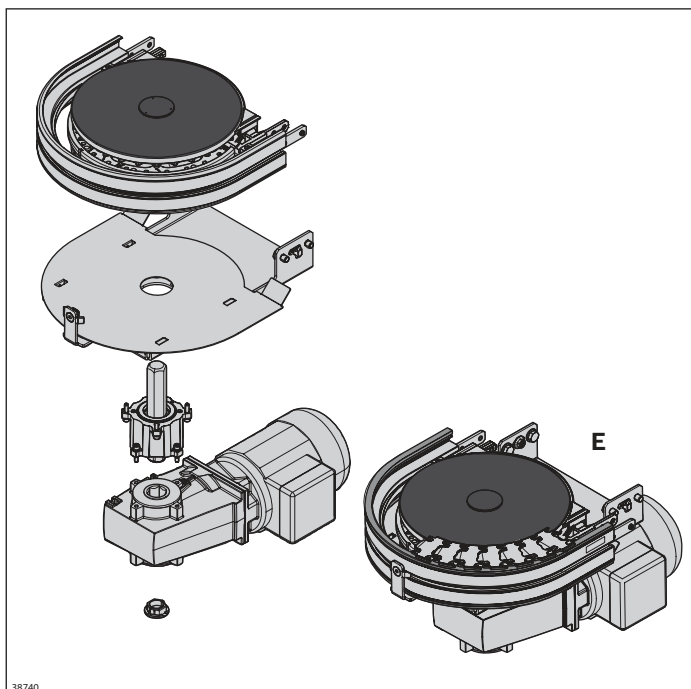
+

**Adapter AL-STS**

=

**Complete drive for ESD systems**

**Notice:** The active and passive bridges are not conductive, meaning that no ESD-critical processes should be carried out near bridges.



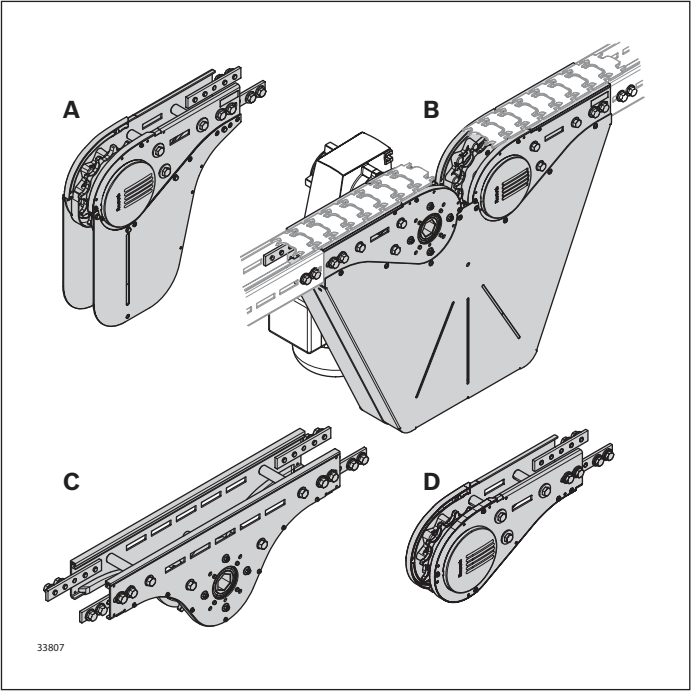
**Basic unit curve wheel drive ESD**

+

**Configurable drive kit**  
(standard gear motor or round shaft)

=

**Complete drive**



| A Basic unit head drive direct STS | No.           |
|------------------------------------|---------------|
| VFplus 65 direct                   | 3 842 547 522 |
| VFplus 90 direct                   | 3 842 547 523 |

see p. 154

| B Basic unit connection drive STS | No.           |
|-----------------------------------|---------------|
| VFplus 65 direct                  | 3 842 553 914 |
| VFplus 90 direct                  | 3 842 553 915 |

see p. 156

| C Basic unit center drive STS | No.           |
|-------------------------------|---------------|
| VFplus 65 direct              | 3 842 552 940 |
| VFplus 90 direct              | 3 842 552 941 |

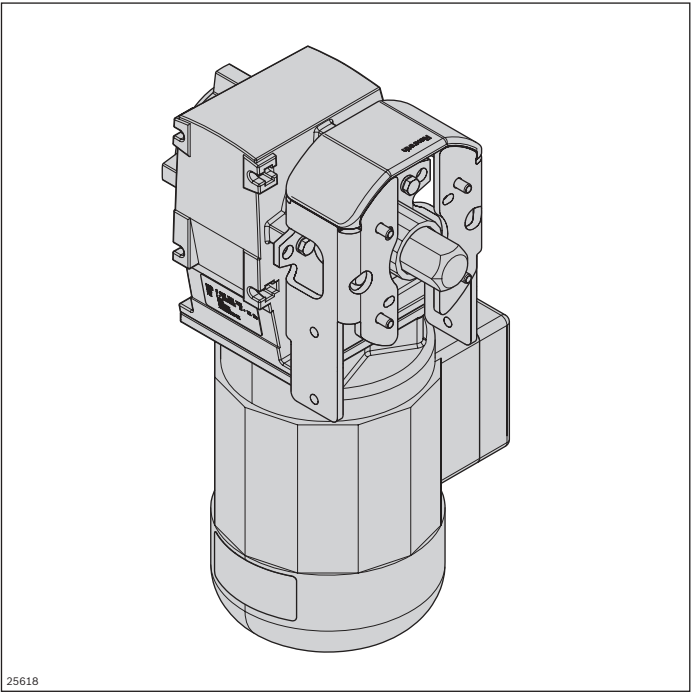
see p. 158

| D Return unit STS | No.           |
|-------------------|---------------|
| VFplus 65         | 3 842 547 528 |
| VFplus 90         | 3 842 547 529 |

see p. 160

| E Basic unit curve wheel drive ESD | No.           |
|------------------------------------|---------------|
| VFplus 65, 180°                    | 3 842 553 037 |
| VFplus 90, 180°                    | 3 842 553 038 |

see p. 198



| Drive kit VFplus | SP  | No.           |
|------------------|-----|---------------|
|                  | STS | 3 842 998 291 |

SP = STS, see p. 164

| Drive kit curve wheel VFplus AL | No.           |
|---------------------------------|---------------|
|                                 | 3 842 998 742 |

See also page 94

**Notice:**

- The drive kit is to be supported with the holder motor leg set STS (3 842 549 365) and an motor leg set ESD
- The selection of the parameter SP = STS is imperative. Even if an aluminum track is used because centering is not possible on an flange AL.

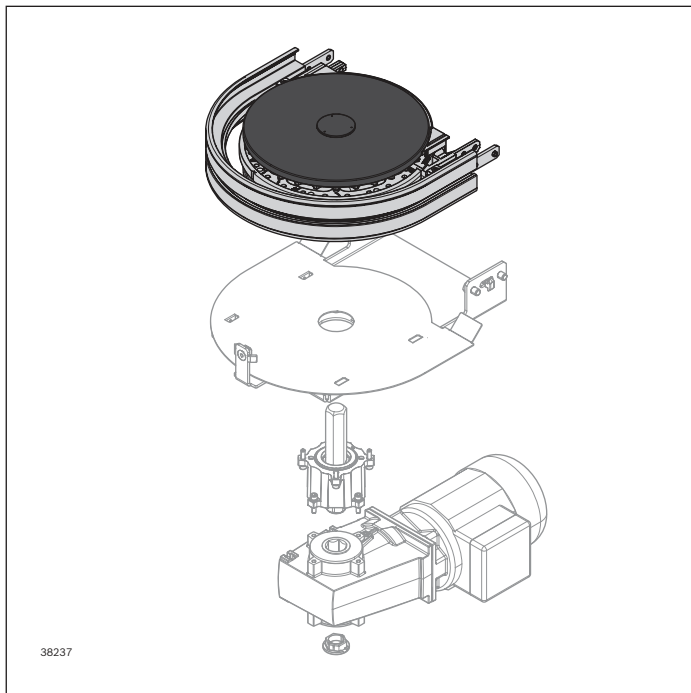
**Required accessories:**

- Motor leg set ESD, see p. 202



## Basic unit

### Curve wheel drive AL ESD



The curve wheel drive AL ESD is used for driving the conveyor chain in circuit systems with a top-running chain. Combining the base unit curve wheel 180° AL ESD with the appropriate drive kit quickly turns it into a curve wheel drive.

- Size: 65 and 90
- Suitable chain types: All
- Permissible chain tensile force:  $F_{\max} = 400 \text{ N}$  per level  
Section length for closed circuits  $L \leq 10 \text{ m}$
- Permissible torque:  $M_{\max} = 60 \text{ Nm}$   
When combining several curve wheel base units, the motor torque must be distributed across the individual levels
- Conveying speed:  $v_N = 4 \dots 21 \text{ m/min}$   
For drives with frequency converters (FU), the speed must be limited to a maximum of 21 m/min using control technology
- Recommendation: No accumulation operation until 1000 mm after the curve wheel drive
- Can only be used with a closed profile

- Driving several superimposed basic curve wheel units is easily implemented via the integrated hexagonal hollow shafts
- Ball bearing made of non-rusting steel (1.4301), with seal on both sides and FDA-compliant grease filling
- Side elements with slot to attach holders for lateral guides, or similar

#### Required accessories:

- Curve wheel drive kit, see p. 94
- Assembly module, see p. 62
- Sliding rail: Length calculation, see p. 302
- Leg set, see p. 119

#### Optional accessories:

- Alpine conveyor connection kit, see p. 112

#### Scope of delivery:

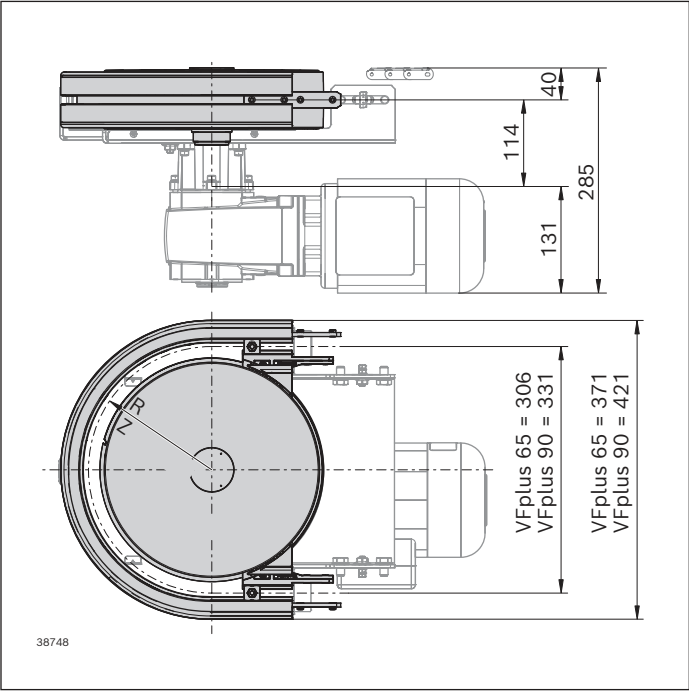
- Including fastening material

#### Condition on delivery:

- Assembly required

#### Material:

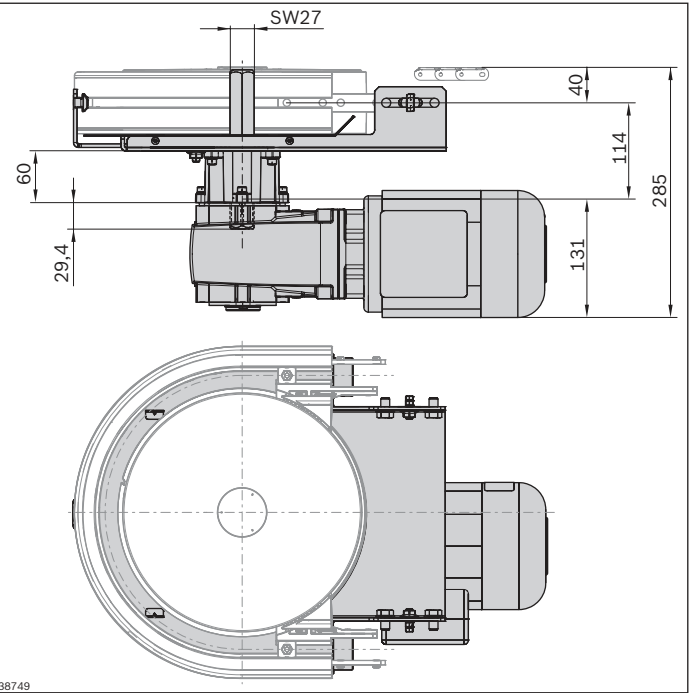
- Housing: Diecast aluminum
- Chain wheel: PA; black
- Ball bearing: Non-rusting steel 1.4301/FDA



| Basic unit curve wheel AL ESD | $\alpha$ (°) | No.           |
|-------------------------------|--------------|---------------|
| VFplus 65                     | 180          | 3 842 553 037 |
| VFplus 90                     | 180          | 3 842 553 038 |

|           | R (mm) | Z <sup>1)</sup> |
|-----------|--------|-----------------|
| VFplus 65 | 153.0  | 28              |
| VFplus 90 | 165.5  | 30              |

<sup>1)</sup> Number of teeth

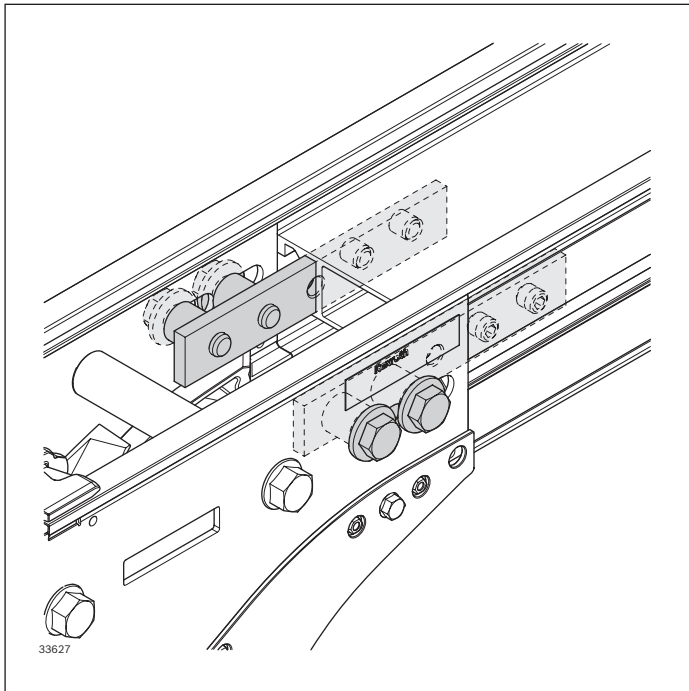


| Drive kit curve wheel VFplus AL | No.           |
|---------------------------------|---------------|
|                                 | 3 842 998 742 |

See also page 94

**Notice:** The selection of parameter AC = 1 (alpine conveyor) is not permitted

## Adapter AL-STS



### Scope of delivery:

- 8x hexagon screws
- 8x headless setscrew
- 8x spacers

(Scope of delivery for 2 interfaces Al-STS, e.g. 1 x basic unit head drive + 1 x return unit or 1 x connection, or center drive)

### Material:

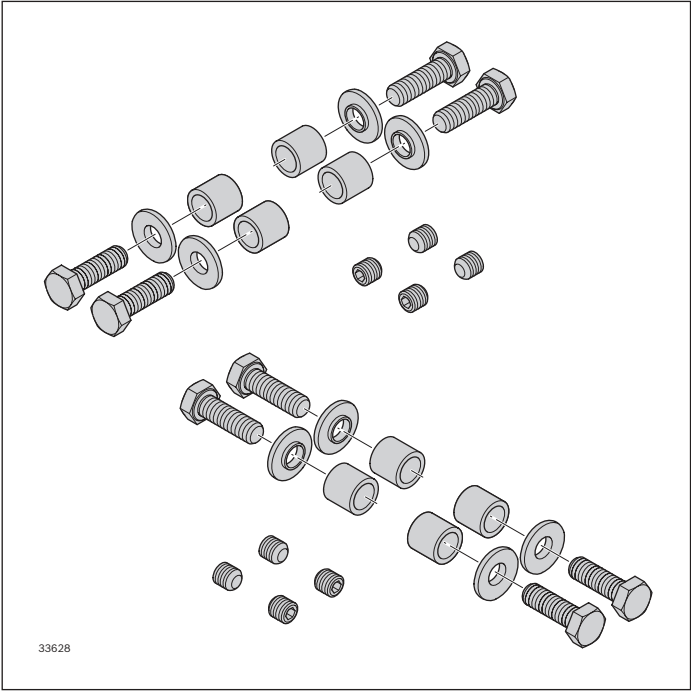
- Aluminum, steel; galvanized

The kit enables the simple connection of the basic unit head STS, connection drive, as well as the return unit with the aluminum system.

When the connection drive is used, the closed section profile AL is to be used for safety reasons.

### Condition on delivery:

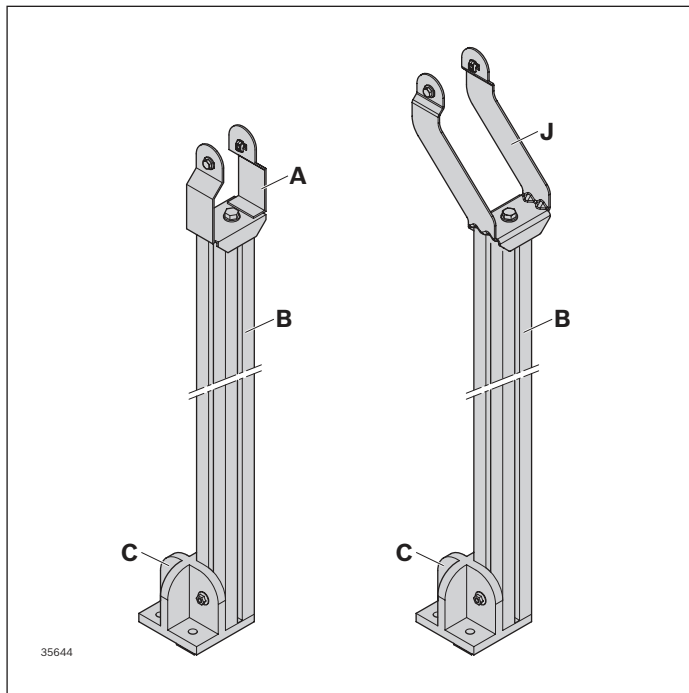
- Assembly required



| Adapter VFplus AL-STS | No.           |
|-----------------------|---------------|
|                       | 3 842 552 948 |

# Leg set ESD

## Motor leg set ESD



The T-nuts STS included in the scope of delivery of the holder STS (**A**) must be replaced with T-nuts MGE M8. The anodized layer is thereby pierced and connected to the conductive holder STS.

It is imperative that a holder (**J**) is used to support the motors/drives.

The connection between the holders STS (**A+J**) and the core pull of the strut profile AL (**B**) is established via the hexagon screw M12 of the holder STS.

Instead of the coated foot VarioFlow *plus*, the 120x120 base plate (**C**) included in the MGE program must be used. The connection of the base plate to the strut profile is done using T-bolts and flange nuts.

Required accessories for base plate (**C**):

- 4x T-bolts M8x30, 3 842 528 721, see p. 64
- 4x flange nuts, 3 842 345 081, see p. 64

Required accessories for holder attachment (**A**):

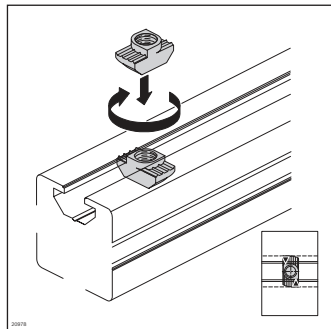
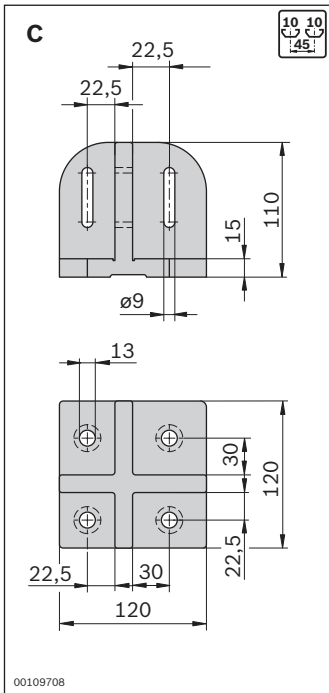
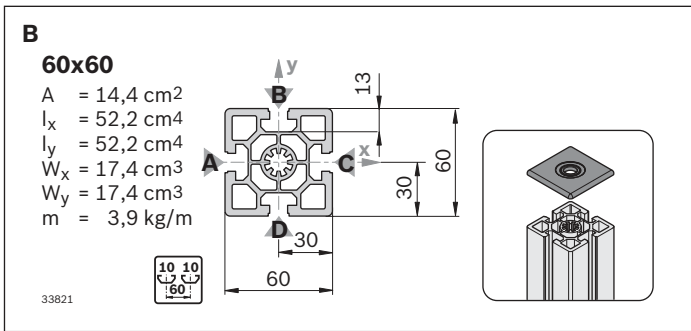
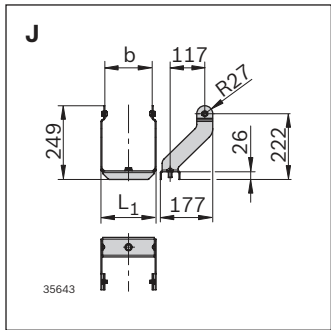
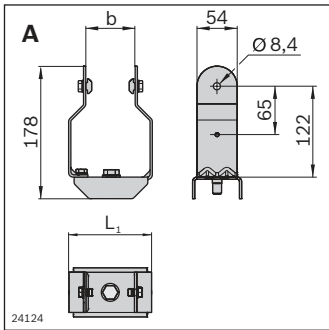
- 2x T-nuts M8 for each holder, 3 842 530 287

Scope of delivery:

- Including fastening material

Material:

- **A, J:** Non-rusting steel 1.4301
- **B:** Aluminum
- **C:** Diecast aluminum



| Holder STS (A)        | b (mm) | L <sub>1</sub> (mm) | No.                      |
|-----------------------|--------|---------------------|--------------------------|
| VFplus 65 support STS | 65     | 111                 | Set <b>3 842 546 658</b> |
| VFplus 90 support STS | 90     | 136                 | Set <b>3 842 546 659</b> |

| Holder STS (J)      | b (mm) | L <sub>1</sub> (mm) | No.                      |
|---------------------|--------|---------------------|--------------------------|
| VFplus 65 drive STS | 65     | 91                  | Set <b>3 842 559 114</b> |
| VFplus 90 drive STS | 90     | 116                 | Set <b>3 842 559 115</b> |

| Strut profile 60x60 | L (mm)      | No.                    |
|---------------------|-------------|------------------------|
| 1 pc M12            | 60 ... 5600 | <b>3 842 990 351/L</b> |

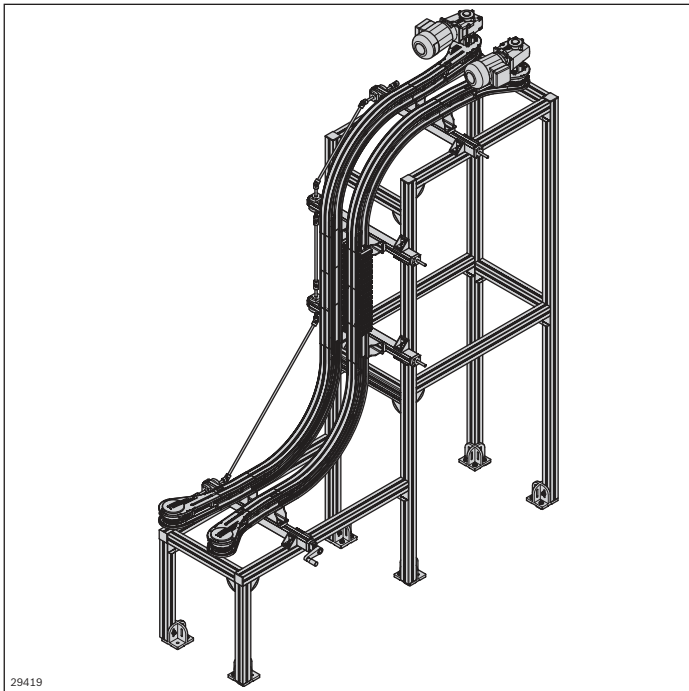
Profile finishing: Thread cutting M12,  
see MGE catalog, chapter Strut profiles

| Cover cap with hole | ESD | No.                  |
|---------------------|-----|----------------------|
| 60x60, black        | 20  | <b>3 842 548 811</b> |

| Base plate (C) | ESD | No.                  |
|----------------|-----|----------------------|
| 120x120        |     | <b>3 842 527 553</b> |

| T-nut, 10 mm slot  | Slot | M  | ESD | No.                  |
|--------------------|------|----|-----|----------------------|
| Steel; zinc-plated | 10   | M8 | 100 | <b>3 842 530 287</b> |

# Wedge conveyor



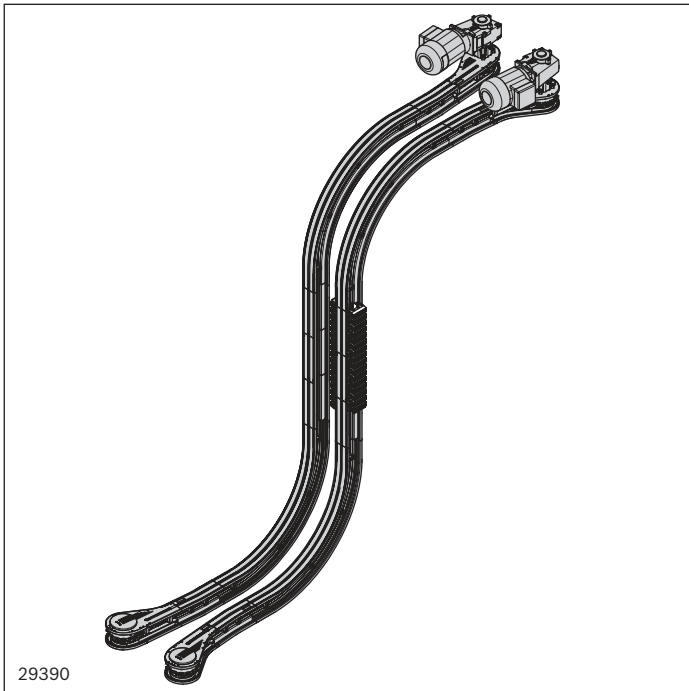
- A wedge conveyor is always used if the conveyed product
- cannot be transported vertically on a standard conveyor due to its design
  - cannot manage steep inclinations ( $> 30^\circ$ ) due to the position of its center of gravity
  - could be damaged by lateral or upper guides due to its sensitive surfaces
  - must not slide on  $90^\circ$  gradient or decline section (as it would occur with a cleated chain system)
  - should be conveyed without synchronization

A wedge conveyor has two conveyors arranged in parallel to each other which can be quickly set at variable widths by means of the adjustment unit (AL).

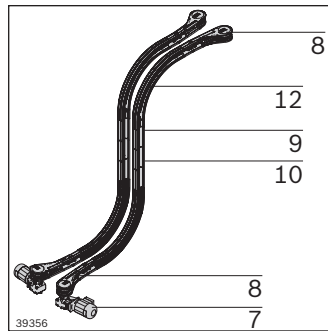
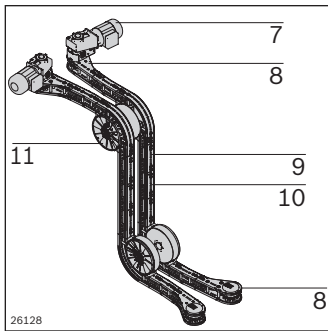
|                                                                                   |                                       |            |
|-----------------------------------------------------------------------------------|---------------------------------------|------------|
|  | <b>Setting up a wedge conveyor</b>    | <b>206</b> |
|  | <b>Wedge conveyor adjustment unit</b> | <b>208</b> |



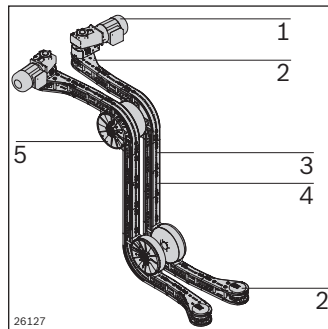
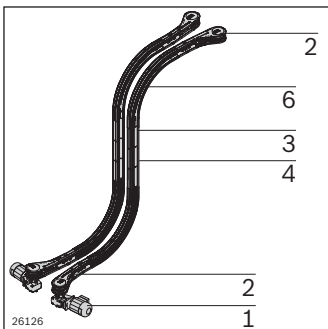
## Setting up a wedge conveyor



- ▶ Size: 90
- ▶ The length of the wedge conveyor is limited to 7 m
- ▶ A curve wheel or sliding curves are available for the return unit of the chain, depending on the product size and version
- ▶ Only closed head drive (return unit) can be used
- ▶ The assembly module (see p. 62/139) is mandatory
- ▶ The use of a 5° vertical curve is also recommended (see p. 139/148) for the infeed and outfeed, especially for small products
- ▶ Requires the use of the sliding rails Advanced or Premium (see p. 56/134 )

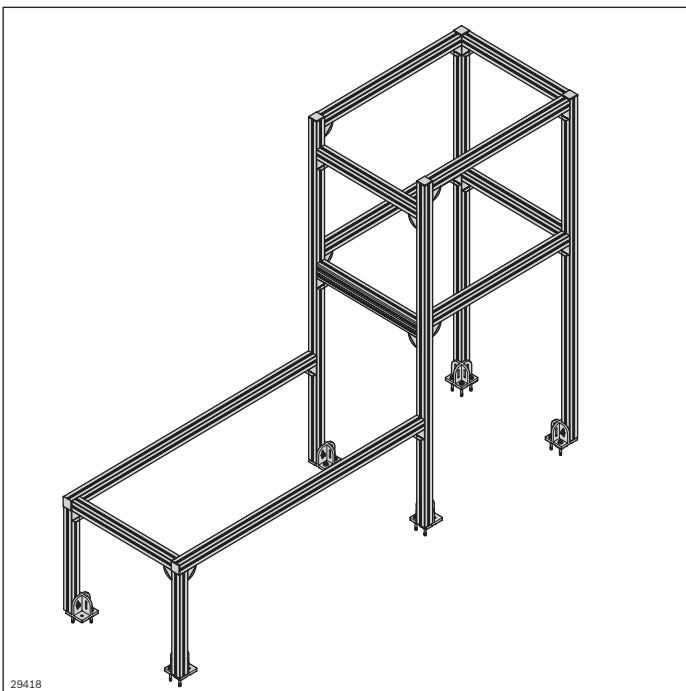


- 7** Drive kit STS, see p. 164
- 8** Return unit STS/Closed head drive STS, see p. 160
- 9** Section profile STS, see p. 130
- 10** Assembly module STS, see p. 139
- 11** Curve wheel STS, see p. 142
- 12** Sliding curve horizontal STS, see p. 144

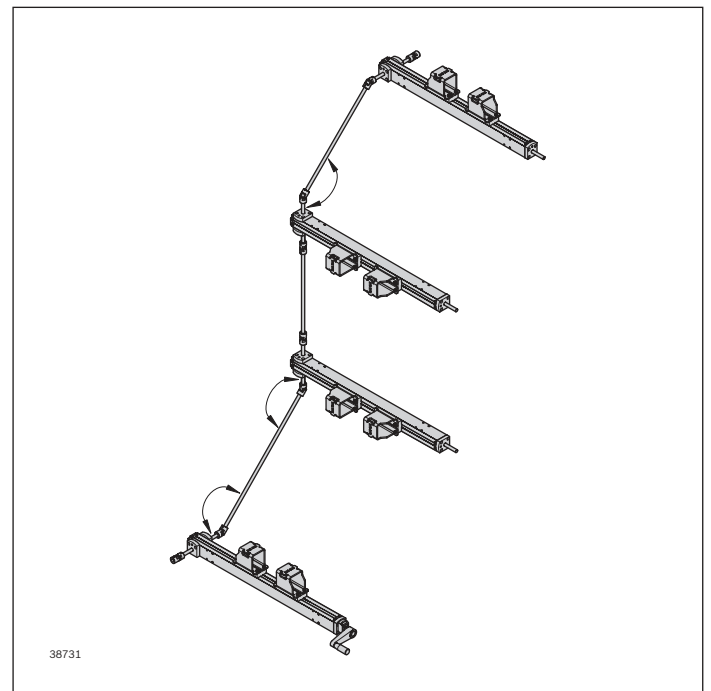


- 1** Drive kit AL, see p. 92
- 2** Return unit AL/closed head drive AL, see p. 86
- 3** Section profile AL, see p. 52/54
- 4** Assembly module AL, see p. 62
- 5** Curve wheel AL, see p. 68
- 6** Sliding curve horizontal AL, see p. 72

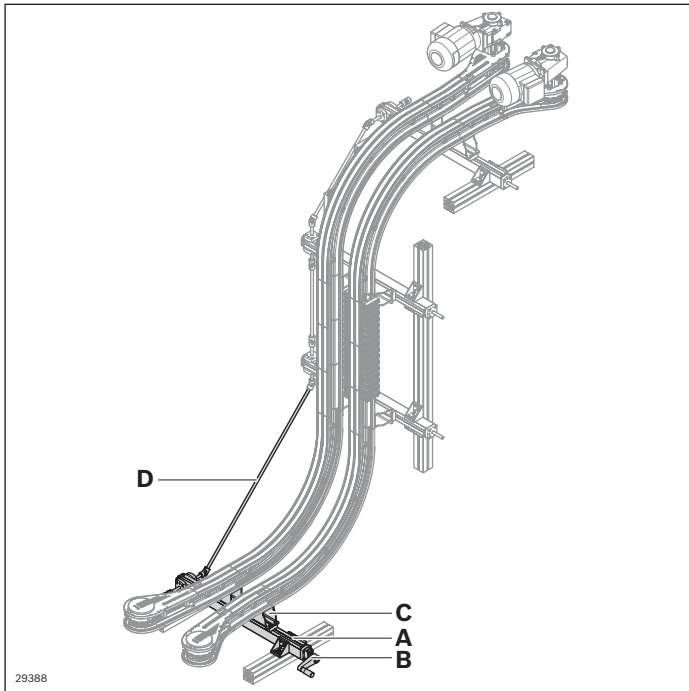
### Frame made out of components MGE



### Adjustment unit for width adjustment see p. 208



## Wedge conveyor adjustment unit



The adjustment unit is suitable for easily setting the wedge conveyor width during a format change for product widths ranging from 0 ... 410 mm.

The self-locking adjustment unit (**A**) can be simply mounted on the section profile VarioFlow *plus* using the connection kit (**C**) and connected to additional adjustment units via the profile rail (**D**).

The crank handle (**B**) with counter facilitates the setting of fixed track widths.

### Required accessories:

- **B:** Crank handle incl. counter
- **C:** Connection kit (set)
- **D:** Profile rail (see p. 209)

### Scope of delivery:

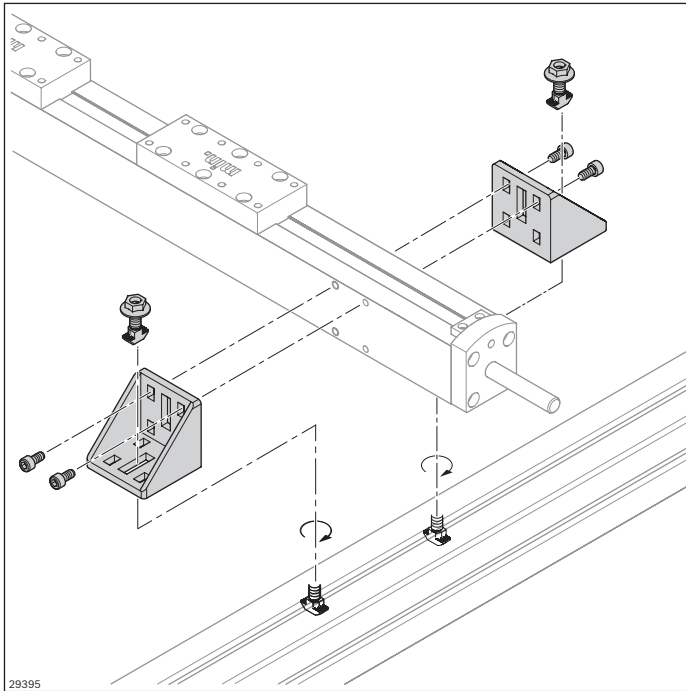
- **A:** Including two universal joints
- **B:** Including counter
- **C:** Including fastening material

### Material:

- **A:** Aluminum, anodized; brass, steel
- **C:** Steel, galvanized

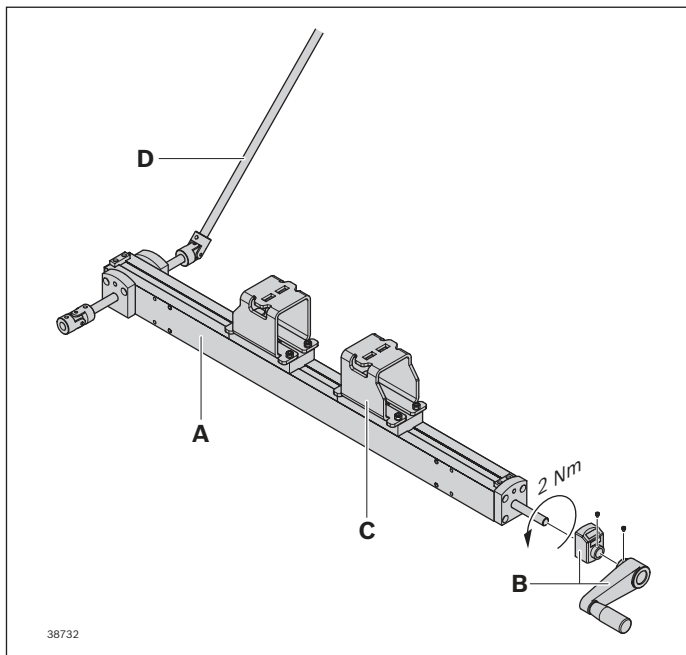
### Condition on delivery:

- **A:** Assembled
- **B:** Some assembly required
- **C:** Assembly required



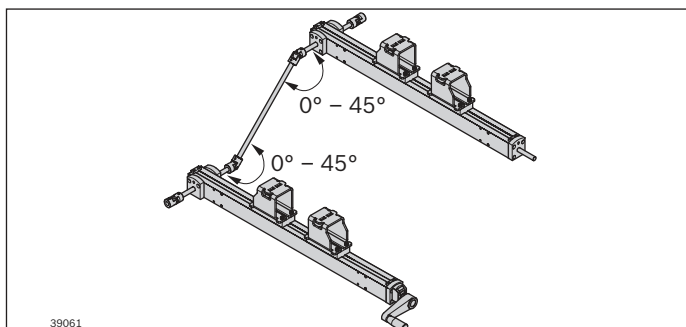
The adjustment unit can be fitted onto a frame made out of profiles MGE with four 60x60 brackets (3 842 523 546) and 8 ISO 4762-M6x16

6

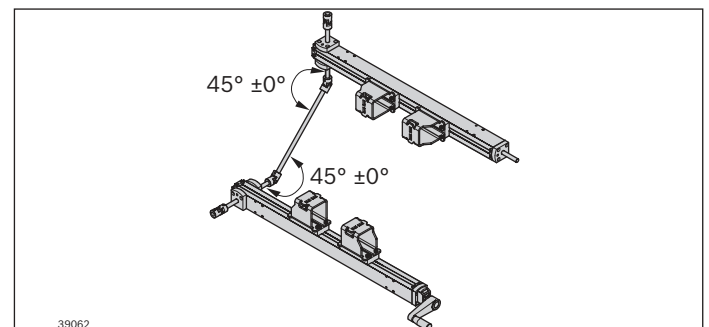


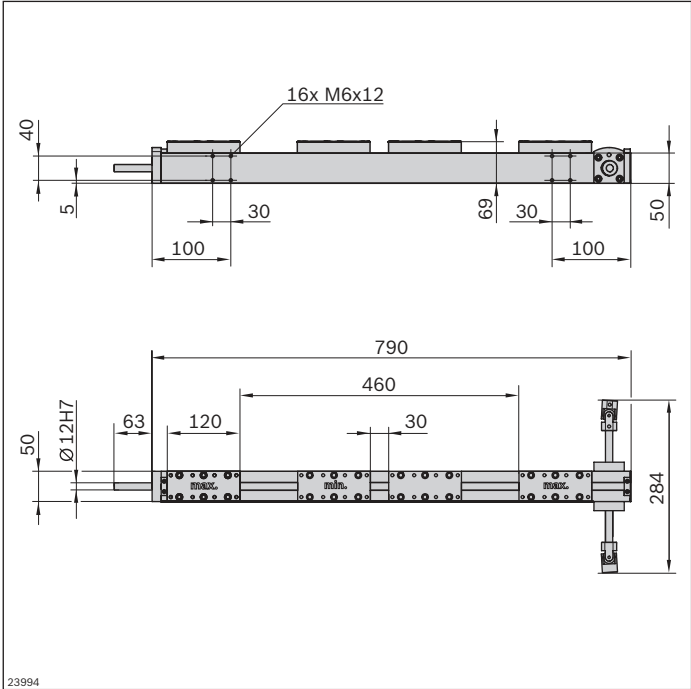
| Adjustment unit (A)  | No.             |
|----------------------|-----------------|
| 1 pc                 | 3 842 547 971   |
| Crank handle (B)     | No.             |
| 1 pc                 | 3 842 547 990   |
| Connection kit (C)   | No.             |
| 1 pc                 | 3 842 547 729   |
| Profile rail D12 (D) | No.             |
| 1 pc                 | 3 842 993 306/L |
| 6 pcs                | 3 842 533 841   |

