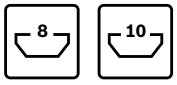
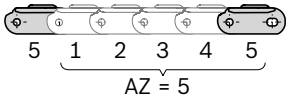
The Drive & Control Company

Rexroth
Bosch Group

Chain conveyor system VarioFlow *plus*

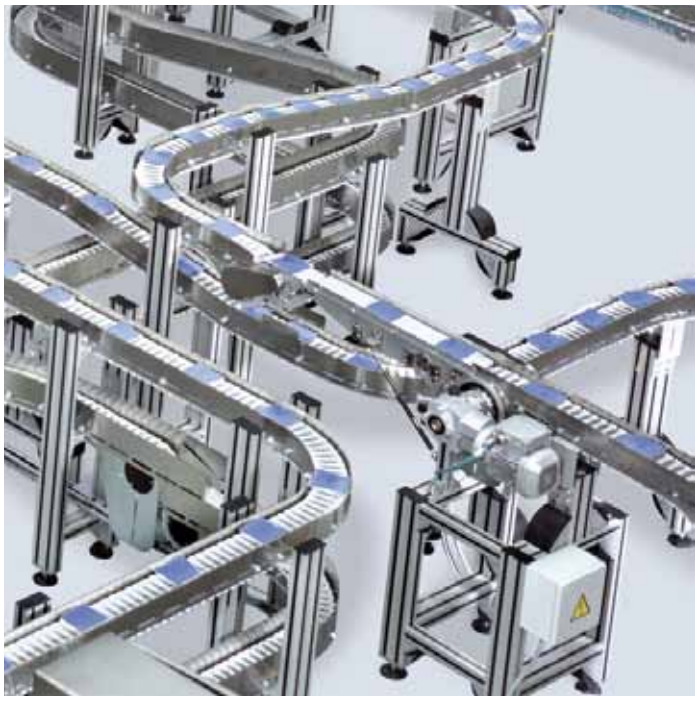
1.1

Symbols

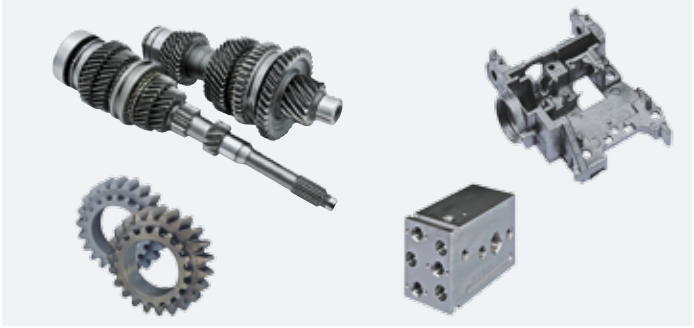
Illustration	Explanation
	Components for the aluminum system (AL)
	Components for the stainless steel system (STS)
Section profile VF*plus* AL open — **L** (mm): 12 pcs: 6070 — **No.**: **3 842 546 647** 1 pc: 50 ... 6000 — **3 842 996 026/L**	Delivery unit = delivery quantity (here: 12 pcs) Order: 1 x 3 842 546 647: Delivery: 12 x section profile VF*plus* AL open, L = 6070 mm 11 x 3 842 546 647: Delivery: 132 x section profile VF*plus* AL open, L = 6070 mm
Cross connector AL — **b** (mm): VF*plus* 65: 65 — : 10 — **No.**: **3 842 546 672**	Packing unit = minimum order quantity (here: 10 pcs) Order: 1 x 3 842 546 672: Delivery: 10 x 3 842 546 672 (rounded up) 15 x 3 842 546 672: Delivery: 20 x 3 842 546 672 (rounded up)
	1. Profile with slot width 8 mm, 10 mm 2. Accessories suitable for mounting to profiles with the specified slot width
	Conductive materials according to DIN EN 61340-5-1: suitable for use in ESD-sensitive areas
	Distance, in which the “special chain links” are inserted between the flat chain links. AZ = spacing distance Example: AZ = 5 = a special chain link follows four flat chain links
	The GoTo preferential program offers a targeted selection of products by means of a pan-European preferential service, taking into account product-dependent maximum order quantities see page 248f

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

Today, customer 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.



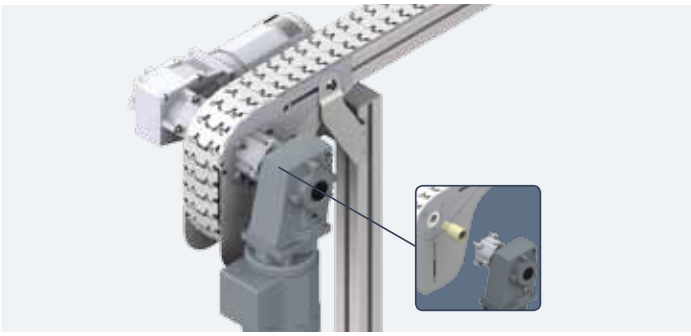
The modular Rexroth VarioFlow *plus* chain conveyor system consists of components that can be used universally for all system widths. This reduces the need for spare parts for the user.
The stable chain permits tensile forces of up to 1,250 N. The chain surface is nearly closed, allowing even the smallest of parts 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 workpiece pallets in the automotive and electronic industries.



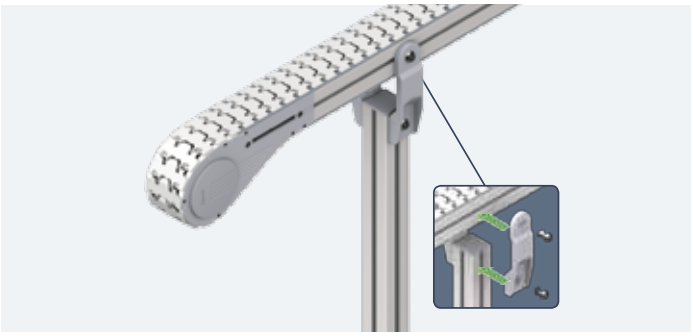
The advantages of VarioFlow *plus*

Flexible planning and rapid 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.



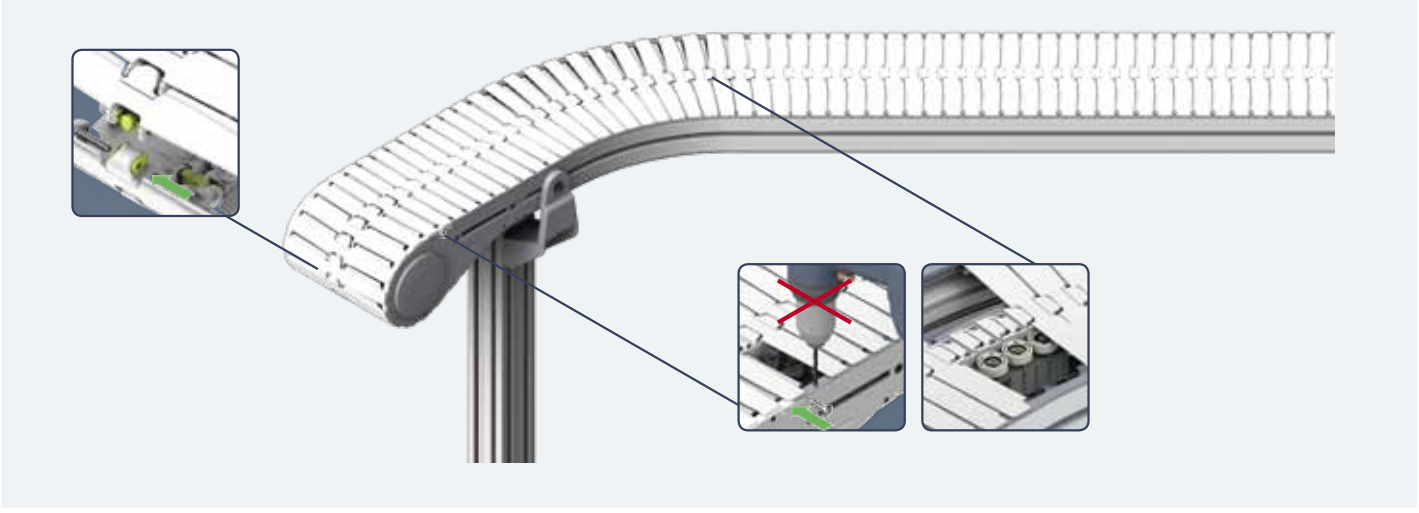
Smart connection technology saves time during assembly and allows for easy conversions and system extensions.



Optimal work conditions thanks to quiet operation and easy maintenance

The maintenance-friendly conveyor system VarioFlow *plus* creates ideal conditions at the workstation. Thanks to improved sliding properties and low friction materials, the working environment is relatively quiet (see page 230).

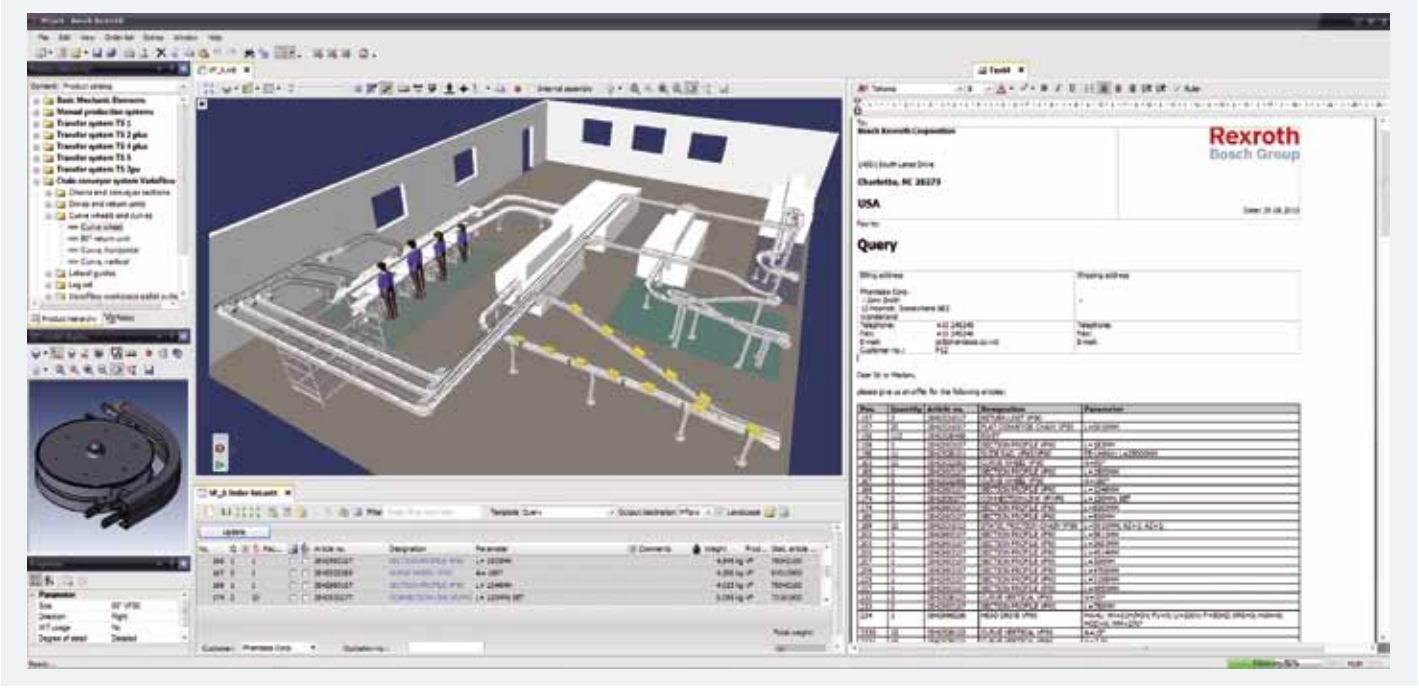
Fewer joints and the rolling friction in the horizontal curves ensure low wear and thus reduce downtimes.



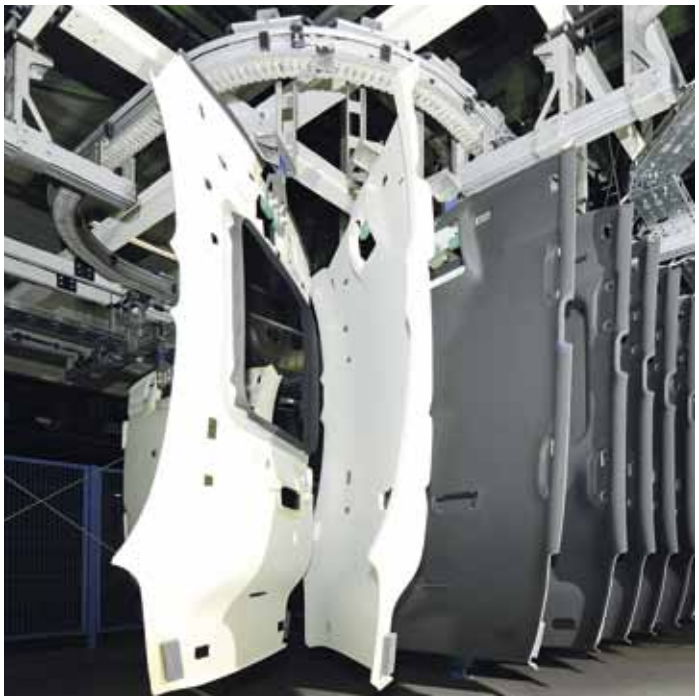
Simple and fast project planning with MT*pro*

MT*pro* 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 & drop and assembled quickly and easily using the snap function. Thanks to the automatic bill of material calculation and electronic order integration, you can keep costs under control and minimize your ordering effort.

Numerous interfaces enable the planning data to be subsequently used in the areas of Construction, Purchasing, and Service.
With MT*pro* 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.



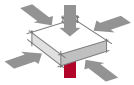
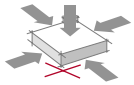
VarioFlow *plus* – for the economical, individual transport of parts




Auto-FLEX
1

Useful information for selecting and designing a chain conveyor system

Chain conveyor or transfer system

	TS1	**TS2 *plus***	**VarioFlow**	
	Linking assembly stations and assembly workstations		Horizontal and vertical product transport	
Typical applications				
Speed	4.5 – 21 m/min	4.5 – 21 m/min	4 – 60 m/min	4 – 18 m/min
Workpiece pallet size (from ... to)	80 x 80 mm ... 160 x 160 mm	160 x 160 mm ... 1040 x 1040 mm	Direct transport without workpiece pallet	65 x 76 mm ... 90 x 500 mm
Product weight	3 kg	100 kg	3 kg/34.5 mm	8 kg **with** function modules (deflector, positioning unit, etc.) 15 kg **without** function modules (deflector, positioning unit, etc.)
Accessibility				
Section path				
Positional accuracy	0.015 mm	0.015 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, water ↓ **Aluminum**	← Cleaning agents →	Wet cleaning/use of acid-containing or alkaline cleaning agents (pH value: 5 to 8) ↓ **Stainless steel**

Direct transport or workpiece pallet 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.

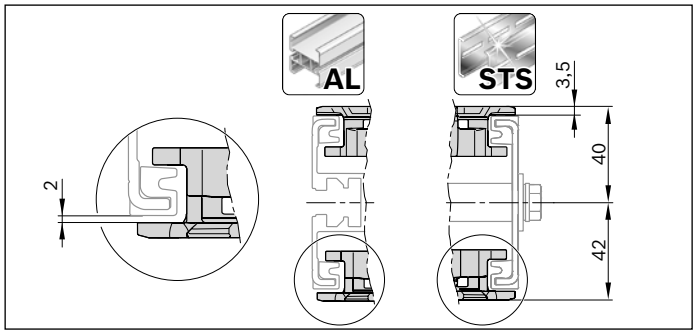
Workpiece pallets can be used when:
- The product has no static stability due to its geometry
- Transport can cause a change in position of the product
- The process requires it
- The product surface is very sensitive
- Accumulation is required and the product geometry does not allow for accumulation
- 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

With the BKB*soft* chain calculation program, which is integrated into the MT*pro* planning software, the maximum chain tensile force and required drive torque can be calculated quickly and efficiently.
If the approved chain tensile force or drive torque of the geared motor is exceeded, the layout of the conveyor section should be checked to see whether it can be adjusted. This can be done by dividing the conveyor section, reducing the speed, shortening accumulation sections, or using curve wheels or roller curves instead of sliding curves.

Ambient conditions

Abrasive ambient conditions:
When fitting the chain conveyor, pay special attention to the cleanliness of the slide 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 slide 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. Temperatures <0 °C require special gear motors with special lubrication, seals, and 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 204.

Media resistance:
The materials used are resistant to most chemicals used in industrial applications. See also section "Resistance of the chain against chemicals" on page 232.

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 slide rail after longer downtimes. You can remedy this by continual (empty) runs or by cleaning with a normal emulsion on completion.

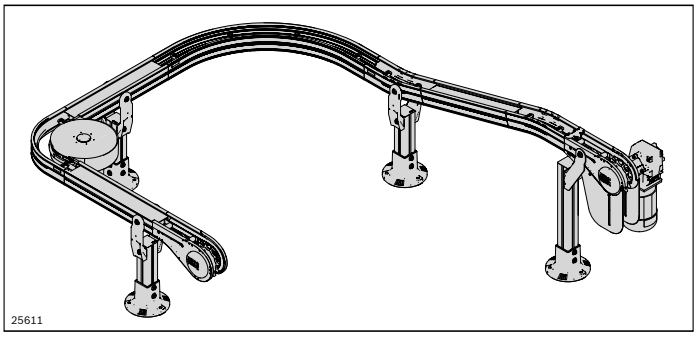
Humidity:
Operating the VarioFlow *plus* in dry rooms is not permitted; the relative air humidity must be at least 5%.

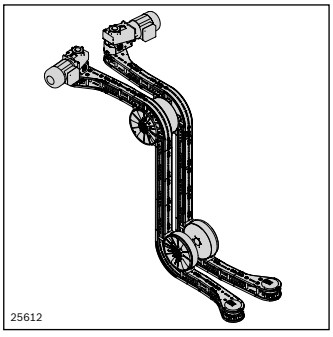
High-pressure cleaning:
High-pressure cleaning of the chain conveyor ball-bearing areas (e.g. in the drive, roller curves,etc.) is prohibited.

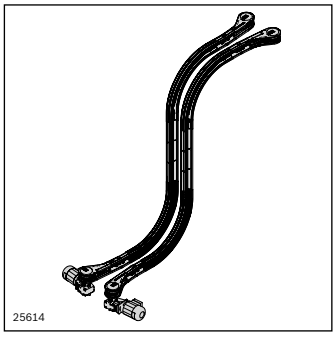
System overview

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

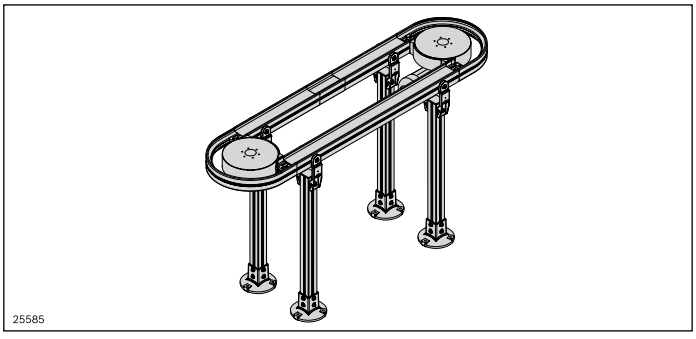
Aluminum material as a basic version and stainless steel material for applications with higher hygiene requirements, such as in the food industry.

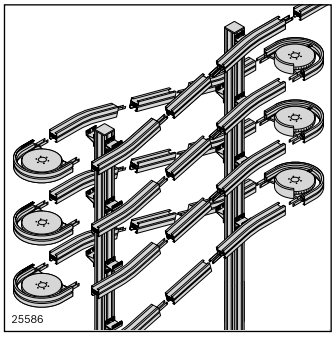


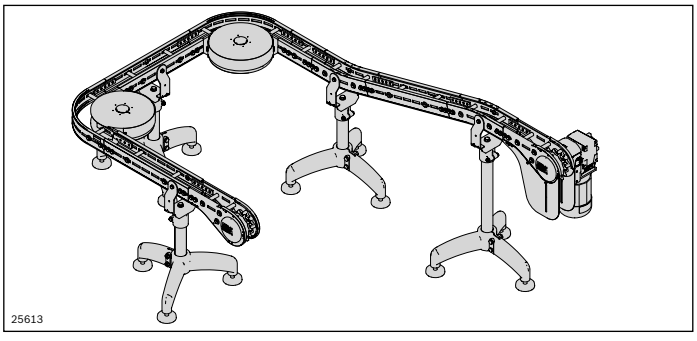


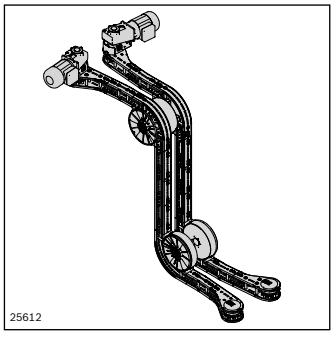


Curve wheel drive for use in circulation systems with top-running chain









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Preferential program

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Your advantages

- Reduced inventory and capital due to short and reliable delivery times
- Flexible response to customer and market requirements through high availability of many products
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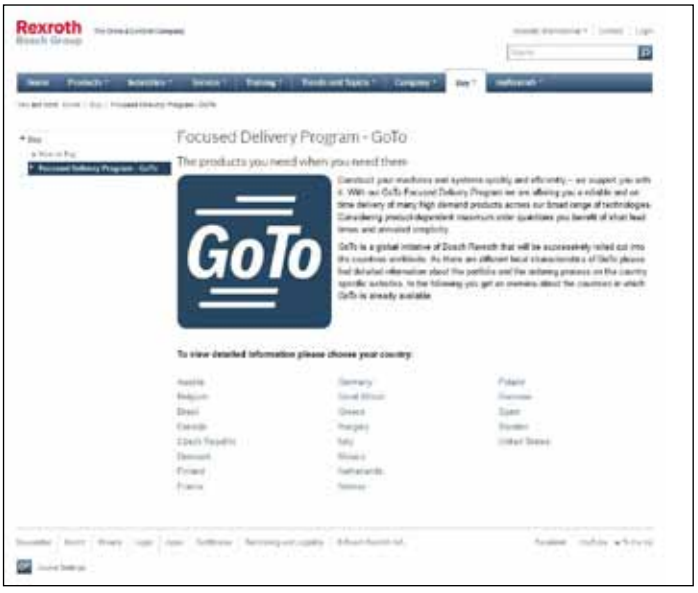
Print

You will find more specific delivery information on the GoTo program in this catalog on page 248.

Online

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



Catalog: R99900268
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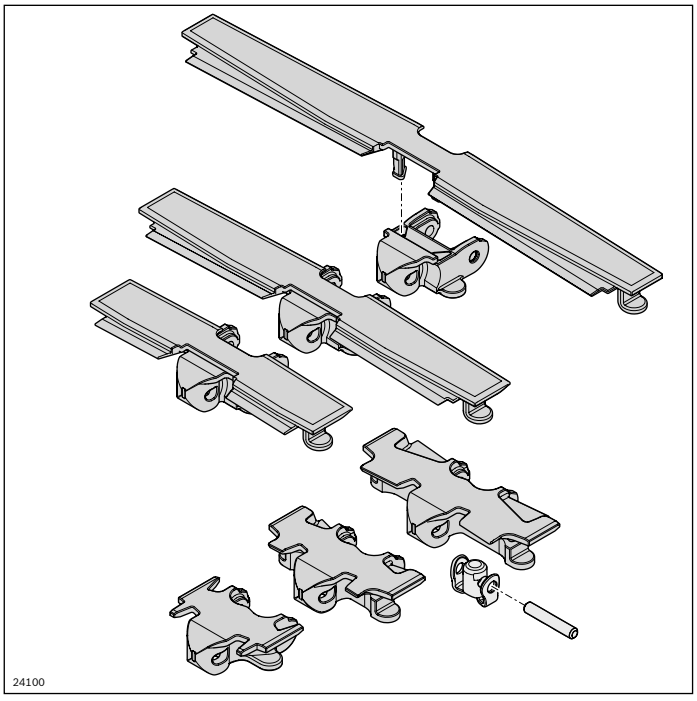
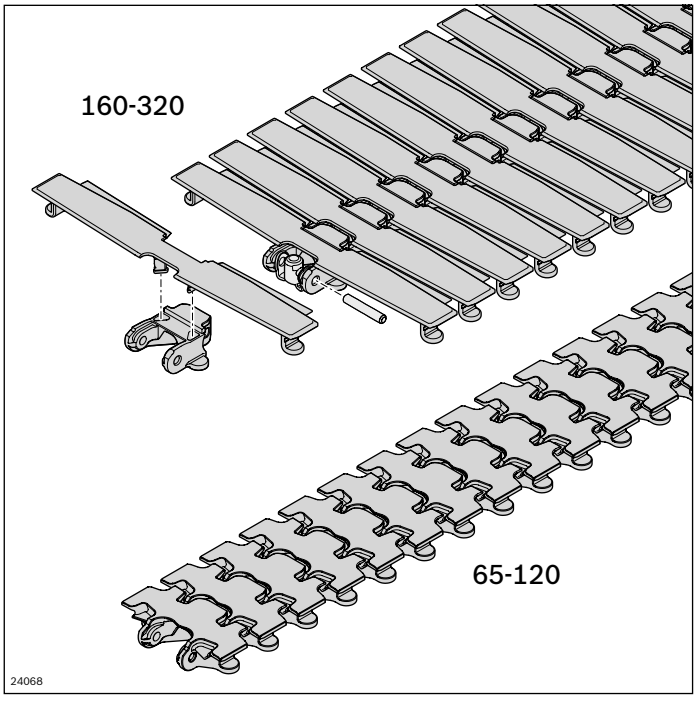
Conveyor chains



- Optimized sliding characteristics for the chains
- Chain links uncoupled by means of different materials (patented)
- FDA-compliant materials
- Low-vibration transport of small parts and accumulation operation possible thanks to covered chain links
- Easy-to-exchange chain plate from size 160
- Wide variety of chain types suitable for different applications

Quiet and smooth-running parts transport thanks to patented conveyor chains

Flat conveyor chain



The flat conveyor chain is used for direct transport of products or indirect transport via workpiece pallets.

- Transport on ascending or inclined sections up to 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
- Chain links can be combined with other types of chains of the same size

- Drilling the flat chain links allows for the simple attachment of customer-specific superstructures. Sizes 65-120 have a mold cavity for mounting a flat M5 hexagon nut. Sizes 160-320 have a centering aid mounted on the underside of the chain plate. Max. drilling up to Ø5 mm, since at this point there are no interfering contours in the chain conveyor, see page 236
- Extremely quiet chain running thanks to the patented chain design
- Materials meet the requirements of EU 10/2011 and FDA CFR 21

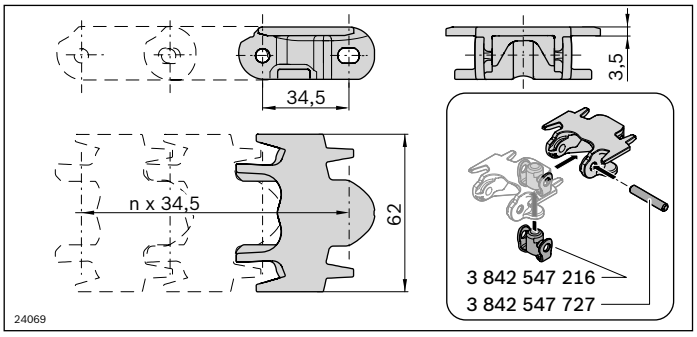
Required accessories for individual chain links:
Chain pin and jointed bolts, see p. 19
For base chain links 160-320, a chain plate is also required, see p. 20, 21

Optional accessories:
- Static friction chain link, see p. 22
- Accumulation roller chain link D11, see p 26
- Roller cleat chain link D20, see p. 30
- Cleated chain link, see p. 32
- Universal chain link, see p. 34

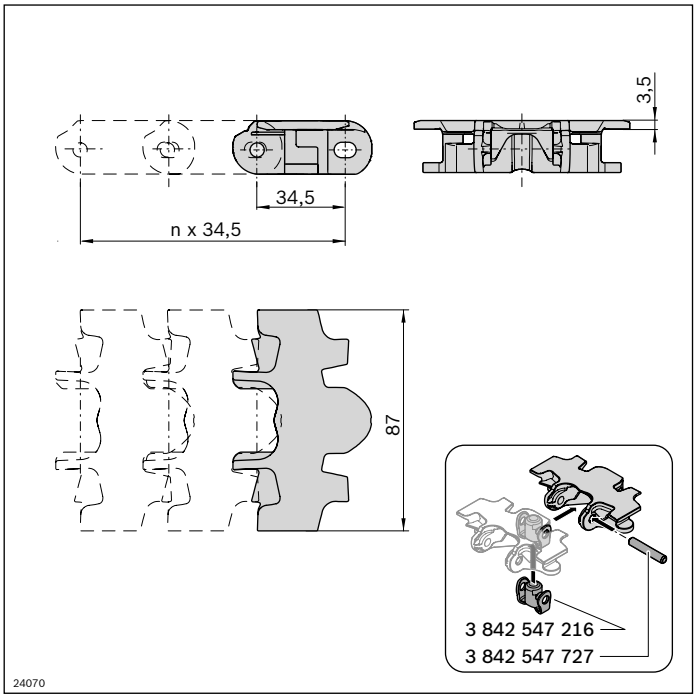
Scope of delivery:
Chain: Complete, incl. chain pin and jointed bolts

Condition on delivery:
Chain: Completely assembled

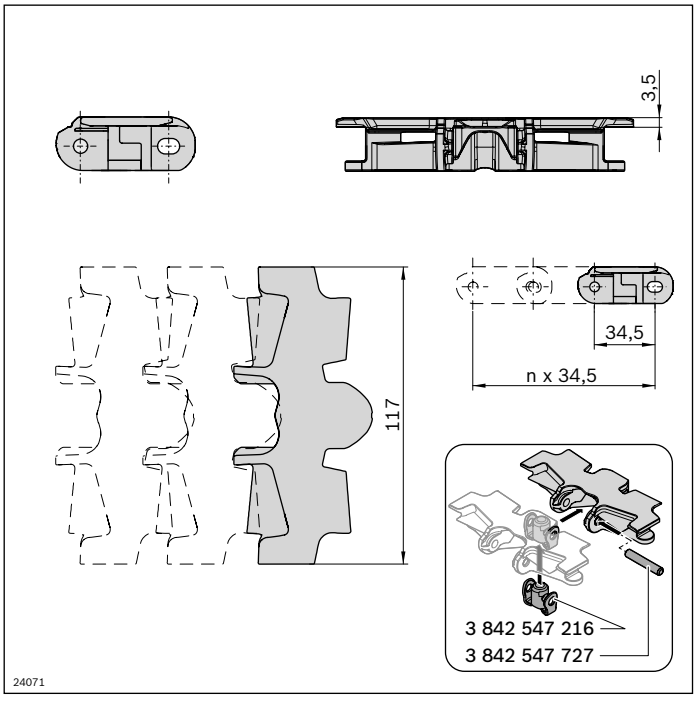
Material:
- Chain link: POM
- Chain plate: POM
- Chain pin: Stainless steel, 1.4301
- Jointed bolt PA66



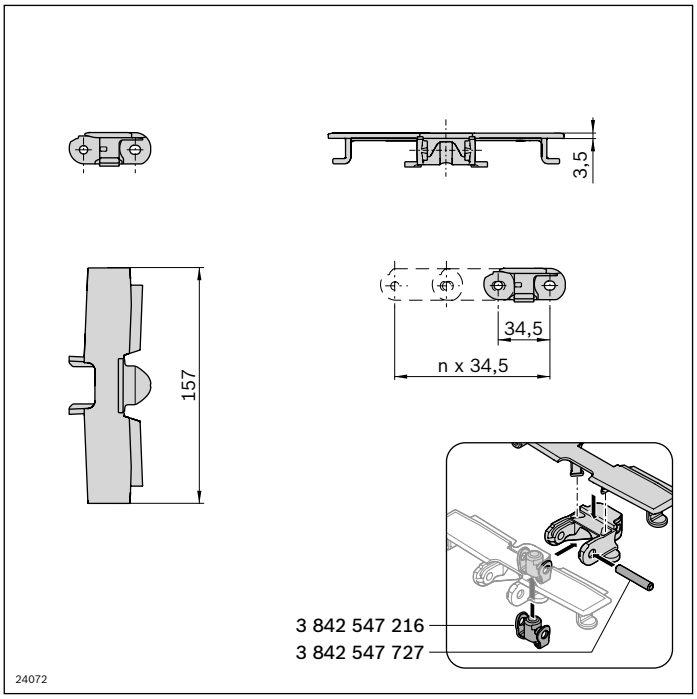
Flat conveyor chain VF*plus* 65	**L** (mm)		**No.**
Conveyor chain	4968	1	**3 842 546 069**
Chain link		10	**3 842 546 000**
Chain pin		100	**3 842 547 727**
Jointed bolt		100	**3 842 547 216**



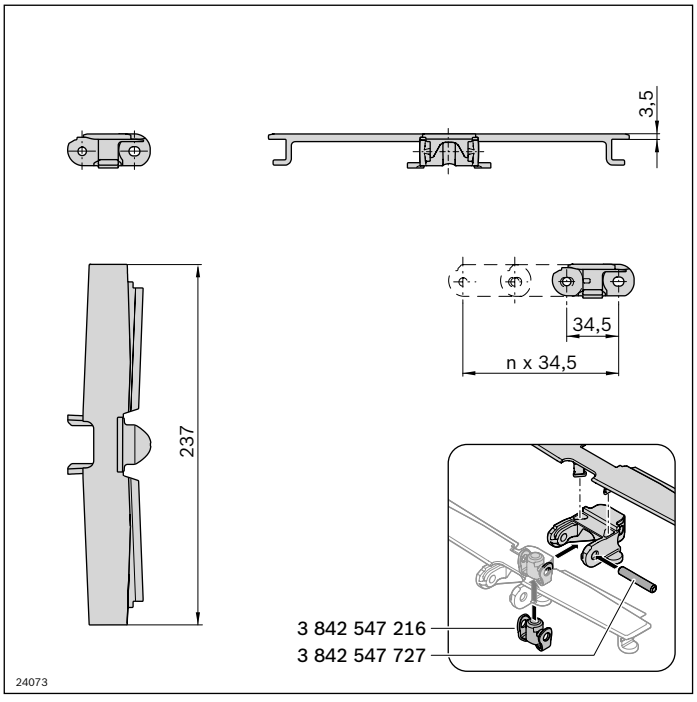
Flat conveyor chain VF*plus* 90	**L** (mm)		**No.**
Conveyor chain	4968	1	**3 842 546 070**
Chain link		10	**3 842 546 001**
Chain pin		100	**3 842 547 727**
Jointed bolt		100	**3 842 547 216**



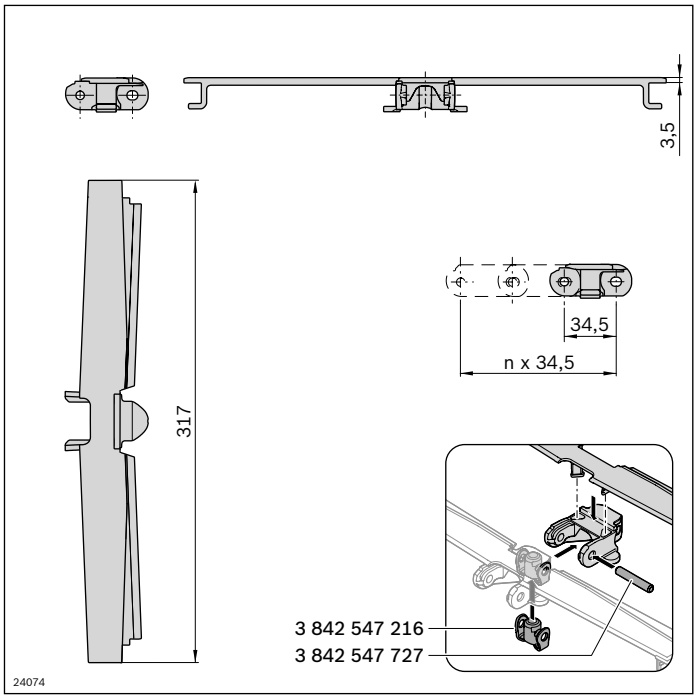
Flat conveyor chain VF*plus* 120	**L** (mm)		**No.**
Conveyor chain	4968	1	**3 842 546 071**
Chain link		10	**3 842 546 002**
Chain pin		100	**3 842 547 727**
Jointed bolt		100	**3 842 547 216**



Flat conveyor chain VF*plus* 160	**L** (mm)		**No.**
Conveyor chain	2898	1	**3 842 546 072**
Basic chain link 160-320		10	**3 842 546 028**
Chain plate 160		10	**3 842 546 093**
Chain pin		100	**3 842 547 727**
Jointed bolt		100	**3 842 547 216**

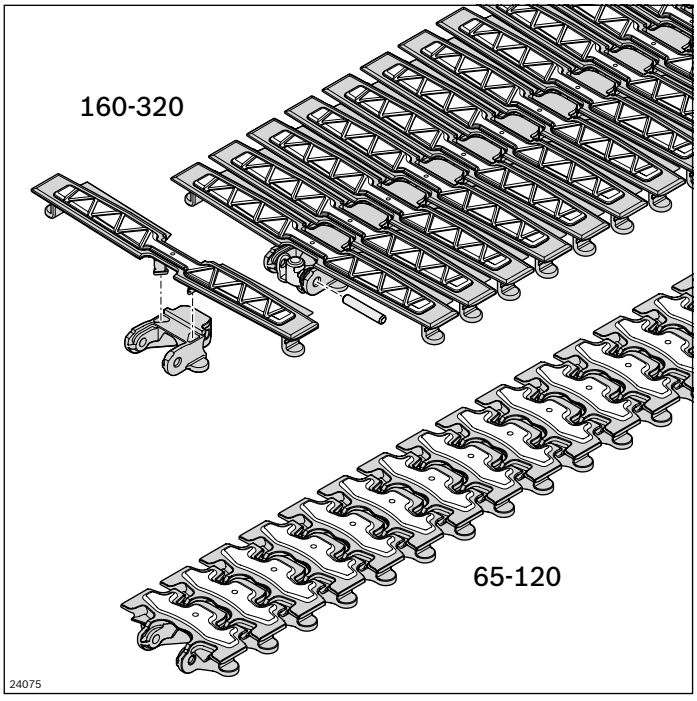


Flat conveyor chain VF*plus* 240	**L** (mm)		**No.**
Conveyor chain	2898	1	**3 842 546 073**
Basic chain link 160-320		10	**3 842 546 028**
Chain plate 240		10	**3 842 546 094**
Chain pin		100	**3 842 547 727**
Jointed bolt		100	**3 842 547 216**



Flat conveyor chain VF*plus* 320	**L** (mm)		**No.**
Conveyor chain	2898	1	**3 842 546 074**
Basic chain link 160-320		10	**3 842 546 028**
Chain plate 320		10	**3 842 546 095**
Chain pin		100	**3 842 547 727**
Jointed bolt		100	**3 842 547 216**

Static friction chain



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 and weight and the angle.

- Transport possible on ascending or descending sections up to approx. 30°. 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 ≥ 2: Static friction chain supplemented with flat chain links (AZ = spacing distance) AZ = 1: all links with static friction coating
- The grip is maintained with regular cleaning
- The chain coating is not suited to transporting sharp-edged objects

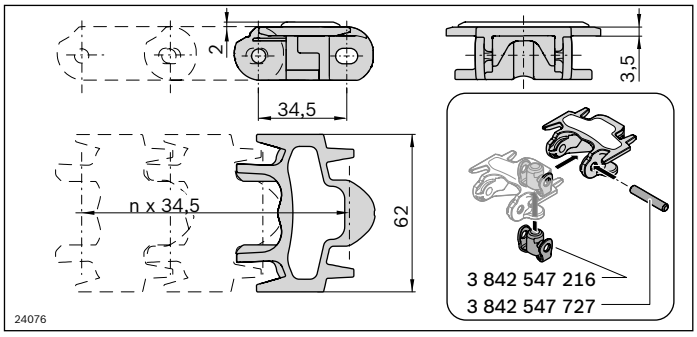
- ▶ Extremely quiet chain running thanks to the patented chain design
- ▶ Materials meet the requirements of EU 10/2011 and FDA CFR 21
- ▶ Large-area static friction lining for secure product transport

Required accessories for individual chain links:
Chain pin and jointed bolts, see p. 23
For basic chain links 160-320, a chain plate is also required, see p. 20

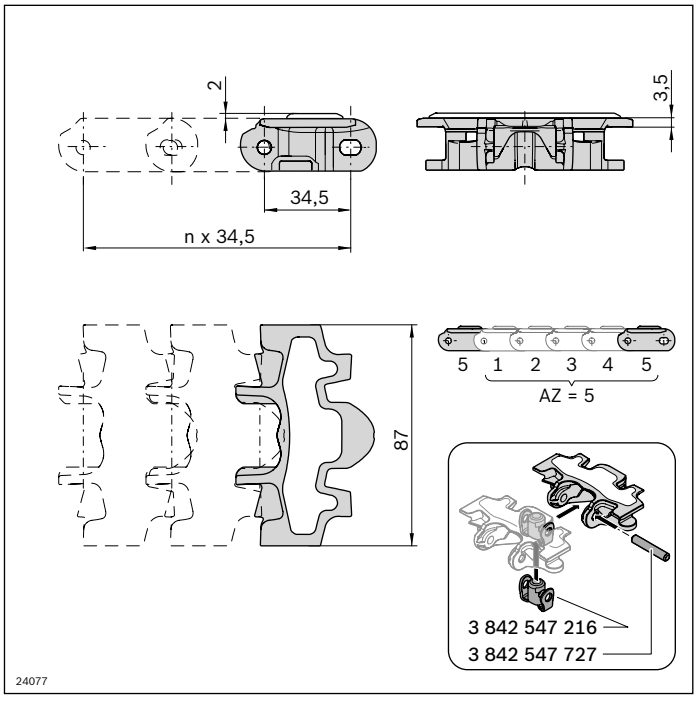
Scope of delivery:
Chain: Complete, incl. chain pin and jointed bolts

Condition on delivery:
Chain: Fully assembled

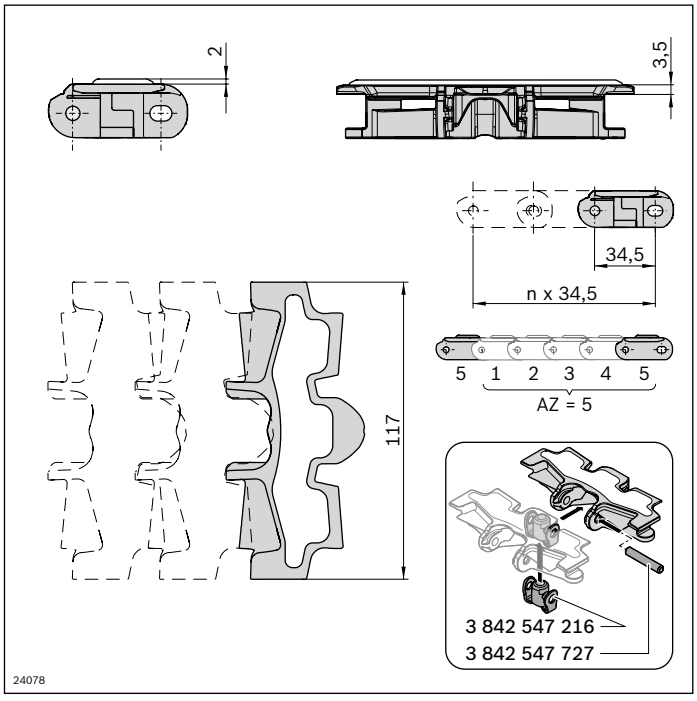
Material:
- Chain link: POM
- Static friction lining: TPE Shore 70A
- Chain pin: Stainless steel, 1.4301
- Jointed bolt PA66



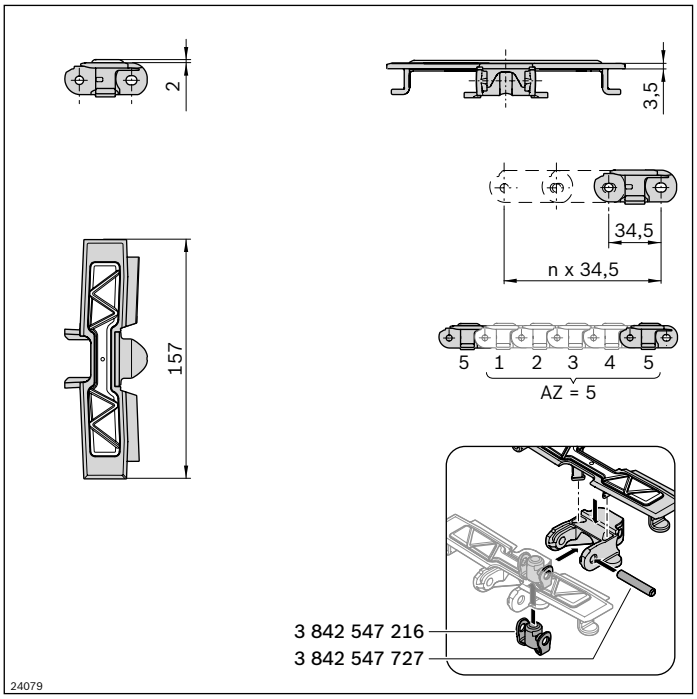
Static friction chain VF*plus* 65	**L** (mm)		**No.**
Conveyor chain; AZ = 1	4968	1	**3 842 546 077**
Conveyor chain; AZ = 2 ... 84	2898	1	**3 842 998 706/AZ**
Chain link		10	**3 842 546 006**
Chain pin		100	**3 842 547 727**
Jointed bolt		100	**3 842 547 216**



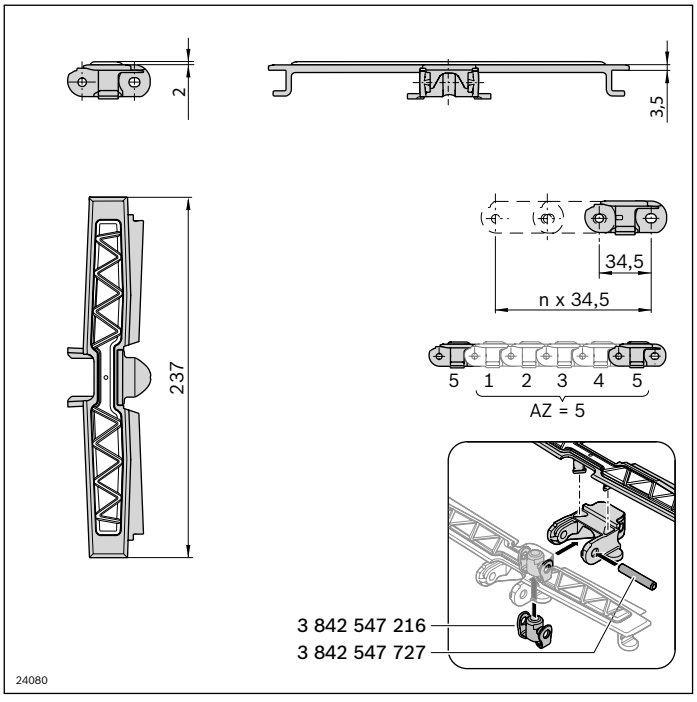
Static friction chain VF*plus* 90	**L** (mm)		**No.**
Conveyor chain; AZ = 1	4968	1	**3 842 546 078**
Conveyor chain; AZ = 2 ... 84	2898	1	**3 842 998 707/AZ**
Chain link		10	**3 842 546 007**
Chain pin		100	**3 842 547 727**
Jointed bolt		100	**3 842 547 216**



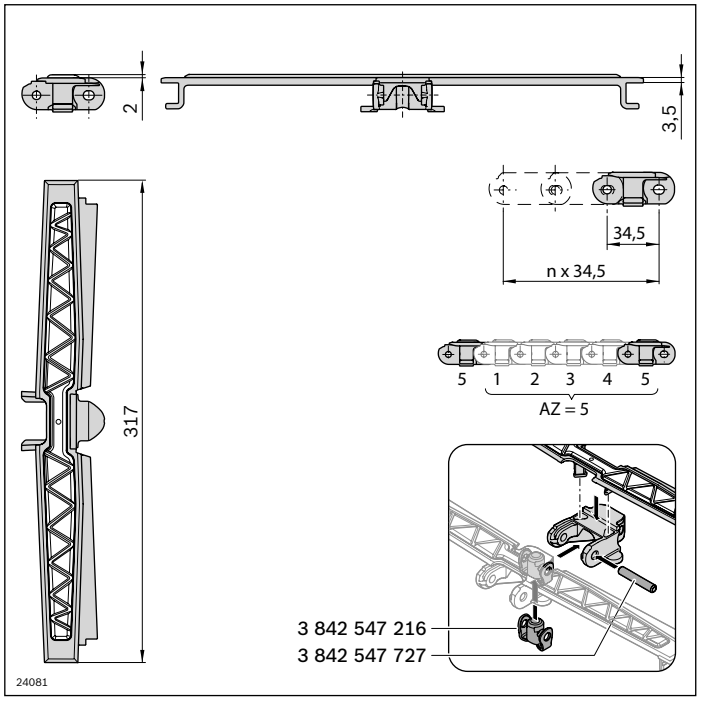
Static friction chain VF*plus* 120	**L** (mm)		**No.**
Conveyor chain; AZ = 1	4968	1	**3 842 546 079**
Conveyor chain; AZ = 2 ... 84	2898	1	**3 842 998 708/AZ**
Chain link		10	**3 842 546 008**
Chain pin		100	**3 842 547 727**
Jointed bolt		100	**3 842 547 216**



Static friction chain VF*plus* 160	**L** (mm)		**No.**
Conveyor chain; AZ = 1	2898	1	**3 842 546 080**
Conveyor chain; AZ = 2 ... 84	2898	1	**3 842 998 709/AZ**
Base chain link 160-320		10	**3 842 546 028**
Chain plate 160		10	**3 842 546 096**
Chain pin		100	**3 842 547 727**
Jointed bolt		100	**3 842 547 216**

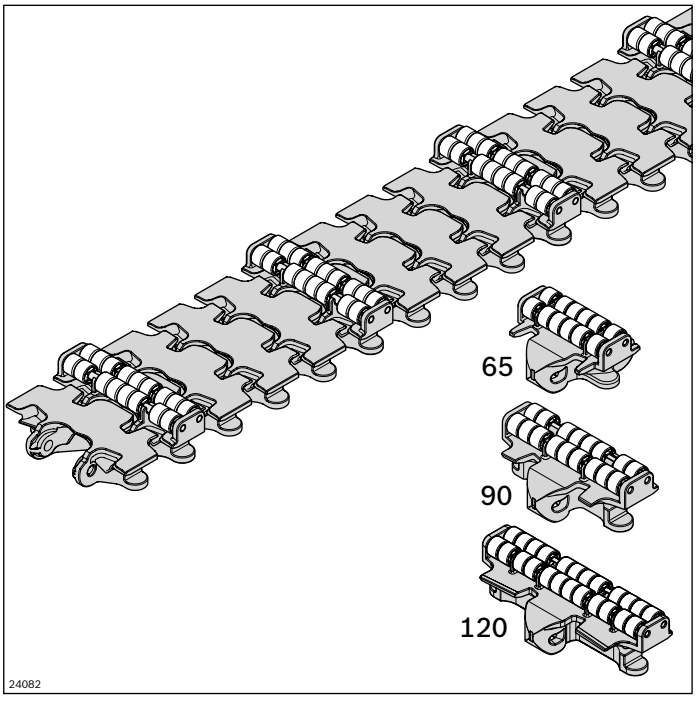


Static friction chain VF*plus* 240	**L** (mm)		**No.**
Conveyor chain; AZ = 1	2898	1	**3 842 546 081**
Conveyor chain; AZ = 2 ... 84	2898	1	**3 842 998 710/AZ**
Base chain link 160-320		10	**3 842 546 028**
Chain plate 240		10	**3 842 546 097**
Chain pin		100	**3 842 547 727**
Jointed bolt		100	**3 842 547 216**



Static friction chain VF*plus* 320	**L** (mm)		**No.**
Conveyor chain; AZ = 1	2898	1	**3 842 546 082**
Conveyor chain; AZ = 2 ... 84	2898	1	**3 842 998 711/AZ**
Base chain link 160-320		10	**3 842 546 028**
Chain plate 320		10	**3 842 546 098**
Chain pin		100	**3 842 547 727**
Jointed bolt		100	**3 842 547 216**

Accumulation roller chain D11, Roller cleated chain D11



The accumulation roller chain D11 (AZ = 1) enables gentle-to-the-surface, completely horizontal transport of sensitive products, also for accumulation operation.
Use as a roller cleat chain (AZ ≥ 2) enables the vertical transport of small products. See also “Layout instructions for roller cleat chains”, on page 214

- Maximum gradient when using cleats depends on 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 cleat chain (AZ ≥ 2)
- Maximum chain tensile force: 1250 N
- AZ ≥ 2: Roller cleated chain supplemented with flat chain links (AZ = spacing distance)
  AZ = 1: continuous accumulation roller chain
- Product length for use with the accumulation roller chain: ≧ 70 mm

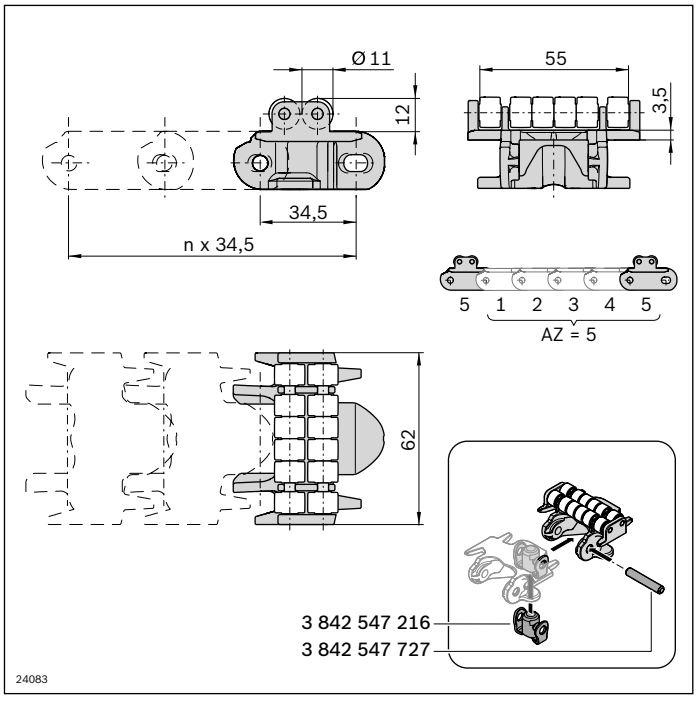
- ▶ Extremely quiet chain running thanks to the patented chain design
- ▶ Materials meet the requirements of EU 10/2011 and FDA CFR 21

Required accessories for individual chain links:
Chain pin and jointed bolts, see p. 28

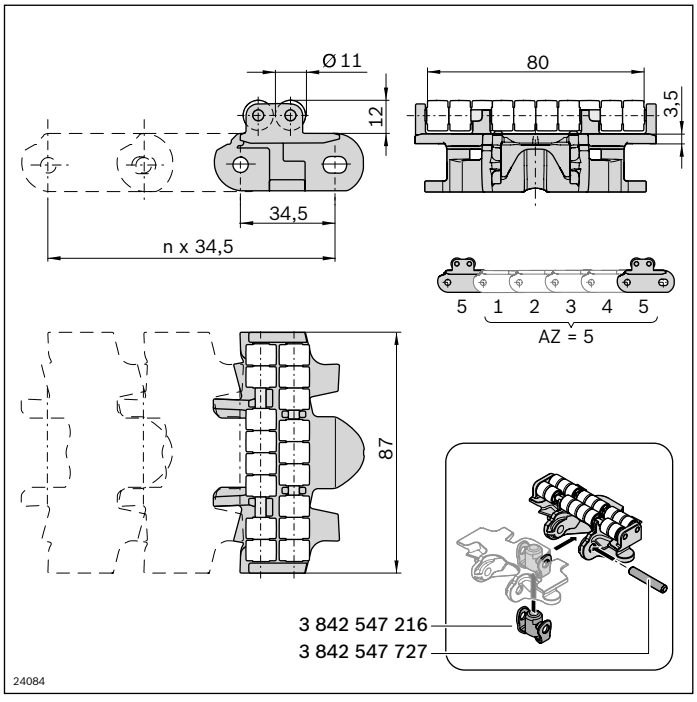
Scope of delivery:
Chain: Complete, incl. chain pin and jointed bolts

Condition on delivery:
Chain: Completely assembled

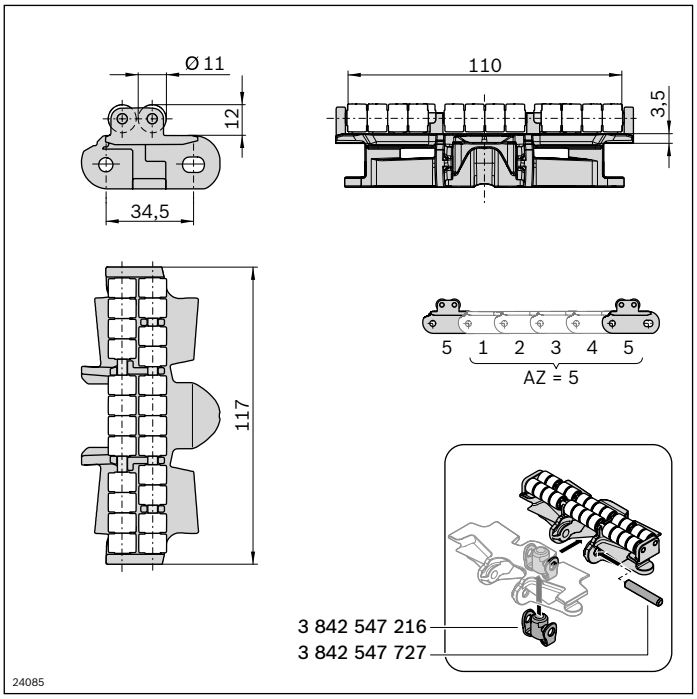
Material:
- Chain link: POM
- Castor: POM
- Chain pin: Stainless steel, 1.4301
- Jointed bolt PA66



Accumulation roller chain D11 VF*plus* 65	**L** (mm)		**No.**
Conveyor chain; AZ = 1	2898	1	**3 842 546 083**
Conveyor chain; AZ = 2 ... 84	2898	1	**3 842 998 717/AZ**
Chain link		10	**3 842 546 017**
Chain pin		100	**3 842 547 727**
Jointed bolt		100	**3 842 547 216**

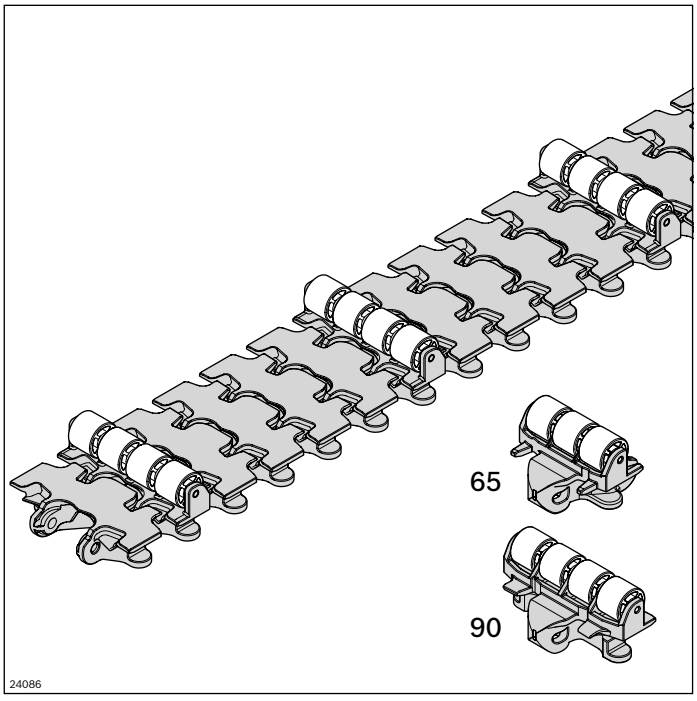


Accumulation roller chain D11 VF*plus* 90	**L** (mm)		**No.**
Conveyor chain; AZ = 1	2898	1	**3 842 546 084**
Conveyor chain; AZ = 2 ... 84	2898	1	**3 842 998 718/AZ**
Chain link		10	**3 842 546 018**
Chain pin		100	**3 842 547 727**
Jointed bolt		100	**3 842 547 216**



Accumulation roller chain D11 VF*plus* 120	**L** (mm)		**No.**
Conveyor chain; AZ = 1	2898	1	**3 842 546 085**
Conveyor chain; AZ = 2 ... 84	2898	1	**3 842 998 719/AZ**
Chain link		10	**3 842 546 019**
Chain pin		100	**3 842 547 727**
Jointed bolt		100	**3 842 547 216**

Roller cleated chain D20



The roller cleat chain D20 enables the transport of products on ascending or descending sections.
See also “Layout instructions for roller cleat chains”, on page 214

- Maximum gradient depending on product geometry (test required)
- Accumulation operation not permitted
- Maximum chain tensile force: 1250 N
- AZ ≥ 2: Roller cleated chain supplemented with flat chain links (AZ = spacing distance)

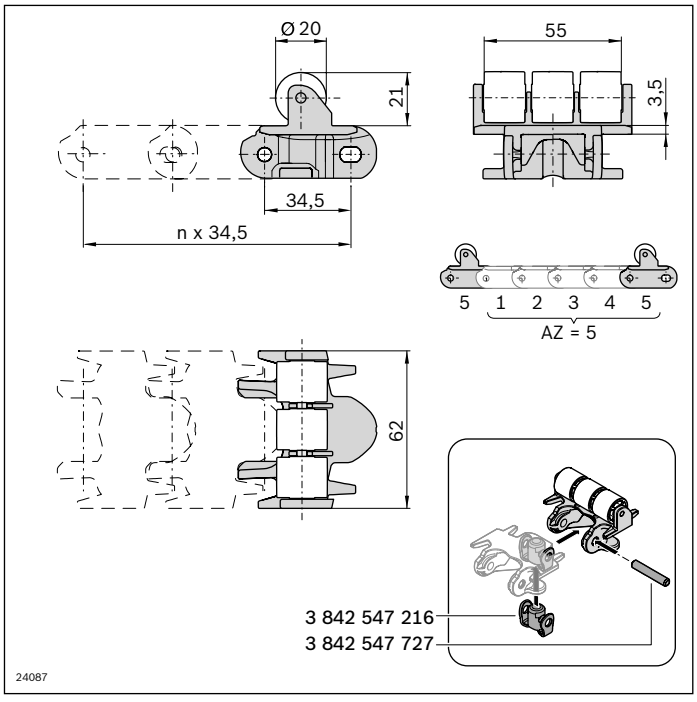
- ▶ Extremely quiet chain running thanks to the patented chain design
- ▶ Materials meet the requirements of EU 10/2011 and FDA CFR 21
- ▶ For infeeding without any effort for cycle time adjustment

Required accessories for individual chain links:
Chain pin and jointed bolts, see p. 31

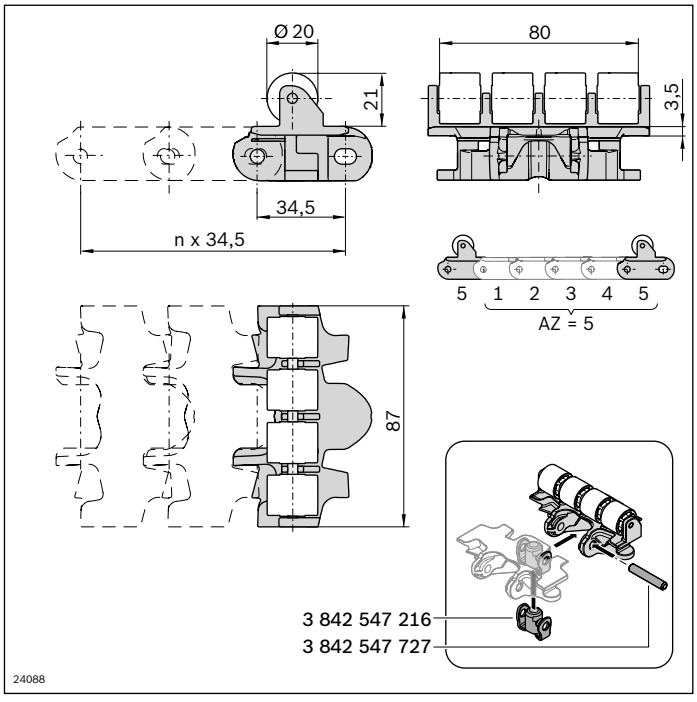
Scope of delivery:
Chain: Complete, incl. chain pin and jointed bolts

Condition on delivery:
Chain: Completely assembled

Material:
- Chain link: POM
- Castor: POM
- Chain pin: Stainless steel, 1.4301
- Jointed bolt PA66

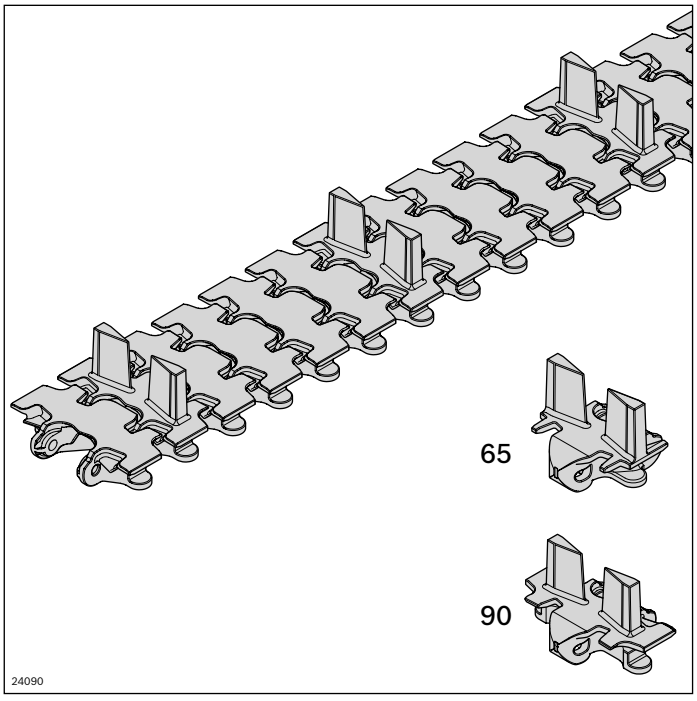


Roller cleated chain D20 VF*plus* 65	**L** (mm)		**No.**
Conveyor chain; AZ = 2 ... 84	2898	1	**3 842 998 720/AZ**
Chain link		10	**3 842 546 020**
Chain pin		100	**3 842 547 727**
Jointed bolt		100	**3 842 547 216**



Roller cleated chain D20 VF*plus* 90	**L** (mm)		**No.**
Conveyor chain; AZ = 2 ... 84	2898	1	**3 842 998 721/AZ**
Chain link		10	**3 842 546 021**
Chain pin		100	**3 842 547 727**
Jointed bolt		100	**3 842 547 216**

Cleated chain



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

- Maximum gradient depending on product geometry (test required)
- Accumulation operation not permitted
- Maximum chain tensile force: 1250 N
- AZ ≥ 2: Cleated chain supplemented with flat chain links (AZ = spacing distance)

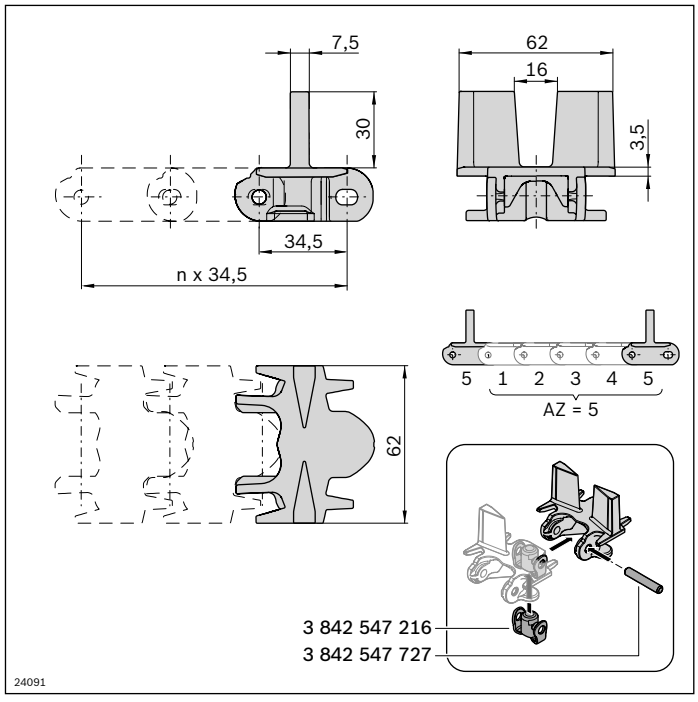
- Extremely quiet chain running thanks to the patented chain design
- Materials meet the requirements of EU 10/2011 and FDA CFR 21
- The centrally divided cleat allows for the simple transfer of conveyed material at the section ends: A transfer area only needs to be left open in the area of the cleat and can otherwise be used near to the submerging chain

Required accessories for individual chain links:
Chain pin and jointed bolts, see p. 33

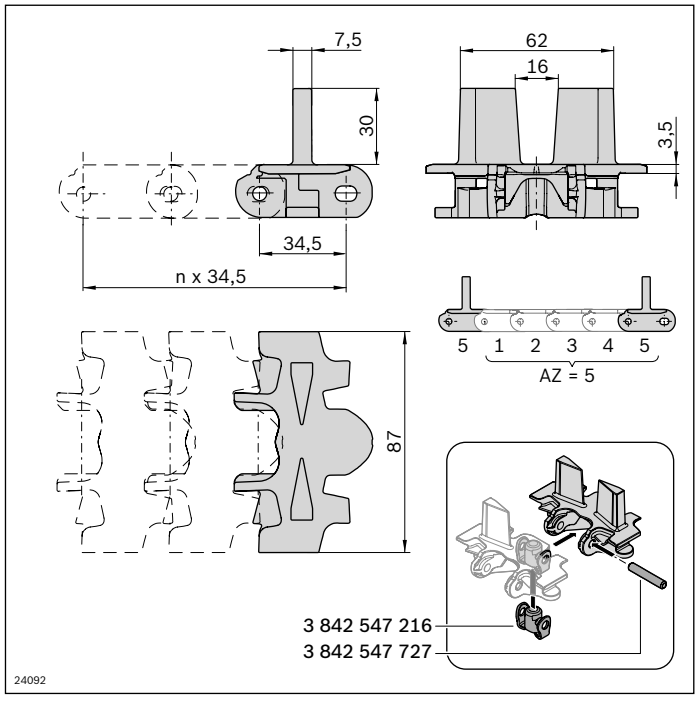
Scope of delivery:
Chain: Complete, incl. chain pin and jointed bolts

Condition on delivery:
Chain: Completely assembled

Material:
- Chain link: POM
- Chain pin: Stainless steel, 1.4301
- Jointed bolt PA66

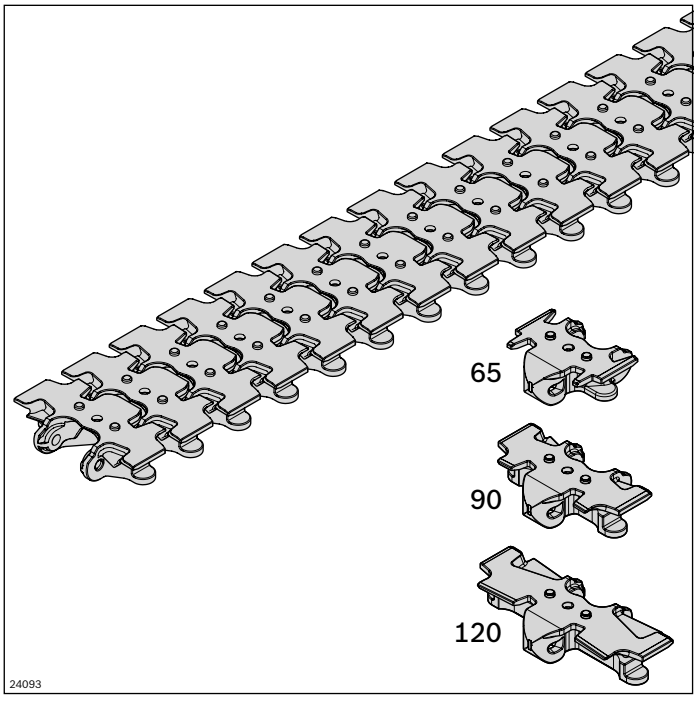


Cleated chain VF*plus* 65	**L** (mm)		**No.**
Conveyor chain; AZ = 2 ... 84	2898	1	**3 842 998 715/AZ**
Chain link		10	**3 842 546 015**
Chain pin		100	**3 842 547 727**
Jointed bolt		100	**3 842 547 216**



Cleated chain VF*plus* 90	**L** (mm)		**No.**
Conveyor chain; AZ = 2 ... 84	2898	1	**3 842 998 716/AZ**
Chain link		10	**3 842 546 016**
Chain pin		100	**3 842 547 727**
Jointed bolt		100	**3 842 547 216**

Universal chain



The universal chain serves as substructure for the assembly of customer-specific cleats or fixtures.

