



Conveyor Technology

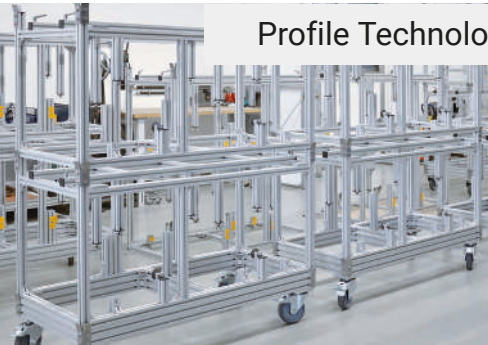


Conveyor Technology.
Linear Technology.

Modular Construction Kit for Factory Automation



Profile Technology



» Components,
modules and solutions for
factory automation. «

Conveyor Technology



Maschinenbau Kitz, the parent company of the mk Technology Group, was founded in 1966 in Troisdorf, near Bonn, Germany. mk is one of the leading suppliers of components, modules and systems for factory automation.

Our portfolio of profile technology includes workstation set-ups, guarding and custom-designed machine frames and platforms, in addition to the aluminium profile system on which they are based.

System Solutions



In the field of conveyor technology, mk offers an extensive range of standardised conveyor types, supplemented with linear technology for precision handling applications.

Furthermore, mk is on hand to assist its customers with system solutions, from project planning and design to the commissioning of complete transfer systems.

Our services round off the product portfolio and include repairs, maintenance and a spare parts supply service.

Services



With our deep production, sales and service network consisting of subsidiaries, sales partners and external service providers, we guarantee our customers fast access to our expert advice and outstanding products.

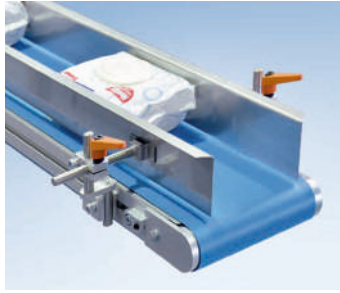
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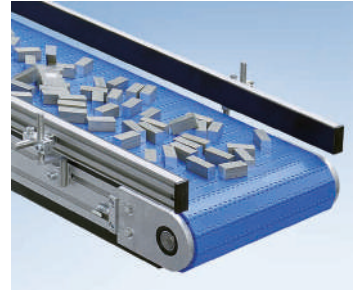
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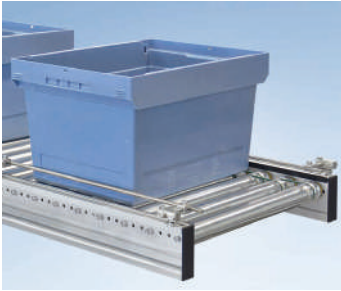
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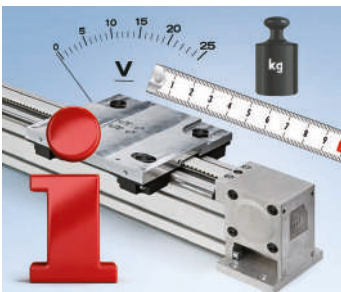
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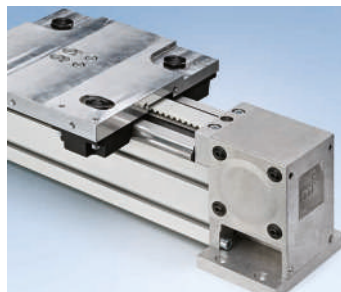
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Benefits of mk Conveyor Technology

1



» Functional modules for conveying and product handling. «

mk conveyor technology modules can meet nearly any requirement for the transport and handling of piece goods. You can select from a range of multi-industry, standardised and modular conveyor systems, which can also be customised if required. These systems can be combined with rotary tables for buffering product and linear technology modules for precise, dynamic handling tasks.

Conveyor Systems

mk offers the right conveyor system for virtually every transported product and all operating conditions. Simply enter your specific parameters into the product filter on our website to display the suitable system.

Rotary Tables

Rotary tables are ideal for maintaining continuous material flows. Workpieces can be buffered, stored, staggered or separated between work steps.

Linear Technology

mk linear technology is the name for our portfolio of gliding assemblies, track roller assemblies and recirculating ball bearing guides that provide highly precise and reliable linear motion, and that are designed to meet your specific requirements.

Accessories

To round off our conveyor technology, mk offers a wide selection of drives, different stand options, various side rails, standardised and customised pallets, initiators, stoppers, control components and much more.

Conveyor Systems



Benefits of mk Conveyor Technology

- A large selection of standardised, modular conveyor systems for optimal function with any transported product and in any environment
- Maximum process reliability thanks to sophisticated technology, high-quality materials and purchased parts, and rapid delivery of spare parts worldwide
- Built from standard modules to achieve cost savings and short delivery times
- Expertise in designing and constructing custom conveyors outside our standard product range
- Flexibility ensured by compatibility with all mk construction kit components and modules
- mk sales engineers provide expert advice and assistance in designing your system
- mk QuickDesigner online configurator with CAD model and quotations

Rotary Tables



Linear Technology



Accessories



Selecting a Conveyor Type

1

Factors influencing the selection

Conveyed product

The conveyor is selected while taking into consideration the product weight, the distributed load, the overall load, the dimensions and the product transport position. Specific product properties such as temperature, sensitivity to shock, whether the product contains oil or has sharp edges also influence the selection.

Transport route

The most suitable conveyor system is determined based on whether the product is conveyed with a specified orientation (e.g. using a pallet) or without a particular order and whether it is conveyed straight, around a curve or onto another level. The transport output quantity (i.e. speed) also influences the selection.

Ambient conditions

When configuring a conveyor, we assume the usual ambient conditions in the production facility. That is, the application is indoors at temperatures of +10° to +60° C, in a clean environment with the usual humidity of 30 - 60% and there is no condensation or dripping water.

Low temperatures down to -20° C are possible on request. Ambient temperatures above 80° C are only briefly permissible for most plastics. Ambient temperatures higher than 150° C are only permissible for aluminium base structures after testing. However, the temperatures for contact between the product and transport medium of up to 200° C are possible when using steel chains.

Suitably adapted conveyors are available for applications in cleanrooms and sterile areas, for hygiene, food production or pharmaceutical specifications or for usage in harsh environmental conditions, potentially explosive atmospheres and painting applications.

Duty type: continuous, accumulating, fixed-cycle operation

The conveyor configuration ultimately depends on the duty type. In continuous operation, the conveyor and the product run without interruption. The goods to be conveyed are fed onto the running conveyor.

During accumulated operation, the conveyor continues to run below the accumulated product. For example, twice the motor power is required in this case.

If the conveyor is to be activated and deactivated up to four times per minute as required (e.g. to load parts or remove them manually), we refer to this as on/off operation. We also always recommend this to reduce wear if it is foreseeable that no action will occur for more than 30 seconds.

As a rule, the cycling operation is a fixed cycle that is repeated. If there are more than 30 cycles per minute, servo drives are usually required. Rates of more than 60 cycles per minute are available on request, but they require a detailed assessment of the application.

The specification of the repeatability and positioning accuracy to be achieved is important for cycle operation. Positioning accuracy in a range of ± 10 mm is possible with simple devices, such as initiators or light barriers. As a rule, the range of ± 5 mm requires a positive-locking drive and control with signal transducers. The range of ± 1 mm represents the transition to the linear technology.

Request/Order

Make it simple and use our QuickDesigner **online configurator** at

www.quickdesigner.com



see also page 16/17

or fill out one of our **request forms** that are available from

www.mk-group.com/service/download-center



Information for the request/order

- Conveyor system name
- Dimensions and weight of the goods to be conveyed
- Distributed load and overall load
- Conveyor length and width
- Drive version
- Drive location with motor orientation
- Speed
- Constant or controllable mode
- Controller type
- Duty type (continuous, accumulating, fixed-cycle)
- Tail (infeed end and discharge end)
- Belt, modular belt, chain, timing belt type
- Any cleats/side walls
- Stand version, including working height
- Side rail type
- Any other accessories

Your contact person



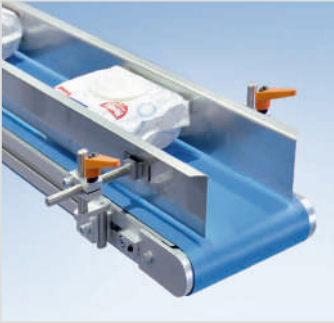
Naturally, our field team are also happy to assist you on site or by video conference, phone or e-mail.

www.mk-group.com/kontakt

Selecting a Conveyor Type

1 Belt Conveyors

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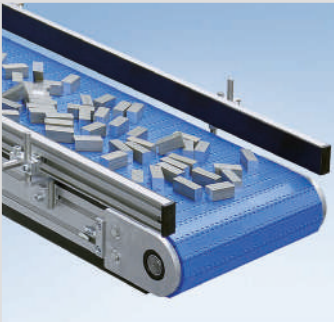


- For transporting piece goods without specific requirements regarding the product's position and orientation
- Closed belt surface for products with any product geometry
- Choose from a continuous range of different widths and lengths
- Belt runs quietly and with low wear, even at high speeds
- Large selection of belts for various products and applications, e.g. with product accumulation, suitable for food contact, antistatic, etc.
- Custom arrangement of transverse cleats and side walls

Widths [mm]	Lengths [mm]	Total load [kg]	Speed [m/min]	Double-line	Incline	Curves
50-2000	300-20000	up to 200 as standard	up to 80	yes	yes	yes

Modular Belt Conveyors

Page 108



- For transporting piece goods without specific requirements regarding the product's position, orientation or the product geometry
- Positive drive mechanism eliminates slippage and makes it suitable for wet applications; permeable chains also available
- Various robust chain materials to accommodate high temperatures, contact with chemicals or food
- Stable chain travel regardless of the length/width ratio
- Products can be moved diagonally
- A variety of track layouts, including curves, are possible with just one drive

Widths [mm]	Lengths [mm]	Total load [kg]	Speed [m/min]	Double-line	Incline	Curves
200-1000	400-10000	up to 250 as standard	up to 30	—	yes	yes

Timing Belt Conveyors

Page 152



- Ideal for the cycled transport of pallets or products with a rigid structure
- Precise positioning via positive drive mechanism
- Selection of various timing belts with surface coatings customised for the specific application
- High speeds and accelerations possible with quiet and smooth operation
- Suitable pallets, lift-and-transfer modules, stoppers, positioning units, rotating units and control components available

Widths [mm]	Lengths [mm]	Total load [kg]	Speed [m/min]	Double-line	Incline	Curves
40-2000	500-6000	up to 250 as standard	up to 60	yes	—	—

Chain Conveyors

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- Ideal as a dual or multiple line system for transporting pallets with heavy loads, including in accumulated operation
- Various chains and wear strips provide optimal support for the workpiece or pallet
- Suitable for dirty and oily environments
- Robust and temperature resistant
- Suitable pallets, lift-and-transfer modules, stoppers, positioning units, rotating units and control components available

Widths [mm]	Lengths [mm]	Total load [kg]	Speed [m/min]	Double-line	Incline	Curves
200-2000	500-10000	up to 1000 as standard	up to 30	yes	–	–

Flat Top Chain Conveyors

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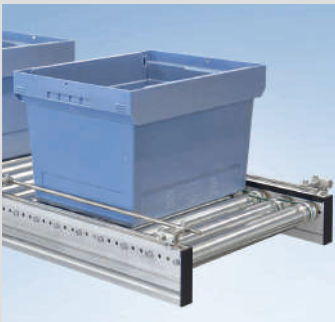


- Typically used for transporting bottles, cans or small containers in feeding and interlinking applications
- Complex, three-dimensional track layouts can be constructed with a single conveyor, eliminating joints and transitions
- Positive drive mechanism eliminates slippage and makes it suitable for wet applications
- Various chains (including stainless steel) are available depending on the application, e.g. use in the food industry, etc.
- Suitable for position-based transport using pallets

Widths [mm]	Lengths [mm]	Total load [kg]	Speed [m/min]	Double-line	Incline	Curves
45-300	600-30000	up to 200 as standard	Up to 60	Yes	Yes	Yes

Roller Conveyors

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- Rollers mounted on ball bearings for high loads with low drive power
- For transporting piece goods such as solid boxes or pallets with rigid, flat bases
- Various drive concepts (gravity, tangential chain drive or drive rollers) available for different applications
- Friction rollers allow for accumulated operation
- You can employ segmentation to implement different speeds or start/stop functions in a single conveying path
- Sturdy, affordable and easy to extend

Widths [mm]	Lengths [mm]	Total load [kg]	Speed [m/min]	Double-line	Incline	Curves
150-1050	200-10000	up to 400 as standard	up to 70	–	–	yes

Selecting a Drive

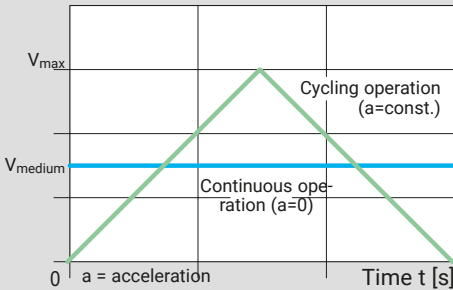
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Speed – continuous operation compared to cycling operation

The diagrams show the need for a higher maximum speed in cycling operation compared to continuous operation. In addition, they show an example of the course of a cycling operation with soft start-up and standstill for a different action (e.g. to process the conveyed product).

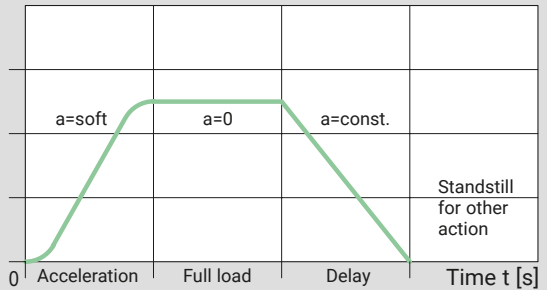
Continuous operation compared to cycling operation

Speed v [m/s]



Example of cycling operation

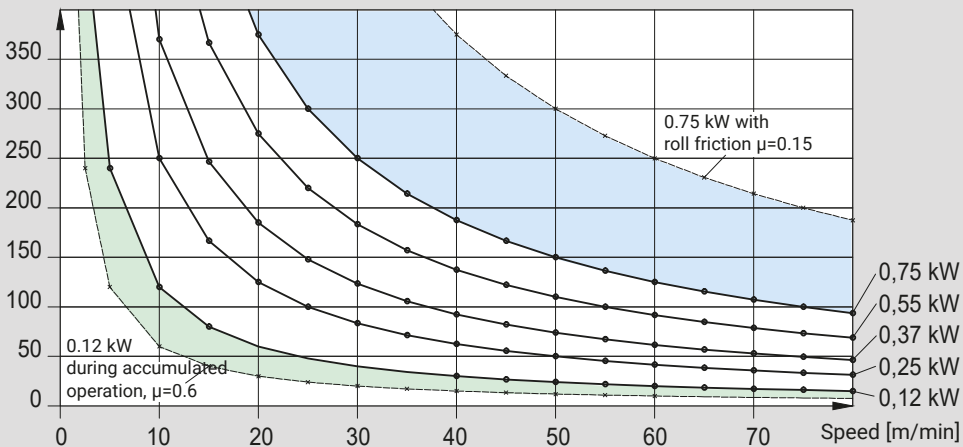
Speed v [m/s]



Selecting motors based on speed and load

This diagram can be used to determine the motor power required based on the total load (transported material + medium of transport) and the speed. The values shown correspond to a kinetic friction value of $\mu=0.3$, which is the friction between the belt and the underlying plate in a belt conveyor.

Total load m [kg]



Example of the effect on the permissible total load and speed when the friction coefficient is halved from a belt conveyor ($\mu=0.3$) to a roller conveyor ($\mu=0.15$)

Example of the effect on the permissible total load and speed when the friction coefficient is doubled from continuous operation ($\mu=0.3$) to accumulated operation ($\mu=0.6$)

Drive Location

The **head drive** is located on the discharge end of the conveyor and pulls the transport medium, e.g. the belt. This is the most common, safest and most affordable drive position. If you have location restrictions, you can also install a head drive on the infeed end for use as a rear drive (pushing). In this case, however, you must provide adequate pre-tension and prevent the transport medium from getting kinked.

Lower belt drives, which are also called centre drives, can be installed in various locations below the transport level. They enable limited, non-continuous reverse operation (reversible conveying direction), because the transport medium is constantly pulled, preventing problems that arise when the belt is pushed. You can achieve fixed installation lengths by selecting the design with a tensioning roller in the centre drive. Since two snub rollers are typically used, this drive is also known as an omega drive. A further benefit of this drive is the option to install knife edges on both the infeed and discharge ends for transferring small products.

Internal drives with a drum motor produce few obstructing edges, making them particularly popular for applications with limited installation space. They are also popular in clean environments, since they feature low particle emissions and have few surfaces on which dirt can deposit.

Drive Type

In the most commonly used **indirect drives**, force is transferred using a chain or timing belt. This additional option to adjust the transmission ratio allows you to achieve very fine speed increments and compensate for alignment errors. With servo and stepper motors, a timing belt can be used to dampen the abrupt, jerky starting behaviour.

With a **direct drive**, the motor is connected directly to the drive shaft, offering a compact and low-maintenance alternative.

Motor Selection

Our standard product range also includes a variety of different stock equipment motors from well-known manufacturers. These gearmotors, consisting of asynchronous AC motors as standard or DC motors, combined with a Spiroplan, helical-worm or helical gearbox, meet efficiency class 2 and IP 54. Custom motors, servomotors, UL-CSA approval and multi-range motors are also available as options.

From July 2021, a new EU ecological design requirement for electric motors will come into force that will result in a change to the dimensions of our standard motors. The motors will generally become slightly larger; the energy efficiency class is increased to IE 3 for this purpose.

Speeds

The maximum conveying speed depends on the motor selected, the load on the belt, the duty type and other influencing factors. The speeds provided here are nominal values and may deviate due to the speed tolerances of the motors from -10 % to +20 %. Higher speeds are also achieved when the system is operated on a 60 Hz grid, for example in the USA. If you need a precisely defined speed, this can be accomplished with a frequency inverter or reglomat.

Adjustment Ranges





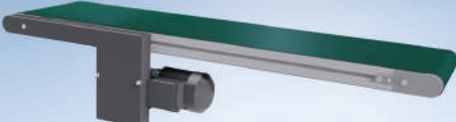


The frequency inverter allows you to control the conveyor speed within a range of 1:7 (10-70 Hz), assuming an alternating current and the nominal speed at 50 Hz. For internal drives (drum motors), the adjustment range is 1:3 (20-60 Hz). For direct current with the reglomat, the range is 1:6 (0.25-1.5 A or 0.5-3 A). See page 320.

Selecting a Drive

1

A – Head Drives

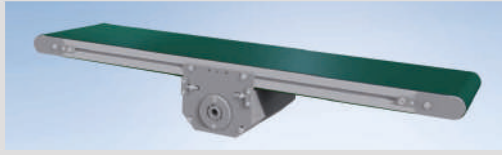


	<p>AA</p>	<p>Head drive without motor This drive version with an open drive journal can be connected to a conveyor with a motor for parallel operation</p>
	<p>AC</p>	<p>Standard head drive Drive version with a variety of combination options for motors, gearboxes and sprocket wheels</p>
	<p>AF</p>	<p>Direct head drive Compact and low-maintenance drive version with a motor that is fitted directly on the drive shaft</p>
	<p>AD AG</p>	<p>Head drive, compact Drive version with minimal interference contours thanks to small gear motor, available with direct current motor or three-phase motor</p>
	<p>AM</p>	<p>Head drive, offset Thanks to the variably configurable offset head drive, there are no interference contours at the discharge end of the conveyor</p>
	<p>AS</p>	<p>Head drive, laterally on the outside, compact A drive version restricted to a minimum total height with motor mounted on the outside</p>
	<p>AU</p>	<p>Head drive, laterally on the outside Since the motor is mounted laterally on the outside, the space underneath and above the conveyor remains free of interference contours</p>

B – Lower Belt Drives



1



BA

Lower belt drive without motor

Drive unit variably mounted underneath the conveyor, enables connection on a conveyor with motor for parallel operation



BC

Lower belt drive, standard

Possibility of limited reverse operation and configuration of knife edges, at both the infeed end and discharge end

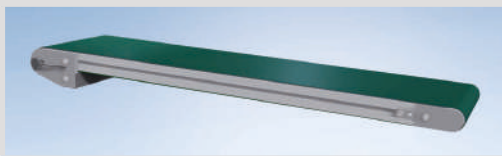


BF

Lower belt drive, direct

Compact and low-maintenance drive version with a motor that is fitted directly on the drive shaft

C – Internal Drives



CA

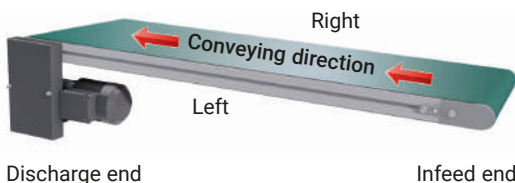
Drum motor

Maintenance-free and compact drive version without exterior interference contour with a drive version as a driving roll

The drive versions are shown on the belt conveyor in the example

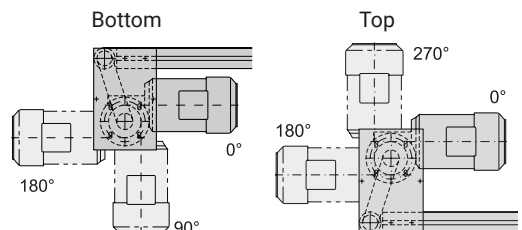
Drive Location

The drive location determines how and where the drive, including the motor, is installed. You can choose to position the drive on the infeed or discharge end, above or below the conveyor frame, on the left or on the right.



Motor Orientation

As shown in the figures, the motor orientation can vary between 0°, 90°, 180° and 270°. If the customer does not specify the drive location, the drive is delivered on the discharge end, on the left side, below the conveyor and with a motor orientation of 0°.

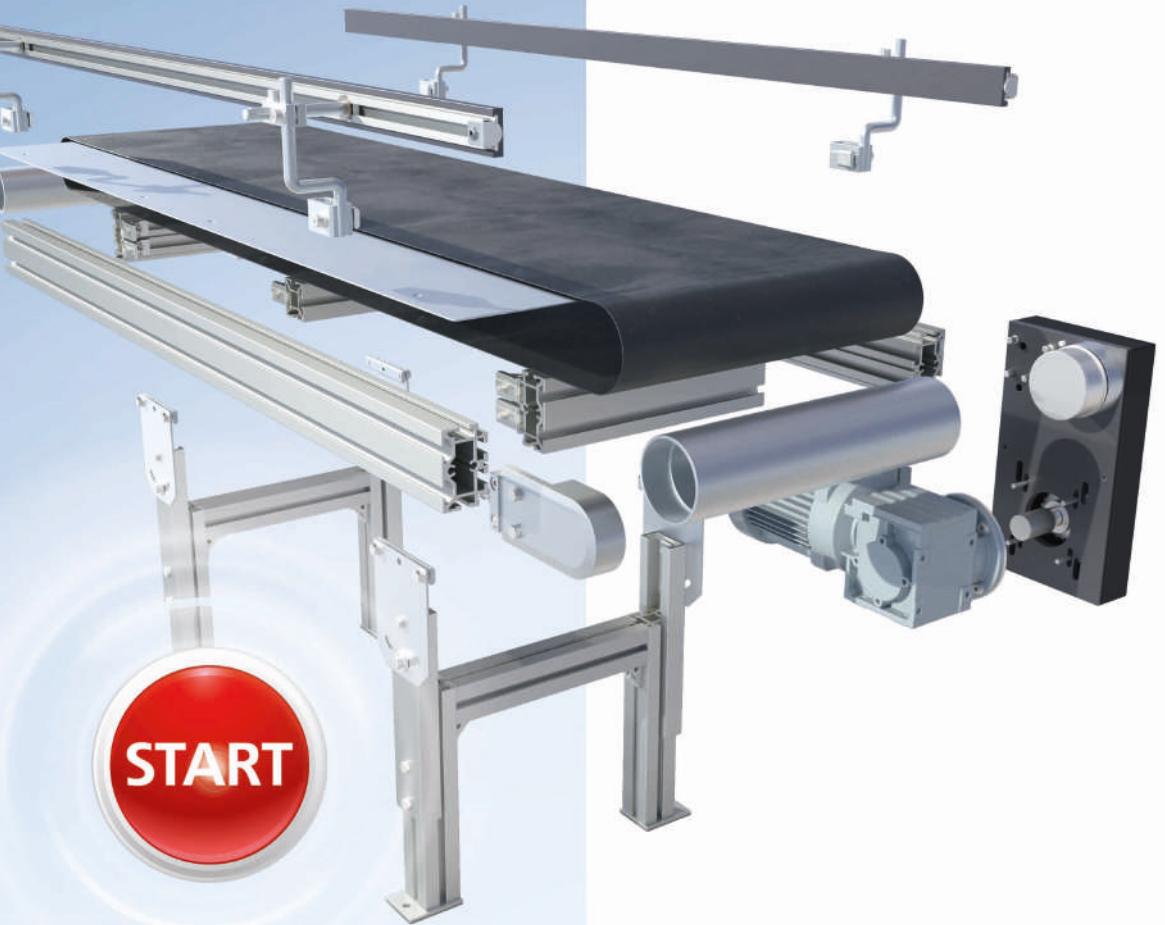


QuickDesigner – The Conveyor Technology Configurator

1

www.quickdesigner.com

» Your custom belt conveyor at the push of a button. «



Our "QuickDesigner" online configurator enables you to create a custom belt conveyor based on your exact requirements quickly and easily. You do not require any software; time-consuming installation is dispensed with.

Simply enter quickdesigner.com in your browser and that's it.

Your on-screen entries are checked for plausibility immediately, to ensure that you are always offered the optimal conveyor.

When your desired conveyor is complete, you can immediately generate a CAD model and a quote.

If you place an order, we have all the relevant data in the system, which makes the whole process, including the delivery, much quicker. Even if you require a special solution, we design it on the basis of the created standard model. A cost advantage for you.

Benefits of mk QuickDesigner

- Always the optimal conveyor for your application
- Get a 3D CAD model and quotation quickly and easily
- Available 24/7 online with secure data transfer
- Tailor-made adjustments based on the starting model



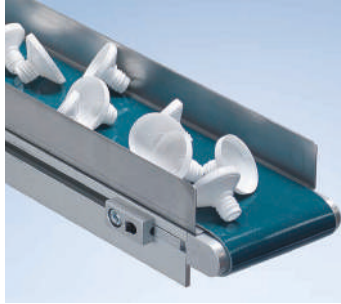
Chapter 2 Belt Conveyors

2



Selecting a Belt Conveyor

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Belt Conveyor GUF-P 2000

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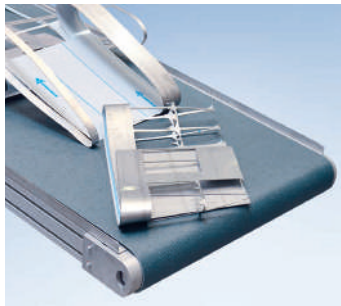
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Belt Conveyor GUF-P 2004

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Incline Conveyor Belt KFG-P 2000

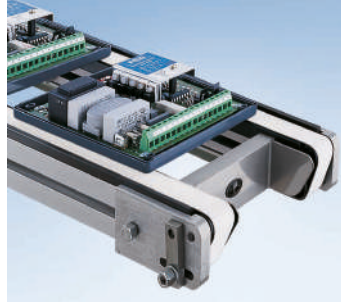
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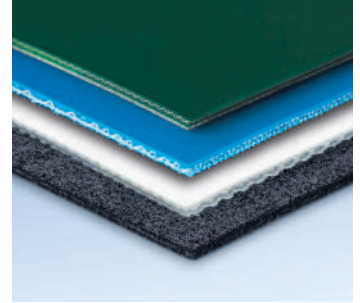
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100



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Selecting a Belt Conveyor

2

Dimensions – Technical Data

Conveyor system	Conveyor widths [mm]	Conveyor lengths [mm]	Total load* as standard, up to [kg]	Speed up to [m/min]	ø of tails [mm]	Reverse operation	Accumulated operation	Cycling operation
Belt conveyors								
GUF-P MINI	75/100/150	360-5000	25	50	22/32	•	•	•
GUF-P 2000	50-800	380-10000	75	80	10/12/19/53	•	•	•
GUF-P 2041	200-1200	525-10000	150	60	22/85	•	•	•
GUF-P 2004	200-2000	720-20000	200	60	105		•	•
Incline conveyor belt								
KFG-P 2000	300-700	1400-4000	40	15	53			•
Curved belt conveyor								
KGF-P 2040	300-600	90°/180°	30	30	19	•		
Double belt conveyor								
DGF-P 2001	100-250	300-2000	15	15	25		•	•

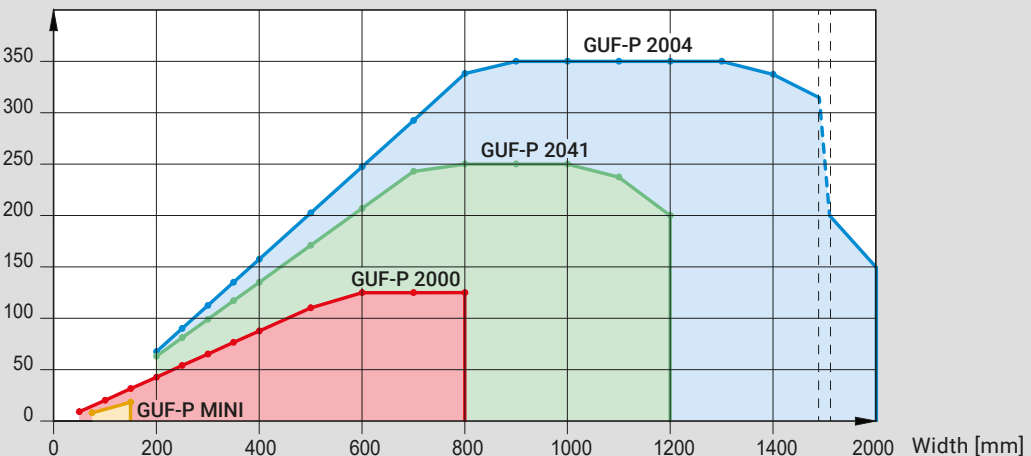
*Usual load limits that may be exceeded based on the configuration and influencing factors. Influencing factors for the load include: Width, roller diameter, belt type, pre-tension, load distribution, duty type and environmental conditions.

System Selection

... Based on Load and Conveyor Width

The diagram can be used as a basis for determining the permissible total load based on the conveyor width of each conveyor system. The values included apply to the max. tail diameter per system and a belt with a strength K1% of 5 to 8 N/mm.

Total load [kg]



Conveyor Width

The conveyor width is the width of the conveyor frame without the tails. The belt is narrower to allow for self-adjusting tracking, between 10 and 50 mm depending on the system.

Conveyor Length

The conveyor length is a nominal dimension and is defined as the outer distance of the head parts when the system is not tensioned. The actual conveyor length differs and is calculated based on the following nominal dimension (at an ambient temperature of approximately 20°):

- + 1 - 3.5 mm per side
(rollers protruding over head parts)
- ± 1 - 5 mm per side (belt thickness tolerance)
- ± 0.8% of the conveyor length (belt length tolerance)
- + 0.3% of the conveyor length (belt tension distance)

A precisely defined installation length can be implemented upon request, primarily with lower belt drives.

Length-Width Ratio

To ensure secure and stable tracking, belt conveyors with length-to-width ratios of 1:1 to 50:1 can be provided.

Length to width of 1:1 to 1.5:1

Area with restrictions and with additional design measures, e.g. lengthwise fence.

Length to width of 1.5:1 to 2:1

Area, without restrictions in most cases, but with a need for a design test.

Length to width of 2:1 to 20:1

Area without restrictions.

Length to width of 20:1 to 50:1

Area only with laterally stiff belts and without the presence of lateral forces. Lateral forces occur, for example, when there is lateral movement, lateral product discharge, lateral product transfer, lateral product alignment using a side rail and asymmetric load distribution.

Speed

The maximum conveying speed depends on the motor selected, the load capacity, the operating mode and other factors.

With an indirect chain drive with a \varnothing 53 mm roller, a speed of up to 80 m/min is possible. The selection of a timing belt for force transmission is recommended for 30 m/min or higher, and is standard for 60 m/min or higher and cycling operation. Higher speeds and dynamic balancing possible on request.

For high speeds, it is sensible to choose large driving rolls (e.g. for 80 m/min with the GUF-P 2000, a BC drive with a \varnothing 88 mm roller).

Adjustment Ranges

The mk reglomat lets you control the conveyor speed within a range of 1:7 (10-70 Hz), assuming an alternating current and the nominal speed at 50 Hz. For internal drives (drum motors), the adjustment range is 1:3 (20-60 Hz). With direct current, the range is 1:6 (0.25-1.5 A or 0.5-3 A) see page 320.

Belt Conveyor GUF-P MINI

2



» Transport and separate small products with low volume and weight. «



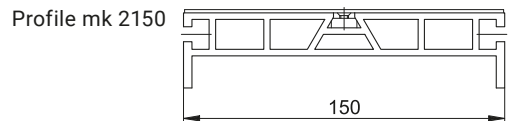
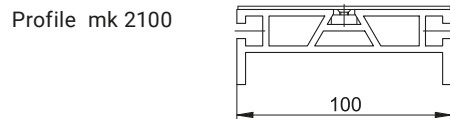
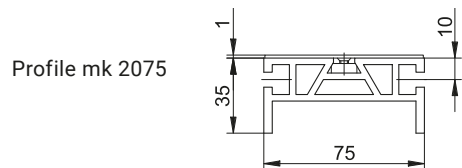
Benefits of the GUF-P MINI

- Transport and separate small products with low volume and weight
- Very low installation height for easy integration into complex systems
- Belt recirculation integrated into the conveyor frame to permit placement directly on the machine bed
- Very small tail diameters keep gaps at product transfer points narrow
- Wide variety of drive units and belt designs to suit any application
- Profile design provides a torsion-resistant structure and good load-bearing properties
- Flexible operation in reverse, accumulated and cycling mode

The low installation height and the lower side walls for placing the conveyor directly onto the machine bed are ideal for the direct discharge of light and small products (from an injection moulding machine, for instance). The small tail diameters prevent large gaps during product transfer. The profile design ensures a torsion-resistant structure with good load-bearing properties. The values for the total load, speeds, and so on, specified below are directly related to this design and may vary as a result.

The driving rolls of the various drive versions can be rubberised to suit the application, so that motor torque can be optimally transmitted. Crowned driving and idler rollers simplify belt adjustment and help the belt to run in the centre of the conveyor frame. A stainless steel sheet is mounted under the running surface of the belt to ensure sustained wear resistance. The conveyor frame keys ensure that the belt returns within the conveyor frame.

Cross Section



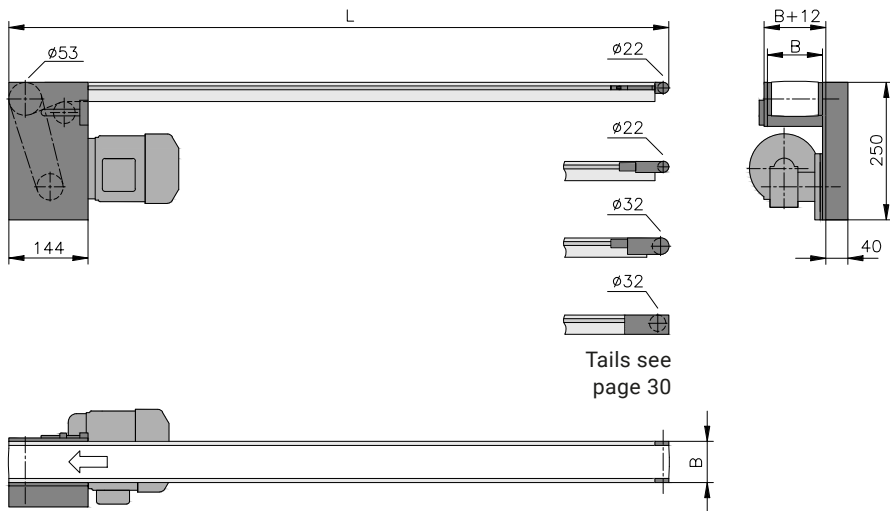


AC – Standard head drive

B20.75.001

The compact conveyor frame design with the most popular drive options makes it easier to integrate the conveyor into existing systems. The $\varnothing 53$ mm driving roll combined with the snub roller ensures excellent transmission of the motor power. Operation with cleated belts is not possible with this version.

2



Technical data

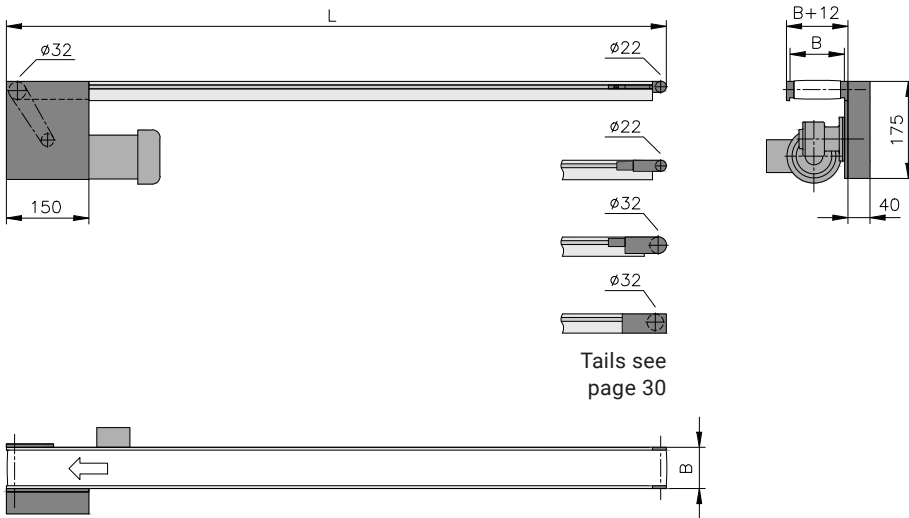
Conveyor length L	individual from 360 to 5000 mm	
Conveyor width B	75 mm, 100 mm and 150 mm	others on request
Belt width	B-15 mm	from p. 100
Drive location	discharge end left/right, underneath; infeed end on request	
Drive and speed	up to $v=60$ m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 25 kg	p. 20
Standard distributed load	up to 10 kg/m	

AD – Head drive, compact

B20.75.033

2

The compact conveyor frame design and drive makes it easier to integrate the conveyor into existing systems. Without a snub roller, the $\varnothing 32$ mm driving roll enables the use of cleated belts. In comparison to the drive version AC, the drive is once again much more compact.



Technical data

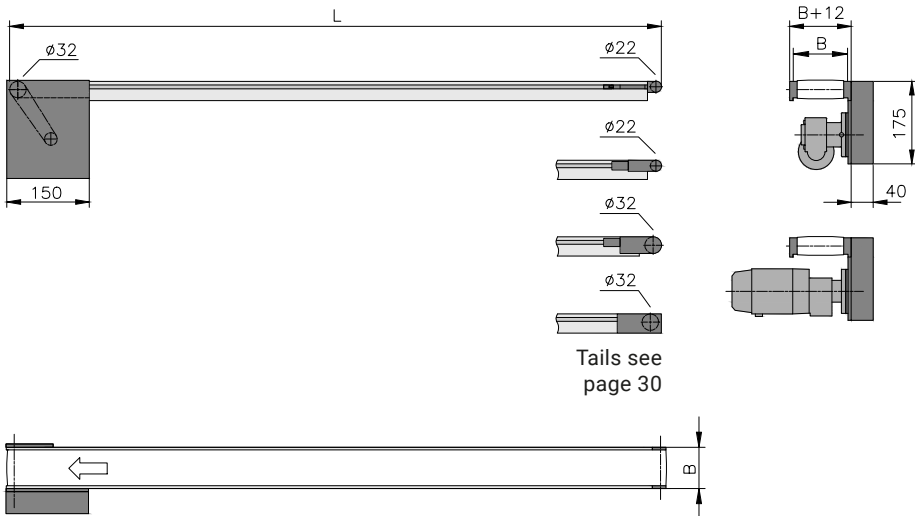
Conveyor length L	individual from 370 to 5000 mm	
Conveyor width B	75 mm, 100 mm and 150 mm	others on request
Belt width	B-15 mm	from p. 100
Drive location	discharge end left/right, underneath; infeed end on request	
Drive and speed	up to $v=15$ m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 15 kg	p. 20
Standard distributed load	up to 10 kg/m	p. 20



AG – Head drive, compact

B20.75.004

The AG drive is designed with DC motors. The compact conveyor frame design and drive makes it easier to integrate the conveyor into existing systems. Without a snub roller, the $\phi 32$ mm driving roll enables the use of cleated belts. In comparison to the drive version AC, the drive is once again much more compact.



Technical data

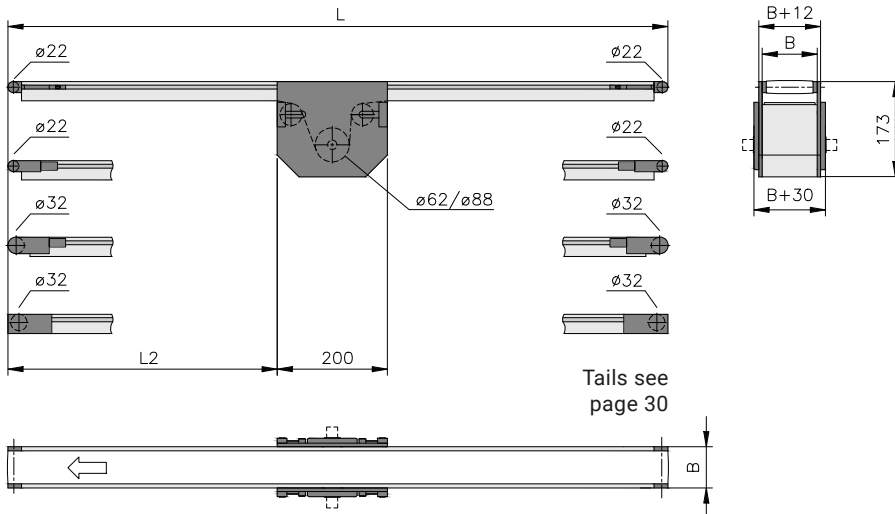
Conveyor length L	individual from 370 to 5000 mm	
Conveyor width B	75 mm, 100 mm and 150 mm	others on request
Belt width	B-15 mm	from p. 100
Drive location	discharge end left/right, underneath; infeed end on request	
Drive and speed	up to $v=15$ m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 15 kg	p. 20
Standard distributed load	up to 10 kg/m	p. 20

BA – Lower belt drive without motor

B20.75.030

2

The BA version with no motor is suitable for parallel connection to an existing conveyor with a drive. This allows you to operate multiple conveyors with only one motor. The compact conveyor frame design and the ability to freely select the drive position over the entire length of the conveyor make it easier to integrate the conveyor into existing systems. Limited reverse operation is available on request. Operation with cleated belts is not possible with this version. The driving roll has a hollow shaft design with $\varnothing 20$ mm with keyway in accordance with DIN 6885.



Technical data

Conveyor length L	individual from 550 to 5000 mm	
Conveyor width B	75 mm, 100 mm and 150 mm	others on request
Belt width	B-15 mm	from p. 100
Drive and speed	up to $v=60$ m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 25 kg	p. 20
Standard distributed load	up to 10 kg/m	p. 20

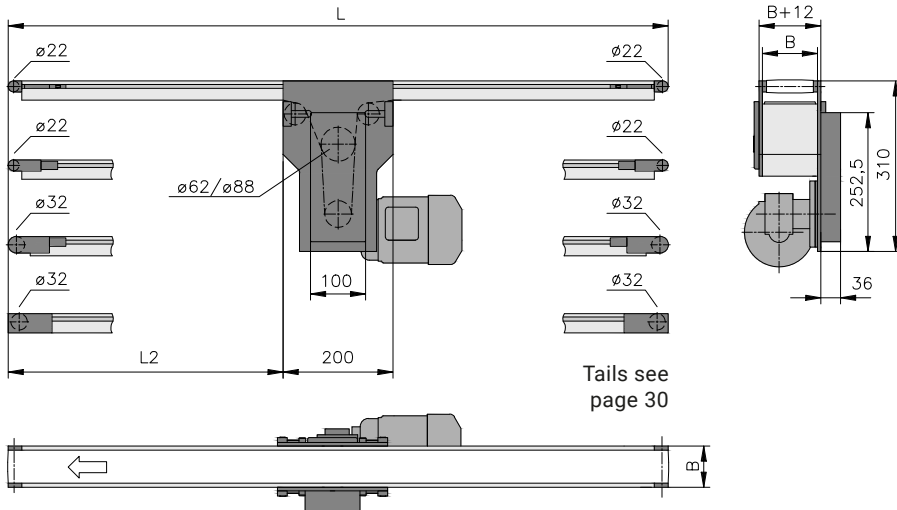


BC – Lower belt drive, standard

B20.75.005

The compact conveyor frame design and the ability to freely select the drive position over the entire length of the conveyor make it easier to integrate the conveyor into existing systems. Limited reverse operation is available on request. Operation with cleated belts is not possible with this version.

2



Technical data

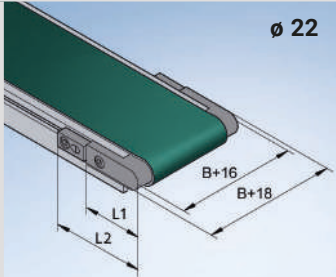
Conveyor length L	individual from 550 to 5000 mm	
Conveyor width B	75 mm, 100 mm and 150 mm	others on request
Belt width	B-15 mm	from p. 100
Drive location	left/right underneath	
Drive and speed	up to $v=60$ m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 25 kg	p. 20
Standard distributed load	up to 10 kg/m	p. 20

GUF-P MINI Tails

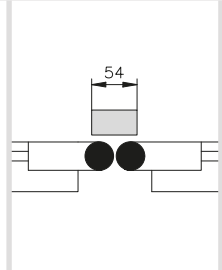
2

Tail 01

B80.01.006



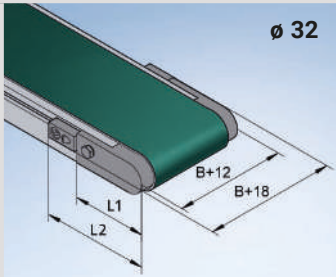
- Crowned roller, $\varnothing 22$ mm
- Ball bearing 2RS1
- Belt tensioning and adjustment on the side using the tensioning elements
- Min. length of the conveyed product for transfer of 54 mm
- Note the min. bend radius for the desired belt



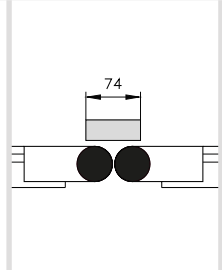
Conveyor length L	Conveyor width B	L1	L2	Head part material
$\leq 2,000$ mm	≤ 150 mm	60 mm	90 mm	Aluminium
$> 2,000$ mm	≤ 150 mm	100 mm	130 mm	Aluminium

Tail 03

B80.01.001



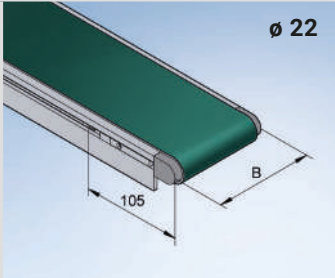
- Crowned roller, $\varnothing 32$ mm
- Ball bearing 2RS1
- Belt tensioning and adjustment on the side using the tensioning elements
- Min. length of the conveyed product for transfer of 74 mm
- Note the min. bend radius for the desired belt
- Optional laterally flush $\varnothing 32$ tail also available



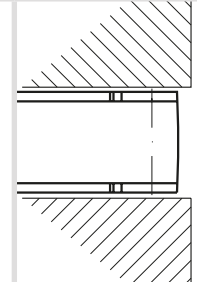
Conveyor length L	Conveyor width B	L1	L2	Head part material
$\leq 2,000$ mm	≤ 150 mm	75 mm	105 mm	Aluminium
$> 2,000$ mm	≤ 150 mm	115 mm	145 mm	Aluminium

Tail 11

B80.01.007



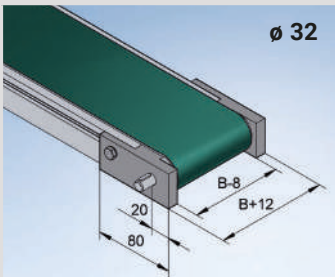
- Crowned roller, \varnothing 22 mm
- Ball bearing 2RS1
- Belt tensioning and adjustment on the side using the tensioning elements (approx. 25 mm of clearance required on each side)
- Min. length of the conveyed product for transfer of 54 mm
- Note the min. bend radius for the desired belt
- Flush head parts



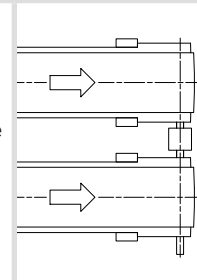
Conveyor length L	Conveyor width B	L1	L2	Head part material
$\leq 5,000$ mm	≤ 150 mm	105 mm	–	Aluminium

Tail 19

B80.01.004



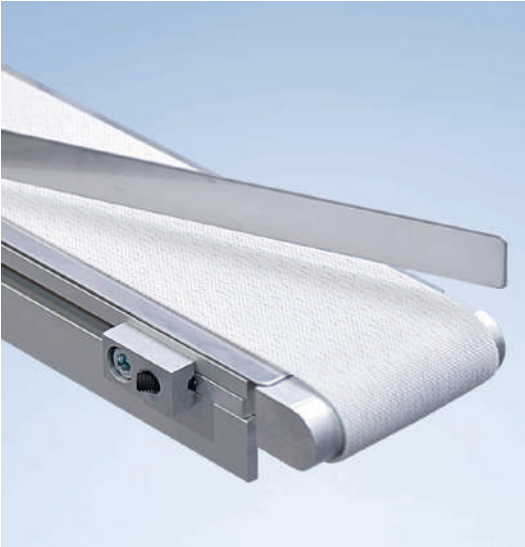
- Crowned roller, \varnothing 32 mm
- Ball bearing 2RS1
- \varnothing 10 mm shaft journal, length of 15 mm, keyway in accordance with DIN 6885
- Connection of two conveying lines through one drive (right, left or on both sides)
- Min. length of the conveyed product for transfer of 74 mm
- Note the min. bend radius for the desired belt
- Protruding head part (conveyor length L+5 mm)



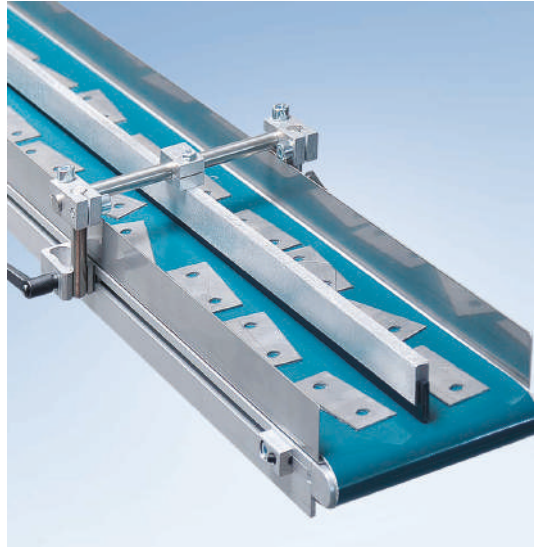
Conveyor length L	Conveyor width B	L1	L2	Head part material
$\leq 2,000$ mm	≤ 150 mm	80 mm	–	Aluminium

Application Examples GUF-P MINI

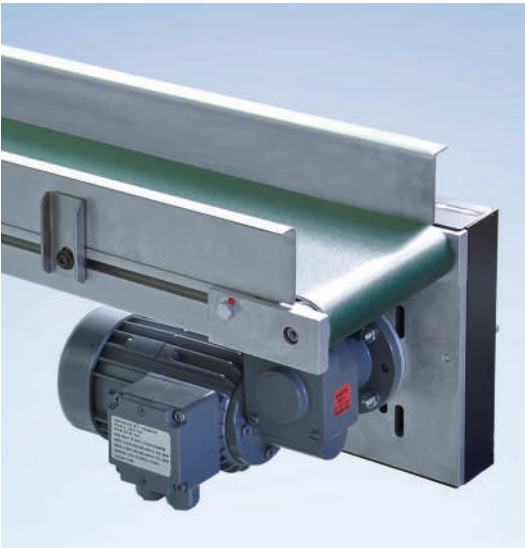
2



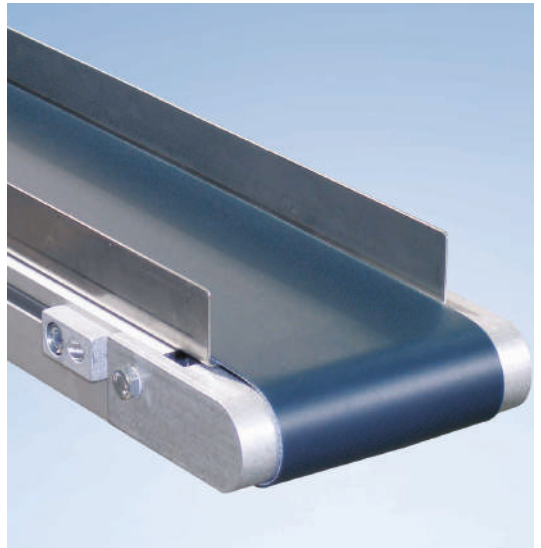
Belt conveyor GUF-P MINI with 11 \varnothing 22 tail and diverter plate



Belt conveyor GUF-P MINI with 11 \varnothing 22 tail and side rail SF1.3 with central lane separation



Belt conveyor GUF-P MINI with 19 \varnothing 32 tail and head drive AD



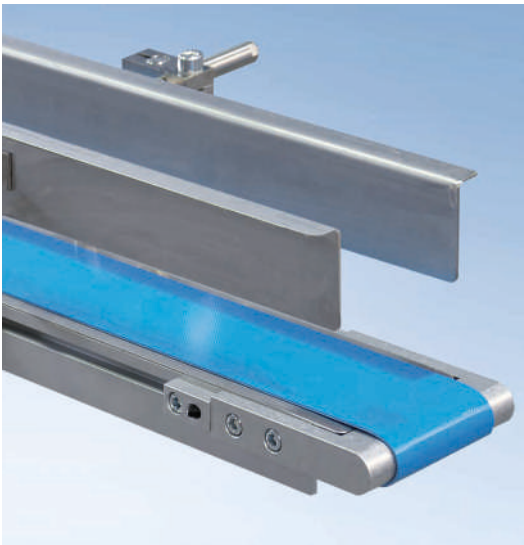
Belt conveyor GUF-P MINI with 03 \varnothing 32 tail and side rail SF1.3



Belt conveyor GUF-P MINI with 11 \varnothing 22 tail and side rail SF02 and additional retaining sheet




Belt conveyor GUF-P MINI with 11 \varnothing 22 tail and side rail SF1.3



Belt conveyor GUF-P MINI with 01 \varnothing 22 tail and side rail SF03



Belt conveyor GUF-P MINI with 03 \varnothing 32 tail and lower belt drive BC

 Custom applications
 from page 408

Belt Conveyor GUF-P 2000

2

» The all-around conveyor with the maximum number of options. «



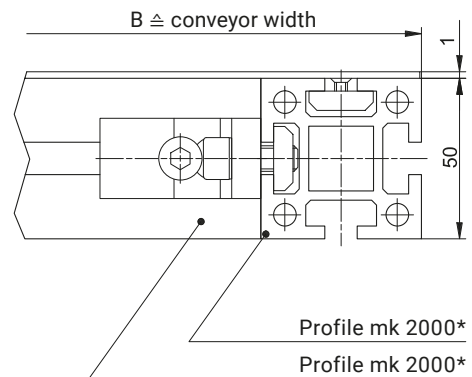
Benefits of the GUF-P 2000

- Wide range of different drives, tails, stands and belt types
- Built with the profile mk 2000 for a high load capacity and torsion-resistant structure
- Optionally available with a stationary or rolling knife edge
- Flexible operation in reverse, accumulated and cycling mode
- Very short delivery times

The combination of standard parts based on the profile mk 2000 results in a conveyor system that allows for the widest possible range of drives and tails and extremely short delivery times. Despite its low height of 50 mm and the \varnothing 53 mm driving roll, which can be coated with rubber according to the application, the conveyor offers a wide range of different belt types. As with all mk belt conveyor systems, the crowned roller of the driving and idler rollers make belt adjustment significantly easier.

T-slots running along both sides (10 mm slot width based on our profile technology) allow you to easily integrate the conveyors into existing machine frames or attach stands, side rails and other accessories. A further quality feature of this conveyor system is the stainless steel sheet installed below where the belt runs, which ensures long-term wear resistance of the belt. In addition to our wide selection of side rails and stands, we also offer a standard range of end stops and electrical accessories.

Cross Section



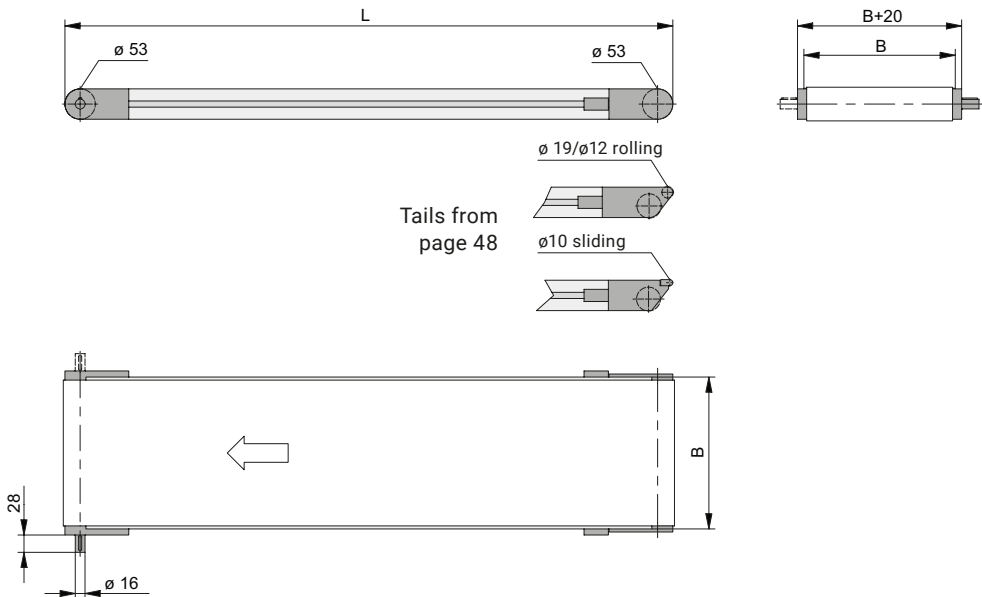
* For conveyor widths 75, 100, 150, 200 and 250 mm, custom profiles are used

AA – Head drive without motor

B20.00.030

2

The AA version with no motor is suitable for connection to an existing conveyor with a drive, either in parallel or in series. This allows you to operate multiple conveyors with only one motor. The compact conveyor frame design makes it easier to integrate the conveyor into existing systems. The driving roll $\varnothing 53$ mm has a crowned roller for simple belt control. Operation with cleated belts is possible with this version. The $\varnothing 16$ mm shaft journal is designed with a DIN 6885 key.



Technical data

Conveyor length L	individual from 380 to 10000 mm	
Conveyor width B	50, 75, 100, 150, 200, 250, 300, 400, 500, 600, 700, 800 mm	others on request
Belt width	B-10 mm	from p. 100
Drive and speed	up to $v=80$ m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 75 kg	p. 20
Standard distributed load	up to 25 kg/m	p. 20

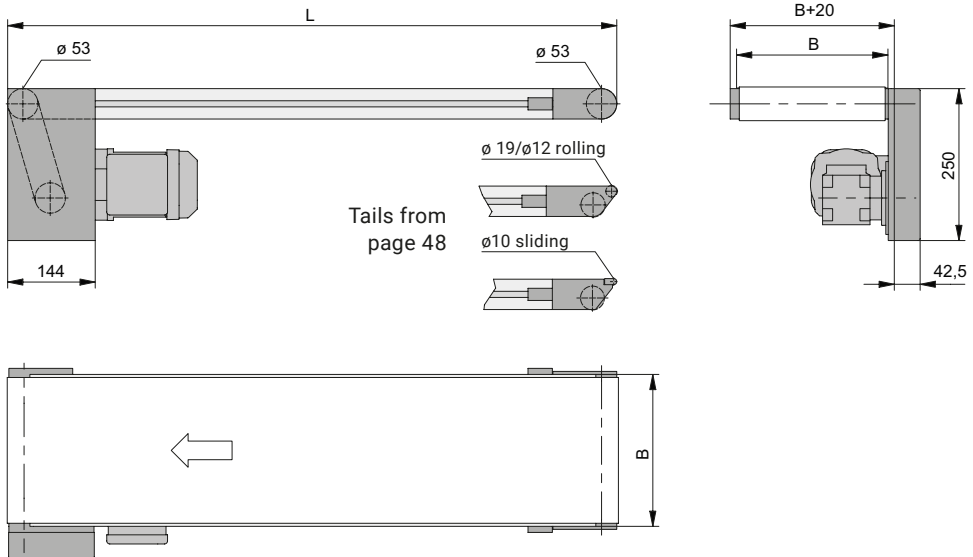


AC – Standard head drive

B20.00.031

The compact conveyor frame design with the most popular drive options makes it easier to integrate the conveyor into existing systems. The $\varnothing 53$ mm driving roller ensures excellent transmission of the motor power. Operation with cleated belts is possible with this version.

2



Technical data

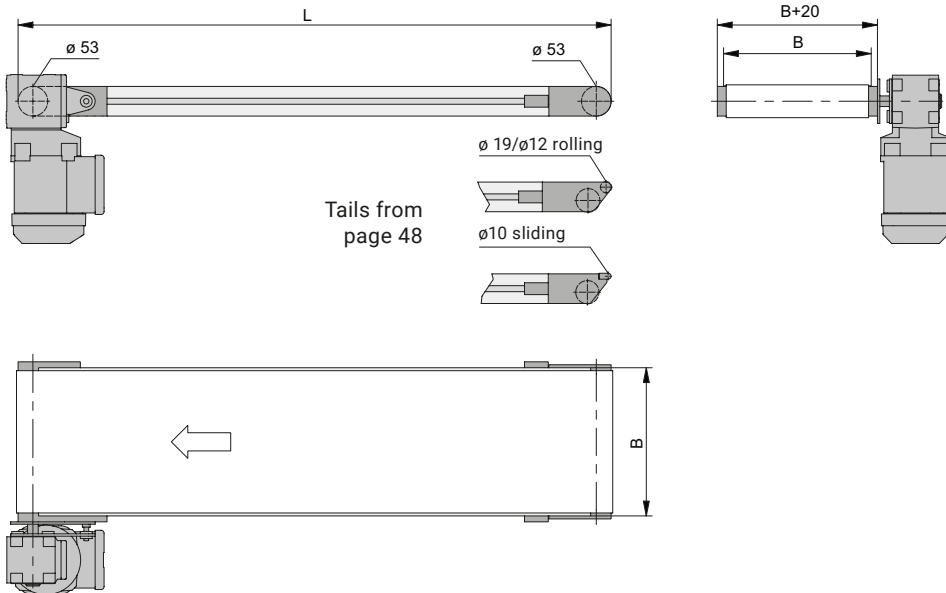
Conveyor length L	individual from 410 to 10000 mm	
Conveyor width B	50, 75, 100, 150, 200, 250, 300, 400, 500, 600, 700, 800 mm	others on request
Belt width	B-10 mm	from p. 100
Drive location	discharge end left/right, underneath/above; infeed end on request	
Drive and speed	up to $v=80$ m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 75 kg	p. 20
Standard distributed load	up to 25 kg/m	p. 20

AF – Direct head drive

B20.00.032

2

Since the motor is fitted directly onto the drive shaft, the space requirements and maintenance effort for this drive version are reduced to a minimum.



Technical data

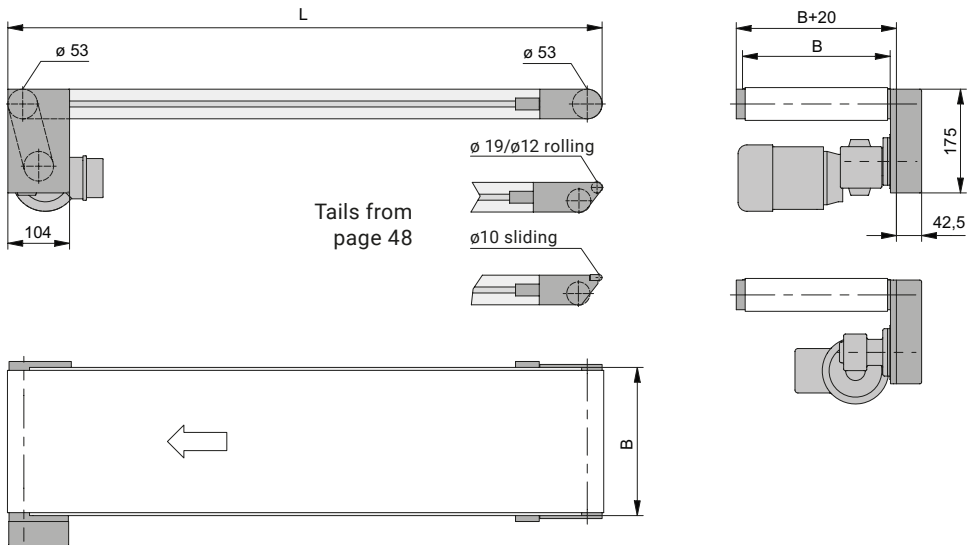
Conveyor length L	individual from 410 to 10000 mm	
Conveyor width B	50, 75, 100, 150, 200, 250, 300, 400, 500, 600, 700, 800 mm	others on request
Belt width	B-10 mm	from p. 100
Drive location	discharge end left/right; infeed end on request	
Drive and speed	3.0; 3.8; 4.8; 5.8; 7.0; 8.3; 9.3; 11.8; 14.0 and 16.0 m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 30 kg	p. 20
Standard distributed load	up to 25 kg/m	p. 20



AG – Head drive, compact

B20.00.033

The compact drive version AG for small gearmotors (direct current or three-phase motors) has fewer interfering edges in comparison to the AC drive version thanks to the gearbox type used. The compact conveyor frame design makes it easier to integrate the conveyor into existing systems. Without a snub roller, the $\varnothing 53$ mm driving roller enables the use of cleated belts. In comparison to the drive version AC, the dimensions of the drive are much more compact.



Technical data

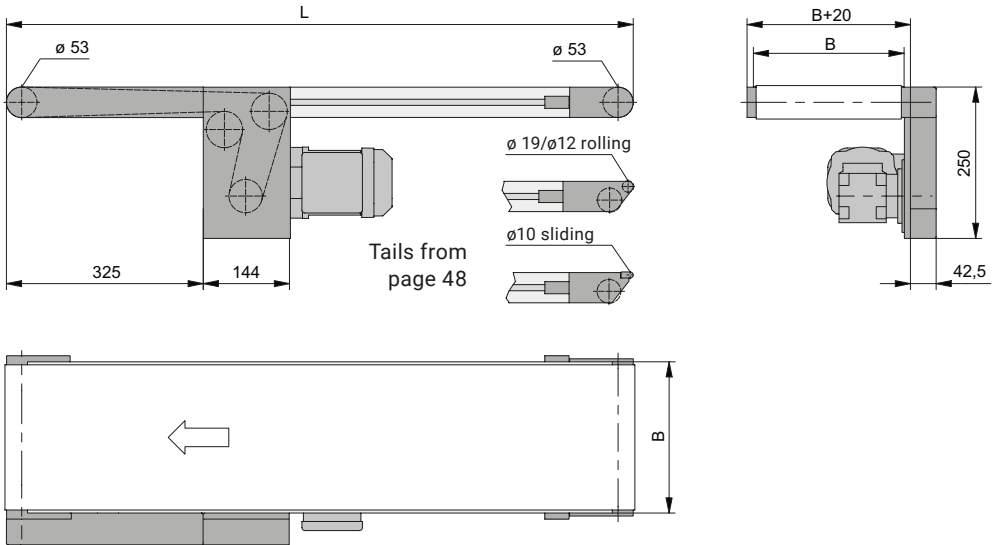
Conveyor length L	individual from 380 to 6000 mm	
Conveyor width B	50, 75, 100, 150, 200, 250, 300, 400, 500, 600, 700, 800 mm	others on request
Belt width	B-10 mm	from p. 100
Drive location	discharge end left/right, underneath/above	
Drive and speed	up to $v=15$ m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 30 kg AC/15 kg DC	p. 20
Standard distributed load	up to 25 kg/m	p. 20

AM – Head drive, offset

B20.00.034

2

The compact conveyor frame design with the offset head drive makes it easier to integrate the conveyor into existing systems. The $\varnothing 53$ mm driving roller ensures excellent transmission of the motor power. Operation with cleated belts is possible with this version.



Technical data

Conveyor length L	individual from 750 to 10000 mm	
Conveyor width B	50, 75, 100, 150, 200, 250, 300, 400, 500, 600, 700, 800 mm	others on request
Belt width	B-10 mm	from p. 100
Drive location	discharge end left/right, underneath; infeed end on request	
Drive and speed	up to $v=80$ m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 75 kg	p. 20
Standard distributed load	up to 25 kg/m	p. 20

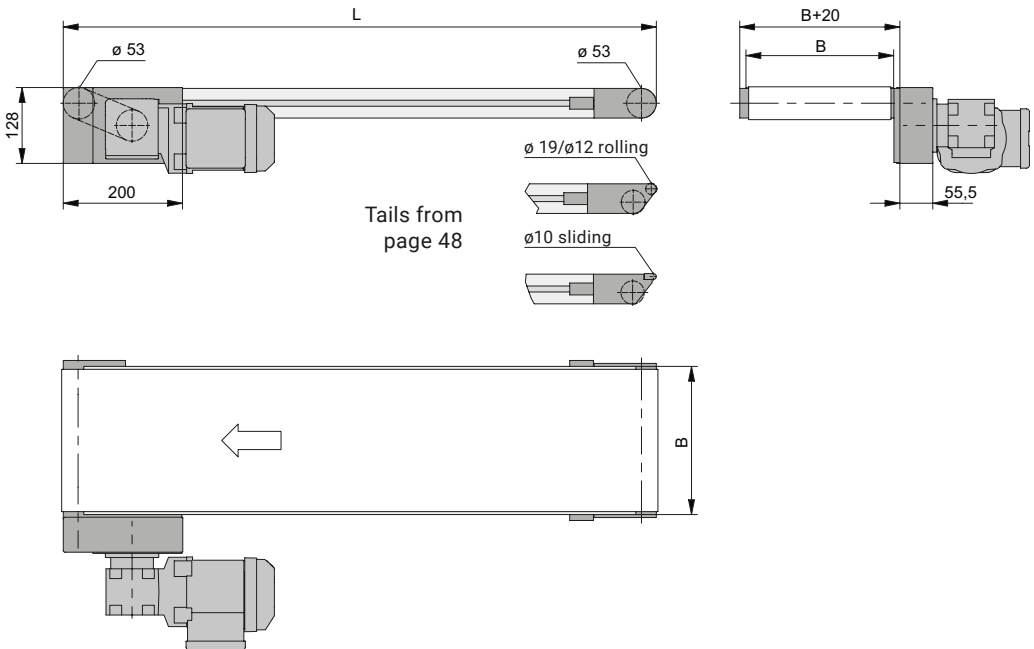


AS – Head drive, laterally on the outside, compact

B20.00.035

The drive located laterally on the outside allows the total height of the conveyor to be restricted to a minimum. The $\varnothing 53$ mm driving roller ensures excellent transmission of the motor power. Operation with cleated belts is possible with this version.

2



Technical data

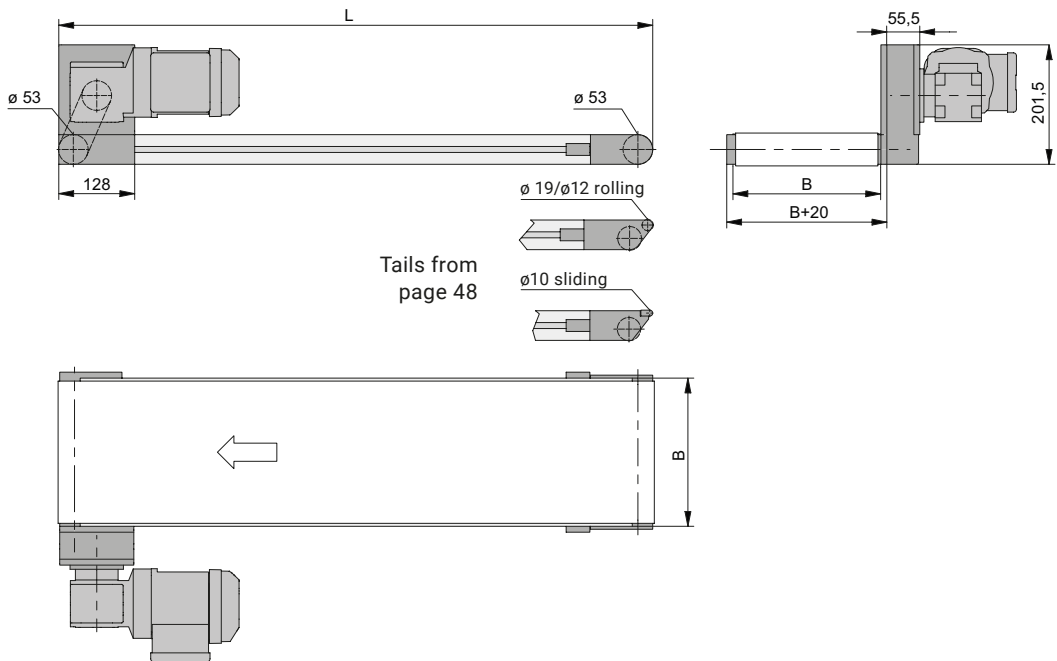
Conveyor length L	individual from 550 to 10000 mm	
Conveyor width B	50, 75, 100, 150, 200, 250, 300, 400, 500, 600, 700, 800 mm	others on request
Belt width	B-10 mm	from p. 100
Drive location	discharge end left/right; infeed end on request	
Drive and speed	up to $v=80$ m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 75 kg	p. 20
Standard distributed load	up to 25 kg/m	p. 20

AU – Head drive, laterally on the outside

B20.00.036

2

The advantage of the drive version AU is that the motor is fitted on the outside of the conveyor belt, which protects it from dirt. This drive version can transport even very tall products with ease. The $\varnothing 53$ mm driving roller ensures excellent transmission of the motor power. Operation with cleated belts is possible with this version.



Technical data

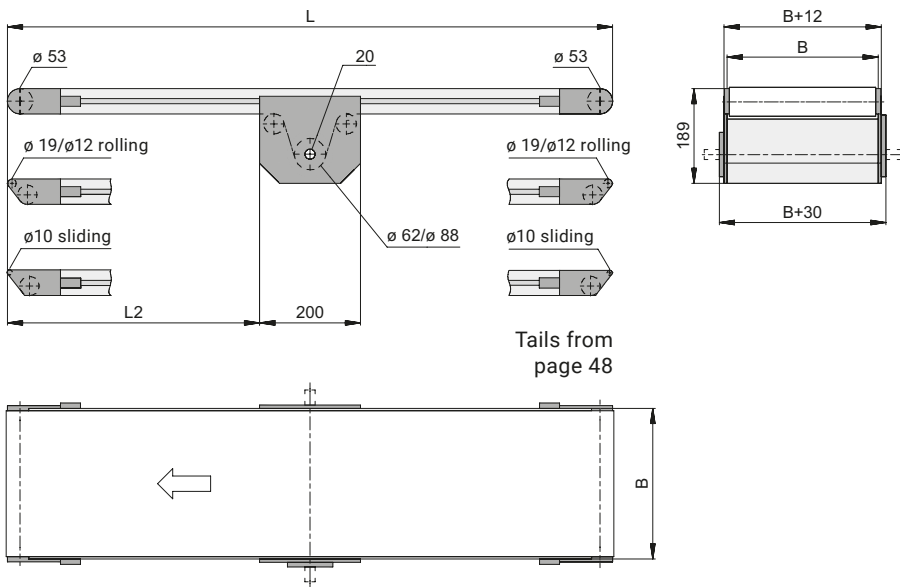
Conveyor length L	individual from 430 to 10000 mm	
Conveyor width B	50, 75, 100, 150, 200, 250, 300, 400, 500, 600, 700, 800 mm	others on request
Belt width	B-10 mm	from p. 100
Drive location	discharge end left/right, underneath/above; infeed end on request	
Drive and speed	up to $v=80$ m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 75 kg	p. 20
Standard distributed load	up to 25 kg/m	p. 20



BA – Lower belt drive without motor

B20.00.001

The BA version with no motor is suitable for parallel connection to an existing conveyor with a drive. This allows you to operate multiple conveyors with only one motor. The compact conveyor frame design and the ability to freely select the drive position over the entire length of the conveyor make it easier to integrate the conveyor into existing systems. Limited reverse operation is available on request. Knife edges can be configured on both the infeed and discharge end. Operation with cleated belts is not possible with this version. The driving roller has a hollow shaft design with $\varnothing 20$ mm with keyway in accordance with DIN 6885.



Technical data

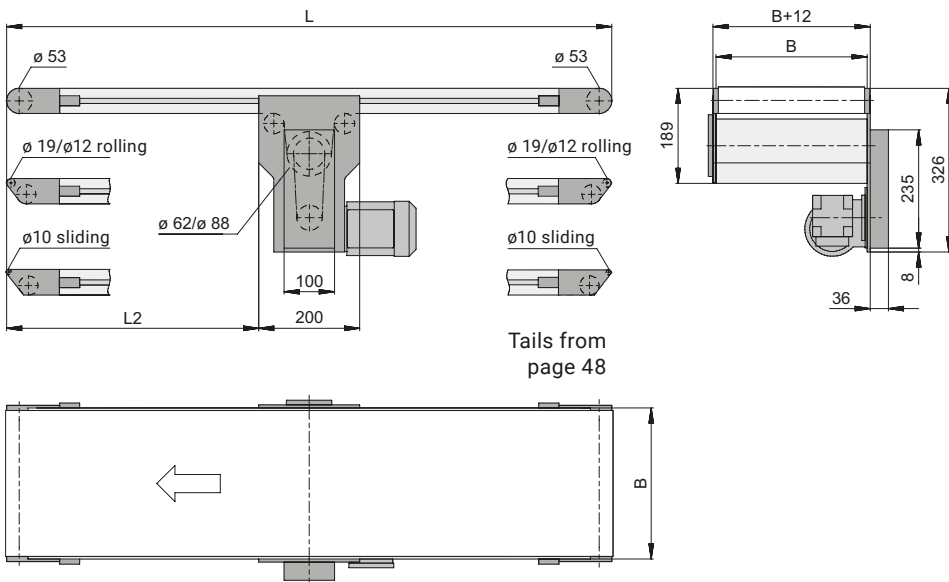
Conveyor length L	individual from 700 to 10000 mm	
Conveyor width B	50, 75, 100, 150, 200, 250, 300, 400, 500, 600, 700, 800 mm	others on request
Belt width	B-10 mm	from p. 100
Drive and speed	up to $v=80$ m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 75 kg	p. 20
Standard distributed load	up to 25 kg/m	p. 20

BC – Lower belt drive, standard

B20.00.004

2

The compact conveyor frame design and the ability to freely select the drive position over the entire length of the conveyor make it easier to integrate the conveyor into existing systems. Limited reverse operation is available on request. Knife edges can be configured on both the infeed and discharge end. Operation with cleated belts is not possible with this version.



Technical data

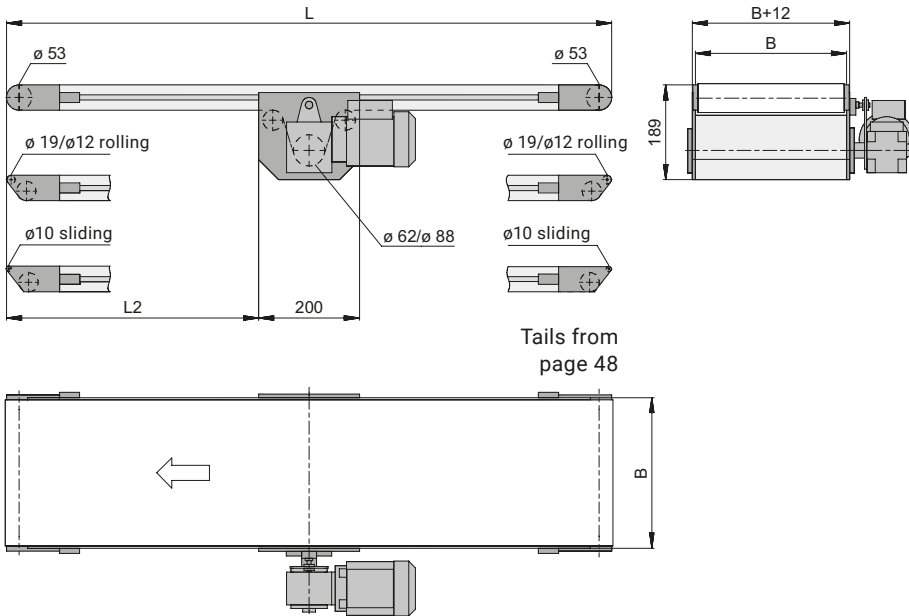
Conveyor length L	individual from 700 to 10000 mm	
Conveyor width B	50, 75, 100, 150, 200, 250, 300, 400, 500, 600, 700, 800 mm	others on request
Belt width	B-10 mm	from p. 100
Drive location	left/right underneath	
Drive and speed	up to v=80 m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 75 kg	p. 20
Standard distributed load	up to 25 kg/m	p. 20



BF – Lower belt drive, direct

B20.00.012

Since the motor is fitted directly onto the drive shaft, the space requirements and maintenance effort for this drive version are reduced to a minimum. The compact conveyor frame design and the ability to freely select the drive position over the entire length of the conveyor make it easier to integrate the conveyor into existing systems. Limited reverse operation is available on request. Knife edges can be configured on both the infeed and discharge end. Operation with cleated belts is not possible with this version.



Technical data

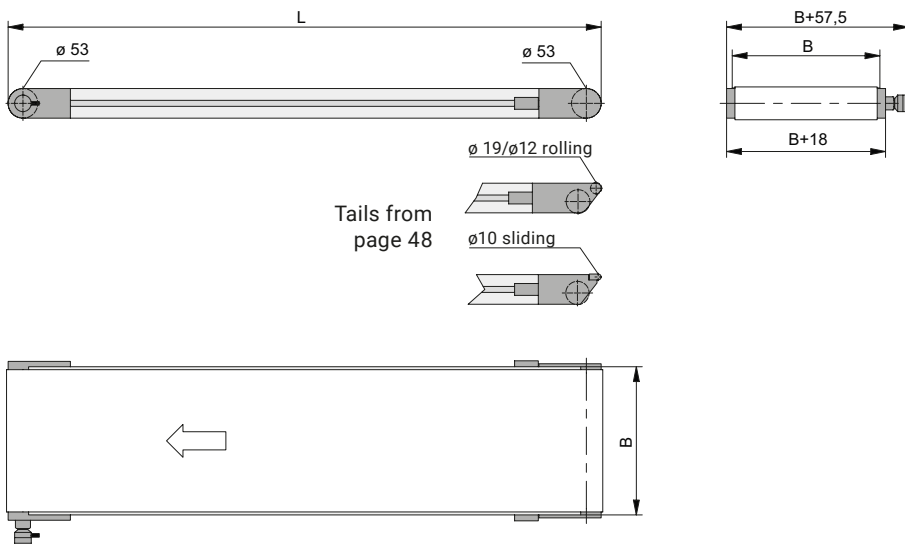
Conveyor length L	individual from 700 to 10000 mm	
Conveyor width B	50, 75, 100, 150, 200, 250, 300, 400, 500, 600, 700, 800 mm	others on request
Belt width	B-10 mm	from p. 100
Drive location	left/right underneath	
Drive and speed	5.1; 6.5; 8.0; 9.6; 11.4; 12.7; 16.1; 19.0; 23.0; 26.4; 36.9; 45.7 and 54.5 m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 75 kg	p. 20
Standard distributed load	up to 25 kg/m	p. 20

CA – Drum motor

B20.00.038

2

The drive version CA with drum motor is the most compact option of the conveyors in the GUF-P 2000 system. Since the motor is integrated into the driving roller, no obstructing edges protrude over the conveyor frame structure. The conveyor can therefore easily be integrated into existing systems.



Technical data

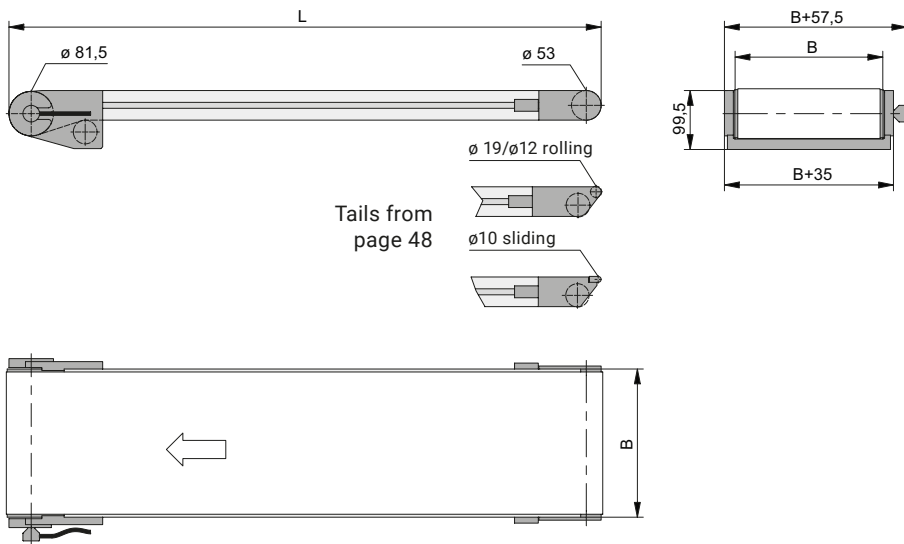
Conveyor length L	individual from 380 to 5000 mm	
Conveyor width B	300, 350, 400, 450, 500, 550 and 600 mm	others on request
Belt width	B-10 mm	from p. 100
Drive location	discharge end left/right	
Drive and speed	up to $v=60$ m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 15 kg	p. 20
Standard distributed load	up to 10 kg/m	p. 20

CB – Drum motor

B20.00.039

The drive version CB with drum motor is the most compact option of the conveyors in the GUF-P 2000 system. Since the motor is integrated into the driving roller, no obstructing edges protrude over the conveyor frame structure. The conveyor can therefore easily be integrated into existing systems. Operation with cleated belts is not possible with this version.