### Linear alignment of the shafts

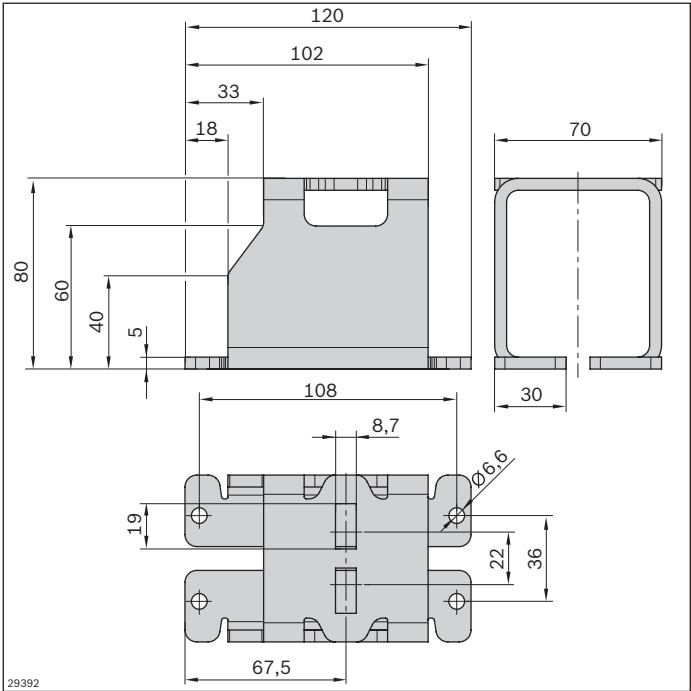


### 90° offset alignment of the shafts



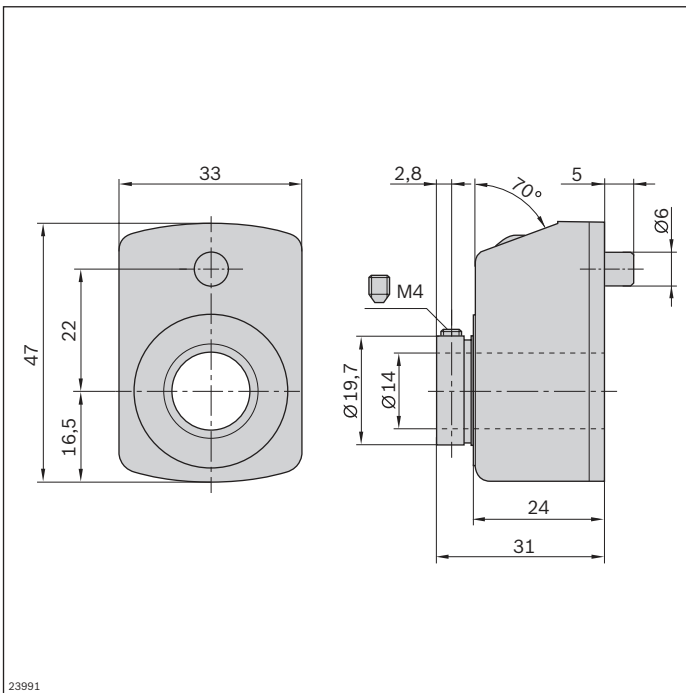
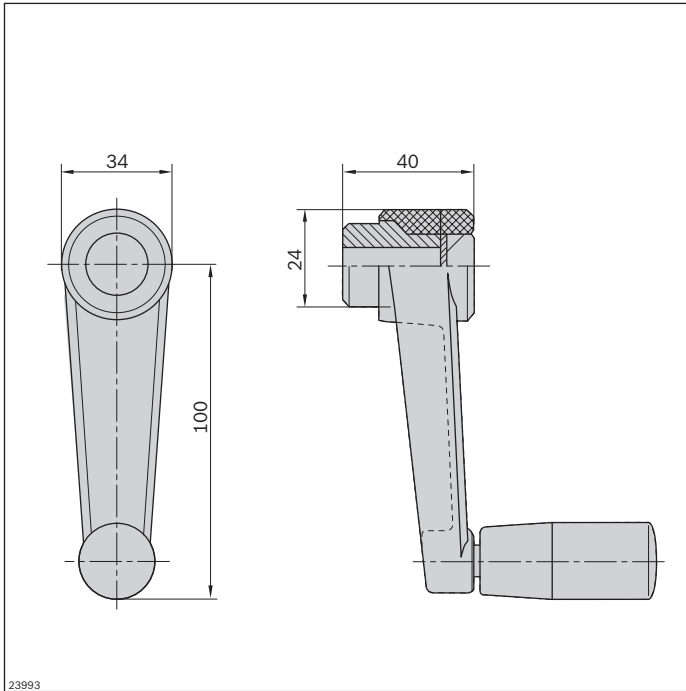


**Adjustment unit**

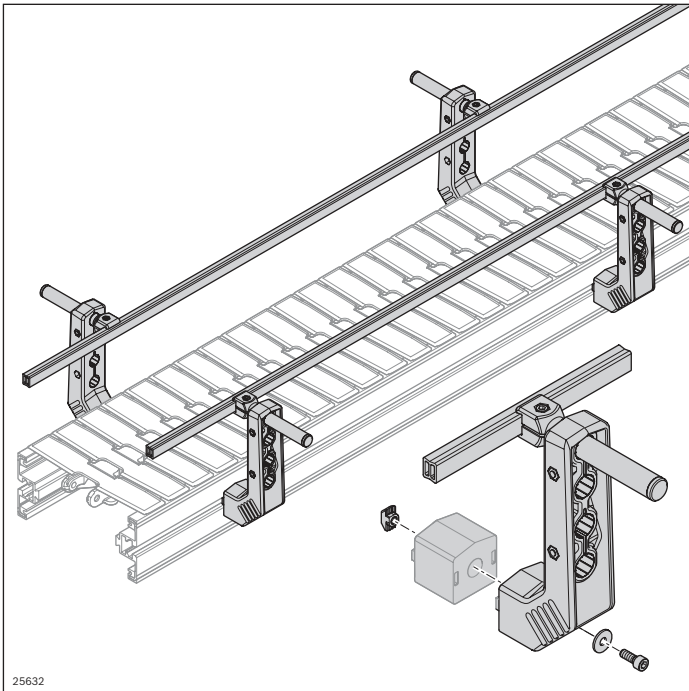


**Connection kit**

## Crank handle



# Product guide

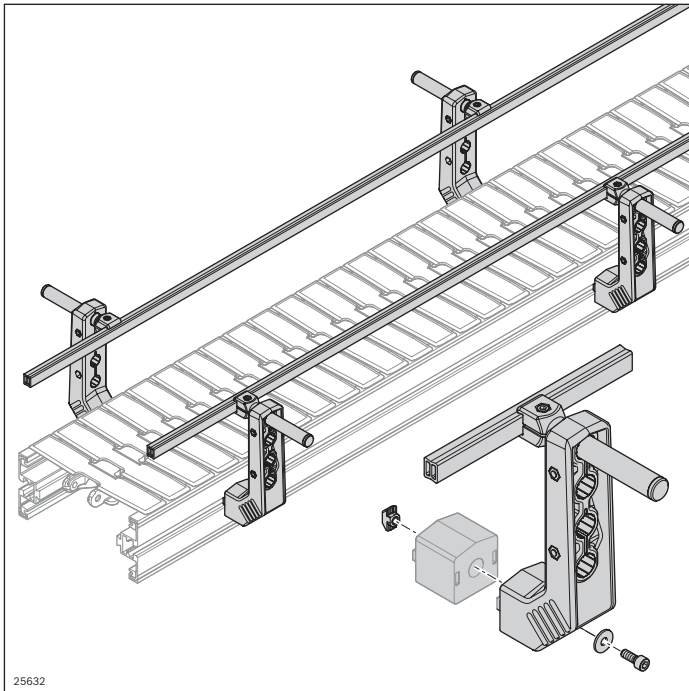


- ▶ Optimum adaptation to the conveyed material due to a variety of combination options
- ▶ Universal use in aluminum and stainless steel system
- ▶ Minimal planning effort thanks to clear construction kit
- ▶ Easy to clean thanks to ample draining surfaces

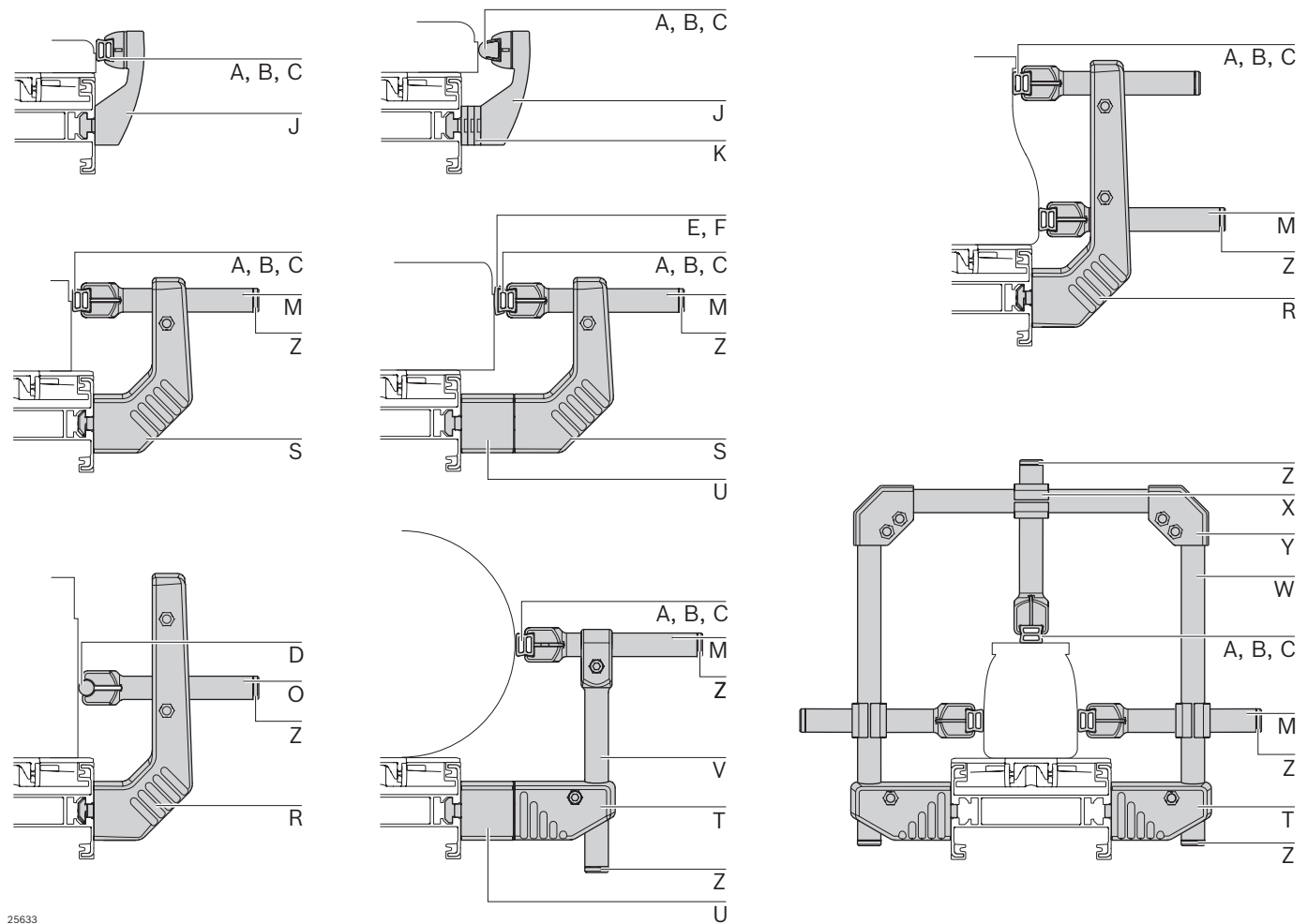
|                                                                                     |                                               |            |
|-------------------------------------------------------------------------------------|-----------------------------------------------|------------|
|    | <b>Components for lateral guides</b>          | <b>214</b> |
|    | <b>Profile rails for lateral guides</b>       | <b>216</b> |
|    | <b>Holder for lateral guide, fixed</b>        | <b>219</b> |
|    | <b>Holder for lateral guide, variable</b>     | <b>221</b> |
|   | <b>Clamping lever</b>                         | <b>227</b> |
|  | <b>Pressure roller</b>                        | <b>228</b> |
|  | <b>Pneumatically adjustable lateral guide</b> | <b>230</b> |
|  | <b>Barrier</b>                                | <b>232</b> |
|  | <b>Universal diverter</b>                     | <b>234</b> |



## Components for lateral guides



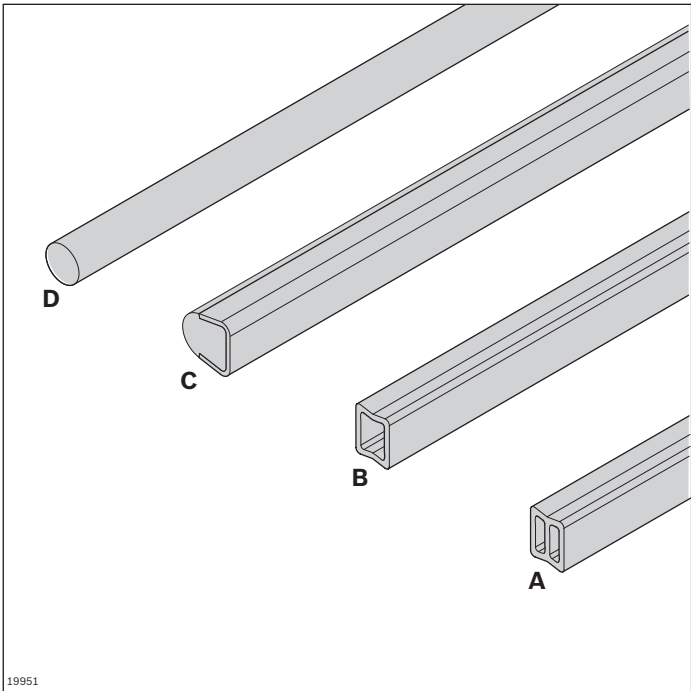
- Wide variety of profile rail and holder combinations for individual solutions
- Easy to clean
- Robust
- Only one tool required for adjustment
- Interface slot 10 mm

**Mounting variants**

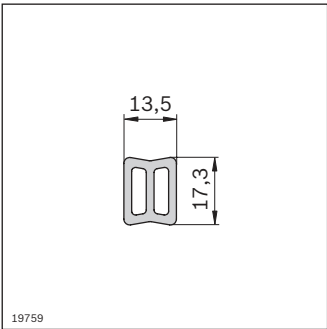
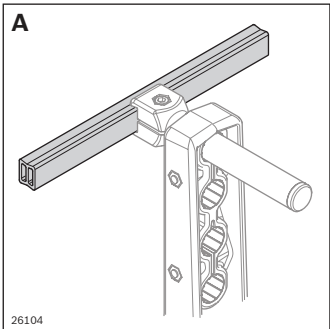
- A:** Aluminum profile rail, see p. 216  
**B:** Profile rail HDPE, see p. 217  
**C:** Profile rail 17x17.5, see p. 217  
**D:** Profile rail D12, see p. 217  
**E:** Sliding rail, narrow, see p. 217  
**F:** Sliding rail, high, see p. 218  
**J:** Holder, fixed, see p. 220  
**K:** Spacer plate, see p. 220  
**M:** Clamping holder C L100, see p. 223  
**O:** Clamping holder D12 L100, see p. 223

- R:** Holder L204, see p. 224  
**S:** Holder L134, see p. 224  
**T:** Holder L45, see p. 225  
**U:** Spacer, see p. 225  
**V:** Vertical clamping holder D18 L160, see p. 225  
**W:** Tube D18, see p. 226  
**X:** Cross piece, see p. 226  
**Y:** Corner piece, see p. 226  
**Z:** Plug, see p. 226

# Profile rails for lateral guides



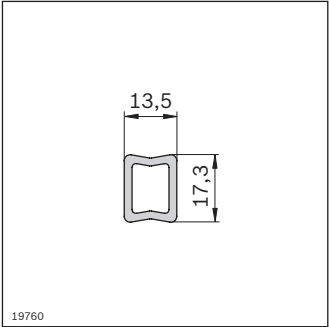
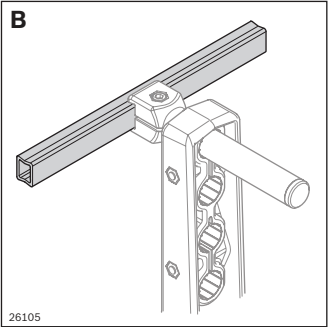
- Profile rails for lateral guiding of transported material
- Compatible with holders for lateral guide, fixed (see p. 219), and holders for lateral guide, flexible (see p. 221)
- Various materials and geometries for different applications



- Aluminum profile rail for robust lateral guides
- Holder distance: max. 750 mm, less with accumulation pressure

| Aluminum profile rail |        | L (mm)       | No.                    |
|-----------------------|--------|--------------|------------------------|
| <b>A</b>              | 1 pc   | 200 ... 3000 | <b>3 842 993 887/L</b> |
| <b>A</b>              | 20 pcs | 3000         | <b>3 842 538 829</b>   |

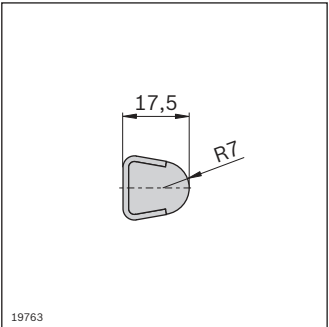
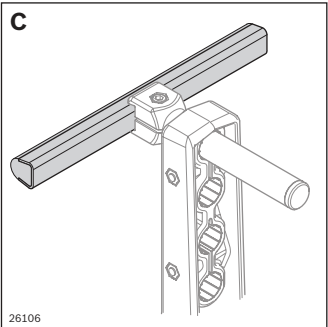
- Material: Aluminum; natural, anodized
- Accessories: Sliding rail narrow (**E**); sliding rail high (**F**); outer profile connector (**G**); inner profile connector (**H**); cover cap (**I**); clamping holder C L100 (**M**); clamping holder C (**N**); holder (**J**); clamping head (**L**); clamping head (**Q**)



- Profile rail HDPE for light applications
- Bendable
- Spacer distance: Approx. 300 mm

| Profile rail HDPE |                                                                                         | L (mm) | No.                  |
|-------------------|-----------------------------------------------------------------------------------------|--------|----------------------|
| <b>B</b>          | 1 pc  | 3000   | <b>3 842 538 388</b> |

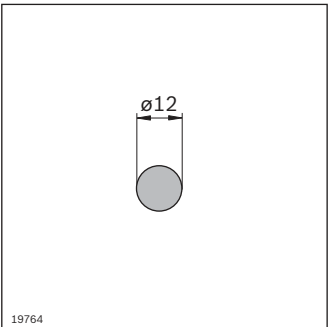
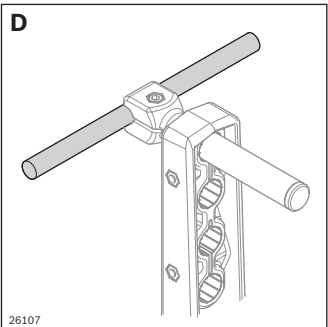
Material: HDPE; gray  
Accessories: Sliding rail narrow (**E**); sliding rail high (**F**); outer profile connector (**G**); inner profile connector (**H**); cover cap (**I**); clamping holder C L100 (**M**); clamping holder C (**N**); holder (**J**); clamping head (**L**); clamping head (**Q**)



- Profile rail 17x17.5 in robust design made of stainless steel 1.4301 with guide PE protecting the product
- Holder distance: Max. 750 mm, less with accumulation pressure

| Profile rail 17x17.5 |                                                                                                                                                                              | L (mm)       | No.                    |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------------------|
| <b>C</b>             | 1 pc                                                                                      | 200 ... 3000 | <b>3 842 994 863/L</b> |
| <b>C</b>             |  20 pcs  | 3000         | <b>3 842 529 850</b>   |

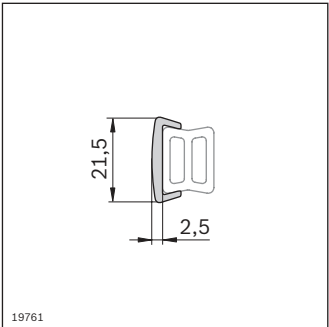
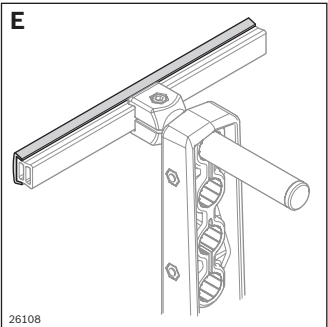
Material: Steel; stainless/PE; natural  
Accessories: Outer profile connector (**G**); clamping holder C L100 (**M**); clamping holder C (**N**); holder (**J**); clamping head (**L**); clamping head (**Q**)



- Profile rail D12 in robust design made of stainless steel 1.4301
- Holder distance: Max. 750 mm, less with accumulation pressure

| Profile rail D12 |                                                                                                                                                                                 | L (mm)       | No.                    |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------------------|
| <b>D</b>         | 1 pc                                                                                       | 200 ... 3000 | <b>3 842 993 306/L</b> |
| <b>D</b>         |  6 pcs  | 3000         | <b>3 842 533 841</b>   |

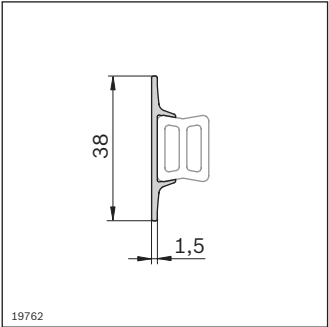
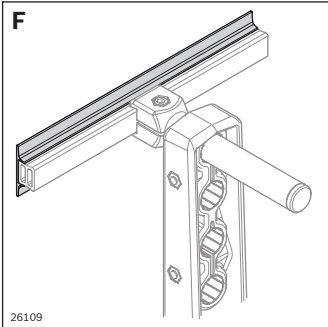
Material: Steel; stainless  
Accessories: Clamping holder D12 L100 (**O**); clamping holder D12 (**P**)



- Clip-on sliding rail for aluminum or profile rail HDPE
- For gentle product transport and minimum wear to profile rail HDPE

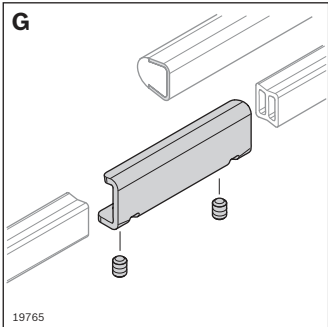
| Sliding rail, narrow | L (mm) | ESD                                                                                   | No.                  |
|----------------------|--------|---------------------------------------------------------------------------------------|----------------------|
| <b>E</b>             | 3000   |                                                                                       | <b>3 842 538 209</b> |
| <b>E</b>             | 3000   |  | <b>3 842 539 340</b> |

Material: HDPE; gray  
ESD: PE-UHMW, conductive, black



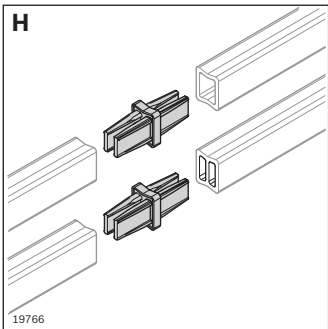
- Clip-on sliding rail for aluminum or profile rail HDPE
- Wide guiding surface
- For gentle product transport and minimum wear to profile rail HDPE

| Sliding rail, high   | L (mm) | No.                  |
|----------------------|--------|----------------------|
| <b>F</b>             | 3000   | <b>3 842 538 389</b> |
| Material: HDPE; gray |        |                      |



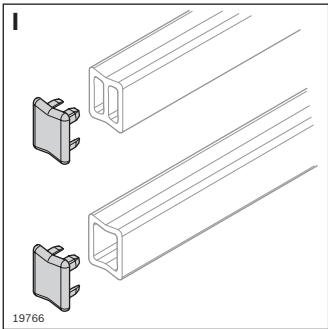
- Outer profile connector for aluminum profile rails (**A**), profile rail HDPE (**B**), 17x17.5 profile rail (**C**)

| Outer profile connector                            |  No. |
|----------------------------------------------------|-----------------------------------------------------------------------------------------|
| <b>G</b>                                           | 10 <b>3 842 539 613</b>                                                                 |
| Material: Steel; stainless                         |                                                                                         |
| Scope of delivery: Including 2 x headless setscrew |                                                                                         |



- Inner profile connector for profile rail in aluminum (**A**), HDPE (**B**)

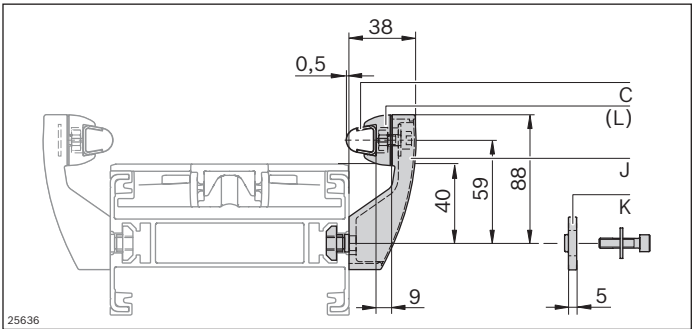
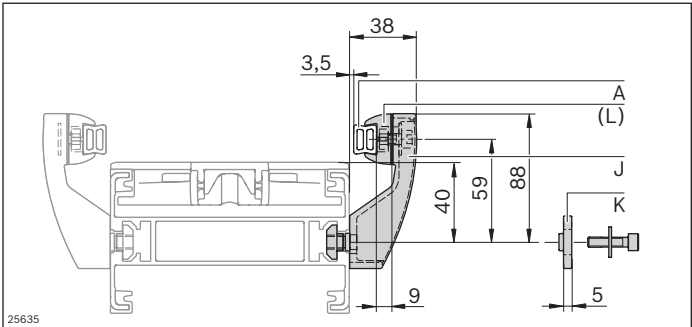
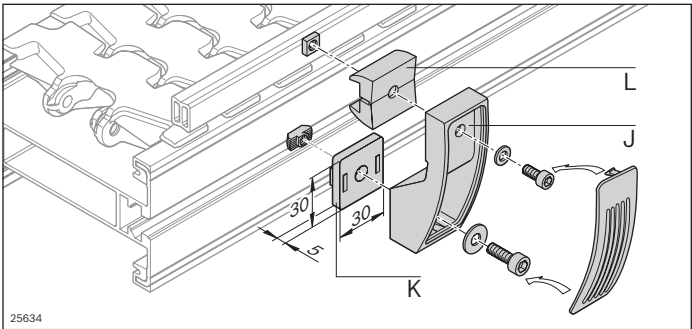
| Internal profile connector      |  No. |
|---------------------------------|-------------------------------------------------------------------------------------------|
| <b>H</b>                        | 10 <b>3 842 539 345</b>                                                                   |
| Material: PA; black, conductive |                                                                                           |



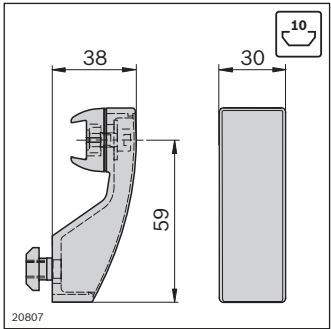
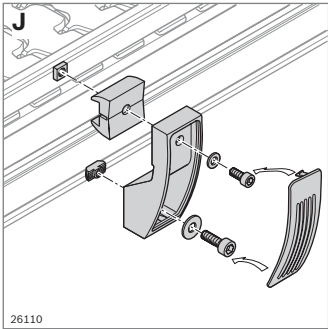
- Cover cap for aluminum (**A**) profile rail, HDPE (**B**) profile rail

| Cover cap                       |  No. |
|---------------------------------|-------------------------------------------------------------------------------------------|
| <b>I</b>                        | 10 <b>3 842 538 208</b>                                                                   |
| Material: PA; black, conductive |                                                                                           |

# Holder for lateral guide, fixed

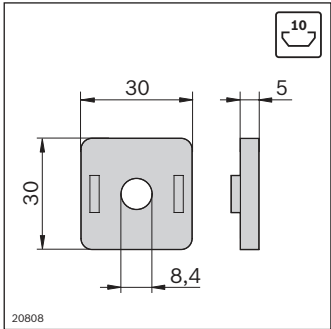
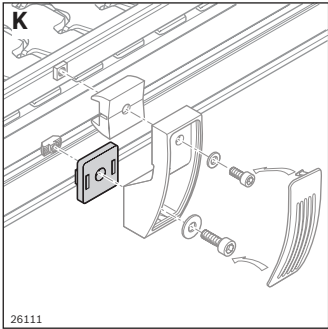


- Holders for lateral guides with fixed installation height and fixed guide width



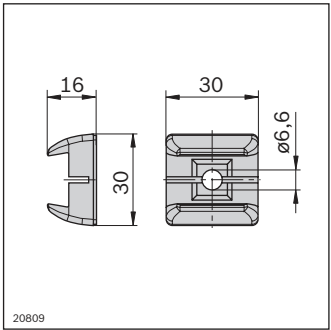
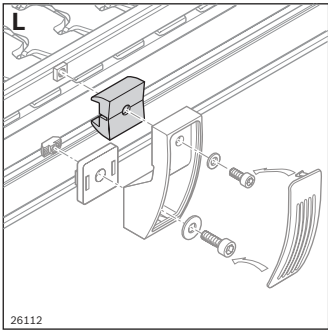
- Holder, fixed, for profile rail in aluminum **(A)**, HDPE **(B)** and 17x17.5 **(C)**
- For fixed guide width
- Spacer plate **(K)** for guide width enlargement

| Holder, fixed      |     | No.                                         |
|--------------------|-----|---------------------------------------------|
| <b>J</b>           | Set | <b>3 842 527 851</b>                        |
| Material:          |     | PA, black                                   |
|                    |     | Fastening material: Steel; zinc-plated      |
| Scope of delivery: |     | Including clamping head, fastening material |



- Spacer plate for holders, fixed, to enlarge the guide width

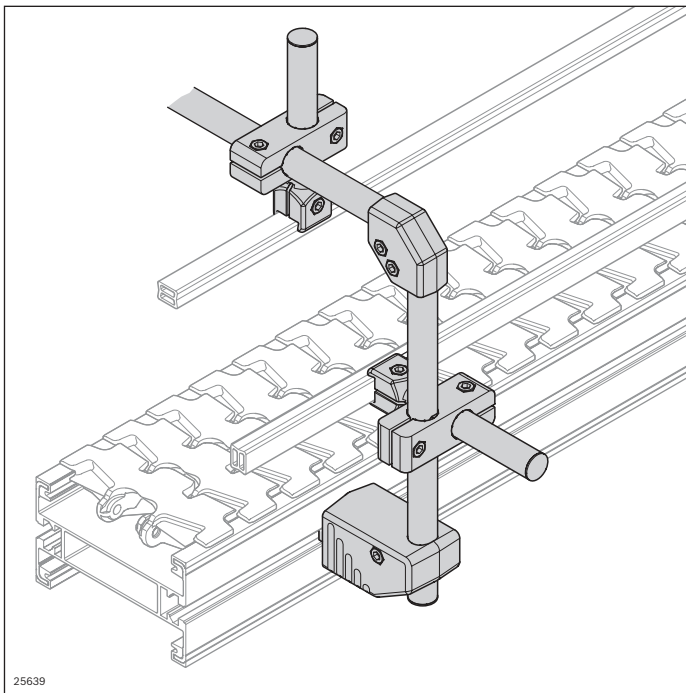
| Spacer plate |    | No.                  |
|--------------|----|----------------------|
| <b>K</b>     | 10 | <b>3 842 527 738</b> |
| Material:    |    | PA; black            |



- Clamping head for on-site construction of supports for protruding transported material

| Clamping head      |     | No.                                    |
|--------------------|-----|----------------------------------------|
| <b>L</b>           | Set | <b>3 842 536 295</b>                   |
| Material:          |     | PA, black                              |
|                    |     | Fastening material: Steel; zinc-plated |
| Scope of delivery: |     | Including fastening material           |

## Holder for lateral guide, variable



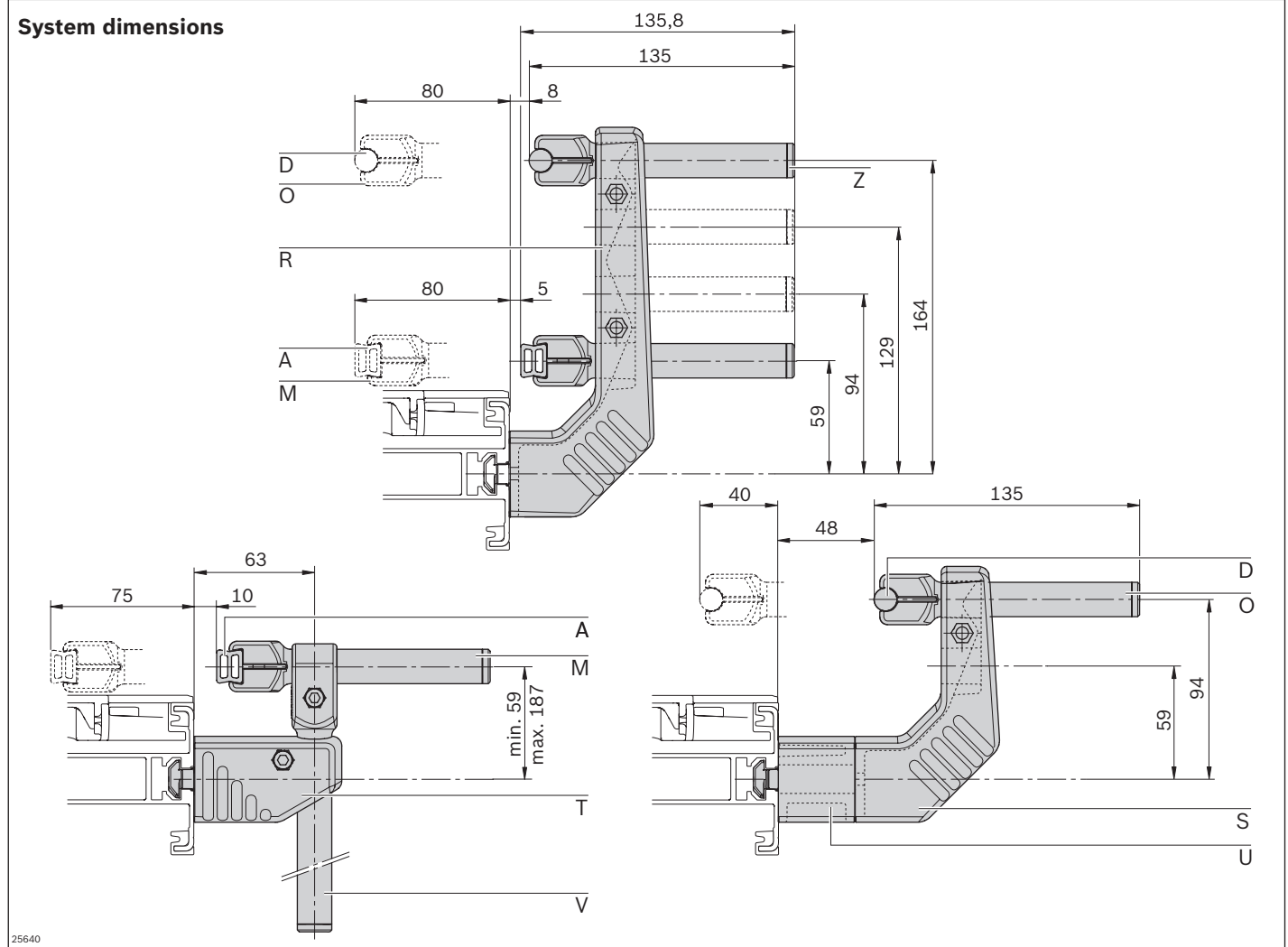
25639

- Holder and clamping holder allow for the variable adjustment of the guide height and width
- Easy to clean

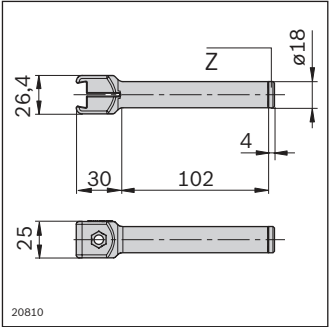
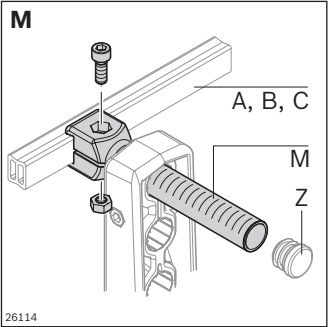
**Notice:** For lateral guide stability, at least two holders must be connected with a continuous profile rail.

7



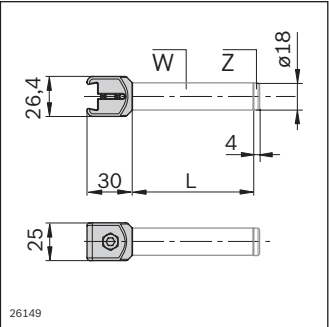
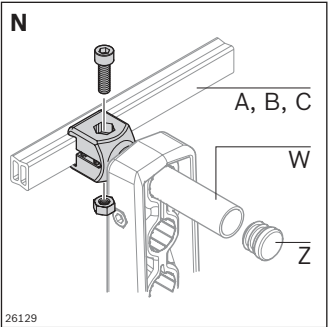
**System dimensions**


- A:** Aluminum profile rail, see p. 216  
**D:** Profile rail D12, see p. 217  
**M:** Clamping holder C L100, see p. 223  
**O:** Clamping holder D12 L100, see p. 223  
**R:** Holder L204, see p. 224  
**S:** Holder L134, see p. 224  
**T:** Holder L45, see p. 225  
**U:** Spacer, see p. 225  
**V:** Vertical clamping holder D18 L160, see p. 225  
**Z:** Plug, see p. 226



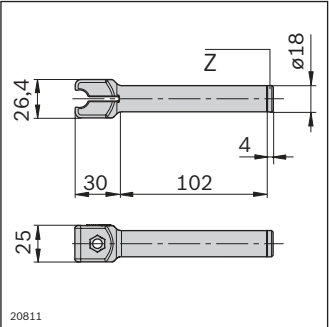
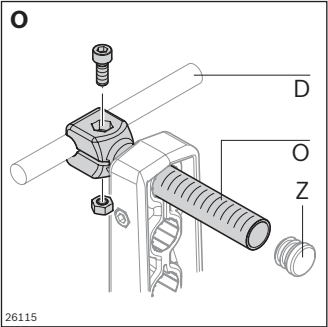
- Clamping holder C L100 for supporting aluminum **(A)**, HDPE **(B)** or 17x17.5 **(C)** profile rail versions
- Scaling in mm and inch for simple alignment

| Clamping holder C L100 |                                                            | No.                  |
|------------------------|------------------------------------------------------------|----------------------|
| <b>M</b>               | 10                                                         | <b>3 842 539 499</b> |
| Material:              | Clamping holder: PA; black<br>Nut, screw: Steel; stainless |                      |
| Accessories:           | Plug <b>(Z)</b>                                            |                      |



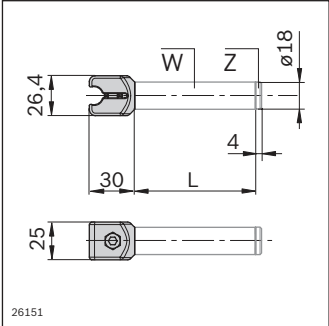
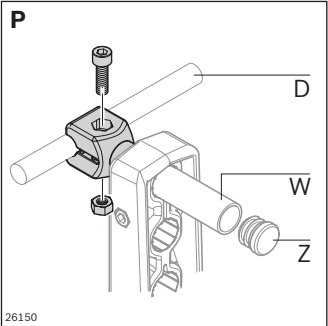
- Clamping holder C for mounting profile rails aluminum **(A)**, HDPE **(B)** or 17x17.5 **(C)** profile rail versions
- In conjunction with tube 18 **(W)** for constructing longer clamping holders

| Clamping holder C |                                                            | No.                  |
|-------------------|------------------------------------------------------------|----------------------|
| <b>N</b>          | 10                                                         | <b>3 842 547 228</b> |
| Material:         | Clamping holder: PA; black<br>Nut, screw: Steel; stainless |                      |
| Accessories:      | Plug <b>(Z)</b><br>Tube D18 <b>(W)</b>                     |                      |



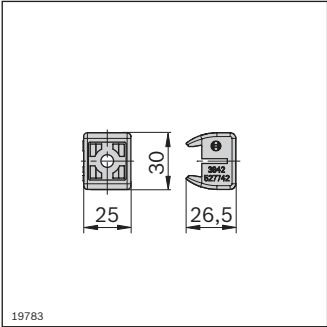
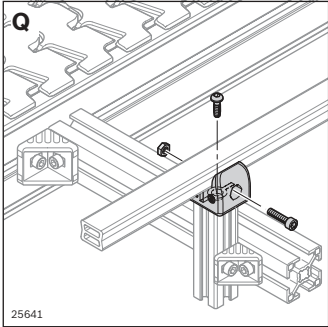
- Clamping holder D12 L100 for supporting profile rails D12 **(D)**
- Scaling in mm and inch for simple alignment

| Clamping holder D12 L100 |                                                            | No.                  |
|--------------------------|------------------------------------------------------------|----------------------|
| <b>O</b>                 | 10                                                         | <b>3 842 539 498</b> |
| Material:                | Clamping holder: PA; black<br>Nut, screw: Steel; stainless |                      |
| Accessories:             | Plug <b>(Z)</b>                                            |                      |



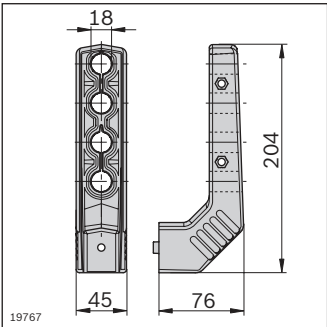
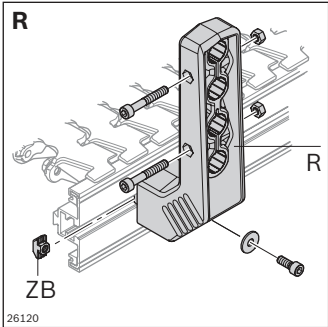
- Clamping holder D12 for supporting profile rails D12 **(D)**
- In conjunction with tube 18 **(W)** for constructing longer clamping holders

| Clamping holder D12 |                                                            | No.                  |
|---------------------|------------------------------------------------------------|----------------------|
| <b>P</b>            | 10                                                         | <b>3 842 547 227</b> |
| Material:           | Clamping holder: PA; black<br>Nut, screw: Steel; stainless |                      |
| Accessories:        | Plug <b>(Z)</b><br>Tube D18 <b>(W)</b>                     |                      |



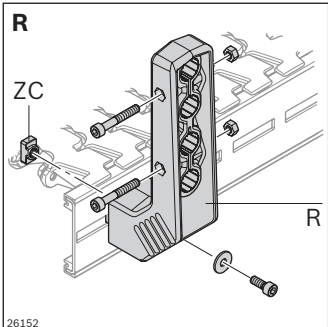
- Clamping head for supporting aluminum **(A)**, HDPE **(B)** or stainless steel 1.4301 profile rail versions with PE guide **(C)**
- Direct mounting on profiles with 10 mm slot

| Clamping head      |     |                                                                      | No.                  |
|--------------------|-----|----------------------------------------------------------------------|----------------------|
| <b>Q</b>           | Set | 10                                                                   | <b>3 842 528 009</b> |
| Material:          |     | Clamping holder: PA, black<br>Fastening material: Steel; zinc-plated |                      |
| Scope of delivery: |     | Including fastening material                                         |                      |



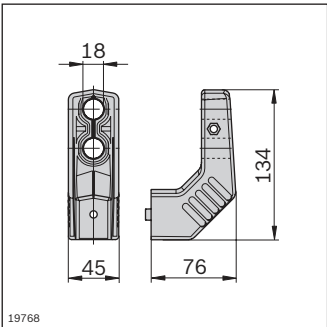
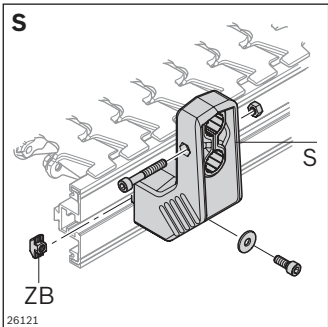
- Holder for fastening clamping holders C, C L100, D12, or D12 L100
- Various installation heights possible for clamping holders
- Variable guide widths possible
- Spacer **(U)** for added enlargement of guide width

| Holder L204           |               |                                                   | No.                  |
|-----------------------|---------------|---------------------------------------------------|----------------------|
| <b>R</b>              | Set           |                                                   | <b>3 842 539 494</b> |
| <b>ZB</b>             | T-nut for AL  | 100                                               | <b>3 842 530 285</b> |
| <b>ZC</b>             | T-nut for STS | 20                                                | <b>3 842 546 706</b> |
| Material:             |               | PA, black<br>Fastening material: Steel; stainless |                      |
| Scope of delivery:    |               | Including fastening material (except for T-nuts)  |                      |
| Required accessories: |               | T-nut for AL or STS                               |                      |
| Optional accessories: |               | Spacer <b>(U)</b>                                 |                      |