- Maximum gradient depending on customer-specific cleats (test required)
- Accumulation operation not permitted
- Maximum chain tensile force: 1250 N
- AZ ≥ 2: Universal chain supplemented with flat chain links
  AZ = 1: complete conveyor chain with universal 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
- 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 customer-specific superstructures, see page 236

Required accessories for individual chain links:
Chain pin and jointed bolts, see p. 35

Optional accessories:

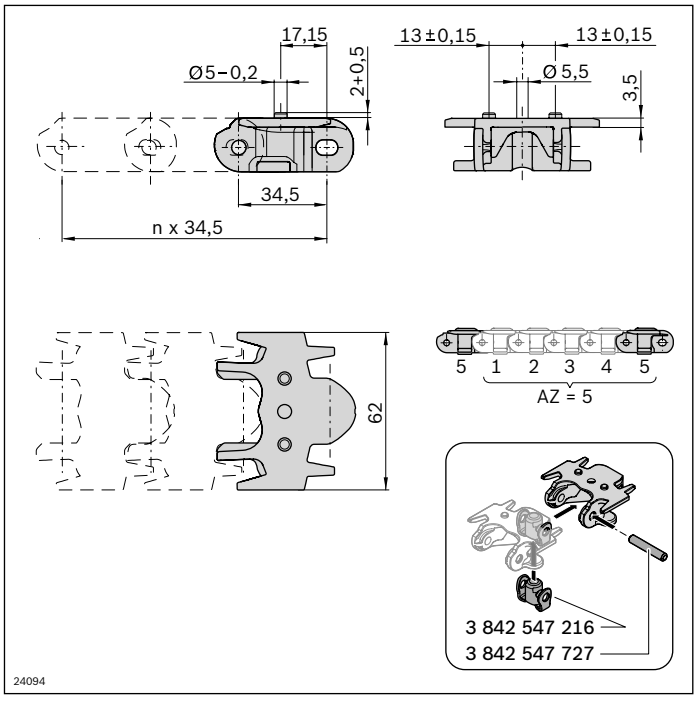
- Static friction chain link, see p. 22
- Accumulation roller chain link D11, see p 26
- Roller cleat chain link D20, see p. 30
- Cleated chain link, see p. 32

Scope of delivery:
Chain: Complete, incl. chain pin and jointed bolts

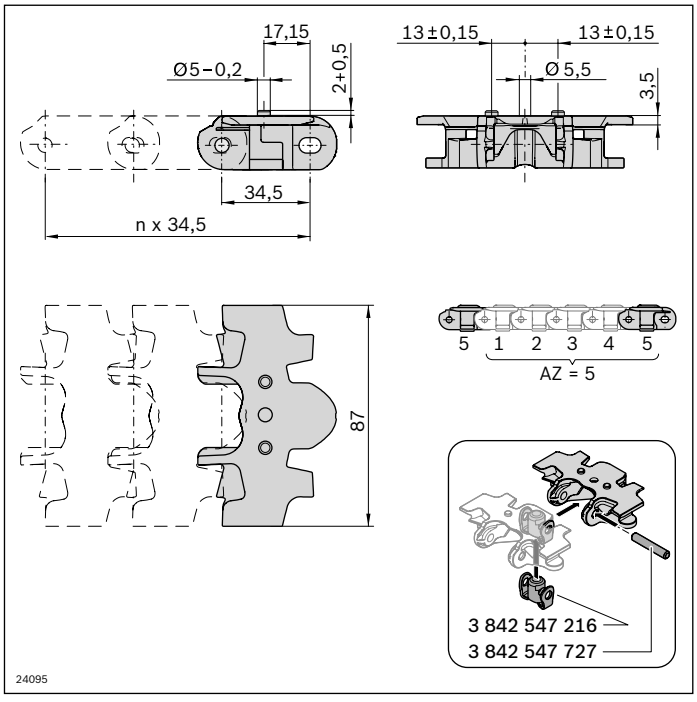
Condition on delivery:
Chain: Fully assembled

Material:

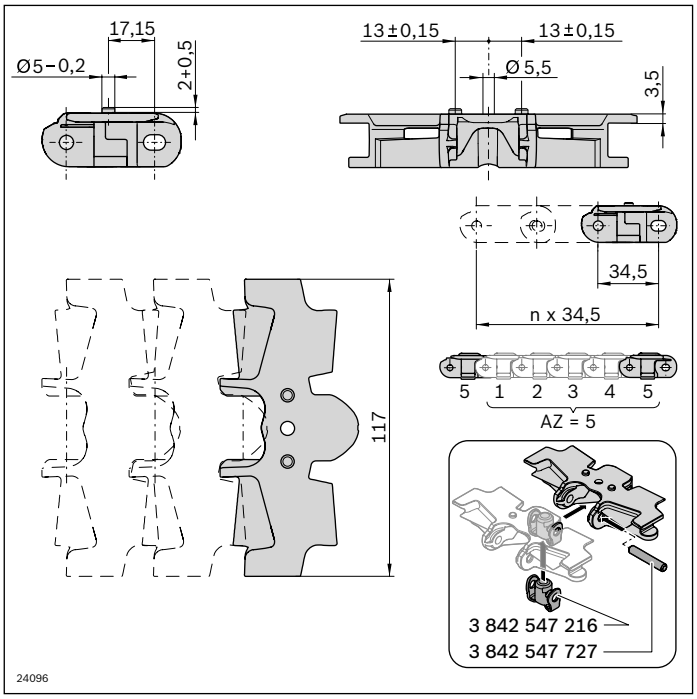
- Chain link: POM
- Chain pin: Stainless steel, 1.4301
- Jointed bolts: PA66



Universal chain VF*plus* 65	**L** (mm)		**No.**
Conveyor chain; AZ = 1 ... 84	2898	1	**3 842 998 712/AZ**
Chain link		10	**3 842 546 012**
Chain pin		100	**3 842 547 727**
Jointed bolt		100	**3 842 547 216**

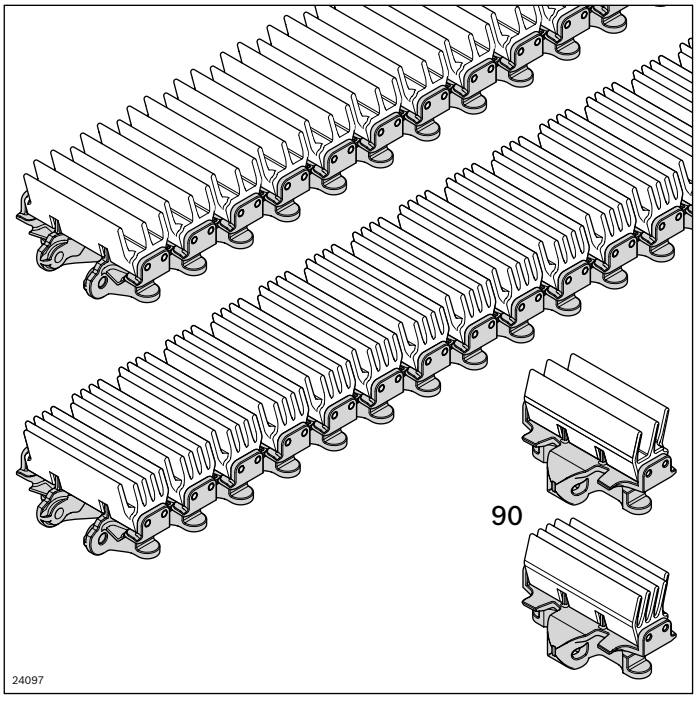


Universal chain VF*plus* 90	**L** (mm)		**No.**
Conveyor chain; AZ = 1 ... 84	2898	1	**3 842 998 713/AZ**
Chain link		10	**3 842 546 013**
Chain pin		100	**3 842 547 727**
Jointed bolt		100	**3 842 547 216**



Universal chain VF*plus* 120	**L** (mm)		**No.**
Conveyor chain; AZ = 1 ... 84	2898	1	**3 842 998 714/AZ**
Chain link		10	**3 842 546 014**
Chain pin		100	**3 842 547 727**
Jointed bolt		100	**3 842 547 216**

Clamping chain



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

The wedge chain clamps products to enable transport across different heights or distances.
Particularly used when the product being transported
- – Is difficult to transport vertically due to its shape
- – Cannot be transported with other chains on steep rises, 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 wedge chain depend on product geometry (test required)
- – Accumulation operation not permitted
- – Maximum chain tensile force: 1250 N
- – Only suitable for dry operation
- – Chain available in 2 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 page 39
- – An assembly module is required for assembling and disassembling the chain
- – The plates are not suited to transporting sharp-edged objects

See also “Setting up a wedge conveyor” on page 146.

Scope of delivery:
Chain: Complete, incl. chain pin and jointed bolts

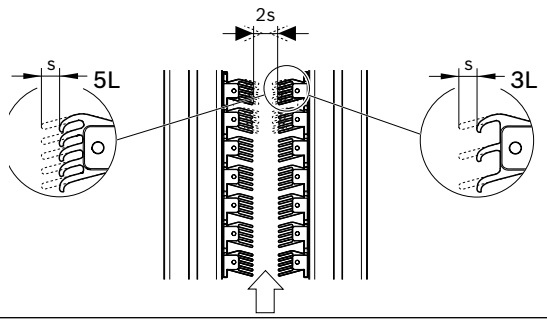
Condition on delivery:
Chain: Completely assembled

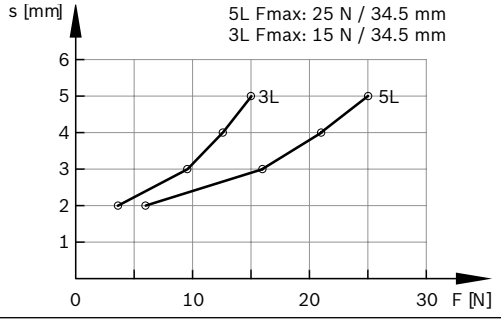
Material:
- – Chain link: POM
- – Plates: TPE, Shore A 55
- – Chain pin: Stainless steel, 1.4301
- – Jointed bolt PA66

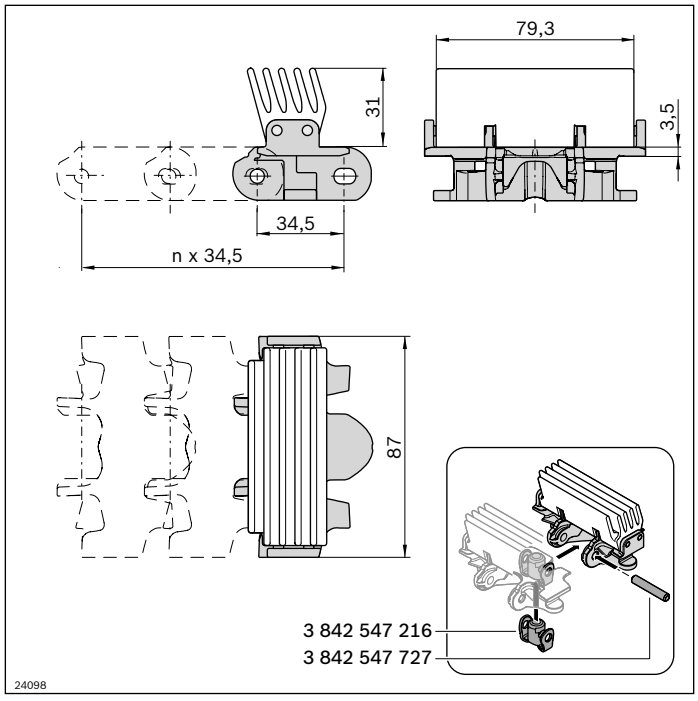
Contact pressure in wedge conveyor

Compression value:
< 40%

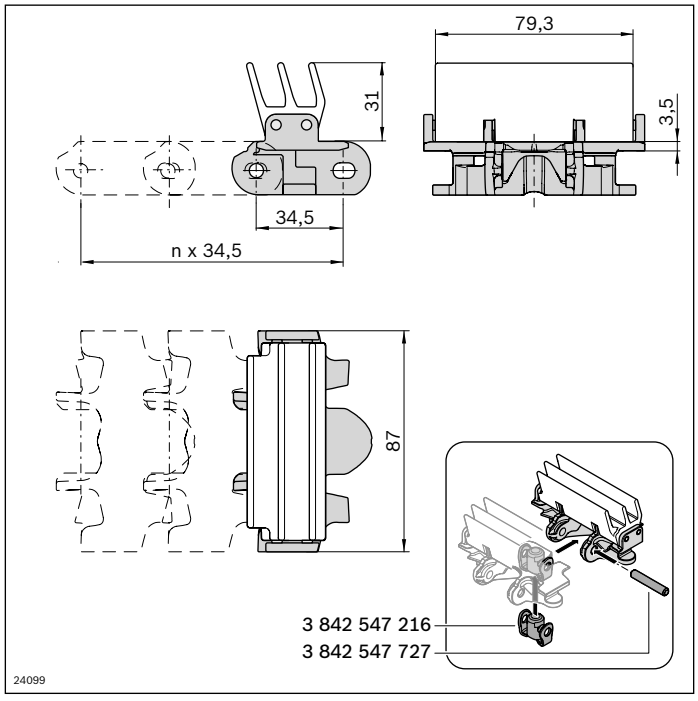
"s" depends on the product's size, weight and surface properties.
Tests may be necessary.





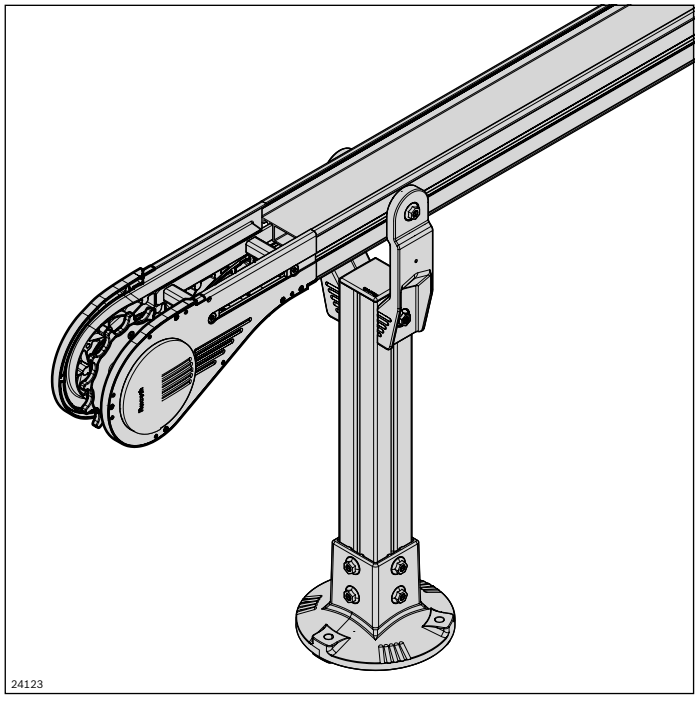


Clamping chain VF90*plus* 5L	L (mm)		No.
	2898	1	**3 842 546 086**



Clamping chain VF90*plus* 3L	L (mm)		No.
	2898	1	**3 842 546 087**

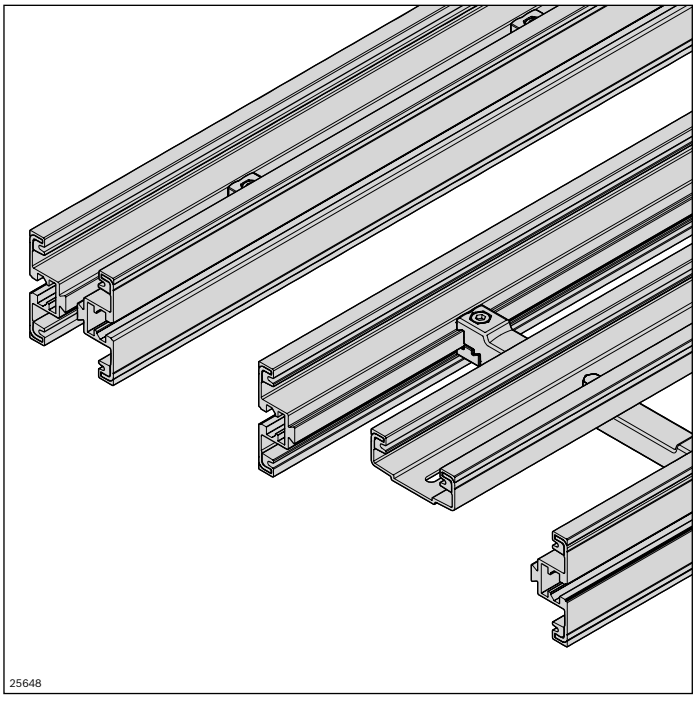
VarioFlow *plus* Aluminum system (AL)



- Slide rails are fixed rivet-free without having to machine the running surfaces
- Minimal slide 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

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

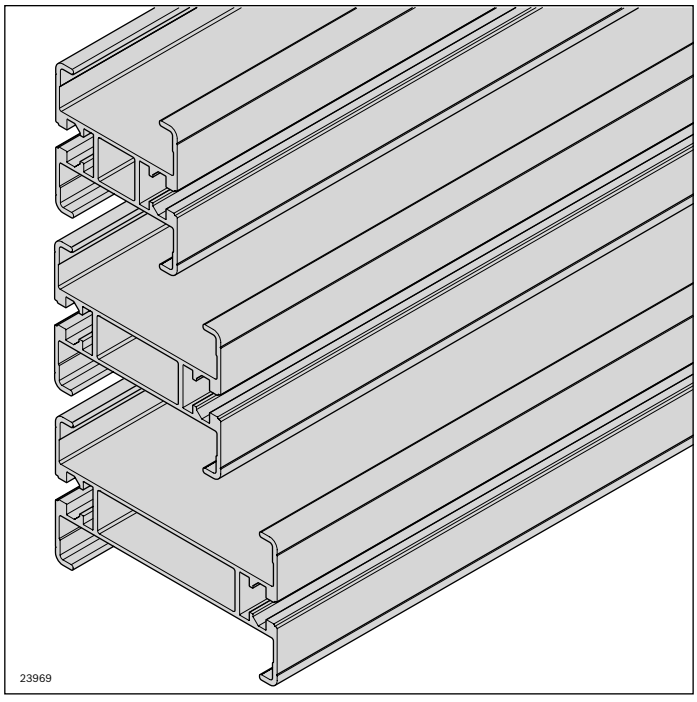
Sections AL



- Fixing of slide rails without rivets or the need to machine the track bearing surfaces
- Optimized sliding characteristics and FDA-compliant materials for the slide rail
- One slide 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

Simple assembly of sections thanks to smart connection technology

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, leg sets, or other accessories
- If necessary, lateral mounting of the slide rails with centering grooves as drill guide
- Special constructions can be attached quickly and simply with components from the modular aluminum framing system through the 10 mm outside slot.

Required accessories:

– Slide rail, see p. 48

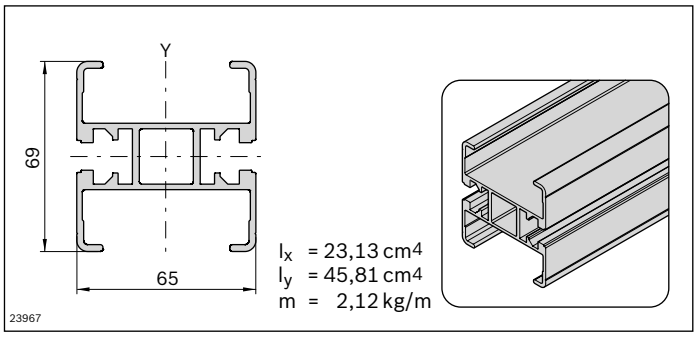
– Profile connector, see p. 50

Optional accessories:

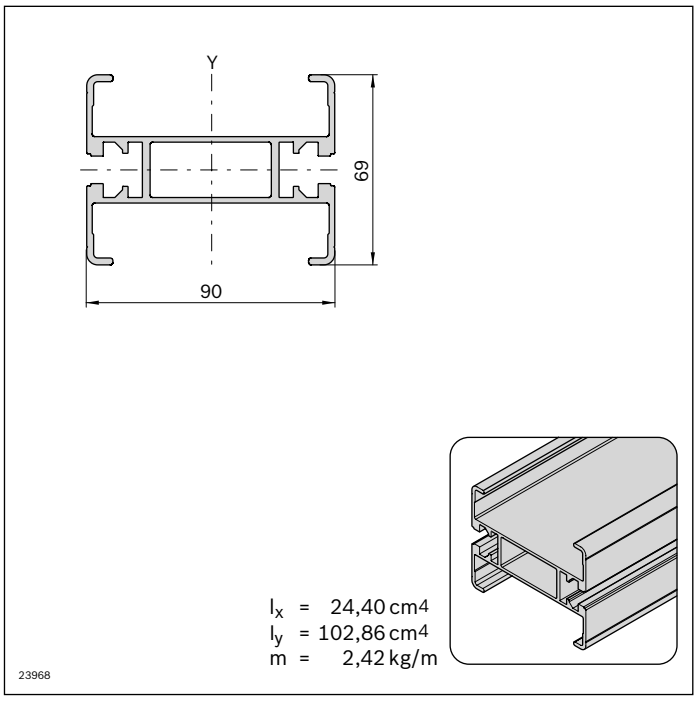
Cover profile, see p. 52

Material:

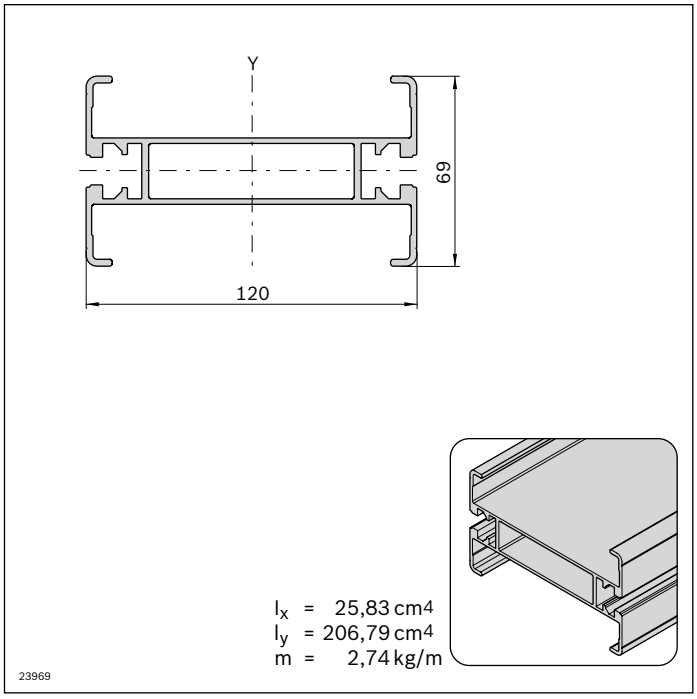
Aluminum, natural, anodized



Section profile VF*plus* 65 AL	L (mm)	No.
12 pcs	6070	**3 842 546 643**
1 pc	50 ... 6000	**3 842 996 022/L**

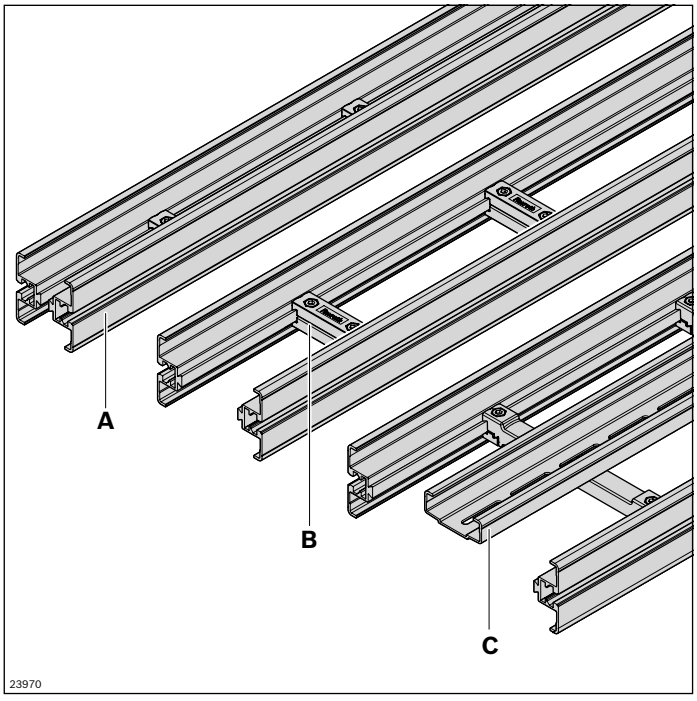


Section profile VF*plus* 90 AL	L (mm)	No.
12 pcs	6070	**3 842 546 644**
1 pc	50 ... 6000	**3 842 996 023/L**



Section profile VF*plus* 120 AL	L (mm)	No.
6 pcs	6070	**3 842 546 645**
1 pc	50 ... 6000	**3 842 996 024/L**

Section profile AL open
Cross connector AL
Support profile AL



The open construction of the section profile (**A**) allows dirt or foreign particles to be removed directly.
Two open section profiles, linked by cross connectors, are needed to construct a conveyor section. A support profile is necessary for sizes 160 and over.
– 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. Using cross connectors of different lengths determines the size.

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

AL open section profile (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, lateral mounting of the slide rails with centering grooves as drill guide

Required accessories:
– **A:** Cross connector, see p. 47; slide rail, see p. 48; profile connector, see p. 50; support profile from size 160, see p. 47

Optional accessories:
A: Cover profile, see p. 52

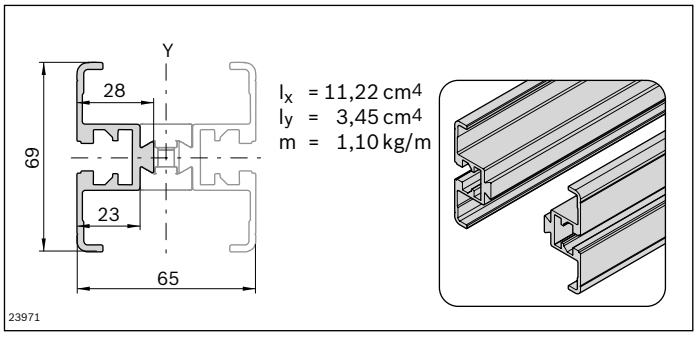
Cross connector AL (B)
- Cross connector with mounting option for support profile

Support profile AL (C)
- Elongated holes at regular intervals for fastening

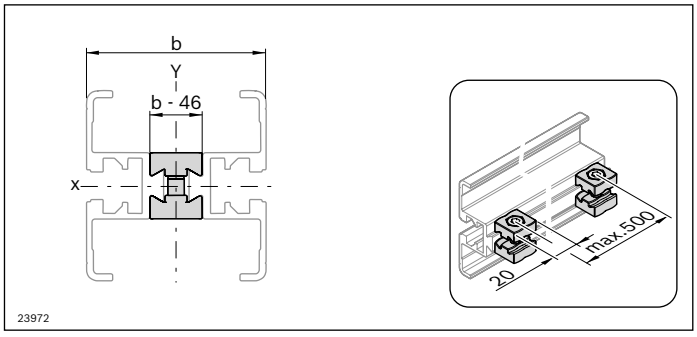
Scope of delivery:
B: Complete, incl. screw for attaching the support profile

Condition on delivery:
A, B: unassembled

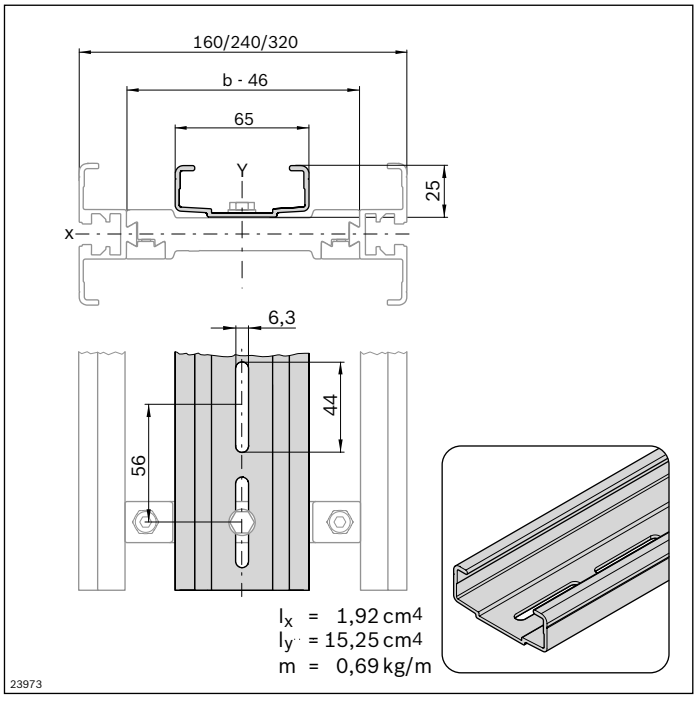
Material:
– **A**, **C:** Aluminum, natural, anodized
– **B:** Die-cast aluminum



Section profile VF*plus* AL open	**L** (mm)	**No.**
12 pcs	6070	**3 842 546 647**
2 pcs	3000	**3 842 546 670**
1 pc	50 ... 6000	**3 842 996 026/L**

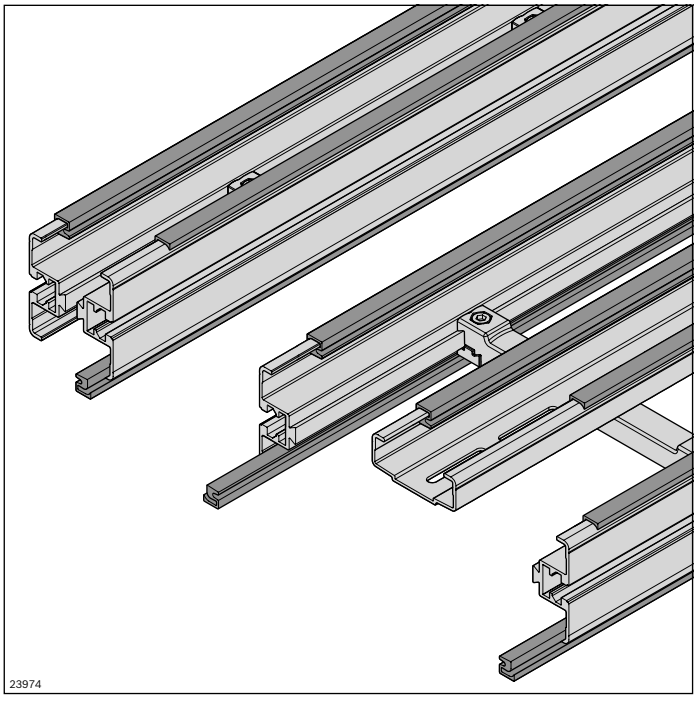


Cross connector AL	**b** (mm)		**No.**
VF*plus* 65	65	10	**3 842 546 672**
VF*plus* 90	90	10	**3 842 546 673**
VF*plus* 120	120	10	**3 842 546 674**
VF*plus* 160	160	10	**3 842 546 675**
VF*plus* 240	240	10	**3 842 546 676**
VF*plus* 320	320	10	**3 842 546 677**



Support profile VF*plus* AL	**L** (mm)	**No.**
12 pcs	6070	**3 842 546 705**
1 pc	3000	**3 842 547 904**
1 pc	75 ... 6000	**3 842 996 028/L**

Slide rail



- ▶ Simple assembly through clipping into the section profile
- ▶ Secured against axial shifting with lateral screw fittings
- ▶ Gliding surface finishing: not required
- ▶ Material
- – Premium, Advanced slide rails: FDA CFR 21
- – Basic slide rails: EU 10/2011, FDA CFR 21
- ▶ One cross-section for all AL and STS section profiles

Required accessories:
- – Slide rail assembly tool, see p. 200
- – Sheet metal screw 2.9x9.5 DIN 7982; DIN EN ISO 7050 see page 49
  1 screw for each slide rail section

Material:
PE-UHMW

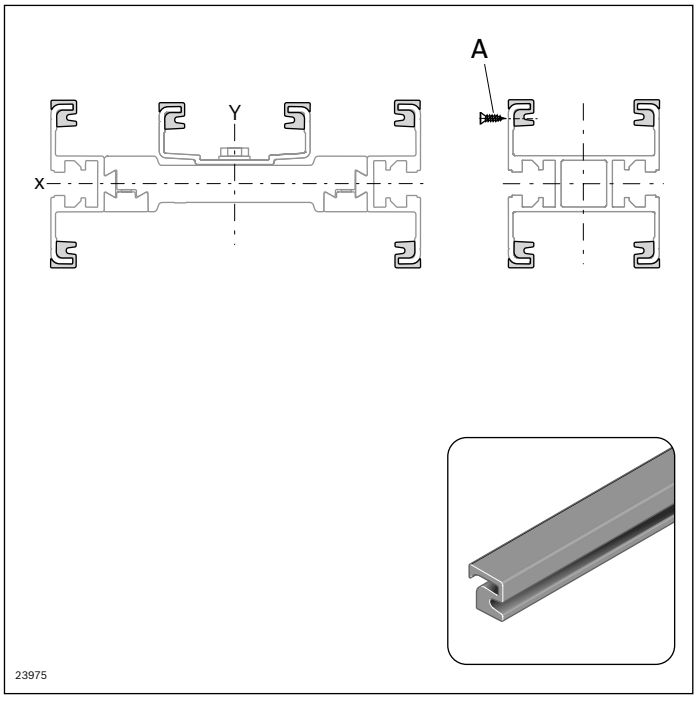
The slide rail is clipped onto the section profile and guides the conveyor chain.
The lateral protection means the gliding surface does not need to be machined. Wear and noise level are thus reduced to a minimum.

You can choose from three slide rails with different main areas of application:
- – Basic: straight sections and curve wheels, v_{max} 60 m/min
- – Advanced: Sections with sliding curves, v_{max} 60 m/min
- – Premium: Sections with sliding curves, v_{max} 100 m/min, cleanroom

For the selection of slides rails, see the “Technical data” chapter on page 212.

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

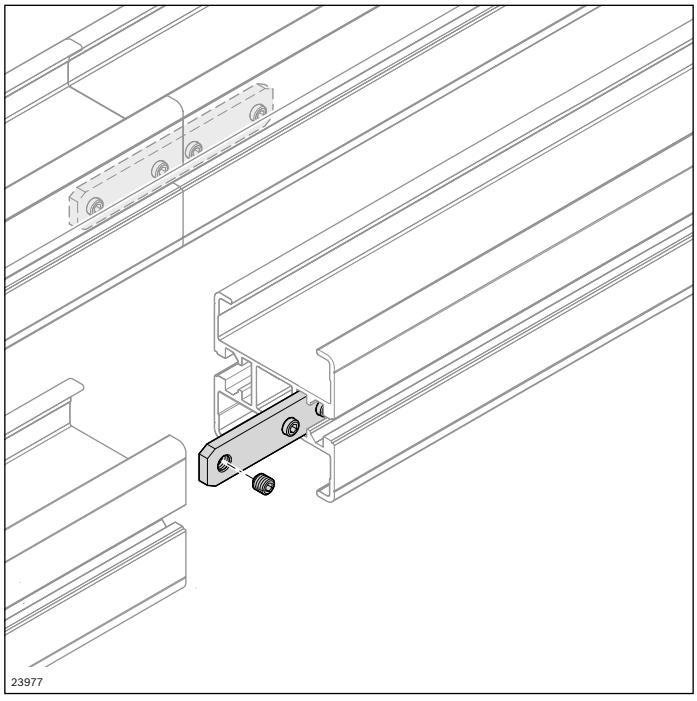
Note: After the sliding curves, an interruption is provided as an expansion joint in the inner curve area.



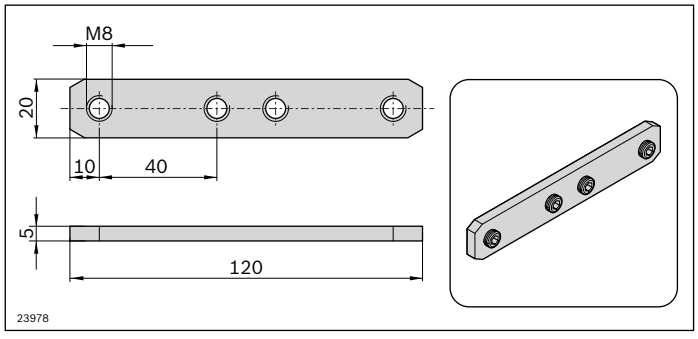
Slide rail VF*plus*	**L** (mm)		**No.**
Premium	30000	1	**3 842 546 116**
Advanced	30000	1	**3 842 549 727**
Basic	30000	1	**3 842 549 730**

Sheet metal screw		
A	100	**3 842 547 908**

Profile connector AL



The section profiles are connected at the ends with two profile connectors. The profile connector is fixed in the interior slot, so that the slot on the outside is available for any type of fixtures.



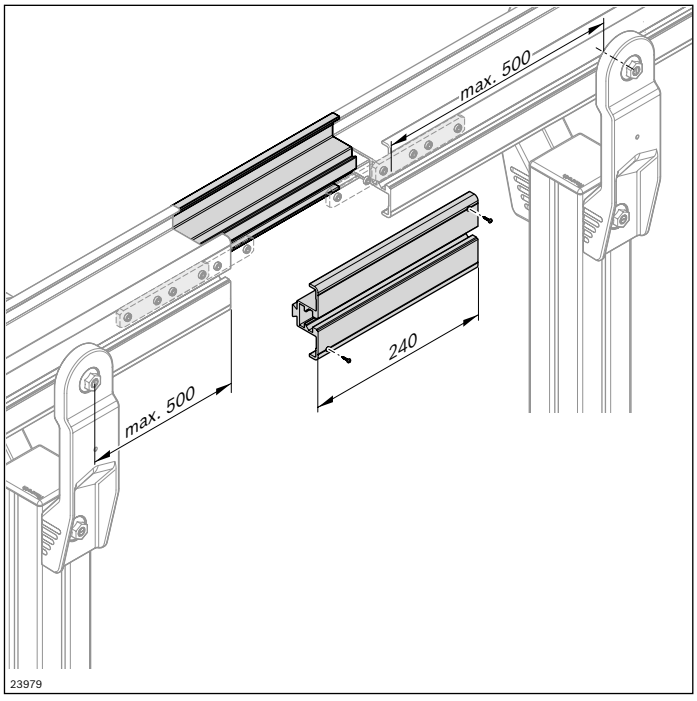
Profile connector VF*plus* AL		No.
	10	**3 842 530 277**

Scope of delivery:
Complete

Material:
Steel; galvanized

Condition on delivery:
Screws pre-assembled and secured

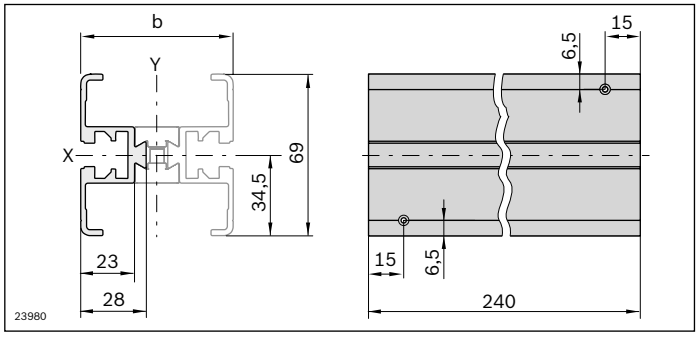
Assembly module AL



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 228

- Max. distance from the nearest leg sets on both sides is 500 mm
- The support profile with slide rail is not interrupted in the assembly module, enhancing smooth running
- Interruption to the slide gate is only required on the side to be opened



	L (mm)		**No.**
Assembly module VF*plus* AL		1	**3 842 547 899**
Slide rail VF*plus* Premium	30000	1	**3 842 546 116**
Slide rail VF*plus* Advanced	30000	1	**3 842 549 727**
Slide rail VF*plus* Basic	30000	1	**3 842 549 730**

Required accessories:
Slide rail, see p. 48

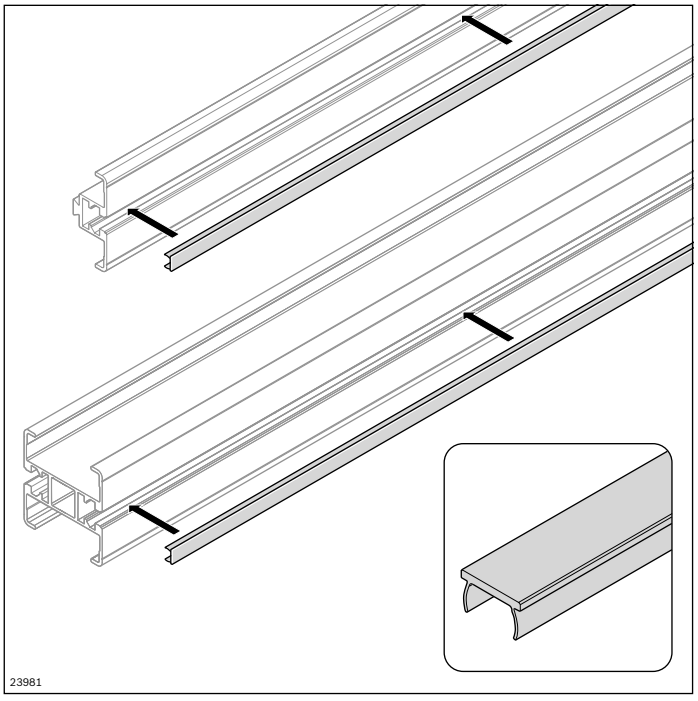
Optional accessories:
Cover profile, see p. 52

Scope of delivery:
Incl. 4 profile connectors and sheet-metal screws for fastening the slide rail

Condition on delivery:
In parts

Material:
- Aluminum, natural, anodized
- Profile connector: Steel; galvanized

Cover profile

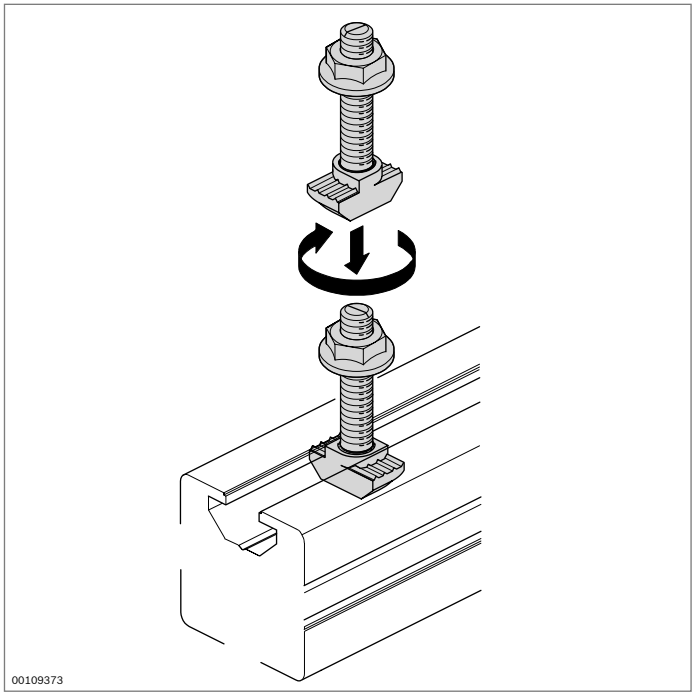


Cover profile to improve system design, to fix cables routed in the profile slot, and to protect the profile slot against contamination

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

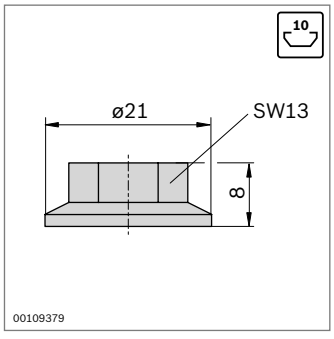
Cover profile		**L** (mm)		**No.**
 00109368	AL	2000	10	**3 842 523 258**
 19502	PVC			
	black	2000	10	**3 842 146 901**
	colorless	2000	10	**3 842 191 182**
	RAL 7035 (light gray)	2000	10	**3 842 518 367**
	RAL 3020 (red)	2000	10	**3 842 518 368**
	RAL 1023 (yellow)	2000	10	**3 842 518 369**
	RAL 5010 (blue)	2000	10	**3 843 538 955**
	RAL 2004 (orange)	2000	10	**3 842 538 957**

Flange nut
T-bolt

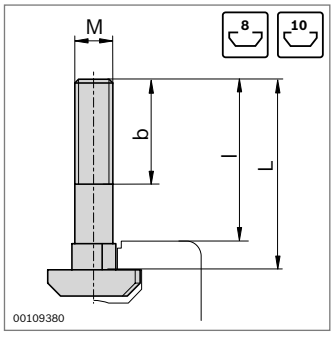


Fastening elements for mounting accessories on the profile slot
- Secure and conductive connection
- The notch at the end of the screw is used to detect the position and identify the correct positioning
- Profile machining: not required

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



Flange nut	Slot	M	ESD	No.
	10	M8	100	**3 842 345 081**
Material:	Steel; galvanized			



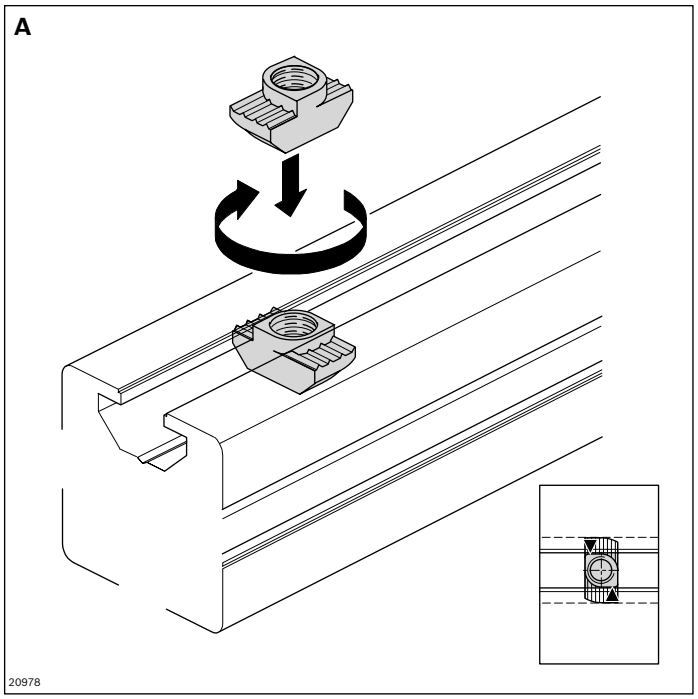
Slot	F_{max}
10	6000 ... 18000 N[1)]

[1)] 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	**3 842 528 715**
		M8x25	19	19	100	**3 842 528 718**
		M8x30	24	24	100	**3 842 528 721**
		M8x40	22	34	100	**3 842 528 724**
		M8x50	22	44	100	**3 842 528 727**
Material:	Steel; galvanized					

Collar screw
T-nut

A

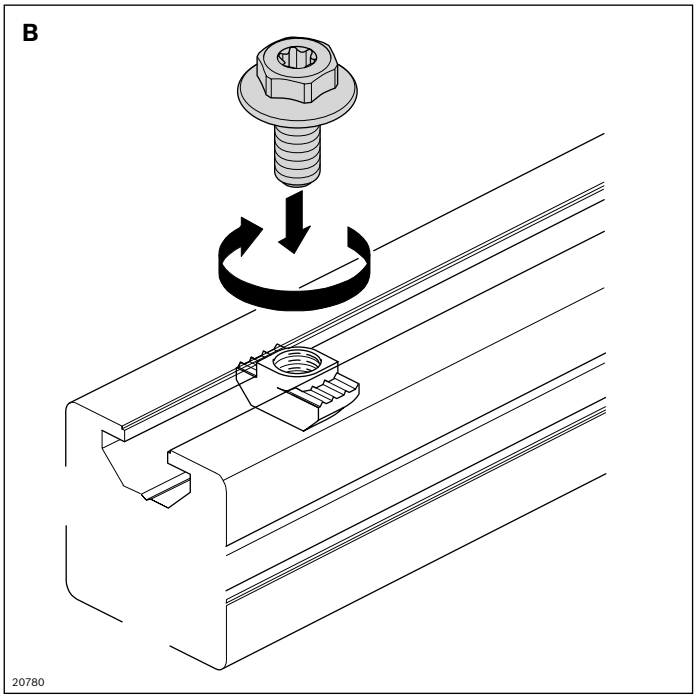


Fastening elements for mounting accessories on the profile slot.

- Standard element for a secure and conductive connection
- End stop for correct positioning in the profile slot

T-nut slot 10 mm	Slot	M	ESD		No.
Steel; galvanized	10	M4	ESD	100	**3 842 530 281**
		M5	ESD	100	**3 842 530 283**
		M6	ESD	100	**3 842 530 285**
		M8	ESD	100	**3 842 530 287**

B



- Collar screw with multi-functional head so that tightening with a ring/open-end wrench (WS 13) or Torx screwdriver (T40) is possible
- Mechanical tightening possible
- Preferably to be used for mounting angles
- Quick and easy assembly
- High power transmission via the wide flange
- With Polyfleck to secure the T-nut

Tools: Torx (T40) or wrench (WS 13)

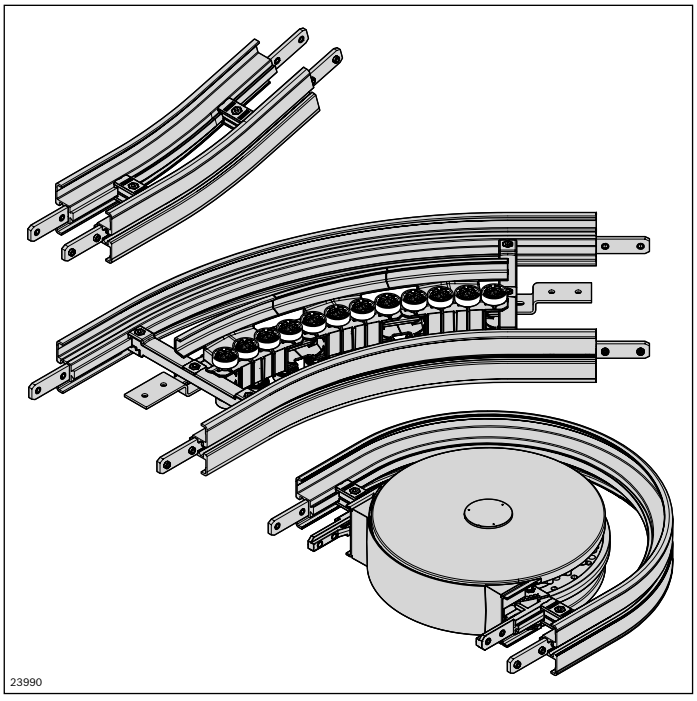
Collar screw	M	L (mm)	ESD		No.
M8x18-SW13-T40[1)]	M8	18	ESD	100	**3 842 541 246**
M8x20-SW13-T40[2)]	M8	20	ESD	100	**3 842 541 409**

[1)] For 40/40 and 60/60 brackets

[2)] For all other brackets for 10 mm slot

Material: Steel; galvanized

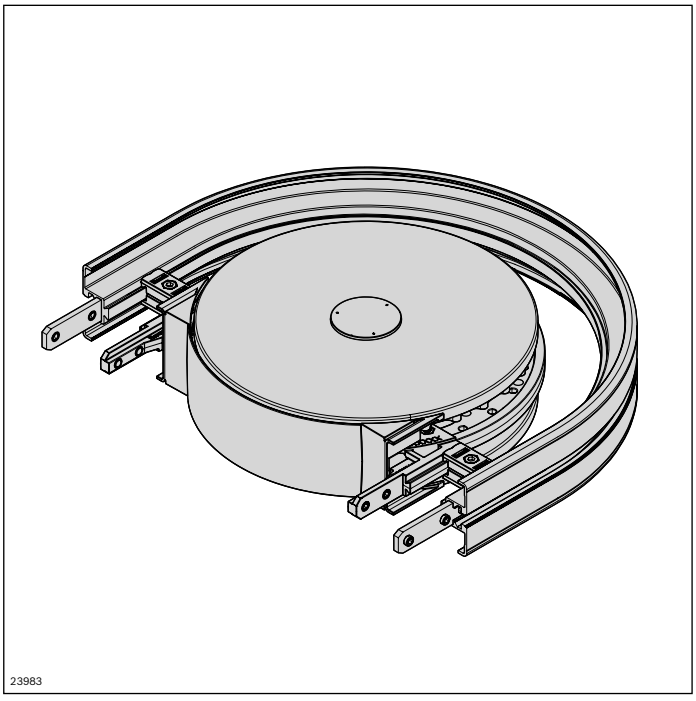
AL curves



- 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
- Stainless steel ball bearings sealed on both sides with FDA-compliant special grease in curve wheels and patented roller curves
- Extension of the curve wheel to a curve wheel drive or alpine conveyor

Longer service life and reduced downtimes thanks to low-friction curve technology

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 228
– Size: 65, 90, 120
– Deflection angles see table on p. 59, 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

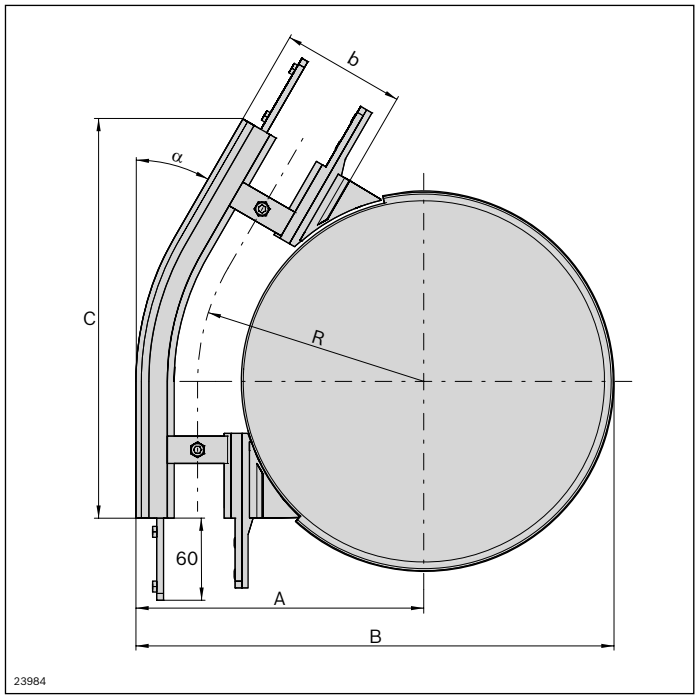
Note: High-pressure cleaning of the ball bearings is not permitted.

- Construction of inexpensive alpine conveyors by using an alpine conveyor connection kit
- Stainless steel ball bearings, with sealing on both sides and FDA-compliant lubrication
- Surfaces in contact with chain made of FDA-compliant material
- No interfering contours above chain plate height
- Can be used horizontally and vertically (for wedge conveyors)

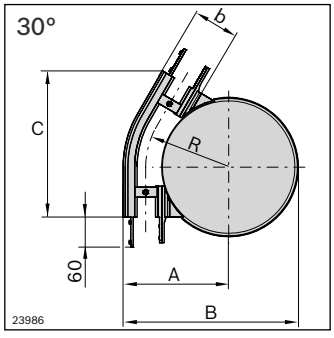
Scope of delivery:
Incl. fastening material for mounting to AL section profiles

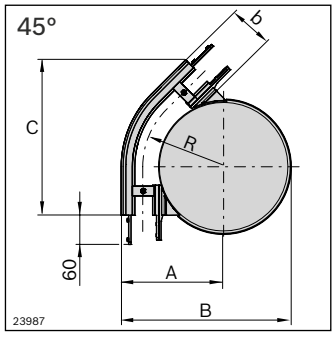
Condition on delivery:
Assembled

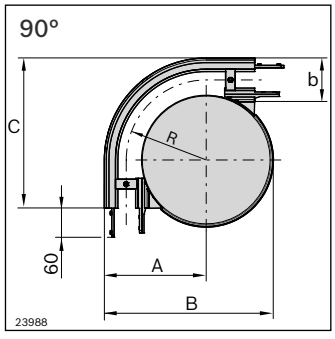
Material:
– Housing: Die-cast aluminum
– Chain wheel: PA; white
– Ball bearings: Stainless steel/ FDA

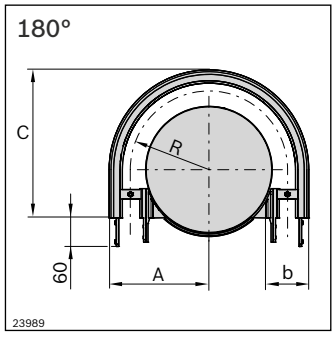


AL curve wheel	α (°)	No.
VF*plus* 65	30	**3 842 547 048**
	45	**3 842 547 049**
	90	**3 842 547 050**
	180	**3 842 547 051**
VF*plus* 90	30	**3 842 547 052**
	45	**3 842 547 053**
	90	**3 842 547 054**
	180	**3 842 547 055**
VF*plus* 120	30	**3 842 547 056**
	45	**3 842 547 057**
	90	**3 842 547 058**
	180	**3 842 547 059**

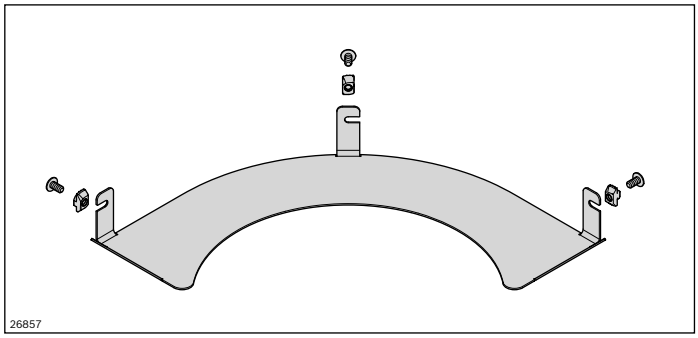






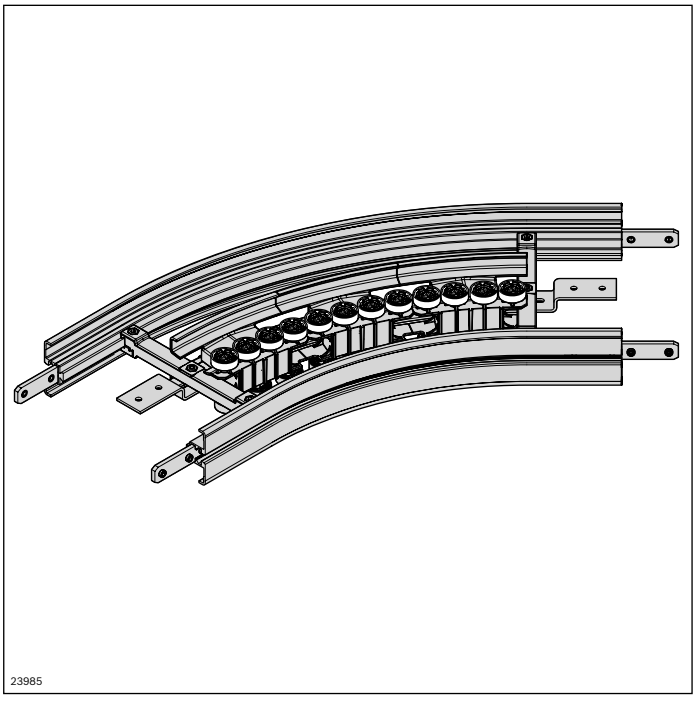


b (mm)	α (°)	R (mm)	A (mm)	B (mm)	C (mm)
65	30	153.0	185.5	324.5	279.4
	45	153.0	185.5	324.5	301.9
	90	153.0	185.5	324.5	285.5
	180	153.0	185.5	–	285.5
90	30	165.5	210.5	349.5	291.9
	45	165.5	210.5	349.5	319.6
	90	165.5	210.5	349.5	310.5
	180	165.5	210.5	–	310.5
120	30	180.5	240.5	379.5	306.9
	45	180.5	240.5	379.5	340.8
	90	180.5	240.5	379.5	340.5
	180	180.5	240.5	–	340.5



Protective cover AL	α (°)	No.
VF*plus* 65	30°	**3 842 551 545**
	45°	**3 842 551 546**
	90°	**3 842 551 547**
	180°	**3 842 551 548**
VF*plus* 90	30°	**3 842 551 549**
	45°	**3 842 551 550**
	90°	**3 842 551 551**
	180°	**3 842 551 552**

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 228
- Size: 160, 240, 320
- Deflection angles, see table on p. 61
- Other deflection angles on request
- Suitable chain types: all
- Version with open section profiles

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

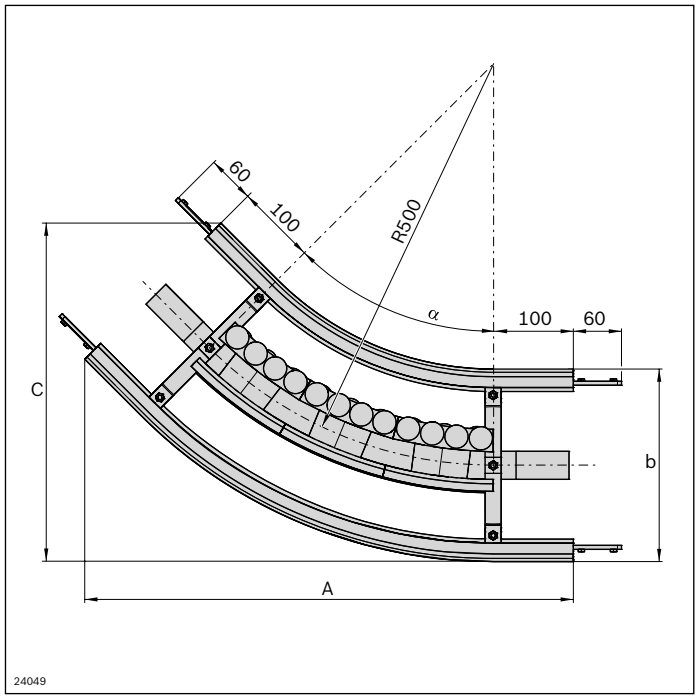
- Patented roller elements for low-friction, quieter changes in chain direction
- Stainless steel ball bearings, with sealing on both sides and FDA-compliant lubrication
- Surfaces in contact with chain made of FDA-compliant materials

Required accessories:
Slide rail: Length calculation, see page 213

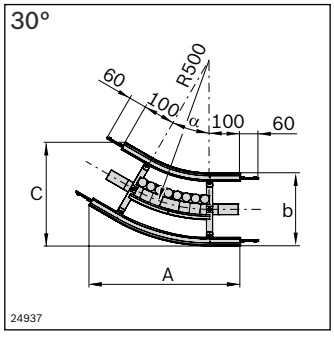
Scope of delivery:
Incl. fastening material for mounting to the AL section profile

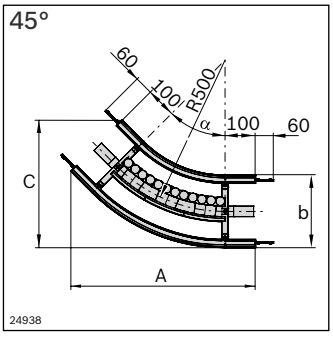
Condition on delivery:
Assembled

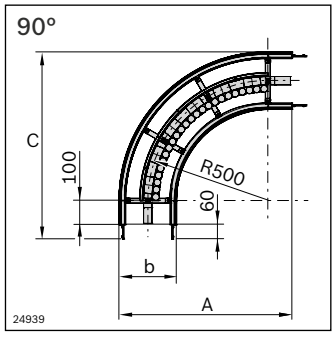
Material:
- Profile: Aluminum, anodized
- Roller carrier: PA66
- Ball bearings: Stainless steel/ FDA
- Connector: Steel; galvanized
- Rollers: PA

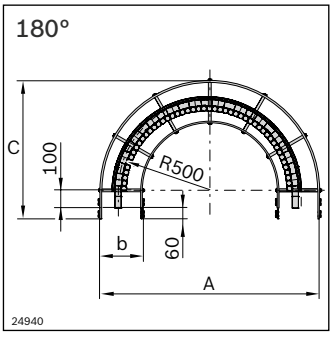


Roller curve AL	α (°)	No.
VF*plus* 160	30	**3 842 547 060**
	45	**3 842 547 061**
	90	**3 842 547 062**
	180	**3 842 547 063**
VF*plus* 240	30	**3 842 547 064**
	45	**3 842 547 065**
	90	**3 842 547 066**
	180	**3 842 547 067**
VF*plus* 320	30	**3 842 547 068**
	45	**3 842 547 069**
	90	**3 842 547 070**
	180	**3 842 547 071**



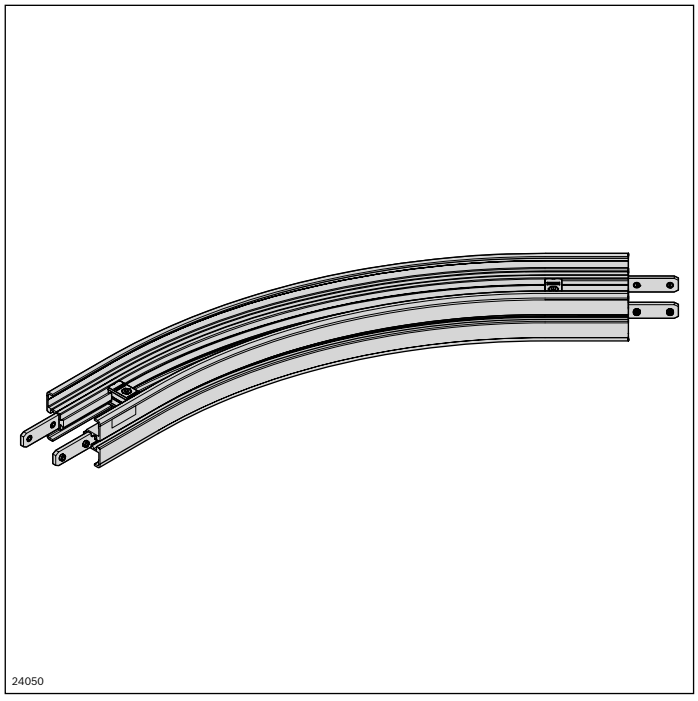






b (mm)	α (°)	**A** (mm)	**C** (mm)
160	30	476.6	266.3
	45	580.8	353.7
	90	680.0	680.0
	180	1160.0	680.0
240	30	496.6	340.9
	45	609.1	422.0
	90	720.0	720.0
	180	1240.0	720.0
320	30	516.6	415.6
	45	637.4	490.3
	90	760.0	760.0
	180	1320.0	760.0

Sliding curve horizontal AL



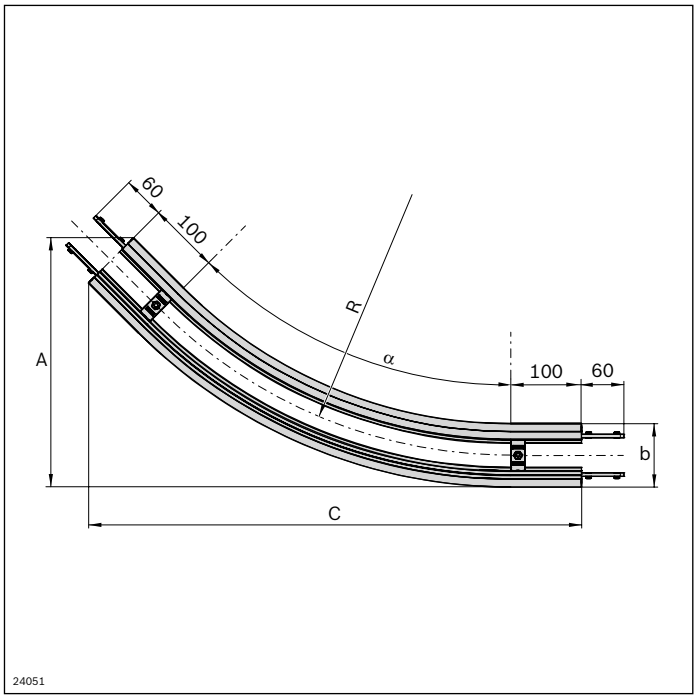
The sliding curve provides a horizontal change in direction for the chain, for when there is not enough space for a curve wheel or the speeds or product dimensions do not permit conveying over a curve wheel. The sliding curve is used to reduce noise at high speeds or when transporting long products in wedge conveyors. The chain tensile force is increased through the ensuing friction.
For attachment options, see the matrix on page 228
- Size: 65, 90, 120
- Deflection angles and radii see table on p. 63, other deflection angles and radii on request
- Suitable chain types: all
- Version with open section profiles
- Requires the use of the Advanced or Premium slide rails

Required accessories:
Slide rail: Length calculation, see p. 213

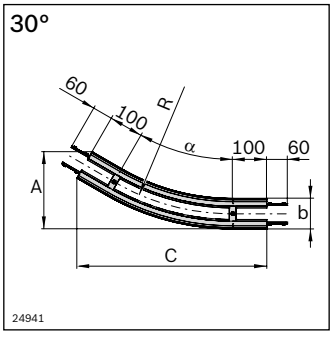
Scope of delivery:
Incl. fastening material for mounting to AL section profiles

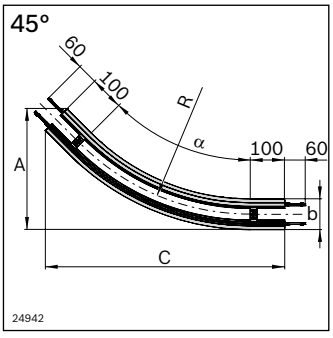
Condition on delivery:
Assembled

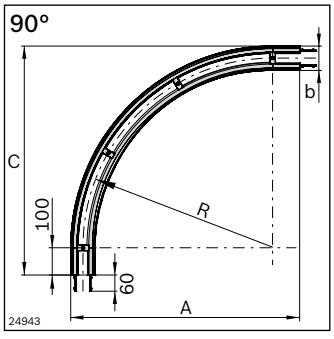
Material:
- Profile: Aluminum, anodized
- Profile connector: Steel; galvanized
- Cross connector: Die-cast aluminum



Sliding curve horizontal AL	α (°)	R (mm)	No.
VF*plus* 65	30	700	**3 842 547 072**
	45	700	**3 842 547 073**
	90	700	**3 842 547 074**
VF*plus* 90	45	500	**3 842 547 075**
	90	500	**3 842 547 076**
	30	700	**3 842 547 077**
	45	700	**3 842 547 078**
	90	700	**3 842 547 079**
VF*plus* 120	30	700	**3 842 547 080**
	45	700	**3 842 547 081**
	90	700	**3 842 547 082**

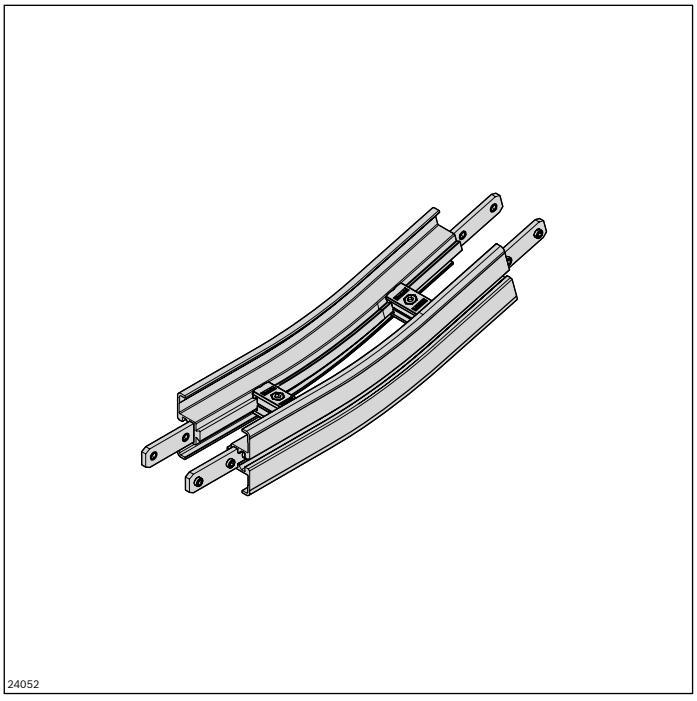






b (mm)	α (°)	R (mm)	A (mm)	C (mm)
65	30°	700	204.4	552.9
	45°	700	331.2	688.7
	90°	700	832.5	832.5
90	45°	500	294.0	556.1
	90°	500	645.0	645.0
	30°	700	227.8	559.1
	45°	700	352.6	697.5
	90°	700	845.0	845.0
120	30°	700	255.7	566.6
	45°	700	378.2	708.1
	90°	700	860.0	860.0

Vertical curve AL



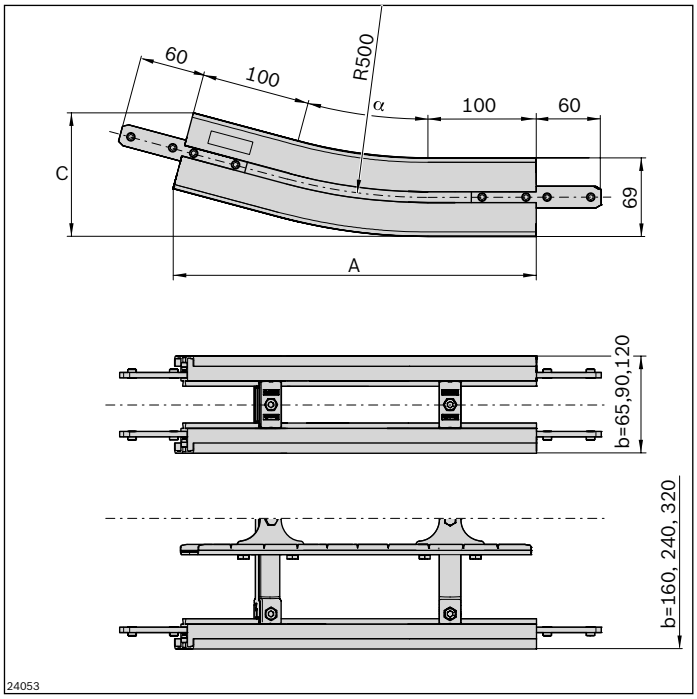
The vertical curve serves as a transition from a horizontal conveying section into an ascending section and vice versa. The chain tensile force is increased through the ensuing friction.
A vertical curve of 5° is recommended for the inlet and outlet on the wedge conveyor, especially with small products.
For attachment options, see the matrix on page 228
- Size: all
- Deflection angles and radii see table on page 65, other deflection angles and radii on request
- Suitable chain types: all
- Version with open section profiles
- Requires the use of the Advanced or Premium slide rails

Required accessories:
Slide rail: Length calculation, see p. 213

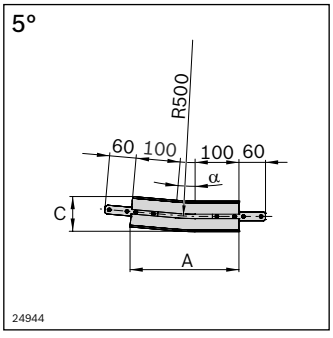
Scope of delivery:
Incl. fastening material for mounting to AL section profiles

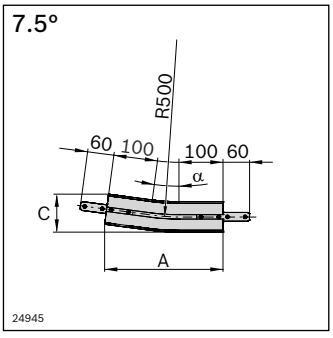
Condition on delivery:
Assembled

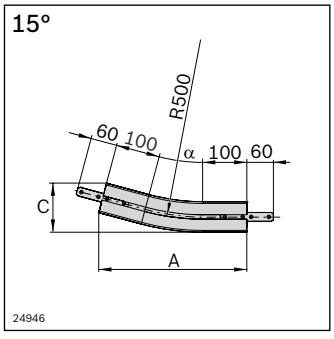
Material:
- Profile: Aluminum, anodized
- Profile connector: Steel; galvanized
- Cross connector: Die-cast aluminum
- Support profile from size 160: Stainless steel, 1.4301

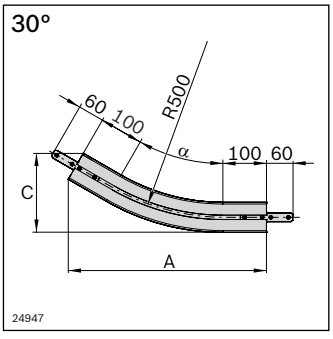


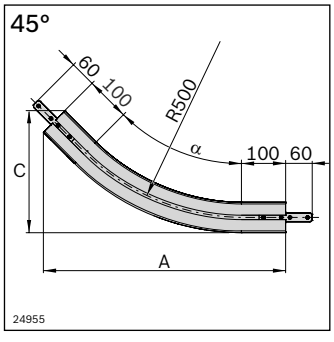
Vertical curve AL	**α** (°)	**No.**
VF*plus* 65	5	**3 842 547 083**
	7.5	**3 842 547 084**
	15	**3 842 547 085**
	30	**3 842 547 086**
	45	**3 842 547 087**
VF*plus* 90	5	**3 842 547 088**
	7.5	**3 842 547 089**
	15	**3 842 547 090**
	30	**3 842 547 091**
	45	**3 842 547 092**
VF*plus* 120	5	**3 842 547 093**
	7.5	**3 842 547 094**
	15	**3 842 547 095**
	30	**3 842 547 096**
	45	**3 842 547 097**
VF*plus* 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**
VF*plus* 240	5	**3 842 547 103**
	7.5	**3 842 547 104**
	15	**3 842 547 105**
	30	**3 842 547 106**
VF*plus* 320	5	**3 842 547 107**
	7.5	**3 842 547 108**
	15	**3 842 547 109**
	30	**3 842 547 110**





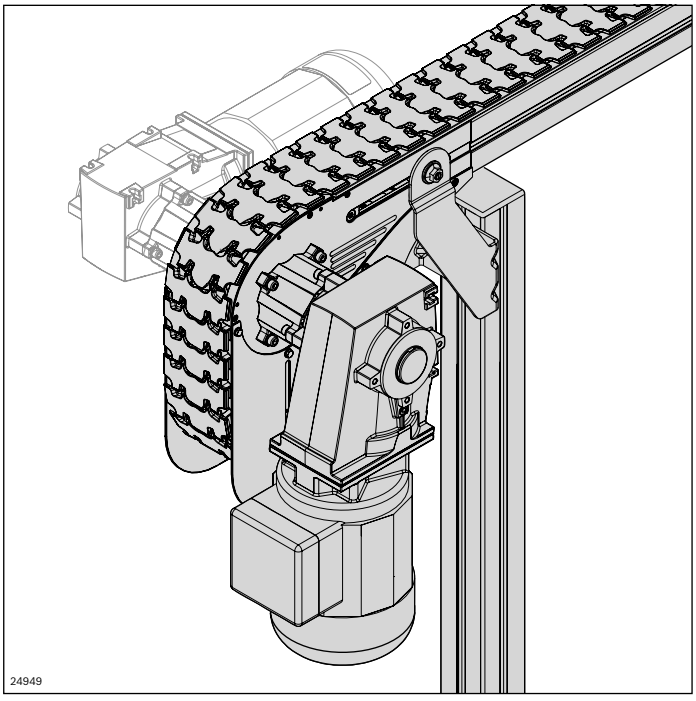






b (mm)	**α** (°)	**R** (mm)	**A** (mm)	**C** (mm)
65-320	5	500	246.2	79.5
	7.5	500	268.9	86
	15	500	334.9	110.7
	30	500	453.9	181.4
65-160	45	500	548.7	276.1

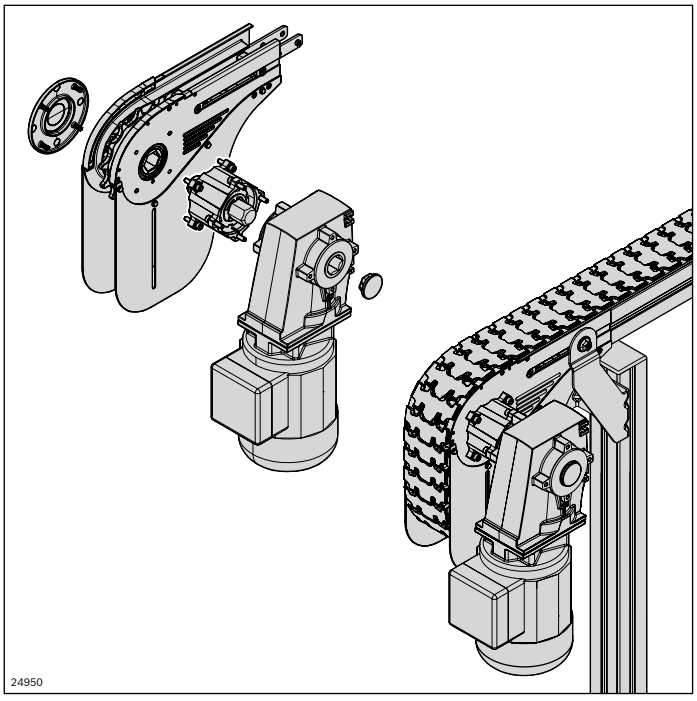
Drive and return unit AL



- Basic units with interfaces on both sides for drive kit and transmission (active bridge)
- Free selection 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 through slide rails guided in the drive/return unit
- In-stock, standardized components
- Side elements with slots to support holders

High flexibility and fast delivery times through a unique drive concept

Innovative drive concept



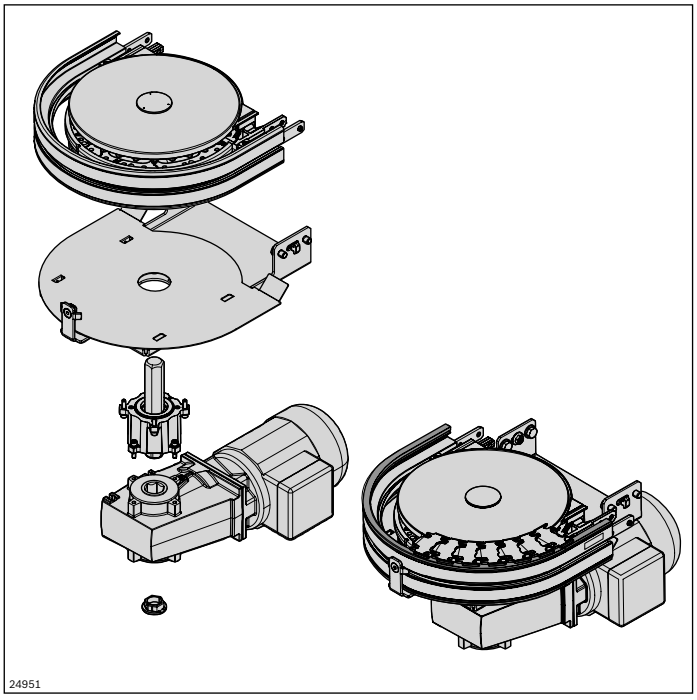
Base unit AL
(head drive direct
or connection drive)
or return unit

+

Configurable drive kit
(standard gear motor or round shaft)

=

complete drive



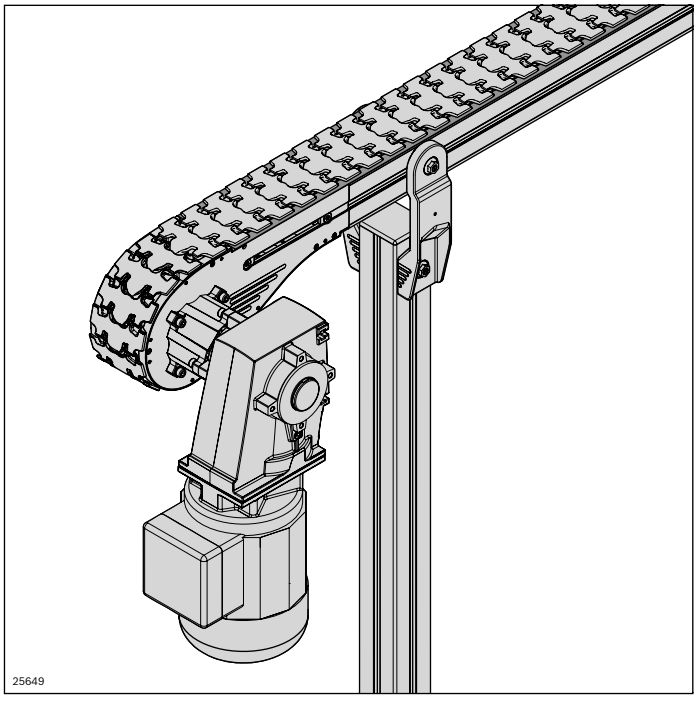
Base unit curve wheel AL

+

Configurable drive kit
(standard gear motor or round shaft)

=

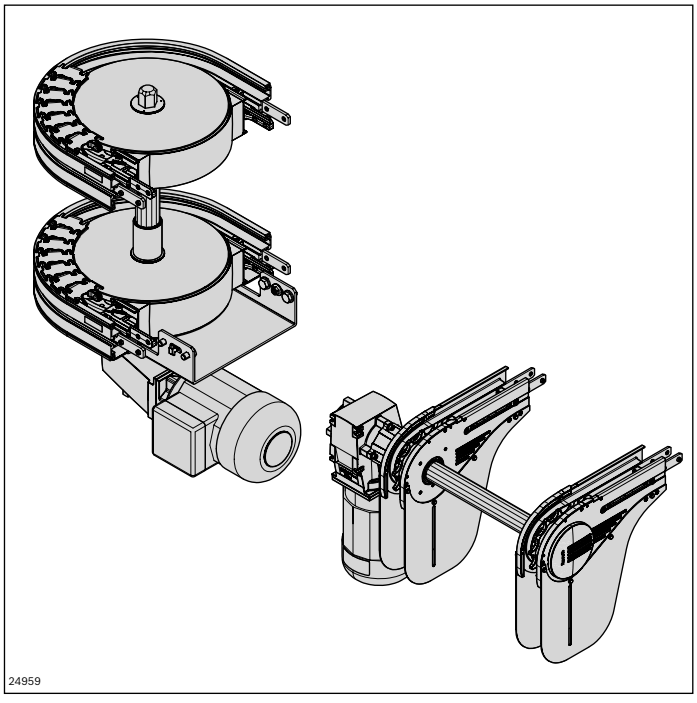
complete drive



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

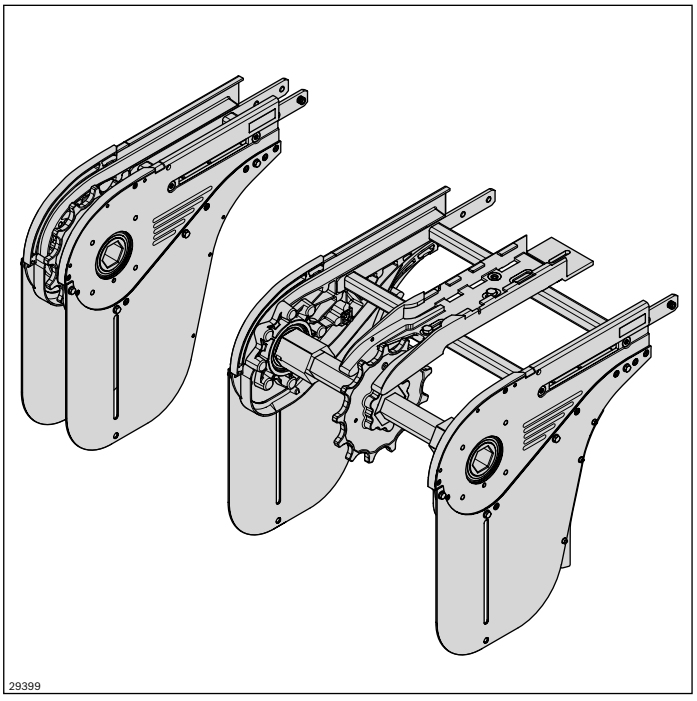
The in-stock, standardized basic units
- Are quickly and easily combined with the configurable drive kit (standard gear motor or customer-specific interface) into a complete drive
- Guarantee fast availability of the few modular elements/ spare parts

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 bridge)



The standard drives and basic curve wheel units are easily to couple and enable straightforward implementation of multi-track systems and alpine conveyors.