2



Technical data

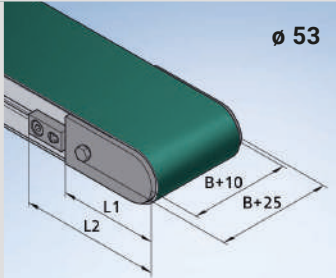
Conveyor length L	individual from 440 to 10000 mm	
Conveyor width B	200, 250, 300, 350, 400, 500, 600, 700 and 800 mm	others on request
Belt width	B-10 mm	from p. 100
Drive location	discharge end left/right	
Drive and speed	up to $v=60$ m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 55 kg	p. 20
Standard distributed load	up to 25 kg/m	p. 20

GUF-P 2000 Tails

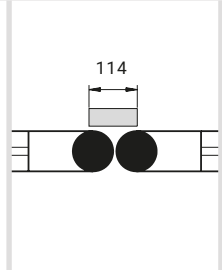
2

Tail 01

B80.00.001



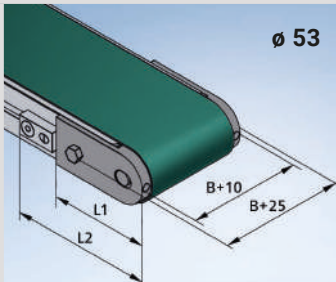
- Crowned roller, $\varnothing 53$ mm
- Ball bearing 2RS1
- Belt tensioning and adjustment on the side using the tensioning elements
- Min. length of the conveyed product for transfer of 114 mm



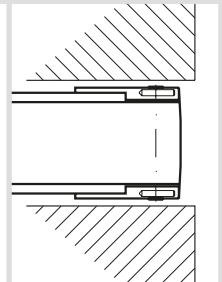
Conveyor length L	Conveyor width B	L1	L2	Head part material
$\leq 2,900$ mm	≤ 300 mm	105 mm	145 mm	Plastic
$\leq 2,900$ mm	> 300 mm	105 mm	145 mm	Aluminium
$> 2,900$ mm	≤ 800 mm	155 mm	195 mm	Aluminium

Tail 09

B80.00.005



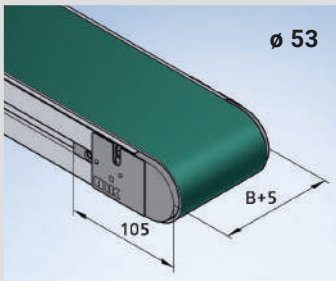
- Crowned roller, $\varnothing 53$ mm
- Ball bearing 2RS1
- Belt tensioning via head parts
- Belt adjustment from the front using threaded pins
- Obstructing edge-optimised tail
- Min. length of the conveyed product for transfer of 114 mm



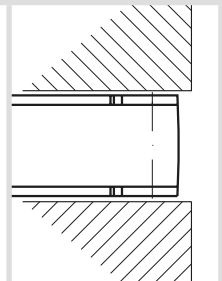
Conveyor length L	Conveyor width B	L1	L2	Head part material
$\leq 3,000$ mm	≤ 800 mm	105 mm	—	Aluminium

Tail 11

B80.00.007



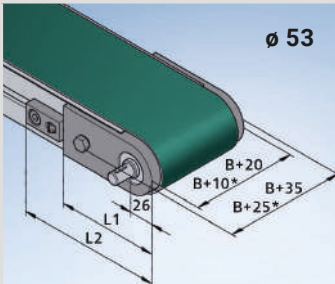
- Crowned roller, $\varnothing 53$ mm
- Ball bearing 2RS1
- Belt tensioning and adjustment on the side using the head parts (approx. 35 mm of clearance required on each side)
- Flush head parts
- Obstructing edge-optimised tail
- Min. length of the conveyed product for transfer of 114 mm



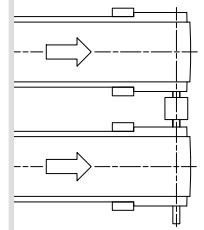
Conveyor length L	Conveyor width B	L1	L2	Head part material
$\leq 3,000$ mm	≤ 800 mm	105 mm	—	Aluminium

Tail 19

B80.00.006



- Crowned roller, $\varnothing 53$ mm
- Ball bearing 2RS1
- $\varnothing 16$ mm shaft journal, usable length of 20 mm with roller for chain drive or 30 mm with roller for timing belt drive, keyway in accordance with DIN 6885
- Connection of two conveying lines through one drive
- Output shaft available on the right, left or both sides

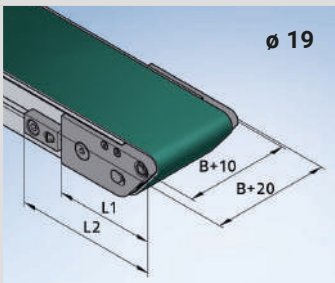


Conveyor length L	Conveyor width B	L1	L2	Head part material
$\leq 2,900$ mm	≤ 300 mm	105 mm	145 mm	Plastic
$\leq 2,900$ mm	> 300 mm	105 mm	145 mm	Aluminium
$> 2,900$ mm	≤ 800 mm	155 mm	195 mm	Aluminium

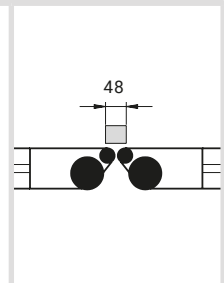
*Does not apply for the drive end

Tail 13

B80.00.018



- Rolling knife edge
- Ball bearing 2RS1, $\varnothing 19$ mm roller
- Belt tensioning on the side using tensioning elements
- Adjustment using tensioning elements
- Min. length of the conveyed product for transfer of 48 mm
- Note the min. bend radius for the desired belt



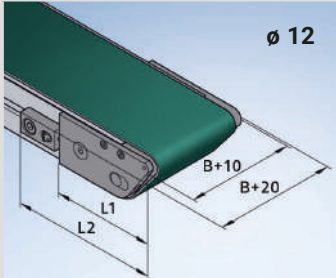
Conveyor length L	Conveyor width B	L1	L2	Head part material
$\leq 3,000$ mm	≤ 800 mm	116 mm	156 mm	Aluminium
$> 3,000$ mm	≤ 800 mm	166 mm	206 mm	Aluminium

GUF-P 2000 Tails

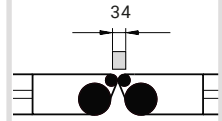
2

Tail 10

B80.00.017



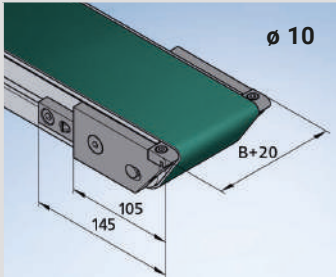
- Rolling knife edge
- Ball bearing 2RS1, \varnothing 12 mm roller
- Belt tensioning on the side using tensioning elements
- Adjustment from the front using tensioning roller
- Min. length of the conveyed product for transfer of 34 mm
- Note the min. bend radius for the desired belt
- Max. conveying speed of 30 m/min
- Max. load capacity of 5 kg per 50 mm conveyor width



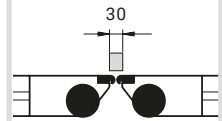
Conveyor length L	Conveyor width B	L1	L2	Head part material
$\leq 3,000$ mm	≤ 300 mm	111 mm	151 mm	Aluminium
$> 3,000$ mm	≤ 300 mm	161 mm	201 mm	Aluminium

Tail 17

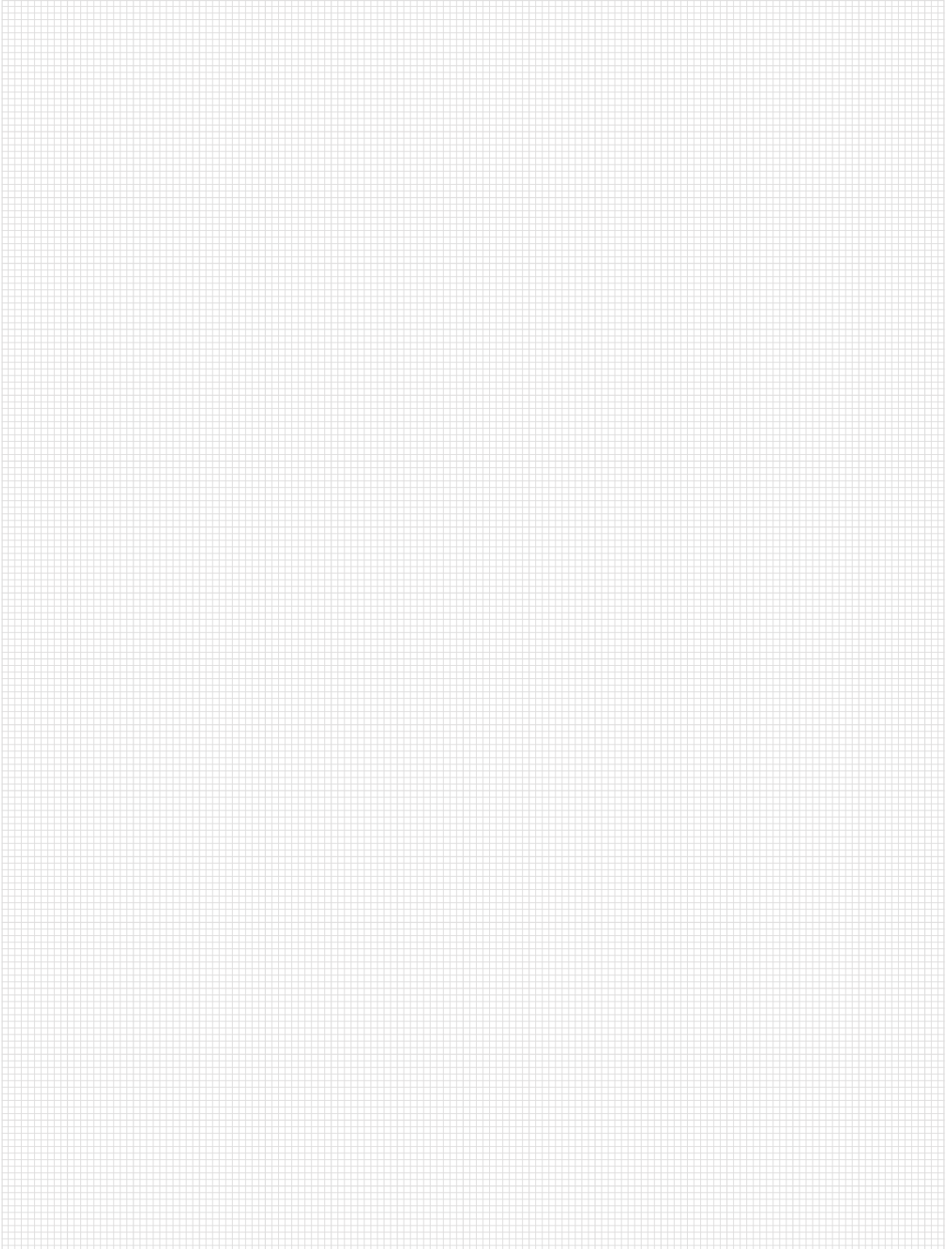
B80.00.002



- Stationary knife edge \varnothing 10 mm
- Belt tensioning on the side using tensioning elements
- Adjustment from the front using tensioning roller
- Min. length of the conveyed product for transfer of 30 mm
- Note the min. bend radius for the desired belt
- Max. conveying speed of 10 m/min
- Requires driving roller with rubber coating



Conveyor length L	Conveyor width B	L1	L2	Head part material
$\leq 2,000$ mm	≤ 300 mm	105 mm	145 mm	Aluminium

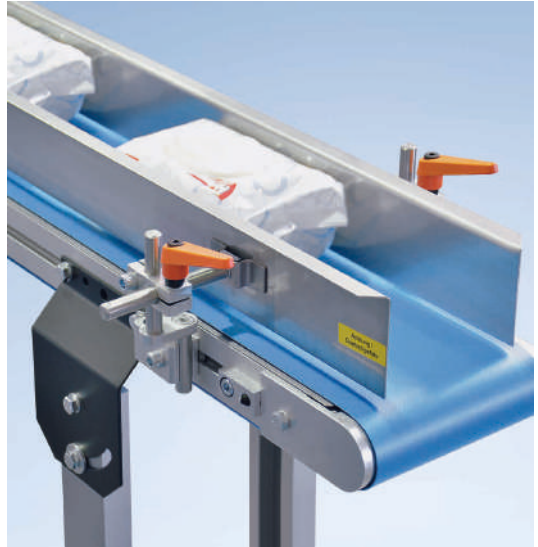


Application Examples GUF-P 2000

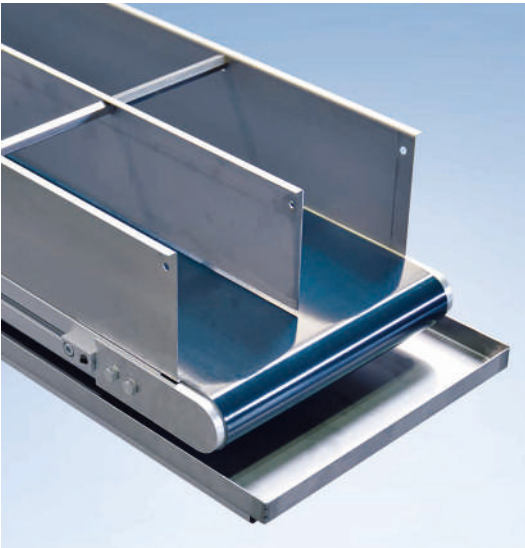
2



Belt conveyor GUF-P 2000 with drum motor \varnothing 53



Belt conveyor GUF-P 2000 with 01 \varnothing 53 tail and adjustable side rail SF02 with clamping lever



Belt conveyor GUF-P 2000 with central lane separation and drip pan



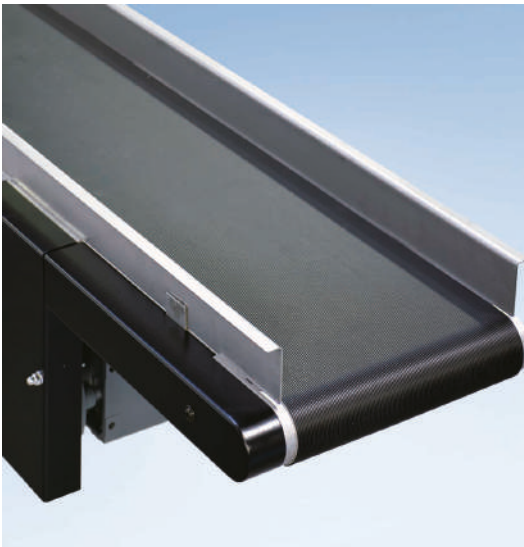
Belt conveyor GUF-P 2000 with 10 \varnothing 12 tail and adjustable side rail SF02



Belt conveyor GUF-P 2000 with 13 \varnothing 19 tail, with rolling knife edge and side rail SF2.2



Belt conveyor GUF-P 2000 with 01 \varnothing 53 extra-long tail and with printed belt



Belt conveyor GUF-P 2000 with offset head drive AM



Belt conveyor GUF-P 2000 AF as inclined conveyor with cleats, special side rail and drip pan

Belt Conveyor GUF-P 2041

2

» For applications with high load capacities and wide products. «



Benefits of the GUF-P 2041

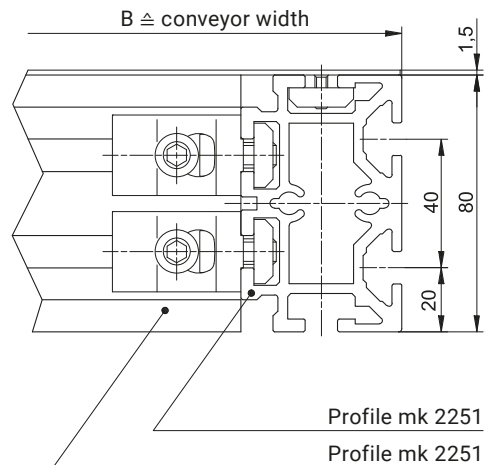
- For high load capacities and wide product
- Built with the profile mk 2251 for a high load capacity and torsion-resistant structure
- Wide range of different drives, tails, stands and belt types
- Optionally available with a compact drum motor and knife edge
- Flexible operation in reverse, accumulated and cycling mode

The torsion-resistant conveyor frame based on the mk 2251 profile (50 x 80 mm) allows for high load capacities. Drive and tail components are also designed according to these load capacities.

The \varnothing 85 mm driving roller used in this conveyor system also features excellent grip for transmitting the motor power to the belt. A major benefit of this system is its nearly unlimited selection of different belt types for use in combination with cleats and side walls.

In addition to these benefits, the two t-slots (10 mm slot width) on each side give you maximum flexibility for integrating the conveyor system into existing systems or for attaching stands, side rails and other accessories. Other high-quality features include crowned rollers for simple belt adjustment and a wear-resistant slider bed made from galvanised steel.

Cross Section*



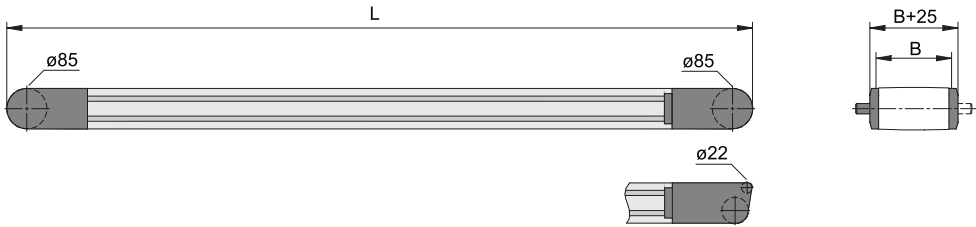
*different for drive version CA

AA – Head drive without motor

B20.40.009

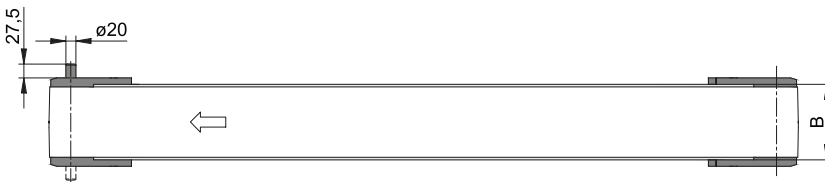
2

The AA version with no motor is suitable for connection to an existing conveyor with a drive, either in parallel or in series. This allows you to operate multiple conveyors with only one motor. The compact conveyor frame design makes it easier to integrate the conveyor into existing systems. The driving roller $\varnothing 85$ mm has a crowned roller for simple belt control. Operation with cleated belts is possible with this version. The $\varnothing 20$ mm shaft journal with a length of 27.5 mm is designed with a DIN 6885 key.



Drive shaft on both sides also possible.
Please specify when ordering.

Tails see
page 62



Technical data

Conveyor length L	individual from 540 to 10000 mm	
Conveyor width B	200 to 1200 mm (in 100 mm increments)	others on request
Belt width	B-15 mm	from p. 100
Drive and speed	up to $v=60$ m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 150 kg	p. 20
Standard distributed load	up to 50 kg/m	p. 20

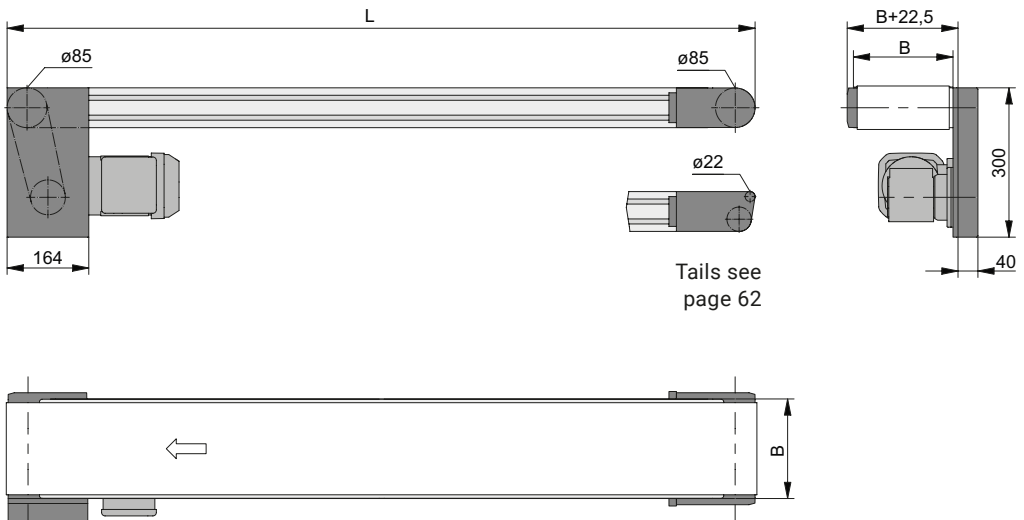


AC – Standard head drive

B20.40.001

The compact conveyor frame design with the most popular drive options makes it easier to integrate the conveyor into existing systems. The $\varnothing 85$ mm driving roller ensures excellent transmission of the motor power. Operation with cleated belts is possible with this version.

2



Tails see page 62

Technical data

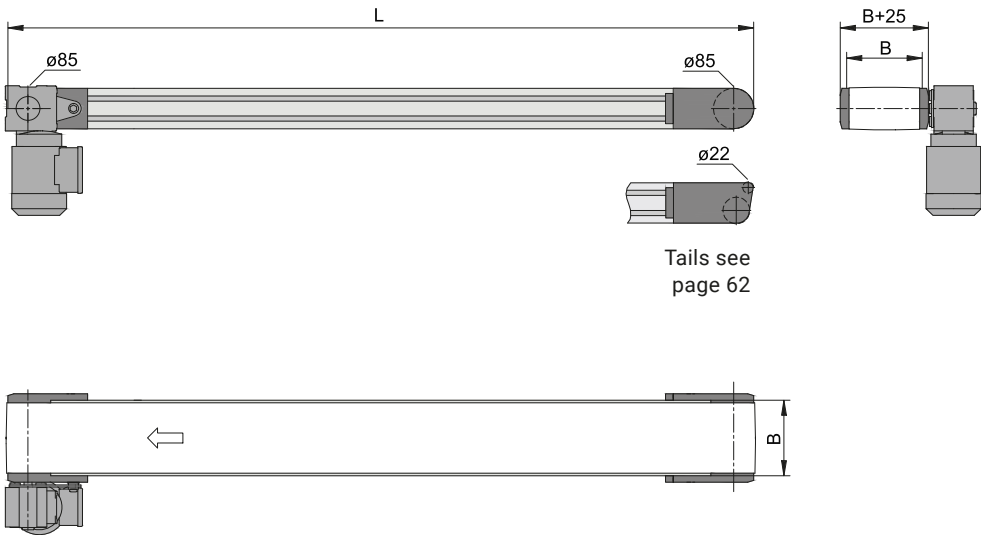
Conveyor length L	individual from 540 to 10000 mm	
Conveyor width B	200 to 1200 mm (in 100 mm increments)	others on request
Belt width	B-15 mm	from p. 100
Drive location	discharge end left/right, underneath/above, infeed on request	
Drive and speed	up to $v=60$ m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 150 kg	p. 20
Standard distributed load	up to 50 kg/m	p. 20

AF – Direct head drive

B20.40.008

2

Since the motor is fitted directly onto the drive shaft, the space requirements and maintenance effort for this drive version are reduced to a minimum.



Technical data

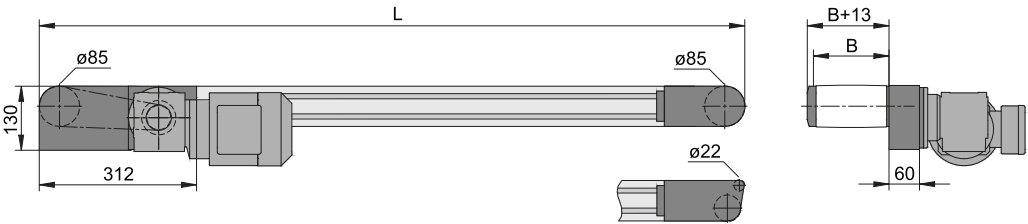
Conveyor length L	individual from 560 to 10000 mm	
Conveyor width B	200 to 1200 mm (in 100 mm increments)	others on request
Belt width	B-15 mm	from p. 100
Drive location	discharge end left/right; infeed end on request	
Drive and speed	5.1; 6.1; 7.7; 9.6; 11.5; 13.6; 15.2; 19.2; 22.7; 26.4; 36.9; 45.7 and 52.6 m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 100 kg	p. 20
Standard distributed load	up to 50 kg/m	p. 20



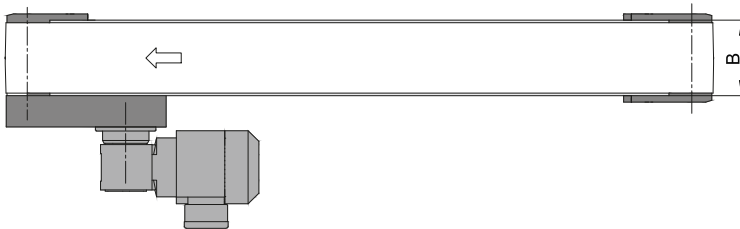
AS – Head drive, laterally on the outside, compact

B20.40.003

The drive positioned laterally on the outside allows the total height of the conveyor to be restricted to a minimum. The $\varnothing 85$ mm driving roller ensures excellent transmission of the motor power. Operation with cleated belts is possible with this version.



Tails see
page 62



Technical data

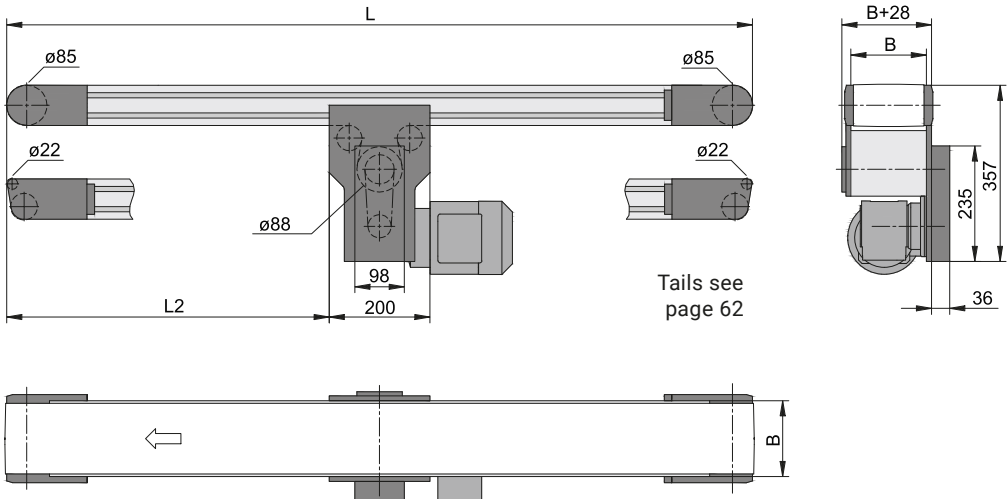
Conveyor length L	individual from 700 to 10000 mm	
Conveyor width B	200 to 1200 mm (in 100 mm increments)	others on request
Belt width	B-15 mm	from p. 100
Drive location	discharge end left/right; infeed end on request	
Drive and speed	up to $v=60$ m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 150 kg	p. 20
Standard distributed load	up to 50 kg/m	p. 20

BC – Lower belt drive, standard

B20.40.004

2

The compact conveyor frame design and the ability to freely select the drive position over the entire length of the conveyor make it easier to integrate the conveyor into existing systems. Limited reverse operation is available on request. Knife edges can be configured on both the infeed and discharge end. Operation with cleated belts is not possible with this version.



Technical data

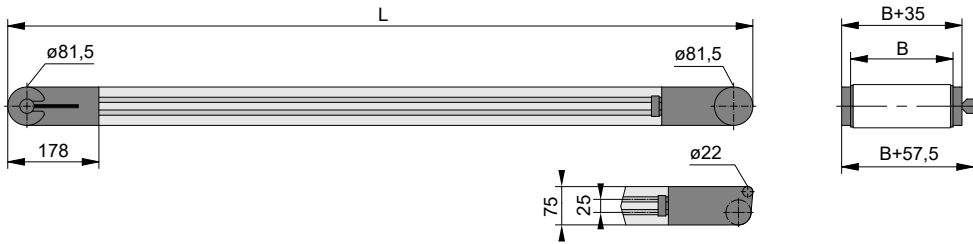
Conveyor length L	individual from 800 to 10000 mm	
Conveyor width B	200 to 1200 mm (in 100 mm increments)	others on request
Belt width	B-15 mm	from p. 100
Drive location	left/right underneath	
Drive and speed	up to $v=60$ m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 150 kg	p. 20
Standard distributed load	up to 50 kg/m	p. 20



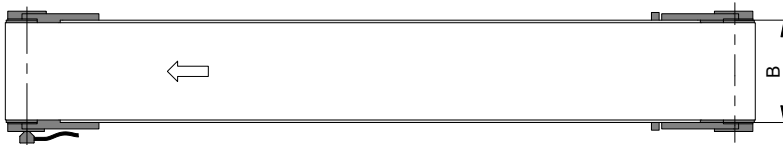
CA – Drum motor

B20.23.000

The drive version CA with drum motor is the most compact option of the conveyors in the GUF-P 2041 system. Since the motor is integrated into the driving roller, no obstructing edges protrude over the conveyor frame structure. The conveyor can therefore easily be integrated into existing systems.



Tails
see page 63



Technical data

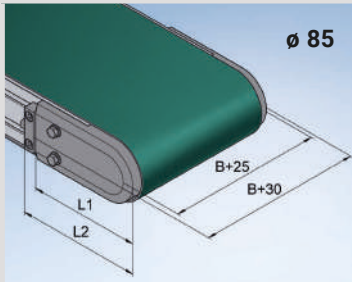
Conveyor length L	individual from 525 to 5000 mm	
Conveyor width B	200, 250, 300, 350, 400, 500, 600, 700, 800, 900 and 1000 mm	others on request
Belt width	B-15 mm	from p. 100
Drive location	discharge end left/right	
Drive and speed	up to v=60 m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 55 kg	p. 20
Standard distributed load	up to 25 kg/m	p. 20

GUF-P 2041 Tails

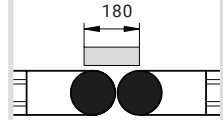
2

Tail 01

B80.07.001



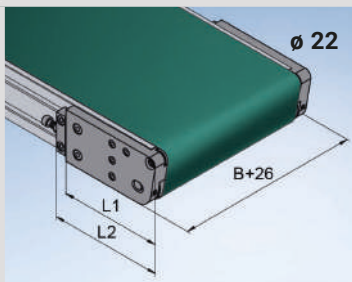
- Crowned roller, $\varnothing 85$ mm
- Ball bearing 2RS1
- Belt tensioning and adjustment on the side using the tensioning elements
- Min. length of the conveyed product for transfer of 180 mm



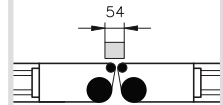
Conveyor length L	Conveyor width B	L1	L2	Head part material
$\leq 3,000$ mm	$\leq 1,200$ mm	160 mm	175 mm	Aluminium
$> 3,000$ mm	$\leq 1,200$ mm	250 mm	265 mm	Aluminium

Tail 13

B80.07.010



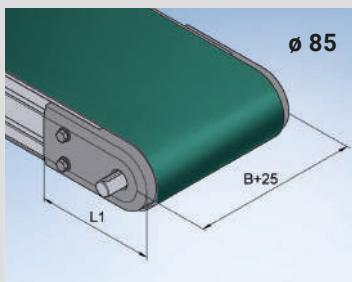
- Roller, $\varnothing 22$ mm
- Ball bearing 2RS1
- Belt tensioning on the side using tensioning elements
- Adjustment using tracking roller
- Min. length of the conveyed product for transfer of 54 mm
- Note the min. bend radius for the desired belt



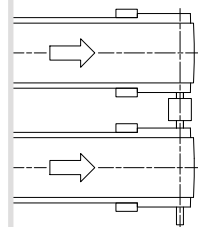
Conveyor length L	Conveyor width B	L1	L2	Head part material
$\leq 3,000$ mm	$\leq 1,200$ mm	158 mm	173 mm	Aluminium, short
$> 3,000$ mm	$\leq 1,200$ mm	220 mm	235 mm	Aluminium, long

Tail 19

B80.07.002



- Crowned roller, $\varnothing 85$ mm
- Ball bearing 2RS1
- $\varnothing 20$ shaft journal, length of 27.5 mm, keyway in accordance with DIN 6885
- Connection of two conveying lines through one drive
- Output shaft available on the left, right or both sides



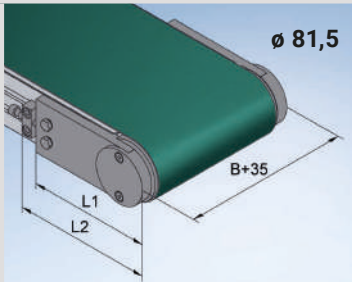
Conveyor length L	Conveyor width B	L1	L2	Head part material
$\leq 3,000$ mm	$\leq 1,200$ mm	160 mm	—	Aluminium
$> 3,000$ mm	$\leq 1,200$ mm	250 mm	—	Aluminium

GUF-P 2041 CA Tails

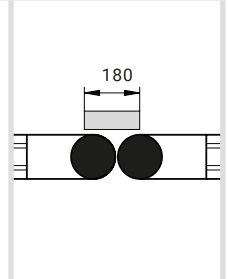
2

Tail 01

B80.23.000



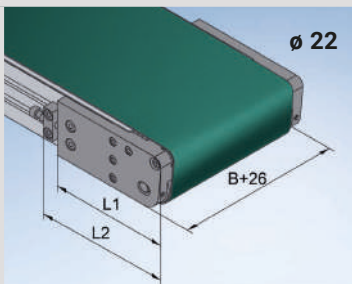
- Crowned roller, ø 81,5 mm
- Ball bearing 2RS1
- Belt tensioning and adjustment on the side using the tensioning elements
- Min. length of the conveyed product for transfer of 180 mm



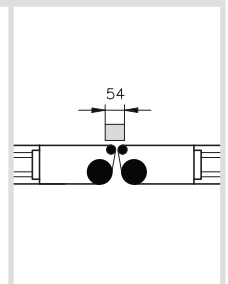
Conveyor length L	Conveyor width B	L1	L2	Head part material
≤ 5,000 mm	≤ 1,200 mm	178 mm	193 mm	Aluminium

Tail 13

B80.23.001



- Roller, ø 22 mm
- Ball bearing 2RS1
- Belt tensioning on the side using tensioning elements
- Adjustment using tracking roller
- Min. length of the conveyed product for transfer of 54 mm
- Note the min. bend radius for the desired belt



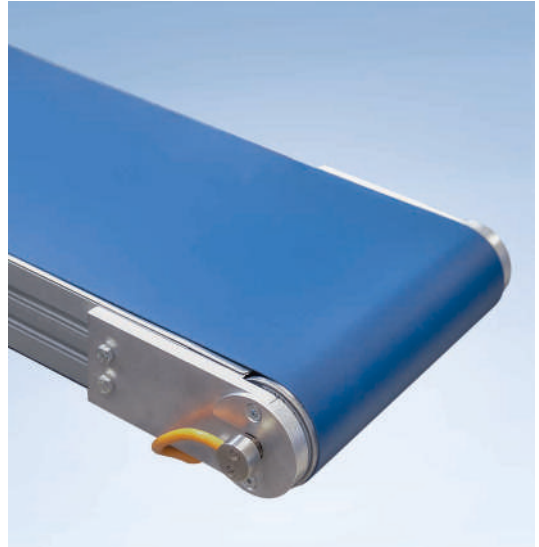
Conveyor length L	Conveyor width B	L1	L2	Head part material
≤ 5,000 mm	≤ 1,200 mm	165 mm	180 mm	Aluminium

Application Examples GUF-P 2041

2



Belt conveyor GUF-P 2041 with 01 ø 85 tail



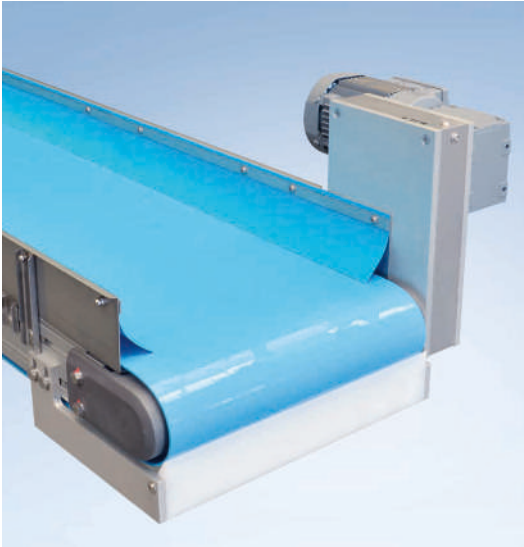
Belt conveyor GUF-P 2041 CA with ø 81,5 drum motor



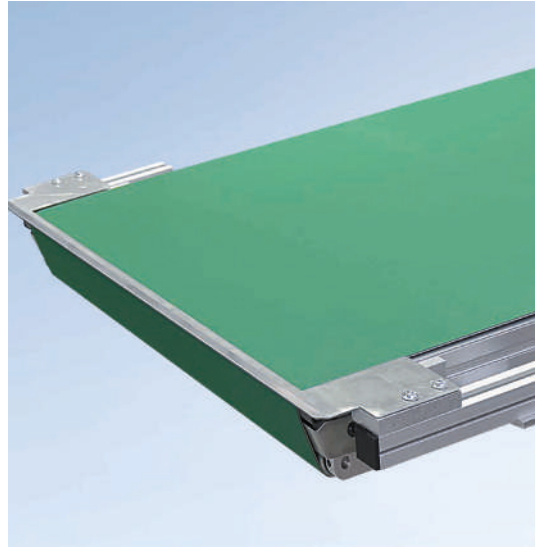
Belt conveyor GUF-P 2041 with centre drive, knife edge and side rail



Belt conveyor GUF-P 2041 in special vacuum conveyor design



Belt conveyor GUF-P 2041 with side rail with belt flap




Belt conveyor GUF-P 2041 with tail 13 and customer-specific transfer sheet



Belt conveyor GUF-P 2041 as inclined conveyor with transverse cleats and side rail



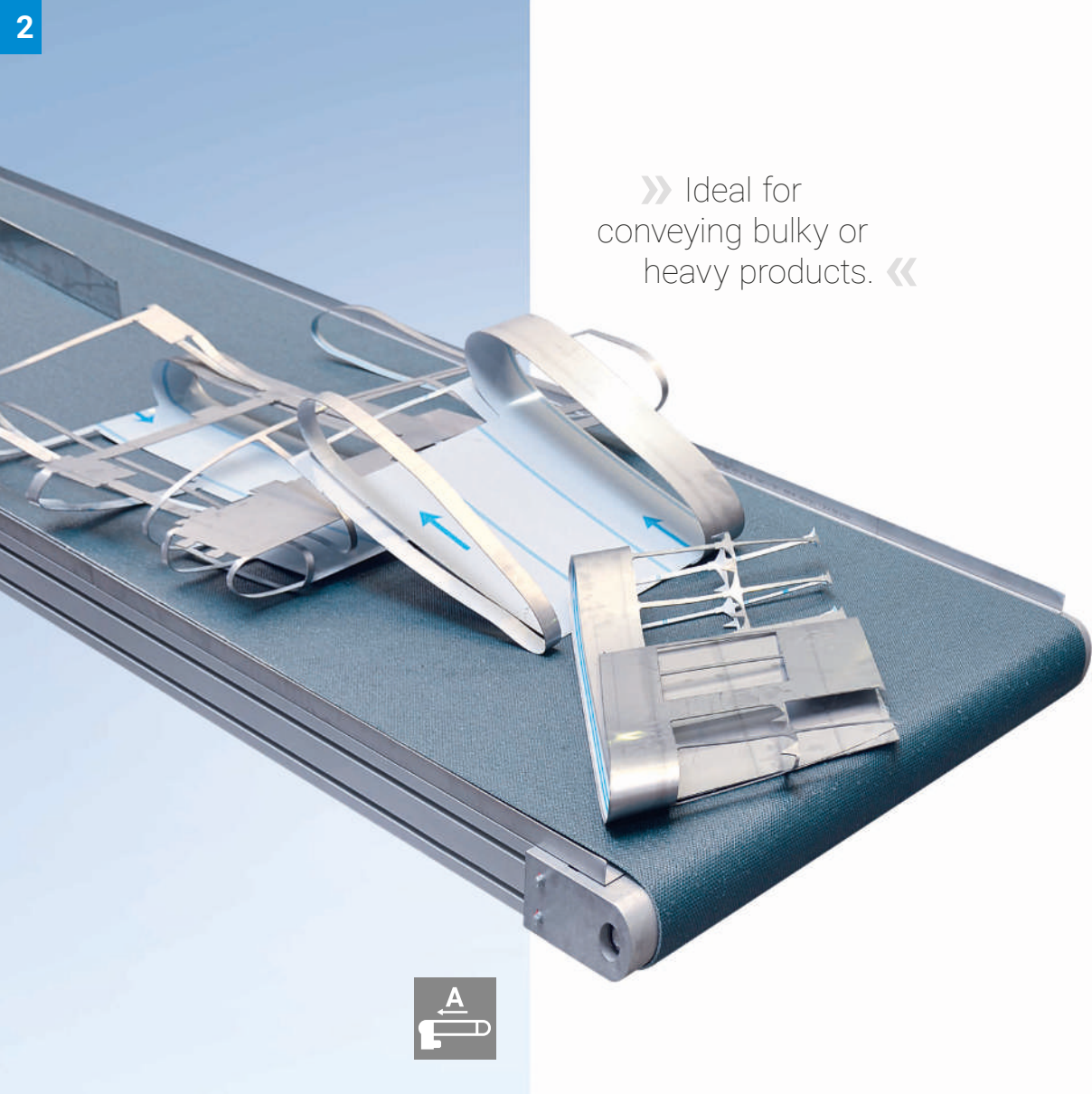
Belt conveyor GUF-P 2041 with knife edge and height-adjustable stand

 Custom applications from page 408

Belt Conveyor GUF-P 2004

2

» Ideal for conveying bulky or heavy products. «



Benefits of the GUF-P 2004

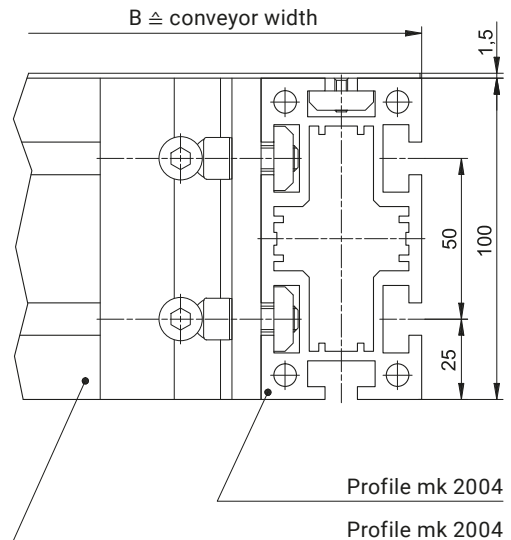
- For very high load capacities and bulky product
- Built with the mk 2004 profile for very high load capacity and a torsion-resistant structure
- Reinforced stands and side rails available for variable configuration
- Flexible operation in reverse, accumulation and cycling mode

Alongside some of the standard features of mk belt conveyor systems, such as crowned rollers for better belt adjustment and wear-resistant slider beds made from galvanised steel, a special feature of the GUF-P 2004 system is its stable structure based on the mk 2004 profile.

Capable of handling a total load of up to 200 kg and products up to 2,000 mm wide and 20,000 mm long, this torsion-resistant conveyor frame is perfect for transporting bulky product. The \varnothing 105 mm driving roller, which can be coated in rubber depending on the load and conveyor width, ensures excellent transmission of the motor power to the belt.

The transport system can be supplemented with a large variety of accessory components tailored to the heavy transport weights, including side rails and stands with a reinforced design.

Cross Section

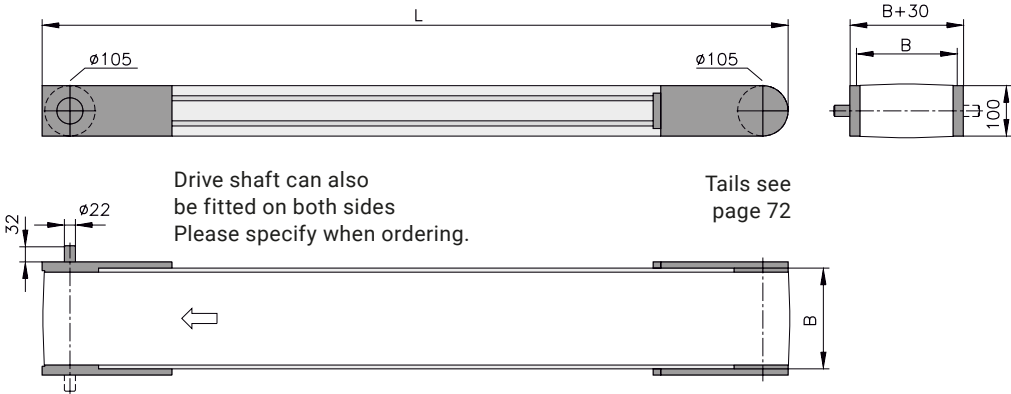


AA – Head drive without motor

B20.14.009

2

The AA version with no motor is suitable for connection to an existing conveyor with a drive, either in parallel or in series. This allows you to operate multiple conveyors with only one motor. The compact conveyor frame design makes it easier to integrate the conveyor into existing systems. The driving roller $\varnothing 105$ mm has a crowned roller for simple belt control. Operation with cleated belts is possible with this version. The $\varnothing 22$ mm shaft journal with a length of 32 mm is designed with a DIN 6885 key.



Technical data

Belt length L	individual from 720 to 20000 mm	
Conveyor width B	200 to 2000 mm (in 100 mm increments)	others on request
Belt width	B-50 mm	from p. 100
Drive and speed	up to $v=60$ m/min	
Stand and side rail		from p. 290
Standard total load	up to 200 kg	p. 20
Standard distributed load	up to 75 kg/m	p. 20

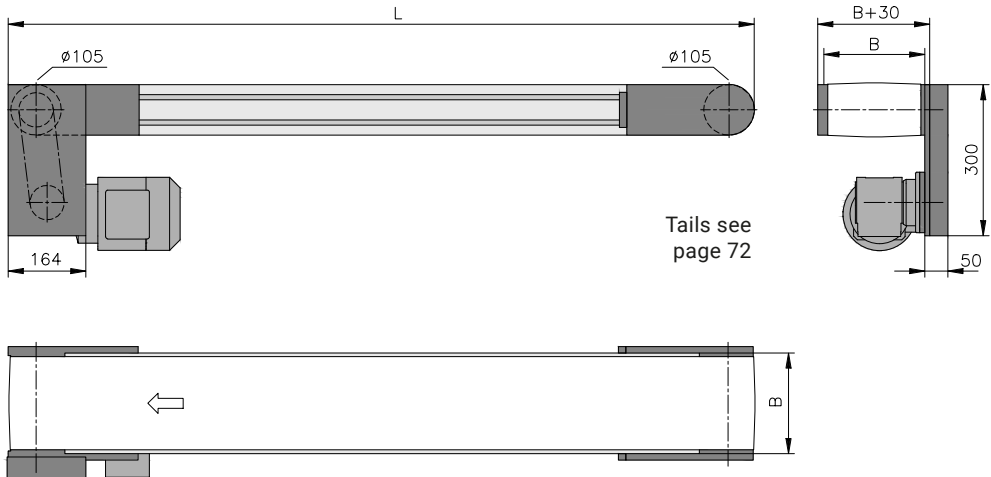


AC – Standard head drive

B20.14.001

The compact conveyor frame design with the most popular drive options makes it easier to integrate the conveyor into existing systems. The $\varnothing 105$ mm driving roller ensures excellent transmission of the motor power. Operation with cleated belts is possible with this version.

2



Technical data

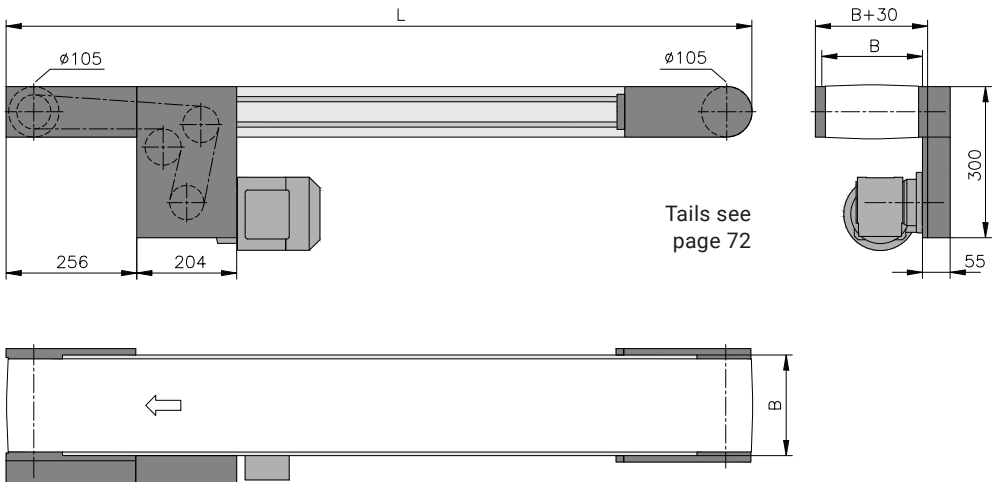
Belt length L	individual from 720 to 20000 mm	
Conveyor width B	200 to 2000 mm (in 100 mm increments)	others on request
Belt width	B-50 mm	from p. 100
Drive location	discharge end left/right, underneath/above, infeed on request	
Drive and speed	up to $v=60$ m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 200 kg	p. 20
Standard distributed load	up to 75 kg/m	p. 20

AM – Head drive, offset

B20.14.003

2

The compact conveyor frame design with the offset drive makes it easier to integrate the conveyor into existing systems. The $\varnothing 105$ mm driving roller ensures excellent transmission of the motor power. Operation with cleated belts is possible with this version.



Technical data

Belt length L	individual from 920 to 20000 mm	
Conveyor width B	200 to 2000 mm (in 100 mm increments)	others on request
Belt width	B-50 mm	from p. 100
Drive location	discharge end left/right, underneath; infeed end on request	
Drive and speed	up to $v=60$ m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 200 kg	p. 20
Standard distributed load	up to 75 kg/m	p. 20

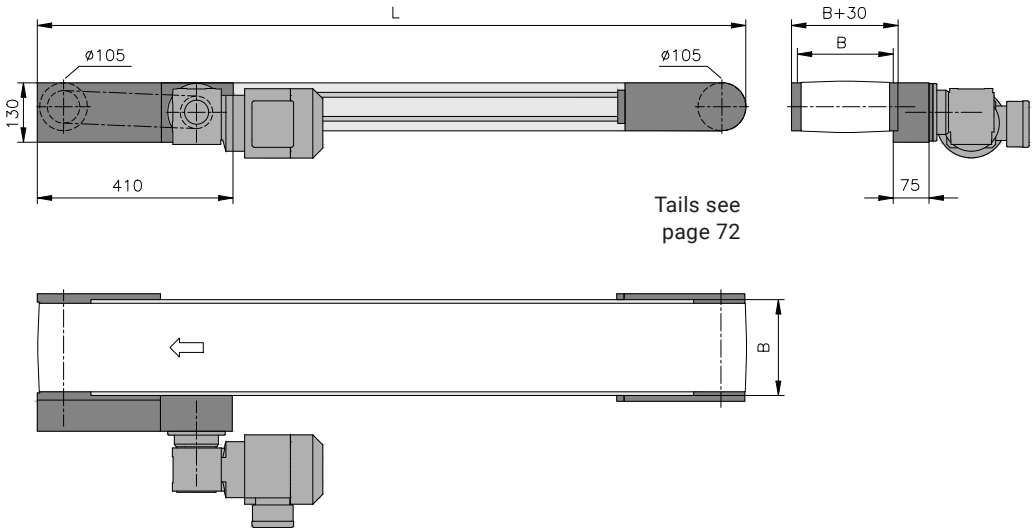


AS – Head drive, laterally on the outside, compact

B20.14.002

The drive positioned laterally on the outside allows the total height of the conveyor to be restricted to a minimum. The $\varnothing 105$ mm driving roller ensures excellent transmission of the motor power. Operation with cleated belts is possible with this version.

2



Technical data

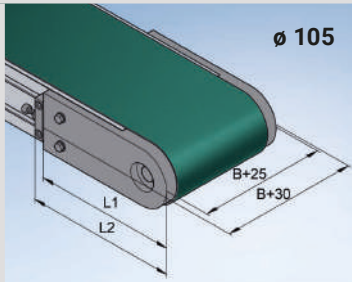
Belt length L	individual from 870 to 20000 mm	
Conveyor width B	200 to 2000 mm (in 100 mm increments)	others on request
Belt width	B-50 mm	from p. 100
Drive location	discharge end left/right; infeed end on request	
Drive and speed	up to $v=60$ m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 200 kg	p. 20
Standard distributed load	up to 75 kg/m	p. 20

GU-F-P 2004 Tails

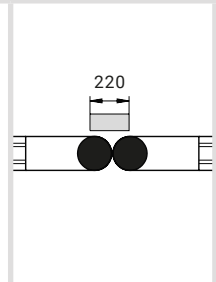
2

Tail 01

B80.02.004



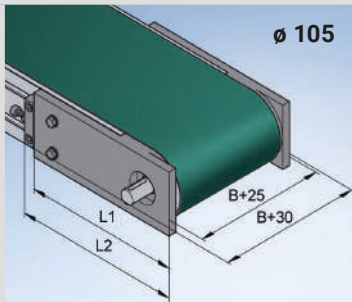
- Crowned roller, $\varnothing 105$ mm
- Ball bearing 2RS1
- Belt tensioning and adjustment on the side using the tensioning elements
- Min. length of the conveyed product for transfer of 220 mm



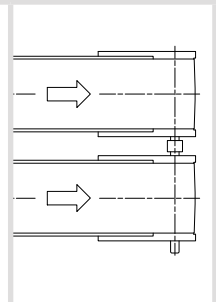
Conveyor length L	Conveyor width B	L1	L2	Head part material
≤ 20,000 mm	≤ 2,000 mm	252 mm	267 mm	Aluminium

Tail 09

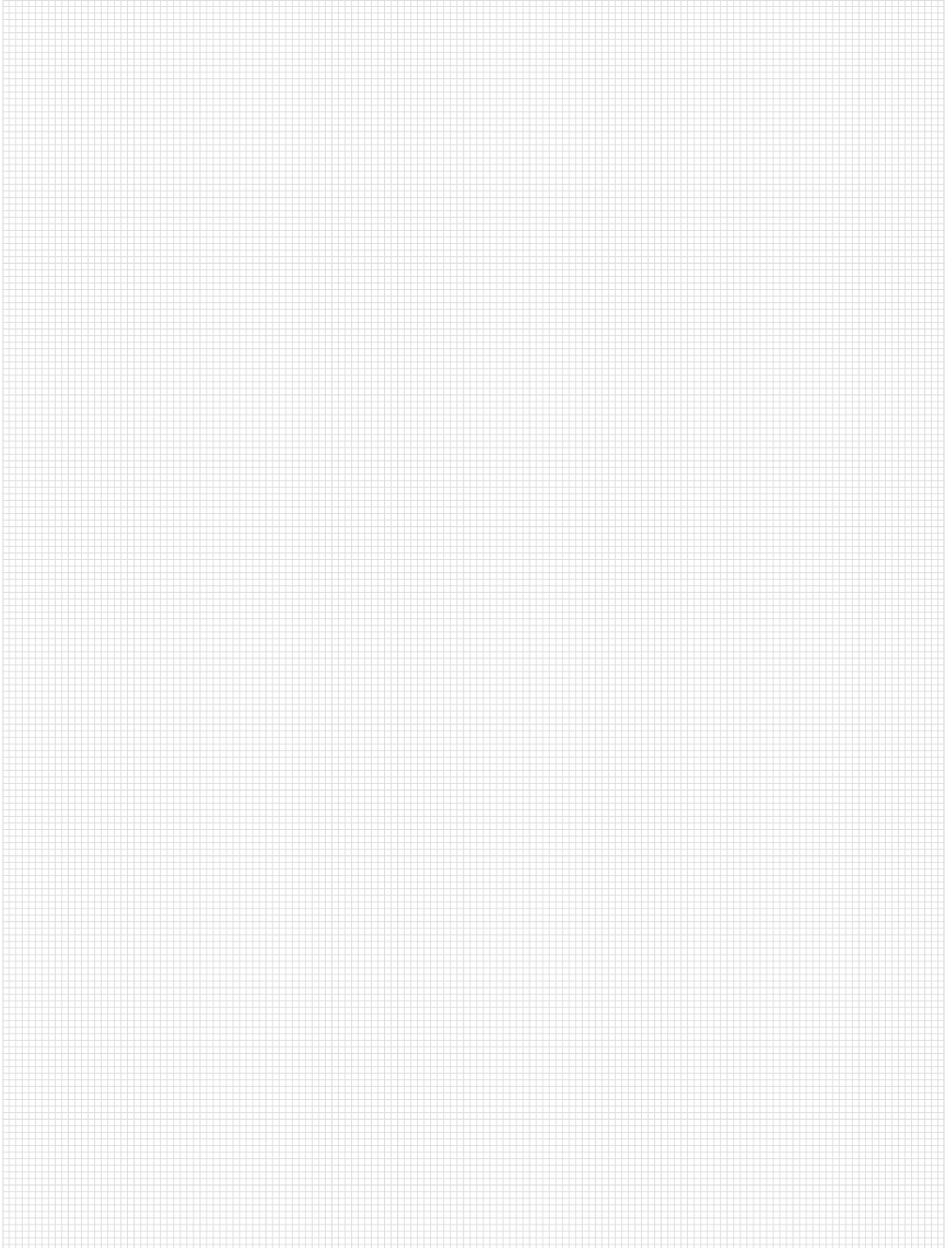
B80.02.005



- Crowned roller, $\varnothing 105$ mm
- Ball bearing 2RS1
- Belt tensioning and adjustment on the side using the tensioning elements
- $\varnothing 22$ shaft journal, length of 32 mm, keyway in accordance with DIN 6885
- Connection of two conveying lines through one drive
- Output shaft available on the right, left or both sides
- Protruding head part (conveyor length $L+5$ mm)



Conveyor length L	Conveyor width B	L1	L2	Head part material
≤ 20,000 mm	≤ 2,000 mm	252 mm	267 mm	Aluminium



Application Examples GUF-P 2004

2



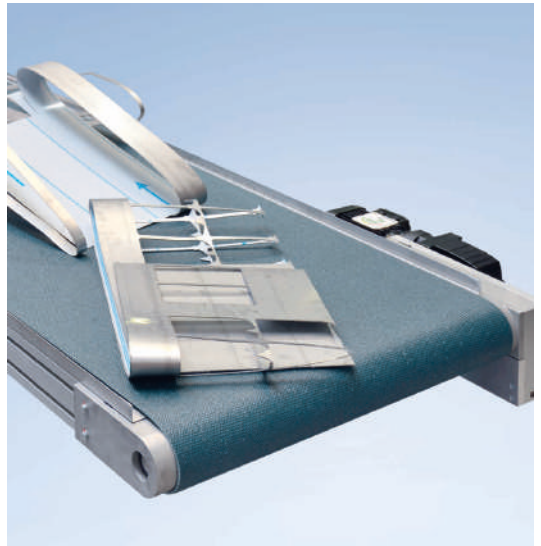
Belt conveyor GUF-P 2004 with photoelectric sensor



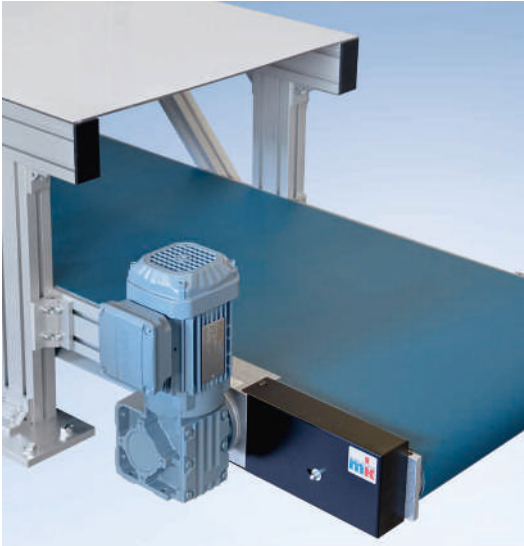
Belt conveyor GUF-P 2004 with printed belt



Belt conveyor GUF-P 2004 in special design with rolling knife edge



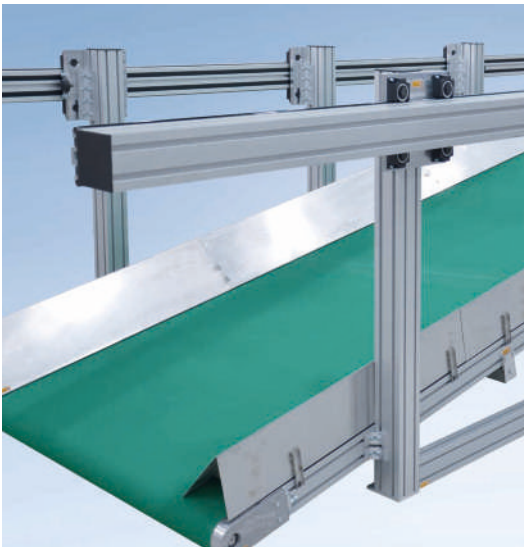
Belt conveyor GUF-P 2004 with standard AS drive, 0° motor orientation



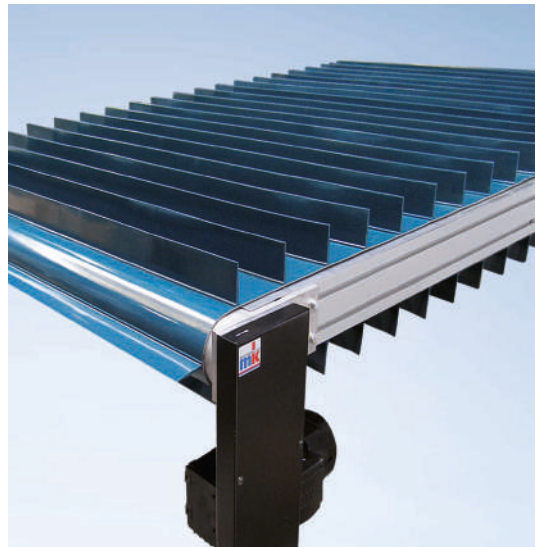
Belt conveyor GUF-P 2004 with standard head drive AS, 270° motor orientation




Belt conveyor GUF-P 2004 with standard tail



Belt conveyor GUF-P 2004 with special side rail on a frame comprised of linear units



Belt conveyor GUF-P 2004 with belt with transverse cleats

 Custom applications
from page 408

Incline Conveyor Belt KFG-P 2000

2



» Suitable for mobile use for incline conveying of small parts. «

ECO



Benefits of the KFG-P 2000

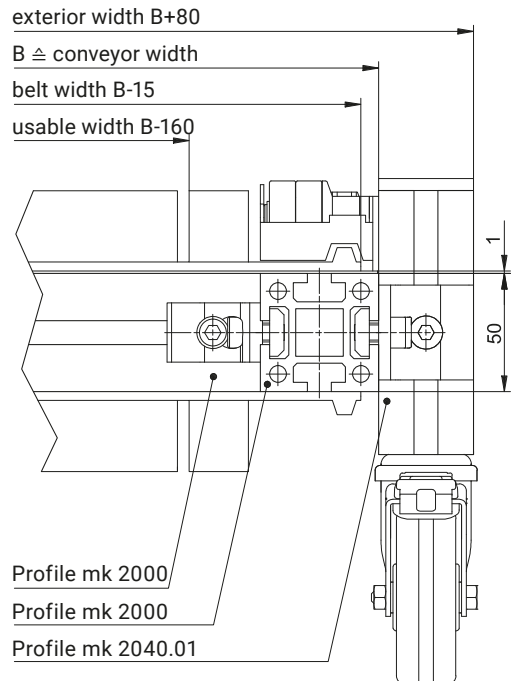
- Incline conveying for connecting different heights
- Moving transport unit for mobile use
- Ideal for integration into existing systems
- Compliant with the applicable Machinery Directive and occupational safety regulations – additional protective device guard not required
- Belts can be replaced with little work
- Optional cycling operation and control with a frequency inverter
- Optional motor overload switch

The KFG-P 2000 and KFG-P 2000 ECO conveyor systems are based on the mk 2000 profile and their compact conveyor frame design makes them ideal for demanding continuous duty in multi-shift operation. As with all mk belt conveyor systems, the round driving rolls make it easy to adjust the belt. On inclines, the belt is guided by welded-on longitudinal profiles.

Another quality feature is the stainless steel sheet installed below the belt running surface, which ensures long-term wear resistance. This conveyor system is primarily used to transport small parts (made from plastic, for instance).

The modular design of the conveyor system combined with the general advantages of profile technology make the conveyor well suited for integration into existing systems or for use as a mobile transport unit (e.g. for filling containers).

Cross Section

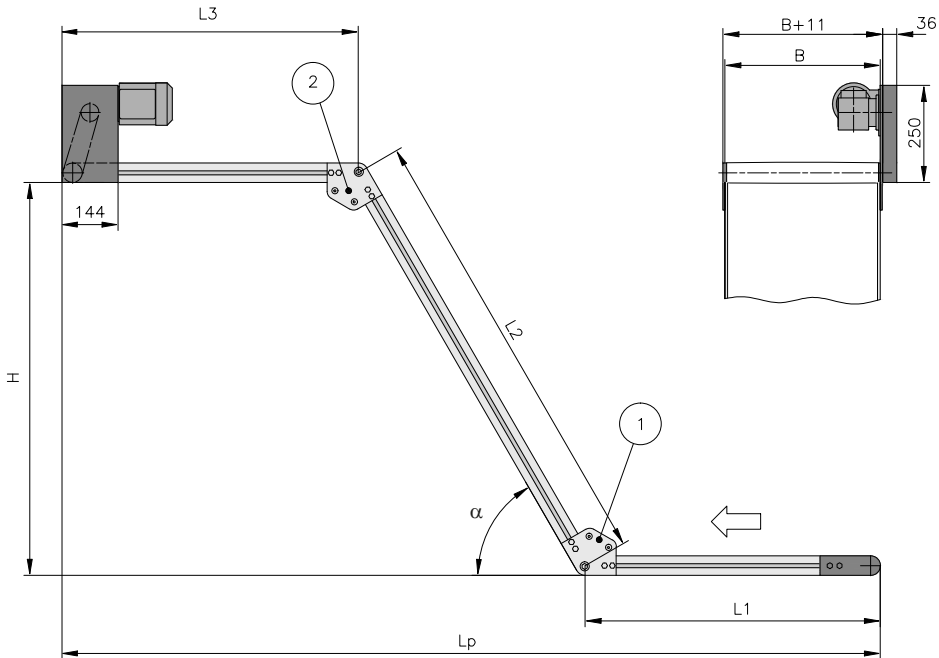


AC – Standard head drive

B20.00.010

2

The compact conveyor frame design with the most popular drive options makes it easy to integrate the conveyor into existing systems. The $\varnothing 53$ mm driving roller ensures excellent transmission of the motor power.



Technical data

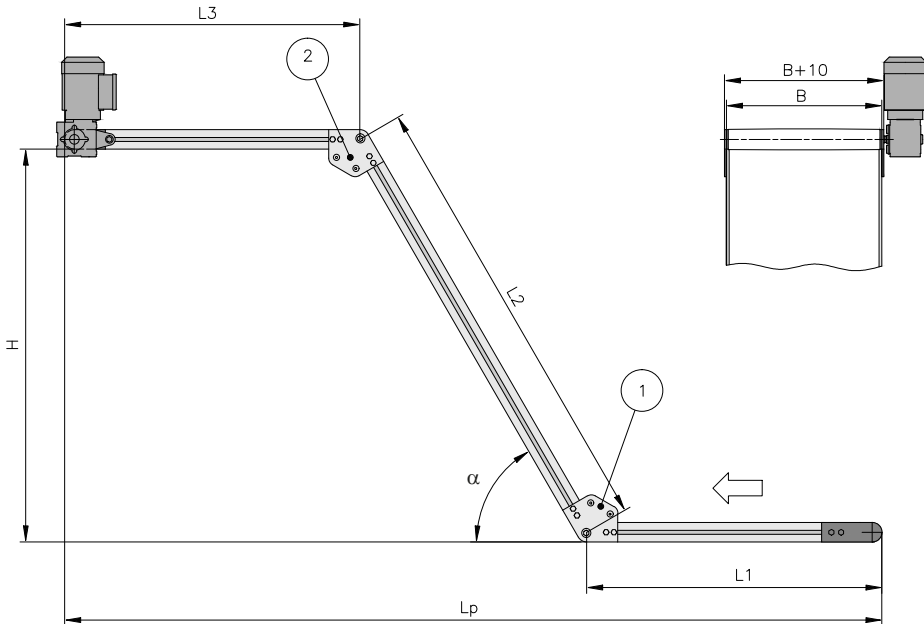
Conveyor length L (L1+L2+L3)	variable up to approx. 4000 mm L1/L3 min. = 400, L2 min. = 600	
Conveyor width B	300 to 700 mm (in 100 mm increments)	others on request
Drive location	discharge end left/right, underneath/above	
Drive and speed	up to 15 m/min	others on request
Stand and side rail		from p. 84
Standard total load	up to 40 kg	higher on request
Standard distributed load	up to 25 kg/m, 5 kg/compartiment	others on request
Belt incline α	30, 45 and 60°	others on request
Conveyed product	height up to 55 mm, length up to 300 mm	others on request
Belt	GU-V0106-028DG up to 500 mm conveyor width, GU-U0310-029DG from 500 mm conveyor width	from p. 100



AF – Direct head drive

B20.00.010

Since the motor is fitted directly onto the drive shaft, the space requirements and maintenance effort for this drive version are reduced to a minimum.



Technical data

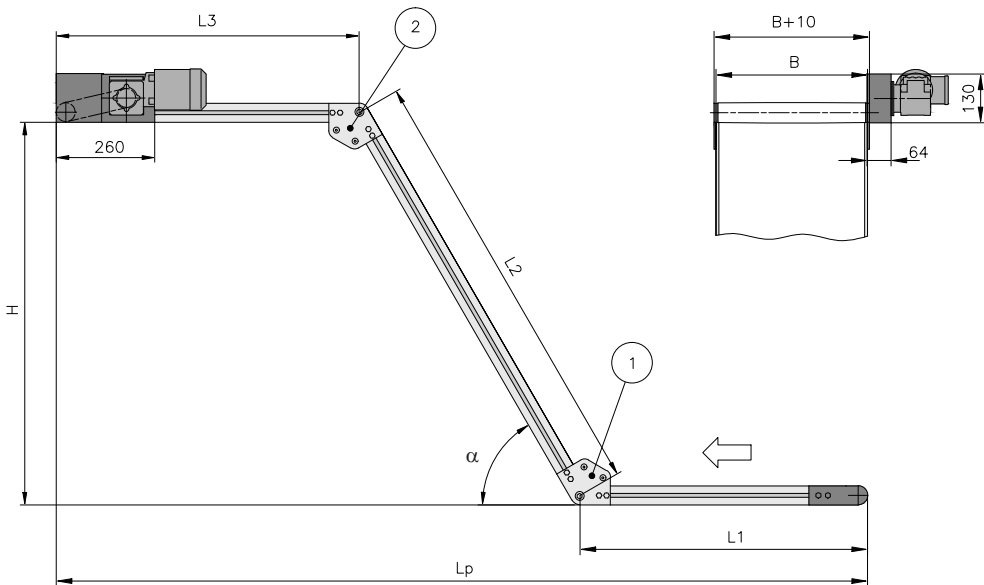
Conveyor length L (L1+L2+L3)	variable up to approx. 4000 mm L1/L3 min. = 400, L2 min. = 600	
Conveyor width B	300 to 700 mm (in 100 mm increments)	others on request
Drive location	discharge end left/right	
Drive and speed	3.0; 5.8; 11.8; 16 m/min	others on request
Stand and side rail		from p. 84
Standard total load	up to 40 kg	higher on request
Standard distributed load	up to 25 kg/m, 5 kg/compartment	others on request
Belt incline α	30, 45 and 60°	others on request
Conveyed product	height up to 55 mm, length up to 300 mm	others on request
Belt	GU-V0106-028DG up to 500 mm conveyor width, GU-U0310-029DG from 500 mm conveyor width	from p. 100

AS – Head drive, laterally on the outside, compact

B20.00.010

2

The drive located laterally on the outside allows the total height of the conveyor to be restricted to a minimum. The compact conveyor frame design makes it easy to integrate the conveyor into existing systems. The $\varnothing 53$ mm driving roller ensures excellent transmission of the motor power.



Technical data

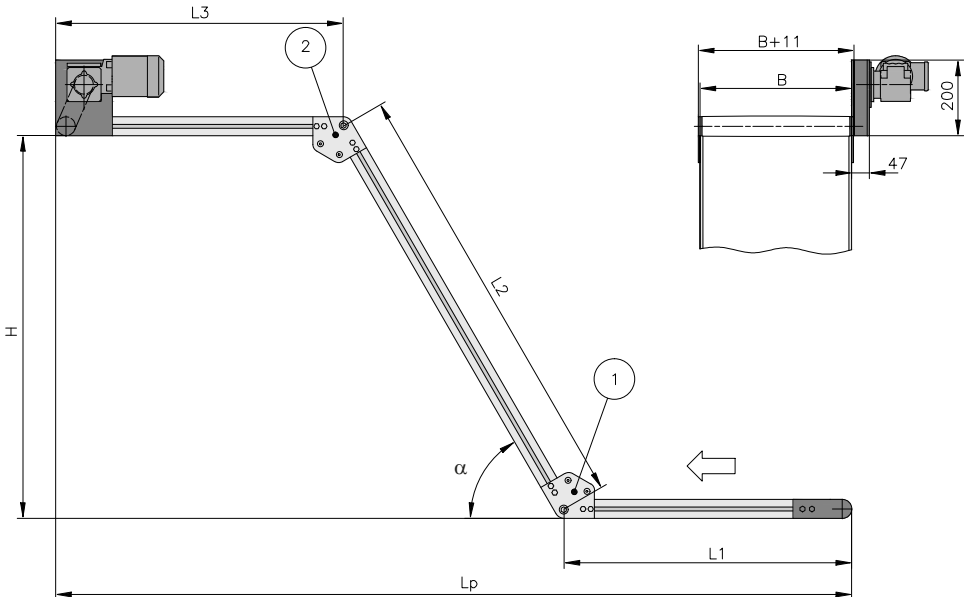
Conveyor length L (L1+L2+L3)	variable up to approx. 4000 mm L1/L3 min. = 400, L2 min. = 600	
Conveyor width B	300 to 700 mm (in 100 mm increments)	others on request
Drive location	discharge end left/right	
Drive and speed	up to 15 m/min	others on request
Stand and side rail		from p. 84
Standard total load	up to 40 kg	higher on request
Standard distributed load	up to 25 kg/m, 5 kg/compartiment	others on request
Belt incline α	30, 45 and 60°	others on request
Conveyed product	height up to 55 mm, length up to 300 mm	others on request
Belt	GU-V0106-028DG up to 500 mm conveyor width, GU-U0310-029DG from 500 mm conveyor width	from p. 100



AU – Head drive, laterally on the outside

B20.00.010

The advantage of the drive version AU is that the motor is fitted on the outside of the conveyor belt. The compact conveyor frame design makes it easy to integrate the conveyor into existing systems. The $\varnothing 53$ mm driving roller ensures excellent transmission of the motor power.



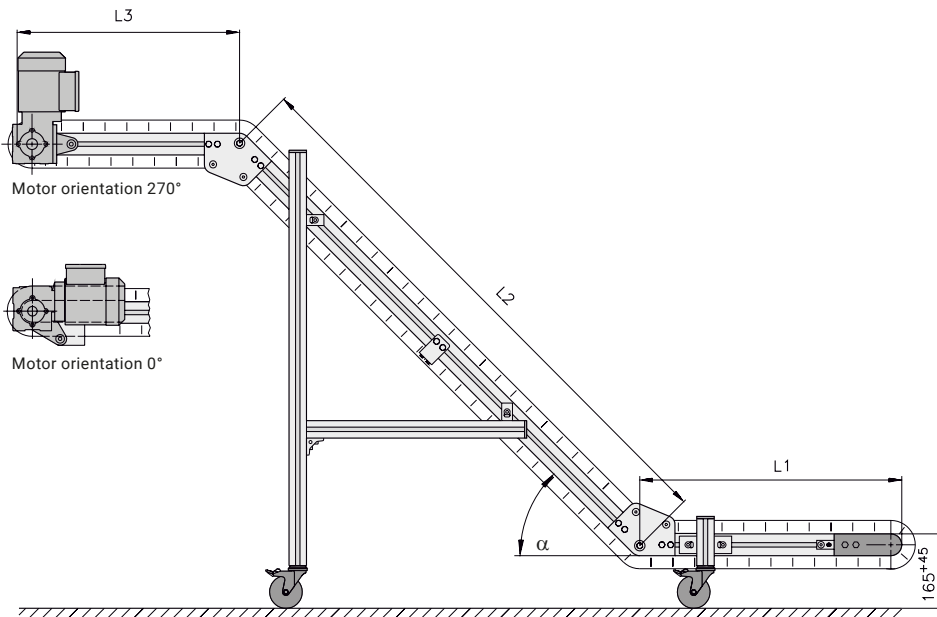
Technical data

Conveyor length L (L1+L2+L3)	variable up to approx. 4000 mm L1/L3 min. = 400, L2 min. = 600	
Conveyor width B	300 to 700 mm (in 100 mm increments)	others on request
Drive location	discharge end left/right, underneath/above	
Drive and speed	up to 15 m/min	others on request
Stand and side rail		from p. 84
Standard total load	up to 40 kg	higher on request
Standard distributed load	up to 25 kg/m, 5 kg/compartment	others on request
Belt incline α	30, 45 and 60°	others on request
Conveyed product	height up to 55 mm, length up to 300 mm	others on request
Belt	GU-V0106-028DG up to 500 mm conveyor width, GU-U0310-029DG from 500 mm conveyor width	from p. 100

Version ECO

B20.00.015
2

ECO stands for economy: which means high quality materials and meeting customer requirements at an attractive price. The limited number of options ensures fast delivery and high availability. With the optimal ratio of effective width to total width, the conveyor is ideal for integration in existing systems. Its mobility means it can be used as a versatile transport unit for filling containers or pallet cages.



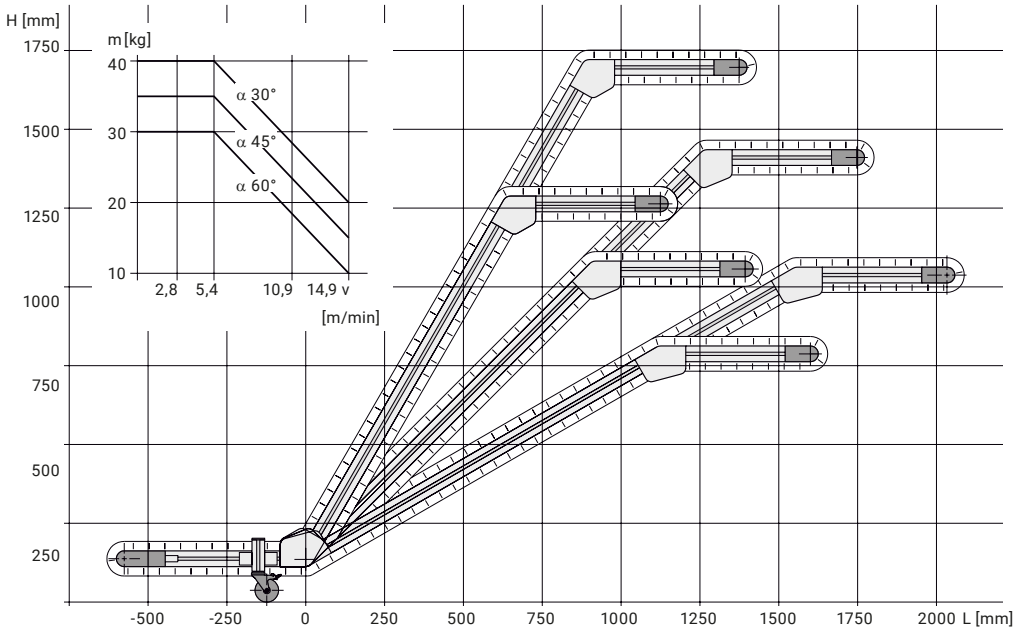
Technical data

Conveyor length L (L1+L2+L3)	2400/2900 mm (L1 = 600 mm, L2 = 1300/1800 mm, L3 = 500 mm)
Conveyor width B	400, 500, 600 mm (usable width: B-160 mm)
Drive location	discharge end left/right, above, 270° motor orientation, 0° for surcharge
Drive and speed	3.0; 5.8; 11.8; 16 m/min, others on request or with frequency inverter
Load capacity	depending on conveying angle and speed, up to 40 kg
Belt incline α	30, 45 and 60°
Conveyed product	height up to 55 mm, length up to 300 mm, weight up to 5 kg/compartment
Belt	GU-V0106-028DG
Cleats and side walls	high transverse cleats MT30 and 30 mm side wall, polyurethane, green with L2=1300, 16 transverse cleats with 303 mm between cleats with L2=1800, 19 transverse cleats with 308 mm between cleats

Options ECO

B20.00.015

2



See the table for the optimal option for your application. Without additional specifications, the conveyor is designed with a top, front left, 270° drive location and speed of 5.4 m/min.

Option (L2 1300 mm)	A1	A2	A3	A4	A5	A6	A7	A8	A9
Conveyor width B [mm]	400	400	400	500	500	500	600	600	600
Belt incline α	30°	45°	60°	30°	45°	60°	30°	45°	60°

Option (L2 1800 mm)	B1	B2	B3	B4	B5	B6	B7	B8	B9
Conveyor width B [mm]	400	400	400	500	500	500	600	600	600
Belt incline α	30°	45°	60°	30°	45°	60°	30°	45°	60°

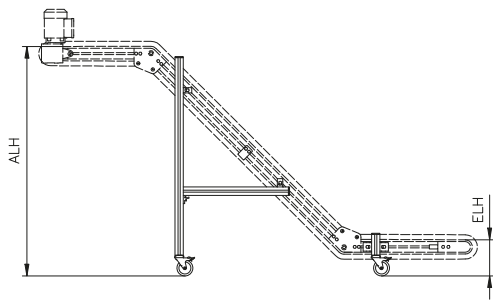


KFG-P 2000

Stand Type ECO

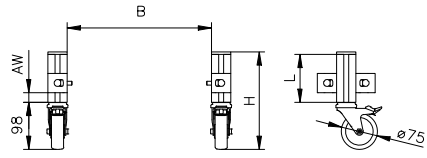
The stand was developed specially for the incline conveyor belt and incline conveyor modular belt and is characterised by its simplicity and light-weight design with the mk 2040.40 profile.

The swivel casters used have a total locking device, which guarantees a secure footing even at high transport speeds. The height and width of the stand is adapted based on the configuration; see the order example on the right.

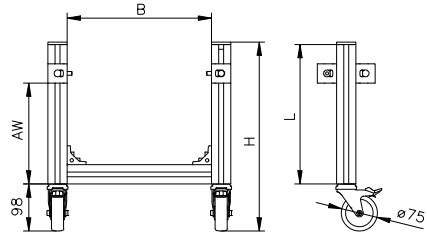


- ELH = infeed height
- ALH = discharge height
- B = conveyor width
- H = stand height
- L = length of the vertical profile
- AW = distance from the angle to the profile edge

Infeed End Stand B67.06.014

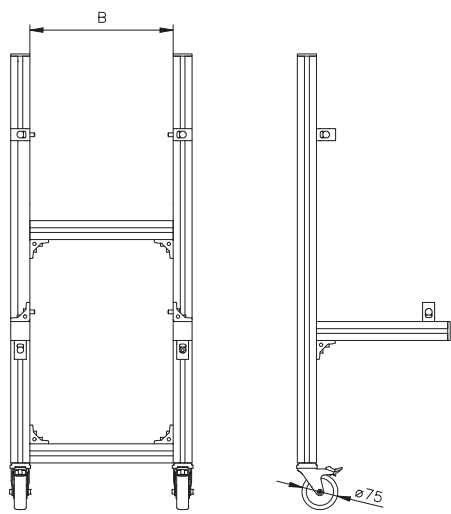


Infeed height (ELH) = 166–349 mm



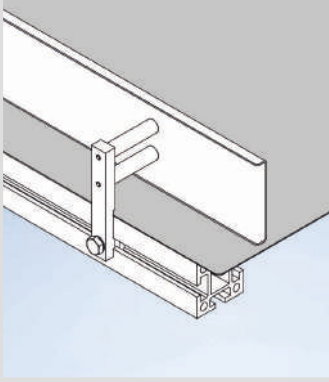
Infeed height (ELH) = 350–500 mm

Discharge End Stand B67.06.015



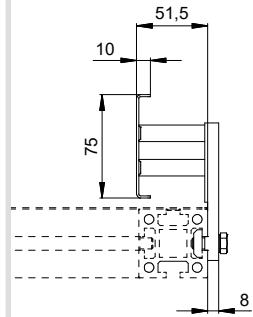
Side Rail KFG-P 2000 ECO

B17.00.035



The side rails are attached to the side of the conveyor frame profile and are used to position, restrict and keep the conveyed good in place during the conveying process. Side walls ensure the optimum seal to the belt. See page 107.

Height 75 mm,
 others on request



Sample order

Type designation

KFG-P 2000 type S (B20.00.010)

Drive AF, 90° motor orientation (as displayed)

Speed of 15 m/min

Conveyor width B = 500 mm

Conveyor length L1 = 500 mm;
 L2 = 1000 mm; L3 = 600 mm

Belt incline $\alpha 1 = 60^\circ$; belt incline $\alpha 2 = 60^\circ$

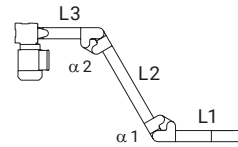
Cleat type T20 with side rail B17.00.035

Stand, incline conveyor, type ECO

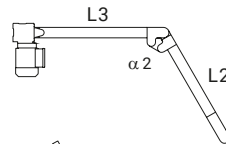
Infeed height ELH = 200 mm

Discharge height ALH = 1200 mm

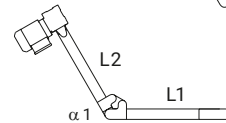
Type S



Type K



Type L



Application Examples KFG-P 2000

2



Incline conveyor belt KFG-P 2000 ECO with 60° incline, option B3 (B20.00.015-B3)



Incline conveyor belt KFG-P 2000 ECO with 45° incline, option B2 (B20.00.015-B2)



Incline conveyor belt KFG-P 2000 with head drive AS and side rail (B17.00.035)



Incline conveyor belt KFG-P 2000 with head drive AU and 45° incline



Incline conveyor belt KFG-P 2000 with side wall as a lateral boundary and transverse cleats




Incline conveyor belt KFG-P 2000 ECO with customer-specific dimensions



Incline conveyor belt KFG-P 2000 with head drive AC and side rail, belt guide via longitudinal cleats K10



Incline conveyor belt KFG-P 2000 with head drive AC and 30° incline

 Custom applications from page 408

Curved Belt Conveyor KGF-P 2040

2

» For horizontal conveying around corners. «



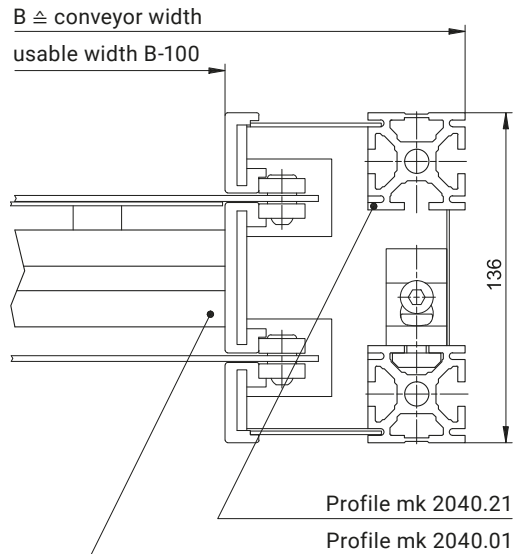
Benefits of the KGF-P 2040

- Horizontal transport on a 90° and 180° curve
- Compatible with all mk conveyor systems
- $\varnothing 20$ rolling knife edge ensures reliable transport of small product
- Integrated tensioning mechanism that automatically tensions the belt
- Lower belt drive leaves no obstructing edges
- Flexible operation in reverse and accumulation modes

The KGF-P 2040 conveyor system is based on Series 40 profiles and is compatible with all mk conveyor systems. The t-slots running along the outer radius (10 mm slot width based on our profile technology) allow you to easily connect additional accessories such as side rails, sensors, and so on. The profile design provides a torsion-resistant structure with good load-bearing properties. The values for the total load, speeds, and so on, specified below are directly related to this design and may vary as a result.

The conveyor is equipped with a $\varnothing 20$ rolling knife edge that allows even small products to be reliably transferred to the next system. Belt tensioning is handled by an automatic tensioning device that is integrated in the tail, which keeps the conveyor's outer dimensions constant. For options with a standard motor, the compact lower belt drive ensures that there are no obstructing edges.

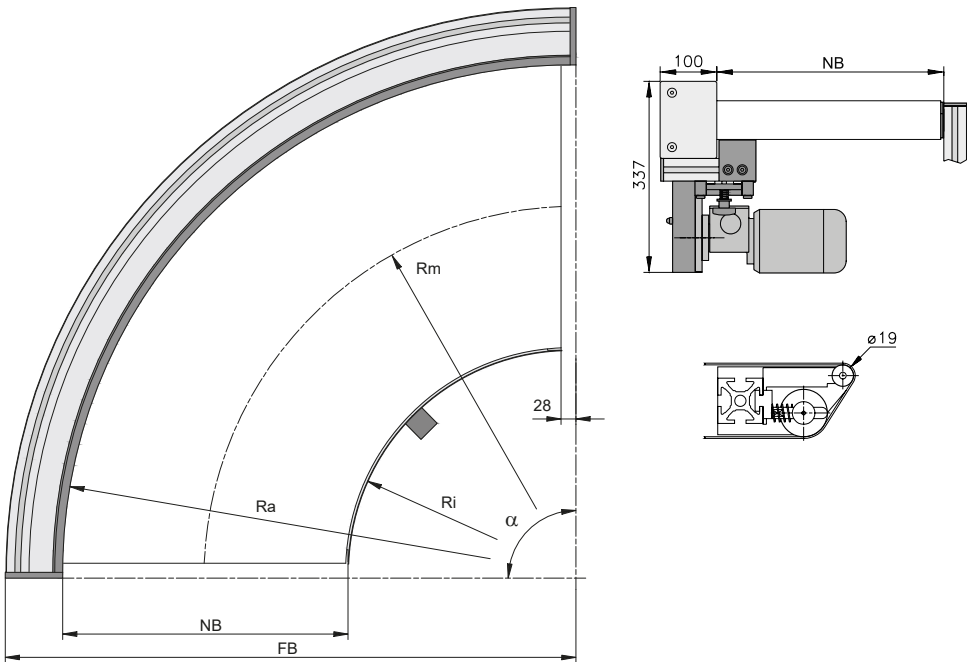
Cross Section



BC – Lower belt drive, standard

B20.40.020 (90°) | B20.40.021 (180°)

With this conveyor, mk offers the BC drive version with a usable width of 300, 400, 500 and 600 mm for 90° and 180° conveying radii. The compact conveyor frame design makes it easy to integrate the conveyor into existing systems. The $\varnothing 55$ mm driving roller ensures excellent transmission of the motor power.

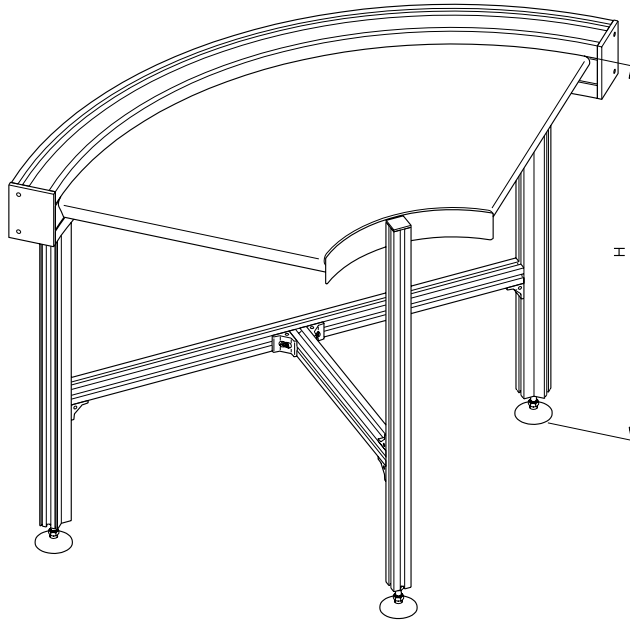


Technical data

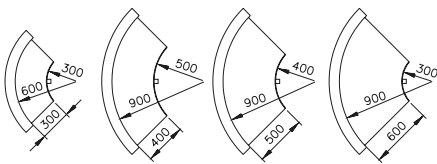
Conveying angle	90° and 180°, others on request
Usable width NB	300 with Ra=600 mm, Ri=300 mm, FB=706 400 with Ra=900 mm, Ri=500 mm, FB=1006 500 at Ra=900 mm, Ri=400 mm, FB=1006 600 at Ra=900 mm, Ri=300 mm, FB=1006
Drive location	below
Drive and speed	5 to 30 m/min at Rm, others on request
Stands	standard design or with belt replacement aid
Load capacity	depending on conveyor radius and conveyed product, up to 30 kg
Belts	

from p. 100

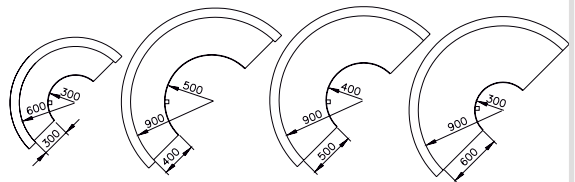
KGF-P 2040 Stands and Specifications



**Radius of 90° Curve Versions
 B20.40.020**



**Radius of 180° Curve Versions
 B20.40.021**



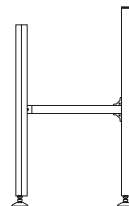
Sample order

KGF-P 2040
 Ra 900/Ri 500 version
 Speed of 15 m/min
 Usable width NB = 400 mm
 Belt type
 Stand, with or without
 Belt replacement support
 Conveyor height H = 800 mm

Type designation

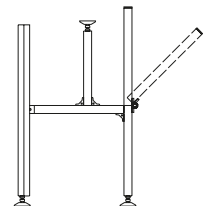
Type 1

Standard stand



Type 2

Stand with
 belt replacement aid*



*With usable width
 B = 400 mm or wider

Application Examples KGF-P 2040

2



Curved belt conveyor KGF-P 2040 with centre drive BC and stand type 1



Curved belt conveyor KGF-P 2040 with centre drive BI and rolling knife edge



Curved belt conveyor KGF-P 2040 with internal radius $R=300$ mm and stand type 2



180° curved belt conveyor KGF-P 2040 with side rail on internal radius



180° curved belt conveyor KGF-P 2040
 without internal radius




180° curved belt conveyor KGF-P 2040
 with 300 mm internal radius



Curved belt conveyor KGF-P 2040 with rolls for transfer to the belt conveyor without a knife edge

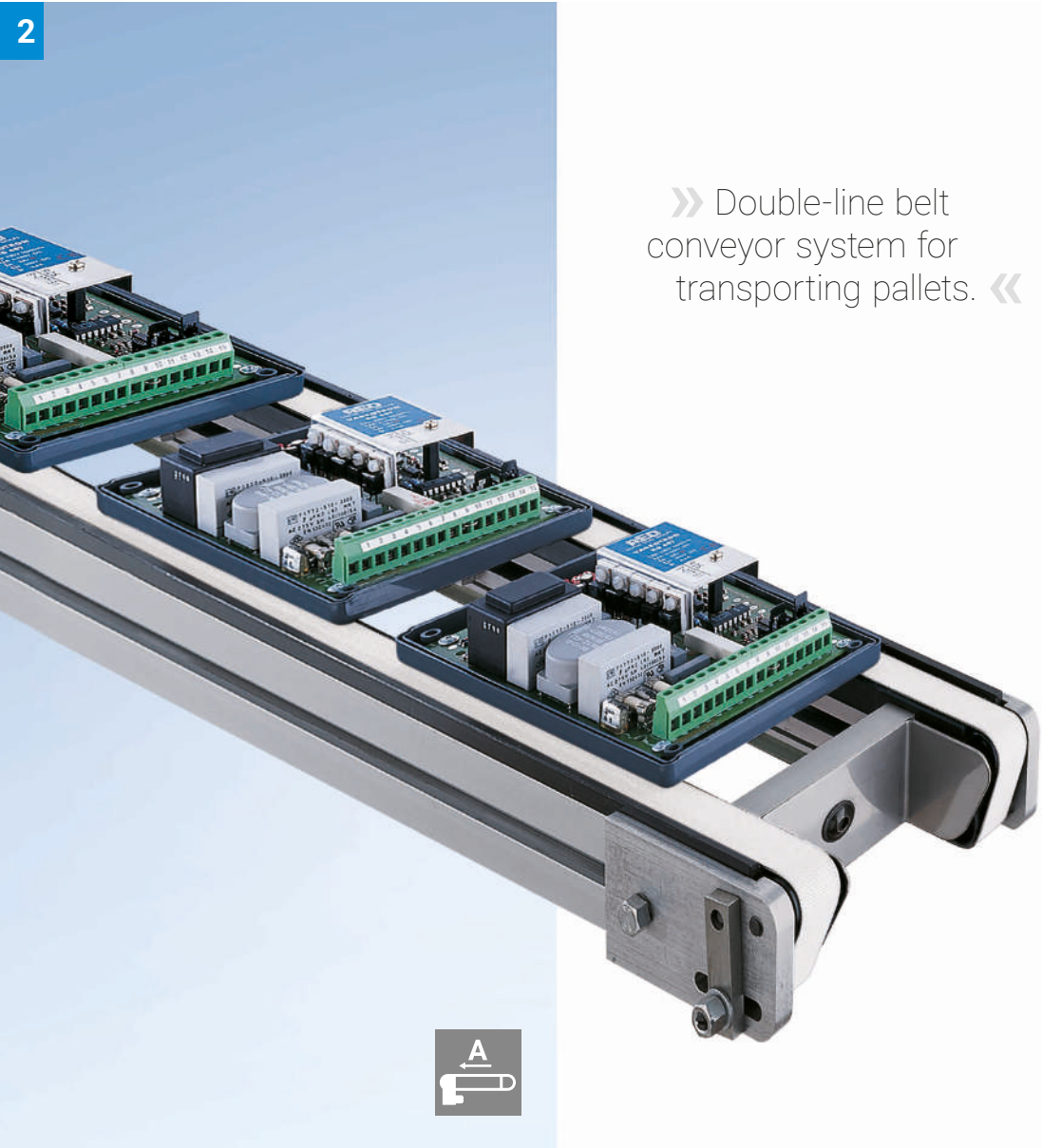


Curved belt conveyor KGF-P 2040 with height-adjustable, movable frame

 Custom applications
 from page 408

DGF-P 2001 Double Belt Conveyor

2



» Double-line belt conveyor system for transporting pallets. «

Benefits of the DGF-P 2001

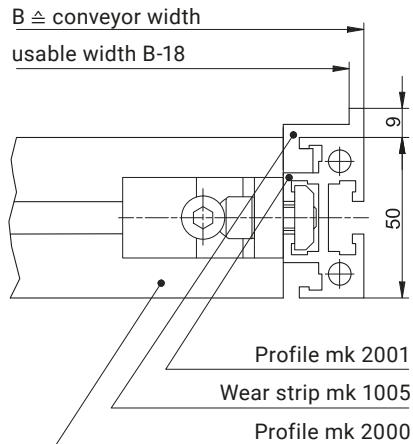
- Transporting pallets
- Very small tail allows even small pallets to be transported
- Integrated tensioning mechanism that automatically tensions the belt
- Flexible operation in accumulated and cycling mode
- Optional custom pallets

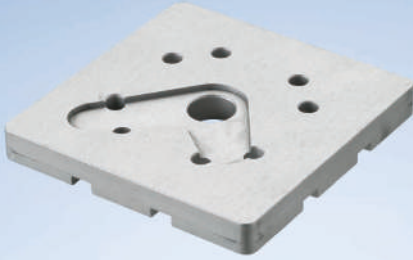
The DGF-P 2001 conveyor system is specially designed for transporting pallets. The system is often used in assembly systems, for example, in the electrical industry.

The small idler roller allows you to transport short pallets. A roller on the lower run side of the tail is responsible for the belt tension. This ensures that the conveyor maintains a fixed installation length. The belt runs entirely atop wear strips, which allows for a maximum weight of 15 kg per section.

mk delivers pallets for the DGF-P 2001 in aluminium as standard. The pallets can therefore be machined according to customer requirements.

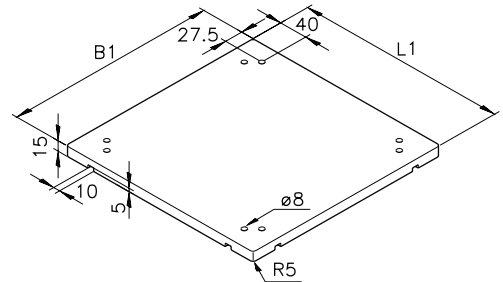
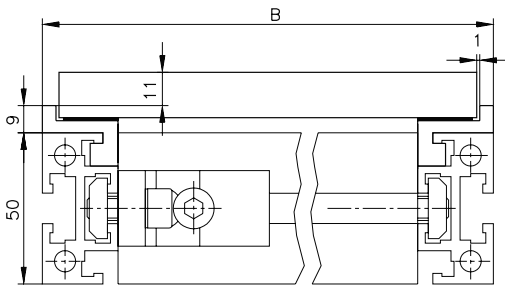
Cross Section





DGF-P 2001 Pallets

The pallets for the DGF-P 2001 transport system are made from aluminium (3.1325) as standard. The pallet width is always determined by the dimensions of the conveyor system ($B-11$ mm). The minimum length is 90 mm. Alternative pallet materials can also be used depending on the product to be transported.