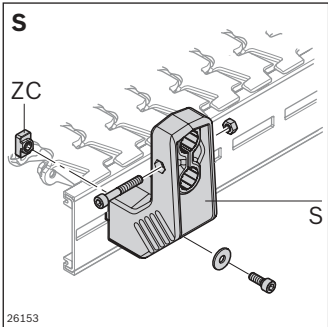


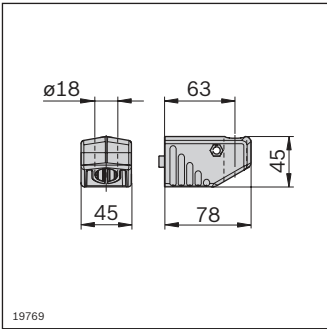
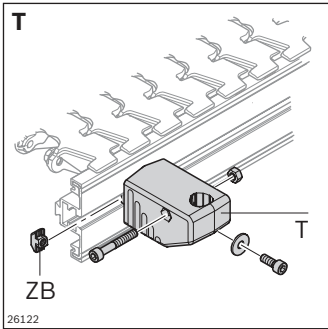
- Holder for mounting clamping holders C, C L100, D12 or D12 L100
- Various installation heights possible for clamping holders
- Variable guide widths possible
- Spacer **(U)** for added enlargement of guide width

| Holder L134           |               |                                                   | No.                  |
|-----------------------|---------------|---------------------------------------------------|----------------------|
| <b>S</b>              | Set           |                                                   | <b>3 842 539 495</b> |
| <b>ZB</b>             | T-nut for AL  | 100                                               | <b>3 842 530 285</b> |
| <b>ZC</b>             | T-nut for STS | 20                                                | <b>3 842 546 706</b> |
| Material:             |               | PA, black<br>Fastening material: Steel; stainless |                      |
| Scope of delivery:    |               | Including fastening material (except for T-nuts)  |                      |
| Required accessories: |               | T-nut for AL or STS                               |                      |
| Optional accessories: |               | Spacer <b>(U)</b>                                 |                      |



- Holder for mounting clamping holders C, C L100, D12 or D12 L100
- Various installation heights possible for clamping holders
- Variable guide widths possible
- Spacer **(U)** for added enlargement of guide width

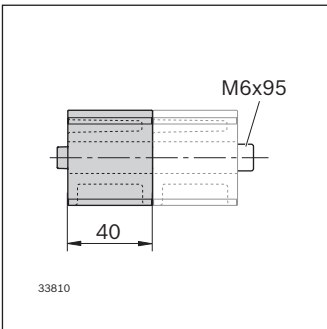
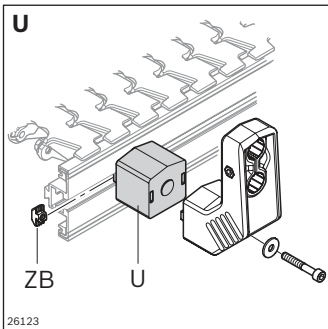
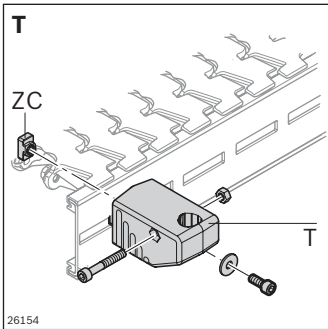




- Holder L45 for fastening vertical clamping holders or tube D18
- For infinitely height-adjustable lateral guides
- Spacer (**U**) for enlargement of guide width

| Holder L45              |     | No.                  |
|-------------------------|-----|----------------------|
| <b>T</b> Set            | 10  | <b>3 842 539 496</b> |
| <b>ZB</b> T-nut for AL  | 100 | <b>3 842 530 285</b> |
| <b>ZC</b> T-nut for STS | 20  | <b>3 842 546 706</b> |

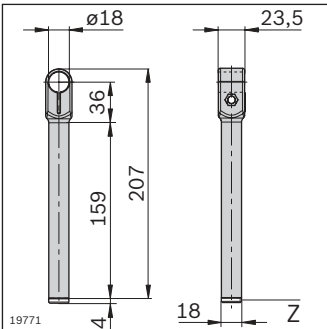
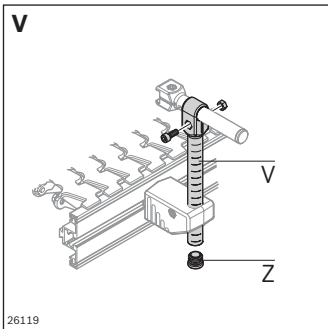
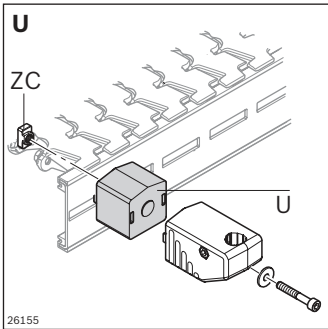
Material: PA, black  
Fastening material: Steel; stainless  
Scope of delivery: Including fastening material (except for T-nuts)  
Required accessories: T-nut for AL or STS  
Optional accessories: Spacer (**U**)



- Spacer for guide width enlargement

| Spacer                  |     | No.                  |
|-------------------------|-----|----------------------|
| <b>U</b> Set            | 10  | <b>3 842 539 497</b> |
| <b>ZB</b> T-nut for AL  | 100 | <b>3 842 530 285</b> |
| <b>ZC</b> T-nut for STS | 20  | <b>3 842 546 706</b> |

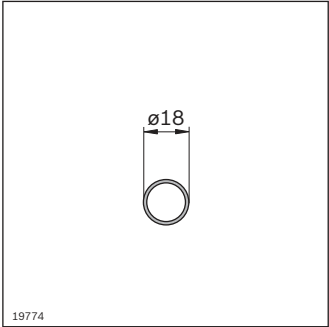
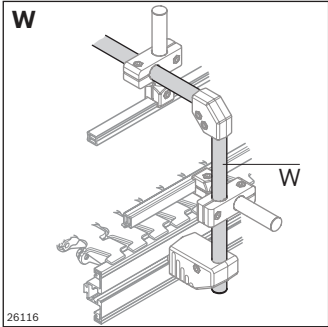
Material: PA, black  
Fastening material: Steel; stainless  
Scope of delivery: Including fastening material (except for T-nuts)  
Required accessories: T-nut for AL or STS



- Vertical clamping holder for constructing height-adjustable guides

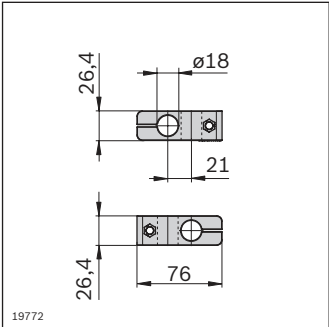
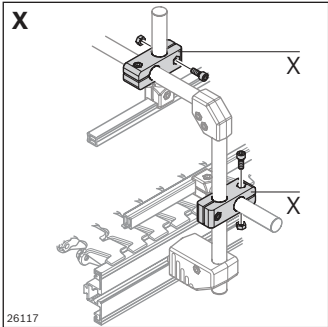
| Vertical clamping holder D18 L160 |    | No.                  |
|-----------------------------------|----|----------------------|
| <b>V</b>                          | 10 | <b>3 842 539 500</b> |

Material: PA; black  
Nut, screw: Steel; stainless  
Accessories: Plug (**Z**)



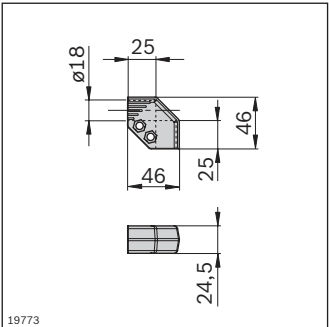
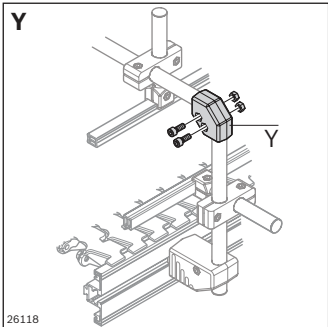
- Tube D18 for constructing height-adjustable vertical holders or cross members for upper guides

| Tube D18     | L (mm)                   | No.                  |
|--------------|--------------------------|----------------------|
| <b>W</b>     | 3000                     | <b>3 842 539 339</b> |
| Material:    | Non-rusting steel 1.4301 |                      |
| Accessories: | Plug ( <b>Z</b> )        |                      |



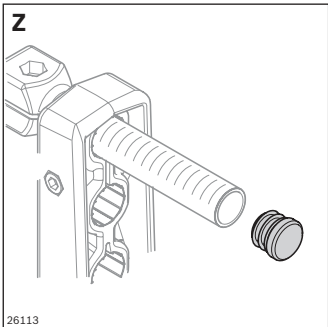
- Cross piece for the intersecting, right-angled connection of tubes D18 (**W**) and clamping holders C L100 (**M**) or D12 L100 (**O**)

| Cross piece | No.                          |
|-------------|------------------------------|
| <b>X</b>    | 10 <b>3 842 539 501</b>      |
| Material:   | Cross piece: PA; black       |
|             | Nut, screw: Steel; stainless |



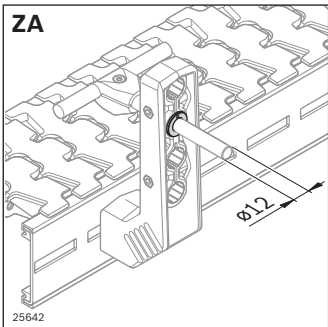
- Corner piece for end-to-end, perpendicular connections of tubes D18 (**W**) and clamping holders C L100 (**M**) or D12 L100 (**O**)

| Corner piece | No.                          |
|--------------|------------------------------|
| <b>Y</b>     | 10 <b>3 842 539 505</b>      |
| Material:    | Corner piece PA; black       |
|              | Nut, screw: Steel; stainless |



- Plug for clamping head C L100 (**M**), clamping holder D12 L100 (**O**), vertical clamping holder D18 L160 (**V**) or tube D18 (**W**)

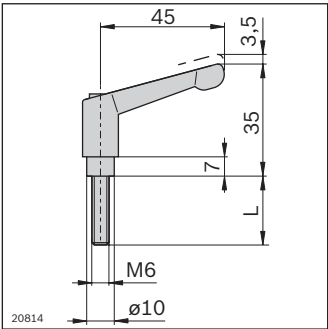
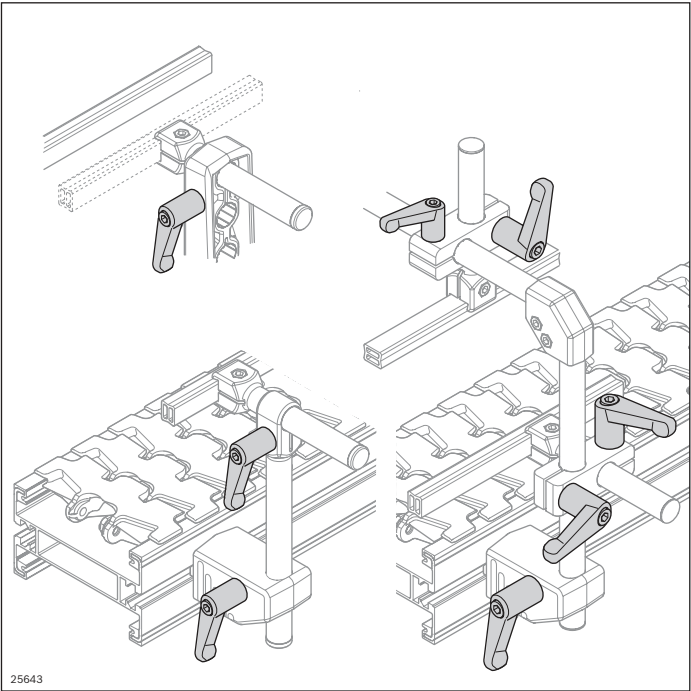
| Plug      | No.                     |
|-----------|-------------------------|
| <b>Z</b>  | 10 <b>3 842 539 826</b> |
| Material: | PA; black               |



- Reducing adapter for mounting round profiles 12 mm in attachments D18, e.g. for customer-specific clamping holder

| Reducing adapter | No.                     |
|------------------|-------------------------|
| <b>ZA</b>        | 20 <b>3 842 539 344</b> |
| Material:        | PA; black               |

# Clamping lever



- For easy adjustment of lateral guide holders
- Clamping lever M6x25 for the cross piece
- Clamping lever M6x40 for the holder

7

| Clamping lever | L (mm) | No.           |
|----------------|--------|---------------|
| M6x25          | 25     | 3 842 528 540 |
| M6x40          | 40     | 3 842 528 539 |

Material: Lever: Diecast zinc; black plastic coated  
Screws: Steel; zinc-plated and black chrome-plated

## Pressure roller



Enables the cost-effective vertical transport of light products. The contact pressure on the flat conveyor chain increases the friction, thereby enabling reliable transport in a vertical section.

- Vmax: 60 m/min
- Max. product weight depending on the conveying angle (see table)
- Operating temperature: 0 - 60 °C
- Clean and dry environment
- No transport of sharp-edged products
- No direct UV radiation
- Minimum product length about 60 mm (both sides of roller)
- Minimum product length about 90 mm (one side of roller)
- For safe transport, a flat, stable product surface is required
- Product height ≤ product length ≤ product width
- Tolerance of the product height +/- 1 mm

The pressure rollers with ball bearing are installed by the customer in short distances on the profile rail 3 842 993 887 (which is provided with holes by the customer).

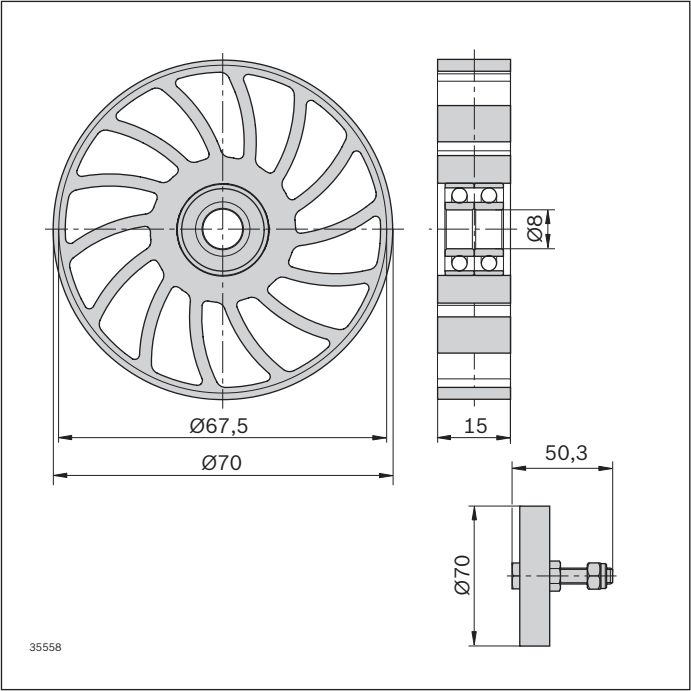
The components from the lateral guide range serve as connections to the conveyor section.

### Scope of delivery:

- Including fastening material

### Material:

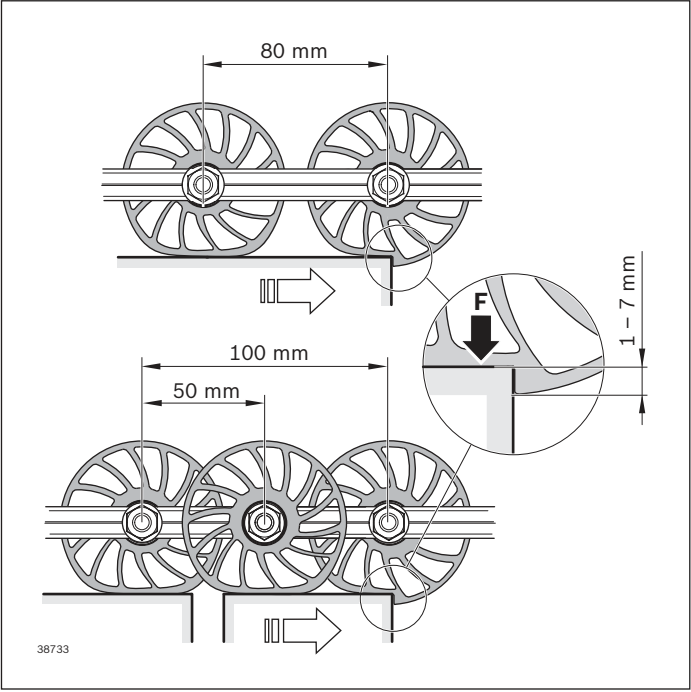
- Ball bearing: Stainless steel, sealed on both sides
- Roller: PU



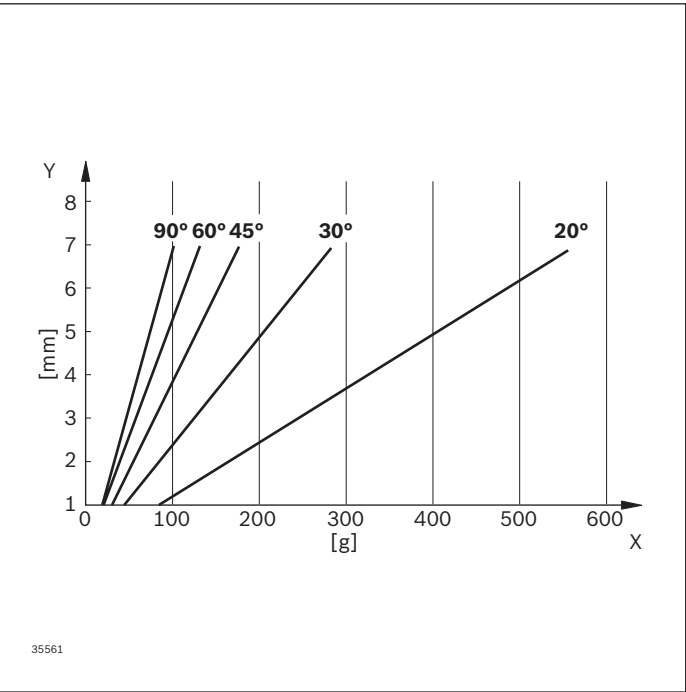
| Pressure roller | No.           |
|-----------------|---------------|
| 10              | 3 842 552 950 |

7

Pressure roller indentation depth



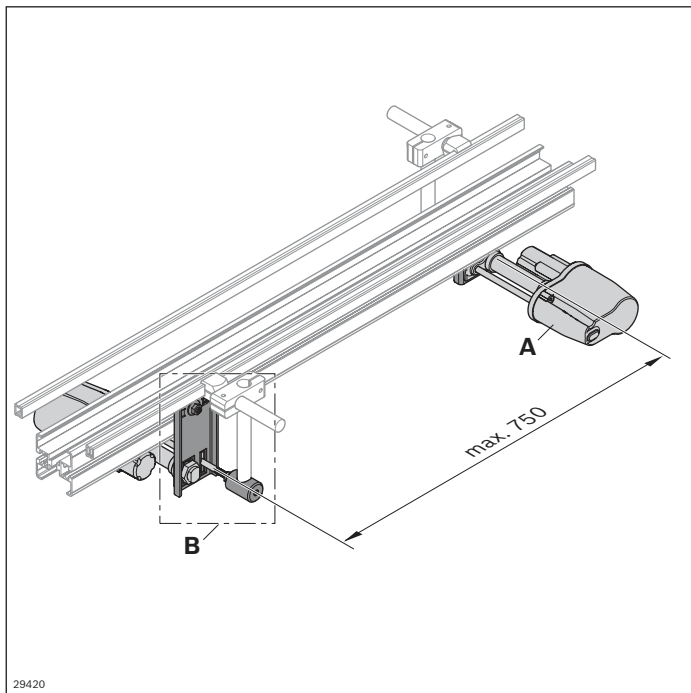
Product weight depending on the conveying angle



Y-axis: Pressure roller indentation depth in (mm)  
X-axis: Product weight in (g)



## Pneumatically adjustable lateral guide



The complete lateral guide can be adapted to rapidly changing product dimensions, especially when the conveyors are not easily accessible. The pneumatically adjustable lateral guide is composed of the adjustment unit (**A**), the assembly kit (**B**) and components from the lateral guide program.

- Size: 65-320
- Max. pressure against the lateral guide (on one side): 30 N/700 mm
- Synchronous, balanced adjustment
- Adjustment by means of pneumatic valve (operating pressure 4 ... 5 bar, switching every 2 sec. (depending on length of the pneumatic pipes and the number of adjustment units per valve))
- Adjustment range for each side: 16 stroke à 2 mm = 32 mm, after 16 switching operations the adjustment unit returns to its initial position
- Maximum number of adjustment units per valve: 8 pcs
- User-side position monitoring is recommended

- Mounting and adjustment mechanisms are placed under the conveyor system for easy accessibility of the transported material

- Mounting and adjustment also in horizontal and vertical curves. A customer-side adjustment is required for horizontal curves

### Required accessories:

- Tube 18 mm (**W**), cross piece (**X**), clamping holder (**M,O**), profile rail (**A, B, C, D**) (see p. 212ff.)
- One 4/2 directional control valve per 8 adjustment units

### Scope of delivery:

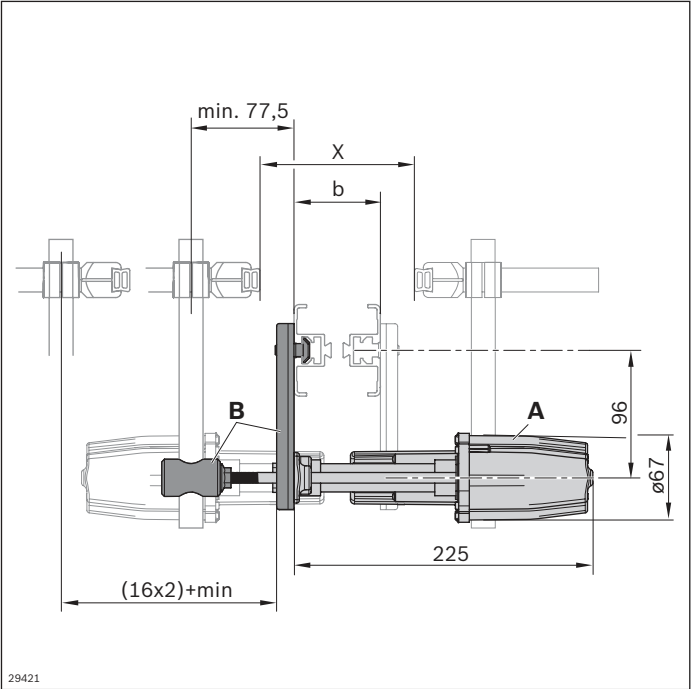
- **B:** Including fastening material

### Condition on delivery:

- **A:** Assembled
- **B:** Assembly required

### Material:

- **A:** AL anodized, PE, steel, galvanized steel, PA
- **B:** Galvanized steel, AL anodized

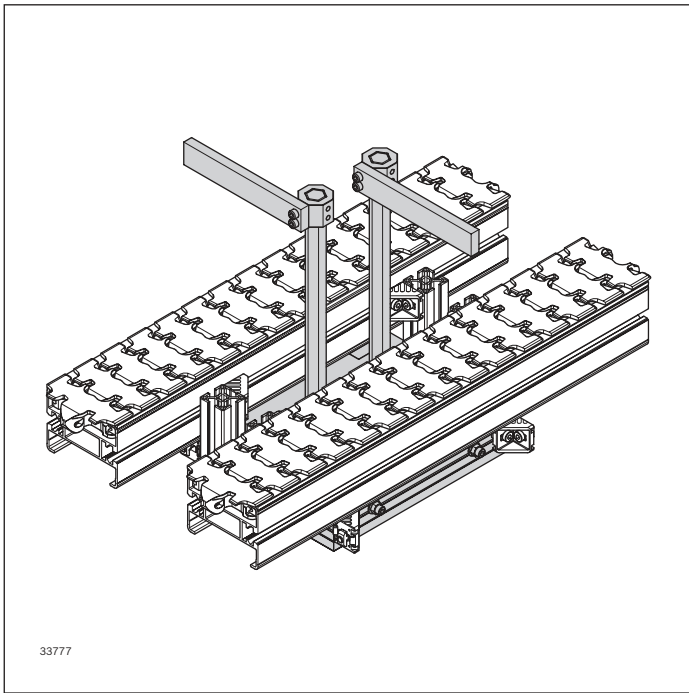


| Adjustment unit | No.           |
|-----------------|---------------|
| A               | 3 842 547 707 |

| Assembly kit | No.           |
|--------------|---------------|
| B            | 3 842 547 718 |

| Track width b | X min | X max |
|---------------|-------|-------|
| 65            | 0     | 116   |
| 90            | 0     | 141   |
| 120           | 0     | 171   |
| 160           | 0     | 211   |
| 240           | 0     | 291   |
| 320           | 0     | 371   |

## Barrier



- For the control-free merging of two sections into one.  
The product that arrives first has right of way (Traffic Police).
- Size: All track widths
  - Only suitable for dry operation
  - The height of the barrier arm should be set as close as possible to the surface of the chain (any protrusion can be shortened if necessary)
  - Minimum clearance between parallel sections: 40 mm
  - Minimum-maximum load: See diagram on page 233
  - For higher loads, the accumulation pressure must be reduced, e.g. via pre-singulation

- Barrier length adjustable to product width
- Reducing accumulation pressure through pre-isolation

### Scope of delivery:

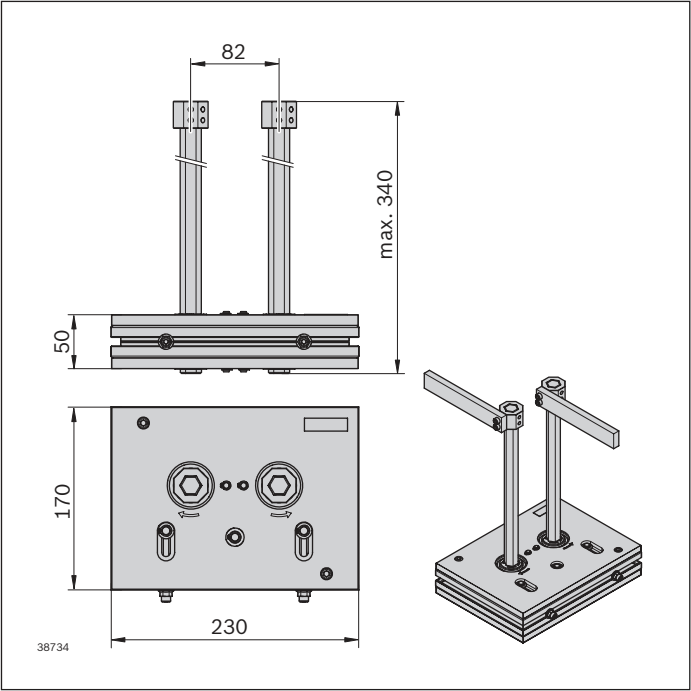
- Including fastening material  
(includes all necessary basic components for the installation)

### Material:

- Aluminum, steel

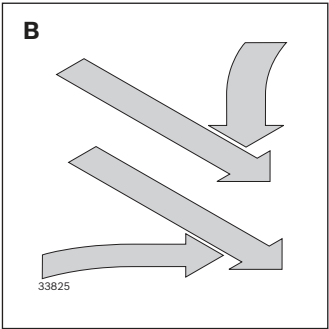
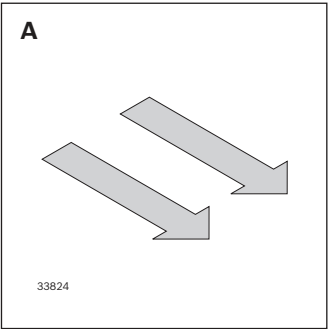
### Condition on delivery:

- Some assembly required



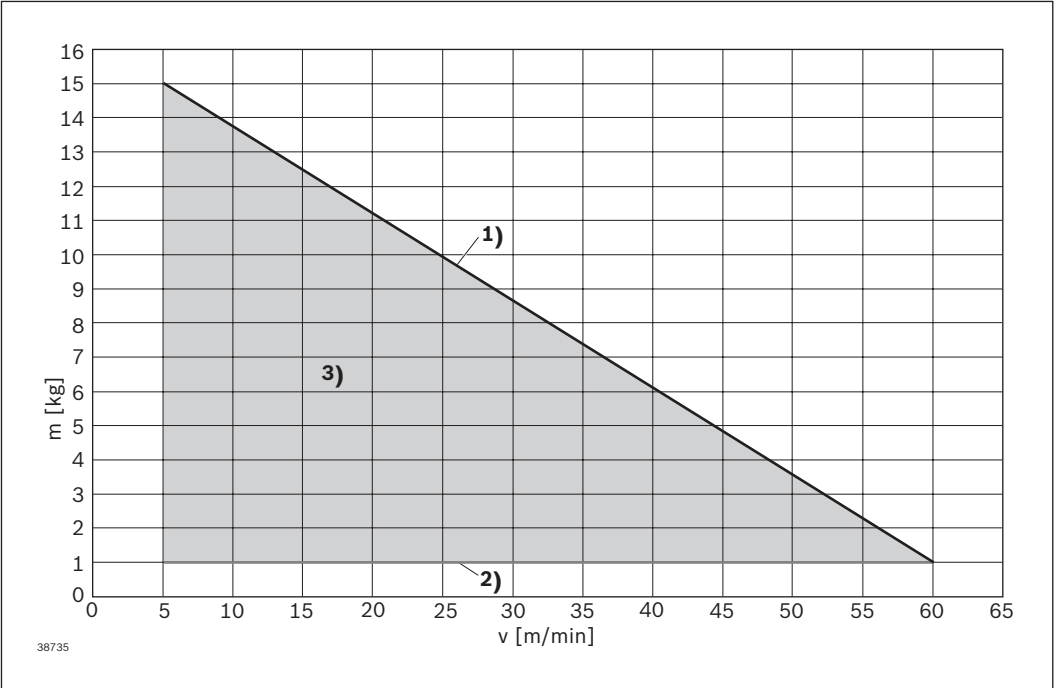
| Barrier | No.           |
|---------|---------------|
|         | 3 842 553 070 |

7



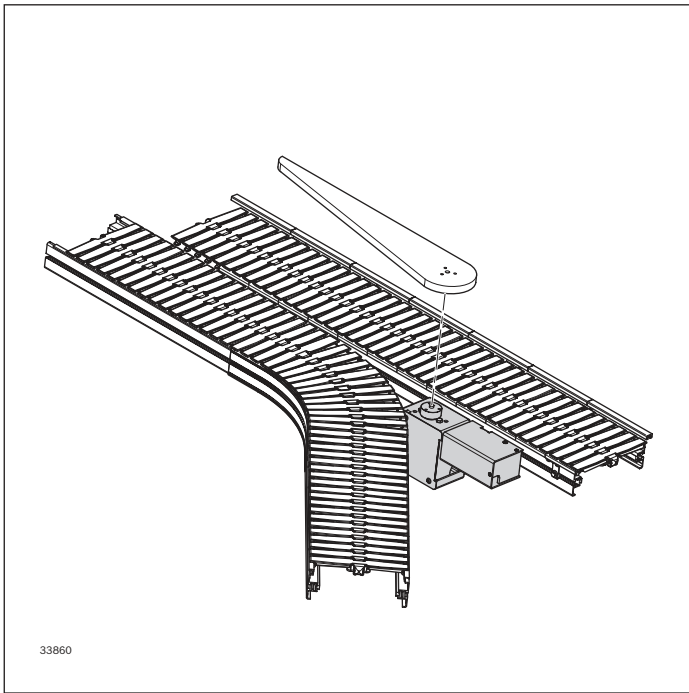
**A:** Standard solution, scope of delivery  
**B:** Adaptation of the barrier by the customer possible via MGE components

**Minimum/maximum load**



m (kg) mass  
v (min/max) speed  
1) Maximum load  
2) Minimum load  
3) Permissible range

## Universal diverter



- For changing tracks between main and secondary section
- Size: All track widths (max. product width = chain width)
  - Pneumatically operated
  - Max. product weight: 20 kg

### Notice:

- The diverter arm and the end stop must be prepared by the user depending on the track width and product size
- For stability reasons, the closed section profile must be used for track widths 65-120, or, if open section profiles are used, two cross connectors must be used in the fixing area of the universal diverter

### Required accessories:

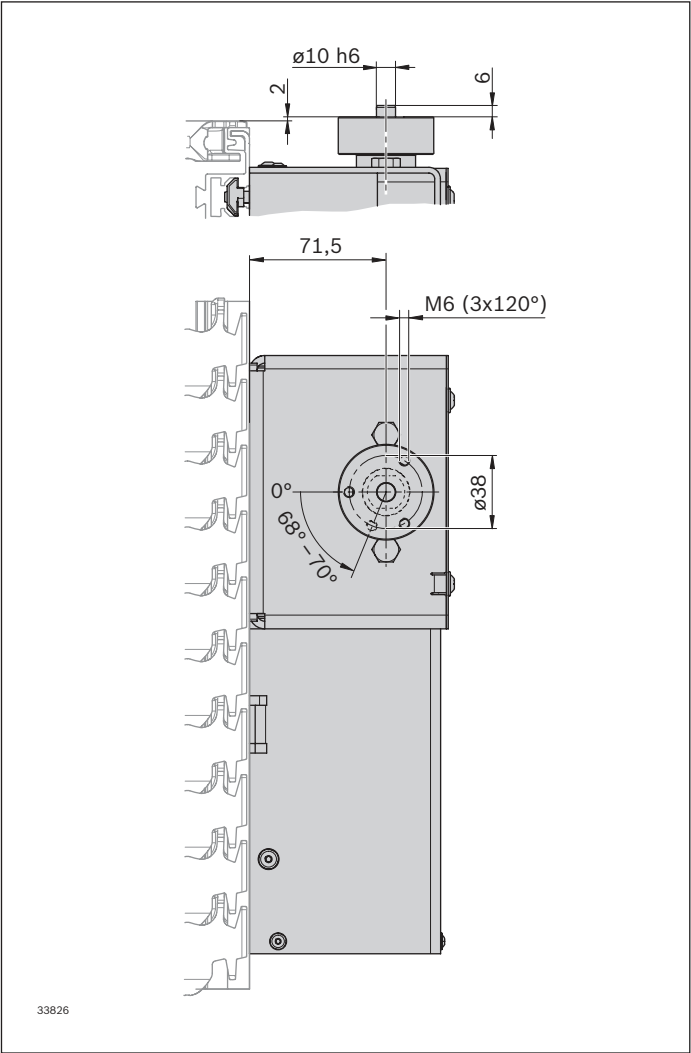
- Diverter arm
- End stop (open/branch: Against lateral guide or on user-side)
- For the cylinder:
  - 2x G1/8" throttle check valves
  - 2x sensors
  - 2x sensor supports
  - 1x 5/2 directional valve
- Cylinder description ISO 6432 with:
  - Piston  $\varnothing 25$
  - Piston rod thread M10x1.25
  - Connections G1/8"
  - Piston rods  $\varnothing 10$
  - Cylinder outer thread M22x1.5

### Scope of delivery:

- Partially assembled kit

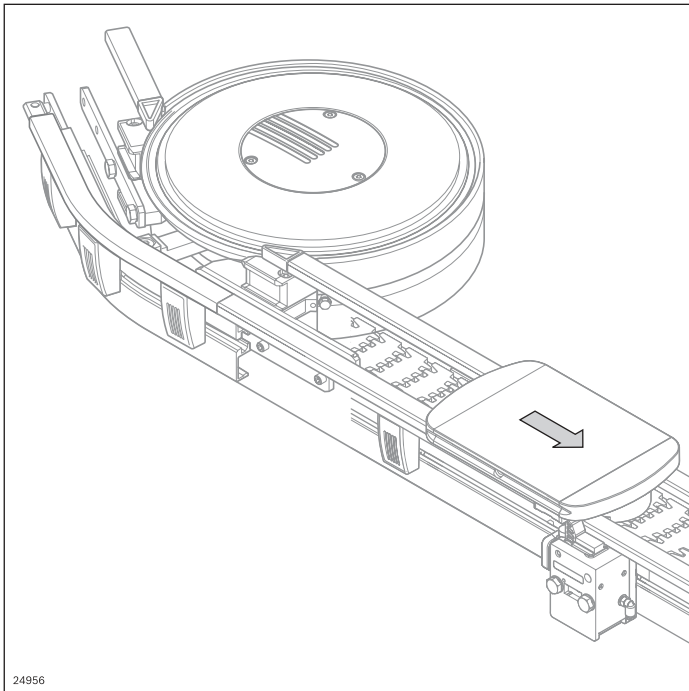
### Material:

- Steel, aluminum, PC



| Universal diverter | No.           |
|--------------------|---------------|
|                    | 3 842 547 703 |

# Workpiece pallet system (WT)

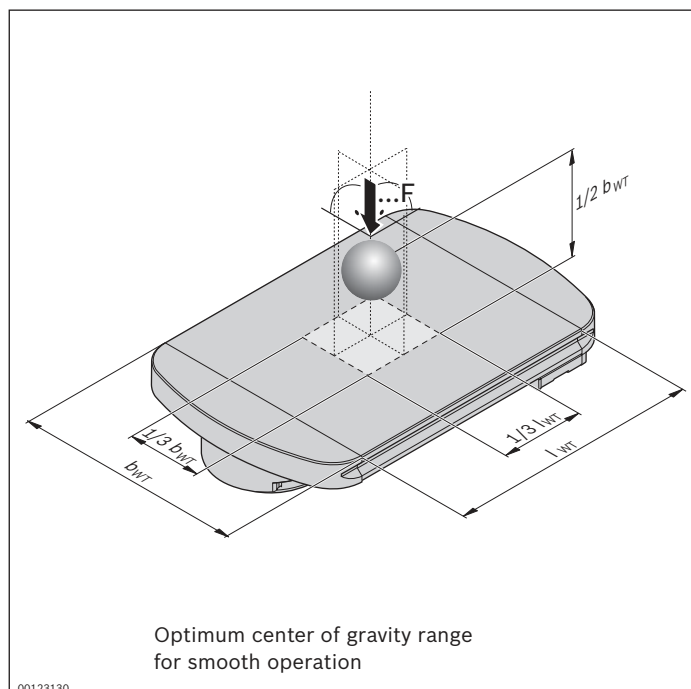
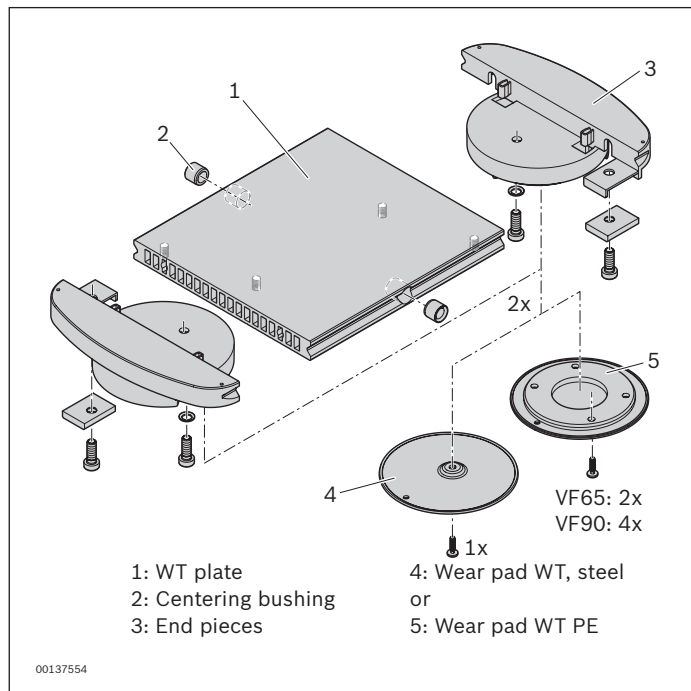


- ▶ Secure transport of parts thanks to the modular design with comprehensive additional components
- ▶ Numerous components for control WT such as diverter, stopper, positioning unit, etc.
- ▶ Selection of wear pads with different materials
- ▶ Compatible with the identification system ID 15

|                                                                                     |                                            |            |
|-------------------------------------------------------------------------------------|--------------------------------------------|------------|
|    | <b>VarioFlow workpiece pallet (WT)</b>     | <b>238</b> |
|    | <b>WT plate</b><br><b>End piece</b>        | <b>240</b> |
|    | <b>Lateral guide for workpiece pallets</b> | <b>242</b> |
|    | <b>Curve wheel lateral guide</b>           | <b>246</b> |
|  | <b>Stop gate</b>                           | <b>248</b> |
|  | <b>Return stop WT</b>                      | <b>250</b> |
|  | <b>Stop gate position sensing</b>          | <b>252</b> |
|  | <b>Switch bracket</b>                      | <b>254</b> |
|  | <b>Positioning unit</b>                    | <b>260</b> |
|  | <b>Section transfer</b>                    | <b>268</b> |
|  | <b>Diverter</b>                            | <b>270</b> |
|  | <b>Junction</b>                            | <b>278</b> |
|  | <b>Rocker system WT</b>                    | <b>282</b> |



## VarioFlow workpiece pallet (WT)



For transporting products that are not suitable for accumulation operation or are unstable due to their geometry

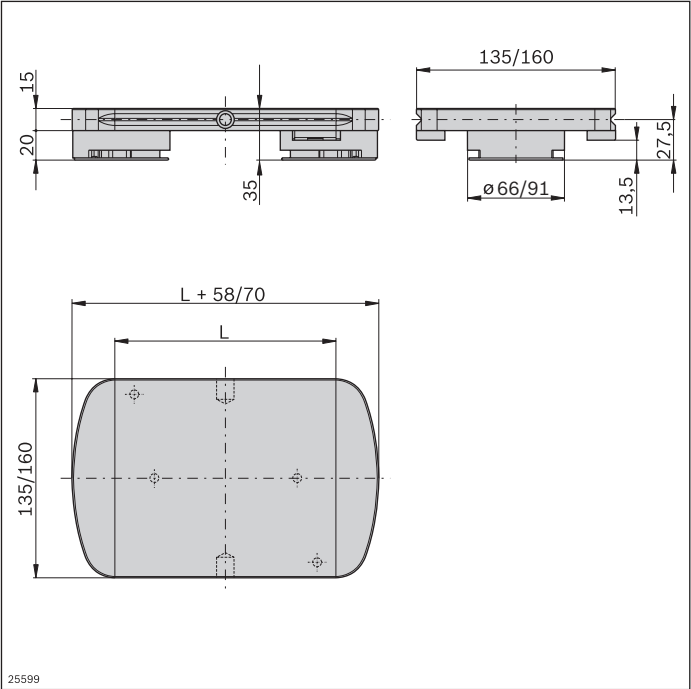
- Max. transport speed for operation with workpiece pallets:  $v_N = 18 \text{ m/min}$
  - Wear pads WT either made of:
    - Steel, for use in harsh environments
    - PE, for use in clean environments
  - WT load (workpiece, support, etc.)
    - Size 65: 8 kg
    - Size 90: 8 kg
  - The modular concept allows for WT lengths of up to 500 mm\*. With centering bushings for positioning in the positioning unit.
- \* For WT with  $L > 300 \text{ mm}$ , combine 2 curve wheels  $90^\circ$  with intermediate section (min. 200 mm).
- Max. WT length (incl. end pieces) for  $180^\circ$  curve wheel:
- Size 65: 360 mm
  - Size 90: 410 mm
- Minimum length of the workpiece pallets:
    - Size 65:  $L_{\min} = 76 \text{ mm}$
    - Size 90:  $L_{\min} = 114 \text{ mm}$
  - Minimum length of the workpiece pallets in order to be positioned by the positioning unit (see p. 260):
    - Size 65:  $L_{\min} = 125 \text{ mm}$
    - Size 90:  $L_{\min} = 125 \text{ mm}$

Minimum length WT for passive bridge  $L \geq 300$

- ▶ Level WT surfaces with no indentations
- ▶ The entire top of the WT can be built upon since everything else on the section is ready-mounted below the top of the WT.
- ▶ Compatible with the identification systems ID 15 and ID 200. Integrated installation of a mobile data tag is possible.
- ▶ The product can also protrude beyond the WT if the position of the center of gravity is taken into consideration.