Base 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 bridge).
For attachment options, see the matrix on page 228
- Size: all track widths
- Suitable chain types: all
- Permissible chain tensile force: F_{max} = 1250 N
- Section length: L ≤ 30 m
- Conveying speed: v_N 4-27 m/min, other speeds available on request
- Chain bag to compensate for chain elongation during service life
- Not suitable for reversible operation

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

- ▶ Reduced noise emission through slide 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
- ▶ Stainless steel ball bearings, with sealing on both sides and FDA-compliant lubrication
- ▶ Implementation of parallel sections with gap dimension down to zero
- ▶ Side elements with slot to attach holders for lateral guides, or similar

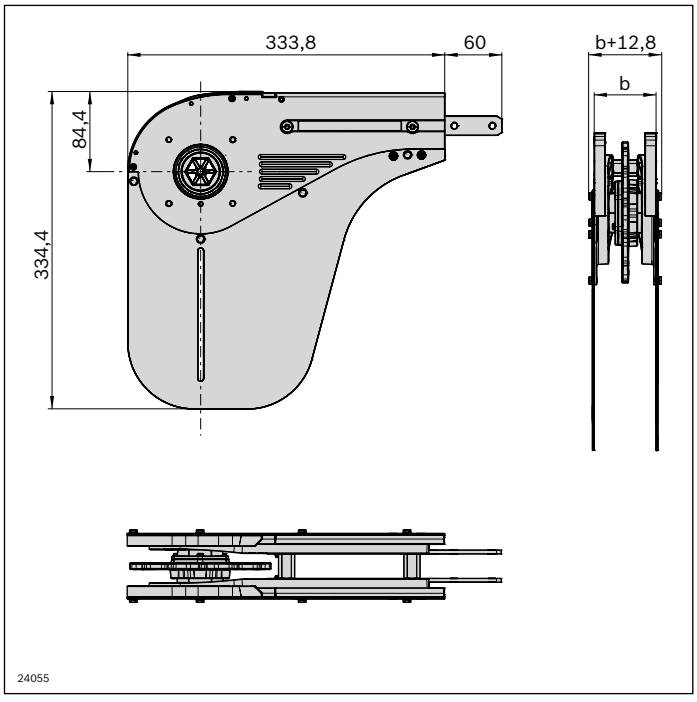
Required accessories:
- Drive kit, see p. 78
- Slide rail: Length calculation, see p. 213
- Motor leg sets, see p. 95/99

Optional accessories:
- Active or passive bridge connection kits, see p. 86
- Synchronous drive connection kit, see p. 88

Scope of delivery:
Incl. fastening material

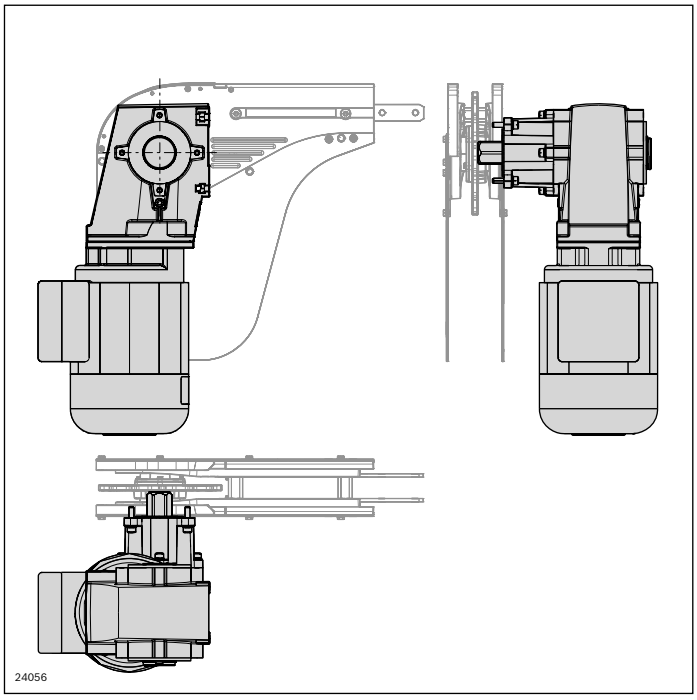
Condition on delivery:
Assembled: Chain fender enclosed

Material:
- Housing: Die-cast aluminum, powder-coated, silver
- Chain wheel: PA
- Chain guide: PA
- Connector: Steel; galvanized
- Hexagonal shaft
  up to size 160: PA
  from size 160: Stainless steel + PA
- Ball bearings: Stainless steel/ FDA



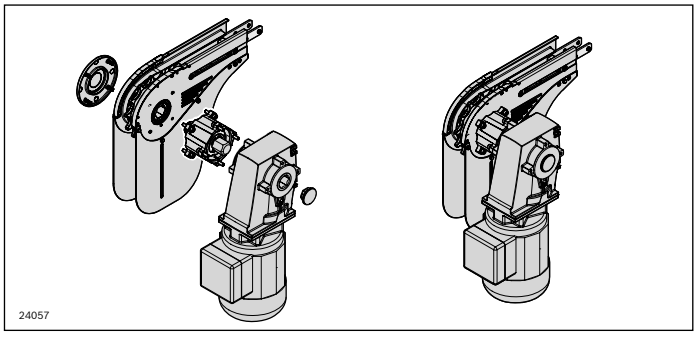
Base unit AL	No.
VF*plus* 65 direct	**3 842 546 120**
VF*plus* 90 direct	**3 842 546 121**
VF*plus* 120 direct	**3 842 546 122**
VF*plus* 160 direct	**3 842 546 123**
VF*plus* 240 direct	**3 842 546 124**
VF*plus* 320 direct	**3 842 546 125**

Order the drive kit in addition to the AL basic unit (see p. 78) to complete your drive.



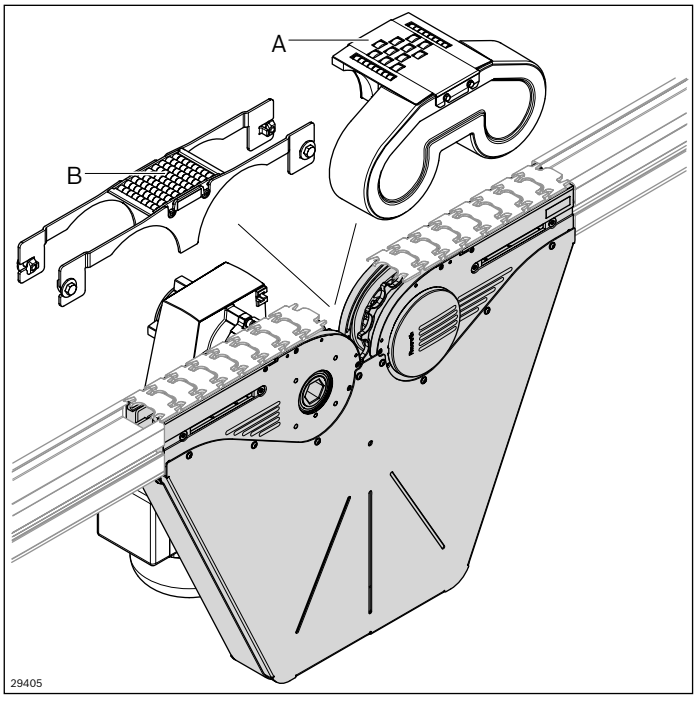
Drive kit VF*plus*	No.
	3 842 998 291

See page 78



Base unit AL direct + drive kit = head drive

Base unit AL
Connection drive



- Reduced noise emission through slide rails 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
- Stainless steel ball bearings, with sealing on both sides and FDA-compliant lubrication
- Side elements with slot to attach holders for lateral guides, or similar

Required accessories:
- Drive kit, see p. 78
- Active bridge (**A**) or passive bridge (**B**), see p. 86
- Slide rail: Length calculation, see p. 213

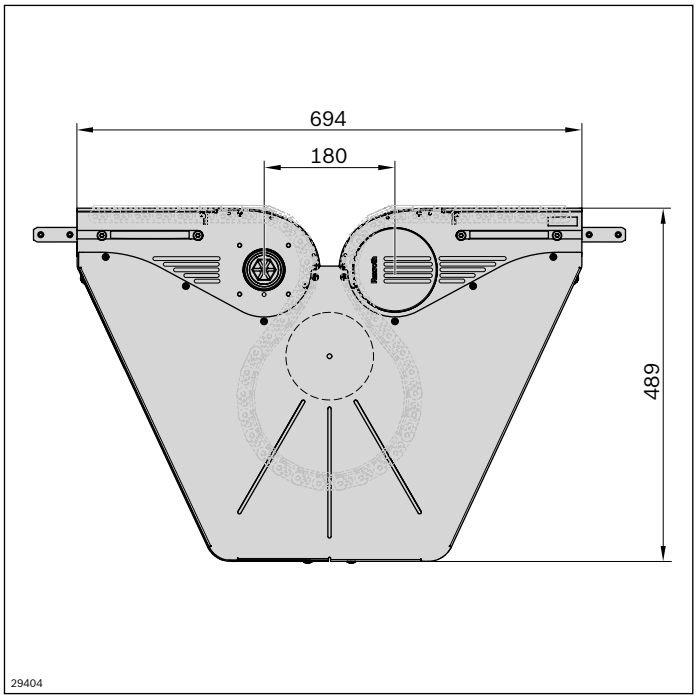
Scope of delivery: Incl. fastening material

Condition on delivery: Assembled

The connection drive is used for driving the conveyor chain in circuit systems with chain running on the upper side. Supplementing the base 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**) or passive bridge (**B**) must be added. The active bridge (**A**) 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 N
- Section length: L ≤ 30 m
- Conveying speed: v_N = 4 ... 27 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
- Can only be used with a closed profile, for safety reasons
- Not suitable for reversible operation

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

Material:
- Housing: Die-cast aluminum, powder-coated
- Chain wheel: PA
- Chain guide: PA
- Connector: Steel; galvanized
- Hexagonal shaft
  up to size 160: PA
  from size 160: Stainless steel + PA
- Ball bearings: Stainless steel/ FDA
- Chain fender: Steel; galvanized



Base unit connection drive AL	No.
VF*plus* 65	**3 842 547 712**
VF*plus* 90	**3 842 547 713**

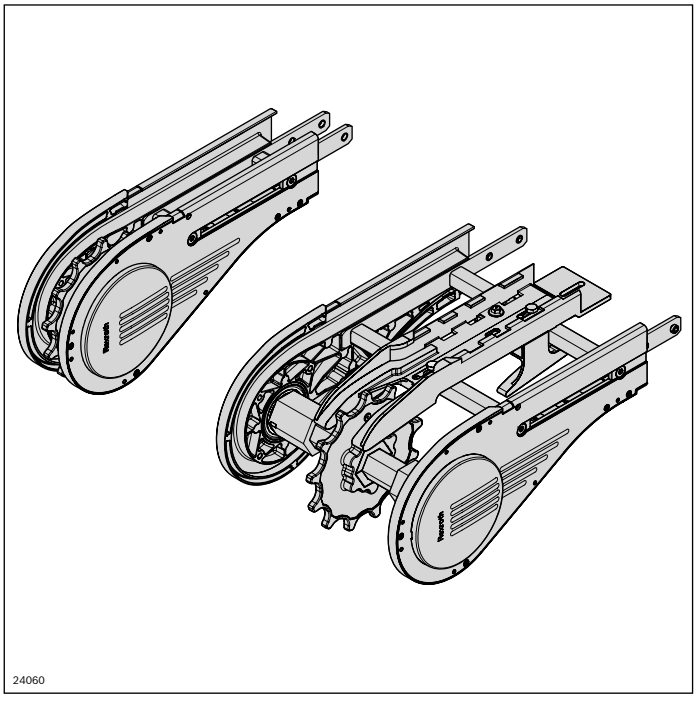
Drive kit VF*plus*	No.
	3 842 998 291
See page 78	

Connection kit active bridge	No.
VF*plus* 65	**3 842 549 023**
VF*plus* 90	**3 842 549 024**
See page 86	

Connection kit passive bridge	No.
VF*plus* 65	**3 842 549 015**
VF*plus* 90	**3 842 549 016**
See page 86	

Base unit connection drive + drive kit AL + active or passive bridge = complete connection drive

Return unit AL
Closed head drive AL



Thanks to the innovative drive concept, the return unit can be operated simply by itself or, supplemented with a drive kit, as a head drive without chain bag. The section length is limited to a maximum of 7 m. For attachment options, see the matrix on page 228

- Size: all track widths
- Suitable chain types: all
- Permissible chain tensile force
  Return unit function: F_{max} = 1250 N
  Head drive without chain bag function: F_{max} = 600 N
  With shortened maintenance interval, due to chain elongation
- Section length for return unit function: L ≤ 30 m
  Section length for function as drive: L ≤ 7 m
- Conveying speed: v_N = 4 ... 60 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

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

- ▶ Reduced noise emission through the slide rails 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
- ▶ Stainless steel ball bearings, with sealing on both sides and FDA-compliant lubrication
- ▶ Implementation of parallel sections with gap dimension down to zero
- ▶ Side elements with slot to attach holders for lateral guides, or similar

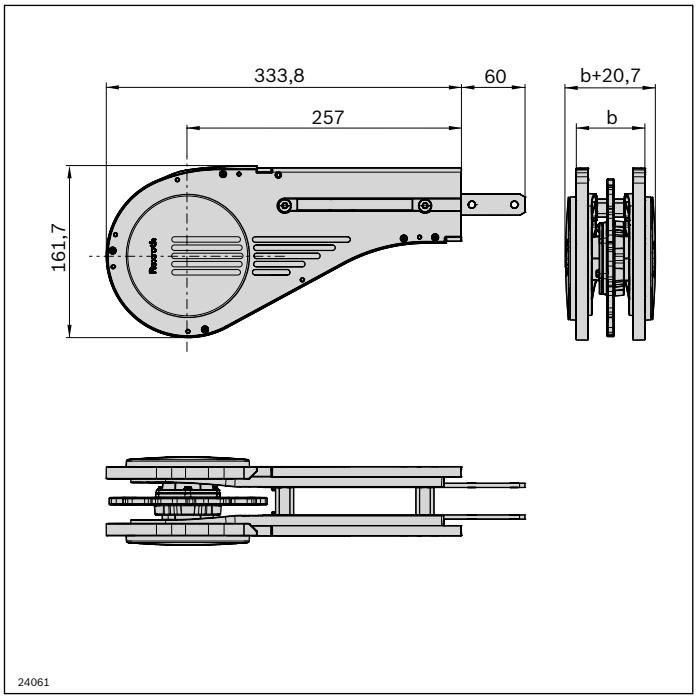
Required accessories:
- Slide rail: Length calculation, see p. 213

For use as a drive:
- Assembly module, see p. 51
- Drive kit, see p. 78
- Motor leg sets, see p. 95/99

Scope of delivery: Incl. fastening material

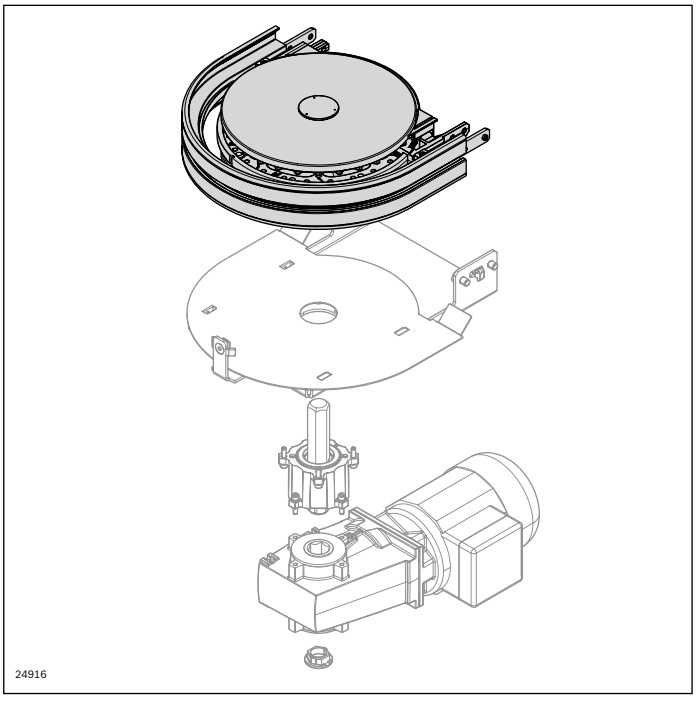
Condition on delivery: Assembled

Material:
- Housing: Die-cast aluminum, powder-coated
- Chain wheel: PA
- Chain guide: PA
- Connector: Steel; galvanized
- Hexagonal shaft
  up to size 160: PA
  from size 160: Stainless steel + PA
- Ball bearings: Stainless steel/ FDA



Return unit AL	No.
VF*plus* 65	**3 842 547 516**
VF*plus* 90	**3 842 547 517**
VF*plus* 120	**3 842 547 518**
VF*plus* 160	**3 842 547 519**
VF*plus* 240	**3 842 547 520**
VF*plus* 320	**3 842 547 521**

Base unit
Curve wheel drive AL



- Driving several superimposed basic curve wheel units is easily implemented via the integrated hexagonal hollow shafts
- Stainless steel ball bearings, with sealing on both sides and FDA-compliant lubrication
- Side elements with slot to attach holders for lateral guides, or similar

Required accessories:
- Curve wheel drive kit, see p. 80
- Assembly module, see p. 51
- Slide rail: length calculation, see p. 213
- Leg set, see p. 97

Optional accessories:
Spiral accumulating conveyor connection kit, see page 90

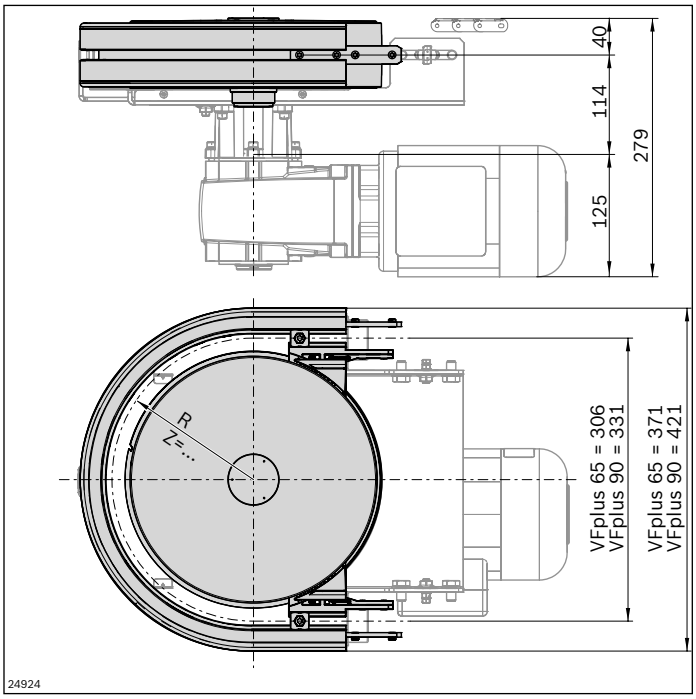
The curve wheel drive is used for driving the conveyor chain in circuit systems with chain running on the upper side.
The AL 180° basic curve wheel unit is quickly transformed into a curve wheel drive when combined with a compatible drive kit.
For attachment options, see the matrix on page 228
- Size: 65 and 90
- Suitable chain types: all
- Permissible chain tensile force: F_{max} = 400 N per level
  Section length for closed circuits L ≤ 10 m
- Permissible torque: M_{max} = 60 Nm
  When combining several curve wheel base units, the motor torque must be distributed across the individual levels
- Conveying speed: v_N = 4 ... 21 m/min
  For drives with frequency converters (FU), the speed is to be limited by a control system to maximum 21 m/min
- Recommendation: no accumulation operation until 1000 mm after the curve wheel drive
- Can only be used with a closed profile

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

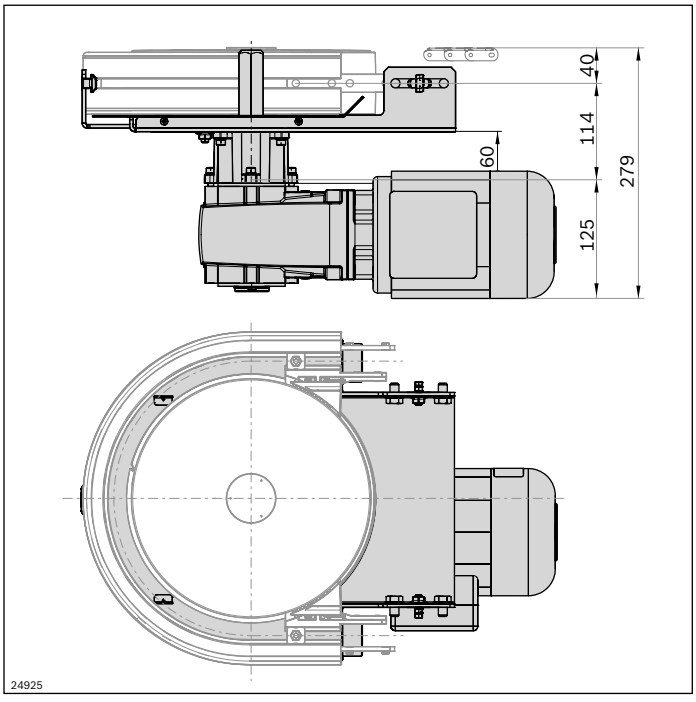
Scope of delivery:
Incl. fastening material

Condition on delivery:
Unassembled

Material:
- Housing: Die-cast aluminum
- Chain wheel: PA; white
- Ball bearings: Stainless steel/ FDA

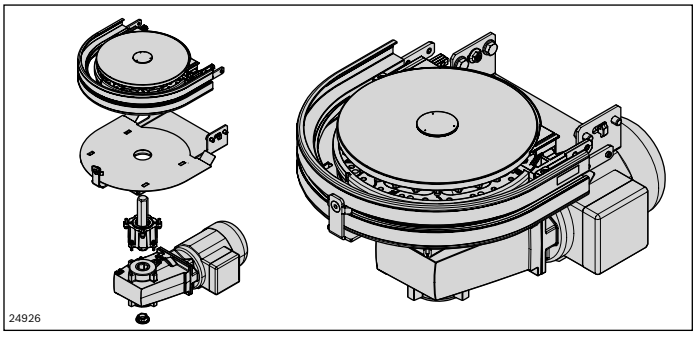


Base unit curve wheel AL	α (°)	No.
VF*plus* 65	180	**3 842 547 380**
VF*plus* 90	180	**3 842 547 381**

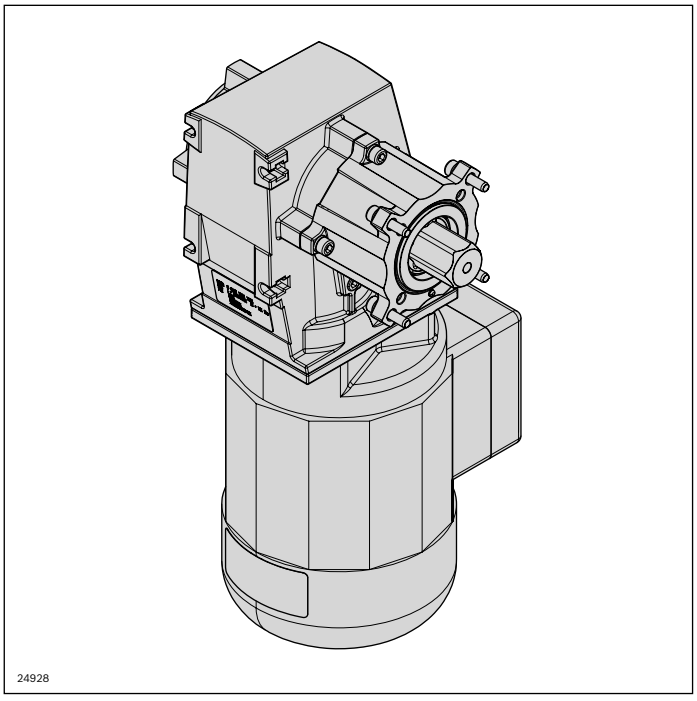


Drive kit curve wheel VF*plus* AL	No.
	3 842 998 742

See also page 80



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.

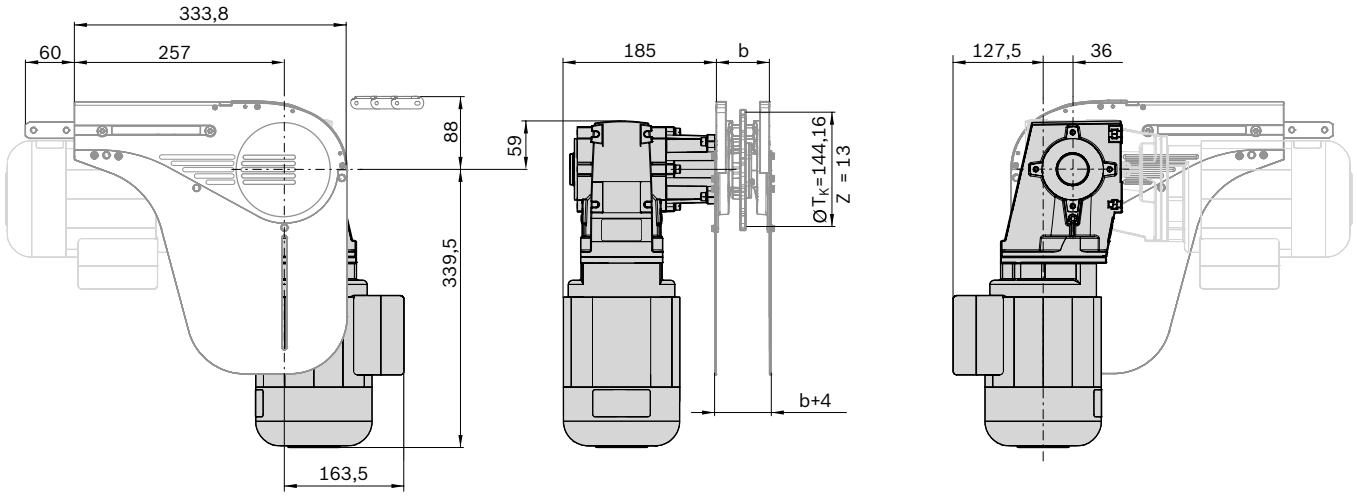
- Versions in aluminum (SP = AL) or stainless steel (SP = STS)
- For SP=AL with adjustable ball catch coupling (Kpg = 1) or without (Kpg = 0). The coupling does not provide personal safety. Preset to maximum chain tensile force at the factory.
- With a Lenze gear motor (GM = 1) or with interface for attaching an SEW SA47 gear motor (GM = 2). An adaptation is required by the customer for attaching other gear motors (GM = 0), see p. 225
- Fixed or adjustable speed (v_N) For an adjustable speed, gear motors must be retrofitted with an FU (frequency converter), see page 82
- 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 page 82

Scope of delivery:
- Incl. fastening material
- Incl. flange, shaft and gear motor (GM = 1)

Material:
- Flange, motor: Die-cast aluminum
- Shaft: Stainless steel/PA
- Ball catch coupling: Steel

Condition on delivery:
Assembly kit

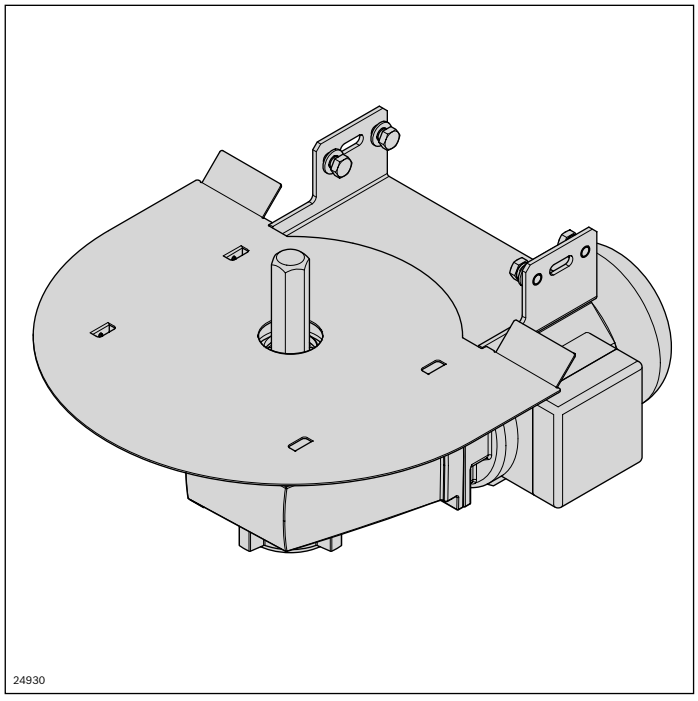


b = size

Drive kit VF*plus*	**SP**	**GM**	**Kpg**	**v_N** (m/min)	**U/f** (V/Hz) **See page 218**	**AT**	**No.**
	AL; STS*	0: 1; 2	0; 1	5, 10, 13, 16, 21, 27, 33, 40, 50		K; S	**3 842 998 291** SP = ... GM = ... Kpg = ... v_N = ... U/f = ... AT = ...

* STS version see page 130

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

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.

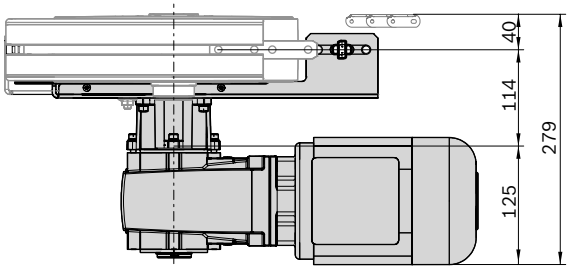
- To construct a circuit with curve wheel (AC = 0) or an alpine conveyor (AC = 1)
- With preset ball catch coupling (Kpg = 1) for limiting torque or for the alpine conveyor drive kit (AC = 1), also without (Kpg = 0). The coupling does not provide personal safety.
- With a Lenze gear motor (GM = 1) or with interface for attaching an SEW SA47 gear motor (GM = 2).
  An adaptation is required by the customer for attaching other gear motors (GM = 0), see p. 225
- Fixed or adjustable speed (v_N) For an adjustable speed, gear motors must be retrofitted with an FU (frequency converter), see p. 82
- 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 ... 21 m/min. On drives with a frequency converter, the speed must be limited to a maximum of 21 m/min using control technology.

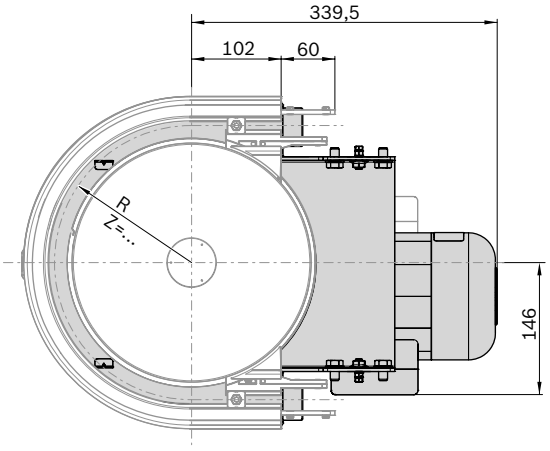
Required accessories:
Motor leg sets, see p. 99

Scope of delivery:
- Incl. fastening material
- Incl. fender (contact protection from below)
- Incl. flange, shaft and gear motor (GM = 1)

Condition on delivery:
Assembly set

Material:
- Flange: Aluminum, die-cast
- Shaft: STS
- Connecting sheet, cover sheet: Steel; galvanized
- Ball catch coupling: Steel



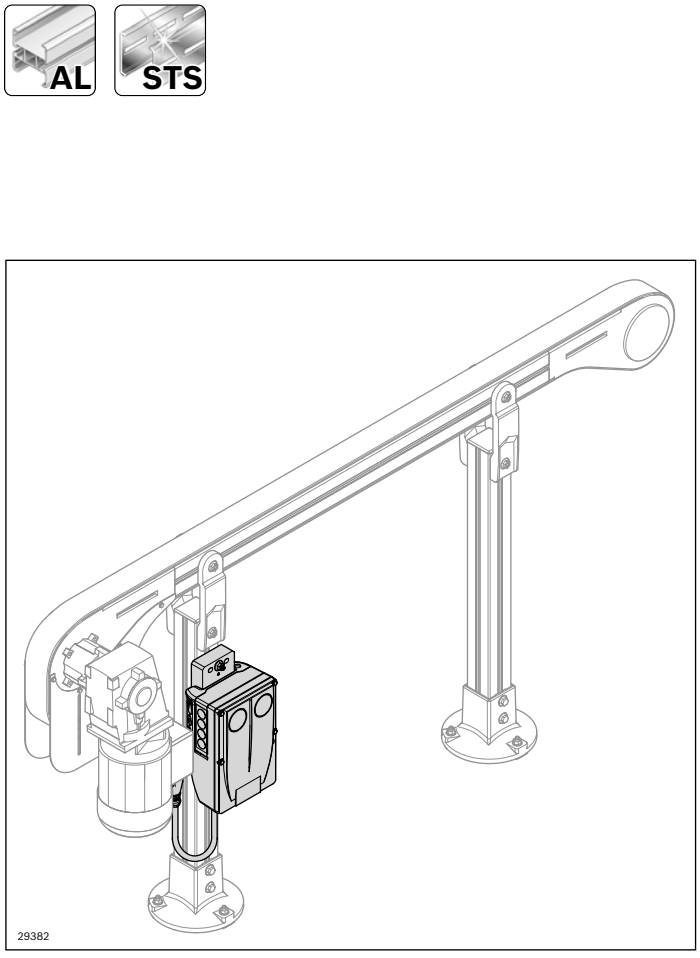


	R (mm)	**Z** (mm)
VF*plus* 65	153.0	28
VF*plus* 90	165.5	30

24931

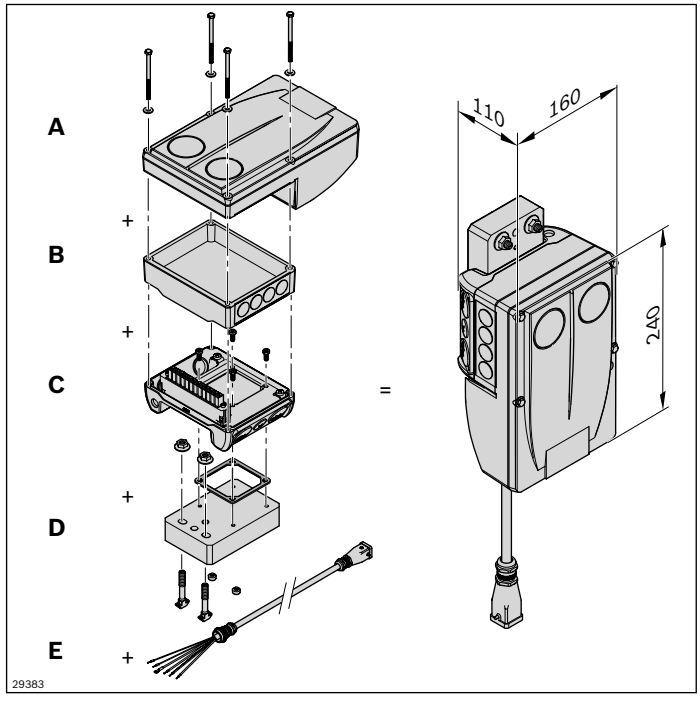
Drive kit curve wheel AL	**GM**	**AC**	**b** (mm)	**Kpg**	**v_N** (m/min)	**U/f** (V/Hz) **See page 218**	**AT**	**No.**
	0; 1; 2	0; 1	65; 90	0; 1	5, 10, 13, 21		K; S	**3 842 998 742** GM = ... AC = ... b = ... Kpg = ... v_N = ... U/f = ... AT = ...

Frequency converter



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 leg set and connected to the motor by cable.

- Connection power: 0.55 kW
  (connection voltage:
  400 V ± 10% ... 460 V/480 V ± 10%)
- Speed (v_N) depending on the base speed of the gear motor used

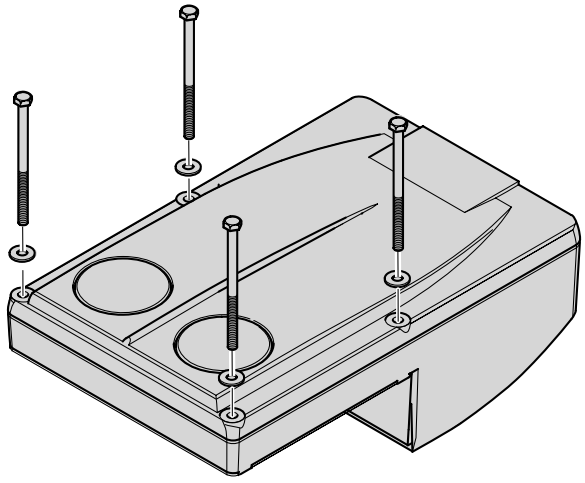


Complete frequency converter consisting of the modules

- Frequency converter power element (**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 supplied screws. For the internal and external voltage supply, the modules must be wired by the user (see terminal box assignment, page 222).

A



29384

Frequency converter (A)

Power element: 0.55 kW

(400 V ± 10% ... 460 V/480 V ± 10%)

- Easy commissioning via hand-held terminal
- Easy to replace memory module
- Large LED as status display

Frequency converter	No.
Power element 0.55 kW	**3 842 553 447**

The speed range of the frequency converter *) is based on the base speed of the motor:

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

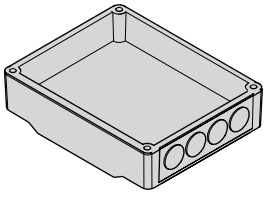
*) In the event of an appropriate loss of power, a higher bandwidth can also be covered (see page 221)

[1] Min corresponds to about 16 Hz supply frequency

[2] Max corresponds to about 60 Hz supply frequency

[3] At 460 V/60 Hz max (m/min) 20% higher

B



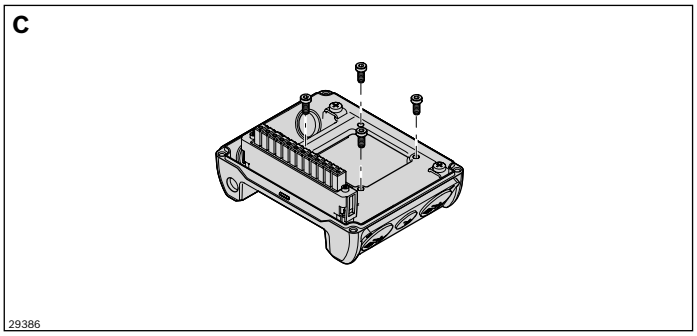
29385

Communication module (B)

- For controlling the frequency converter
- Cable connection options

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

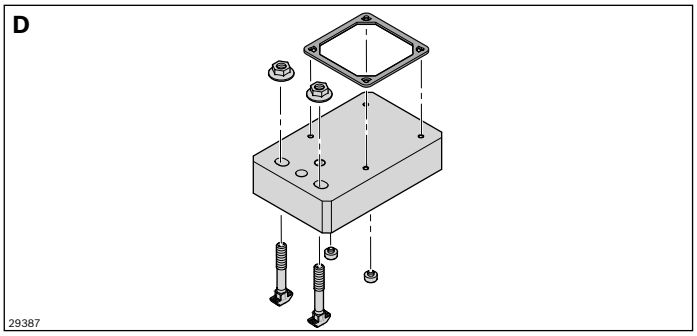
Communication module	No.
Standard I/O	**3 842 553 449**
AS-i	**3 842 553 453**
CANopen	**3 842 553 454**
EtherNet/IP	**3 842 553 451**
EtherCAT	**3 842 553 459**
PROFIBUS	**3 842 553 452**
PROFINET	**3 842 553 450**



Connection unit (C)

– Options for connecting to the mains

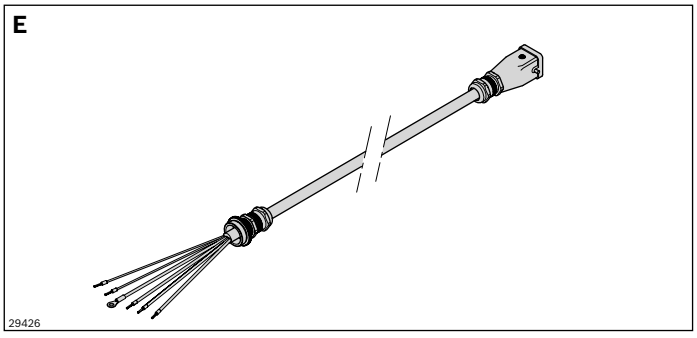
Connection unit	No.
	3 842 553 445



Attachment kit (D)

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

Attachment kit	No.
	3 842 553 457

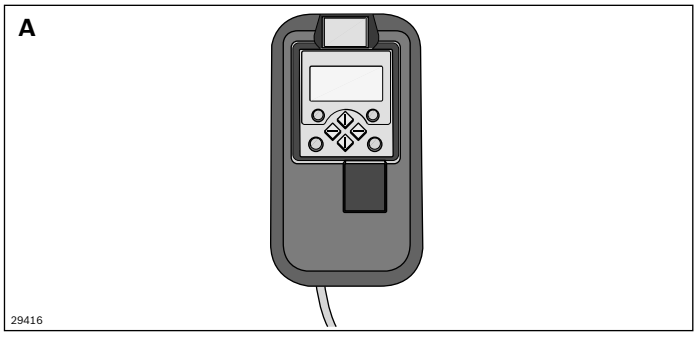


Connection cable (E)

– For connecting the gear motor with the frequency converter (length: 1 m)

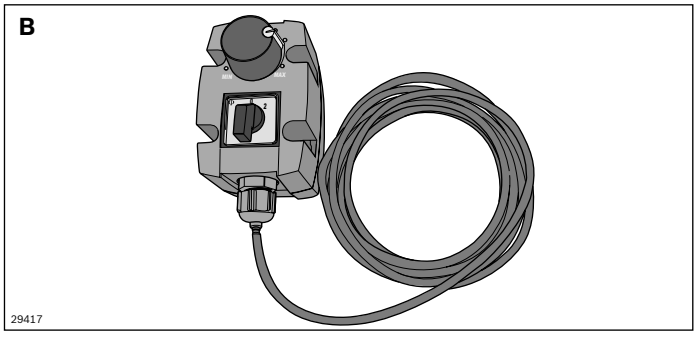
Connection cable	No.
	3 842 553 512

Manual control unit
Switch /potentiometer unit



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
- continuously regulate the transport speed
- transfer parameter sets to other basic devices

Manual control unit	No.
	3 842 552 821



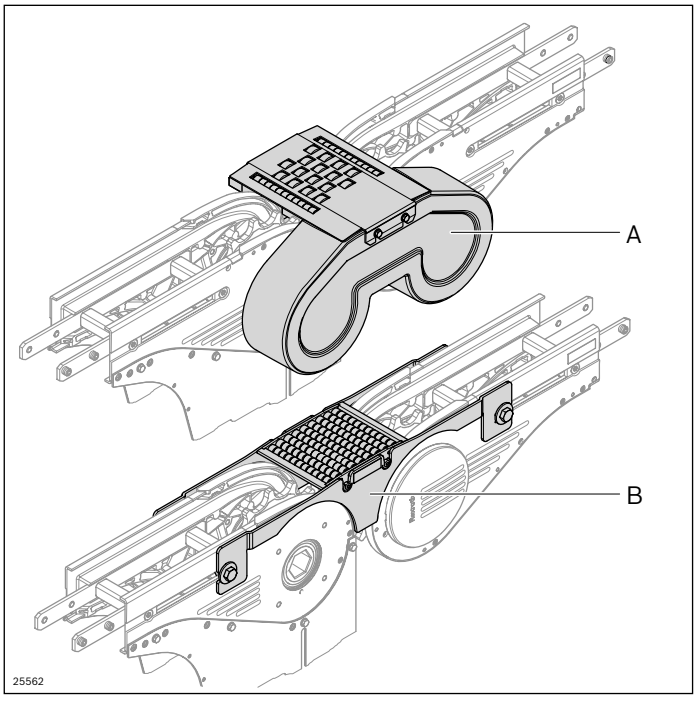
Switch /potentiometer unit
The switch / potentiometer unit is used to fine tune the transport speed within a range that has been preset with the manual control unit. The switch / potentiometer unit is connected to the frequency converter by a cable.
The drive can be started or stopped with the rotary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

Note: It is imperative that the direction in which the chain conveyor is running is checked prior to start-up.

Switch /potentiometer unit	No.
	3 842 553 184

Scope of delivery:
A, B: Incl. 2.5 m connection cable

Connection kit active (A) bridge
Connection kit passive (B) bridge



The active and passive bridges are used as a transfer unit between the base unit and return unit or with the connection drive to bridge the conveyor trench.

- Sizes: 65-160
- Only for flat conveyor chain and static friction chain
- Height adjustment: approx. 3 mm
- Additional versions (e.g. machine variants) available on request

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

- 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)

B: The passive bridge serves the purpose of bridging the conveyor trench.

- Transfer of the goods via passive rollers
- Suitable for goods from approx. 300 mm length

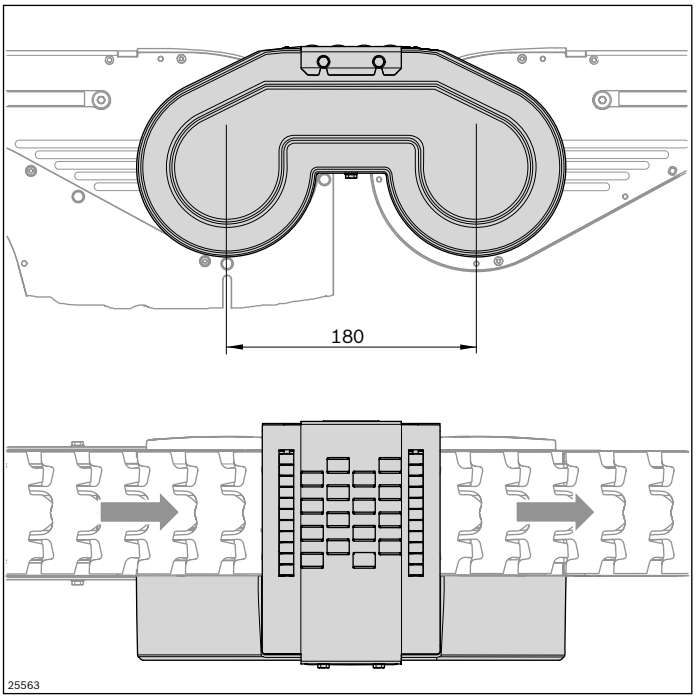
- **A:** Simple transmission of the drive force using hexagonal hollow shafts integrated into the basic unit or return unit as standard
- **A+B:** Can be retrofitted into a standard configuration at any time

- **A+B:** Active and passive bridges can be used at section ends for product transfer

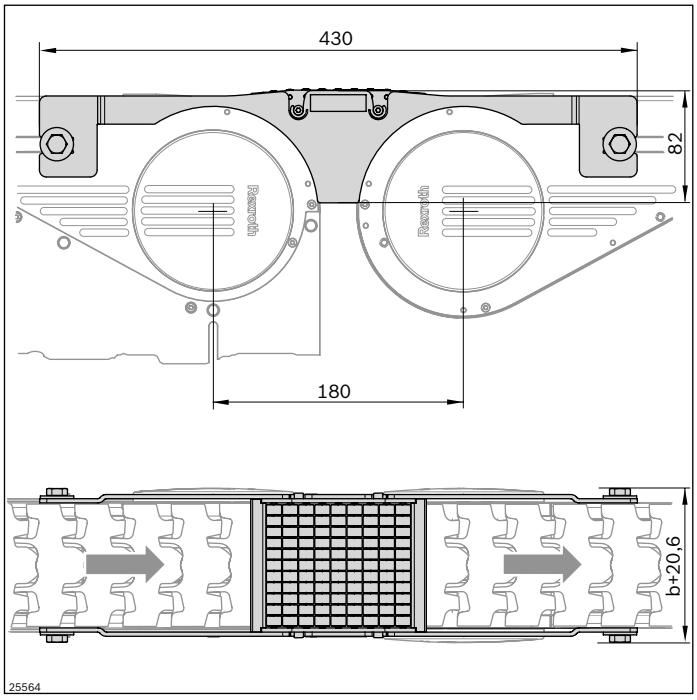
Scope of delivery:
A+ B: Incl. fastening material
A: Transmission and protective cover

Condition on delivery:
Partially assembled

Material:
- Active bridge: Stainless steel/PA/POM/ABS/PUR
- Passive bridge: Stainless steel/PA

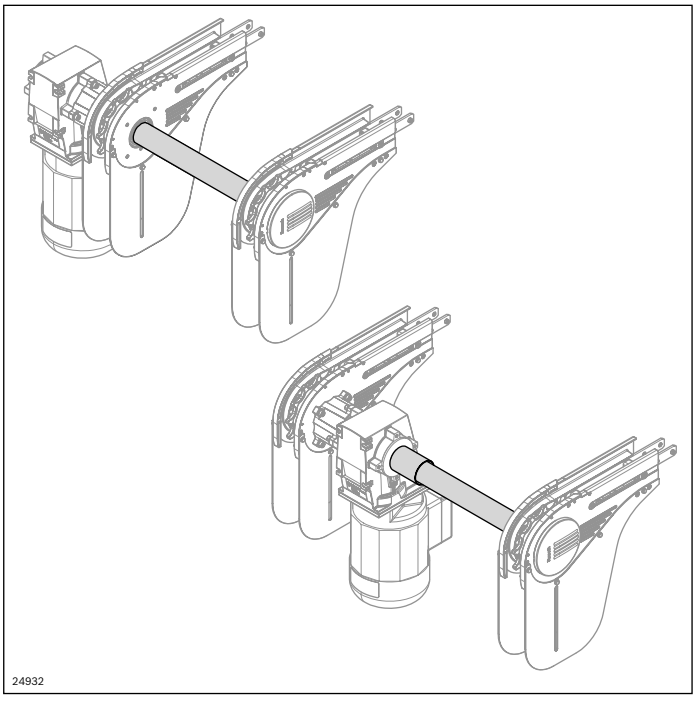


Connection kit active bridge	No.
VF*plus* 65	**3 842 549 023**
VF*plus* 90	**3 842 549 024**
VF*plus* 120	**3 842 549 025**
VF*plus* 160	**3 842 549 026**



Passive bridge connection kit	No.
VF*plus* 65	**3 842 549 015**
VF*plus* 90	**3 842 549 016**
VF*plus* 120	**3 842 549 017**
VF*plus* 160	**3 842 549 018**

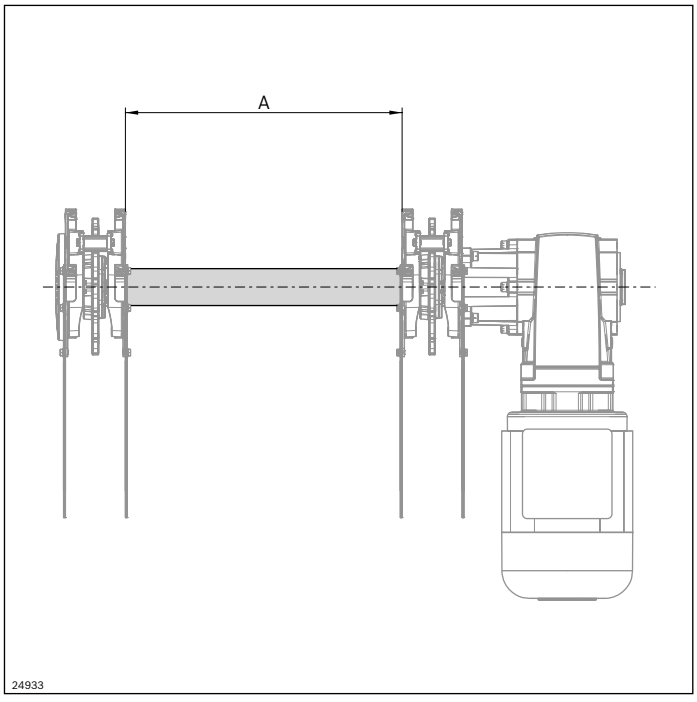
Connection kit
Synchronous drive, external motor/internal motor



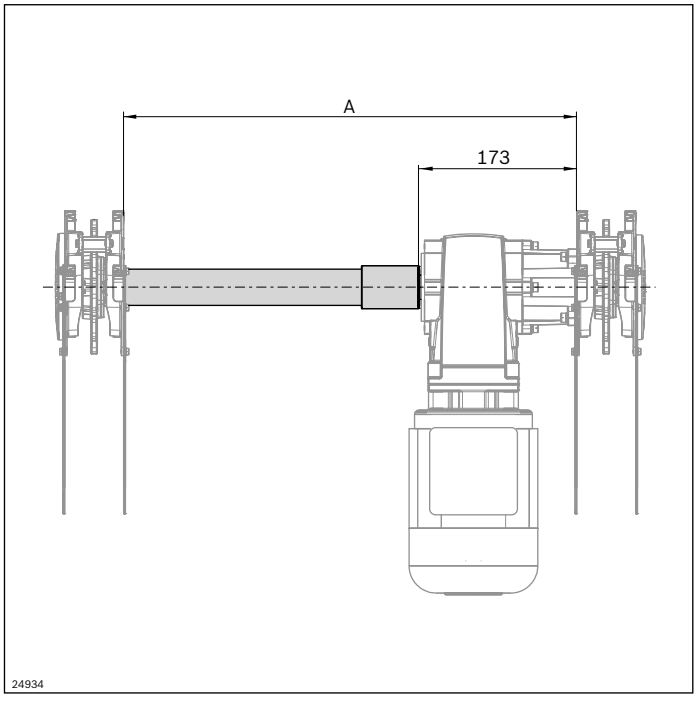
Condition on delivery:
Unassembled

Material:
- Shaft: Stainless steel
- Coupling: PA

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 AL holders (see p. 95, 99), minimum distance between the sections: $A_{min\ AL} \geq 20$ mm
- Internal synchronous drive:
  - Motor mounting position between the parallel sections for drive kit GM = 1 (see p. 78), customer check required for other motor types

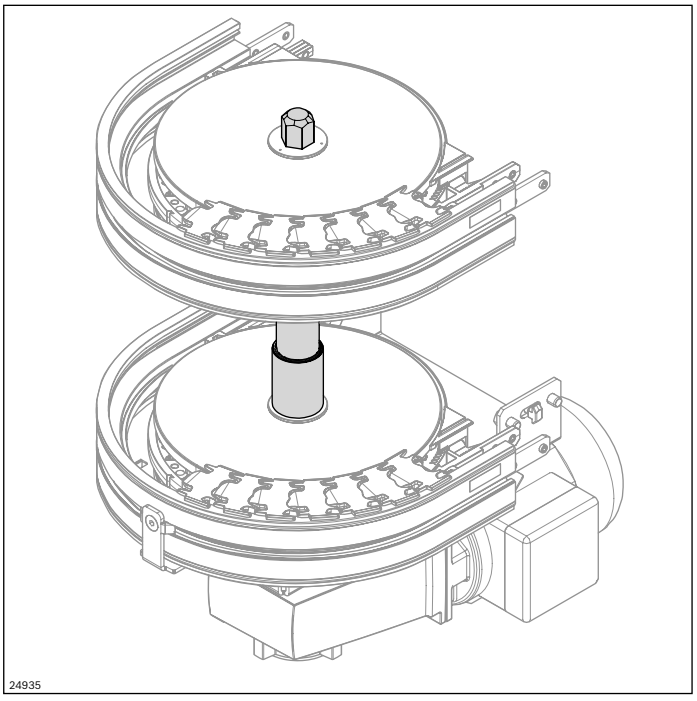


Synchronous drive connection kit	**A** (mm)	**No.**
VF*plus* external motor	15 ... 2940	**3 842 998 774**



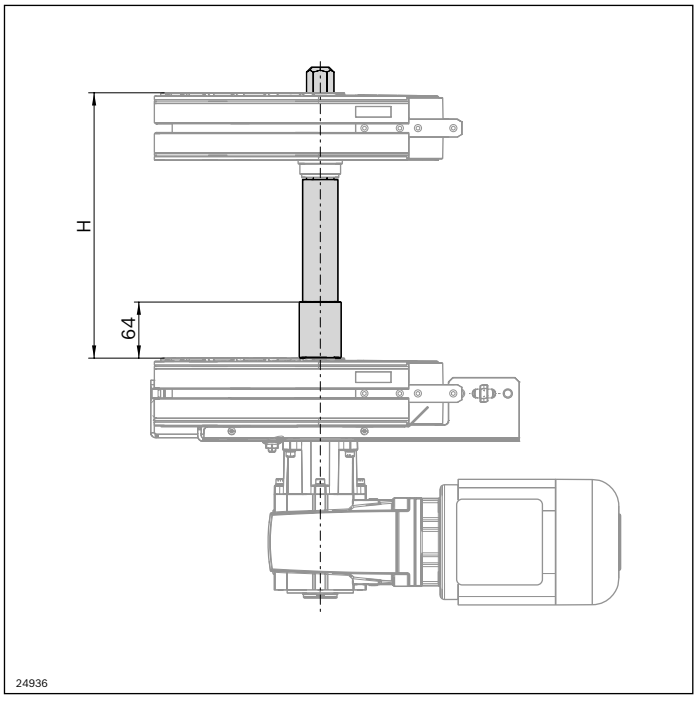
Synchronous drive connection kit	**A** (mm)	**No.**
VF*plus* internal motor	240 ... 3160	**3 842 998 775**

Alpine conveyor connection kit



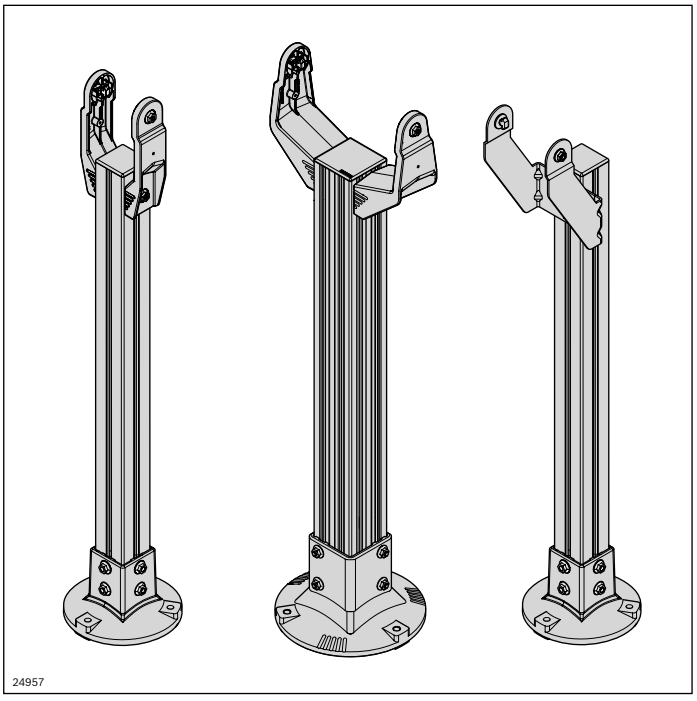
With the alpine conveyor connection kit, an alpine conveyor can be easily assembled in sizes 65 mm or 90 mm by combining multiple aluminum curve wheels.

Material:
- Shaft: Stainless steel
- Coupling: Polyamide



AC alpine conveyor connection kit	**H** (mm)	**No.**
	172 ... 1000	**3 842 998 776**

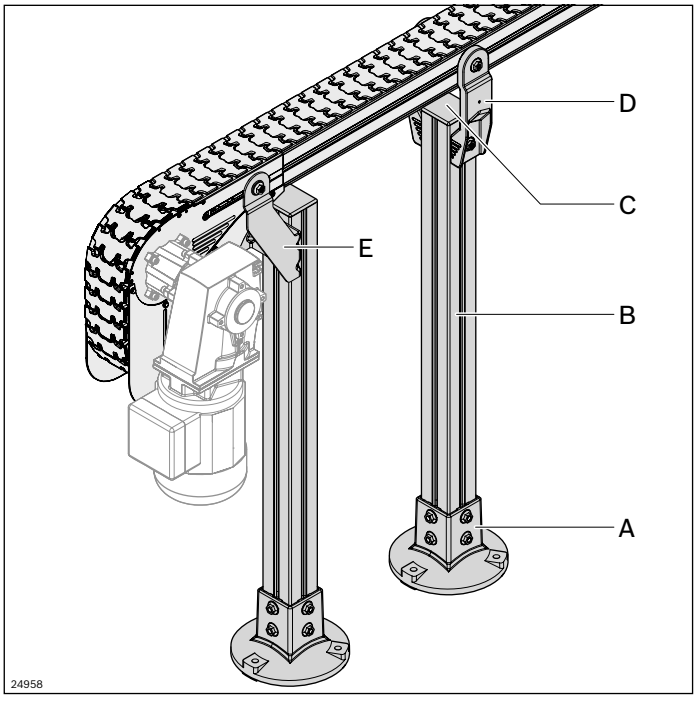
AL leg sets



- 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.
- Leg sets can also be used in conjunction with STS sections

Fast, simple leg set adjustment thanks to clever product details

AL leg set 65-120



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

The chain conveyor is connected and fastened to the ground with leg sets or 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 individual parts:
Foot 60x60 (**A**), strut profile 60x60 (**B**), 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 leg sets are to be fixed at a distance of approx. 2 ... 3 m
- The leg sets for the stainless steel system (see p. 142) may also be used for the aluminum system
- The holder (**E**) may only be used for AL systems
- Height adjustment range, depending on the returning chain, is up to 79 mm (**D**), see page 237
- The holder (**D**) can also be used for ascending and descending conveyor sections (up to 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.

Optional accessories:
Dowel, washer, see p. 96

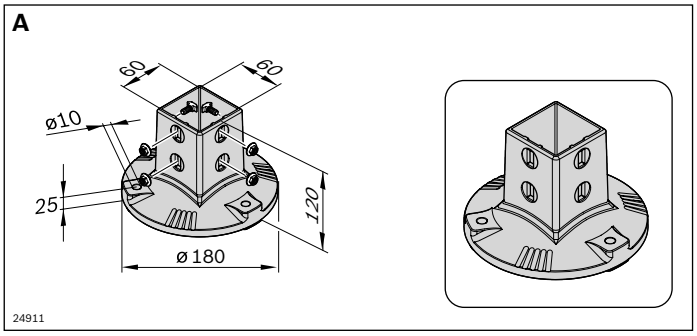
Alternative feet (see Basic Mechanic Elements catalog, “Feet and wheels” section)

Scope of delivery:
A, **E**: incl. fastening material
D: Set (2 pcs) incl. fastening material

Condition on delivery:
Unassembled

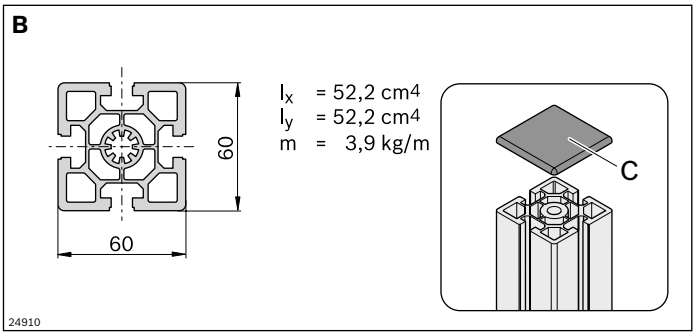
Material:
A, **D**: Die-cast aluminum, silver
B: Aluminum, natural, anodized
C: PA; black
E: Steel; galvanized

A



Foot AL		**No.**
VF*plus* 60x60	1	**3 842 544 875**

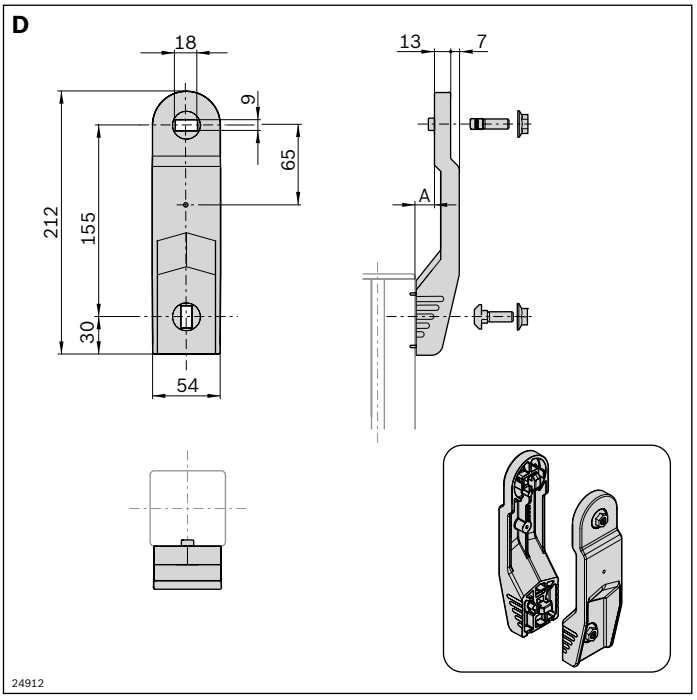
B



Section profile AL 60x60	**L** (mm)	**No.**
20 pcs	6070	**3 842 509 185**
1 pc	50 ... 5600	**3 842 990 350/L**

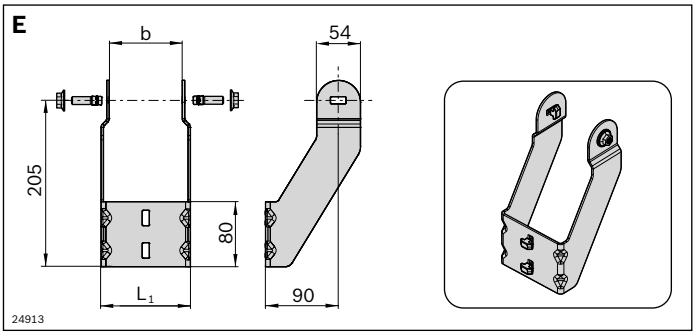
Cap		**No.**
VF*plus* 60x60, black	100	**3 842 511 874**

D

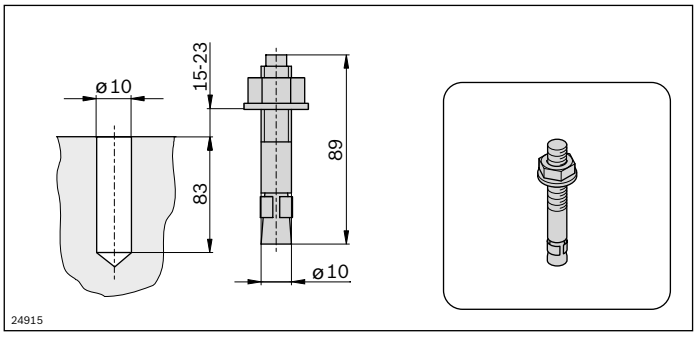


Holder AL	**b** (mm)	**A** (mm)		**No.**
VF*plus* 65	65	2.5	Set	**3 842 546 625**
VF*plus* 90	90	15	Set	**3 842 546 626**
VF*plus* 120	120	30	Set	**3 842 546 627**

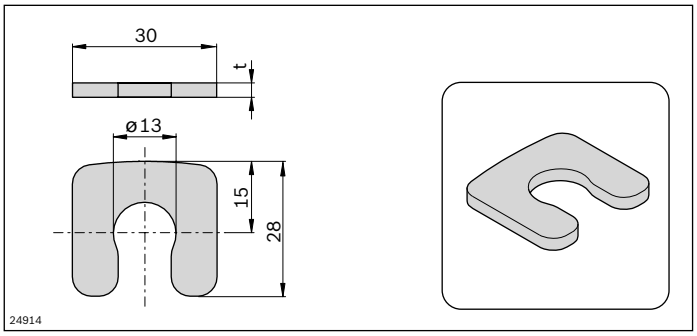
E



Holder engine support AL	**b** (mm)	**L_1** (mm)		**No.**
VF*plus* 65	65	85	Set	**3 842 547 442**
VF*plus* 90	90	110	Set	**3 842 547 443**
VF*plus* 120	120	140	Set	**3 842 547 444**

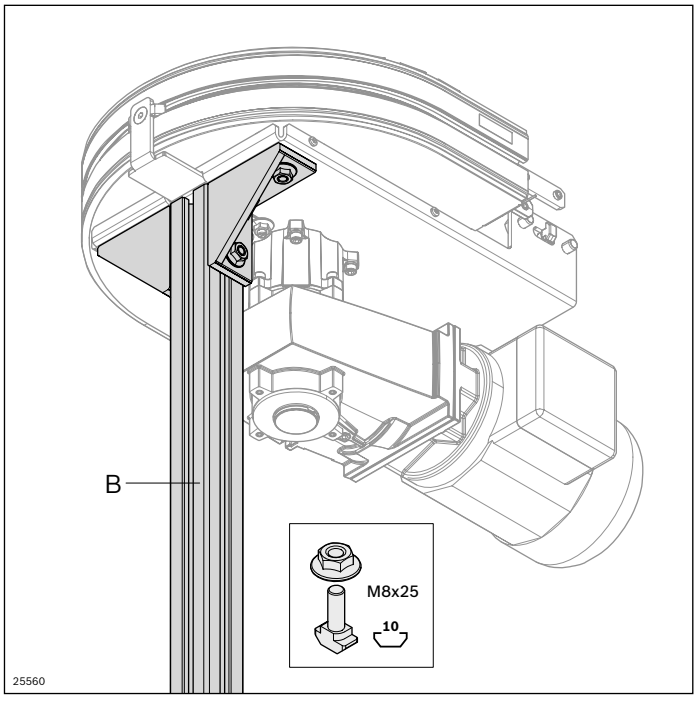


Dowel		No.
	100	**3 842 540 668**

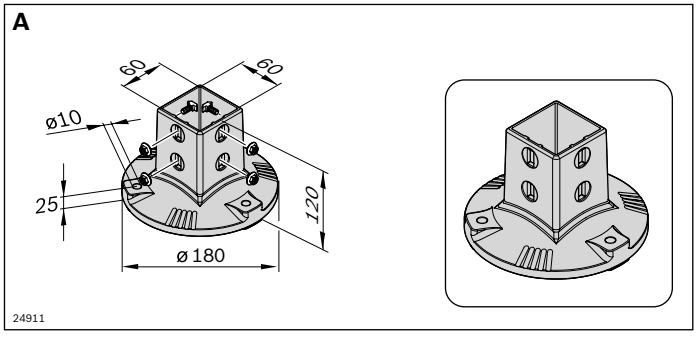


Washer	**t** (mm)		No.
	1	100	**3 842 546 717**
	3	20	**3 842 546 718**

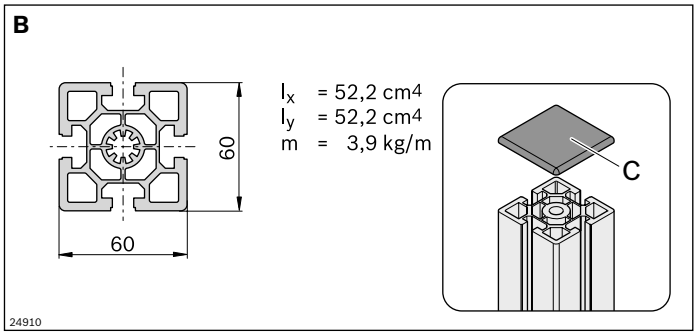
Curve wheel drive support



Bracket 40/80	Slot	ESD		No.
Set (standard)	10 / 10		1	**3 842 529 386**
Set *designLINE*	10 / 10		1	**3 842 538 717**



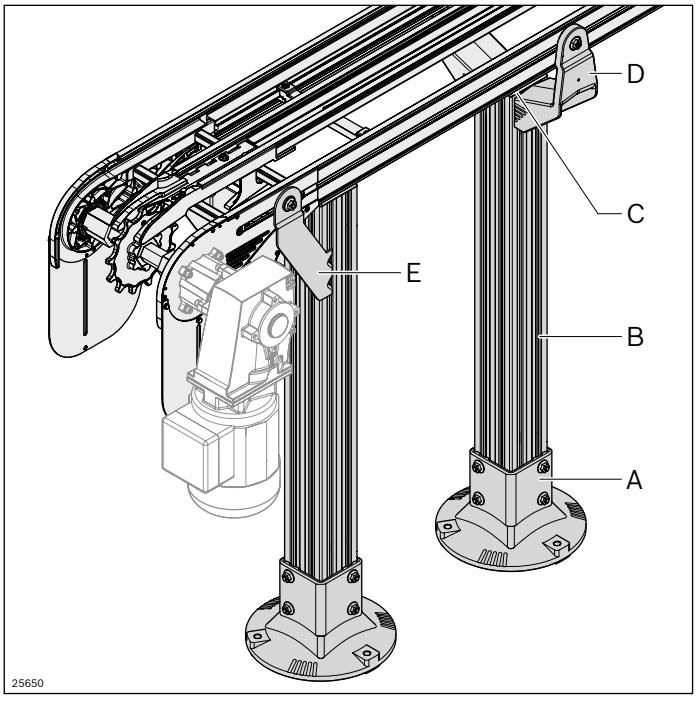
Foot AL		No.
VF*plus* 60x60	1	**3 842 544 875**



Section profile AL 60x60	L (mm)	No.
20 pcs	6070	**3 842 509 185**
1 pc	50 ... 5600	**3 842 990 350/L**

Cap		No.
VF*plus* 60x60, black	100	**3 842 511 874**

AL leg set 160–320



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

The chain conveyor is connected and fastened to the ground with leg sets or 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**), cap (**C**), holder for attaching the section profiless (**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 leg sets are to be fixed at a distance of approx. 2 ... 3 m
- The leg sets for the stainless steel system (see p. 142) 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. 237
- The holder (**D**) can also be used for ascending and descending conveyor sections (up to 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.