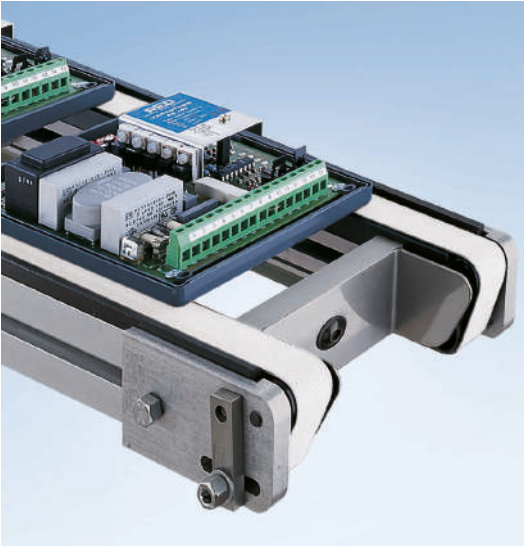


Processing

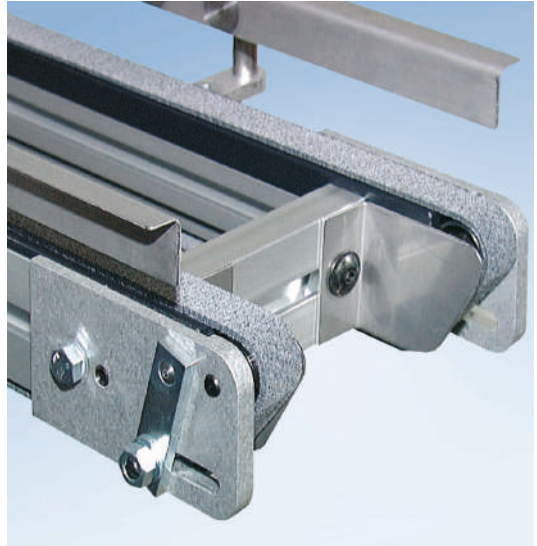
Upon request, we are happy to design pallets for your particular application or manufacture them according to your drawings.

Application Examples DGF-P 2001

2



Double belt conveyor DGF-P 2001, particularly suitable for transporting small pallets



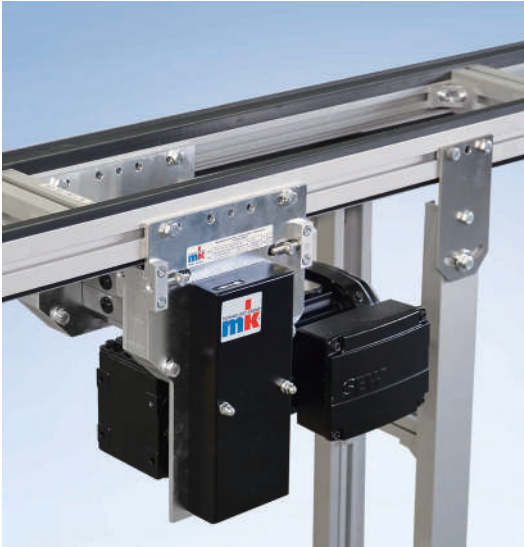
Double belt conveyor DGF-P 2001 with side rail for over-wide conveyed goods



Double belt conveyor DGF-P 2001 with head drive AF



Double belt conveyor DGF-P 2001, side rail using wear strip type B with stand S53.1



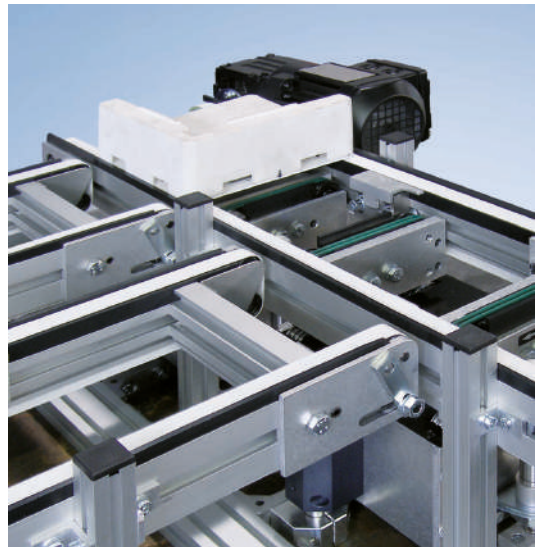
Double belt conveyor DGF-P 2001
 with lower belt drive BC



Double belt conveyor DGF-P 2001
 with head drive AC



Double belt conveyor DGF-P 2001
 with side rail SF02 and stand S53.21



Interlinking of multiple double belt conveyors
 DGF-P 2001 with integrated lift-and-transfer conveyor

Belts

2

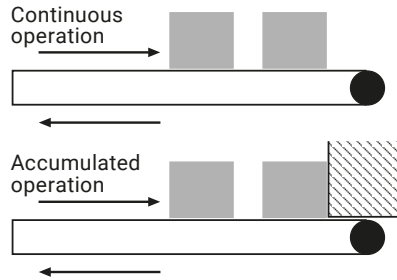
General Information

For the most part, the belt types listed here meet all requirements. Other belts are available on request.

Accumulating belts are designed for long-term accumulated operation and have corresponding surface properties (friction coefficient).

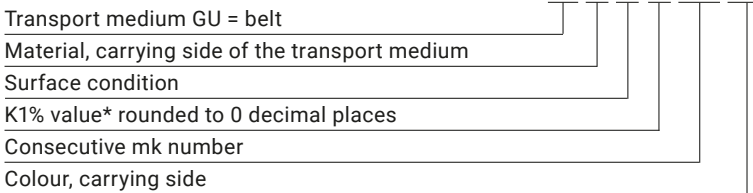
Belts with limited accumulation capability are not designed for long-term accumulated operation. Relative motion is permitted, e.g. when running up against an end stop, in case of slight speed differences from one conveyor to the next, or with transverse movement of light loads (with laterally stiff belts only).

The non-accumulating belts, also known as anti-slip belts, have a structure or friction coefficient that provides high grip.



Order Designation

GU -U 03 03 -001 WE



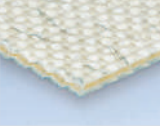

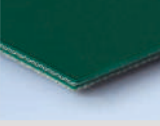
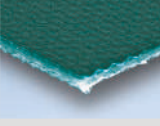



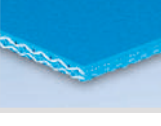
Material		Surface condition		Colour, carrying side **	
-F	Felt	01	Allows for accumulated operation	BL	Transparent
-R	Rubber (NBR)	02	Allows for restricted accumulated operation	WE	White
-T	Polyester (PET)	03	Not suitable for accumulated operation	LB	Blue
-U	Polyurethane (PU)			DG	Green
-V	Polyvinyl chloride (PVC)			SW	Black

* The K1% value is the force with which the belt is stretched by 1% per mm of width. It is an indication of the strength and therefore the load capacity of the belt.

** Depending on the batch, the colour of the belt may differ from the example in the photograph in this catalogue.


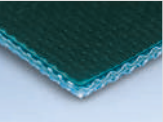
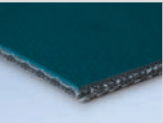



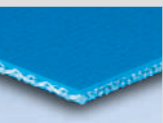
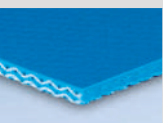
Belts

Belt group ascending in price

Item no. and designation	Allows for accumulated operation	Material	Colour	Surface	Min. \varnothing of the tail	Permissible temperature	Approx. belt thickness	Properties	Belt group
K1029003 GU-T0105-003BL									
	Yes	PET	Transparent	Woven	6 mm	-10 to 70 °C	1.2 mm	Laterally stiff, antistatic, FDA-compliant, oil-resistant*	2
K1029008 GU-T0101-008BL									
	Yes	PET	Transparent	Woven	20 mm	-10 to 70 °C	1.3 mm	Antistatic, FDA compliant, suitable for curved belt conveyors	1
K1029028 GU-V0106-028DG									
	Yes	PVC	Green	Smooth	14 mm	-15 to 80 °C	1.8 mm	Laterally stiff, FDA compliant, suitable for incline conveyor	2
K1029015 GU-U0107-015DG									
	Yes	PU	Green	Smooth	40 mm	-10 to 70 °C	1.6 mm	Laterally stiff, antistatic, oil-resistant*	3
K1029010 GU-V0103-010SW									
	Yes	PVC	Black	Smooth	30 mm	-10 to 60 °C	1.8 mm	Antistatic, suitable for curved belt conveyor	2
K1029019 GU-F0106-019SW									
	Yes	Felt	Black	Smooth	30 mm	-10 to 120 °C	2.5 mm	Antistatic, suitable for curved belt conveyor	2
K1029007 GU-U0204-007WE									
	With restrictions	PU	White	Smooth	6 mm	-30 to 100 °C	1.3 mm	Laterally stiff, antistatic, FDA compliant, oil-resistant*	3
K1029050 GU-U0205-050LB									
	With restrictions	PU	Blue	Smooth	6 mm	-30 to 100 °C	1.3 mm	Laterally stiff, antistatic, FDA-compliant, oil-resistant*	3

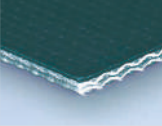
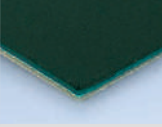
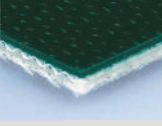
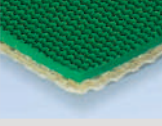
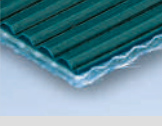


Belts

Belt group ascending in price

Item no. and designation	Allows for accumulated operation	Material	Colour	Surface	Min. ø of the tail	Permissible temperature	Approx. belt thickness	Properties	Belt group
K1029006 GU-V0203-006DG single-layer***									
	With restrictions	PVC	Green	Smooth	30 mm	-10 to 70 °C	0.8 mm	Laterally stiff, antistatic	1
K1029011 GU-U0205-011DG									
	With restrictions	PU	Green	Smooth	50 mm	-15 to 80 °C	1.6 mm	Laterally stiff, antistatic, FDA-compliant, oil-resistant*	4
K1029029 GU-U0310-029DG									
	No	PU	Green	Smooth	50 mm	-30 to 90 °C	2.4 mm	Laterally stiff, FDA compliant, suitable for incline conveyor, oil-resistant*	5
K1029001 GU-U0302-001WE single-layer***									
	No	PU	White	Smooth	6 mm	-20 to 70 °C	0.7 mm	Antistatic, FDA-compliant, oil-resistant*	1
K1029004 GU-U0305-004WE									
	No	PU	White	Smooth	6 mm	-30 to 80 °C	1.2 mm	Laterally stiff, antistatic, FDA-compliant, oil-resistant*	3
K1029017 GU-U0306-017WE									
	No	PU	White	Smooth	10 mm	-30 to 80 °C	1.4 mm	Laterally stiff, antistatic, FDA-compliant, oil-resistant*	3
K1029030 GU-U0308-030LB									
	No	PU	Blue	Smooth	6 mm	-30 to 100 °C	1.4 mm	Laterally stiff, antistatic, FDA-compliant, oil-resistant*	3
K1029024 GU-U0305-024LB									
	No	PU	Blue	Smooth	6 mm	-30 to 100 °C	1.5 mm	Laterally stiff, antistatic, FDA-compliant, oil-resistant*	3

Belts

Belt group ascending in price

Item no. and designation	Allows for accumulated operation	Material	Colour	Surface	Min. ø of the tail	Permissible temperature	Approx. belt thickness	Properties	Belt group
K1029012 GU-U0306-012DG									
	No	PU	Green	Smooth	25 mm	-30 to 100 °C	1.4 mm	Laterally stiff, antistatic, FDA-compliant, oil-resistant*	3
K1029009 GU-V0303-009DG									
	No	PVC	Green	Smooth	25 mm	-10 to 70 °C	1.8 mm	Antistatic, suitable for curved belt conveyor	2
K1029013 GU-V0307-013DG									
	No	PVC	Green	Smooth	40 mm	-10 to 60 °C	2.0 mm	Laterally stiff, antistatic	2
K1029005 GU-R0303-005DG									
	No	NBR	Green	Woven	30 mm	0 to 80 °C	1.5 mm	Antistatic, oil-resistant*, cut-proof	3
K1029016 GU-U0305-016DG									
	No	PU	Green	Structured	40 mm	-30 to 80 °C	1.9 mm	Antistatic, oil-resistant*	4
K1029014 GU-V0306-014DG									
	No	PVC	Green	Structured	50 mm	-10 to 60 °C	4.9 mm	Laterally stiff, antistatic	3
K1029018 GU-V0307-018SW									
	No	PVC	Black	Structured	40 mm	-10 to 60 °C	2.2 mm	Laterally stiff, antistatic	2

* The belt's oil resistance may need to be tested based on the type of oil used.

** Cut-proof belts ensure a longer service life when transporting sharp products such as stamped parts.

*** Single-layer belts are less robust and therefore must not be as strongly pre-tensioned.

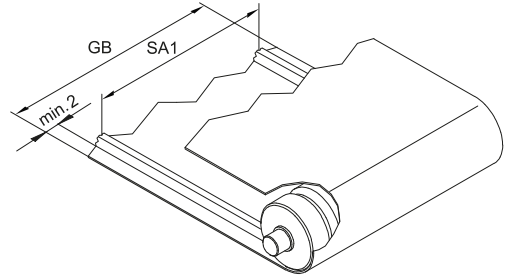
Cleats and Side Walls

2

When selecting a cleat profile, please note that the cleat must be of the same material as the belt. Segmented transverse cleats are possible, as are combinations of longitudinal and transverse cleats.

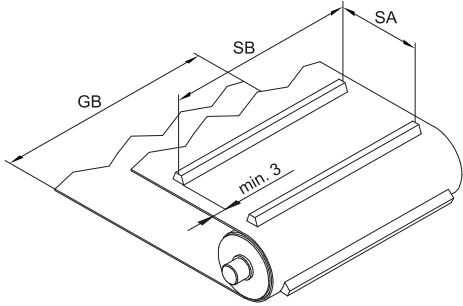
The bonding points on the cleats generally have more limited temperature range than the belt and cleat material itself. More robust designs, such as woven fabric cleats, are available on request.

Longitudinal cleats, internal (running side) are a belt guide option and are usually used where lateral forces act on the belt. In the area of the longitudinal cleats, the belt may be uneven.

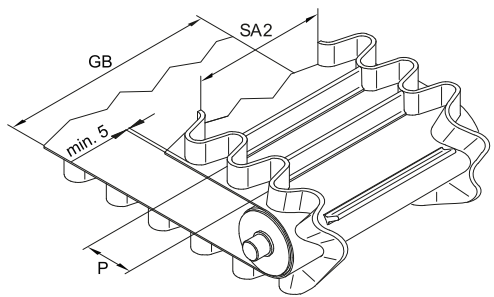


Cleat material	Temperature range
PVC	-10 to +70°C
PU	-30 to +80°C
PE	-30 to +100°C

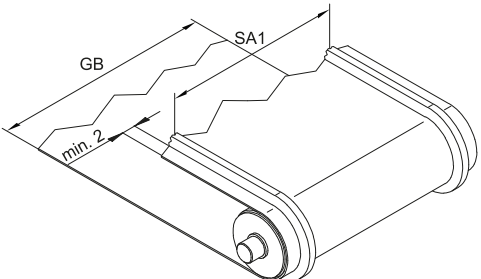
Transverse cleats (carrying side) serve as the carrying mechanism for the conveyed product, especially in inclined conveyors.



Side walls, external (carrying side) can be used instead of side rails and are often employed in incline conveyors.










Longitudinal cleats, external (carrying side) are used to guide the belt on concave tracks (for example, on incline conveyors).



Cleats and Side Walls

2

Longitudinal Cleats (can also be used as lateral cleats)

Designation	Material/colour				Min. SA/SA1* [mm]	Weight [g/m]	Min. ϕ of idler roller [mm]		
	PVC		PU				Longitudinal cleats Running side	Longitudinal cleats Carrying side	Transverse cleats Carrying side
	Green	White	Trans- parent	Green					
K6 	•	•	•		30	25	40	30	30
K10** 	•	•	•	•	30	60	70	60	50
K13 	•	•	•		30	100	90	60	80
K15 	•		•		30	120	90	60	90
K17 	•	•	•		30	180	90	90	100
F20/3 	•	•			30	75	70	50	70
F30/8 	•	•			45	290	120	90	120

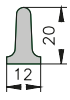
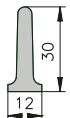
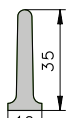
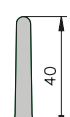
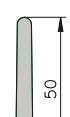
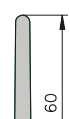
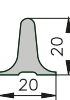
*SA1 = minimum distance between longitudinal cleats/SA = minimum distance between transverse cleats

**This cleat must be used for the belt guide on the carrying side for the incline conveyor.

Cleats and Side Walls

2

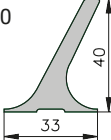
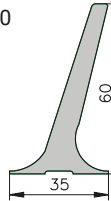
Transverse Cleats

Designation	Min. SA*	Material/colour				Weight [g/m]	Min. ϕ of idler roller [mm] Transverse cleats carrying side
		PVC		PU			
		Green	White	Green	White		
T20U 	40			•	•	140	50
T30U 	40			•	•	180	50
T35U 	40			•	•	200	50
T40U 	40			•	•	220	50
T50U 	40			•	•	250	50
T60U 	40			•	•	280	50
T20 	55	•	•			160	90

Cleats and Side Walls

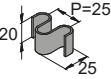
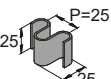
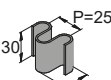
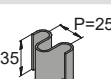
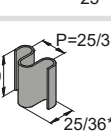
2

Transverse Cleats

Designation	Min. SA*	Material/colour				Weight [g/m]	Min. ϕ of idler roller [mm] Transverse cleats, carrying side
		PVC		PU			
		Green	White	Green	White		
L40 	55	•	•			140	85
L60 	55	•	•			180	85

*SA = minimum distance between transverse cleats

Side Walls

Designation	Material/colour						Min. ϕ of idler roller [mm] (\cong 2 x side wall height)
	Green	PVC White	Blue	Green	PU White	Blue	
WK20 	•	•	•	•	•	•	40
WK25 	•	•	•	•	•	•	50
WK30 	•	•	•	•	•	•	60
WK35 	•	•	•	•	•	•	70
WK40 	•	•	•	•	•	•	80

The minimum distance from the side wall to the edge of the belt is 5 mm. Min. SA2 = 60; min. A = 5
*Varies based on the version

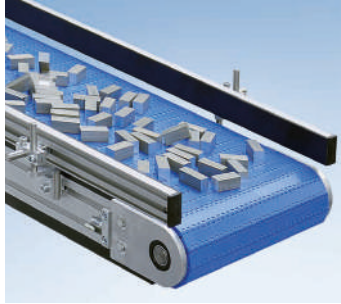
Chapter 3 Modular Belt Conveyors

3



Selecting a Modular Belt Conveyor

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Modular Belt Conveyor MBF-P 2040

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Head Drives

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Application Examples

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Incline Conveyor Modular Belt KFM-P 2040.86

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Head Drives

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Stands

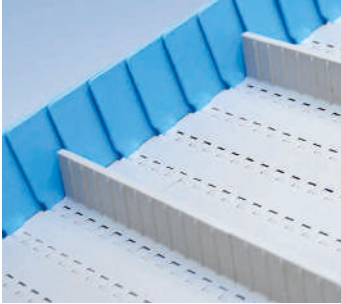
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Modular Belts

for MBF-P 2040 and KFM-P 2040	148
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Selecting a Modular Belt Conveyor

Dimensions – Technical Data

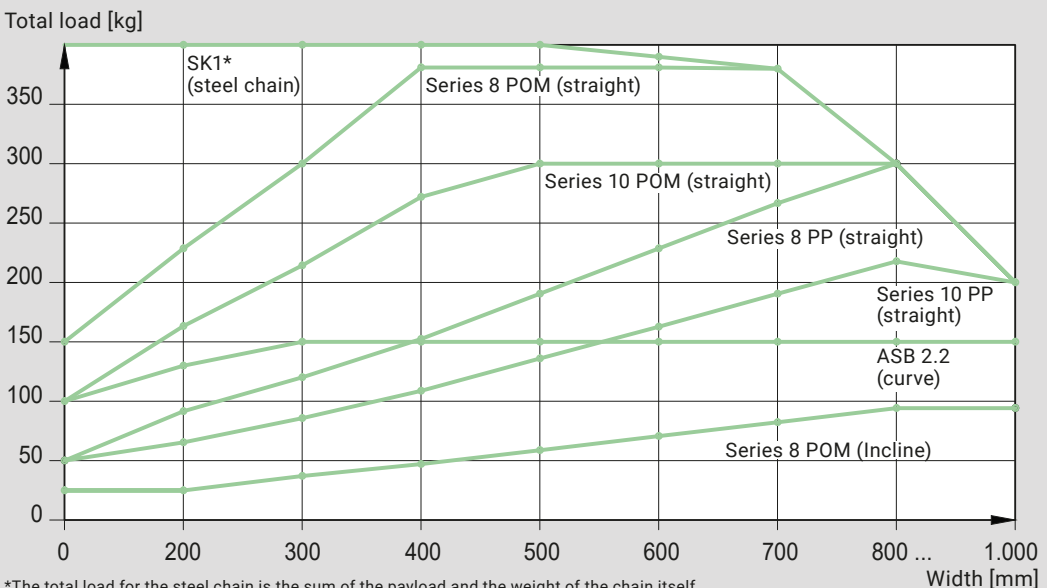
Conveyor system	Conveyor widths [mm]	Conveyor lengths [mm]	Total load* as standard, up to [kg]	Speed up to [m/min]	ø of tails [mm]	Reverse operation	Accumulated operation	Cycling operation
Modular belt conveyors								
MBF-P 2040	approx. 200–1000	475–10000	250	30	approx. 100		•	•
Incline conveyor modular belt								
KFM-P 2040	approx. 200–1000	1000–4000	100	30	approx. 100			•
Modular belt conveyors with hinged plate belt								
MBF-P 2040.86	210–710	1400–10000	150	12	88			•
Incline conveyor modular belt with hinged plate belt								
KFM-P 2040.86	210–710	1400–10000	150	12	88			•

* Usual load limits that may be exceeded based on the configuration and influencing factors. Influencing factors for the load include: width, number of teeth on the drive sprocket wheels, chain type, load distribution, duty type and environmental conditions.

System Selection

... based on the load, conveyor width and modular belt series

The diagram can be used as a basis for determining the permissible total load based on the conveyor width and chain series. For the plastic modular belts, a coefficient of friction of $\mu=0.3$ is assumed. For the steel chain (hinged plate belt), a coefficient of friction of $\mu=0.15$ is assumed. For accumulated operation, both with plastic and steel chains, the mass that accumulates must also be taken into account with $\mu=0.3$ for the total load. Theoretically, this means that the mass in accumulated operation must be doubled (200 kg in accumulated operation equals 400 kg in continuous operation). The standard application with lateral cleats, particularly with incline conveyors, does not allow accumulated operation.



*The total load for the steel chain is the sum of the payload and the weight of the chain itself.

Application Options

Due to their positive locking drive in the side rail, modular conveyors are recommended where a belt is not an option due to slip, an unfavourable length-width ratio or transverse forces. The low-maintenance plastic modular belts in Series 8 and 10 (straight) and ASB 2.2 (curve) are standard versions.

Upon request, we can provide a design with reinforced bearings, supplemental supports of the drive shaft and an appropriate number of additional sprockets to utilise the full performance capacity of the chain and, following testing and coordination, enable widths of up to 2 m.

Conveyor with a hinged steel belt

The hinged plate belt for the incline conveyor is equipped with a steel chain that makes it suitable for harsh environmental conditions and for transporting products such as stamped, cast, forged or wooden pieces. It is particularly suitable for conveying hot goods up to 200° C.

On request, transverse cleats can be screwed or welded on. Stainless steel or perforated variants of the chain are available. Due to the gap of 1 to 3 mm between the side rail and chain, this system is not suitable for pointed stamping scraps or metal chips.

Modular Belts

Series 8 is characterised by its robustness and is used in industrial applications in particular. Series 10 is intended for transporting lightweight to medium-weight products in sanitary environments, such as those found in the food industry and the pharmaceutical sector. The module geometry and the sprocket wheels were therefore designed to ensure easy cleaning, to eliminate cavities and hollow spaces and to allow for limited self-cleaning of the gaps.

Transverse cleats up to 75 mm in height and side plates up to 100 mm in height are available for both series. This eliminates the need for a complex side rail, as well as the associated problems arising from gaps and from relative motion between the chain and side rail.

For the permissible tensile load, a safety factor of three relative to the permissible tensile loads of the chain was included in the calculation to ensure reliable durability. At a length of 3 metres, the usual chain slack can be dispensed with, which allows for restricted reversing operations. At lengths of more than 3 metres or under heavy loads, the conveyor is run with a balance option (e.g. chain sagging or a tensioning device).

The chain for curves (ASB 2.2) is highly resistant to wear and abrasion, making it suitable for high temperatures, contact with chemicals or food, etc.

Modular Belt Material

The Series 8 chain made from impact-resistant, affordable polypropylene (PP) is the standard for industrial applications. Series 10 is made from polyethylene (PE) for applications in the food industry.

For especially demanding requirements regarding max. load and/or cut resistance, we recommend polyoxymethylene (POM, POM-CR). This material can even handle the occasional impact from product landing forcefully on the chain or the transverse cleats.

Modular Belt Conveyor MBF-P 2040

3

» Straight version for flexible combination with curved and inclined tracks. «



Benefits of the MBF-P 2040

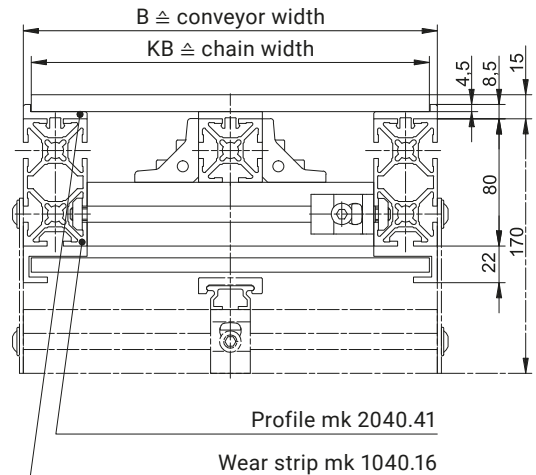
The positive drive mechanism on the conveyor system MBF-P 2040 with modular belt allows it to convey high loads even with narrower conveyor widths. The belt guide ensures that there is no lateral movement. It also allows conveyed products to be moved diagonally.

The material of the modular belt offers a high level of wear-resistance and abrasion resistance. The conveyor system offers various chain materials to make it suitable for food, suitable for high temperatures or resistant to chemicals. Accessories such as side plates and transverse cleat profiles are also included in the product range.

Maintenance work such as tensioning the belt or replacing individual elements can be carried out quickly and easily.

- High load capacities available
- Positive drive mechanism eliminates slippage and makes it suitable for wet applications
- Stable chain travel regardless of the length/width ratio
- Maximum usable width with low total width
- Lateral movement of conveyed products
- Belt is guided to eliminate lateral deviation
- Chain material is highly resistant to wear and abrasion, making it suitable for high temperatures, contact with chemicals or food, etc.

Cross Section*



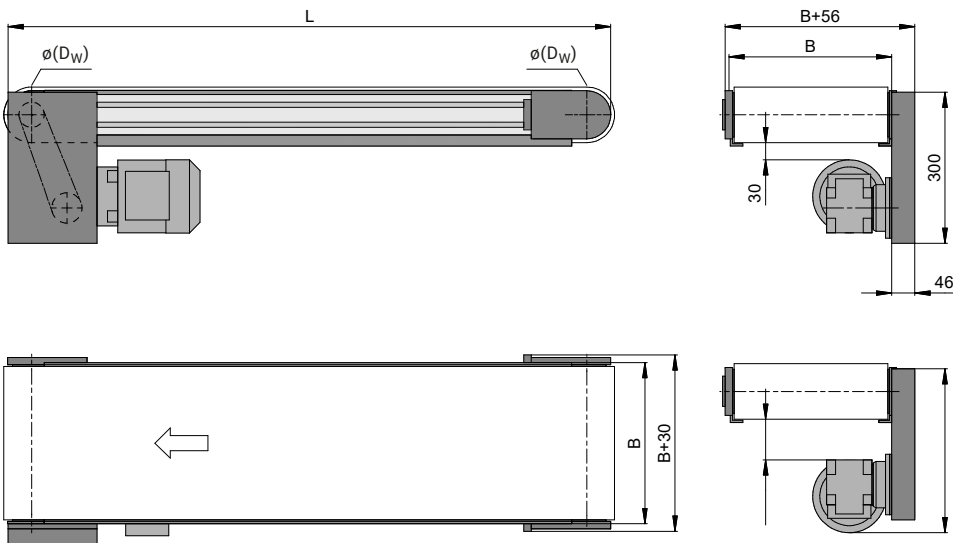
*Diagram includes a modular belt support in the lower run (dashed line). Only necessary with $B > 700$ mm.

AC – Standard head drive

B20.40.806

The compact conveyor frame design makes it easier to integrate the conveyor into existing systems. The sprocket wheel with the positive-locked connection to the modular belt ensures excellent transmission of the motor power. At lengths of up to three metres, the chain does not sag but the belt still runs quietly. With lengths of around three metres or more, there is chain sagging on the drive end, which is enclosed by a protective box. This results in an additional obstructing edge.

3



* when using transverse cleats

Technical data

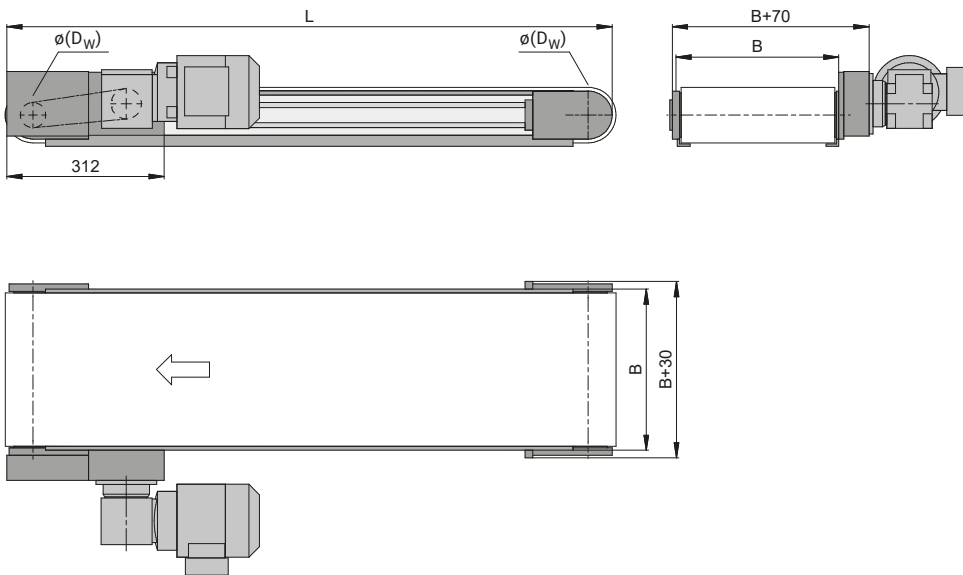
Conveyor length L	individual from 475 to 10000 mm	
Conveyor width B	approx. 200–1000 mm depending on the chain type	p. 148
Drive location	left/right underneath	
Drive and speed	up to 30 m/min, higher on request	p. 12
Stands		from p. 290
Standard total load	up to 250 kg, higher on request	p. 110
Standard distributed load	up to 75 kg/m, higher on request	p. 110
Pitch diameter (DP)	chain S8=99.7 mm; chain S10=98 mm	



AS – Head drive, laterally on the outside, compact

B20.40.807

The drive located laterally on the outside allows the total height of the conveyor to be restricted to a minimum. The sprocket wheel with the positive-locked connection to the modular belt ensures excellent transmission of the motor power. With lengths of up to three metres, the chain does not sag but the belt still runs quietly. With lengths of around three metres or more, there is chain sagging on the drive end, which is enclosed by a protective box. This results in an additional obstructing edge.



Technical data

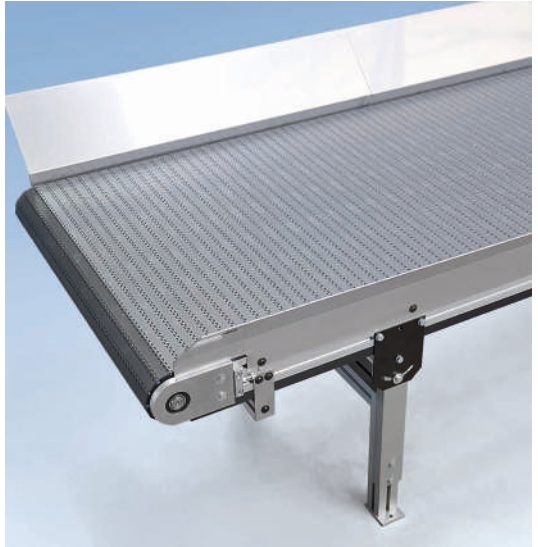
Conveyor length L	individual from 610 to 10000 mm	
Conveyor width B	approx. 200–1000 mm depending on the chain type	p. 148
Drive location	left/right underneath	
Drive and speed	up to 30 m/min, higher on request	p. 12
Stands		from p. 290
Standard total load	up to 250 kg, higher on request	p. 110
Standard distributed load	up to 75 kg/m, higher on request	p. 110
Pitch diameter (DP)	chain S8=99.7 mm; chain S10=98 mm	

Application Examples MBF-P 2040

3



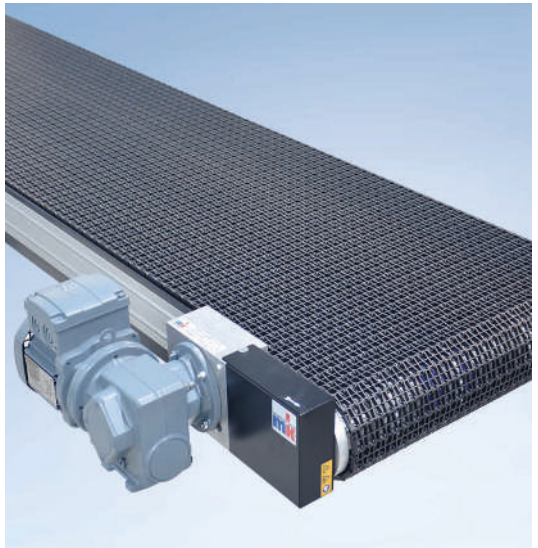
Modular belt conveyor MBF-P 2040 with side wall and additional side rail



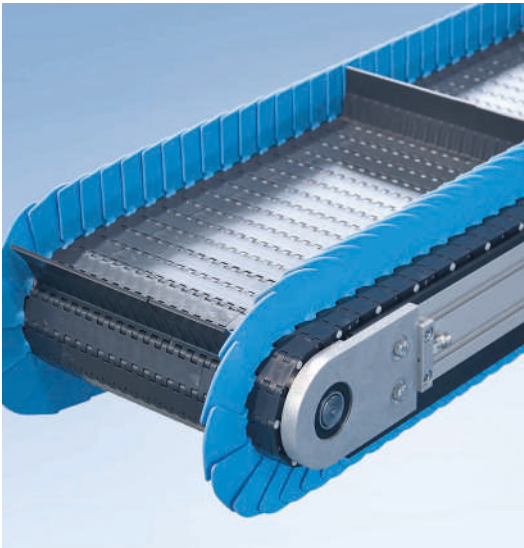
Modular belt conveyor MBF-P 2040 with funnel-shaped side rail



Modular belt conveyor MBF-P 2040 with end stop



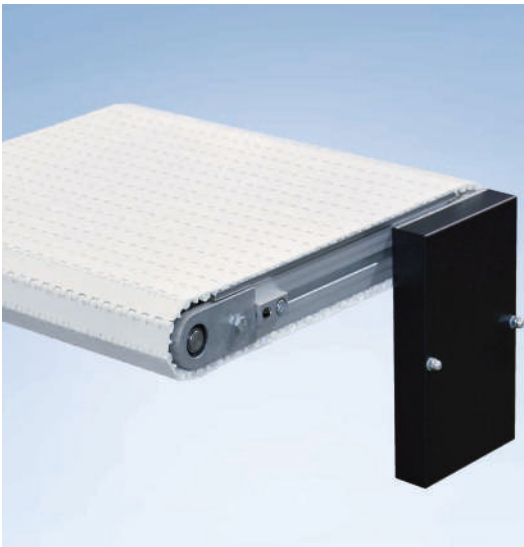
Modular belt conveyor MBF-P 2040 with head drive AS and modular belt with grid structure for outstanding air circulation



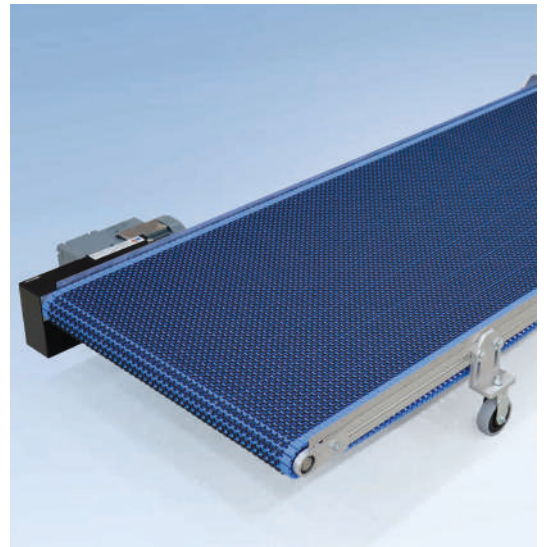
Modular belt conveyor MBF-P 2040
with moving side wall



Modular belt conveyor MBF-P 2040
with rubber-top modular belt (one-sided)



Modular belt conveyor MBF-P 2040
with a particularly short design



Modular belt conveyor MBF-P 2040
with a special chain with friction lining

Incline Conveyor Modular Belt KFM-P 2040

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» Incline conveying for connecting different heights. «



Benefits of the KFM-P 2040

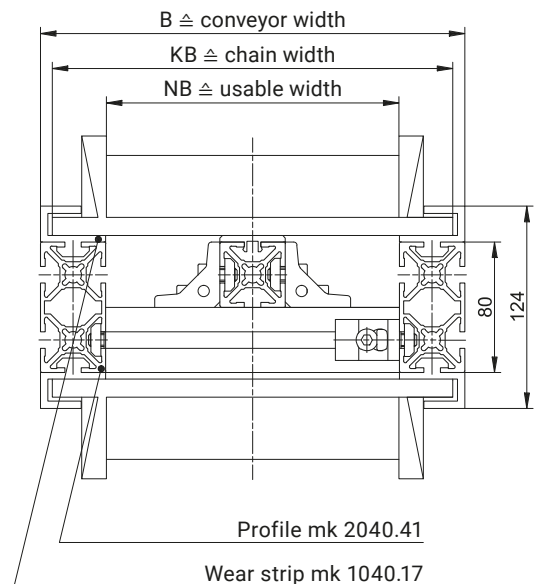
- Moving transport unit for mobile use
- Ideal for integration into existing systems
- High load capacities available
- Positive drive mechanism eliminates slippage and makes it suitable for wet applications
- Stable chain travel regardless of the length/width ratio
- Chain material is highly resistant to wear and abrasion, making it suitable for high temperatures, contact with chemicals or food, etc.
- Accessories such as side walls and transverse cleat profiles available

The conveyor system KFM-P 2040, with its compact conveyor frame structure made from aluminium profile technology, is ideal for integration into existing machines or as a mobile transport unit for filling containers, for example.

The plastic modular belt, which is fully guided through PE1000 wear strips, is used to transport slugs or moulded plastic parts, light punched parts or food products. The material of the modular belt offers a high level of wear-resistance and abrasion resistance. The conveyor system offers various chain materials to make it suitable for food, suitable for high temperatures or resistant to chemicals.

Accessories such as side plates and transverse cleat profiles are also included in the product range. The slots in the profiles allow for easy connection of accessories such as funnels and discharge slides. Depending on the product you wish to convey, please also see our incline conveyor with a belt or hinged plate belt.

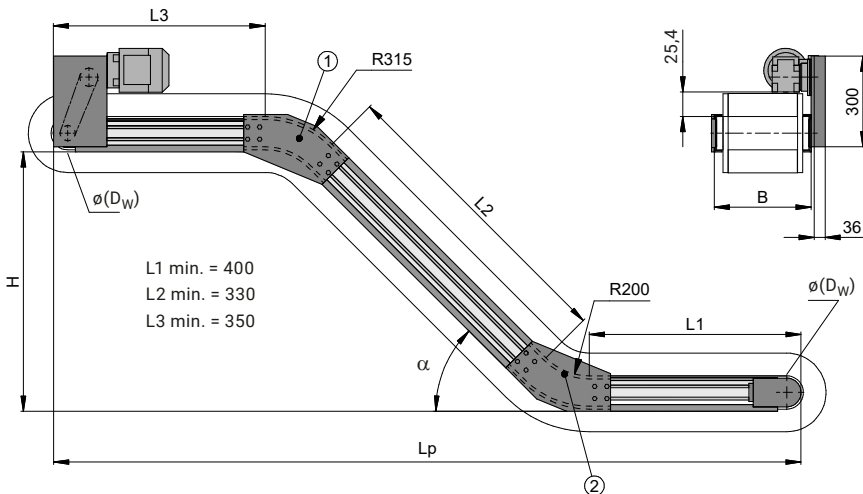
Cross Section



AC – Standard head drive

B20.40.810/811/812

For the drive version AC, mk offers a multitude of drive motors tailored to various speed and load capacity requirements. The sprocket wheels ensure excellent transmission of the motor power. At lengths of up to three metres, the chain does not sag but the belt still runs quietly. With lengths of around three metres or more, there is chain sagging on the drive end, which is enclosed by a protective box. This results in an additional obstructing edge.



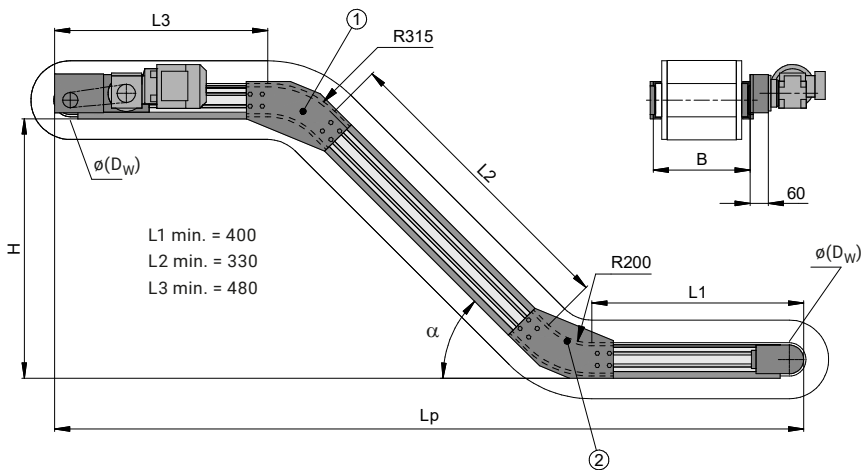
Technical data

Conveyor length L (L1+L2+L3)	depending on the conveyor configuration and total load, usually up to 4000, max. 10000 mm (max. length based on the angle of alpha and L2)	
Conveyor width B	approx. 200–1000 mm depending on the chain type	p. 148
Drive location	discharge end left/right, underneath/above	
Drive and speed	up to 30 m/min	p. 12
Stands		p. 120
Total load	up to 100 kg (including chain weight)	p. 110
Distributed load	up to 50 kg/m, 15 kg/compartment	p. 110
Belt incline a 1 and 2	30, 45 and 60°	others on request
Pitch diameter (DP)	chain S8=99.7 mm; chain S10=98 mm	



AS – Head drive, laterally on the outside, compact B20.40.813/814/815

The drive positioned laterally on the outside allows the total height of the conveyor to be restricted to a minimum. The sprocket wheel with the positive-locked connection to the modular belt ensures excellent transmission of the motor power. At lengths of up to three metres, the chain does not sag but the belt still runs quietly. With lengths of around three metres or more, there is chain sagging on the drive end, which is enclosed by a protective box. This results in an additional obstructing edge.



Technical data

Conveyor length L (L1+L2+L3)	depending on the conveyor configuration and total load, usually up to 4000, max. 10000 mm (max. length based on the angle of alpha and L2)	
Conveyor width B	approx. 200–1000 mm depending on the chain type	p. 148
Drive location	discharge end left/right	
Drive and speed	up to 30 m/min	p. 12
Stands		p. 120
Total load	up to 100 kg (including chain weight)	p. 110
Distributed load	up to 50 kg/m, 15 kg/compartment	p. 110
Belt incline a 1 and 2	30, 45 and 60°	others on request
Pitch diameter (DP)	chain S8=99.7 mm; chain S10=98 mm	

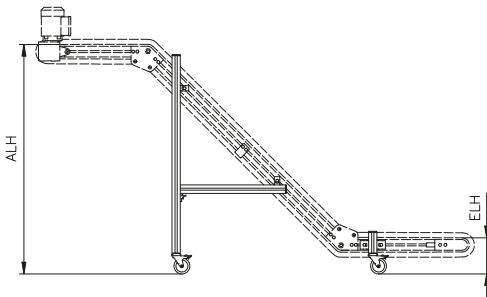


KFM-P 2040

Stand Type ECO

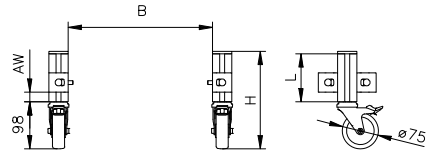
The stand was developed specially for the incline conveyor belt and incline conveyor modular belt and is characterised by its simplicity and light-weight design with the mk 2040.40 profile.

The swivel casters used have a total locking device, which guarantees a secure footing even at high transport speeds. The height and width of the stand is adapted based on the configuration; see the order example on the right.

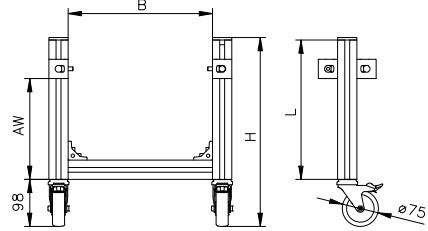


- ELH = infeed height
- ALH = discharge height
- B = conveyor width
- H = stand height
- L = length of the vertical profile
- AW = distance from the angle to the profile edge

Infeed End Stand B67.06.014

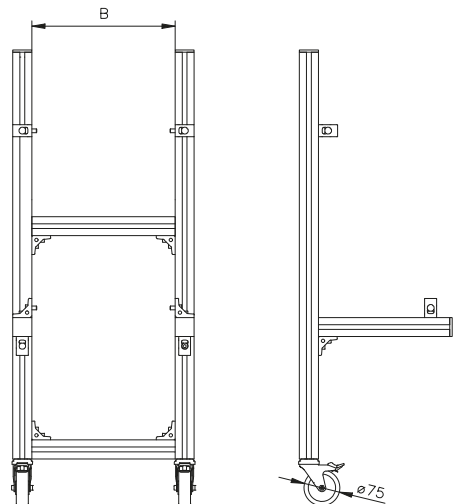


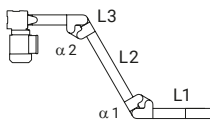
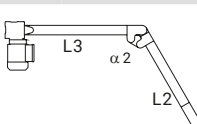
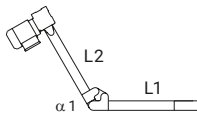
Infeed height (ELH) = 166–349 mm



Infeed height (ELH) = 350–500 mm

Discharge End Stand B67.06.015



Sample order	Type designation			
KFM-P 2040 type S (B20.40.810)		Drive	AC	AS
Drive AC, 0° motor orientation (as shown)	Type S 	B20.40. ...	810	813
Speed of 15 m/min				
Conveyor width B = 460 mm				
Conveyor length L1 = 500 mm; L2 = 1000 mm; L3 = 600 mm	Type K 	B20.40. ...	811	814
Belt incline a 1 = 60°; belt incline a 2 = 60°				
Cam height H1/S8 = 25.4 mm (see page 149)				
Stand, incline conveyor, type ECO	Type L 	B20.40. ...	812	815
Infeed height ELH = 200 mm				
Discharge height ALH = 1200 mm				

Application Examples KFM-P 2040

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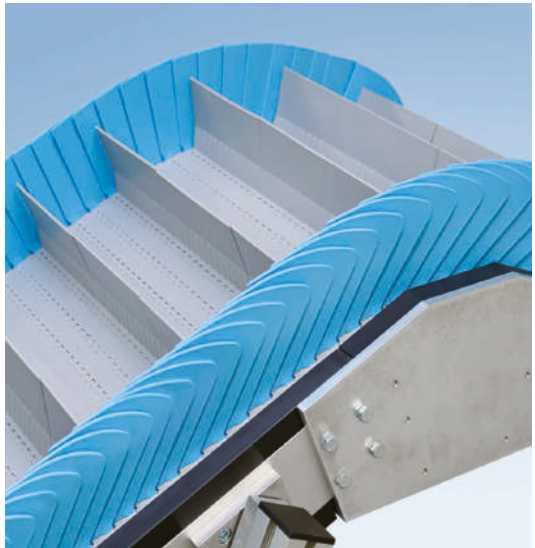
Incline conveyor modular belt KFM-P 2040 type L with head drive AS, stand type ECO and intake guide panel on the infeed



Incline conveyor modular belt KFM-P 2040 type K with movable base frame



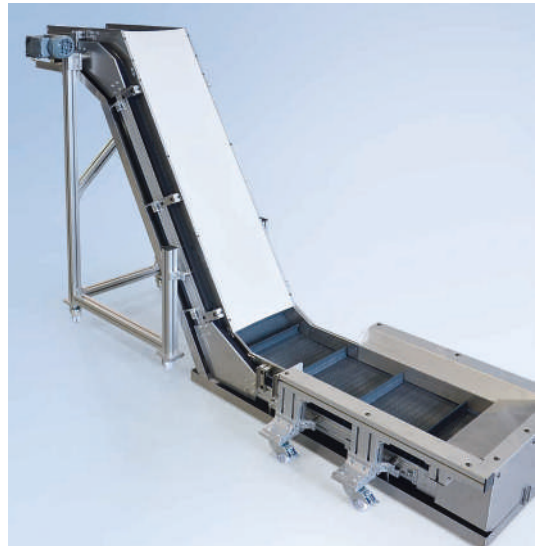
Incline conveyor modular belt KFM-P 2040 type L with head drive AC and customer-specific base frame



Incline conveyor modular belt KFM-P 2040 with moving side wall and cams



Incline conveyor modular belt KFM-P 2040 with protective box on the infeed end



Incline conveyor modular belt KFM-P 2040 with filling funnel and cover in the area with the upward incline



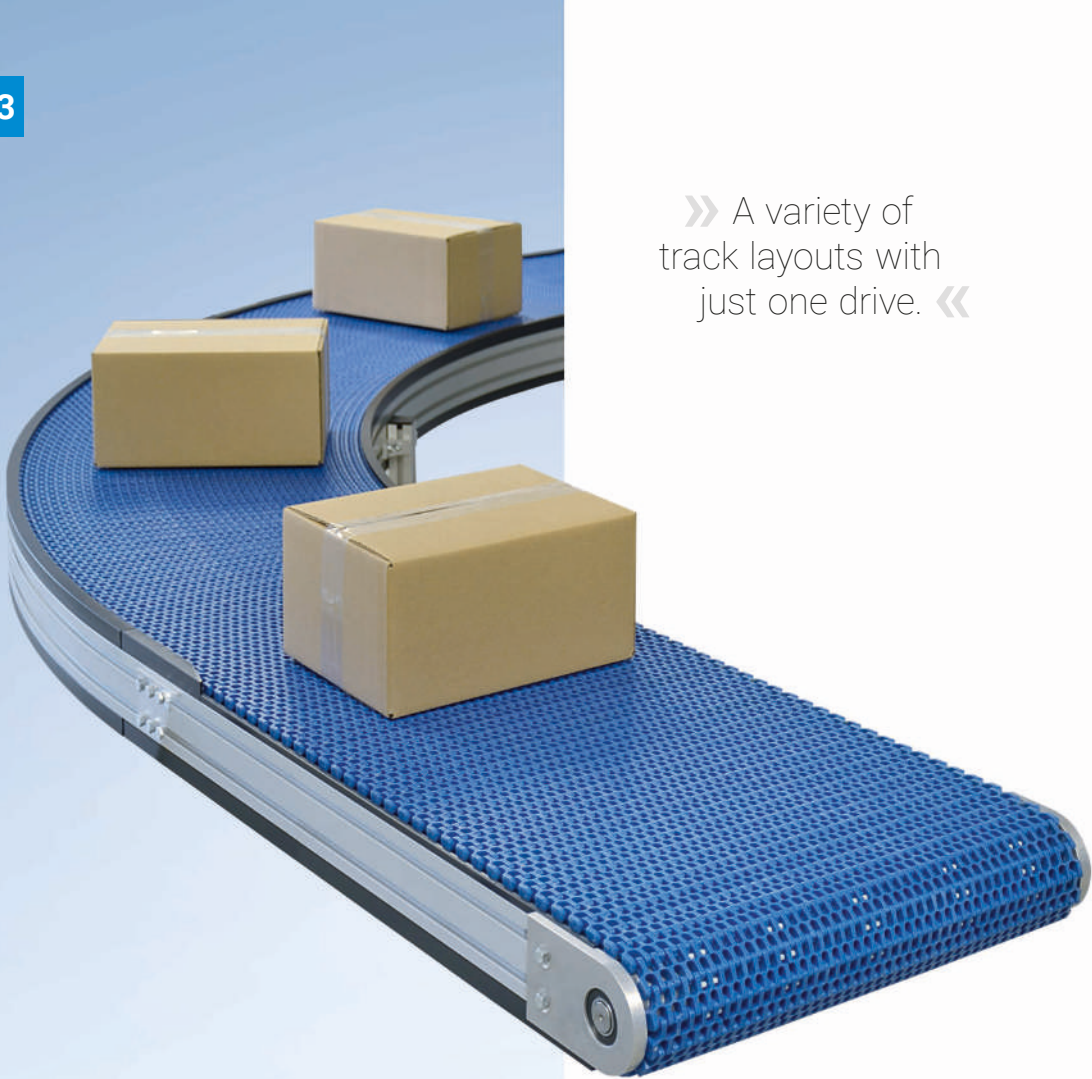
Incline conveyor modular belt KFM-P 2040 equipped with two motors for reverse operation



Incline conveyor modular belt KFM-P 2040 with protective box and drip pan

Curved Modular Belt Conveyor KMF-P 2040

3



» A variety of track layouts with just one drive. «



Benefits of the KMF-P 2040

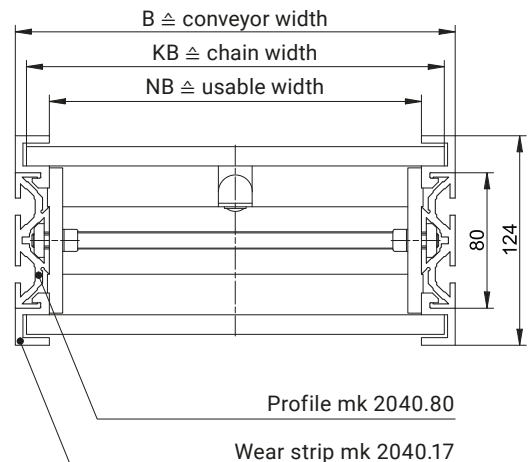
- High load capacities available
- Positive drive mechanism eliminates slippage and makes it suitable for wet applications
- Maximum usable width with low total width
- Lateral movement of conveyed products
- Chain material is highly resistant to wear and abrasion, making it suitable for high temperatures, contact with chemicals or food, etc.
- Variable track layouts with just a single drive, different speeds at no additional cost

The curved modular belt conveyor KMF-P 2040 is the curved version of this conveyor type. The curve is available with different track layouts (L/S/U) and curve angles of 45° and 90°.

The conveyor width ranges from 164 mm to 1005 mm and offer excellent usable width ratios, which is important if space is limited at your facility. These conveyors can be combined with straight sections (MBF-P 2040) and vertical inclines (KFM-P 2040) to adapt the track layout to your existing production conditions and create virtually any threedimensional configuration.

Modular belt conveyors are extremely robust and can be used in a multitude of ways for almost every transport application. The belts are wear resistant and can even be used to transport goods with sharp edges or to transport goods in harsh application environments. The conveyor system also offers various chain materials to make it suitable for food, suitable for high temperatures or resistant to chemicals.

Cross Section

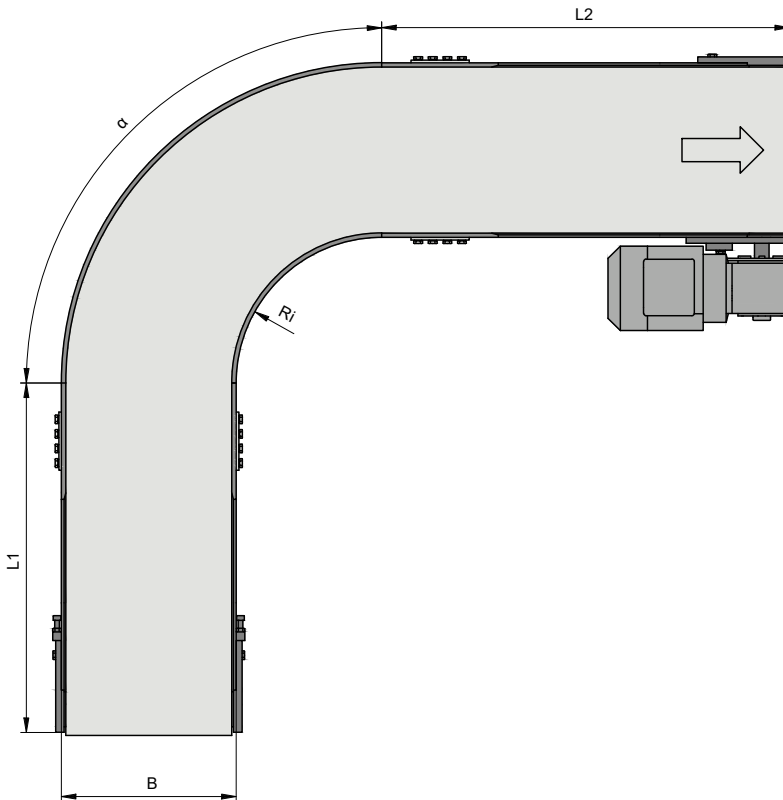


KMF-P 2040

Head drives AC, AF and AS

B20.40.8 _ _

The curved modular belt conveyor KMF-P 2040 has a modular design and, with just one drive for complex track layouts, is extremely efficient. There is chain sagging on the drive end, which is enclosed by a protective box.



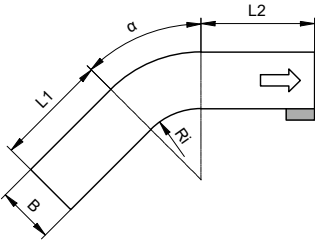
Technical data

Curve angle α	45° and 90° (in combination, also 135° and 180°)
Drive	head drives AC, AF and AS
Speed	5 to 30 m/min
Load capacity	depending on the track layout, conveyor length and conveyor width, up to 150 kg. Higher on request.
Cleats and side plates	the modular belt can be fitted with optional transverse cleats and side plates with H = 25 mm.

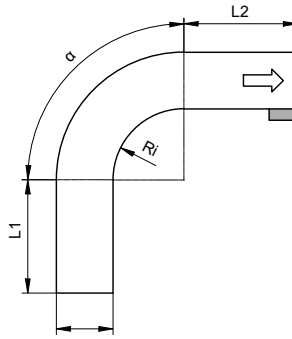
KMF-P 2040 Variants

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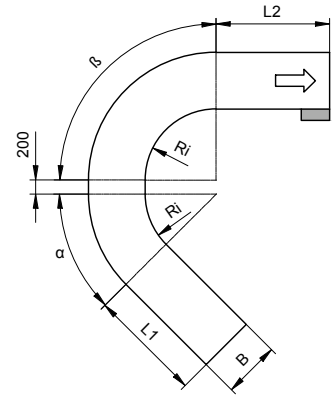
Curve L45°



Curve L90°

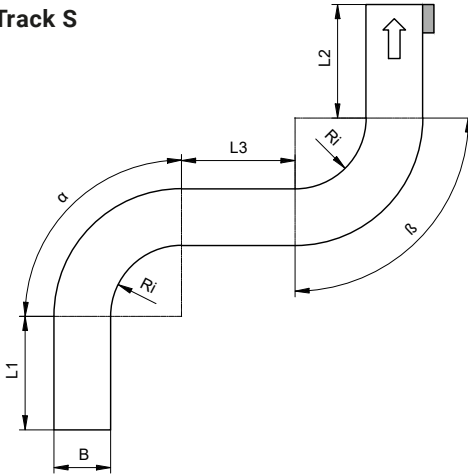


Curve L135°
(also available as L180°)

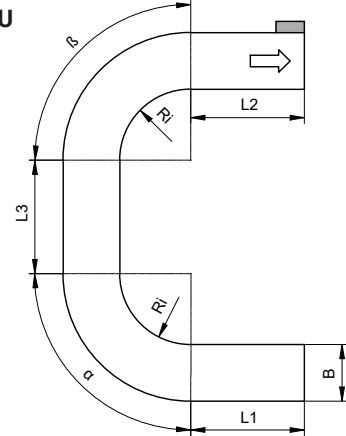


Examples of a Track Layout

Track S



Track U



Dimensions [mm]

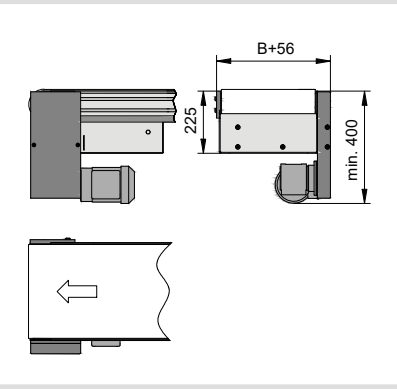
only for L45° or L90°

Conveyor width (B)	164	241	317	394	470	546	623	699	776	852	928	1005	
Chain width (KB)	149	226	302	379	455	531	608	684	761	837	913	990	
Usable width (NB)	134	211	287	364	435	511	588	664	741	817	893	970	
Length L1 (min.)	224	339	453	569	683	797	912	1026	1142	1256	1370	1485	
Length L2 (min.)	645	645	645	758	910	1062	1216	1368	1522	1674	1826	1980	
Length L3 (min.)	Track S	400	452	604	758	910	1062	1216	1368	1522	1674	1826	1980
	Track U	400	400	400	400	400	400	400	400	400	400	400	
Inner radius (Ri)	324	493	660	830	997	1164	1334	1501	1670	1837	2005	2174	

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Head drive AC

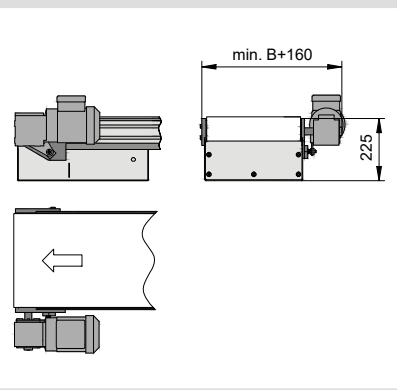
type L: B20.40.826 | type S: B20.40.827 | type U: B20.40.828



Properties	Standard head drive. Drive version with a variety of combination options for motors, gearboxes and sprocket wheels.
Drive location	discharge end left/right
Motor orientation	0°, 90°, 180°
Speed	5 to 30 m/min

Head drive AF

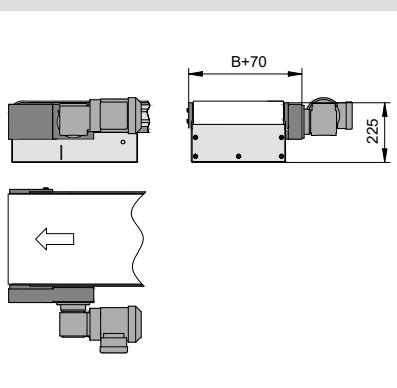
type L: B20.40.823 | type S: B20.40.824 | type U: B20.40.825



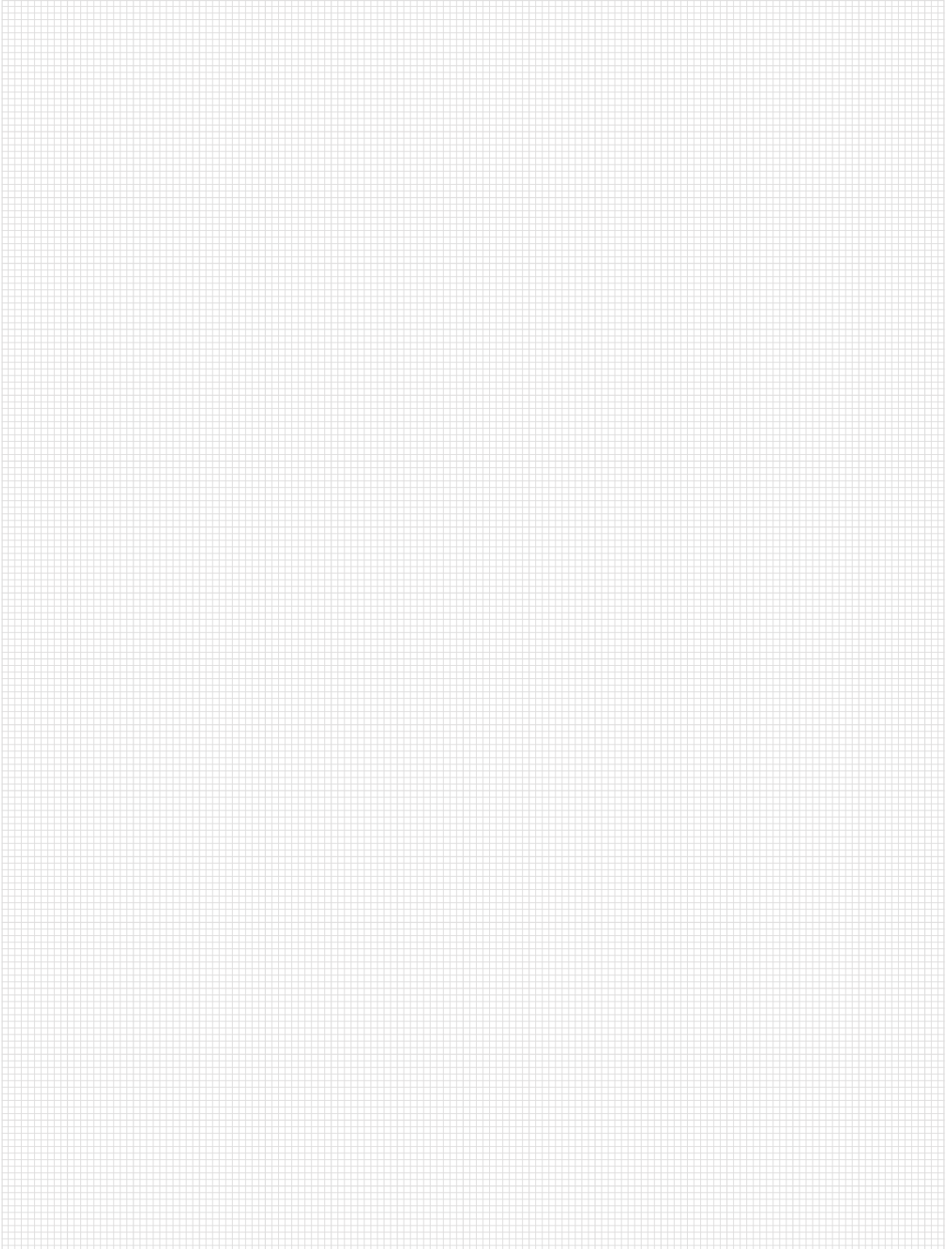
Properties	Direct head drive. Compact and low-maintenance drive version with a motor that is fitted directly on the drive shaft.
Drive location	discharge end left/right
Motor orientation	0°, 90° (front terminal box), 180°, 270°
Speed	5; 7; 10; 12.5; 17; 20.5; 26; 29.5 m/min

Head drive AS

type L: B20.40.820 | type S: B20.40.821 | type U: B20.40.822



Properties	Compact head drive, positioned laterally on the outside. A drive version restricted to a minimum total height with motor mounted on the outside.
Drive location	discharge end left/right
Motor orientation	0°, 90°, 180°, 270°
Speed	5 to 30 m/min

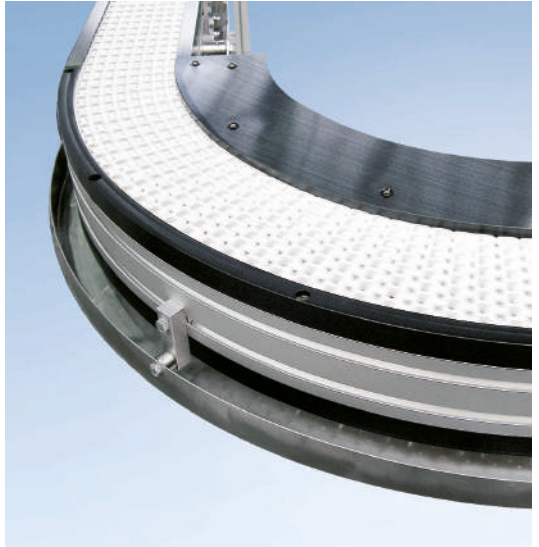


Application Examples KMF-P 2040

3



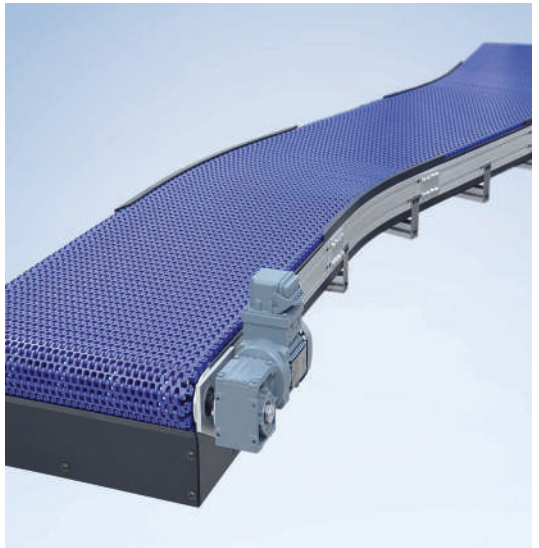
Curved Modular Belt Conveyor KMF-P 2040



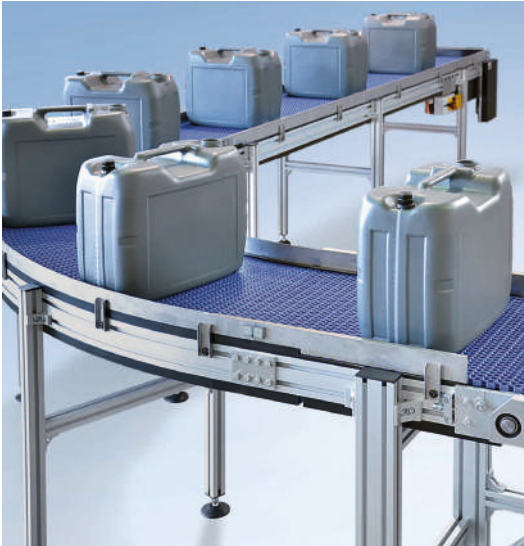
Curved modular belt conveyor KMF-P 2040 with 90° rolling curve and drip pan



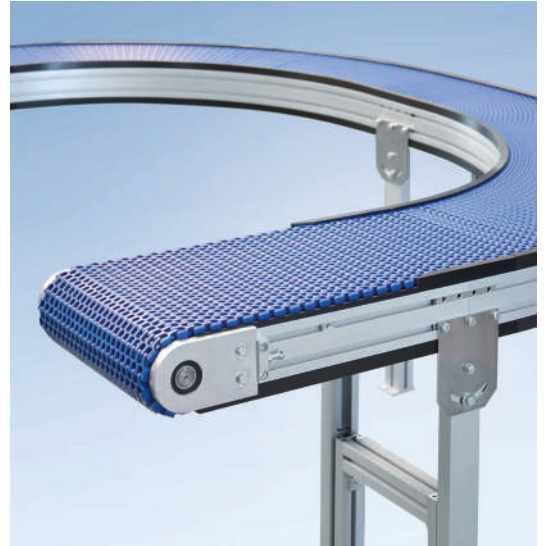
Curved modular belt conveyor KMF-P 2040 with side rail SF02 type 23



Curved modular belt conveyor KMF-P 2040 with S-course 19° sliding curves and head drive AF

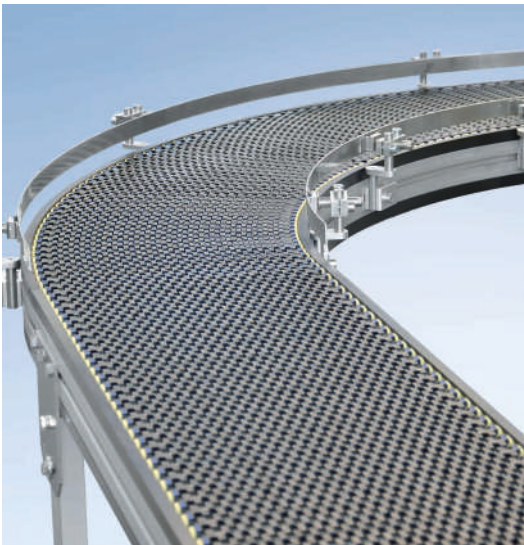


Curved modular belt conveyor
KMF-P 2040 with side rail SF2.1



3

Curved modular belt conveyor
KMF-P 2040 with 180° curve



Curved modular belt conveyor
KMF-P 2040 with side rail SF02

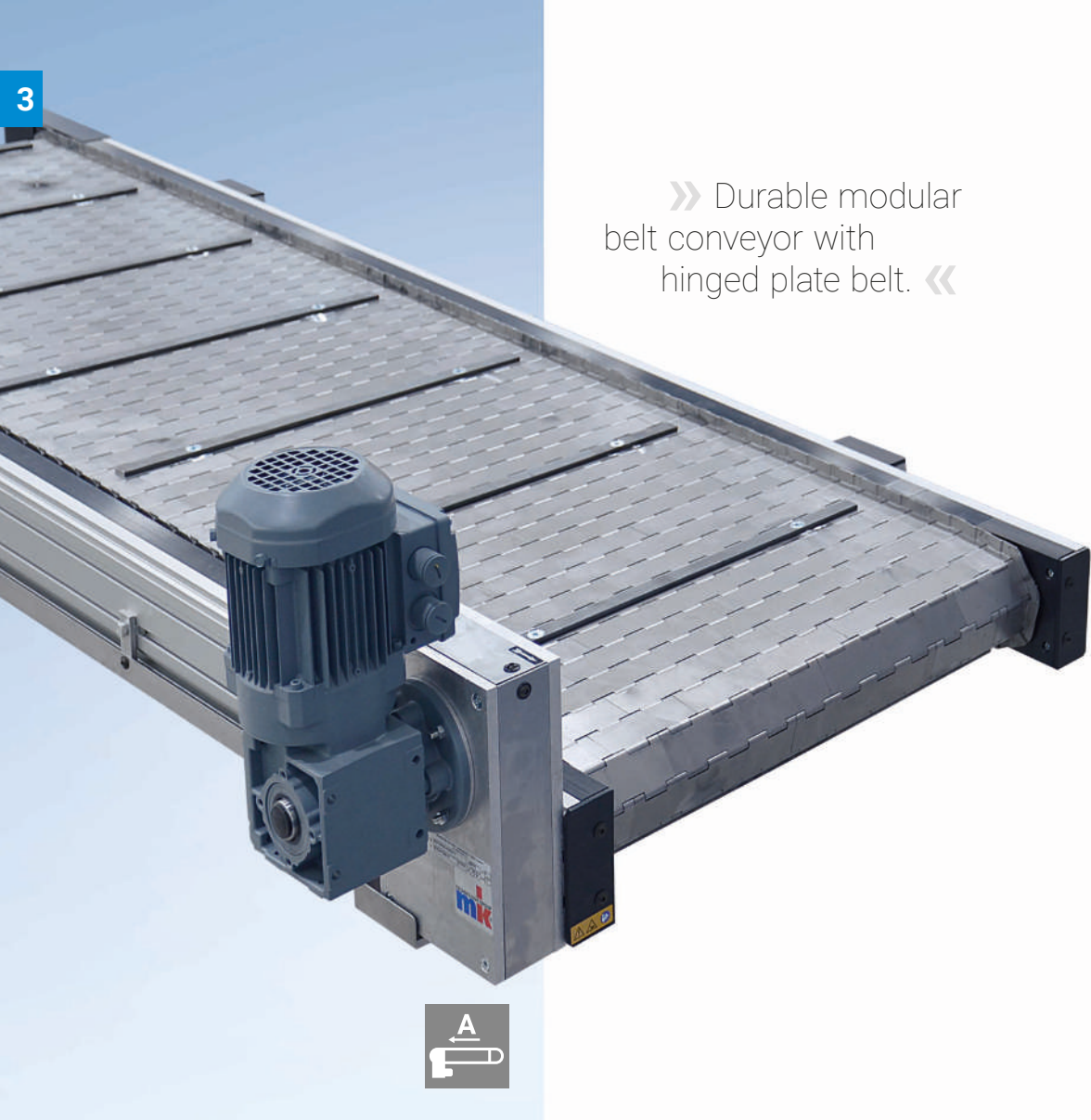


Curved modular belt conveyor
KMF-P 2040 with drip pan and movable stand

Modular Belt Conveyor MBF-P 2040.86

3

» Durable modular belt conveyor with hinged plate belt. «



Benefits of the MBF-P 2040.86

- Stable and heat-resistant surface
- For transporting stamped, cast, forged or wooden parts and for hot product
- High load capacities available
- Stable belt travel without any lateral movement, regardless of length-width ratio
- Transverse cleats for transporting small pieces or bulk product

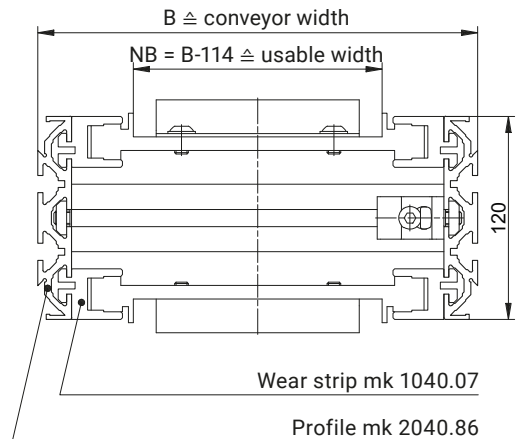
The MBF-P 2040.86 is equipped with a robust steel belt and is therefore ideal for transporting hot products or products with sharp edges. Stable belt travel without any lateral movement is ensured regardless of the length-to-width ratio.

Thanks to its stable design, the conveyor is also suitable for demanding continuous duty in multi-shift operation. The robust hinged plate belt is also available in a stainless steel or perforated design on request.

With a gap of 1 to 3 mm between the side rail and the hinged plate belt that is guided by wear strips, the conveyor system is not suitable for pointed punching waste or metal chips.

The slots in the profiles allow for the easy connection of accessories such as a side rail, stand or electronics components.

Cross Section

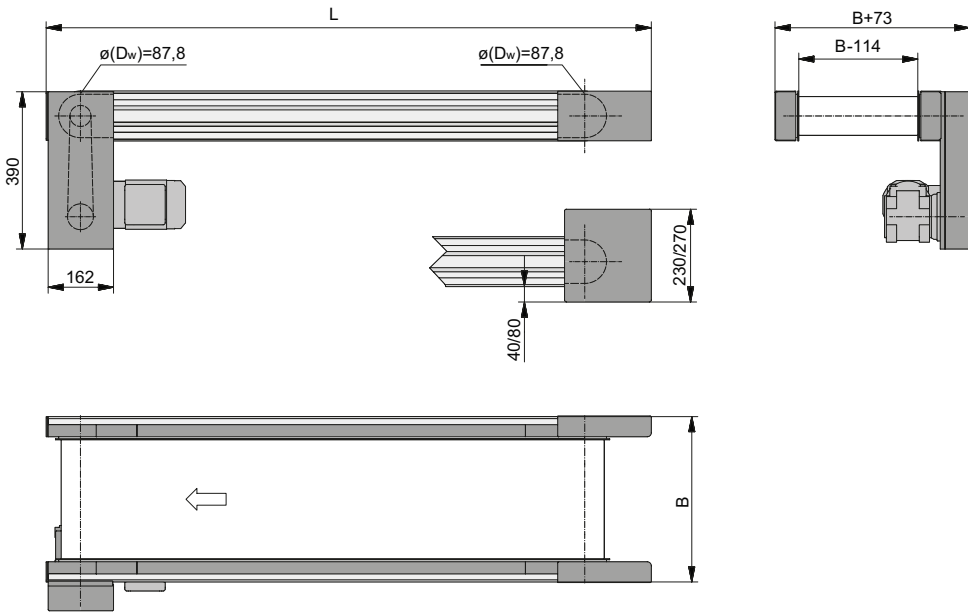


AC – Standard head drive

B20.40.605

For the drive version AC, mk offers a multitude of drive motors tailored to various speed and load capacity requirements. The sprocket wheels ensure excellent transmission of the motor power.

3



Technical data

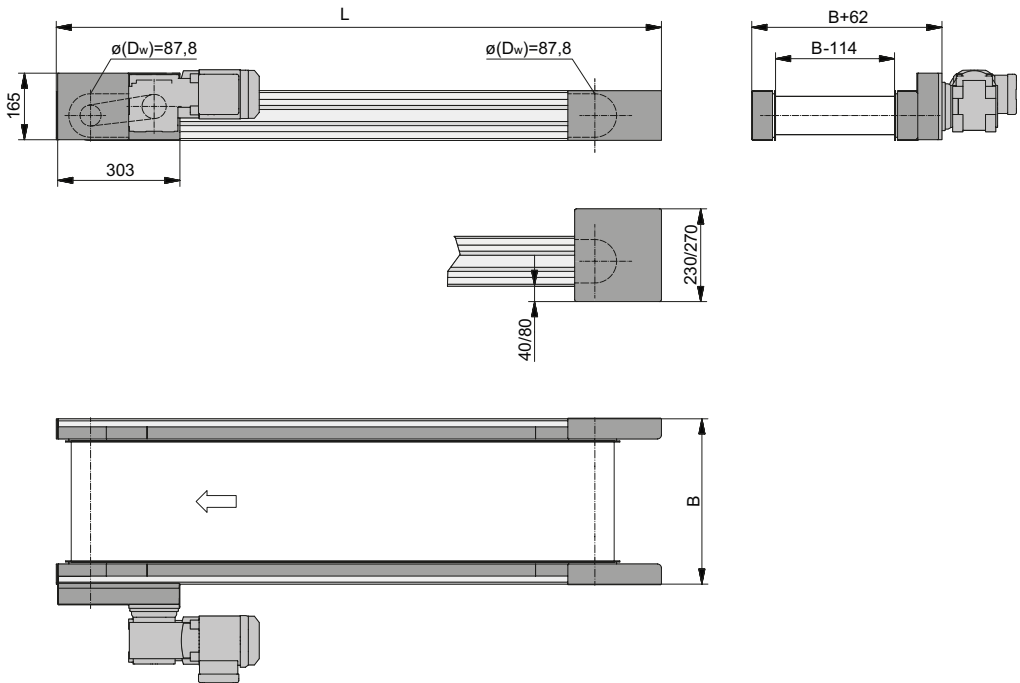
Conveyor length L	up to 10000 mm	
Conveyor width B	210 to 710 mm (in 50 mm increments)	others on request
Drive location	discharge end left/right, underneath/above	
Drive and speed	up to 12 m/min	p. 12
Stands		from p. 290
Total load	up to 150 kg	p. 110
Distributed load	up to 50 kg/m, 15 kg/compartment	p. 110



AS – Head drive, laterally on the outside, compact

B20.40.609

The drive positioned laterally on the outside allows the total height of the conveyor to be restricted to a minimum. The sprocket wheel with the positive-locked connection to the modular belt ensures excellent transmission of the motor power.



Technical data

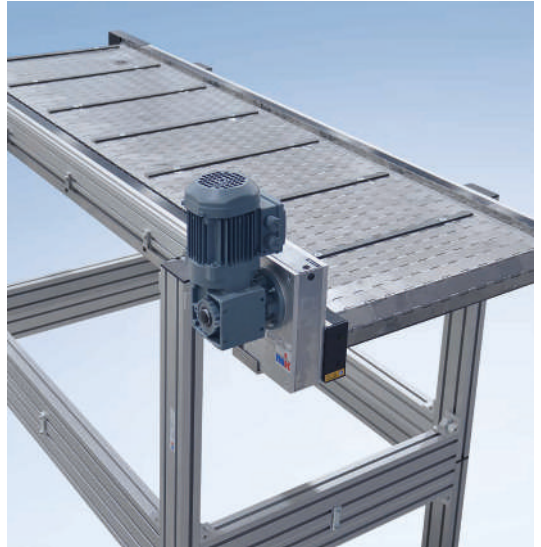
Conveyor length L	up to 10000 mm	
Conveyor width B	210 to 710 mm (in 50 mm increments)	others on request
Drive location	discharge end left/right	
Drive and speed	up to 12 m/min	p. 12
Stands		from p. 290
Total load	up to 150 kg	p. 110
Distributed load	up to 50 kg/m, 15 kg/compartment	p. 110

Application Examples MBF-P 2040.86

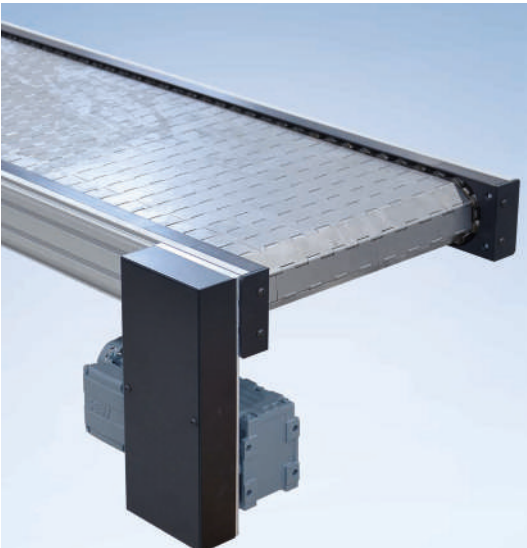
3



Modular belt conveyor MBF-P 2040.86 with drip pan



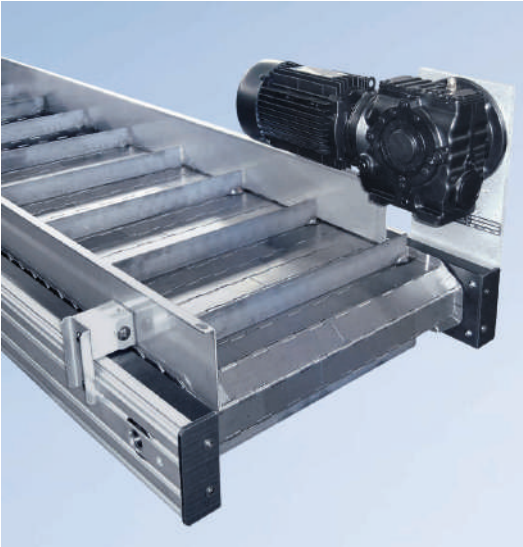
Modular belt conveyor MBF-P 2040.86 with head drive AU and cams



Modular belt conveyor MBF-P 2040.86 with head drive AC



Modular belt conveyor MBF-P 2040.86 with head drive AC



Modular belt conveyor MBF-P 2040.86
with side rail SF2.1 and cleats



Modular belt conveyor MBF-P 2040.86
with drip pan and cams



Modular belt conveyor MBF-P 2040.86
with side rail SF01 and stand 31



Short modular belt conveyor MBF-P 2040.86

Incline Conveyor Modular Belt KFM-P 2040.86

3

» Durable incline conveyor modular belt with hinged plate belt. «



Benefits of the KFM-P 2040.86

- Incline conveying for connecting different heights
- Stable and heat-resistant surface
- For transporting stamped, cast, forged or wooden parts and for hot product
- High load capacities available
- Stable belt travel without any lateral movement, regardless of length-width ratio
- Transverse cleats for transporting small pieces or bulk product available

The KFM-P 2040.86 is equipped with a robust steel belt and is therefore ideal for transporting hot products or products with sharp edges. Stable belt travel without any lateral movement is ensured regardless of the length-to-width ratio.

Thanks to its stable design, the conveyor is also suitable for demanding continuous duty in multi-shift operation.

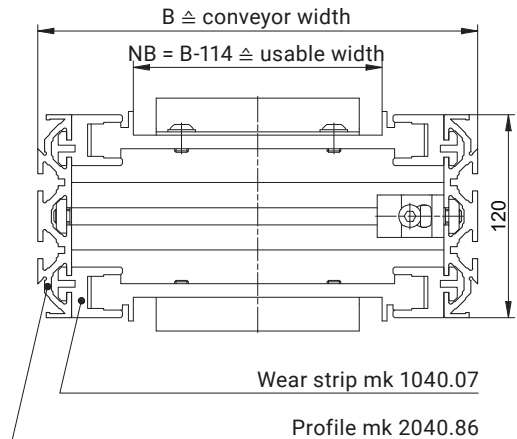
The robust hinged plate belt is also available in a stainless steel or perforated design on request.

With a gap of 1 to 3 mm between the side rail and the hinged plate belt which is guided by wear strips, the conveyor system is not suitable for pointed stamping scraps or metal chips.

The slots in the profiles allow for the easy connection of accessories such as a side rail, stand, funnel or discharge slide.

Custom solutions, such as special funnels, are available on request. Depending on the project you wish to convey, please also see our incline conveyor with a belt or modular belt.

Cross Section

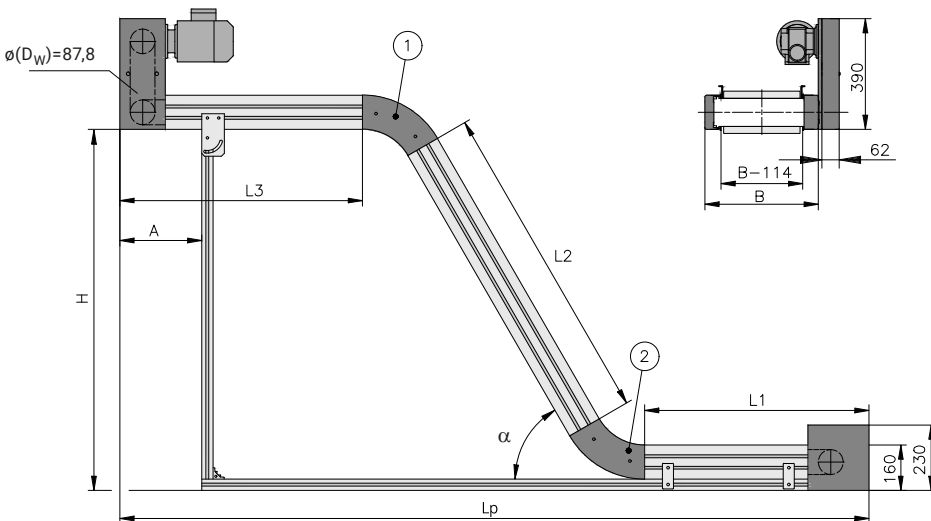


AC – Standard head drive

B20.40.6 __

For the drive version AC, mk offers a multitude of drive motors tailored to various speed and load capacity requirements. The sprocket wheels ensure excellent transmission of the motor power.

3



Technical data

Conveyor length L (L1+L2+L3)	depending on belt shape and load, up to 10000 mm	
Conveyor width B	210 to 710 mm (in 50 mm increments)	others on request
Drive location	discharge end left/right, underneath/above	
Drive and speed	up to 12 m/min	p. 12
Stand and side rail		from p. 144
Total load	up to 150 kg	p. 110
Distributed load	up to 50 kg/m, 15 kg/compartment	p. 110
Belt incline α 1 and 2	15, 30, 45 and 60°	others on request

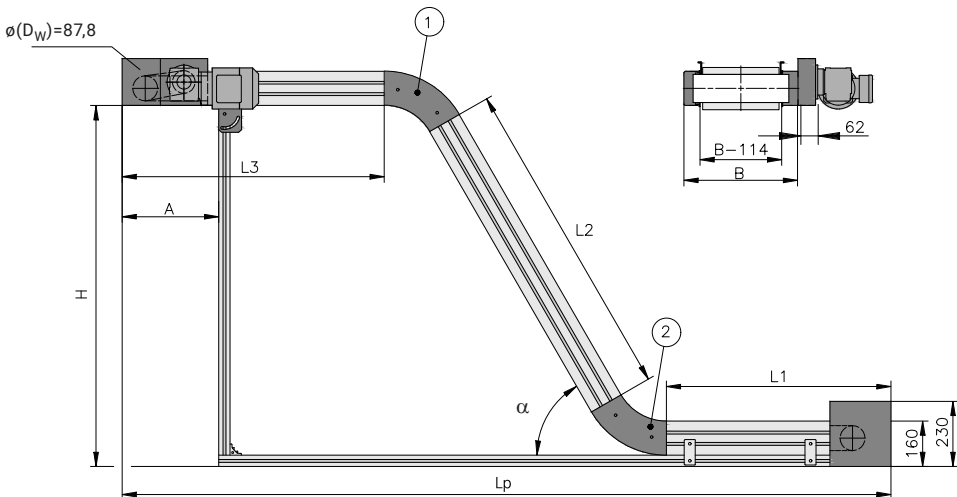


AS – Head drive, laterally on the outside, compact

B20.40.6 __

The drive positioned laterally on the outside allows the total height of the conveyor to be restricted to a minimum. The sprocket wheel with the positive-locked connection to the modular belt ensures excellent transmission of the motor power.