Material:

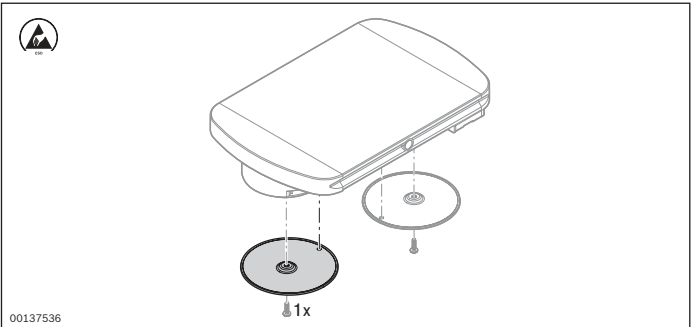
- WT plate: Aluminum; natural, anodized
- End pieces: PA; black
- Workpiece pallet wear pads: Steel, stainless,  $HV \geq 480$  or PE



| Workpiece pallet <sup>1)</sup> | L (mm) | No.                    |
|--------------------------------|--------|------------------------|
| VFplus 65                      | 150    | 1 <b>3 842 541 888</b> |
| VFplus 90                      | 175    | 1 <b>3 842 541 889</b> |

<sup>1)</sup> Mounted without wear pad, with positioning bushing

The mounted workpiece pallet must be provided with wear pads (steel or PE) by the customer.

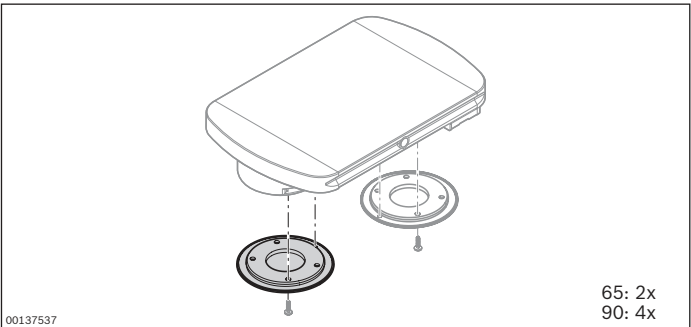


| Steel wear pad | No.                     |
|----------------|-------------------------|
| VFplus 65      | 10 <b>3 842 528 773</b> |
| VFplus 90      | 10 <b>3 842 528 772</b> |

Required accessories:

- Screw **3 842 543 246** (not in scope of delivery)

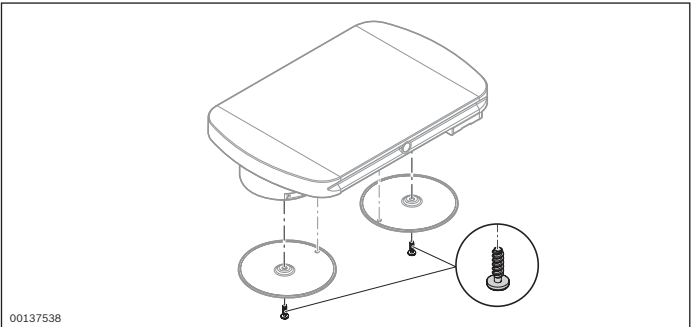
**Notice:** We recommend using the gray chain, see p. 19.



| PE wear pad | No.                     |
|-------------|-------------------------|
| VFplus 65   | 10 <b>3 842 541 566</b> |
| VFplus 90   | 10 <b>3 842 541 567</b> |

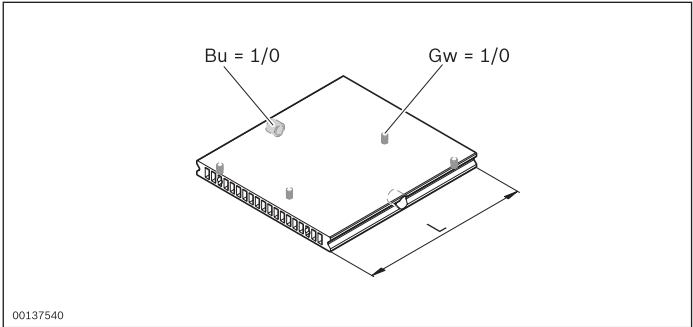
Required accessories:

- Screw **3 842 543 246** (not in scope of delivery)



| Screw | No.                      |
|-------|--------------------------|
|       | 100 <b>3 842 543 246</b> |

WT plate  
 End piece



| WT plate  | Bu   | Gw   | L (mm)      | No.                      |
|-----------|------|------|-------------|--------------------------|
| VFplus 65 | 0; 1 | 0; 1 | 30 ... 6000 | <b>3 842 996 204/...</b> |
| VFplus 90 | 0; 1 | 0; 1 | 30 ... 6000 | <b>3 842 996 205/...</b> |

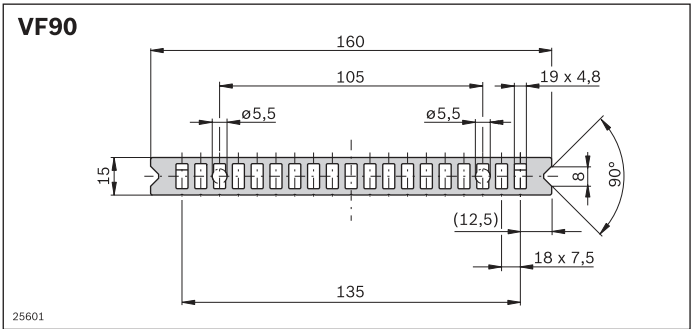
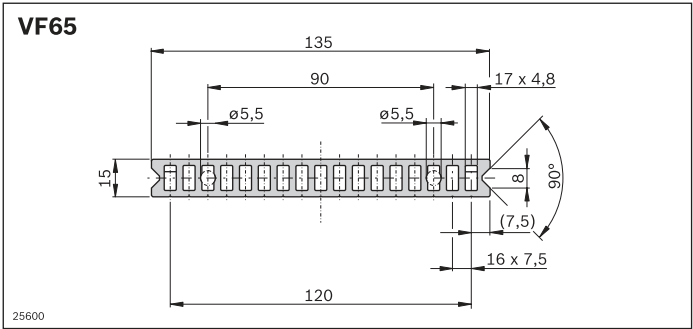
| Parameter | Size  | L <sub>min</sub> (mm) | L <sub>max</sub> (mm) |
|-----------|-------|-----------------------|-----------------------|
| Bu = 1    | 65/90 | 125                   | 500                   |
| Gw = 1    | 65    | 76                    | 500                   |
|           | 90    | 114                   | 500                   |

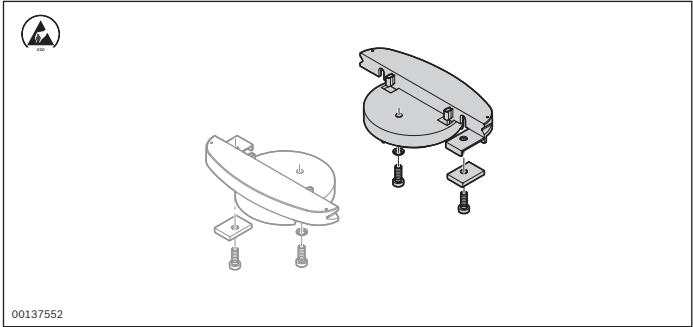
**Bu = 1:** with holes for centering bushings for positioning in the positioning unit (centering bushings not in scope of delivery)

**Bu = 0:** without holes for centering bushings

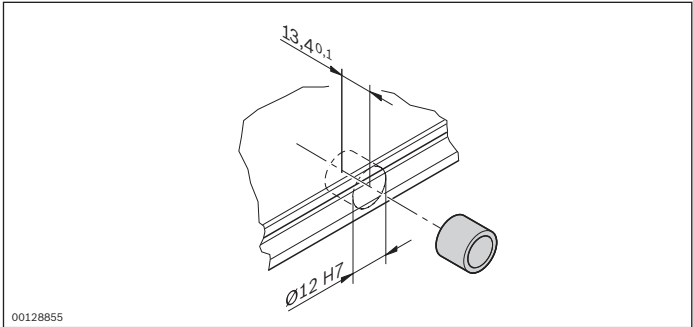
**Gw = 1:** with holes to assemble the end pieces

**Gw = 0:** without holes to assemble the end pieces



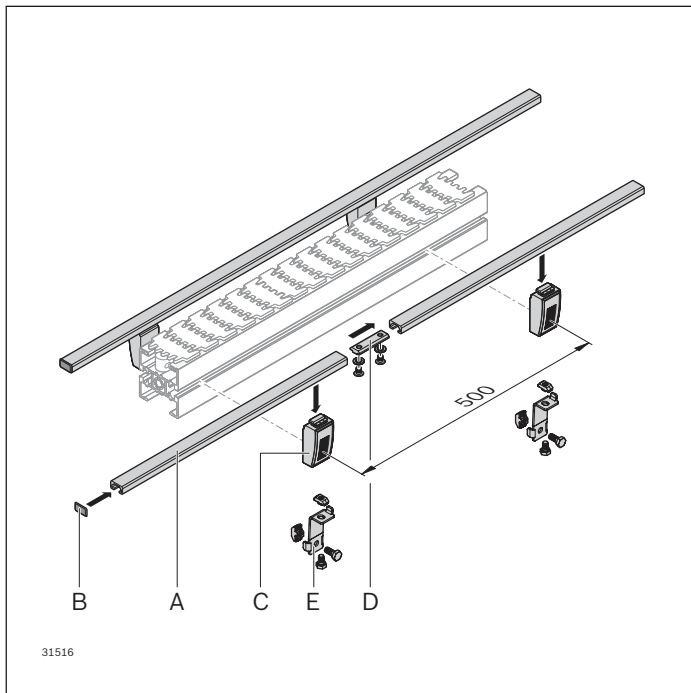


| End piece |  No. |
|-----------|-----------------------------------------------------------------------------------------|
| VFplus 65 | 10 3 842 541 902                                                                        |
| VFplus 90 | 10 3 842 541 903                                                                        |



| Centering bushing |  No. |
|-------------------|-----------------------------------------------------------------------------------------|
|                   | 1 3 842 535 081                                                                         |

## Lateral guide for workpiece pallets



- ▶ Strut profile (**A**) for lateral guiding of workpiece pallets  
Pre-bent lateral guides for curves on request
- ▶ Profile connector (**D**) to connect the end face of the profiles (**A**).
- ▶ Cover cap (**B**) to protect dirt from entering and injuries at open profile ends.
- ▶ Lateral guide holder (**C**) for simple installation in straight sections
- ▶ Lateral guide HD holder (**E**) in robust design for straight sections and in the curve area
- ▶ Distance of the holders (**C, E**) in the conveying direction: 500 mm
- ▶ Number of holders (**C, E**) in the curve area: 3 holders recommended

### ▶ Lateral guide of the workpiece pallets

#### Optional accessories:

- **A:** Bending tool for lateral guide: See p. 290

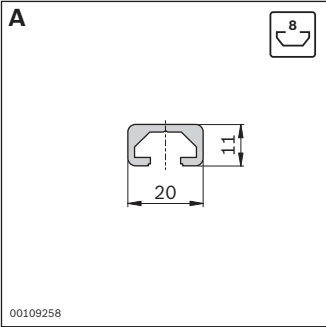
#### Scope of delivery:

- **C, D, E:** Including fastening material (as shown)

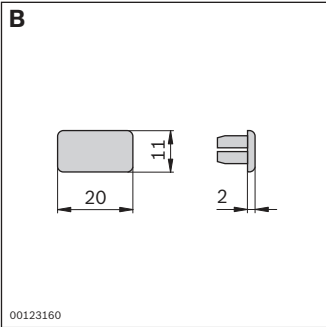
#### Material:

- **A:** Aluminum; natural, anodized
- **B, C:** PA; black
- **D:** Steel; zinc-plated
- **E:** Non-rusting steel 1.4301

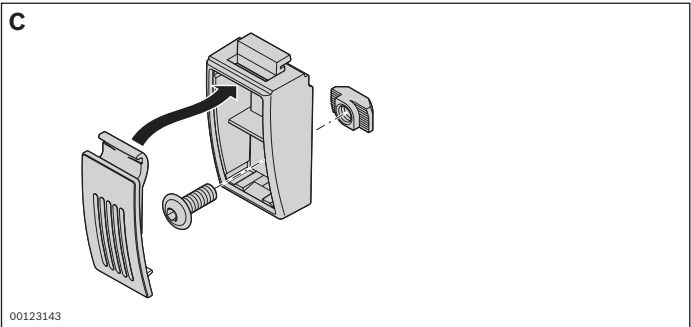
Fastening material: Steel; zinc-plated



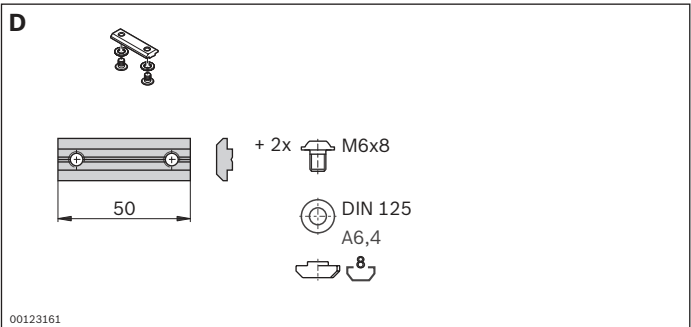
| Strut profile 11x20 |                                                                                          | L (mm)      | No.                      |
|---------------------|------------------------------------------------------------------------------------------|-------------|--------------------------|
| <b>A</b>            |  10 pcs | 2000        | <b>3 842 513 581</b>     |
| <b>A</b>            | 1 pc                                                                                     | 30 ... 2000 | <b>3 842 992 476/...</b> |



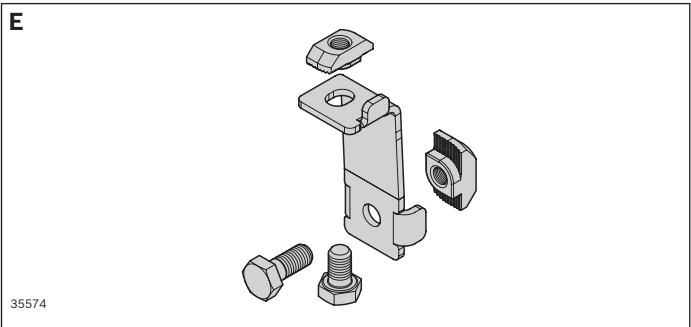
| Cover cap 11x20 |             | ESD                                                                                 |  No. |
|-----------------|-------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| <b>B</b>        | Black       |  | 20 <b>3 842 551 045</b>                                                                 |
| <b>B</b>        | Signal gray |                                                                                     | 20 <b>3 842 551 044</b>                                                                 |



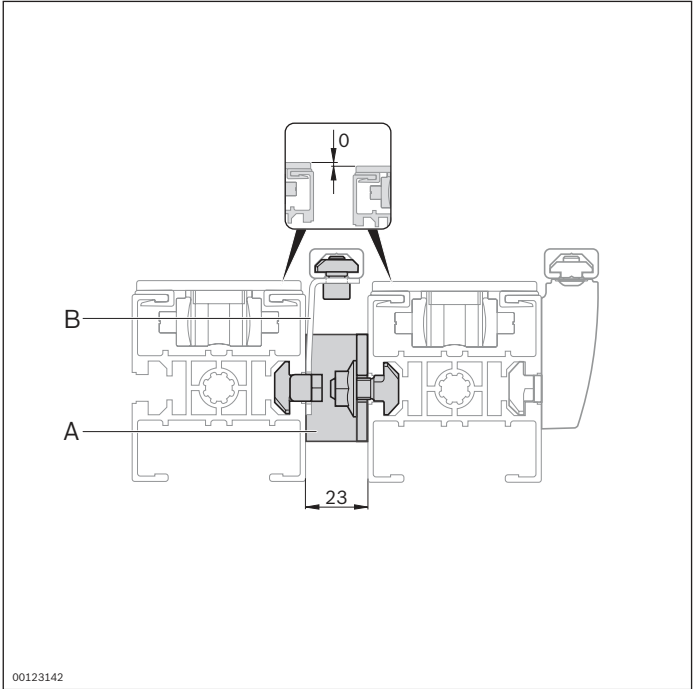
| Lateral guide holder |  |  No. |
|----------------------|--|-----------------------------------------------------------------------------------------|
| <b>C</b>             |  | 10 <b>3 842 531 552</b>                                                                 |



| Profile connector |  |  No. |
|-------------------|--|-------------------------------------------------------------------------------------------|
| <b>D</b>          |  | 10 <b>3 842 536 787</b>                                                                   |



| Lateral guide holder HD |  |  No. |
|-------------------------|--|-------------------------------------------------------------------------------------------|
| <b>E</b>                |  | 10 <b>3 842 557 005</b>                                                                   |

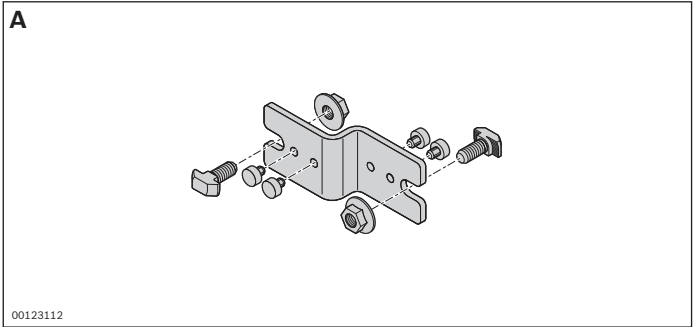


The middle lateral guide is used alternately by both sides. The section link (23 mm) **(A)** is used in combination with the holder for lateral guides (23 mm) **(B)** as a spacer between sections.

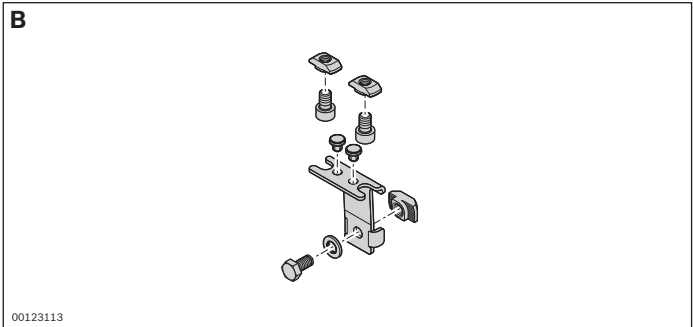
- The use of a section transfer (see p. 268), diverter (see p. 270) or junction (see p. 278), requires parallel section spacing of 23 mm.

Material:

- **A, B:** Non-rusting steel
- Fastening parts: Steel; galvanized



| Section link |  No. |
|--------------|-----------------------------------------------------------------------------------------|
| A            | 10 3 842 532 998                                                                        |

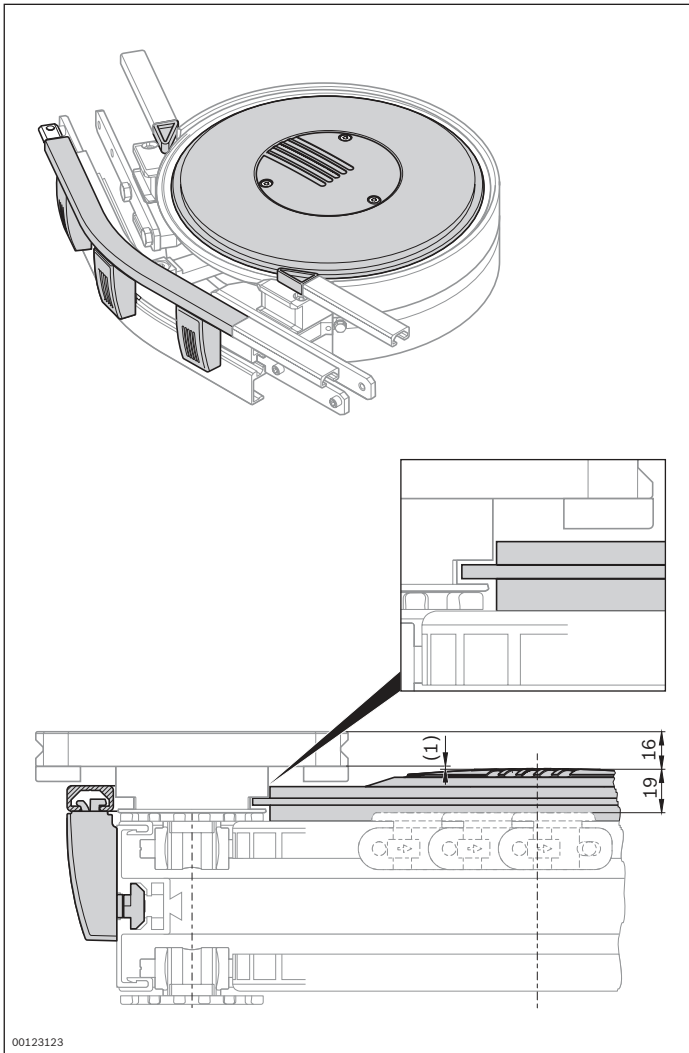


| Holder for lateral guide |  No. |
|--------------------------|-------------------------------------------------------------------------------------------|
| B                        | 10 3 842 532 980                                                                          |





## Curve wheel lateral guide



Lateral guide of the workpiece pallets (WT) in the curve wheel or curve wheel drive.

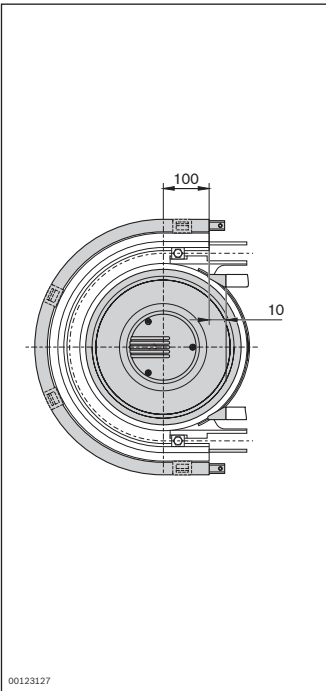
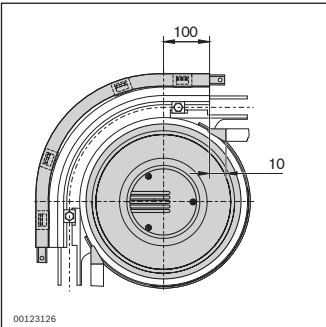
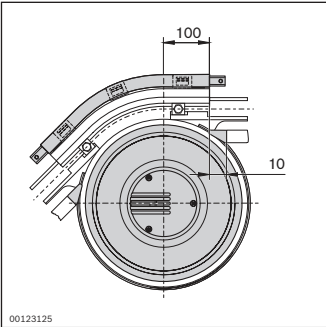
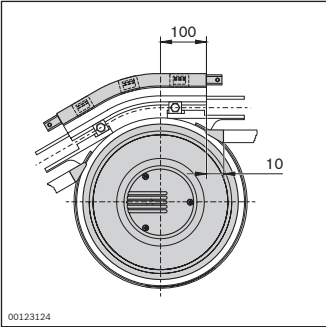
- Prevents the WT from ascending in accumulation operation or tipping over at high conveying speeds
- Complete kit for mounting on an existing curve wheel or curve wheel drive
- Lateral guide for curve wheels with other angles as well as lateral guide for curves available on request

Scope of delivery:

- Kit incl. fastening parts (as shown)

Material:

- Guide rail: Aluminum; natural, anodized
- Guide disc, holder: PA; black
- Fastening parts: Steel; galvanized



| 30° lateral guide | No.           |
|-------------------|---------------|
| VFplus 65         | 3 842 547 949 |
| VFplus 90         | 3 842 547 953 |

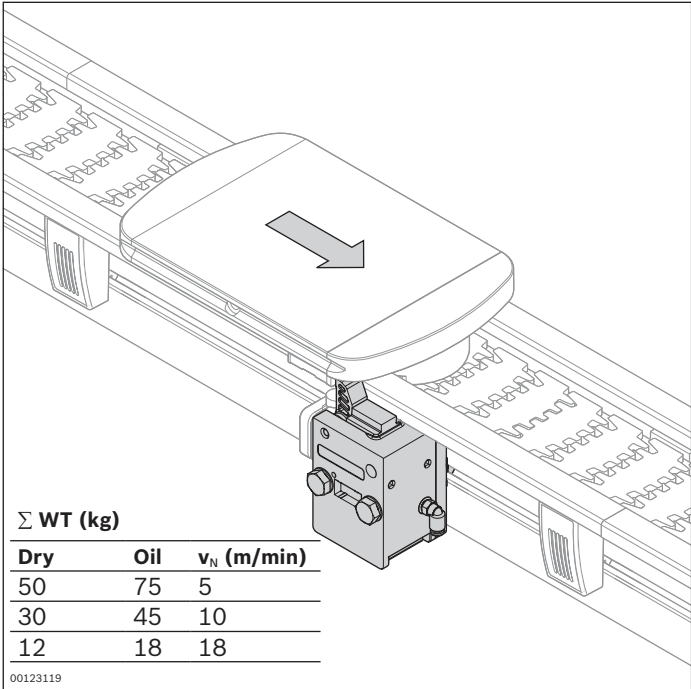
| 45° lateral guide | No.           |
|-------------------|---------------|
| VFplus 65         | 3 842 547 950 |
| VFplus 90         | 3 842 547 954 |

| 90° lateral guide | No.           |
|-------------------|---------------|
| VFplus 65         | 3 842 547 951 |
| VFplus 90         | 3 842 547 955 |

| 180° lateral guide | No.           |
|--------------------|---------------|
| VFplus 65          | 3 842 547 952 |
| VFplus 90          | 3 842 547 956 |

# Stop gate VE-VF

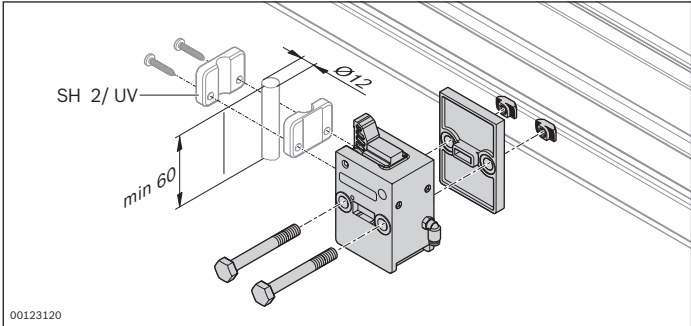
## Stop gate VE-VF/M



- Stop gate for securely stopping a workpiece pallet
- Suitable for retrofitting without disrupting the lateral guide
  - The stop gate can be installed in any position
  - Switch bracket for installation on stop gate see p. 254, max. accumulation load 50 kg
  - Available in two versions:
    - VE-VF for dry or oily ambient conditions
    - VE-VF/M for corrosive ambient conditions

- Scope of delivery:
- Including fastening parts (as shown)

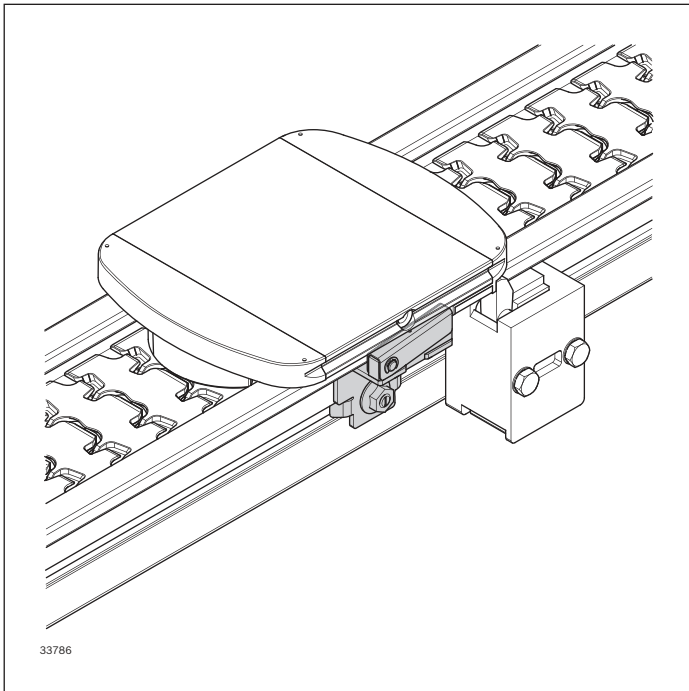
- Material:
- Stop gate VE-VF: PA; black
  - Stop gate VE-VF/M: PA, gray,  
Functional components in the stop gate:  
Non-rusting steel 1.4301
  - Fastening material: Steel; zinc-plated



| Stop gate | No.           |
|-----------|---------------|
| VE-VF     | 3 842 528 852 |
| VE-VF/M   | 3 842 559 135 |



## Return stop WT



The return stop prevents the VarioFlow*plus* workpiece pallet from rebounding from the stop gate or prevents a backward movement of the workpiece pallet when the chain is turned off and released.

- Additional WT load max. 8 kg
- The return stop is attached behind the WT stop surface

- ▶ Can be attached both left and right on the section profile
- ▶ Simple and low-cost construction
- ▶ Non-rotating

- ▶ Also suitable for retrofitting without disrupting the lateral guide

### Scope of delivery:

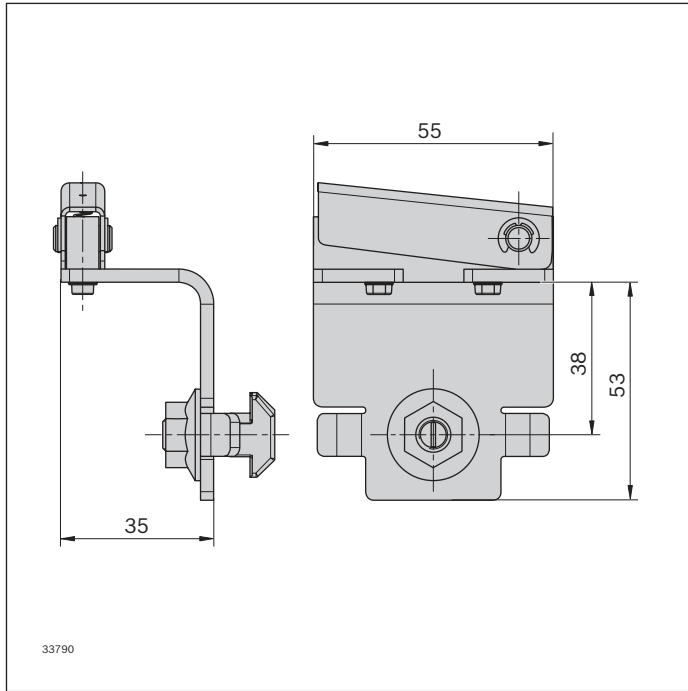
- Including fastening material

### Condition on delivery:

- Assembled

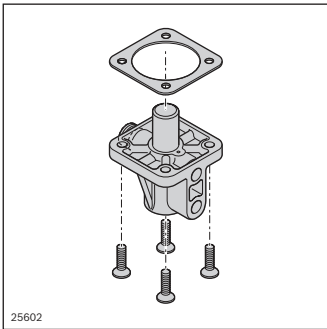
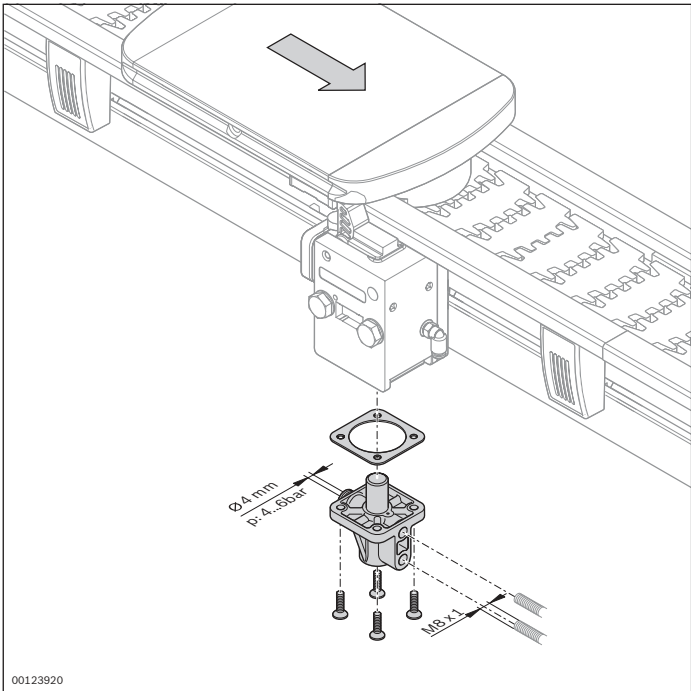
### Material:

- Non-rusting steel 1.4301, galvanized steel, PA



| Return stop | No.           |
|-------------|---------------|
|             | 3 842 553 090 |

Stop gate position sensing



For querying the position of the stop gate via sensors and/or accelerating the pneumatic closing of the stop gate
 

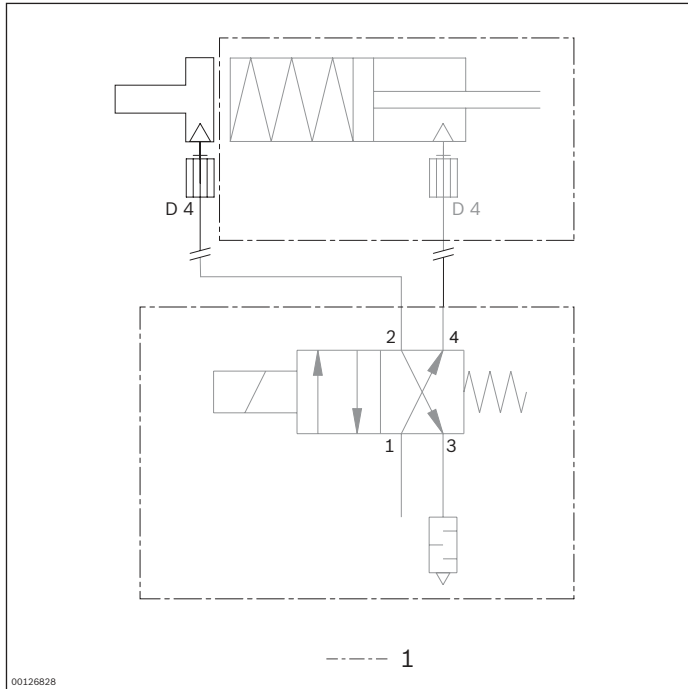
- For retrofitting on the stop gate VE 2/VF

- Required accessories:
  - Sensor (3 842 551 761) M8x1 with switching distance  $S_N \geq 2\text{ mm}$

- Material:
  - Position sensor: PA; black
  - Fastening parts: Steel; galvanized

| Stop gate position sensing | No.           |
|----------------------------|---------------|
|                            | 3 842 528 817 |

# Circuit diagram



1 Not included in the scope of delivery



## Switch bracket SH VF/U



- Switch bracket for 12 mm sensor
- Simple, fast mounting and replacement of the sensor without adjustment through flush installation with defined switching distance
- Changing the sensor is quick and easy by loosening a separate clamping screw  
The switch bracket stays in position
- Inspection window to recognize the operating state of the sensor

- Suitable for retrofitting without disrupting the lateral guide
- The switch bracket can be installed in any position

### Required accessories:

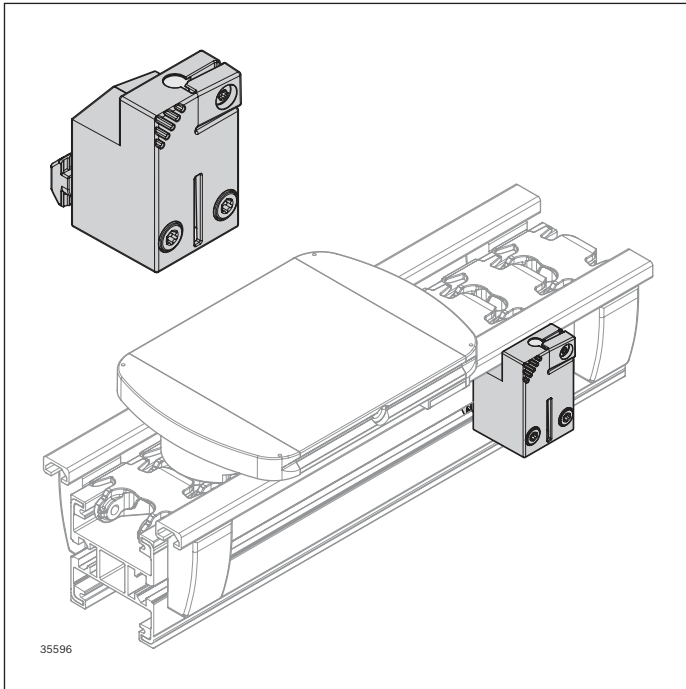
- Sensor M12 x 60, 3 842 558 990

### Scope of delivery:

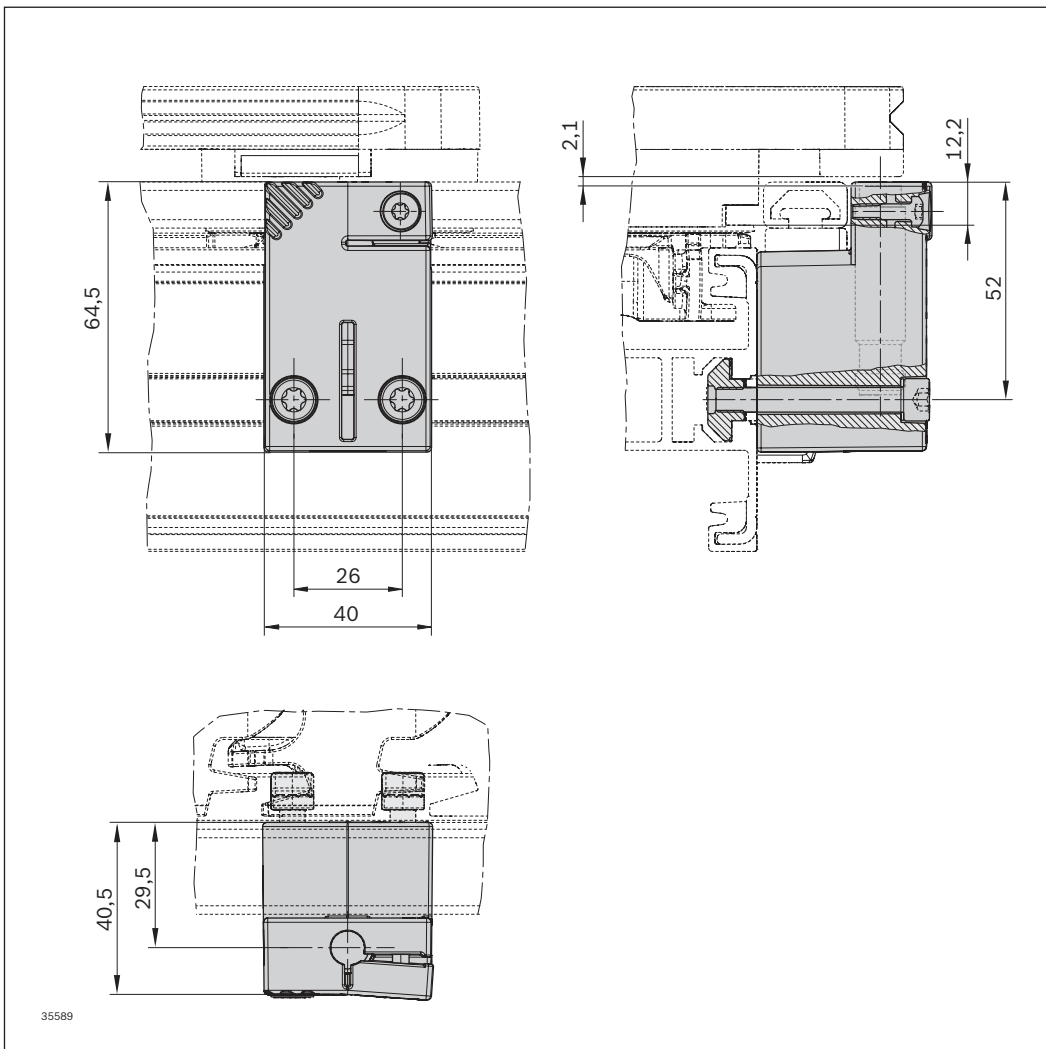
- Including fastening material

### Material:

- Switch bracket: PA; black
- Fastening material: Steel; zinc-plated



| Switch bracket | No.           |
|----------------|---------------|
| SH VF/U        | 3 842 557 603 |



## Switch bracket SH VF/UV



- Switch bracket for a 12 mm sensor, for installing on stop gate VE 2/VF
- Simple, fast mounting and replacement of the sensor without adjustment through flush installation with defined switching distance
- Changing the sensor is quick and easy by loosening a separate clamping screw  
The switch bracket stays in position

- Can be attached to both sides of the stop gate VE 2/VF
- For querying the workpiece pallet position before and/or after the stop gate

### Required accessories:

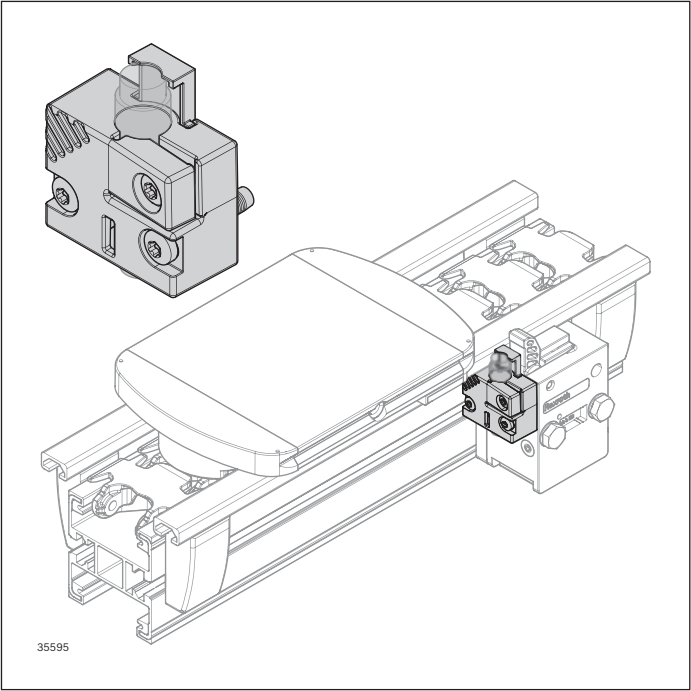
- Sensor M12 x 45, 3 842 557 633 or  
M12 x 44, 3 842 549 813

### Scope of delivery:

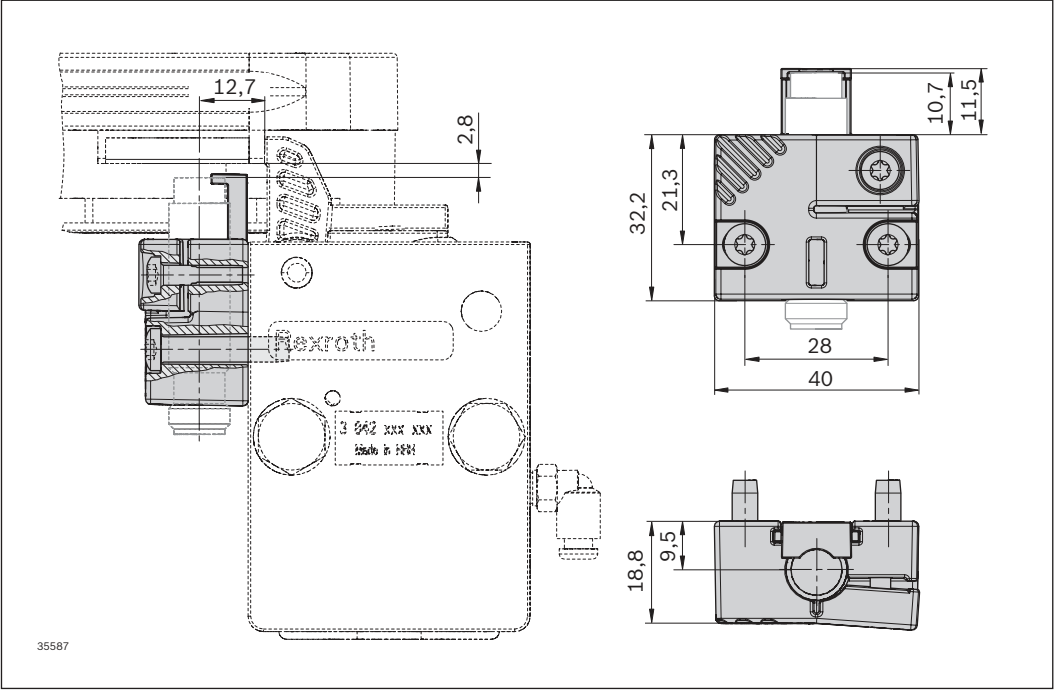
- Including fastening material

### Material:

- Switch bracket: PA; black
- Fastening material: Steel; zinc-plated



| Switch bracket | No.           |
|----------------|---------------|
| SH VF/UV       | 3 842 557 601 |