Optional accessories:
Dowel, washer, see p. 96

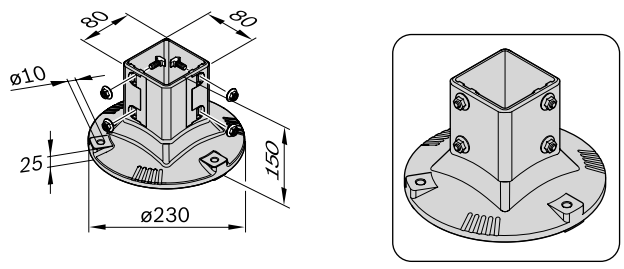
Alternative feet (see Basic Mechanic Elements catalog, “Feet and wheels” section)

Scope of delivery:
A, **E**: incl. fastening material
D: Set (2 pieces) incl. fastening material

Condition on delivery:
Unassembled

Material:
A, **D**: Die-cast aluminum, silver
B: Aluminum, natural, anodized
C: PA; black
E: Steel; galvanized

A



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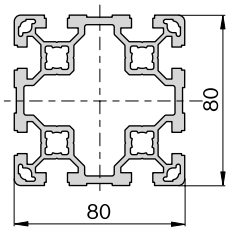
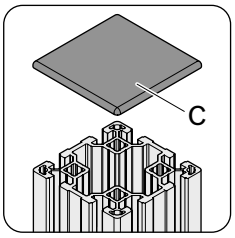
Foot AL		**No.**
VF*plus* 80x80	1	**3 842 540 173**

B



I_x = 132,1 cm4
I_y = 132,1 cm4
m = 4,9 kg/m

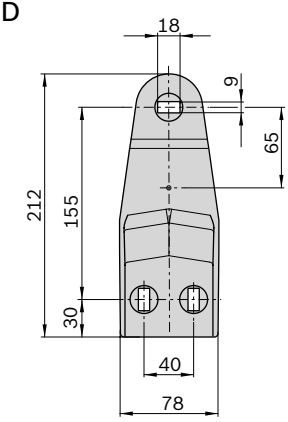


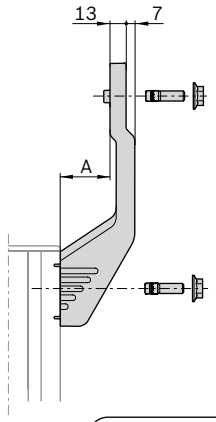
24917

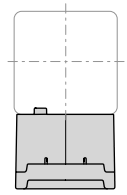
Section profile AL 80x80 L	**L** (mm)	**No.**
6 pcs	6070	**3 842 529 347**
1 pc	50 ... 6000	**3 842 993 133/L**

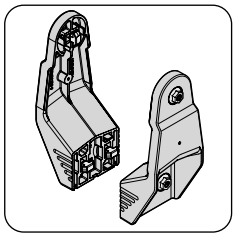
Cap		**No.**
VF*plus* 80x80, black	20	**3 842 529 039**

D





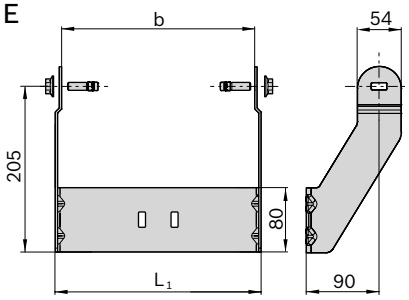


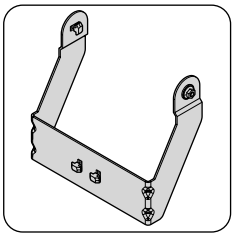


24919

Holder AL	**b** (mm)	**A** (mm)		**No.**
VF*plus* 160	160	40	Set	**3 842 546 628**
VF*plus* 240	240	80	Set	**3 842 546 629**
VF*plus* 320	320	120	Set	**3 842 546 630**

E

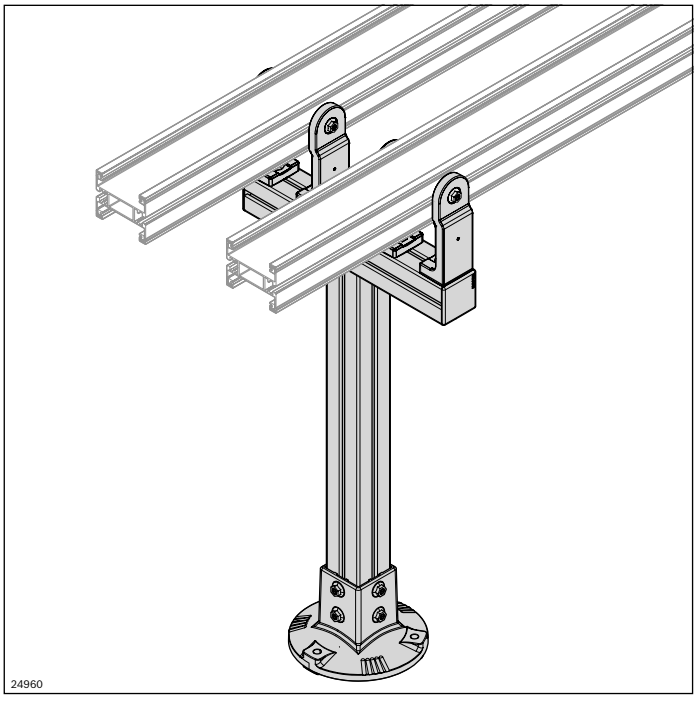




24920

Holder engine support AL	**b** (mm)	**L_1** (mm)		**No.**
VF*plus* 160	160	180	Set	**3 842 547 445**
VF*plus* 240	240	260	Set	**3 842 547 446**
VF*plus* 320	320	340	Set	**3 842 547 447**

Console AL



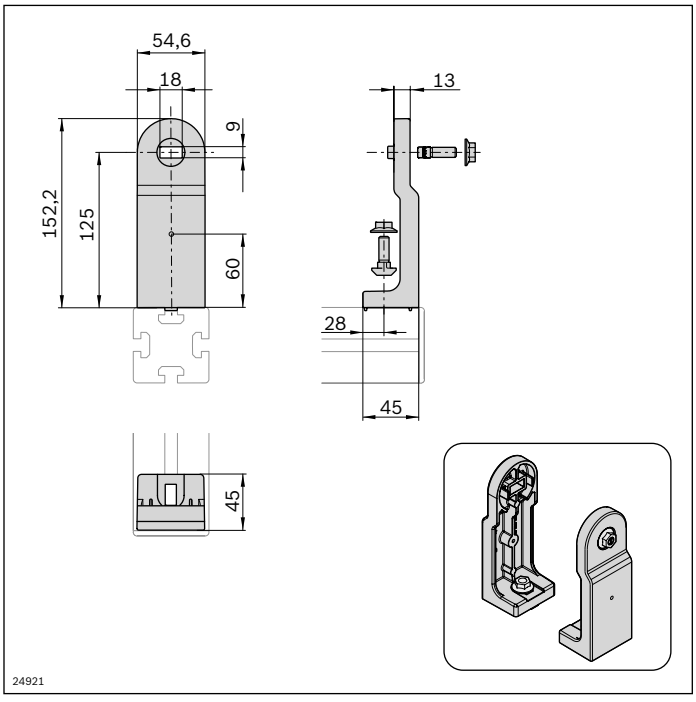
The supporting bracket allows several parallel conveyor sections to be mounted on a horizontal profile.

– The distance between the supporting brackets is to be 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 45°, depending on the return chain) by removing the centering lugs

- Simple centering of the supporting brackets in the slot thanks to centering lugs
- Very simple assembly with plug-in screw connections
- Easy-to-clean design with draining surfaces

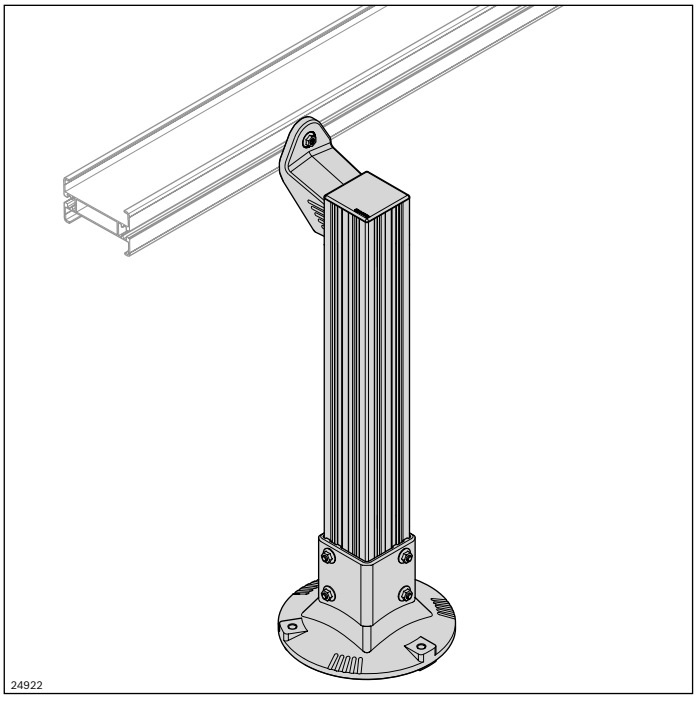
Scope of delivery:
Incl. fastening material

Material:
Die-cast aluminum; silver



Console VF*plus* AL		**No.**
	Set	**3 842 546 632**

Console, lateral AL



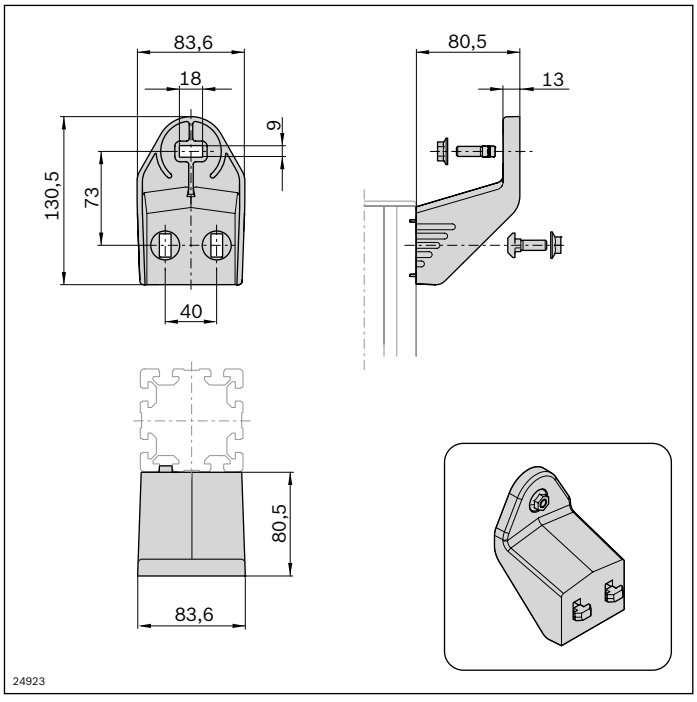
The lateral supporting bracket is intended for attaching to an 80x80 vertical strut profile. It is suitable for constructing an alpine conveyor, for example.

– If fixing on one side only, the lateral supporting bracket is only permissible up to a size of 120.
– The lateral supporting bracket can also be used for ascending and descending conveyor sections (up to 45°) by removing the centering lugs

- Simple centering of the supporting brackets in the slot thanks to centering lugs
- Very simple assembly with plug-in screw connections
- Easy-to-clean design with draining surfaces

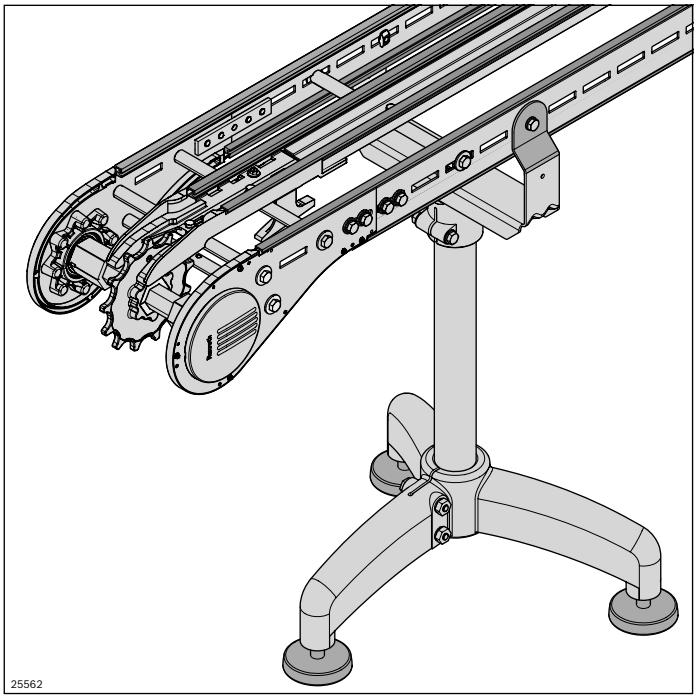
Scope of delivery:
Incl. fastening material

Material:
Die-cast aluminum, silver



Console VF*plus* lateral AL		**No.**
	Set	**3 842 547 461**

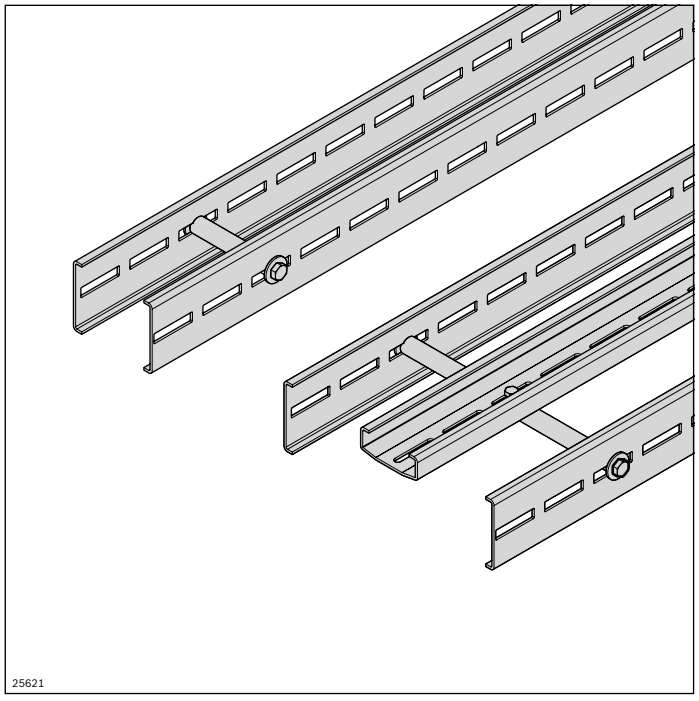
VarioFlow *plus* Stainless steel system (STS)



- Slide rails are fixed rivet-free without having to machine the running surfaces
- Minimal slide 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

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 critical.

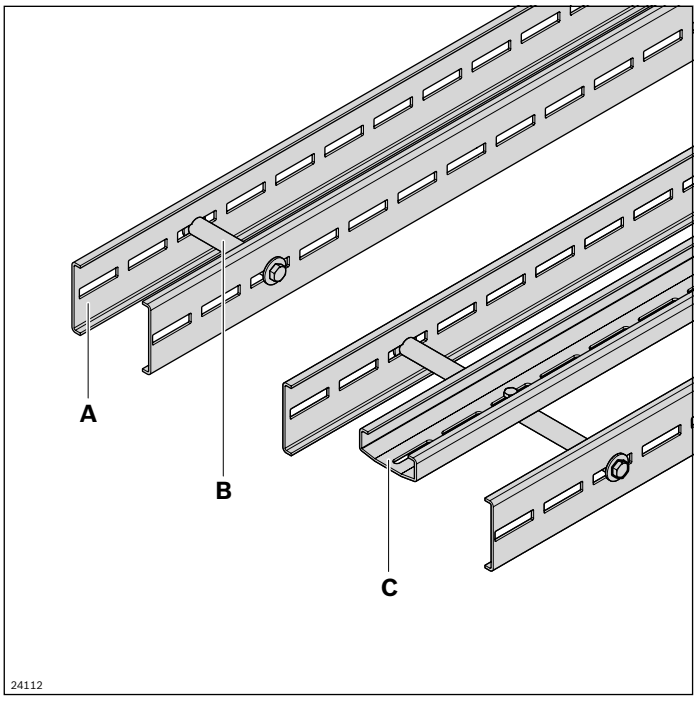
Sections STS



- Fixing of slide rails without rivets or the need to machine the track bearing surfaces
- Optimized sliding characteristics and FDA-compliant materials for the slide rail
- One slide rail cross-section for all sizes
- Few screwed connections
- One profile cross-section for all sizes
- Use of a support profile from size 160

Easy-to-clean sections thanks to largely media-resistant components

Section profile STS open
Cross connector STS
Support profile STS



The open construction of the section profile (**A**) facilitates the direct discharge of dirt or foreign particles.
Two open section profiles, linked by cross connectors, are needed to construct a conveyor section. A support profile is necessary for sizes 160 and over.
– 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. Using cross connectors of different lengths determines the size.

A support profile (**C**) is required as of size 160. The support profile is fastened to the existing cross connectors.

STS open section profile (A)
- Elongated holes for attaching a drive/return unit, curves, lateral guides, leg sets, or other accessories
- Simple to clean

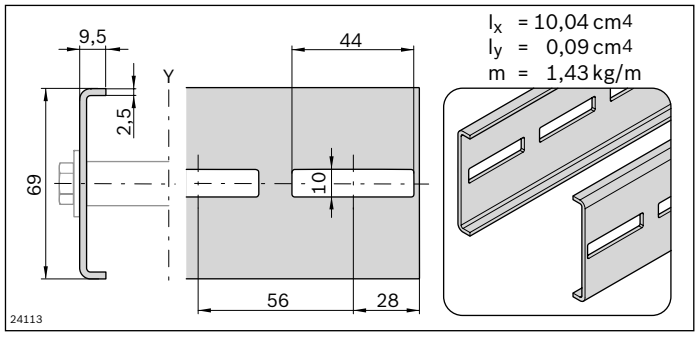
STS cross connector (B)
- Cross connector with mounting option for support profile

STS support profile (C)
- With elongated holes for fastening in regular intervals
- Plug-through stainless steel T-nuts as mounting option on the section profile

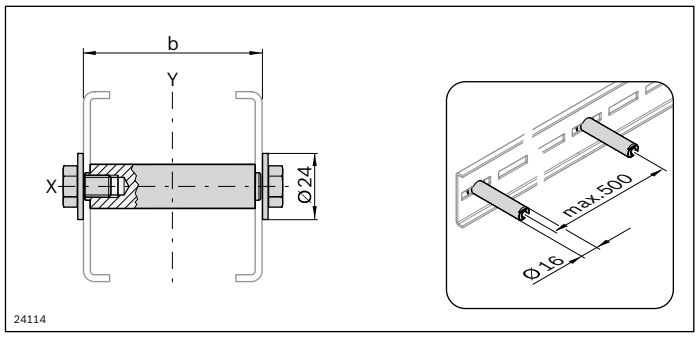
Required accessories:
– **A:** Slide rail, see p. 110; profile connector, see p. 112; cross connector, see p. 109; support profile from size 160, see p. 109
– **C:** Hexagon screw M6x14, ISO 4017

Condition on delivery:
A, B: Unassembled

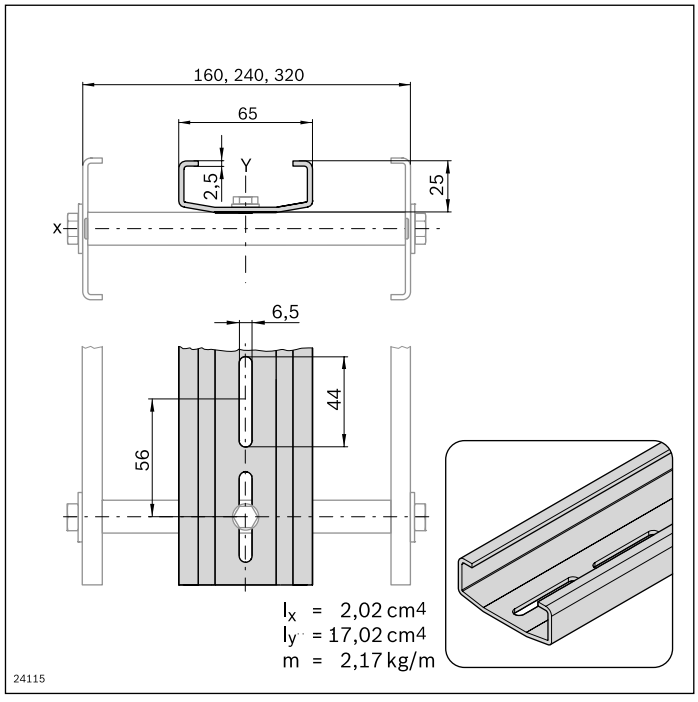
Material:
A, B, C: Non-rusting steel 1.4301



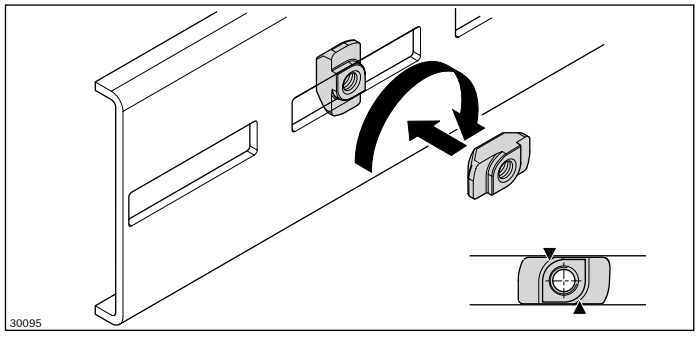
Section profile VF*plus* STS open	L (mm)	No.
12 pcs	3024	**3 842 546 649**
2 pcs	3024	**3 842 547 905**
1 pc	75 ... 3000	**3 842 996 027/L**



Cross connector STS	b (mm)		No.
VF*plus* 65 STS	65	10	**3 842 546 684**
VF*plus* 90 STS	90	10	**3 842 546 685**
VF*plus* 120 STS	120	10	**3 842 546 686**
VF*plus* 160 STS	160	10	**3 842 546 687**
VF*plus* 240 STS	240	10	**3 842 546 688**
VF*plus* 320 STS	320	10	**3 842 546 689**



Support profile VF*plus* STS	L (mm)	No.
12 pcs	3024	**3 842 546 700**
1 pc	3024	**3 842 547 906**
1 pc	75 ... 3000	**3 842 996 029/L**

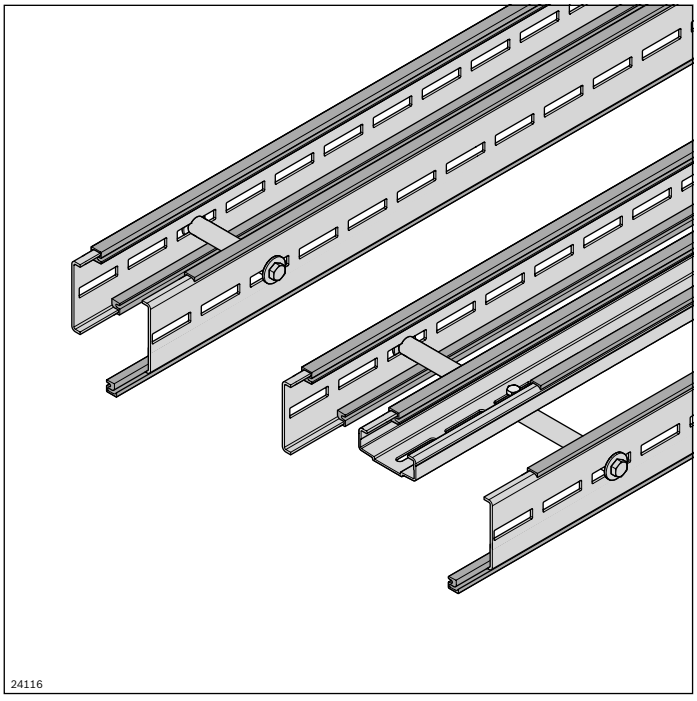


Standard element for the secure connection of accessory parts to the section profile

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

T-nut		No.
VF*plus* STS M6	20	**3 842 546 706**
VF*plus* STS M8	20	**3 842 546 707**

Slide rail



- ▶ Simple assembly through clipping into the section profile
- ▶ Secured against axial shifting with lateral screw fittings
- ▶ Gliding surface finishing: not required
- ▶ Material
- – Premium, Advanced slide rails: FDA CFR 21
- – Basic slide rails: EU 10/2011, FDA CFR 21
- ▶ One cross-section for all AL and STS section profiles

Required accessories:
- – Assembly aid for the slide rail, see p. 200
- – Oval-head screw 2.9x9.5 DIN 7981; DIN EN ISO 7049
  see page 111
  1 screw for each slide rail section

Material:
PE-UHMW

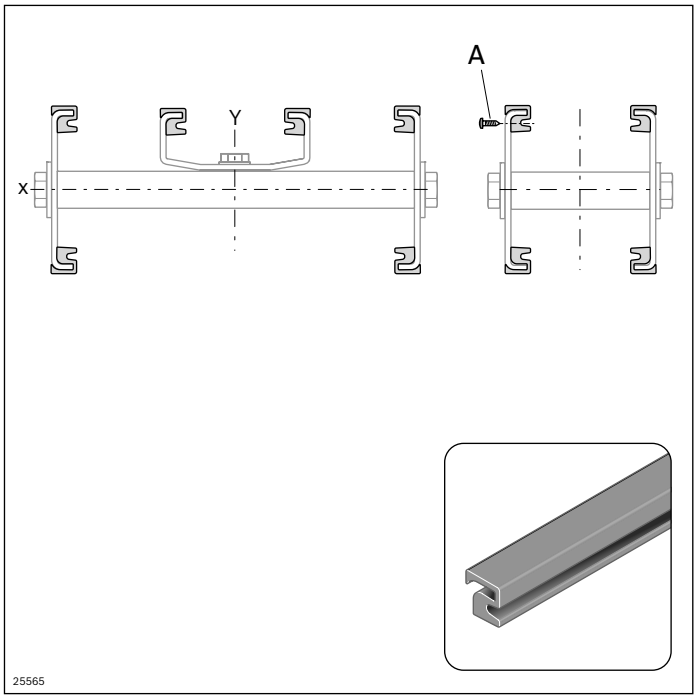
The slide rail is clipped onto the section profile and guides the conveyor chain.
The lateral protection means the gliding surface does not need to be machined. Wear and noise level are thus reduced to a minimum.

You can choose from three slide rails with different main areas of application:
- – Basic: straight sections and curve wheels, v_{max} 60 m/min
- – Advanced: Sections with sliding curves, v_{max} 60 m/min
- – Premium: Sections with sliding curves, v_{max} 100 m/min, cleanroom

For the selection of slides rails, see the “Technical data” chapter on page 212.

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

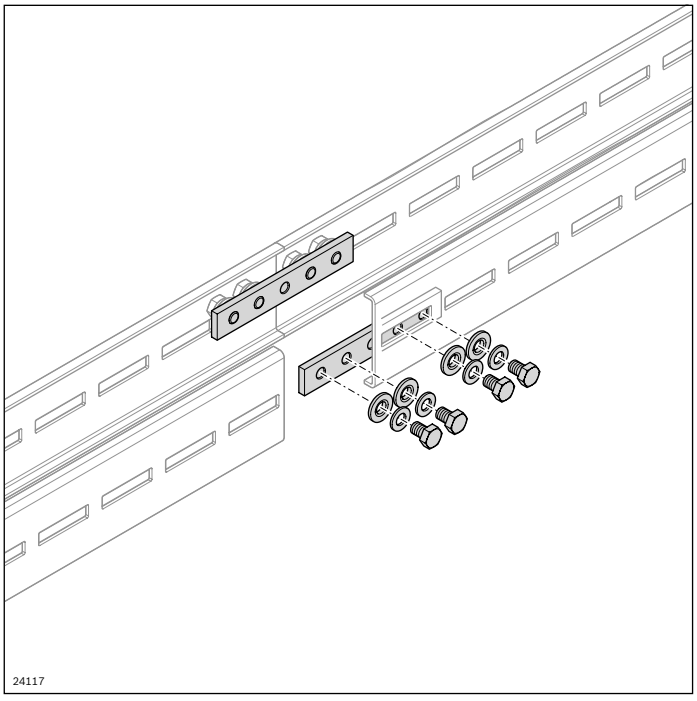
Note: After the sliding curves, an interruption is provided as an expansion joint in the inner curve area.



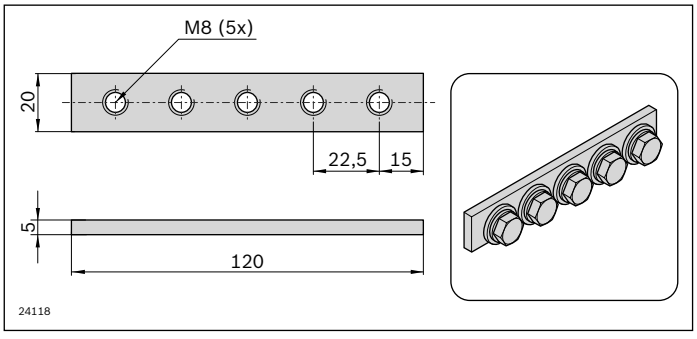
Slide rail VF*plus*	**L** (mm)		**No.**
Premium	30000	1	**3 842 546 116**
Advanced	30000	1	**3 842 549 727**
Basic	30000	1	**3 842 549 730**

Oval-head screw			
A		100	**3 842 533 915**

Profile connector STS



The section profile ends are connected with two profile connectors.



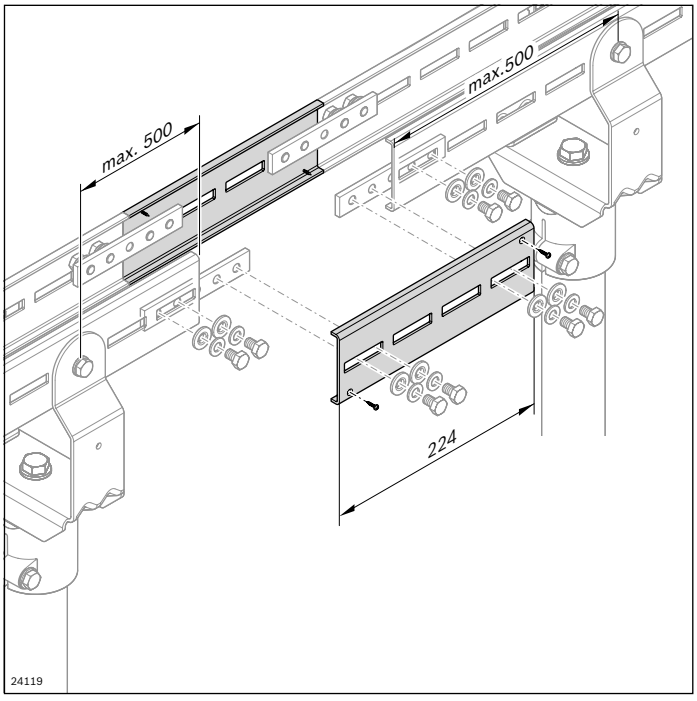
Profile connector VF*plus* STS		No.
	10	**3 842 547 895**

Scope of delivery:
Complete

Material:
Non-rusting steel 1.4301

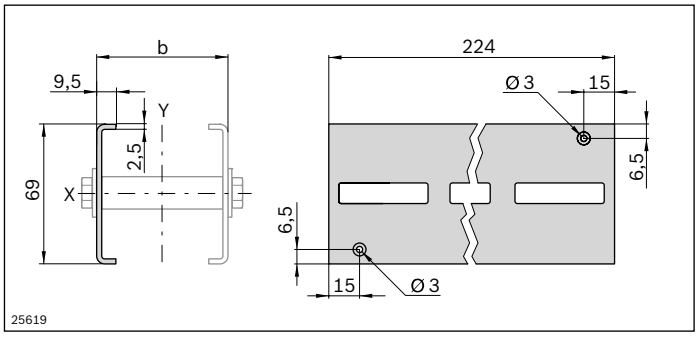
Scope of delivery:
Unassembled

Assembly module STS



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 slide rail is not interrupted in the assembly module, enhancing smooth running
- Interruption to the slide gate is only required on the side to be opened



	L (mm)		**No.**
Assembly module VF*plus* STS		1	**3 842 547 900**
Slide rail VF*plus* Premium	30000	1	**3 842 546 116**
Slide rail VF*plus* Advanced	30000	1	**3 842 549 727**
Slide rail VF*plus* Basic	30000	1	**3 842 549 730**

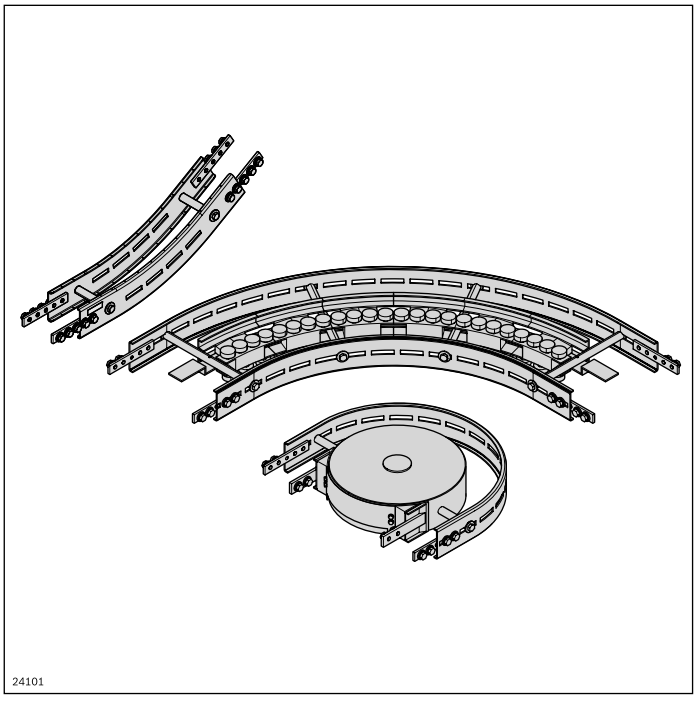
Required accessories:
Slide rail, see p. 110

Scope of delivery:
Incl. 4 profile connectors and sheet-metal screws for fastening the slide rail

Material:
Stainless steel, 1.4301

Condition on delivery:
In single parts

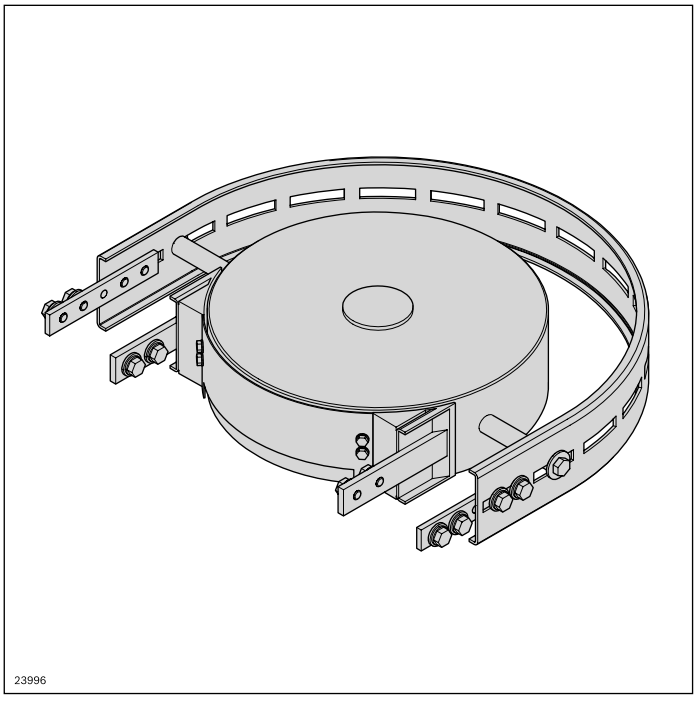
Curves STS



- 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, meaning the implementation of longer sections
- Stainless steel ball bearings sealed on both sides with FDA-compliant special grease in curve wheels and patented roller curves

Longer service life and reduced downtimes thanks to low-friction curve technology

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 228
– Size: 65, 90, 120
– For deflection angles, see table
– Other deflection angles on request
– Suitable chain types: all

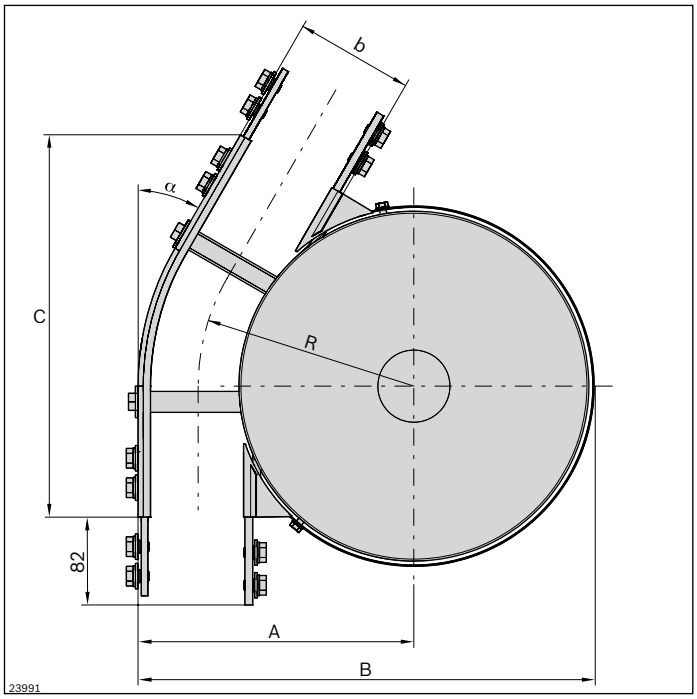
Note: High-pressure cleaning of the ball bearing areas is not permitted.

- Easy-to-clean design
- Stainless steel ball bearings, with sealing on both sides and FDA-compliant lubrication
- 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)

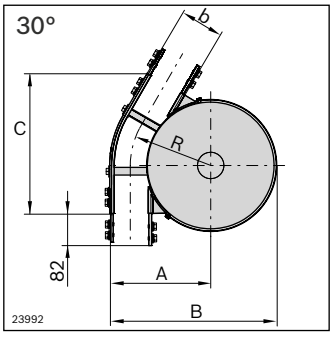
Scope of delivery:
Incl. fastening material for mounting to STS section profiles

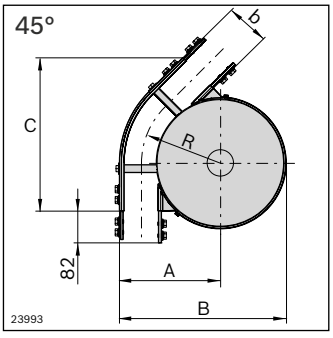
Condition on delivery:
Assembled

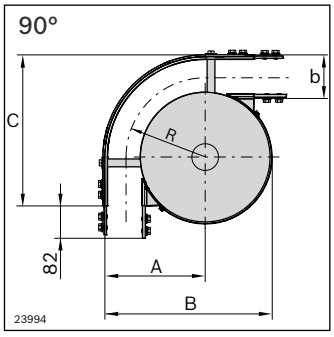
Material:
– Housing: Stainless steel, 1.4301
– Chain wheel: PA; white
– Ball bearings: Stainless steel/ FDA

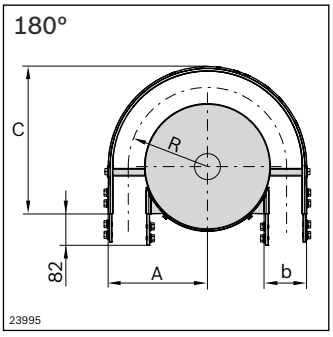


Curve wheel STS	**α** (°)	**No.**
VF*plus* 65	30	**3 842 547 111**
	45	**3 842 547 112**
	90	**3 842 547 113**
	180	**3 842 547 114**
VF*plus* 90	30	**3 842 547 115**
	45	**3 842 547 116**
	90	**3 842 547 117**
	180	**3 842 547 118**
VF*plus* 120	30	**3 842 547 119**
	45	**3 842 547 120**
	90	**3 842 547 121**
	180	**3 842 547 122**



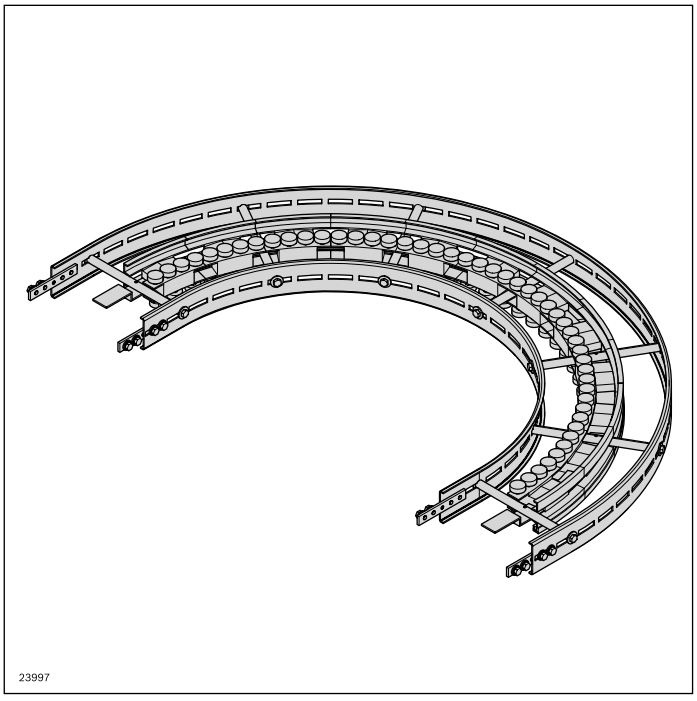






b (mm)	**α** (°)	**R** (mm)	**A** (mm)	**B** (mm)	**C** (mm)
65	30	153.0	185.5	322.5	279.4
	45	153.0	185.5	322.5	301.9
	90	153.0	185.5	322.5	285.5
	180	153.0	185.5	–	287.5
90	30	165.5	210.5	347.5	291.9
	45	165.5	210.5	347.5	319.6
	90	165.5	210.5	347.5	310.5
	180	165.5	210.5	–	310.5
120	30	180.5	240.5	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

Roller curve horizontal STS



The low-friction roller curve provides a horizontal change in direction for the chain. Polymer-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 228.

- 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

Note: 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
- Stainless steel ball bearings, with sealing on both sides and FDA-compliant lubrication
- Surfaces in contact with chain made of FDA-compliant materials

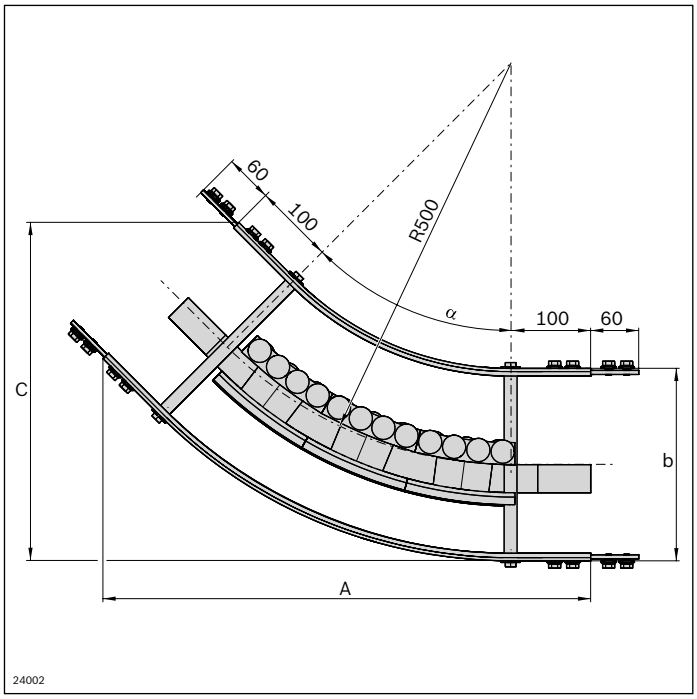
Required accessories:
Slide rail: Length calculation, see page 213

Scope of delivery:
Includes fastening material for mounting on section profile STS

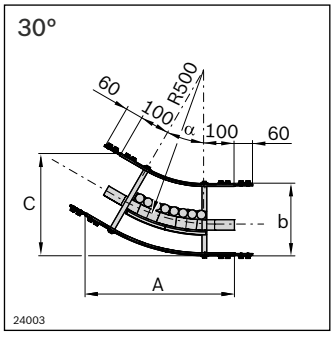
Condition on delivery:
Assembled

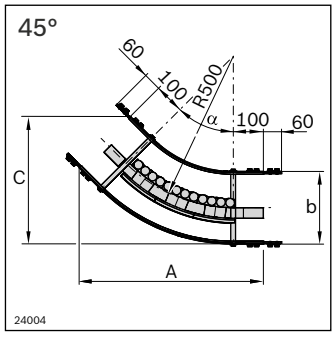
Material:

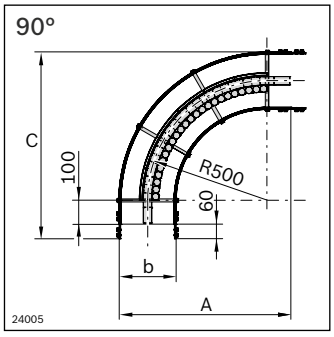
- Profile: Stainless steel, 1.4301
- Roller support: PA66
- Ball bearings: Stainless steel/ FDA
- Connector: Stainless steel, 1.4301
- Rollers: PA

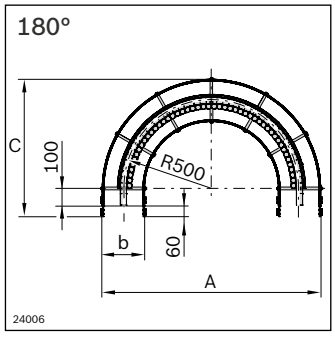


Roller curve STS	α (°)	No.
VF*plus* 160	30	**3 842 547 123**
	45	**3 842 547 124**
	90	**3 842 547 125**
	180	**3 842 547 126**
VF*plus* 240	30	**3 842 547 127**
	45	**3 842 547 128**
	90	**3 842 547 129**
	180	**3 842 547 130**
VF*plus* 320	30	**3 842 547 131**
	45	**3 842 547 132**
	90	**3 842 547 133**
	180	**3 842 547 134**



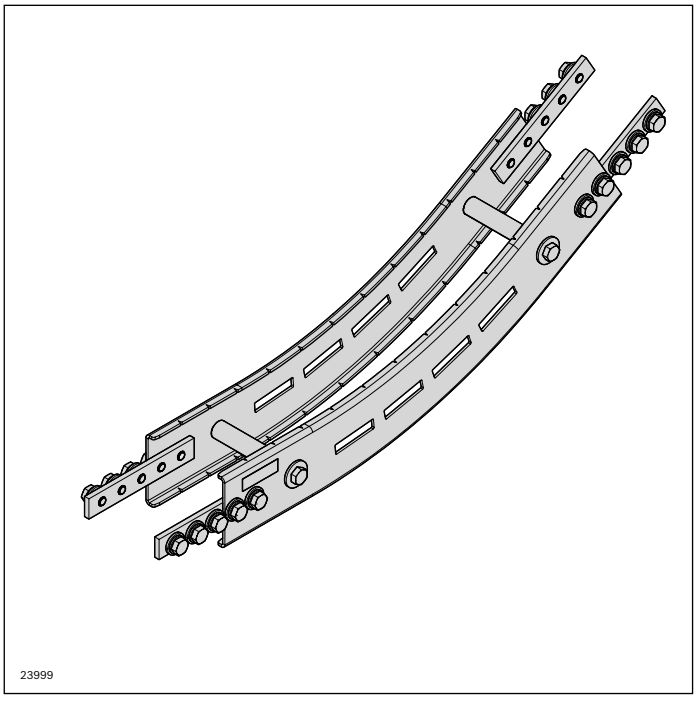






b (mm)	α (°)	**A** (mm)	**C** (mm)
160	30	476.6	266.3
	45	580.8	353.7
	90	680.0	680.0
	180	1160.0	680.0
240	30	496.6	340.9
	45	609.1	422.0
	90	720.0	720.0
	180	1240.0	720.0
320	30	516.6	415.6
	45	637.4	490.3
	90	760.0	760.0
	180	1320.0	760.0

Vertical curve STS



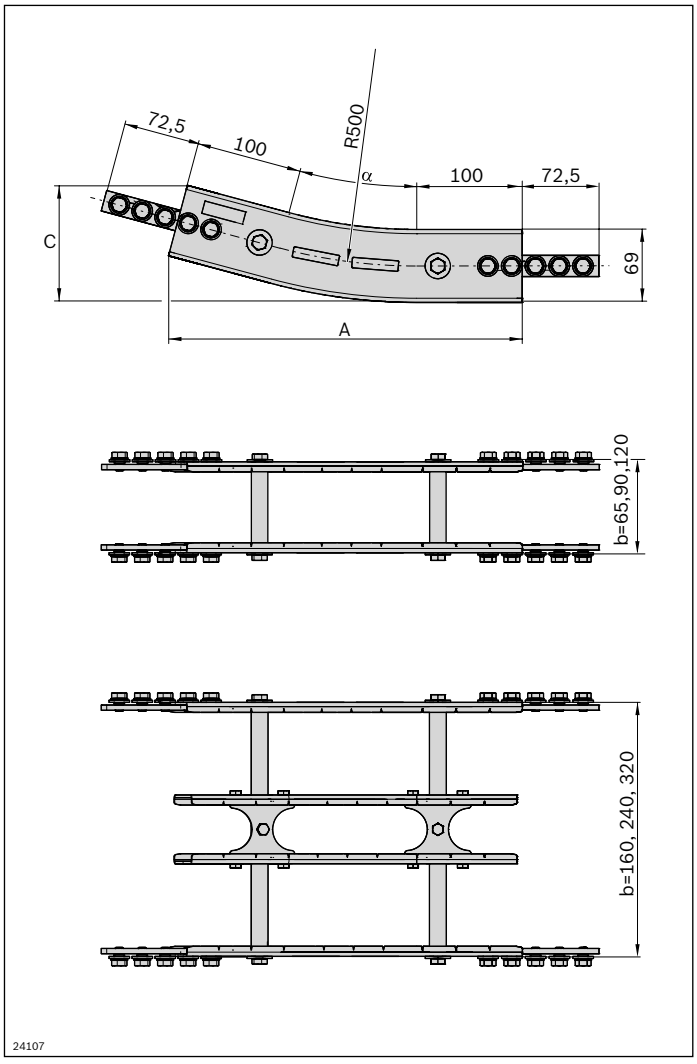
The vertical curve serves as a transition from a horizontal conveying section into an ascending section and vice versa. The chain tensile force is increased through the ensuing friction.
A vertical curve of 5° is recommended for the inlet and outlet on the wedge conveyor, especially with small products.
For attachment options, see the matrix on page 228
- 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 Advanced or Premium slide rails

Required accessories:
Slide rail: Length calculation, see page 213

Scope of delivery:
Includes fastening material for mounting on section profile STS

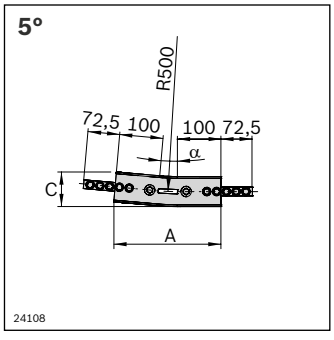
Condition on delivery:
Assembled

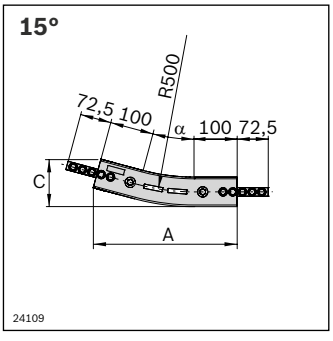
Material:
- Profile: Stainless steel, 1.4301
- Connector: Stainless steel, 1.4301
- Support profile from size 160: Stainless steel, 1.4301

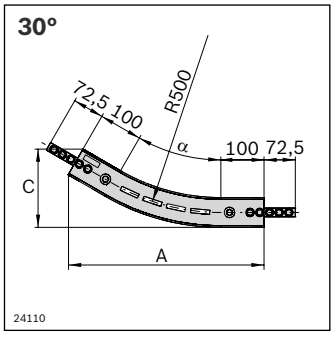


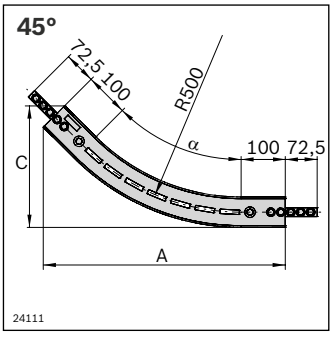
Vertical curve STS	**α** (°)	**No.**
VF*plus* 65	5	**3 842 547 135**
	15	**3 842 547 136**
	30	**3 842 547 137**
	45	**3 842 547 138**
VF*plus* 90	5	**3 842 547 139**
	15	**3 842 547 140**
	30	**3 842 547 141**
	45	**3 842 547 142**
VF*plus* 120	5	**3 842 547 143**
	15	**3 842 547 144**
	30	**3 842 547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

b (mm)	**α** (°)	**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

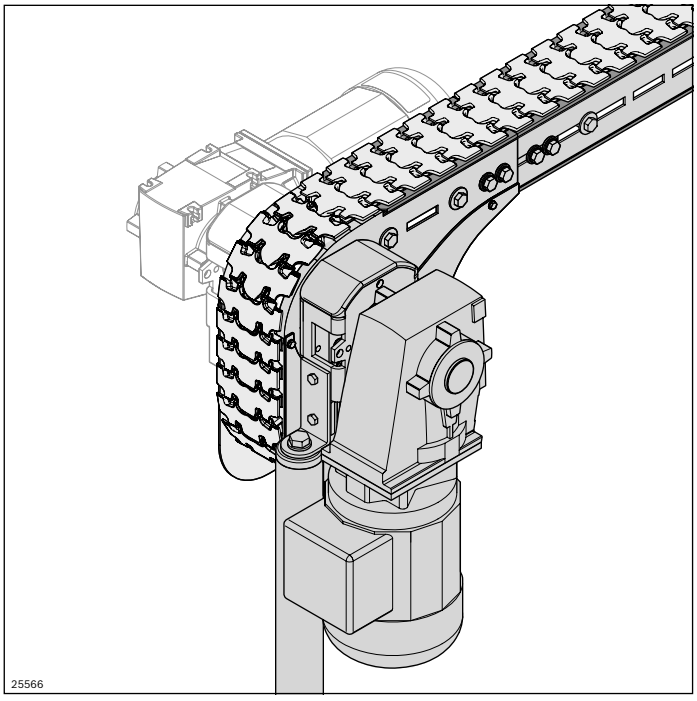








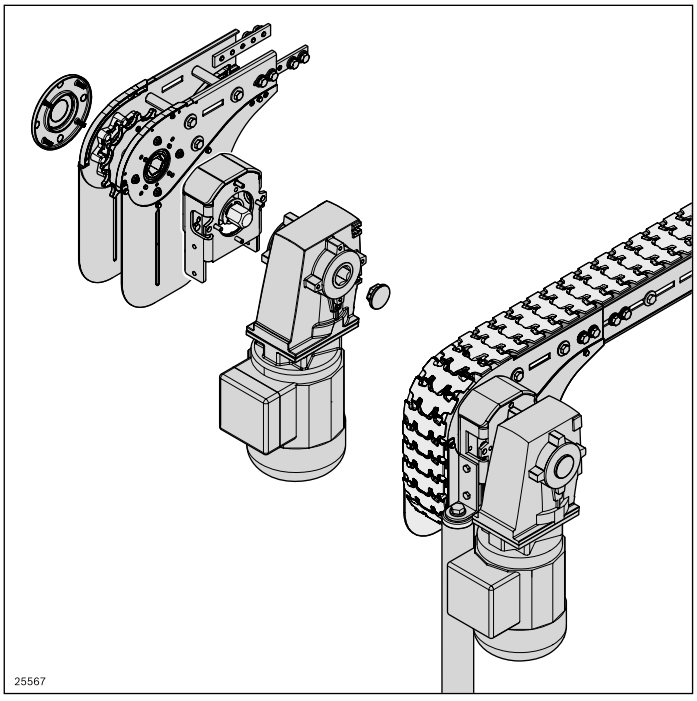
Drive and return unit STS



- Basic units with interfaces on both sides for drive kit and transmission (active bridge)
- Free selection of the motor mounting position on site
- Configurable drive kit (standard gear motor or round shaft)
- Multi-track systems with standard components possible
- Continuous slide rail to reduce noise and wear
- In-stock, standardized components
- Side elements with slots to support holders

High flexibility and fast delivery times through a unique drive concept

Innovative drive concept



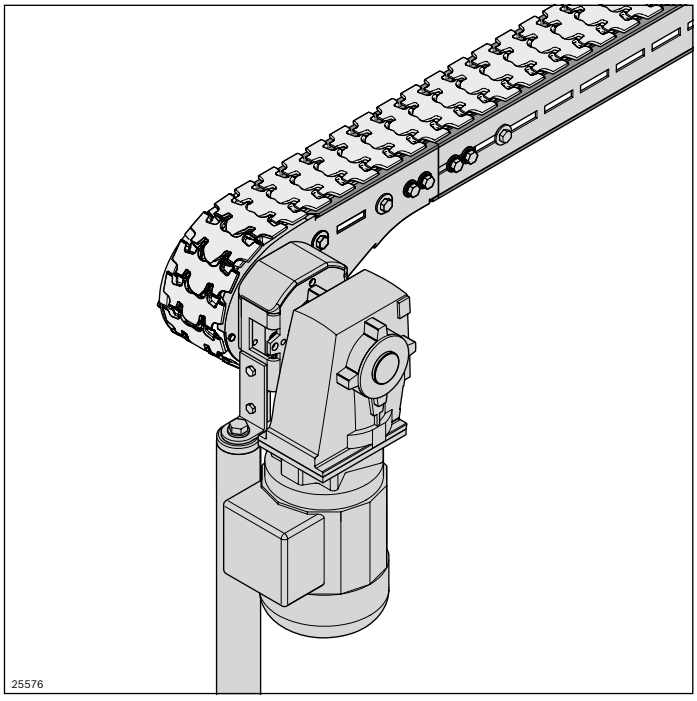
Base unit STS head drive direct or return unit

+

Configurable drive kit
(standard gear motor or round shaft)

=

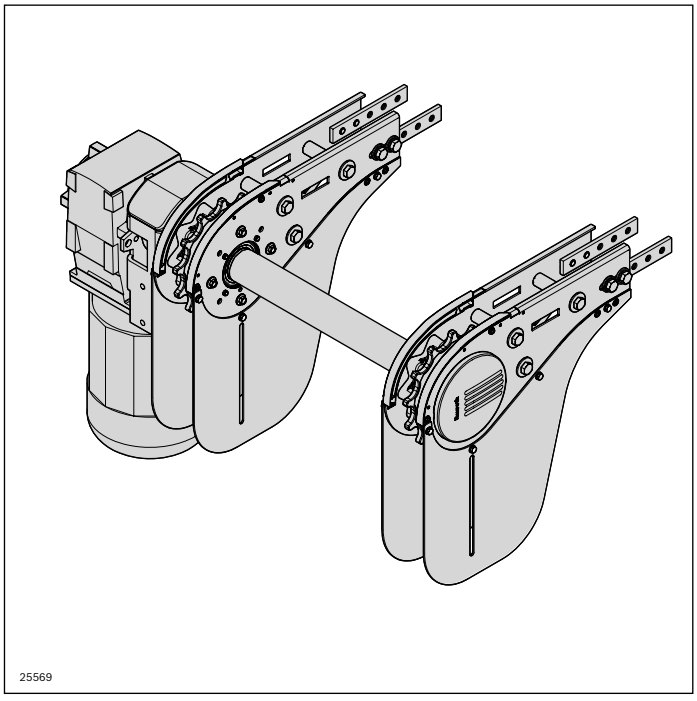
complete drive



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

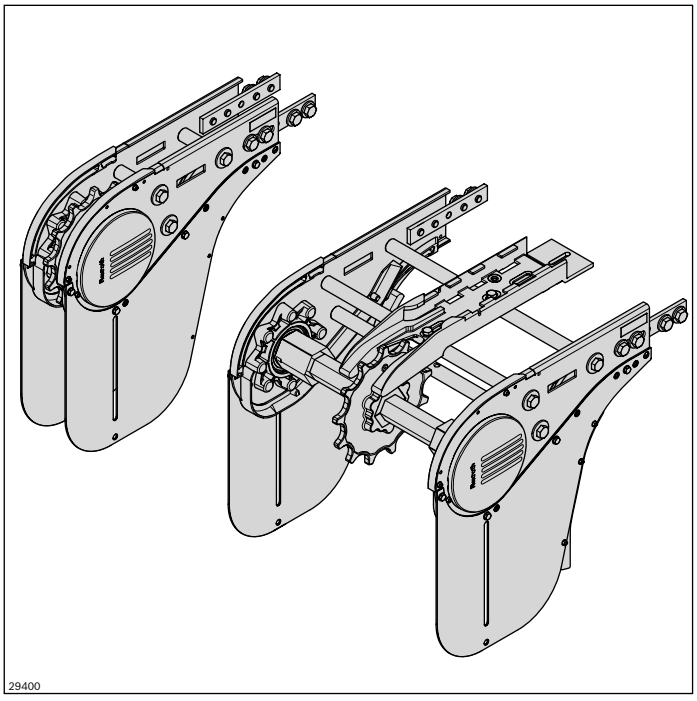
The in-stock, standardized basic units
- Are quickly and easily combined with the configurable drive kit (standard gear motor or customer-specific interface) into a complete drive
- Guarantee fast availability of the few modular elements/ spare parts

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 bridge)



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

Base 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 bridge).
For attachment options, see the matrix on page 228

- Size: all track widths
- Suitable chain types: all
- Permissible chain tensile force: F_{max} = 1250 N
- Section length: L ≤ 30 m
- Conveying speed: v_N = 4 ... 60 m/min, other speeds available on request
- Chain bag for adjusting the chain elongation during the service life
- Not suitable for reversible operation

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

- ▶ Reduced noise emission through slide 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
- ▶ Stainless steel ball bearings, with sealing on both sides and FDA-compliant lubrication
- ▶ Side elements with mounting option to attach holders for lateral guides, or similar

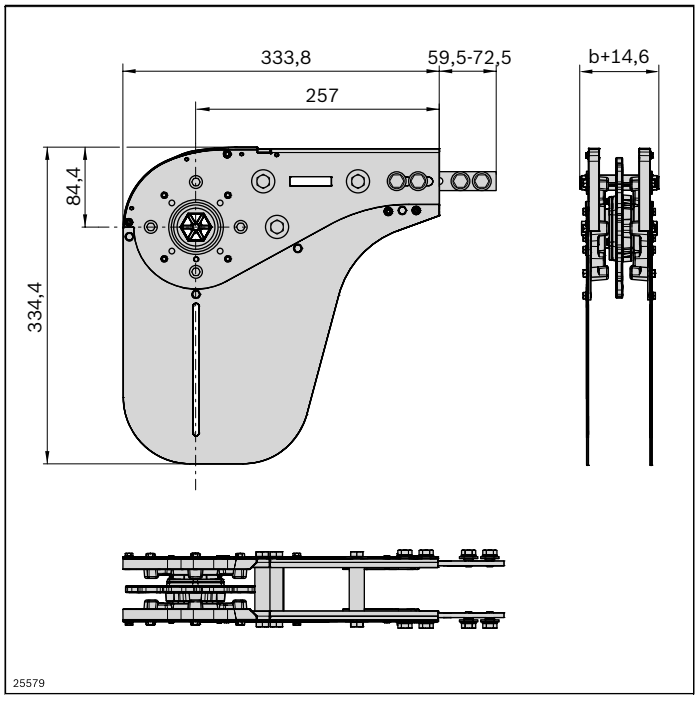
Required accessories:
- Drive kit, see p. 130
- Slide rail: Length calculation, see page 213

Optional accessories:
- Connection kit with passive or active bridge, see p. 136
- Synchronous drive connection kit, see p. 138

Scope of delivery:
Incl. fastening material

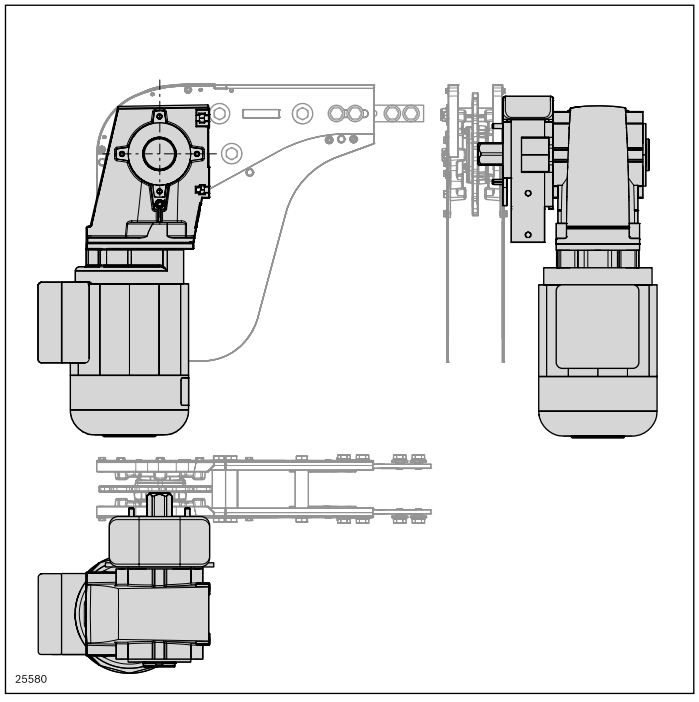
Condition on delivery:
- Assembled
- Connector and protective chain cover enclosed

Material:
- Housing: Stainless steel
- Chain wheel: PA
- Chain guide: PA
- Connector: Stainless steel
- Hexagonal shaft
  up to size 160: PA
  from size 160: Stainless steel + PA
- Ball bearings: Stainless steel/ FDA



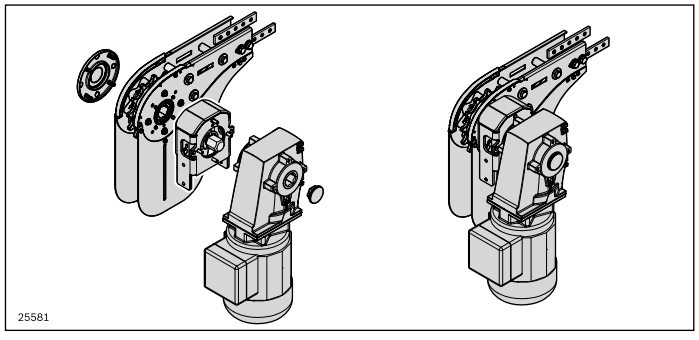
STS basic unit	No.
VF*plus* 65 direct	**3 842 547 522**
VF*plus* 90 direct	**3 842 547 523**
VF*plus* 120 direct	**3 842 547 524**
VF*plus* 160 direct	**3 842 547 525**
VF*plus* 240 direct	**3 842 547 526**
VF*plus* 320 direct	**3 842 547 527**

Order the drive kit in addition to the STS basic direct unit (see p. 130) to complete your drive.



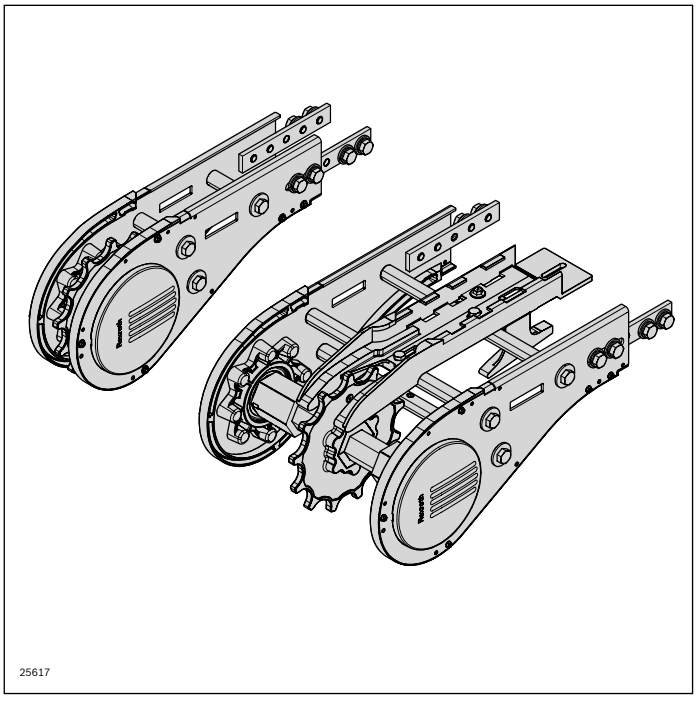
Drive kit VF*plus*	No.
	3 842 998 291

See page 130



STS basic direct unit + drive kit = head drive

Return unit STS
Closed head drive STS



Thanks to the innovative drive concept, the return unit can be operated simply by itself or, supplemented with a drive kit, as a head drive without chain bag. The section length is limited to a maximum of 7 m. For attachment options, see the matrix on page 228

- Size: all track widths
- Suitable chain types: all
- Permissible chain tensile force
  Return unit function: F_{max} = 1250 N
  Head drive without chain bag function: F_{max} = 600 N
  With shortened maintenance interval, due to chain elongation
- Section length for return unit function: L ≤ 30 m
  Section length for function as drive: L ≤ 7 m
- Conveying speed: v_N = 4 ... 60 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

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

- ▶ Reduced noise emission through the slide rails 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
- ▶ Stainless steel ball bearings, with sealing on both sides and FDA-compliant lubrication
- ▶ Implementation of parallel sections possible through a pluggable shaft
- ▶ Side elements with mounting option to attach holders for lateral guides, or similar

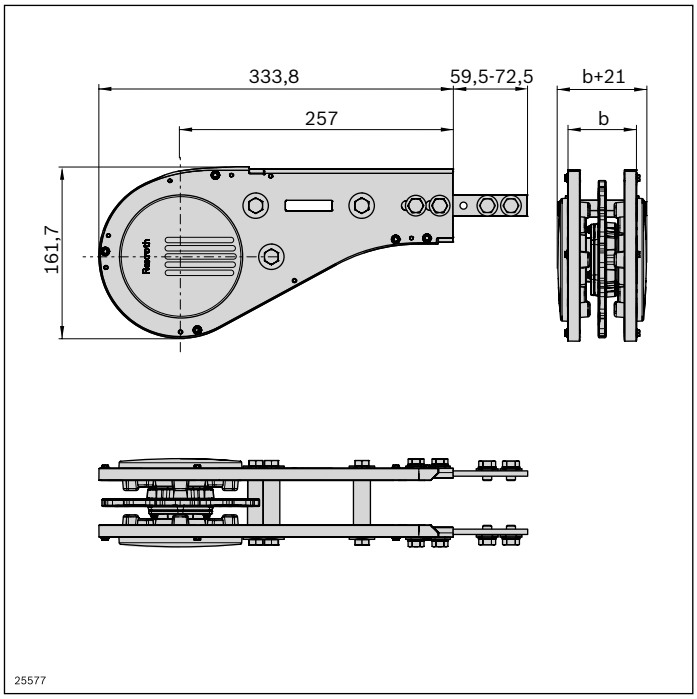
Required accessories:
- Slide rail: Length calculation, see page 197

When using as a drive:
- Assembly module, see page 113
- Drive kit, see p. 130
- Motor leg sets, see p. 143

Scope of delivery: Incl. fastening material

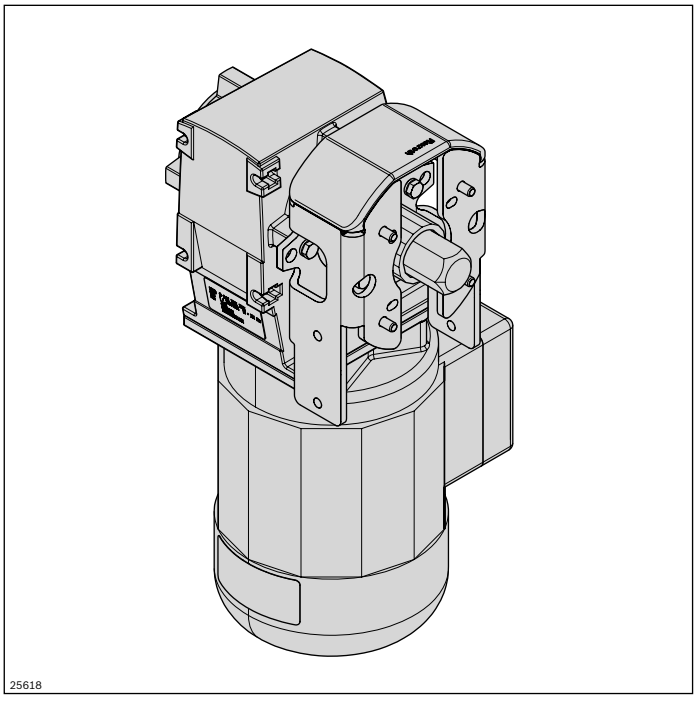
Condition on delivery: Assembled, connector enclosed

Material:
- Housing: Stainless steel
- Chain wheel: PA
- Chain guide: PA
- Connector: Stainless steel
- Hexagonal shaft
  up to size 160: PA
  from size 160: Stainless steel + PA
- Ball bearings: Stainless steel/ FDA



STS return unit	No.
VF*plus* 65	**3 842 547 528**
VF*plus* 90	**3 842 547 529**
VF*plus* 120	**3 842 547 530**
VF*plus* 160	**3 842 547 531**
VF*plus* 240	**3 842 547 532**
VF*plus* 320	**3 842 547 533**

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 installing a SEW SA47 gear motor (GM = 2).
  An adaptation is required by the customer for attaching other gear motors (GM = 0), see p. 225
- Fixed or adjustable speed (v_N). For an adjustable speed, gear motors must be retrofitted with an FU (frequency converter), see page 132
- 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

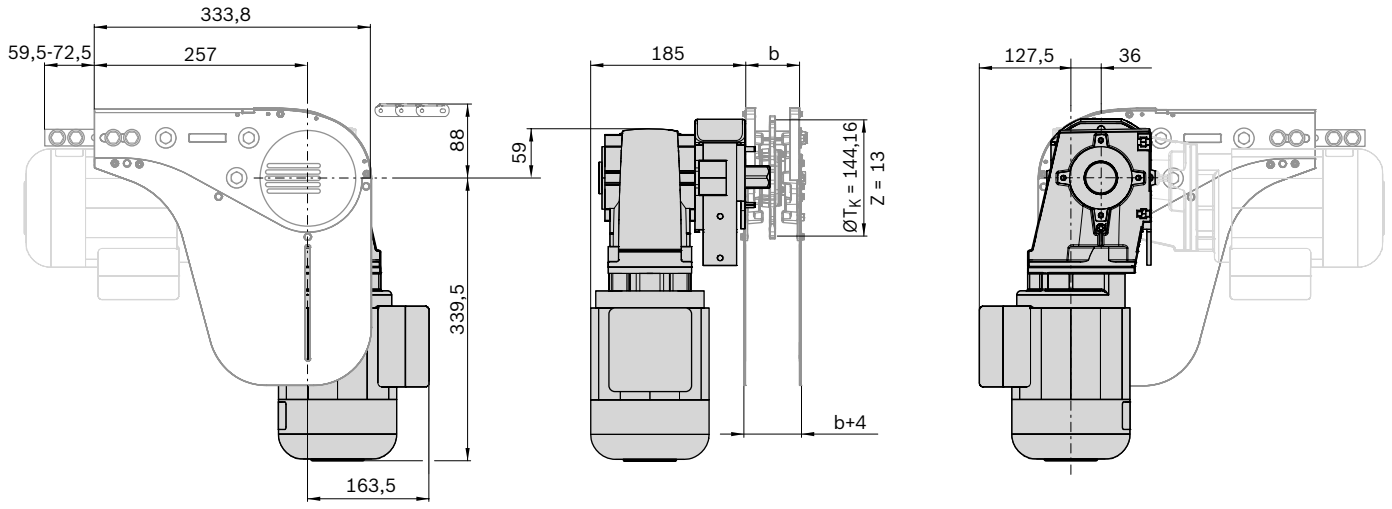
Required accessories:
Motor leg sets, see p. 142

Optional accessories:
Frequency converter, see page 132

Scope of delivery:
- Incl. fastening material
- Incl. flange, shaft and gear motor (GM = 1)

Condition on delivery:
Assembly set

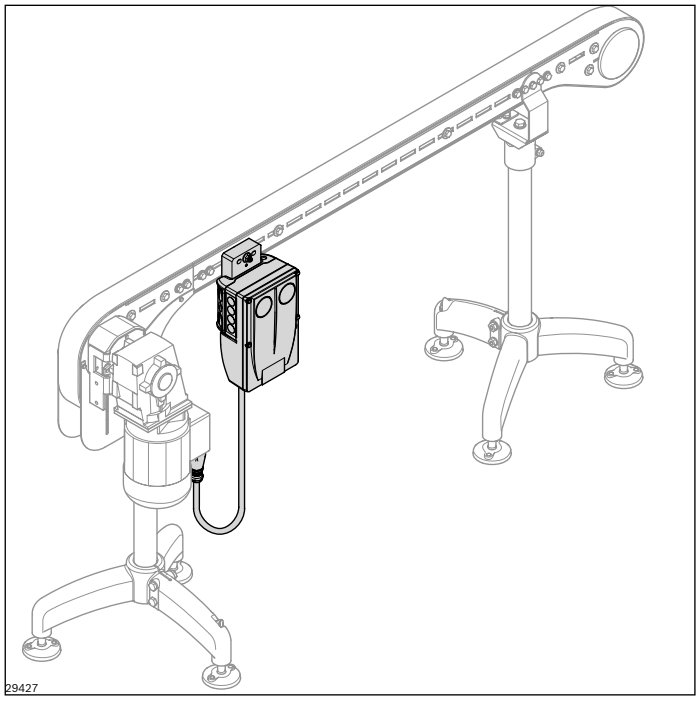
Material:
- Flange, shaft: Stainless steel
- Motor: Die-cast aluminum
- Cover tube: PE



Drive kit VF*plus*	**SP**	**GM**	**v_N** (m/min)	**U/f** (V/Hz) **See page 218**	**AT**	**No.**
	STS; AL*	0: 1; 2	5, 10, 13, 16, 21, 27, 33, 40, 50		K; S	**3 842 998 291** SP = ... GM = ... v_N = ... U/f = ... AT = ...