3



Technical data

Conveyor length L (L1+L2+L3)	depending on belt shape and load, up to 10000 mm	
Conveyor width B	210 to 710 mm (in 50 mm increments)	others on request
Drive location	discharge end left/right	
Drive and speed	up to 12 m/min	p. 12
Stand and side rail		from p. 144
Total load	up to 150 kg	p. 110
Distributed load	up to 50 kg/m, 15 kg/compartment	p. 110
Belt incline α 1 and 2	15, 30, 45 and 60°	others on request

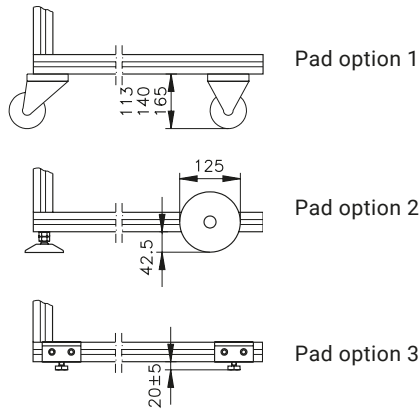
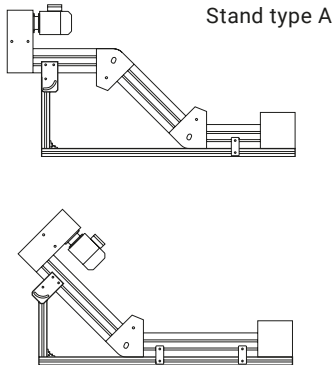
KFM-P 2040.86

Stands

The stand type shown, stand type A, can be equipped with all the pad options. All the stands in the mk conveyor technology range can be used with type G.

The swivel casters used in pad option 1 have a total locking device and guarantee stability even at high transport speeds.

They are available as \varnothing 75 mm for $x=113$ mm, \varnothing 100 mm for $x=140$ mm and \varnothing 125 mm for $x=165$ mm.



Sample order

KFM-P 2040.86 type S (B20.40.606)

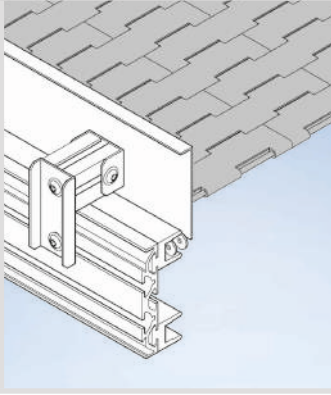
Drive AC 0° motor orientation (as shown)
Speed of 10 m/min
Conveyor width B = 460 mm
Conveyor length L1 = 500 mm; L2 = 1000 mm; L3 = 600 mm
Belt incline α 1 = 60°; belt incline α 2 = 60°
Cam height H1 = 20 mm (see page 151)
Stand type A, pad option 1, \varnothing 75 mm roll
Infeed height ELH = 200 mm
Discharge height ALH = 1200 mm

Type designation

	Drive	AC	AS
Type S 	B20.40. ...	606	610
Type K 	B20.40. ...	607	611
Type L 	B20.40. ...	608	612

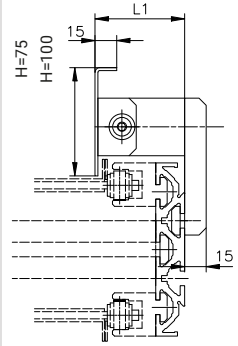
Side Rail SF8.1

B17.00.026



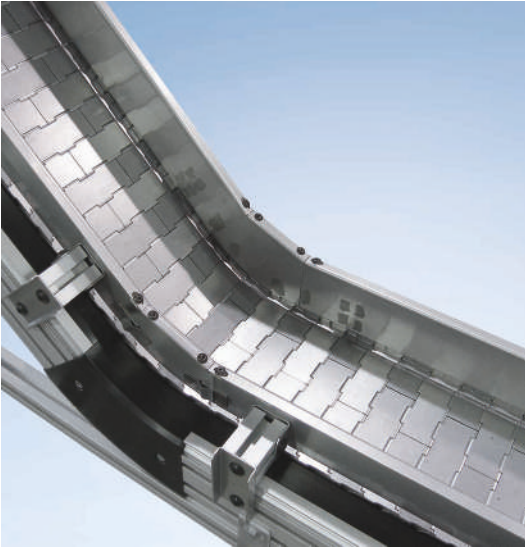
The side rail shown ensures the gap (up to 1 to 3 mm) between the modular belt and conveyor frame is sealed.

Height H=75 mm
 Height H=100 mm



Application Examples KFM-P 2040.86

3



Incline conveyor modular belt KFM-P 2040.86 with 45° incline and side rail SF 8.1



Incline conveyor modular belt KFM-P 2040.86 with 60° incline and side rail SF01



Incline conveyor modular belt KFM-P 2040.86 with drip pan



Incline conveyor modular belt KFM-P 2040.86 with perforated and dimpled hinged plate belt and cams



Incline conveyor modular belt KFM-P 2040.86 with 45° incline and head drive AC




KFM-P 2040.86 incline conveyor modular belt



Incline conveyor modular belt KFM-P 2040.86 with protective box on the infeed end



Incline conveyor modular belt KFM-P 2040.86 with head drive AC and 45° incline

 Custom applications
from page 408

Modular Belts

... for MBF-P 2040 and KFM-P 2040

mk offers two chain series for its modular belt conveyor system to meet various customer requirements. Series 8 modular belt chains are suitable for transporting medium-weight to heavy goods such as containers, bottles, boxes, and so on, in industrial applications. Series 10 is suitable for transport of light to medium-heavy goods in hygiene-sensitive areas. The side plates are available in heights of 25, 50, 75 and 100 mm and in the colours light blue and white.

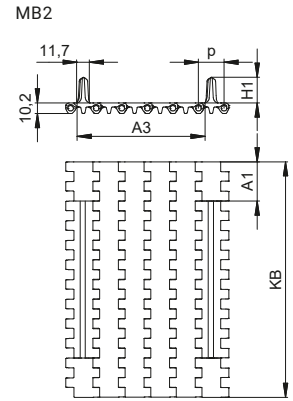
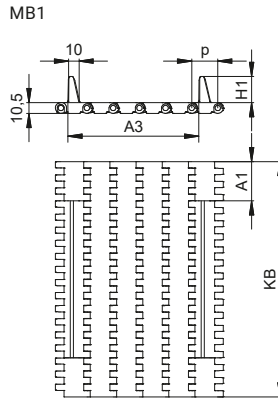
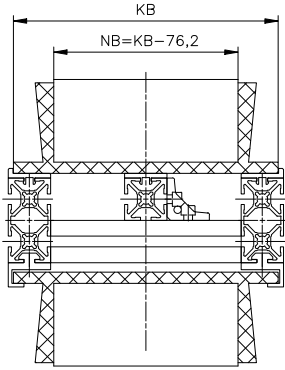
Series 8 (S8)

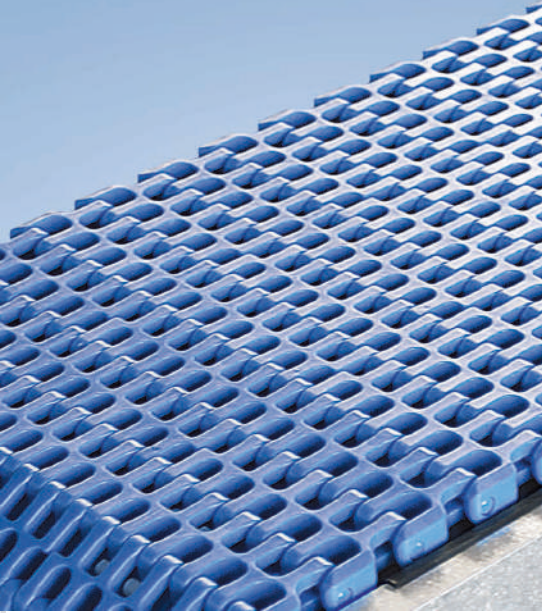
Series 10 (S10)

Conveyor width B [mm]	Chain width KB [mm]	Conveyor width B [mm]	Chain width KB [mm]
218.00	203.20	206.00	190.50
269.00	254.00	263.00	247.65
320.00*	304.80*	320.00*	304.80*
371.00	355.60	358.00	342.90
409.00	393.70	416.00	400.50
460.00	444.50	472.00	457.20
510.00*	495.30*	510.00*	495.30*
561.00	546.10	568.00	552.45
612.00	596.90	606.00	590.55
663.00*	647.70*	663.00*	647.70*
714.00	698.50	720.00	704.85
764.00	749.30	758.00	742.95
815.00*	800.10*	815.00*	800.10*
866.00	850.90	872.00	857.25
917.00	901.70	910.00	895.35
968.00*	952.50*	968.00*	952.50*
1018.00	1003.30	1006.00	990.60

*Belt width/chain width is identical for Series 8 and 10. They can be swapped with each other without changing the conveyor frame.

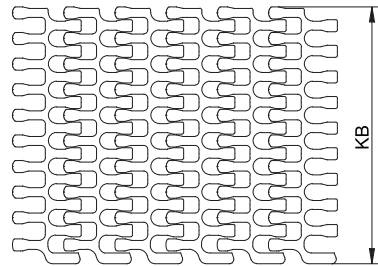
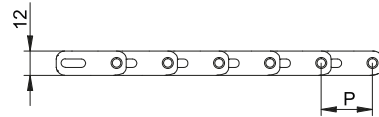
Modular Belt	Series 8 (S8)	Series 10 (S10)
Cam height H1	25.4 mm and 76.2 mm others on request	25 mm and 100 mm others on request
Cam partition A3	25.4 mm in grid	25.4 mm in grid
Partition p	25.4 mm	25.4 mm
Modular belt thickness	10.5 mm	10.2 mm
Min. edge clearance A1	With KFM, 38.1 mm	With KFM, 38.1 mm
FDA/USDA suitability	Partly	FDA approval
Material	<p>PP: +5 to +100° C Colours: white, light grey</p> <p>POM: -40 to +90° C Colours: blue</p> <p>POM CR: -45 to +90° C Colours: anthracite</p> <ul style="list-style-type: none"> ■ Specially resistant to impacts and cuts ■ Easy to clean ■ Minimal scoring ■ Low risk of material separation 	<p>PE: -70 to +65° C Colours: white, light blue</p> <p>PP: +5 to +100° C Colours: white, light blue</p> <p>POM: -45 to +90° C Colours: white, light blue</p>





Modular Belts

... for KMF-P 2040



The modular belt ASB 2.2 is highly resistant to wear and abrasion, making it suitable for high temperatures, contact with chemicals or food, etc.

Other designs available on request, e.g. ESD or high portability.

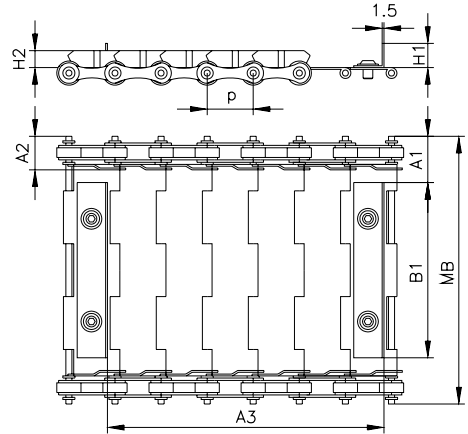
Modular Belt

ASB 2.2

Chain width KB	149, 162, 226, 302, 379, 455, 531, 608, 684, 761, 837 and 914 mm
Partition p	25.4 mm
Modular belt thickness	12 mm
Minimum radius (internal)	2.2 x chain width (KB)
Back-flex radius	25.0 mm
FDA/USDA suitability	FDA approval
Material	POM: -40 to +90° C Colours: blue



... for MBF-P 2040.86
 and KFM-P 2040.86



The particularly robust hinged plate belt is also available in a stainless steel or perforated design on request.

Hinged Plate Belt

SK1

A1 (without side plate/with side plate)	38.1 mm
A2	25 mm
MB	147–647 mm
Cam height H1	20/40 mm
Side plate height H2	14 mm
Cam partition A3	38.1 mm in grid
Colour	Bright steel
Partition p	38.1 mm
Chain thickness	13 mm
Material	Steel
FDA/USDA suitability	No
Technical properties	Steel Wear-resistant Heat-resistant up to 300° C Resistant to impact Low friction coefficient

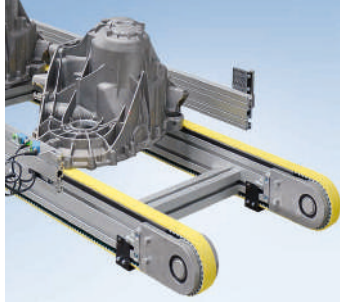
Max. total width MB Tolerance ± 3.0 mm	147	197	247	297	347	397	447	497	547	597	647
Weight, kg/linear metre	4.6	5.6	6.6	7.7	8.7	9.7	10.8	11.8	12.8	13.9	14.9

Chapter 4 Timing Belt Conveyors

4



Selecting a Timing Belt Conveyor 154



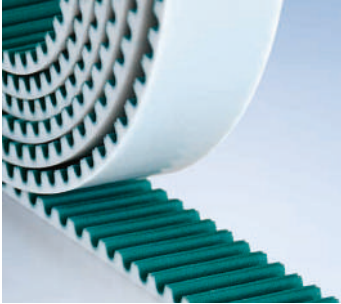
Timing Belt Conveyor ZRF-P 2040 156

Head Drives	158
Application Examples	160



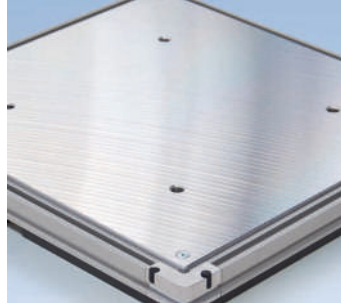
Timing Belt Conveyor ZRF-P 2010 162

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Timing Belts

174



Accessories

Pallets	176
SU – Stopper Undamped	178
SD – Stopper Damped	179

Selecting a Timing Belt Conveyor

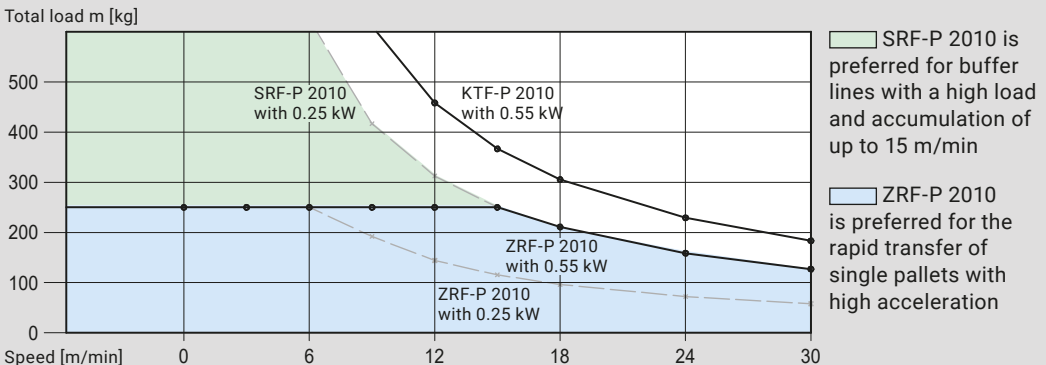
Dimensions – Technical Data

Conveyor system	Conveyor widths [mm]	Conveyor lengths [mm]	Total load* As standard, up to [kg]	Speed up to [m/min]	ø of tails [mm]	Reverse operation	Accumulated operation	Cycling operation
Timing belt conveyor (single-line)								
ZRF-P 2040	40/80/120/160	650–6000	250	60	approx. 102		•	•
Timing belt conveyor (double-line)								
ZRF-P 2010	200–1000	500–6000	250	60	approx. 89		•	•

*Usual load limits that may be exceeded based on the configuration and influencing factors. Influencing factors for the load include: width, timing belt material, load distribution, duty type and environmental conditions.

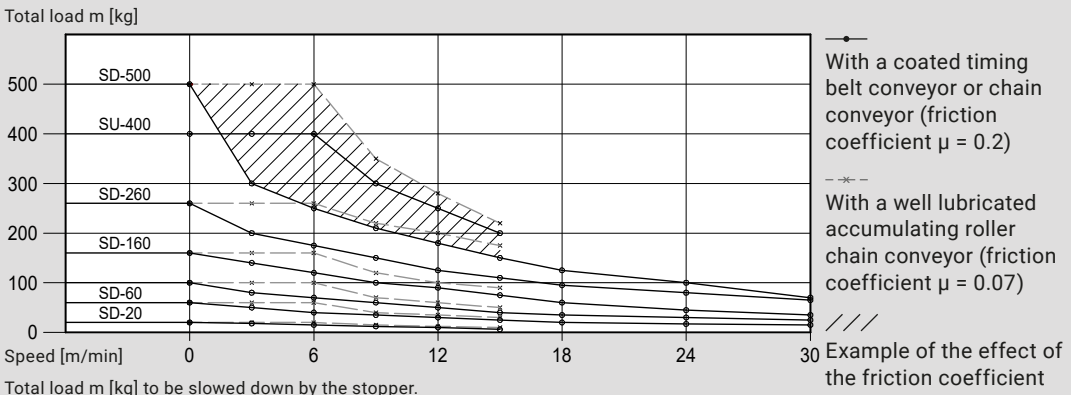
Selecting Double-line Conveyors based on Load and Speed

The diagram shows double-line conveyor systems based on their load and speed. The comparison shows timing belt conveyors (ZRF), chain conveyors (KTF) and accumulating roller chain conveyors (SRF).



Total load m [kg] per conveying path, per drive in continuous operation (accumulated operation $m_{\text{accumulated}} = 2 \times m_{\text{continuous}}$)

Selecting the Stopper



Total load m [kg] to be slowed down by the stopper.

Application Options

Timing belt conveyors are ideal for the cycled transport of products. Available with different drive options and as a single, double or multiple line conveyor, they are often used to construct complex interlinking solutions. The double-line solution is frequently used for transporting pallets. In such applications, timing belt conveyors are used when high speeds and accelerations are required. Chain conveyors and accumulating roller chain conveyors are used for high loads (see the image on the left and the next chapter).

Our range of different timing belt materials allows you to find the optimal grip for the workpieces in your specific application. Options include aluminium timing belt pulleys, anodised timing belt pulleys and stainless steel timing belt pulleys (for reducing wear while improving corrosion resistance).

The **timing belt conveyor ZRF-P 2040** is predominantly used as a single-line solution. Cams or threaded sleeves can be welded onto or preferably bolted onto the timing belt for product take-up. For bolted-on cams, the AT timing belt is used due to the wider tooth shape. In addition to greater tooth rigidity and the larger load contact surface, this provides the necessary space for plug-in threaded sleeves. As a result, the system is also suitable for precisely feeding and positioning loads weighing up to 250 kg.

As a double-line system, **ZRF-P 2010 timing belt conveyors** are ideal for the cycled transport of pallets or products with a rigid structure. Combined with the wide range of drive options, the system is the perfect basis for constructing complex interlinking and automation systems. The timing belt returns inside the profile allowing for a compact design and which reduces the risk of accidents to a minimum.

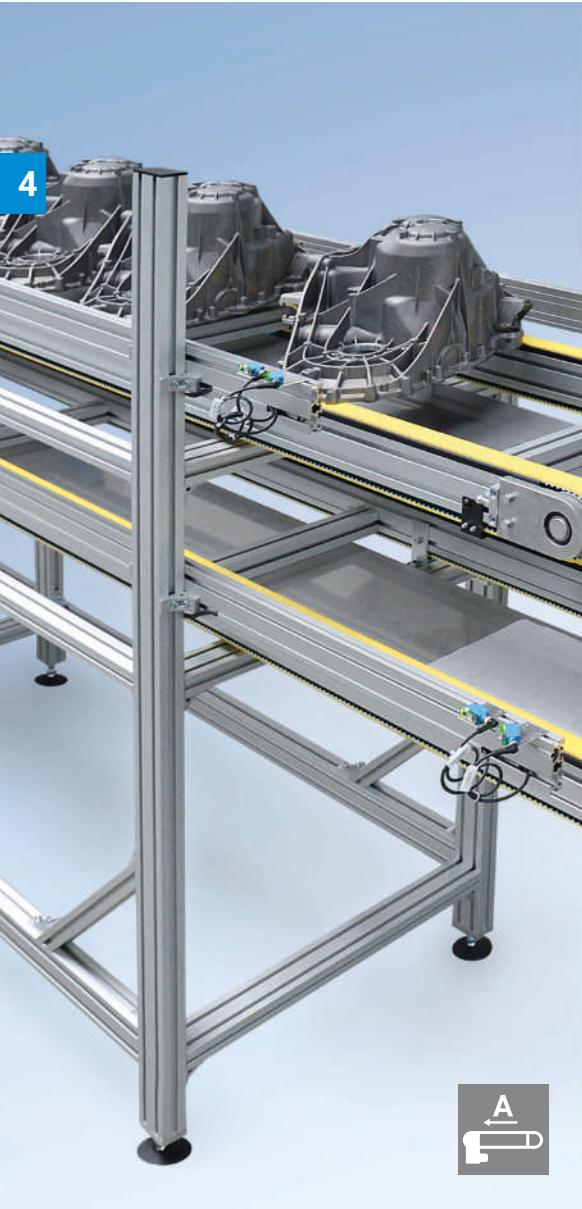
Timing Belts

The standard timing belts are made from polyurethane reinforced with high-strength steel cords. The belts in the 2010 system have the T10 partition and are up to 32 mm wide (others available on request). To ensure optimal transport, different surface coatings can be used (see page 174).

A coating on the teeth side (PAZ = polyamide tooth-side) is recommended, especially for conveyor speeds above 30 m/min. Since standard timing belts with the PU base material on the teeth side tend to produce noise when passing over the aluminium timing belt pulley a PAZ coating, in addition to good lubrication, is a reliable solution to this problem.

The PAZ coating takes the form of a nylon fabric on the teeth side and is also available in an impregnated version to meet ESD requirements. This use of this nylon fabric in cleanroom applications is controversial because of the fine abrasion particles it produces. Many of our customers prefer the larger, visible particles produced by the PU base material. We can also provide a conductive base material on request for use with electronic parts and in explosive atmospheres.

Timing Belt Conveyor ZRF-P 2040



» For cycled transport and precise positioning. «

The ZRF-P 2040 timing belt conveyor system is suited for use as a single-line conveyor for the cycled transport of piece goods. The goods can be transported conventionally or with a specific orientation.

In addition to different coatings that provide optimal gripping of the workpiece, various cams to hold the workpiece can also be attached to the surface of the timing belt, either welded on or preferably screwed on.

The system is suitable for exact conveying, feeding and positioning up to a total load of 250 kg. The system offers different timing belt widths to suit your particular application, workpiece dimensions and total load.

A feature of this conveyor system are the wear strips made from ultra-high-molecular weight polyethylene on which the timing belt runs and is guided. This material provides a low friction coefficient and excellent wear characteristics.

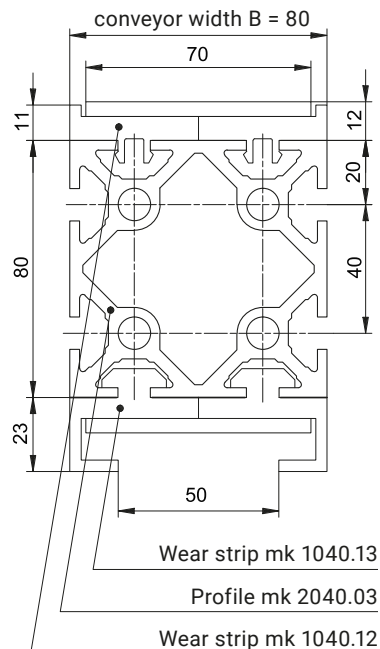
The conveyor frame profile also offers t-slots (10 mm slot width) on both sides for connection stands, side rails, initiators and stoppers.

Benefits of the ZRF-P 2040

- Cycled transport of piece goods, either conventional or orientated
- Precise conveying, feeding and positioning up to 250 kg
- Available as a single, double or multiple line conveyor
- Various belt coatings for optimal gripping of the workpiece
- Cams can be attached to hold the workpieces

Cross Section

conveyor width of 80 mm for this example, for 40, 120, 160 mm other profile

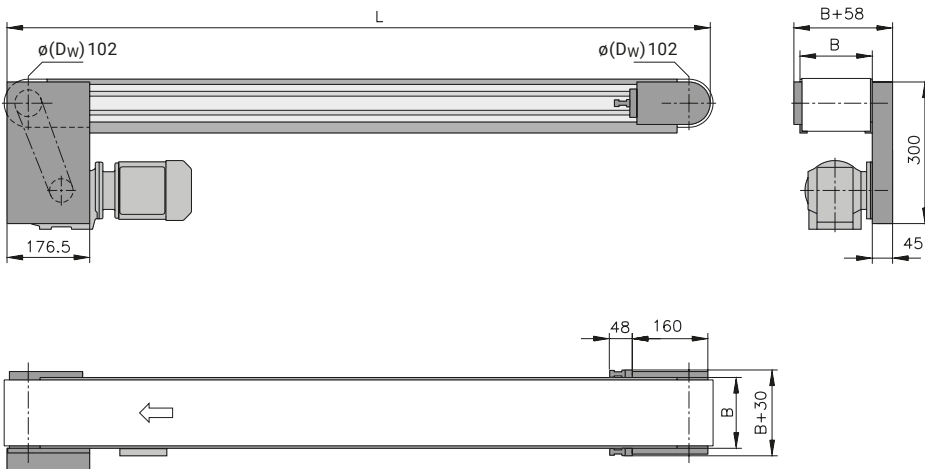


AC – Standard head drive

B20.40.301

The timing belt pulley ensures excellent transmission of the motor power. When using cams, the max. possible height must be requested.

4



Technical data

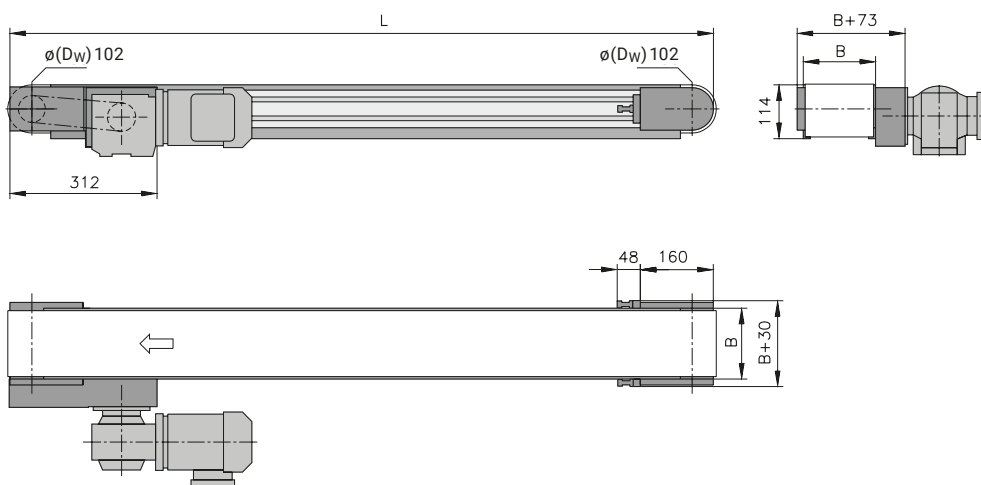
Conveyor length L	individual from 650 to 6000 mm	
Conveyor width B	40/80/120/160 mm	others on request
Timing belt width	32/70/110/150 mm	
Timing belt type		p. 174
Drive location	discharge end left/right, underneath	
Drive and speed	up to 60 m/min, higher on request	p. 12
Stand and side rail		from p. 290
Standard total load	up to 125 kg for B = 40 mm/up to 250 kg for B = 80 mm or wider	higher on request
Standard distributed load	up to 50 kg/m for B = 40 mm/up to 100 kg/m for B = 80 mm or wider	



AS – Head drive, laterally on the outside, compact

B20.40.302

The drive positioned laterally on the outside allows the total height of the conveyor to be restricted to a minimum. The timing belt pulley ensures excellent transmission of the motor power. Use of cams is possible without restriction with this drive version.



Technical data

Conveyor length L	individual from 650 to 6000 mm	
Conveyor width B	40/80/120/160 mm	others on request
Timing belt width	32/70/110/150 mm	
Timing belt type		p. 174
Drive location	discharge end left/right	
Drive and speed	up to 60 m/min, higher on request	p. 12
Stand and side rail		from p. 290
Standard total load	up to 125 kg for B = 40 mm/up to 250 kg for B = 80 mm or wider	higher on request
Standard distributed load	up to 50 kg/m for B = 40 mm/up to 100 kg/m for B = 80 mm or wider	

Application Examples ZRF-P 2040

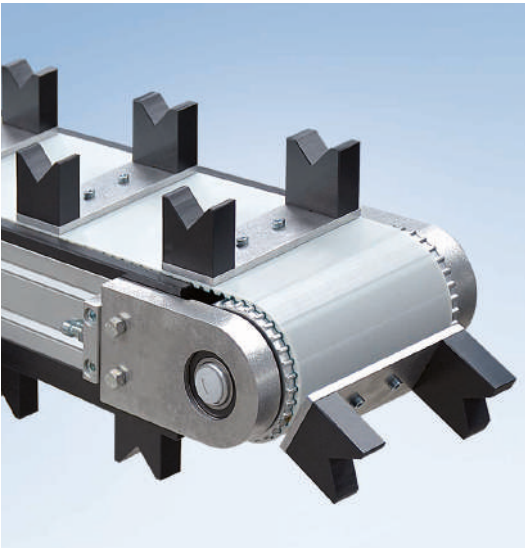
4



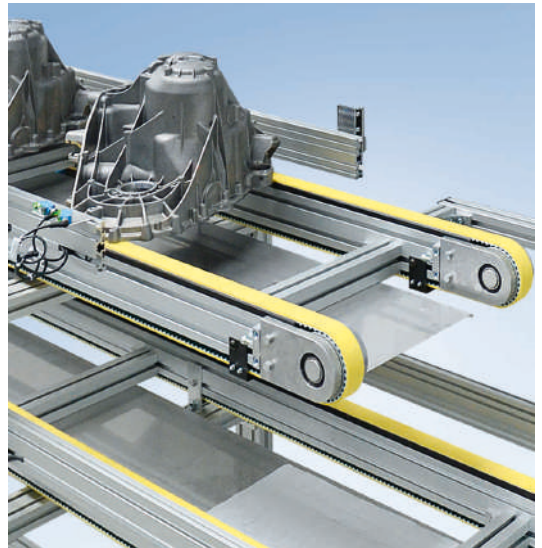
Timing belt conveyor ZRF-P 2040 with head drive AC



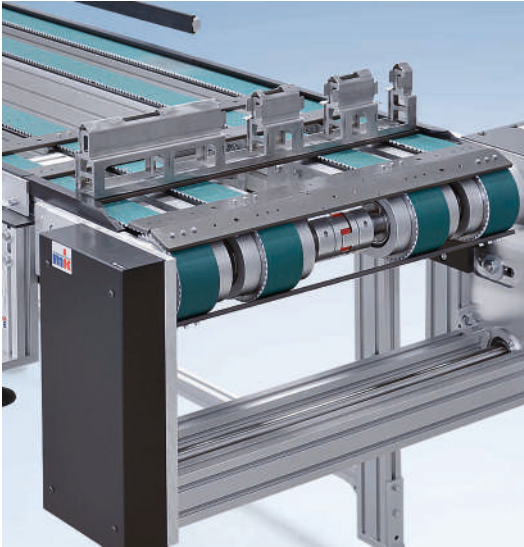
Dual-line timing belt conveyor ZRF-P 2040 with tail 13 with rolling knife edge



Timing belt conveyor ZRF-P 2040 with bolted-on, prism-shaped workpiece holders



Dual-line timing belt conveyor ZRF-P 2040 with side rail and controller

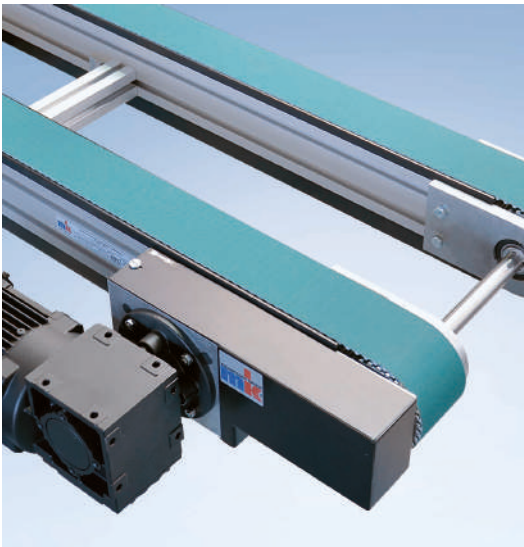


Four-line timing belt conveyor ZRF-P 2040
with bolted-on product holders



4


ZRF-P 2040 timing belt conveyor with drive AC
and attached prisms for picking up rods



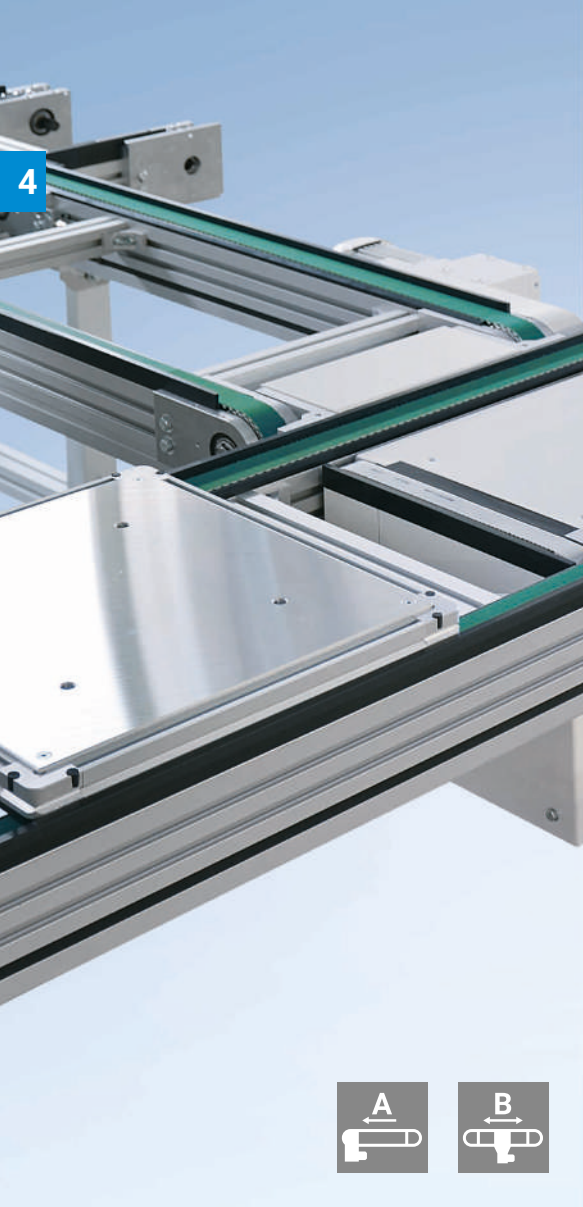
Dual timing belt conveyor ZRF-P 2040
with head drive AS



Three-line timing belt conveyor ZRF-P 2040
with head drive AC

 Custom applications
from page 408

Timing Belt Conveyor ZRF-P 2010



» For transporting pallets and products with a rigid structure. «



part of
versamove

The timing belt conveyor ZRF-P 2010 is particularly suitable as a double-line system for transporting pallets or products with a rigid structure in the Versamove pallet circulation system, for instance. The positive connection between the drive pulley and the timing belt ensures that the two conveyor lines are synchronised, making the system ideal for cycle operation.

A feature of this conveyor system are the wear strips which made from ultra-high-molecular weight polyethylene on which the timing belt runs and is guided. This material provides a low coefficient of friction and excellent wear characteristics.

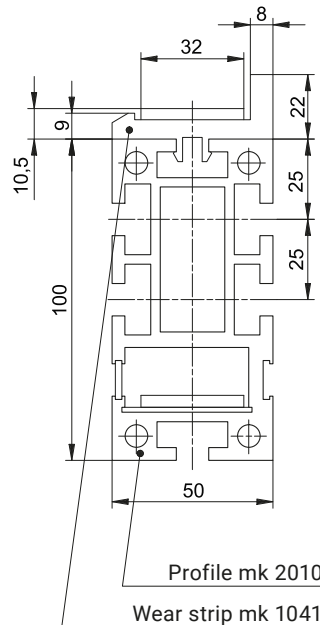
Another typical feature of this system is the recirculation of the laterally removable timing belt inside the profile frame. This reduces the risk of accidents to a minimum.

The profile offers t-slots (10 mm slot width) on three sides for connecting stands, side rails and stoppers. Combined with the wide range of different drive options, this makes the system the perfect basis for constructing complex interlinking and automation systems. Various coatings on the surface of the timing belt ensure optimal gripping of the workpiece for your specific application.

Benefits of the ZRF-P 2010

- Ideal for transporting pallets (Versamove) and products with a rigid structure
- Ideally suited for cycling operation, up to 250 kg
- Timing belt returns inside the profiles to produce a compact and safe design
- Various belt coatings for optimal gripping of the workpiece
- Dual-line and multiple-line conveyors available

Cross Section

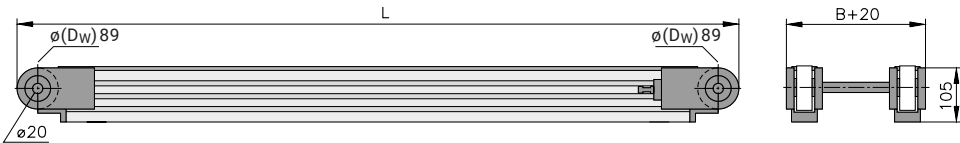


AA – Head drive without motor

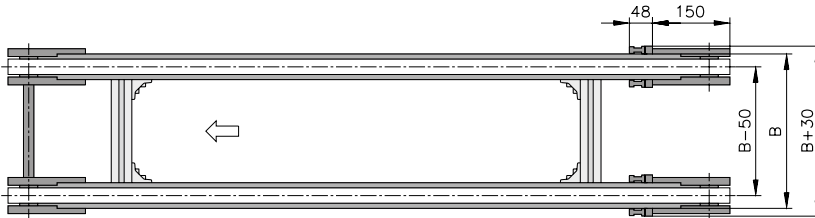
B20.10.350

The AA version with no motor is suitable for connection to an existing conveyor with a drive, either in parallel or in series. This allows you to operate multiple conveyors with only one motor. Depending on the requirement, the conveyor is designed either with a hollow shaft or with a connecting shaft with shaft journal ($\varnothing 20$ mm, usable length 34 mm, incl. DIN 6885 key) Since the timing belt returns within the profile, welded-on cams cannot be used. The ZRF-P 2040 should be used for this purpose.

4



For information about wear strip options, see page 170



Technical data

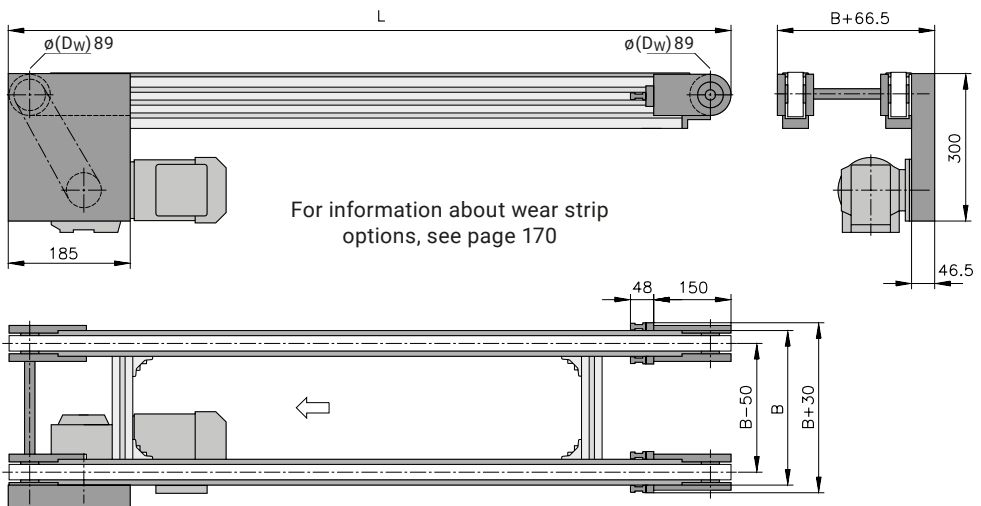
Conveyor length L	individual from 500 to 6000 mm	
Conveyor width B	200 to 1000 mm	
Timing belt width	32 mm	
Timing belt type		p. 174
Drive and speed	up to 60 m/min, higher on request	p. 12
Stand and side rail		from p. 290
Standard total load	up to 250 kg	higher on request
Standard distributed load	up to 100 kg/m	



AC – Standard head drive

B20.10.351

The timing belt pulley ensures excellent transmission of the motor power. Since the timing belt returns within the profile, welded-on cams cannot be used. The ZRF-P 2040 should be used for this purpose.



Technical data

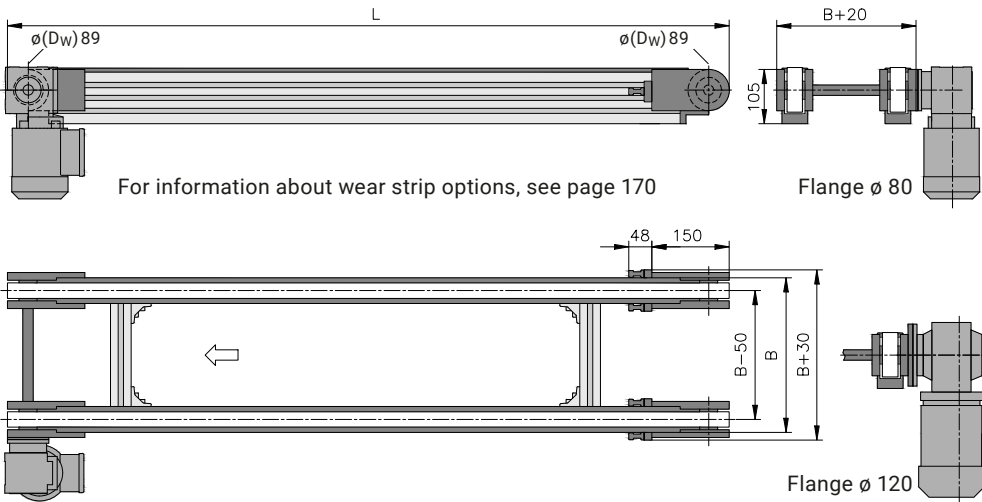
Conveyor length L	individual from 500 to 6000 mm	
Conveyor width B	200 to 1000 mm	
Timing belt width	32 mm	
Timing belt type		p. 174
Drive location	discharge end left/right, underneath	
Drive and speed	up to 60 m/min, higher on request	p. 12
Stand and side rail		from p. 290
Standard total load	up to 250 kg	higher on request
Standard distributed load	up to 100 kg/m	

AF – Direct head drive

B20.10.357

Since the motor is fitted directly onto the drive shaft, the space requirements and maintenance effort for this drive version are reduced to a minimum. Since the timing belt returns within the profile, welded-on cams cannot be used. The ZRF-P 2040 should be used for this purpose.

4



Technical data

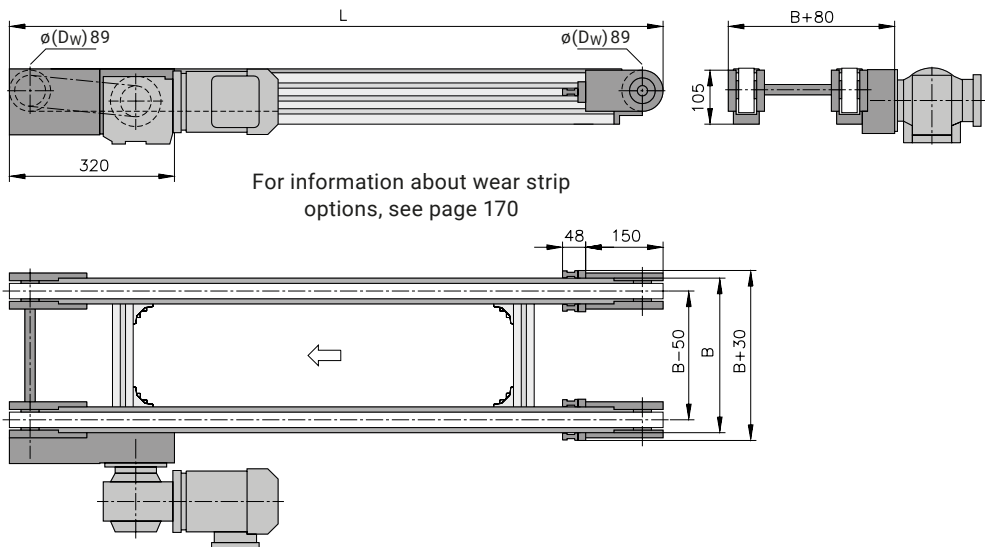
Conveyor length L	individual from 500 to 6000 mm	
Conveyor width B	200 to 1000 mm	
Timing belt width	32 mm	
Timing belt type		p. 174
Drive location	discharge end left/right	
Drive and speed	up to 60 m/min, higher on request	p. 12
Stand and side rail		from p. 290
Standard total load	up to 250 kg	higher on request
Standard distributed load	up to 100 kg/m	



AS – Head drive, laterally on the outside, compact

B20.10.355

The drive positioned laterally on the outside allows the total height of the conveyor to be restricted to a minimum. Since the timing belt returns within the profile, welded-on cams cannot be used. The ZRF-P 2040 should be used for this purpose.



For information about wear strip options, see page 170

Technical data

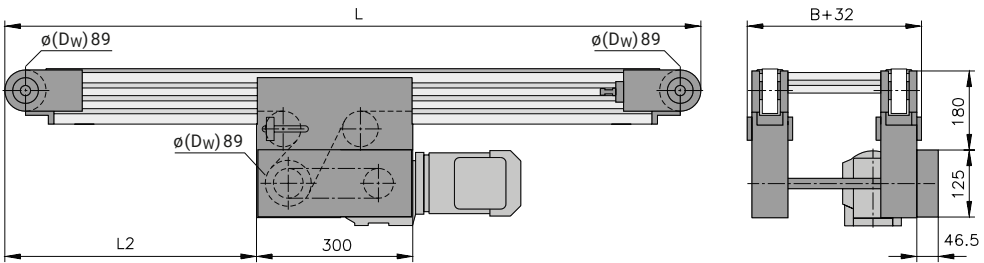
Conveyor length L	individual from 700 to 6000 mm	
Conveyor width B	200 to 1000 mm	
Timing belt width	32 mm	
Timing belt type		p. 174
Drive location	discharge end left/right	
Drive and speed	up to 60 m/min, higher on request	p. 12
Stand and side rail		from p. 290
Standard total load	up to 250 kg	higher on request
Standard distributed load	up to 100 kg/m	

BC – Lower belt drive, standard

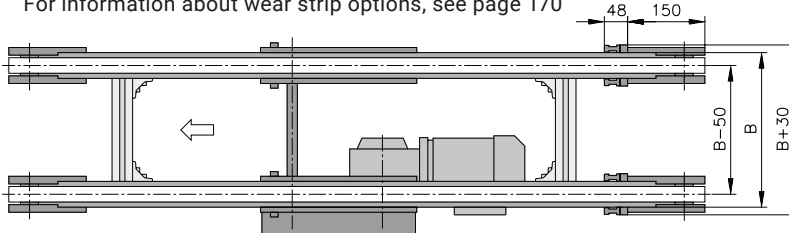
B20.10.356

The compact conveyor frame design and the ability to freely select the drive position over the entire length of the conveyor make it easier to integrate the conveyor into existing systems. The timing belt pulley combined with the snub rollers ensures excellent transmission of the motor power. Since the timing belt returns within the profile, welded-on cams cannot be used. The ZRF-P 2040 should be used for this purpose.

4



For information about wear strip options, see page 170



Technical data

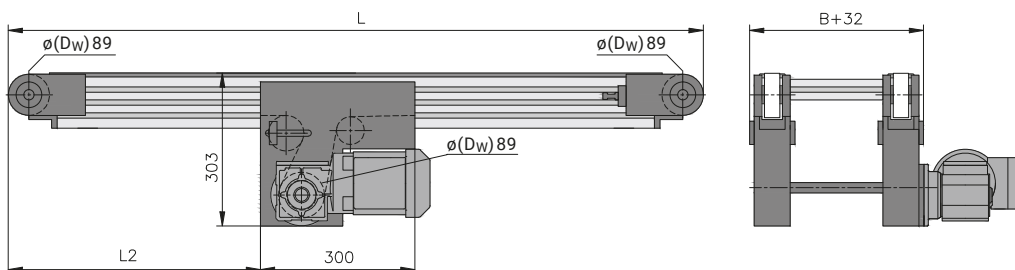
Conveyor length L	individual from 700 to 6000 mm	
Conveyor width B	200 to 1000 mm	
Timing belt width	32 mm	
Timing belt type		p. 174
Drive location	left/right underneath	
Drive and speed	up to 60 m/min, higher on request	p. 12
Stand and side rail		from p. 290
Standard total load	up to 250 kg	higher on request
Standard distributed load	up to 100 kg/m	



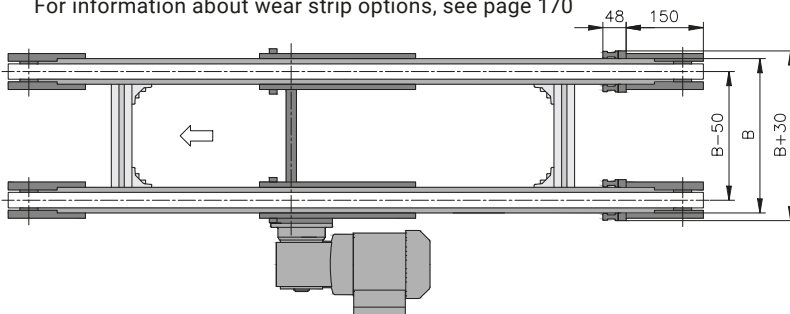
BF – Lower belt drive, direct

B20.10.359

Since the motor is fitted directly onto the drive shaft, the space requirements and maintenance effort for this drive version are reduced to a minimum. The compact conveyor frame design and the ability to freely select the drive position anywhere along the entire length of the conveyor make it easier to integrate the conveyor into existing systems. The conveying direction is reversible. Since the timing belt returns within the profile, welded-on cams cannot be used. The ZRF-P 2040 should be used for this purpose.



For information about wear strip options, see page 170



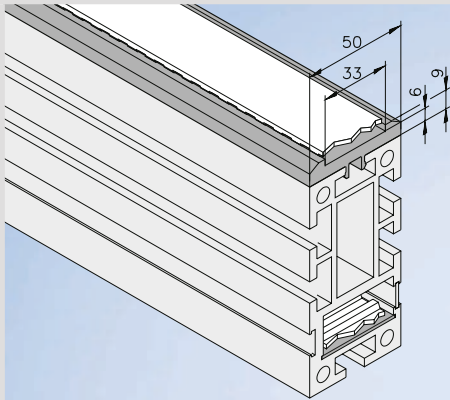
Technical data

Conveyor length L	individual from 700 to 6000 mm	
Conveyor width B	200 to 1000 mm	
Timing belt width	32 mm	
Timing belt type		p. 174
Drive location	left/right underneath	
Drive and speed	5; 6.3; 8; 9.5; 11.5; 13.5; 15.2; 19.3; 23; 26; 36.6; 45.7 and 57 m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 250 kg	higher on request
Standard distributed load	up to 100 kg/m	

ZRF-P 2010 Wear Strips

Wear and guide strips from mk ensure low friction.
The wear strips are made from PE-UHMW (PE-1000). Max. temperature 65° C.

Option A

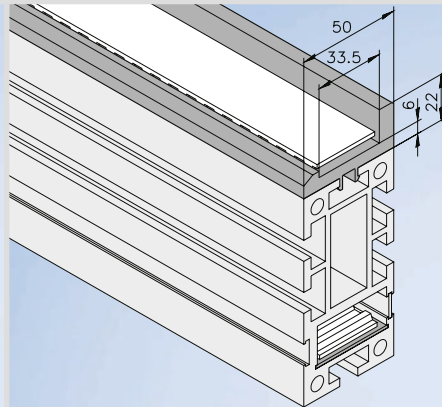


Top wear strip mk 1042
22.42.2000

Bottom wear strip mk 2010
21.14.0001

Closure strip
K10230-12

Option B

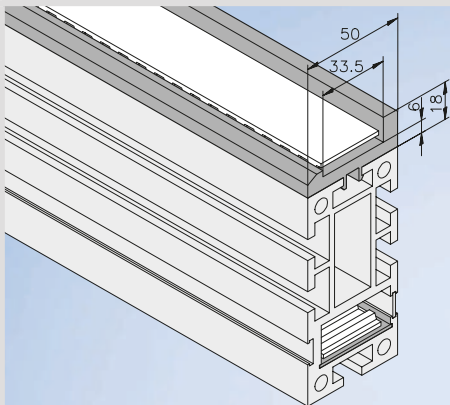


Top wear strip mk 1041
22.41.2000

Bottom wear strip mk 2010
21.14.0001

Closure strip
K10230-12

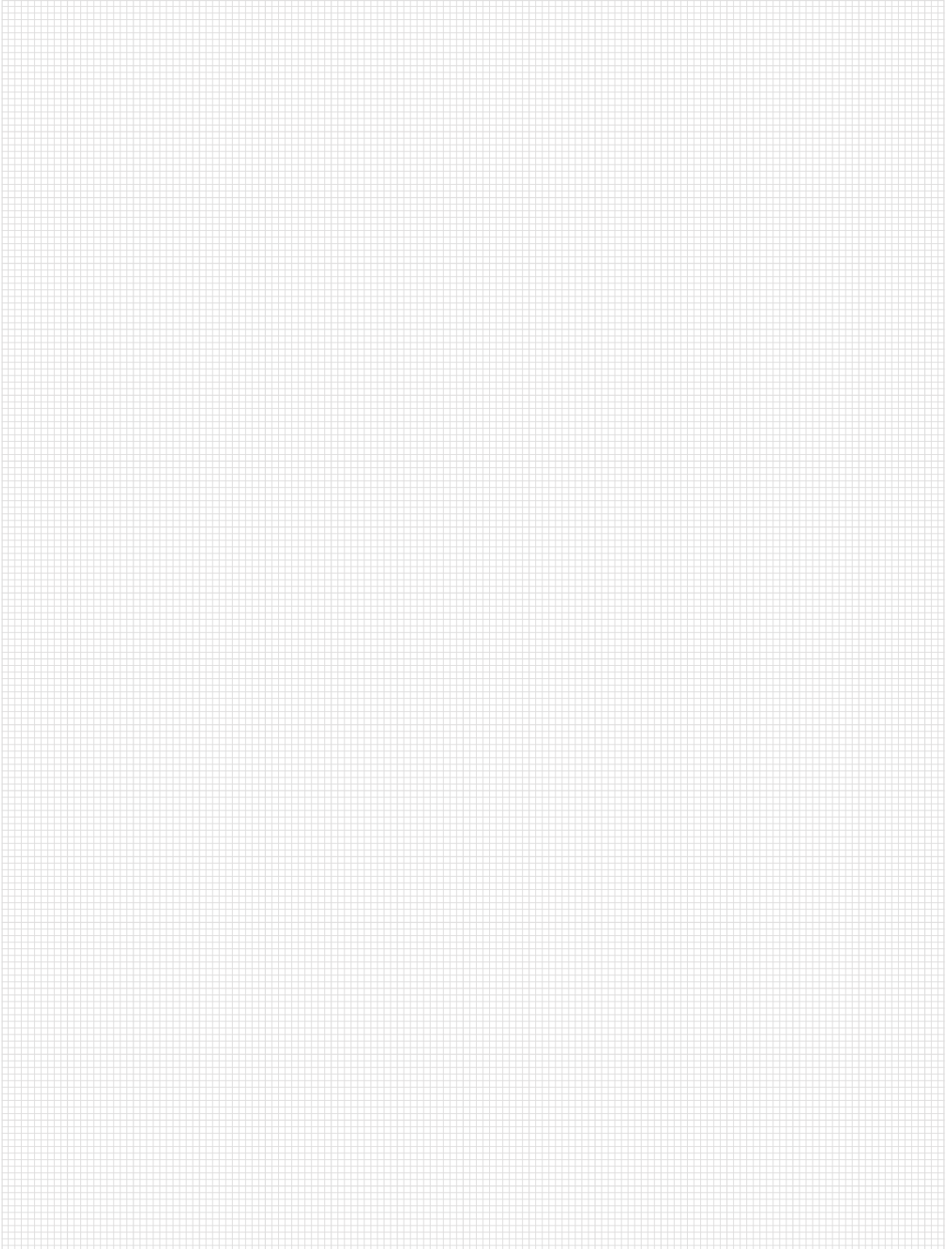
Option C



Top wear strip mk 1110
23.10.0000

Bottom wear strip mk 2010
21.14.0001

Closure strip
K10230-12

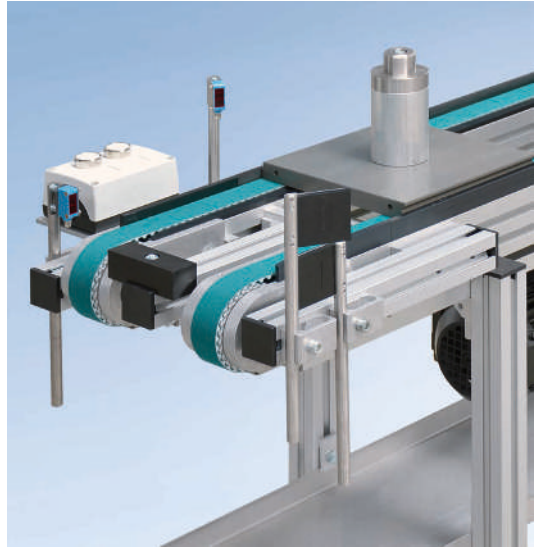


Application Examples ZRF-P 2010

4



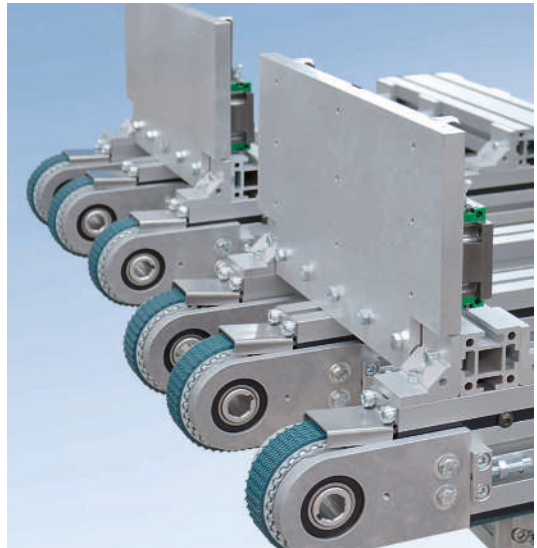
Timing belt conveyor ZRF-P 2010 in antistatic design with lift-and-transfer conveyor



ZRF-P 2010 with photoelectric sensors for detection and button for feeding in or discharging the part



Timing belt conveyor ZRF-P 2010 with head drive AF and lift-and-transfer conveyor



Three-line timing belt conveyor ZRF-P 2010 for crosswise discharge

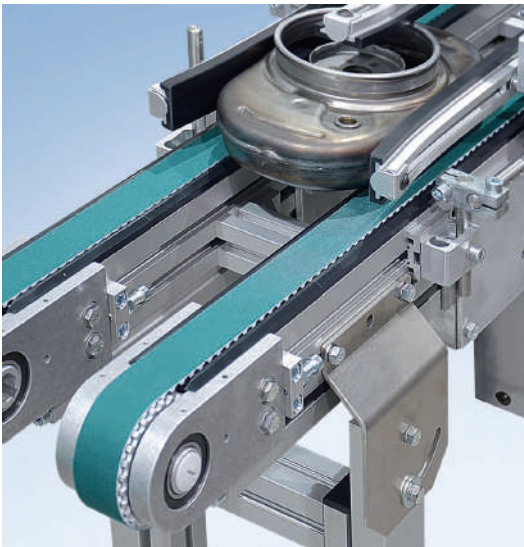


Timing belt conveyor ZRF-P 2010 with head drive AC and side rail for extra-wide products



4

Dual-line timing belt conveyor ZRF-P 2010 with side rail



Timing belt conveyor ZRF-P 2010 with side rail SF01



Timing belt conveyor ZRF-P 2010 with coupled lift and transfer conveyor

Timing Belts

The standard timing belts are made from polyurethane reinforced with high-strength steel cords. The belts have the T10 partition and a width of 32 mm (others available on request). To ensure optimal transport, different surface coatings can be used. An additional coating on the teeth side (PAZ = polyamide tooth side) is recommended for conveying speeds above 30 m/min as well as to reduce friction and noise.

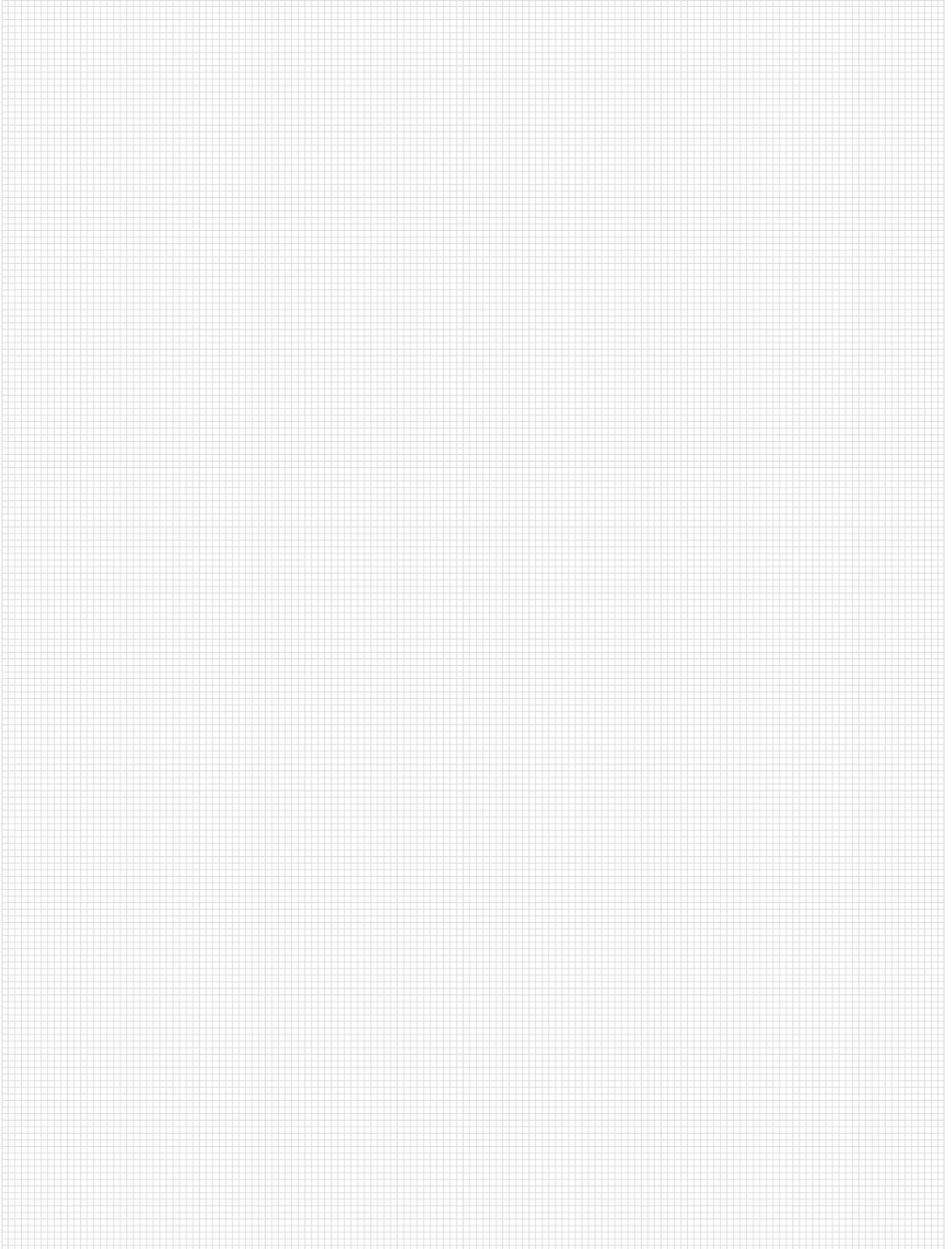
Timing belt material

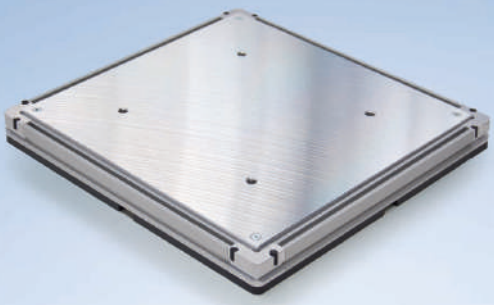
Properties	Basic material		Surface coating		
	Polyurethane	Polyamide PAR/PAZ**	PVC, white, FDA	Rubber structure (Supergrip)*	Linatex***
Resistance to moisture	+				+
Resistance to oil and grease	+		+ -	+	+ -
Suitable for contact with food (FDA compliant)			+		
Abrasion resistance	+				+ -
Wear resistance				+	
Adhesion property (inclined conveying)				+	++
Anti-frictional property (accumulated operation)	-	+			-
Cut resistance	+				
Low noise levels		+(PAZ)			
Colour	Various	Green	White	Green	Red
Temperature resistance	-20 to +60° C	-20 to +60° C	-40 to +100° C	-10 to +90° C	-40 to +70° C
Hardness	90 Shore A		65 Shore A	40 Shore A	40 Shore A

*Not suitable for use in ZRF-P 2010 except as a special version with conveyor frame open on the bottom

**PAR = polyamide rear (carrying) side; PAZ = polyamide tooth side

***Counter-bending, such as in lower belt drives, is not permitted





part of **versamove**

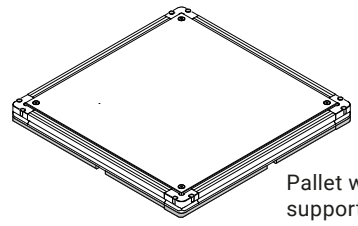
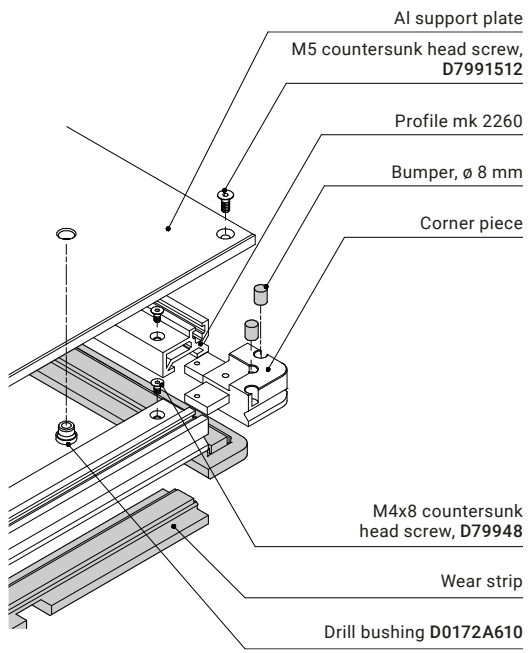
Accessories

Pallets

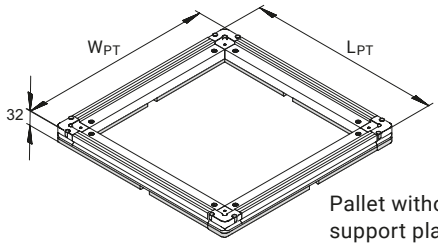
The pallets used in the Versamove pallet circulation system can be custom-configured to suit your specific application, whether they are delivered fully assembled or for self-assembly. The permitted total weight per pallet is determined by the total load capacity per metre of the system (100 kg/m). Please note that the clear width of the side rail must be 2 to 4 mm wider than the width of the pallet to guide the pallet in the optimal way.

Individual pallet components:

- Aluminium profile frame consisting of the profile mk 2260 and the corner pieces
- PE-1000 plastic wear strips below the profile frame
- Support plates in varying thickness: 5, 6, 8, 10 and 12 mm
- Bumpers/rubber buffers
- Positioning sockets

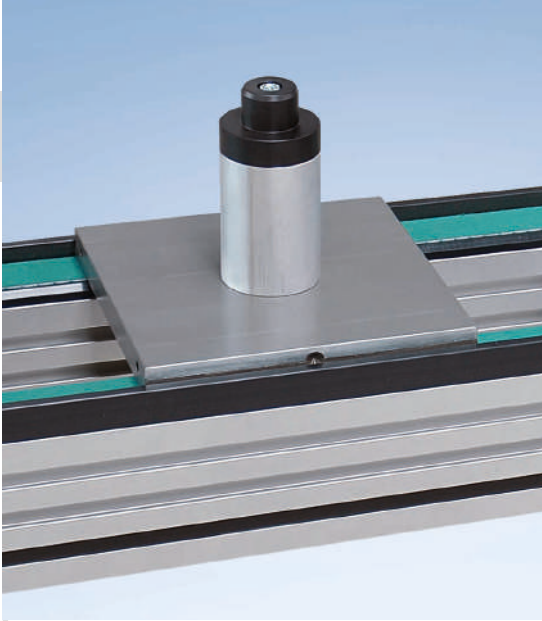


Pallet with support plate



Pallet without support plate

W _{PT} mm	L _{PT} mm	Support plate mm	Weight _{PT} kg
400	400	8	5
400	600	8	8
600	600	10	14
600	800	10	16
800	800	12	24
800	1000	12	30



Pallets

Stopping and Separating

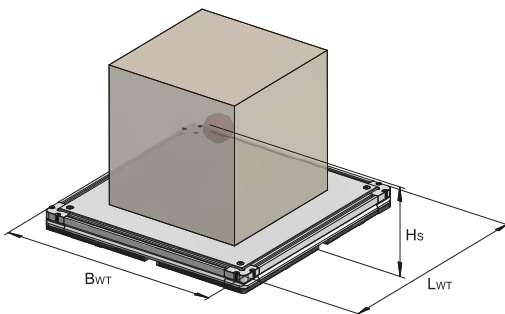
To stop or separate the pallets, the stoppers can be positioned at the centre or on the outside.

4

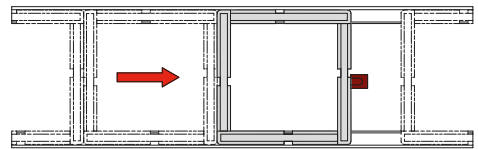
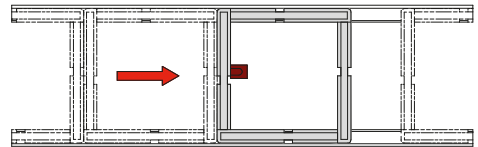
Centre of Gravity

The position of the product being transported must be taken into consideration to ensure that transport is smooth and as faultless as possible.

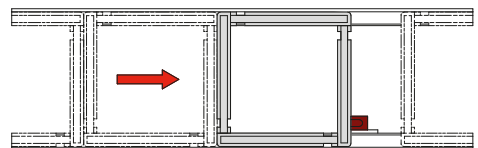
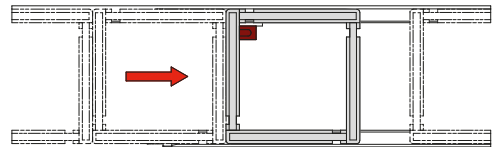
We recommend positioning the centre of gravity of the product being transported as close to the middle of the pallet as possible. In addition, the height of the centre of gravity should not be more than 0.5 times the shortest side length of the pallet.



Central stop position



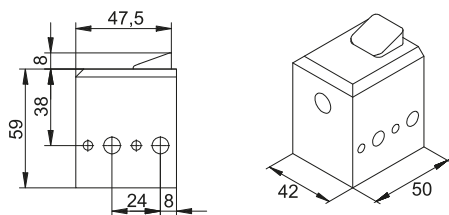
Outer stop position





Return Stop

The return stop is used in combination with a stopper in transfer systems with a low belt friction and prevents pallets from recoiling/rebounding while stopping. The return stop is activated through a spring.



Return Stop
K503030101

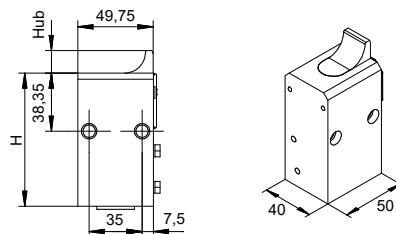
Lowering stroke: 8 mm

Accessories

SU – Stopper Undamped

Stoppers are used to stop or separate the pallets. The stopper options are selected based on the conveyor weight and conveyor speed. Customers can choose between a variety of stroke heights based on their requirements. Damped or undamped stoppers can be connected in the centre or on the sides.

They can be requested through inductive (I) or electric (E) sensors.



SU 400

SA=single-acting (locked in a depressurised state)

Ident. no.	Stroke Re- quest (mm)	V=6	V=9	V=12	V=18	
		m/min [kg]	m/min [kg]	m/min [kg]	m/min [kg]	
K503011401	E	9	400	300	250	200
K503011405	I	9	400	300	250	200
K503011404	-	9	400	300	250	200
K503011406	E	15	400	300	250	200
K503011402	-	15	400	300	250	200

DA=double-acting (maintains the last position reached)

K503012401	E	9	400	300	250	200
K503012404	-	9	400	300	250	200
K503012405	I	9	400	300	250	200

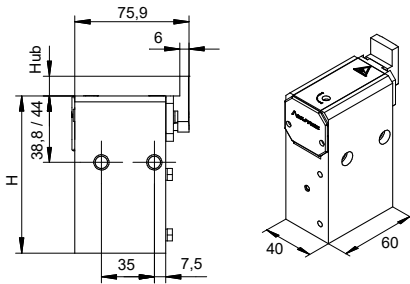


SD – Stopper Damped

Damped stopping allows you to gently slow down the first pallet. Damping prevents the workpiece from slipping in a certain location. Electrical or inductive sensors on the stoppers are optional. A minimum mass of 3 kg is required to ensure proper functioning. Damped or undamped stoppers can be connected in the centre or on the sides.

They can be requested through inductive (I) or electric (E) sensors.

4



SD 60

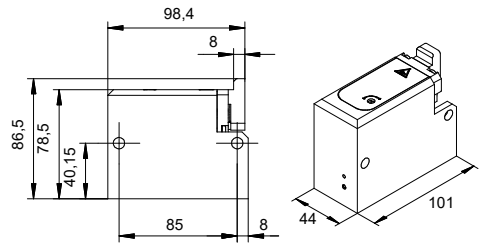
SA=single-acting (locked in a depressurised state)

Ident. no.	Re-quest	Stroke (mm)	V=6	V=12	V=24	V=30
			m/min [kg]	m/min [kg]	m/min [kg]	m/min [kg]
K503021061	E	8	3-60	3-35	3-24	3-18
K503021063	-	8	3-60	3-35	3-24	3-18
K503021064	I	8	3-60	3-35	3-24	3-18

DA=double-acting (maintains the last position reached)

K503022061	E	8	3-60	3-35	3-24	3-18
K503022063	-	9	3-60	3-35	3-24	3-18
K503022064	I	10	3-60	3-35	3-24	3-18

The specifications apply for a friction coefficient of $\mu = 0.07$
Stoppers for heavier loads available upon request



SD 100

SA=single-acting (locked in a depressurised state)

Ident. no.	Re-quest	Stroke (mm)	V=6	V=12	V=24	V=30
			m/min [kg]	m/min [kg]	m/min [kg]	m/min [kg]
K503021101	-	8	3-100	3-60	3-40	3-30
K503021102	I	8	3-100	3-60	3-40	3-30

DA=double-acting (maintains the last position reached)

K503022101	-	8	3-100	3-60	3-40	3-30
K503022102	I	8	3-100	3-60	3-40	3-30

The specifications apply for a friction coefficient of $\mu = 0.07$
Stoppers for heavier loads available upon request

Chapter 5 Chain Conveyors

5



Selecting a Chain Conveyor

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Chain Conveyor KTF-P 2010

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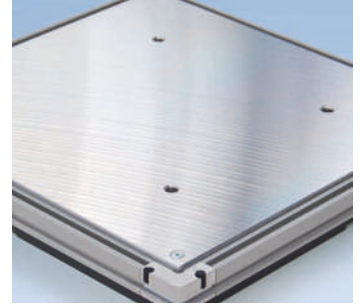
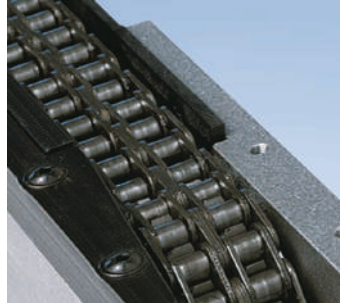
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- Lower Run Drives 190
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Accumulating Roller Chain Conveyor SRF-P 2010

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- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

Selecting a Chain Conveyor

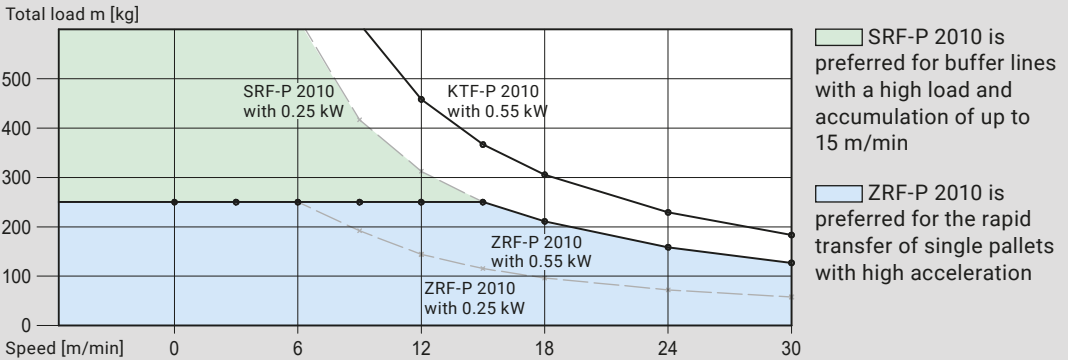
Dimensions – Technical Data

Conveyor system	Conveyor widths [mm]	Conveyor lengths [mm]	Total load* as standard, up to [kg]	Speed up to [m/min]	∅ of tails [mm]	Reverse operation	Accumulated operation	Cycling operation
Chain conveyor								
KTF-P 2010	200–2000	500–10000	500	30	approx. 90	•	•	•
Accumulating roller chain conveyor								
SRF-P 2010	200–2000	500–10000	500	30	approx. 90	•	•	•
SRF-P 2012	200–2000	1000–10000	1000	30	approx. 90	•	•	•

* Usual load limits that may be exceeded based on the configuration and influencing factors. Influencing factors for the load include: width, chain type, load distribution, duty type and environmental conditions.

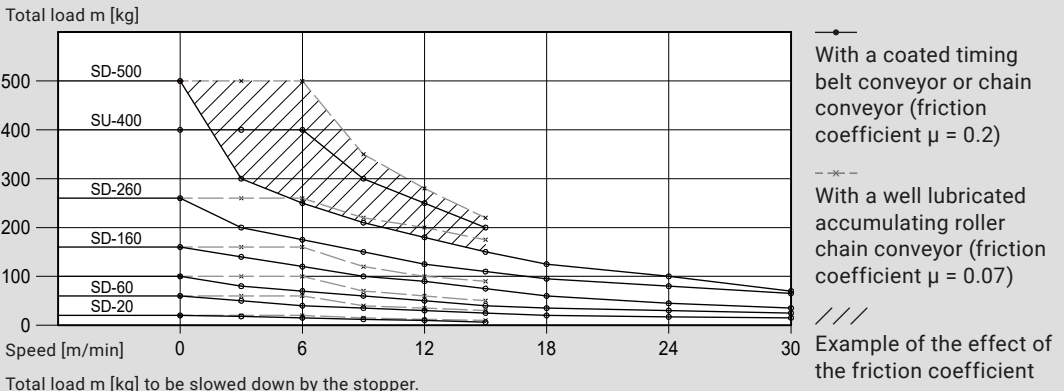
Selecting Double-line Conveyors based on Load and Speed

The diagram shows double-line conveyor systems based on their load and speed. The comparison shows timing belt conveyors (ZRF), chain conveyors (KTF) and accumulating roller chain conveyors (SRF).



Total load m [kg] per conveying path, per drive in continuous operation (accumulated operation $m_{accumulated} = 2 \times m_{continuous}$)

Selecting the Stopper



Total load m [kg] to be slowed down by the stopper.

Application Options

The chain conveyor KTF-P 2010 is ideal for the cycled transport of products. Available with different drive options, they are often used for setting up complex interlinking solutions. They are typically used for transferring pallets with high loads and even speeds in a double-line area. For high speeds or positioning tasks, low-maintenance and low-noise timing belt conveyors are used (see the image on the left and the previous chapter). Various chain types in combination with our sturdy, solid wear strips ensure reliable, long-term functioning that is optimally suited to your application.

The chain conveyor KTF-P 2010 is primarily used as the basic element for constructing transfer lines. It is available as a single, dual or multiple line system with either a simplex roller chain or a duplex roller chain for higher loads and a larger support surface.

The accumulating roller chain conveyor SRF-P 2010 is also based on the profile mk 2010 and is suitable for accumulated operation. The conveyor is therefore ideal for interlinking and buffering between workstations. Like all chain conveyors, the system can be equipped with an optional tensioning device and continuous lubrication device.

The design of our accumulating roller chain conveyor SRF-P 2012 for the heavier load range of up to 1000 kg ensures smooth operation thanks to the free-spinning conveyor rollers, even during accumulated operation. The accumulation force is kept to a minimum. Typical applications for this chain conveyor include interlinking workstations or buffering between workstations and assembly stations.

Chains

The chains used (see from page 218) are available in various designs to ensure optimal function in your specific application. Our standard product range includes a single roller chain and a duplex roller chain for the KTF-P 2010. The duplex chain can convey higher loads and offers a larger contact surface.

Accumulating roller chains with either plastic or steel rollers are available for accumulated operation. Plastic rollers produce less noise and require less maintenance than steel rollers, but they are not suitable for environments with sustained temperatures above 60° C, in painting applications or in potentially explosive atmospheres. When using steel rollers, note that plastic wear strips (PE or POM) must be attached to the contact surfaces on the pallets to be transported.

The accumulating roller chain is available with accumulating rollers in rows one behind the other (more robust with higher breaking resistance) or accumulating rollers that are offset from each other. The offset accumulating rollers offer more contact points and therefore smoother operation as well as a higher max. load for the line. These chains can also be equipped with a finger guard in accordance with the German accident prevention regulations (UVV).

In contrast to timing belts, chains must always be well lubricated. They can be used in temperatures up to 60° C or in a special version up to 120° C. Higher temperatures can be achieved on request. Low-maintenance chains are also available as an option.

Chain Conveyor KTF-P 2010

» For transporting heavier loads even in harsh environments. «

5



part of
versamove

Benefits of the KTF-P 2010

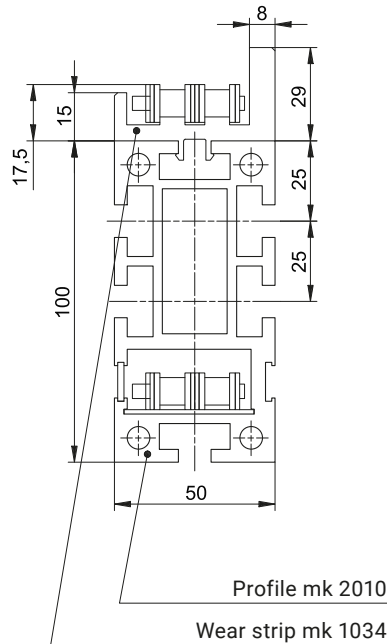
- Basis for constructing transfer systems for higher loads
- Ideal as a dual or multiple line system for transporting pallets
- Large selection of drives
- Low-maintenance and sturdy use in cycling operation
- Suitable for dirty and oily environments

The chain conveyor KTF-P 2010 is particularly suitable for transporting pallets or products with a rigid structure (in the Versamove pallet circulation system, for instance). Its large selection of drives makes it extremely flexible, and it is normally used as the basis for constructing transfer lines.

It is available as a single, dual or multiple line system with either a simple roller chain or a duplex roller chain for higher loads and a larger support surface. The various chains and wear strip guides allow the workpiece to be optimally placed on the conveyor, while their excellent anti-frictional properties make them extremely low maintenance and sturdy.

Longitudinal slots in the mk 2010 profile beam provide flexible options for connecting struts, guides, initiators and components from the mk profile system. Like all chain conveyors, the system can be equipped with an optional tensioning device and continuous lubrication device.

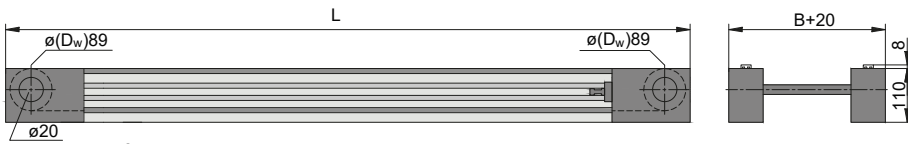
Cross Section



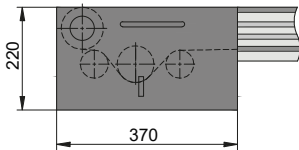
AA – Head drive without motor

B20.10.465

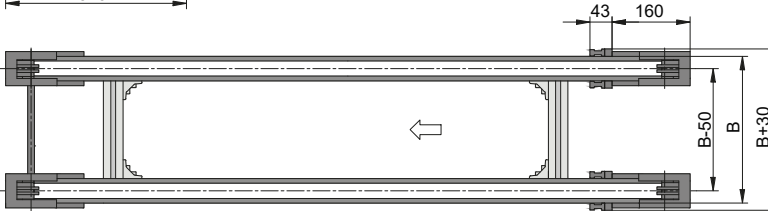
The AA version with no motor is suitable for connection to an existing conveyor with a drive, either in parallel or in series. This allows you to operate multiple conveyors with only one motor. Depending on your requirements, the conveyor is designed either with a hollow shaft or with a connecting shaft with shaft journal. Operation with cleats is not possible with this version.



For information about wear strip options, see page 192 onwards



Available with optional tensioning device and lubrication station (see page 221)



Technical data

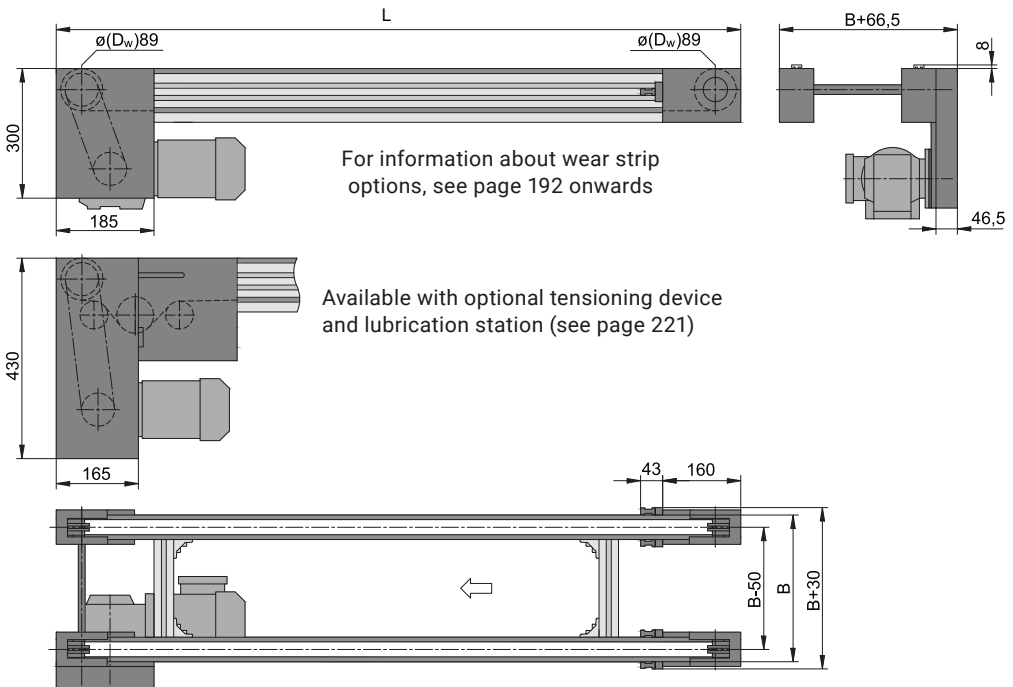
Conveyor length L	individual from 500 to 10000 mm	
Conveyor width B	200 to 2000 mm	
Chains	1/2" single or duplex	p. 218
Drive and speed	up to 30 m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 500 kg	up to 1000 kg on request
Standard distributed load	up to 150 kg/m (with duplex chain)	



AC – Standard head drive

B20.10.466

The drive chain on indirect drives can be used as a reduction gear. This makes it easy to design the conveyor with the appropriate speed, particularly in the low-speed range. In addition, the drive chain can compensate for alignment errors and assembly tolerances to ensure that both lines run synchronously. Operation with cleats is not possible with this version.



For information about wear strip options, see page 192 onwards

Available with optional tensioning device and lubrication station (see page 221)

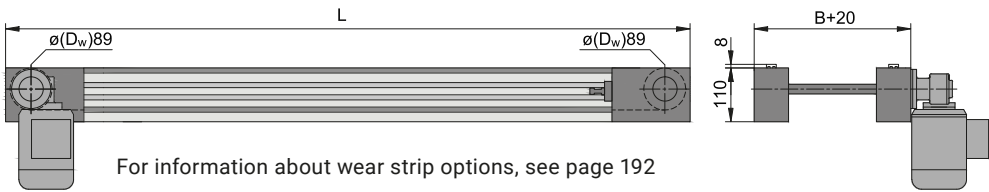
Technical data

Conveyor length L	individual from 500 to 10000 mm	
Conveyor width B	200 to 2000 mm	
Chains	1/2" single or duplex	p. 218
Drive location	discharge end left/right, underneath	
Drive and speed	up to 30 m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 500 kg	up to 1000 kg
Standard distributed load	up to 150 kg/m (with duplex chain)	on request

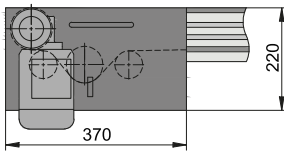
AF – Direct head drive

B20.10.467

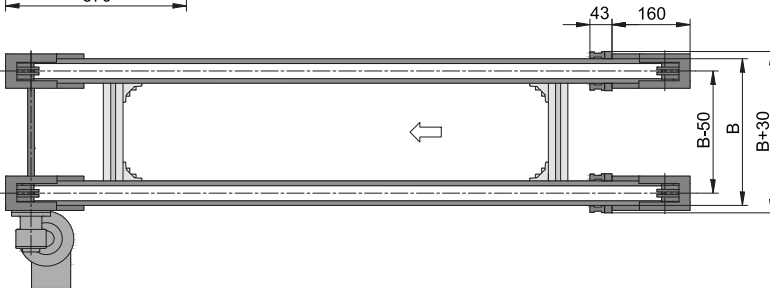
Since the motor is fitted directly onto the drive shaft, the space requirements and maintenance effort for this drive version are reduced to a minimum. Operation with cleats is not possible with this version.



For information about wear strip options, see page 192



Available with optional tensioning device and lubrication station (see page 221)



Technical data

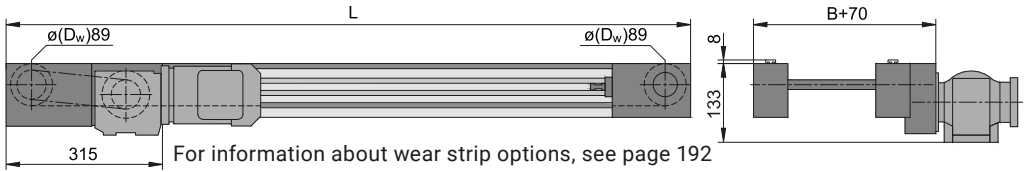
Conveyor length L	individual from 500 to 10000 mm	
Conveyor width B	200 to 2000 mm	
Chains	1/2" single or duplex	p. 218
Drive location	discharge end left/right, underneath	
Drive and speed	up to 30 m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 500 kg	up to 1000 kg
Standard distributed load	up to 150 kg/m (with duplex chain)	on request



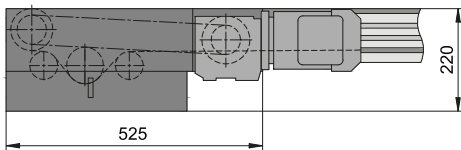
AS – Head drive, laterally on the outside, compact

B20.10.468

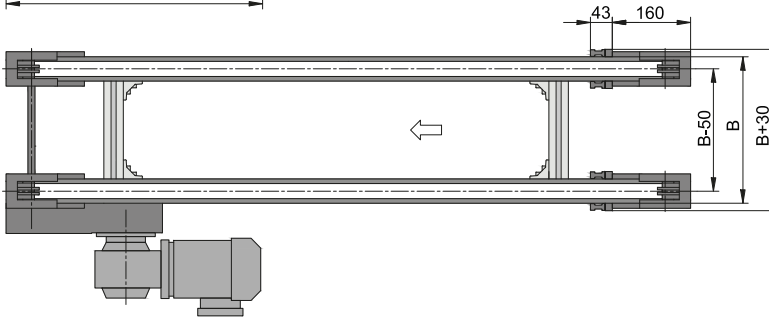
The drive positioned laterally on the outside allows the total height of the conveyor to be restricted to a minimum. Operation with cleats is not possible with this version.