Sensors



- ▶ Detecting the position of a workpiece pallet
- ▶ Stop gate / positioning unit position sensing

- Required accessories:
- Switch bracket SH VF/U
  - Switch bracket SH VF/UV
  - Stop gate / positioning unit position sensing

| Sensor        | No.           |
|---------------|---------------|
| M12x45 sensor | 3 842 557 633 |
| M12x45 sensor | 3 842 549 814 |
| M12x60 sensor | 3 842 558 990 |
| M12x44 sensor | 3 842 549 813 |
| M12x44 sensor | 3 842 549 811 |
| M8x30 sensor  | 3 842 551 761 |

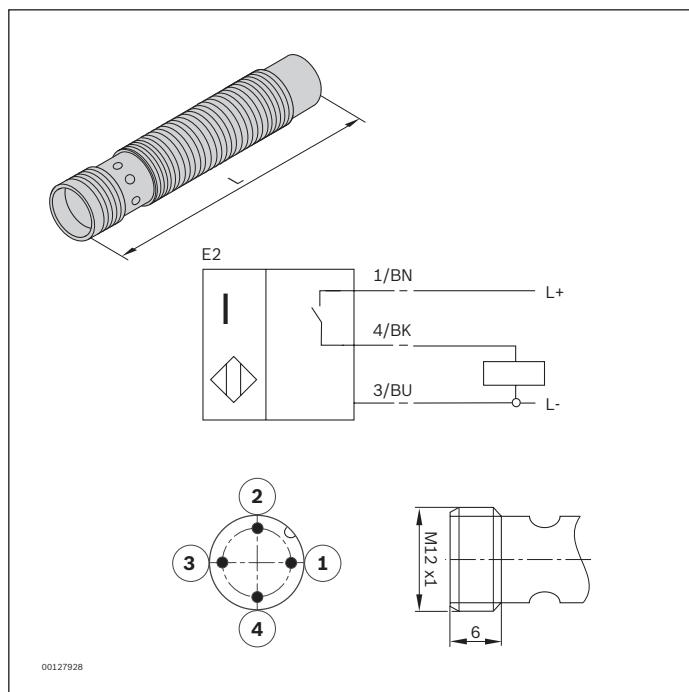
Sensor application matrix

|                                   | Diameter with connector | Sensor        |               |               |
|-----------------------------------|-------------------------|---------------|---------------|---------------|
|                                   | M12 with M12            | 3 842 557 633 | 3 842 558 990 | 3 842 549 814 |
|                                   | M12 with M8             | 3 842 549 813 |               | 3 842 549 811 |
|                                   | M8 with M8              |               | 3 842 551 761 |               |
| WT position sensing               | SH VF/U                 |               | X             |               |
|                                   | SH VF/UV                | (X)           | X             |               |
| Stop gate position sensing        | Position sensing        |               | X             |               |
| Positioning unit position sensing | Position sensing        |               |               | X             |

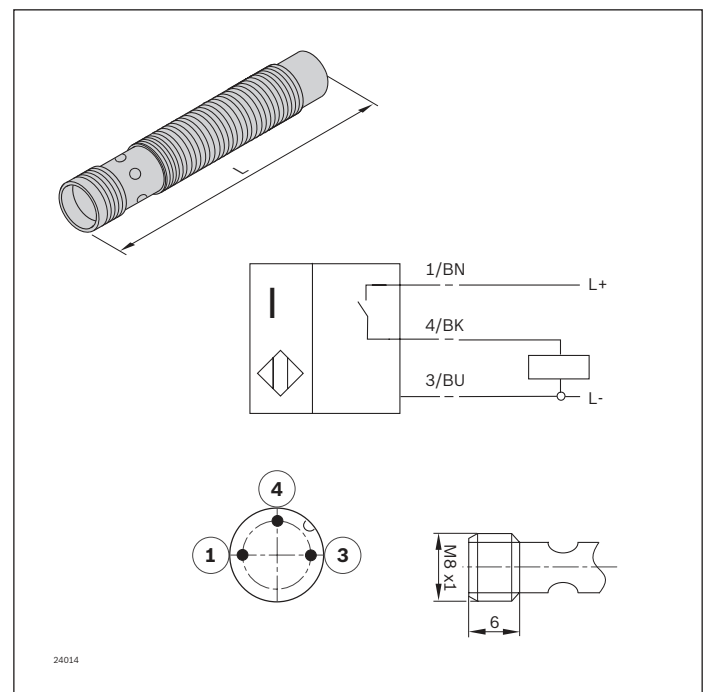
| Material number               |                   | 3 842 557 633                                                        | 3 842 549 814                                                        | 3 842 558 990                                                        | 3 842 549 813                                                        | 3 842 549 811                                                        | 3 842 551 761                                                     |
|-------------------------------|-------------------|----------------------------------------------------------------------|----------------------------------------------------------------------|----------------------------------------------------------------------|----------------------------------------------------------------------|----------------------------------------------------------------------|-------------------------------------------------------------------|
| <b>Properties</b>             |                   |                                                                      |                                                                      |                                                                      |                                                                      |                                                                      |                                                                   |
| Protection rating             |                   | IP 68                                                                | IP 67                                                                | IP 68                                                                | IP 67                                                                | IP 67                                                                | IP 68                                                             |
| Material                      |                   | Housing:<br>CuZn;<br>nickelfree<br>coating<br>Active surface:<br>LCP | Housing:<br>CuZn;<br>nickelfree<br>coating<br>Active surface:<br>LCP | Housing:<br>CuZn;<br>nickelfree<br>coating<br>Active surface:<br>LCP | Housing:<br>CuZn;<br>nickelfree<br>coating<br>Active surface:<br>PBT | Housing:<br>CuZn;<br>nickelfree<br>coating<br>Active surface:<br>LCP | Housing:<br>Non-rusting<br>steel 1.4301<br>Active surface:<br>PBT |
| Max. operating temperature    | T °C              | -25 ... +70 °C                                                       | -25 ... +70 °C                                                       | -25 ... +70 °C                                                       | -25 ... +70 °C                                                       | -25 ... +70 °C                                                       | -25 ... +70 °C                                                    |
| Dimensions                    | mm                | M12 x 45                                                             | M12 x 45                                                             | M12 x 60                                                             | M12 x 44                                                             | M12 x 44                                                             | M8 x 30                                                           |
| Length                        | L mm              | 45                                                                   | 45                                                                   | 60                                                                   | 44                                                                   | 44                                                                   | 30                                                                |
| Connector                     |                   | M12x1                                                                | M12x1                                                                | M12x1                                                                | M8x1                                                                 | M8x1                                                                 | M8x1                                                              |
| <b>Additional information</b> |                   |                                                                      |                                                                      |                                                                      |                                                                      |                                                                      |                                                                   |
| Rated switching distance      | S <sub>N</sub> mm | 8                                                                    | 4                                                                    | 8                                                                    | 8                                                                    | 4                                                                    | 2                                                                 |
| Switching frequency           | Hz                | 500                                                                  | 300                                                                  | 1000                                                                 | 800                                                                  | 2500                                                                 | 1500                                                              |
| Operating current             | mA                | 200                                                                  | 200                                                                  | 200                                                                  | 200                                                                  | 200                                                                  | 200                                                               |
| Mechanical installation       |                   | Not flush                                                            | Flush                                                                | Not flush                                                            | Not flush                                                            | Flush                                                                | Flush                                                             |
| Function indicator            |                   | LED                                                                  | LED                                                                  | LED                                                                  | LED                                                                  | LED                                                                  | LED                                                               |
| Switching output              |                   | PNP                                                                  | PNP                                                                  | PNP                                                                  | PNP                                                                  | PNP                                                                  | PNP                                                               |
| Switching function            |                   | Normally open (NO)                                                   | Normally open (NO)                                                   | Normally open (NO)                                                   | Normally open (NO)                                                   | Normally open (NO)                                                   | Normally open (NO)                                                |
| Operating voltage             | V DC              | 10 ... 30                                                            | 10 ... 30                                                            | 10 ... 30                                                            | 10 ... 30                                                            | 10 ... 30                                                            | 10 ... 30                                                         |
| Approvals                     |                   | cULus, CE, EAC                                                       | cULus, CE, EAC                                                       | cULus, CE, EAC                                                       | cULus, CE, EAC                                                       | cULus, CE, EAC                                                       | cULus, CE, EAC                                                    |
| Conformity with standards     |                   | IEC 60947-5-2                                                        | IEC 60947-5-2                                                        | IEC 60947-5-2                                                        | IEC 60947-5-2                                                        | IEC 60947-5-2                                                        | IEC 60947-5-2                                                     |

8

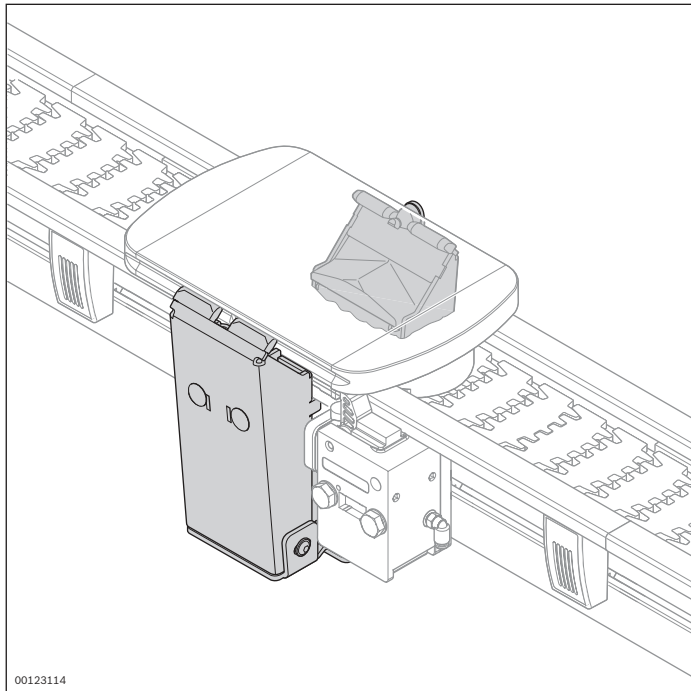
M12x1



M8x1



## Positioning unit PE-VF/H



### Required accessories:

- 2 throttle check valves G 1/8" (not included in the scope of delivery)

### Scope of delivery:

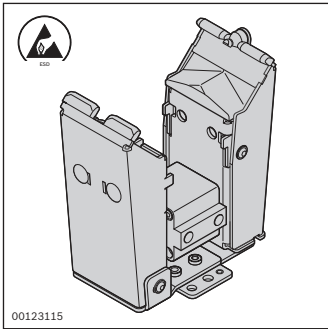
- Including fastening parts (as shown)

### Material:

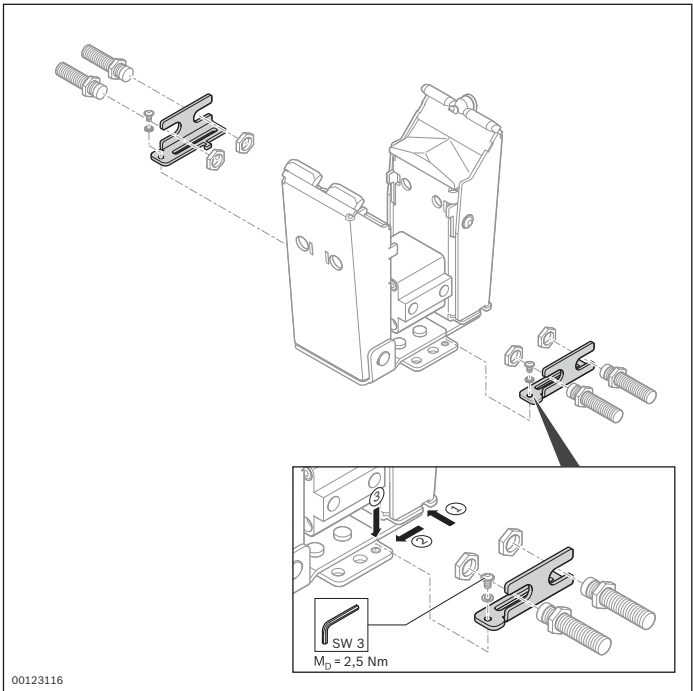
- Positioning unit: Stainless steel
- Fastening parts: Steel; galvanized
- Cover caps: PA
- Clamping claws: PU

The plier-shaped form of the positioning unit (PE) makes it highly resistant to dirt and shavings and thus suitable for dirty environments. The WT is lifted approx. 1 mm above the transport level, thus eliminating the load on the conveyor chain during processing.

- Positioning accuracy in the direction of transport:  
 $\pm 0.15$  mm (transverse:  $\pm 0.1$  mm, height:  $\pm 0.1$  mm)
- Maximum vertical press force ( $p = 4$  bar): 400 N
- Maximum retention force ( $p = 4$  bar) in the direction of transport: 300 N
- Suitable for retrofitting without disrupting the lateral guide
- The switch bracket can be installed in any position
- Minimum length of the workpiece pallets in order to incorporate the positioning unit:  
Size 65: L = 125 mm  
size 90: L = 125 mm
- Two positioning units can be combined for workpiece pallets with L > 250 mm. For this, the positioning mandrel is removed from one of the PEs and the workpiece pallets are fitted with eccentric centering bushings by the customer
- Position inquiry with assembly kit and 2 proximity switches M12x1 on the housing (proximity switches not in the scope of delivery) or with **3 842 535 150** on the cylinder
- Max. torque in the pliers area: 60 Nm

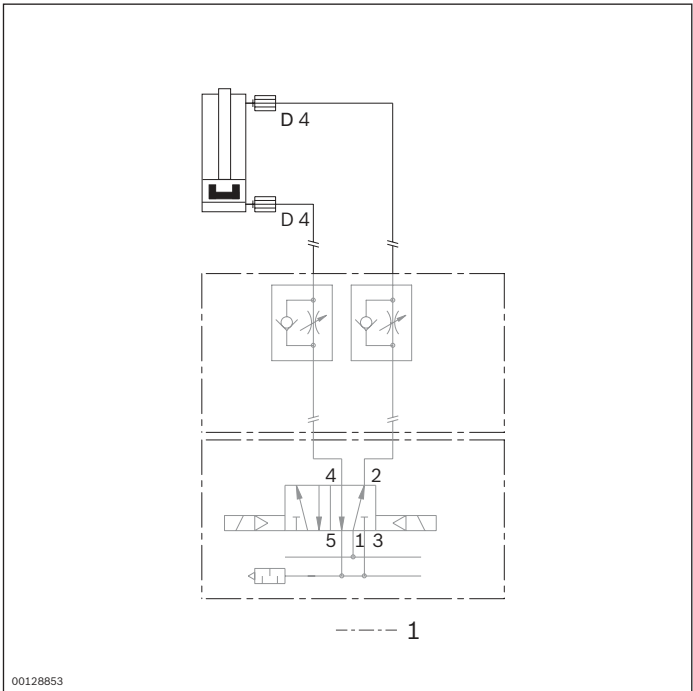


| Positioning unit | No.           |
|------------------|---------------|
|                  | 3 842 532 762 |



| Position monitoring kit | No.           |
|-------------------------|---------------|
|                         | 3 842 535 801 |

8

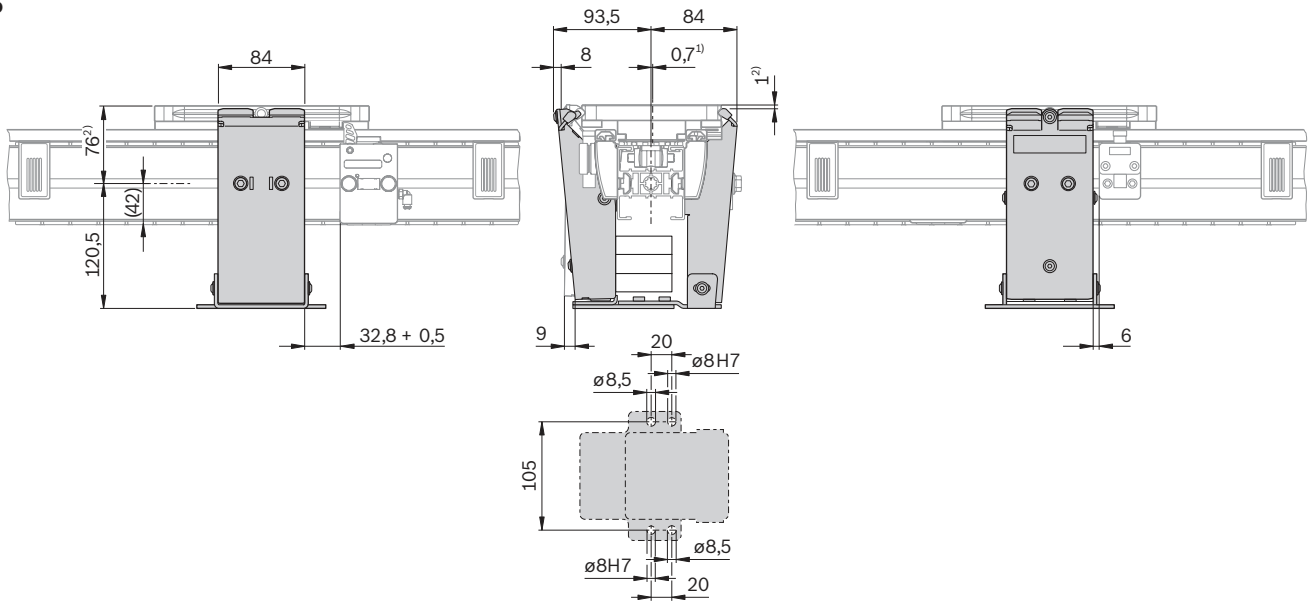


Circuit diagram

1 Not included in the scope of delivery

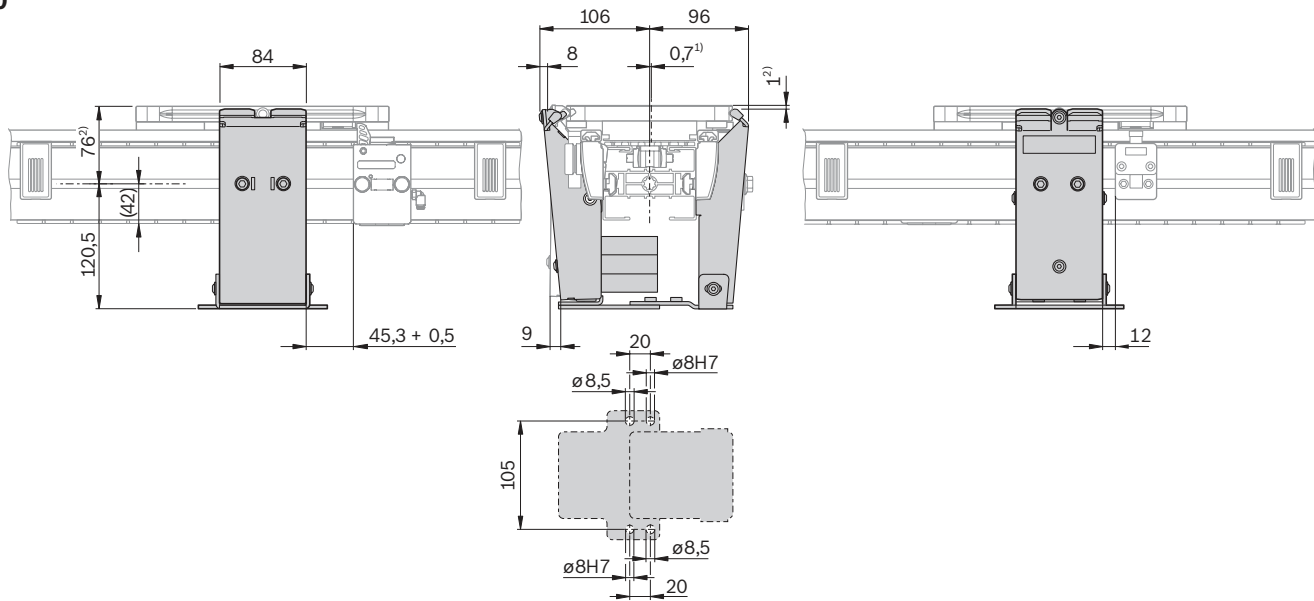


### VF 65



00123117

### VF 90



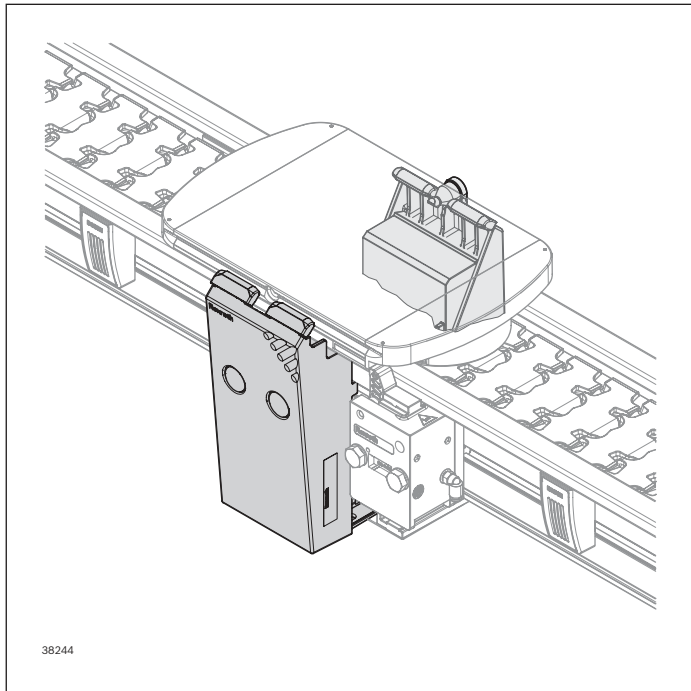
00123118

<sup>1)</sup> Center offset of the workpiece pallet when it is positioned

<sup>2)</sup> Height offset of the workpiece pallet when it is positioned



## Positioning unit PE-VF/C



### Required accessories:

- 2x throttle check valve G 1/8"
- Position sensor:
  - 2x sensor M12x45, 3 842 557 633
  - 1x switch bracket SH 2/HQ-R, 3 842 557 606
  - 1x switch bracket SH 2/HQ-L, 3 842 557 607

### Scope of delivery:

- Including fastening parts (as shown)

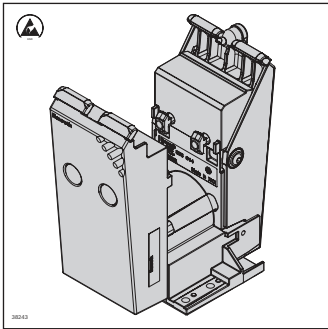
### Material:

- Positioning unit: Diecast aluminum
- Fastening parts: Steel; galvanized
- Cover caps: PA
- Clamping claws: PU

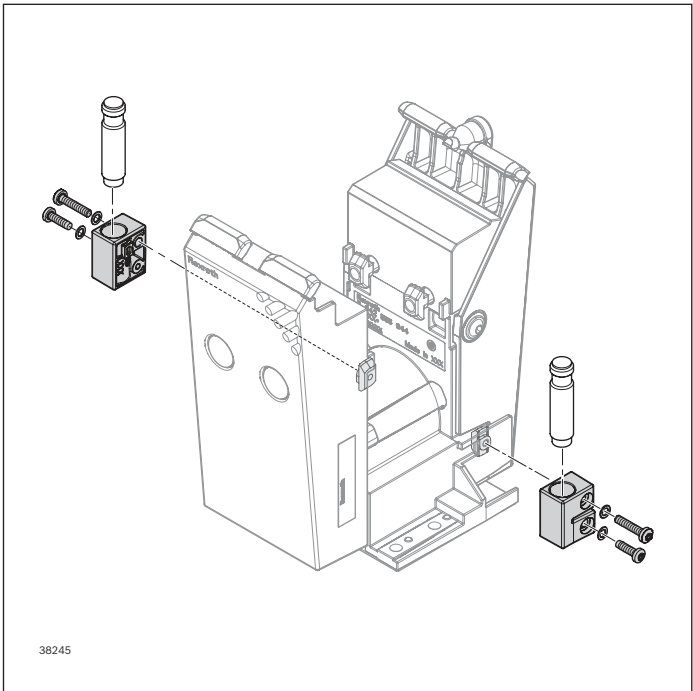
The positioning unit PE-VF/C is intended for use in clean ambient conditions. The WT is lifted approx. 1 mm above the transport level, thus eliminating the load on the conveyor chain during processing.

For rough ambient conditions, the positioning unit PE-VF/H is available.

- Positioning accuracy in the direction of transport:  $\pm 0.15$  mm (transverse:  $\pm 0.1$  mm, height:  $\pm 0.1$  mm)
- Maximum vertical press force ( $p = 4$  bar): 400 N
- Maximum retention force ( $p = 4$  bar) in the direction of transport: 300 N
- Maximum permissible torque in the plier area: 60 Nm
- Suitable for retrofitting without disrupting the lateral guide
- The switch bracket can be installed in any position
- Minimum length of the workpiece pallets in order to incorporate the positioning unit:
  - Size 65: L = 125 mm
  - size 90: L = 125 mm
- 2 positioning units can be combined for workpiece pallets with L > 250 mm. For this, the positioning mandrel is removed from one of the PEs and the workpiece pallets are fitted with eccentric centering bushings by the customer
- Position sensors (parts not included in the scope of delivery) with 2x sensor M12x45 (3 842 557 633) and 1x switch bracket each SH 2/HQ-R (3 842 557 606) and SH 2/HQ-L (3 842 557 607)

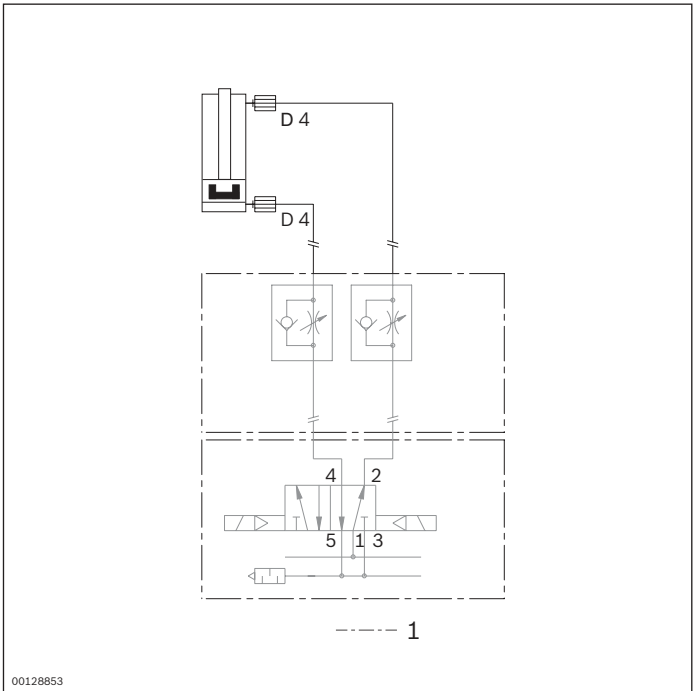


| Positioning unit | No.           |
|------------------|---------------|
| PE-VF/C          | 3 842 557 090 |



| Position sensor          | No.           |
|--------------------------|---------------|
| M12x45 sensor            | 3 842 557 633 |
| SH 2/HQ-R switch bracket | 3 842 557 606 |
| SH 2/HQ-L switch bracket | 3 842 557 607 |

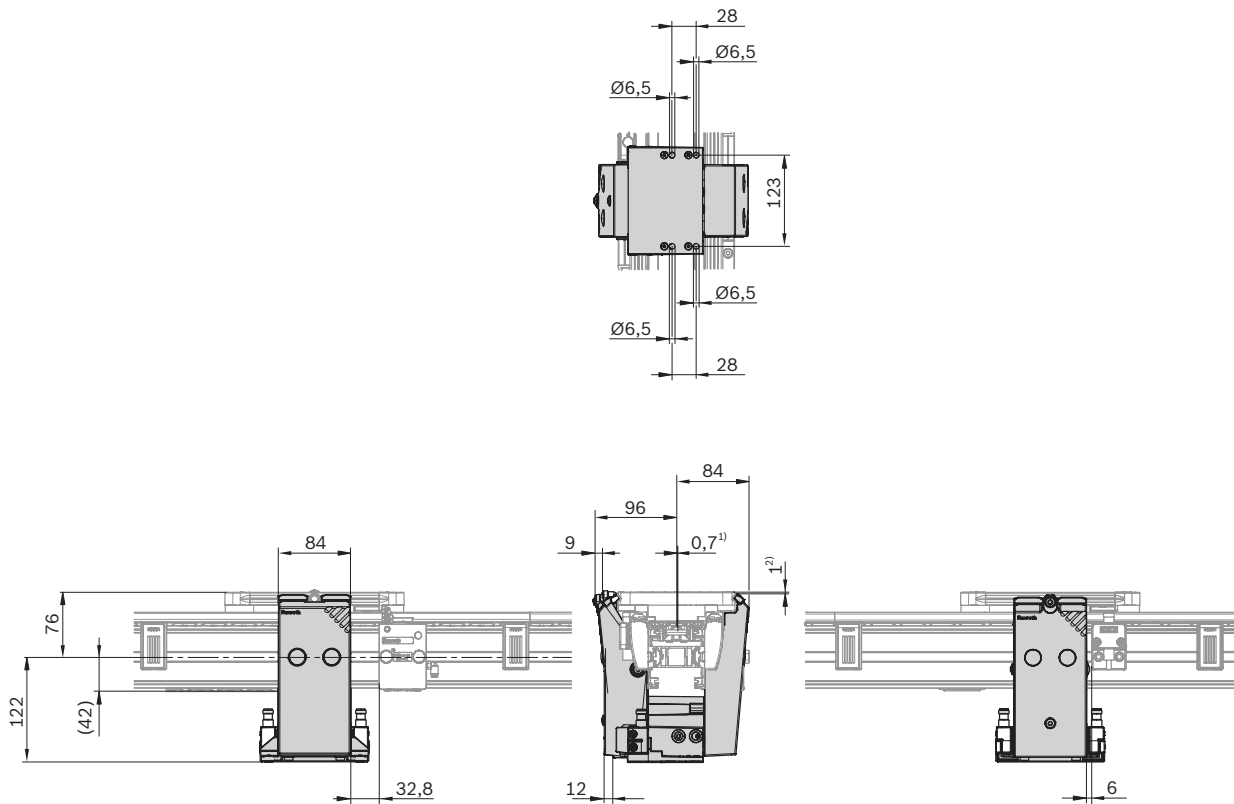
8



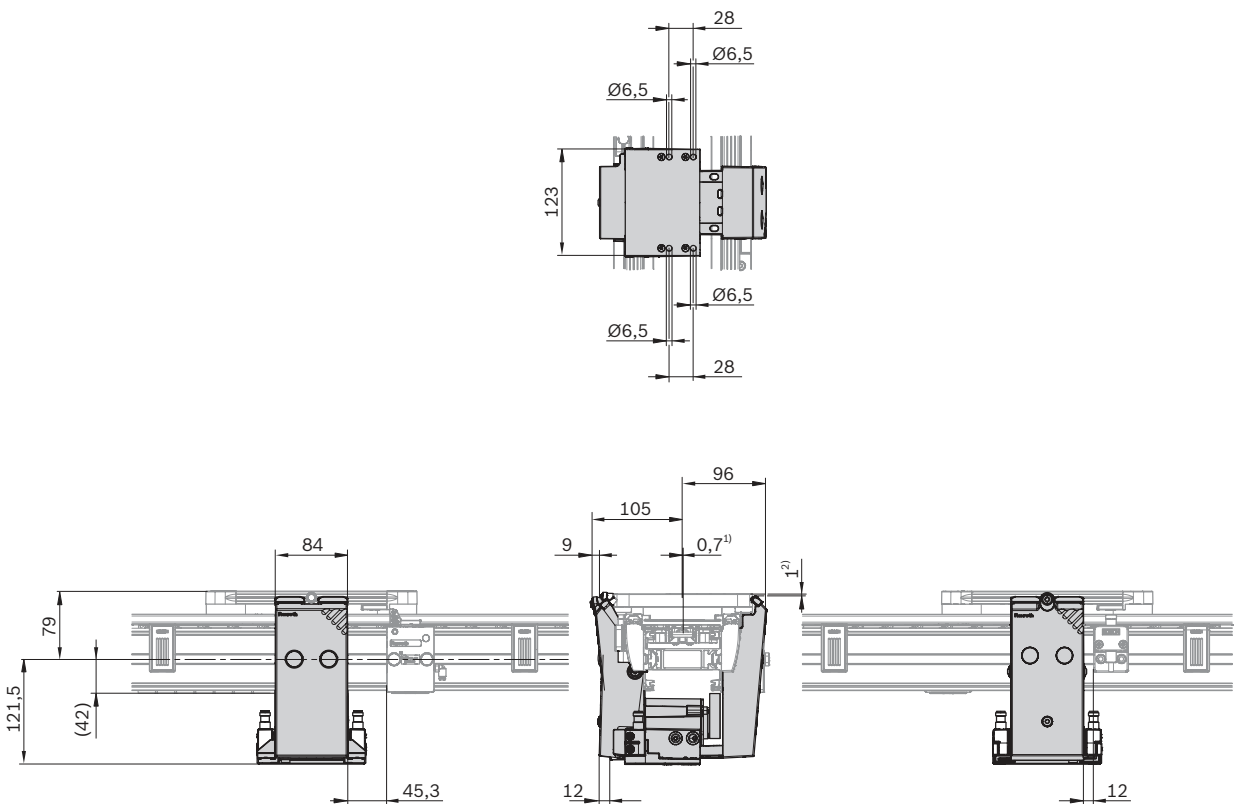
**Circuit diagram**

1 Not included in the scope of delivery

## VF 65



## VF 90

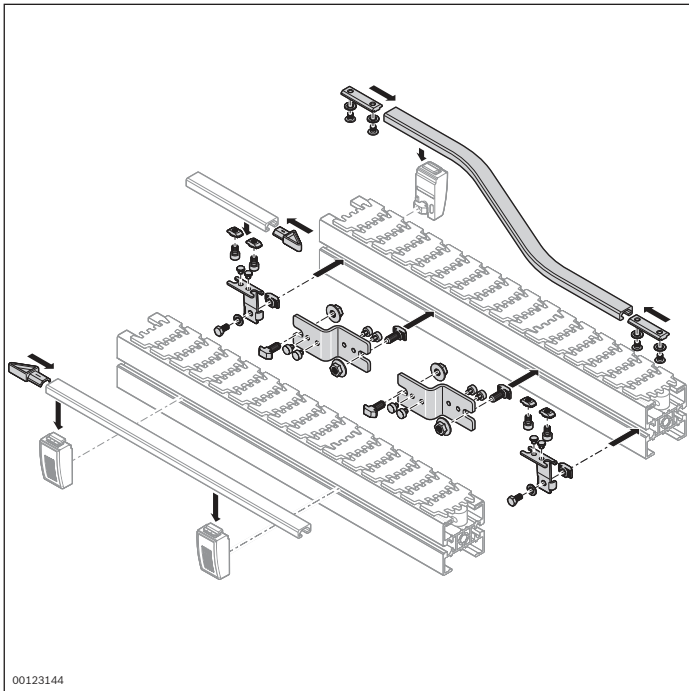


<sup>1)</sup> Center offset of the workpiece pallet when it is positioned

<sup>2)</sup> Height offset of the workpiece pallet when it is positioned



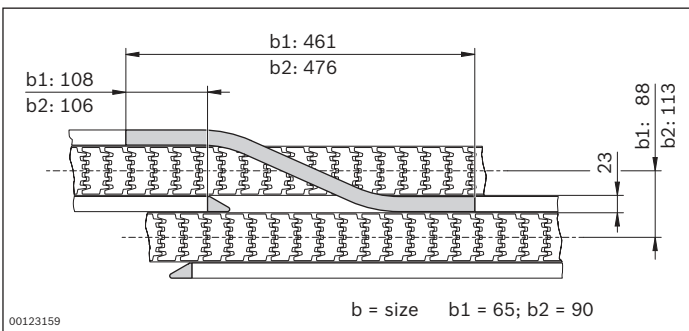
## Section transfer

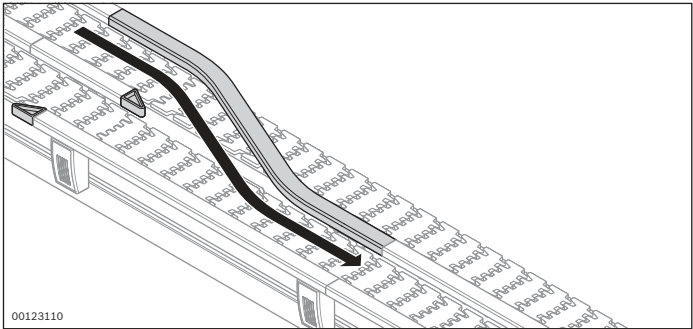


Assembly kit for a simple track change between two straight, parallel conveyor sections

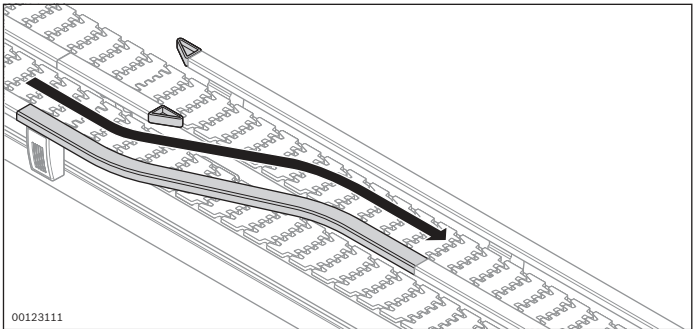
Material:

- Guide rail: Aluminum; natural, anodized
- Section link, holder: Stainless steel
- Fastening parts: Steel; zinc-plated
- End caps: PA; black





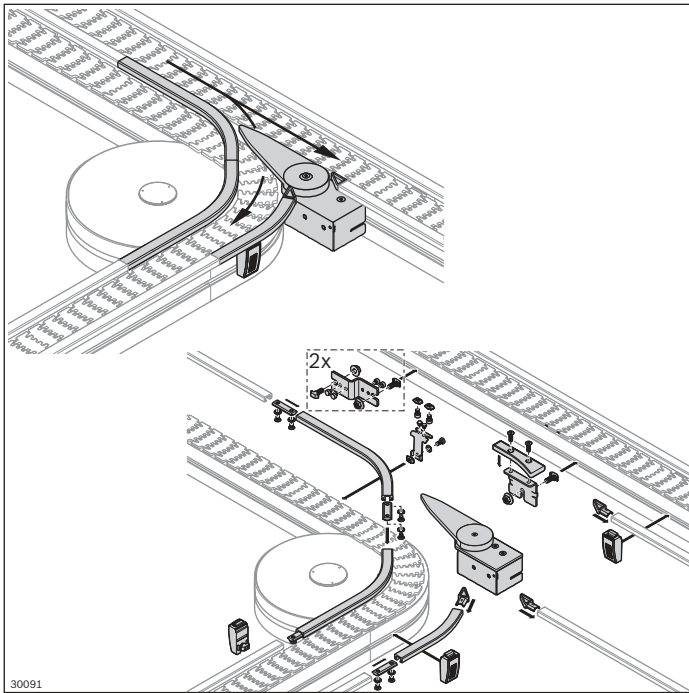
| Section transfer, right | No.           |
|-------------------------|---------------|
| VFplus 65               | 3 842 535 003 |
| VFplus 90               | 3 842 535 001 |



| Section transfer, left | No.           |
|------------------------|---------------|
| VFplus 65              | 3 842 535 004 |
| VFplus 90              | 3 842 535 002 |



## Diverter



For optionally changing tracks between different, curving conveyor sections

- Complete assembly kit to install on existing sections or curve wheels
- The support enables the workpiece pallet to move safely over the section gap with no danger of tipping. No accumulation operation against the diverter blade!