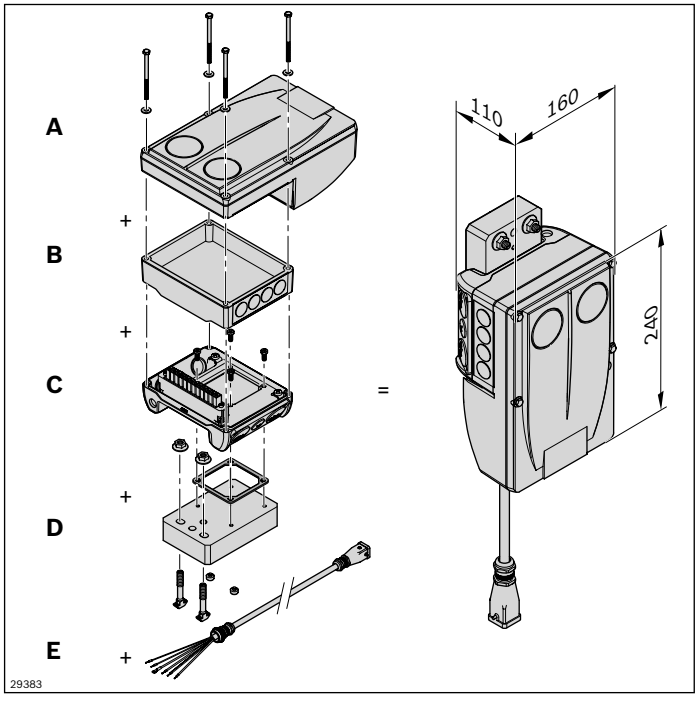
* AL version see page 78

Frequency converter



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.

- Connection power: 0.55 kW (connection voltage: 400 V ± 10% ... 460 V/480 V ± 10%)
- Speed (v_N) depending on the base speed of the gear motor used

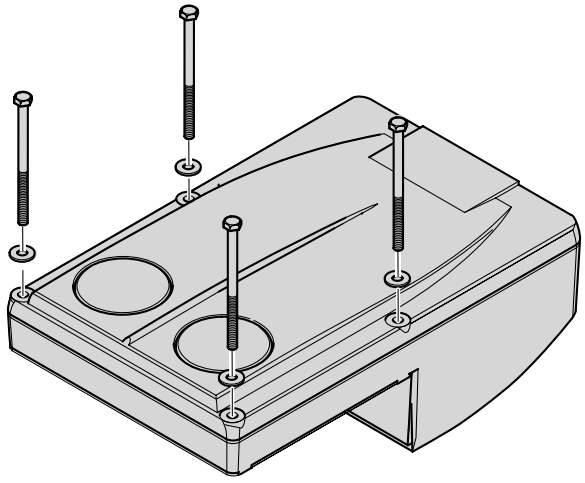


Complete frequency converter consisting of the modules

- Frequency converter power element (**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 supplied screws. For the internal and external voltage supply, the modules must be wired by the user (see terminal box assignment, page 222).

A



29384

Frequency converter (A)

Power element: 0.55 kW

(400 V ± 10% ... 460 V/480 V ± 10%)

- Easy commissioning via hand-held terminal
- Easy to replace memory module
- Large LED as status display

Frequency converter	No.
Power element 0.55 kW	**3 842 553 447**

The speed range of the frequency converter *) is based on the base speed of the motor:

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

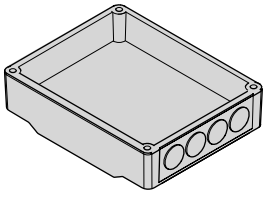
*) By accepting a resulting loss of power, a higher bandwidth can be covered (see page 221)

1) Min corresponds to approx. 16 Hz supply frequency

2) Max corresponds to approx. 60 Hz supply frequency

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

B



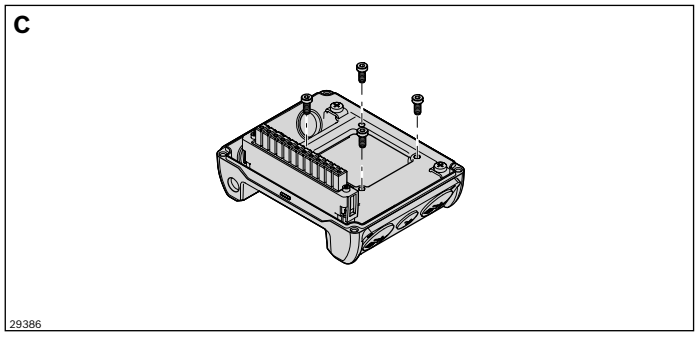
29385

Communication module (B)

- Used to control the frequency converter
- Cable connection options

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

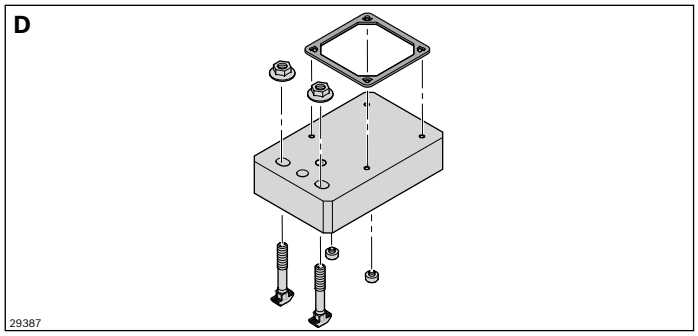
Communication module	No.
Standard I/O	**3 842 553 449**
AS-i	**3 842 553 453**
CANopen	**3 842 553 454**
EtherNet/IP	**3 842 553 451**
EtherCAT	**3 842 553 459**
PROFIBUS	**3 842 553 452**
PROFINET	**3 842 553 450**



Connection unit (C)

– Different connection options

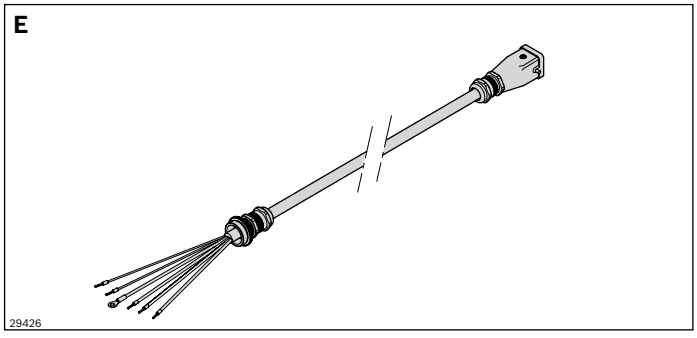
Connection unit	No.
	3 842 553 445



Attachment kit (D)

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

Attachment kit	No.
	3 842 553 457

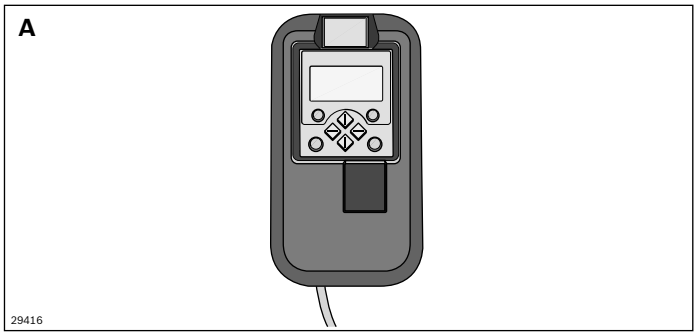


Connection cable (E)

– For connecting the gear motor with the frequency converter (length: 1 m)

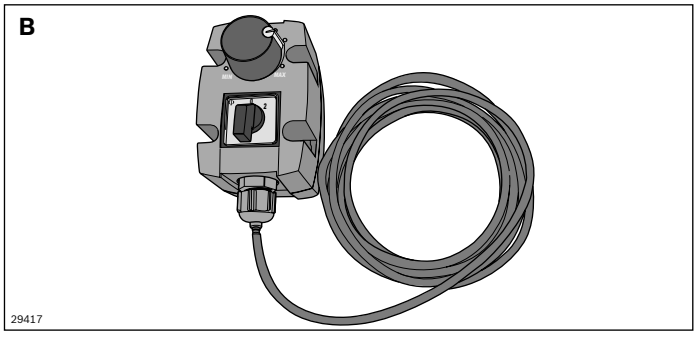
Connection cable	No.
	3 842 553 512

Manual control unit
Switch /potentiometer unit



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
– continuously regulate the transport speed
– transfer parameter sets to other basic devices

Manual control unit	No.
	3 842 552 821



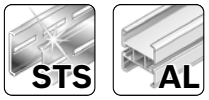
Switch /potentiometer unit
The switch /potentiometer unit is used to fine tune the transport speed within a range that has been preset with the manual control unit. The switch /potentiometer unit is connected to the frequency converter by a cable.
The drive can be started or stopped with the rotary switch.

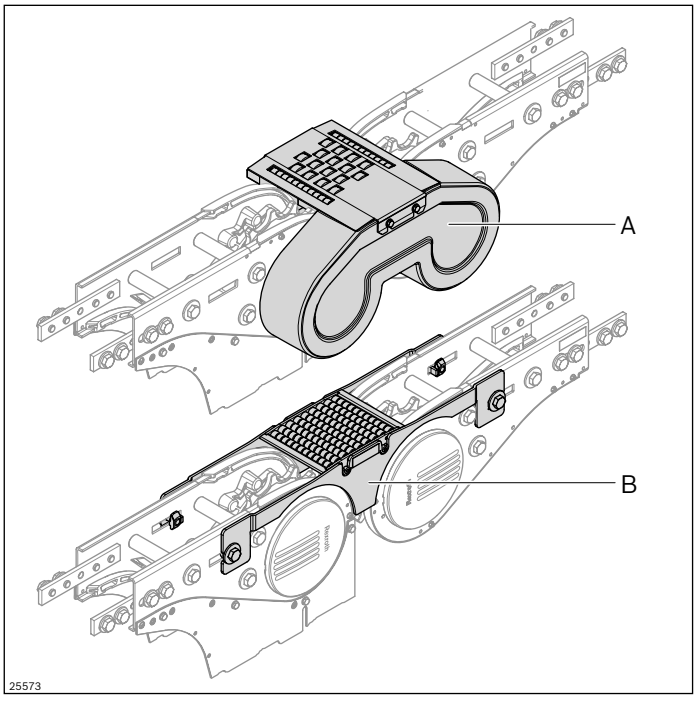
Note: It is imperative that the direction in which the chain conveyor is running is checked prior to start-up.

Switch /potentiometer unit	No.
	3 842 553 184

Scope of delivery:
A, B: Incl. 2.5 m connection cable

Connection kit active (A) bridge
Connection kit passive (B) bridge





The active and passive bridges are used as a transfer unit between the base unit and return unit or with the connection drive to bridge the flat conveyor chain.

- Sizes: 65-160
- Only for smooth conveyor chain and static friction chain
- Height adjustment: approx. 3 mm
- Additional versions (e.g. machine variants) available on request

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

- 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)

B: The passive bridge serves the purpose of bridging the conveyor trench.

- Transfer of the goods via passive rollers
- Suitable for goods from approx. 300 mm length

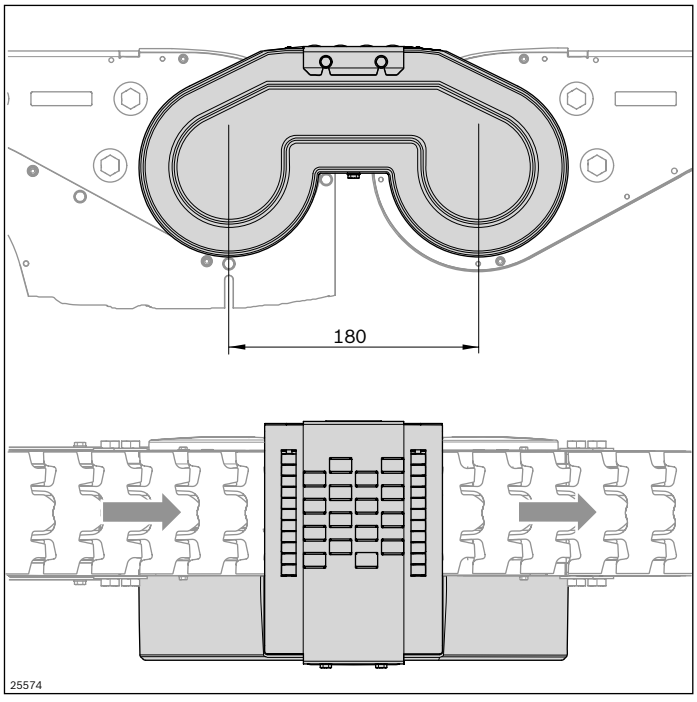
- **A:** Simple transmission of the drive force using hexagonal hollow shafts integrated into the basic unit or return unit as standard
- **A+B:** Can be retrofitted into a standard configuration at any time
- **A+B:** Active and passive bridges can be used at section ends for product transfer

Scope of delivery:
A+ B: Incl. fastening material
A: Transmission and protective cover

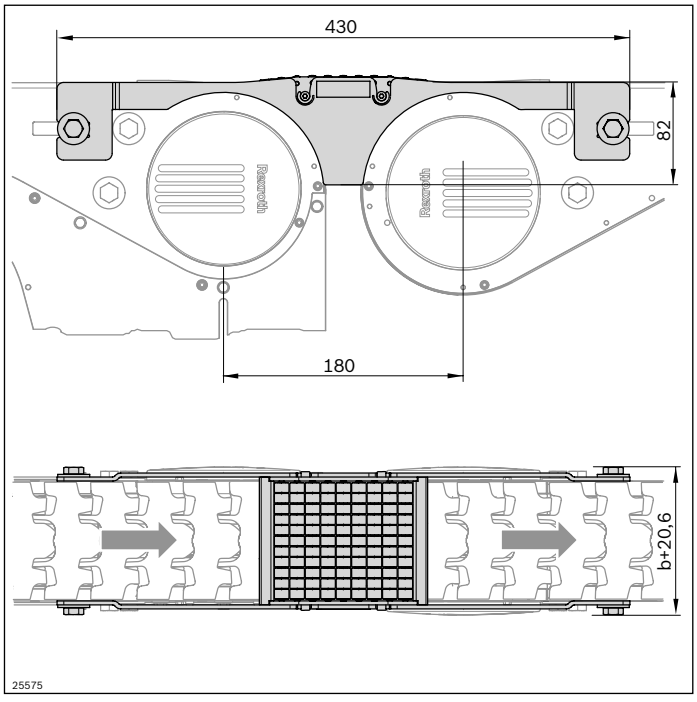
Condition on delivery:
Partially assembled

Material:

- Active bridge: Stainless steel/PA/POM/ABS/PUR
- Passive bridge: Stainless steel/PA

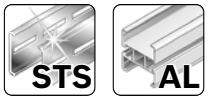


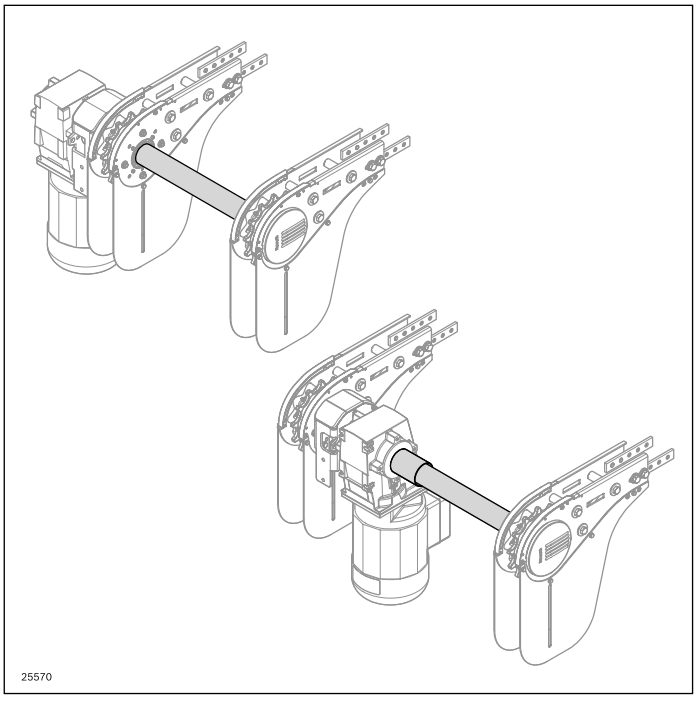
Connection kit active bridge	No.
VF*plus* 65	**3 842 549 023**
VF*plus* 90	**3 842 549 024**
VF*plus* 120	**3 842 549 025**
VFplus 160	**3 842 549 026**



Passive bridge connection kit	No.
VF*plus* 65	**3 842 549 015**
VF*plus* 90	**3 842 549 016**
VF*plus* 120	**3 842 549 017**
VFplus 160	**3 842 549 018**

Connection kit
Synchronous drive, external motor/internal motor



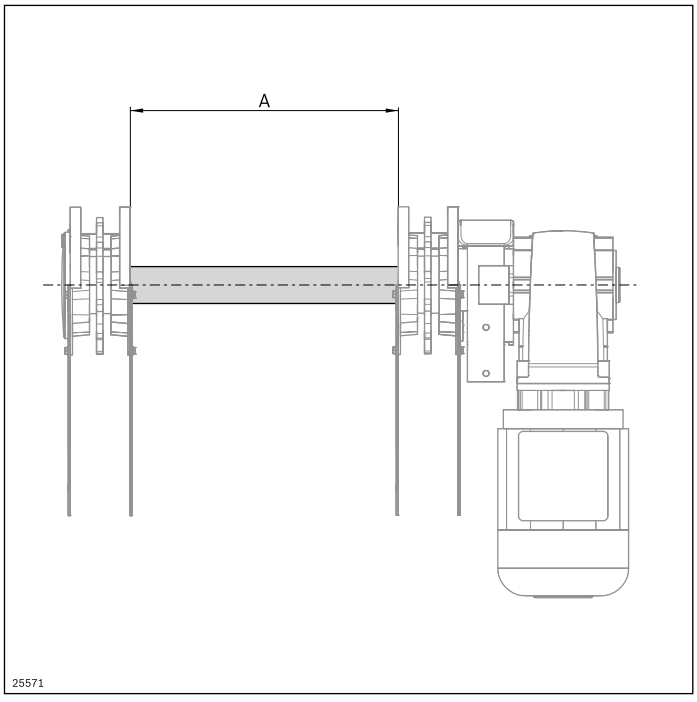


The connection kit for a synchronous drive is used to synchronously drive two conveyor sections with only one motor.

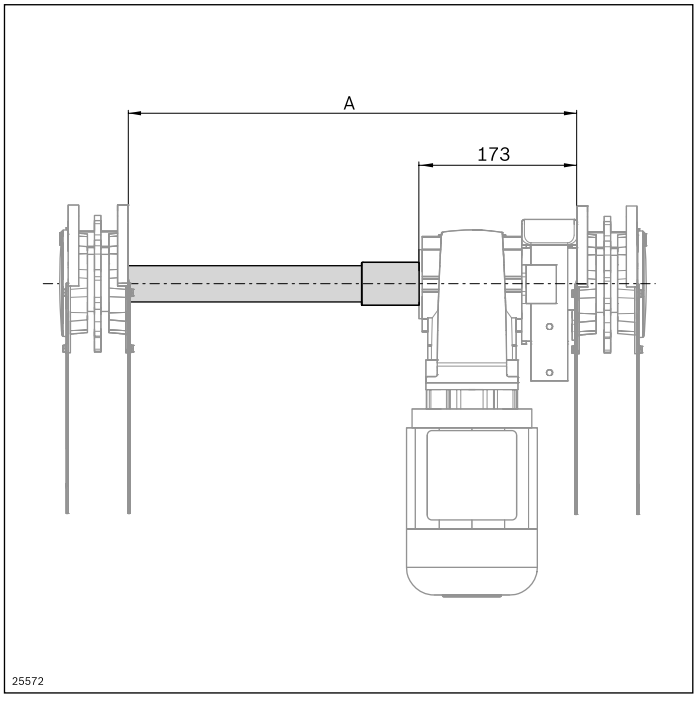
- Exterior synchronous drive:
  - Motor mounting position outside the parallel sections
- Internal synchronous drive:
  - Motor mounting position between the parallel sections for drive kit GM = 1 (see p. 130), customer check required for other motor types

Condition on delivery:
Unassembled

Material:
- Shaft: Stainless steel
- Coupling: PA

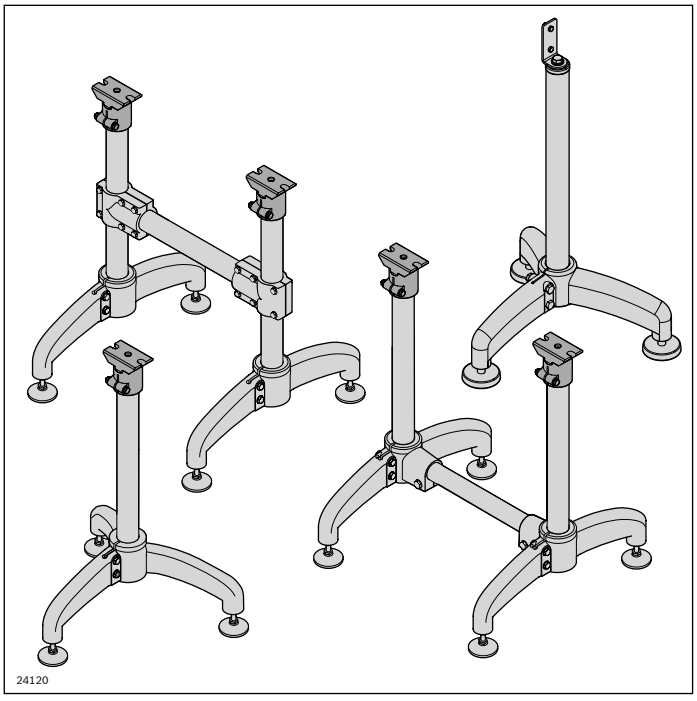


Synchronous drive connection kit	**A** (mm)	**No.**
VF*plus* external motor	15 ... 2940	**3 842 998 774**



Synchronous drive connection kit	**A** (mm)	**No.**
VF*plus* internal motor	240 ... 3160	**3 842 998 775**

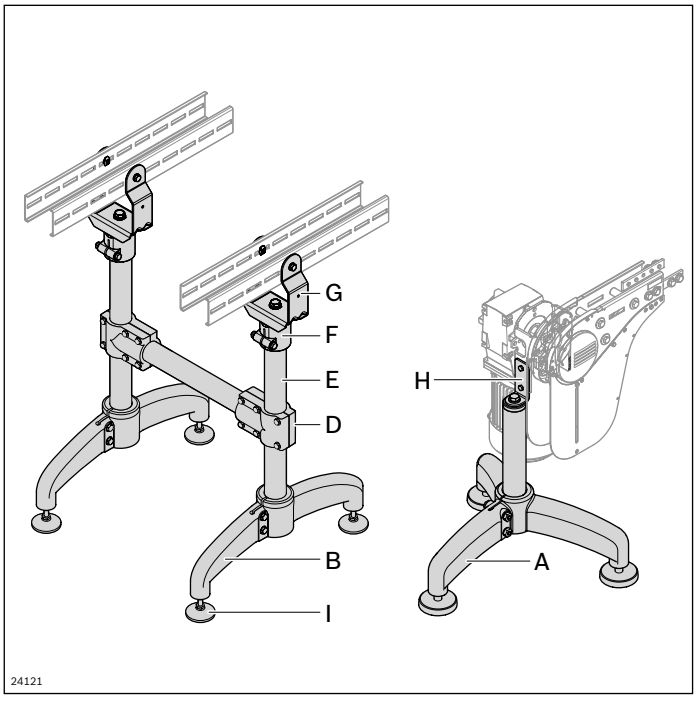
STS leg sets



- Few screwed connections
- Easy to clean thanks to ample draining surfaces
- Bore for the easy attachment of drop trays, protective devices, etc.
- Leg sets can also be used in conjunction with AL sections

Fast, simple leg set adjustment thanks to clever product details

STS leg sets



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

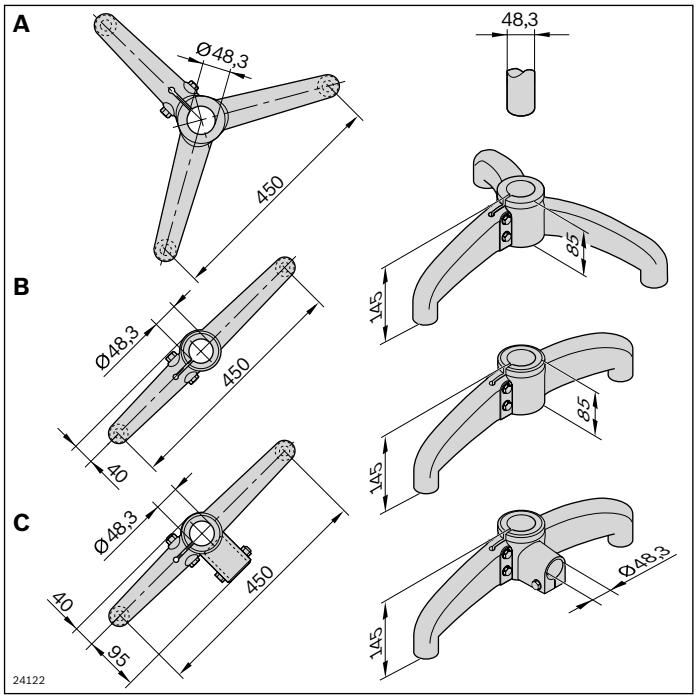
The chain conveyor is connected and fastened to the ground with leg sets.
The leg set is constructed from individual parts:
Foot in three different versions (**A**, **B**, **C**)
Tube (**E**), flange(**F**) for mounting the holder and holder (**G**) for mounting the section profile.
It is imperative that a separate holder (**H**) is used to support the motors /drives.

- Depending on the speed, accumulation behavior and weight, the leg sets are to be fixed at a distance of approx. 2 ... 3 m
- The leg sets for the aluminum system (see pages 94, 98) can also be used on the stainless steel system. The holder (**G**) can be connected directly to a strut profile 60 x 60 and a S12 x 30-T50 (MGE catalog **3 842 530 236**)
- Holder (**H**) can only be used for the STS system
- Holder (**G**) can also be used for ascending and descending conveyor sections (up to 28°, depending on the return chain)
- Holder (**G**) with drill guide to fasten drip trays, trap guards for return chains, etc.
- Due to stability reasons, cross reinforcements are absolutely necessary when using feet B and C

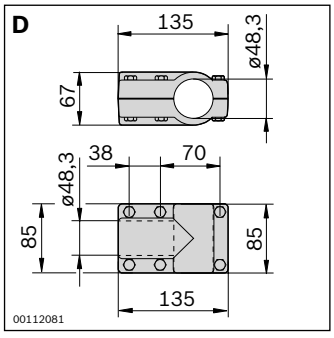
Scope of delivery:
Incl. fastening material

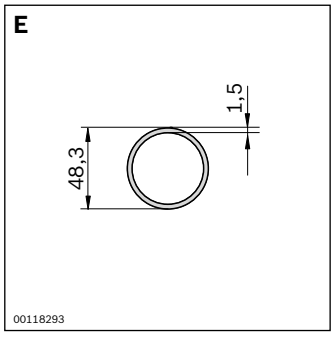
Condition on delivery:
Unassembled

Material:
A, **B**, **C**, **D**, **F**: PA
E, **G**: Stainless steel
H: Stainless steel with PA
I: STS with PA



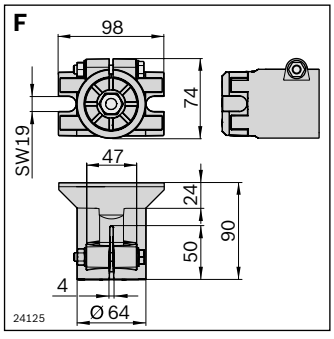
Foot STS		No.
Tripod (A)	1	**3 842 533 307**
Bipod (B)	1	**3 842 533 308**
Two-leg with flange (C)	1	**3 842 533 309**

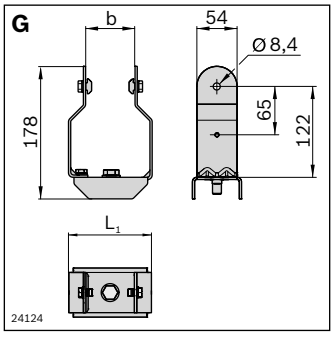




Cross connector (D)		No.
VF*plus* 80x80, black	1	**3 842 533 306**

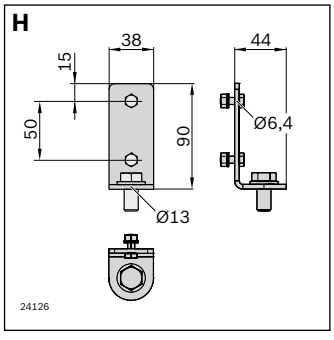
Tube D48.3 x 1.5 STS (E)	**L** (mm)	No.
6 pcs	3000	**3 842 533 901**
1 pc	200 ... 3000	**3 842 993 308/L**

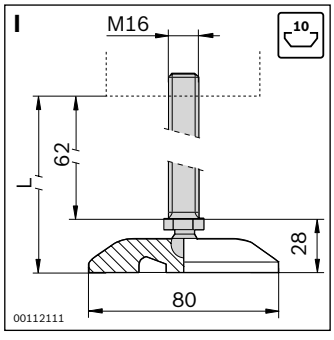




Flange VF*plus* STS (F)		No.
VF*plus* support	Set	**3 842 547 892**

Holder STS (G)	**b** (mm)	**L** (mm)		No.
VF*plus* 65 support STS	65	111	Set	**3 842 546 658**
VF*plus* 90 support STS	90	136	Set	**3 842 546 659**
VF*plus* 120 support STS	120	166	Set	**3 842 546 660**
VF*plus* 160 support STS	160	206	Set	**3 842 546 661**
VF*plus* 240 support STS	240	286	Set	**3 842 546 662**
VF*plus* 320 support STS	320	366	Set	**3 842 546 663**

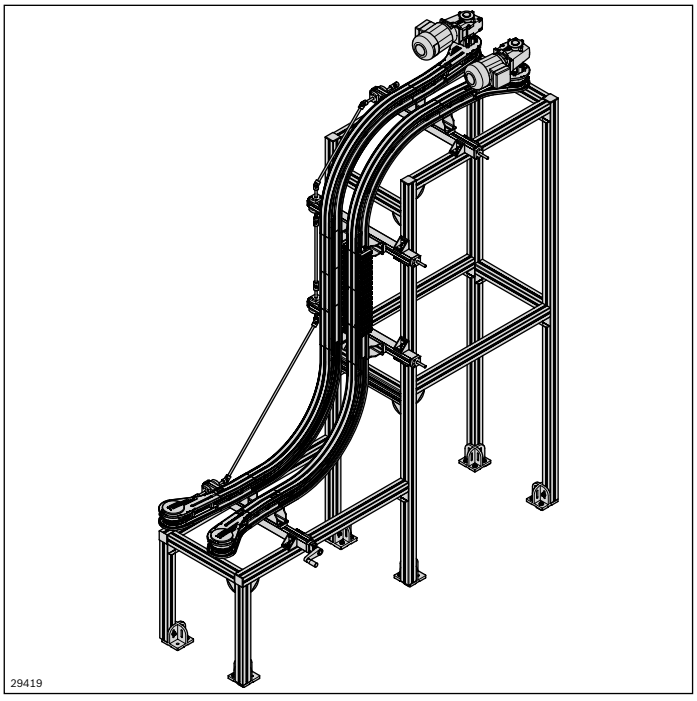




STS motor leg set holder (H)		No.
VF*plus*	Set	**3 842 549 365**

Leveling foot (I)	No.
Adjustable M16x95	**3 842 533 310**

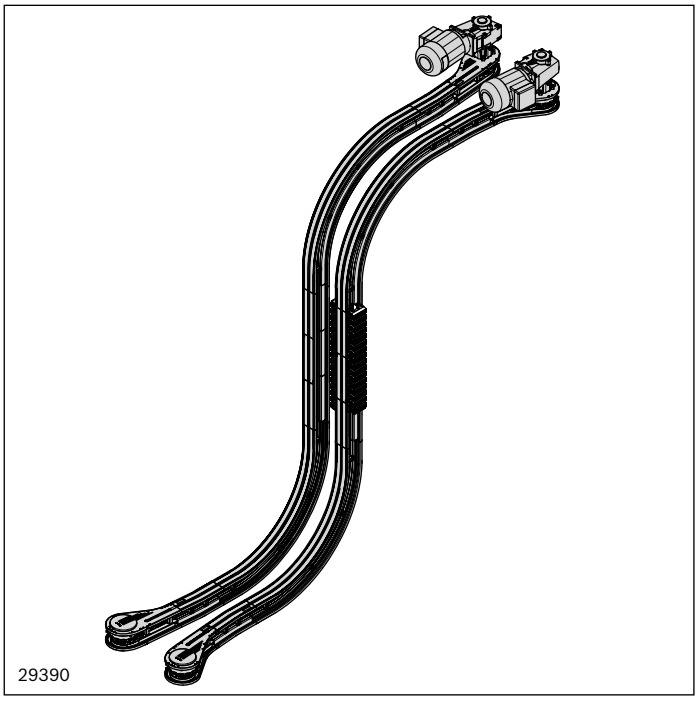
Wedge conveyor



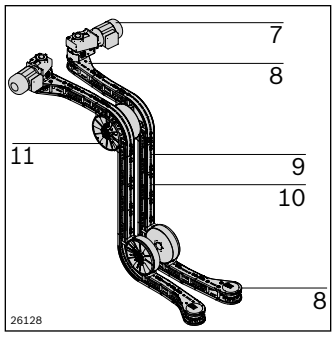
A wedge conveyor is always used if the conveyed product
- cannot be transported vertically on a standard conveyor due to its design
- cannot manage steep inclinations (> 30°) due to the position of its center of gravity
- could be damaged by lateral or upper guides due to its sensitive surfaces
- must not slide on 90° incline or decline section (as it would occur with a cleated chain system)
- needs to be picked up continuously without special sequencing (i.e. intermitted delays)

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).

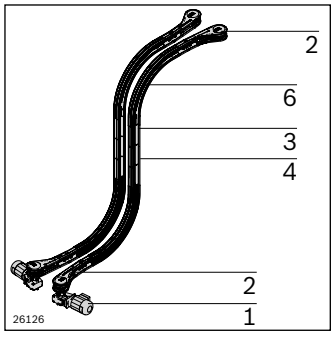
Setting up a wedge conveyor

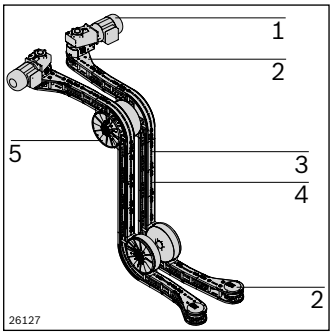


- Size: 90
- The length of the wedge conveyor is limited to 7 m
- A curve wheel or sliding curves are available for chain recirculation, dependent on product size and version
- Only closed head drive (return unit) can be used
- The assembly module (see p. 51/113) is mandatory
- The use of a 5° vertical curve is also recommended (see pages 64/121) for the infeed and outfeed, especially for small products
- Requires the use of the Advanced or Premium slide rails (see pages 48/110)



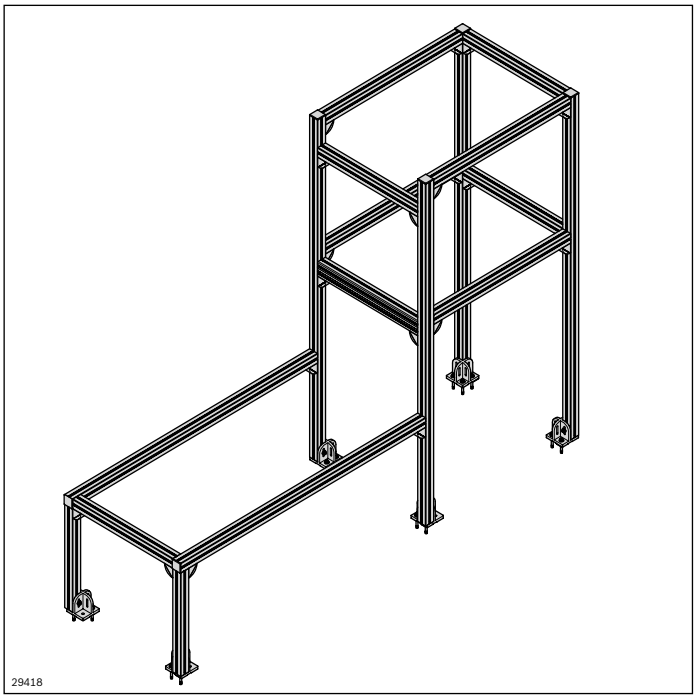
- **7** STS drive kit, see p. 130
- **8** STS return unit/STS closed head drive, see p. 128
- **9** STS section profile, see p. 108
- **10** STS assembly module, see p. 113
- **11** Curve wheel STS, see p. 116
  (STS sliding curves can also be implemented on request)



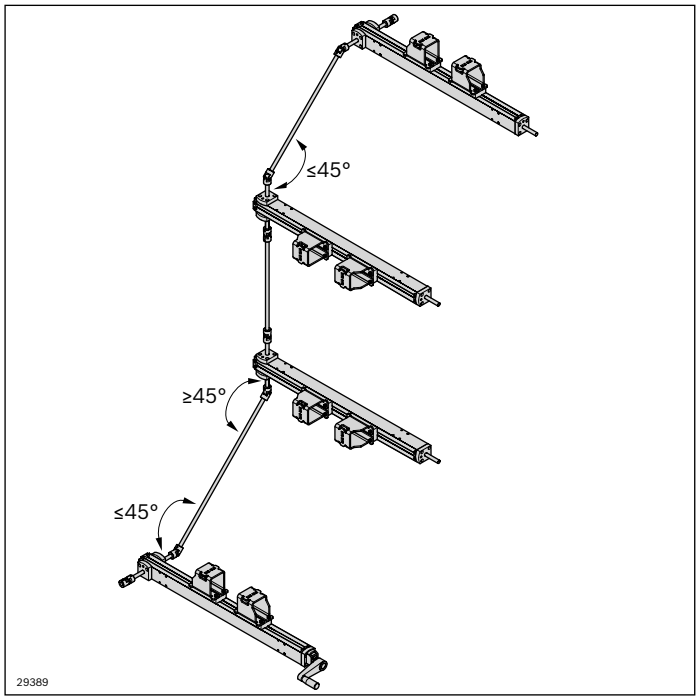


- **1** AL drive kit, see p. 78
- **2** AL return unit/AL closed head drive, see p. 74
- **3** AL section profile, see p. 44/46
- **4** AL assembly module, see p. 51
- **5** AL curve wheel, see p. 58
- **6** Sliding curve horizontal AL, see p. 62

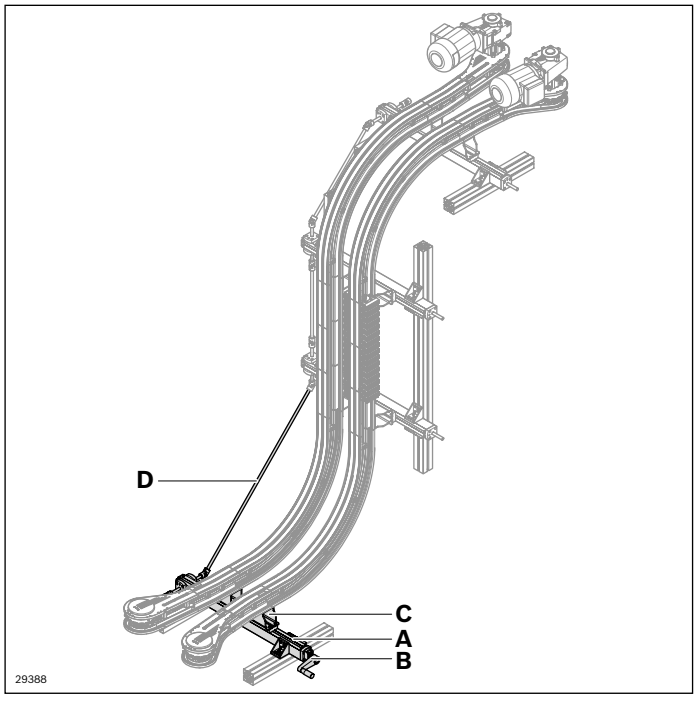
Frame made out of MGE components



Adjustment unit for width adjustment see page 153



Wedge conveyor adjustment unit



The adjustment unit is designed for easy setting of 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 VarioFlow *plus* section profile using the connection kit (**C**) and connected to additional adjustment units via the profile rail (**D**).

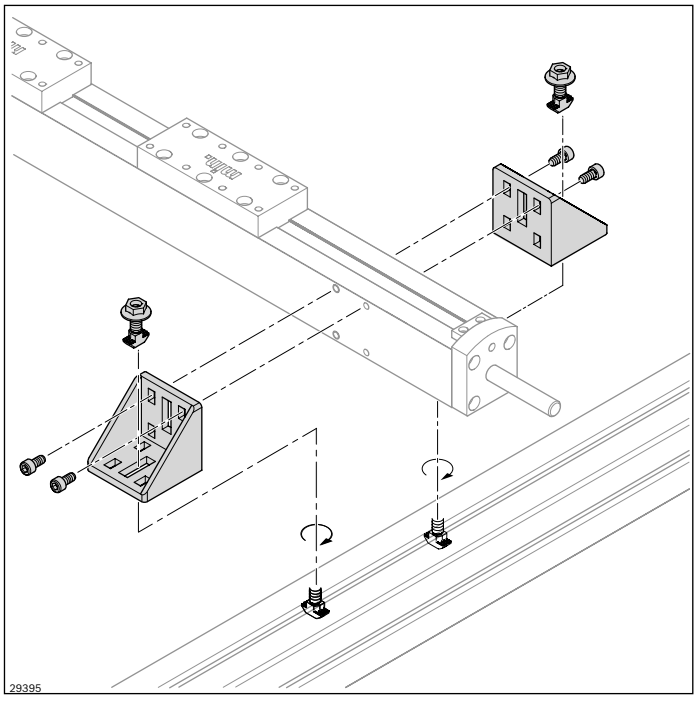
The crank handle (**B**) with counter facilitates the setting of fixed track widths.

Required accessories:
B: Crank handle incl. counter
C: Connection kit (Set)
D: Profile rail (see page 149)

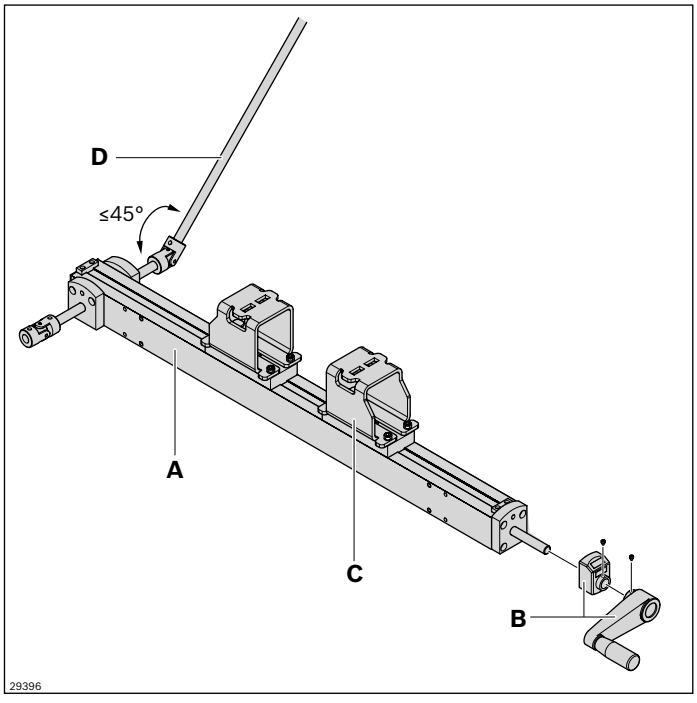
Scope of delivery:
A: Incl. 2 universal joints
B: Incl. counter mechanism
C: Incl. fastening material

Condition on delivery:
A: Assembled
B: Partially assembled
C: Unassembled

Material:
A: Aluminum; anodized; brass, steel
C: Steel, galvanized



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



Adjustment unit (A)	No.
1 pc	**3 842 547 971**

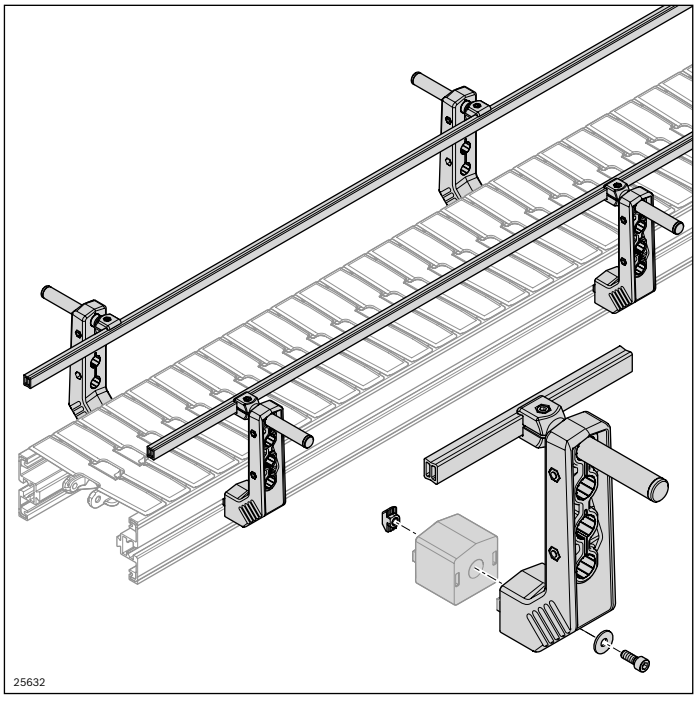
Crank handle (B)	No.
1 pc	**3 842 547 990**

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**

See also the “Technical data” chapter on page 238.

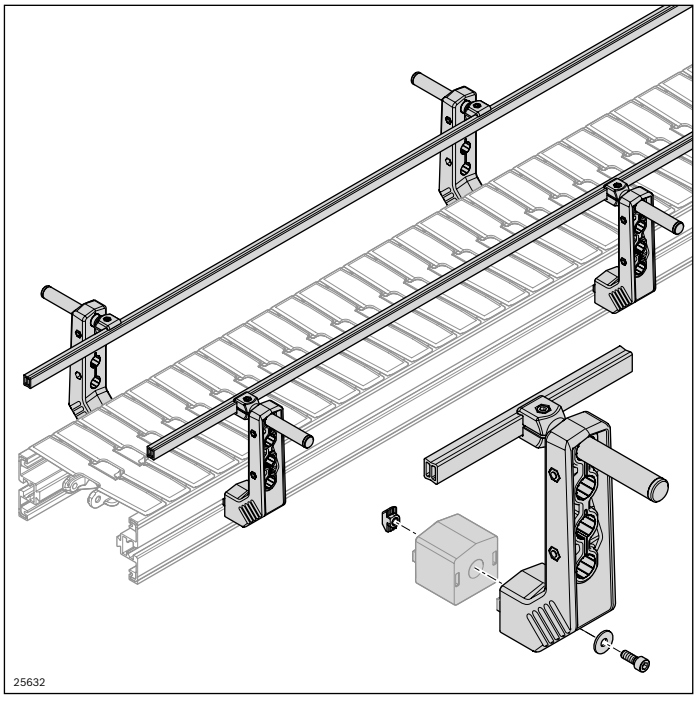
Lateral guide



- Universal use in aluminum and stainless steel system
- Minimal planning effort thanks to clear modular system
- Easy to clean thanks to ample draining surfaces

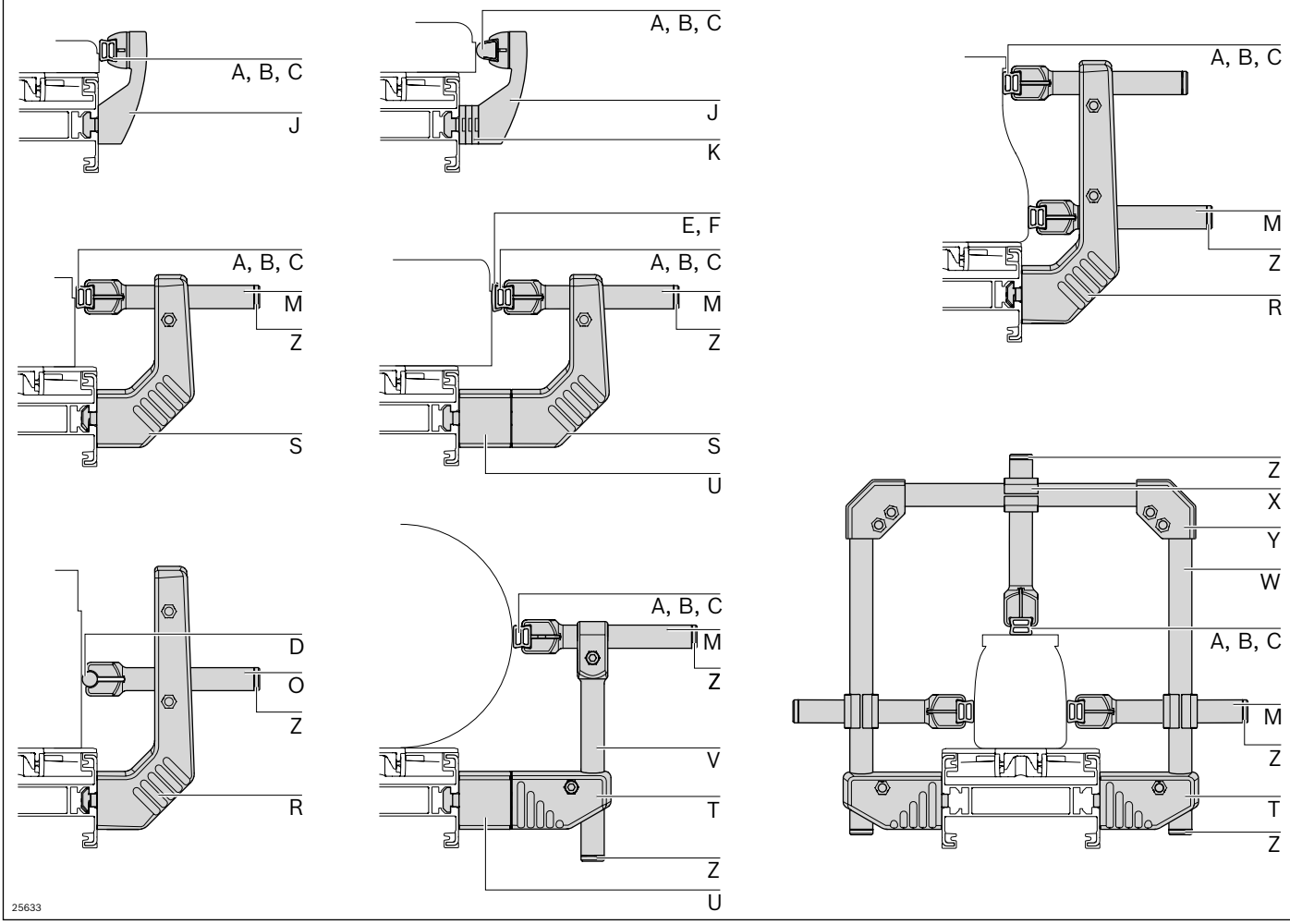
Optimal adaptation to the conveyed goods thanks to versatile combination options

Components for lateral guides



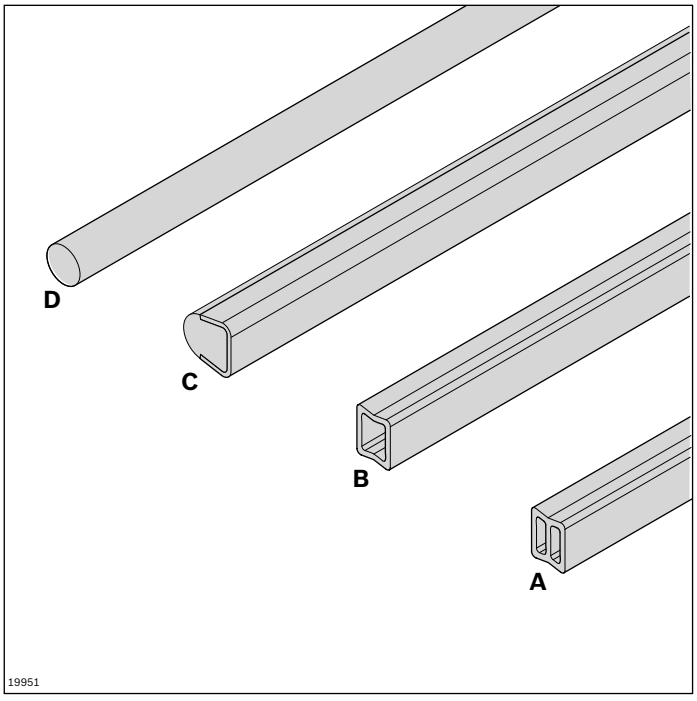
- Wide variety of profile rail and holder combinations for individual solutions
- Easy to clean
- Sturdy
- Only one tool required for adjustment
- 10 mm slot interface

Mounting variants

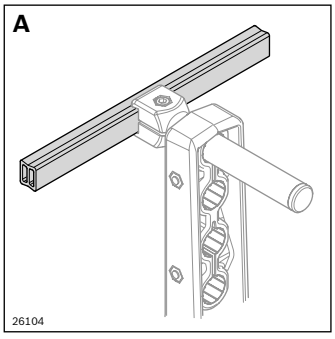


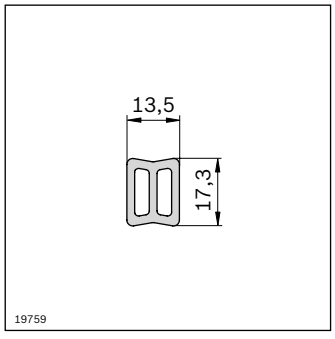
A: Aluminum profile rail, see p. 154
B: HDPE profile rail, see p. 155
C: Profile rail 17x17.5, see p. 155
D: Profile rail D12, see p. 155
E: Slide rail, narrow, see p. 155
F: Slide rail, high, see p. 156
J: Holder, fixed, see p. 158
K: Spacer plate, see p. 158
M: Clamping head C L100, see p. 161
O: Clamping head D12 L100, see p. 161
R: Holder L204, see p. 162
S: Holder L134, see p. 162
T: Holder L45, see p. 163
U: Spacer, see p. 163
V: Vertical clamping head D18 L160, see p. 163
W: Tube D18, see p. 164
X: Cross piece, see p. 164
Y: Corner piece, see p. 164
Z: Plug, see p. 164

Profile rails for lateral guides



- Profile rails for lateral guiding of transported material
- Compatible with holders for lateral guide, fix (see page 157), and holders for lateral guide, flexible (see page 159)
- Various materials and geometries for different applications



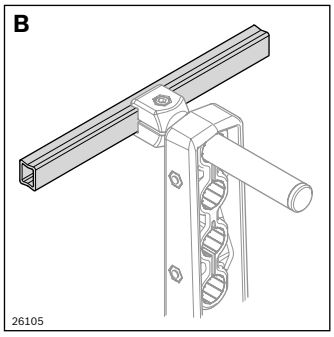


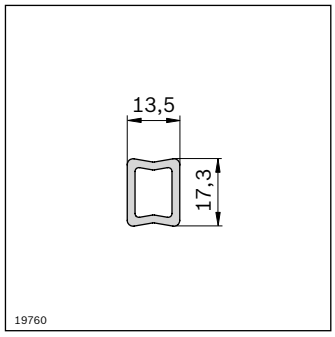
- Aluminum profile rail for robust lateral guides
- Holder distance: max. 750 mm, less with accumulation pressure

Aluminum profile rail			**L** (mm)	**No.**
A	1 pc		200 ... 3000	**3 842 993 887/L**
A	20 pcs		3000	**3 842 538 829**

Material: Aluminum, natural, anodized

Accessories: Slide rail narrow (**E**); slide rail high (**F**); outer profile connector (**G**); inner profile connector (**H**); cap (**I**); clamping head C L100 (**M**); clamping head C (**N**); holder (**J**); clamping head (**L**); clamping head (**Q**)



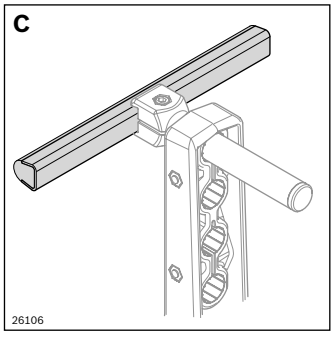


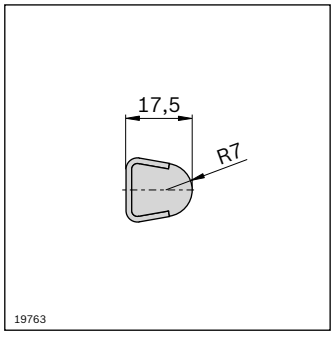
- HDPE profile rail for light applications
- Bendable
- Spacer distance: approx. 300 mm

HDPE profile rail			**L** (mm)	**No.**
B	1 pc		3000	**3 842 538 388**

Material: HDPE; gray

Accessories: Slide rail narrow (**E**); slide rail high (**F**); outer profile connector (**G**); inner profile connector (**H**); cap (**I**); clamping head C L100 (**M**); clamping head C (**N**); holder (**J**); clamping head (**L**); clamping head (**Q**)



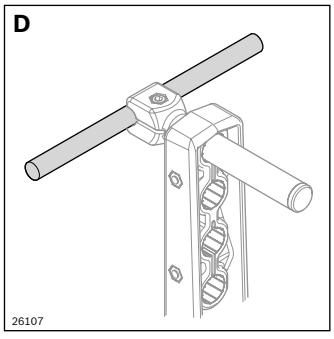


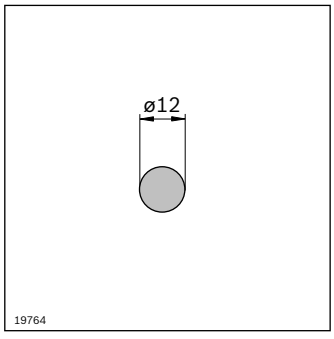
- Profile rail 17x17.5 in robust stainless steel version with PE guide for gentle product handling
- Holder distance: max. 750 mm, less with accumulation pressure

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

Material: Steel; stainless/PE; natural

Accessories: Outer profile connector (**G**); clamping head C L100 (**M**); clamping head C (**N**); holder (**J**); clamping head (**L**); clamping head (**Q**)



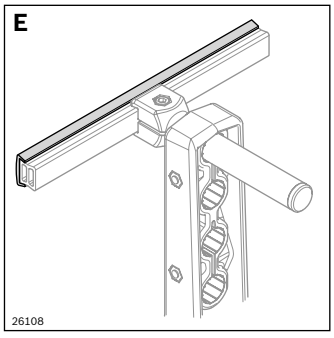


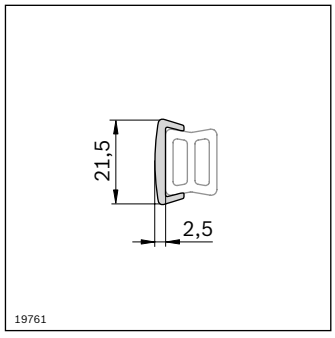
- Profile rail D12 in robust stainless steel version
- Holder distance: max. 750 mm, less with accumulation pressure

Profile rail D12			**L** (mm)	**No.**
D	1 pc		200 ... 3000	**3 842 993 306/L**
D	6 pcs		3000	**3 842 533 841**

Material: Steel; stainless

Accessories: Clamping head D12 L100 (**O**); clamping head D12 (**P**)

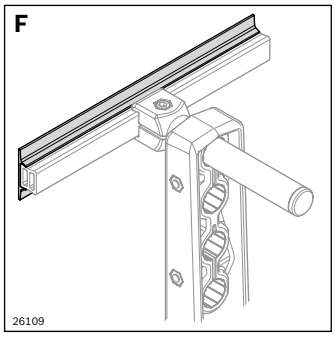


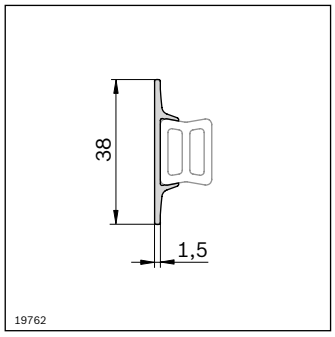


- Clip-on slide rail for aluminum or HDPE profile rail
- For gentle product transport and minimum wear to HDPE profile rail

Slide rail, narrow	**L** (mm)	**ESD**	**No.**
E	3000		**3 842 538 209**
E	3000	⚠	**3 842 539 340**

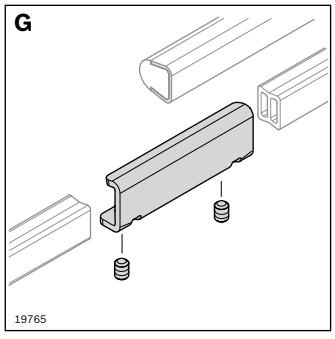
Material: HDPE; gray
ESD: PE-UHMW, conductive, black





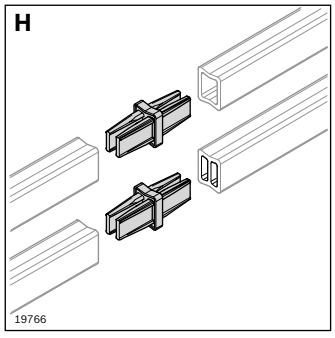
– Clip-on slide rail for aluminum or HDPE profile rail
– Wide guiding surface
– For gentle product transport and minimum wear to HDPE profile rail

Slide rail, high	**L** (mm)	**No.**
F	3000	**3 842 538 389**
Material: HDPE; gray		



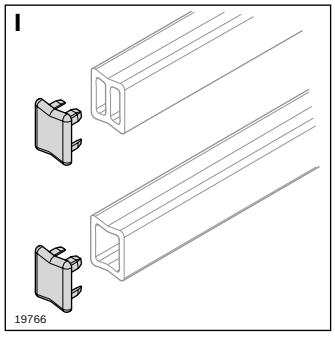
– External profile connector for profile rail aluminum (**A**), profile rail HDPE (**B**), profile rail 17x17.5 (**C**)

Outer profile connector		**No.**
G	10	**3 842 539 613**
Material: Steel; stainless		
Scope of delivery: Incl. 2 x headless setscrews		



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

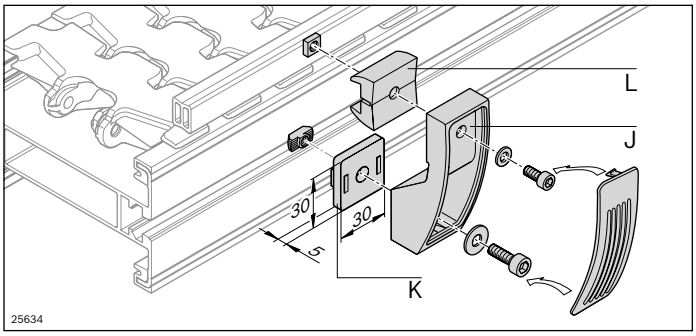
Inner profile connector		**No.**
H	10	**3 842 539 345**
Material: PA, black; conductive		

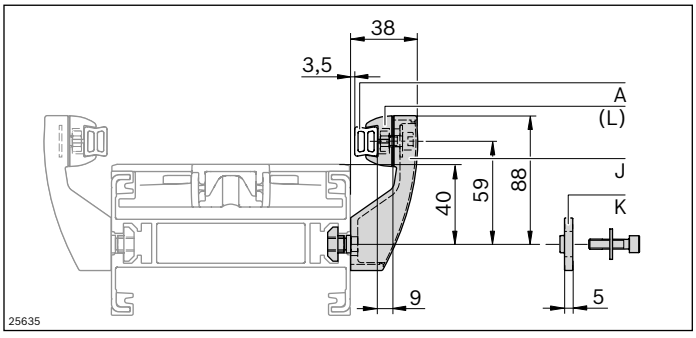


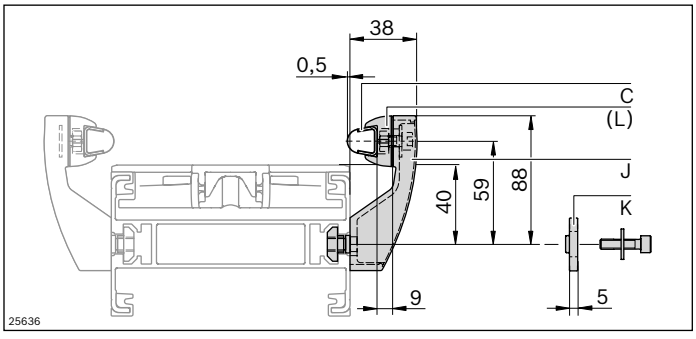
– Cap for aluminum (**A**) profile rail, HDPE (**B**) profile rail

Cap		**No.**
I	10	**3 842 538 208**
Material: PA, black; conductive		

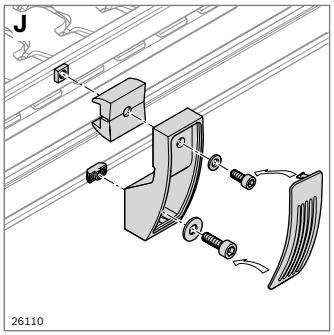
Holder for lateral guide, fix

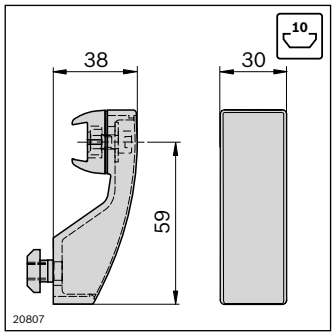






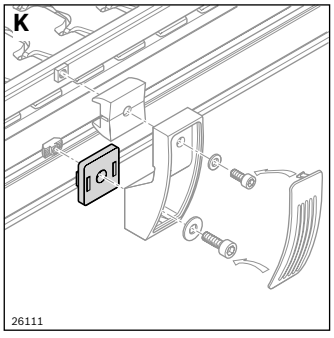
– Holders for lateral guides with fixed installation height and fixed guide width

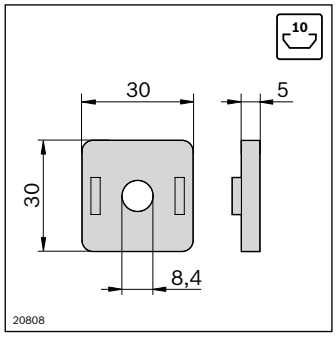




– Holder, fixed, for profile rail in aluminum (**A**), HDPE (**B**) and 17x17.5 (**C**)
– For fixed guide width
– Spacer plate (**K**) for guide width enlargement

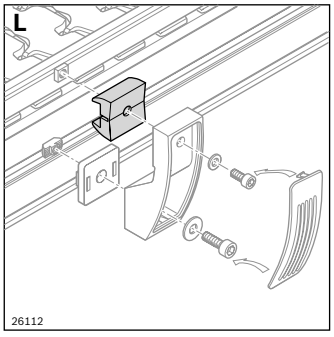
Holder, fixed		**No.**
J Set		**3 842 527 851**
Material:	PA, black fastening material: Steel; galvanized	
Scope of delivery:	Incl. clamping head, fastening material	

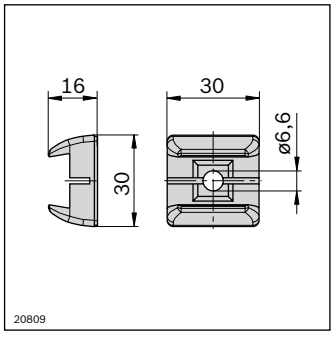




– Spacer plate for holders, fixed, for guide width enlargement

Spacer plate		**No.**
K	10	**3 842 527 738**
Material:	PA; black	

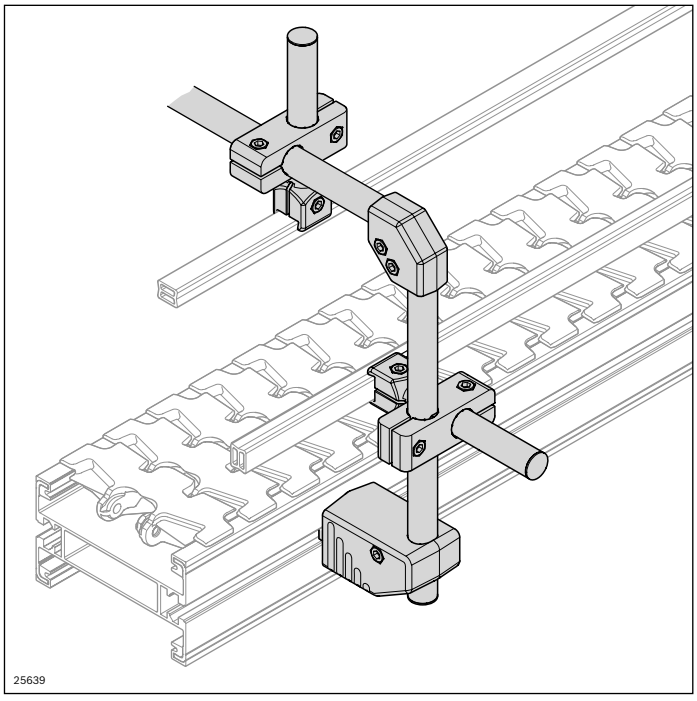




– Clamping head for on-site construction of supports for protruding transported material

Clamping head		**No.**
L Set	10	**3 842 536 295**
Material:	PA, black fastening material: Steel; galvanized	
Scope of delivery:	Incl. fastening material	

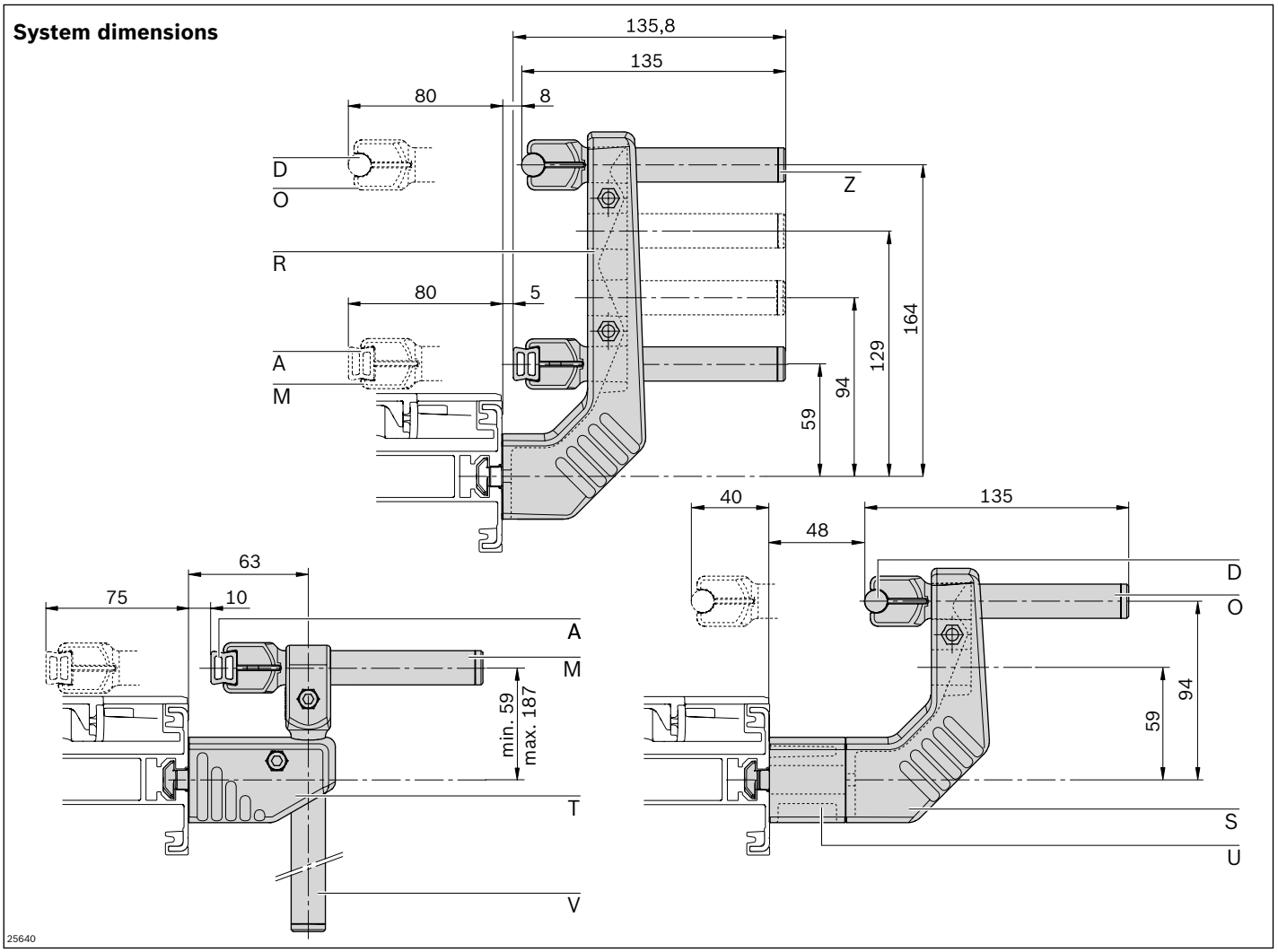
Lateral guide holder, flexible



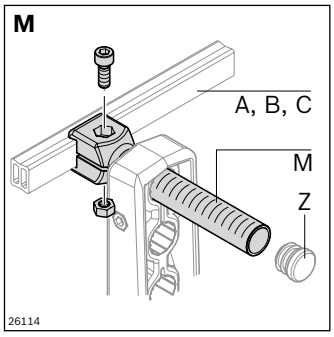
- Holder and clamping head allow for the variable adjustment of the guide height and width
- Easy to clean

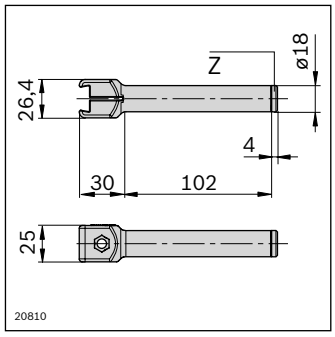
Note: For lateral guide stability, at least two holders must be connected with a continuous profile rail.