For information about wear strip options, see page 192



Available with optional tensioning device and lubrication station (see page 221)



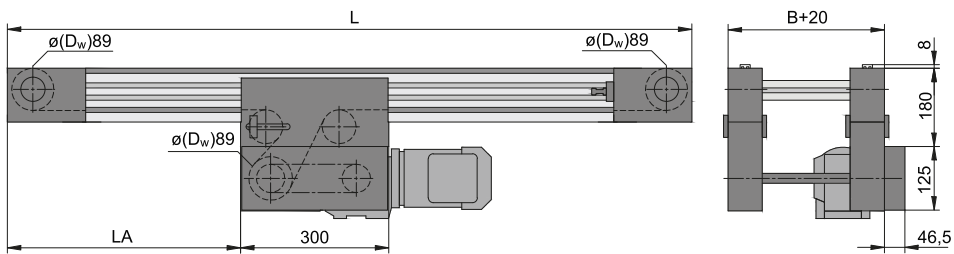
Technical data

Conveyor length L	individual from 700 to 10000 mm	
Conveyor width B	200 to 2000 mm	
Chains	1/2" single or duplex	p. 218
Drive location	discharge end left/right	
Drive and speed	up to 30 m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 500 kg	up to 1000 kg
Standard distributed load	up to 150 kg/m (with duplex chain)	on request

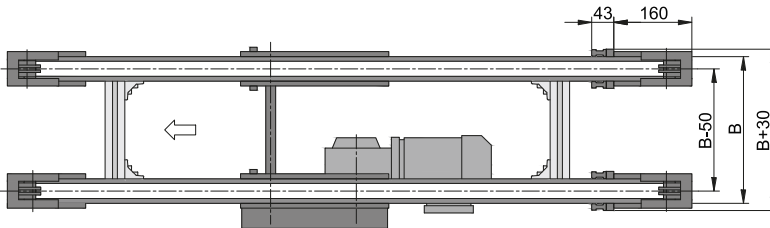
BC – Lower run drive, standard

B20.10.471

The compact conveyor frame design and the ability to freely select the drive position over the entire length of the conveyor make it easier to integrate the conveyor into existing systems. The drive sprocket wheel ensures excellent transmission of the motor power. Operation with cleats is not possible with this version.



For information about wear strip options, see page 192 onwards



Technical data

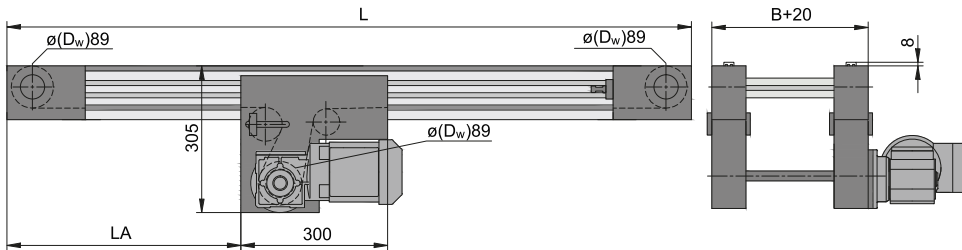
Conveyor length L	individual from 700 to 10000 mm	
Conveyor width B	200 to 2000 mm	
Chains	1/2" single or duplex	p. 218
Drive location	left/right underneath	
Drive and speed	up to 30 m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 500 kg	up to 1000 kg
Standard distributed load	up to 150 kg/m (with duplex chain)	on request



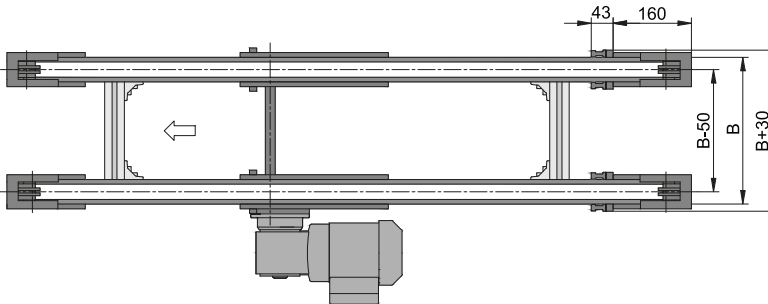
BF – Lower run drive, direct

B20.10.472

Since the motor is fitted directly onto the drive shaft, the space requirements and maintenance effort for this drive version are reduced to a minimum. The compact conveyor frame design and the ability to freely select the drive position anywhere along the entire length of the conveyor make it easier to integrate the conveyor into existing systems. The conveying direction is reversible. Operation with cleats is not possible with this version.



For information about wear strip options, see page 192 onwards



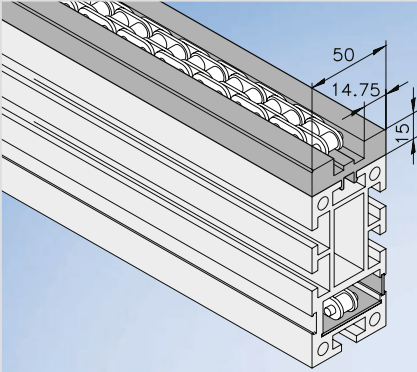
Technical data

Conveyor length L	individual from 700 to 10000 mm	
Conveyor width B	200 to 2000 mm	
Chains	1/2" single or duplex	p. 218
Drive location	left/right underneath	
Drive and speed	5; 6.3; 8; 9.5; 11.5; 13.5; 15.2; 19.3; 23; 26; 36.6; 45.7 and 57 m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 500 kg	up to 1000 kg on request
Standard distributed load	up to 150 kg/m (with duplex chain)	

KTF-P 2010 Wear Strips

Wear and guide strips from mk ensure low friction.
The wear strips are made from PE-UHMW (PE-1000). Max. temperature of 65° C.

Option A

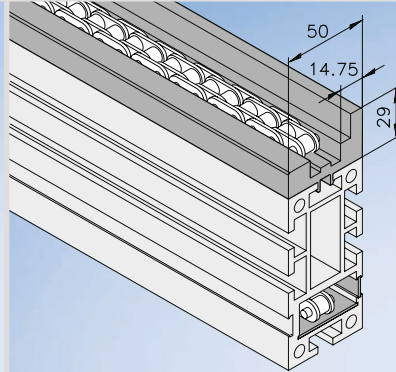


Top wear strip mk 1037
22.37.2000

Bottom wear strip mk 2010
21.14.0001

Closure strip
K10230-12

Option B

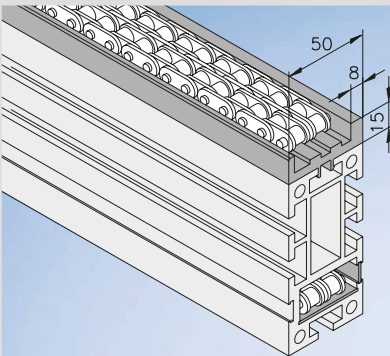


Top wear strip mk 1038
22.38.2000

Bottom wear strip mk 2010
21.14.0001

Closure strip
K10230-12

Option C

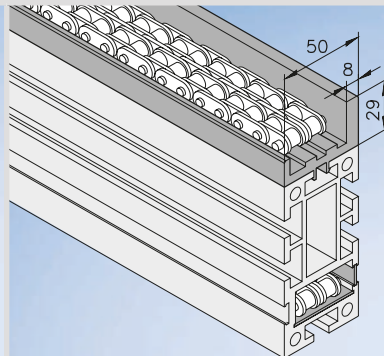


Top wear strip mk 1033
22.33.2000

Bottom wear strip mk 2010
21.14.0001

Closure strip
K10230-12

Option D

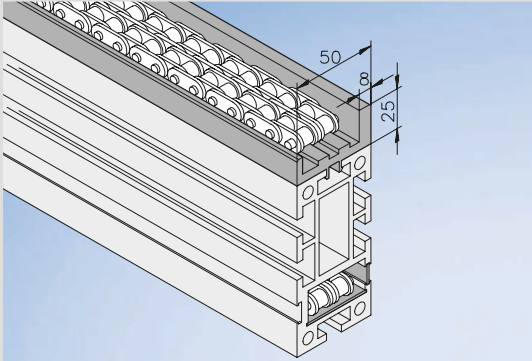


Top wear strip mk 1034
22.34.2000

Bottom wear strip mk 2010
21.14.0001

Closure strip
K10230-12

Option E



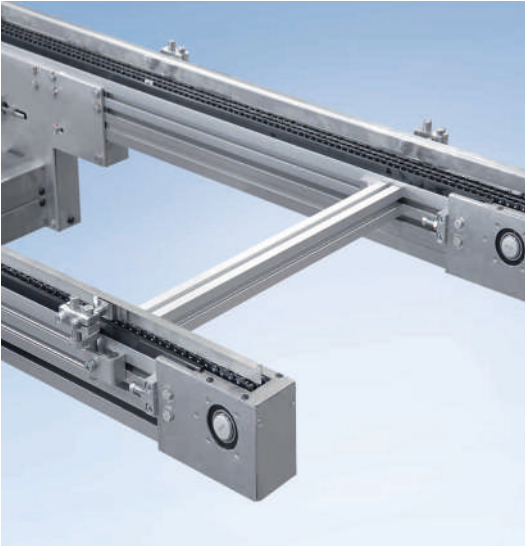
Top wear strip mk 1111
23.11.2000

Bottom wear strip mk 2010
21.14.0001

Closure strip
K10230-12

Application Examples KTF-P 2010

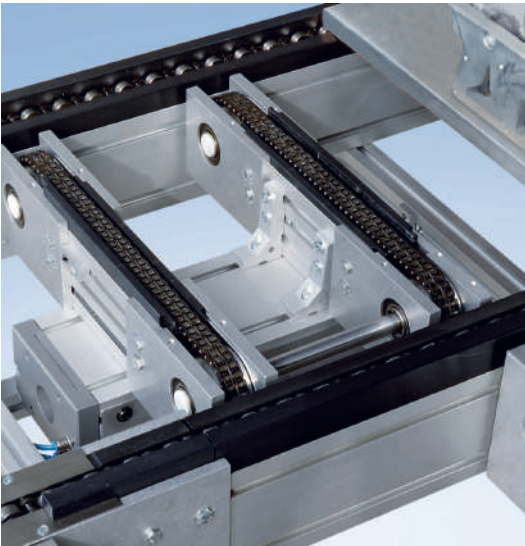
5



Chain conveyor KTF-P 2010 with lower run drive BF and side rail SF2.1



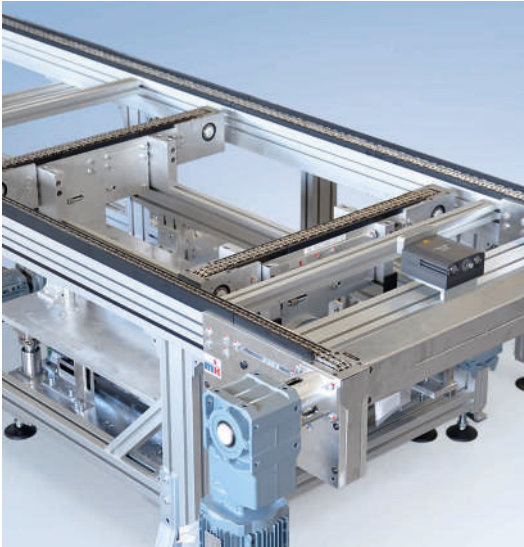
Chain Conveyor KTF-P 2010



Chain KTF-P 2010 as lift-and-transfer unit for accumulating roller chain conveyor SRF-P 2010



Three-line chain conveyor KTF-P 2010

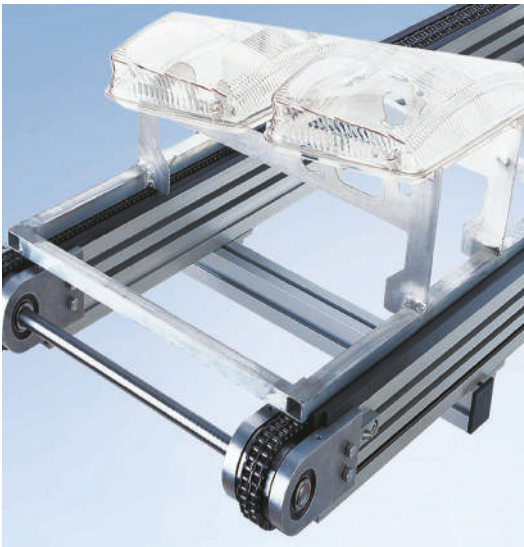


Chain conveyor KTF-P 2010 with lift-and-transfer conveyor and head drive AF with automatic clamping and lubrication station



Chain conveyor KTF-P 2010 with head drive AC


5



Chain Conveyor KTF-P 2010



Chain conveyor KTF-P 2010 with head drive AC, with drip pan and movable support frame

 Custom applications
from page 408

Accumulating Roller Chain Conveyor SRF-P 2010

» For transporting and buffering pallets with high loads. «

5

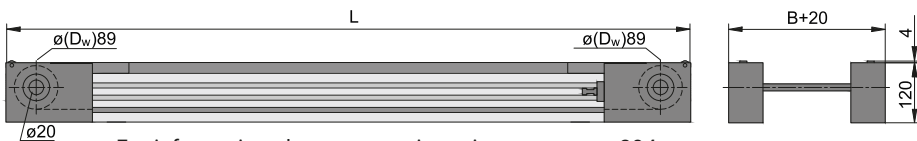


part of **versamove**

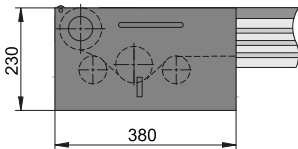
AA – Head drive without motor

B20.10.565

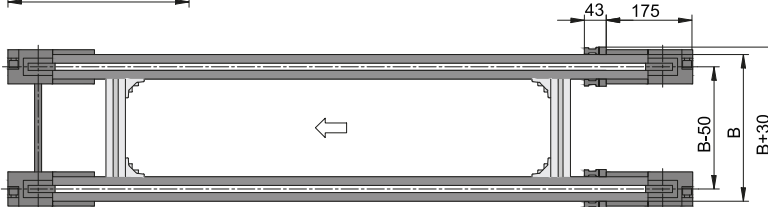
The AA version with no motor is suitable for connection to an existing conveyor with a drive, either in parallel or in series. This allows you to operate multiple conveyors with only one motor. Depending on your requirements, the conveyor is designed either with a hollow shaft or with a connecting shaft with shaft journal ($\varnothing 20$ mm, usable length of 34 mm, includes DIN 6885 key).



For information about wear strip options, see page 204



Available with optional tensioning device and lubrication station (see page 221)



Technical data

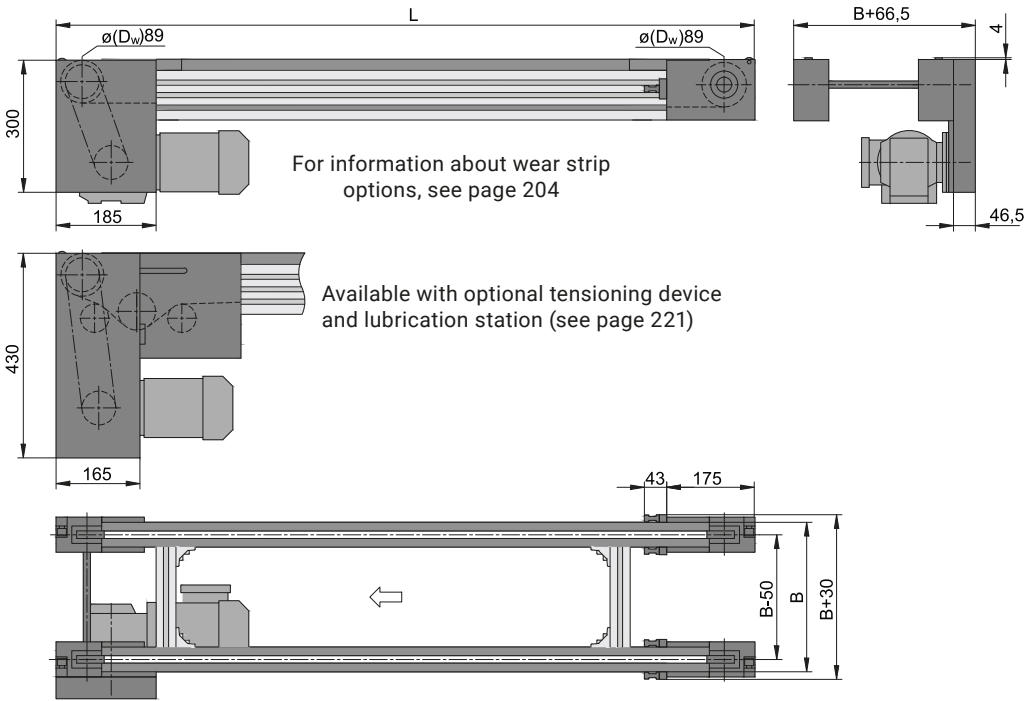
Conveyor length L	individual from 730 to 10000 mm	
Conveyor width B	200 to 2000 mm	
Chains	1/2" accumulating roller chain with plastic or steel rollers	p. 219
Drive and speed	up to 30 m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 500 kg (750 kg without accumulated operation)	higher on request
Standard distributed load	up to 100 kg/m (in series) up to 150 kg/m (offset)	



AC – Standard head drive

B20.10.566

The drive chain on indirect drives can be used as a reduction gear. This makes it easy to design the conveyor with the appropriate speed, particularly in the low-speed range. In addition, the drive chain can compensate for alignment errors and assembly tolerances to ensure that both lines run synchronously.



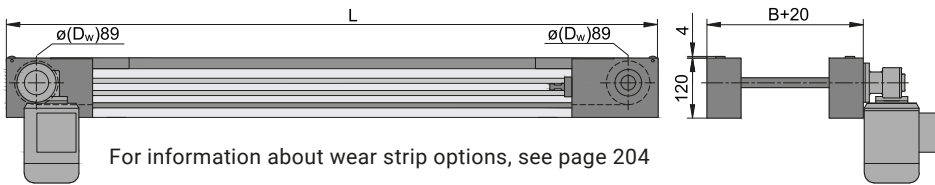
Technical data

Conveyor length L	individual from 730 to 10000 mm	
Conveyor width B	200 to 2000 mm	
Chains	1/2" accumulating roller chain with plastic or steel rollers	p. 219
Drive location	discharge end left/right, underneath	
Drive and speed	up to 30 m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 500 kg (750 kg without accumulated operation)	higher on request
Standard distributed load	up to 100 kg/m (in series) up to 150 kg/m (offset)	

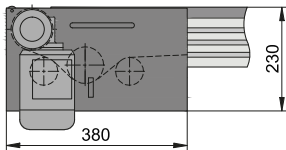
AF – Direct head drive

B20.10.567

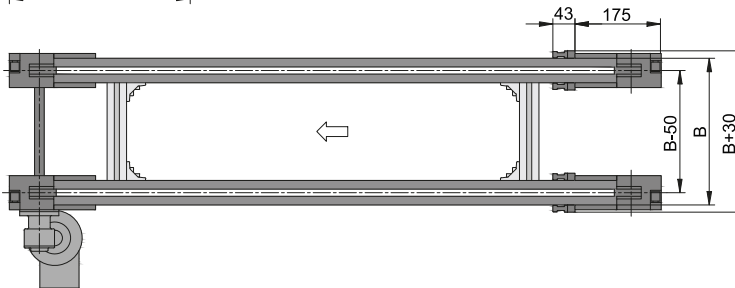
Since the motor is fitted directly onto the drive shaft, the space requirements and maintenance effort for this drive version are reduced to a minimum.



For information about wear strip options, see page 204



Available with optional tensioning device and lubrication station (see page 221)



Technical data

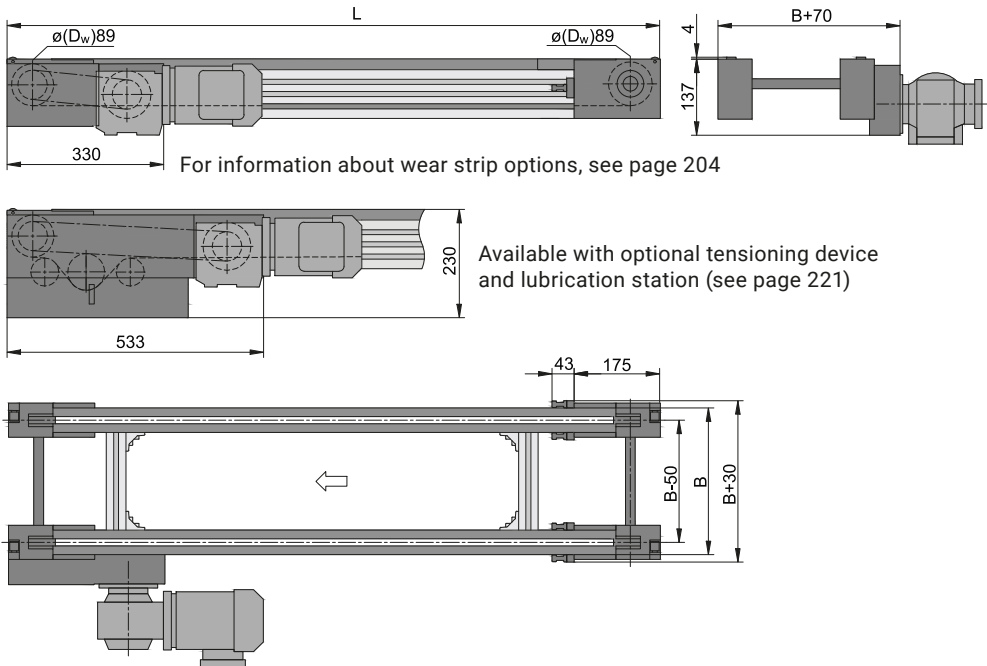
Conveyor length L	individual from 730 to 10000 mm	
Conveyor width B	200 to 2000 mm	
Chains	1/2" accumulating roller chain with plastic or steel rollers	p. 219
Drive location	discharge end left/right	
Drive and speed	up to 30 m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 500 kg (750 kg without accumulated operation)	higher on request
Standard distributed load	up to 100 kg/m (in series) up to 150 kg/m (offset)	



AS – Head drive, laterally on the outside, compact

B20.10.568

The drive positioned laterally on the outside allows the total height of the conveyor to be restricted to a minimum.



For information about wear strip options, see page 204

Available with optional tensioning device and lubrication station (see page 221)

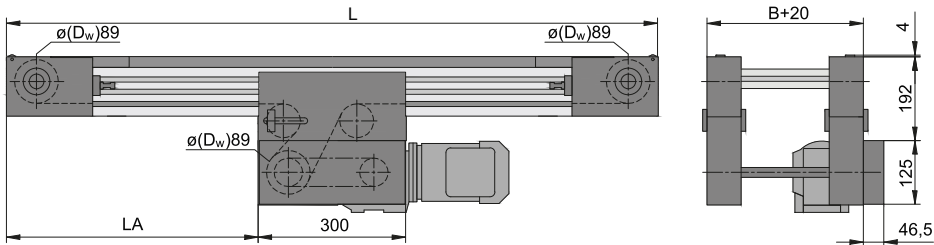
Technical data

Conveyor length L	individual from 730 to 10000 mm	
Conveyor width B	200 to 2000 mm	
Chains	1/2" accumulating roller chain with plastic or steel rollers	p. 219
Drive location	discharge end left/right	
Drive and speed	up to 30 m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 500 kg (750 kg without accumulated operation)	higher on request
Standard distributed load	up to 100 kg/m (in series) up to 150 kg/m (offset)	

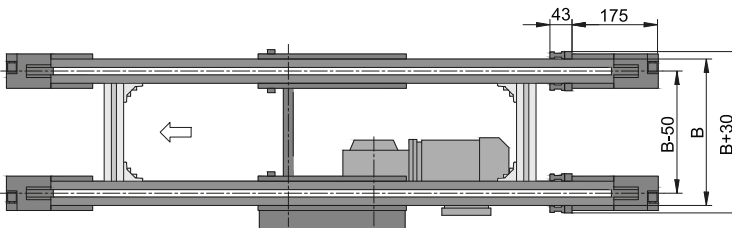
BC – Lower run drive, standard

B20.10.571

The compact conveyor frame design and the ability to freely select the drive position over the entire length of the conveyor make it easier to integrate the conveyor into existing systems. The drive sprocket wheel ensures excellent transmission of the motor power.



For information about wear strip options, see page 204



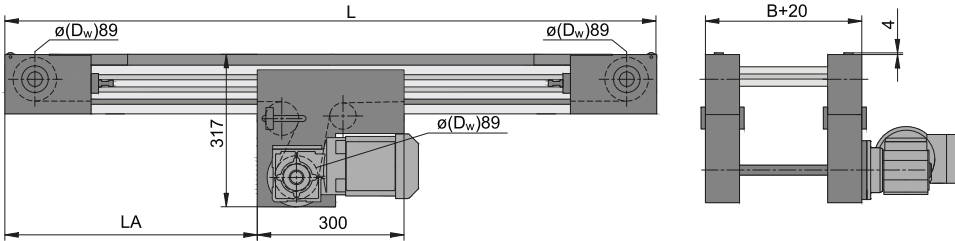
Technical data

Conveyor length L	individual from 730 to 10000 mm	
Conveyor width B	200 to 2000 mm	
Chains	1/2" accumulating roller chain with plastic or steel rollers	p. 219
Drive location	left/right underneath	
Drive and speed	up to 30 m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 500 kg (750 kg without accumulated operation)	higher on request
Standard distributed load	up to 100 kg/m (in series) up to 150 kg/m (offset)	

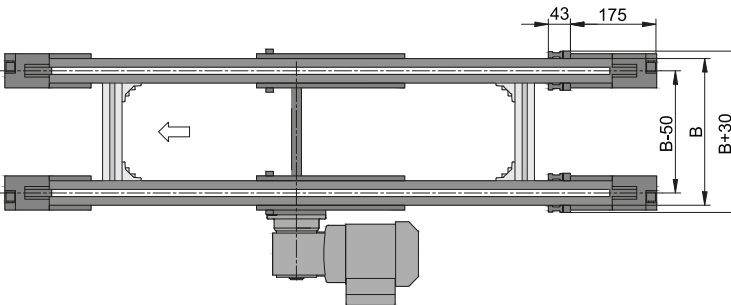
BF – Lower run drive, direct

B20.10.572

Since the motor is fitted directly onto the drive shaft, the space requirements and maintenance effort for this drive version are reduced to a minimum. The compact conveyor frame design and the ability to freely select the drive position anywhere along the entire length of the conveyor make it easier to integrate the conveyor into existing systems. The conveying direction is reversible. Operation with cleats is not possible with this version.



For information about wear strip options, see page 204



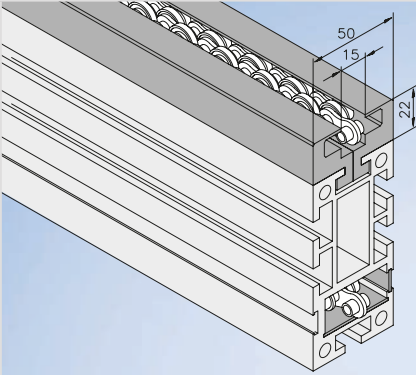
Technical data

Conveyor length L	individual from 730 to 10000 mm	
Conveyor width B	200 to 2000 mm	
Chains	1/2" accumulating roller chain with plastic or steel rollers	p. 219
Drive location	left/right underneath	
Drive and speed	5; 6.3; 8; 9.5; 11.5; 13.5; 15.2; 19.3; 23; 26; 36.6; 45.7 and 57 m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 500 kg (750 kg without accumulated operation)	higher on request
Standard distributed load	up to 100 kg/m (in series) up to 150 kg/m (offset)	

SRF-P 2010 Wear Strips

Wear and guide strips from mk ensure low friction.
The wear strips are made from PE-UHMW (PE-1000). Max. temperature of 65° C.

Option A

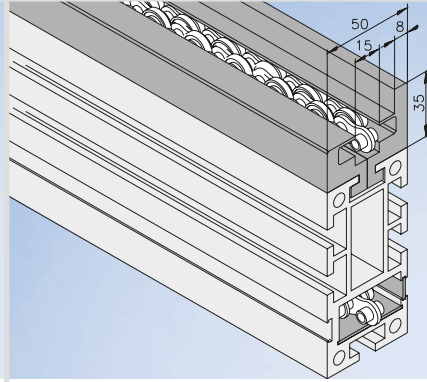


Top wear strip mk 1048
22.48.2000

Bottom wear strip mk 2010
21.14.0001

Closure strip
K10230-12

Option B



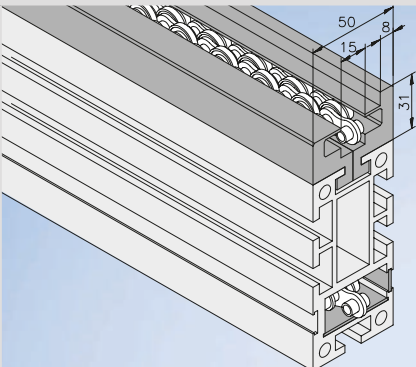
Top right wear strip mk 1047
22.47.2000

Top left wear strip mk 1048
22.48.2000

Bottom wear strip mk 2010
21.14.0001

Closure strip
K10230-12

Option C



Top wear strip mk 1112
23.12.2000

Bottom wear strip mk 2010
21.14.0001

Closure strip
K10230-12

5



Application Examples SRF-P 2010

5



Accumulating roller chain conveyor SRF-P 2010 as pallet circulation system with lift-and-transfer conveyor



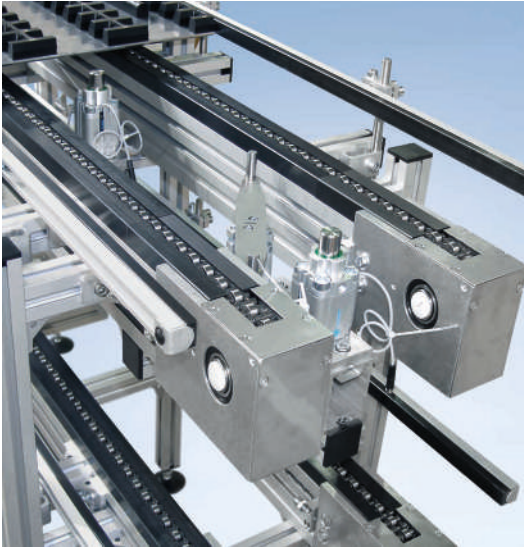
Accumulating roller chain conveyor SRF-P 2010 with lift-and-rotate station



Accumulating roller chain conveyor SRF-P 2010 with stopper



Accumulating roller chain conveyor SRF-P 2010 with drip pan

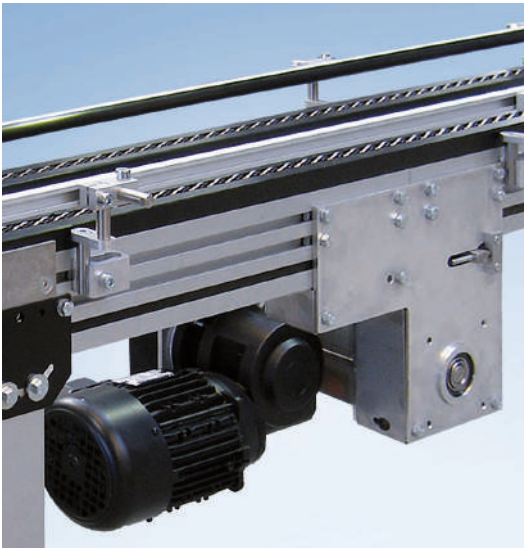


Accumulating roller chain conveyor SRF-P 2010 with electro-pneumatic positioning



Accumulating roller chain conveyor SRF-P 2010 with automatic tensioning and lubrication station

5



Accumulating roller chain conveyor SRF-P 2010 with lower run drive BF



Accumulating roller chain conveyor SRF-P 2010 as pallet circulation system with lift-and-transfer conveyor

↩ Custom applications
 from page 408

Accumulating Roller Chain Conveyor SRF-P 2012

» For feeding
and buffering in heavy
load ranges. «



Benefits of the SRF-P 2012

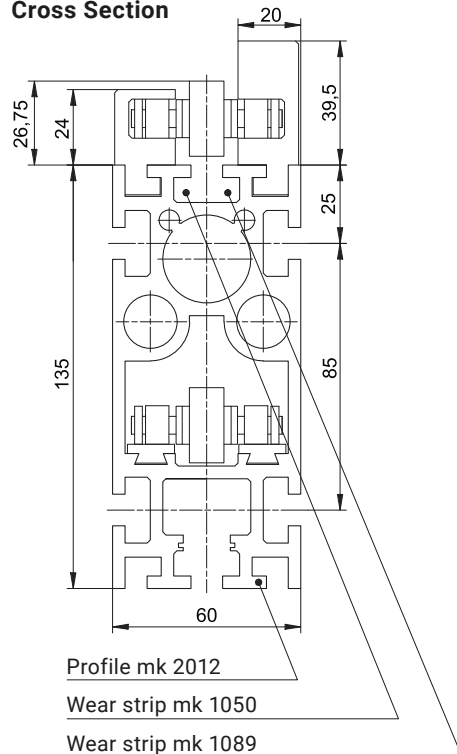
- Basis for constructing transfer lines with accumulated operation
- Ideal for low-maintenance and durable use in accumulated and cycling operation
- For interlinking and buffering between workstations and for transporting work-piece carriers
- Large selection of drives
- Suitable for dirty and oily environments

The accumulating roller chain conveyor SRF-P 2012 is particularly suitable for transporting pallets in the heavy load range (in the Versamove pallet circulation system, for instance). The free-spinning conveyor rollers run smoothly, even during accumulated operation. They also keep back-pressure forces to a minimum. Typical applications include interlinking or buffering between workstations and building complete transfer lines.

The wear and guide strips, made from ultra-high-molecular weight polyethylene, on which the accumulating roller chain runs and is guided, ensure a low coefficient of friction and excellent wear characteristics.

Longitudinal slots in the mk 2012 profile beam provide flexible options for connecting struts, guides, sensors and components from the mk profile system. Like all chain conveyors, the system can be equipped with an optional tensioning device and continuous lubrication device to extend the service intervals.

Cross Section

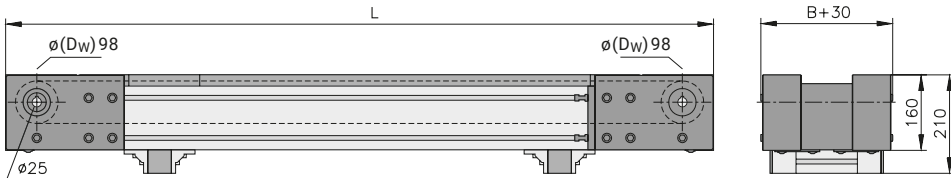


AA – Head drive without motor

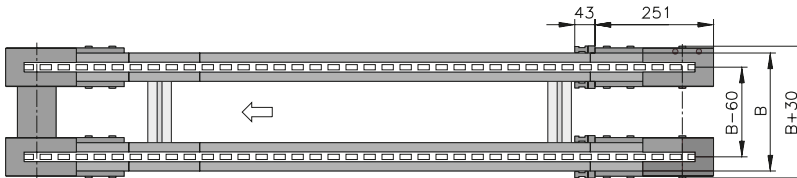
B20.12.008

The AA version with no motor is suitable for connection to an existing conveyor with a drive, either in parallel or in series. This allows you to operate multiple conveyors with only one motor. Depending on your requirements, the conveyor is designed either with a hollow shaft or with a connecting shaft with shaft journal (\varnothing 20/25 mm, usable length of 40 mm, includes DIN 6885 key).

5



For information about wear strip options, see page 215



Technical data

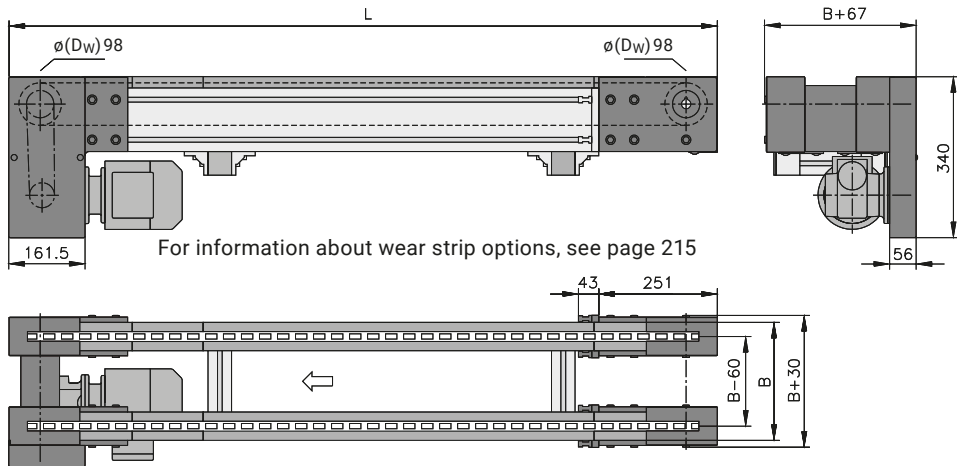
Conveyor length L	individual from 1000–10000 mm (note the chain pitch)	
Conveyor width B	200 to 2000 mm	
Chains	3/4" accumulating roller chain with plastic or steel rollers	p. 219
Drive and speed	up to 30 m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 1000 kg	higher on request
Standard distributed load	up to 150 kg/m	



AC – Standard head drive

B20.12.007

The drive chain on indirect drives can be used as a reduction gear. This makes it easy to design the conveyor with the appropriate speed, particularly in the low-speed range. In addition, the drive chain can compensate for alignment errors and assembly tolerances to ensure that both lines run synchronously.



Technical data

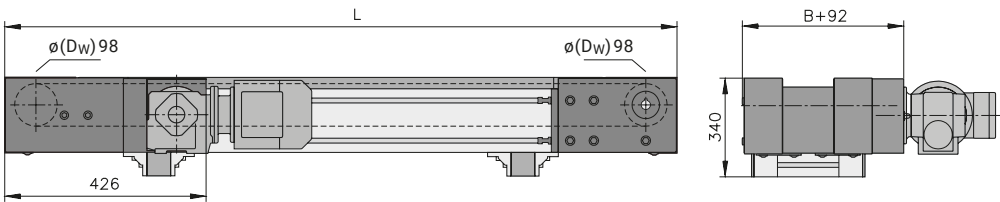
Conveyor length L	individual from 1000–10000 mm (note the chain pitch)	
Conveyor width B	200 to 2000 mm	
Chains	3/4" accumulating roller chain with plastic or steel rollers	p. 219
Drive location	discharge end left/right, underneath	
Drive and speed	up to 30 m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 1000 kg	higher on request
Standard distributed load	up to 150 kg/m	

AS – Head drive, laterally on the outside, compact

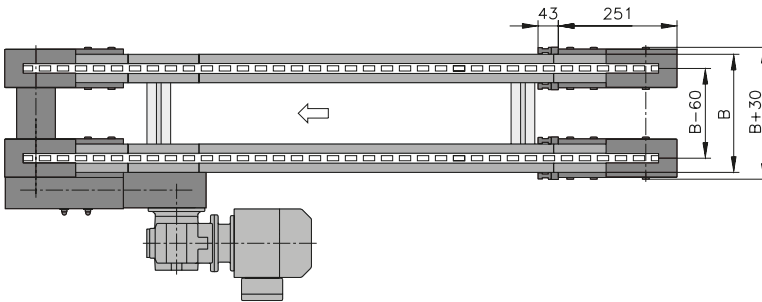
B20.12.009

The drive positioned laterally on the outside allows the total height of the conveyor to be restricted to a minimum.

5



For information about wear strip options, see page 215



Technical data

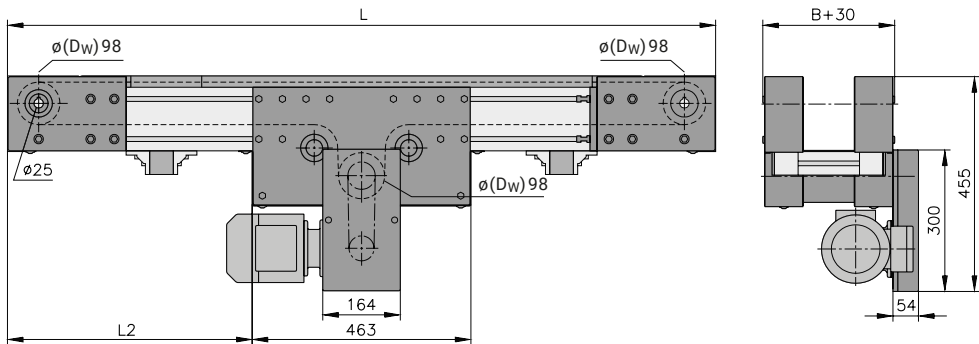
Conveyor length L	individual from 1000–10000 mm (note the chain pitch)	
Conveyor width B	200 to 2000 mm	
Chains	3/4" accumulating roller chain with plastic or steel rollers	p. 219
Drive location	discharge end left/right	
Drive and speed	up to 30 m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 1000 kg	higher on request
Standard distributed load	up to 150 kg/m	



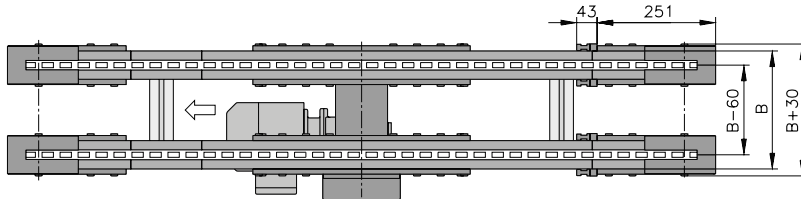
BC – Lower run drive, standard

B20.12.010

The compact conveyor frame design and the ability to freely select the drive position over the entire length of the conveyor make it easier to integrate the conveyor into existing systems.



For information about wear strip options, see page 215



Technical data

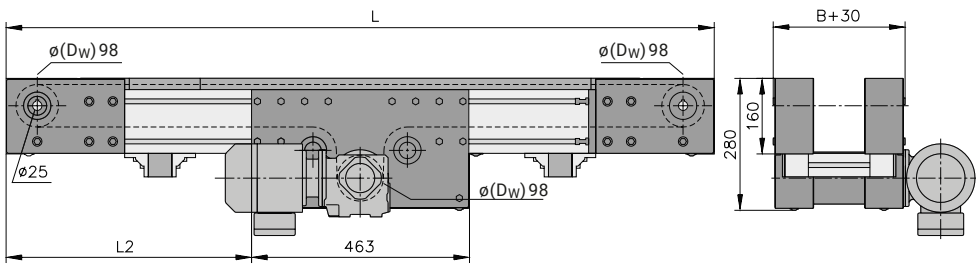
Conveyor length L	individual from 1000–10000 mm (note the chain pitch)	
Conveyor width B	200 to 2000 mm	
Chains	3/4" accumulating roller chain with plastic or steel rollers	p. 219
Drive location	left/right underneath	
Drive and speed	up to 30 m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 1000 kg	higher on request
Standard distributed load	up to 150 kg/m	

BF – Lower run drive, direct

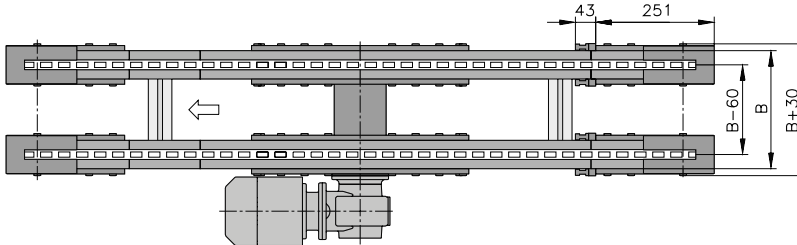
B20.12.011

Since the motor is fitted directly onto the drive shaft, the space requirements and maintenance effort for this drive version are reduced to a minimum. The compact conveyor frame design and the ability to freely select the drive position over the entire length of the conveyor make it easier to integrate the conveyor into existing systems.

5



For information about wear strip options, see page 215



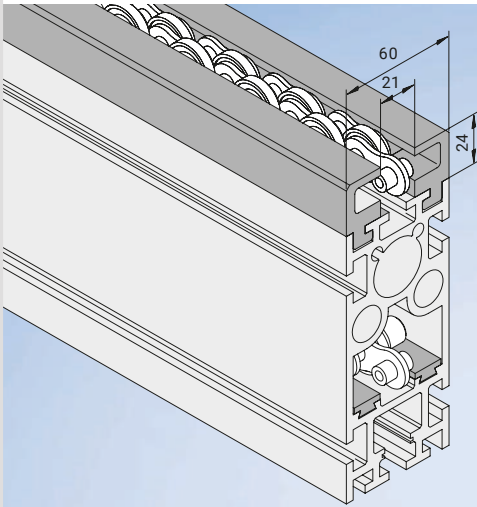
Technical data

Conveyor length L	individual from 1000–10000 mm (note the chain pitch)	
Conveyor width B	200 to 2000 mm	
Chains	3/4" accumulating roller chain with plastic or steel rollers	p. 219
Drive location	discharge end left/right	
Drive and speed	up to 30 m/min	p. 12
Stand and side rail		from p. 290
Standard total load	up to 1000 kg	higher on request
Standard distributed load	up to 150 kg/m	

SRF-P 2012 Wear Strips

Wear and guide strips from mk ensure low friction.
 The wear strips are made from PE-UHMW (PE-1000). Temperature range up to a maximum of 65° C.

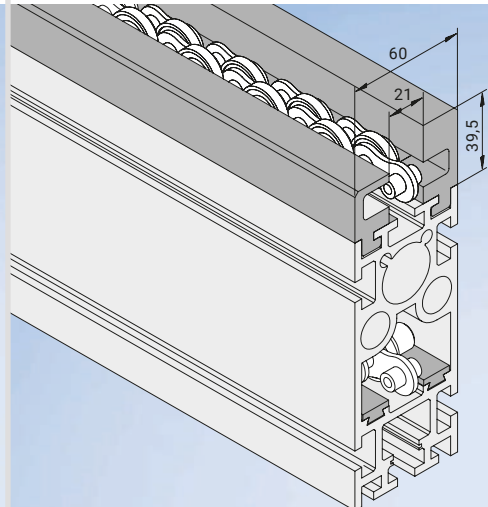
Option A



Top wear strip mk 1089
22.89.2000

Bottom wear strip mk 1022
22.22.2000

Option B



Top right wear strip mk 1050
22.50.2000

Top left wear strip mk 1089
22.89.2000

Bottom wear strip mk 1022
22.22.2000

Application Examples SRF-P 2012

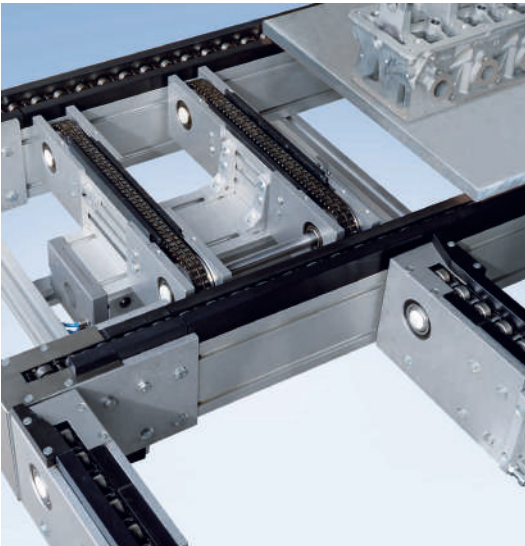
5



Accumulating roller chain conveyor SRF-P 2012 with head drive AC



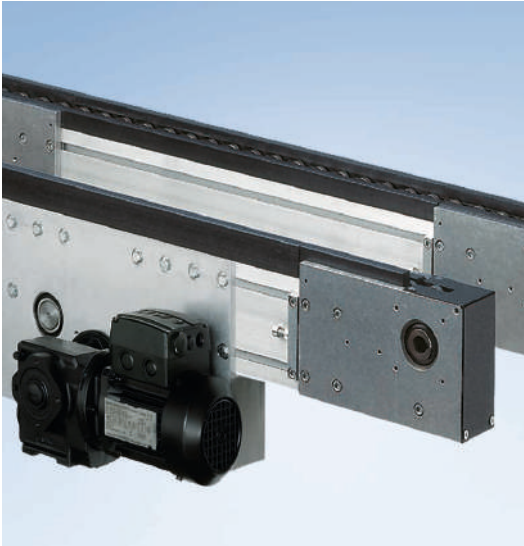
Accumulating roller chain conveyor SRF-P 2012 with special wear strips for heavier loads



Accumulating roller chain conveyor SRF-P 2012 with lift-and-transfer unit KTF-P 2010



Accumulating roller chain conveyor SRF-P 2012 as heavy-duty version with offset accumulating roller chain



Accumulating roller chain conveyor SRF-P 2012 with lower run drive BC



Accumulating roller chain conveyor SRF-P 2012 with head drive AC as single line


5



Accumulating roller chain conveyor SRF-P 2012



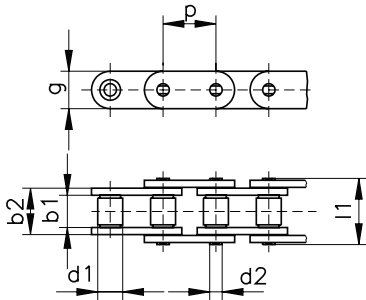
Accumulating roller chain conveyor SRF-P 2012 with automatic tensioning device with traffic light marking

 Custom applications
from page 408

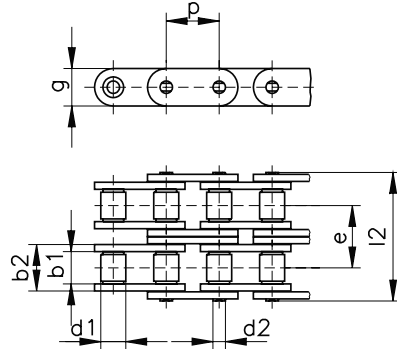
Chains

... for KTF-P 2010

Roller chain, 1/2" x 5/16", single with straight nuts



Roller chain, double with straight nuts



KTF-P 2010

Steel chain K11402
Locking link K114020001

KTF-P 2010

Steel chain K11416
Locking link K114160001

St = steel roll, VSG = locking link

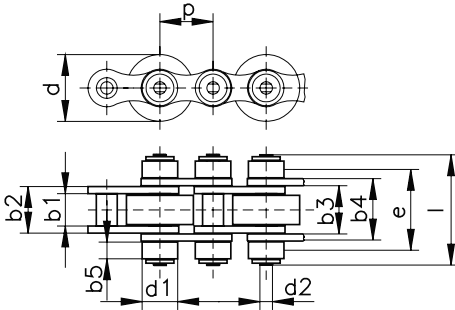
Dimensions in mm

p	12.70 (1/2" x 5/16")	p	12.70 (1/2" x 5/16")
b1	7.75	b1	7.75
b2	11.30	b2	11.30
b3	•	b3	•
b4	•	b4	•
d1	8.51	d1	8.51
g	11.50	g	11.80
d2	4.45	d2	4.45
l1	17	l1	•
l2	•	l2	31
e	•	e	13.92
l	•	l	•
b5	•	b5	•
d	•	d	•

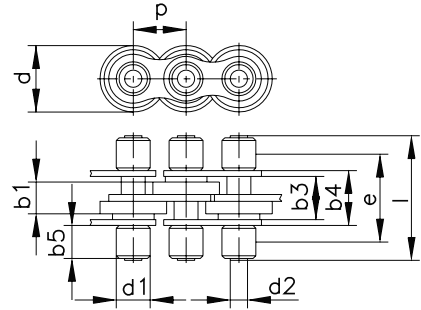
up to 60° C, special version up to 120° C

... for SRF-P 2010 and SRF-P 2012

Accumulating roller chain with accumulating rollers in series



Accumulating roller chain with accumulating rollers offset



SRF-P 2010

Steel chain K11418
Chain, plastic roller, K11435
Steel chain, finger guard, K11425
Chain, plastic roller, finger guard, K11424
Locking link K114180001

SRF-P 2012

Steel chain K11415
Chain, plastic roller, K11407
Locking link K114060001

SRF-P 2010

Steel chain K11421
Chain, plastic roller, K11420
Locking link K114180001

SRF-P 2012

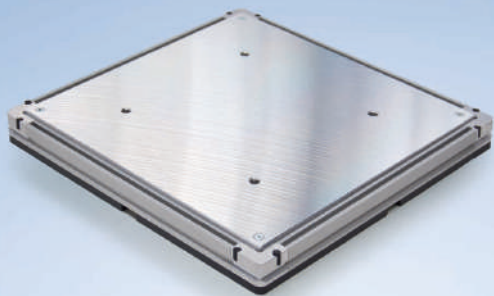
Steel chain K11423
Chain, plastic roller, K11422
Locking link K114060001

St = steel roller, Kst = plastic roller, FES = protective finger guard, VSG = locking link

Dimensions in mm

	12.70 (1/2")	19.05 (3/4")		12.70 (1/2")	19.05 (3/4")
p	12.70 (1/2")	19.05 (3/4")	p	12.70 (1/2")	19.05 (3/4")
b1	7.75	11.68	b1	9.20	11.70
b2	11.15	15.62	-	-	-
b3	11.40	15.80	b3	11.40	15.80
b4	14.70	20	b4	14.50	19.55
d1	8.50	12	d1	8.51	12.07
g	•	•	g	•	•
d2	4.45	5.72	d2	4.45	5.72
l1	•	•	l1	•	•
l2	•	•	l2	•	•
e	•	•	e	18.70	31.50
l	27	48	l	27	45
b5	4	11.50	b5	6.25	12.73
d	16	24	d	16	24

up to 60° C, special version up to 120° C



part of **versamove**

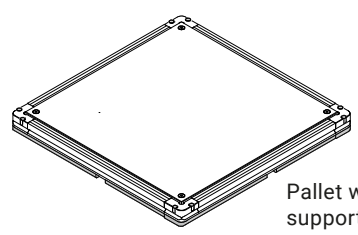
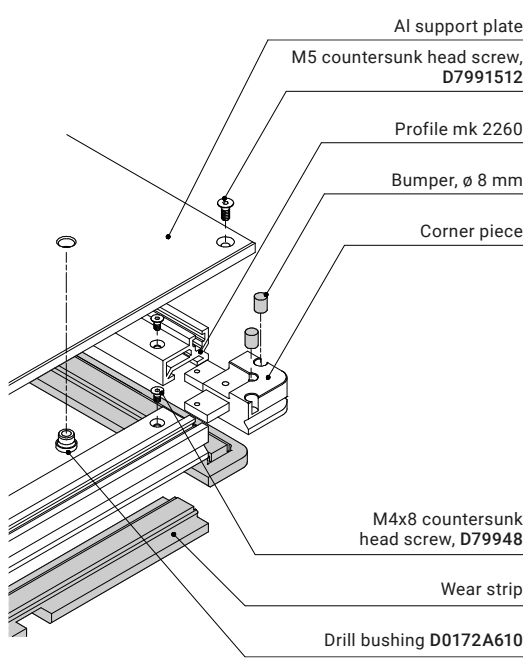
Accessories

Pallets

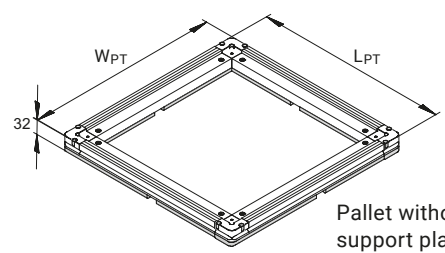
The pallets used in the Versamove pallet circulation system can be custom-configured to suit your specific application, whether they are delivered fully assembled or for self-assembly. The permitted total weight per pallet is determined by the total load capacity per metre of the system (100 kg/m). Please note that the clear width of the side rail must be 2 to 4 mm wider than the width of the pallet to guide the pallet in the optimal way.

Individual pallet components:

- Aluminium profile frame consisting of the profile mk 2260 and the corner pieces
- PE-1000 plastic wear strips below the profile frame
- Support plates in varying thickness: 5, 6, 8, 10 and 12 mm
- Bumpers/rubber buffers
- Positioning sockets



Pallet with support plate



Pallet without support plate

W _{PT} mm	L _{PT} mm	Support plate mm	Weight _{PT} kg
400	400	8	5
400	600	8	8
600	600	10	14
600	800	10	16
800	800	12	24
800	1000	12	30

Maintenance Kit



Tensioning and Lubrication Station KTF/SRF-P 2010

The use of the optional automatic tensioning and lubrication station lets you avoid unnecessary maintenance tasks. There is no need to manually retension or manually oil the chain. Automatic tensioning does not change the length of the conveyor. In addition to the visual tensioning distance monitor, a tensioning distance sensor is also available, both with and without a lubricant insert.

5

Tensioning Device for SRF-P 2012

mk offers an optional automatic tensioning device that uses a traffic light marking to indicate when the chain needs to be shortened.

- Green: OK
- Yellow: Shortening not yet required
- Red: Chain must be shortened if the maximum elongation of 3% of the chain has not been reached

When the elongation reaches 3%, the chain and the sprocket wheels must be replaced.



Assembly Aid for Chain Replacement

To replace the accumulating roller chain, you must relieve the tension at the tail. The built-in assembly aid makes it easier to replace the chain by allowing you to remove one part of the wear strip separately. You must then advance the accumulating roller chain until the chain lock with the blue ring appears in the opened area. You can now replace the accumulating roller chain.



Accessories

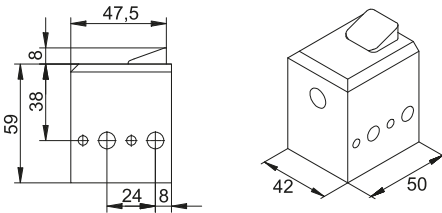
SU – Stopper Undamped

Stoppers are used to stop or separate the pallets. The stopper options are selected based on the conveyor weight and conveyor speed. Customers can choose between a variety of stroke heights based on their requirements. Damped or undamped stoppers can be connected in the centre or on the sides.

They can be requested through inductive (I) or electric (E) sensors.

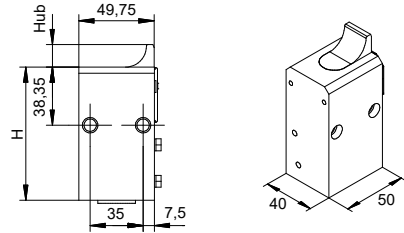
Return Stop

The return stop is used in combination with a stopper in transfer systems with low belt friction and prevents pallets from recoiling/rebounding while stopping. The return stop is activated through a spring.



Return Stop
K503030101

Lowering stroke: 8 mm



SU 400

SA=single-acting (locked in a depressurised state)

Ident. no.	Stroke Re- quest (mm)	V=6	V=9	V=12	V=18
		m/min [kg]	m/min [kg]	m/min [kg]	m/min [kg]
K503011401	E 9	400	300	250	200
K503011405	I 9	400	300	250	200
K503011404	- 9	400	300	250	200
K503011406	E 15	400	300	250	200
K503011402	- 15	400	300	250	200

DA=double-acting (maintains the last position reached)

K503012401	E 9	400	300	250	200
K503012404	- 9	400	300	250	200
K503012405	I 9	400	300	250	200

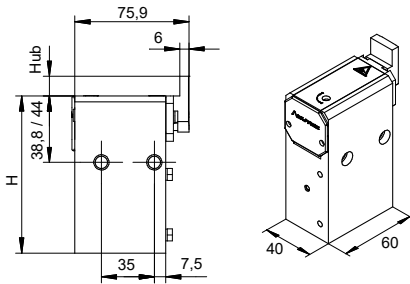


SD – Stopper Damped

Damped stopping allows you to gently slow down the first pallet. Damping prevents the workpiece from slipping in a certain location. Electrical or inductive sensors on the stoppers are optional. A minimum mass of 3 kg is required to ensure proper functioning. Damped or undamped stoppers can be connected in the centre or on the sides.

They can be requested through inductive (I) or electric (E) sensors.

5



SD 60

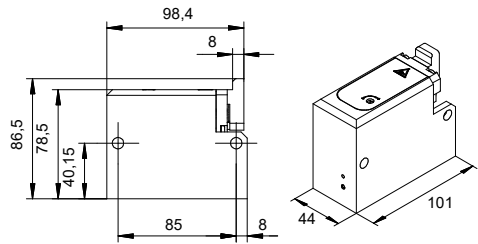
SA=single-acting (locked in a depressurised state)

Ident. no.	Re-quest	Stroke (mm)	V=6	V=12	V=24	V=30
			m/min [kg]	m/min [kg]	m/min [kg]	m/min [kg]
K503021061	E	8	3-60	3-35	3-24	3-18
K503021063	-	8	3-60	3-35	3-24	3-18
K503021064	I	8	3-60	3-35	3-24	3-18

DA=double-acting (maintains the last position reached)

K503022061	E	8	3-60	3-35	3-24	3-18
K503022063	-	9	3-60	3-35	3-24	3-18
K503022064	I	10	3-60	3-35	3-24	3-18

The specifications apply for a friction coefficient of $\mu = 0.07$
Stoppers for heavier loads available upon request



SD 100

SA=single-acting (locked in a depressurised state)

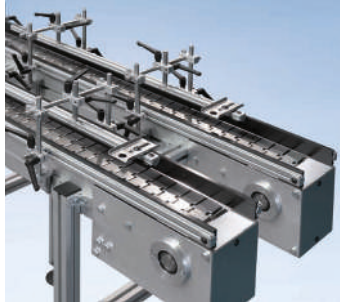
Ident. no.	Re-quest	Stroke (mm)	V=6	V=12	V=24	V=30
			m/min [kg]	m/min [kg]	m/min [kg]	m/min [kg]
K503021101	-	8	3-100	3-60	3-40	3-30
K503021102	I	8	3-100	3-60	3-40	3-30

DA=double-acting (maintains the last position reached)

K503022101	-	8	3-100	3-60	3-40	3-30
K503022102	I	8	3-100	3-60	3-40	3-30

The specifications apply for a friction coefficient of $\mu = 0.07$
Stoppers for heavier loads available upon request

Chapter 6 Flat Top Chain Conveyors



6 Flat Top Chain Conveyor Versaflex A04 ... A29 226

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Flat Top Chains	236
Pallet System	238
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Flat Top Chain Conveyor SBF-P 2254 242

Modular Overview	245
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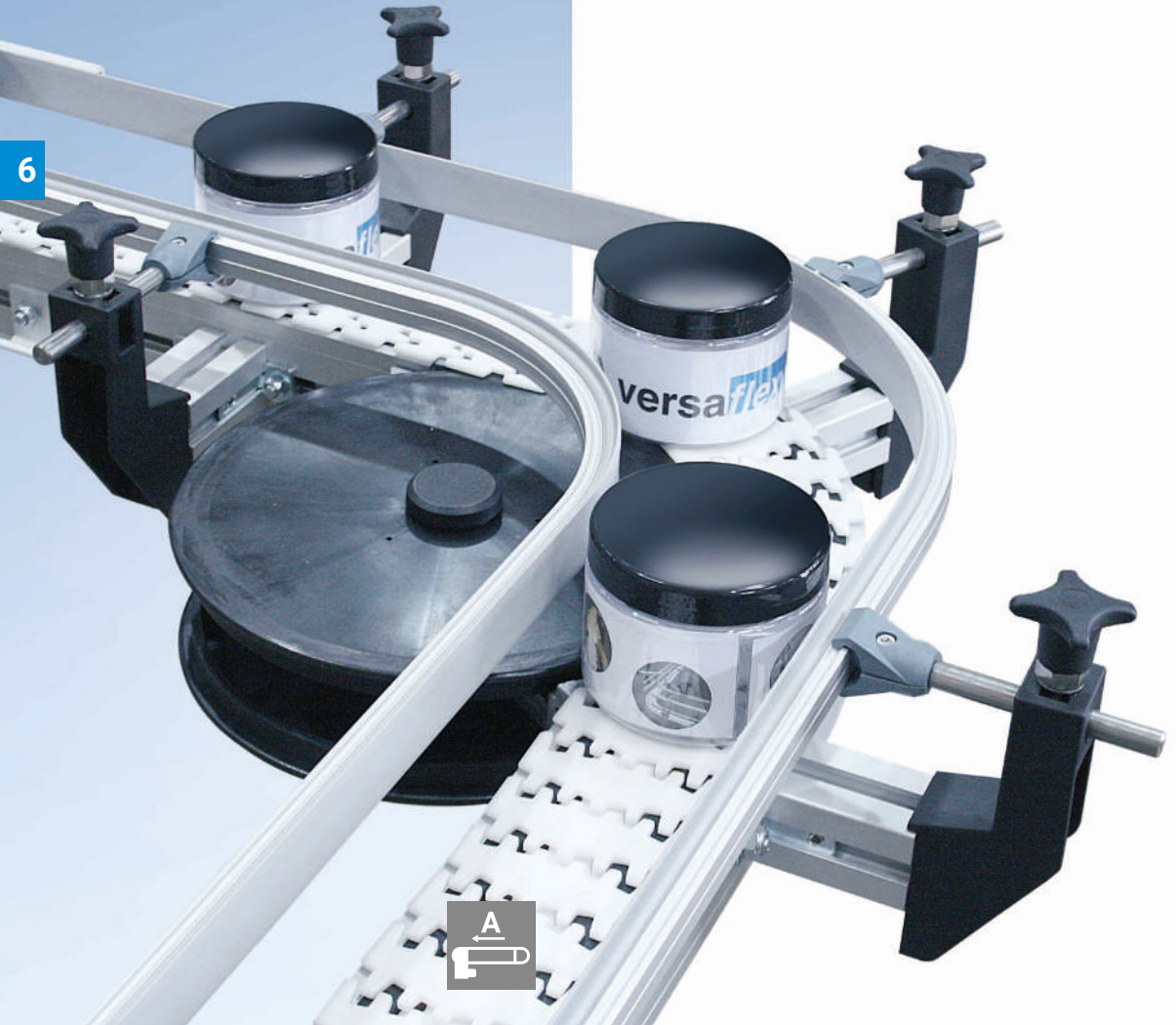
11

12

Flat Top Chain Conveyor Versaflex SBF A04 ... A29

versaflex

» Flexible solutions from
the construction kit. «



Benefits of Versaflex

- Economic solution for complex track layouts
- Quick and easy configuration and commissioning
- Suitable for all industries and compatible with existing systems
- Modular system of standardised components
- Turnkey system or assembly kit
- User friendly and low maintenance
- Can be quickly adapted to new production and environmental conditions
- Saves energy and space
- Large selection of system widths and chains

The versatile and flexible Versaflex flat top chain conveyor system, previously known as the plastic chain conveyor from E-M-M-A GmbH, today mk Austria GmbH, is designed based on modular principles. The standardised modules and components make the system simple and cost effective to configure and quick to integrate into any production process, as well as to adapt and expand it. Versaflex is a conveyor system that grows alongside your tasks. It is also compatible with existing systems on the market.

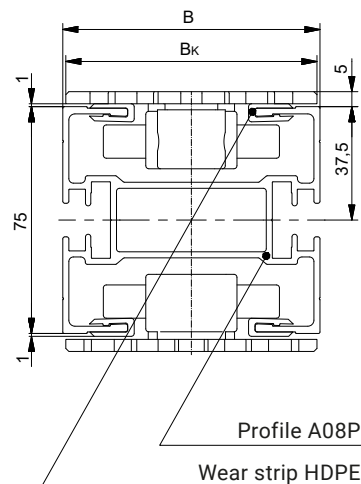
The single-track design and curve radii starting at 150 mm allow complex routes to be mapped in three-dimensional space. The chain runs on wear strips to ensure low wear and can only be operated with one drive at speeds of up to 50 m/min and system lengths of up to 40 m as standard.

Either as a turnkey solution or part of an assembly kit for assembly on site, the A04 to A29 system is extremely flexible and efficient and comes with chain widths of 44 mm to 295 mm and a large selection of drives, elbows, cams, side rails and other accessories. It can also be used for gentle transport and precise positioning with pallets as standard.

Versaflex has seen huge success in a wide variety of industry applications in recent years and transports a vast array of products to their destination with maximum reliability.

Cross Section

Example SBF A08



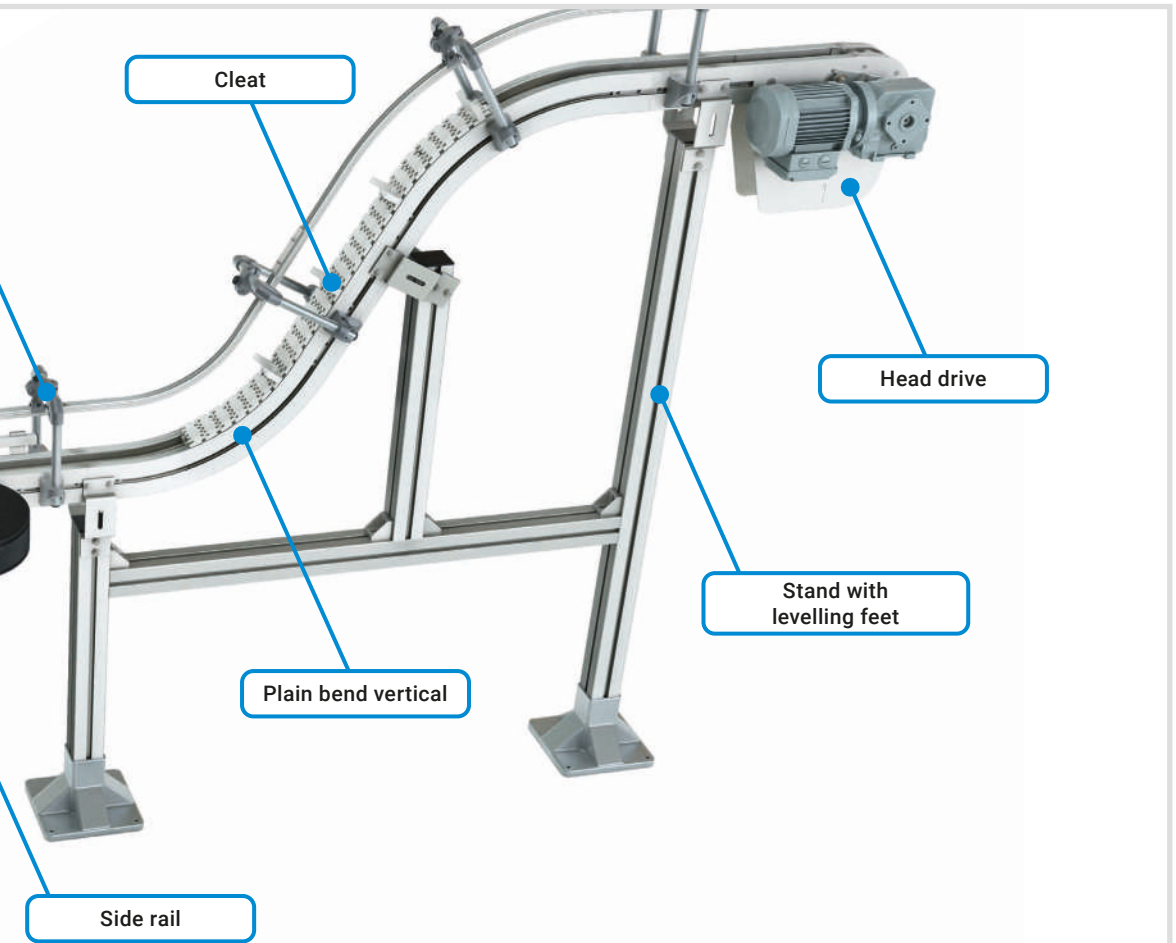
Flat Top Chain Conveyor Versaflex SBF A04 ... A29

Benefits

- Economical realisation of complex track designs
- Simple and fast configuration and commissioning
- Suitable for all industries and compatible with existing systems

6








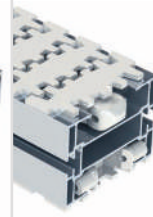


Areas of application

Products with primary and secondary packaging in industries such as food production, pharmaceuticals, cosmetics, chemicals or consumer goods. Also ideal for transporting pallets in assembly lines (in the automotive industry, for instance) and for interlinking machines in the manufacturing industry.



Flat Top Chain Conveyor Versaflex Range

Overview of Options

System	A04*	A06	A08	A10	A17	A29
						
Conveyor						
System width [mm]	45	65	85	105	182	300
System height incl. chain [mm]	72	73	85	86	95	95
Total load max. [kg]	150	150	200	200	200	200
Conveyor length max. [m]	30	40	30	30	30	30
Conveyor speed max. [m/min]**	50	50	50	50	50	50
Chain						
Chain width [mm]	44	63	83	103	175	295
Chain pitch [mm]	25.4	25.4	33.5	35.5	33.5	33.5
Chain traction force [N]	500	500	1250	1250	1250	1250
Product						
Product width [mm]	10-80	15-140	20-200	25-300	70-400	70-400
Product weight horizontal max. [kg]	2	10	15	20	15	15
Product weight rising max. [kg]	1	2	10	15	10	10

* also available as option A045 with a system height of 52 mm for compact applications

** higher conveying speeds on request

Request/Order

We require the following information to design your Versaflex:

Product Properties

Product dimensions (LxWxH)

Product weight

Surface properties (smooth, sharp-edged, soft, hard, etc.)

Operating Properties

Conveyor speed ([m/min]; [piece/min])

Are the products accumulated?

Cycle operation [start-stop/h]

Process environment (hot, cold, dry, wet, dusty, dirty, etc.)

Conveyor System Data

Track layout

Upper edge of belt conveyor (floor supports, wall brackets, ceiling suspension)

Transitions (product transfer or discharge)

Control technology

Operating Temperature

Versaflex can be continuously operated in a temperature range between -20°C and $+60^{\circ}\text{C}$. It can also be briefly operated in temperatures of up to 100°C , e.g. for cleaning and rinsing.

Chain tensile force

In the following cases, the chain tensile force and the performance of the drive units must generally be calculated and monitored:

- High load
- Accumulation
- Vertical conveyors
- High conveyor speed
- Very long conveyors
- Conveyors with sliding bends (horizontal or vertical)
- Frequent starts and stops (cycle operation)
- Very high or low ambient temperatures

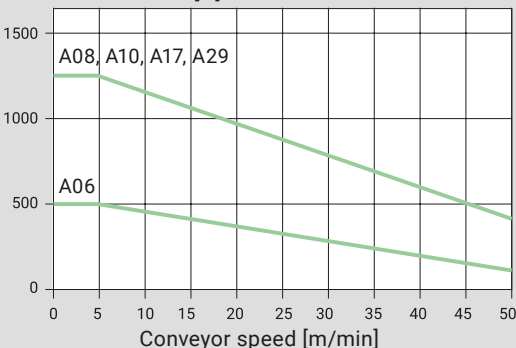
Make it simple and use our request form at

www.mk-group.com/service/download-center

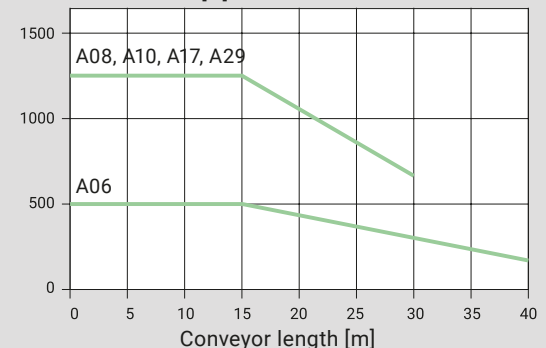
6

Chain Tensile Forces Based on Conveyor Speed and Conveyor Length

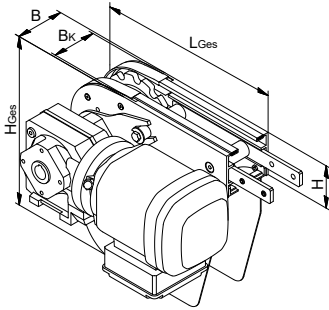
Chain tensile force [N]



Chain tensile force [N]



Versaflex Modular Overview*

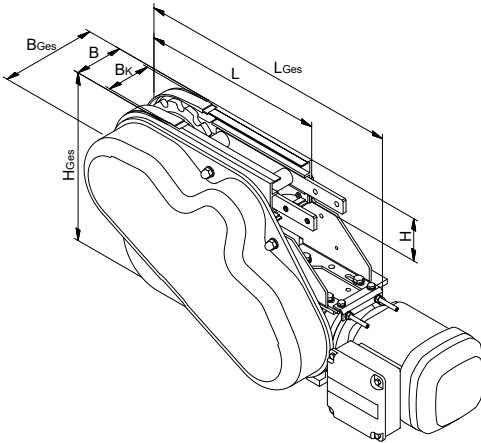


Direct End Drive DE1 and DE2

The direct end drive is available with chain slack or as a guided unit without chain slack. It is also available with (DE1) or without a friction clutch (DE2).

Conveyor speeds [m/min]: 5, 10, 15, 20, 25, 30, 40, 50 and 60. Others on request.

System	A04*	A06	A08	A10	A17	A29
max. tensile force [N]	500			1250		

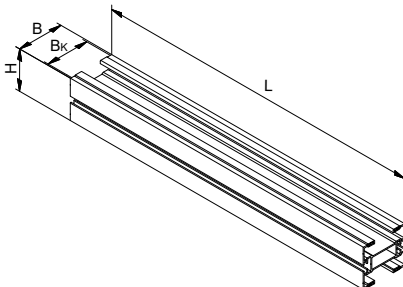


Indirect End Drive with Friction Clutch DE0

The indirect end drive is available with chain slack or as a guided unit without chain slack.

Conveyor speeds [m/min]: 5, 10, 15, 20, 25, 30, 40, 50 and 60. Others on request.

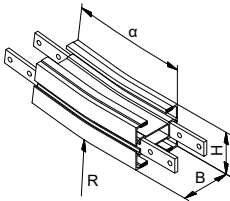
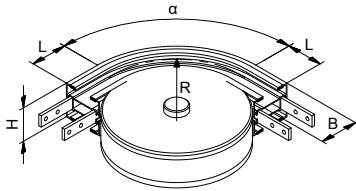
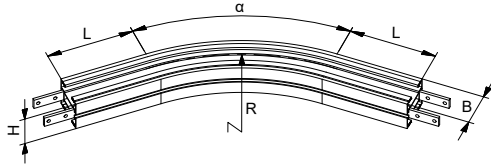
System	A04*	A06	A08	A10
max. tensile force [N]	500			1250



Line including Wear Strips

Conveyor frame profile made from high-quality aluminium with wear strips for reducing friction between the profile and chain. The wear strip is easy to screw on or rivet.

* The drawings show the most common modules in system A08. Other modules available on request



Sliding Curve

The sliding curve is available with angles of 30°, 45°, 60° and 90° as standard. Angles of up to 180° are available on request.

System	A04*	A06	A08	A10	A17	A29
Rmin [mm]			500			700
Rmax [mm]			1500			

90° and 180° Rolling Curve

The rolling curve and rotating plastic washers on the inside of the curve significantly reduce the amount of friction that occurs in the conveyor system. This feature enables higher speeds, longer conveying paths and higher loads to be achieved.

System	A04*	A06	A08	A10	A17	A29
Radius [mm]	150	150	160	170	-	-

Vertical Curve

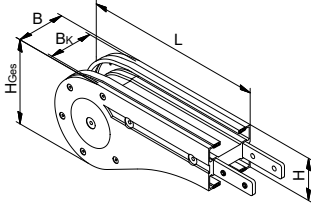
The curve can be used to overcome height differences at an angle of up to 90°. Depending on the product, we recommend using cleated chains to prevent the product from slipping back. Like in the curve segments, wear strips ensure that the chain runs safely and without much friction.

Radius R: 400 mm

Angle α: 5°, 7°, 15°, 30°, 45°, 60° and 90°.

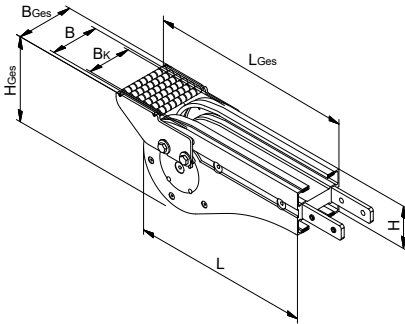
For the systems A17 and A29, only 5° and 7° angles are available.

Versaflex Modular Overview*



Tail

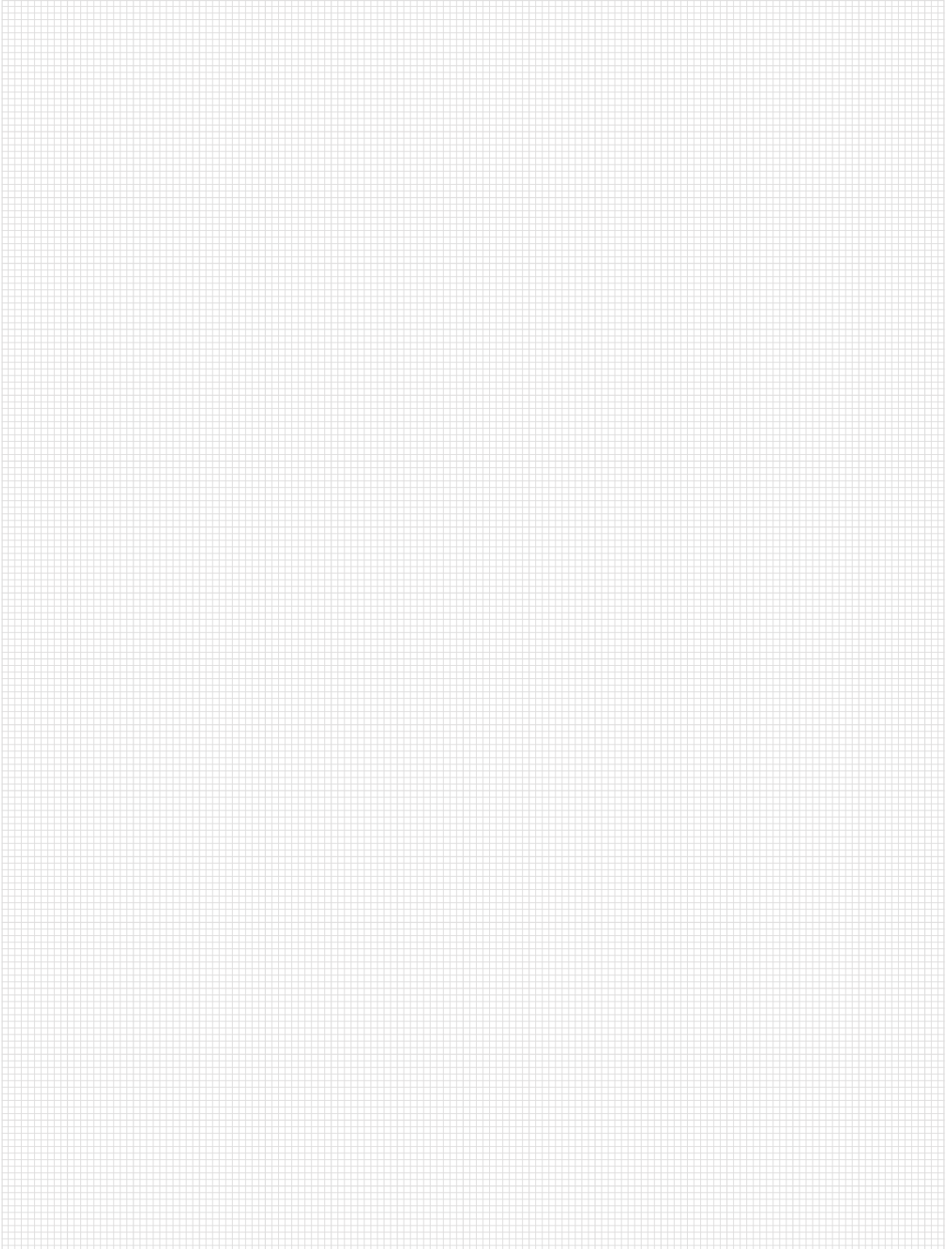
The plastic or aluminium tails safely and precisely guide the chain back into the upper run.



Transfer Segment

The roller bridge with an 11 mm roll diameter enables the frontal transfer of small products. The transfer segment can also have a driven design.

* The drawings show the most common modules in system A08. Other modules available on request

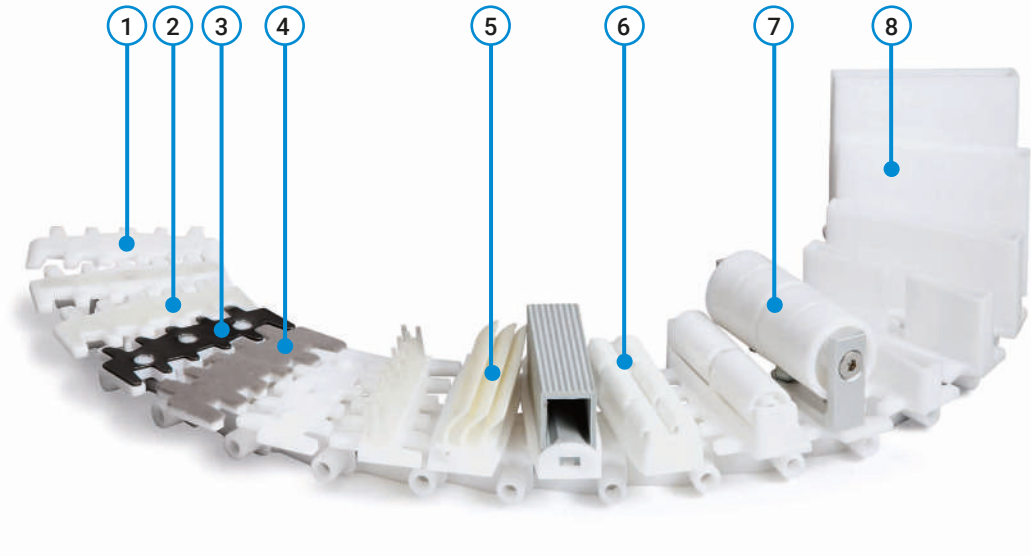


Versaflex Flat Top Chains

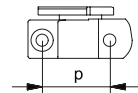
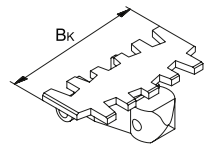
The conveyor chains are made from the material POM and are available in a wide variety of designs for virtually all applications – with an adhesive surface for inclines, with steel covering for sharp-edged parts or flocked for transporting very delicate items. In addition, a large number of

different cams are available – rolls in a wide range of dimensions for accumulating products, or flexible cams for implementing clamping conveyors. Furthermore, chain links with embedded magnets can be used to transport magnetisable parts.

6



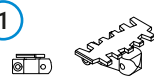
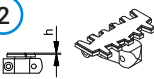
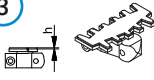
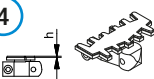
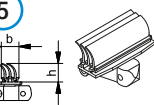
- 1 Smooth standard chain
- 2 Chain with hard surface
- 3 Chain with steel covering
- 4 Flocked chain
- 5 Chain with flexible cams or clamping elements



Project-specific on request

- 6 Accumulating roller chain
- 7 Cleated roller chain
- 8 Cleated chain

Chain Options

Chain option	Designation	Cam height h [mm]						Properties
		A04	A06	A08	A10	A17	A29	
1 	... CH	none	none	none	none	none	none	Flat, smooth chain: direct transport or indirect via pallet
2 	... CF/ ... CF-A	none	none	none	none	none	none	High-friction chain/flat, high-friction chain: upward or downward inclines
3 	... CS	-	none	none	none	-	-	Chain with steel covering: parts with sharp edges, products with rough surfaces
4 	... CB	none	none	none	none	-	-	Flocked chain: gentle transport
5 	... CW-C	-	28	27.54	-	-	-	Chain with flexible cams, type C (clamping conveyor chain): different height levels

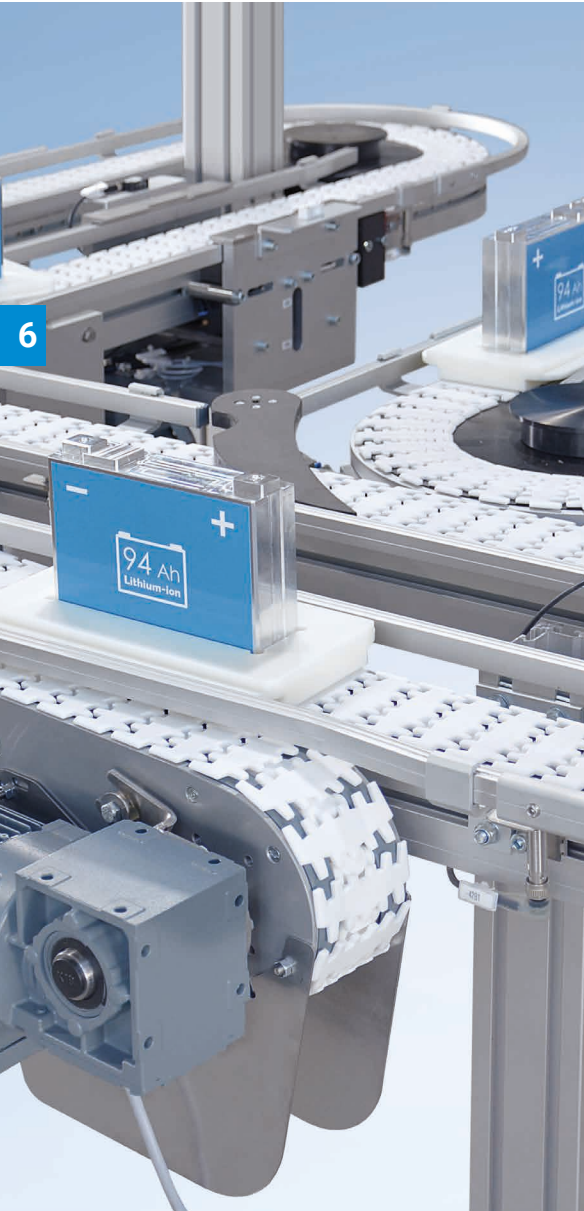
- = Chain option unavailable for this system

6

Technical data

System	A04 ...	A06 ...	A08 ...	A10 ...	A17 ...	A29 ...
Chain width B _k [mm]	44	63	83	103	175	295
Chain pitch* p [mm]	25.4	25.4	33.5	35.5	33.5	33.5
Chain tensile force [N]	500	500	1250	1250	1250	1250

Versaflex Pallet System



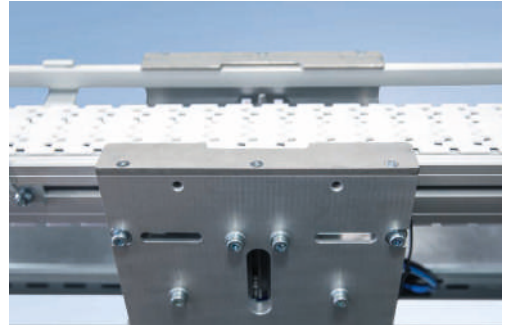
» Safe solution for automated processes. «

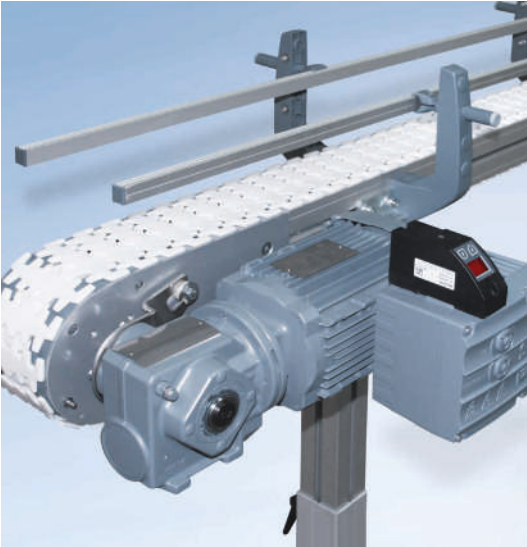
To ensure the precise positioning of products, pallets can also be transported on the A08 system. As described above, the system is 85 mm wide (chain width 83 mm) and is designed for products weighing up to 10 kg per carrier. The carriers have a standard width of 150 mm and are guided by side rails and positioned exactly in three levels in the locating stations. So the products are fixed, buffered and transported gently, safely and accurately.

The pallet can be customised and equipped with individual fixtures. The locate station can be freely positioned without changing the side rails. A positional accuracy of ± 0.1 mm is achieved. Therefore the pallet is lifted off the conveyor chain.