Required accessories:

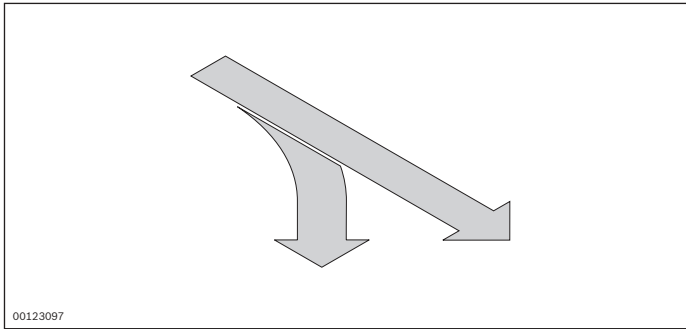
- 2 throttle check valves G 1/8" (not included in the scope of delivery)

Scope of delivery:

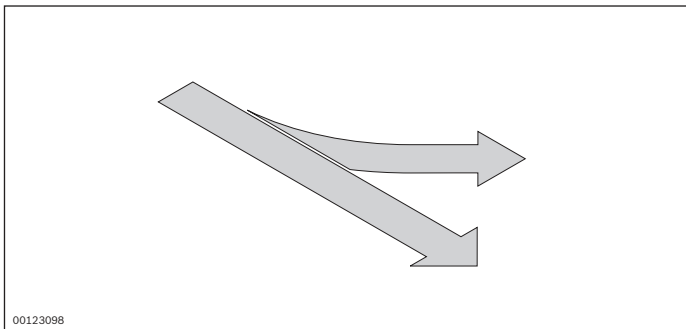
- Kit incl. fastening parts (as shown)

Material:

- Diverter blade, sliding surface support: PA; black

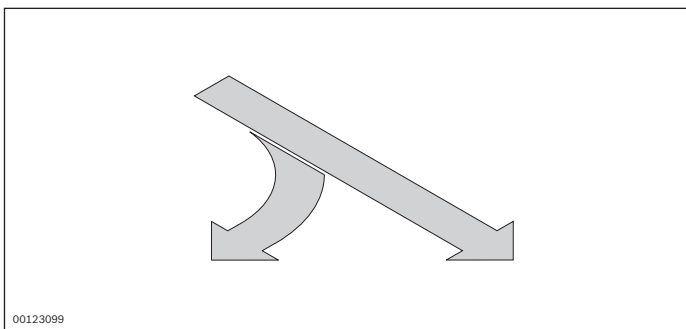


| 45° diverter, right | No.                  |
|---------------------|----------------------|
| <i>VFplus 65</i>    | <b>3 842 551 104</b> |
| <i>VFplus 90</i>    | <b>3 842 551 090</b> |

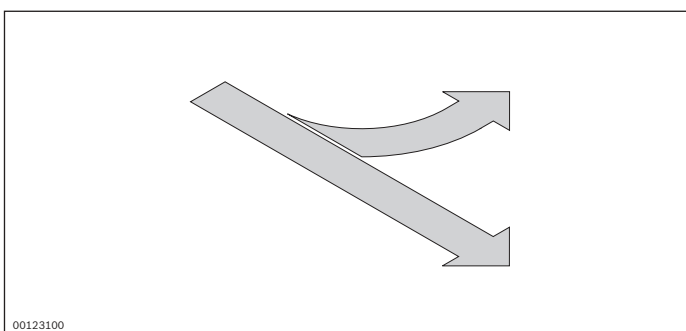


| 45° diverter, left | No.                  |
|--------------------|----------------------|
| <i>VFplus 65</i>   | <b>3 842 551 105</b> |
| <i>VFplus 90</i>   | <b>3 842 551 091</b> |

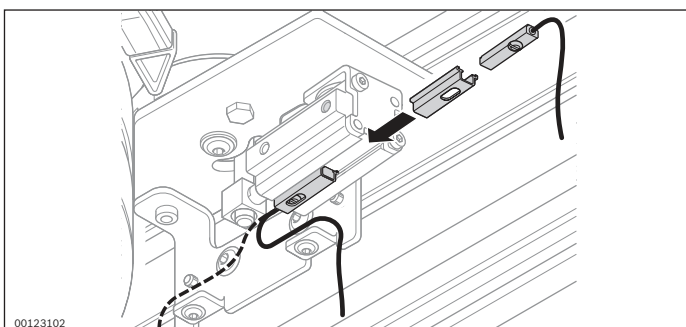
8



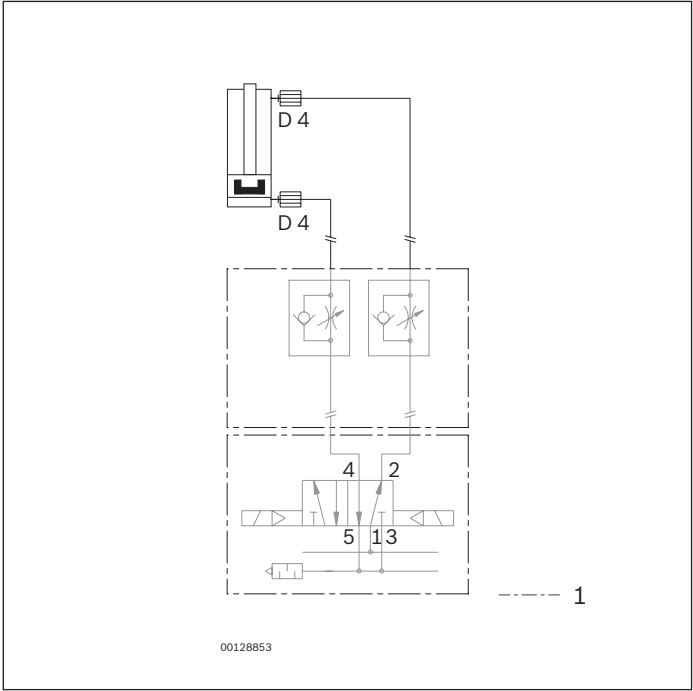
| 90° diverter, right | No.                  |
|---------------------|----------------------|
| <i>VFplus 65</i>    | <b>3 842 551 111</b> |
| <i>VFplus 90</i>    | <b>3 842 551 110</b> |



| 90° diverter, left | No.                  |
|--------------------|----------------------|
| <i>VFplus 65</i>   | <b>3 842 551 121</b> |
| <i>VFplus 90</i>   | <b>3 842 551 100</b> |

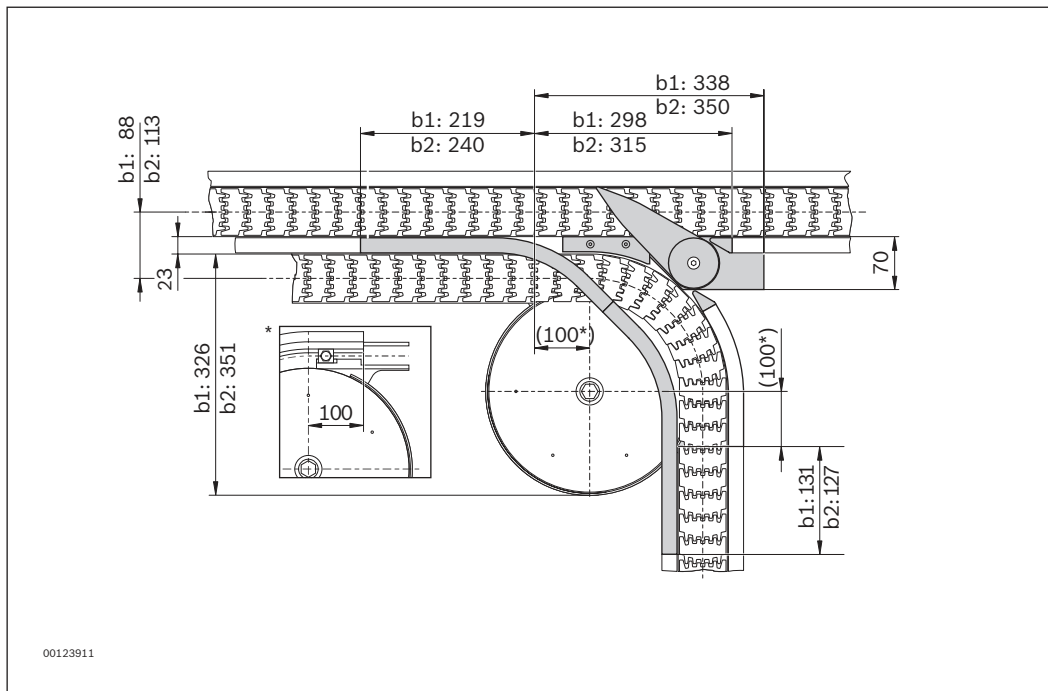
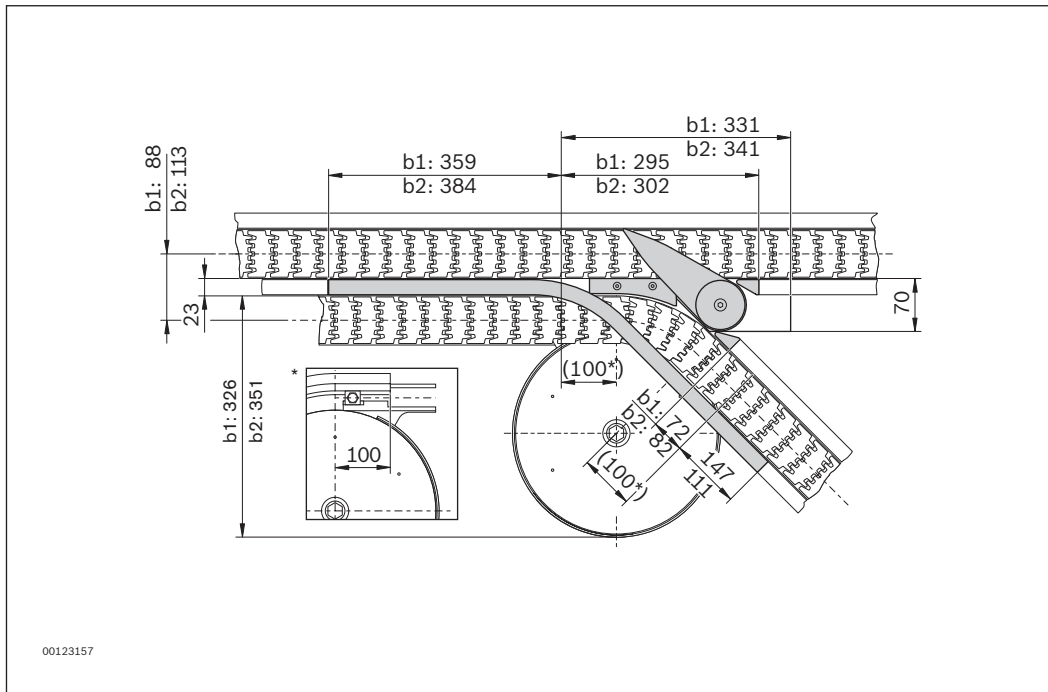


| Position sensor diverter | No.                  |
|--------------------------|----------------------|
|                          | <b>3 842 535 150</b> |



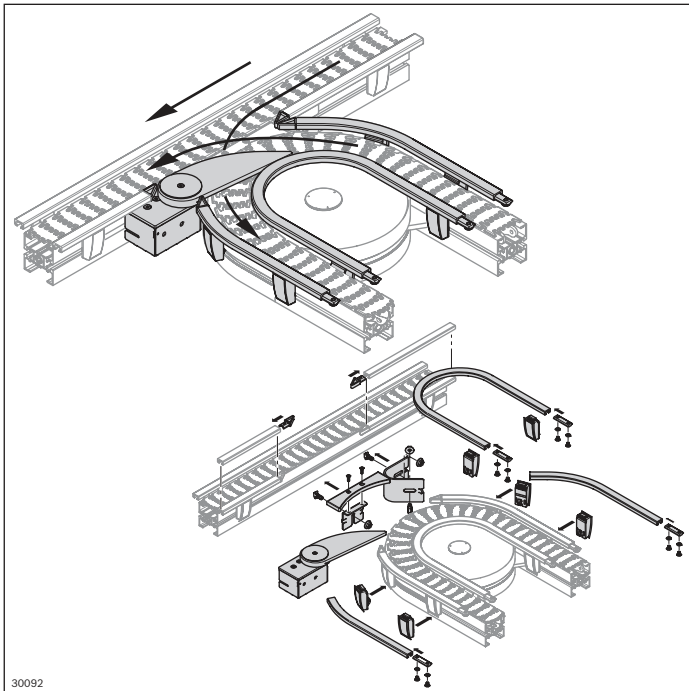
Circuit diagram

1 Not included in the scope of delivery



b = size  
b1 = 65; b2 = 90

## Cross-diverter



The cross-diverter combines the functions of junction and diverter in a shorter overall length.

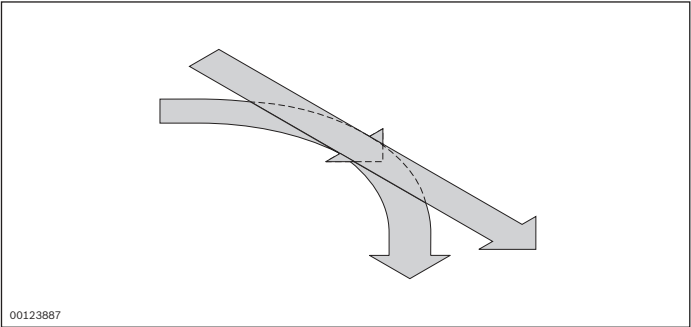
- Complete assembly kit to install on existing sections or curve wheels
- For problem-free section transfer, the load center of gravity must be in the center of the optimal range (see p. 238)
- Permitted speed range:  
min. 4 m/min, max. 18 m/min
- The support enables the workpiece pallet to move safely over the section gap with no danger of tipping.  
No accumulation operation against the diverter blade!

Scope of delivery:

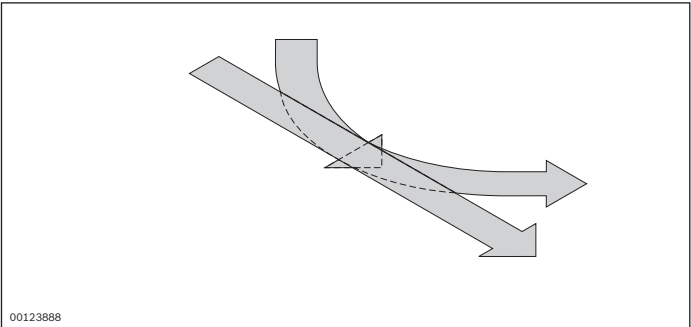
- Kit incl. fastening parts (as shown)

Material:

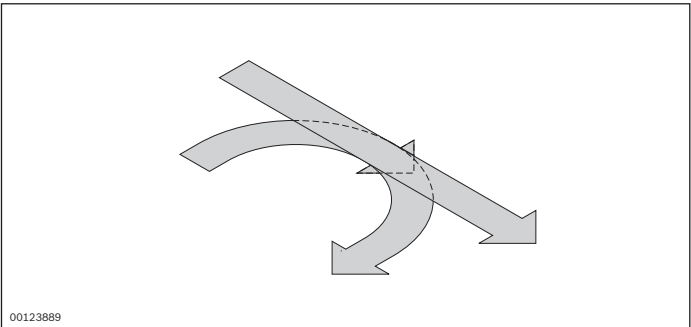
- Diverter blade, sliding surface support: PA; black



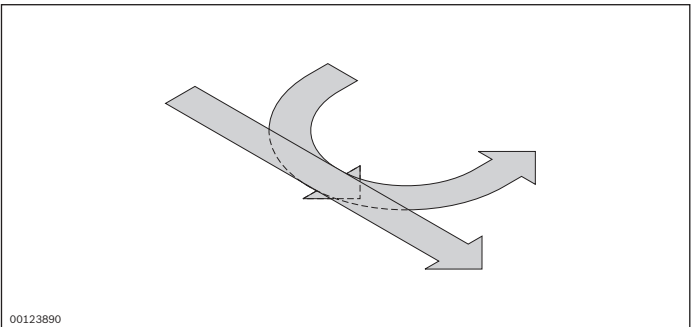
| 45° cross-diverter, right | No.           |
|---------------------------|---------------|
| VFplus 65                 | 3 842 551 086 |
| VFplus 90                 | 3 842 551 084 |



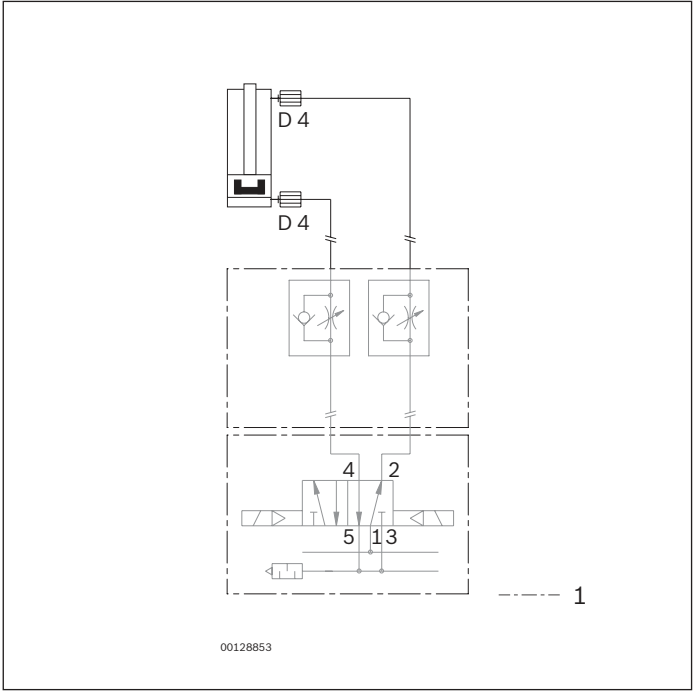
| 45° cross-diverter, left | No.           |
|--------------------------|---------------|
| VFplus 65                | 3 842 551 140 |
| VFplus 90                | 3 842 551 139 |



| 90° cross-diverter, right | No.           |
|---------------------------|---------------|
| VFplus 65                 | 3 842 551 108 |
| VFplus 90                 | 3 842 551 074 |

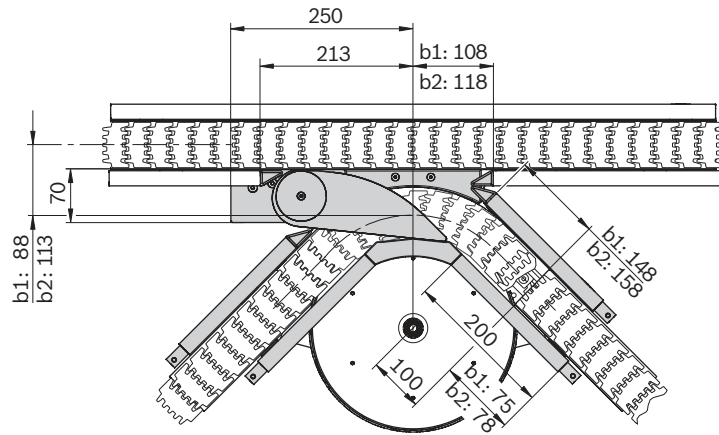


| 90° cross-diverter, left | No.           |
|--------------------------|---------------|
| VFplus 65                | 3 842 551 141 |
| VFplus 90                | 3 842 551 138 |

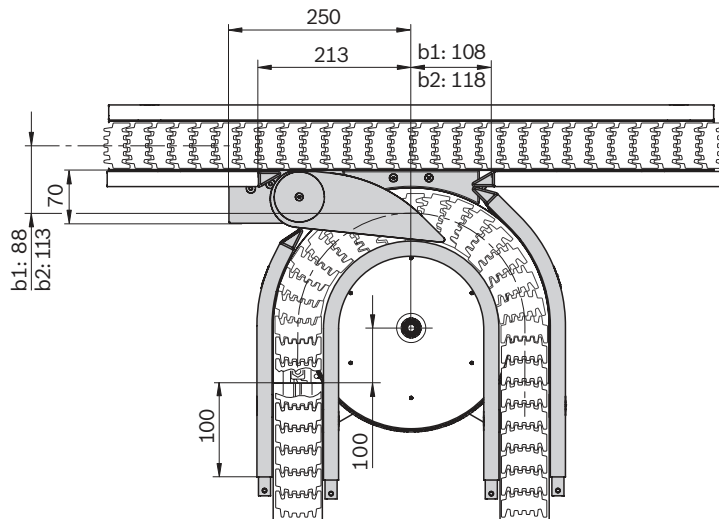


Circuit diagram

1 Not included in the scope of delivery



00134820

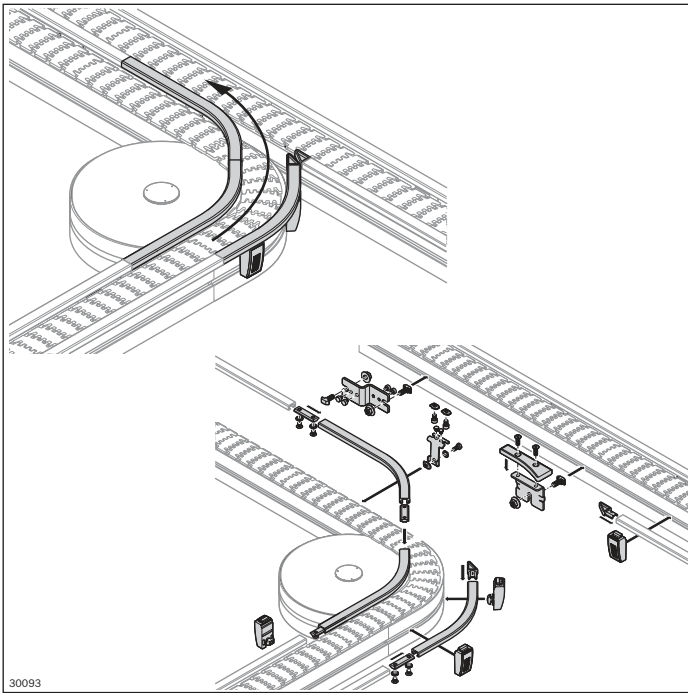


00134821

b = size  
b1 = 65; b2 = 90



## Junction



Used for the junction of different, curving conveyor sections

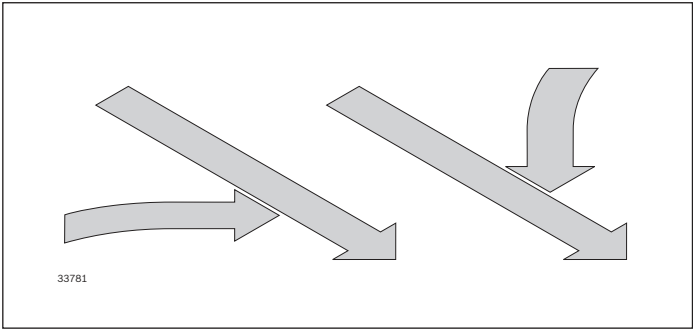
- Complete assembly kit to install on existing sections or curve wheels
- The support enables the workpiece pallet to move over the section gap with no danger of tipping

Scope of delivery:

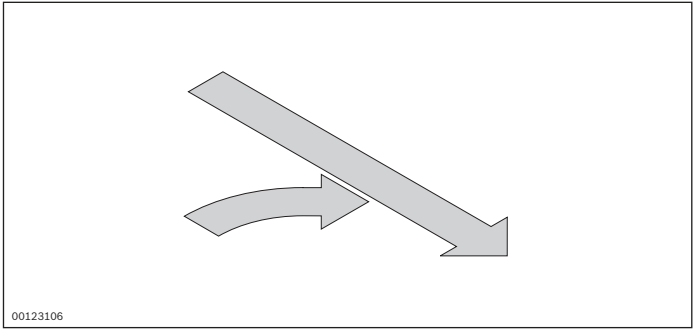
- Kit incl. fastening parts (as shown)

Material:

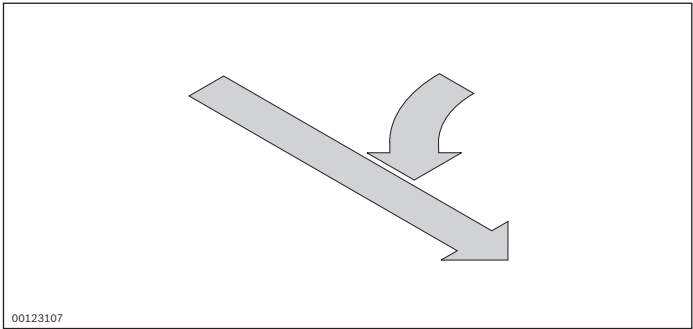
- Sliding surface support: PA; black



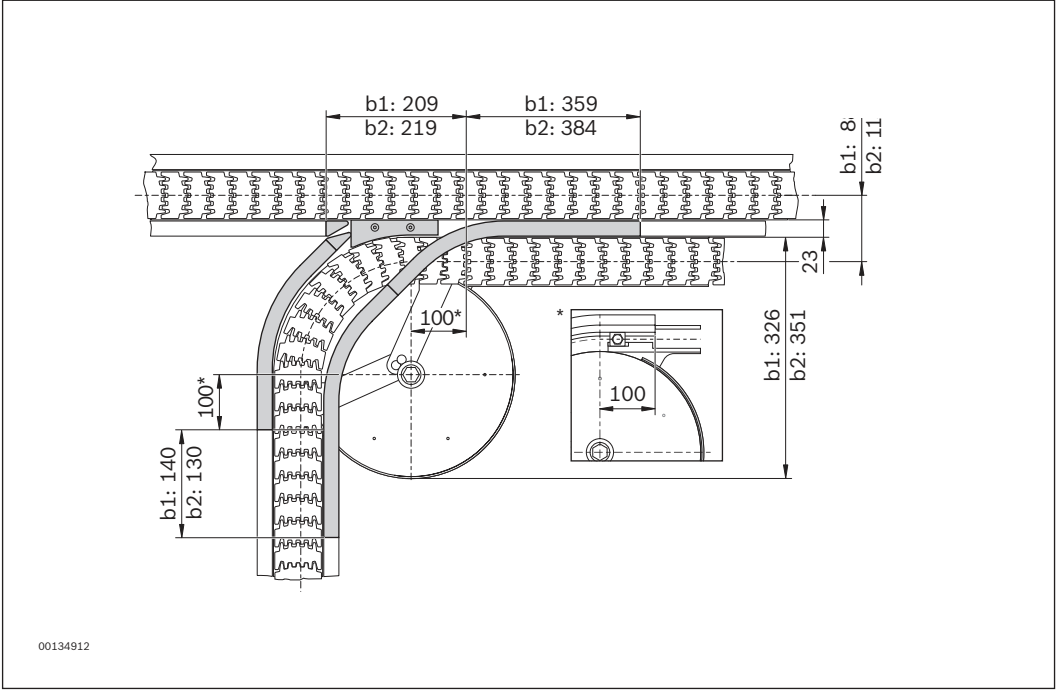
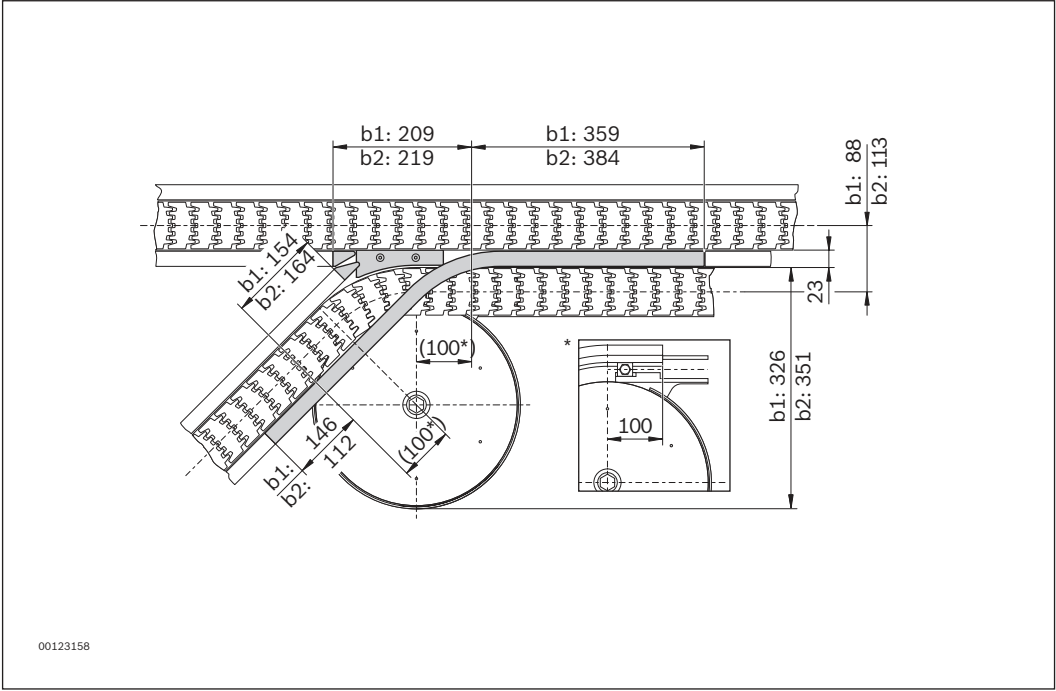
| 45° junction, right/left | No.           |
|--------------------------|---------------|
| VFplus 65/90             | 3 842 551 122 |



| 90° junction, right | No.           |
|---------------------|---------------|
| VFplus 65           | 3 842 551 128 |
| VFplus 90           | 3 842 551 125 |



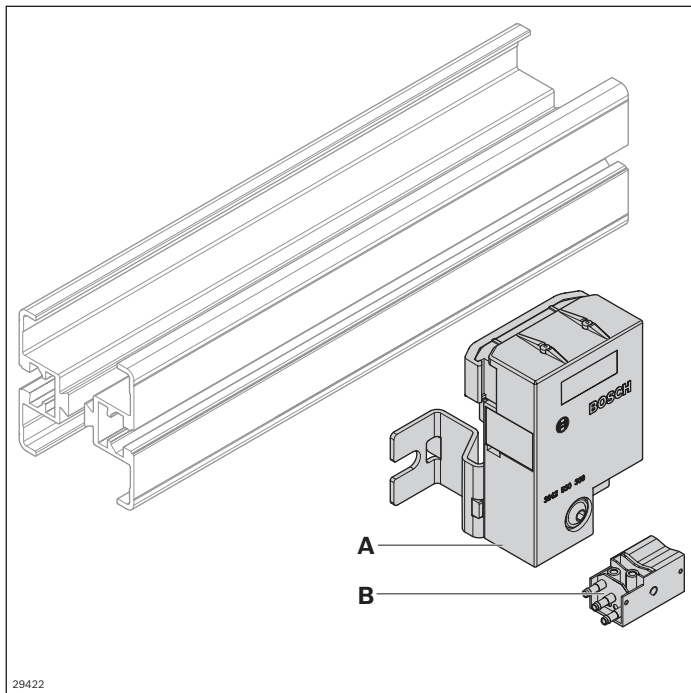
| 90° junction, left | No.           |
|--------------------|---------------|
| VFplus 65          | 3 842 551 137 |
| VFplus 90          | 3 842 551 124 |



b = size;  
b1 = 65; b2 = 90



## Rocker system WT



The rocker can be used for area monitoring, accumulation pressure regulation, and workpiece pallet recognition. A query can be either made electrically with a proximity switch or pneumatically to directly convert the shutter actuation into a pneumatic signal. Simple, purely pneumatic accumulation pressure regulation can be established in conjunction with a stop gate VE 2/VF.

- Monitoring range: 60 mm

- The rocker does not protrude beyond the top edge of the workpiece pallet
- A sideways query on the workpiece pallet plate ensures the lateral guide profiles are not interrupted

### Accessories:

- Pneumatic cylinder switch (**B**) (3 842 532 151)
- 12 mm proximity switch, round with switching distance  $S_N > 4$  mm

### Scope of delivery:

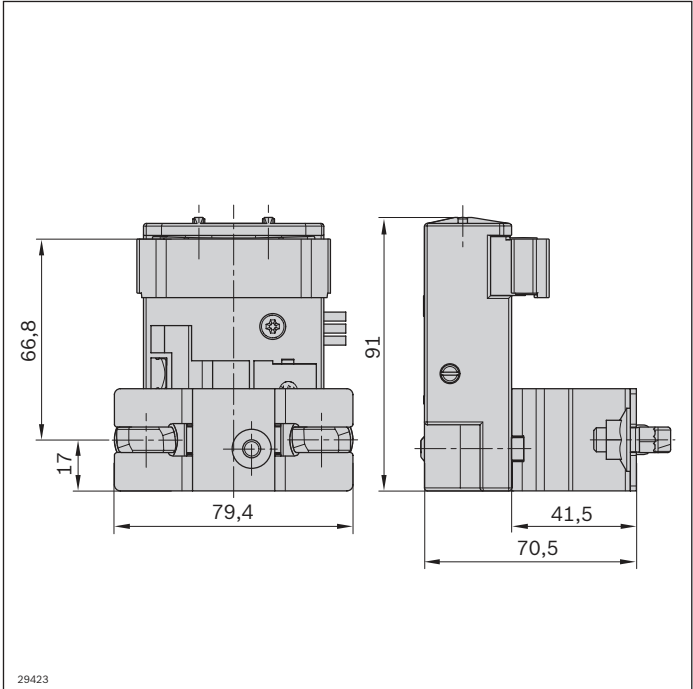
- Set incl. fastening material

### Condition on delivery:

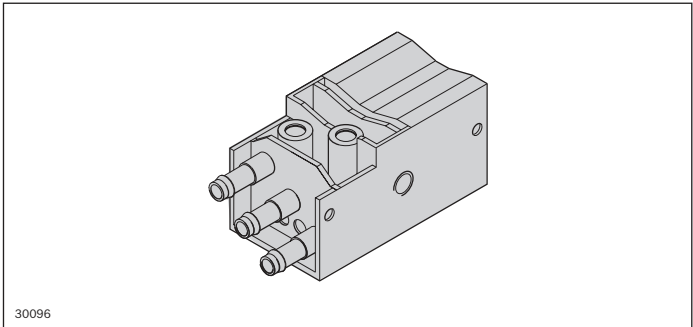
- Some assembly required

### Material:

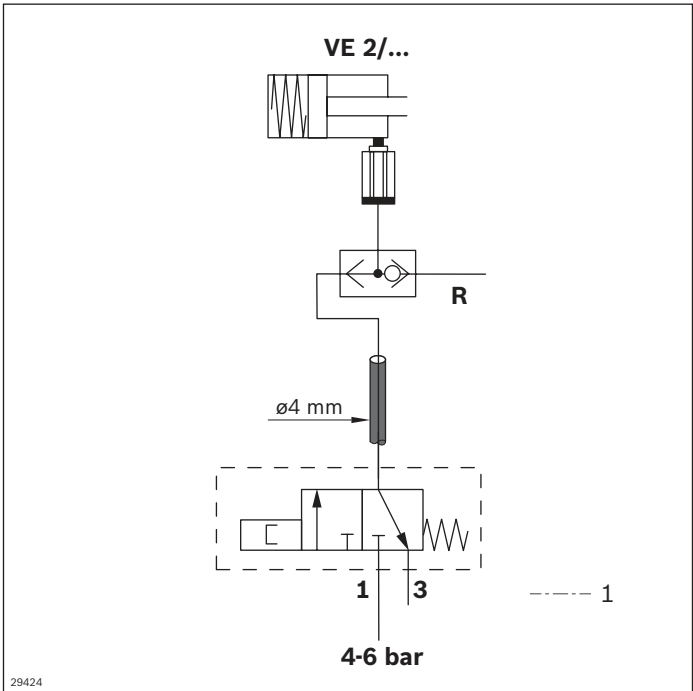
- Non-rusting steel 1.4301, PA



| Rocker |      | No.           |
|--------|------|---------------|
| A      | 1 pc | 3 842 547 464 |



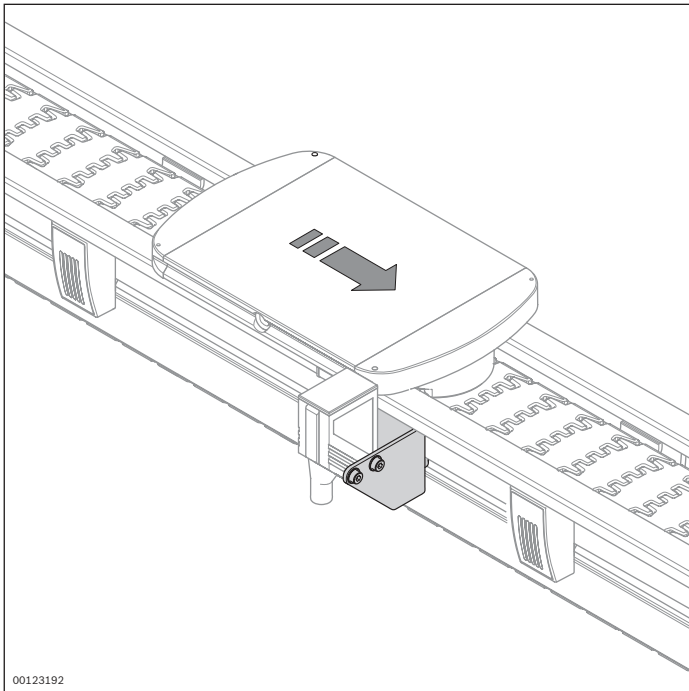
| Pneumatic cylinder switch |      | No.           |
|---------------------------|------|---------------|
| B                         | 1 pc | 3 842 532 151 |



Circuit diagram

1 Not included in the scope of delivery

## Identification systems ID 15 and ID 200

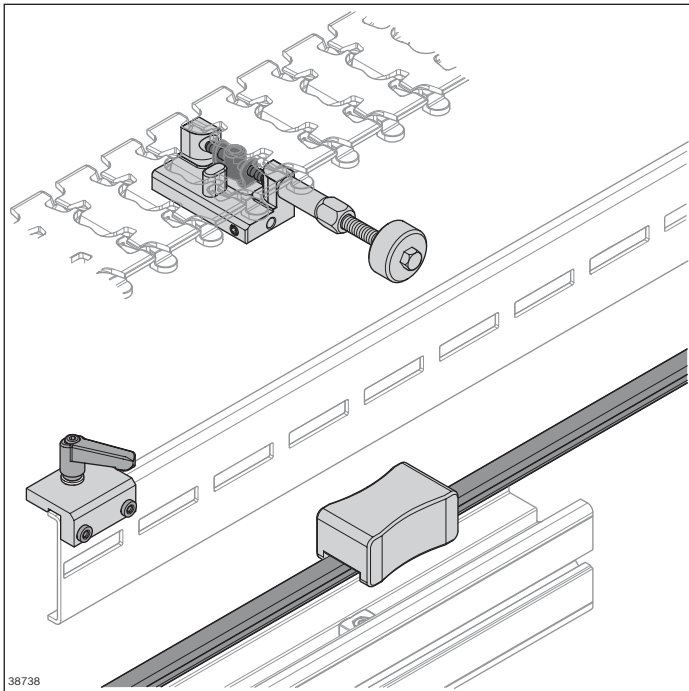


Assembly kits and mobile data tags for identification systems ID 15 and ID 200 for use in VarioFlow *plus* systems can be found in the RFID systems catalog (3 842 541 003).





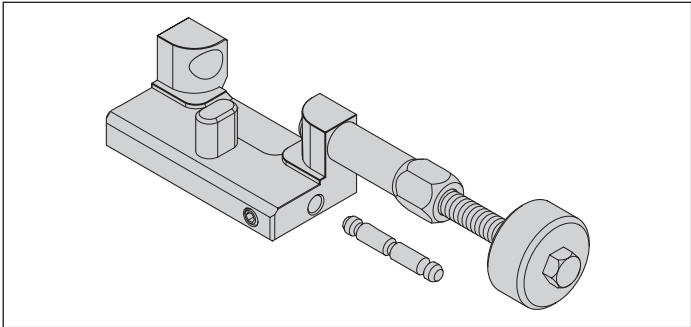
# Tools



Convenient assembly with the appropriate tool

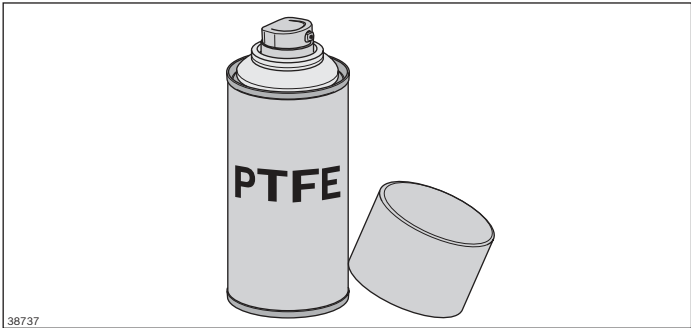
|                                                                                     |                                       |            |
|-------------------------------------------------------------------------------------|---------------------------------------|------------|
|    | <b>Chain assembly tool</b>            | <b>288</b> |
|    | <b>PTFE spray</b>                     | <b>288</b> |
|    | <b>Sliding rail assembly tool</b>     | <b>288</b> |
|    | <b>Drilling jig</b>                   | <b>289</b> |
|   | <b>Miter cutter</b>                   | <b>289</b> |
|  | <b>Safety coupling tool</b>           | <b>289</b> |
|  | <b>Bending tool for lateral guide</b> | <b>290</b> |

Tools



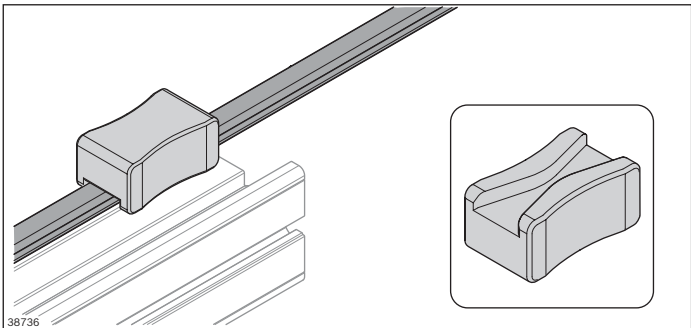
- Very compact assembly tool for use in constricted spaces to insert and remove the chain pin
- Simple overhead two-hand assembly is also always guaranteed
- A hexagon on the spindle makes it possible to use a cordless screwdriver as drive

| Chain assembly tool | No.           |
|---------------------|---------------|
|                     | 3 842 557 025 |



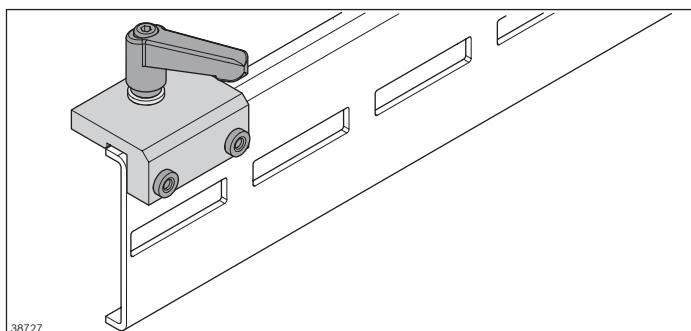
- PTFE spray for reducing friction and noise emission

| PTFE spray | No.           |
|------------|---------------|
|            | 3 842 546 150 |



- Assembly tool to easily and effortlessly clip the sliding rail onto the section profile

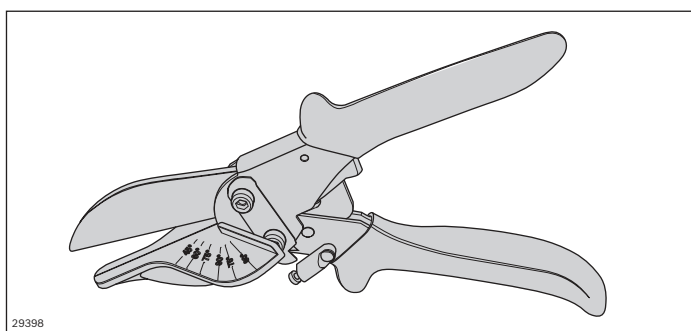
| Sliding rail assembly tool | No.           |
|----------------------------|---------------|
|                            | 3 842 549 738 |



- The drilling jig can be right or left-justified and is used to drill an accurately positioned hole to secure the sliding rail both on the section profile as well as on the support profile

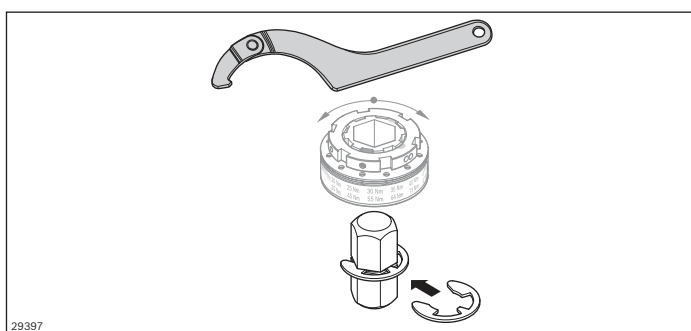
| Drilling jig | No.           |
|--------------|---------------|
|              | 3 842 553 518 |

9



- The sliding rail can be easily and quickly cut to the correct length and angle with the miter cutter

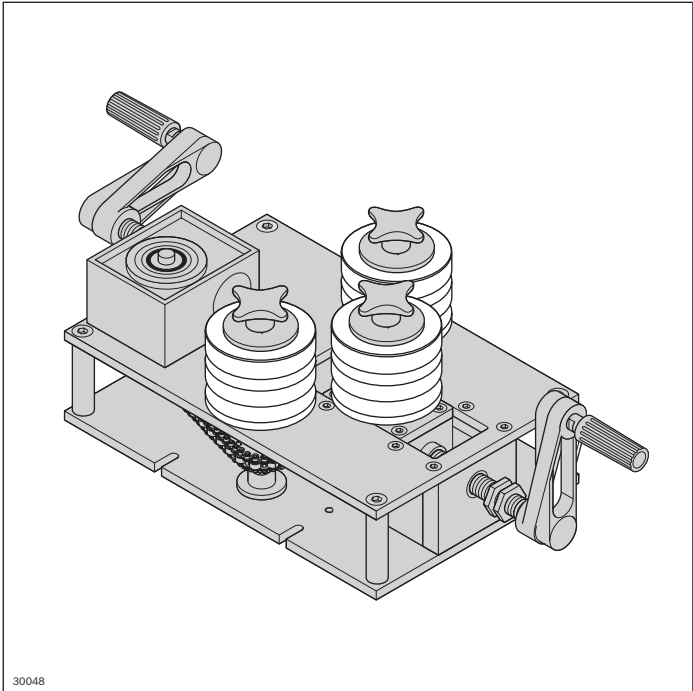
| Miter cutter | No.           |
|--------------|---------------|
|              | 3 842 547 982 |



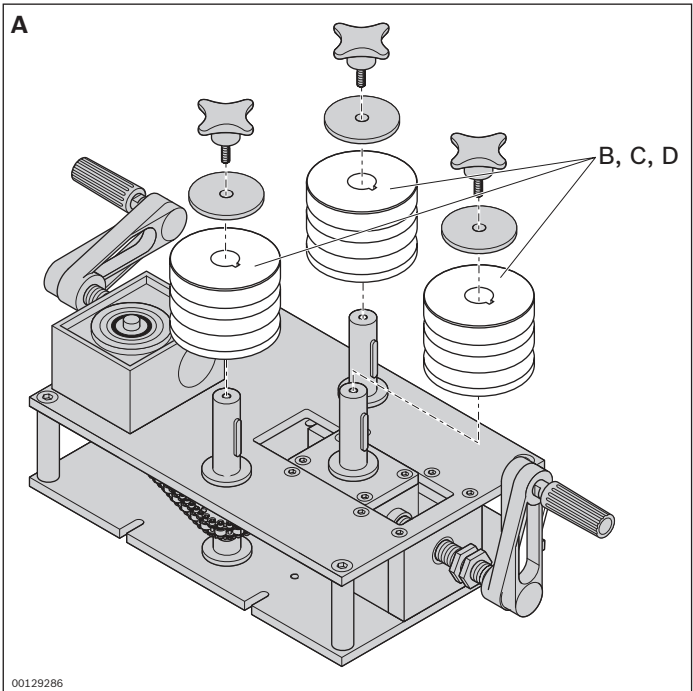
- Tool for setting the customer-specific torque of the optionally available safety coupling of the drive kit

| Safety coupling tool | No.           |
|----------------------|---------------|
|                      | 3 842 549 388 |

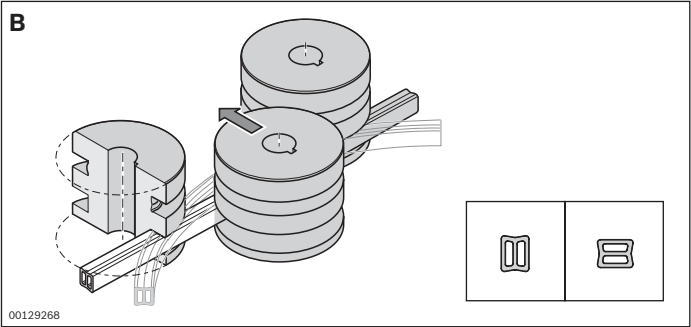
# Bending tool for lateral guide



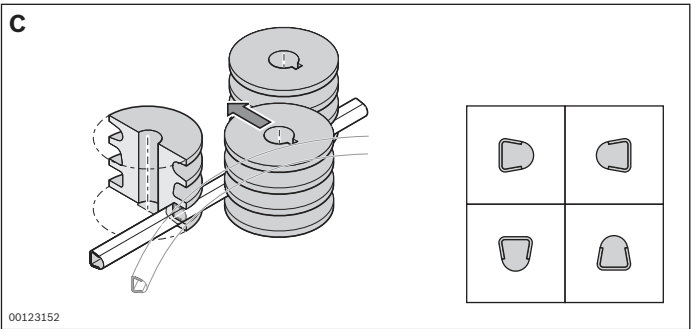
Crank-operated bending tool (A, without roller set) for bending profiles. Roller set adjusted to fit the profile rail to laterally guide the transported material. We recommend that you let your Bosch Rexroth distribution partner carry out the bending of lateral guides.