System dimensions



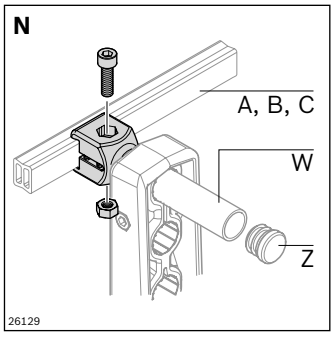
A: Aluminum profile rail, see p. 154
D: Profile rail D12, see p. 155
M: Clamping head C L100, see p. 161
O: Clamping head D12 L100, see p. 161
R: Holder L204, see p. 162
S: Holder L134, see p. 162
T: Holder L45, see p. 163
U: Spacer, see p. 163
V: Vertical clamping head D18 L160, see p. 163
Z: Plug, see p. 164

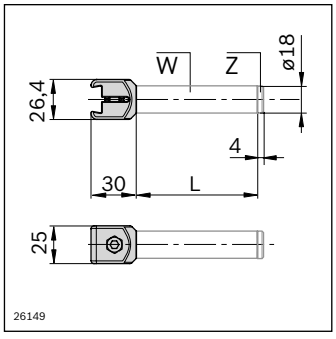




- Clamping head C L100 for supporting aluminum (**A**), HDPE (**B**) or 17x17.5 (**C**) profile rail versions
- Scaling in mm and inch for simple alignment

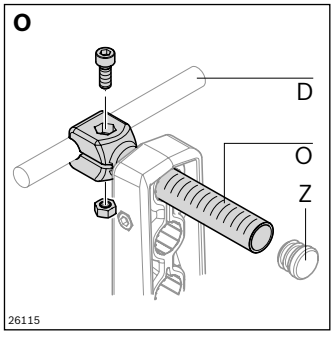
Clamping holder C L100		**No.**
M	10	**3 842 539 499**
Material:	Clamping holder: PA; black Nut, screw: Steel; stainless	
Accessories:	Plug (**Z**)	

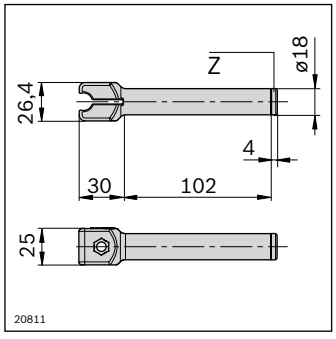




- Clamping holder C for mounting profile rails aluminum (**A**), HDPE (**B**) or 17x17.5 (**C**) profile rail versions
- In conjunction with tube 18 (**W**) for constructing longer clamping heads

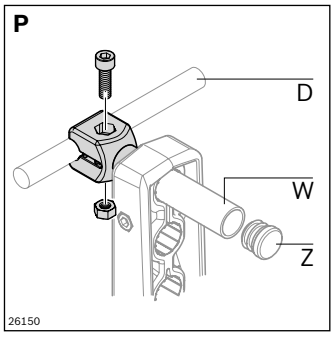
Clamping holder C		**No.**
N	10	**3 842 547 228**
Material:	Clamping holder: PA; black Nut, screw: Steel; stainless	
Accessories:	Plug (**Z**) Tube D18 (**W**)	

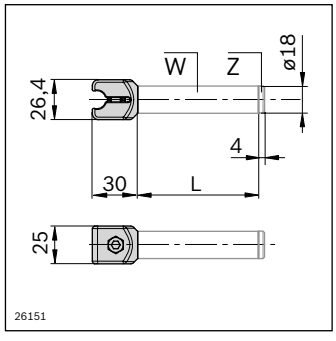




- Clamping head D12 L100 for supporting profile rails D12 (**D**)
- Scaling in mm and inch for simple alignment

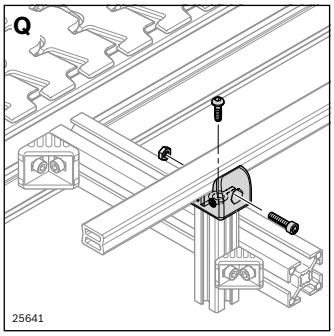
Clamping holder D12 L100		**No.**
O	10	**3 842 539 498**
Material:	Clamping holder: PA; black Nut, screw: Steel; stainless	
Accessories:	Plug (**Z**)	

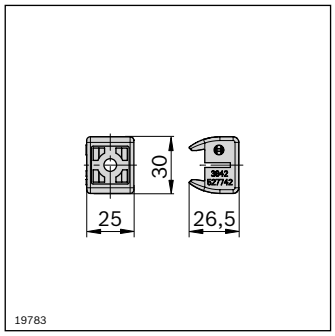




- Clamping head D12 for supporting profile rails D12 (**D**)
- In conjunction with tube 18 (**W**) for constructing longer clamping heads

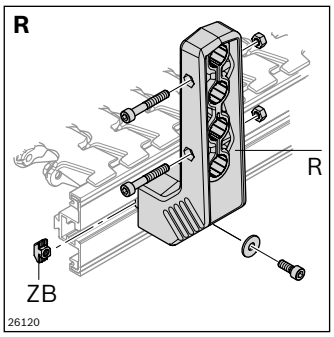
Clamping holder D12		**No.**
P	10	**3 842 547 227**
Material:	Clamping holder: PA; black Nut, screw: Steel; stainless	
Accessories:	Plug (**Z**) Tube D18 (**W**)	

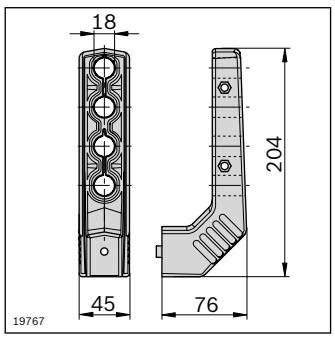




– Clamping head for supporting aluminum (**A**), HDPE (**B**) or stainless steel profile rail versions with PE guide (**C**)
– Direct mounting on profiles with 10 mm slot

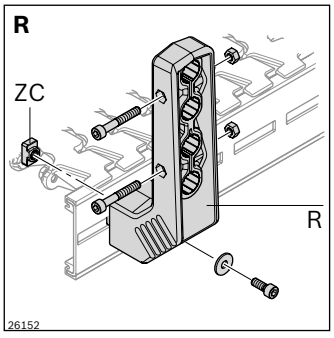
Clamping head		**No.**
Q Set	10	**3 842 528 009**
Material:	Clamping holder: PA, black fastening material: Steel; galvanized	
Scope of delivery:	Incl. fastening material	

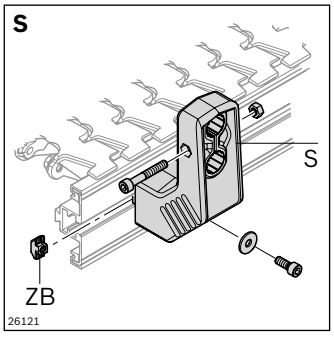


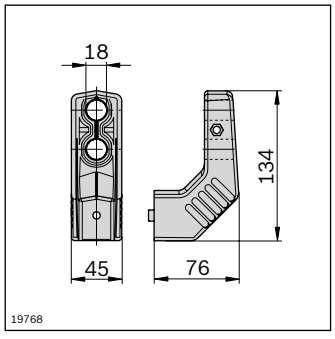


– Holder for fastening clamping heads C, C L100, D12, or D12 L100
– Various installation heights possible for clamping heads
– Variable guide widths possible
– Spacer (**U**) for added enlargement of guide width

Holder L204		**No.**
R Set		**3 842 539 494**
ZB T-nut for AL	100	**3 842 530 285**
ZC T-nut for STS	20	**3 842 546 706**
Material:	PA, black fastening material: Steel; stainless	
Scope of delivery:	Incl. fastening material (except T-nut)	
Accessories, required:	T-nut for AL or STS	
Accessories, optional:	Spacer (**U**)	

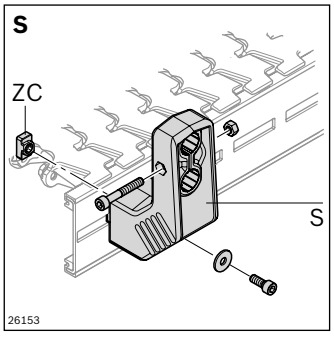


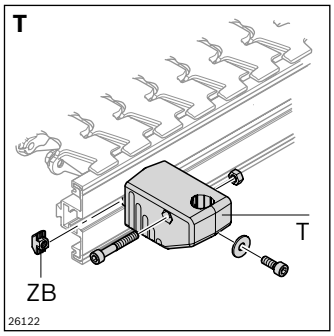


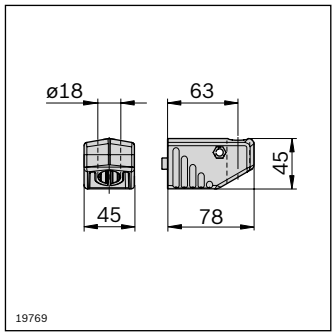


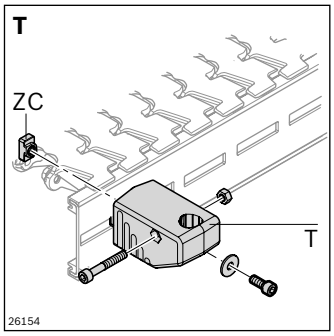
– Holder for mounting clamping holders C, C L100, D12 or D12 L100
– Various installation heights possible for clamping heads
– Variable guide widths possible
– Spacer (**U**) for added enlargement of guide width

Holder L134		**No.**
S Set		**3 842 539 495**
ZB T-nut for AL	100	**3 842 530 285**
ZC T-nut for STS	20	**3 842 546 706**
Material:	PA, black fastening material: Steel; stainless	
Scope of delivery:	Incl. fastening material (except T-nut)	
Accessories, required:	T-nut for AL or STS	
Accessories, optional:	Spacer (**U**)	





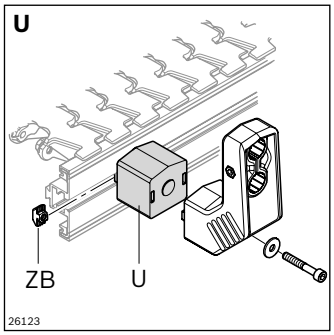


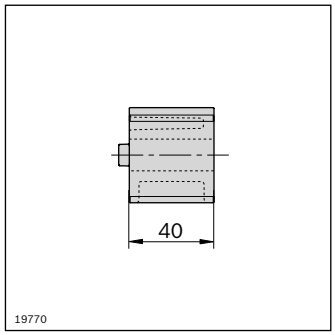


- Holder L45 for fastening vertical clamping heads or tube D18
- For infinitely height-adjustable lateral guides
- Spacer (**U**) for enlargement of guide width

Holder L45		**No.**
T Set	10	**3 842 539 496**
ZB T-nut for AL	100	**3 842 530 285**
ZC T-nut for STS	20	**3 842 546 706**

Material:	PA, black fastening material: Steel; stainless
Scope of delivery:	Incl. fastening material (except for T-nuts)
Accessories, required:	T-nut for AL or STS
Accessories, optional:	Spacer (**U**)

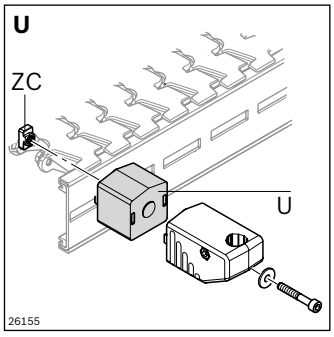


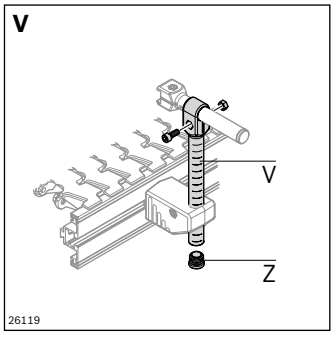


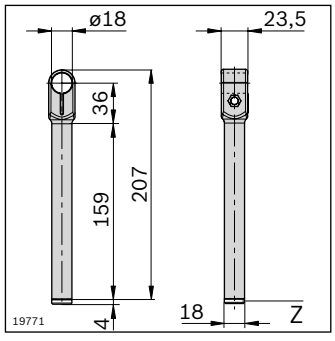
- Spacer for guide width enlargement

Spacer		**No.**
U Set	10	**3 842 539 497**
ZB T-nut for AL	100	**3 842 530 285**
ZC T-nut for STS	20	**3 842 546 706**

Material:	PA, black fastening material: Steel; stainless
Scope of delivery:	Incl. fastening material (except for T-nuts)
Accessories, required:	T-nut for AL or STS



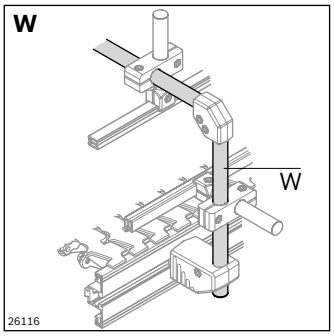


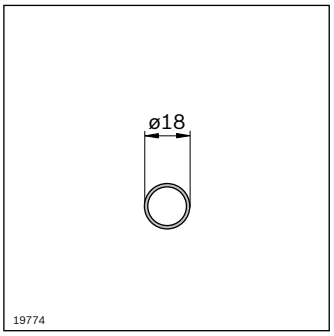


- Vertical clamping head for constructing height-adjustable guides

Vertical clamping holder D18 L160		**No.**
V	10	**3 842 539 500**

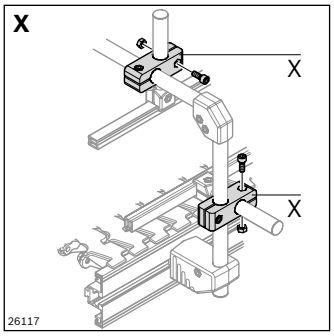
Material:	PA; black nut, screw: Steel; stainless
Accessories:	Plug (**Z**)

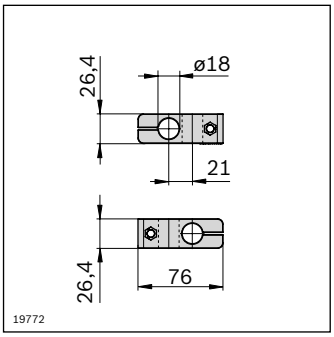




– Tube D18 for the construction of height-adjustable vertical holders or cross members for upper guides

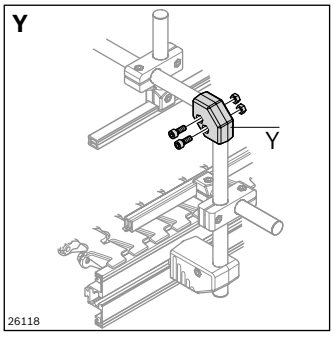
Tube D18	**L** (mm)	**No.**
W	3000	**3 842 539 339**
Material:	Stainless steel	
Accessories:	Plug (**Z**)	

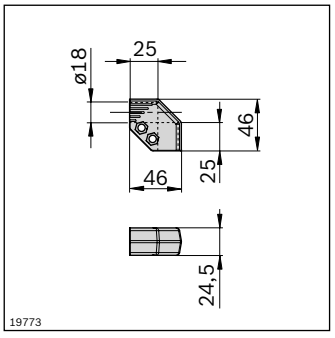




– Cross piece for intersecting, perpendicular connections of tubes D18 (**W**) and clamping heads C L100 (**M**) or D12 L100 (**O**)

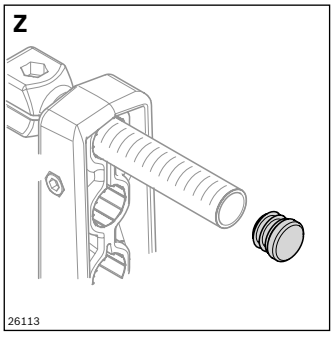
Crosspiece		**No.**
X	10	**3 842 539 501**
Material:	Crosspiece: PA; black nut, screw: Steel; stainless	





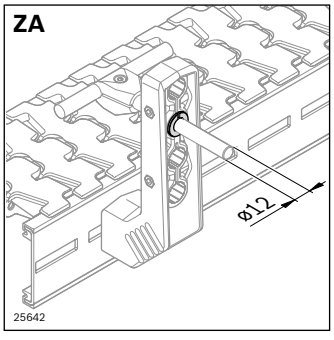
– Corner piece for end-to-end, perpendicular connections of tubes D18 (**W**) and clamping holders C L100 (**M**) or D12 L100 (**O**)

Corner piece		**No.**
Y	10	**3 842 539 505**
Material:	Corner piece: PA; black nut, screw: Steel; stainless	



– Plug for clamping head C L100 (**M**), clamping head D12 L100 (**O**), vertical clamping head D18 L160 (**V**) or tube D18 (**W**)

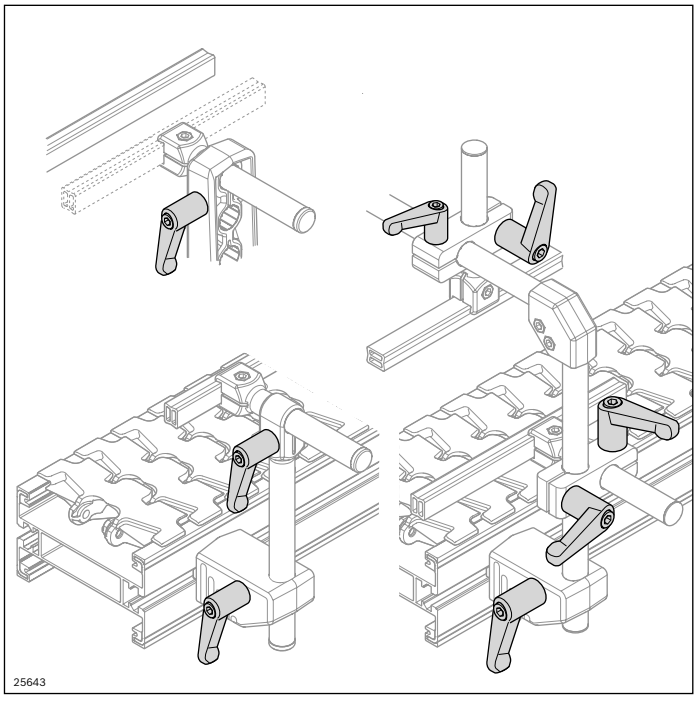
Plug		**No.**
Z	10	**3 842 539 826**
Material:	PA; black	



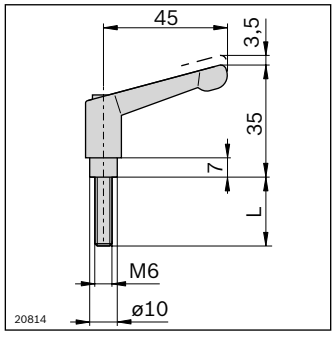
– Reducing adapter for supporting round profiles ø12 in D18 mountings, e.g. for customer-specific clamping heads

Reducing adapter		**No.**
ZA	20	**3 842 539 344**
Material:	PA; black	

Clamping lever



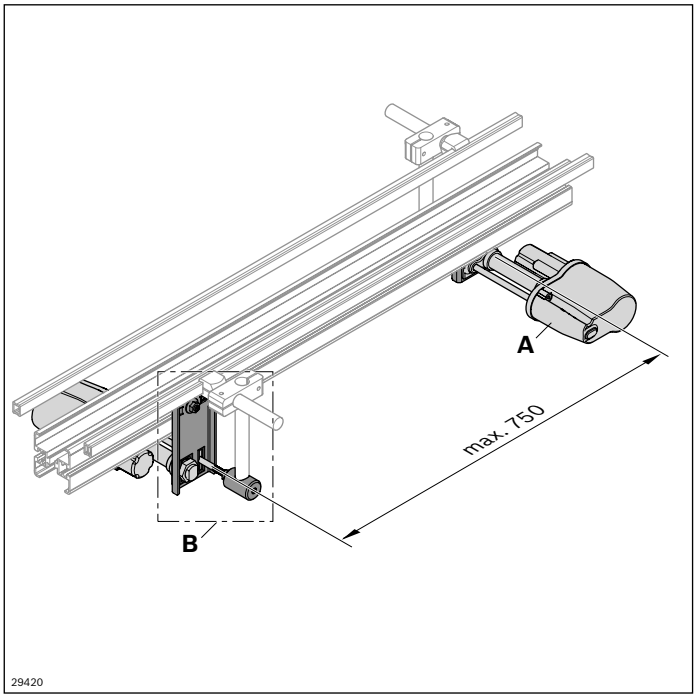
- For easy adjustment of lateral guide holders
- Clamping lever M6x25 for the crosspiece
- Clamping lever M6x40 for the holder



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; galvanized and black chrome-plated

Automatically adjustable lateral guide



The complete lateral guide can be adapted to rapidly changing product dimensions, especially when the conveyors are not easily accessible. The automatically adjustable lateral guide is composed of the adjustment unit (**A**), the assembly kit (**B**) and components from the lateral guide program.

- Sizes: 65-320
- Max. pressure against the lateral guide (on one side): 30 N/700 mm
- Synchronous, balanced adjustment
- Adjusted by means of pneumatic valve (operating pressure 4 ... 5 bar, switching every 2 sec. (depending on length of the pneumatic pipe 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
- Position monitoring by customer 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

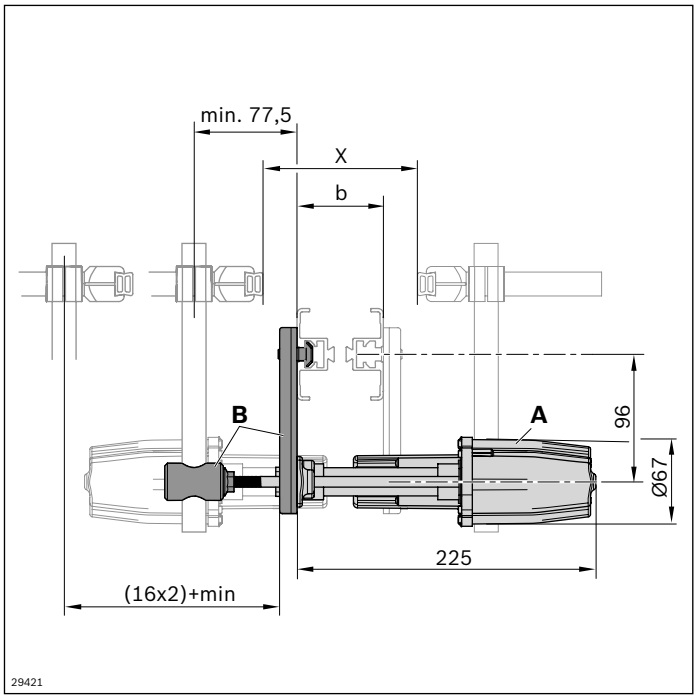
Required accessories:

- Tube 18 mm (**W**), crosspiece (**X**), clamping holder (**M,O**), profile rail (**A, B, C, D**) (see Lateral Guide chapter on page 150)
- One 4/2 directional control valve per 8 adjustment units

Scope of delivery:
B: Incl. fastening material

Condition on delivery:
A: assembled
B: unassembled

Material:
A: AL anodized, PE, steel, galvanized steel, PA
B: Galvanized steel, AL anodized

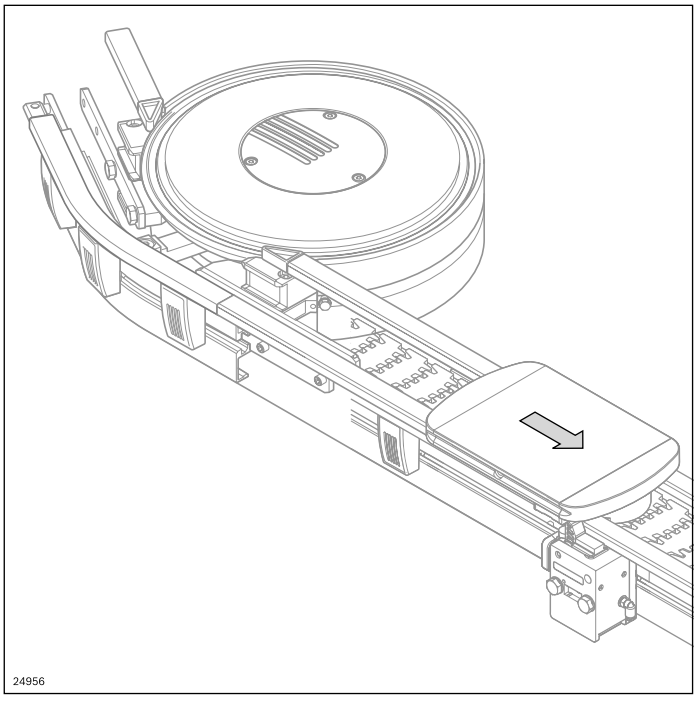


Adjustment unit	No.
A	**3 842 547 707**

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

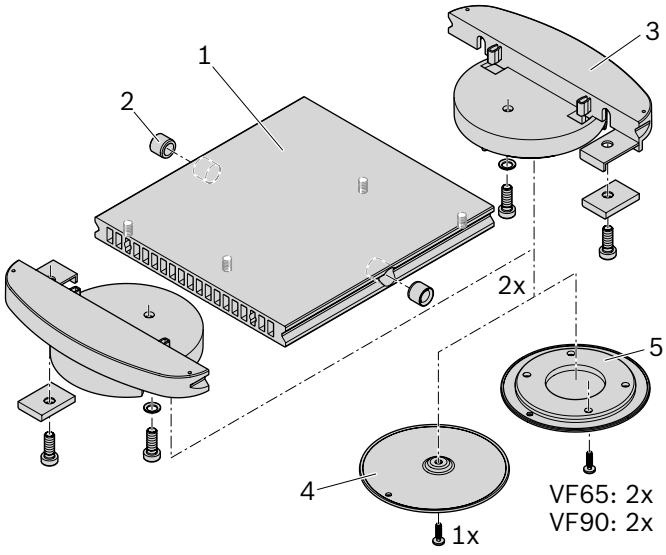
Workpiece pallet system (WT)



- Numerous components for WT control, such as a diverter, stopper, positioning unit, etc.
- Wear pads with different materials can be selected
- Compatible with the ID 15 identification system

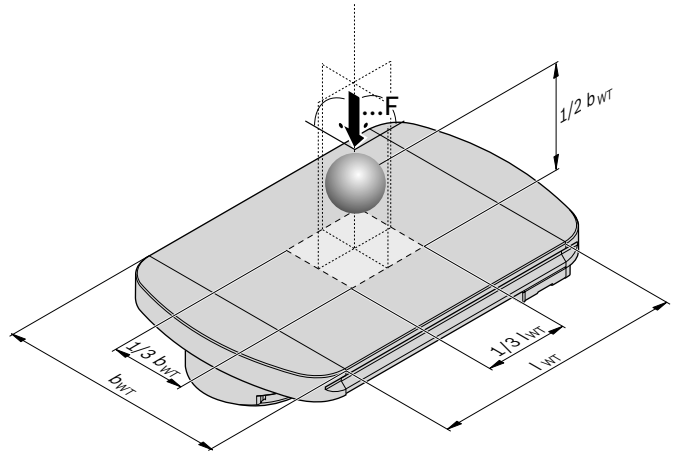
Secure transport of parts thanks to the modular design
with comprehensive additional components

VarioFlow workpiece pallet (WT)



1: WT plate
2: Centering bushing
3: End pieces
4: Workpiece pallet wear pad, steel or
5: WT wear pad, PE

00137554



Optimum center of gravity range for smooth operation

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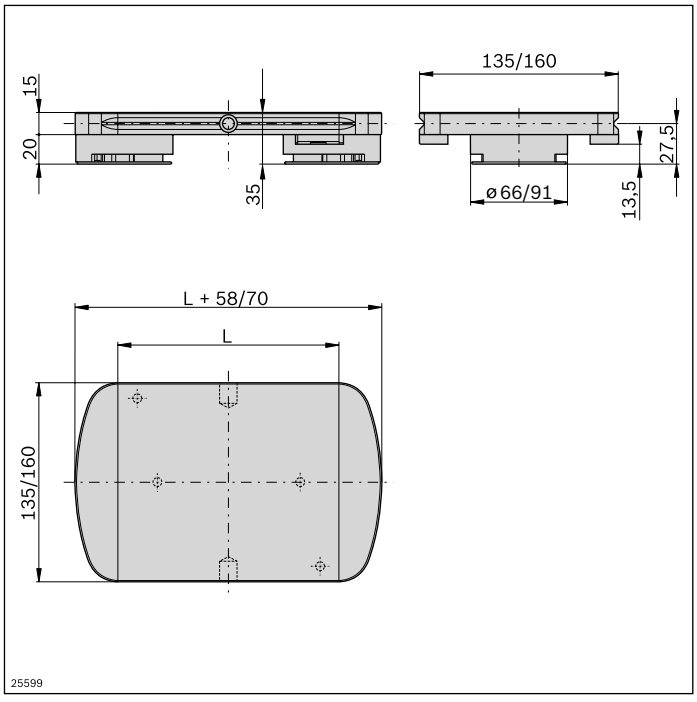
Used to transport products that are not suitable for accumulation operation or are unstable due to their geometry

- Max. transport speed for operation with workpiece pallets: v_N = 18 m/min
- Workpiece pallet wear pads either made of:
  - Steel, for use in harsh environments
  - PE, for use in clean environments
- Workpiece pallet load (workpiece, support, etc.)
  - Size 65: 5 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 mm, combine two 90° curve wheels with an intermediate section (min. 200 mm).
  For WT with L < 300 mm, use 180° curve wheel
- Minimum length of the workpiece pallet:
  - Size 65: L_{min} = 76 mm
  - Size 90: L_{min} = 114 mm
- Minimum length of the workpiece pallet in order to be positioned by the positioning unit (see page 184):
  - Size 65: L_{min} = 125 mm
  - Size 90: L_{min} = 125 mm

- ▶ Level workpiece pallet surfaces with no indentations
- ▶ The entire top of the WT can be built upon since everything else on the section is installed lower than the top of the WT.
- ▶ Compatible with the ID 15 identification system (see p. 196).
  The integrated installation of a mobile data tag is also possible
- ▶ The product can also protrude beyond the WT if the position of the center of gravity is taken into consideration.

Material:

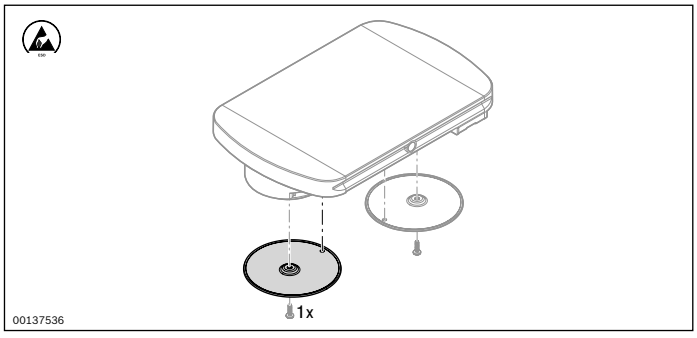
- WT plate: Aluminum; natural, anodized
- End pieces: PA; black
- Workpiece pallet wear pads: Steel, stainless, HV ≥ 480 or PE



Workpiece pallet[1)]	L (mm)		No.
VF*plus* 65	150	1	**3 842 541 888**
VF*plus* 90	175	1	**3 842 541 889**

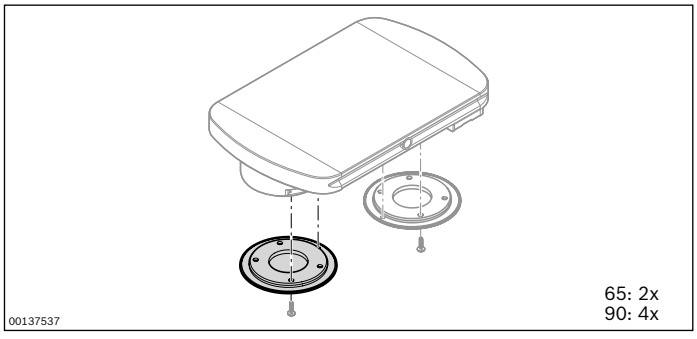
[1)] Mounted without wear pad, with positioning bushing

The assembled workpiece pallet must be provided with wear pads (steel or PE) by the customer.



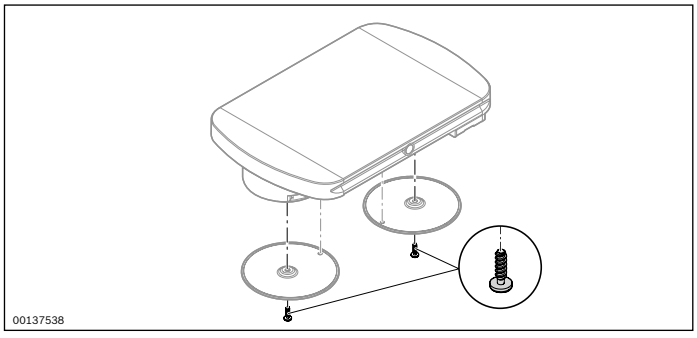
Steel wear pad		No.
VF*plus* 65	10	**3 842 528 773**
VF*plus* 90	10	**3 842 528 772**

Required accessories:
Screw **3 842 543 246** (not in scope of delivery)



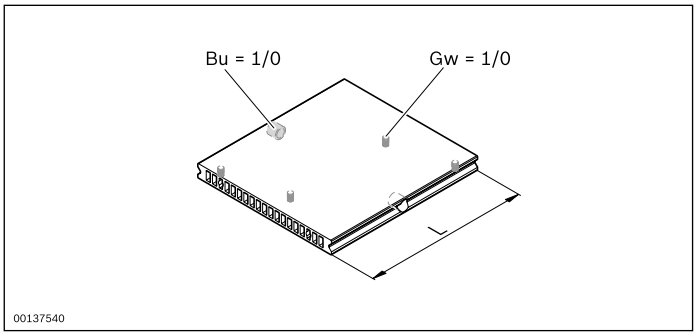
PE wear pad		No.
VF*plus* 65	10	**3 842 541 566**
VF*plus* 90	10	**3 842 541 567**

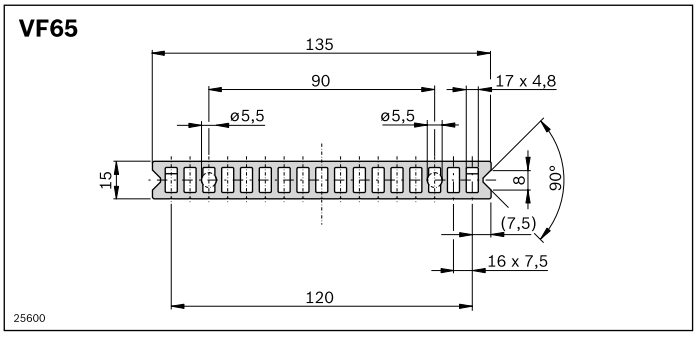
Required accessories:
Screw **3 842 543 246** (not in scope of delivery)

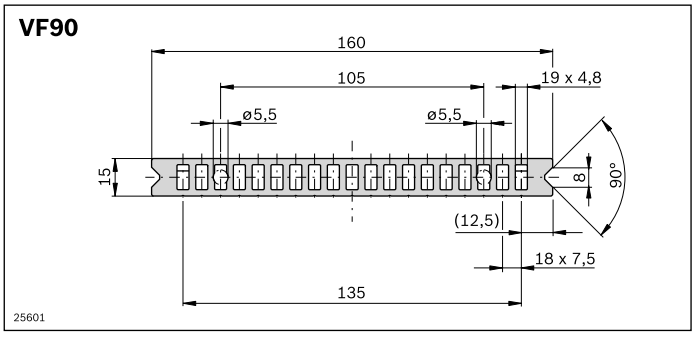


Screw		No.
	100	**3 842 543 246**

Workpiece pallet plate
End piece



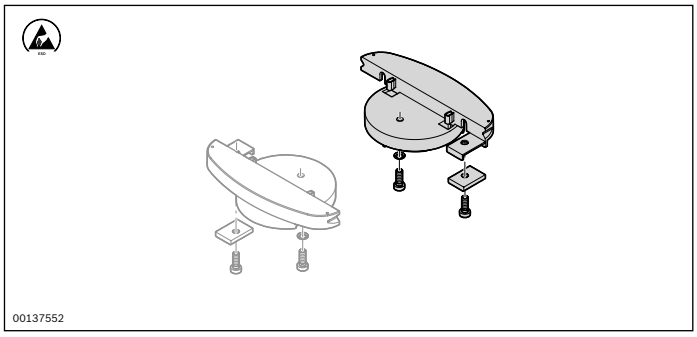




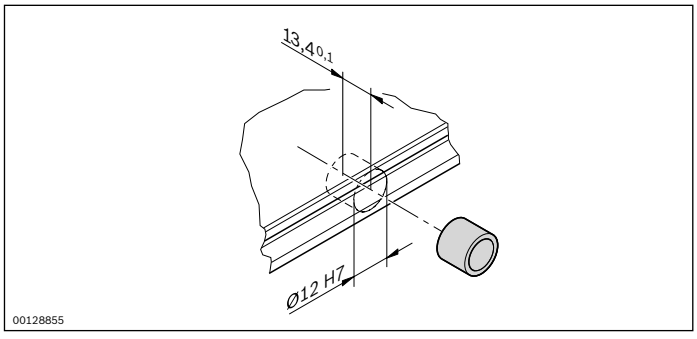
Workpiece pallet plate	Bu	Gw	L (mm)	No.
VF*plus* 65	0; 1	0; 1	30 ... 6000	**3 842 996 204/...**
VF*plus* 90	0; 1	0; 1	30 ... 6000	**3 842 996 205/...**

Parameter	Size	L_{min} (mm)	L_{max} (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

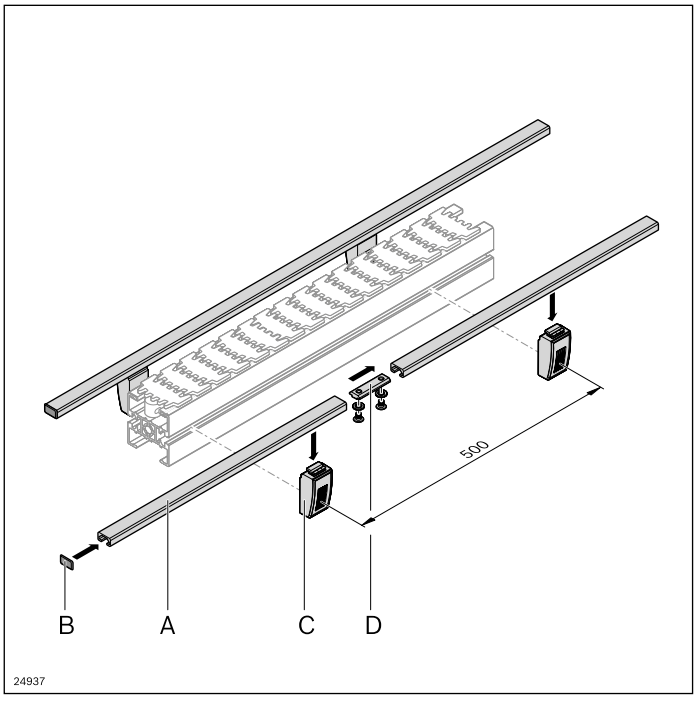


End piece		No.
VF*plus* 65	10	**3 842 541 902**
VF*plus* 90	10	**3 842 541 903**



Centering bushing		No.
	1	**3 842 535 081**

Lateral guide for workpiece pallets



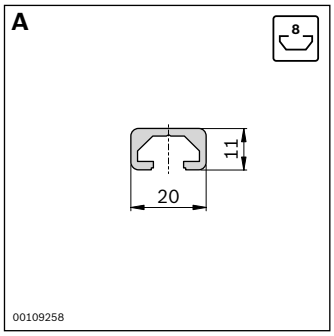
- Strut profile (**A**) to laterally guide the workpiece pallet. Pre-bent lateral guides for curves available on request
- Lateral guide holder (**C**). Distance between holders in conveying direction: 500 mm
- Profile connector (**D**) for end-to-end joining of any profiles

Optional accessories:
A: Bending tool for lateral guide: see page 202

Scope of delivery:
C: Incl. fastening parts (as shown)

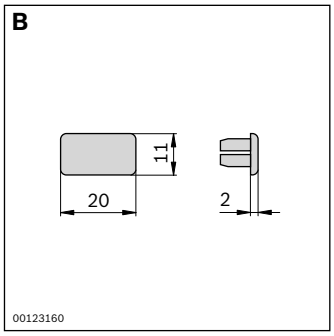
Material:
- **A:** Aluminum; natural, anodized
- **B, C:** PA, black
- **D**, fastening parts: Steel, galvanized

A



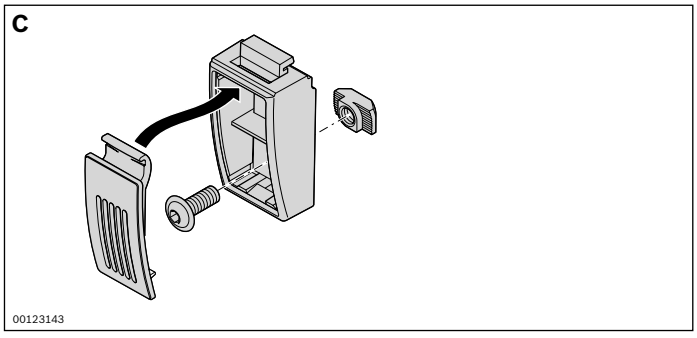
Strut profile 11x20	L (mm)		No.
A	30 ... 2000	1	**3 842 992 476/...**
A	2000	10	**3 842 513 581**

B



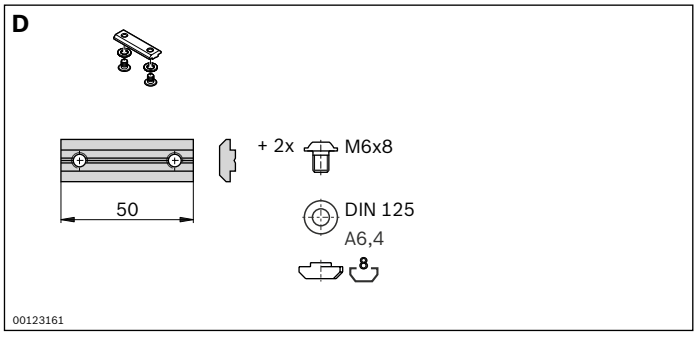
Cap 11x20		No.
B	20	**3 842 513 584**

C

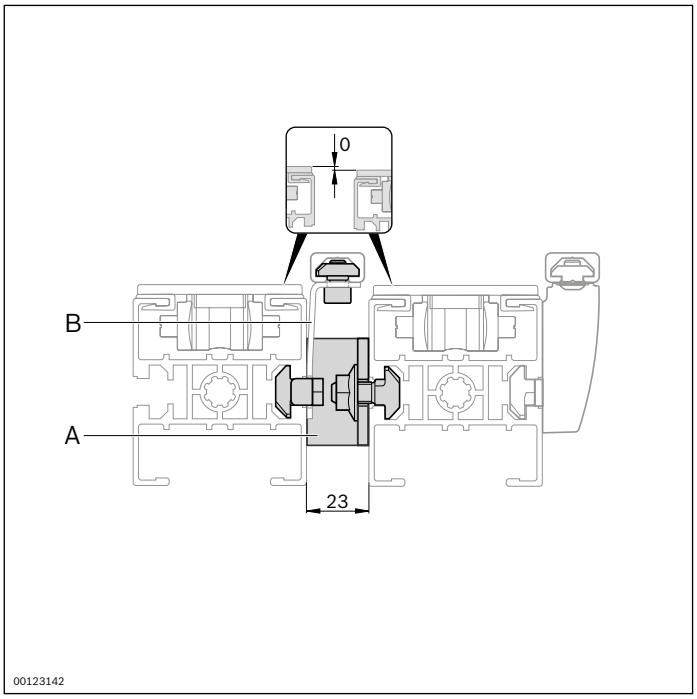


Lateral guide holder		No.
C	10	**3 842 531 552**

D



Profile connector		No.
D	10	**3 842 536 787**



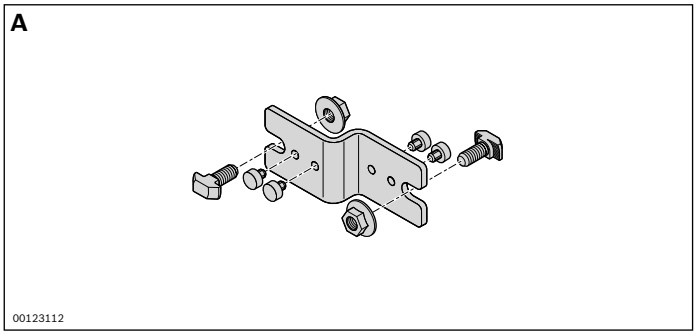
The middle lateral guide is used alternately by both sides. The section link (23 mm) (**A**) is used in combination with the holder for lateral guides (23 mm) (**B**) as a spacer between sections.

– The use of a section transfer (see page 186), deflector (see page 188), or junction (see page 192), requires parallel section spacing of 23 mm.

Material:

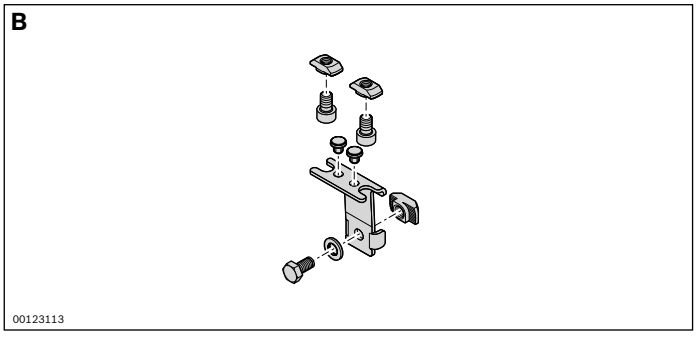
– **A, B:** stainless steel
– Fastening parts: Steel, galvanized

A



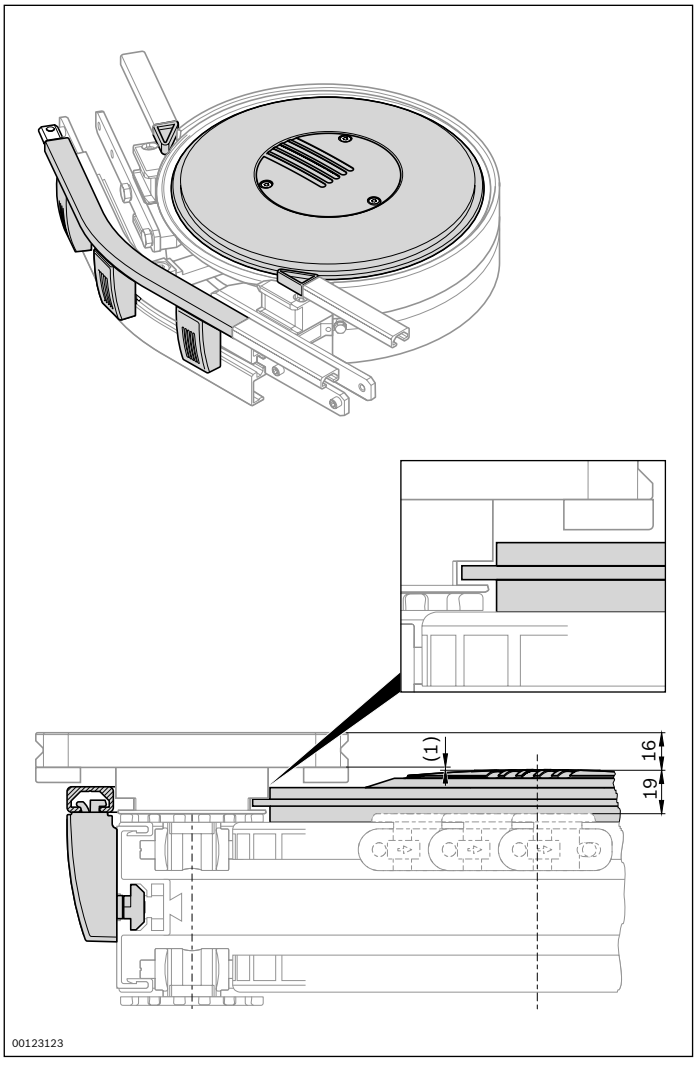
Section link		No.
A	10	**3 842 532 998**

B



Lateral guide holder		No.
B	10	**3 842 532 980**

Curve wheel lateral guide



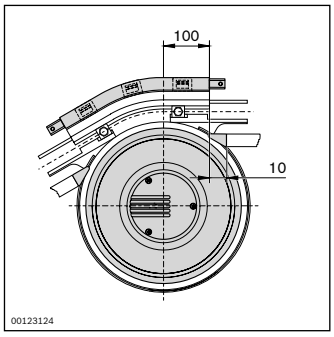
Lateral guide of the workpiece pallet (WT) in the wheel curve or curve wheel drive.

- 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

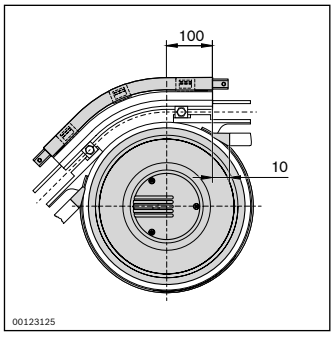
Scope of delivery:
Kit incl. fastening parts (as shown)

Material:

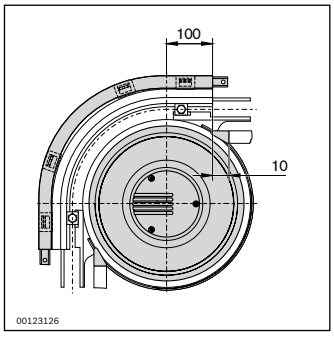
- Guide rail: Aluminum; natural, anodized
- Guide disc, holder: PA, black
- Fastening parts: Steel, galvanized



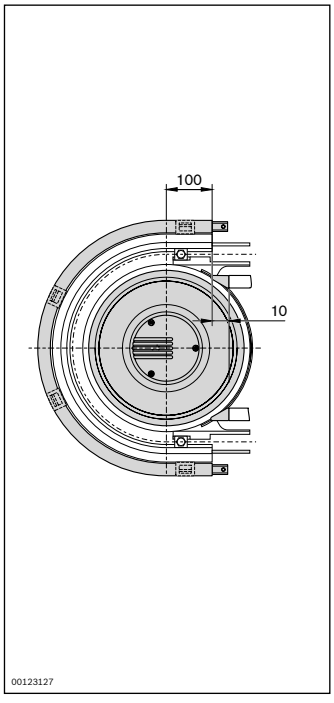
30° lateral guide	**No.**
VF*plus* 65	**3 842 547 949**
VF*plus* 90	**3 842 547 953**



Lateral guide 45°	**No.**
VF*plus* 65	**3 842 547 950**
VF*plus* 90	**3 842 547 954**

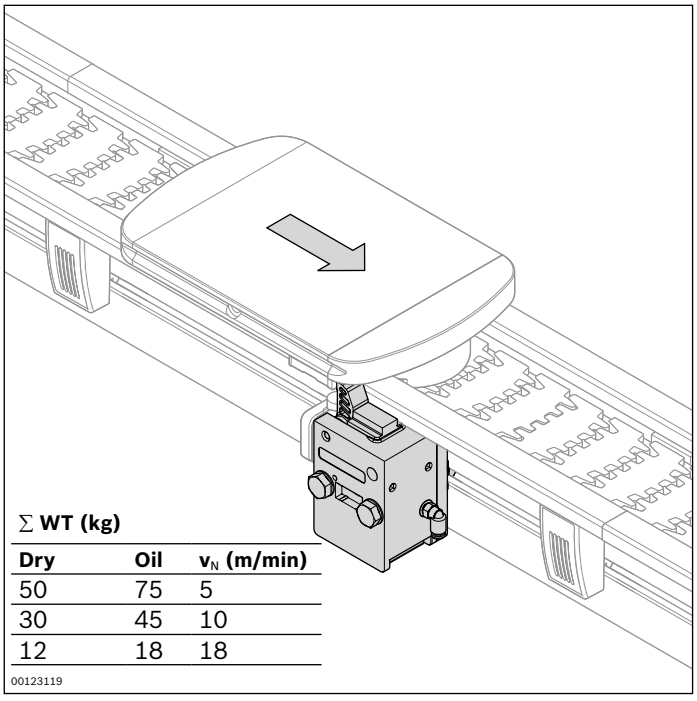


Lateral guide 90°	**No.**
VF*plus* 65	**3 842 547 951**
VF*plus* 90	**3 842 547 955**



Lateral guide 180°	**No.**
VF*plus* 65	**3 842 547 952**
VF*plus* 90	**3 842 547 956**

Stop gate VE 2/VF



∑ **WT (kg)**		
Dry	**Oil**	**v_N (m/min)**
50	75	5
30	45	10
12	18	18

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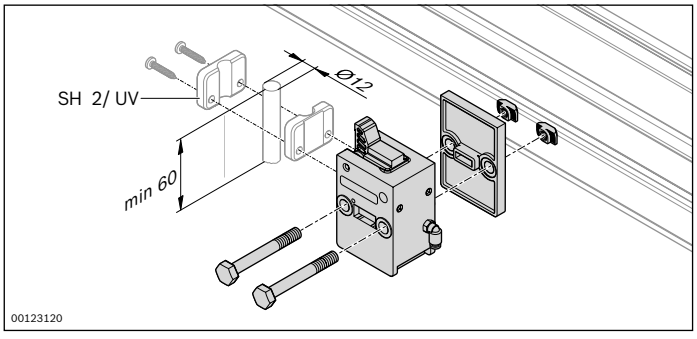

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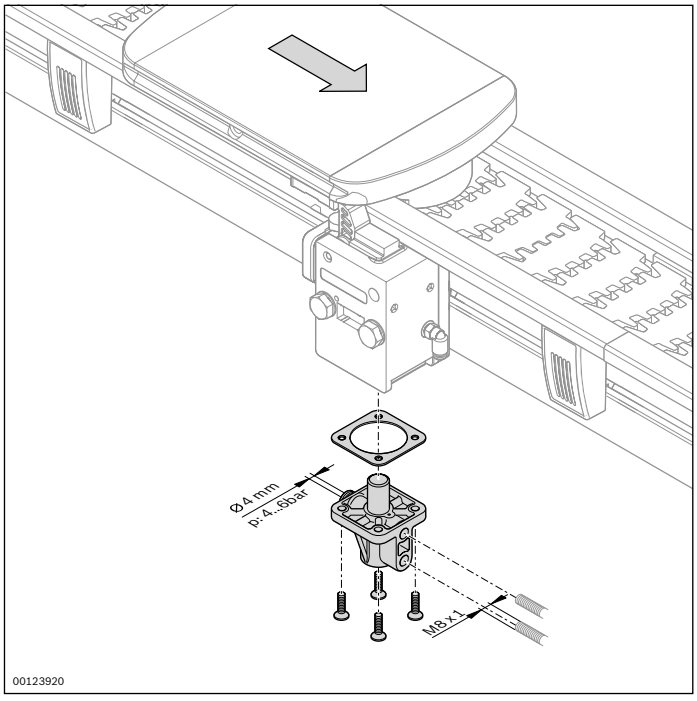
Stop gate for securely stopping a workpiece pallet
- Subsequent installation without disrupting the lateral guide
- The stop gate can be installed in any position
- Switch bracket for installation on stop gate see page 180, max. accumulation load 50 kg

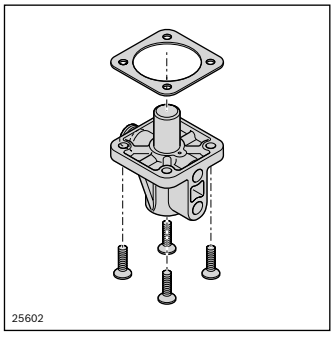
Scope of delivery:
Including fastening parts (as shown)

Material:
- Stop gate: PA, black
- Fastening parts: Steel, galvanized

Stop gate VE 2/VF	**No.**
	3 842 528 852

Position sensor accessories





For querying the position of the stop gate via proximity switch and/or accelerating the pneumatic closing of the stop gate

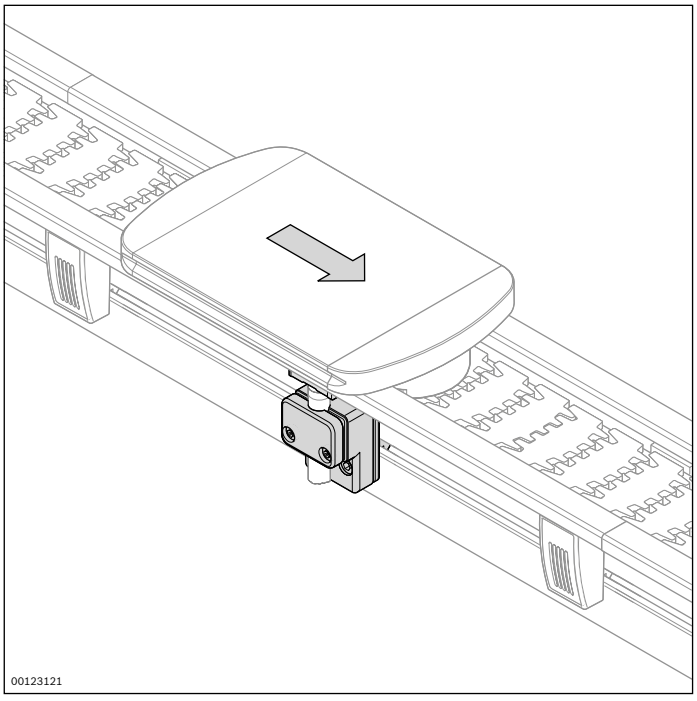
– For retrofitting on the stop gate VE 2/VF

Required accessories:
Proximity switch M8x1 with switching distance $S_N \geq 4$ mm

Material:
– Position sensor: PA, black
– Fastening parts: Steel, galvanized

Position sensor	No.
	3 842 528 817

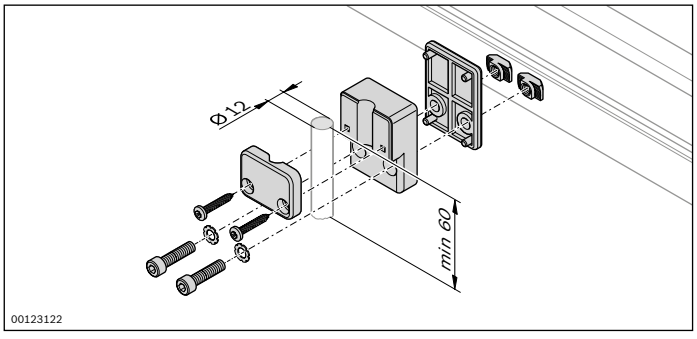
Switch bracket



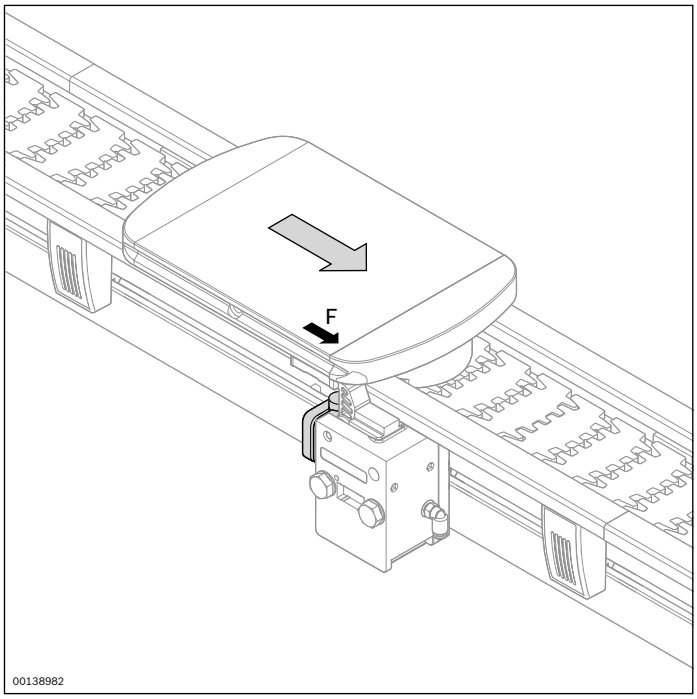
Switch bracket for a 12 mm proximity switch
- Subsequent installation without disrupting the lateral guide
- The switch bracket can be installed in any position

Scope of delivery:
Incl. fastening parts (as shown)

Material:
- Switch bracket: PA, black
- Fastening parts: Steel, galvanized



Switch bracket	No.
	3 842 531 355



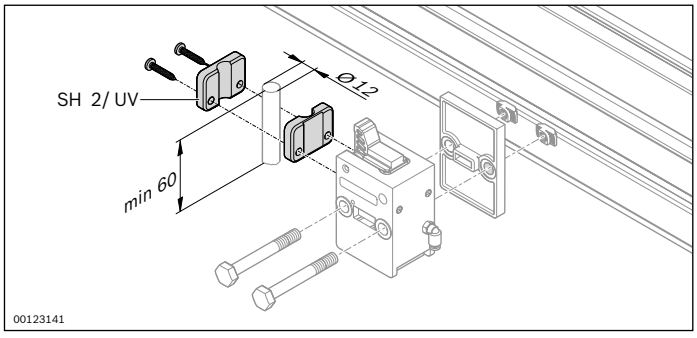
Switch bracket for a 12 mm proximity switch to install on stop gate VE 2/VF (see page 180)

- Can be attached to both sides of the VE 2/VF stop gate
- To query the workpiece pallet position before and/or after the stop gate

Scope of delivery:
Incl. fastening parts (as shown)

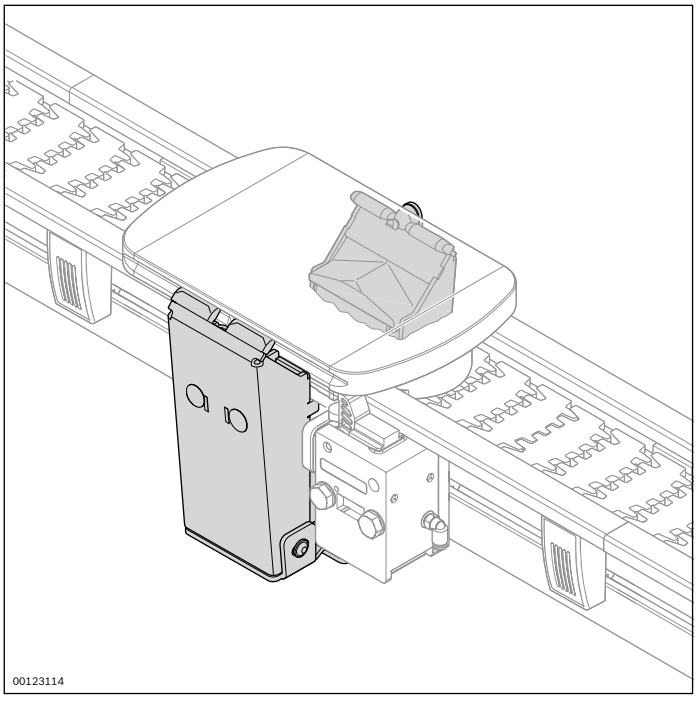
Material:

- Switch bracket: PA, black
- Fastening parts: Steel, galvanized



Switch bracket SH 2/UV	No.
	3 842 168 600

Positioning unit

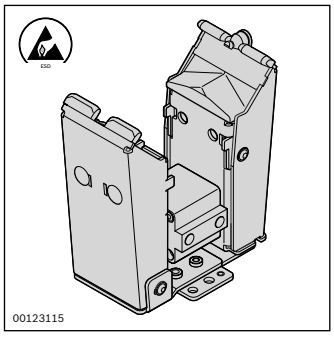


Required accessories:
2 G 1/8" throttle non-return valves (not included in the scope of delivery)

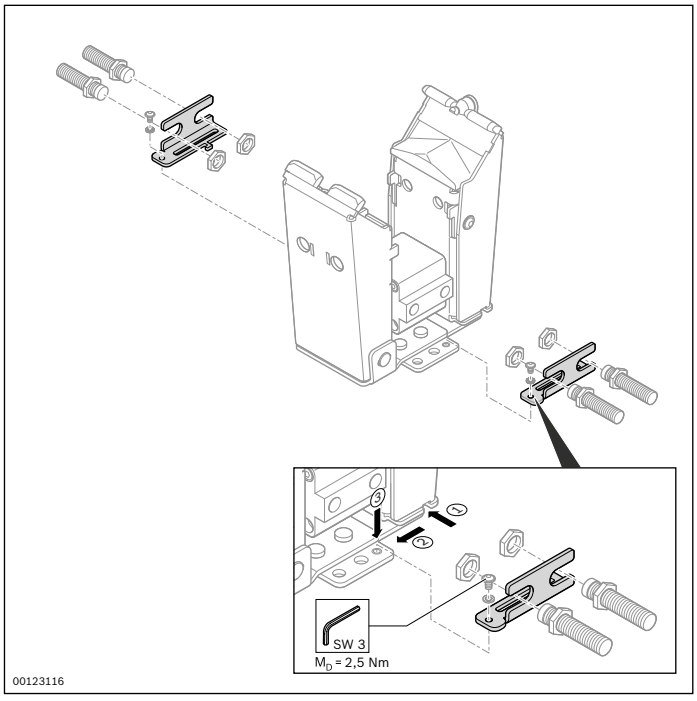
Scope of delivery:
Incl. fastening parts (as shown)

Material:
- Positioning unit: stainless steel
- Fastening parts: Steel, galvanized
- Caps: PA
- Clamping claws: PU

The positioning unit's plier-shaped form is highly resistant to dirt and shavings, making the positioning unit (PE) suitable for dirty environments. The WT is lifted approx. 1 mm above the transport surface, thus eliminating the load on the conveyor chain during processing.
- Positioning accuracy in the conveying direction: ± 0,15 mm (across: ± 0.1 mm, height: ± 0.1 mm)
- Maximum vertical press force (p = 4 bar): 400 N
- Maximum retention force (p = 4 bar) in the conveying direction: 300 N
- Subsequent installation without disrupting the lateral guide
- The switch bracket can be installed in any position
- Minimum length of the workpiece pallet in order to be positioned by 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 position 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 M12x1 proximity switches on the housing (proximity switches not in the scope of delivery) or with **3 842 535 150** on the cylinder

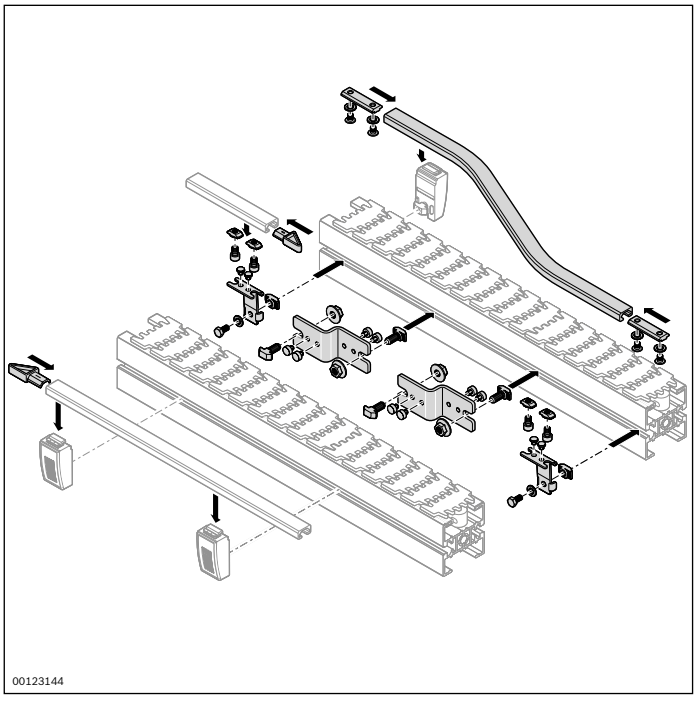


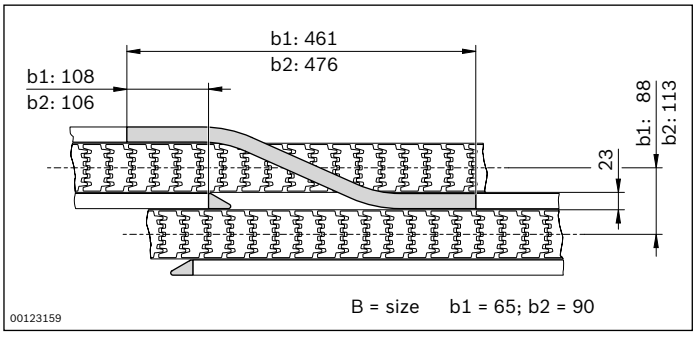
Positioning unit	No.
	3 842 532 762



Position sensing kit	No.
	3 842 535 801

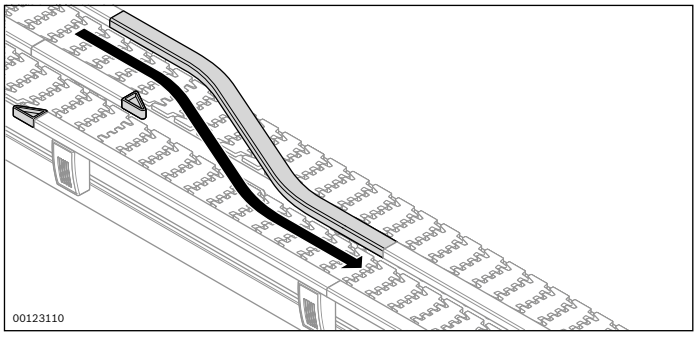
Section transfer



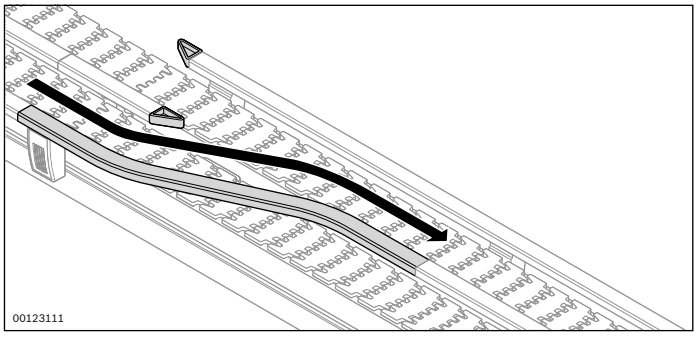


Assembly kit for a simple track change between two straight, parallel conveyor sections

Material:
- Guide rail: Aluminum; natural, anodized
- Section link, holder: stainless steel
- Fastening parts: Steel; galvanized
- End caps: PA; black

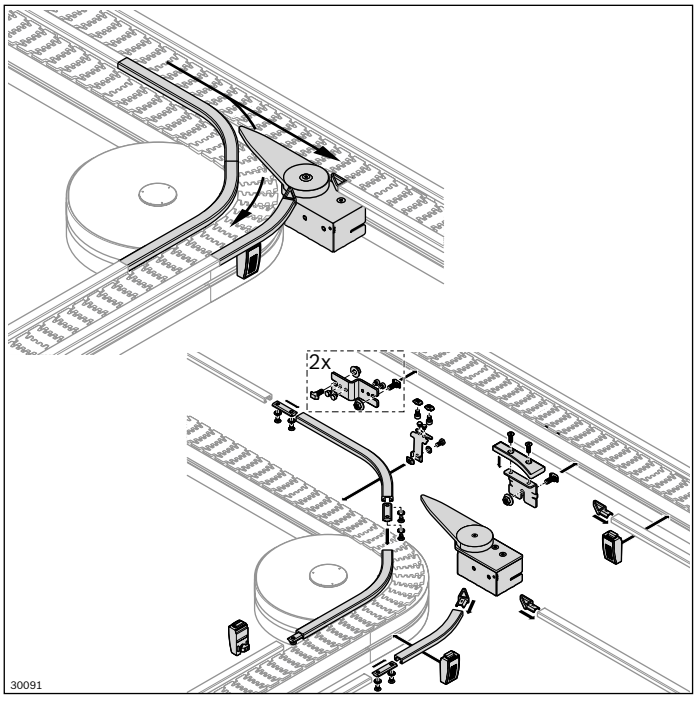


Section transfer, right	No.
VF*plus* 65	**3 842 535 003**
VF*plus* 90	**3 842 535 001**



Section transfer, left	No.
VF*plus* 65	**3 842 535 004**
VF*plus* 90	**3 842 535 002**

Deflector



Used for optional track changes between different, turning conveyor sections

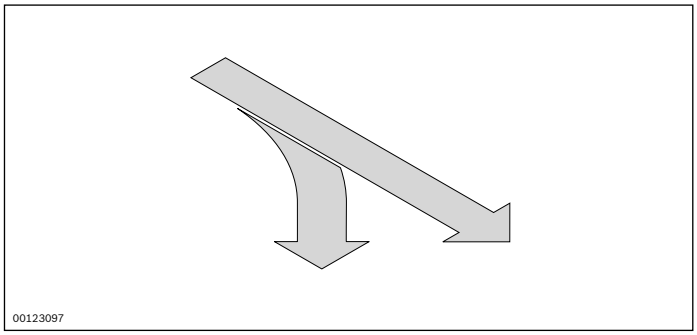
– Complete assembly kit to install onto existing sections and curve wheels
– The support enables the workpiece pallet to move safely over the section gap with no danger of tipping.
  No accumulation operation against the diverter blade!

See also the “Technical data” section on page 243.

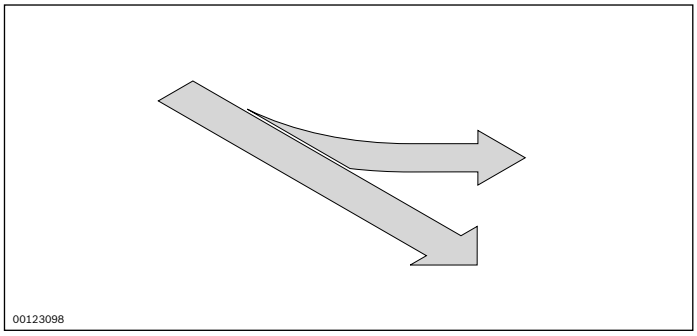
Required accessories:
2 G 1/8" throttle non-return valves (not included in the scope of delivery)

Scope of delivery:
Kit incl. fastening parts (as shown)

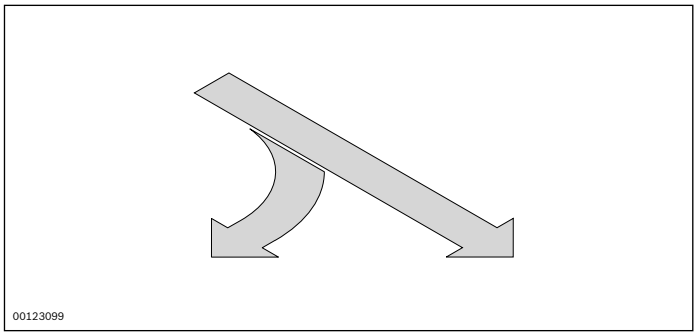
Material:
Diverter blade, gliding surface support: PA; black



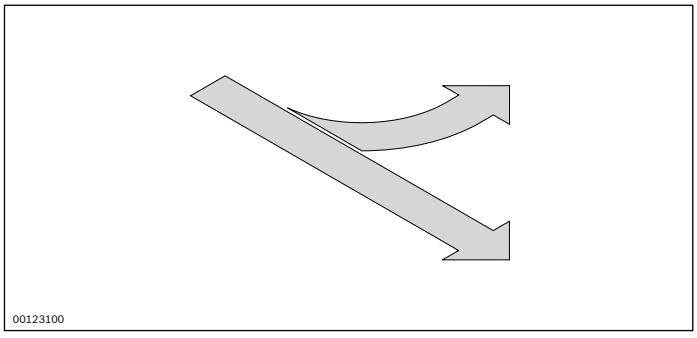
45° switchpoint, right	**No.**
VF*plus* 65	**3 842 551 104**
VF*plus* 90	**3 842 551 090**



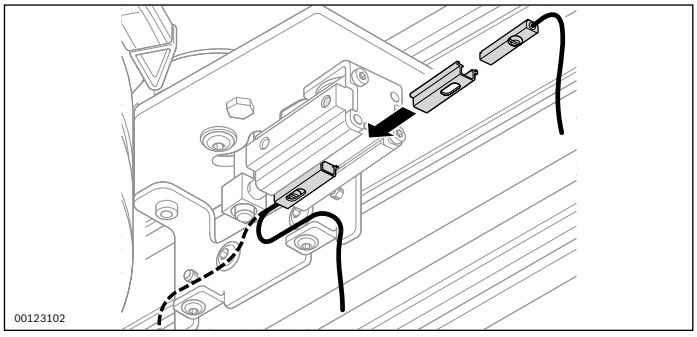
45° diverter, left	**No.**
VF*plus* 65	**3 842 551 105**
VF*plus* 90	**3 842 551 091**



90° switchpoint, right	**No.**
VF*plus* 65	**3 842 551 111**
VF*plus* 90	**3 842 551 110**

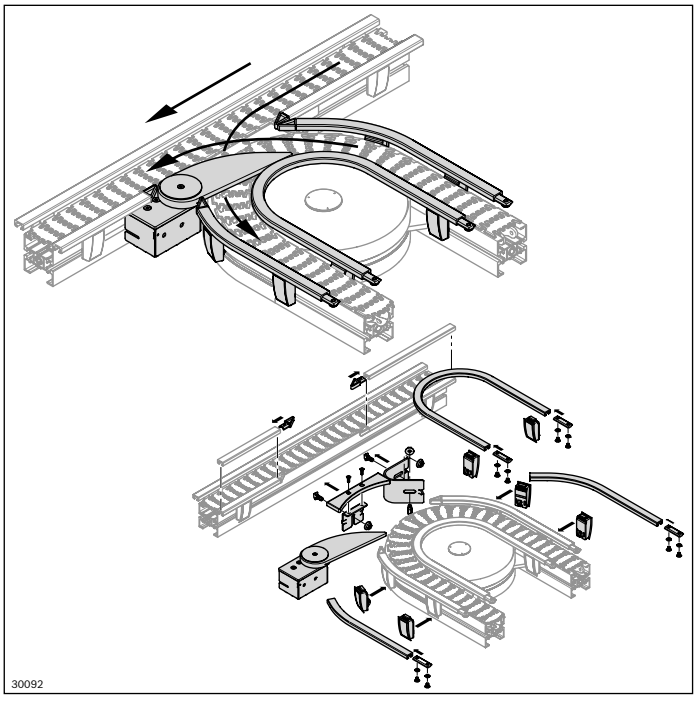


90° diverter, left	**No.**
VF*plus* 65	**3 842 551 121**
VF*plus* 90	**3 842 551 100**



Position sensor deflector	**No.**
	3 842 535 150

Cross-diverter



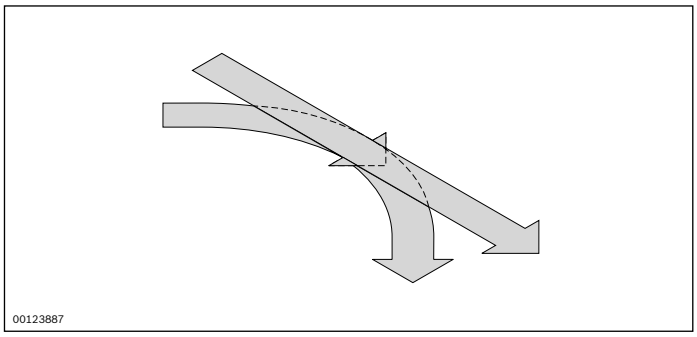
Scope of delivery:
Kit incl. fastening parts (as shown)

Material:
Diverter blade, gliding surface support: PA; black

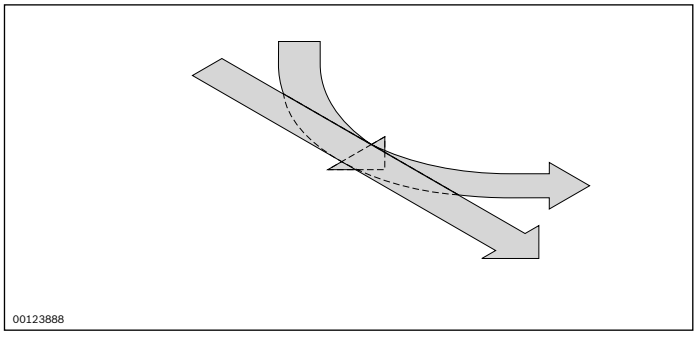
The cross-diverter combines the functions of junctions and diverters in a compact construction.