Benefits of Versaflex pallet system

- Simple and accurate positioning for automated processes
- Stability even for products with unfavorable geometry
- Gentle product transport also for sensitive product surfaces
- Safe transport even with changes in position
- Higher machine autonomy
- Buffer function for cycle decoupling in manufacturing process

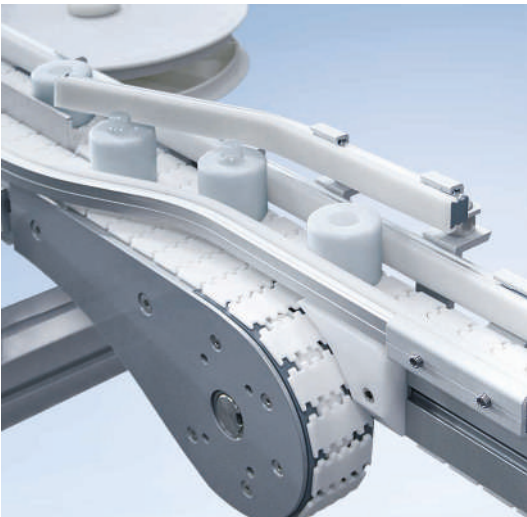




Flat top chain conveyor SBF A10 with direct head drive and side rail holder type 110



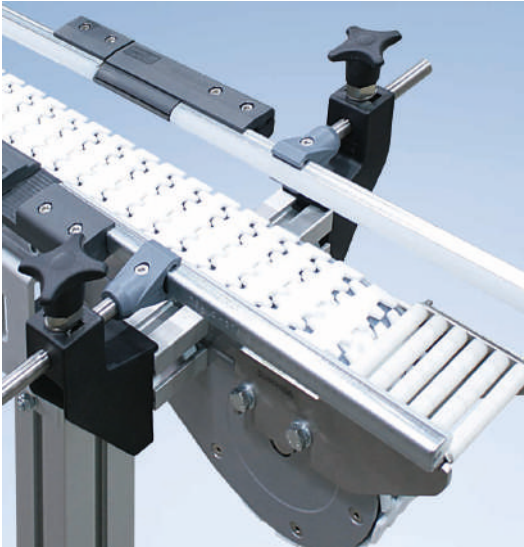
Flat top chain conveyor SBF A08 with 90° rolling curve



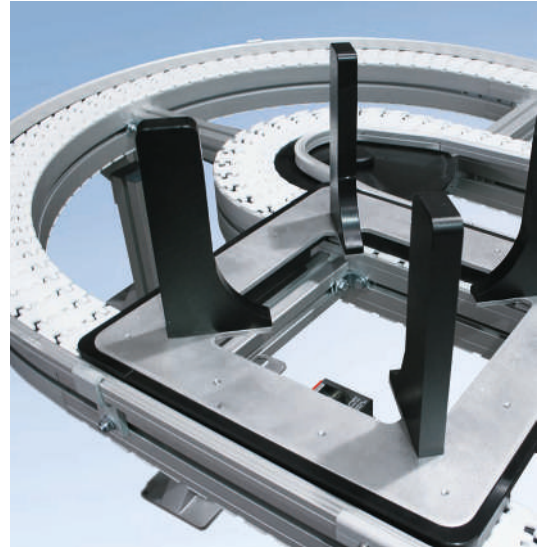
Flat top chain conveyor SBF P04 with switch for separation



Flat top chain conveyor SBF A08 with rolling curves and side rails

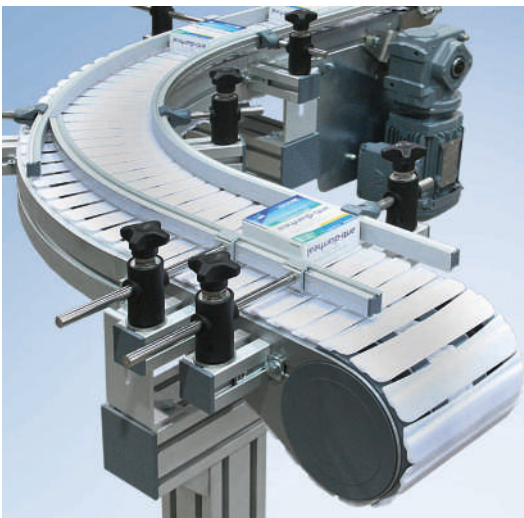


Flat top chain conveyor SBF A06 with adjustable side rail and roller bridge at the end of the tail



Flat top chain conveyor SBF P08 as double-line pallet circulation system with sliding 180° curve


6



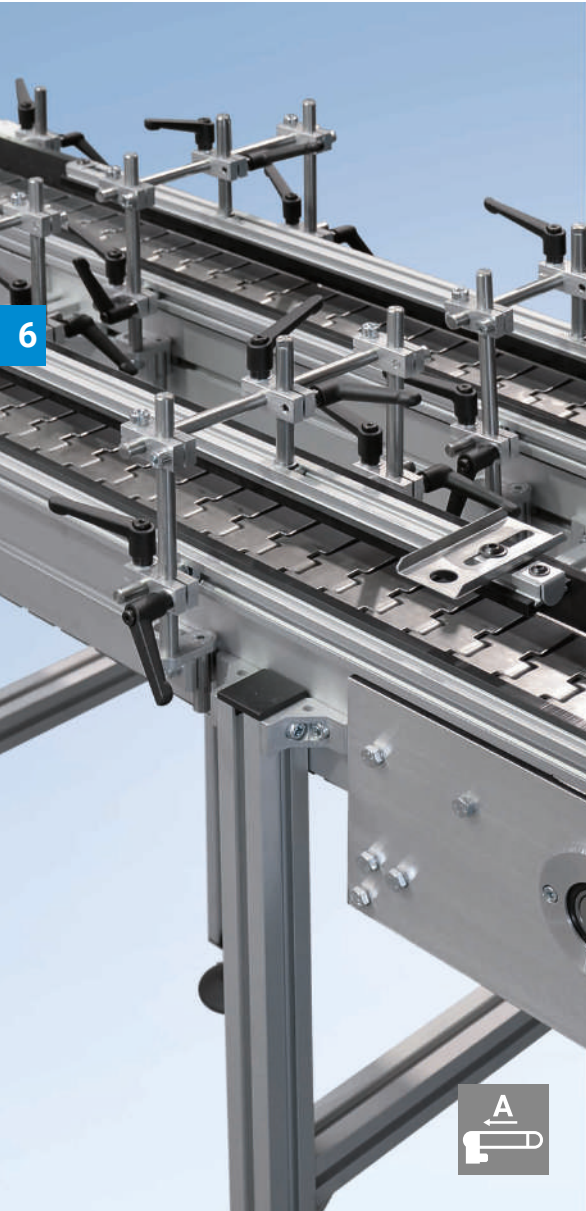
Flat top chain conveyor SBF A17 with width-adjustable side rail



Flat top chain conveyor SBF A08 with driven transfer tail and pressure rollers for vertical transport

 Custom applications from page 408

Flat Top Chain Conveyor SBF-P 2254



» Complex route layouts with robust steel chain. «



The SBF-P 2254 with steel chain is ideal for the three-dimensional transport of hot, sharp or oily products, such as turned or welded parts.*

Its modular design lets you create complex conveyor systems quickly and economically, and it minimises the work required to make changes to suit production conditions. The connecting elements specially designed for this system allow you to easily assemble the individual modules into a complex conveyor system. In addition to straight tracks, you can select from both sliding and rolling curves of 90° and 180° as well as transfer segments and vertical curves for bridging height differences.

The slots on the sides of the mk 2254 conveyor frame profile allow you to connect side rails, stands, sensors and other accessories. The chain is guided entirely inside wear strips on both the upper and lower runs.

As a special design, a 205 mm version of the flat top chain conveyor is available in addition to the standard widths of 100 and 130 mm.

A stainless steel version is also available to meet the special requirements, such as for the food industry.

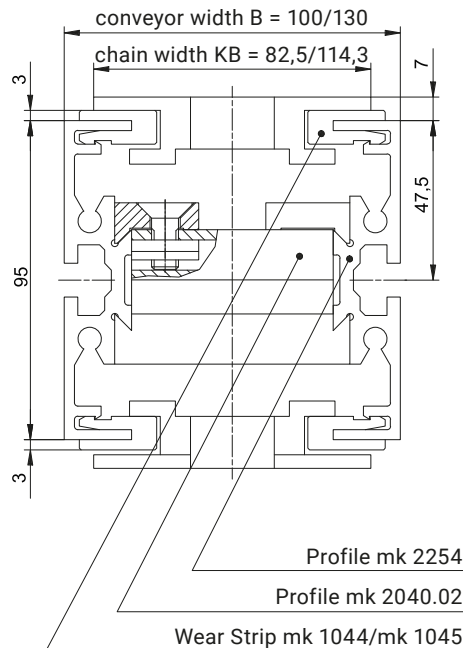
*Not suitable for metal chips

Benefits of the SBF-P 2254

- Ideal for the metal industry and turned, milled or welded parts*
- Modular design for fast and affordable creation of complex conveying paths
- Track layout can be easily changed according to production conditions
- Side slots on the conveyor frame profile for attaching accessories such as side rails, stands, etc.

6

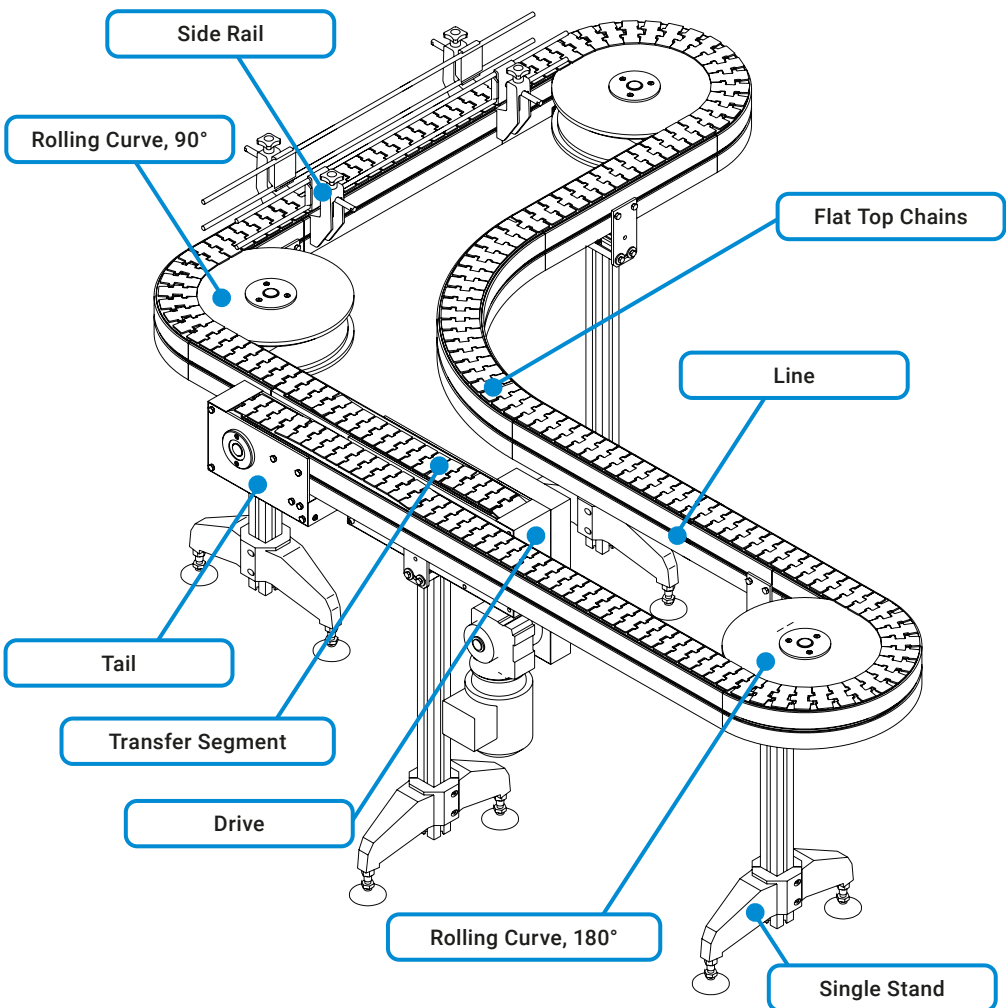
Cross Section



Flat Top Chain Conveyor SBF-P 2254

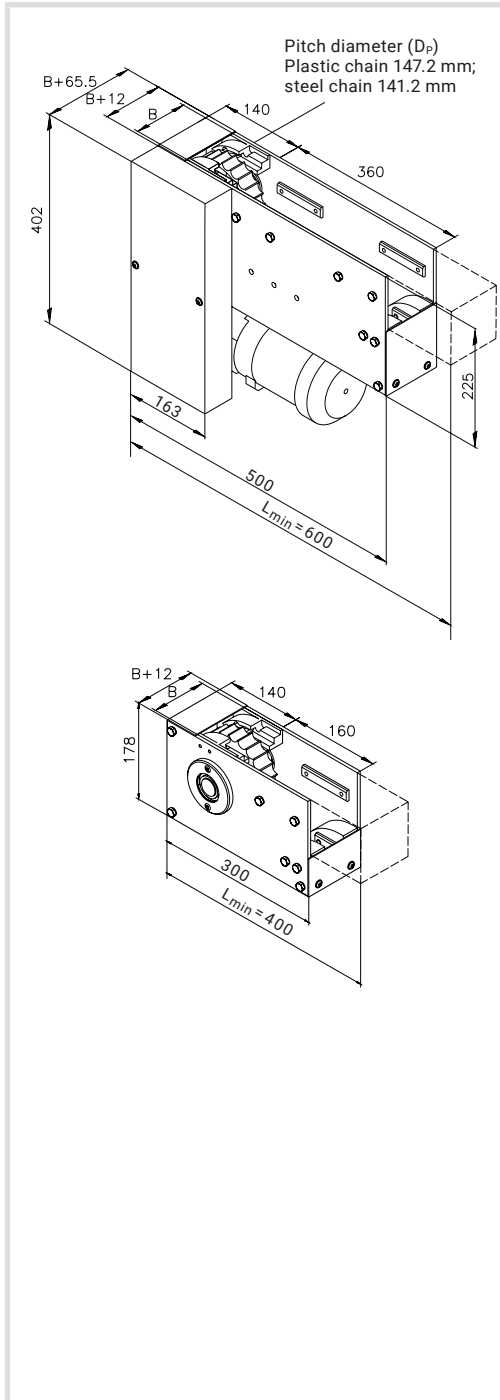
A variety of different influencing factors must be taken into account when configuring flat top chain conveyors. The total chain length, number of curves, workpiece characteristics and, above all, the weight and speed, etc. have a decisive influence on the motor power required.

mk determines the motor power based on the individual application. During configuration, note that the direction (left/right) for the drive, transfer segments and curves must always be specified in the running direction (that is, the direction towards the drive).



SBF-P 2254 Modular Overview

The modules can only be ordered as spare parts and are not suitable for building a complete solution yourself.



Drive

The motor can be positioned on the left (as shown) or on the right. The motor power ranges from 0.25 to 0.55 kW. The conveyor system can achieve speeds of approx. 8 to 40 m/min. Speeds below 8 m/min may cause the chain to run unevenly. Only straight line elements are permitted to be integrated in the range of $L_{min} = 600$ mm.

Width B	Chain width B1	Type	Item no.
100 mm	82,5 mm	curved	B01.00.409*
130 mm	114,3 mm	curved	B01.00.410*

*without profiles, without chain

Tail

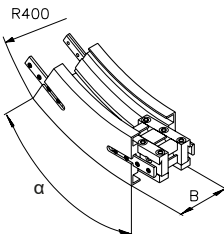
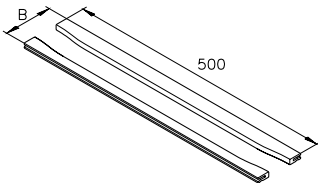
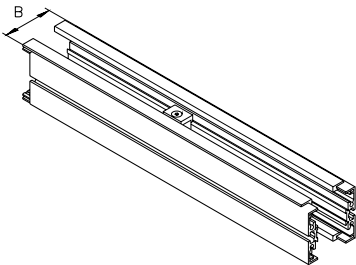
The tail consists of aluminium side plates with stainless steel covers and precisely guides the chain back into the upper run through high-quality curved sections. Only straight line elements are permitted to be integrated in the range of $L_{min} = 400$ mm.

Width B	Chain width B1	Type	Item no.
100 mm	82,5 mm	curved	B80.00.409*
130 mm	114,3 mm	curved	B80.00.410*

*without profiles, without chain

SBF-P 2254 Modular Overview

The modules can only be ordered as spare parts and are not suitable for building a complete solution yourself.



Line including Wear Strips

The conveyor frame is based on the profile mk 2254 and features a high level of torsion resistance. The chain is guided along the lower and upper run in polyethylene (PE-1000) wear strips. The wear strips reduce friction and ensure that the flat top chain runs smoothly.

Width B	Chain width B1	Item no. Line	Item no. Wear Strip
100 mm	82.5 mm	B08.00.409*	22.44.2000
130 mm	114.3 mm	B08.00.410*	22.45.2000

*Assemblies with connecting elements, without a chain and without wear strips

Transfer Segment

The transfer segment can be used to transfer products between conveying paths running in parallel. The high-quality guide and small chain spacing ensure that the workpiece remains in a stable position during the transfer.

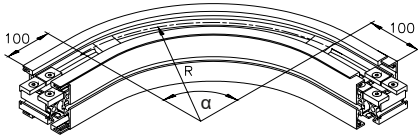
Width B	Chain width B1	L	Item no.
100 mm	82.5 mm	500 mm	B37.00.002
130 mm	114.3 mm	500 mm	B37.00.003

15°, 30° and 45° Vertical Curve

The vertical curve can be used to overcome height differences. Depending on the product, we recommend using cleated chains to prevent the product from slipping back. Like in the curve segments, wear strips ensure that the chain runs safely and without much friction.

Width B	Chain width B1	L	Item no.
100 mm	82.5 mm	15°	B36.00.434*
100 mm	82.5 mm	30°	B36.00.435*
100 mm	82.5 mm	45°	B36.00.436*
130 mm	114.3 mm	15°	B36.00.438*
130 mm	114.3 mm	30°	B36.00.439*
130 mm	114.3 mm	45°	B36.00.440*

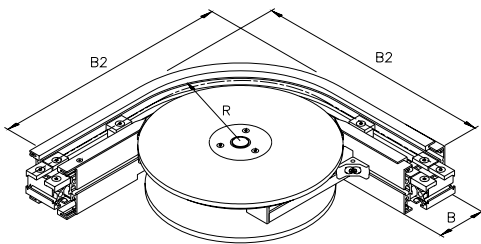
*Assemblies with connecting elements, without a chain



Sliding Curve

The chain is guided along the entire curve area in a high-quality PE 1000 wear strip. The dimensions of the wear strip ensure that the chain runs safely. This results in long conveyor service life. Sliding curves are primarily used in short conveyor systems with minimal loads and low speeds.

Width B	Chain width B1	R	Item no.
100 mm	82.5 mm	300 mm	B36.00.416*
100 mm	82.5 mm	500 mm	B36.00.414*
130 mm	114.3 mm	300 mm	B36.00.417*
130 mm	114.3 mm	610 mm	B36.00.415*

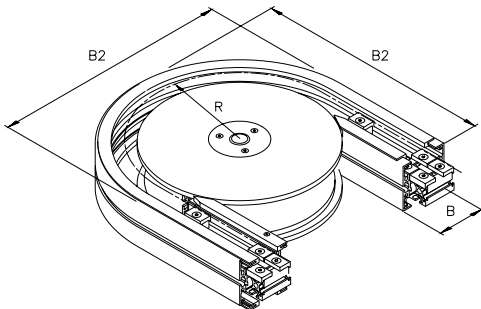


90° and 180° Rolling Curve

The rolling curved tail and rotating plastic washers on the inside of the curve significantly reduce the amount of friction that occurs in the conveyor system. This feature enables higher speeds, longer conveying paths and higher loads to be achieved.

90°

Width B	Chain width B1	B2	R	Item no.
100 mm	82.5 mm	500 mm	200 mm	B36.00.428*
130 mm	114.3 mm	530 mm	200 mm	B36.00.429*



180°

Width B	Chain width B1	B2	R	Item no.
100 mm	82.5 mm	500 mm	200 mm	B36.00.430*
130 mm	114.3 mm	530 mm	200 mm	B36.00.431*

*Assemblies with connecting elements, without a chain and without wear strips

Flat Top Chains

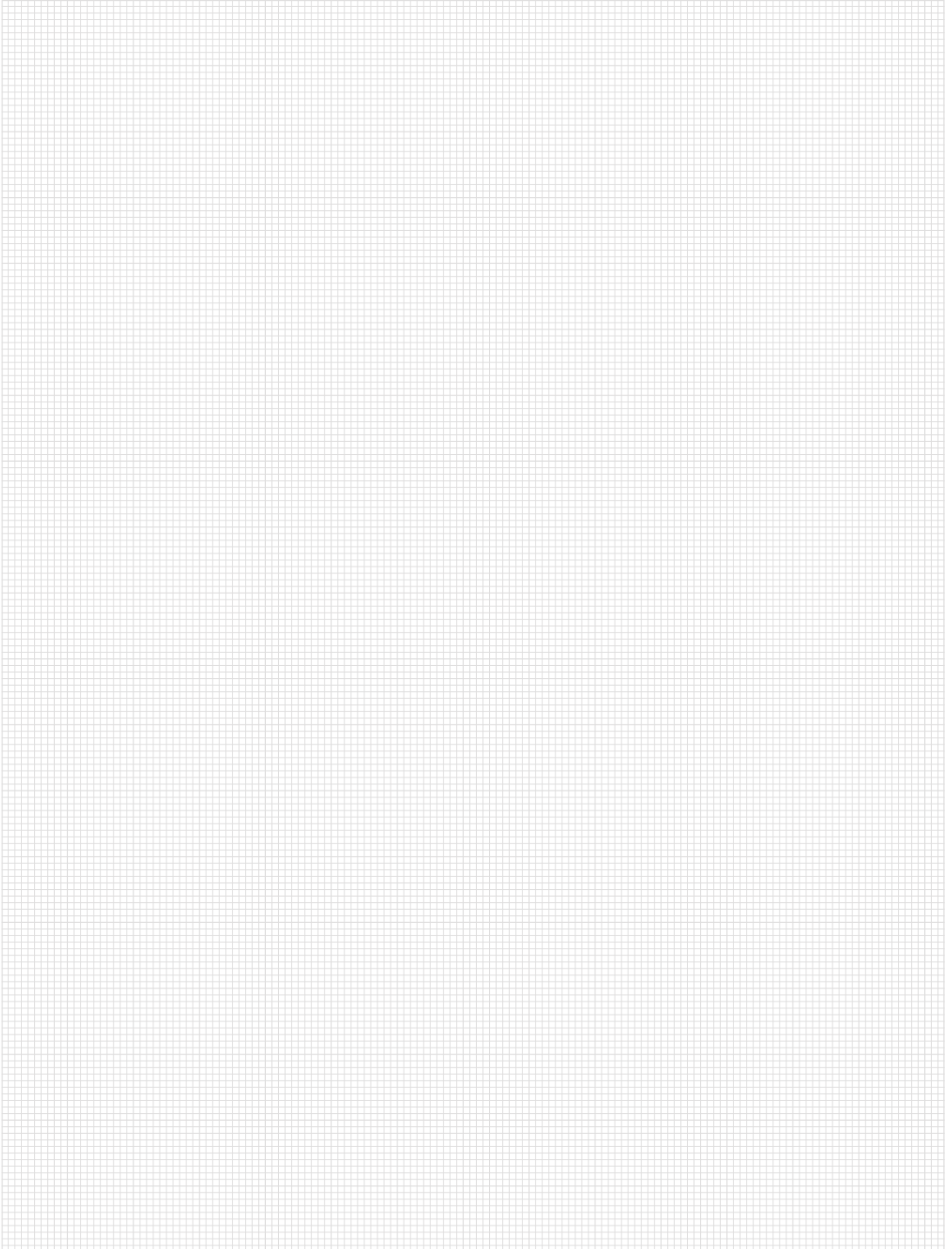
The flat top chains presented in these tables are our proven standard. All the chains shown are FDA-compliant. Plastic chains are not suitable for sharp-edge products or for cleaning with phosphoric/nitric acid. Rather than selecting the right chain based on the permitted driving force, with

mk you can use our chain calculation program, which takes into account conveyor length, chain speed, back pressure, lubrication, product type and weight to find the perfect chain for your specific application. Additional chains are available on request.

6



Steel chains	Designation	Item no.	Conveyor width [mm]	Chain width [mm]	R min [mm]	Perm. operating force [N]	Material
	S 881 TAB-K325	K114510047	100	82.5	500	8350	Carbon steel, hardened
	S 881 TAB-K450	K114510064	130	114.3	610	8350	Carbon steel, hardened
	SSR 8811 TAB-BO-K325	K114510022	100	82.5	200	4500	Stainless steel, non-corrosive
	SSC 8811 TAB-K450	K114510062	130	114.3	500	6000	Stainless steel, non-corrosive



Application Examples SBF-P 2254

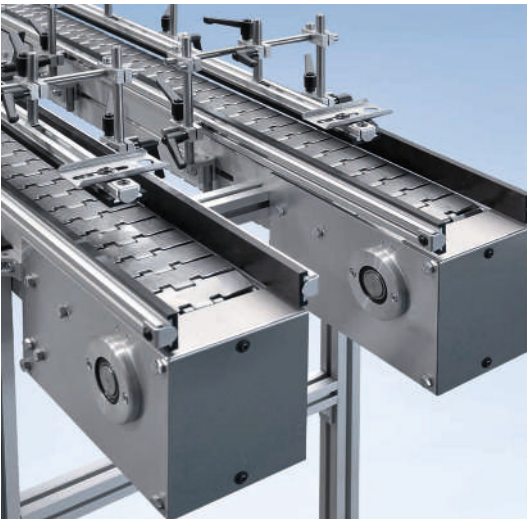
6



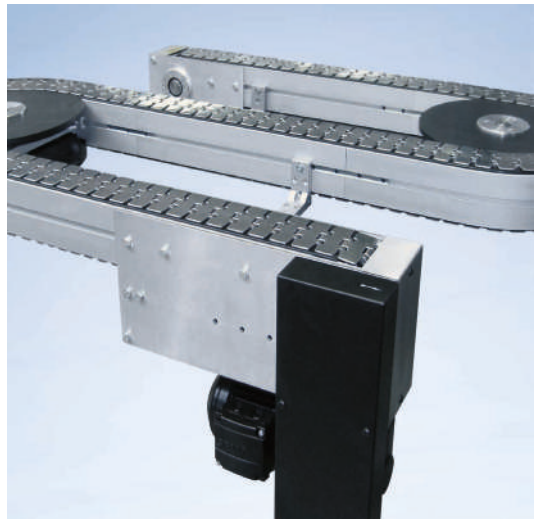
Flat top chain conveyor SBF-P 2254 with head drive AF and side rail SF02



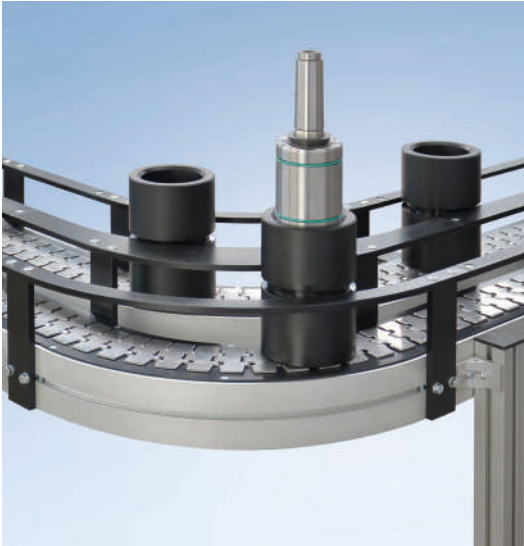
Double-line flat top chain conveyor SBF-P 2254 with one motor



Dual-line flat top chain conveyor SBF-P 2254 with side rail SF02 with adjustable guide height and width



Flat top chain conveyor SBF-P 2254 with head drive AS and two rolling 90° curves as a cooling line

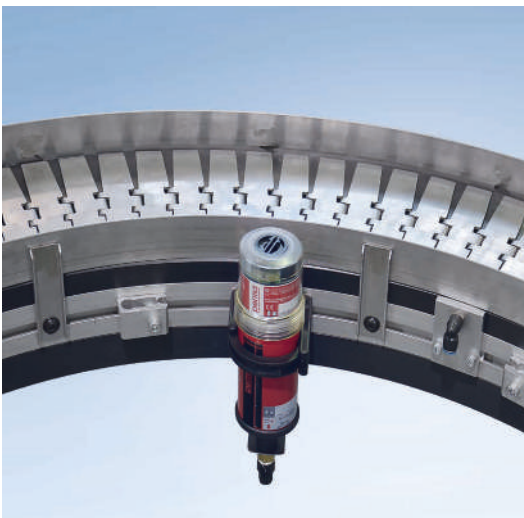


Double-line flat top chain conveyor SBF-P 2254 with sliding 90° curve and individual side rail

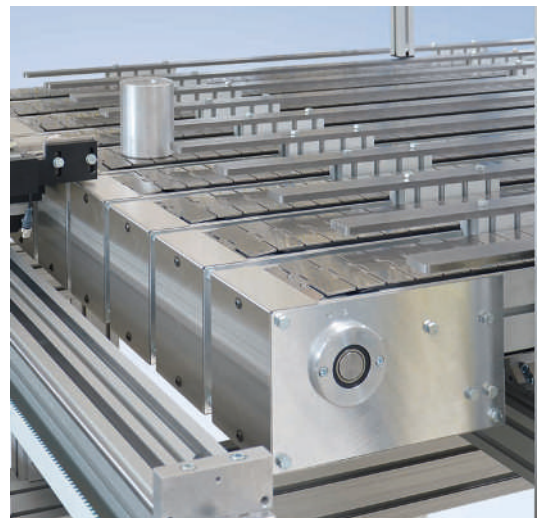


Special flat top chain conveyor with a width of 205 mm with drip pan and side rail SF10.1


6



Special flat top chain conveyor with a width of 205 mm with side rail SF 2.1 and lubrication station



Multiple SBF-P 2254 flat top chain conveyors on a shared conveyor frame for transporting various classified goods

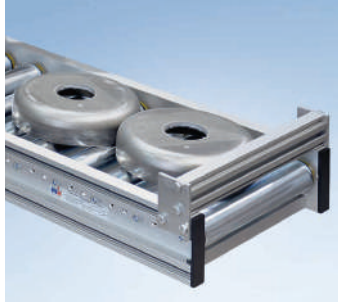
 Custom applications from page 408

Chapter 7 Roller Conveyors



Selecting a Roller Conveyor

254



Gravity Roller Conveyor RBS-P 2065/2066

256

Line

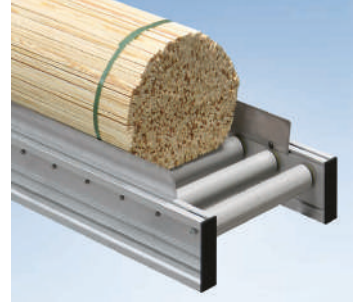
258

Curve

259

Application Examples

260



Gravity Roller Conveyor RBS-P 2255

262

Line

264

Curve

265

Application Examples

266



Tangential Chain Roller Conveyor RBT-P 2255

268

Line

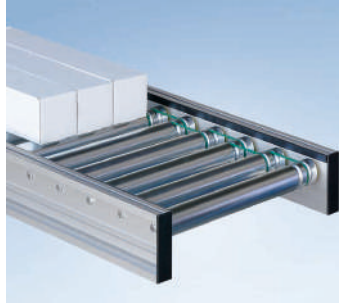
270

Curve

271

Application Examples

272



Drive Roller Conveyor RBM-P 2255

274

Line

276

Curve

277

Application Examples

278



Rollers

280

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

Selecting a Roller Conveyor

Dimensions – Technical Data

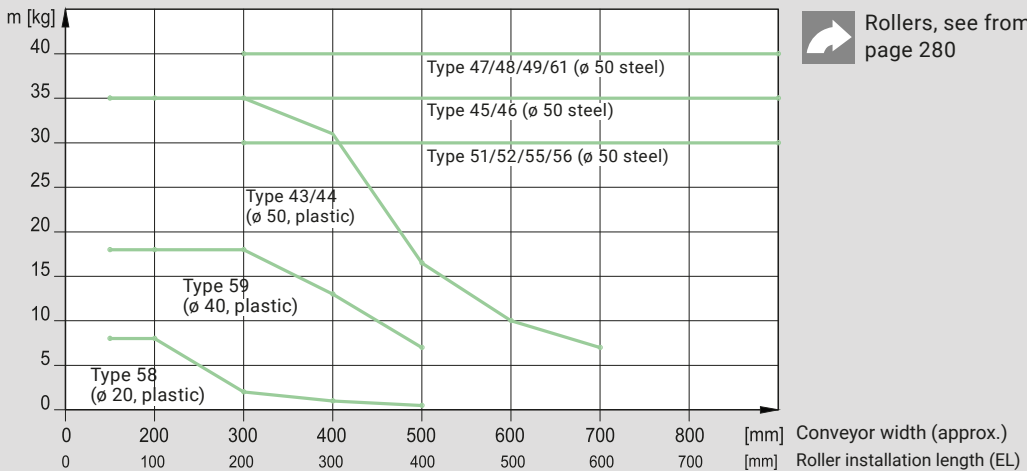
Conveyor system	Conveyor widths [mm]	Conveyor lengths [mm]	Total load* as standard, up to [kg]	Speed up to [m/min]	Ø Rollers [mm]	Reverse operation	Accumulated operation	Cycling operation
Gravity roller conveyors								
RBS-P 2065/2066	150–1050	200–5000**	400	30	20 - 50	•	•	•
RBS-P 2255	150–1050	500–10000**	400	30	20 - 50	•	•	•
Roller conveyor with tangential chain drive								
RBT-P 2255	320–720	500–10000	400	30	50	•	•	•
Roller conveyor with drive roller								
RBM-P 2255	480–680	500–10000	400	70	50	•	•	•

* Usual load limits that may be exceeded based on the configuration and influencing factors.

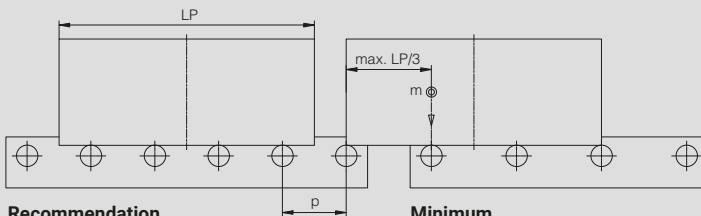
** Length refers to one roller conveyor segment (single piece). With the joints, there is no limit on the lengths that are possible.

7

Selecting the Roller Type Based on the Width and Load per Roller



Roller Spacing Based on the Product Length (LP)



Recommendation

- 4 rollers under the product
- ± distribution $p = 150$ mm with $LP = 600$ mm
- Runs very smoothly
- Can work with uneven loads

Minimum

- 3 rollers under the product
- ± distribution $p = 200$ mm with $LP = 600$ mm
- Limit is $m = 100$ kg with 33 kg/roll
- Suitable for $m = 50$ kg with central centre of gravity for the load

Application Options

Gravity roller conveyors (RBS) are often used for semi-automatic interlinking at picking stations or kanban shelves. You can select rollers between $\varnothing 20$ and 50 mm depending on your total load and the required spacing. The RBS-P 2065 is the best choice if you do not require the profile frame to act as a side rail – as is the case with the RBS-P 2066 – or if the product is wider than the roller conveyor. A slope of 1 to 2° is usually sufficient for conveying products with gravitational force. Please note that high speeds can be reached with long lines and/or steeper slopes. This kinetic energy will require dampened deceleration.

Our **roller conveyor tangential chain drive (RBT)** is used wherever long conveying paths with a motorised drive mechanism are required. The conveyor is driven by a ½" chain, which runs within an enclosed, low-wear wear strip to tangentially drive the conveyor rollers from below via a sprocket wheel. It can be used to drive conveying paths up to 10 m long. The chain tail is equipped with idler pulleys supported by ball bearings for minimal friction losses.

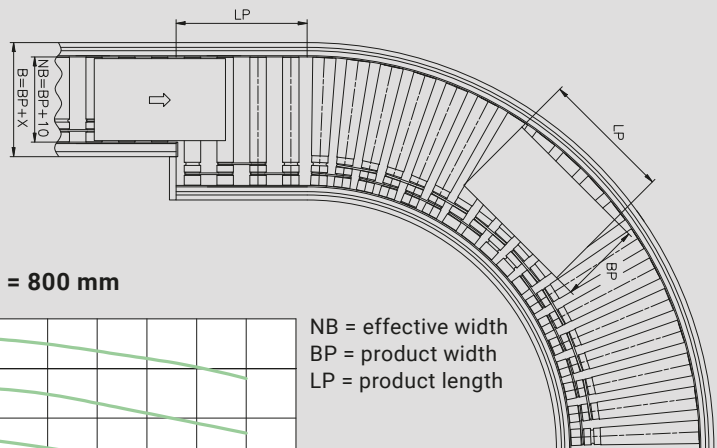
Roller conveyors with a drive roller (RBM) allow you to drive up to nine additional rollers using the round belt. They are notable for their few obstructing edges and easy-to-clean design, making them well suited for clean environments and increased sanitary requirements. They are also available in an IP66 version on request, or with an electronic holding brake for upward and downward gradients.

Rollers with a friction drive are available for dynamic buffering tracks. These rollers reduce back pressure, and the roller remains stationary under the product without any relative motion (bi-directional friction preferred if the load distribution is uncertain). Adjustable friction rollers are particularly useful for lightweight products. Gripping of the product can be increased up to the adhesion limit between the product and the roller. This is used, for example, for high acceleration, for inclines or for positioning the product.

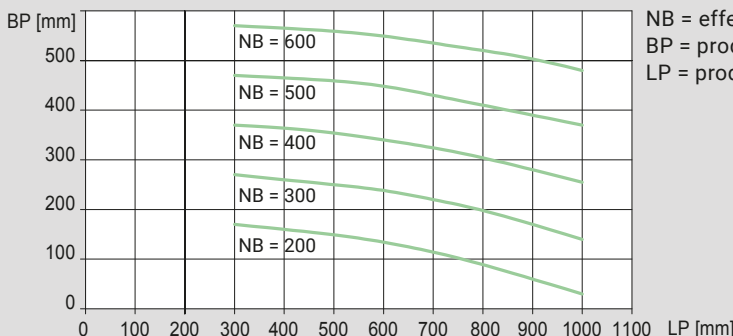
Necessary Effective Width (NB) of a Curve Based on the Product Dimensions

Additional requirement (X) for conveyor width (B) for straight sections when connecting to curves:

RBS-/RBM-P 2255: X = 98 mm
 RBT-P 2255: X = 125 mm



Examples for Curve Radius $R_i = 800$ mm



NB = effective width
 BP = product width
 LP = product length

Gravity Roller Conveyor RBS-P 2065/2066



» Lines and curves
for transporting
products of low to
moderate weight. «



The roller conveyor system with gravity drive (RBS) is typically used in industrial automation for semi-automatic interlinking at picking stations or kanban shelves. The difference between the RBS-P 2065 and 2066 roller conveyors is that the RBS-P 2066's conveyor frame profile serves as the side rail, while in the RBS-P 2065 the rollers protrude beyond the side profiles, making the system suitable for extra-wide products and lateral discharging.

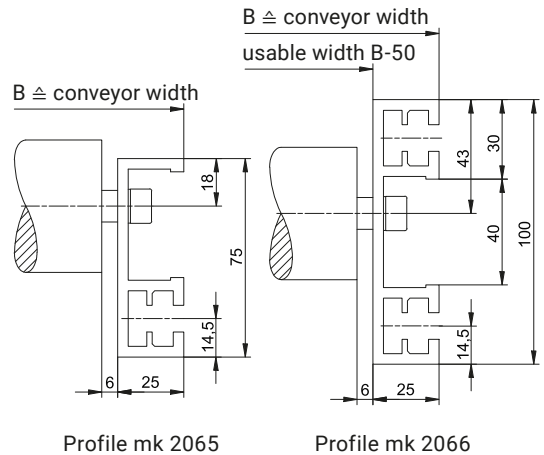
An extensive selection of different roller types makes the system extremely flexible and suitable for a wide range of applications. The conveyors are available in both straight and curved configurations. The roller diameters of 20, 40 or 50 mm ensure that both large and small workpieces can be transported reliably and without interruption. The longitudinal slots in the profile beams can be used to attach side rails, stands, initiators and other accessories.

Products can be transported along a downward gradient either by hand or using gravitational force. A slope of 1 to 2° is usually sufficient for conveying products with gravitational force. Please note that high speeds can be reached with long lines and/or steeper slopes. This kinetic energy will require dampened deceleration.

Benefits of the RBS-P 2065/2066

- For transporting products of low to moderate weight
- Semi-automatic interlinking at picking stations or even kanban shelves
- Conveyor frame profile of the RBS-P 2066 functions as the side rail
- Conveyor frame profile of the RBS-P 2065 allows for extra-wide product and lateral discharging
- Side slots on the conveyor frame profile for attaching accessories such as side rails, stands, etc.

Cross Section

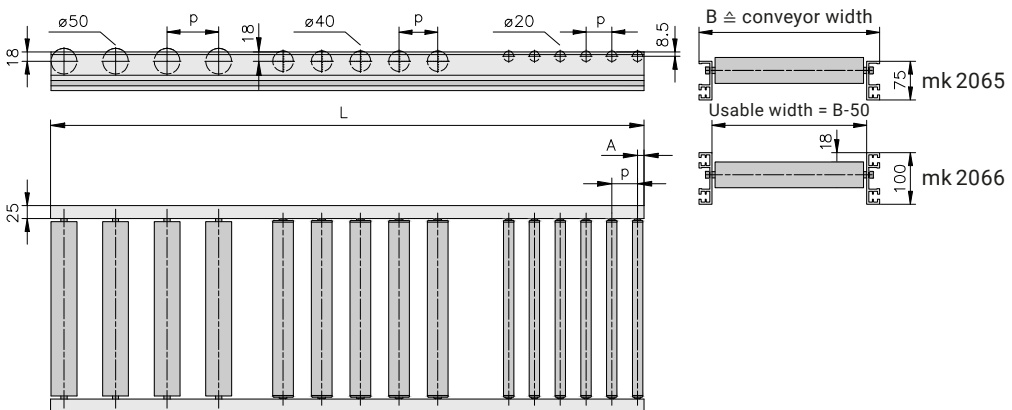


RBS-P 2065/2066

Line

∅ 20: B61.00.001 / ∅ 40: B61.00.002 / ∅ 50: B61.00.003

A feature of the gravity roller conveyors RBS-P 2065 and 2066 is that the rollers protrude over the profile edge with conveyor frame profile 2065 (making them suitable for extra-wide product). In addition, the conveyor frame profile on the RBS-P 2066 serves as a side rail. The conveyor length corresponds to a single roller conveyor segment. Endless lengths are possible by lining up segments.



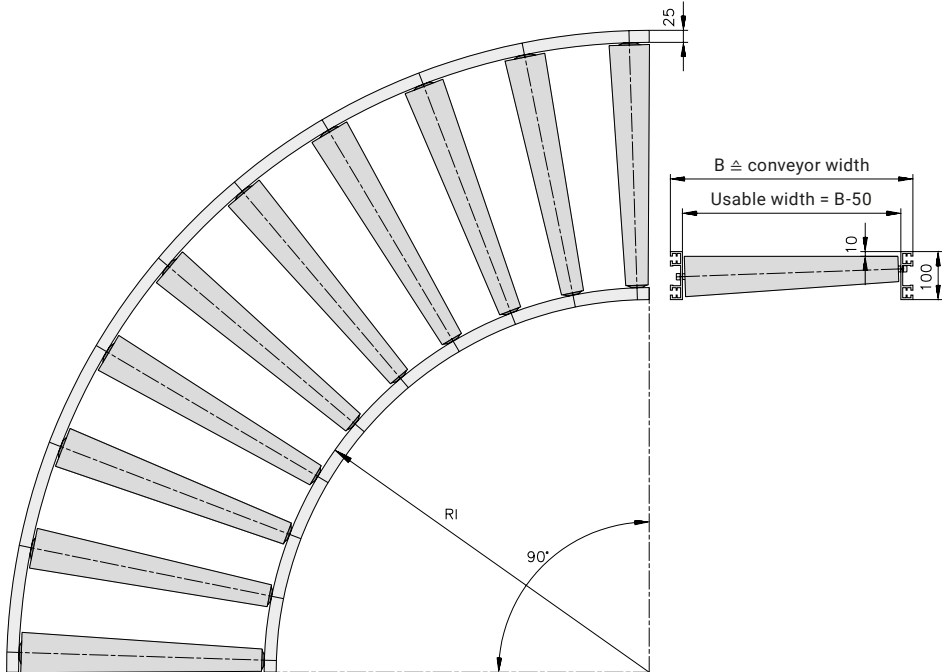
Technical data

Conveyor width B	∅ 20, plastic ∅ 40, plastic ∅ 50, plastic ∅ 50, galv. steel	150, 200, 250, 300 and 350 mm 150, 200, 250, 300 and 350 mm 250, 350, 450, 550 and 650 mm 250–1050 mm in 100 mm increments	Ident. no.: B61.00.001 Ident. no.: B61.00.002 Ident. no.: B61.00.003 Ident. no.: B61.00.003
Conveyor length L		200–5000 mm per roller conveyor segment	
Spacing p	∅ 20 ∅ 40 ∅ 50	25, 50 and 75 mm 50, 75, 100 and 125 mm 75, 100, 125, 150, 175, 200, 225 and 250 mm	A = 12.5 mm A = 25 mm A = 25 mm
Conveyor frame profile		mk 2065 or mk 2066	
Roller types		Type 43–46, 58 and 59	from p. 280
Stand			from p. 290
Load capacity, usual		depending on the conveyor width and conveyor roller, up to 100 kg/m and a total load capacity of 400 kg	higher on request

Curve

B61.00.004

The gravity roller conveyor 2066 has an impressively simple design. The conical conveyor rollers that it uses prevent the transported product from twisting on the conveyor.



Technical data

Conveyor width B	321-871 mm in 50 mm increments							
Inner radius RI	800 (with B = 371, 471, 571, 671, 771, 871) 850 (with B = 321, 421, 521, 621, 721, 821)							
Conveying angle	90°							others on request
Conveyed product length	150	200	250	300	350	450	550	
recommended number of rollers	21	17	15	13	11	10	9	
Conveyor frame profile	mk 2066							
Roller types	Type 47 and 48							from p. 280
Stand								from p. 290
Load capacity, standard	depending on the conveyor width and conveyor roller, up to 100 kg/90°							higher on request

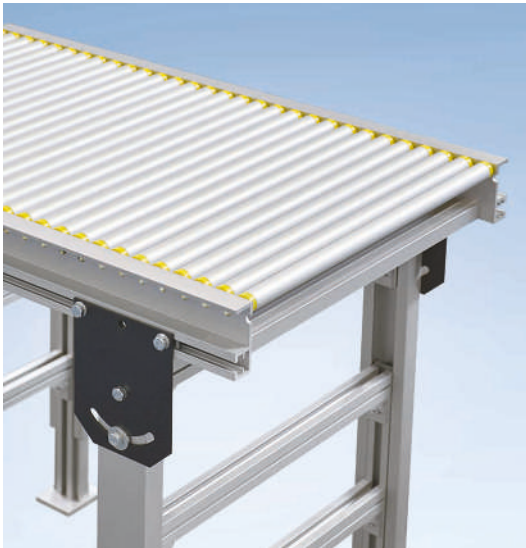
Application Examples RBS-P 2065/2066



Gravity roller conveyor RBS-P 2066 with end stop



Gravity roller conveyor RBS-P 2065 with angle plate as side rail



Gravity roller conveyor RBS-P 2065 with \varnothing 20 aluminium rollers and stand 53.1



Belt discharge via the gravity roller conveyor RBS-P 2065 with end stop

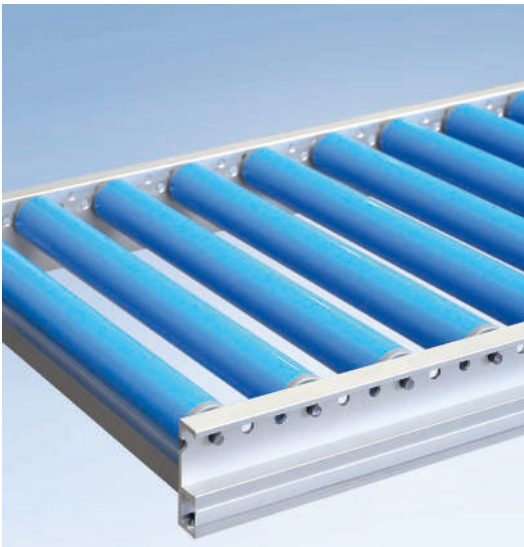


Gravity roller conveyor RBS-P 2066
 with 45° curve and stand 53.2



Gravity roller conveyor RBS-P 2065
 with ø 20 aluminium rollers


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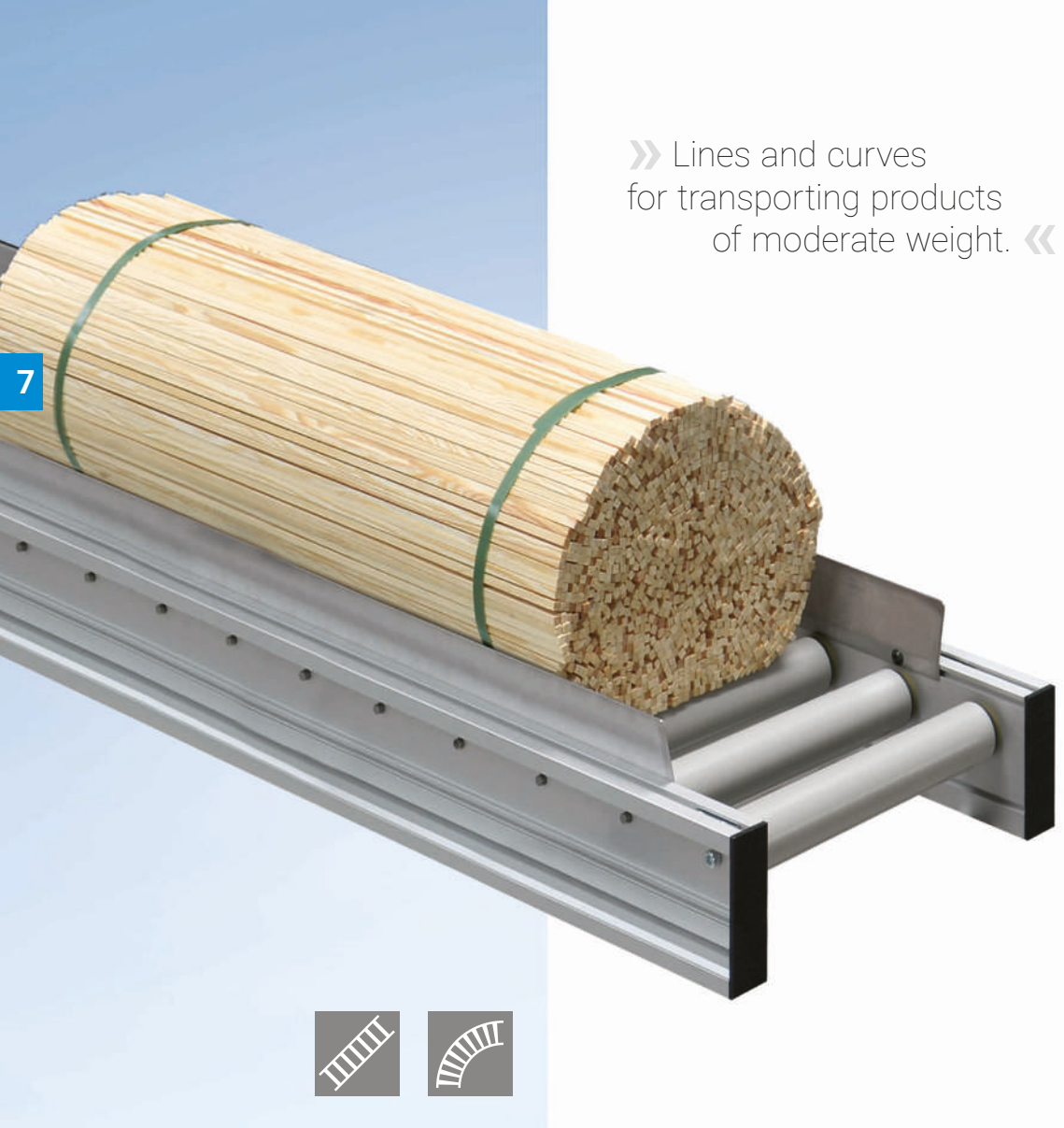
Gravity roller conveyor RBS-P 2065
 with ø 50 plastic rollers



Gravity roller conveyor RBS-P 2066
 with ø 50 steel rollers as supply and return line
 with shelf at the end of the conveyor

 Custom applications
 from page 408

Gravity Roller Conveyor RBS-P 2255



» Lines and curves
for transporting products
of moderate weight. «



The roller conveyor system with gravity drive (RBS) is typically used in industrial applications for semi-automatic interlinking at picking stations, on buffering tracks, in interim storage or in assembly lines. Products can be transported along a downward gradient either by hand or using gravitational force. The sturdier mk 2255 profile makes the RBS-P 2255 gravity roller conveyor suitable for heavier loads than the RBS-P 2065/66 system.

The gravity roller conveyor is available in both straight and curved configurations and can be combined with driven roller conveyors (RBT and RBM). All roller conveyors are built from the mk 2255 roller conveyor profile, which includes longitudinal slots in the profile beams for attaching side rails, stands, initiators and other accessories.

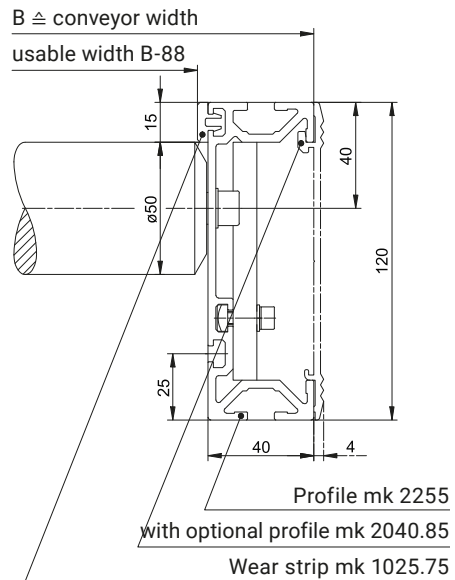
Products can be transported along a downward gradient either by hand or using gravitational force. A slope of 1 to 2° is usually sufficient for conveying products with gravitational force. Please note that high speeds can be reached with long lines and/or steeper slopes. This kinetic energy will require dampened deceleration.

Benefits of RBS-P 2255

- For transporting products of moderate weight
- Semi-automatic interlinking at picking stations, on buffering tracks, in interim storage or in assembly lines
- mk 2255 conveyor frame profile allows for combination with driven roller conveyors (RBT, RBM)
- Side slots on the conveyor frame profile for attaching accessories such as side rails, stands, etc.

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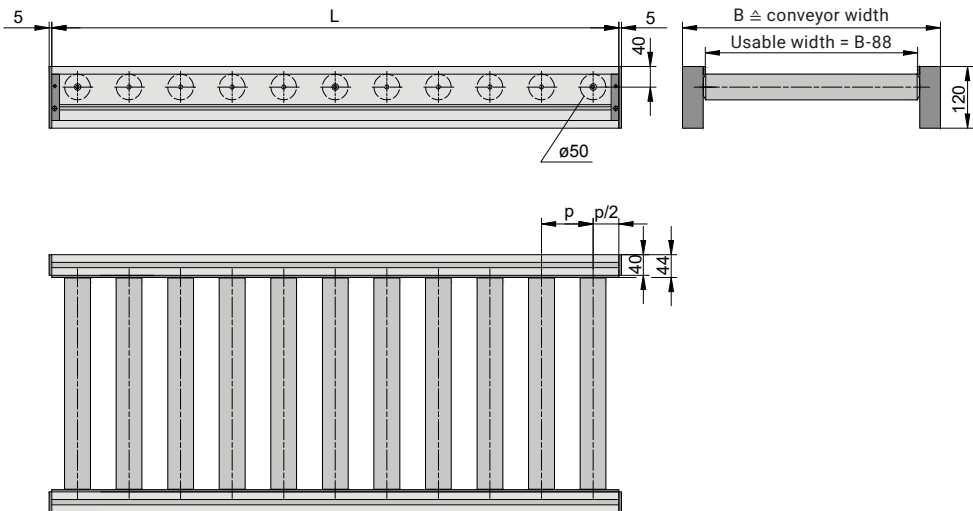
Cross Section



Line

B61.02.001

The gravity roller conveyor is based on the mk 2255 profile. The anodised conveyor frame profiles are designed for spacings of 75, 100 and 125 mm, and a roller diameter of 50 mm. The conveyor length corresponds to a single roller conveyor segment. Endless lengths are possible by lining up segments.



Technical data

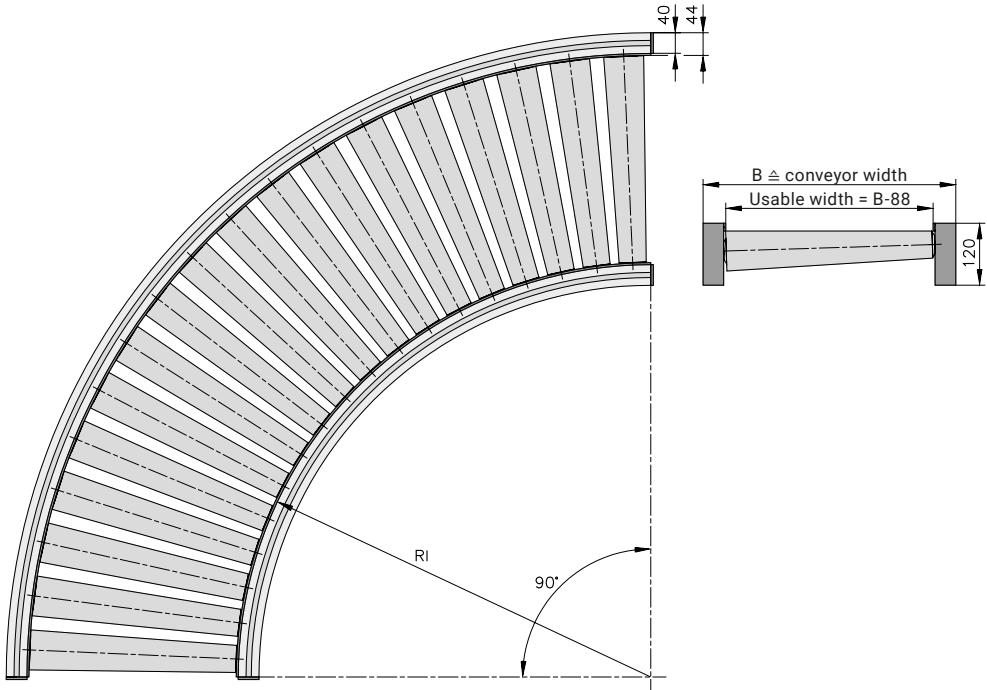
Roller diameter	50 mm, plastic/galv. steel	
Conveyor width B	290, 390, 490, 590 and 690 mm	
Conveyor length L	500–10000 mm per roller conveyor segment	
Spacing p	75, 100 and 125 mm	
Conveyor frame profile	mk 2255	
Roller types	plastic 43 + 44 or steel 45 + 46	from p. 280
Stand	only with conveyor stand option option D	from p. 290
Load capacity, standard	depending on the conveyor width and conveyor roller, up to 100 kg/m and a total load capacity of 400 kg	higher on request

RBS-P 2255

Curve

B61.02.002

The gravity roller conveyor is based on the mk 2255 profile. The anodised conveyor frame profiles are designed for a 5° spacing and a roller diameter of 50 mm.



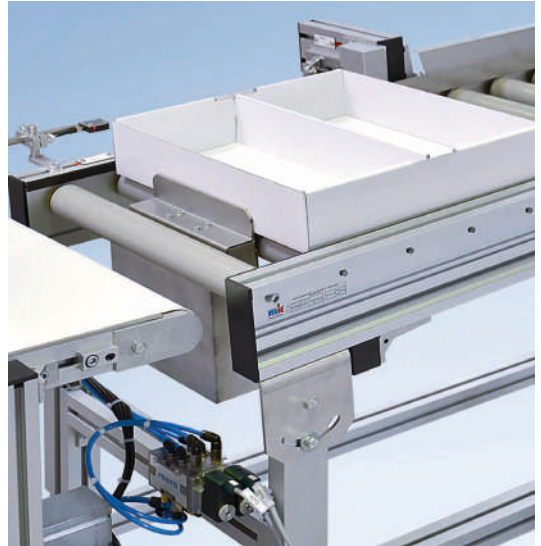
Technical data

Roller diameter	50 mm, conical, made from plastic	
Conveyor width B	401, 501, 601 and 701 mm	
Inner radius RI	800 mm	
Conveying angle	90° (others available on request)	
Spacing	5°/number: 18 rollers	
Conveyor frame profile	mk 2255	
Roller types	type 47 and 48	from p. 280
Stand	only with conveyor stand option option D	from p. 290
Load capacity, standard	depending on the conveyor width and conveyor roller, up to 100 kg/90°	higher on request

Application Examples RBS-P 2255



Gravity Roller Conveyor RBS-P 2255



Gravity roller conveyor RBS-P 2255 with separator unit at the roller conveyor outfeed



Gravity roller conveyor RBS-P 2255 with angled VA sheet steel as side rail, brush strip and end stop at the conveyor outfeed



Gravity roller conveyor RBS-P 2255



Gravity roller conveyor RBS-P 2255
 with angled sheet as side rail



Gravity roller conveyor RBS-P 2255
 with ø 50 plastic rollers


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Gravity roller conveyor RBS-P 2255
 with end stop and ø 50 mm steel rollers



Gravity roller conveyor RBS-P 2255 with protective
 cover and fixed stop at the end of the conveyor

 Custom applications
 from page 408

Tangential Chain Roller Conveyor RBT-P 2255

» Lines and curves, suitable for even dirty or oily environments. «



The RBT-P 2255 tangential chain roller conveyor is used wherever long conveying paths with a motorised drive mechanism are required. The conveyor is driven by a ½" chain, which runs within an enclosed, low-wear wear strip via the tangentially driven conveyor rollers from below via a sprocket wheel. This allows you to achieve conveying paths up to 10 m in length and makes the system suitable for even dirty or oily environments.

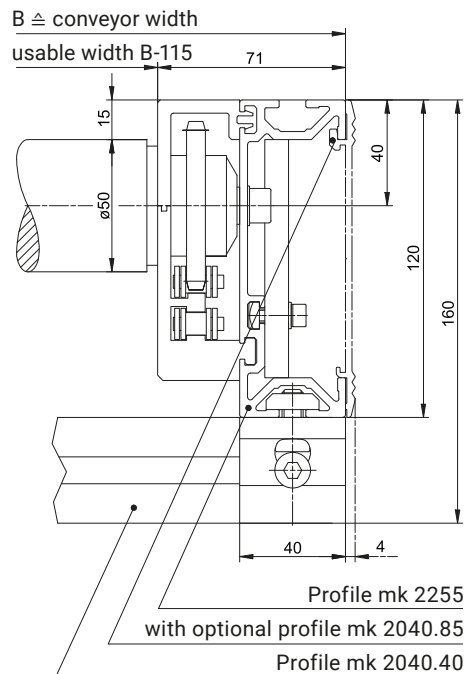
The chain tail is also equipped with idler pulleys supported by ball bearings for minimal friction losses. The tangential chain roller conveyor is available in both straight and curved configurations and can be combined with other roller conveyors (RBS and RBM). The longitudinal slots in the beam profiles can be used to attach side rails, stands, initiators and other accessories.

Benefits of RBT-P 2255

- Driven by a tangential chain
- For transporting products of moderate weight
- For conveying paths up to 10 m long
- Suitable for even dirty or oily environments
- mk 2255 conveyor frame profile allows for combination with RBS and RBM roller conveyors
- Side slots on the conveyor frame profile for attaching accessories such as side rails, stands, etc.

7

Cross Section

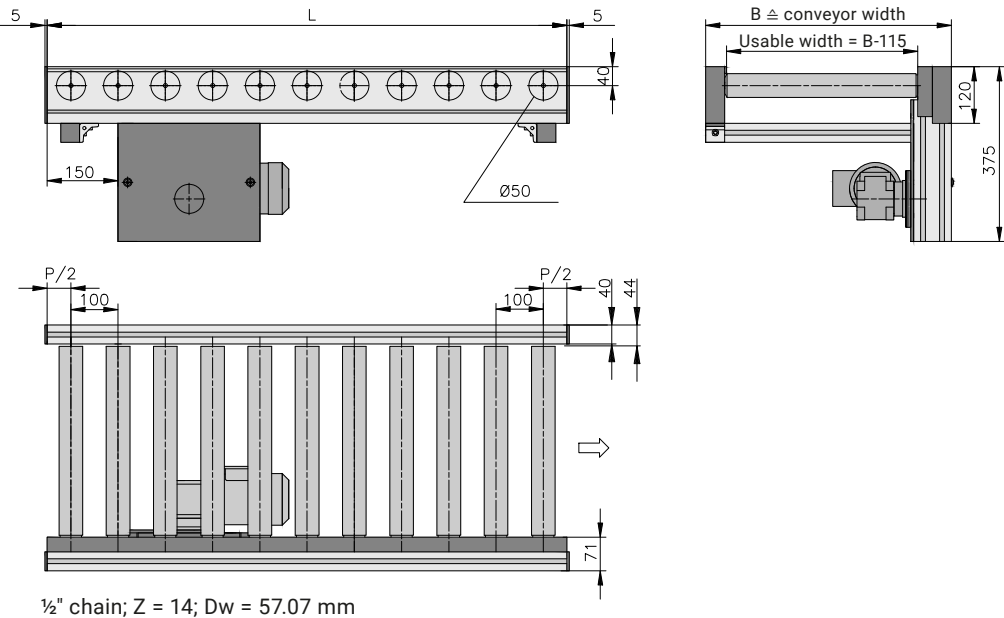


RBT-P 2255

Line

B61.02.003

The tangential chain roller conveyor is based on the mk 2255 profile. The anodised conveyor frame profiles are designed for a spacing of 100 mm and a roller diameter of 50 mm. The conveyor length corresponds to a single roller conveyor segment. Endless lengths are possible by lining up segments.



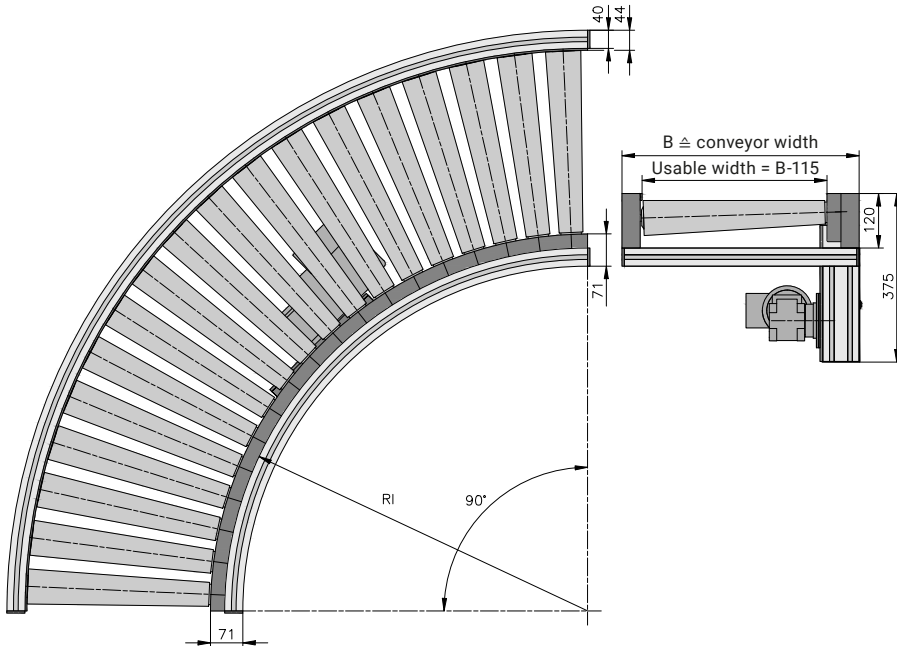
Technical data

Roller diameter	50 mm, made from galvanised steel	
Conveyor width B	320, 420, 520, 620 and 720 mm	others on request
Conveyor length L	600–10000 mm per roller conveyor segment	others on request
Spacing p	100 mm (optionally 75, 150, 200)	others on request
Conveyor frame profile	mk 2255	
Roller types	type 49 and 57, 60 or 61	from p. 280
Speed	up to 30 m/min	p. 12
Stand	only with conveyor stand option option D	from p. 290
Load capacity, standard	depending on the conveyor width and conveyor roller, up to 100 kg/m and a total load capacity of 400 kg	higher on request

Curve

B61.02.004

The curve builds on the straight line with a cylindrical \varnothing 50 mm roller. The curve is fitted with conical elements based on the radii. The speed specifications refer to the middle of the conveyor. For quiet running, the rollers in the standard version are designed with a 5% partition.

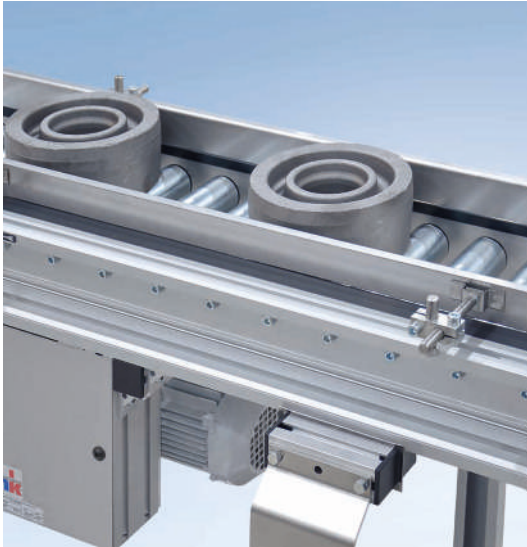


7

Technical data

Roller diameter	50 mm, conical, made from plastic	
Conveyor width B	431, 531, 631 and 731 mm	
Inner radius RI	800 mm	
Conveying angle	90°	others on request
Spacing	5° increments, 18 rollers	
Conveyor frame profile	mk 2255	
Roller types	type 50	from p. 280
Speed	up to 30 m/min	p. 12
Stand	only with conveyor stand option option D	from p. 290
Load capacity, standard	depending on the conveyor width and conveyor roller, up to 100 kg/90°	higher on request

Application Examples RBT-P 2255



Tangential chain roller conveyor RBT-P 2255
with side rail SF02 type 01



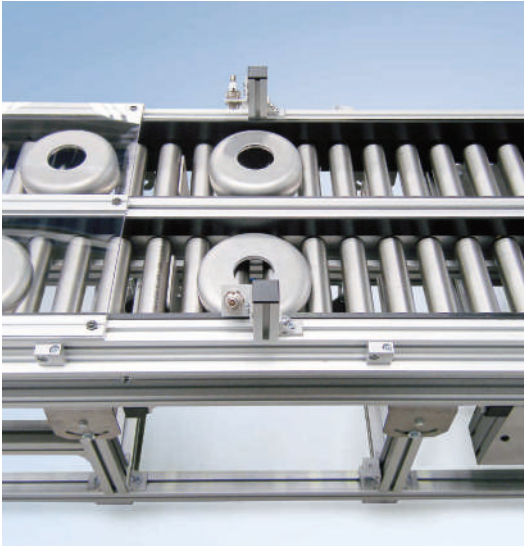
Tangential chain roller conveyor RBT-P 2255
with side rail and drip pan



Tangential chain roller conveyor RBT-P 2255
with distribution switch above the conveyor



Tangential chain roller conveyor
RBT-P 2255 as lifting conveyor



Tangential chain roller conveyor RBT-P 2255 as parallel provisioning conveyor for removal



Driven curved roller conveyor RBT-P 2255 90°


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Tangential chain roller conveyor RBT-P 2255 with ø 50 mm steel rollers and tangential chain drive

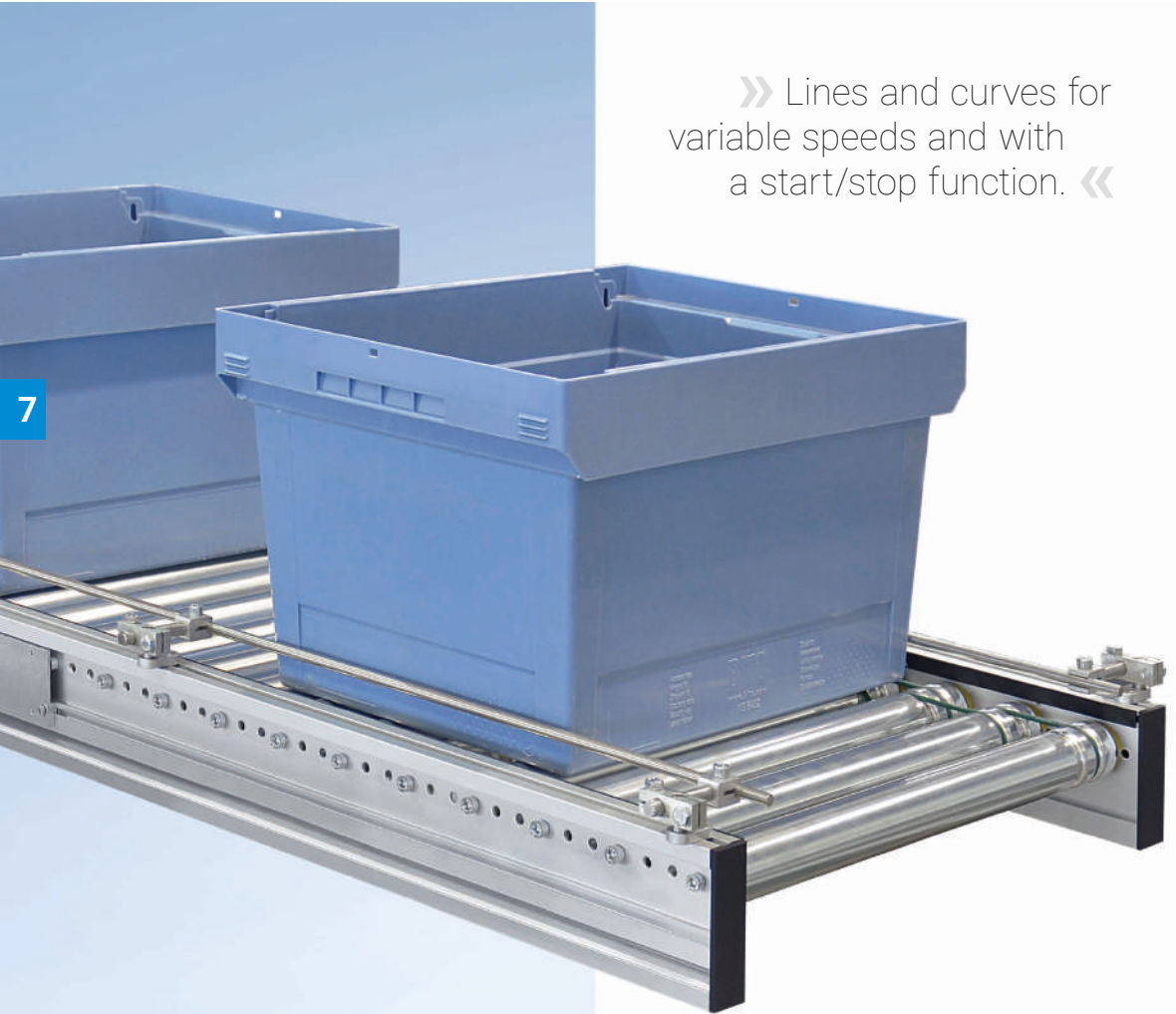


Tangential chain roller conveyor RBT-P 2255

 Custom applications
from page 408

Drive Roller Conveyor RBM-P 2255

» Lines and curves for variable speeds and with a start/stop function. «



The drive roller in the RBM-P 2255 drive roller conveyor allows you to drive up to nine additional rollers using a round belt. By segmenting the drive mechanisms in this way, this type of roller conveyor allows you to implement different speeds or start/stop functions within a single conveying path. This gives you the ability to separate, stop and buffer product, allowing you to achieve even complex material flows when combined with appropriate control technology. A control module controls the speed and direction of rotation.

The RBM-P 2255 roller conveyor is notable for its few obstructing edges and easy-to-clean design, making it well suited for clean environments and increased sanitary requirements. It is also available in an IP66 version on request, or with an electronic holding brake for upward and downward gradients.

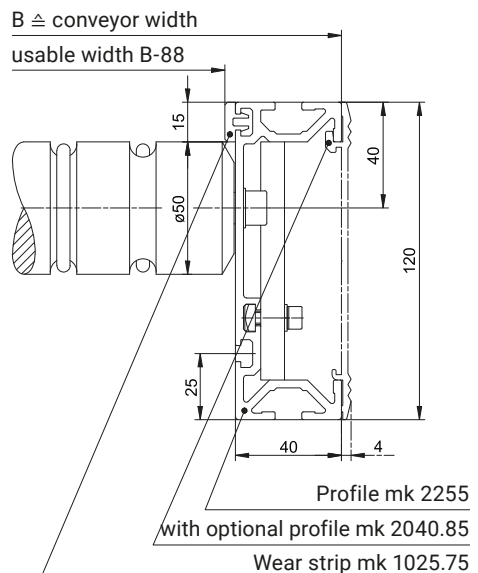
The roller conveyor is available in both straight and curved configurations and can be combined with other roller conveyors (RBS and RBT). The longitudinal slots in the beam profiles can be used to attach side rails, stands, initiators and other accessories.

Benefits of RBM-P 2255

- Powered by a drive roller
- For transporting products of moderate weight
- Equipped with a round belt for driving up to 9 additional rollers
- Different speeds or start/stop functions possible in a single conveying path
- Few obstructing edges and maximum conveyor width
- mk 2255 conveyor frame profile allows for combination with RBS and RBT roller conveyors
- Side slots on the conveyor frame profile for attaching accessories such as side rails, stands, etc.

7

Cross Section

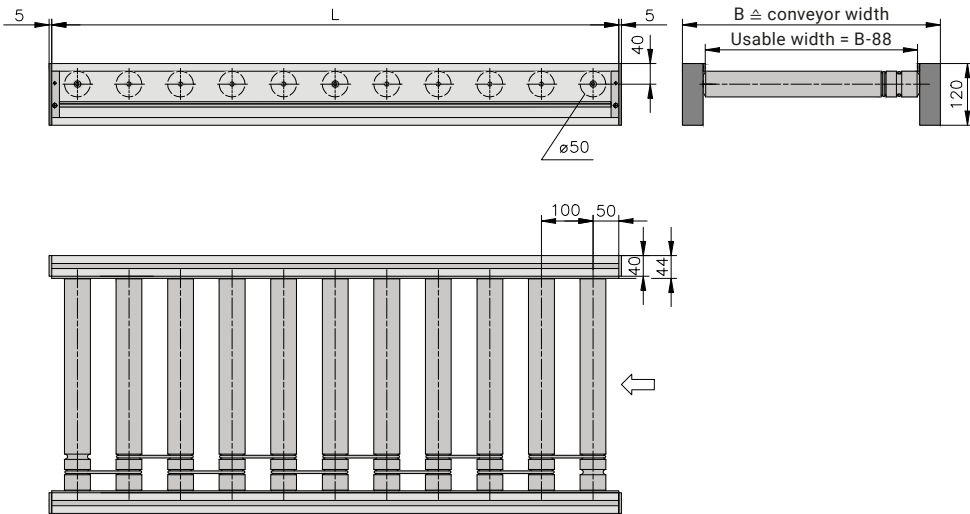


RBM-P 2255

Line

B61.02.005

The drive roller conveyor is based on the mk 2255 profile. The anodised conveyor frame profiles are designed for a spacing of 100 mm and a roller diameter of 50 mm. A maximum of five rollers per drive roller are connected and driven by round belts upstream and downstream of the drive roller. We recommend using one drive roller per metre with the spacing $p = 100$ mm. The conveyor length corresponds to a single roller conveyor segment. Endless lengths are possible by lining up segments.



Technical data

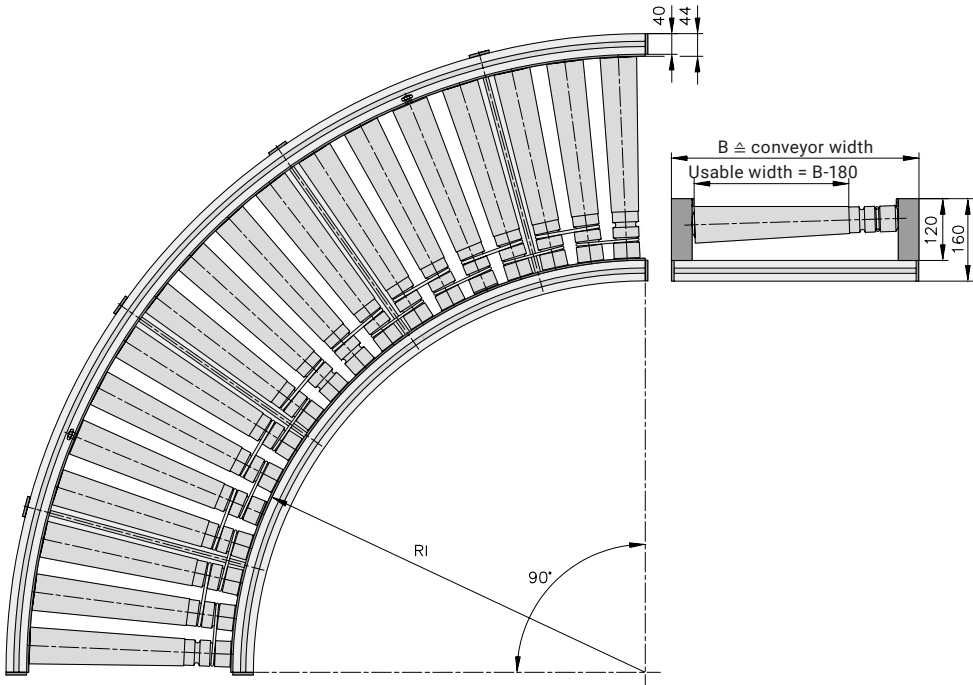
Roller diameter	50 mm, made from galvanised steel	
Conveyor width B	480, 580 and 680 mm	others on request
Conveyor length L	500–10000 mm per roller conveyor segment	
Spacing p	100 mm	
Conveyor frame profile	mk 2255	
Roller types	type 51, 55 and 66	from p. 280
Speed	up to 70 m/min	p. 12
Stand	only with conveyor stand option option D	from p. 290
Load capacity, standard	depending on the gear ratio of the drive rollers and number of installed drives, max. 100 kg/m	i=9:1 for 6–70 m/min: 3 kg i=16:1 for 4–60 m/min: 5 kg i=48:1 for 1.5–20 m/min: 15 kg i=96:1 for 0.6–9 m/min: 30 kg

RBM-P 2255

Curve

B61.02.006

The curve builds on the straight line with a cylindrical \varnothing 50 mm roller. The curve is fitted with conical elements based on the radii. The speed specifications refer to the middle of the conveyor. For quiet running, the rollers in the standard version are designed with a 5° partition.



Technical data

Roller diameter	50 mm, conical, made from plastic	
Conveyor width B	491, 591 and 691 mm	
Inner radius RI	800 mm	
Spacing	5° increments, 18 rollers	
Conveyor frame profile	mk 2255	
Roller types	type 52, 56 and 67	from p. 280
Speed	up to 30 m/min	p. 12
Stand	only with conveyor stand option option D	from p. 290
Load capacity, standard	depending on the conveyor width and conveyor roller, up to 55 kg/90°	higher on request

Application Examples RBM-P 2255



7 Drive roller conveyor drive roller RBM-P 2255



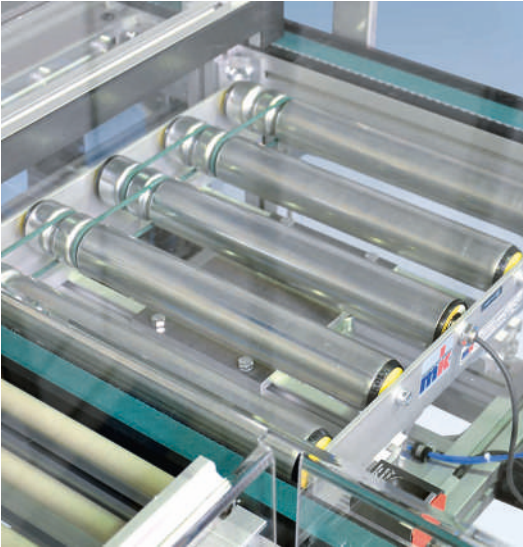
Drive roller conveyor RBM-P 2255



Drive roller conveyor RBM-P 2255
with maintenance access



Up to nine additional rollers are
operated with one drive roller using the
RBM-P 2255 drive roller conveyors



Drive roller conveyor RBM-P 2255
as lift-and-transfer conveyor



Drive roller conveyor RBM-P 2255


7



Drive roller conveyor drive roller RBM-P 2255



Drive roller conveyor RBM-P 2255

 Custom applications
from page 408

Rollers

Gravity rollers are non-driven support rollers. They are used for universal roller conveyors where products are transported by hand or using gravity on downward gradients.

Gravity Rollers for RBS-P 2065/2066 and RBS-P 2255, Cylindrical

Roller	∅	Colour	Usable width*	Material	Mounting	Friction	Load/roll
Type 43	50 mm	Grey	B-50 B-88	Plastic	M8 female thread	-	7–35 kg
Type 44	50 mm	Grey	B-50 B-88	Plastic	Spring axle, ∅ 8 mm	-	7–35 kg
Type 45	50 mm	Silver	B-50 B-88	Galv. steel	M8 female thread	-	35 kg
Type 46	50 mm	Silver	B-50 B-88	Galv. steel	Spring axle, ∅ 8 mm	-	35 kg
Type 58	20 mm	Grey	B-50 B-88	Plastic	Spring axle, ∅ 6 mm	-	1–8 kg
Type 59	40 mm	Grey	B-50 B-88	Plastic	Spring axle, ∅ 8 mm	-	10–18 kg
Type 64	20 mm	Silver	B-50 B-88	Stainless steel	Spring axle, ∅ 6 mm	-	9 kg

Gravity Rollers for RBS-P 2065/2066 and RBS-P 2255, Conical

Roller	∅	Colour	Usable width*	Material	Mounting	Friction	Load/roll
Type 47	50 mm	Grey	B-50 B-88	Plastic	M8 female thread	-	40 kg
Type 48	50 mm	Grey	B-50 B-88	Plastic	Spring axle, ∅ 8 mm	-	40 kg

*For RBS-P 2065 and RBS-P 2066 | RBS-P 2255

Rollers driven by a tangential chain are suitable for loads with a low to moderate weight. They are suitable for dirty or oily environments.

Driven Rollers with Sprocket Wheel for RBT-P 2255, Cylindrical

Roller	∅	Colour	Usable width	Material	Mounting	Friction	Load/roll
Type 49	50 mm	Silver	B-115	Galv. steel	M8 female thread	-	40 kg
Type 57*	50 mm	Silver	B-115	Galv. steel	M8 female thread	One end	30 kg
Type 60*	50 mm	Silver	B-115	Galv. steel	M8 female thread	Both ends	30 kg
Type 61*	50 mm	Silver	B-115	Galv. steel	M8 female thread	Adjustable	40 kg

Driven Rollers with Sprocket Wheel for RBT-P 2255, Conical

Roller	∅	Colour	Usable width	Material	Mounting	Friction	Load/roll
Type 50	50 mm	Grey	B-115	Plastic	M8 female thread	-	40 kg

*Friction rollers can be used only with conveyed products with a smooth and firm surface

Drive rollers are rollers that provide a maximum usable width and minimal obstructing edges. Separately driven sections allow for different speeds and start/stop functions.

Drive Rollers for RBM-P 2255, Cylindrical

Roller	∅	Colour	Usable width*	Material	Mounting	Friction	Load/roll
Type 66*	50 mm	Silver	B-88	Galv. steel	M8 female thread, M12x1 male thread	-	30 kg

Drive Rollers for RBM-P 2255, Conical

Roller	∅	Colour	Usable width*	Material	Mounting	Friction	Load/roll
Type 67*	50 mm	Grey	B-180	Plastic	M8 female thread, M12x1 male thread	-	30 kg

Non-driven support rollers

Rollers for RBM-P 2255, Cylindrical

Roller	∅	Colour	Usable width*	Material	Mounting	Friction	Load/roll
Type 51	50 mm	Silver	B-88	Galv. steel	M8 female thread	-	30 kg
Type 55	50 mm	Silver	B-88	Galv. steel	Spring axle, ∅ 8 mm	-	30 kg

Rollers for RBM-P 2255, Conical

Roller	∅	Colour	Usable width*	Material	Mounting	Friction	Load/roll
Type 52	50 mm	Grey	B-180	Plastic	M8 female thread	-	30 kg
Type 56	50 mm	Grey	B-180	Plastic	Spring axle, ∅ 8 mm	-	30 kg

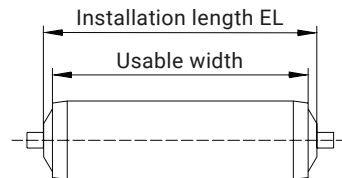
*Drive roller with 450 mm cable including plug. Cable can be extended up to 10 m. Speed of the motorized roller regulated by drive control. Drive control and extension cable must be ordered separately.

Drive control for drive rollers

Rated voltage 24 V DC, voltage range 18–26 V, rated current 2 A, max. 5 A, degree of protection IP 54. Also available in IP 20 on request, for installation in control cabinets. Includes fastening accessories.

Drivecontrol IP54, type 66 **B46.10.001**
 Drivecontrol IP54, type 67 **B46.10.002**

Extension cable EC310 L = 2 m **K106066VK54**
 (max. 5 x 2 m per drive roller permitted)



Chapter 8 Rotary Tables



Rotary Tables

DT-P 2040	284
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1

2

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8

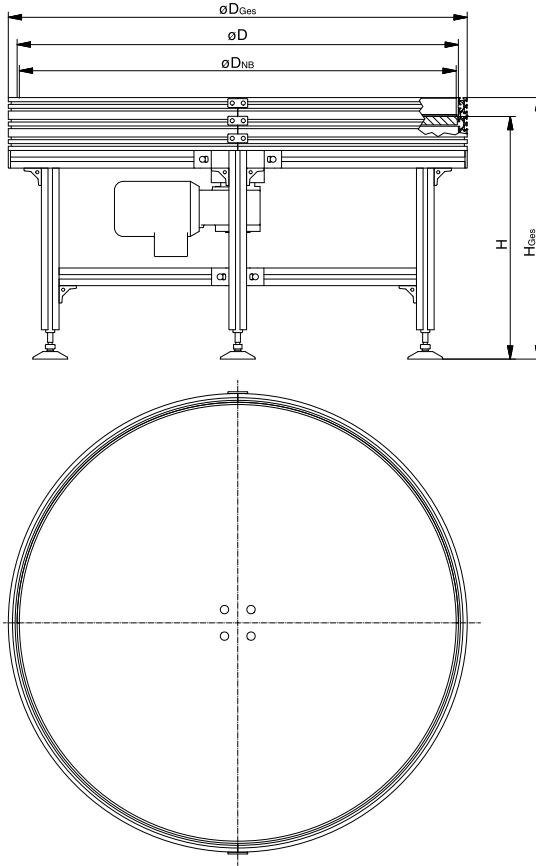
9

10

11

12

Rotary Table DT-P 2040



8

Technical data

Rotary table \varnothing	D = 750, 1000, 1250, 1500, 2000 mm	others on request
Rotary table top		on request
Drive version	chain	special designs available on request
v const (U/min)	1 – 8 U/min	others on request
Load	100 kg	
Side rails		on request
Height H	H = 500 – 1500 mm	others on request

Table Tops

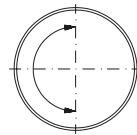
Different table tops with varying thickness can be used. Laminated tops and stainless steel sheets are available as materials.

Other materials based on the application and product can be used on request.

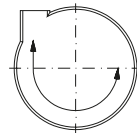
Infeed and Discharge Designs

The designs below are standard versions that can be combined. For all the designs, you can choose either clockwise or anti-clockwise rotation.

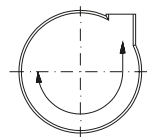
When designing diverters, the weight and shape of the product being conveyed plays a major role. mk therefore creates the technical design of the diverters based on the customer's specific requirements. With extensive experience in interlinking and conveying applications, mk can draw on a wealth of previously implemented solutions. For example, we can implement adjustable diverter plates that are integrated into the control system.



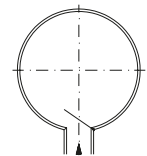
Design A



Design B
Left side exit



Design C
Right side exit



Design D
Central exit

Sample order

DT-P 2040 Design C

D = 1000 mm

H = 800 mm

Table top option 1.1

v = 2 U/min anti-clockwise rotation

Application Examples DT-P 2040



Rotary table DT-P 2040



Rotary table DT-P 2040 with side rail and sheet metal cover



Rotary table DT-P 2040 with separation and positioning using surrounding side panels



Rotary table DT-P 2040 with manually adjustable separation of parts

8



Lightweight and cost-efficient
 DT-P 2040 mobile rotary table



Rotary table DT-P 2040 with
 side rail, similar to SF01


8



Rotary table DT-P 2040 with part separation
 using manually adjustable direction guide



DT-P 2040 rotary table with direct drive,
 stainless steel sheet around the
 perimeter and single-track discharge

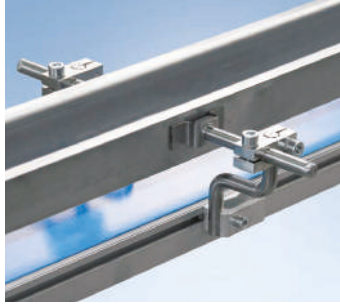
 Custom applications
 from page 408

Chapter 9 Conveyor Technology Accessories



Stands

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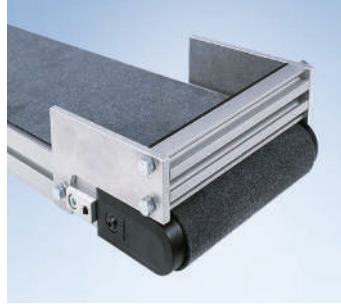
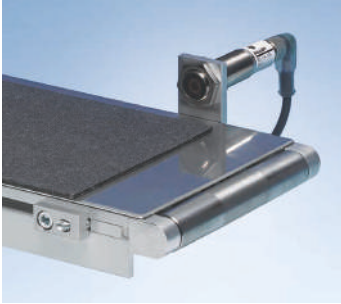
Side Rails

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Electrical Components

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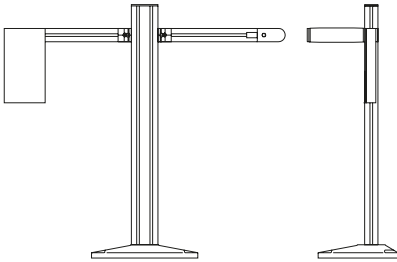
Other Accessories

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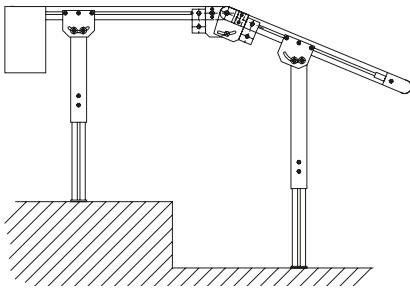
Stand Versions

mk delivers the right stand system for every type of conveyor. For system stability, please take into account the ratio of height to width, the centre of gravity of the load and other influences. We would be happy to advise you on the optimal configuration, or you can use our online configurator (www.quickdesigner.com).

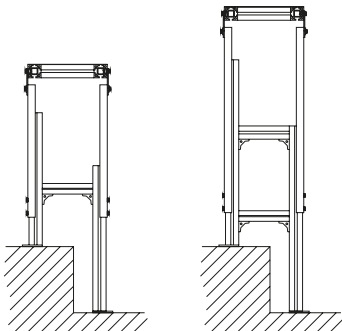
Example of a single stand



Example of a height-adjustable stand



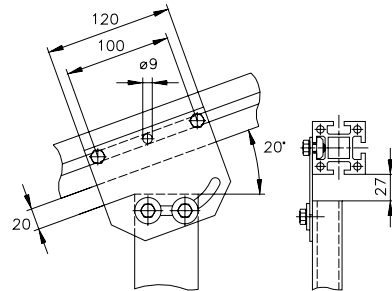
Example of a stand with a special design



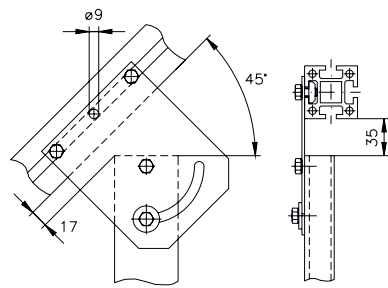
Conveyor Stand Fastening Elements

The conveyor stand fastening elements connect the conveyor to the stand. Various fastening elements with different adjustment angles can be selected.