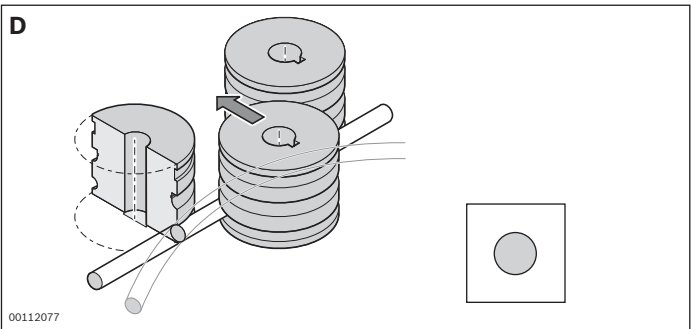
| Bending tool for lateral guide |  | No. |               |
|--------------------------------|--|-----|---------------|
| A                              |  | 1   | 3 842 528 531 |



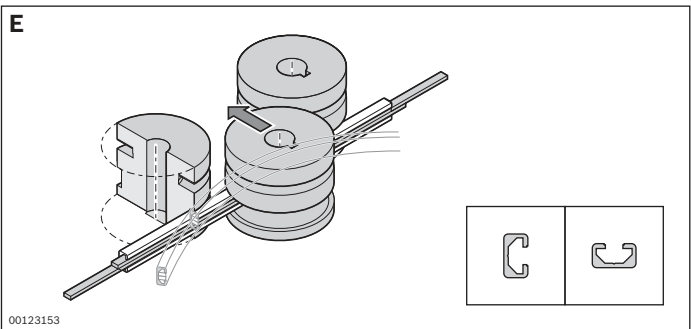
| Roller set |  No. |
|------------|-----------------------------------------------------------------------------------------|
| <b>B</b>   | 1 3 842 538 773                                                                         |



| Roller set |  No. |
|------------|-----------------------------------------------------------------------------------------|
| <b>C</b>   | 1 3 842 529 236                                                                         |

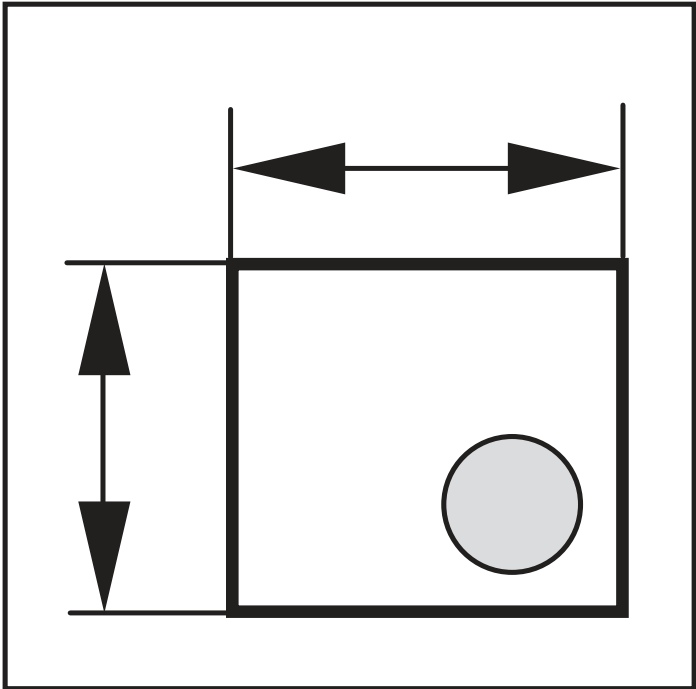


| Roller set |  No. |
|------------|-----------------------------------------------------------------------------------------|
| <b>D</b>   | 1 3 842 533 921                                                                         |



| Roller set |  No. |
|------------|-------------------------------------------------------------------------------------------|
| <b>E</b>   | 1 3 842 532 259                                                                           |

# Technical data



|                                                                |            |
|----------------------------------------------------------------|------------|
| <b>Calculation of chain tensile forces</b>                     | <b>294</b> |
| <b>Sliding rail selection</b>                                  | <b>300</b> |
| <b>Actual chain and sliding rail lengths of the components</b> | <b>302</b> |
| <b>Drive data/Motor data</b>                                   | <b>303</b> |
| <b>Transport and nominal speed vN</b>                          | <b>306</b> |
| <b>Motor connection</b>                                        | <b>307</b> |
| <b>Frequency converter motec 8400 (FU)</b>                     | <b>308</b> |
| <b>Ordering parameters for motors SEW (GM = 2)</b>             | <b>310</b> |
| <b>Combination matrix</b>                                      | <b>313</b> |
| <b>Use in clean rooms</b>                                      | <b>316</b> |
| <b>Conveyor noise level</b>                                    | <b>318</b> |
| <b>Resistance of the chain against chemicals</b>               | <b>320</b> |
| <b>Material use</b>                                            | <b>322</b> |



## Calculation of chain tensile forces



### MTpro with BKBsoft – the software for chain calculation

With the BKBsoft software you can calculate the maximum chain tensile force and the required drive torque quickly and efficiently.

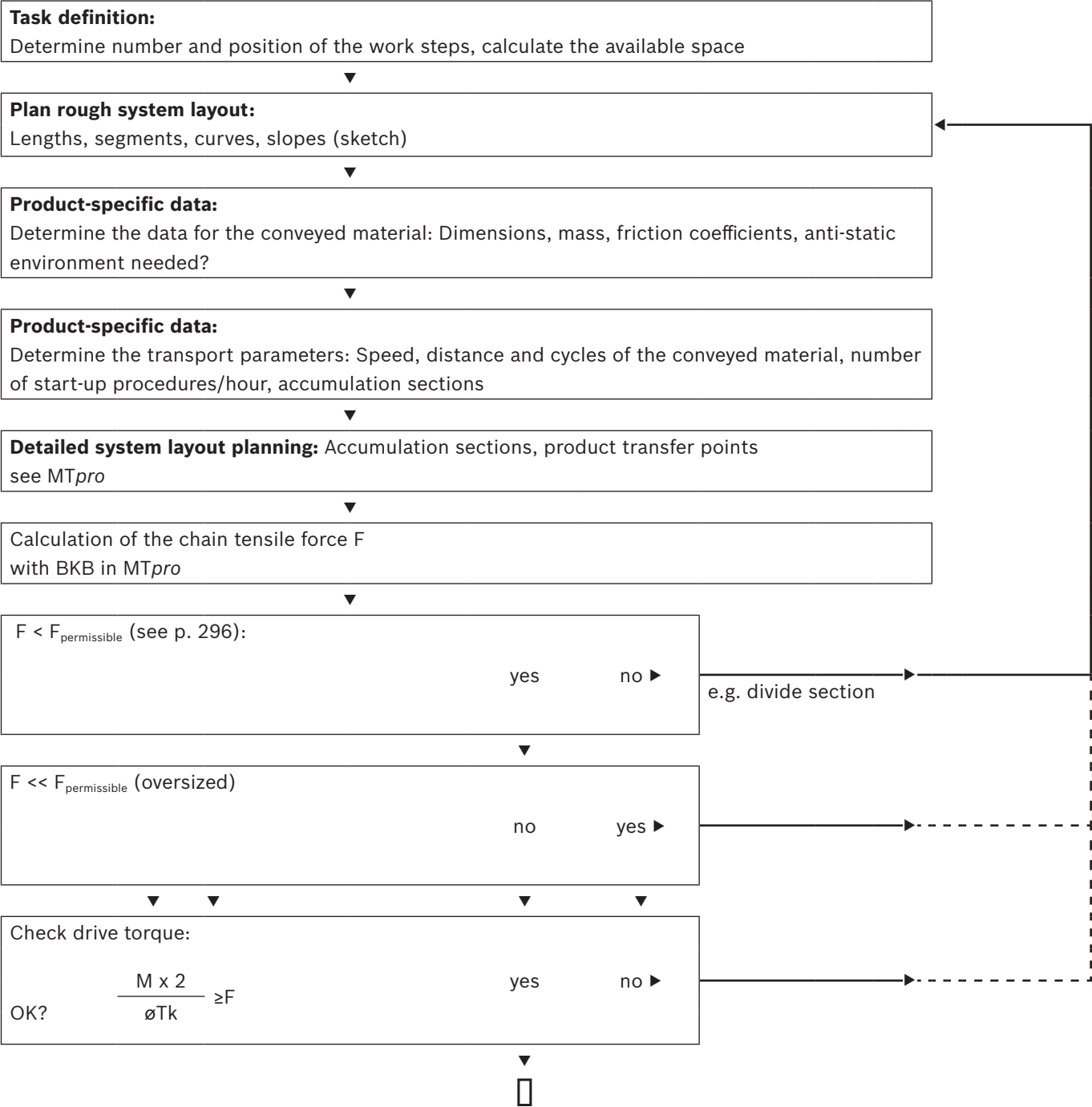
The tensile force of the conveyor chain is made up of multiple individual forces:

- Sliding friction force between unloaded chain and sliding rail
- Sliding friction force between loaded chain and sliding rail
- Sliding friction force between accumulated goods and chain

- Tangential components of the goods' and chain's force due to weight in inclining sections
- Sliding friction force in curves, between the chain and the inner sliding rail in the curve

The BKBsoft calculation software, included in the MTpro planning tool, assists you when designing and making the necessary calculations for your VarioFlow chain conveyor system.

**Layout procedure for a chain conveyor system**



$$F_{\text{permissible}} = F_{(a)} \cdot K_T \cdot c_B$$

$$\begin{aligned} F_{(v)} < F_{(L)} & \Rightarrow F_{(a)} = F_{(v)} \\ F_{(v)} > F_{(L)} & \Rightarrow F_{(a)} = F_{(L)} \end{aligned}$$

$F_{(v)}$ , see p. 297

$F_{(L)}$ , see p. 298

$K_T$ , see p. 298

$c_B$ , see p. 299

$$M = M_N \cdot \frac{P_V}{P_N}$$

$M_N$ , see p. 306

$\frac{P_V}{P_N}$  see p. 305

$P_N$

### Calculating the permissible chain tensile force and the permissible drive torque

The permissible chain tensile force depends on the transport speed as well as the ambient and operating conditions.

If the calculated chain tensile force exceeds the permissible force, you can:

- Divide the section into various chain conveyors.
- Alter the system layout, e.g. by replacing curves with curve wheels or, if possible, shorten the section.
- Shorten the accumulation sections.
- Reduce the speed.

### The permissible drive torque of a gear motor is dependent on the transport speed (v), the operating mode (with/without FU), the ambient temperature and the mains frequency.

If the necessary calculated drive torque is greater than that of the selected gear motor, you have the following options:

- Reduce the chain tensile force (F).
- Reduce the speed (v) and use a gear motor with a higher drive torque, see p. 304.
- Change the operating conditions (e. g. the ambient temperature).

**Conveyor chain**

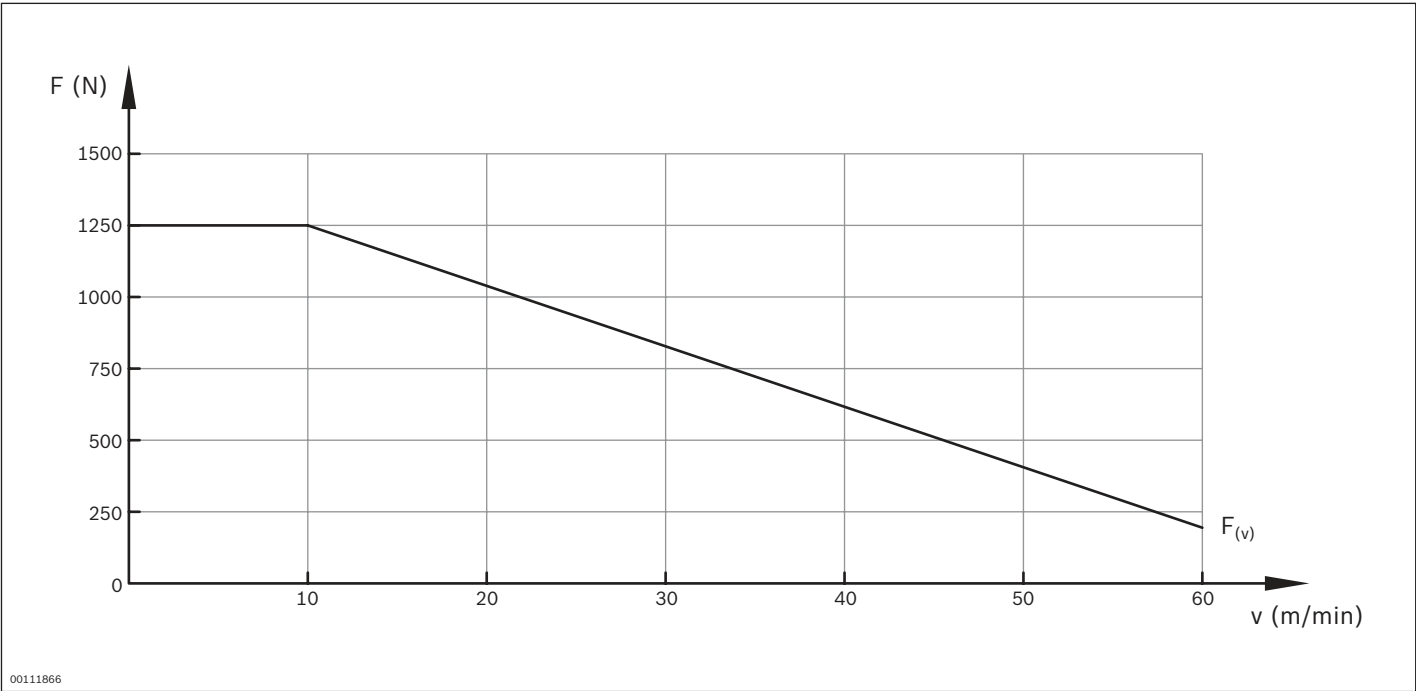
The technical data of the conveyor chain are included in the chain tensile force calculation as basic data.  
Please observe the dependence of the breaking force values on the temperature, see p. 298

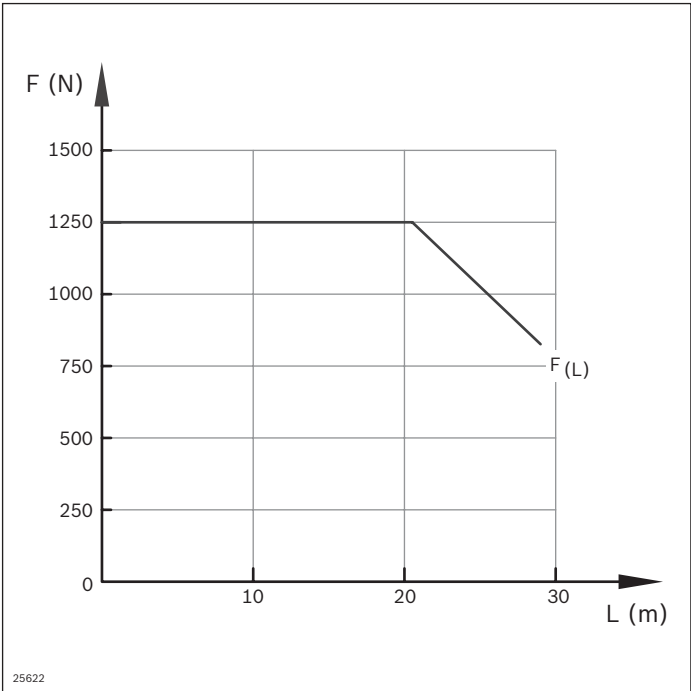
**Permissible section load of the conveyed goods  $q_{Fi}$ :**  
30 N/chain link (34.5 mm)

| Conveyor chain section load (own weight N/m) |                     |                       |                           |                 |               |                   |                   |
|----------------------------------------------|---------------------|-----------------------|---------------------------|-----------------|---------------|-------------------|-------------------|
|                                              | Flat conveyor chain | Static friction chain | Accumulation roller chain | Universal chain | Cleated chain | Clamping chain 3L | Clamping chain 5L |
| VFplus 65                                    | 9.5                 | 10                    | 16.0                      | 9.5             | 10.0          |                   |                   |
| VFplus 90                                    | 11.7                | 12.4                  | 20.5                      | 11.7            | 12.4          | 25.3              | 27.6              |
| VFplus 120                                   | 13.5                | 14.5                  | 25.4                      | 13.5            |               |                   |                   |
| VFplus 160                                   | 16.7                | 18.1                  |                           |                 |               |                   |                   |
| VFplus 240                                   | 20.4                | 22.5                  |                           |                 |               |                   |                   |
| VFplus 320                                   | 22.3                | 25.2                  |                           |                 |               |                   |                   |

10

**Permissible chain tensile force depending on the speed  $F_{(v)}$  (N); max. 1250 N**





**Permissible chain tensile force depending on the length of the conveyor section;  $F_{(L)}$  (N); max. 1250 N**

**Breaking force and chain elongation depending on the ambient temperature**

The chain material (POM) displays viscoelastic behavior just as every polymer does. This elongates the chain during operation and it is necessary to regularly check the chain elongation and shorten the chain if needed. A VarioFlow chain conveyor system can be operated without product accumulation and without curves in a temperature range from 0 °C ... + 60 °C. The influence of temperature needs to be taken into account in accumulation operation and for systems with curves.

Other temperatures available on request

| Temperature T (°C) | Breaking force factor $K_T$ | Chain elongation (%) |
|--------------------|-----------------------------|----------------------|
| 0                  | 1.12                        | -0.2                 |
| 20                 | 1.00                        | 0                    |
| 40                 | 0.96                        | 0.2                  |
| 60                 | 0.94                        | 0.5                  |

**Stick-slip effect**

On conveyor systems with plastic chains, slipping known as the stick-slip effect (chain movement against the running direction) may occur in the rear transport area (before the return unit). This is the effect whereby sections of chain take on different running speeds in certain areas, ranging through to a brief standstill. The effect is more pronounced the larger the distance from the drive. There is no stick-slip effect on the drive unit, as the chain is kept under optimal tension by the chain sprocket.

As a general rule, the stick-slip effect is mostly a visual and not a functional impediment for the continuous material flow. For certain applications, it is important to ensure that sections that may be susceptible to slipping are not used at points in the system with part positioning (e.g. printing).

| Curve angles<br>(horizontal/vertical) | Curve factor $k_a$ |
|---------------------------------------|--------------------|
| 0° (section without curves)           | 1.0                |
| Curve wheel 0° ... 180°               | 1.0                |
| 5°                                    | 1.05               |
| 7.5°                                  | 1.05               |
| 15°                                   | 1.1                |
| 30°                                   | 1.2                |
| 45°                                   | 1.3                |
| 60°                                   | 1.4                |
| 90°                                   | 1.6                |

| Start-up procedures/h | Operating factor $c_B$ |
|-----------------------|------------------------|
| 0 ... 1               | 1.0                    |
| 2 ... 10              | 0.83                   |
| 11 ... 30             | 0.71                   |
| > 30                  | 0.62                   |

**Curve factor  $k_a$** 

Additional sliding friction forces occur in curves.

They depend on the curve angle and are included in the required chain tensile force calculation via the curve factor.

**Operating factor  $c_B$** 

The permissible chain tensile force depends on the number of start-up procedures per time unit. Clocked operation leads to increased chain stress. The application factor is reduced when using a motor control such as a frequency converter. Intermediate values should be interpolated.

## Sliding rail selection

| Sliding rail<br>Range of application                                                            | Basic | Advanced | Premium | ESD             | Steel <sup>2)</sup> |
|-------------------------------------------------------------------------------------------------|-------|----------|---------|-----------------|---------------------|
| v <sub>max</sub> (m/min)                                                                        | 60    | 60       | 100     | 30              | 60                  |
| Size 65-120                                                                                     | ✓     | ✓        | ✓       | ✓ <sup>1)</sup> | ✓                   |
| Size 160-320                                                                                    | ✓     | ✓        | ✓       | ✓               | ✓                   |
| Sliding curves horizontal/vertical                                                              | ✓     | ✓        | ✓       | ✓               | ✓                   |
| Cleanroom use  | ✓     | ✓        | ✓       | ✓               | ✓                   |

<sup>1)</sup> Only size 65, 90

<sup>2)</sup> When used in curve wheels, the steel sliding rail curve wheel is to be used in the upper branch (Basic, Advanced or Premium must be used in the lower branch)

| Condition of contact surfaces | Basic | Advanced | Premium | ESD  | Steel |
|-------------------------------|-------|----------|---------|------|-------|
| 1                             | 0.20  | 0.15     | 0.15    | 0.25 | 0.26  |
| 2                             | 0.25  | 0.20     | 0.20    | –    | 0.26  |
| 3                             | >0.25 | >0.20    | >0.20   | –    | >0.26 |

- 1 Dry, clean =
  - \* No build-up of particles
  - \* Regular cleaning ≤ 1 x/week
- 2 Remove built-up particles and non-abrasive liquids occasionally, depending on degree of contamination
- 3 Constant exposure to particles and liquids, but no abrasive media  
Please contact [www.boschrexroth.com](http://www.boschrexroth.com).

**Notice:** We recommend using a homogeneous sliding rail variant throughout the entire section, i.e. no mixing of Basic, Advanced, Premium, ESD or steel sliding rails within a section.

### Sliding friction factor between sliding rail and chain

Average value, related to the total chain running time.

The sliding friction factor increases along with increasing running time. Use of PTFE spray (3 842 546 150) reduces this value.

| Material | Condition of contact surfaces | POM  | Steel-plated       |
|----------|-------------------------------|------|--------------------|
| Plastic  | Dry                           | 0.25 | –                  |
|          | Water                         | 0.25 | –                  |
|          | Refrigerant                   | 0.12 | –                  |
|          | Oil                           | 0.12 | –                  |
| Paper    | Dry                           | 0.30 |                    |
| Glass    | Dry                           | 0.18 | 0.25 <sup>3)</sup> |
|          | Water                         | 0.18 |                    |
|          | Refrigerant                   | 0.17 |                    |
|          | Oil                           | 0.17 |                    |
| Metal    | Dry                           | 0.26 | 0.25 <sup>3)</sup> |
|          | Water                         | 0.26 |                    |
|          | Refrigerant                   | 0.11 |                    |
|          | Oil                           | 0.11 |                    |

<sup>3)</sup> With sharp-edged parts, the value must be experimentally determined.

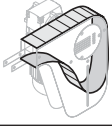
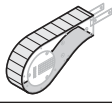
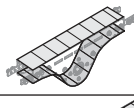
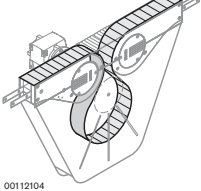
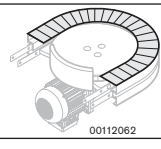
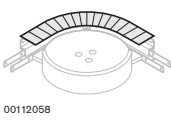
**Sliding friction factor between goods and chain**

Sliding friction factors typical for a product type. The actual factors must be determined by experimentation for a precise result.



# Actual chain and sliding rail lengths of the components

## For an estimated chain and sliding rail length calculation

|                                 |      | Actual chain length (m) |         |         |         |                                                                                      | Effective sliding rail length (m) |         |         |                       |
|---------------------------------|------|-------------------------|---------|---------|---------|--------------------------------------------------------------------------------------|-----------------------------------|---------|---------|-----------------------|
|                                 |      | Size                    |         |         |         |                                                                                      | Size                              |         |         |                       |
|                                 |      | 65                      | 90      | 120     | 160-320 |                                                                                      | 65                                | 90      | 120     | 160-320               |
| Head drive                      |      | 0.881                   |         |         |         |     | 2x 0.2                            |         |         | 4x 0.2                |
| Return unit                     |      | 0.742                   |         |         |         |     | 2x 0.2                            |         |         | 4x 0.2                |
| 90° return unit                 |      | 0.483                   |         |         |         |     | 4x 117                            |         |         |                       |
| Center drive                    |      | 1.1385                  |         |         |         |     | 2x 514                            |         |         |                       |
| Connection drive                |      | 1.51                    |         |         |         |   | 4x 0.2                            |         |         |                       |
| Curve wheel drive               |      | 0.68                    | 0.72    |         |         |   | 0.82                              | 0.91    |         |                       |
| Curve wheel                     | 30°  | 2x 0.28                 | 2x 0.28 | 2x 0.29 |         |  | 2x 0.34                           | 2x 0.35 | 2x 0.38 |                       |
|                                 | 45°  | 2x 0.32                 | 2x 0.33 | 2x 0.34 |         |                                                                                      | 2x 0.38                           | 2x 0.41 | 2x 0.44 |                       |
|                                 | 90°  | 2x 0.44                 | 2x 0.46 | 2x 0.48 |         |                                                                                      | 2x 0.53                           | 2x 0.58 | 2x 0.63 |                       |
|                                 | 180° | 2x 0.68                 | 2x 0.72 | 2x 0.77 |         |                                                                                      | 2x 0.82                           | 2x 0.91 | 2x 1.01 |                       |
| Roller curve (R500)             | 30°  |                         |         |         | 2x 0.46 |  |                                   |         |         | 5x 0.46               |
|                                 | 45°  |                         |         |         | 2x 0.59 |                                                                                      |                                   |         |         | 5x 0.59               |
|                                 | 90°  |                         |         |         | 2x 0.98 |                                                                                      |                                   |         |         | 5x 0.98               |
|                                 | 180° |                         |         |         | 2x 1.77 |                                                                                      |                                   |         |         | 5x 1.77               |
| Sliding curve horizontal (R700) | 30°  | 2x 0.56                 |         |         |         |  | 4x 0.56                           |         |         |                       |
|                                 | 45°  | 2x 0.75                 |         |         |         |                                                                                      | 4x 0.75                           |         |         |                       |
|                                 | 90°  | 2x 1.3                  |         |         |         |                                                                                      | 4x 1.3                            |         |         |                       |
| Vertical curve                  | 5°   | 2x 0.24                 |         |         |         |   | 4x 0.24                           |         |         | 8x 0.24 <sup>*)</sup> |
|                                 | 7.5° | 2x 0.26                 |         |         |         |                                                                                      | 4x 0.26                           |         |         | 8x 0.26 <sup>*)</sup> |
|                                 | 15°  | 2x 0.33                 |         |         |         |                                                                                      | 4x 0.33                           |         |         | 8x 0.33 <sup>*)</sup> |
|                                 | 30°  | 2x 0.46                 |         |         |         |                                                                                      | 4x 0.46                           |         |         | 8x 0.46 <sup>*)</sup> |
|                                 | 45°  | 2x 0.59                 |         |         |         |                                                                                      | 4x 0.59                           |         |         | 8x 0.59 <sup>*)</sup> |
| Assembly module                 |      | 2x 0.24                 |         |         |         |   | 4x 0.24                           |         |         | 6x 0.24               |

<sup>\*)</sup> With support profile

# Drive data

## Definition of the basic principles of motor specifications

The specified performances, torques and revolutions per minute are rounded values and apply to:

- Operating time/day = 8 h (100 % duty cycle)
- Uniform operation (continual), no, or very light, impacts in a rotational direction at 10 switching cycles/hour
- Installation positions and designs described in the catalog
- Maintenance-free gears with life-long lubrication,
- Ambient operating temperature 0 ... 60 °C. Gear unit with life-long lubrication for ambient operating temperature ≤ 0 °C available on request
- Protection class IP 55
- $f_{\text{mains}}$  = 50 Hz constant
- $T_U$  = 20 °C for gears  
40 °C for motors
- Installation altitude ≤ 1000 m above mean sea level
- If the drive is overloaded, the service life is reduced.  
Overload by 10 %: = 75 % service life  
Overload by 20 %: = 50 % service life
- The gear motor (GM = 1) corresponds to the operating mode S1 (continuous operation)

In the case of other operating conditions, the achievable values may differ from those stated.

In the case of extreme operating conditions, please consult your distribution partner.

Motor data

**Electrical connection requirements:**

Connection to a 3-phase, 5-wire system (L1, L2, L3, N, PE), a connection diagram is included in the terminal box.  
 All motors are equipped with a thermal contact<sup>\*)</sup>, which must be connected to an overload switch-off.

All of the motors comply with protection type IP 55.

<sup>\*)</sup> Bi-metal thermal contact, opening, tripping at 150 °C ± 5 °C.

**Motor for push-on gearbox (with plug AT=S)**



**Gear motor (with plug AT=S)**



**Country classification**

|                        | Europe | Switzerland | USA                 | Canada                       | Brazil                                              | Australia                    | New Zealand                  | South Korea                                         | China               | India               |
|------------------------|--------|-------------|---------------------|------------------------------|-----------------------------------------------------|------------------------------|------------------------------|-----------------------------------------------------|---------------------|---------------------|
| Line voltage (3x....)  | 400 V  | 400 V       | 480 V <sup>1)</sup> | 480 V <sup>1)</sup><br>575 V | 220 V<br>380 V <sup>3)</sup><br>440 V <sup>1)</sup> | 400 V<br>415 V <sup>2)</sup> | 400 V<br>415 V <sup>2)</sup> | 220 V<br>380 V <sup>3)</sup><br>440 V <sup>1)</sup> | 380 V <sup>2)</sup> | 415 V <sup>2)</sup> |
| Line voltage tolerance | ±10 %  | ±10 %       | ±10 %               | ±10 %                        | ±10 %                                               | ±5 %                         | ±5 %                         |                                                     |                     | ±5 %                |
| Mains frequency        | 50 Hz  | 50 Hz       | 60 Hz               | 60 Hz                        | 60 Hz                                               | 50 Hz                        | 50 Hz                        | 60 Hz                                               | 50 Hz               | 50 Hz               |

<sup>1)</sup> ~ 460 V / 60 Hz  
<sup>2)</sup> ~ 400 V / 50 Hz  
<sup>3)</sup> ~ 400 V / 60 Hz

# Motor data (GM = 1)

## Performance data

**Notice:** Values are typical. Subject to change. See motor type plate for official data. Please note the country assignment.

| Voltage class          | A           | A                 | B                 | D           |
|------------------------|-------------|-------------------|-------------------|-------------|
| Circuit                | Δ           | Y                 | Y                 | Y           |
| Voltage U at f = 50 Hz | 200 V ±10 % | 400 V +10...-12 % |                   |             |
| Voltage U at f = 60 Hz | 220 V ±10 % | 400 V ±10 %       | 460 V +10...-12 % | 575 V ±10 % |

| Motor type | IE3 | Current consumption at rated power |                    |                    |                    | Power factor<br>cos φ | Power output at  |                  |
|------------|-----|------------------------------------|--------------------|--------------------|--------------------|-----------------------|------------------|------------------|
|            |     | I <sub>N</sub> (A)                 | I <sub>N</sub> (A) | I <sub>N</sub> (A) | I <sub>N</sub> (A) |                       | (50Hz)<br>P (kW) | (60Hz)<br>P (kW) |
| 524        | x   | 0.65                               | 0.35               | 0.32               | 0.24               | 0.6                   | 0.09             | 0.1              |
| 624        | x   | 1.15                               | 0.65               | 0.55               | 0.45               | 0.66                  | 0.18             | 0.22             |
| 634        | x   | 1.65                               | 0.9                | 0.85               | 0.65               | 0.6                   | 0.25             | 0.29             |
| 714b       | x   | 1.9                                | 1.1                | 0.95               | 0.75               | 0.73                  | 0.37             | 0.42             |
| 804a       | x   | 3.1                                | 1.8                | 1.45               | 1.15               | 0.65                  | 0.55             | 0.63             |
| 716        | x   | 1.3                                | 0.75               | 0.6                | 0.62               | 0.68                  | 0.18             | 0.22             |
| 734        | x   | 1.9                                | 1.05               | 0.95               | 0.72               | 0.74                  | 0.37             | 0.42             |
| 734a       | x   | 2.5                                | 1.4                | 1.3                | 1                  | 0.66                  | 0.45             | 0.52             |
| 714a       | x   | 1.65                               | 0.95               | 0.85               | 0.65               | 0.60                  | 0.25             | 0.29             |
| 716a       | x   | 1.3                                | 0.75               | 0.6                | 0.52               | 0.61                  | 0.18             | 0.22             |
| 718b       | x   | 0.95                               | 0.55               | 0.48               | 0.38               | 0.6                   | 0.12             | 0.14             |
| 814        | x   | 3.1                                | 1.7                | 1.45               | 1.1                | 0.69                  | 0.55             | 0.63             |
| 824        | x   | 4.1                                | 2.25               | 2                  | 1.6                | 0.66                  | 0.75             | 0.86             |

Suitable for continuous operation, start-stop operation with a duty cycle of up to 70 % and frequency converter operation.

Certification for the motor, cable and plug components:

IE3 motors: CE, cURUS, CCC

 Gear motor

## 3-phase motors

| T <sub>U</sub> (°C) | P <sub>V</sub> / P <sub>N</sub> |
|---------------------|---------------------------------|
| < 40                | 1 <sup>1)</sup>                 |
| 45                  | 0.95                            |
| 50                  | 0.90                            |
| 55                  | 0.85                            |
| 60                  | 0.8                             |

<sup>1)</sup> Rated motor power (0.37; 0.25; 0.12 kW)

## Rated motor power

The ambient operating temperature T<sub>U</sub> influences the rated power P<sub>N</sub> of the gear motors.

## Transport and nominal speed $v_N$

The transport speed  $v_N$  is specified for the rated output and frequencies of 50 Hz or 60 Hz.

The actual values  $v$  vary depending on:

- Tolerance of the standard motors
- Performance range of the motors
- Load on the conveyor section

| Modular unit                | 50 Hz (see p. 305) |          |     |                      |                  | Motor type | 60 Hz (see p. 305) |     |                      |                  | Motor type |
|-----------------------------|--------------------|----------|-----|----------------------|------------------|------------|--------------------|-----|----------------------|------------------|------------|
|                             | $v_N$              | $v^{1)}$ | i   | $n^{2)}$             | $M_N$            |            | $v^{1)}$           | i   | $n^{2)}$             | $M_N$            |            |
|                             | (m/min)            | (m/min)  |     | (min <sup>-1</sup> ) | (Nm)             |            | (m/min)            |     | (min <sup>-1</sup> ) | (Nm)             |            |
| Head drive/<br>center drive | 5                  | 5.2      | 60  | 11.5                 | 94               | 718b       | 6.4                | 60  | 14                   | 92               | 718b       |
|                             | 10                 | 10.6     | 60  | 23.3                 | 97               | 714a       | 8.3                | 60  | 18.3                 | 108              | 716a       |
|                             | 13                 | 13.2     | 47  | 29.2                 | 114              | 714b       | 12.9               | 60  | 28.5                 | 92               | 714a       |
|                             | 16                 | 16.8     | 37  | 37.1                 | 91               | 714b       | 15.9               | 47  | 35.0                 | 108              | 714b       |
|                             | 21                 | 21.6     | 29  | 47.7                 | 71               | 714b       | 20.2               | 37  | 44.5                 | 87               | 714b       |
|                             | 27                 | 27.2     | 23  | 60.0                 | 57               | 714b       | 26.0               | 29  | 57.3                 | 67               | 714b       |
|                             | 33                 | 33.3     | 19  | 73.5                 | 46               | 714b       | 32.6               | 23  | 72.0                 | 53               | 714b       |
|                             | 40                 | 40.8     | 15  | 90.0                 | 38               | 714b       | 39.9               | 19  | 88.2                 | 44               | 714b       |
|                             | 50                 | 49.9     | 12  | 110.2                | 30               | 714b       | 48.9               | 15  | 108.0                | 36               | 714b       |
| Connection<br>drive         | 5                  | 5.2      | 60  | 11.5                 | 94               | 718b       | 6.4                | 60  | 14                   | 92               | 718b       |
|                             | 10                 | 10.6     | 60  | 23.3                 | 97               | 714a       | 8.3                | 60  | 18.3                 | 108              | 716a       |
|                             | 13                 | 13.2     | 47  | 29.2                 | 114              | 714b       | 12.9               | 60  | 28.5                 | 92               | 714a       |
|                             | 16                 | 16.8     | 37  | 37.1                 | 91               | 714b       | 15.9               | 47  | 35.0                 | 108              | 714b       |
|                             | 21                 | 21.6     | 29  | 47.7                 | 71               | 714b       | 20.2               | 37  | 44.5                 | 87               | 714b       |
|                             | 27                 | 27.2     | 23  | 60.0                 | 57               | 714b       | 26.0               | 29  | 57.3                 | 67               | 714b       |
| Curve wheel<br>drive VF65   | 5                  | 5.2      | 128 | 5.4                  | 60 <sup>2)</sup> | 718b       | 6.2                | 128 | 6.5                  | 60 <sup>2)</sup> | 718b       |
|                             | 10                 | 11.1     | 60  | 11.5                 | 60 <sup>2)</sup> | 718b       | 13.5               | 60  | 14                   | 60 <sup>2)</sup> | 718b       |
|                             | 13                 | 14.5     | 60  | 15.1                 | 60 <sup>2)</sup> | 716a       | 17.6               | 60  | 18.3                 | 60 <sup>2)</sup> | 716a       |
|                             | 21                 | 22.4     | 60  | 23.3                 | 60 <sup>2)</sup> | 714a       | 27.4               | 60  | 28.5                 | 60 <sup>2)</sup> | 714a       |
| Curve wheel<br>drive VF90   | 5                  | 5.6      | 128 | 5.4                  | 60 <sup>2)</sup> | 718b       | 6.8                | 128 | 6.5                  | 60 <sup>2)</sup> | 718b       |
|                             | 10                 | 12.0     | 60  | 11.5                 | 60 <sup>2)</sup> | 718b       | 14.6               | 60  | 14                   | 60 <sup>2)</sup> | 718b       |
|                             | 13                 | 15.7     | 60  | 15.1                 | 60 <sup>2)</sup> | 716a       | 19.0               | 60  | 18.3                 | 60 <sup>2)</sup> | 716a       |
|                             | 21                 | 24.2     | 60  | 23.3                 | 60 <sup>2)</sup> | 714a       | 29.6               | 60  | 28.5                 | 60 <sup>2)</sup> | 714a       |

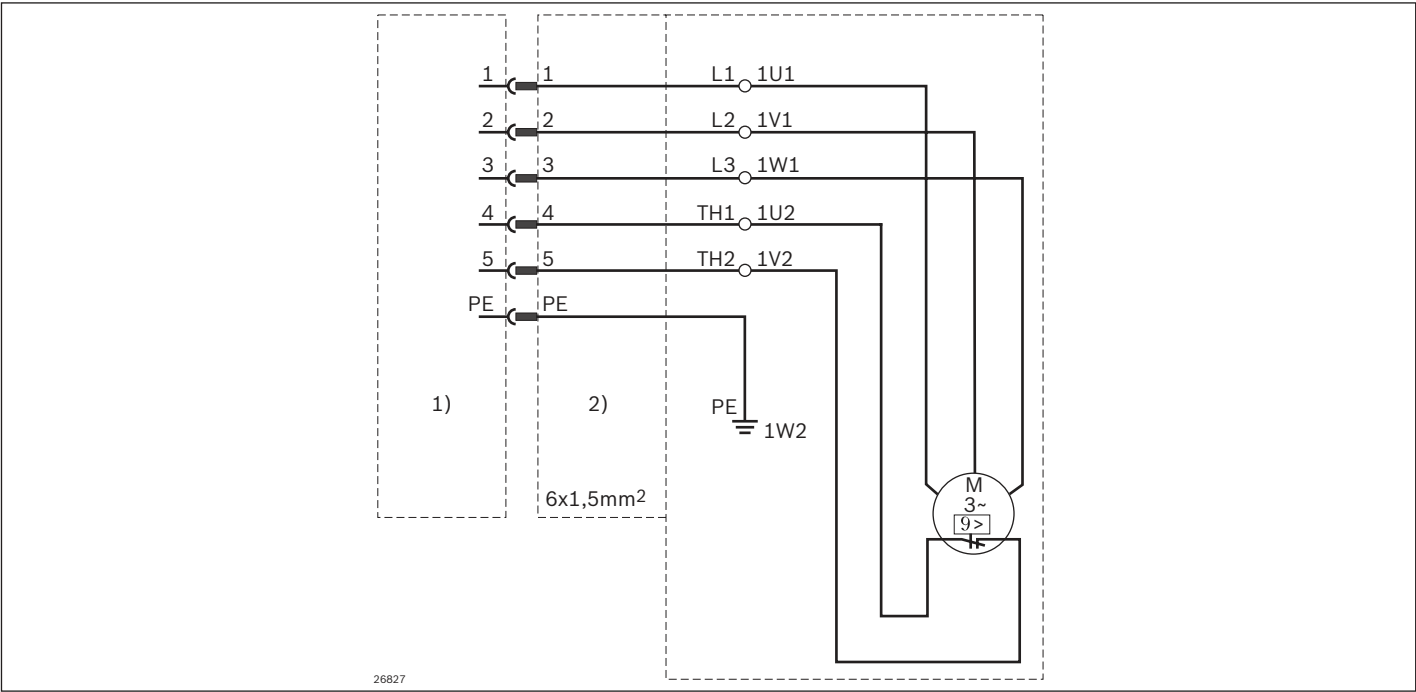
<sup>1)</sup> Transport speeds at other voltages/frequencies available on request

<sup>2)</sup> Torque limited to 60 Nm by coupling

<sup>3)</sup> Gear unit output speed

# Motor connection

## Motor connection with plug (AT = S), circuit diagram

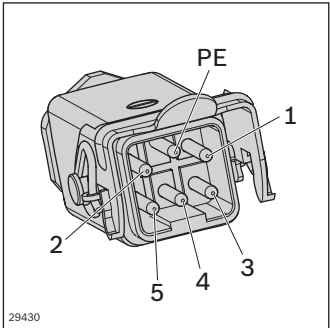


- 1) Connection cable side
- 2) Motor side

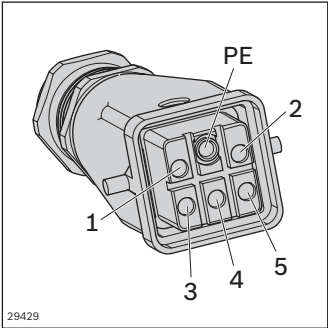
The connector consists of UL components.