- Complete assembly kit to install onto existing sections and curve wheels
- For problem-free section transfer, the center of gravity for the load must be in the center of the optimal range (see p. 170)
- Permissible 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!

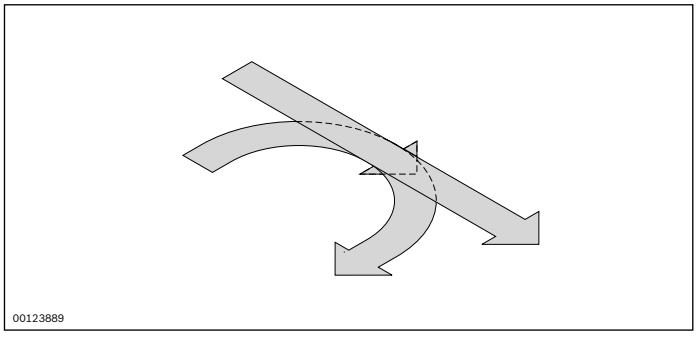
See also the “Technical data” section on page 244.



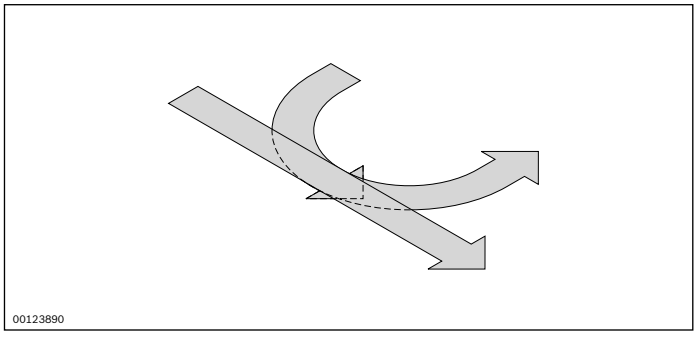
45° cross-diverter, right	**No.**
VF*plus* 65	**3 842 551 086**
VF*plus* 90	**3 842 551 084**



45° cross-diverter, left	**No.**
VF*plus* 65	**3 842 551 140**
VF*plus* 90	**3 842 551 139**

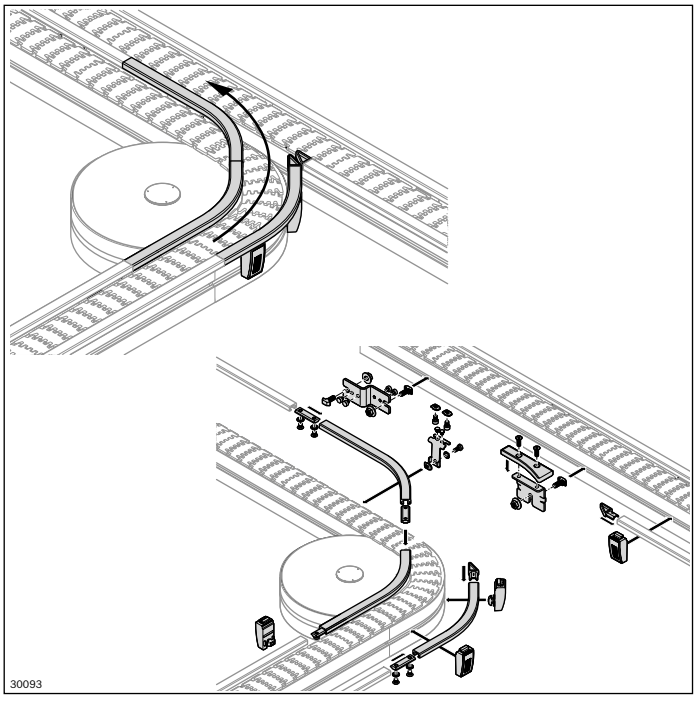


90° cross-diverter, right	**No.**
VF*plus* 65	**3 842 551 108**
VF*plus* 90	**3 842 551 074**



90° cross-diverter, left	**No.**
VF*plus* 65	**3 842 551 141**
VF*plus* 90	**3 842 551 138**

Junction

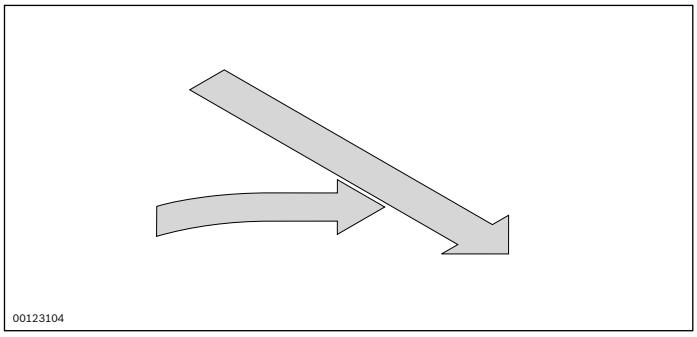


Scope of delivery:
Kit incl. fastening parts (as shown)

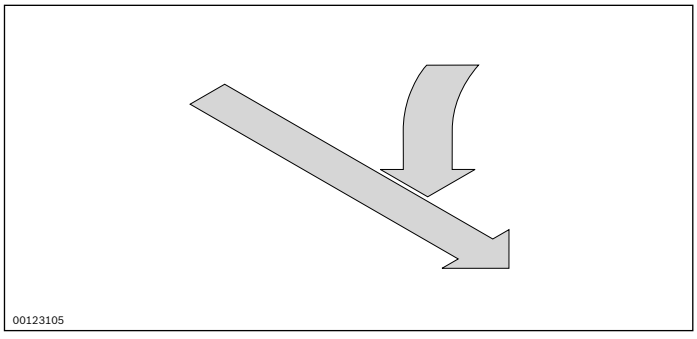
Material:
Gliding surface support: PA; black

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

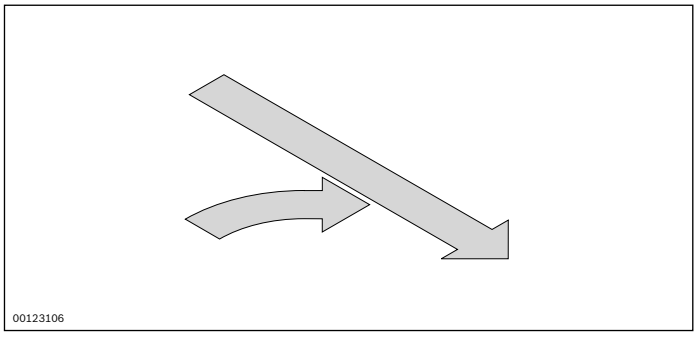
See also the “Technical data” chapter on page 245.



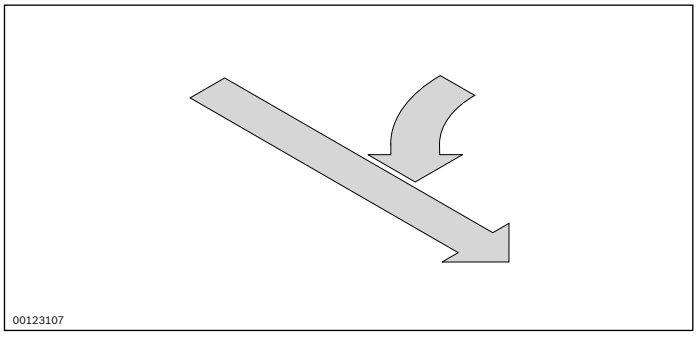
45° junction, right	**No.**
VF*plus* 65	**3 842 551 127**
VF*plus* 90	**3 842 551 122**



45° junction, left	**No.**
VF*plus* 65	**3 842 551 126**
VF*plus* 90	**3 842 551 123**

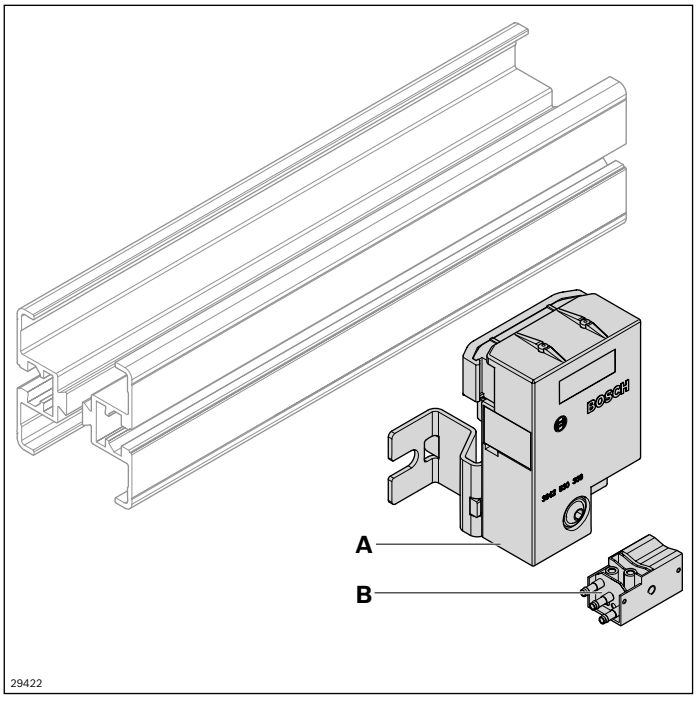


90° junction, right	**No.**
VF*plus* 65	**3 842 551 128**
VF*plus* 90	**3 842 551 125**



Junction 90°, left	**No.**
VF*plus* 65	**3 842 551 137**
VF*plus* 90	**3 842 551 124**

Rocker WT system



The rocker can be used for area monitoring, regulating accumulation pressure, and workpiece pallet recognition. A query can be either made electrically with a proximity switch or pneumatically to convert the shutter actuation directly 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 that the lateral guide profiles do not need to be interrupted

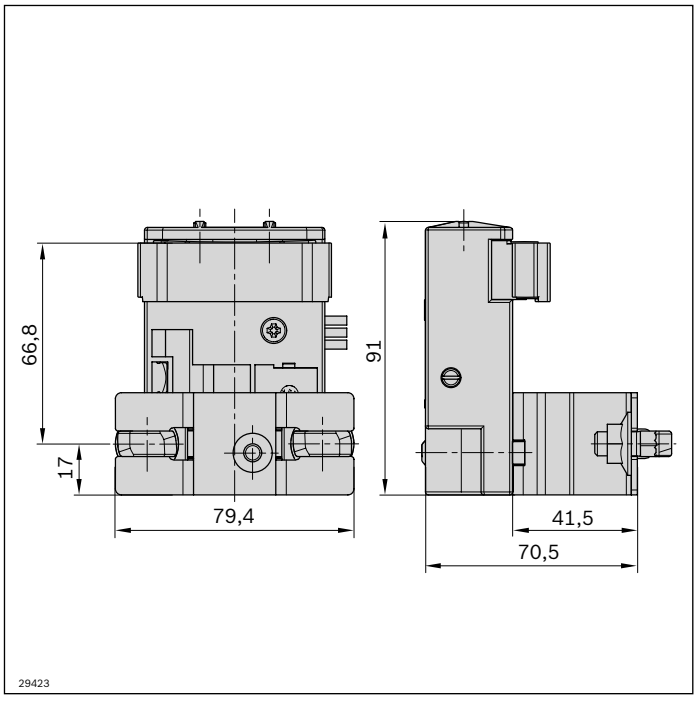
Accessories:

– Pneumatic cylinder switch (**B**) (3 842 532 151)
– 12 mm proximity switch, round with switching distance S_N >4 mm

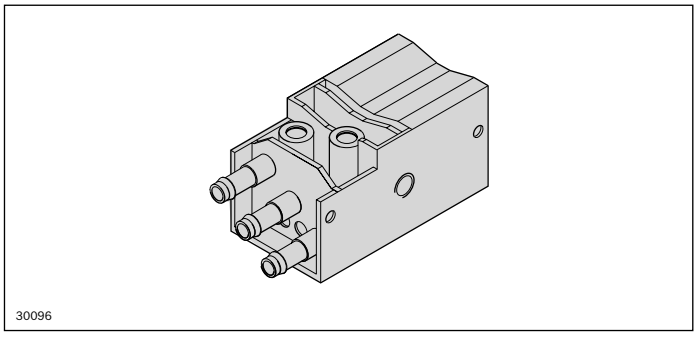
Scope of delivery:
Set incl. fastening material

Condition on delivery:
Partially assembled

Material:
Stainless steel, PA

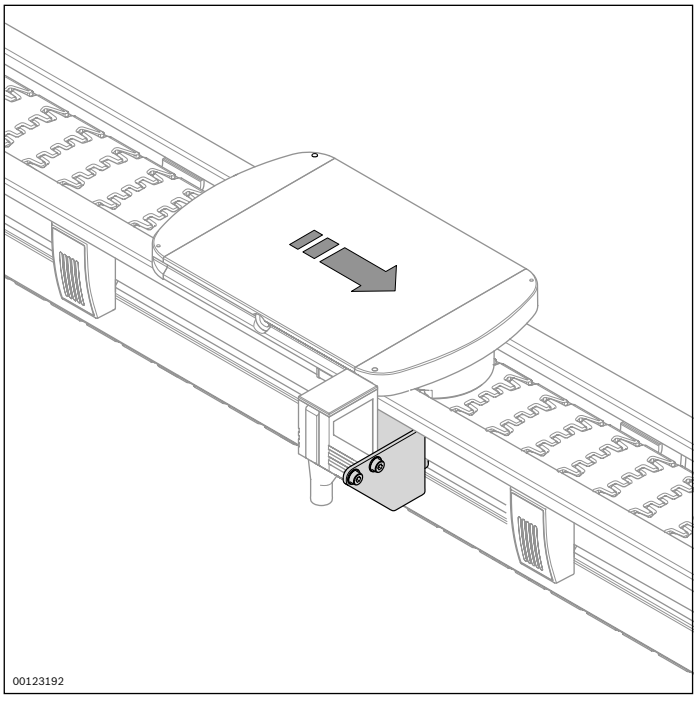


Rocker		No.
A	1 pc	**3 842 547 464**



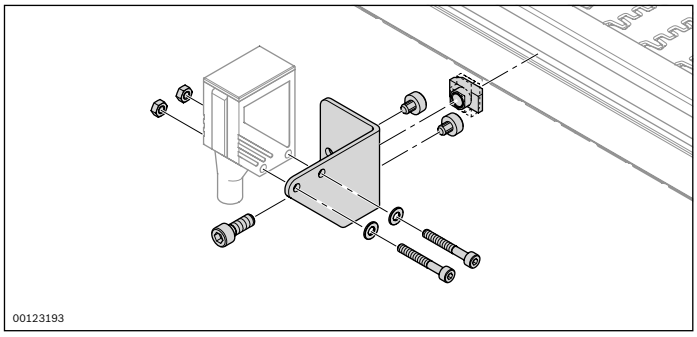
Pneumatic cylinder switch		No.
B	1 pc	**3 842 532 151**

ID 15 identification system

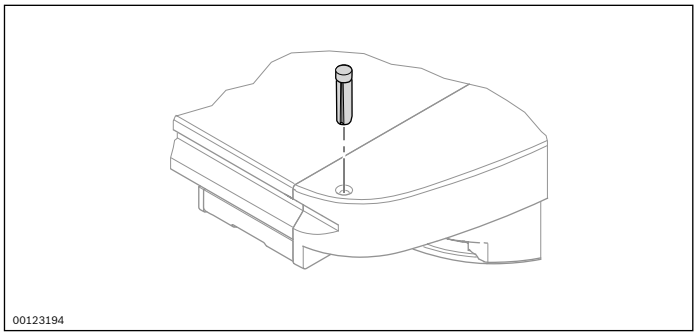


Material:
- Assembly kit ID 15/SLK: stainless steel
- Mobile data tag ID 15/MDT: PA

Assembly kit for the lateral installation of the ID 15/SLK onto VarioFlow.
You can find our current range of identification and data tag systems in our RFID Systems catalog (**3 842 541 003**)
- ID 15/MDT mobile data tag including assembly kit for installation in the VarioFlow workpiece pallet system

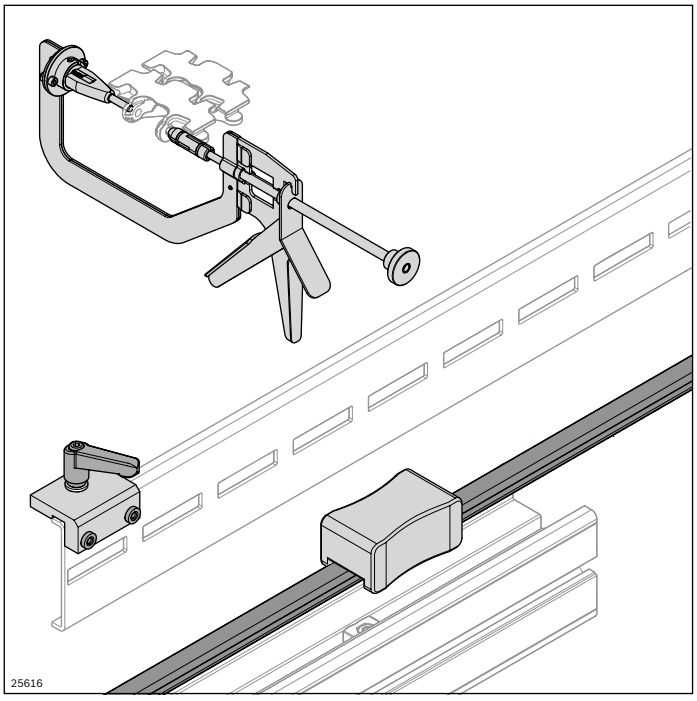


Assembly kit ID 15/MS5	No.
	3 842 535 918



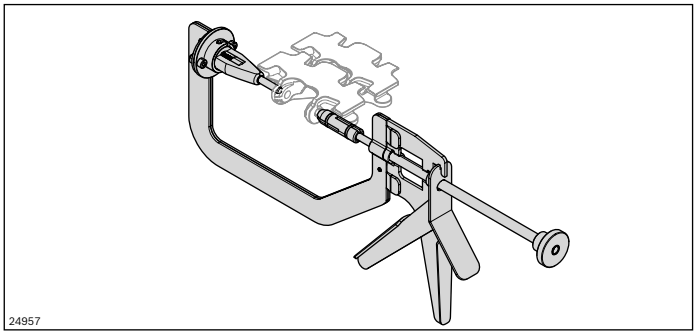
Mobile data tag ID 15/MDT23	No.
	3 842 535 442

Tools



Easy assembly with the right tool

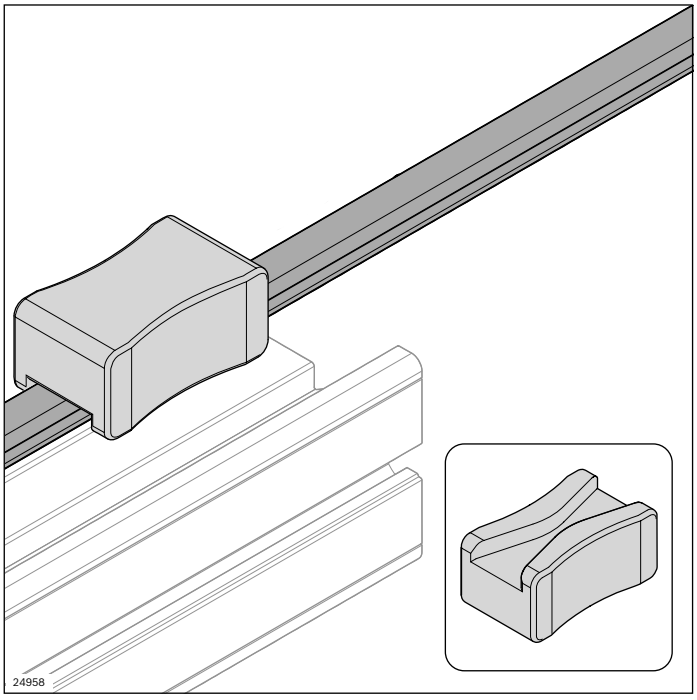
Chain assembly tool



Assembly tool for inserting and removing the chain pin at an easily accessible place, e.g. chain bag, assembly module.

Chain assembly tool	No.
	3 842 549 835

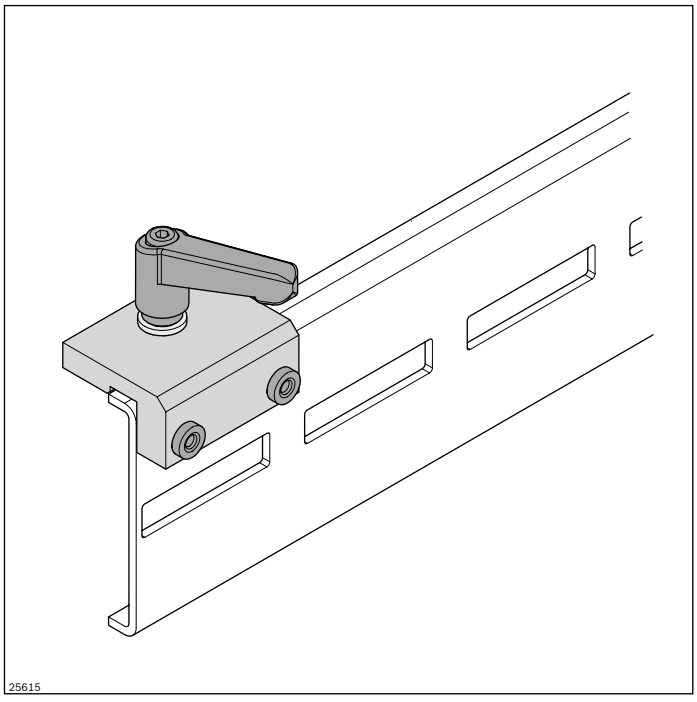
Slide rail assembly tool



Assembly tool to easily and effortlessly clip the slide rail onto the section profile

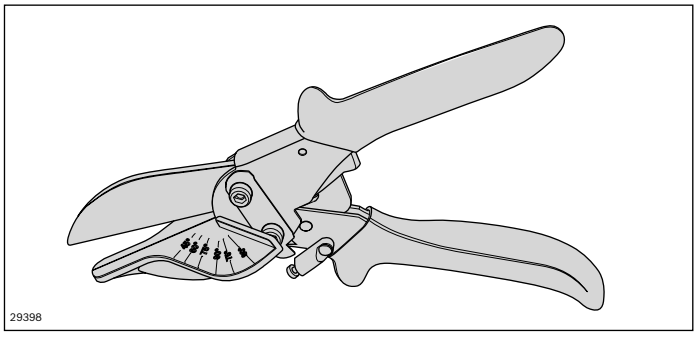
Assembly tool for slide rail	No.
	3 842 549 738

Drilling jig



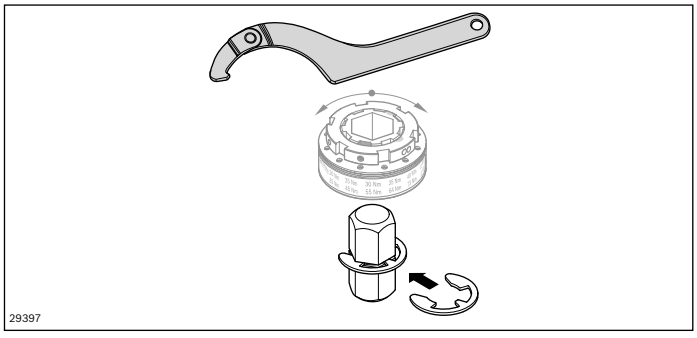
The drilling jig can be right- or left-justified and is used to drill an accurately positioned hole to secure the slide rail both on the section profile as well as on the support profile.

Drilling jig	No.
	3 842 553 518



The slide rail can be easily and quickly cut to the correct length and angle with the miter cutter.

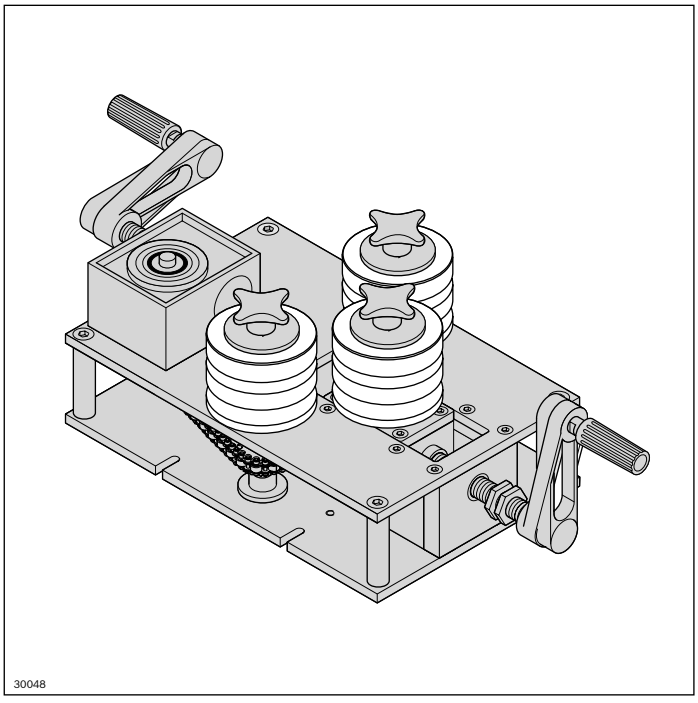
Miter cutter	No.
	3 842 547 982



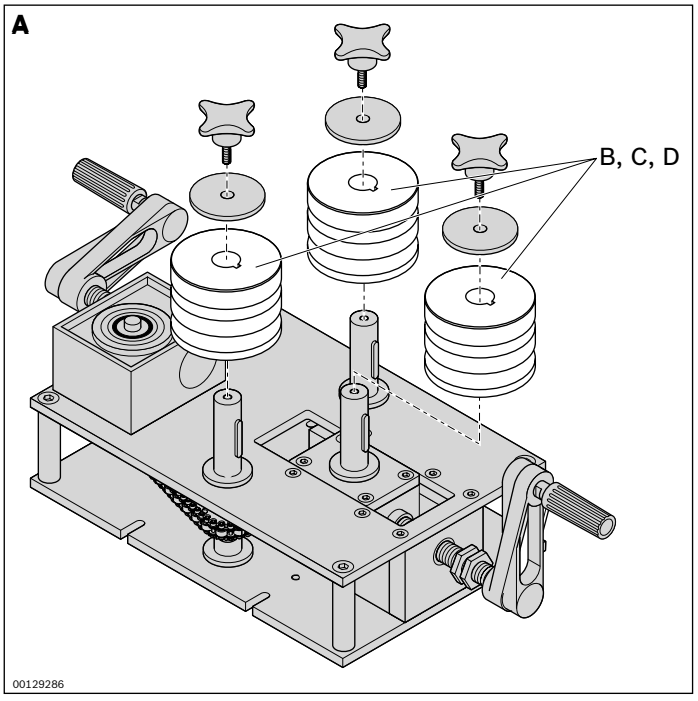
Tool for setting the customer-specific torque of the (optionally available) safety coupling of the drive kit.

Safety coupling tool	No.
	3 842 549 388

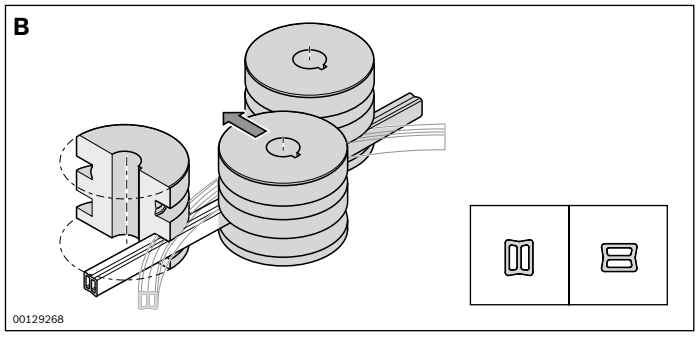
Bending tool for lateral guide



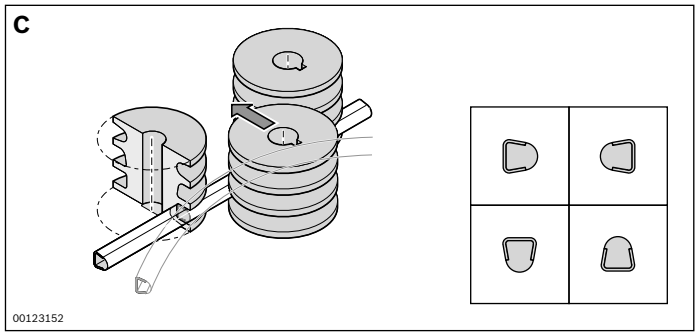
Crank-operated bending tool (A, without set of rollers) for bending profiles. Roller set adjusted to fit the profile rail for lateral guidance of transported material.
We do not recommend that you attempt to bend the profile rails yourself. Please contact your Bosch Rexroth distribution partner.



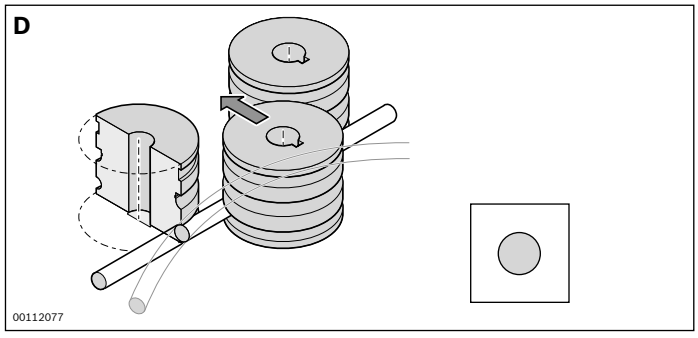
Bending tool for lateral guide		No.
A	1	**3 842 528 531**



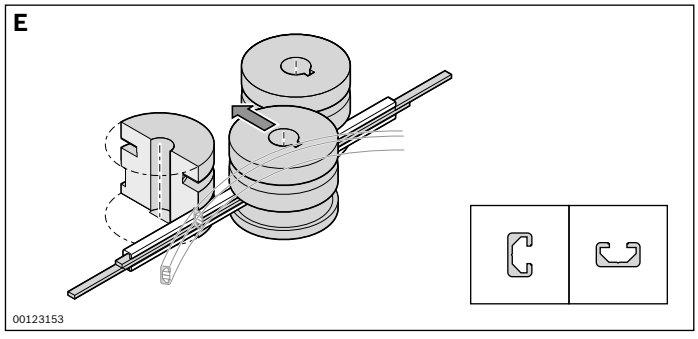
Roller set	No.	
B	1	**3 842 538 773**



Roller set	No.	
C	1	**3 842 529 236**

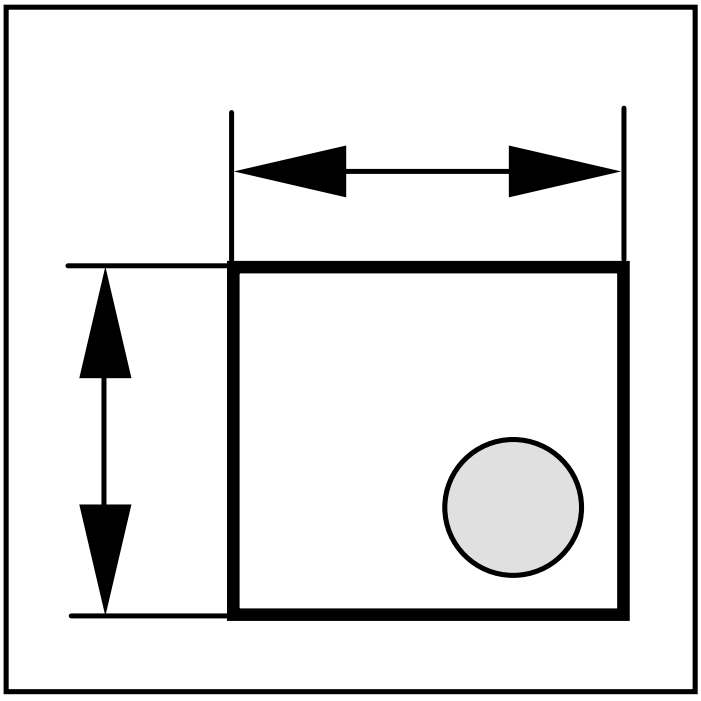


Roller set	No.	
D	1	**3 842 533 921**

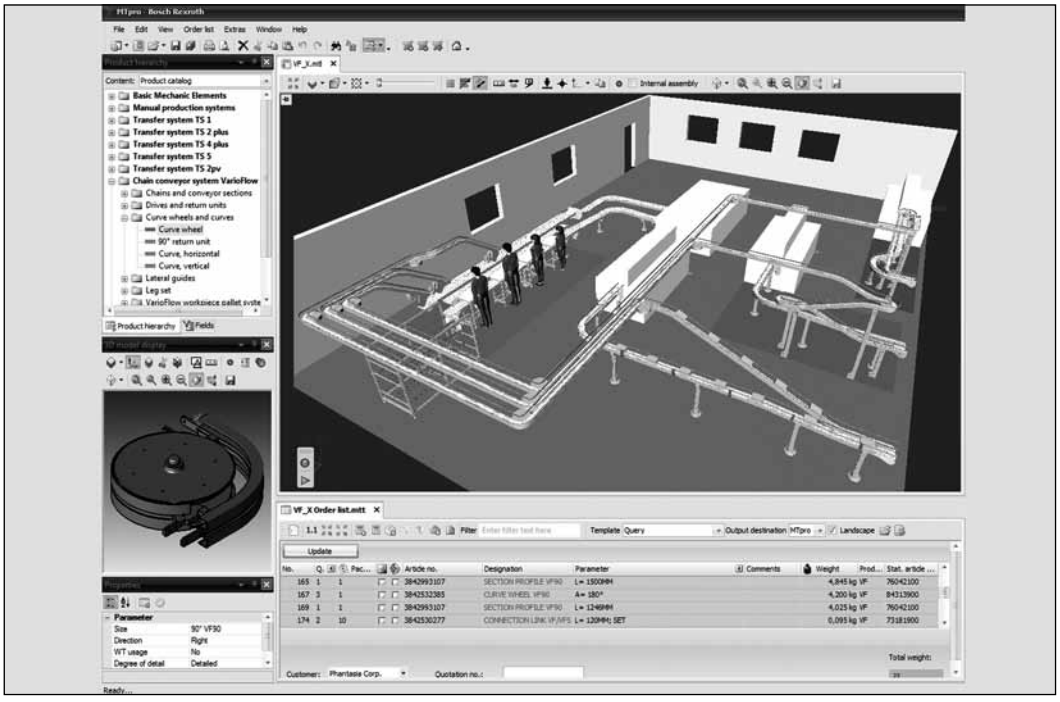


Roller set	No.	
E	1	**3 842 532 259**

Technical data



Calculation of the chain tensile force



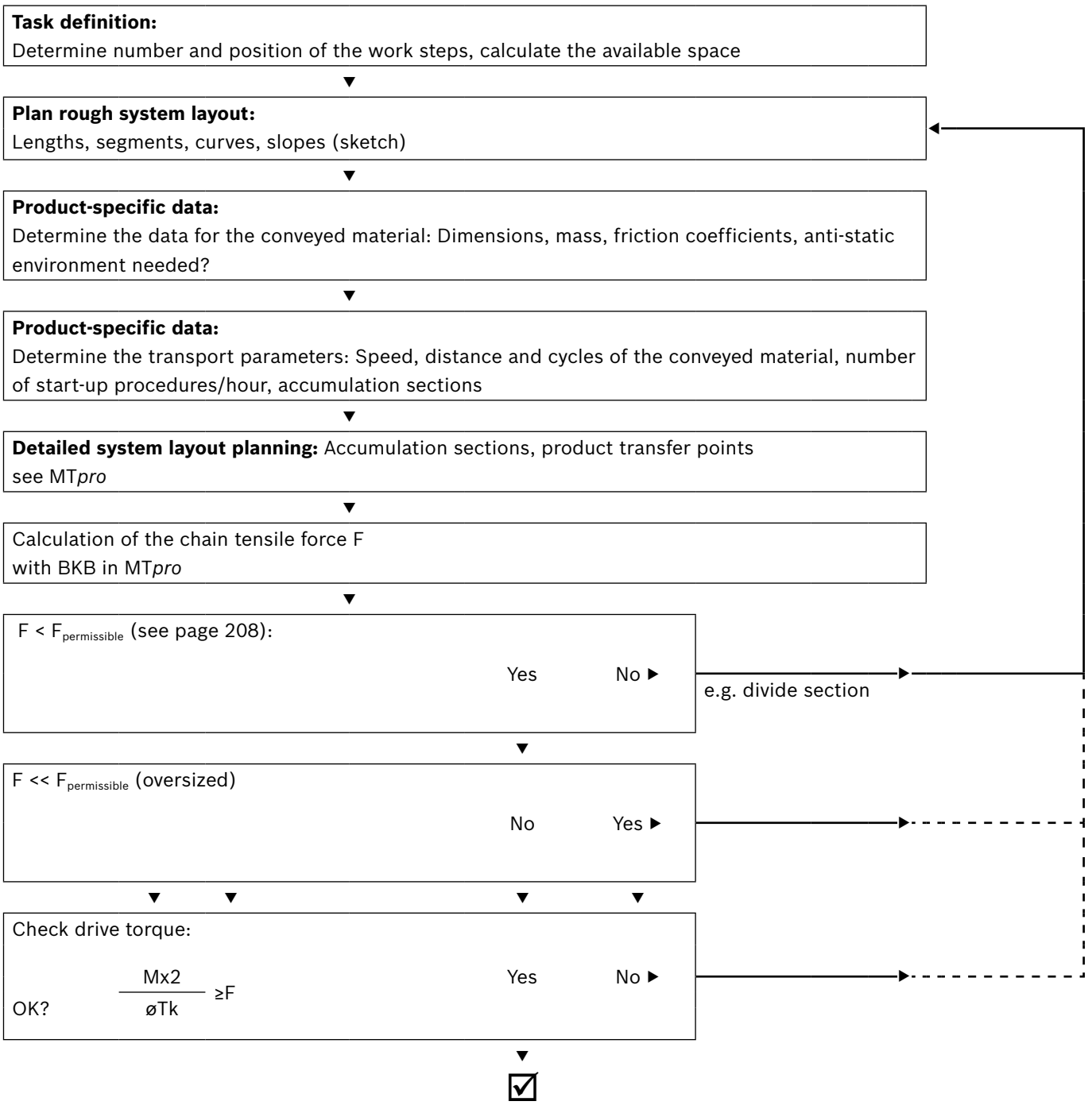
MT*pro* with BKB*soft* – the software for chain calculation
With the software BKB*soft* you can calculate the maximum chain tensile force and the required drive torque quickly and efficiently.

The tensile force of the conveyor chain is made up of multiple individual forces:

- Sliding friction force between unloaded chain and slide rail
- Sliding friction force between loaded chain and slide 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 slide rail in the curve

The BKB*soft* calculation software, included in the MT*pro* planning tool, assists you when designing and making the necessary calculations for your VarioFlow chain conveyor system.

Layout procedure for a chain conveyor system



$$F_{permissible} = F_{(a)} \cdot K_T \cdot c_B$$

$$F_{(v)} < F_{(L)} \Rightarrow F_{(a)} = F_{(v)}$$
$$F_{(v)} > F_{(L)} \Rightarrow F_{(a)} = F_{(L)}$$

$F_{(v)}$, see page 209
$F_{(L)}$, see page 210
K_T, see page 210
c_B, see page 211

Calculating the permissible chain tensile force and the permissible drive torque
The permissible chain tensile force depends on the conveying 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.

$$M = M_N \cdot \frac{P_V}{P_N}$$

M_N, see page 219
$\frac{P_V}{P_N}$ see page 218

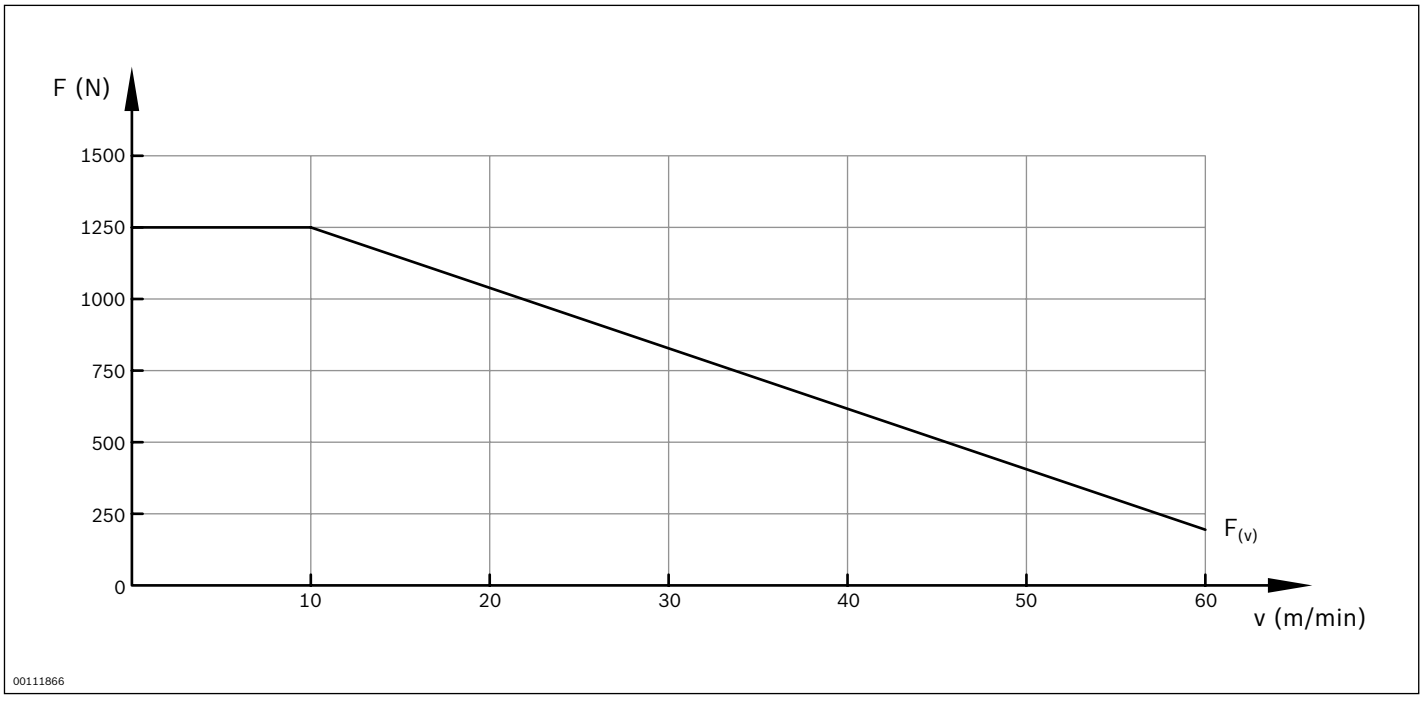
The permissible drive torque of a gear motor is dependent on the transport speed (v), the operating mode (with/without FU), the ambient temperature and the mains frequency.
If the necessary calculated drive torque exceeds that of the selected gear motor, you can:
– reduce the chain tensile force (F).
– reduce the speed (v) and use a gear motor with a higher drive torque, see p. 219
– change the operating conditions (e. g. the ambient temperature).

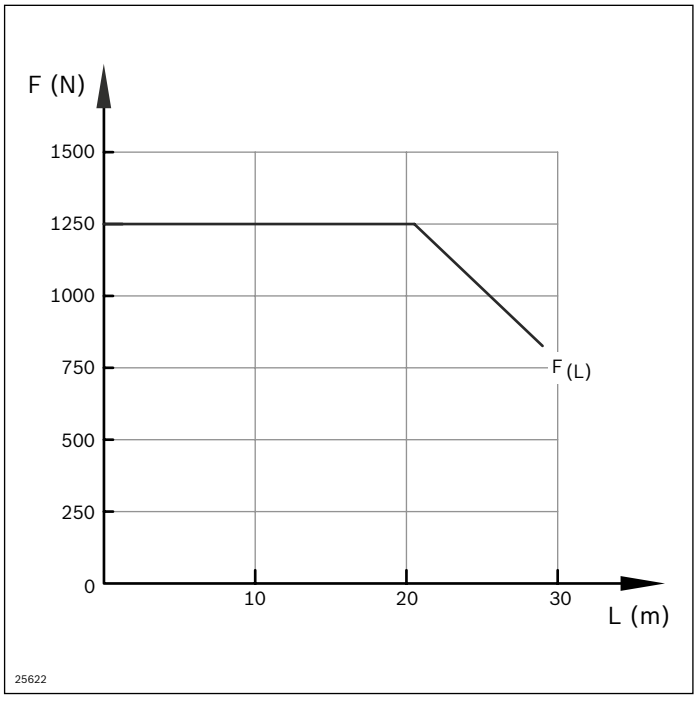
Conveyor chain
The conveyor chain's technical data are included in the chain tensile force calculation as basic data.
Please observe that the breaking force factor depends on the temperature, see p. 210

Permissible section load of the conveyed goods q_{Fi}:
30 N/chain link (34.5 mm)

	Chain section load (own weight N/m)						
	Flat conveyor chain	**Static friction chain**	**Accumulation roller chain**	**Universal chain**	**Cleated chain**	**Wedge chain 3L**	**Wedge chain 5L**
VF*plus* 65	9.5	10	16.0	9.5	10.0		
VF*plus* 90	11.7	12.4	20.5	11.7	12.4	25.3	27.6
VF*plus* 120	13.5	14.5	25.4	13.5			
VF*plus* 160	16.7	18.1					
VF*plus* 240	20.4	22.5					
VF*plus* 320	22.3	25.2					

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

Curve angles (horizontal/vertical)	**Curve factor k_α**
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

Curve factor k_α

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.

Start-up procedures/h	**Operating factor c_B**
0 ... 1	1.0
2 ... 10	0.83
11 ... 30	0.71
> 30	0.62

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.

Range of application / Slide rail	Basic	Advanced	Premium
v_{max} (m/min)	60	60	100
Size 65-120	✓	✓	✓
Size 160-320	✗	✓	✓
Sliding curves horizontal/vertical	✗	✓	✓
Cleanroom use	✗	✗	✓

Note: We recommend using a homogeneous slide rail variant throughout the entire section, i.e. no mixing of Basic, Advanced or Premium slide rails within a section.

State of contact surfaces	Basic	Advanced	Premium
1	0.2	0.15	0.15
2	0.25	0.2	0.2
3	>0.25	>0.2	>0.2

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 If there is constant exposure to particles and liquids, but no abrasive media
please contact www.boschrexroth.com.

Sliding friction factor between slide rail and chain
Average value, related to the total chain running time. The sliding friction factor increases along with increasing running time. Lubricant use can reduce this factor.

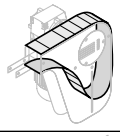
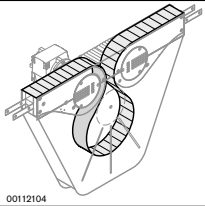
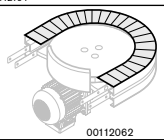
Material	Condition of the contact surfaces	POM	Steel coated
Plastic	Dry	0.25	–
	Water	0.25	–
	Refrigerant	0.12	–
	Oil	0.12	–
Paper	Dry	0.30	
Glass	Dry	0.18	0.25[1)]
	Water	0.18	
	Refrigerant	0.17	
	Oil	0.17	
Metal	Dry	0.26	0.25[1)]
	Water	0.26	
	Refrigerant	0.11	
	Oil	0.11	

[1)] 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 slide rail lengths of components

For an estimated chain and slide rail length calculation

		Actual chain length (m) **Size**					**Effective slide rail length** (m) **Size**			
		65	**90**	**120**	**160,240,320**		**65**	**90**	**120**	**160-320**
Head drive		1.03					2x 0.2			4x 0.2
Return unit		0.82					2x 0.2			4x 0.2
Connection drive		1.51				 00112104	4x 0.2			
Curve wheel drive		0.68	0.72			 00112062	0.82	0.91		
Curve wheel	30°	2x 0.28	2x 0.28	2x 0.29		 00112058	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	 00112060				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				 00112059	4x 0.24			8x 0.24 *)
	7.5°	2x 0.26					4x 0.26			8x 0.26 *)
	15°	2x 0.33					4x 0.33			8x 0.33 *)
	30°	2x 0.46					4x 0.46			8x 0.46 *)
	45°	2x 0.59					4x 0.59			8x 0.59 *)
Assembly module		2x 0.24				 00112061	4x 0.24			6x 0.24

*) with support profile

Layout instructions for roller cleat chains

Fig. A

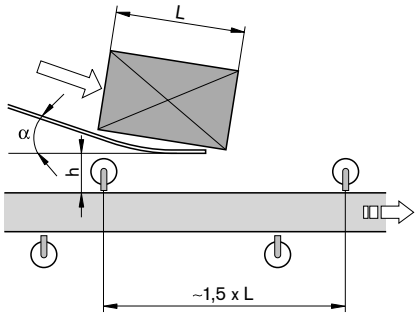


Fig. B

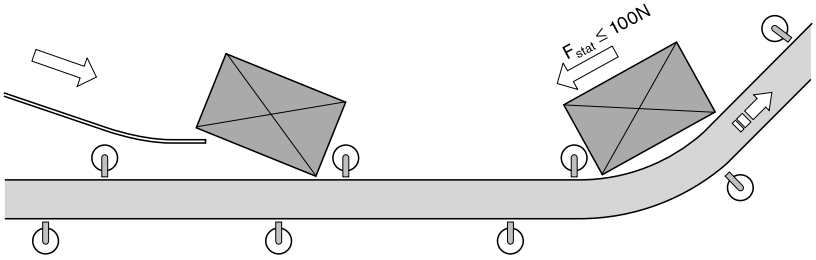


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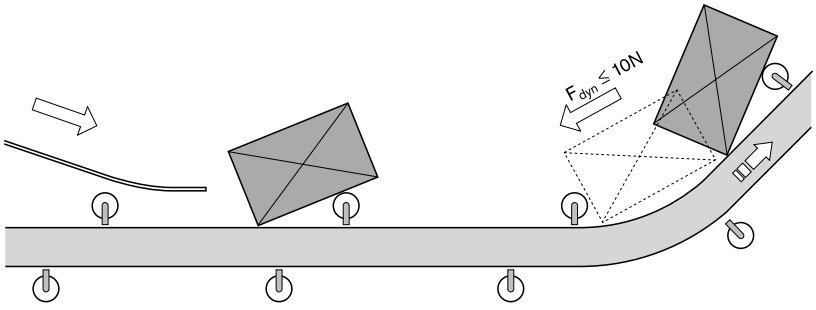
Fig. C



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Roller cleat 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 transport 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 “α” 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 cleat chain.
  Always prevent the product from transmitting its kinetic energy to the roller cleats
- Feed in the direction of transport of the roller cleat chain.
- Distance between roller cleats approx. 1.5x product length (ensures smooth movement through vertical curves).
- Removal speed:
  2x product lengthx1.5x 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.

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% switched-on time)
- Uniform operation (continual), none or very light impacts in a direction of rotation 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 lifetime lubrication for ambient operating temperature ≤0 °C available on request
- Protection class IP 55
- f_{mains} = 50 Hz constant
- T_U = 20 °C for gears
  40 °C for motors
- Mounting height ≤1000 m above mean sea level
- Overloading the drive reduces its service life.
  Overload at 10%: = 75 % service life
  Overload at 20 %: = 50 % service life
- The gear motor (GM = 1) corresponds to the operating mode S1 (continuous operation)

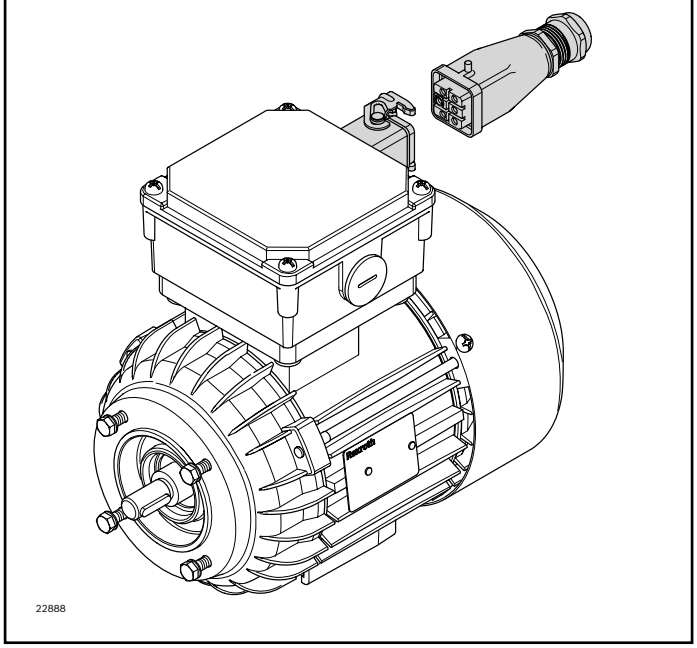
In the case of other operating conditions, the achievable values can deviate from those cited.
In the case of extreme operating conditions, please consult your distribution partner.

Motor data

Electrical connection requirements:
Connection to a 3-phase five-wire system (L1, L2, L3, N, PE), a connection plan is included with the terminal box.
All motors are equipped with a thermal contact*), which has to be connected to an overload switch-off.

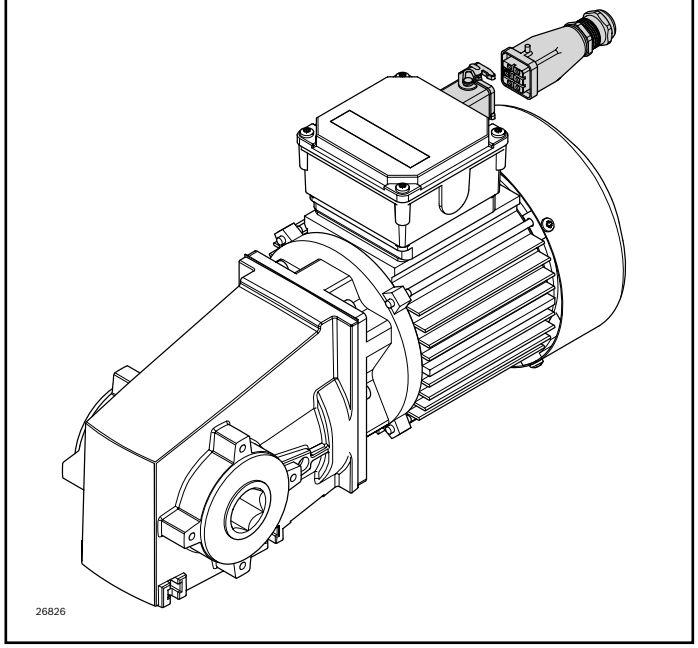
*) Bi-metal thermal contact, tripping at 150 °C ± 5 °C
Resistance thermal contact available on request

Motor types without Index b



Motor connection with plug (AT = S) and 3A metal industrial plug-in connector for motor types without Index b, e.g. B. 714

Motor types with Index b



Motor connection with plug (AT = S) and 3A metal industrial plug-in connector for motor types with Index b, e.g. B. 714b

Motor data (GM = 1)

Performance data

Note: The data is typical values. We reserve the right to make changes. See the motor rating plate for binding data.

The voltage class		**A**	**A**	**B**	**D**
Circuit		Δ	**Y**	**Y**	**Y**
Voltage U at f = 50 Hz		200 V ± 10%		400 V ± 10%	
		200 V ± 10%		400 V ± 10...-12%	
Voltage U at f = 60 Hz		220 V ± 10%	400 V ± 10%	460 V ± 10%	575 V ± 10%
		220 V ± 10%	400 V ± 10%	460 V ± 10...-12%	575 V ± 10%

			Current consumption at rated power				**Power factor**	**Power output for**	
	Motor type	**IE3**[2]	I_N (A)	I_N (A)	I_N (A)	I_N (A)	**cos** φ	**(50Hz) P** (kW)	**(60Hz) P** (kW)
	524	x	0.65	0.35	0.32	0.24	0.6	0.09	0.1
	614b[1]	–	–	–	0.49	–	0.56	0.12	0.14
	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
	644b[1]	–	–	–	–	0.75	0.6	0.25	0.29
	714b[1]	–	1.75	1	0.8	–	0.64	0.25	0.3
	716b[1]	–	1.45	0.85	0.6	0.55	0.66 ... 0.68	0.18	0.22
	716	x	1.3	0.75	0.6	0.62	0.68	0.18	0.22
	734b[1]	–	2.3	1.35	0.95	0.95	0.72 ... 0.77	0.37	0.45
	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
	738b[1]	–	1.4	0.8	0.55	0.5	0.60 ... 0.63	0.12	0.14
	744b[1]	–	–	–	1.4	–	0.77	0.55	0.68
	814b[1]	–	3	1.75	–	1.27	0.68 ... 0.69	0.55	0.64
	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

[1] suitable for continuous operation S1 and frequency converter
[2] suitable for stop-start and continuous operation due to the nominal operating mode S3-70% (periodic intermittent operation) and frequency converter operation

Certification for the motor, cable and plug components:

IE3 motors: CE, cURURS, CCC

Motors with Index b: CE/CCC (50 Hz), CE/cURUS (60 Hz)

3-phase motors	
T_U (°C)	P_V / P_N
< 40	1[1]
45	0.95
50	0.90
55	0.85
60	0.8

[1] Rated motor power (0.37; 0.25; 0.12 kW)

Rated motor power

The ambient operating temperature T_U influences the rated power P_N of the gear motors.

Motor data (GM = 1)

Conveyor speed v_N is the specification for the rated power and frequency of 50 Hz or 60 Hz.
The actual v values vary depending on:

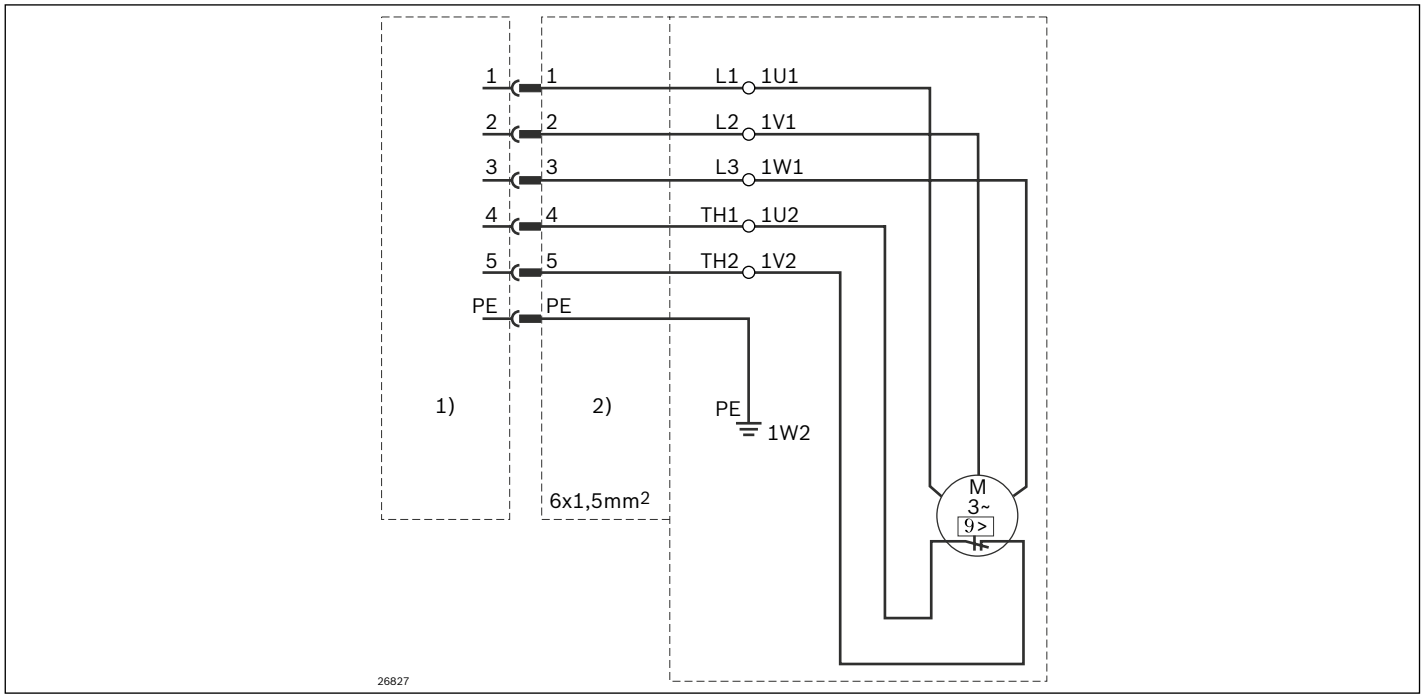
- Tolerance of the standard motors
- Performance range of the motors
- Loads on conveyor chain

Modular unit	**50 Hz** (see page 218)						**Motor type**	**60 Hz** (see page 218)					**Motor type**
	v_N	v[1]	i	n1[3]	n2[4]	M_N		v[1]	i	n1[3]	n2[4]	M_N	
	(m/min)	(m/min)		(min^{-1})	(min^{-1})	(Nm)		(m/min)		(min^{-1})	(min^{-1})	(Nm)	
Head drive	5	5.3	60	700	11.7	90	738b	6.1	60	804	13.4	82.1	738b
	10	10.6	60	1400	23.2	90	714b	8.2	60	1080	18.0	90	716b
	13	13.3	47	1400	29.2	90	734b	12.7	60	1680	28.0	82.1	714b
	16	16.9	37	1400	37.1	90	734b	16.0	47	1680	35.1	90	734b
	21	21.7	29	1400	47.7	71.1	734b	20.2	37	1680	44.5	76.1	734b
	27	27.3	23	1400	60.0	56.5	734b	26.1	29	1680	57.3	59.2	734b
	33	33.4	19	1400	73.5	46.2	734b	32.8	23	1680	72.0	47.1	734b
	40	41.0	15	1400	90.0	37.7	734b	40.1	19	1680	88.2	38.4	734b
	50	50.2	12	1400	110.3	30.8	734b	49.2	15	1680	108.0	31.4	734b
Connection drive	5	5.3	60	700	11.7	90	738b	6.1	60	804	13.4	82.1	738b
	10	10.6	60	1400	23.3	90	714b	8.2	60	1080	18.0	90	716b
	13	13.3	47	1400	29.2	90	734b	12.7	60	1680	28.0	82.1	714b
	16	16.9	37	1400	37.1	90	734b	16.0	47	1680	35.1	90	734b
	21	21.7	29	1400	47.7	71.1	734b	20.2	37	1680	44.5	76.1	734b
	27	27.3	23	1400	60.0	56.5	734b	26.1	29	1680	57.3	59.2	734b
Curve wheel drive	5	5.0	269	1425	5.3	60[2]	614b	5.8 5.8	128 269	800 1725	6.2 6.0	60[2] 60[2]	738b[5] 614[6]
	10	11.0	60	700	11.7	60[2]	738b	12.6	60	804	13.4	60[2]	738b
	13	14.4	60	920	15.3	60[2]	716b	17.0	60	1080	18.0	60[2]	738b
	21	21.9	60	1400	23.3	60[2]	714b	26.4	60	1680	28.0	60[2]	716b

[1] Transport speeds at other voltages/frequencies available on request
[2] Torque limited to 60 Nm by coupling
[3] Motor speed
[4] Gear unit output speed
[5] Voltage class A + D
[6] Voltage class B

Motor connection

Motor connection with cable/plug (AT = 1), circuit diagram

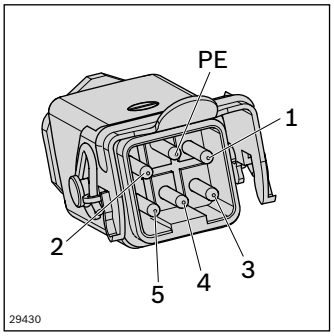


1) Connection cable side
2) Motor side

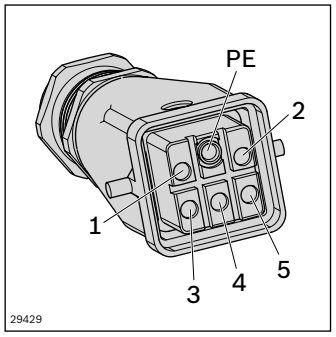
The plug connection consists of UL components.

Connection list

Connection terminals, motor 3~	Pin no.	Code
U1	1	L1
V1	2	L2
W1	3	L3
TW1	4	Th1
TW2	5	Th2
	PE	PE



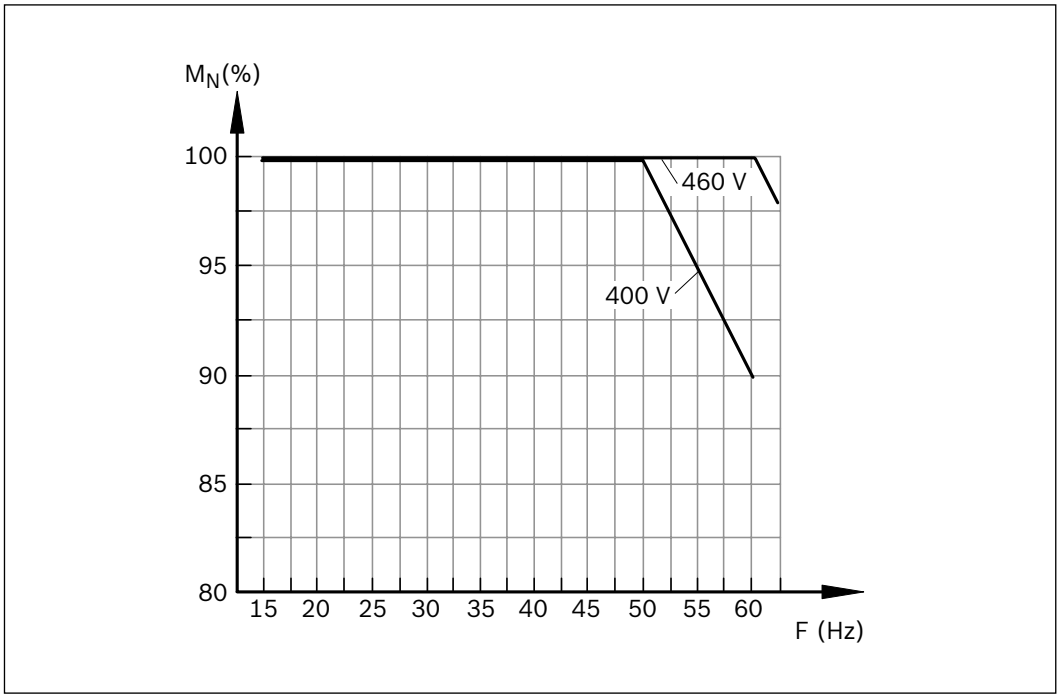
Motor side



Connection cable side

Frequency converter (FU)

Drive spectrum of motors with frequency converters (FC)

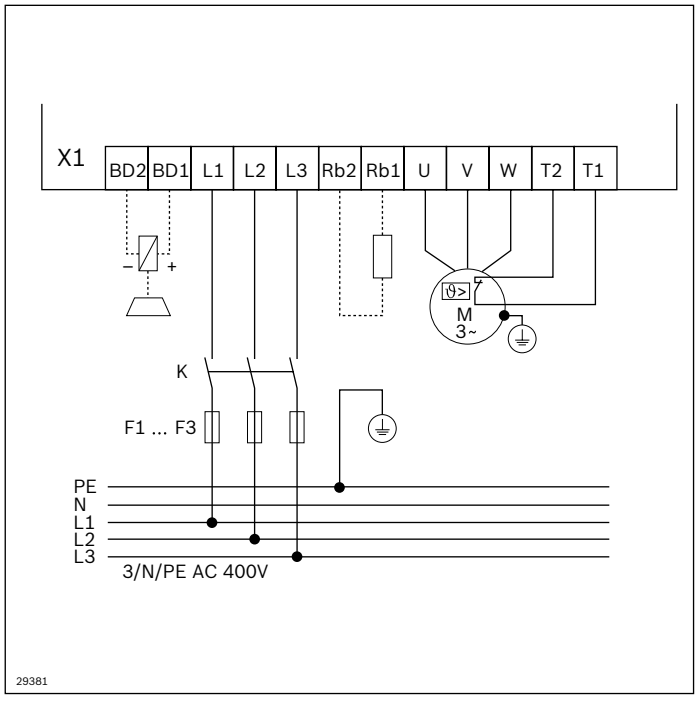


Technical information:

At rotating field frequencies of ≥ 15 Hz, the motor can be operated at normal operating conditions without an external fan. The motor's thermal conditions should be observed for induction frequency ≤ 20 Hz. In the range 20 ... 50 Hz, the full torque is available.

Base speed of motor (m/min) **at 50 Hz**	**Min**[1] (m/min)	**Max**[2] (m/min)	**Max** (m/min) **at max. 80% torque**
5[3]	2	6	8
10[3]	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	–

[1] Min corresponds to about 16 Hz supply frequency
[2] Max corresponds to about 60 Hz supply frequency
[3] At 460 V/60 Hz max (m/min) 20% higher



——— Minimum wiring required for operation
----*)---- Additional wiring to change direction of rotation

Frequency converter (FC) 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).