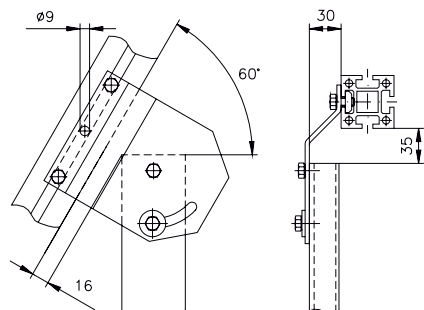
Example of fastening option A, 20°



Example of fastening option B, 45°



Example of fastening option C, 60°

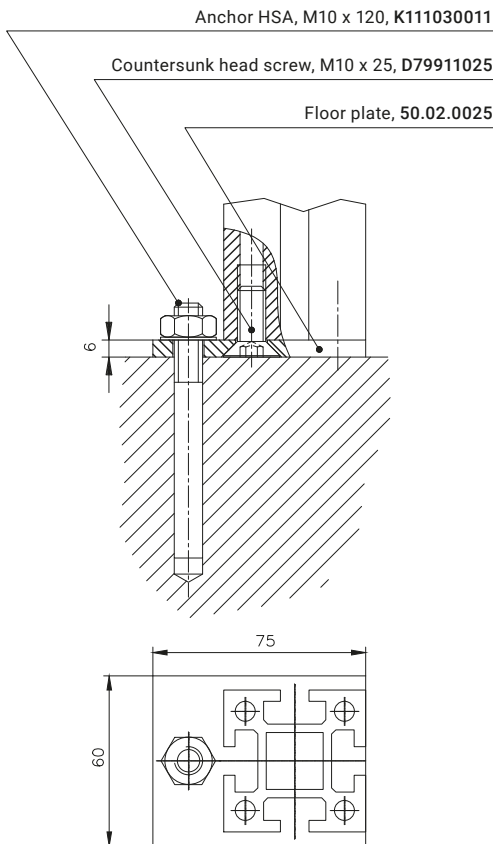




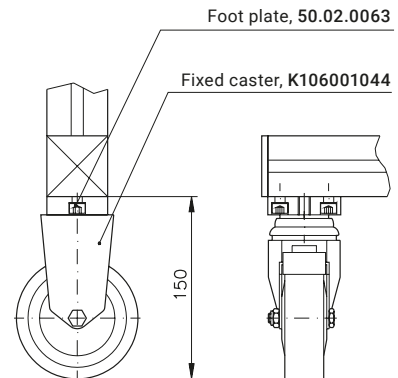
Foot Options

A variety of pad options are available depending on the stand that is selected. Examples include levelling feet, floor plates for anchoring or fixed castors and swivel castors.

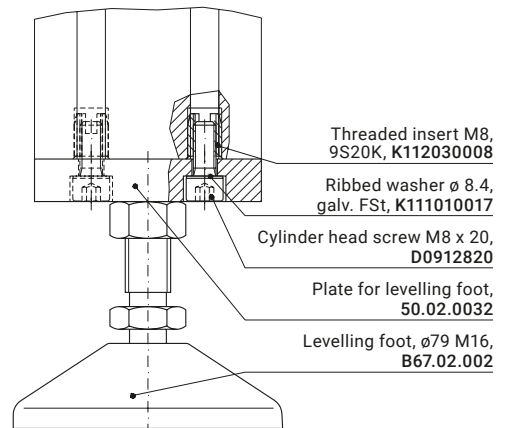
Example of a floor plate



Example of fixed and swivel casters, type A



Example of a levelling foot, $\phi 79$ M16



Single Stands



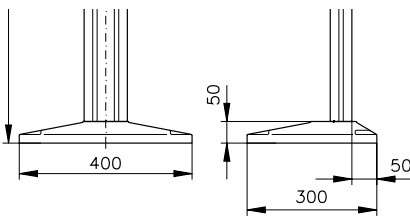
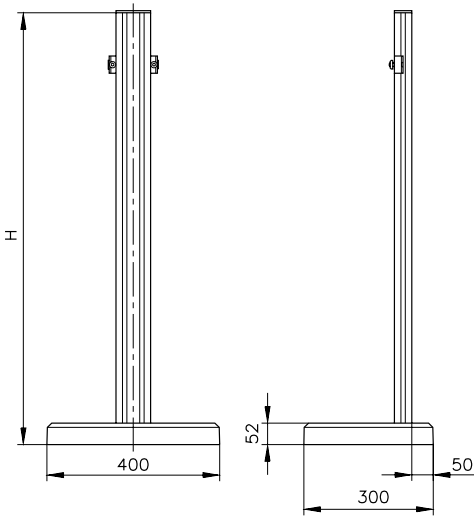
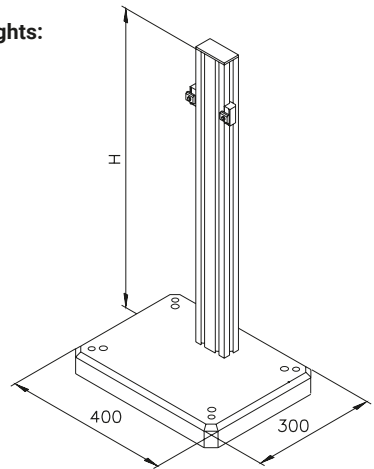
Stand S54.80

B67.04.080

Single stand with profile mk 2040.41 for conveyors up to 250 mm wide. Can be used for belt conveyors GUF-P MINI and GUF-P 2000 and modular belt conveyor MBF-P 2040.

Standard heights:

- H 500 mm
- H 750 mm
- H 1000 mm
- H 1250 mm
- H 1500 mm



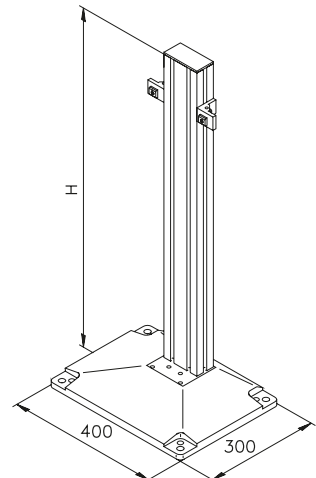
Stand S51.2

B67.04.002

Single stand with profile mk 2004 for conveyors up to 250 mm wide. Can be used for belt conveyors GUF-P MINI, GUF-P 2000 and MBF-P 2040.

Standard heights:

- H 500 mm
- H 750 mm
- H 1000 mm
- H 1250 mm
- H 1500 mm



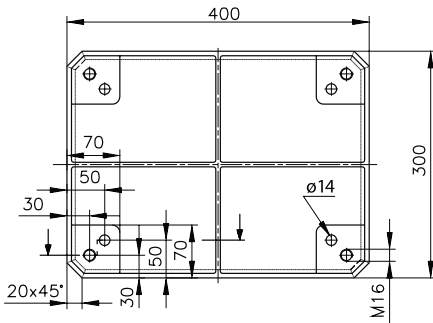


Floor fastening element for single stand

As floor fastening elements for single stands, base plates ensure stability, come with a black paint finish as standard and have a defined drilling pattern for facilitating anchoring to the floor.

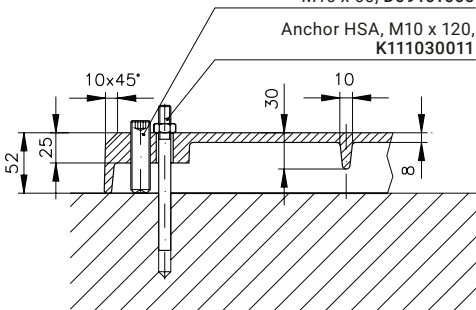
Base Plate 7
50.02.0089

Grey cast-iron,
 painted black



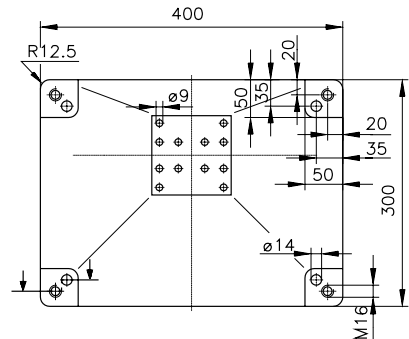
Adjusting screw DIN 916, 8.8 galv.,
 M16 x 60, D09161660

Anchor HSA, M10 x 120,
 K111030011



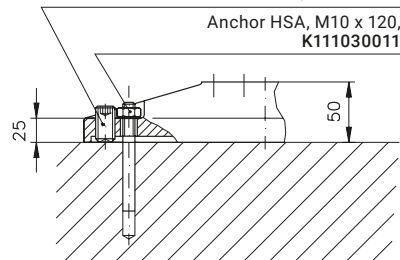
Base Plate 1
50.02.0023

Grey cast-iron,
 painted black



Adjusting screw DIN 916, 8.8 galv.,
 M16 x 40, D09161640

Anchor HSA, M10 x 120,
 K111030011



Single Stands

Versaflex Stand type 1

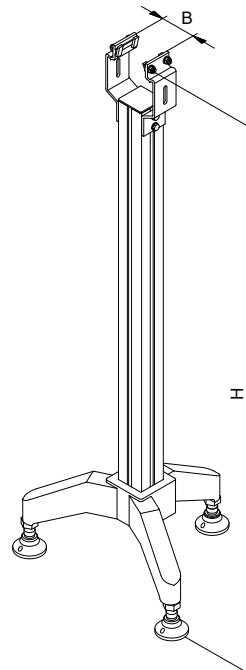
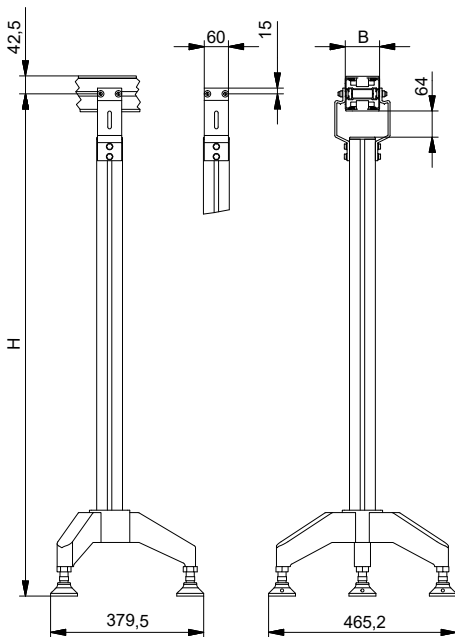
Height-adjustable single stand, can be used for the flat top chain conveyor SBF Versaflex.

Standard heights:

H 500 mm - 1500 mm
± 50 mm

Standard width:

B 45 mm
B 65 mm
B 85 mm
B 105 mm





Versaflex Stand type 2

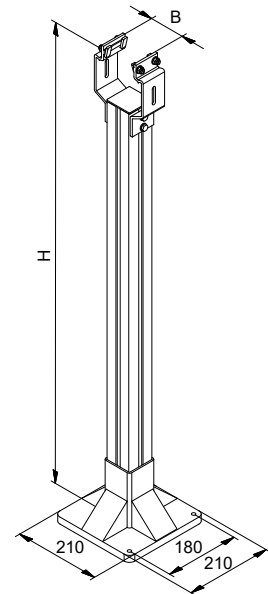
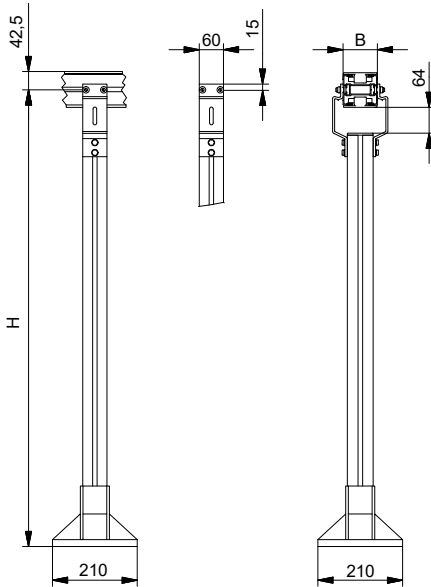
Height-adjustable single stand, can be used for the flat top chain conveyor SBF Versaflex.

Standard heights:

H 500 mm - 1500 mm
 ± 30 mm

Standard width:

B 45 mm
 B 65 mm
 B 85 mm
 B 105 mm



Single Stands

Stand S52.5

B67.05.008

Height of single stand can be adjusted with mk 2000 profile. Can be used for flat top chain conveyor SBF-P 2254.

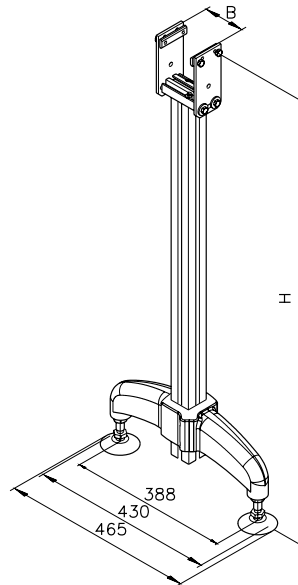
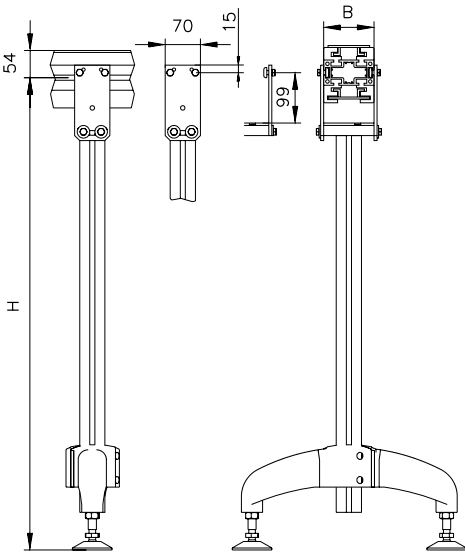
Standard heights:

H 500 - 1500 mm

± 50 mm

Standard width:

B 100 - 500 mm



Stands



... for light loads

Stand S55.1

B67.06.011

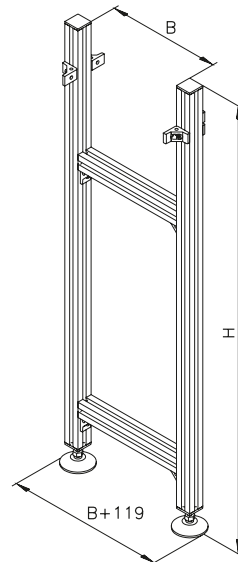
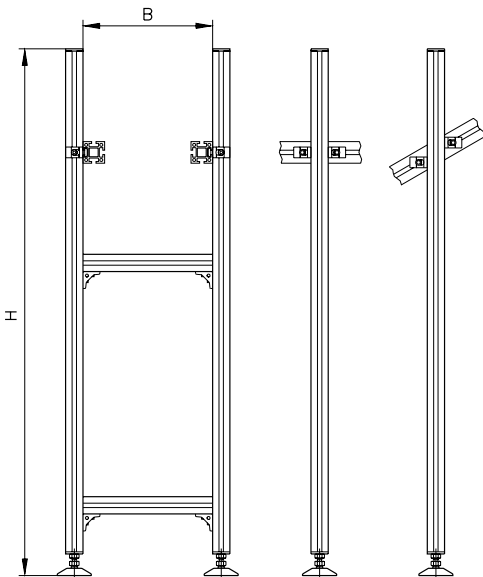
Stand in simple H design with mk 2040.40 profile (light duty). Can be used for virtually all conveyor systems, except curved conveyors and incline conveyors.

Standard heights:

- H 500 mm
- H 750 mm
- H 1000 mm
- H 1200 mm

Standard width:

- B = 200 - 1200 mm



Stands

... for light loads

Stand S55.2

B67.06.020

Stand in H design with mk profile 2040.02, levelling foot $\varnothing 76$ M16 and floor fastening. The position of the mounting plates can be freely selected up to the point where they are screwed to the floor. The S55.2 stand is typically used with the Versamove pallet system or the 2255 roller conveyors.

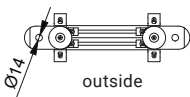
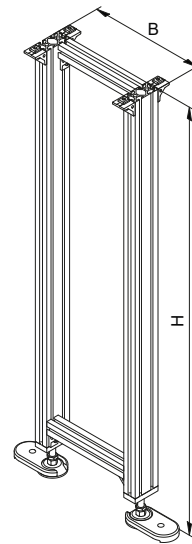
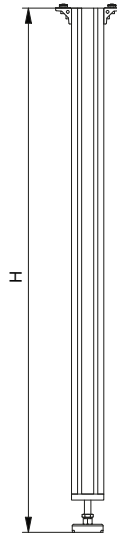
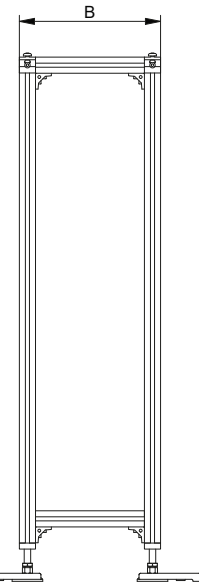
Standard heights with adjustment range:

- H 500 mm \pm 35 mm
- H 700 mm \pm 35 mm
- H 800 mm \pm 35 mm
- H 900 mm \pm 35 mm
- H 1000 mm \pm 35 mm

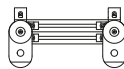
H max: 2000 mm \pm 35 mm

Standard width:

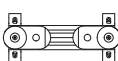
B = 160 - 2000 mm



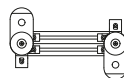
outside



straight



inside



diagonal



... for light loads

Stand S53.1

B67.06.001

Lightweight height-adjustable stand in H design with mk 2001 profile. Can be used for virtually all conveyor systems, except curved conveyors and incline conveyors.

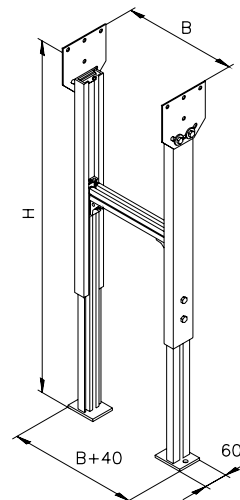
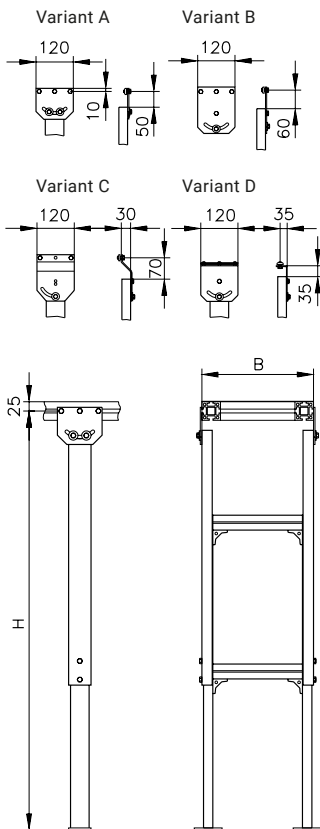
Standard heights with adjustment range:

- H 325 mm ± 25 mm
- H 400 mm ± 50 mm
- H 550 mm ± 100 mm
- H 700 mm ± 150 mm

Standard width:

B = 200 - 800 mm

For H 700 mm or higher,
 uses 2 traverses



Stands

... for light loads

Stand S53.11

B67.06.002

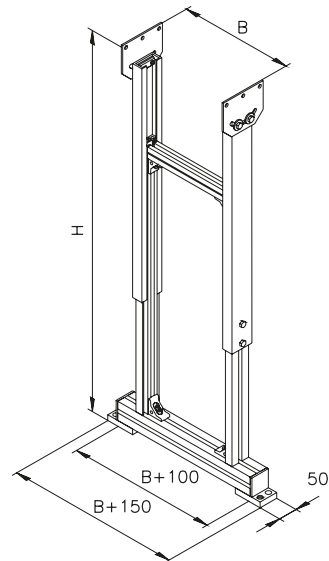
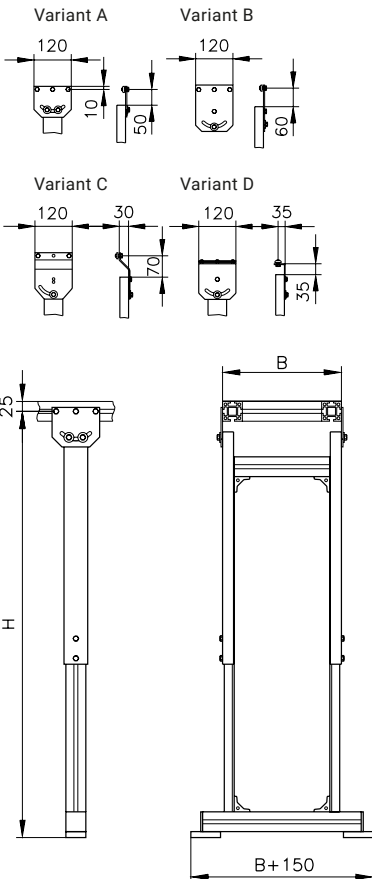
Lightweight height-adjustable stand with base traverse in H design with mk 2001 profile. Can be used for virtually all conveyor systems, except curved conveyors and incline conveyors. The stand is suitable for fixed casters and swivel casters.

Standard heights with adjustment range:

- H 400 mm ± 25 mm
- H 450 mm ± 25 mm
- H 500 mm ± 50 mm
- H 600 mm ± 50 mm
- H 700 mm ± 100 mm
- H 800 mm ± 150 mm

Standard width:

B = 100 - 500 mm





... for light loads

Stand S53.11, mobile

B67.06.100

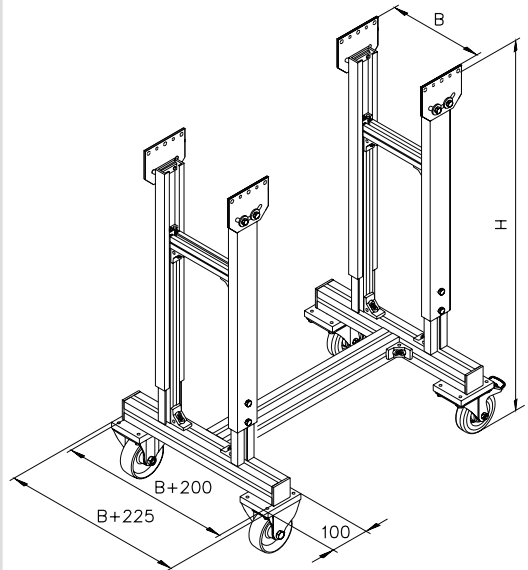
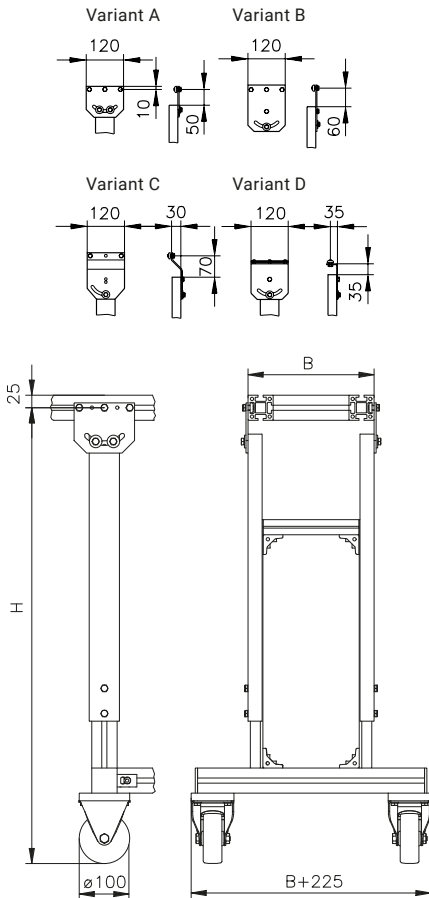
Lightweight height-adjustable stand with base traverse in mobile H design with mk 2001 profile. Can be used for virtually all conveyor systems, except curved conveyors and incline conveyors.

Standard heights with adjustment range:

- H 600 mm ± 25 mm
- H 700 mm ± 50 mm
- H 800 mm ± 100 mm

Standard width:

B = 100 - 500 mm



Stands

... for heavy loads

Stand S53.2

B67.06.003

Medium-weight height-adjustable stand in H design with mk 2014 profile. Can be used for virtually all conveyor systems, except curved conveyors and incline conveyors.

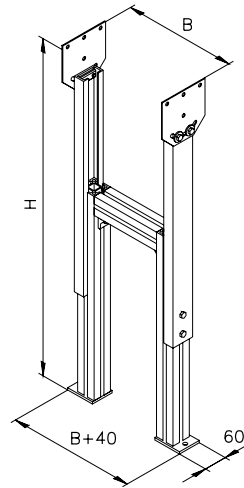
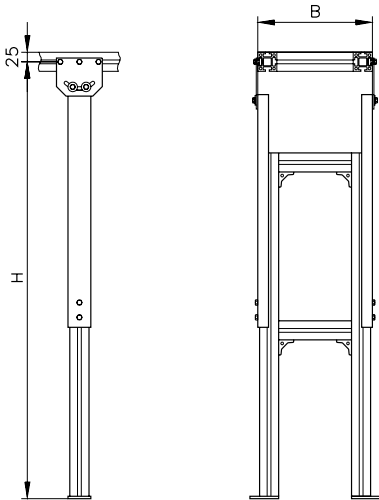
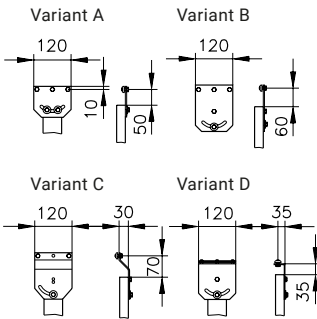
Standard heights with adjustment range:

- H 325 mm ± 25 mm
- H 400 mm ± 50 mm
- H 550 mm ± 100 mm
- H 700 mm ± 150 mm
- H 850 mm ± 200 mm
- H 1000 mm ± 200 mm
- H 1200 mm ± 200 mm

Standard width:

B = 200 - 1500 mm

For H 700 mm or higher,
uses 2 traverses





... for heavy loads

Stand S53.21

B67.06.004

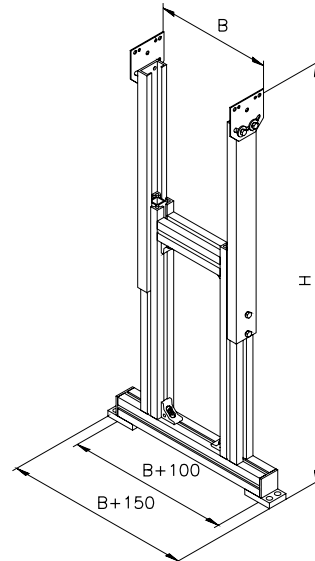
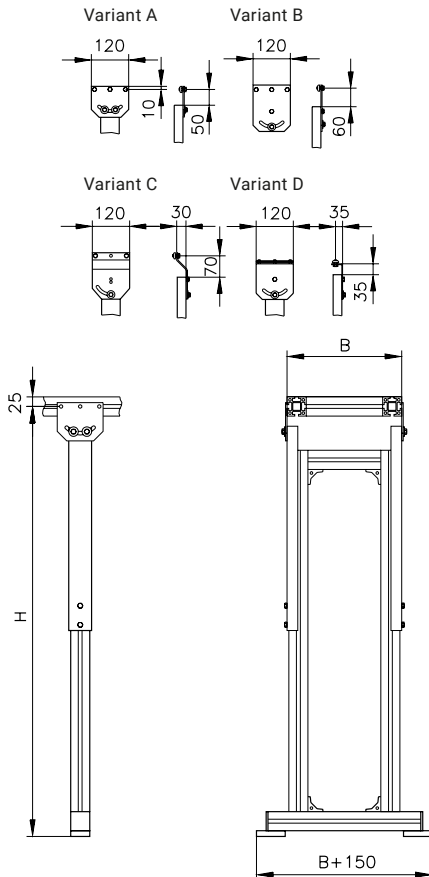
Medium-weight height-adjustable stand with base traverse in H design with mk 2014 profile. Can be used for virtually all conveyor systems, except curved conveyors and incline conveyors. The stand is suitable for fixed casters and swivel casters.

Standard heights with adjustment range:

- H 400 mm ± 25 mm
- H 450 mm ± 25 mm
- H 500 mm ± 50 mm
- H 600 mm ± 50 mm
- H 700 mm ± 100 mm
- H 800 mm ± 150 mm
- H 1000 mm ± 200 mm
- H 1200 mm ± 200 mm

Standard width:

B = 200 - 800 mm



Stands

... for heavy loads

Stand S53.21, mobile

B67.06.101

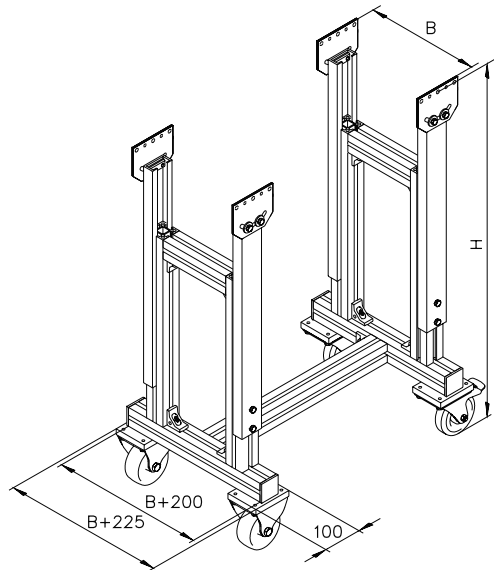
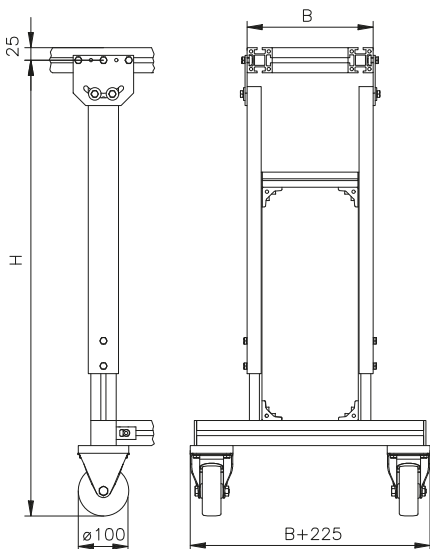
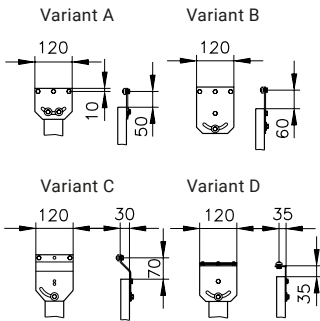
Medium-weight height-adjustable stand with base traverse in mobile H design with mk 2014 profile. Can be used for virtually all conveyor systems, except curved conveyors and incline conveyors.

Standard heights with adjustment range:

- H 600 mm ± 25 mm
- H 700 mm ± 50 mm
- H 800 mm ± 100 mm
- H 1000 mm ± 150 mm
- H 1200 mm ± 200 mm

Standard width:

B = 200 - 800 mm





... for heavy loads

Stand S53.32

B67.06.016

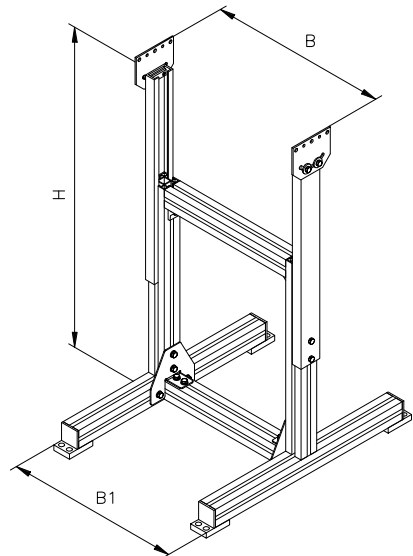
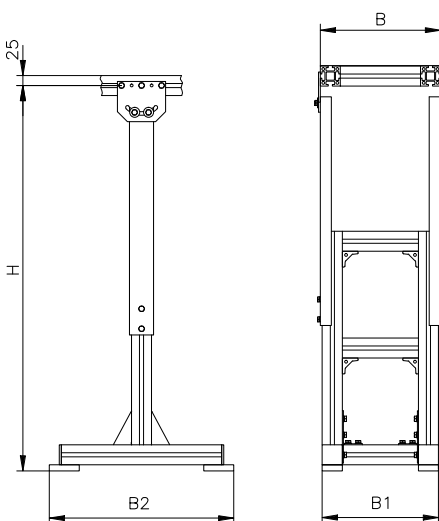
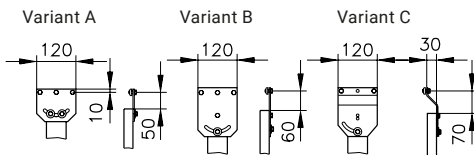
Medium-weight height-adjustable stand with base traverse in H design with mk 2014 profile. Can be used for virtually all conveyor systems, except curved conveyors and incline conveyors.

Standard heights with adjustment range:

- H 450 mm ± 25 mm
- H 500 mm ± 50 mm
- H 600 mm ± 50 mm
- H 700 mm ± 100 mm
- H 800 mm ± 150 mm
- H 1000 mm ± 200 mm

Standard width:

- B = 300 - 1000 mm
- B1 = B-10
- B2 = 460, 660 mm



Stands

... for heavy loads

Stand S31

B67.03.002

Heavy-duty height-adjustable stand in H design with mk 2031 profile. Can be used for virtually all conveyor systems, except curved conveyors and incline conveyors.

Standard heights with adjustment range:

- H 325 mm ± 25 mm
- H 400 mm ± 50 mm
- H 550 mm ± 100 mm
- H 700 mm ± 150 mm
- H 850 mm ± 200 mm
- H 1000 mm ± 250 mm
- H 1150 mm ± 300 mm
- H 1500 mm ± 300 mm
- H 2000 mm ± 300 mm

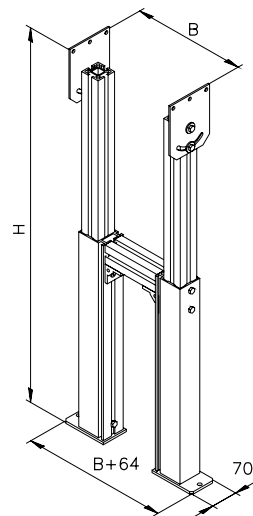
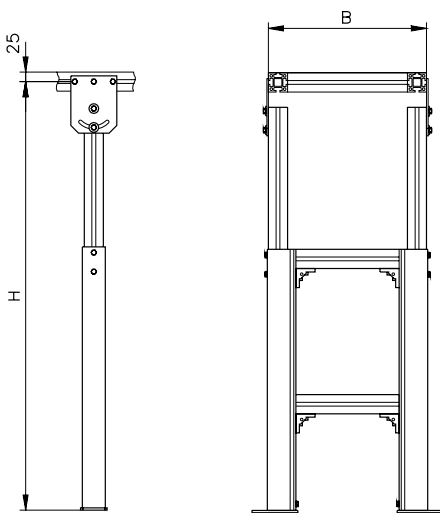
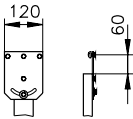
Standard width:

B = 500 - 2000 mm

For H 1150 mm
or higher,
uses 2 traverses



Variant B



Notes

A large grid area for taking notes, consisting of a fine grid of small squares covering most of the page.

Side Rails

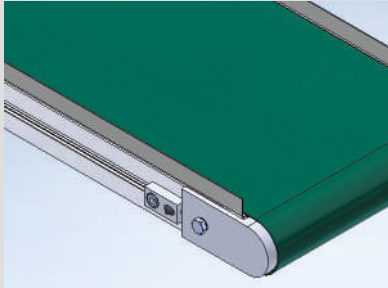
Fixed Side Rails

The side rail SF1.3 is a non-adjustable, rigid side rail for belt conveyors. The edges of the slide bed provide a cost-effective side rail with a selection of different heights. Due to its design, the SF cannot be removed and is always fitted on both sides as standard. The length is limited to the length of the slide bed.

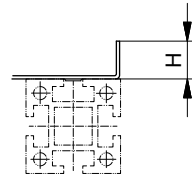
Only available for belt conveyors.

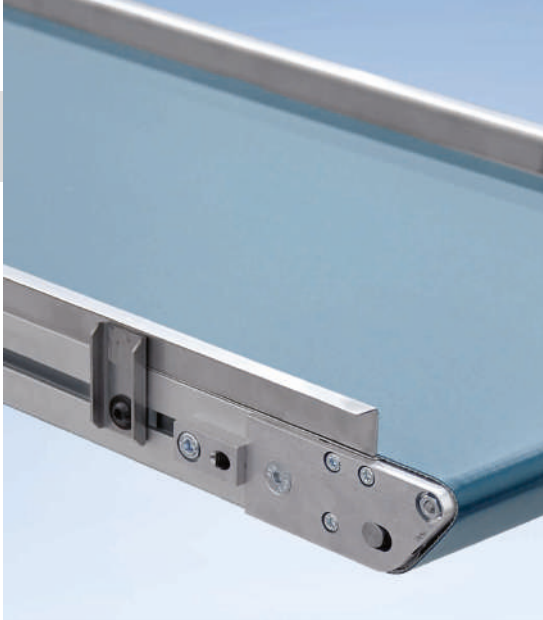
Side Rail SF1.3

B17.00.003



H = 10-100 mm
(Standard 25, 50, 75 mm)



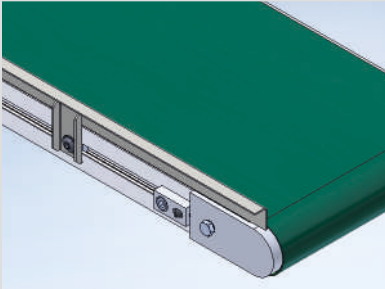


Fixed Side Rails

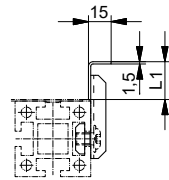
Fixed side rails are non-adjustable, rigid side rails that result in a fixed usable width. They can be removed and can be fitted at various heights on one or both sides.

Side Rail SF2.1

B17.00.004



L1 = 25, 50, 75 mm

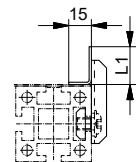


Side Rail SF2.2

B17.00.005

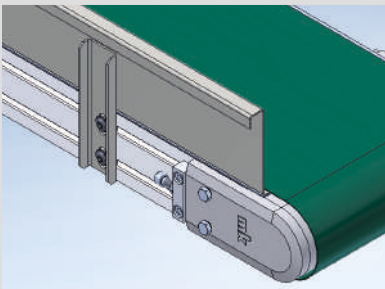


L1 = 25, 50, 75 mm

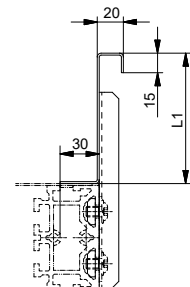


Side Rail SF2.3

B17.00.028



L1 = 100, 150, 200 mm



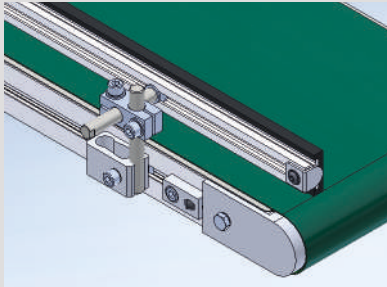
Side Rails

Adjustable Side Rails

The side rails for occasional adjustment allow you to vary the usable width and height. The conveyor can be quickly and easily adapted to the specific conditions and products. The side rails are comprised of the side rail holders and the side rail strips on the next page. Strip type 22 can be seen in the diagrams below. The side rails can be fitted on one or both sides and can be removed.

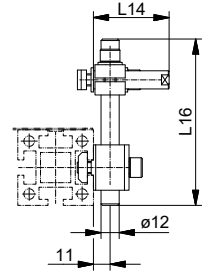
Side Rail SF01

B17.00.101



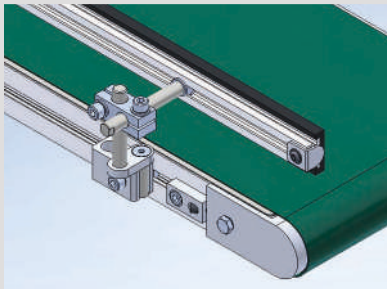
L14 = 50, 75, 100 mm
L16 = 75, 100, 150, 200 mm

Holder HSF01 (single)
B27.01.001



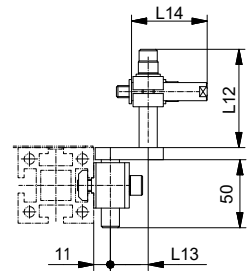
Side Rail SF02

B17.00.102



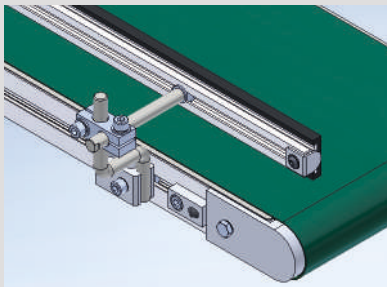
L12 = 50, 75, 100, 150 mm
L13 = 25, 50 mm
L14 = 50, 75, 100 mm

Holder HSF02 (single)
B27.01.002



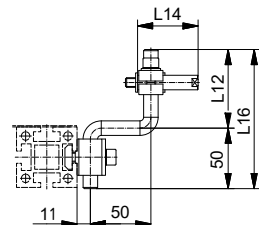
Side Rail SF03

B17.00.103



L16 = 100, 150, 200

Holder HSF03 (single)
B27.01.003



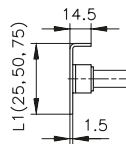
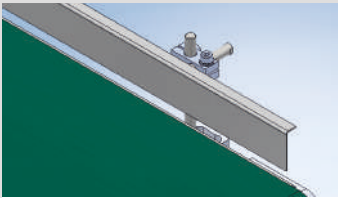


Side Rail Strips

Depending on the application and product, a variety of side rail strips such as sheets, round rods or profiles with wear strips are available for selection. Combined with the adjustable side rail holders, they ensure the optimal positioning for the products.

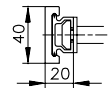
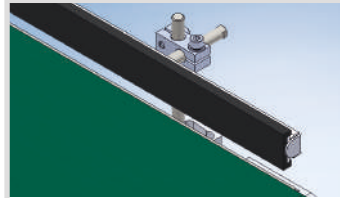
Guide rail type 01

B17.01.013



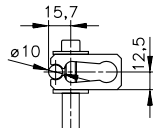
Guide rail type 22

B17.01.014



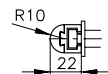
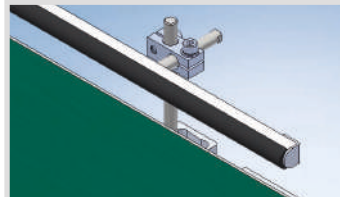
Guide rail type 11

B17.01.017



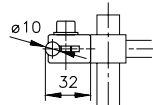
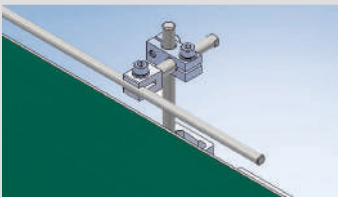
Guide rail type 23

B17.01.015



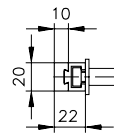
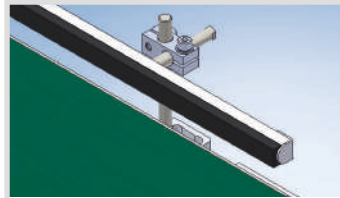
Guide rail type 12

B17.01.018



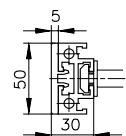
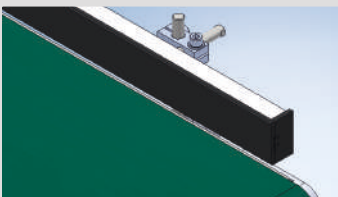
Guide rail type 24

B17.01.016



Guide rail type 21

B17.01.010

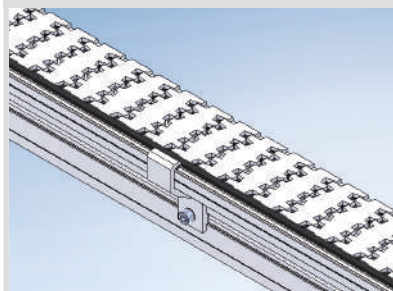


Side Rails

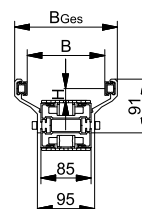
Side Rails Versaflex SBF A04...A29

The side rails for the Versaflex flat top chain conveyor system are equipped with holders and profiles made from aluminium with or without polyethylene wear strips that are gentle on the product.

Side Rail AGRM type 11



The side rail is available in different fixed heights and widths. It is quick and easy to assemble.



System	A04	A06	A08	A10	A17	A29
Available widths B [mm]*	47, 61, 71, 82, 85, 95, 111, 113, 121, 145, 195	67, 81, 91, 102, 105, 115, 131, 133, 141, 165, 215	87, 111, 135, 153, 161, 185, 235	107, 131, 155, 173, 181, 205, 255	184, 208, 232, 250, 258, 282, 332	302, 326, 350, 368, 376, 400, 450

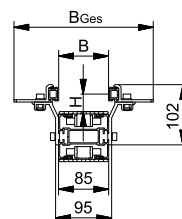
* Different widths are available by using different holders

Side Rail AGRM type 2.3



The side rail is available in a number of different fixed heights.

The width can be adapted slightly.



System	A04	A06	A08	A10	A17	A29
Available widths B [mm]*	0-99	0-119	29-139	49-159	182-252	300-370

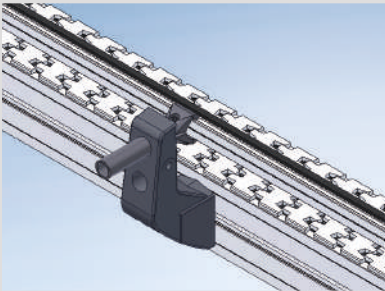
* Different widths are available by using different holders



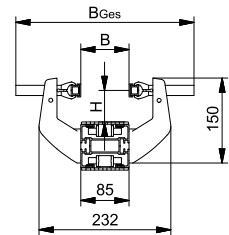
Side Rails Versaflex SBF A04...A29

The side rails for occasional adjustment enable the useful width to vary. The conveyor can be quickly and easily adapted to the specific conditions and products. An option with additional height adjustment is available as an option.

Side Rail AGRP type 1.0



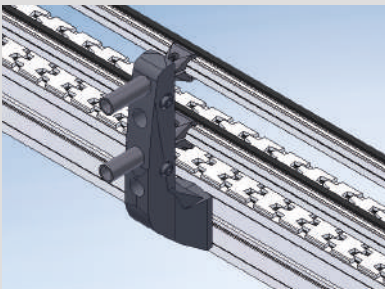
The side rail is available in a number of different fixed heights. The holder can hold up to two side rail profiles. The width can be flexibly adapted.



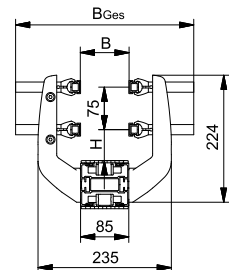
System	A04	A06	A08	A10	A17	A29
Adjustable widths B [mm]*	0-59	0-79	0-99	9-119	86-196	204-314

* Practically all widths are configurable by using different components

Side Rail AGRP type 2.0



The side rail is available in a number of different fixed heights. The holder can hold up to four side rail profiles. The width can be flexibly adapted.



System	A04	A06	A08	A10	A17	A29
Adjustable widths B [mm]*	0-59	0-79	9-99	29-119	106-196	224-314

* Practically all widths are configurable by using different components

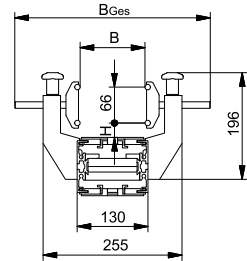
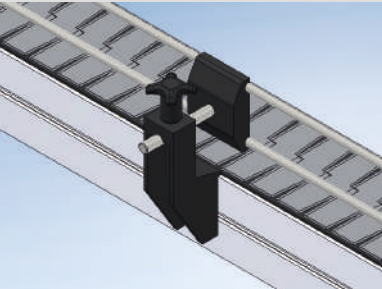
Side Rails

Adjustable Side Rails SBF-P 2254

The adjustable side rails SF10.1 and SF10.2 are equipped with stainless steel round rods. These versions are particularly suitable for higher products. The side rail SF10.3 is more suitable for products with delicate surfaces thanks to their wear strip. The only difference in the versions for the curve are the curved guide rails.

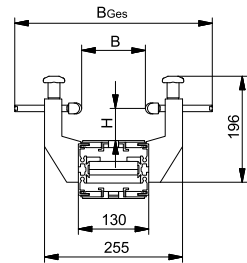
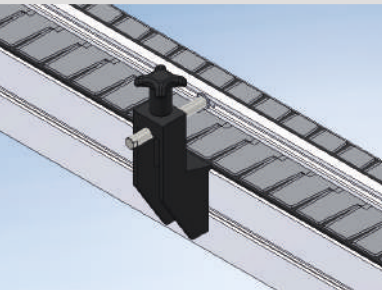
Side Rail SF10.1

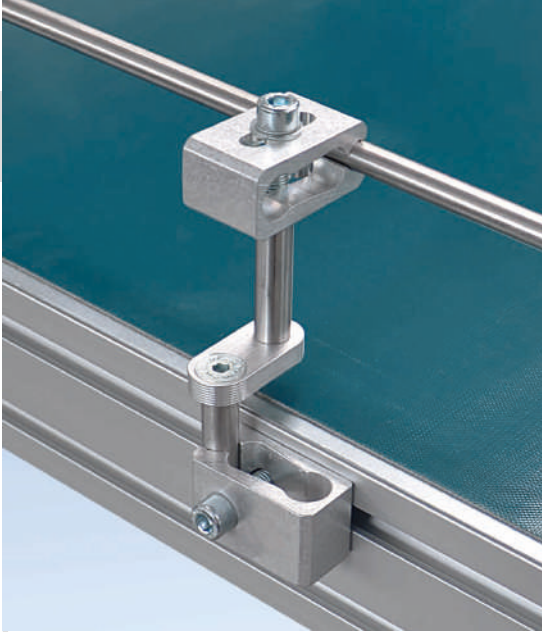
B17.00.020



Side Rail SF10.3

B17.00.022





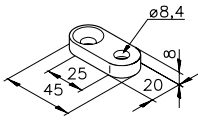
Individual Components

Clamps for round rods

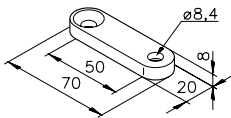
Material: Tumbled aluminium

Nuts for round rods

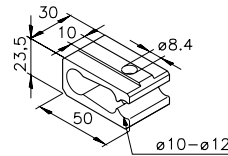
Material: Tumbled aluminium



Nut 25 mm
34.09.0003

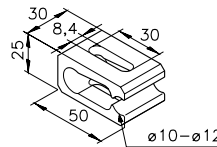


Nut 50 mm
34.09.0004

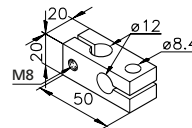


Clamp 1
30.00.0001

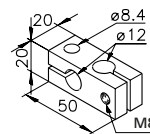
for 10 mm slot width



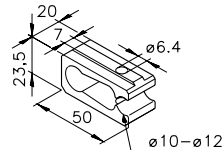
Clamp 2
30.00.0002



Clamp 3, right
30.00.0013ZN

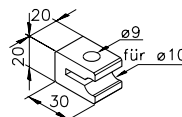


Clamp 3, left
30.00.0047ZN



Clamp
30.00.0017

for 7 mm slot width



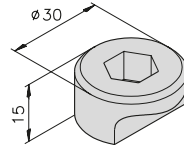
Clamp
30.00.0038

Side Rails

Individual Components

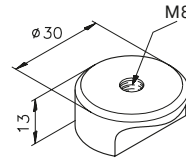
Swivel Clamps

Swivel clamps allow for a wide variety of angle and height connections for the guide rods.



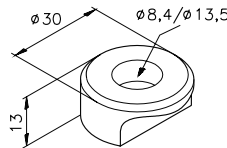
Clamp
mk 2522

PA6GF 30%,
glass fibre reinforced



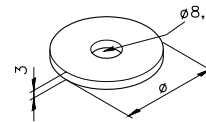
Clamp
30.00.0024

stainless steel 1.4305



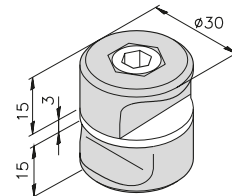
Clamp
30.00.0023

stainless steel 1.4305



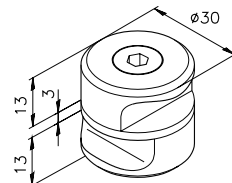
Washer $\varnothing 30$
63.00.0016

stainless steel 1.4305



Clamp, complete
B46.02.005

PA6GF 30%,
glass fibre reinforced

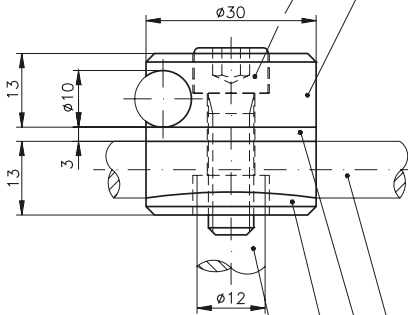


Clamp, complete
B46.02.004

stainless steel 1.4305

Stainless steel clamp, 30.00.0023
Plastic clamp, mk 2522

Cylinder head screw M8 x 20,
D0912820

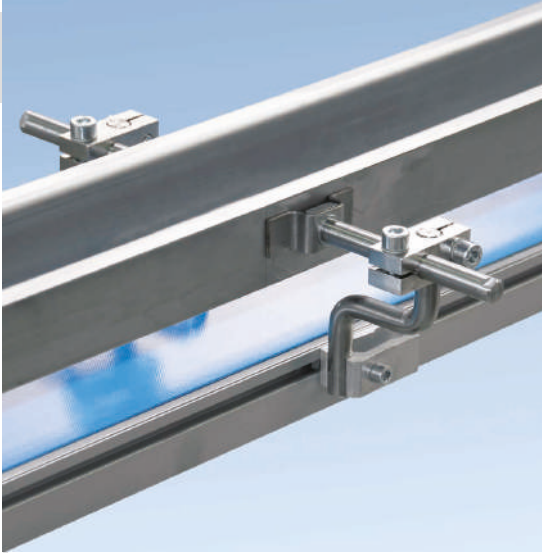


Rod, M8 $\varnothing 12$, 7000AA*

Stainless steel clamp, 30.00.0023
Plastic clamp, mk 2522

Washer $\varnothing 30$, 63.00.0016

Rod, $\varnothing 10$, 7000AB*



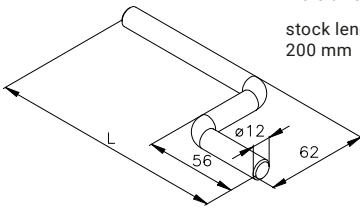
Individual Components

Round Rods

Material: Stainless steel

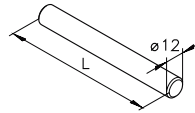
Rod, ϕ 12
7000DB.*

male thread, M8, one end
 stock length 100, 150 and
 200 mm



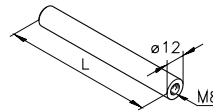
Rod, ϕ 12
7000AD.*

2-chamfer
 stock length 50, 75, 100,
 150, 200 and 250 mm



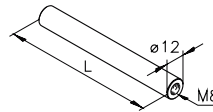
Rod, ϕ 12
7000AA....*

M8 female thread, one end
 stock length 50, 75, 100,
 150 and 200 mm



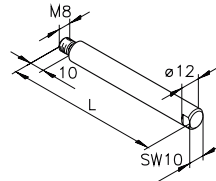
Rod, ϕ 12
7000AF.*

M8 female thread, both ends
 stock length 50, 75, 100
 and 150 mm



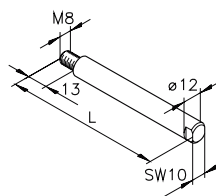
Rod, ϕ 12
7000CC.*

male thread, M8, one end
 stock length 50, 75 and
 100 mm



Rod, ϕ 12
7000CA.*

male thread, M8, one end
 stock length 50, 75 and
 100 mm



* Length in mm (4 digits)

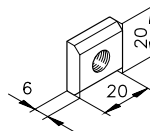
Nuts

Nuts for connecting accessories such as initiators, stoppers, holders, and so on, can be ordered.

Material: Galvanised steel

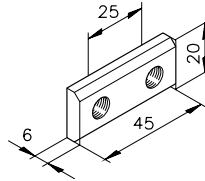
Nuts for Profile Slot, 10 mm

(all systems except for GUF-P MINI)



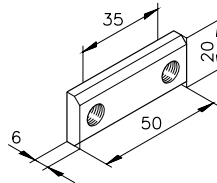
Nut 1
M6 34.02.0008

M8 34.01.0001

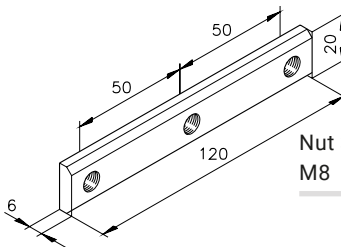


Nut 2/25
M6 34.02.0010

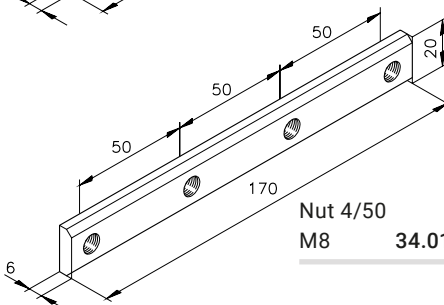
M8 34.01.0002



Nut 2/35
M8 34.01.0011



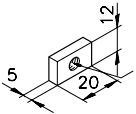
Nut 3/50
M8 34.01.0006



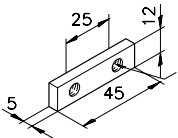
Nut 4/50
M8 34.01.0007

Nuts for Profile Slot, 7 mm

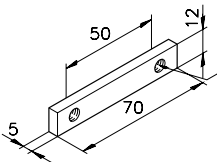
(GUF-P MINI)



Nut 1 without chamfer
M6 34.02.0001



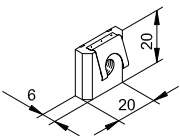
Nut 2/25
M6 34.02.0002



Nut 2/50
M6 34.02.0003

Nuts for Profile Slot, 10 mm

(all systems except for GUF-P MINI)



Nut 1 with spring sheet
M6 34.02.0051

M8 34.01.0051



Nut 1 ESD with spring sheet
M6 34.02.0050

M8 34.01.0050



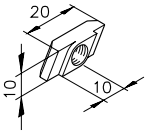
Nuts for Later Mounting

Nuts for later mounting can be slotted into the profile slot after the assembly has been completed. In addition, they can be used for profiles with closed slots that are only open where the connection is located. The swivel-in nuts with spring sheet also provide an ESD function and an attachment in the slot.

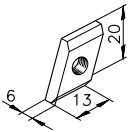
Material: Galvanised steel

Nuts for Profile Slot, 10 mm

(all systems except for GUF-P MINI)



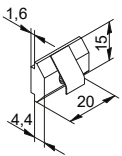
T-nut	
M4	34.07.0004
M5	34.07.0003
M6	34.07.0002
M8	34.06.0002



Slot nut	
M6	34.04.0003
M8	34.03.0002

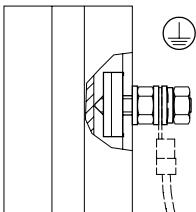
stainless steel

Nuts for Versaflex



Swivel-in nut 1 ESD with spring sheet	
M6	AFSD-6
M8	AFSD-8

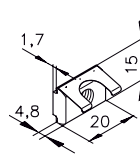
Earth Terminal



Earth Terminal B02.99.151	
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Nuts for Profile Slot, 10 mm

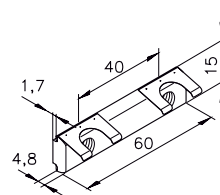
(all systems except for GUF-P MINI)



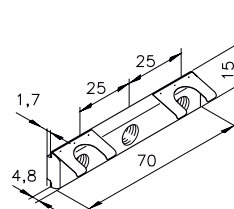
Swivel-in nut 1 ESD with spring sheet	
M4	34.16.0431
M5	34.16.0531
M6	34.16.0631
M8	34.16.0831

Swivel-in nut 1 ESD with spring sheet	
M5	34.16.0537
M6	34.16.0637
M8	34.16.0837

stainless steel



Swivel-in nut 2/40 ESD with spring sheet	
M8	34.16.0834



Swivel-in nut 3/25 ESD with spring sheet	
M8	34.16.0835

Electrical Components

Frequency Inverters/ Reglomats

The integration of conveyor systems into existing processes is becoming more and more complex. At the customer's request, mk can supply complete solutions from the control concept to hand-off at the customer's premises. We can also implement wiring to terminal boxes, I/O modules or bus systems based on customer specifications. Even for small controllers, mk can draw from an extensive portfolio of standard components.

Frequency Inverter (FI) for Three-phase Motor

The frequency inverter lets you control the conveyor speed within a range of 1:7 (10–70 Hz), assuming an alternating current and the nominal speed at 50 Hz.

- Supply: Alternating current 220-240 V 50 Hz
- Adjustment range: 1:7 (10-70 Hz)
- Degree of protection: IP66
- Analogue input 0 to +10 V DC
- Three digital inputs (for instance, for enabling, reversing the direction of rotation, photoelectric sensors, and so on)
- Digital output 24 V DC/ 50 mA
- W x H x T with holder: 380 x 184 x 210
- W x H x T without holder: 237 x 161x 180

All frequency inverters are suitable for reverse operation and are equipped with a 5 m cable and a 2 m shielded cable (FI to motor).

Reglomats for direct current motor

For direct current, the reglomat can be used to control the speed within a range of 1:6 (0,25-1,5 A or 0,5-3 A).

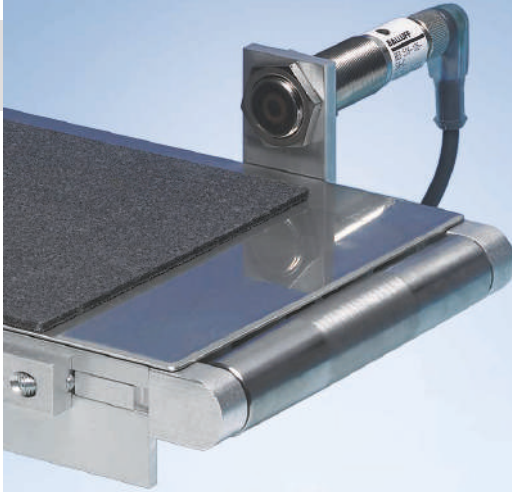
- Supply: Alternating current 230 V 50 Hz
- Adjustment range: 1:6 (0,25-1,5 A or 0,5-3 A)
- Analogue input, DC 0 to +10 V
- Digital input for enable
- Digital output 24 V DC/ 50 mA
- All digital and analogue signals can be also be controlled externally
- W x H x T = 200 x 300 x 160 mm

Item no.	Designation	Note
B16.08.000	Reglomat 180DC-3A	to 0,25 kW
B16.08.001	Reglomat 180DC-3A-RV	180/200 V DC

Version RV = with reverse operation

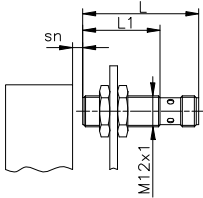
Reglomats for 24 V DC motors can be supplied on request.

Item no. incl. holder	Item no. without holder	Designation Frequency Inverter
B16.08.113	K309000227	1 x 230 V AC 0,37 kW
B16.08.114	K309000228	1 x 230 V AC 0,75 kW
B16.08.115	K309000229	1 x 230 V AC 1,50 kW
B16.08.116	K309000230	3 x 400 V AC 1,50 kW
B16.08.117	K309000241	3 x 400 V AC 1,50 kW
B16.08.110	K309000224	1 x 115 V AC 0,37 kW
B16.08.111	K309000225	1 x 115 V AC 0,75 kW
B16.08.112	K309000226	1 x 115 V AC 1,10 kW



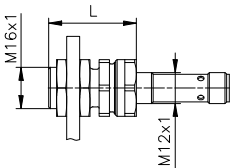
Initiators

Initiators are used to control, position and monitor processes in automation technology. The initiators used in mk conveyor technology consist of four components: the inductive sensor, the clamp mount, the sensor cable and the initiator holder.



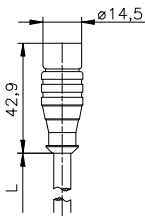
Initiator M12x1

Item no.	L [mm]	L1 [mm]	sn [mm]
K309000095	45	30	4
K308000009	45	30	2
K308000010	70	40	4



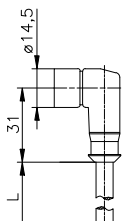
Clamp mount M12x1

Item no.	L [mm]
K309000034	34
K309000035	44.5



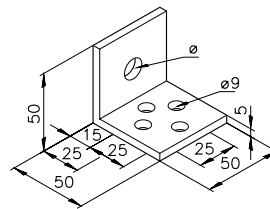
Sensor cable with bushing*, M12x1, straight

Item no.	L [m]
K307000002	5



Sensor cable with bushing*, M12x1, angled

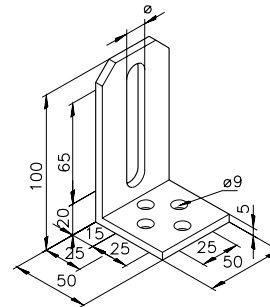
Item no.	L [m]
K307000027	5
K307000026	10



Initiator holder A

Item no.	
16.00.0000	$\varnothing 13$
16.00.0001	$\varnothing 19$
16.05.0011	R1/4"

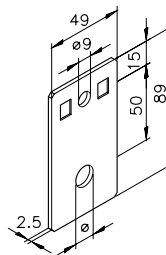
tumbled Al



Initiator holder B

Item no.	
16.00.0006	$\varnothing 13$
16.00.0007	$\varnothing 19$

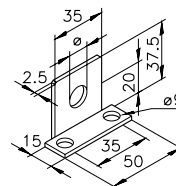
tumbled Al



Initiator holder C

Item no.	
16.00.0011	$\varnothing 9$
16.00.0012	$\varnothing 13$
16.00.0013	$\varnothing 19$

galv. steel



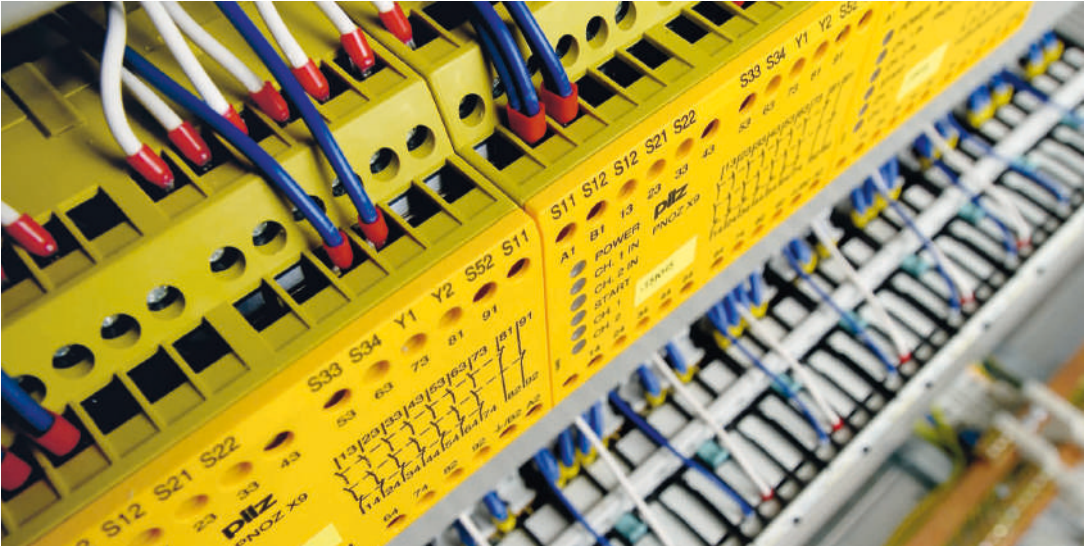
Initiator holder E

Item no.	
16.00.0026	$\varnothing 9$
16.00.0027	$\varnothing 13$
16.00.0028	$\varnothing 19$

galv. steel

* Other end is open cable

Application Examples

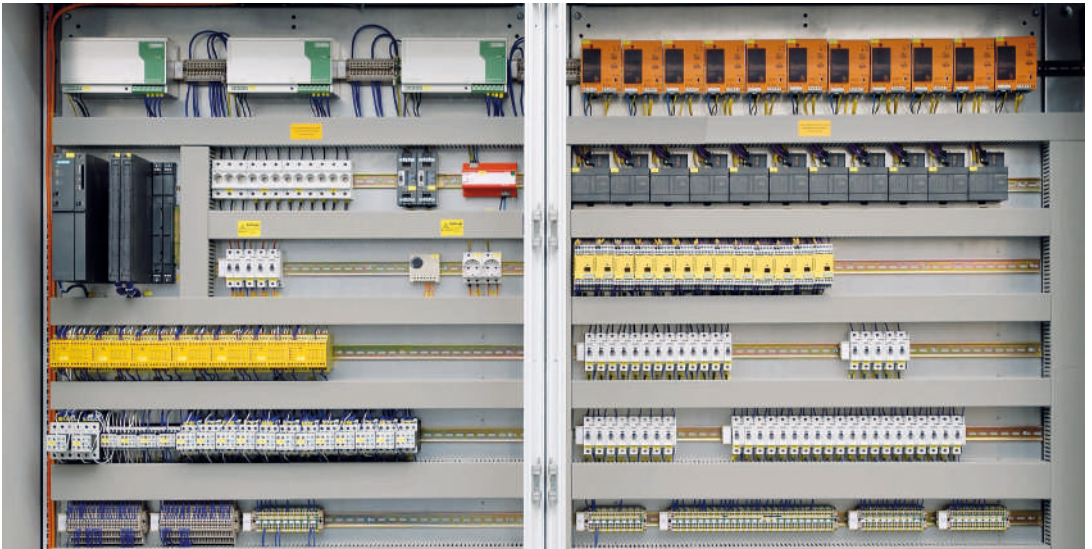


Safety circuit for emergency access and operating access

9



Valve terminal with input and output module



Complete control system with Siemens S7 and bus system



Control cabinet attached on the frame and protective device combination

Application Examples

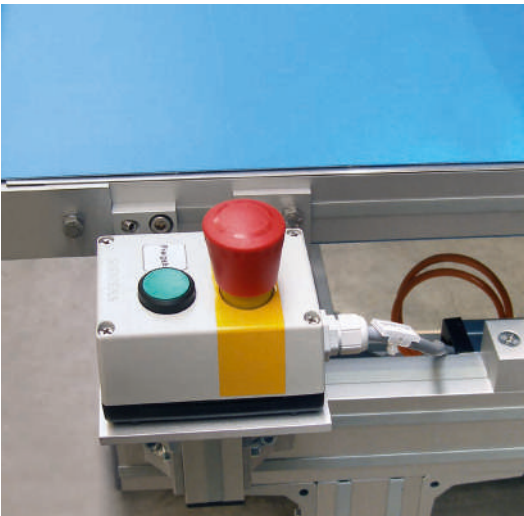


Control cabinet with operator panel on which minor program changes can be made directly

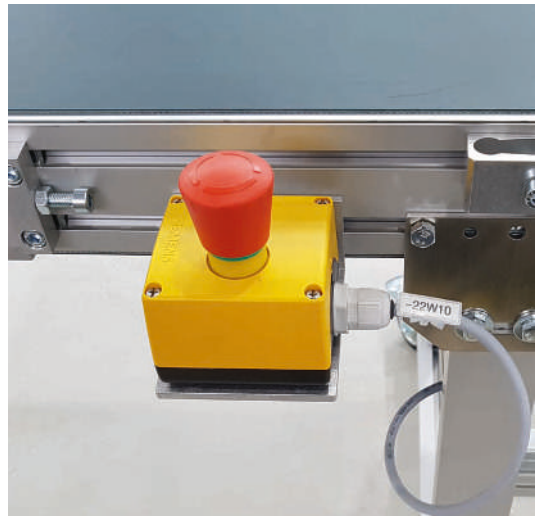


Door dial with emergency stop button and mobile operator panel

9



Enable button with emergency stop button



Emergency stop button



Main switch with integrated motor overload switch



Mobile touchscreen with connection box and offset main switch

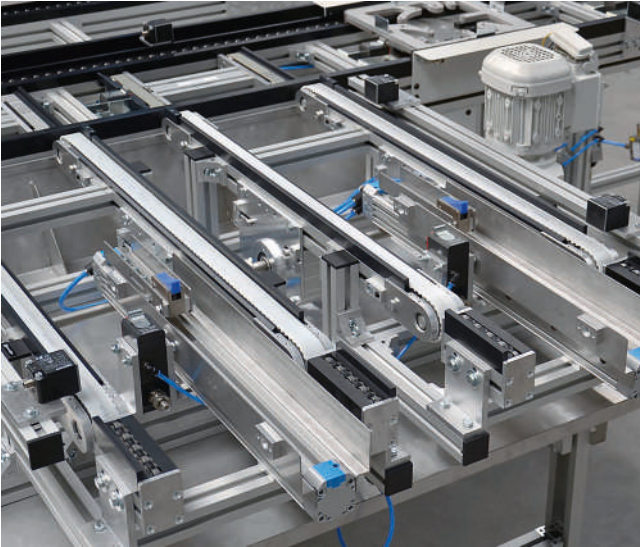


Compact control device for manual control of transport conveyors and their speed



Standardised operating device

Application Examples

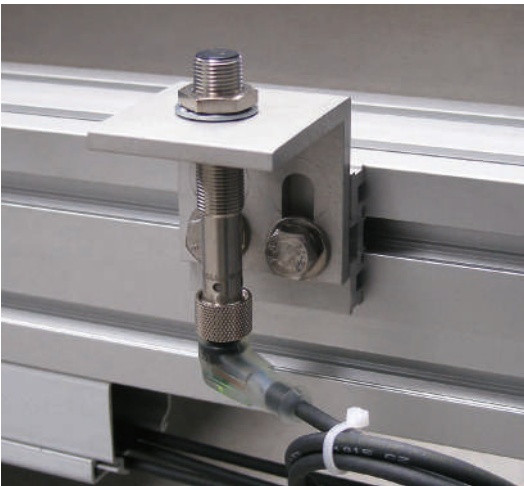


Lift and transfer with component monitoring and end position sensor

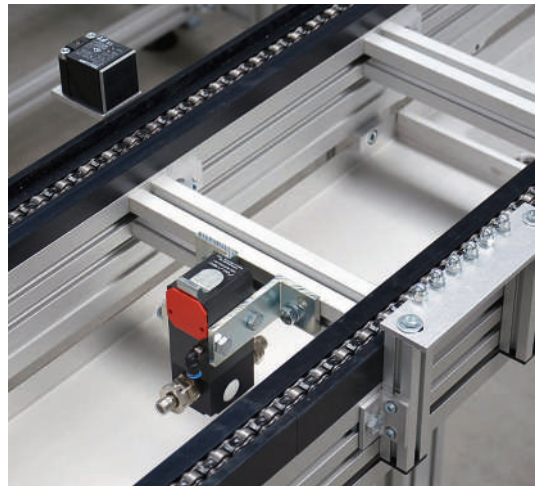


Flexible compressed air connection

9



Initiator holder made from aluminium angle bracket



Square sensor and stopper with monitor



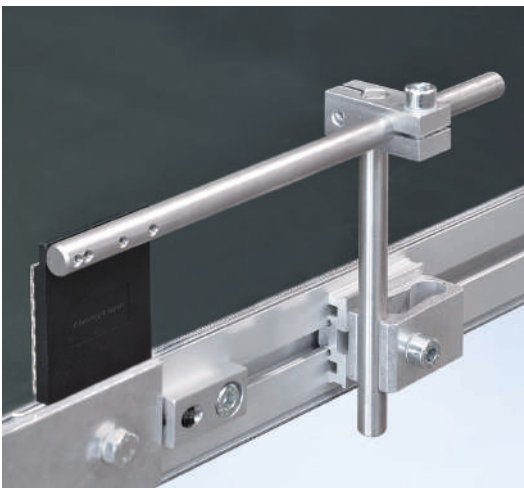
Sensors for deceleration and stopping



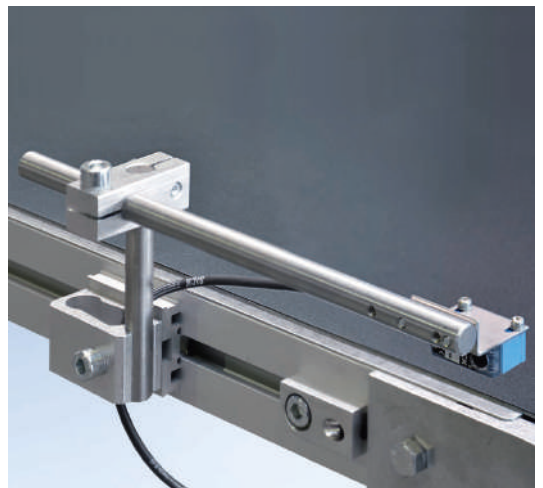
Initiator holder made from VA steel sheet



Photoelectric sensor with adjustable holder



Adjustable reflector holder



Adjustable holder for photoelectric sensors

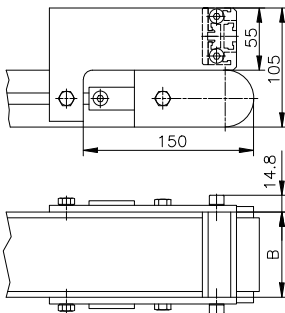
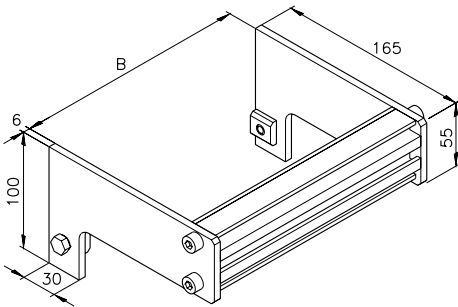
Other Accessories

End Stops

Product on the conveyor often need to be stopped for production reasons, especially on belt conveyors and roller conveyors. mk offers its end stop for this very purpose. It is easy to mount on the conveyor frame in the t-slots on the conveyor frame profile. The end stop is equipped with a plastic strip to avoid damaging the product.

End stop GUF-P 2000
B66.00.004

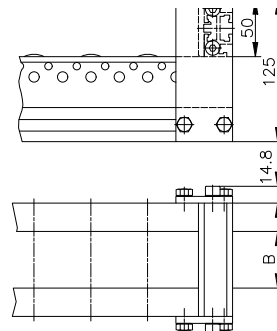
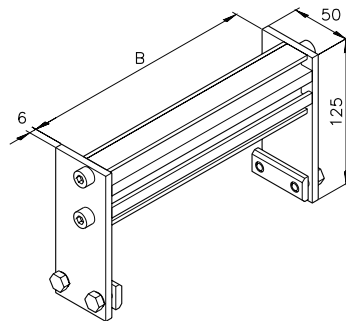
incl. fastening accessories



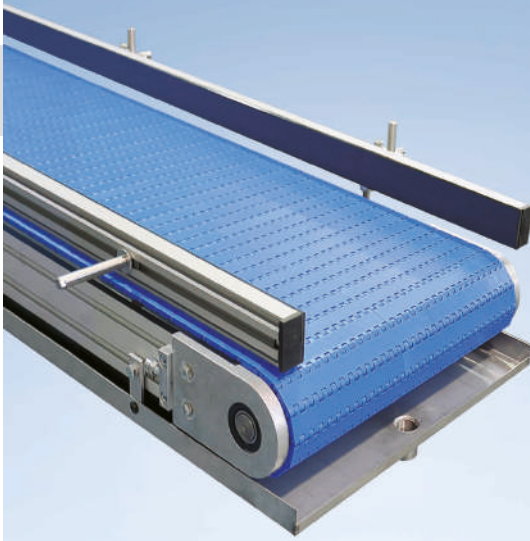
Belt conveyor GUF-P 2000

End stop RBS-P 2065/66
B66.00.003

incl. fastening accessories



Roller conveyor RBS-P 2065

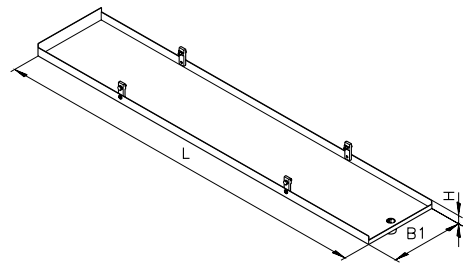
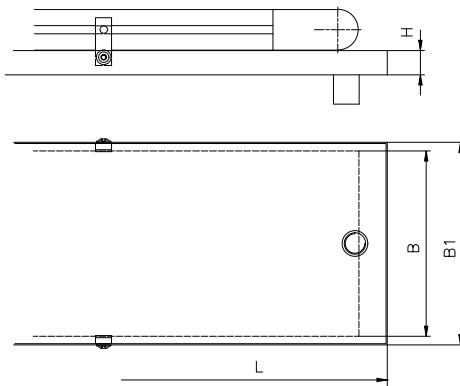


Drip Pan

The stainless steel drip pan is primarily intended for belt and modular belt conveyors, and its length, width and depth can be adapted to your particular conveyor system. It is equipped with a drain nozzle with an R3/4 thread that can be connected to the drain lines. Typical applications include conveying products that are only lightly coated in oil.

Drip pans are always designed and built to order.

Example of the simplest solution



Application Examples



Belt conveyor GUF-P 2000 AC with end stop at the end of the conveyor



Modular belt conveyor MBF-P 2040 with end stop at the end of the conveyor

9



Multi-line, adjustable side rail in gantry arrangement



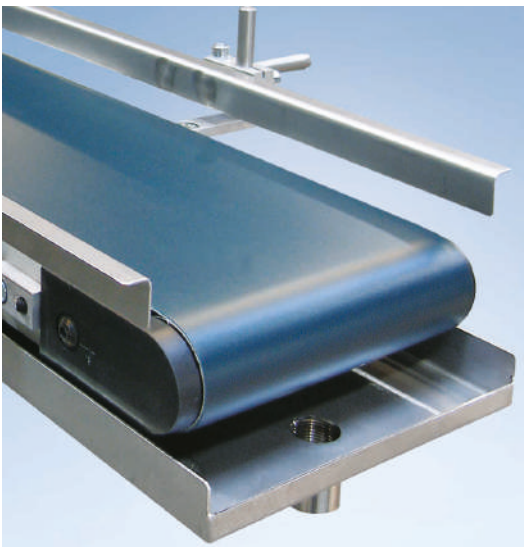
Wiper brush, rotating, mounted at the end of the conveyor



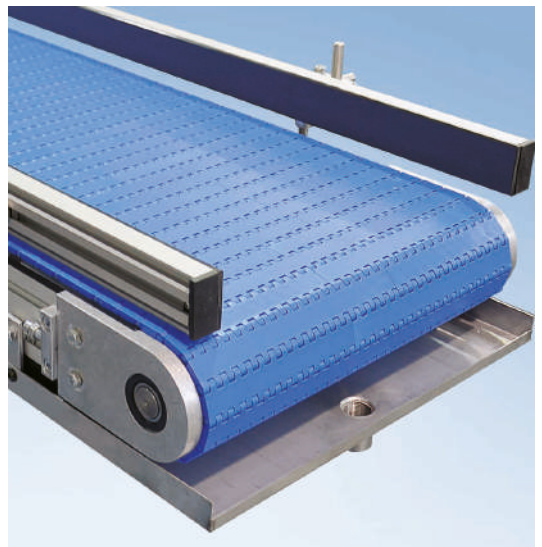
Belt conveyor with dust bag



Belt conveyor with drip pan

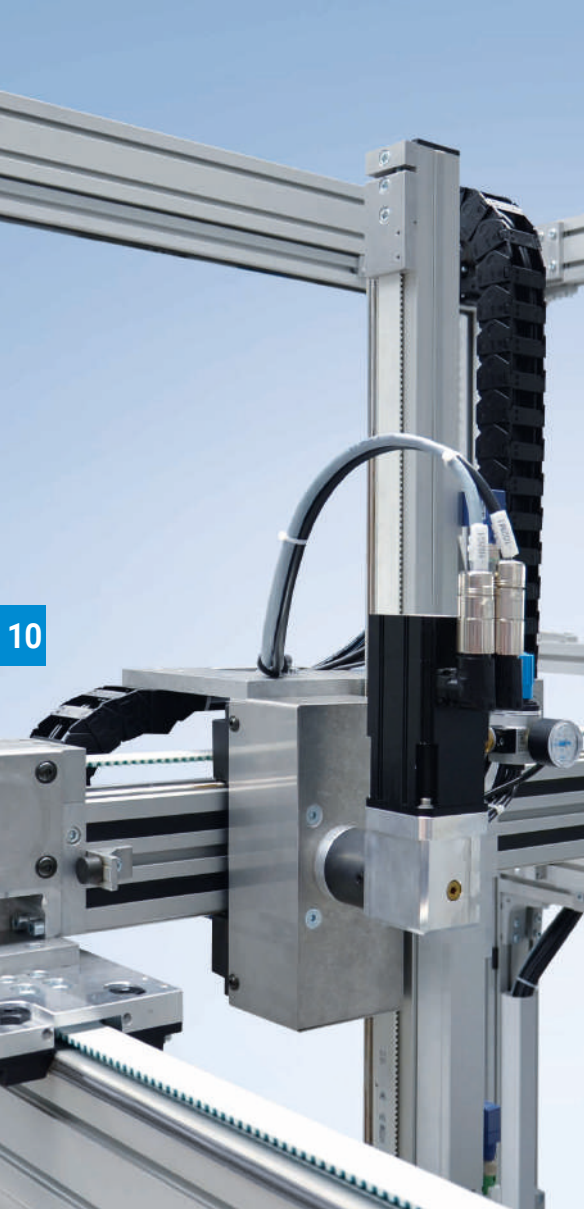


Drip pan with drain port at the beginning of the conveyor



Modular belt conveyor with drip pan

Chapter 10 Information on Linear Technology



» Reliable and precise linear motion. «

mk linear technology is the name for our portfolio of gliding assemblies, track roller assemblies and recirculating ball bearing guides that provide highly precise and reliable linear motion, and that are designed to meet your specific requirements.

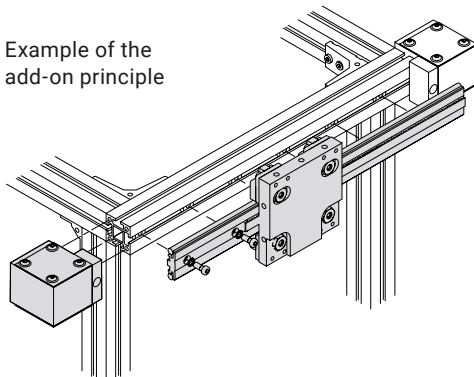
Whether you need manual adjusting units or driven linear modules with a timing belt for handling applications, we're happy to advise you on how the optimal linear guides can achieve both exact directional movement and low-friction transport.

mk's linear technology components are fully compatible with mk profile technology. Installing linear guides allows you to quickly and easily implement linear movements into your machine frames. This method reduces the materials required for the solution, since a separate support structure for the linear motion is not required.

1
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12

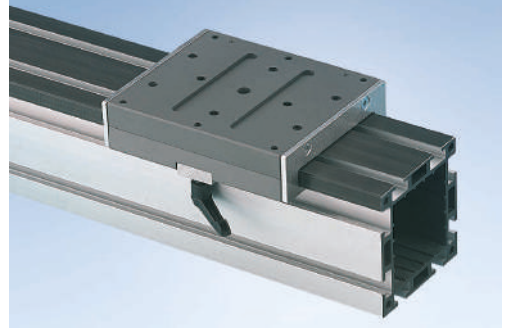
Benefits of mk Linear Technology

- The wide range of guides are designed to meet the customer's requirements and provide optimum function
- Compatible with mk profile series to save materials, costs and space: guides can be mounted directly on the existing support structure
- Uncomplicated and rapid setup of linear guides based on the add-on principle
- mk clamping profile ensures precise travel for maximum parallelism of the guide rods
- Highly reliable operation thanks to high-quality materials and tested third-party parts
- mk engineers provide expert advice and assistance in designing your system



Example of the add-on principle

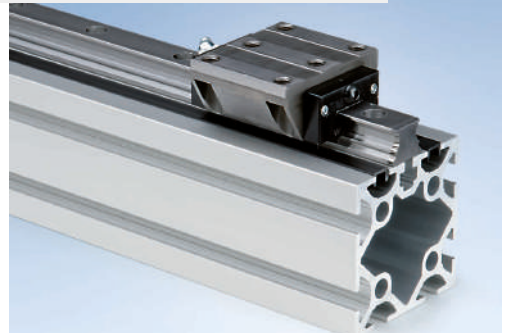
Gliding Assemblies



Track Roller Assemblies



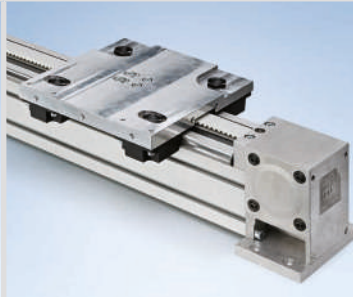
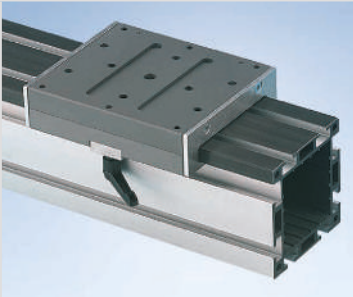
Recirculating Ball Bearing Guides



Selecting a Linear Guide

Properties and Benefits of the Different Types of Guide

The following criteria influence the selection of the type of guide to be used for your task and environmental conditions.



Gliding Assemblies

- For applications that require manual adjustment
- High static load capacity
- Low-maintenance
- Good dry-running characteristics
- Good damping
- Compact design
- Low-noise running

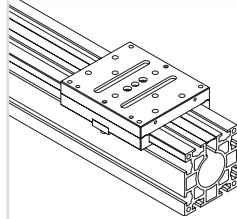
Track Roller Assemblies

- Compensates for relatively large alignment errors
- Well suited for harsh environmental conditions such as dust, chips, etc.
- High acceleration up to $a = 50 \text{ m/s}^2$
- High travel speeds up to $v = 10 \text{ m/s}$
- Low rolling resistance
- mk clamping profile ensures precise travel for maximum parallelism of the guide rods
- Simple and economical guide design also makes it an attractive solution for longer lengths
- Multi-axial, i.e. can be loaded in all directions (forces and torques)
- Eccentrics allow you to adjust the pre-tension

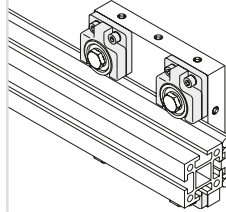
Recirculating Ball Bearing Guides

- High load capacity and high stiffness
- Compact design
- Just one track for different types of roller carriage
- Lightly pre-tensioned (standard), available with play or high pre-tension
- Medium to high acceleration up to $a = 30 \text{ m/s}^2$
- Medium to high speed up to $v = 5 \text{ m/s}$
- Four-row multi-axial recirculating ball bearing guide bears loads in all directions (forces and torques)
- High precision with appropriate contact surfaces

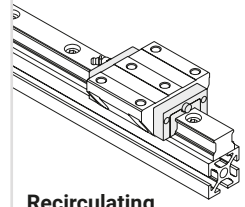
Selection Matrix for Linear Guides



Gliding Assemblies



Track Roller Assemblies



Recirculating
Ball Bearing Guides

Running performance

High

•

•

Low

•

Precision

Very high

•

High

•

Medium

•

Low

Speed

Very high

•

High

•

Medium

Low

•

Load capacity

Very high

•

High

•

Medium

•

Low

Stiffness

Very high

High

•

Medium

•

•

Low

Maintenance

With restrictions

•

Regularly

•

•

Frequently

Chapter 11 Linear Units and Modules



Gliding Assemblies

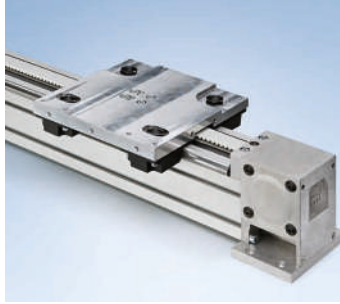
338

Adjusting Units VST 2015

342

Adjusting Units VST 2011

346



Track Roller Assemblies

350

Features of mk

Track Roller Assemblies

352

Mounting Profile

356

Individual Components

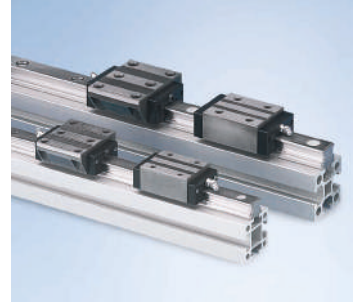
364

Linear Units

370

Linear Modules LZR

390



Recirculating Ball Bearing Guides

400

Recirculating Ball Bearing 25

404

Recirculating Ball Bearing 30

406

1

2

3

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11

12

Gliding Assemblies



» A simple solution
for manual
positioning tasks. «

Our adjusting units (VST) are gliding assemblies in which the different guide components, the profile and the carriages operate on gliding elements rather than being separated by roller bearings. The large contact surfaces and special coating make the gliding assemblies virtually maintenance free. The adjusting units can be supplied in different shapes and combinations as required.

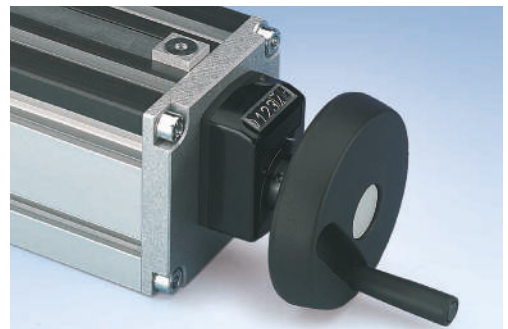
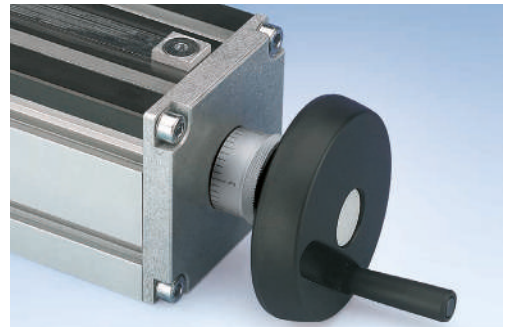
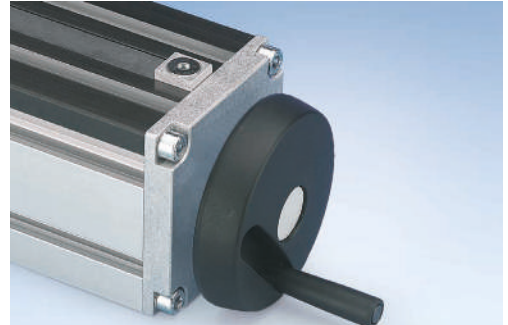
The two basic sizes of adjusting unit use mk 2015 (50x50) and mk 2011 (100x100) aluminium profiles as the profiles. A high-quality coating is mechanically applied to the contact surfaces to ensure good gliding properties and a wear-resistant surface. The standard version of the adjusting units is equipped with ball-bearing-mounted trapezoidal threaded spindles with POM nuts, which are protected from dirt by a stainless steel cover. The nuts, the bearing and the gliding assembly are low maintenance. Custom modifications are available on request, e.g. rust-proof spindles, bronze trapezoidal nuts, ball screws or motorised drives.