### Connection list

| 3~ motor connection terminals | Pin no. | Code |
|-------------------------------|---------|------|
| U1                            | 1       | L1   |
| V1                            | 2       | L2   |
| W1                            | 3       | L3   |
| TW1                           | 4       | Th1  |
| TW2                           | 5       | Th2  |
|                               | PE      | PE   |



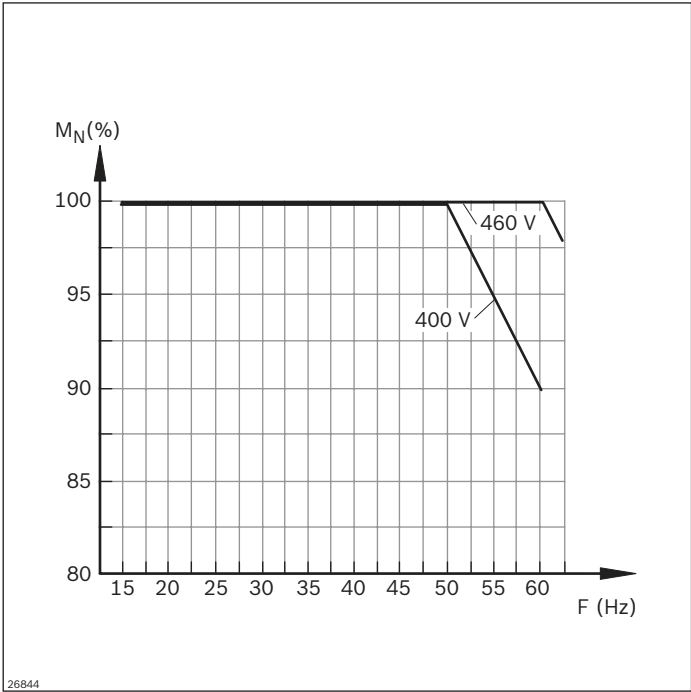
Motor side



Connection cable side

Frequency converter motec 8400 (FU)

Drive spectrum of motors with frequency converters (FU)



Technical information:

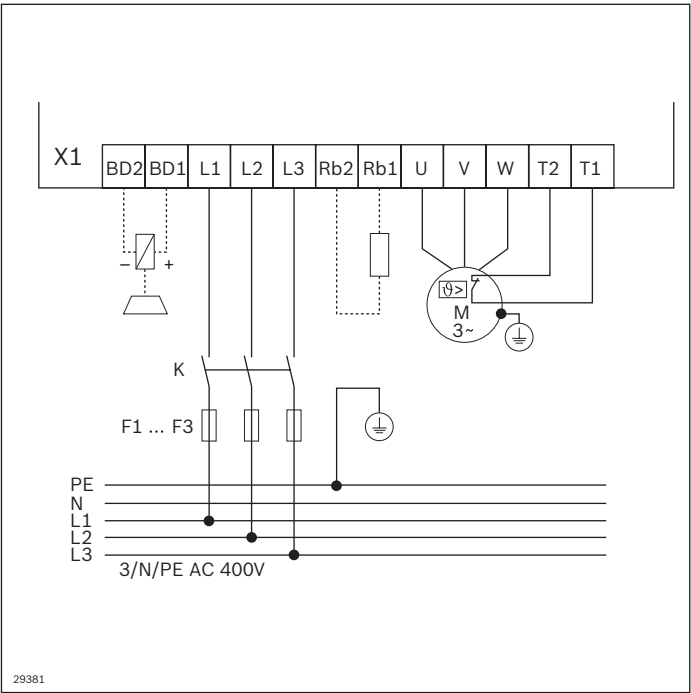
At rotating field frequencies of  $\geq 15$  Hz, the motor can be operated under normal operating conditions without an external fan. The motor's thermal conditions should be considered at rotating field frequencies of  $\leq 20$  Hz. In the range 20 ... 50 Hz, the full torque is available. At rotating field frequencies  $> 50$  Hz, higher speeds can also be achieved with a corresponding drop in performance.

| Base speed of motor<br>(m/min)<br>at 50 Hz | Min <sup>1)</sup><br>(m/min) | Max <sup>2)</sup><br>(m/min) | Max (m/min)<br>at max.<br>80 % torque |
|--------------------------------------------|------------------------------|------------------------------|---------------------------------------|
| 5 <sup>3)</sup>                            | 2                            | 6                            | 8                                     |
| 10 <sup>3)</sup>                           | 4                            | 12                           | 16                                    |
| 13                                         | 5                            | 15                           | 21                                    |
| 16                                         | 6                            | 19                           | 26                                    |
| 21                                         | 7                            | 25                           | 34                                    |
| 27                                         | 9                            | 32                           | 43                                    |
| 33                                         | 11                           | 39                           | 52                                    |
| 40                                         | 13                           | 48                           | –                                     |
| 50                                         | 16                           | 60                           | –                                     |

<sup>1)</sup> Min corresponds to approx. 16 Hz supply frequency

<sup>2)</sup> Max corresponds to approx. 60 Hz supply frequency

<sup>3)</sup> At 460 V/60 Hz max (m/min) 20 % higher



**Frequency converter (FU) accessories**

In order to operate a drive with a frequency converter (FU), the user needs to work out the minimum wiring for the internal and external voltage supply (see terminal assignment plan left).

—— Minimum wiring required for operation  
----\*)---- Additional wiring to change rotational direction



## Ordering parameters for SEW motors (GM = 2)

The following ordering information is required if using gear motors from SEW-Eurodrive GmbH & Co, Bruchsal:

- Motor type
- Ratio
- Installation position
- Drive output position
- Terminal box position
- Cable entry (fig. 4)

- Motor voltage/frequency<sup>\*)</sup>
- Thermal class<sup>\*)</sup>
- Motor protection class<sup>\*)</sup>
- <sup>\*)</sup> [www.seweurodrive.com](http://www.seweurodrive.com)

### Gear motors for mains frequency f = 50 Hz

| $v_N$<br>(m/min) | $lst\ v_N$<br>(m/min) | Motor type        | Ratio  | Drive speed<br>gear motor | N<br>(kW) | $M_{max}$<br>(Nm)     |
|------------------|-----------------------|-------------------|--------|---------------------------|-----------|-----------------------|
| 5                | 4.9                   | SA47 DR63L4/TH    | 110.73 | 12.0                      | 0.25      | 90                    |
| 5 <sup>1)</sup>  | 6.2                   | SA47 DR63L4/TH    | 201.00 | 6.5                       | 0.25      | 90 / 60 <sup>3)</sup> |
| 5 <sup>2)</sup>  | 6.7                   | SA47 DR63L4/TH    | 201.00 | 6.5                       | 0.25      | 90 / 60 <sup>3)</sup> |
| 7                | 6.2                   | SA47 DR63L4/TH    | 84.00  | 15.0                      | 0.25      | 90                    |
| 10               | 9.9                   | SA47 DRS71S4/TH   | 54.59  | 25.0                      | 0.37      | 90                    |
| 10 <sup>1)</sup> | 10.5                  | SA47 DRS71S4/TH   | 128.10 | 11.0                      | 0.37      | 90 / 60 <sup>3)</sup> |
| 10 <sup>2)</sup> | 10.4                  | SA47 DRS71M4/TH   | 137.05 | 10.0                      | 0.37      | 90 / 60 <sup>3)</sup> |
| 13               | 12.8                  | SA47 DRS71M4/TH   | 44.22  | 31.0                      | 0.37      | 90                    |
| 13 <sup>1)</sup> | 14.4                  | SA47 DRS71M4/TH   | 94.08  | 15.0                      | 0.37      | 90 / 60 <sup>3)</sup> |
| 13 <sup>2)</sup> | 12.5                  | SA47 DRS71S4/TH   | 110.73 | 12.0                      | 0.37      | 90 / 60 <sup>3)</sup> |
| 16               | 14.9                  | SA47 DRS71S4/TH   | 38.23  | 36.0                      | 0.37      | 78                    |
| 21               | 19.9                  | SA47 DRS71S4/TH   | 29.00  | 48.0                      | 0.37      | 60                    |
| 21 <sup>1)</sup> | 21.1                  | SA47 DRS71S4/TH   | 63.80  | 31.0                      | 0.37      | 60                    |
| 21 <sup>2)</sup> | 20.7                  | SA47 DRS71S4/TH   | 69.39  | 20.0                      | 0.37      | 60                    |
| 27               | 24.4                  | SA47 DRS71S4/TH   | 23.20  | 59.0                      | 0.37      | 49                    |
| 33               | 32.3                  | SA47 DRS71S4/TH   | 17.62  | 78.0                      | 0.37      | 40                    |
| 40               | 39.7                  | SA47 DRS71M4/TH   | 14.24  | 97.0                      | 0.55      | 48                    |
| 50               | 46.4                  | SA47 DRS71M4/TH   | 12.10  | 114.0                     | 0.55      | 41                    |
| 4 ... 26         | 2.22 ... 22.0         | SA47 DRS71S4 MM05 | 54.59  | 5.3 ... 53.0              | 0.55      | 69 ... 81             |
| 16 ... 60        | 6.7 ... 68.3          | SA47 DRS71M4 MM07 | 17.62  | 16 ... 165.0              | 0.75      | 36 ... 39             |

For basic unit curve wheel drive:

<sup>1)</sup> VFplus 65 (z = 28 / ø306 mm)

<sup>2)</sup> VFplus 90 (z = 30 / ø331 mm)

<sup>3)</sup> at KPG = 1 limited to 60 Nm

**Gear motors for mains frequency f = 60 Hz**

| $v_N$<br>(m/min) | 1st $v_N$<br>(m/min) | Motor type        | Ratio  | Drive speed gear motor | N<br>(kW) | $M_{max}$<br>(Nm)     |
|------------------|----------------------|-------------------|--------|------------------------|-----------|-----------------------|
| 5                | 4.9                  | SA47 DR63L4/TH    | 128.10 | 12.0                   | 0.25      | 90                    |
| 5 <sup>1)</sup>  | 7.4                  | SA47 DR63L4/TH    | 201.00 | 7.8                    | 0.25      | 90 / 60 <sup>3)</sup> |
| 5 <sup>2)</sup>  | 8.1                  | SA47 DR63L4/TH    | 201.00 | 7.8                    | 0.25      | 90 / 60 <sup>3)</sup> |
| 7                | 7.0                  | SA47 DR63L4/TH    | 94.08  | 16.8                   | 0.25      | 90                    |
| 10               | 9.9                  | SA47 DRS71S4/TH   | 63.80  | 24.0                   | 0.25      | 90                    |
| 10 <sup>1)</sup> | 9.4                  | SA47 DRS71S4/TH   | 158.12 | 9.8                    | 0.25      | 90 / 60 <sup>3)</sup> |
| 10 <sup>2)</sup> | 10.2                 | SA47 DRS71M4/TH   | 158.12 | 9.8                    | 0.25      | 90 / 60 <sup>3)</sup> |
| 13               | 12.4                 | SA47 DRS71M4/TH   | 54.59  | 30.0                   | 0.37      | 90                    |
| 13 <sup>1)</sup> | 13.8                 | SA47 DRS71M4/TH   | 110.73 | 14.4                   | 0.37      | 90 / 60 <sup>3)</sup> |
| 13 <sup>2)</sup> | 13.7                 | SA47 DRS71S4/TH   | 128.10 | 13.2                   | 0.37      | 90 / 60 <sup>3)</sup> |
| 16               | 15.4                 | SA47 DRS71S4/TH   | 44.22  | 37.2                   | 0.37      | 90                    |
| 21               | 20.9                 | SA47 DRS71S4/TH   | 32.48  | 50.4                   | 0.37      | 67                    |
| 21 <sup>1)</sup> | 21.9                 | SA47 DRS71S4/TH   | 71.75  | 22.8                   | 0.37      | 67 / 60 <sup>3)</sup> |
| 21 <sup>2)</sup> | 23.7                 | SA47 DRS71S4/TH   | 71.75  | 22.8                   | 0.37      | 67 / 60 <sup>3)</sup> |
| 27               | 27.8                 | SA47 DRS71S4/TH   | 24.77  | 67.2                   | 0.37      | 52                    |
| 33               | 33.8                 | SA47 DRS71S4/TH   | 20.33  | 81.6                   | 0.37      | 46                    |
| 40               | 41.7                 | SA47 DRS71M4/TH   | 16.47  | 100.8                  | 0.37      | 37                    |
| 50               | 47.7                 | SA47 DRS71M4/TH   | 14.24  | 116.4                  | 0.55      | 48                    |
| 4 ... 26         | 2.22 ... 22.0        | SA47 DRS71S4 MM05 | 54.59  | 5.3 ... 53.0           | 0.55      | 69 ... 81             |
| 16 ... 60        | 6.7 ... 68.3         | SA47 DRS71M4 MM07 | 17.62  | 16 ... 165.0           | 0.75      | 36 ... 39             |

For basic unit curve wheel drive:

<sup>1)</sup> VFplus 65 (z = 28 / ø306 mm)<sup>2)</sup> VFplus 90 (z = 30 / ø331 mm)<sup>3)</sup> at KPG = 1 limited to 60 Nm

Head drive direct

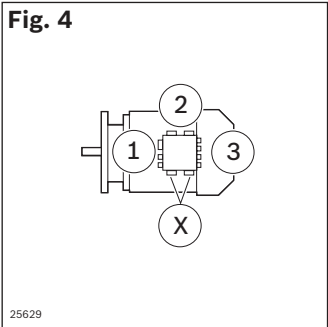
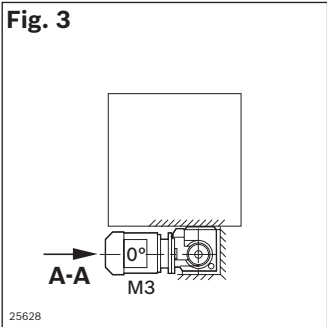
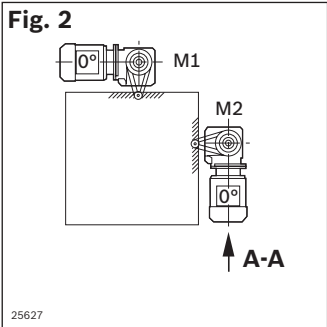
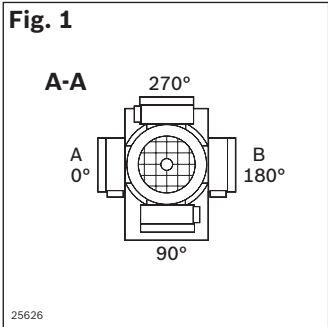
| Motor mounting | Installation position | Drive output | Terminal box |
|----------------|-----------------------|--------------|--------------|
| R              | M2 (M1)               | B            | 0°           |
| L              | M2 (M1)               | A            | 180°         |

Position of terminal box

Installation position  
horizontal top/vertical

Installation position  
horizontal  
(above top edge chain)

Cable entry point



# Combination matrix



|                  |                           | Straight                |                           |                    | Curves             |                    |                          |                    | Drives          |                   |                    | Return unit        |                    | Transmission kit |             |
|------------------|---------------------------|-------------------------|---------------------------|--------------------|--------------------|--------------------|--------------------------|--------------------|-----------------|-------------------|--------------------|--------------------|--------------------|------------------|-------------|
|                  |                           | Section profile AL open | Section profile AL closed | Assembly module    | Curve wheel        | Roller curve*      | Horizontal sliding curve | Vertical curve     | Head drive      | Curve wheel drive | Connection drive   | Center drive (STS) | Basic unit         |                  | 90° **(STS) |
| Straight         | Section profile AL open   | J                       |                           |                    |                    |                    |                          |                    |                 |                   |                    |                    |                    |                  |             |
|                  | Section profile AL closed | J                       | J                         |                    |                    |                    |                          |                    |                 |                   |                    |                    |                    |                  |             |
|                  | Assembly module           | J                       | J                         | N                  |                    |                    |                          |                    |                 |                   |                    |                    |                    |                  |             |
| Curves           | Curve wheel               | J                       | J                         | L <sup>2)</sup>    | L <sup>2)</sup>    |                    |                          |                    |                 |                   |                    |                    |                    |                  |             |
|                  | Roller curve*             | J                       | N                         | J                  | N                  | L <sup>1)</sup>    |                          |                    |                 |                   |                    |                    |                    |                  |             |
|                  | Horizontal sliding curve  | J                       | J                         | J                  | J                  | N                  | L <sup>1)</sup>          |                    |                 |                   |                    |                    |                    |                  |             |
|                  | Vertical curve            | J                       | J                         | J                  | J                  | L <sup>1)</sup>    | L <sup>1)</sup>          | L <sup>1)</sup>    |                 |                   |                    |                    |                    |                  |             |
| Drives           | Head drive                | J                       | J                         | L <sup>2)</sup>    | L <sup>2)</sup>    | L <sup>1, 4)</sup> | L <sup>1)</sup>          | L <sup>1, 4)</sup> | N               |                   |                    |                    |                    |                  |             |
|                  | Curve wheel drive         | J                       | J                         | L <sup>2)</sup>    | L <sup>2)</sup>    | N                  | L <sup>1)</sup>          | L <sup>1)</sup>    | N               | N                 |                    |                    |                    |                  |             |
|                  | Connection drive          | J                       | J                         | L <sup>2)</sup>    | L <sup>2)</sup>    | N                  | L <sup>1)</sup>          | L <sup>1)</sup>    | N               | N                 | N                  |                    |                    |                  |             |
|                  | Center drive (STS)**      | L <sup>5)</sup>         | L <sup>5)</sup>           | L <sup>2, 5)</sup> | L <sup>2, 5)</sup> | N                  | L <sup>1, 5)</sup>       | L <sup>1, 5)</sup> | N               | N                 | N                  | N                  |                    |                  |             |
| Return unit      | Basic unit                | J                       | J                         | L <sup>2)</sup>    | L <sup>2)</sup>    | L <sup>1, 4)</sup> | L <sup>1)</sup>          | L <sup>1, 4)</sup> | L <sup>2)</sup> | N                 | N                  | L <sup>2, 3)</sup> | L <sup>2, 3)</sup> |                  |             |
|                  | 90° (STS)**               | L <sup>5)</sup>         | L <sup>5)</sup>           | L <sup>2, 5)</sup> | L <sup>2, 5)</sup> | N                  | L <sup>1, 5)</sup>       | L <sup>1, 5)</sup> | N               | N                 | L <sup>2, 5)</sup> | N                  | N                  | L <sup>2)</sup>  |             |
| Transmission kit |                           | N                       | N                         | N                  | N                  | N                  | N                        | N                  | J               | N                 | J                  | N                  | J                  | N                | N           |

J possible without restrictions

L possible with restrictions

N not possible

\* Support profile must project 76+2 mm into the roller curve.

\*\* AL-STS adapter included in scope of delivery.

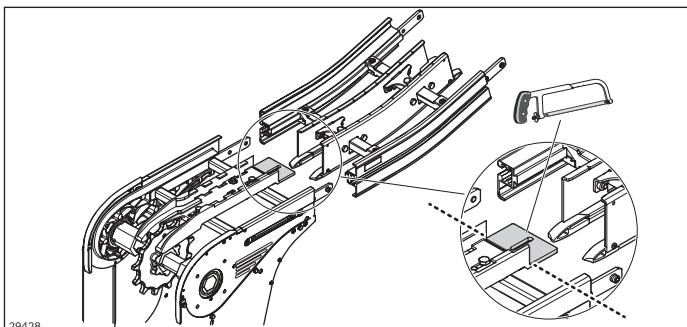
<sup>1)</sup> Profile connector not required

<sup>2)</sup> Use of a profile piece ( $L_{min} = 120$  mm)

<sup>3)</sup> Assembly module required

<sup>4)</sup> For sizes 160-320: Shorten the support rail on the dotted line (see figure below)

<sup>5)</sup> Use of the AL-STS adapter





|                    |                           | Straight                 |                           |                 | Curves             |                    |                    | Drives          |                  |                    | Return unit        |                 |
|--------------------|---------------------------|--------------------------|---------------------------|-----------------|--------------------|--------------------|--------------------|-----------------|------------------|--------------------|--------------------|-----------------|
|                    |                           | Section profile STS open | Section profile STS Clean | Assembly module | Curve wheel        | Roller curve*      | Vertical curve     | Head drive      | Connection drive | Center drive       | Basic unit         | 90° **          |
| <b>Straight</b>    | Section profile STS open  | J                        |                           |                 |                    |                    |                    |                 |                  |                    |                    |                 |
|                    | Section profile STS Clean | L <sup>6)</sup>          | L <sup>6)</sup>           |                 |                    |                    |                    |                 |                  |                    |                    |                 |
|                    | Assembly module           | J                        | L <sup>6)</sup>           | N               |                    |                    |                    |                 |                  |                    |                    |                 |
| <b>Curves</b>      | Curve wheel               | J                        | L <sup>6)</sup>           | J               | L <sup>2, 7)</sup> |                    |                    |                 |                  |                    |                    |                 |
|                    | Roller curve*             | J                        | N                         | J               | N                  | L <sup>1)</sup>    |                    |                 |                  |                    |                    |                 |
|                    | Vertical curve            | J                        | L <sup>6)</sup>           | J               | L <sup>1)</sup>    | L <sup>1)</sup>    | L <sup>1)</sup>    |                 |                  |                    |                    |                 |
| <b>Drives</b>      | Head drive                | J                        | L <sup>6)</sup>           | J               | L <sup>1)</sup>    | L <sup>1, 4)</sup> | L <sup>1, 4)</sup> | N               |                  |                    |                    |                 |
|                    | Connection drive          | J                        | L <sup>6)</sup>           | J               | L <sup>1)</sup>    | N                  | L <sup>1)</sup>    | N               | N                |                    |                    |                 |
|                    | Center drive**            | J                        | L <sup>6)</sup>           | J               | L <sup>1)</sup>    | N                  | L <sup>1)</sup>    | N               | N                | N                  |                    |                 |
| <b>Return unit</b> | Basic unit                | J                        | L <sup>6)</sup>           | J               | L <sup>1)</sup>    | L <sup>1, 4)</sup> | L <sup>1, 4)</sup> | L <sup>1)</sup> | L <sup>1)</sup>  | L <sup>1, 3)</sup> | L <sup>1, 3)</sup> |                 |
|                    | 90° **                    | J                        | L <sup>6)</sup>           | J               | L <sup>1)</sup>    | N                  | L <sup>1)</sup>    | L <sup>1)</sup> | L <sup>1)</sup>  | N                  | N                  | L <sup>1)</sup> |

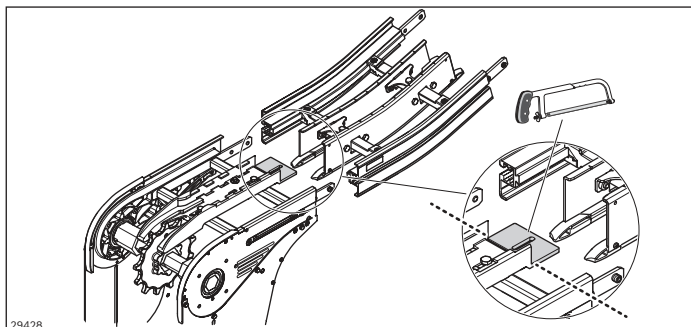
J possible without restrictions

L possible with restrictions

N not possible

\* Support profile must project 76+2 mm into the roller curve.

\*\* AL-STs adapter included in scope of delivery.

<sup>1)</sup> Profile connector not required<sup>2)</sup> Use of a profile piece (L<sub>min</sub> = 224 mm)<sup>3)</sup> Assembly module required<sup>4)</sup> For sizes 160-320: Shorten the support rail on the dotted line (see figure below)<sup>5)</sup> Use of the adapter AL-STs<sup>6)</sup> Replacement of the standard profile connector with profile connector STS Clean Section<sup>7)</sup> Directly possible with left-right change (one profile connector no longer required)

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|                    |                           | Straight                |                           |                    | Curves             |                      | Drives           |                        |                    | Return unit        |                 |
|--------------------|---------------------------|-------------------------|---------------------------|--------------------|--------------------|----------------------|------------------|------------------------|--------------------|--------------------|-----------------|
|                    |                           | Section profile AL open | Section profile AL closed | Assembly module    | Curve wheel ESD    | Vertical curve (STS) | Head drive (STS) | Connection drive (STS) | Center drive (STS) | Basic unit (STS)   | 90° ** (STS)    |
| <b>Straight</b>    | Section profile AL open   | J                       |                           |                    |                    |                      |                  |                        |                    |                    |                 |
|                    | Section profile AL closed | J                       | J                         |                    |                    |                      |                  |                        |                    |                    |                 |
|                    | Assembly module           | J                       | J                         | N                  |                    |                      |                  |                        |                    |                    |                 |
| <b>Curves</b>      | Curve wheel ESD           | J                       | J                         | L <sup>2)</sup>    | L <sup>2)</sup>    |                      |                  |                        |                    |                    |                 |
|                    | Vertical curve            | J                       | J                         | L <sup>2)</sup>    | L <sup>2)</sup>    | L <sup>1)</sup>      |                  |                        |                    |                    |                 |
| <b>Drives</b>      | Head drive (STS)          | L <sup>5)</sup>         | L <sup>5)</sup>           | L <sup>2, 5)</sup> | L <sup>2, 5)</sup> | L <sup>1, 5)</sup>   | N                |                        |                    |                    |                 |
|                    | Connection drive (STS)    | L <sup>5)</sup>         | L <sup>5)</sup>           | L <sup>2, 5)</sup> | L <sup>2, 5)</sup> | L <sup>1, 5)</sup>   | N                | N                      |                    |                    |                 |
|                    | Center drive (STS)**      | L <sup>5)</sup>         | L <sup>5)</sup>           | L <sup>2, 5)</sup> | L <sup>2, 5)</sup> | L <sup>1, 5)</sup>   | N                | N                      | N                  |                    |                 |
| <b>Return unit</b> | Basic unit (STS)          | L <sup>5)</sup>         | L <sup>5)</sup>           | L <sup>2, 5)</sup> | L <sup>2, 5)</sup> | L <sup>1, 5)</sup>   | L <sup>2)</sup>  | N                      | L <sup>2)</sup>    | L <sup>2, 3)</sup> |                 |
|                    | 90° (STS)**               | L <sup>5)</sup>         | L <sup>5)</sup>           | L <sup>2, 5)</sup> | L <sup>2, 5)</sup> | L <sup>1, 5)</sup>   | L <sup>2)</sup>  | L <sup>2)</sup>        | N                  | N                  | L <sup>2)</sup> |

|   |                               |
|---|-------------------------------|
| J | possible without restrictions |
| L | possible with restrictions    |
| N | not possible                  |

\* Support profile must project 76+2 mm into the roller curve.

\*\* AL-ST adapter included in scope of delivery.

<sup>1)</sup> Profile connector not required

<sup>2)</sup> Use of a profile piece (L<sub>min</sub> = 224 mm)

<sup>3)</sup> Assembly module required

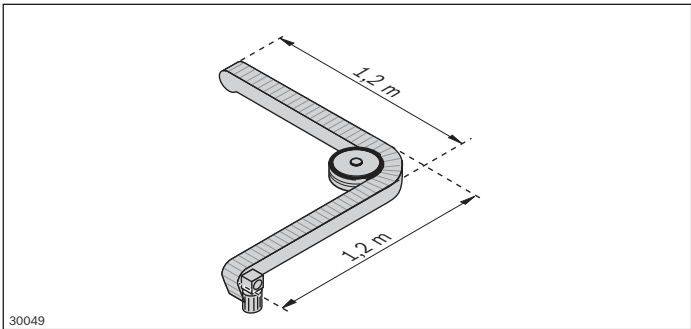
<sup>4)</sup> For sizes 160-320: Shorten the support rail on the dotted line

<sup>5)</sup> Use of the adapter AL-ST

<sup>6)</sup> Replacement of the standard profile connector with profile connector STS Clean Section

<sup>7)</sup> Directly possible with left-right change (one profile connector no longer required)

Use in clean rooms



Values for Premium and Advanced sliding rails

| Speed<br>v (m/min) | ISO class |
|--------------------|-----------|
| 6                  | 6         |
| 20                 | 7         |
| 50                 | 7         |

The conveyor system VarioFlow *plus* 90 has been tested for clean room suitability according to the procedures described in the EN ISO 14644-1 standard for clean room and cleanliness suitability testing. The subsequent measurement results for a conveyor system VarioFlow *plus* 90 (AL) were obtained: The results are based on an application in an L-configuration using a 90° curve wheel and flat conveyor chain, without load!

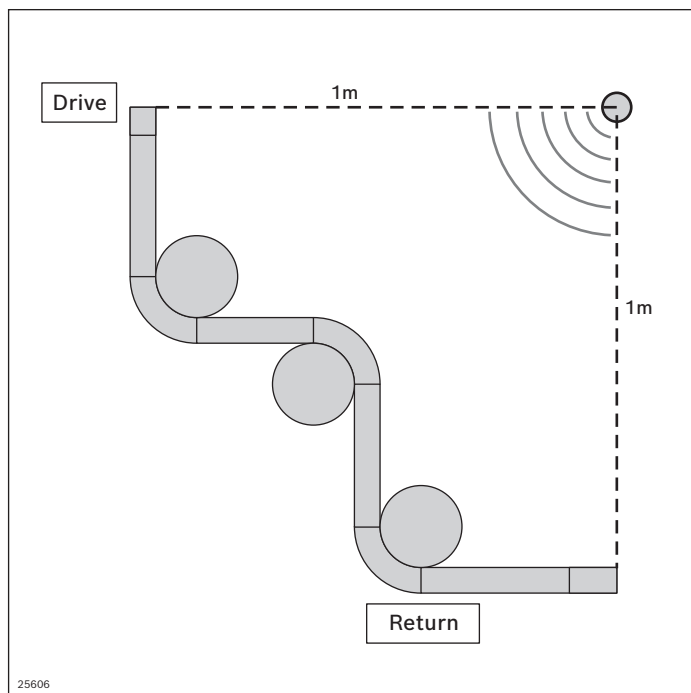
- Before commissioning a chain conveyor system in a clean room, the following must be observed:
- Install the sliding rails according to the assembly instructions (avoid joints, round off all edges and intersections on the sliding rails)
  - Check the chain inlets and outlets, if necessary round off edges
  - Check the intersections, if necessary round off edges
  - Run in for approx. 100 hours to adapt the sliding rail and chain (abrasion and unevenness of plastics)
  - Clean the system and the chain
  - Transfer of the system via airlock into the clean room
  - Repeatedly clean the system and the chain with isopropanol

Due to the identical system configurations of sizes 65 and 120, the result can also be transferred to these sizes. Sliding curves are not suitable for use in clean rooms due to the increased friction and associated wear.





## Conveyor noise level

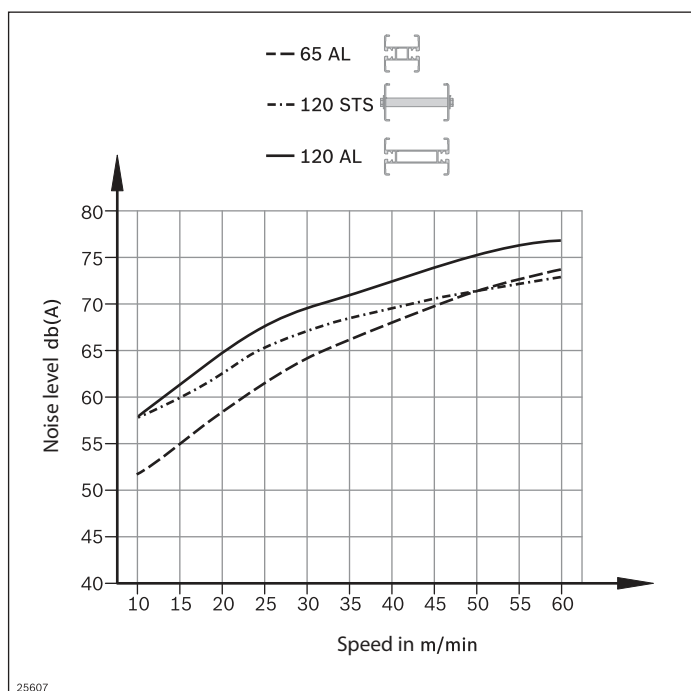


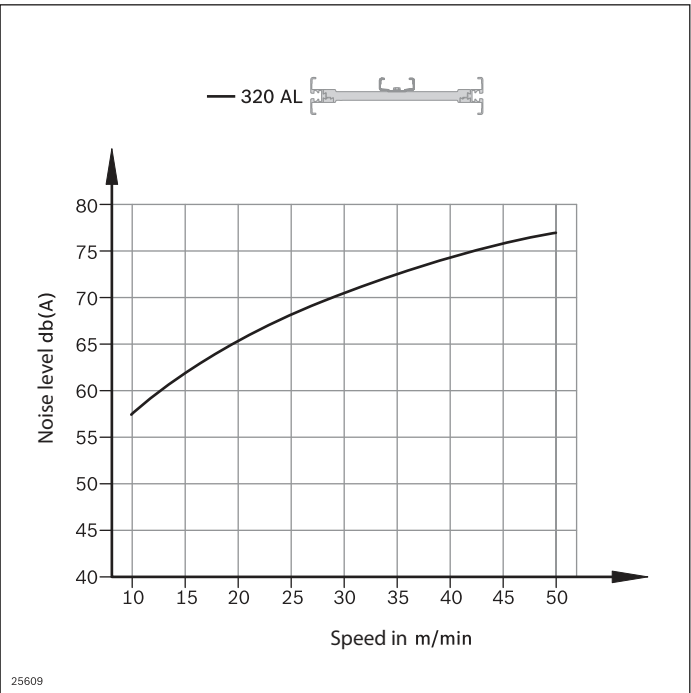
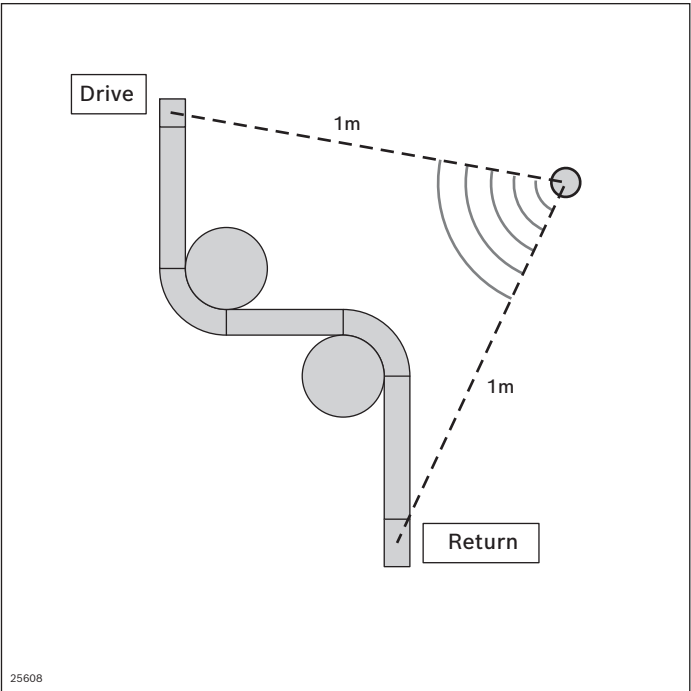
The noise generated by the conveyor chain will decrease after a few days of operation. Generally, a higher speed will result in a higher noise level. The actual noise level depends on several factors:

- The product on the conveyor medium
- The chain type
- The drive type
- The installation location and fastening of the system (floor, ceiling, wall)
- The ambient conditions (vibrating objects, hard reflective walls, integrated systems of other makes, hall structures)
- The quality of system assembly and layout in accordance with the assembly instructions (sliding rail transitions, joints)
- The surrounding equipment
- Conveyor layout and dimensions

Typical noise levels are shown in the graphic. The noise level was measured at the transport height with a distance of 1 m from the conveyor.

The measurement was taken in an industrial hall (ambient noise from approx. 50 dB (A) to 63 dB (A)) with chain speeds up to 60 m/min and medium length chain bag.





## Resistance of the chain against chemicals

| Chemical          | Material |
|-------------------|----------|
| Acids:            | POM      |
| Benzoic acid      | 0        |
| Hydrogen cyanide  | –        |
| Boric acid        | 0        |
| Chromic acid      | –        |
| Acetic acid       | 0        |
| Hydrofluoric acid | –        |
| Tannic acid       | 0        |
| Oleic acid        | 0        |
| Oxalic acid       | –        |
| Perchloric acid   | –        |
| Phosphoric acid   | –        |
| Phthalic acid     | –        |
| Nitric acid       | –        |
| Hydrochloric acid | –        |
| Sulfuric acid     | –        |
| Tartaric acid     | 0        |
| Citric acid       | 0        |

++ = high resistance

+ = limited resistance

0, – = unsuitable material combination

·/· = no available data

The materials used are resistant to most chemicals used in industrial applications, even in case of longer contact.

For some of the chemicals, the reaction also depends on the concentration and the state of aggregation.

Contact with the following substances should be avoided:

- Acids with a pH level  $\leq 4$
- Bases with a pH value  $\geq 9$
- Chlorinated hydrocarbons (e.g. trichloroethylene/Tri).

For accurate information on resistance, contact the chemical manufacturer; only they can give an official answer to your question. The materials used in the individual components can be found on pages 322 and 323.

| Chemical                       | Material   |
|--------------------------------|------------|
| <b>Alkaline substances:</b>    | <b>POM</b> |
| Ammonia (dissolved)            | ++         |
| Lime hydrate                   | ++         |
| Sodium hydroxide               | ++         |
| Caustic potash                 | ++         |
| <b>Salts:</b>                  |            |
| Basic salts                    | ++         |
| Potassium bicarbonate          | +          |
| Potassium permanganate         | +          |
| Sodium cyanide                 | +          |
| Sodium hypochloride            | 0          |
| Neutral salts                  | ++         |
| Acidic salts                   | +          |
| <b>Solvents/organic media:</b> |            |
| Acetone                        | +          |
| <b>Solvents/organic media:</b> |            |
| Aniline                        | +          |
| Gasoline                       | +          |
| Benzene                        | ++         |
| Butanol                        | +          |
| Chlorobenzene                  | ++         |
| Chloroform                     | ++         |
| Acetic ether                   | ++         |
| Ethyl alcohol                  | ++         |
| Ethyl ether                    | ++         |
| Formalin                       | +          |
| Heptane                        | +          |
| Methyl alcohol                 | ++         |
| Methyl ethyl ketone            | ++         |
| Nitrobenzene                   | +          |

| Chemical                       | Material |
|--------------------------------|----------|
| <b>Solvents/organic media:</b> |          |
| Phenol                         | 0        |
| Carbon disulfide               | ++       |
| Turpentine substitute          | ·/·      |
| Carbon tetrachloride           | ++       |
| Toluene                        | ++       |
| <b>Gases:</b>                  |          |
| Chlorine (wet)                 | –        |
| Chlorine (dry)                 | +        |
| Carbon dioxide                 | 0        |
| Carbon monoxide                | +        |
| Sulfur dioxide (wet)           | –        |
| Sulfur dioxide (dry)           | +        |
| Hydrogen sulfide               | 0        |

# Material use

## Chains

|                             | Steel, non-rusting | POM | PA | TPE |
|-----------------------------|--------------------|-----|----|-----|
| Flat conveyor chain         | x                  | x   | x  |     |
| Static friction chain       | x                  | x   | x  | x   |
| Accumulation roller chain   | x                  | x   | x  |     |
| Roller cleated chain ø20    | x                  | x   | x  |     |
| Roller cleated chain ø35    | x                  | x   | x  |     |
| Cleated chain               | x                  | x   | x  |     |
| Universal chain             | x                  | x   | x  |     |
| Steel-plated conveyor chain | x                  | x   | x  |     |
| Flocked chain               | x                  | x   | x  |     |
| Clamping chain              | x                  | x   | x  | x   |
| Conveyor chain ESD          | x                  | x   | x  |     |

## Drives

|                                                                   | Aluminum | Diecast aluminum | Steel; galvanized | Steel, non-rusting | Steel | PA | POM | PP |
|-------------------------------------------------------------------|----------|------------------|-------------------|--------------------|-------|----|-----|----|
| Head/connection drive AL                                          | x        | x                | x                 | x                  |       | x  |     | x  |
| Head/connection/curve wheel drive AL<br>incl. ball catch coupling | x        | x                | x                 | x                  | x     | x  |     | x  |
| Head/connection/center drive STS                                  |          |                  |                   | x                  |       | x  |     | x  |
| Return unit AL                                                    | x        | x                | x                 | x                  |       | x  |     | x  |
| Return unit STS                                                   |          |                  |                   | x                  |       | x  |     | x  |
| 90° return unit                                                   |          |                  |                   | x                  |       | x  |     | x  |
| Connection kit passive bridges                                    |          |                  |                   | x                  |       |    | x   |    |

## Sections

|                                        | Anodized aluminum | Diecast aluminum | Steel, galvanized | Steel, non-rusting | Brass, nickel-plated | PA | PP | PE-UHMW | PE | HDPE |
|----------------------------------------|-------------------|------------------|-------------------|--------------------|----------------------|----|----|---------|----|------|
| Straight section AL                    | x                 | x                | x                 |                    |                      |    |    |         |    |      |
| Straight section STS                   |                   |                  |                   | x                  |                      |    |    |         |    |      |
| Vertical + horizontal sliding curve AL | x                 |                  | x                 |                    |                      |    |    |         |    |      |
| Vertical sliding curve STS             |                   |                  |                   | x                  |                      |    |    |         |    |      |
| Curve wheel AL                         | x                 | x                | x                 | x                  |                      | x  |    |         |    |      |
| Curve wheel STS                        |                   |                  |                   | x                  |                      | x  |    |         |    |      |
| Roller curve AL                        | x                 | x                | x                 | x                  |                      | x  |    | x       |    |      |
| Roller curve STS                       |                   |                  |                   | x                  |                      | x  |    | x       |    |      |
| Chain assembly module AL               | x                 |                  | x                 |                    |                      |    |    |         |    |      |
| Chain assembly module STS              |                   |                  |                   | x                  |                      |    |    |         |    |      |
| Leg sets AL                            | x                 | x                | x                 |                    |                      |    | x  |         |    |      |
| Leg sets STS                           |                   |                  | x                 | x                  | x                    | x  |    |         |    |      |
| Product guide                          | x                 |                  | x                 | x                  |                      | x  |    |         | x  | x    |
| Plastic sliding rail                   |                   |                  |                   |                    |                      |    |    | x       |    |      |
| Sliding rail STS                       |                   |                  |                   | x                  |                      |    |    |         |    |      |

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## Material number overview

|               |          |               |          |               |                     |               |     |
|---------------|----------|---------------|----------|---------------|---------------------|---------------|-----|
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**Bosch Rexroth AG**

Postfach 30 02 07  
70442 Stuttgart, Germany  
[www.boschrexroth.com](http://www.boschrexroth.com)

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