Order parameters for SEW motors (GM = 2)

The following ordering information is required if using gear motors from SEW-Eurodrive GmbH & Co, Bruchsal (Germany):

- Motor type
- Ratio
- Mounting orientation
- Position of drive output
- Position of terminal box
- Cable entry (Fig. 4)
- Motor voltage/frequency*)
- Thermal class*)
- Motor protection class*)

*) www.seweurodrive.com

Gear motors for power frequency f = 50 Hz

v_N (m/min)	Motor type	Ratio	N (kW)	M_{max} (Nm)
5	SA47 DR63L4/TH	110.73	0.25	90
7	SA47 DR63L4/TH	84.00	0.25	90
10	SA47 DRS71S4/TH	54.59	0.37	90
13	SA47 DRS71S4/TH	44.22	0.37	90
16	SA47 DRS71M4/TH	38.23	0.55	90
21	SA47 DRS71M4/TH	29.00	0.55	90
27	SA47 DRS71M4/TH	23.20	0.55	74
33	SA47 DRS71S4/TH	17.62	0.37	40
40	SA47 DRS71S4/TH	14.24	0.37	32
50	SA47 DRS71S4/TH	12.10	0.37	27
4 ... 26	SA47 DRS71M4 MM07	54.59	0.75	88 ... 110
16 ... 60	SA47 DRS80S4 MM07	10.80	0.75	47 ... 50

Gear motors for power frequency f = 60 Hz

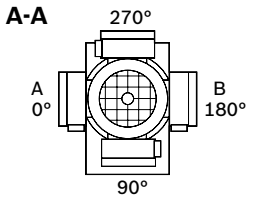
v_N (m/min)	Motor type	Gear transmission ratio	N (kW)	M_{max} (Nm)
5	SA47 DR63L4/TH	128.10	0.25	90
7	SA47 DR63L4/TH	94.08	0.25	90
10	SA47 DRS71S4/TH	63.80	0.37	90
13	SA47 DRS71S4/TH	54.59	0.37	90
16	SA47 DRS71M4/TH	44.42	0.55	90
21	SA47 DRS71M4/TH	32.48	0.55	90
27	SA47 DRS71M4/TH	24.77	0.55	74
33	SA47 DRS71S4/TH	20.33	0.37	40
40	SA47 DRS71S4/TH	16.47	0.37	32
50	SA47 DRS71S4/TH	14.24	0.37	27
4 ... 26	SA47 DRS71M4 MM07	54.59	0.75	88 ... 110
16 ... 60	SA47 DRS80S4 MM07	10.23	0.75	47 ... 50

Direct head drive

Motor mounting	Mounting orientation	Drive output	Terminal box
R	M2 (M1)	B	0°
L	M2 (M1)	A	180°

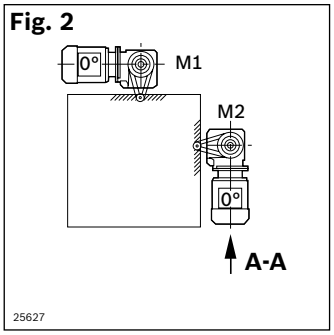
Position of terminal box

Fig. 1



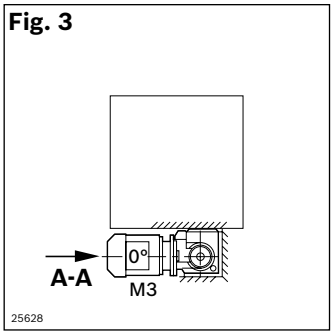
Installation position horizontal top/vertical

Fig. 2



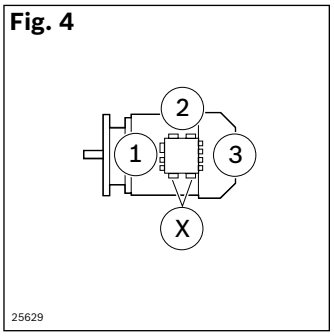
Installation position horizontal (above top edge chain)

Fig. 3



Cable entry point

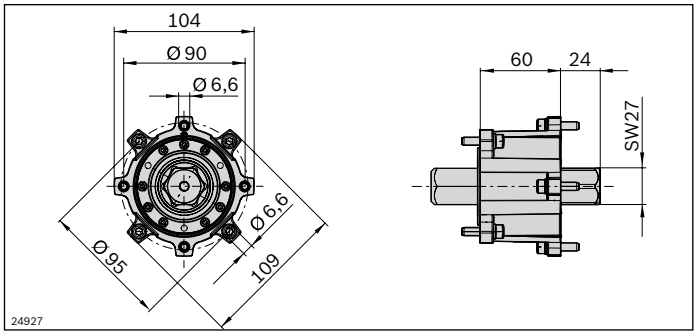
Fig. 4



Gear motor mechanical interface

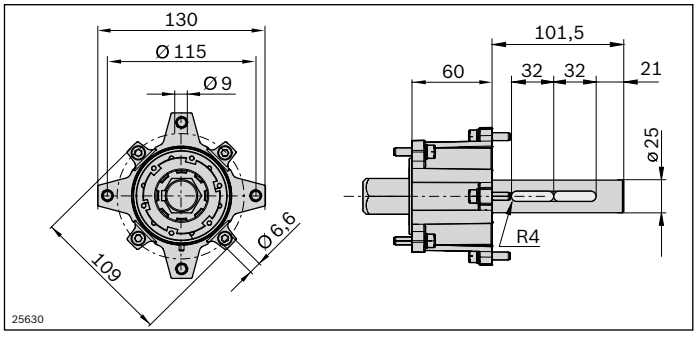
Reference diameter of the drives

Drive	**Pitch diameter** (mm)
Head drive	144.16
Connection drive	144.16
Curve wheel drive VF*plus* 65	306
Curve wheel drive VF*plus* 90	331



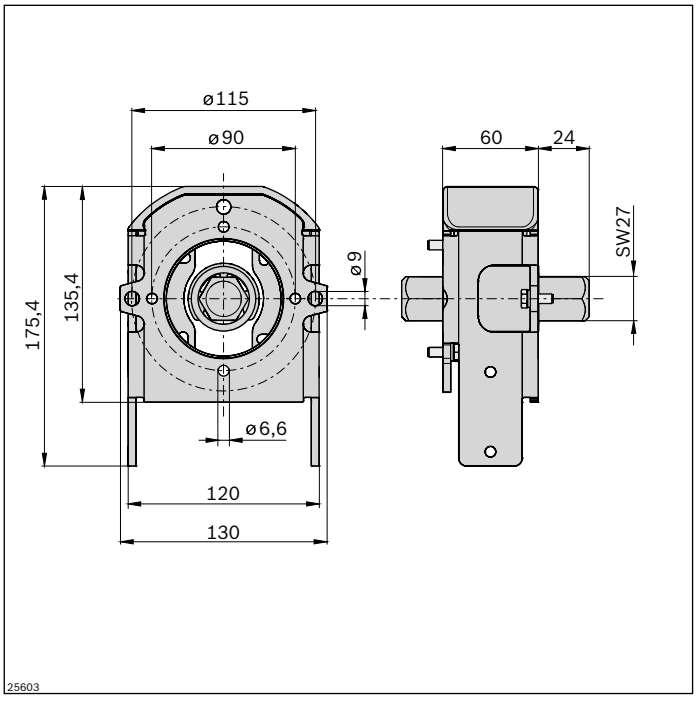
Head drive

AL GM = 0

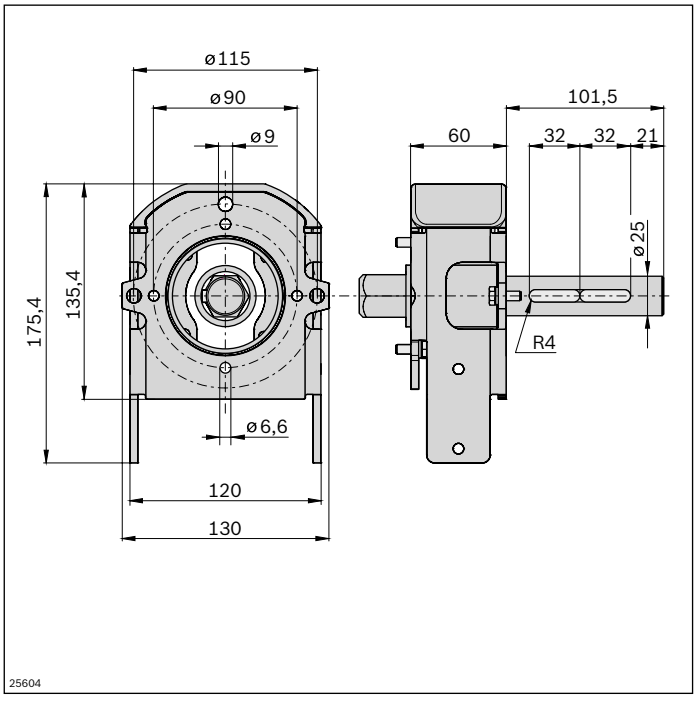


Head drive

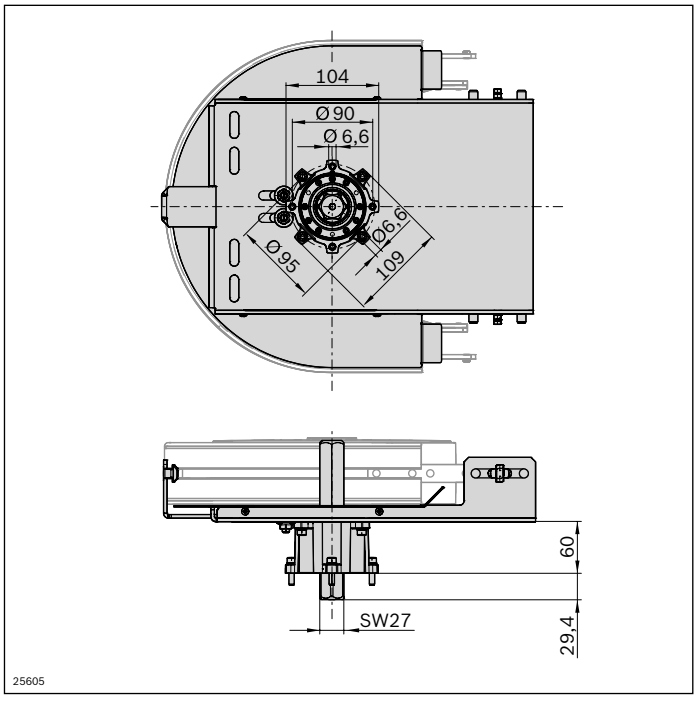
AL GM = 2



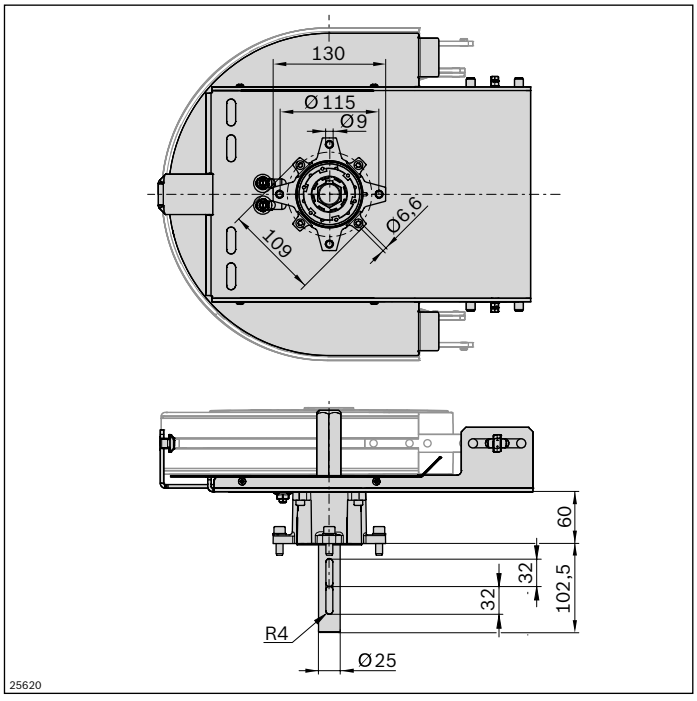
Head drive
STS GM = 0



Head drive
STS GM = 2



Curve wheel drive
AL GM = 0



Curve wheel drive
AL GM = 2

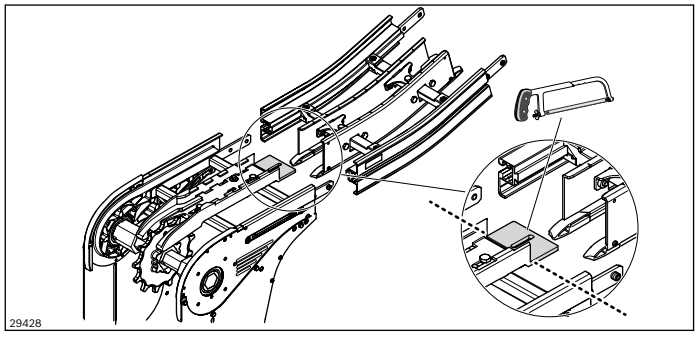
Combination matrix

		Straights			**Curves**				**Drives**			**Return unit**
		Open section	Closed section	Assembly module	Curve wheel	Roller curve*	Horizontal sliding curve	Vertical curve	Head drive	Curve wheel drive	Connection drive	
Straight	Open section	J										
	Closed section	J	J									
	Assembly module	J	J	N								
Curves	Curve wheel	J	J	L	L							
	Roller curve*	J		L		+						
	Horizontal sliding curve	J	J	L	+		+					
	Vertical curve	J	J	L	+	+	+	+				
Drives	Head drive	J	J	L	L	(+)	+	(+)[1)]	N			
	Curve wheel drive	J	J	L	L	+	+	+	N	N		
	Connection drive	J	J	L	L	+	+	+	N	N	N	
Return unit		J	J	L	L	(+)	+	(+)	N	N	N	N

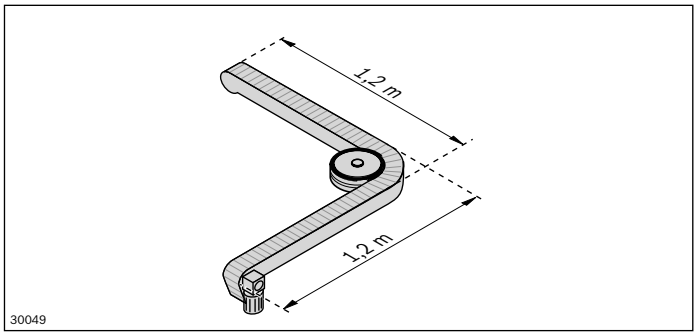
J	Possible
L	Profile required (L_{min} = 120 mm)
N	Not possible
+	Remove profile connector
(+)	Conversion required

* Support profile must project 76+2 mm into the roller curve.

[1)] For sizes 160-320, shorten the support rail on the dotted line (see figure below).



Use in cleanrooms



	Speed v (m/min)	ISO class
Slide rail Premium	6	6
	20	7
	50	7

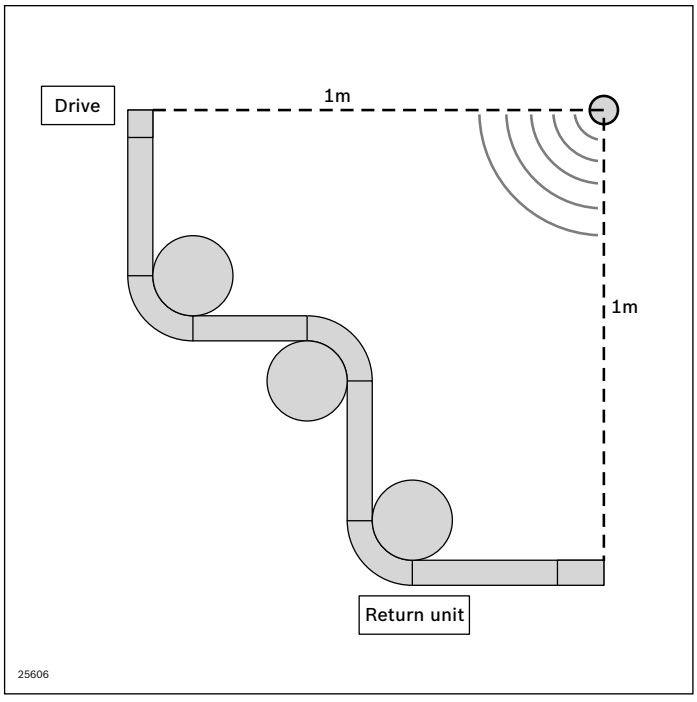
The VarioFlow *plus* 90 conveyor system has been tested for cleanroom suitability according to the procedures described in the EN ISO 14644-1 standard for cleanroom and cleanliness suitability testing. The measurement results for a conveyor system VarioFlow *plus* 90 (AL) were obtained and are presented in the table at left.
The results are based on an application in an L-configuration using a curve wheel 90° and flat conveyor chain, without load!

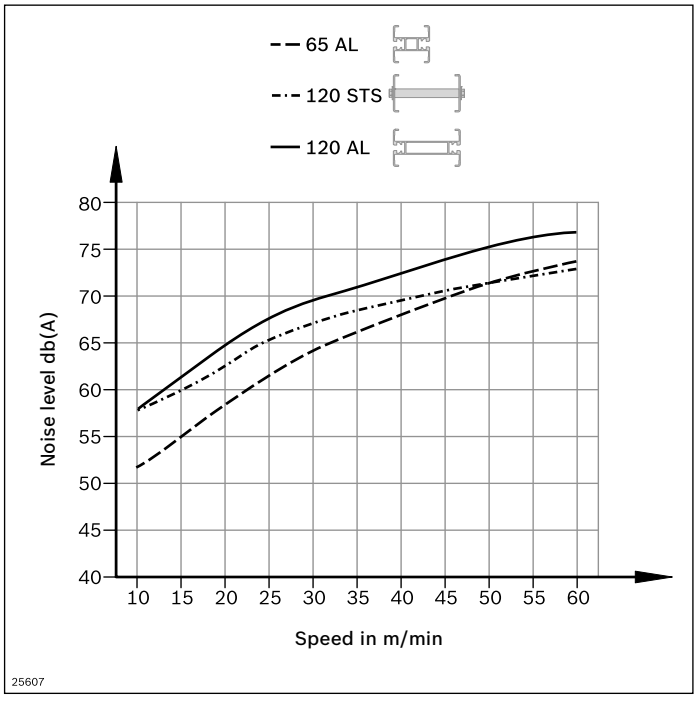
Before commissioning a chain conveyor system in a cleanroom, the following must be observed:

- Install the slide rails according to the assembly instructions (avoid joints, round off all edges and intersections on the slide rails)
- Check the chain inlets and outlets, if necessary round off edges
- Check the intersections, if necessary round off edges
- Run in for about 100 hours to adapt the slide rail and chain (abrasion and unevenness of plastics)
- Clean the system and the chain
- Transfer of the system via airlock into the cleanroom
- 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 cleanrooms due to the increased friction and associated wear.

Conveyor noise level

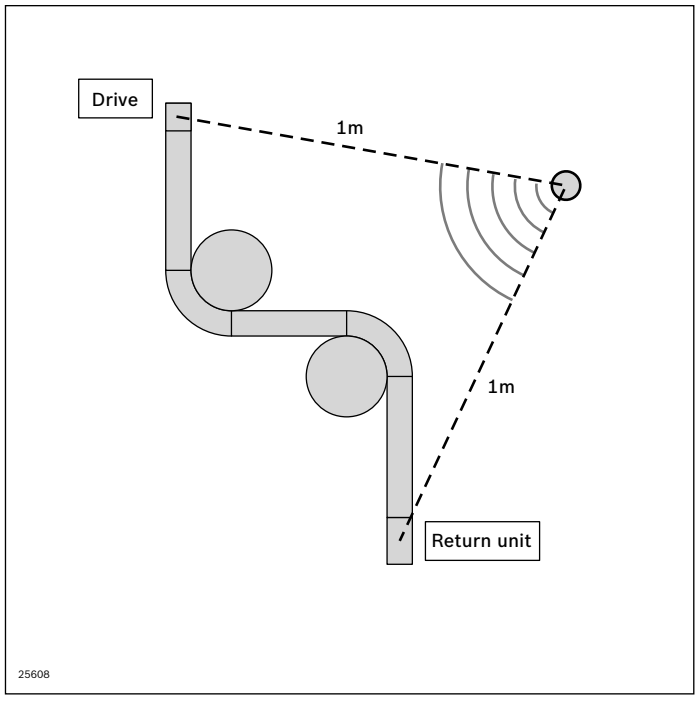


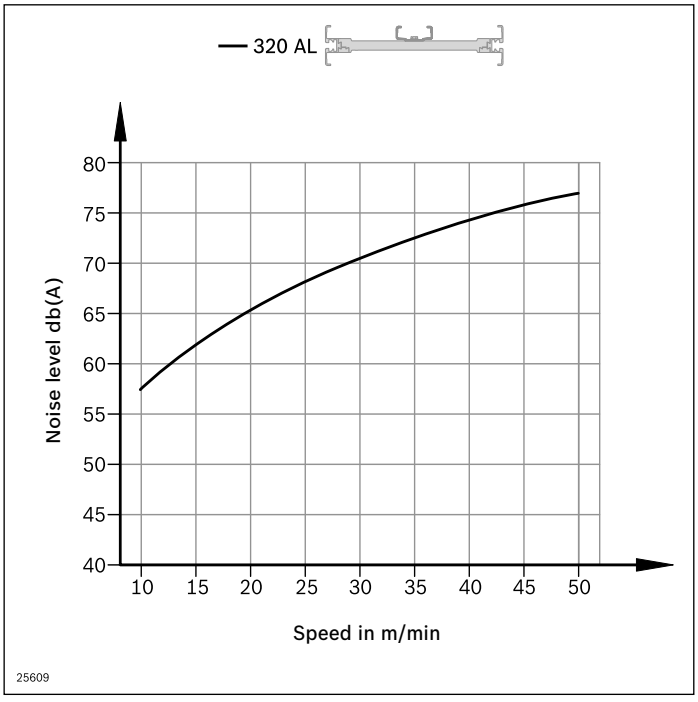


The noise generated by the conveyor chain will decrease after a few days of operation. Generally, a higher speed will result in a higher noise level. The actual noise level depends on several factors:

- Product on the conveyor
- Chain type
- Drive type
- Installation location and fastening of the system (floor, ceiling, wall)
- Ambient conditions (vibrating objects, hard reflective walls, integrated systems of other makes, hall structures)
- Quality of system assembly and layout in accordance with the assembly instructions (slide rail transitions, joints)
- 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))
at chain speeds up to 60 m/min.


Drive
1m
1m
Return unit
25608


320 AL
80
75
70
65
60
55
50
45
40
Noise level db(A)
10
15
20
25
30
35
40
45
50
Speed in m/min
25609

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
Oxaluric 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.
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 ≤ 4
- Bases with a pH value ≤ 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 page 234 and 217.

Chemical	Material
Alkaline substances:	**POM**
Ammonia (dissolved)	++
Lime hydrate	++
Caustic soda hydrated	++
Caustic potash	++
Salts:	
Basic salts	++
Potassium bicarbonate	+
Potassium permanganate	+
Sodium cyanide	+
Sodium hypochloride	0
Neutral salts	++
Acidic salts	+
Solvents/organic media:	
Acetone	+
Solvents/organic media:	
Aniline	+
Gasoline	+
Benzole	++
Butanol	+
Chlorobenzene	++
Chloroform	++
Acetic ether	++
Ethyl alcohol	++
Ethyl ether	++
Formalin	+
Heptane	+
Methyl alcohol	++
Methyl ethyl ketone	++
Nitrobenzene	+

Chemical	Material
Solvents/organic media:	
Phenol	0
Carbon disulfide	++
Turpentine substitute	·/·
Carbon tetrachloride	++
Toluene	++
Gases:	
Chlorine (wet)	–
Chlorine (dry)	+
Carbon dioxide	0
Carbon monoxide	+
Sulfur dioxide (wet)	–
Sulfur dioxide (dry)	+
Hydrogen sulfide	0

Material use

Chains

	Steel, stainless	Steel, tempered	POM	PA	TPE
Flat conveyor chain	X		X	X	
Cleated chain	X		X	X	
Static friction chain	X		X	X	X
Accumulation roller chain	X		X	X	
Roller cleat chain ø 20	X		X	X	
Roller cleat chain ø 35	X		X	X	
Universal chain	X		X	X	

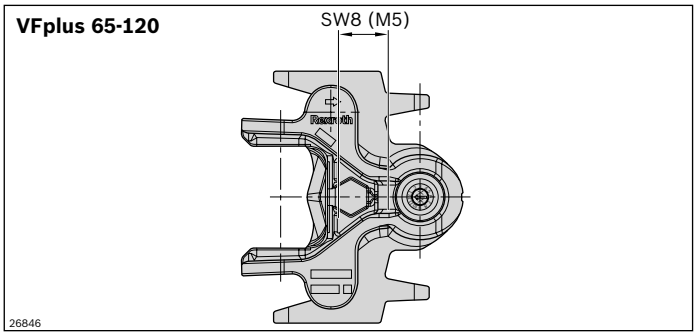
Sections

	Aluminum, extruded, anodized	Aluminum, die-cast	Steel, galvanized	Steel, stainless	PA	PA, fiberglass-reinforced	PE-UHMW	PE	PE-HD	SBR	PBT
Straight section	X	X	X	X			X		X		
Vertical + horizontal sliding curve	X		X	X			X		X		
Curve wheel	X	X	X	X		X	X		X		
Chain assembly module	X		X	X			X		X		
Leg sets	X	X	X	X	X	X				X	
Lateral guide	X		X	X	X	X	X	X			
Low-friction curve	X	X	X	X		X	X		X		X

Drives

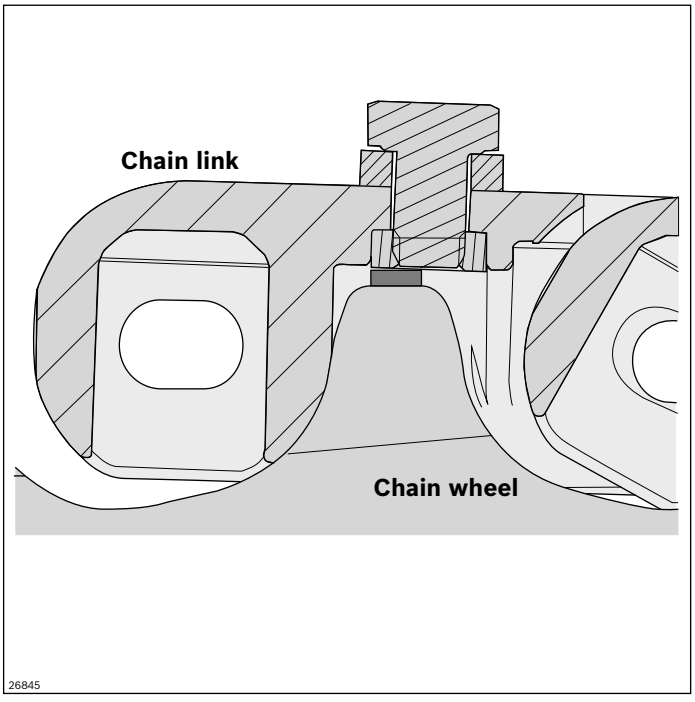
	Aluminum, extruded, anodized	Aluminum, die-cast	Steel, galvanized	Steel, stainless	Steel, tempered	ABS	PA	PA, fiberglass-reinforced
Head drive	X	X	X	X	X		X	X
Return unit	X	X	X	X	X		X	X
Drive kit		X	X	X				X
Connection drive	X	X	X	X	X		X	X
Curve wheel drive	X	X	X	X	X	X	X	X

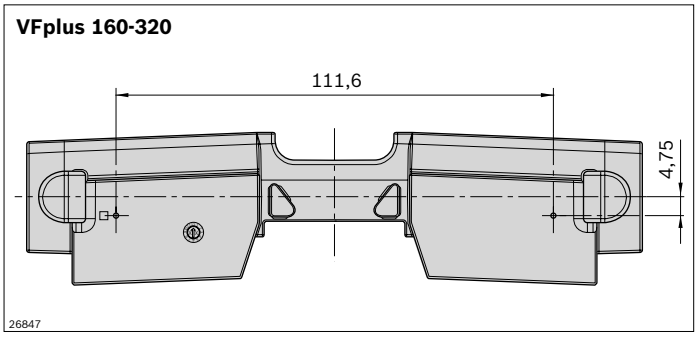
Information on the attachment of customer-specific superstructures



VF*plus* 65-120

Note: Risk of collision with the chain! Only use flat hexagon nuts (ISO 4035 – M5). Select the correct screw length, if necessary, shorten so it is even with the nut.

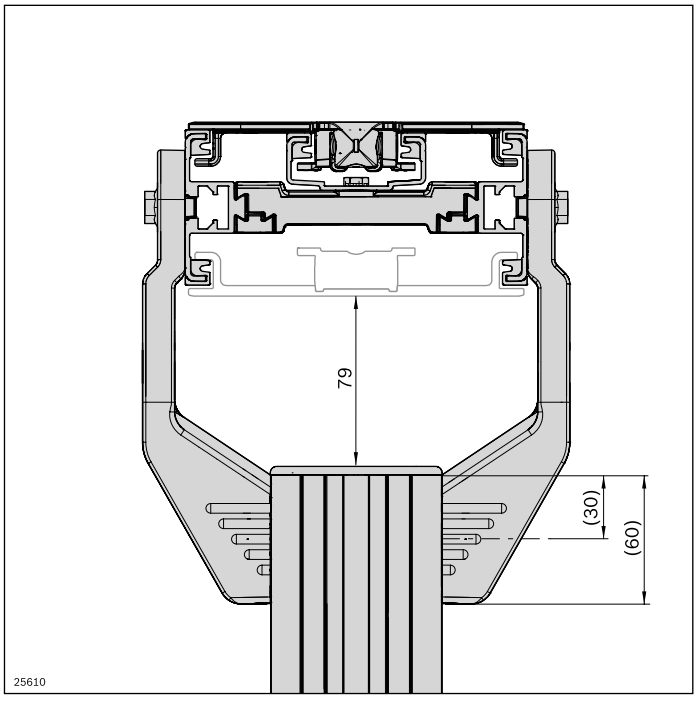




VF*plus* 160-320

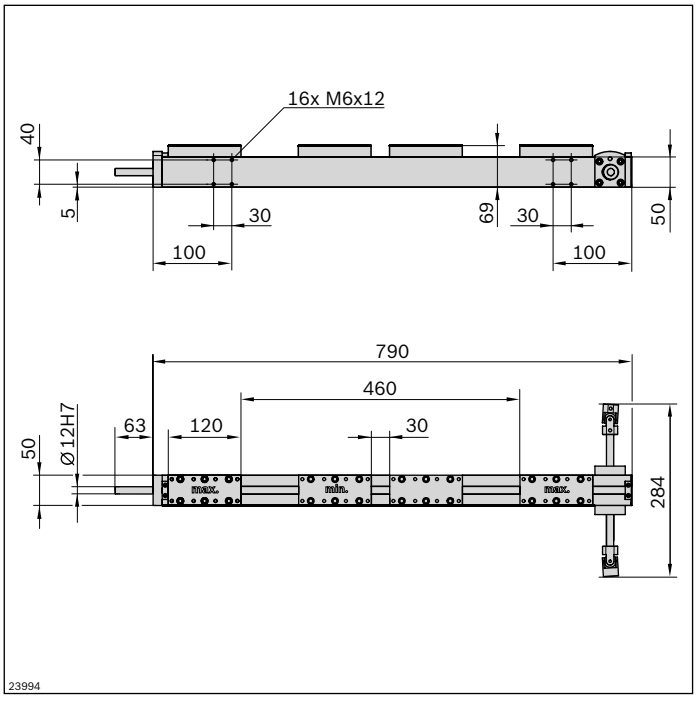
Note: Risk of collision! Only use the mounting points provided.

Holder adjustment range



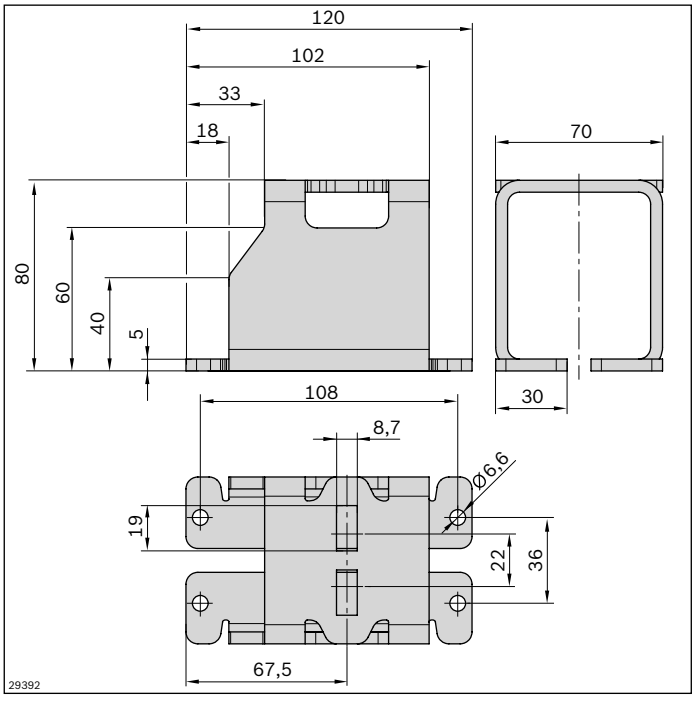
The aluminum holder adjustment range shown relates to the standard installation position (holder flush with the profile end) and the use of a flat chain for horizontal running of the chain. For vertical use the adjustment range is reduced depending on the angle.

Wedge conveyor adjustment unit



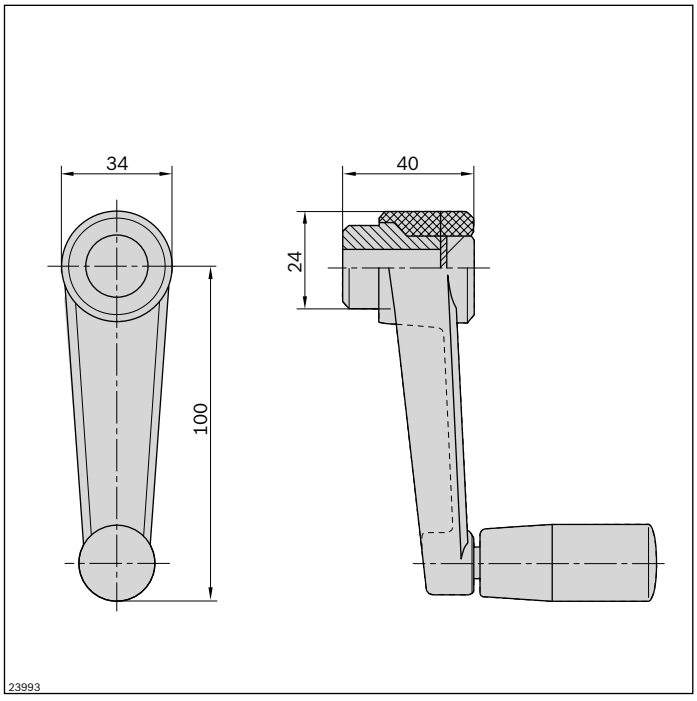
Adjustment unit

See also the “Adjustment unit” chapter on page 148.



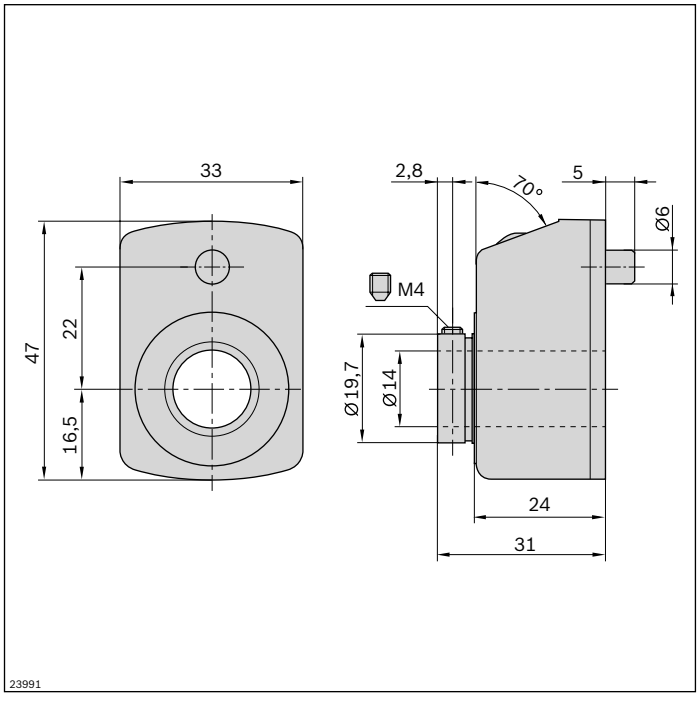
Connection kit

See also the “Adjustment unit” chapter on page 148.

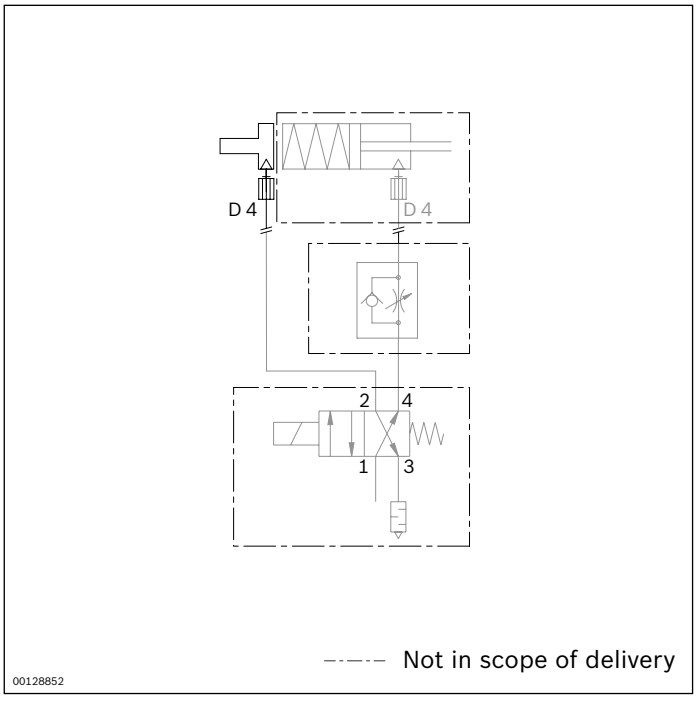


Crank handle

See also the “Adjustment unit” chapter on page 148.



Position sensor for stop gate VE 2/VF

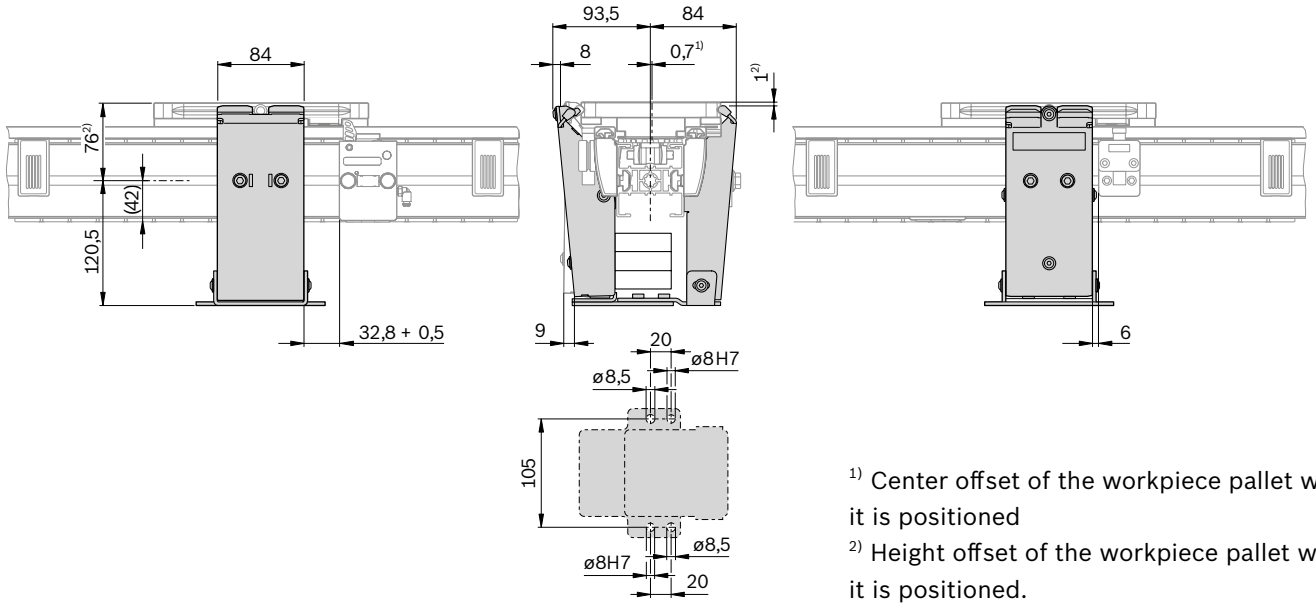


Circuit diagram

See also the “Workpiece pallet” section on page 181.

Positioning unit

VF 65

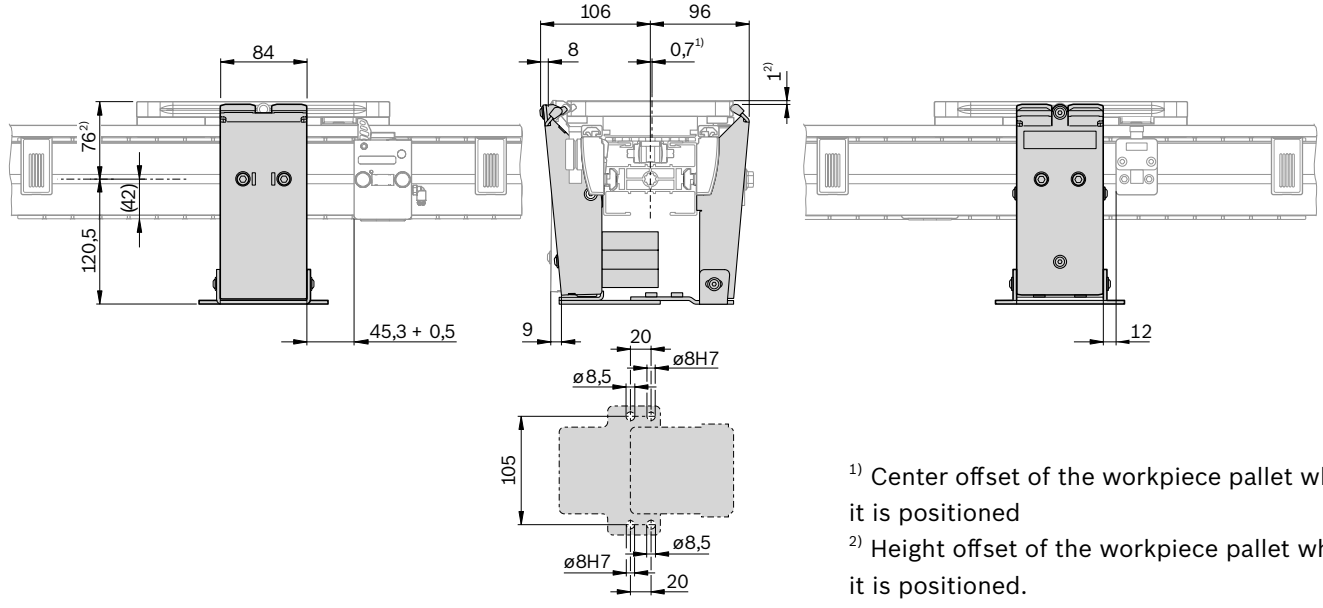


[1)] Center offset of the workpiece pallet when it is positioned

[2)] Height offset of the workpiece pallet when it is positioned.

00123117

VF 90

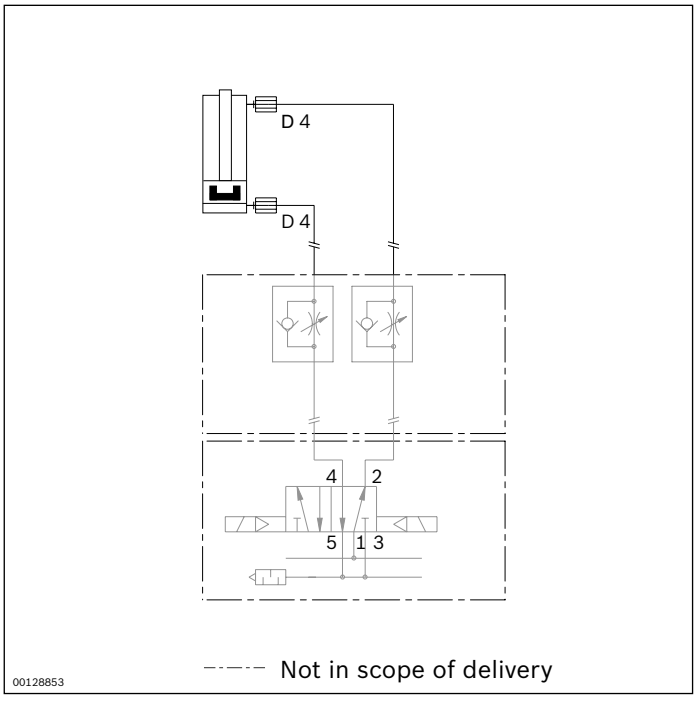


[1)] Center offset of the workpiece pallet when it is positioned

[2)] Height offset of the workpiece pallet when it is positioned.

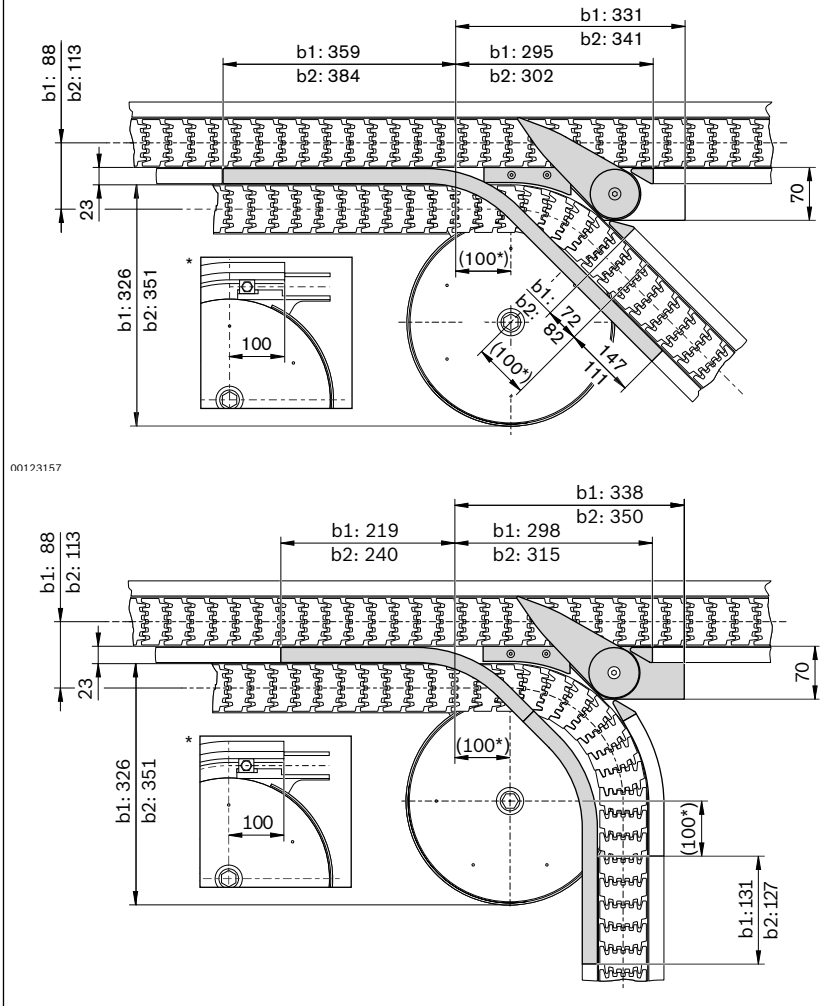
00123118

Circuit diagram

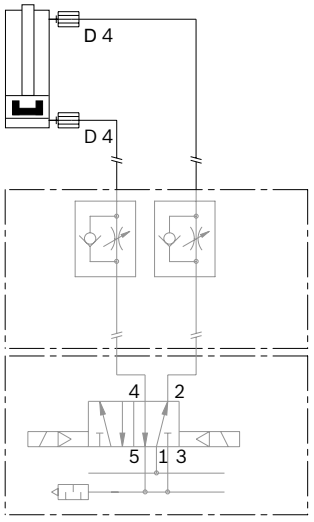


See also the “Workpiece pallet” section on page 184.

Deflector



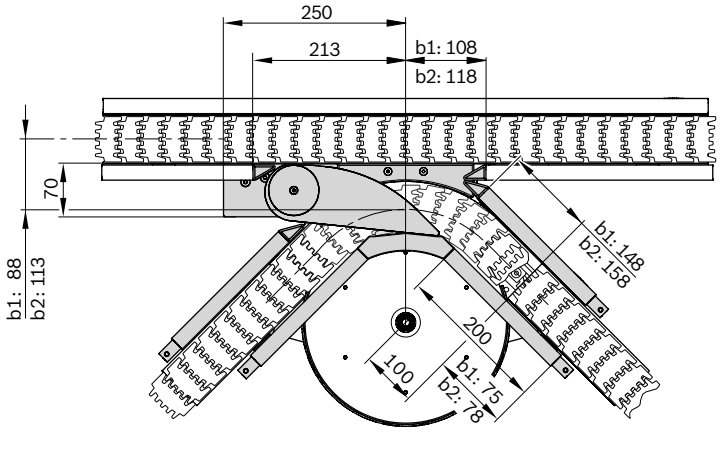
Circuit diagram



B = size
b1 = 65; b2 = 90

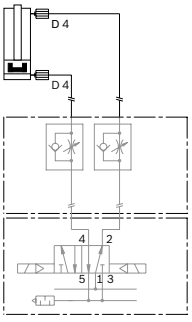
See also the “Workpiece pallet” section on page 188.

Cross-diverter

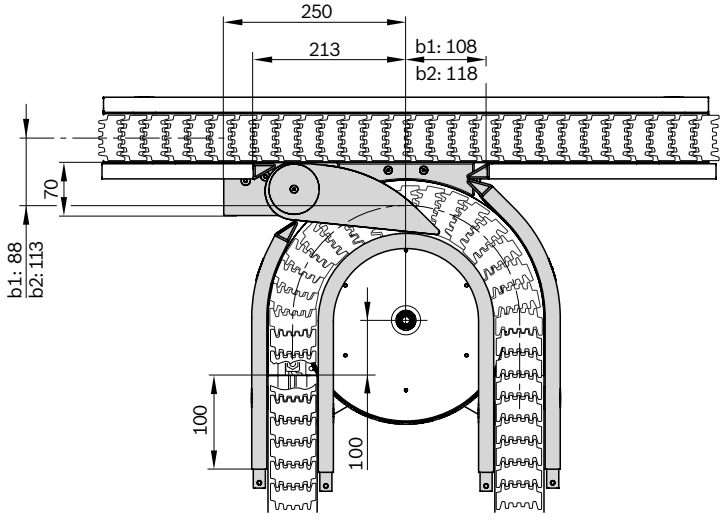


00134820

Circuit diagram



00128853



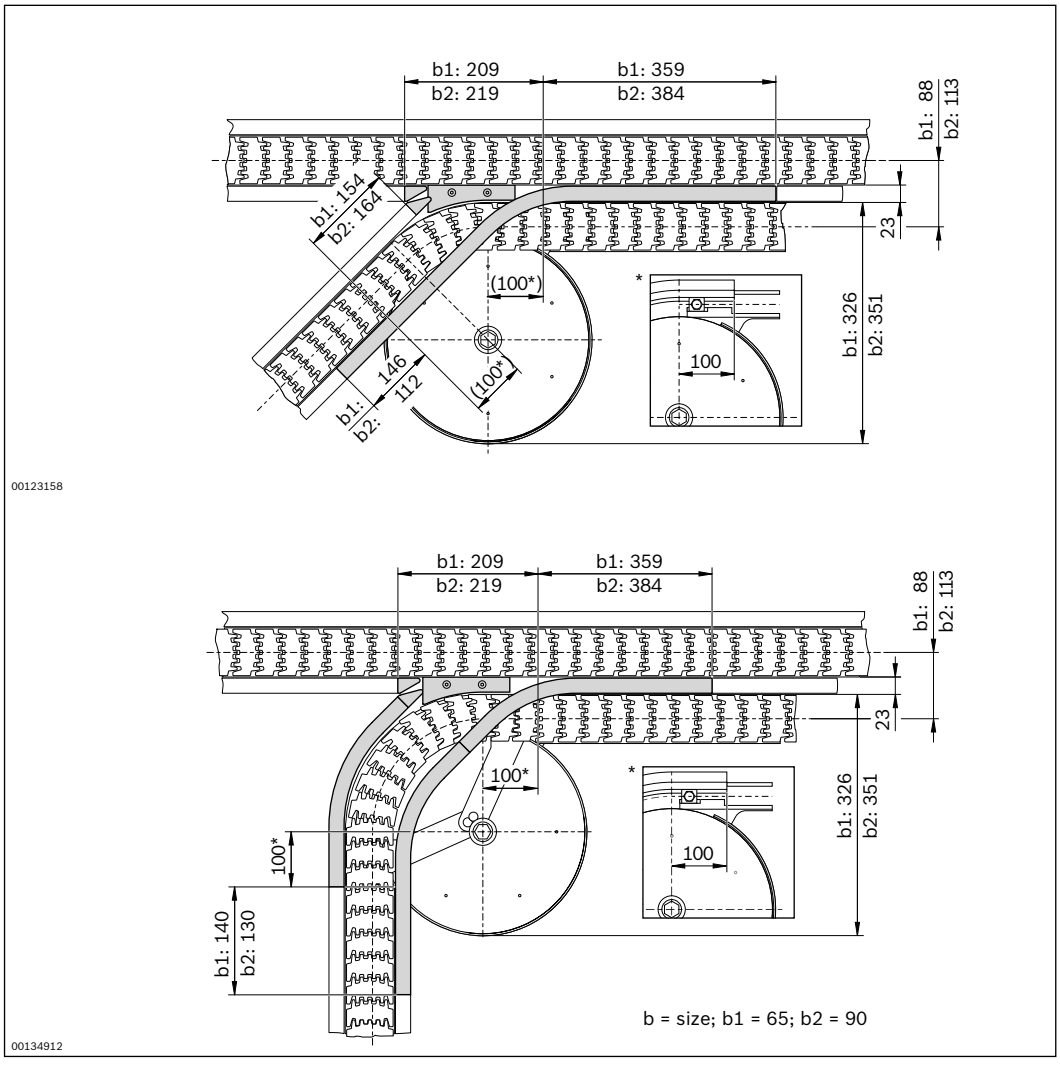
00134821

–·–·– not included in the scope of delivery

B = size
b1 = 65; b2 = 90

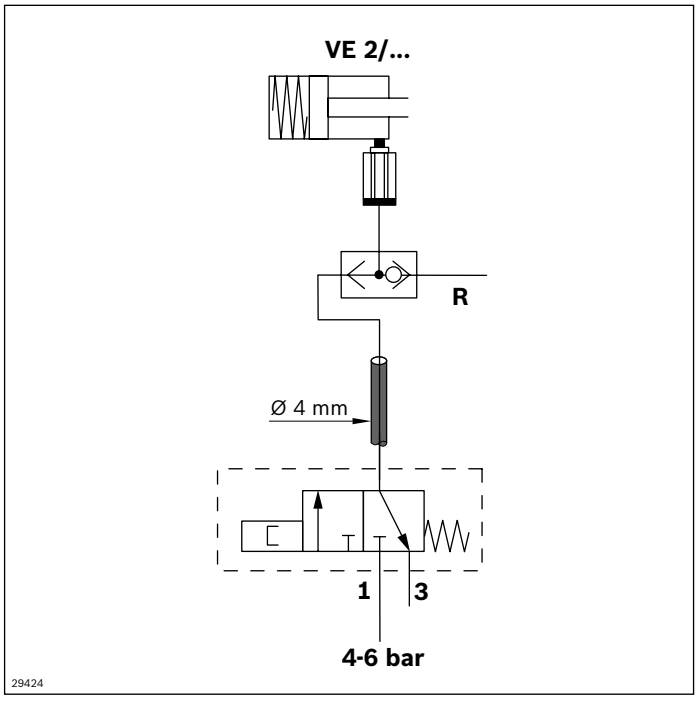
See also the “Workpiece pallet” section on page 190.

Junction



See also the “Workpiece pallet” section on page 192.

Rocker WT system



Circuit diagram

See also the “Workpiece pallet” section on page 194.

GoTo Europe – Ordering information

The following pages list all deliverable GoTo products with descriptions and material numbers. The maximum order quantities and lead times are also specified.

Material number	**Description**	**SAP description**	**Maximum GoTo quantity** (pieces)	**Lead time** (working days) **ex factory in Germany**
3842527738	Spacer plate	30X30X5	70	5
3842527851	Holder	30X88 with head	70	5
3842528009	Clamping head	25X30X25	70	5
3842528539	Clamping lever	GN300-45_M6-40-SZH2=7	70	5
3842528540	Clamping lever	GN300-45-M6-25-SZH2=7	70	5
3842528772	Slide plate	VF90 STS	50	5
3842528773	Slide plate	VF65 STS	50	5
3842528852	Stop gate	VE-VF	10	5
3842529850	Lateral guide	17X17.5 20G L=3M LE20	1	5
3842530277	Profile connector	VFplus AL section	1	5
3842531355	Switch bracket	VARIO FLOW	10	5
3842531552	Holder	30X56X21.5	70	5
3842532762	Positioning unit	PE-VF	1	5
3842532980	Holder	KPL.VF	20	5
3842532998	Section link	VF	20	5
3842533307	Foot, three-leg		10	5
3842533308	Foot, two-leg		10	5
3842533309	Foot, two-leg with flange		10	5
3842533841	Guide rod	D12H9 6X3000MM	1	5
3842535001	Section transfer	VF90 right	4	5
3842535002	Section transfer	VF90 left	4	5
3842535003	Section transfer	VF65 right	4	5
3842535004	Section transfer	VF65 left	4	5
3842535081	Positioning bushing	VF WT	1	5
3842535150	Assembly set	VF-WEICHE ZYL.ABFRAGE	2	5
3842535801	Retaining bracket	PE-VF KIT	2	5
3842536295	Clamping head	29X30X16	70	5
3842536787	Profile connector	8/50 VF	20	5
3842538209	Slide rail	VF/VFS	16	5
3842538388	Profile rail	VF/VFS	4	5
3842538389	Slide rail	VF/VFS	16	5
3842538829	Profile rail	Lateral guide 20X3000MM	1	5
3842539339	Tube	D18 VA	5	5
3842539340	Slide rail	C 21 PE UHMW ESD	16	5
3842539344	Reduction piece	D18/D12	70	5
3842539345	Connector	internal	16	5
3842539494	Holder	horizontal 4XD18	70	5
3842539495	Holder	horizontal 2XD18	70	5
3842539496	Holder	vertical D18	70	5
3842539497	Spacer	45X45X40	70	5
3842539498	Clamping piece	D12 L100	70	5
3842539499	Clamping piece	C L100	70	5

Material number	**Description**	**SAP description**	**Maximum GoTo quantity** (pieces)	**Lead time** (working days) **ex factory in Germany**
3842539500	Clamping piece	vertical D18 L160	70	5
3842539501	Crosspiece	2XD18	70	5
3842539505	Corner piece	90GR D18	70	5
3842539613	Profile connector	outer VA	16	5
3842539826	Plug	D15	70	5
3842540173	Foot	VFplus 80x80 set	10	5
3842541566	Slider plate	VF65 PE	50	5
3842541567	Slider plate	VF90 PE	50	5
3842541888	Workpiece pallet	VF65-135 KPL	25	5
3842541889	Workpiece pallet	VF90 160 KPL	25	5
3842541902	End cap	VF65 135	50	5
3842541903	End cap	VF90 160	50	5
3842543246	Thread forming screw	SHR-LIKPF-W1451-T20	1	5
3842546000	Chain link	65+ flat	20	5
3842546001	Chain link	90+ flat	20	5
3842546002	Chain link	120+ flat	20	5
3842546006	Chain link	65+ friction	20	5
3842546007	Chain link	90+ friction	20	5
3842546008	Chain link	120+ friction	20	5
3842546012	Chain link	65+ universal	50	5
3842546013	Chain link	90+ universal	50	5
3842546014	Chain link	120+ universal	50	5
3842546015	Chain link	65+ cleated	50	5
3842546016	Chain link	90+ cleated	50	5
3842546017	Chain link	65+ accum D11	50	5
3842546018	Chain link	90+ accum D11	50	5
3842546019	Chain link	120+ accum D11	50	5
3842546020	Chain link	65+ cleated D20	50	5
3842546021	Chain link	90+ cleated D20	50	5
3842546028	Chain link	160-320+ basic link	20	5
3842546069	Conveyor chain	65+ flat L=4968	1	5
3842546070	Conveyor chain	90+ flat L=4968	10	5
3842546071	Conveyor chain	120+ flat L=4968	10	5
3842546072	Conveyor chain	160+ flat L=2898	15	5
3842546073	Conveyor chain	240+ flat L=2898	15	5
3842546074	Conveyor chain	320+ flat L=2898	15	5
3842546077	Conveyor chain	65+ friction L=4968	5	5
3842546078	Conveyor chain	90+ friction L=4968	5	5
3842546079	Conveyor chain	120+ friction L=4968	5	5

Material number	**Description**	**SAP description**	**Maximum GoTo quantity** (pieces)	**Lead time** (working days) **ex factory in Germany**
3842546080	Conveyor chain	160+ friction L=2898	5	5
3842546081	Conveyor chain	240+ friction L=2898	5	5
3842546082	Conveyor chain	320+ friction L=2898	5	5
3842546083	Conveyor chain	65+ accum L=2898	5	5
3842546084	Conveyor chain	90+ accum L=2898	5	5
3842546085	Conveyor chain	120+ accum L=2898	1	5
3842546086	Clamping chain	90+ 5L L=2898	10	5
3842546087	Clamping chain	90+ 3L L=2898	10	5
3842546093	Chain plate	160+ flat	20	5
3842546094	Chain plate	240+ flat	20	5
3842546095	Chain plate	320+ flat	20	5
3842546096	Chain plate	160+ friction	20	5
3842546097	Chain plate	240+ friction	20	5
3842546098	Chain plate	320+ friction	20	5
3842546116	Slide rail	VFplus premium L=30m	4	5
3842546120	Base unit	65+ AL direct	1	5
3842546121	Base unit	90+ AL direct	2	5
3842546122	Base unit	120+ AL direct	2	5
3842546123	Base unit	160+ AL direct	2	5
3842546124	Base unit	240+ AL direct	2	5
3842546125	Base unit	320+ AL direct	2	5
3842546625	Holder	65+ AL leg set	10	5
3842546626	Holder	90+ AL leg, set	10	5
3842546627	Holder	120+ AL leg, set	10	5
3842546628	Holder	160+ AL leg, set	10	5
3842546629	Holder	240+ AL leg, set	10	5
3842546630	Holder	320+ AL leg, set	10	5
3842546632	Console	VFplus AL set	10	5
3842546643	Section profile	65+ AL 12x6070	1	5
3842546644	Section profile	90+ AL 12x6070	1	5
3842546645	Section profile	120+ AL 6x6070	1	5
3842546647	Section profile	VFplus AL 1/2 12x6070	1	5
3842546649	Section profile	VFplus STS 1/2 12x3024	1	5
3842546658	Holder	65+ STS leg set	10	5
3842546659	Holder	90+ STS leg set	10	5
3842546660	Holder	120+ STS leg set	10	5
3842546661	Holder	160+ STS leg set	10	5
3842546662	Holder	240+ STS leg set	10	5
3842546663	Holder	320+ STS leg set	10	5
3842546670	Section profile	VFplus AL 1/2 2x3000	8	5
3842546672	Cross connector	VFplus 65AL	50	5
3842546673	Cross connector	90+ AL section	50	5
3842546674	Cross connector	120+ AL section	50	5

Material number	**Description**	**SAP description**	**Maximum GoTo quantity** (pieces)	**Lead time** (working days) **ex factory in Germany**
3842546675	Cross connector	160+ AL section	50	5
3842546676	Cross connector	240+ AL section	50	5
3842546677	Cross connector	320+ AL section	50	5
3842546684	Cross connector	65+ STS section	50	5
3842546685	Cross connector	90+ STS section	50	5
3842546686	Cross connector	120+ STS section	50	5
3842546687	Cross connector	160+ STS section	50	5
3842546688	Cross connector	240+ STS section	50	5
3842546689	Cross connector	320+ STS section	50	5
3842546700	Support profile	160-320+ STS 12X3024	1	5
3842546705	Support profile	160-320+ AL 12X6070	1	5
3842546706	T-nut	VFplus STS M6	1	5
3842546707	T-nut	VFplus STS M8	1	**5**
3842546717	Washer	VFPLUS 1MM	100	5
3842546718	Washer	VFPLUS 3MM	40	5
3842547048	Curve wheel	65+ AL 30°	4	5
3842547049	Curve wheel	65+ AL 45°	4	5
3842547050	Curve wheel	65+ AL 90°	4	5
3842547051	Curve wheel	65+ AL 180°	4	5
3842547052	Curve wheel	90+ AL 30°	4	5
3842547053	Curve wheel	90+ AL 45°	4	5
3842547054	Curve wheel	90+ AL 90°	4	5
3842547055	Curve wheel	90+ AL 180°	4	5
3842547056	Curve wheel	120+ AL 30°	4	5
3842547057	Curve wheel	120+ AL 45°	4	5
3842547058	Curve wheel	120+ AL 90°	4	5
3842547059	Curve wheel	120+ AL 180°	4	5
3842547060	Curve	160+ Hor AL 30° R500	4	5
3842547061	Curve	160+ Hor AL 45° R500	4	5
3842547062	Curve	160+ Hor AL 90° R500	4	5
3842547063	Curve	160+ Hor AL 180° R500	4	5
3842547064	Curve	240+ Hor AL 30° R500	4	5
3842547065	Curve	240+ Hor AL 45° R500	4	5
3842547066	Curve	240+ Hor AL 90° R500	4	5
3842547067	Curve	240+ Hor AL 180° R500	4	5
3842547068	Curve	320+ Hor AL 30° R500	4	5
3842547069	Curve	320+ Hor AL 45° R500	4	5
3842547070	Curve	320+ Hor AL 90° R500	4	5
3842547071	Curve	320+ Hor AL 180° R500	4	5
3842547072	Curve	65+ Hor Al 30° R700	4	5
3842547073	Curve	65+ Hor Al 45° R700	4	5
3842547074	Curve	65+ Hor Al 90°R700	4	5
3842547075	Curve	90+ Hor Al 45° R500	4	5

Materialnumber	**Description**	**SAP description**	**Maximum GoTo quantity** (pieces)	**Lead time** (working days) **ex factory in Germany**
3842547076	Curve	90+ Hor Al 90° R500	4	5
3842547077	Curve	90+ Hor Al 30° R700	4	5
3842547078	Curve	90+ Hor Al 45° R700	4	5
3842547079	Curve	90+ Hor Al 90° R700	4	5
3842547080	Curve	120+ Hor Al 30° R700	4	5
3842547081	Curve	120+ Hor Al 45° R700	4	5
3842547082	Curve	120+ Hor Al 90° R700	4	5
3842547083	Curve	65+ Vert AL 5° R500	4	5
3842547084	Curve	65+ Vert AL 7.5° R500	4	5
3842547085	Curve	65+ Vert AL 15° R500	4	5
3842547086	Curve	65+ Vert AL 30° R500	4	5
3842547087	Curve	65+ Vert AL 45° R500	4	5
3842547088	Curve	90+ Vert AL 5° R500	4	5
3842547089	Curve	90+ Vert AL 7.5° R500	4	5
3842547090	Curve	90+ Vert AL 15° R500	4	5
3842547091	Curve	90+ Vert AL 30° R500	4	5
3842547092	Curve	90+ Vert AL 45° R500	4	5
3842547093	Curve	120+ Vert AL 5° R500	4	5
3842547094	Curve	120+ Vert AL 7.5° R500	4	5
3842547095	Curve	120+ Vert AL 15° R500	4	5
3842547096	Curve	120+ Vert AL 30° R500	4	5
3842547097	Curve	120+ Vert AL 45° R500	4	5
3842547098	Curve	160+ Vert AL 5° R500	4	5
3842547099	Curve	160+ Vert AL 7.5° R500	4	5
3842547100	Curve	160+ Vert AL 15° R500	4	5
3842547101	Curve	160+ Vert AL 30° R500	4	5
3842547102	Curve	160+ Vert AL 45° R500	4	5
3842547103	Curve	240+ Vert AL 5° R500	4	5
3842547104	Curve	240+ Vert AL 7.5° R500	4	5
3842547105	Curve	240+ Vert AL 15° R500	4	5
3842547106	Curve	240+ Vert AL 30° R500	4	5
3842547107	Curve	320+ Vert AL 5° R500	4	5
3842547108	Curve	320+ Vert AL 7.5° R500	4	5
3842547109	Curve	320+ Vert AL 15° R500	4	5
3842547110	Curve	320+ Vert AL 30° R500	4	5
3842547111	Curve wheel	65+ STS 30°	4	5
3842547112	Curve wheel	65+ STS 45°	4	5
3842547113	Curve wheel	65+ STS 90°	4	5
3842547114	Curve wheel	65+ STS 180°	4	5
3842547115	Curve wheel	90+ STS 30°	4	5
3842547116	Curve wheel	90+ STS 45°	4	5

Materialnumber	**Description**	**SAP description**	**Maximum GoTo quantity** (pieces)	**Lead time** (working days) **ex factory in Germany**
3842547117	Curve wheel	90+ STS 90°	4	5
3842547118	Curve wheel	90+ STS 180°	4	5
3842547119	Curve wheel	120+ STS 30°	4	5
3842547120	Curve wheel	120+ STS 45°	4	5
3842547121	Curve wheel	120+ STS 90°	4	5
3842547122	Curve wheel	120+ STS 180°	4	5
3842547123	Curve	160+ Hor STS 30° R500	4	5
3842547124	Curve	160+ Hor STS 45° R500	4	5
3842547125	Curve	160+ Hor STS 90° R500	4	5
3842547126	Curve	160+ Hor STS 180°R500	4	5
3842547127	Curve	240+ Hor STS 30° R500	4	5
3842547128	Curve	240+ Hor STS 45° R500	4	5
3842547129	Curve	240+ Hor STS 90° R500	4	5
3842547130	Curve	240+ Hor STS 180°R500	4	5
3842547131	Curve	320+ Hor STS 30° R500	4	5
3842547132	Curve	320+ Hor STS 45° R500	4	5
3842547133	Curve	320+ Hor STS 90° R500	4	5
3842547134	Curve	320+ Hor STS 180°R500	4	5
3842547135	Curve	65+ Vert STS 5° R500	4	5
3842547136	Curve	65+ Vert STS 15° R500	4	5
3842547137	Curve	65+ Vert STS 30° R500	4	5
3842547138	Curve	65+ Vert STS 45° R500	4	5
3842547139	Curve	90+ Vert STS 5° R500	4	5
3842547140	Curve	90+ Vert STS 15° R500	4	5
3842547141	Curve	90+ Vert STS 30° R500	4	5
3842547142	Curve	90+ Vert STS 45° R500	4	5
3842547143	Curve	120+ Vert STS 5° R500	4	5
3842547144	Curve	120+ Vert STS 15°R500	4	5
3842547145	Curve	120+ Vert STS 30°R500	4	5
3842547146	Curve	120+ Vert STS 45°R500	4	5
3842547147	Curve	160+ Vert STS 5° R500	4	5
3842547148	Curve	160+ Vert STS 15°R500	4	5
3842547149	Curve	160+ Vert STS 30°R500	4	5
3842547150	Curve	160+ Vert STS 45°R500	4	5
3842547151	Curve	240+ Vert STS 5° R500	4	5
3842547152	Curve	240+ Vert STS 15°R500	4	5
3842547153	Curve	240+ Vert STS 30°R500	4	5
3842547154	Curve	320+ Vert STS 5° R500	4	5
3842547155	Curve	320+ Vert STS 15°R500	4	5
3842547156	Curve	320+ Vert STS 30°R500	4	5
3842547216	Jointed bolt	VFplus chain	100	5

Material number	**Description**	**SAP description**	**Maximum GoTo quantity** (pieces)	**Lead time** (working days) **ex factory in Germany**
3842547227	Clamping holder	VF+ guide D12	70	5
3842547228	Clamping holder	VF guide C17.3	70	5
3842547380	Base unit	65+ AL curve wheel	2	5
3842547381	Base unit	90+ AL curve wheel	2	5
3842547442	Holder	VF65+ AL drive, set	2	5
3842547443	Holder	VF90+ AL drive, set	2	5
3842547444	Holder	VF120+ AL drive, set	2	5
3842547445	Holder	VF160+ AL drive, set	2	5
3842547446	Holder	VF240+ AL drive, set	2	5
3842547447	Holder	VF320+ AL drive, set	2	5
3842547461	Console	VFplus AL side, set	10	5
3842547516	Return unit	65+ AL	1	5
3842547517	Return unit	90+ AL	2	5
3842547518	Return unit	120+ AL	2	5
3842547519	Return unit	160+ AL	2	5
3842547520	Return unit	240+ AL	2	5
3842547521	Return unit	320+ AL	2	5
3842547522	Base unit	65+ STS direct	2	5
3842547523	Base unit	90+ STS direct	1	5
3842547524	Base unit	120+ STS direct	2	5
3842547525	Base unit	160+ STS direct	2	5
3842547526	Base unit	240+ STS direct	2	5
3842547527	Base unit	320+ STS direct	2	5
3842547528	Return unit	65+ STS	2	5
3842547529	Return unit	90+ STS	1	5
3842547530	Return unit	120+ STS	2	5
3842547531	Return unit	160+ STS	2	5
3842547532	Return unit	240+ STS	2	5
3842547533	Return unit	320+ STS	2	5
3842547712	Base unit	65+ AL connect direct	1	5
3842547713	Base unit	90+ AL connect direct	1	5
3842547727	Chain pin	VFplus chain	100	5
3842547892	Flange	VFplus STS leg	10	5
3842547895	Profile connector	VFplus STS section	30	5
3842547899	Assembly module	VFplus AL section	1	5
3842547900	Assembly module	VFplus STS section	1	5
3842547904	Support profile	160-320+ AL 1x3000	8	5
3842547905	Section profile	VFplus STS 1/2 2x3024	8	5
3842547906	Support profile	160-320+ STS 1X3024	8	5
3842547908	Sheet metal screw	ST2.9x9.5-C-A2	100	5

Material number	**Description**	**SAP description**	**Maximum GoTo quantity** (pieces)	**Lead time** (working days) **ex factory in Germany**
3842547949	Lateral guide	65+ Curve Wheel 30°	4	5
3842547950	Lateral guide	65+ Curve Wheel 45°	4	5
3842547951	Lateral guide	65+ Curve Wheel 90°	4	5
3842547952	Lateral guide	65+ Curve Wheel 180°	4	5
3842547953	Lateral guide	90+ Curve Wheel 30°	4	5
3842547954	Lateral guide	90+ Curve Wheel 45°	4	5
3842547955	Lateral guide	90+ Curve Wheel 90°	4	5
3842547956	Lateral guide	90+ Curve Wheel 180°	4	5
3842549015	Connection kit	65+ bridge passive	1	5
3842549016	Connection kit	90+ bridge passive	1	5
3842549017	Connection kit	120+ bridge passive	1	5
3842549018	Connection kit	160+ bridge passive	1	5
3842549023	Connection kit	65+ bridge active	1	5
3842549024	Connection kit	90+ bridge active	1	5
3842549025	Connection kit	120+ bridge active	1	5
3842549026	Connection kit	160+ bridge active	1	5
3842549365	Holder	VFplus STS drive, set	1	5
3842549727	Slide rail	VFplus advanced L=30m	4	5
3842549730	Slide rail	VFplus basic L=30m	4	5
3842549736	Drilling jig	VFplus section	1	5
3842549835	Assembly tool	VFplus chain	2	5
3842551074	Deflector	90+ Cross 90° R	2	5
3842551084	Deflector	90+ Cross 45° R	2	5
3842551086	Deflector	65+ Cross 45° R	2	5
3842551090	Deflector	90+ 45° R	2	5
3842551091	Deflector	90+ 45° L	2	5
3842551100	Deflector	90+ 90° L	2	5
3842551104	Deflector	65+ 45° R	2	5
3842551105	Deflector	65+ 45° L	2	5
3842551108	Deflector	65+ Cross 90° R	2	5
3842551110	Deflector	90+ 90° R	2	5
3842551111	Deflector	65+ 90° R	2	5
3842551121	Deflector	65+ 90° L	2	5
3842551122	Junction	90+ 45° R	2	5
3842551123	Junction	90+ 45° L	2	5
3842551124	Junction	90+ 90° L	2	5
3842551125	Junction	90+ 90° R	2	5
3842551126	Junction	65+ 45° L	2	5
3842551127	Junction	65+ 45° R	2	5
3842551128	Junction	65+ 90° R	2	5
3842551137	Junction	65+ 90° L	2	5

Material number	**Description**	**SAP description**	**Maximum GoTo quantity** (pieces)	**Lead time** (working days) **ex factory in Germany**
3842551138	Deflector	90+ Cross 90° L	2	5
3842551139	Deflector	90+ Cross 45° L	2	5
3842551140	Deflector	65+ Cross 45° L	2	5
3842551141	Deflector	65+ Cross 90° L	2	5
3842551545	Protective cover	65+ AL 30°	4	5
3842551546	Protective cover	65+ AL 45°	4	5
3842551547	Protective cover	65+ AL 90°	4	5
3842551548	Protective cover	65+ AL 180°	4	5
3842551549	Protective cover	90+ AL 30°	4	5
3842551550	Protective cover	90+ AL 45°	4	5
3842551551	Protective cover	90+ AL 90°	4	5
3842551552	Protective cover	90+ AL 180°	4	5
3842998291	Drive kit	VFplus AL var	2	5
3842998742	Drive kit	VF+ Curve var	1	5
3842998774	Connection kit	VF+ sync drive out	1	5
3842998775	Connection kit	VF+ sync drive in	1	5
3842998776	Connection kit	VF+ sync drive alpin	1	5
3842993306/L	Guide rod	D12H9	16	5
3842993308/L	Tube	48.3X1.5	10	5
3842993887/L	Lateral guide profile rail	LE01	16	5
3842994863/L	Lateral guide	17X17.5 20GRD	16	5
3842996022/L	Section profile	65+ AL L=var	4	5
3842996023/L	Section profile	90+ AL L=var	4	5
3842996024/L	Section profile	120+ AL var	4	5
3842996026/L	Section profile	VFplus AL 1/2 L=var	4	5
3842996027/L	Section profile	VFplus STS1/2 L=var	16	5
3842996028/L	Support profile	160-320+ AL L=VAR	8	5
3842996029/L	Support profile	160-320+ STS L=var	8	5
3842996204/...	Workpiece pallet plate	VF65	25	5
3842996205/...	Workpiece pallet plate	VF90	25	5

Material number overview

3 842 146 901	52	3 842 538 773	203	3 842 546 097	24	3 842 547 072	63
3 842 168 600	183	3 842 538 829	154	3 842 546 098	25	3 842 547 073	63
3 842 191 182	52	3 843 538 955	52	3 842 546 116	49, 51, 111, 113	3 842 547 074	63
3 842 345 081	53	3 842 538 957	52	3 842 546 120	71	3 842 547 075	63
3 842 509 185	95, 97	3 842 539 339	164	3 842 546 121	71	3 842 547 076	63
3 842 511 874	95, 97	3 842 539 340	155	3 842 546 122	71	3 842 547 077	63
3 842 513 581	175	3 842 539 344	164	3 842 546 123	71	3 842 547 078	63
3 842 513 584	175	3 842 539 345	156	3 842 546 124	71	3 842 547 079	63
3 842 518 367	52	3 842 539 494	162	3 842 546 125	71	3 842 547 080	63
3 842 518 368	52	3 842 539 495	162	3 842 546 625	95	3 842 547 081	63
3 842 518 369	52	3 842 539 496	163	3 842 546 626	95	3 842 547 082	63
3 842 523 258	52	3 842 539 497	163	3 842 546 627	95	3 842 547 083	65
3 842 527 738	158	3 842 539 498	161	3 842 546 628	99	3 842 547 084	65
3 842 527 851	158	3 842 539 499	161	3 842 546 629	99	3 842 547 085	65
3 842 528 009	162	3 842 539 500	163	3 842 546 630	99	3 842 547 086	65
3 842 528 531	202	3 842 539 501	164	3 842 546 632	101	3 842 547 087	65
3 842 528 539	165	3 842 539 505	164	3 842 546 643	45	3 842 547 088	65
3 842 528 540	165	3 842 539 613	156	3 842 546 644	45	3 842 547 089	65
3 842 528 715	53	3 842 539 826	164	3 842 546 645	45	3 842 547 090	65
3 842 528 718	53	3 842 540 173	99	3 842 546 647	2, 47	3 842 547 091	65
3 842 528 721	53	3 842 540 668	96	3 842 546 649	109	3 842 547 092	65
3 842 528 724	53	3 842 541 003	196	3 842 546 658	143	3 842 547 093	65
3 842 528 727	53	3 842 541 246	54	3 842 546 659	143	3 842 547 094	65
3 842 528 772	171	3 842 541 409	54	3 842 546 660	143	3 842 547 095	65
3 842 528 773	171	3 842 541 566	171	3 842 546 661	143	3 842 547 096	65
3 842 528 817	181	3 842 541 567	171	3 842 546 662	143	3 842 547 097	65
3 842 528 852	180	3 842 541 888	171	3 842 546 663	143	3 842 547 098	65
3 842 529 039	99	3 842 541 889	171	3 842 546 670	47	3 842 547 099	65
3 842 529 236	203	3 842 541 902	173	3 842 546 672	2, 47	3 842 547 100	65
3 842 529 347	99	3 842 541 903	173	3 842 546 673	47	3 842 547 101	65
3 842 529 386	97	3 842 543 246	171	3 842 546 674	47	3 842 547 102	65
3 842 529 850	155	3 842 544 875	95, 97	3 842 546 675	47	3 842 547 103	65
3 842 530 236	142	3 842 546 000	19	3 842 546 676	47	3 842 547 104	65
3 842 530 277	50	3 842 546 001	19	3 842 546 677	47	3 842 547 105	65
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R999000402 (2015-09)