The position of the slide carriages can be adjusted with different operating options. When using the adjusting unit with a handwheel, you turn the wheel manually and cannot view the adjustment. When using the adjusting unit with a handwheel and scaling, the adjustment can be viewed on the scaling. In the option of the adjusting unit with a handwheel and mechanical digital display, the adjustment can be viewed on the digital display.

If requested, the adjusting units can also be operated with a motor. The maximum speed is $v = 1 \text{ m/min}$.

Features of mk Gliding Assemblies

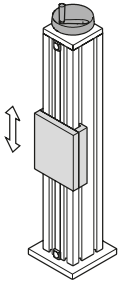
- For applications that require manual adjustment
- High static load capacity
- Low-maintenance
- Good dry-running characteristics
- Good damping
- Compact design
- Low-noise running



Gliding Assemblies

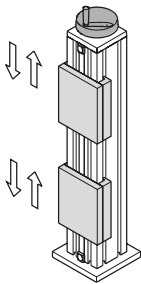
Designs

Adjusting unit with one slide carriage

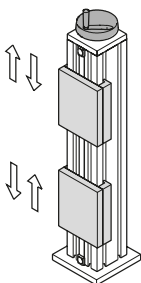


Adjusting unit with two slide carriages (even adjustment)

Independently adjustable lower carriages available as an option

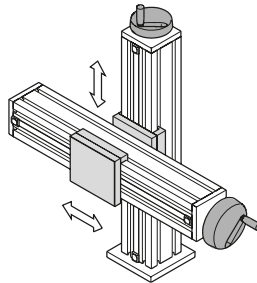


Adjusting unit with two slide carriages (even adjustment)



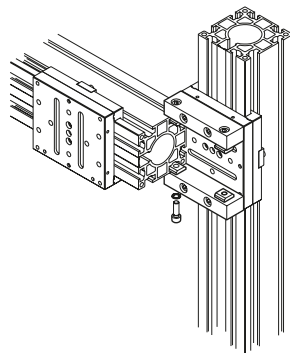
Combinations

A connecting kit lets you combine two adjusting units into one two-axis system.



Connecting kit for cross-VST 2015
B46.07.020

Connecting kit for cross-VST 2011
B46.07.021



Clamping Levers and Wipers

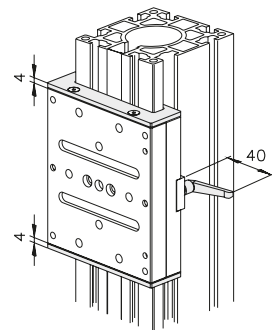
The felt wiper prevents solid objects from entering between the slide carriages and guide. It can easily be bolted onto the standard slide carriages as an accessory.

In the standard system, the slide carriage is clamped using a clamping plate that is fastened by tightening a screw. This can also be done using an optional clamping lever.

Wiper VST 2015
B03.00.011

Wiper VST 2011
B03.00.012

Clamping lever K M6x40
K110030061



Sample order

Adjusting unit	VST 2011-H		
Item no.	B85.00.020		
Length	L = mm		
Stroke	H = mm		
Operating option	Handwheel	Scaling	Digital*
Base plate	Version A	Version B	
Felt wiper	Yes	No	
Clamping lever	Yes	No	

For the adjusting unit with two slide carriages with even adjustment, please specify whether it uses one or two trapezoidal nuts.

With two trapezoidal nuts, Lx = mm (+_ 2 mm)

*For the digital display, please specify "Front" or "Top" for the reading direction and display of numbers.

Gliding Assemblies

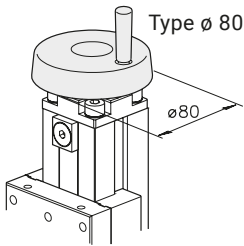
Adjusting Units VST 2015

Mounting profile: mk 2015 (50 x 50 mm)
 Trapezoid-thread spindle: Tr 16 x 4
 Axial spindle load: 500 N
 Standard lengths L: 250 mm, 500 mm,
 750 mm and 1000 mm

The stroke per revolution is 4 mm,
 the minimum stroke length is 10 mm,
 and the maximum length L = 1400 mm.

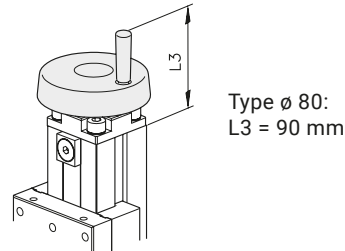


Handwheel

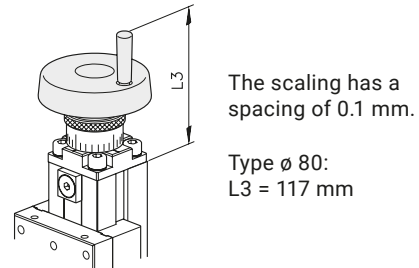


Scaling

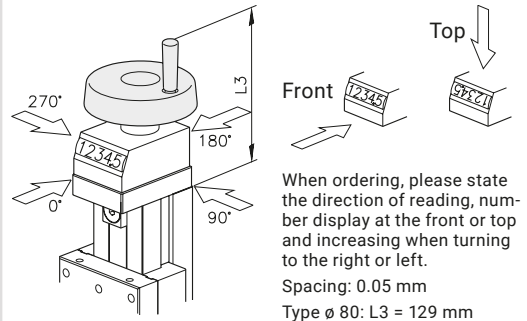
System 2015 without scale



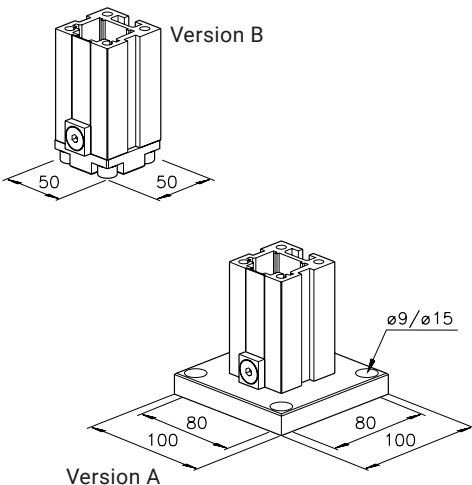
System 2015 with scale



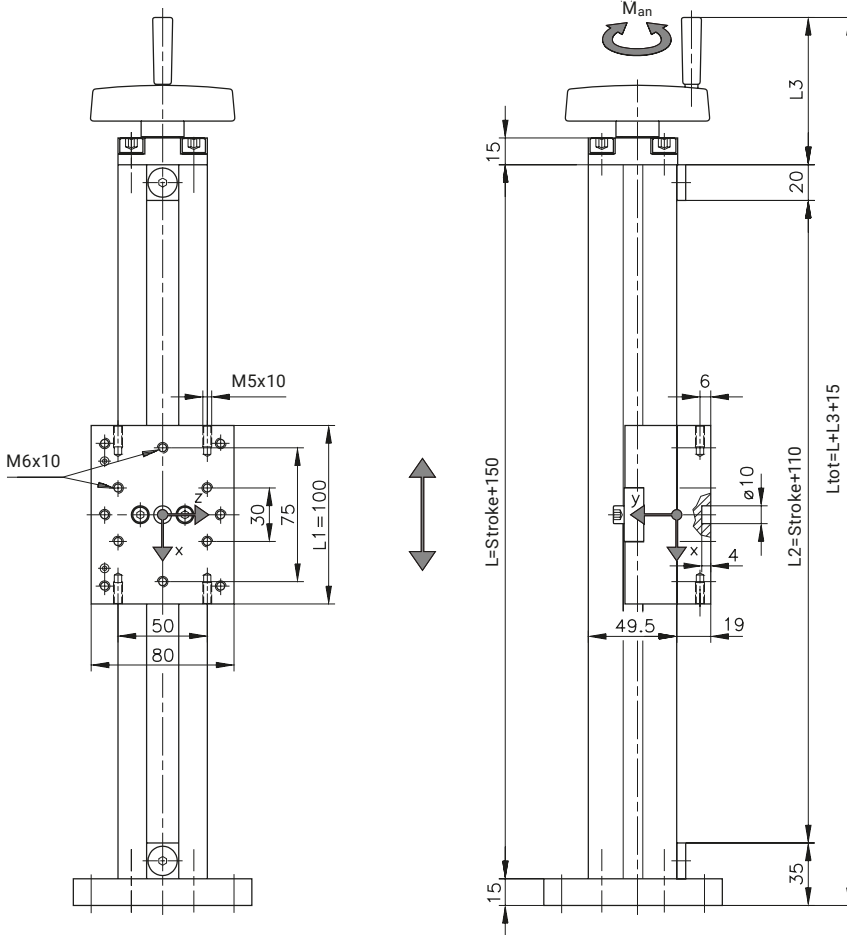
System 2015 with Mechanical Digital Display



Base Plates



VST 2015 with One Slide Carriage



Designs

Design	Without scale	Scale	Digital display
Designation	VST 2015-H	VST 2015-S	VST 2015-D
Type	∅ 80	∅ 80	∅ 80
Item no.	B85.00.015	B85.00.016	B85.00.017

Maximum load specifications for VST 2015

F_y [N]	F_z [N]	M_x [Nm]	M_y [Nm]	M_z [Nm]	M_{Drive} [Nm]	n [min ⁻¹]	v [m/min]
750	750	25	25	25	2.5	250	1

Check max. load specifications for slide carriages, and suitability for use if necessary

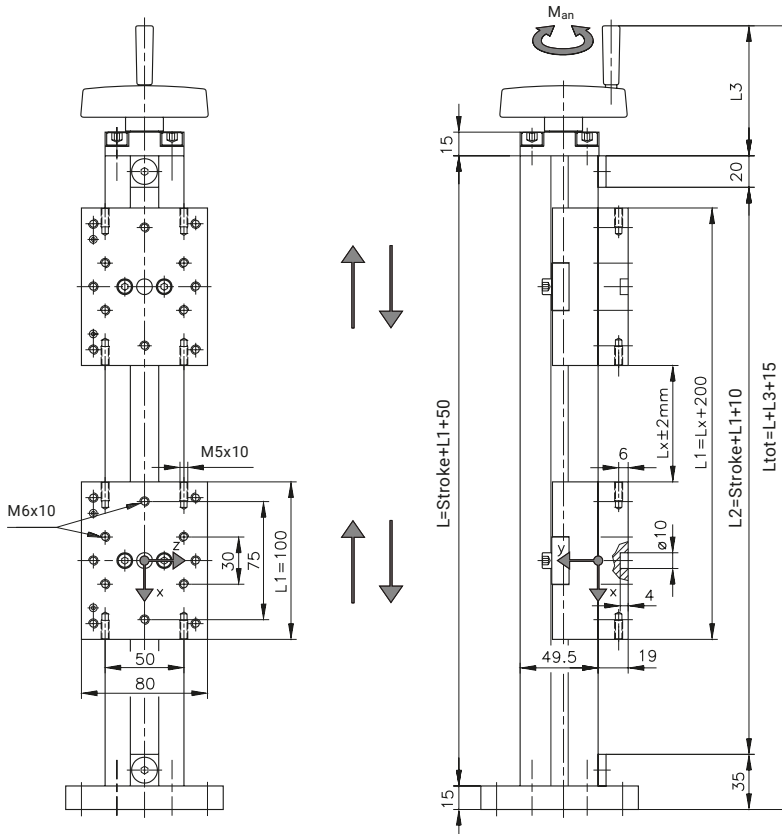
Gliding Assemblies

VST 2015 with Two Synchronised or Independent Slide Carriages

Options:

VST with two trapezoidal nuts: the two slide carriages are synchronised (see the arrow directions)

VST with one trapezoidal nut: the lower slide carriages can be separately adjusted manually



Designs

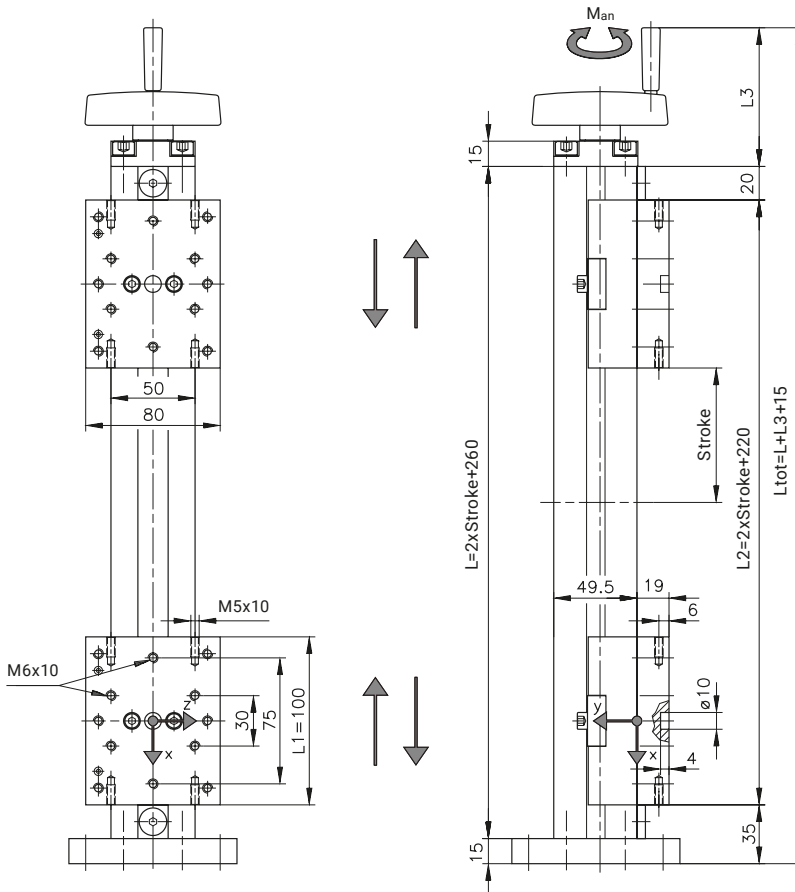
Design	Without scale	Scale	Digital display
Designation	VST 2015-H-2	VST 2015-S-2	VST 2015-D-2
Type	∅ 80	∅ 80	∅ 80
Item no.	B85.00.115	B85.00.116	B85.00.117

Maximum load specifications for VST 2015

F_y^* [N]	F_z^* [N]	M_x^* [Nm]	M_y^* [Nm]	M_z^* [Nm]	M_{Drive} [Nm]	n [min ⁻¹]	v [m/min]
750	750	25	25	25	2.5	250	1

Check max. load specifications for slide carriages, and suitability for use if necessary. *Max. load specifications per slide carriage.

VST 2015 with Two Synchronised Slide Carriages



Designs

Design	Without scale	Scale	Digital display
Designation	VST 2015-H-G	VST 2015-S-G	VST 2015-D-G
Type	ø 80	ø 80	ø 80
Item no.	B85.00.215	B85.00.216	B85.00.217

Maximum load specifications for VST 2015

F _y *	F _z *	M _x *	M _y *	M _z *	M _{Drive}	n	v
[N]	[N]	[Nm]	[Nm]	[Nm]	[Nm]	[min ⁻¹]	[m/min]
750	750	25	25	25	2.5	250	1

Check max. load specifications for slide carriages, and suitability for use if necessary. *Max. load specifications per slide carriage.



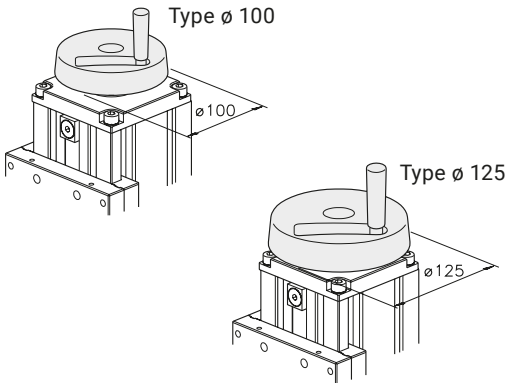
Gliding Assemblies

Adjusting Units VST 2011

Mounting profile: mk 2011 (100 x 100 mm)
 Trapezoid-thread spindle: Tr 20 x 4
 Axial spindle load: 1000 N
 Standard lengths L: 250 mm, 500 mm,
 750 mm and 1000 mm

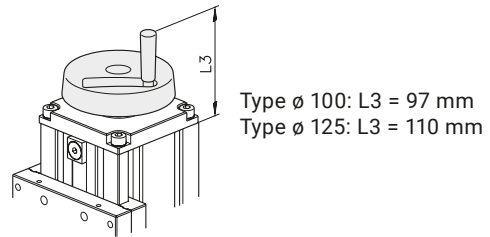
The stroke per revolution is 4 mm,
 the minimum stroke length is 10 mm,
 and the maximum length L = 1400 mm.

Handwheel

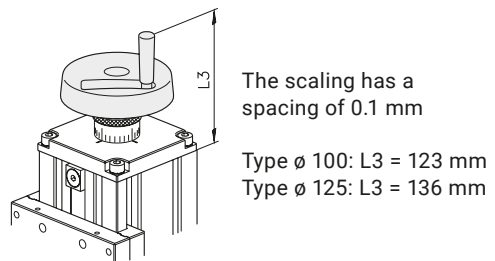


Scaling

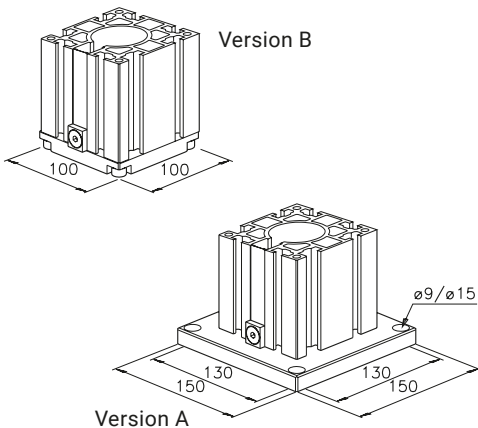
System 2011 without scale



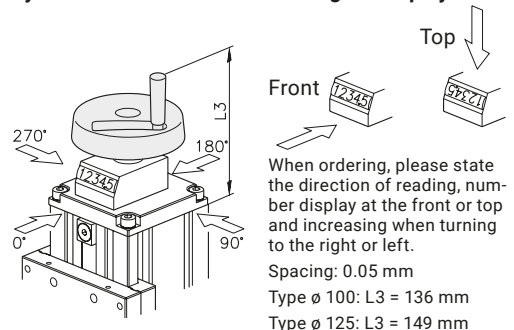
System 2011 with scale



Base Plates



System 2011 with Mechanical Digital Display



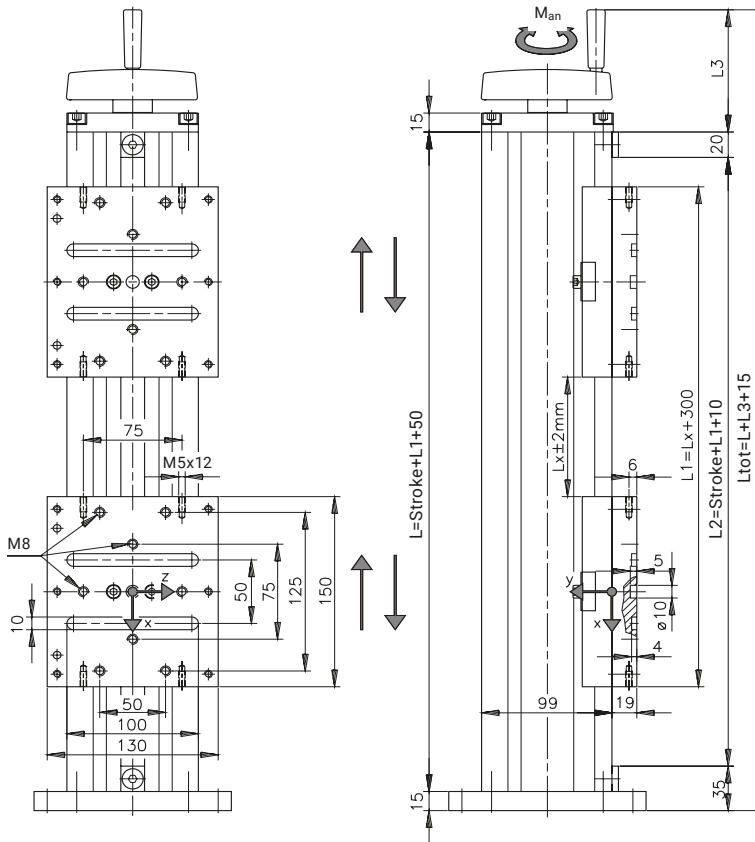
Gliding Assemblies

VST 2011 with Two Synchronised or Independent Slide Carriages

Options:

VST with two trapezoidal nuts: the two slide carriages are synchronised (see the arrow directions)

VST with one trapezoidal nut: the lower slide carriages can be separately adjusted manually



Designs

Design	Without scale		Scale		Digital display	
Designation	VST 2011-H-2	VST 2011-H-2	VST 2011-S-2	VST 2011-S-2	VST 2011-D-2	VST 2011-D-2
Type	∅ 100	∅ 125	∅ 100	∅ 125	∅ 100	∅ 125
Item no.	B85.00.120	B85.00.125	B85.00.121	B85.00.126	B85.00.122	B85.00.127

Maximum load specifications for VST 2011

F _y *	F _z *	M _x *	M _y *	M _z *	M _{Drive}	n	v
[N]	[N]	[Nm]	[Nm]	[Nm]	[Nm]	[min ⁻¹]	[m/min]
2000	2000	75	100	100	6	250	1

Check max. load specifications for slide carriages, and suitability for use if necessary. *Max. load specifications per slide carriage.

Track Roller Assemblies



» Linear modules based on track roller assemblies. «

Because of their rigid structure, track roller assemblies offer high accelerations and speeds over a long service life and allow for fast positioning with high repeatability.

They are excellently suited for both single-axis applications and use as multi-axis systems. Linear systems constructed from these modules can meet even the most demanding technical and financial requirements.

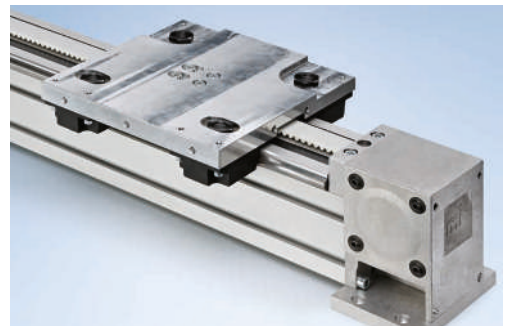
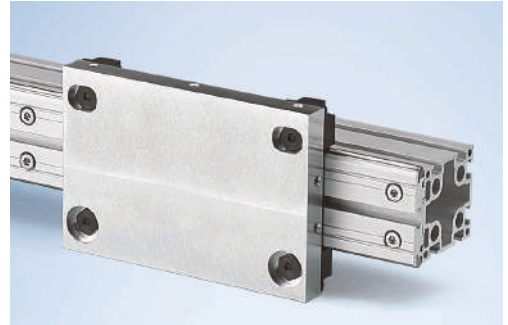
Track roller assemblies consist of a linear guide with a matching roller carriage. The guide is built from a standard mk profile that acts as the mounting profile and guide rods that are mounted to the mounting profile with a clamping profile. The roller carriage consists of a support plate and guide rollers, which can be custom-configured to meet your specific requirements. The guide rollers have eccentric bearings to prevent play in the guide. The series and the dimensions chosen for the mounting profile are key factors that determine the linear module design.

Linear Module with Timing Belt (LZR)

Linear modules based on track roller assemblies are usually equipped with a high-powered drive connected via a timing belt. The components of the timing belt drive responsible for transferring the power, such as the deflection bearings and the connectors, are mounted on the mounting profile at the head end. The motor can be connected directly via the shaft end or indirectly on request. LZRs are the preferred solutions for implementing handling systems with an X-Y-Z axis.

Benefits of mk Track Roller Assemblies

- Compensates for relatively large alignment errors
- Well suited for harsh environmental conditions such as dust, chips, etc.
- High acceleration up to $a = 50 \text{ m/s}^2$
- High travel speeds up to $v = 10 \text{ m/s}$
- Low rolling resistance
- mk clamping profile ensures precise travel for maximum parallelism of the guide rods
- Simple and economical guide design also makes it an attractive solution for longer lengths
- Multi-axial, i.e. can be loaded in all directions (forces and torques)
- Eccentrics allow you to adjust the pre-tension



Features of mk Track Roller Assemblies

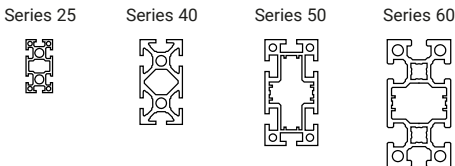
Mounting Profiles

The linear units and modules shown in the catalogue are based on mk's own profile system. Note the series and dimensions of the mounting profiles.

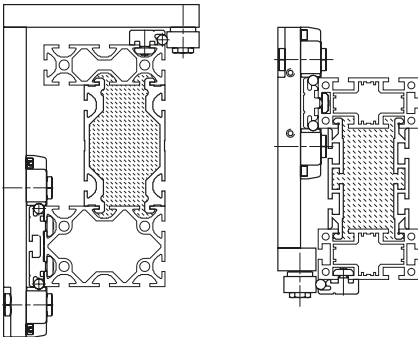
Mounting profiles can also be used in combination with foamed combined profiles to construct gantries.

The suitability for use (deformation) and strength calculation are decisive factors for the mounting profile. A deformation of 1 mm/m is permitted for the function of the linear guide. The deformation and strength are calculated based on the basic rules of technical mechanics.

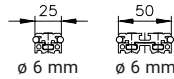
Examples of mk Mounting Profiles



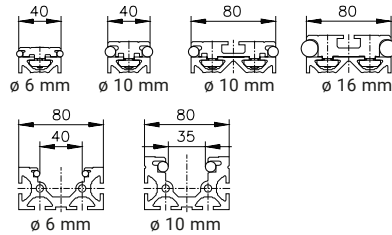
Examples of Foamed Combined Profiles



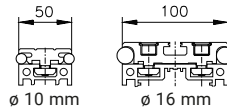
Series 25 Profile Guides



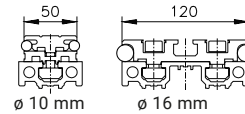
Series 40 Profile Guides



Series 50 Profile Guides

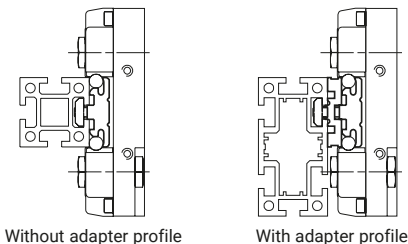


Series 60 Profile Guides



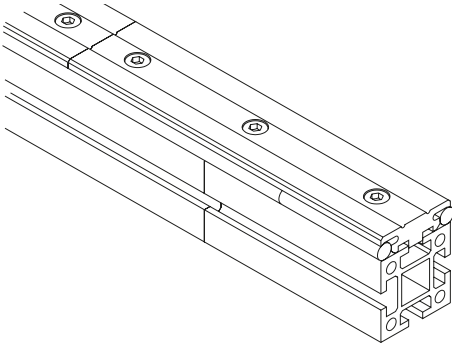
Adapter Profiles

Adapter profiles enable a wide variety of possible combinations. They are used to create the necessary distance for the roller carriage in cases where the dimensions of the mounting profile exceed the clamping profile. Some profiles can also be adapted between different profile series.



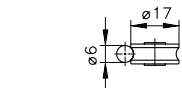
Stock lengths

The maximum length of linear units is 6000 mm. It can be exceeded by mounting multiple mounting profiles with clamping profiles and guide rods set on joins that are mounted staggered with each other.

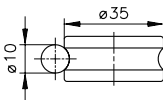


Guides

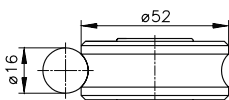
The load capacity of the guide is based primarily on the diameter of the guide rod and on the corresponding guide roller. mk offers four guide rod diameters. The guide rods (ground h6) are made from the material Cf 53 as standard, but are also available as options made from X46 Cr13 with corrosion resistance or galvanised Cf 53 with corrosion protection.



Guide rod 6
0.22 kg/m



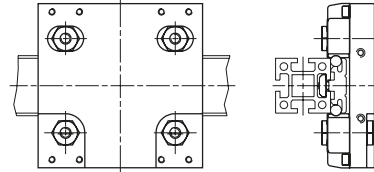
Guide rod 10
0.62 kg/m



Guide rod 16
1.58 kg/m

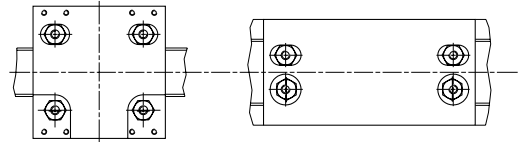
Roller Carriage

The mk roller carriage comes with four rollers as standard, but is also available as an option with three or two rollers on request.



Example of
external track rollers

Example of
internal track rollers

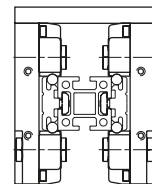
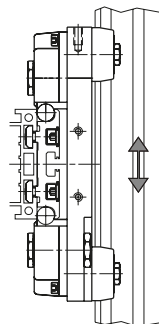


Designs

The mk roller carriage is available with the standard design (see above) and two additional designs.

Cross-carriage

Double-roller carriage



Features of mk Track Roller Assemblies

Design of the Track Rollers

The indicated static load carrying capacities can be used as a guideline for the preliminary selection of track rollers. These values are the maximum allowable unit loads and include a static safety factor $s_0 = 4$ in relation to the plastic deformation of the roller bearings within the steel track roller. For stainless steel components, these values must be reduced by 30%.

The load values shown for the axial load (F_y) and radial load (F_z) are for moment-free loads. The allowable moments are the result of opposing offset loads.

Combined loads must be verified separately. A combined load is a single point load which, with a 50 mm offset for example, also introduces a moment. Careful consideration must be given to combined loads which cause torsion.

When arranging track rollers, it is important that the track rollers only transfer compressive loads in the radial direction. The centric track rollers are especially suitable for handling radial loads, especially in the F_z direction. The centric track rollers are prevented from twisting by using a steel bushing.

Application Notes

Care must be taken to ensure that the track rollers are installed in an unloaded condition. In most cases, readjustment of the eccentric track rollers under load causes premature wear. For "normal" applications (up to $a = 3 \text{ m/s}^2$), the track rollers should be set so that they rotate as they travel along the track but you can still prevent this rotation by placing your thumb and index finger on the circumference of the roller.

For applications requiring a speed of over $a = 3 \text{ m/s}^2$, the track rollers require further pre-tensioning, and you can then no longer manually prevent the rollers from rotating. As an additional safety measure, we recommend securing the eccentric bushings with adhesive to prevent them from slipping. To prevent corrosion and increased abrasion, sufficient lubrication must also be used.

Calculations

When confirming the suitability of particular track rollers, a distinction must be made between static and the dynamic loading. Static loads are loads that are transferred at the contact point between the rod and the track roller while the roller is not rotating. That is to say that dynamic loads, or loads along other axes, must also be considered.

It is helpful to first confirm the static and then the dynamic load calculations. The allowable static axial and radial track roller loads and the static and dynamic safety factors of the most highly loaded rollers must be confirmed. The maximum track roller loads are technically considered mechanical contact loads (supported loads).

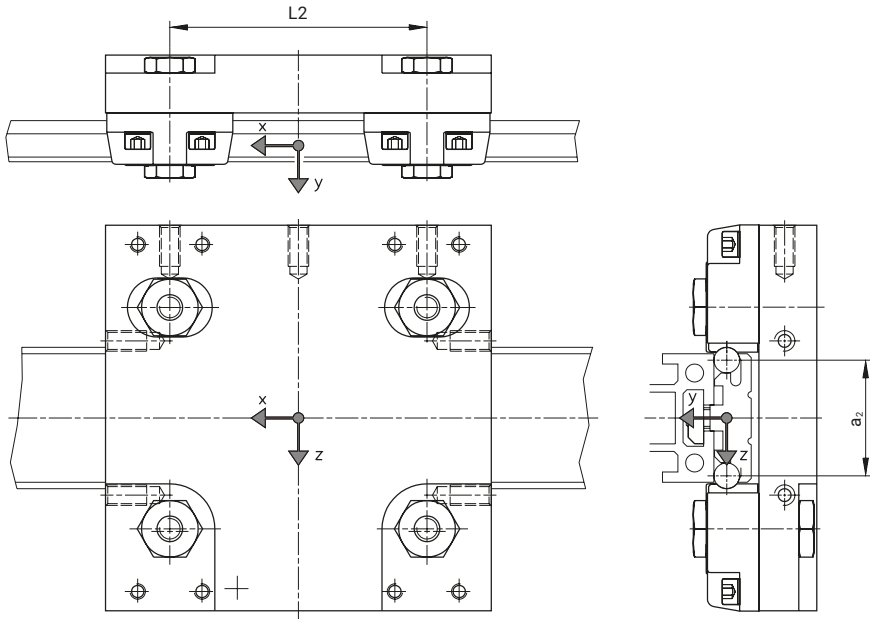
The static safety factor and dynamic safety factor are derived from the relationship between the allowable load capacity C_w and the available equivalent load P .

Recommended Guidelines

Up to $v = 3 \text{ m/s}$ and $a = 3 \text{ m/s}^2$, full load capacity of the track rollers with $s_0 \geq 4$ and $2 < s_D \leq 5$.

For high dynamic loads with $a > 10 \text{ m/s}^2$ and speeds of up to $v = 10 \text{ m/s}$, the load values must be reduced.

Technical Specifications for Track Roller Assemblies



Static safety factor:

$$s_o = \frac{C_{ow}}{P_o} \geq 4 = s_o \text{ recomm.}$$

Dynamic safety factor:

$$s_D = \frac{C_w}{P} \geq 5 = s_D \text{ recomm.}$$

Nominal service life:

$$L_h = \left(\frac{C_w}{P}\right)^3 [10^5 \text{ m}]$$

Equivalent loads

– Static:

$$P_o = x_o \cdot F_{ro} + y_o \cdot F_{ao} \text{ [N]}$$

– Dynamic:

$$P = x \cdot F_r + y \cdot F_a \text{ [N]}$$

Factors from the table

- Static: roller stationary
- Dynamic: roller rotating

Track roller loads

– Radial:

$$F_{r(o)} = \pm \frac{F_{z(o)}}{2} \pm \frac{M_{y(o)}}{L_2} \text{ [N]}$$

– Axial:

$$F_{a(o)} = \pm \frac{F_{y(o)}}{4} \pm \frac{M_{x(o)}}{2 \cdot a_2} \pm \frac{M_{z(o)}}{2 \cdot L_2} \text{ [N]}$$

Highest loaded roll (that is, with the largest value respectively)

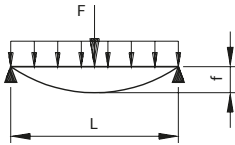
Load specifications

Item no.	Designation Guide with	Rod ø	F _{ro-max} [N]	F _{ao-max} [N]	F _{r(0)} ≥ F _{a(0)}				F _{r(0)} < F _{a(0)}				C _{ow} [N]	C _w [N] based on 10 ⁵ m
					x _o	y _o	x	y	x _o	y _o	x	y		
K101100003	LR 6	6	175	60	1.2	3.6	1.0	3.1	0.9	3.6	0.5	3.9	890	1270
K101100001	LR 10	10	1000	300	1.2	4.0	1.0	3.4	0.9	4.0	0.5	4.3	5100	8500
K101100002	LR 16	16	2000	500	1.2	4.8	1.0	3.9	1.0	5.0	0.5	4.8	9500	16800
K101100006	LR 20	20	3250	825	1.2	4.9	1.0	4.0	1.1	5.0	0.5	4.9	16600	29500

Series 25 Mounting Profiles

Selection Based on Load and Length

Example



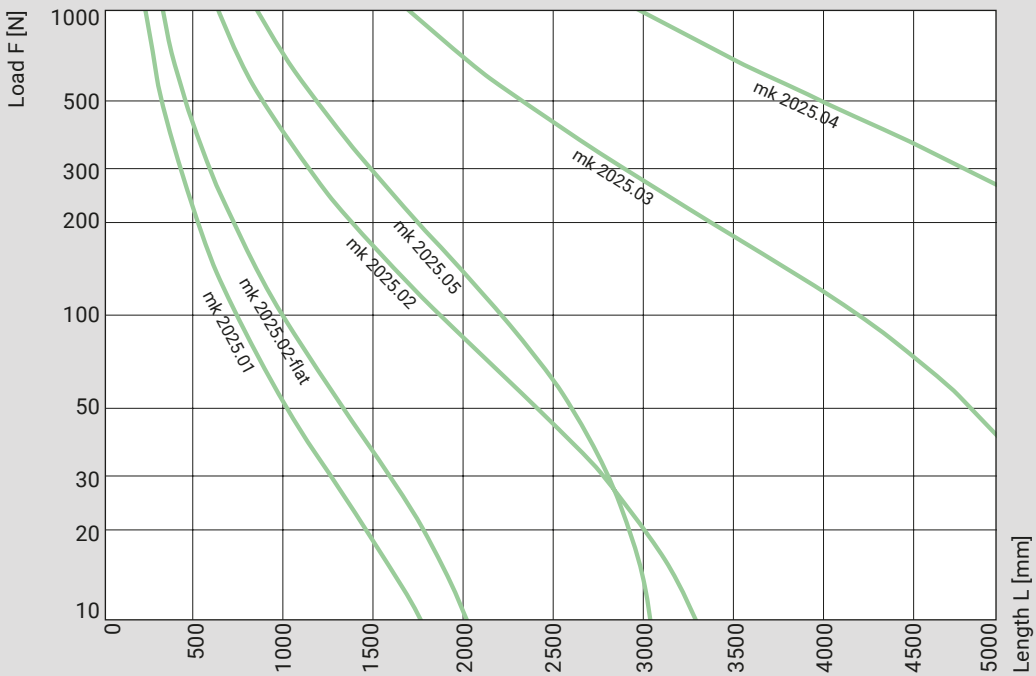
$$F = 100 \text{ N}$$

$$L = 1000 \text{ mm}$$

=> suitable profile mk 2025.02-flat

$$\text{with } \frac{f}{L} \leq \frac{1}{1000}$$

With point load at centre and profile weight for the case: $\frac{f}{L} = \frac{1}{1000}$



Calculating the Deflection

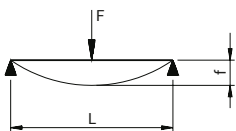
Use our online tool at www.mk-group.com/en/deflection

$$\sigma_b = \frac{M_{bmax}}{W_{x,y}}$$

$$S = \frac{R_{p0.2}}{\sigma_b}$$

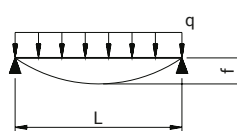
$$R_{p0.2} = 200 \text{ N/mm}^2 \text{ (AlMgSi 0.5 F25)}$$

$$R_{p0.2} = 215 \text{ N/mm}^2 \text{ (AlMgSi 0.7 F27)}$$



$$M_{bmax} = \frac{F \cdot L}{4}$$

$$f = \frac{F \cdot L^3}{48 \cdot E \cdot I_{x,y}}$$



$$M_{bmax} = \frac{q \cdot L^2}{8}$$

$$f = \frac{5}{384} \cdot \frac{q \cdot L^4}{E \cdot I_{x,y}}$$

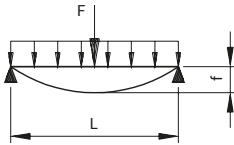
Mounting Profiles with Properties

 Series 25 Profiles	Area	Mass	Moments of inertia		Section moduli	
	A [mm ²]	m [kg/m]	I _x [cm ⁴]	I _y [cm ⁴]	W _x [cm ³]	W _y [cm ³]
mk 2025.01 25.01. 	279	0.75	1.73	1.73	1.38	1.38
mk 2025.02 25.02. 	501	1.35	12.20	3.30	4.87	2.64
mk 2025.03 25.03. 	945	2.55	87.00	6.44	17.40	5.15
mk 2025.04 25.04. 	1390	3.75	280.00	9.58	37.30	7.66
mk 2025.05 25.05. 	816	2.21	22.30	22.30	8.90	8.90

Series 40 Mounting Profiles

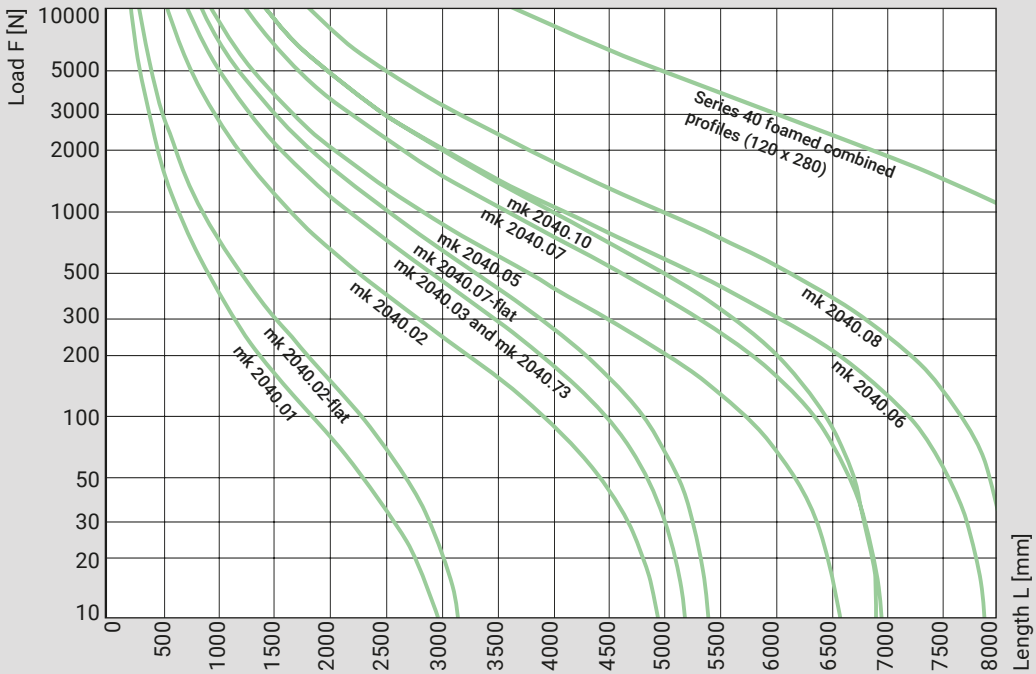
Selection Based on Load and Length

Example



$F = 300 \text{ N}$
 $L = 1500 \text{ mm}$
 \Rightarrow suitable profile mk 2040.02-flat
 with $\frac{f}{L} \leq \frac{1}{1000}$

With point load at centre and profile weight for the case: $\frac{f}{L} = \frac{1}{1000}$



Calculating the Deflection

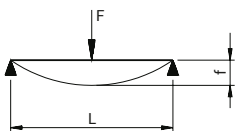
Use our online tool at www.mk-group.com/en/deflection

$$\sigma_b = \frac{M_{bmax}}{W_{x,y}}$$

$$S = \frac{R_{p0.2}}{\sigma_b}$$

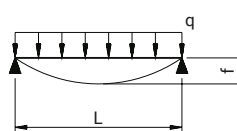
$R_{p0.2} = 200 \text{ N/mm}^2$ (AlMgSi 0.5 F25)

$R_{p0.2} = 215 \text{ N/mm}^2$ (AlMgSi 0.7 F27)



$$M_{bmax} = \frac{F \cdot L}{4}$$



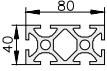
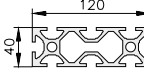
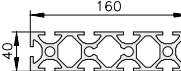
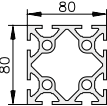
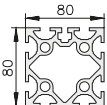
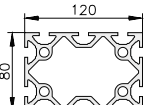
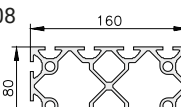
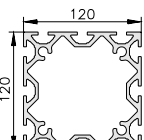
$$f = \frac{F \cdot L^3}{48 \cdot E \cdot I_{x,y}}$$



$$M_{bmax} = \frac{q \cdot L^2}{8}$$

$$f = \frac{5}{384} \cdot \frac{q \cdot L^4}{E \cdot I_{x,y}}$$

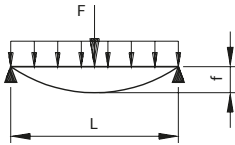
Mounting Profiles with Properties

	Area A [mm ²]	Mass m [kg/m]	Moments of inertia		Section moduli	
			I _x [cm ⁴]	I _y [cm ⁴]	W _x [cm ³]	W _y [cm ³]
Series 40 Profiles						
mk 2040.01 54.01. 	742	2.00	12.10	12.10	6.06	6.06
mk 2040.02 54.02. 	1340	3.62	83.30	22.60	20.80	11.30
mk 2040.05 54.05. 	1740	4.69	257.00	31.60	43.70	15.80
mk 2040.06 54.06. 	2320	6.26	576.00	41.40	72.00	20.70
mk 2040.03 54.03. 	2060	5.57	150.00	150.00	37.40	37.40
mk 2040.73 54.73. 	2110	5.72	150.00	150.00	37.10	37.40
mk 2040.07 54.07. 	2580	6.96	441.00	208.00	73.40	52.10
mk 2040.08 54.08. 	3500	9.46	949.00	272.00	119.00	68.00
mk 2040.10 54.10. 	3060	8.26	585.00	585.00	97.50	97.50

Series 50 Mounting Profiles

Selection Based on Load and Length

Example



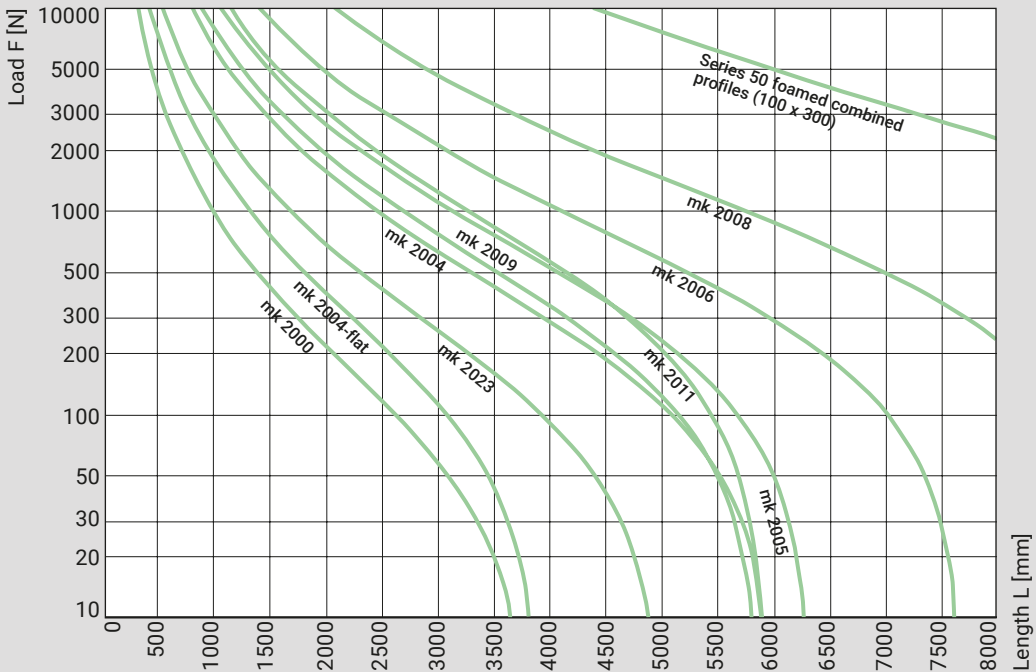
$$F = 400 \text{ N}$$

$$L = 2000 \text{ mm}$$

=> suitable profile mk 2004-flat

$$\text{with } \frac{f}{L} \leq \frac{1}{1000}$$

With point load at centre and profile weight for the case: $\frac{f}{L} = \frac{1}{1000}$



Calculating the Deflection

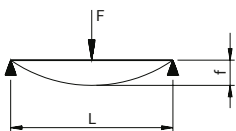
Use our online tool at www.mk-group.com/en/deflection

$$\sigma_b = \frac{M_{bmax}}{W_{x,y}}$$

$$S = \frac{R_{p0,2}}{\sigma_b}$$

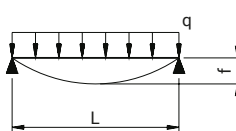
$$R_{p0,2} = 200 \text{ N/mm}^2 \text{ (AlMgSi 0.5 F25)}$$

$$R_{p0,2} = 215 \text{ N/mm}^2 \text{ (AlMgSi 0.7 F27)}$$



$$M_{bmax} = \frac{F \cdot L}{4}$$

$$f = \frac{F \cdot L^3}{48 \cdot E \cdot I_{x,y}}$$



$$M_{bmax} = \frac{q \cdot L^2}{8}$$

$$f = \frac{5}{384} \cdot \frac{q \cdot L^4}{E \cdot I_{x,y}}$$

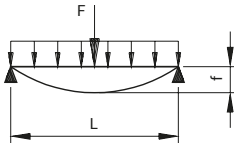
Mounting Profiles with Properties

	Area A [mm ²]	Mass m [kg/m]	Moments of inertia		Section moduli	
			I _x [cm ⁴]	I _y [cm ⁴]	W _x [cm ³]	W _y [cm ³]
Series 50 Profiles						
mk 2000 51.00.	1080	2.85	29.90	29.90	12.00	12.00
mk 2023 51.23.	1400	3.78	89.3	39.6	23.8	15.8
mk 2004 51.04.	1810	4.87	200.00	55.40	40.00	22.10
mk 2006 51.06.	2600	7.00	597.00	80.50	79.70	32.10
mk 2008 51.08.	3370	9.09	1300.00	107.00	130.00	42.70
mk 2005 (light duty) 51.05.	2650	7.00	335.00	335.00	67.00	67.00
mk 2011 51.11.	3670	9.70	383.00	383.00	76.70	76.70
mk 2009 51.09.	2320	6.27	239	239	42	42

Series 60 Mounting Profiles

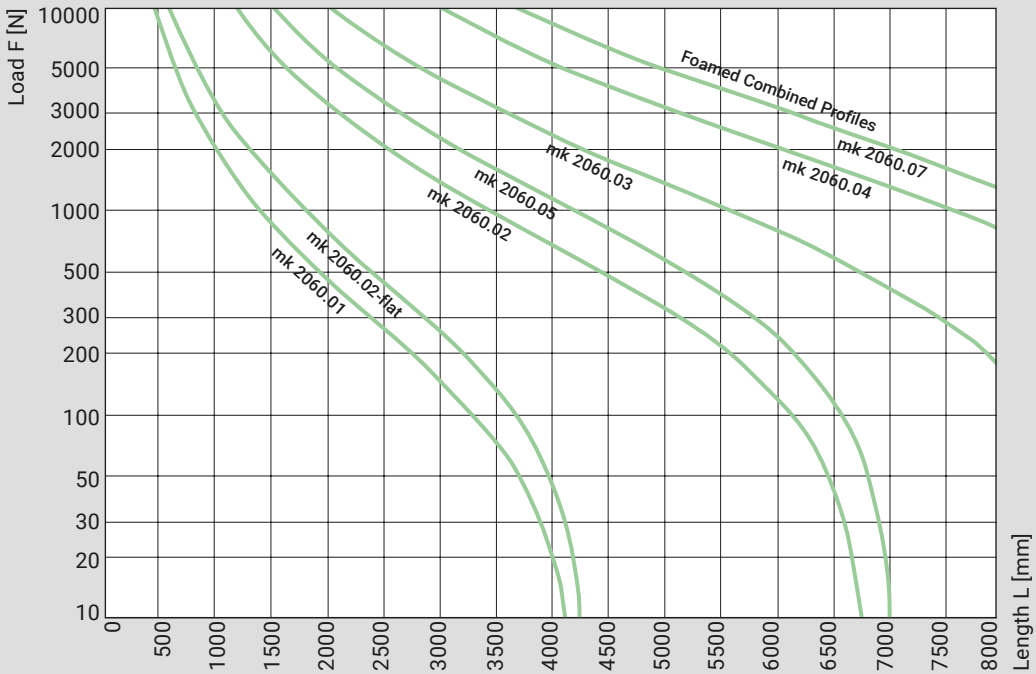
Selection Based on Load and Length

Example



$F = 800 \text{ N}$
 $L = 4500 \text{ mm}$
 \Rightarrow suitable profile mk 2060.05
 with $\frac{f}{L} \leq \frac{1}{1000}$

With point load at centre and profile weight for the case: $\frac{f}{L} = \frac{1}{1000}$



Calculating the Deflection

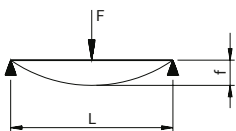
Use our online tool at www.mk-group.com/en/deflection

$$\sigma_b = \frac{M_{bmax}}{W_{x,y}}$$

$$S = \frac{R_{p0.2}}{\sigma_b}$$

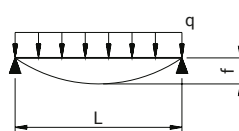
$R_{p0.2} = 200 \text{ N/mm}^2$ (AlMgSi 0.5 F25)

$R_{p0.2} = 215 \text{ N/mm}^2$ (AlMgSi 0.7 F27)



$$M_{bmax} = \frac{F \cdot L}{4}$$



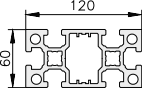
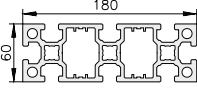
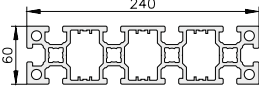
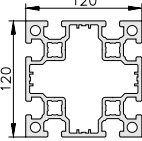
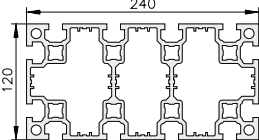
$$f = \frac{F \cdot L^3}{48 \cdot E \cdot I_{x,y}}$$



$$M_{bmax} = \frac{q \cdot L^2}{8}$$

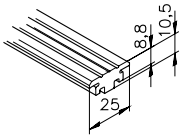
$$f = \frac{5}{384} \cdot \frac{q \cdot L^4}{E \cdot I_{x,y}}$$

Mounting Profiles with Properties

	Area A [mm ²]	Mass m [kg/m]	Moments of inertia		Section moduli	
			I _x [cm ⁴]	I _y [cm ⁴]	W _x [cm ³]	W _y [cm ³]
Series 60 Profiles						
mk 2060.01 60.01. 	1600	4.31	60.20	60.20	20.00	20.00
mk 2060.02 60.02. 	2580	6.95	404.00	103.00	67.30	34.50
mk 2060.03 60.03. 	3540	9.57	1210.00	147.00	134.00	48.90
mk 2060.04 60.04. 	4520	12.20	2660.00	190.00	221.00	63.30
mk 2060.05 60.05. 	3800	10.30	660.00	660.00	110.00	110.00
mk 2060.07 60.07. 	6700	18.10	4090.00	1180.00	340.00	169.00

Individual Components

Clamping Profiles for Series 25



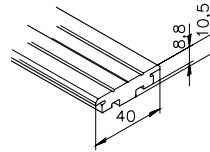
Profile mk 2038.20

0.44 kg/m

Stock length	38.20.6100
Cut	38.20.

Used for \varnothing 6 mm guide rod

Clamping Profiles for Series 40

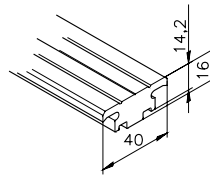


Profile mk 2038.30

0.79 kg/m

Stock length	38.30.6100
Cut	38.30.

Used for \varnothing 6 mm guide rod

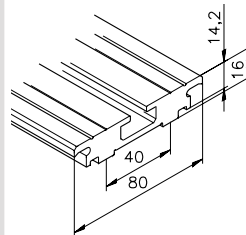


Profile mk 2038.31

1.07 kg/m

Stock length	38.31.6100
Cut	38.31.

Used for \varnothing 10 mm guide rod

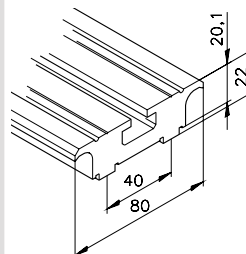


Profile mk 2038.32

0.44 kg/m

Stock length	38.32.6100
Cut	38.32.

Used for \varnothing 10 mm guide rod

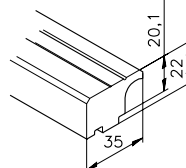


Profile mk 2038.33

2.96 kg/m

Stock length	38.33.6100
Cut	38.33.

Used for \varnothing 16 mm guide rod



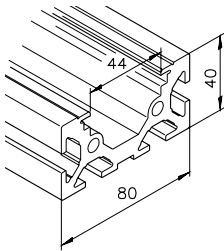
Profile mk 2038.07

1.50 kg/m

Stock length	38.07.6100
Cut	38.07.

Used for \varnothing 16 mm guide rod

Clamping Profiles for Series 40



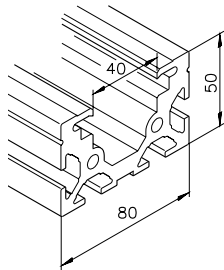
Profile mk 2038.75

3.41 kg/m

Stock length **38.75.6100**

Cut **38.75.**

Used for \varnothing 6 mm guide rod
 Internal guide



Profile mk 2038.77

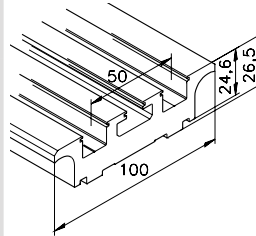
4.34 kg/m

Stock length **38.77.6100**

Cut **38.77.**

Used for \varnothing 10 mm guide rod
 Internal guide

Clamping Profiles for Series 50



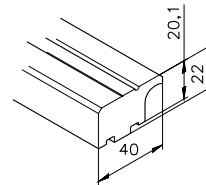
Profile mk 2038.46

3.97 kg/m

Stock length **38.46.6100**

Cut **38.46.**

Used for \varnothing 20 mm guide rod



Profile mk 2038.12

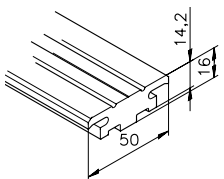
1.77 kg/m

Stock length **38.12.6100**

Cut **38.12.**

Used for \varnothing 16 mm guide rod

Clamping Profiles for Series 50



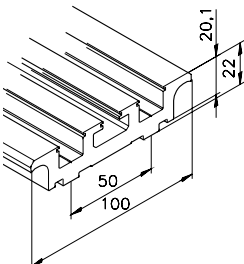
Profile mk 2038.41

1.36 kg/m

Stock length **38.41.6100**

Cut **38.41.**

Used for \varnothing 10 mm guide rod



Profile mk 2038.44

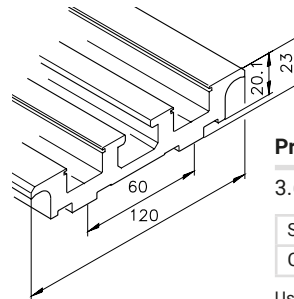
3.09 kg/m

Stock length **38.44.6100**

Cut **38.44.**

Used for \varnothing 16 mm guide rod

Clamping Profiles for Series 60



Profile mk 2038.36

3.62 kg/m

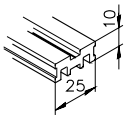
Stock length **38.36.6100**

Cut **38.36.**

Used for \varnothing 16 mm guide rod

Individual Components

Adapter Profiles for Series 25

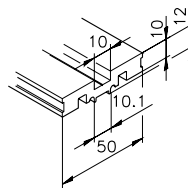


Profile mk 2038.50

0.46 kg/m

Stock length	38.50.6100
Cut	38.50.

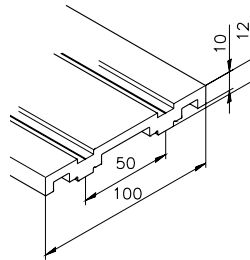
Adapter Profiles for Series 50



Profile mk 2038.60

1.04 kg/m

Stock length	38.60.6100
Cut	38.60.

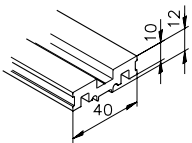


Profile mk 2038.61

1.90 kg/m

Stock length	38.61.6100
Cut	38.61.

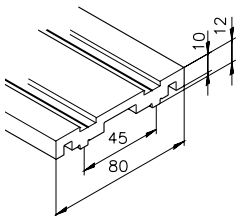
Adapter Profiles for Series 40 and 50



Profile mk 2038.55

0.77 kg/m

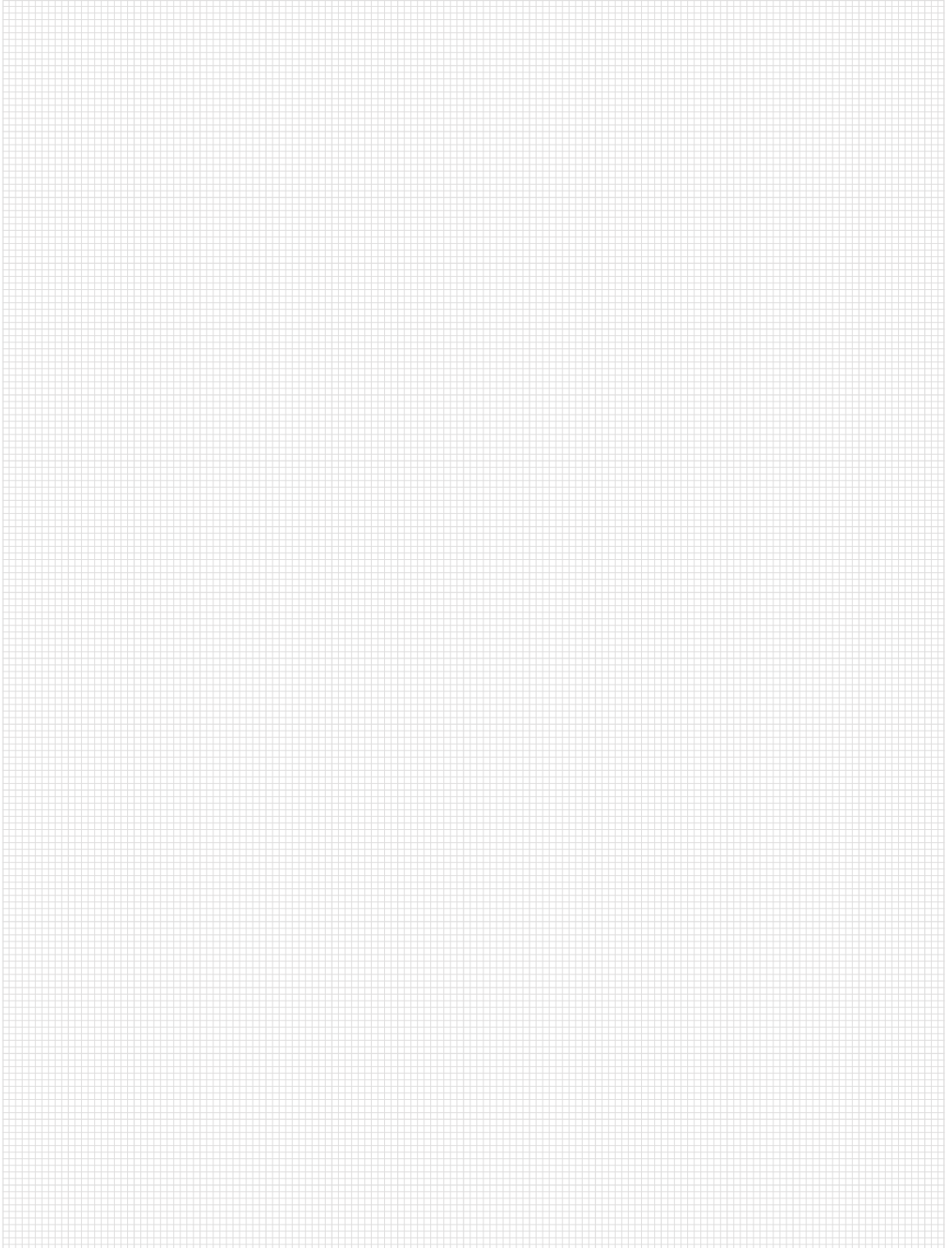
Stock length	38.55.6100
Cut	38.55.



Profile mk 2038.56

1.67 kg/m

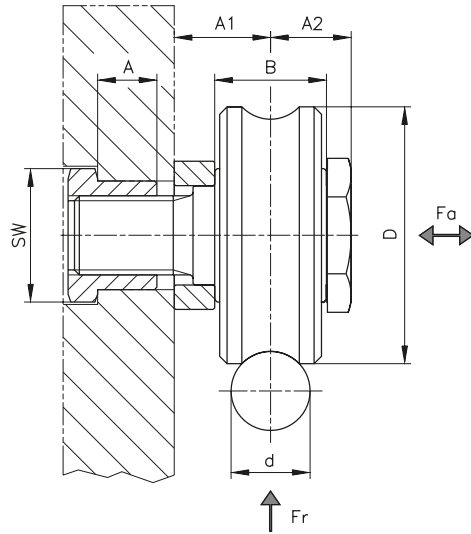
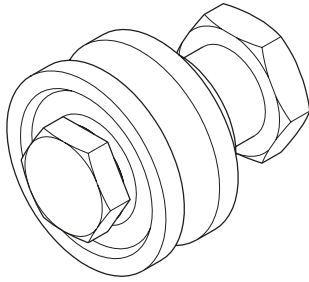
Stock length	38.56.6100
Cut	38.56.



Individual Components

Guide Rollers

for $\varnothing 6$, $\varnothing 10$, $\varnothing 16$, $\varnothing 20$ guide rods



Technical Values

Item no.	D [mm]	B [mm]	A [mm]	A1 [mm]	A2 [mm]	SW [mm]	d for Rod	Consisting of:			
								Track roller	Bolt	Spacer ring	Bushing
B60.02.017 centric	17	8	6	7	7	13	$\varnothing 6^*$	K101100003	25.51.3201	25.51.3301	25.51.3101
B60.02.018 eccentric	17	8	6	7	7	13	$\varnothing 6^*$	K101100003	25.51.3201	25.51.3301	25.51.3102
B60.02.015 centric	35	15.9	12	12.5	13	22	$\varnothing 10^*$	K101100001	05.06.0003	14.04.0003	06.01.0013
B60.02.016 eccentric	35	15.9	12	12.5	13	22	$\varnothing 10^*$	K101100001	05.06.0003	14.04.0003	06.01.0014
B60.02.013 centric	52	22.6	12	19.5	16.3	27	$\varnothing 16^*$	K101100002	05.06.0007	14.04.0004	06.01.0018
B60.02.014 eccentric	52	22.6	12	19.5	16.3	27	$\varnothing 16^*$	K101100002	05.06.0007	14.04.0004	06.01.0017
B60.02.011 centric	72	25.8	18	22	18	36	$\varnothing 20^*$	K101100006	05.06.0009	14.04.0020	06.01.0021
B60.02.012 eccentric	72	25.8	18	22	18	36	$\varnothing 20^*$	K101100006	05.06.0009	14.04.0020	06.01.0022

*For item numbers, see page 369

Guide rollers also available in stainless steel for all diameters.

Load Specifications per Roller

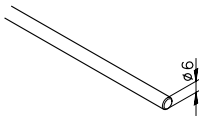
Value	Roller for $\varnothing 6$ mm rod	Roller for $\varnothing 10$ mm rod	Roller for $\varnothing 16$ mm rod	Roller for $\varnothing 20$ mm rod
so*	4	4	4	4
Fr	175N	1000N	2000N	3250N
Fa	60N	300N	500N	825N
Static load capacity C_{ow}	890N	5100N	9500N	16600N
Dynamic load capacity C_w	1270N	8500N	16800N	29500N

*Static load safety factor against plastic deformation on the roller contact in the track roller.

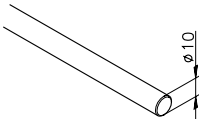
For stainless steel guide rods, these values must be reduced by 30%.

Guide Rods

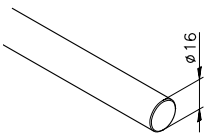
The stock length for Cf 53 and X46 Cr13 with corrosion resistance (magnetisable) is 4000 mm. For galvanised Cf 53 with corrosion protection, it is 3000 mm.



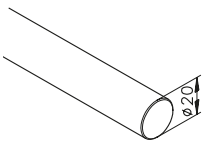
Guide rod 6
0.22 kg/m



Guide rod 10
0.62 kg/m



Guide rod 16
1.58 kg/m



Guide rod 20
2.47 kg/m

Item no.

Cf 53	Cf 53**	X46 Cr13
11,213	11,213	14,034

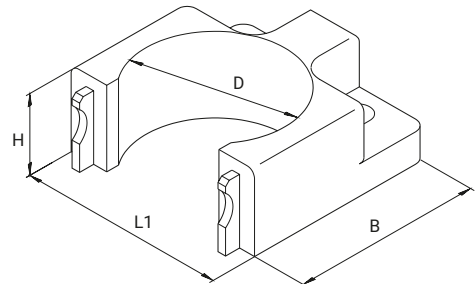
Wipers

Polyamide

The wipers act as a safety element (for protection against pinch points while guiding the roller) and also wipe coarse dirty from the guide rod.

With the wipers for rod diameters 10 and 16, a sealing lip clings to the guide rod and wipes away even finer particles.

The wipers for rod diameters 10 and 16 are also available on request with felt strips and lubrication nipples for lubrication with oil.



Technical Values

	Cf 53	Cf 53**	X46 Cr13	Item no.	d for Rod	L1 [mm]	B [mm]	H [mm]	D [mm]
ø 6 mm	7003AK....*	7003DC....*	7003EC....*	B03.00.014	ø 6***	25	22.5	11	19
ø 10 mm	7003AA....*	7003DH....*	7003EH....*	B03.00.003	ø 10	50	46	20	37
ø 16 mm	7003AM....*	7003DP....*	7003EP....*	B03.00.004	ø 16	70	64	30	56
ø 20 mm	7003CM....*	7003DT....*	7003ET....*	B03.00.013	ø 20***	100	80	35	76

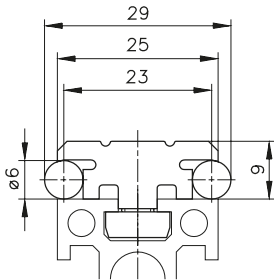
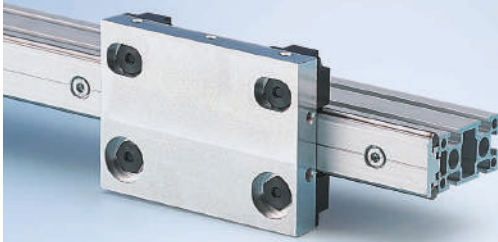
...* Shaft length in mm
** Galvanised

***Wiper without sealing lip

Series 25 Linear Units

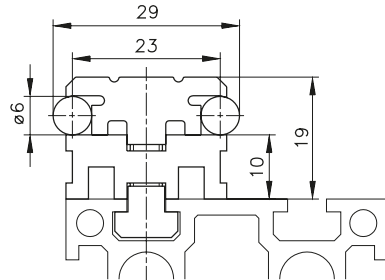
Profile Guide PF 6-38.20/50

The profile guide PF 6-38.20 with or without an adapter profile can be combined with the profiles from series 25 and the roller carriage shown on the next page. When combined, they form a linear unit.



Profile guide PF 6-38.20
B51.04.025

1.5 kg/m
L1 up to 6000 mm



Profile Guide PF 6-38.20/50
B51.04.029

With adapter profile
2 kg/m
L1 up to 6000 mm

Borehole spacing specifications

Scope of application: $75 \leq L1 \leq 6000$

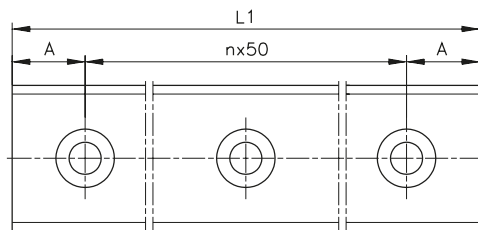
$12.5 \leq A < 37.5$

$$N = \frac{L1 - (2 \times A)}{50} + 1$$

L1 = length of the profile guide

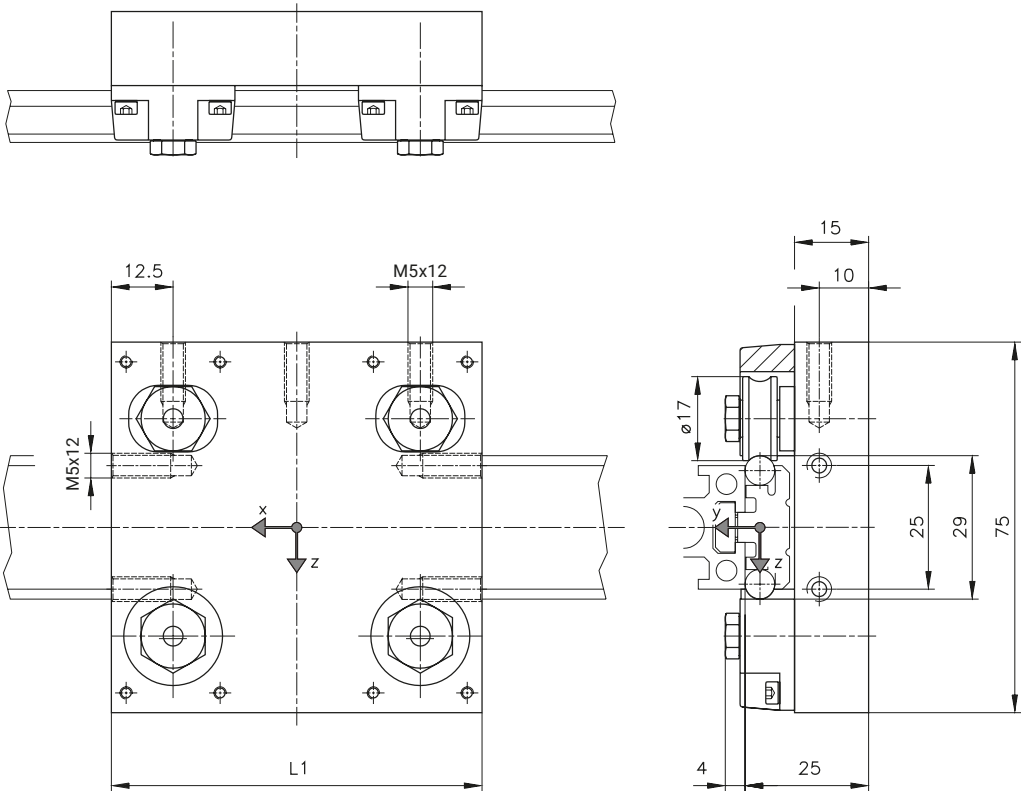
A = distance from the first borehole to the profile edge

N = number of screws



Roller Carriage LW 38.20-04

for Profile Guide PF 6-38.20/50



Technical Values

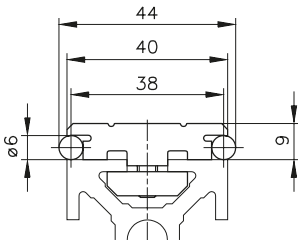
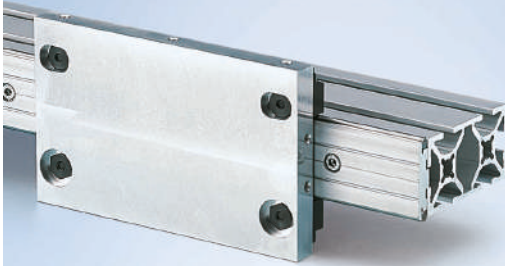
Item no.	Designation	L1 [mm]	F _{y0} [N]	F _{z0} [N]	M _{x0} [Nm]	M _{y0} [Nm]	M _{z0} [Nm]	m _{carriage} [kg]	Plate, individual
B90.25.041	LW 38.20-04	75	200	350	2.5	8.5	5	0.35	5009CA0075
B90.25.041	LW 38.20-04	100	200	350	2.5	13	8.0	0.43	5009CA0100

- Max. load specifications for $v \leq 10$ m/s and $a \leq 10$ m/s²; with $s_0 = 4$
- Max. acceleration $a = 50$ m/s² with reduced load
- Load application point max. 15 mm off-centre
- For X46 Cr13 rods and rollers, the load capacity must be reduced by 30%

Series 40 Linear Units

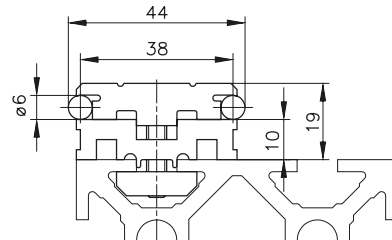
Profile Guide PF 6-38.30/55

The profile guide PF 6-38.30 with or without an adapter profile can be combined with the profiles from series 40 and the roller carriage shown on the next page. When combined, they form a linear unit.



Profile Guide PF 6-38.30
B51.04.042

1.8 kg/m
L1 up to 6000 mm



Profile Guide PF 6-38.30/55
B51.04.043

With adapter profile
2.6 kg/m
L1 up to 6000 mm

Borehole spacing specifications

Range: $75 \leq L1 \leq 6000$

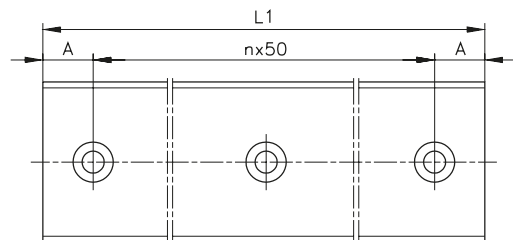
$12.5 \leq A < 37.5$

$$N = \frac{L1 - (2 \times A)}{50} + 1$$

L1 = length of the profile guide

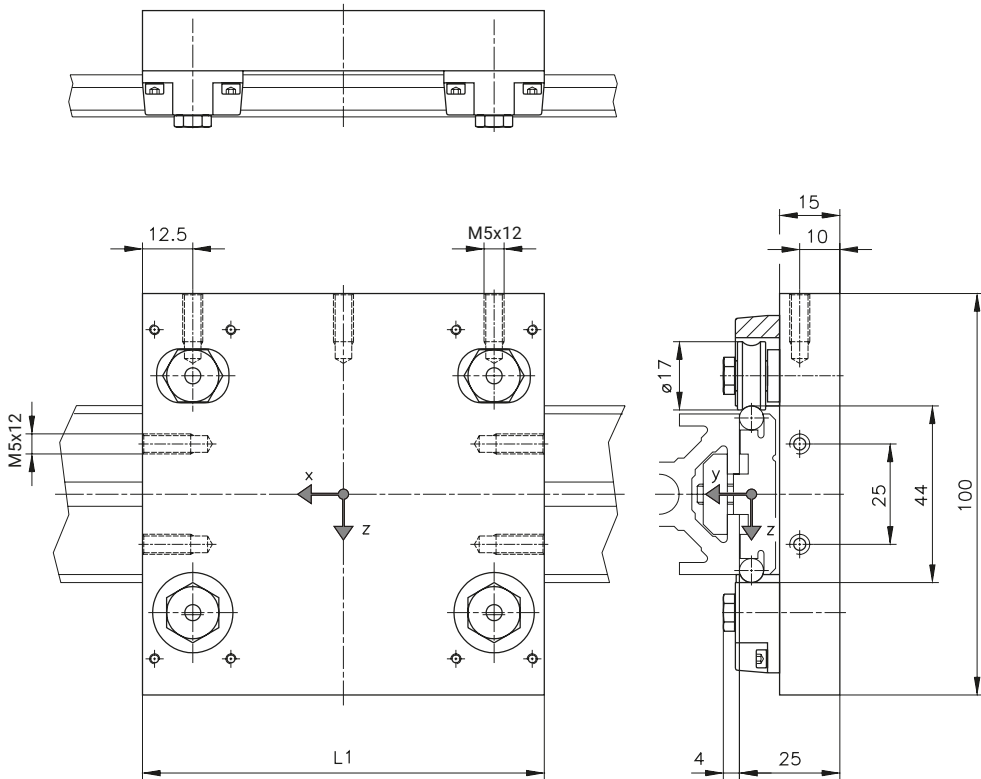
A = distance from the first borehole to the profile edge

N = number of screws



Roller Carriage LW 38.30-04

for Profile Guide PF 6-38.30/55



11

Technical Values

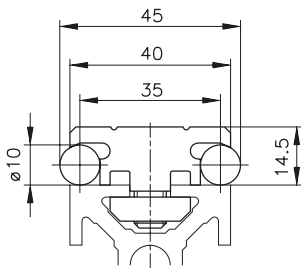
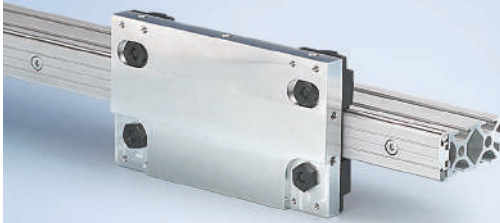
Item no.	Designation	L1 [mm]	F _{y0} [N]	F _{z0} [N]	M _{x0} [Nm]	M _{y0} [Nm]	M _{z0} [Nm]	m _{carriage} [kg]	Plate, individual
B90.40.041	LW 38.30-04	100	200	350	4	13	8	0.55	5009CC0100
B90.40.041	LW 38.30-04	160	200	350	4	23	14	0.8	5009CC0160

- Max. load specifications for $v \leq 10$ m/s and $a \leq 10$ m/s²; with $s_0 = 4$
- Max. acceleration $a = 50$ m/s² with reduced load
- Load application point max. 15 mm off-centre
- For X46 Cr13 rods and rollers, the load capacity must be reduced by 30%

Series 40 Linear Units

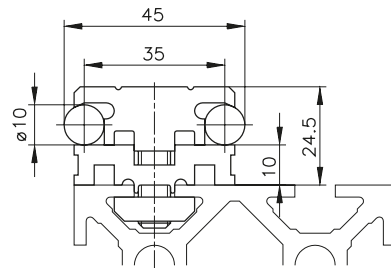
Profile Guide PF 10-38.31/55

The profile guide PF 10-38.31 with or without an adapter profile can be combined with the profiles from series 40 and the roller carriage shown on the next page. When combined, they form a linear unit.



Profile Guide PF 10-38.31
B51.04.046

2.8 kg/m
L1 up to 6000 mm



Profile Guide PF 10-38.31/55
B51.04.047

With adapter profile
3.6 kg/m
L1 up to 6000 mm

Borehole spacing specifications

Range: $150 \leq L1 \leq 6000$

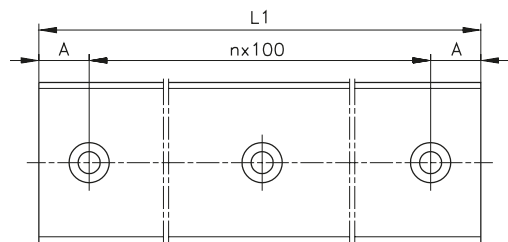
$25 \leq A < 75$

$$N = \frac{L1 - (2 \times A)}{100} + 1$$

L1 = length of the profile guide

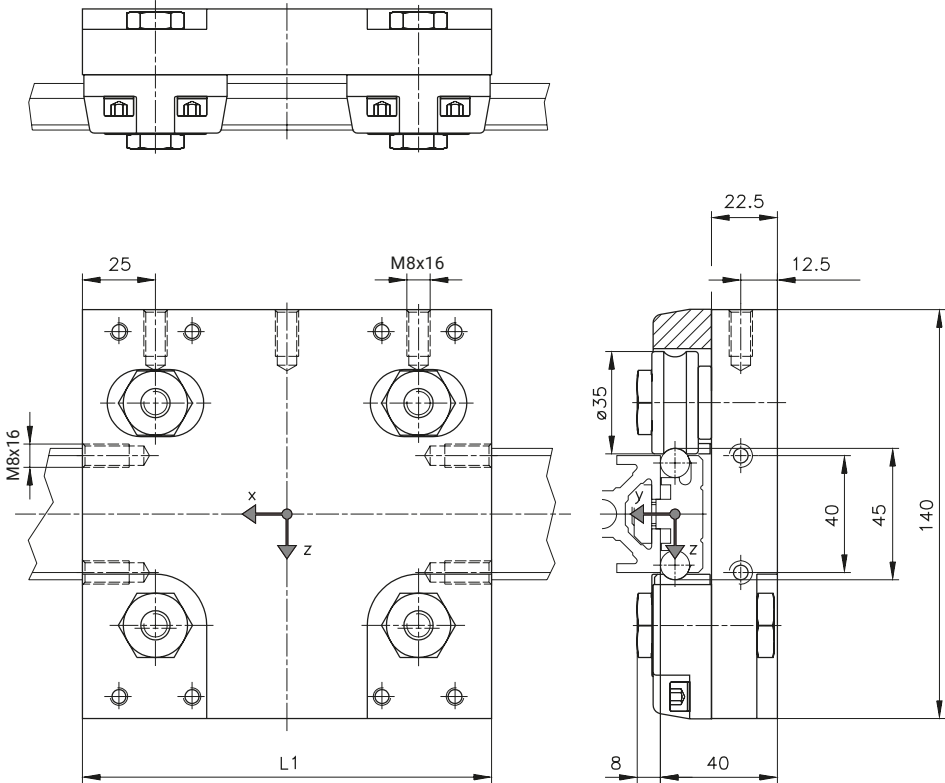
A = distance from the first borehole to the profile edge

N = number of screws



Roller Carriage LW 38.31-04

for Profile Guide PF 10-38.31/55



Technical Values

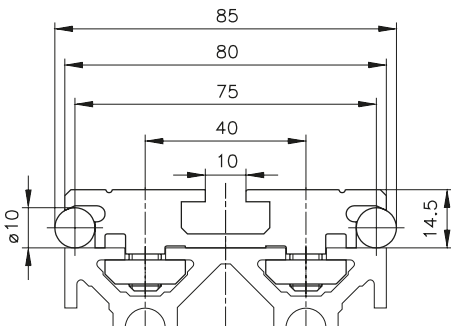
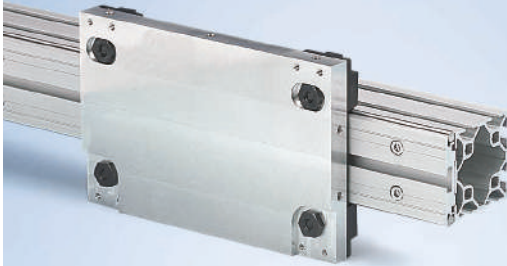
Item no.	Designation	L1 [mm]	F _{y0} [N]	F _{z0} [N]	M _{x0} [Nm]	M _{y0} [Nm]	M _{z0} [Nm]	m _{carriage} [kg]	Plate, individual
B90.40.042	LW 38.31-04	140	1000	2000	18	90	45	2	5009CD0140
B90.40.042	LW 38.31-04	240	1000	2000	18	190	95	2.8	5009CD0240

- Max. load specifications for $v \leq 10$ m/s and $a \leq 10$ m/s²; with $s_0 = 4$
- Max. acceleration $a = 50$ m/s² with reduced load
- Load application point max. 25 mm off-centre
- For X46 Cr13 rods and rollers, the load capacity must be reduced by 30%

Series 40 Linear Units

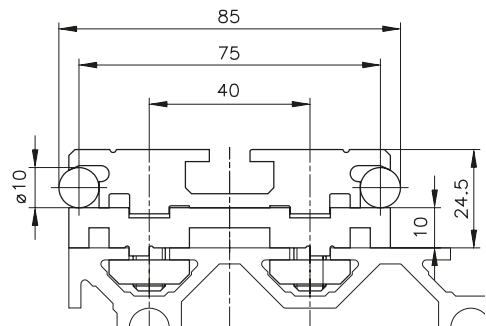
Profile Guide PF 10-38.32/56

The profile guide PF 10-38.32 with or without an adapter profile can be combined with the profiles from series 40 and the roller carriage shown on the next page. When combined, they form a linear unit.



Profile Guide PF 10-38.32
B51.04.048

4 kg/m
L1 up to 6000 mm



Profile Guide PF 10-38.32/56
B51.04.049

With adapter profile
5,8 kg/m
L1 up to 6000 mm

Borehole spacing specifications

Range: $200 \leq L1 \leq 6000$

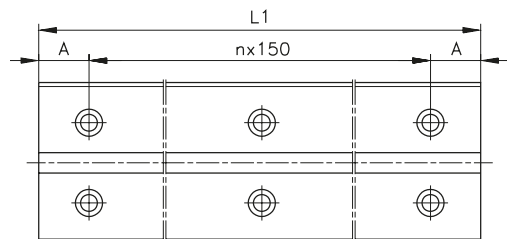
$25 \leq A < 100$

$$N = \left(\frac{L1 - (2 \times A)}{150} + 1 \right) \times 2$$

L1 = length of the profile guide

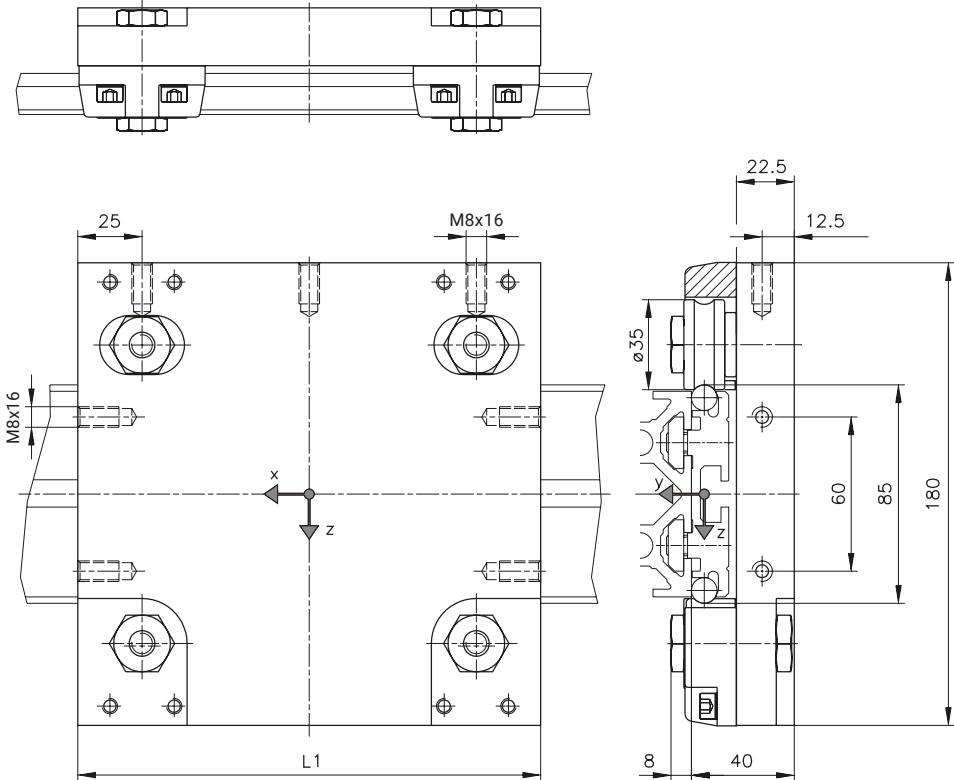
A = distance from the first borehole to the profile edge

N = number of screws



Roller Carriage LW 38.32-04

for Profile Guide PF 10-38.32/56



11

Technical Values

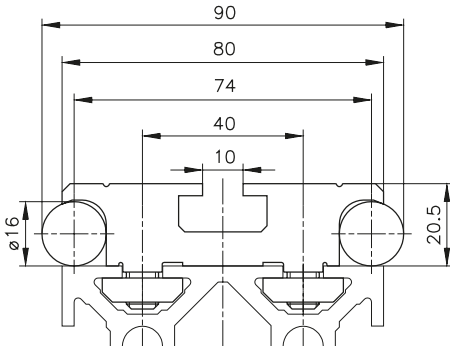
Item no.	Designation	L1 [mm]	F _{y0} [N]	F _{z0} [N]	M _{x0} [Nm]	M _{y0} [Nm]	M _{z0} [Nm]	m _{carriage} [kg]	Plate, individual
B90.40.043	LW 38.32-04	180	1000	2000	40	130	65	2.8	5009CE0180
B90.40.043	LW 38.32-04	280	1000	2000	40	230	115	3.8	5009CE0280

- Max. load specifications for $v \leq 10$ m/s and $a \leq 10$ m/s²; with $s_0 = 4$
- Max. acceleration $a = 50$ m/s² with reduced load
- Load application point max. 25 mm off-centre
- For X46 Cr13 rods and rollers, the load capacity must be reduced by 30%

Series 40 Linear Units

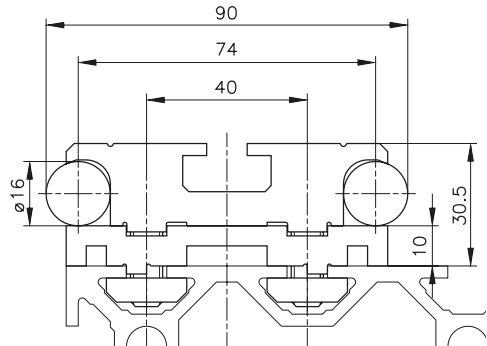
Profile Guide PF 16-38.33/56

The profile guide PF 16-38.33 with or without an adapter profile can be combined with the profiles from series 40 and the roller carriage shown on the next page. When combined, they form a linear unit.



Profile Guide PF 16-38.33
B51.04.052

7 kg/m
L1 up to 6000 mm



Profile Guide PF 16-38.33/56
B51.04.053

With adapter profile
8.8 kg/m
L1 up to 6000 mm

Borehole spacing specifications

Range: 150 ≤ L1 < 450 450 ≤ L1 < 6000

25 ≤ A < 75

125 ≤ A < 225

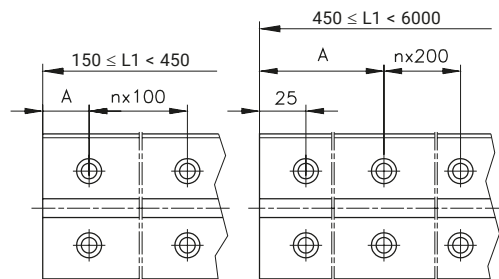
$$N = \left(\frac{L1 - (2 \times A)}{100} + 1 \right) \times 2$$

$$N = \left(\frac{L1 - (2 \times A)}{200} + 3 \right) \times 2$$

L1 = length of the profile guide

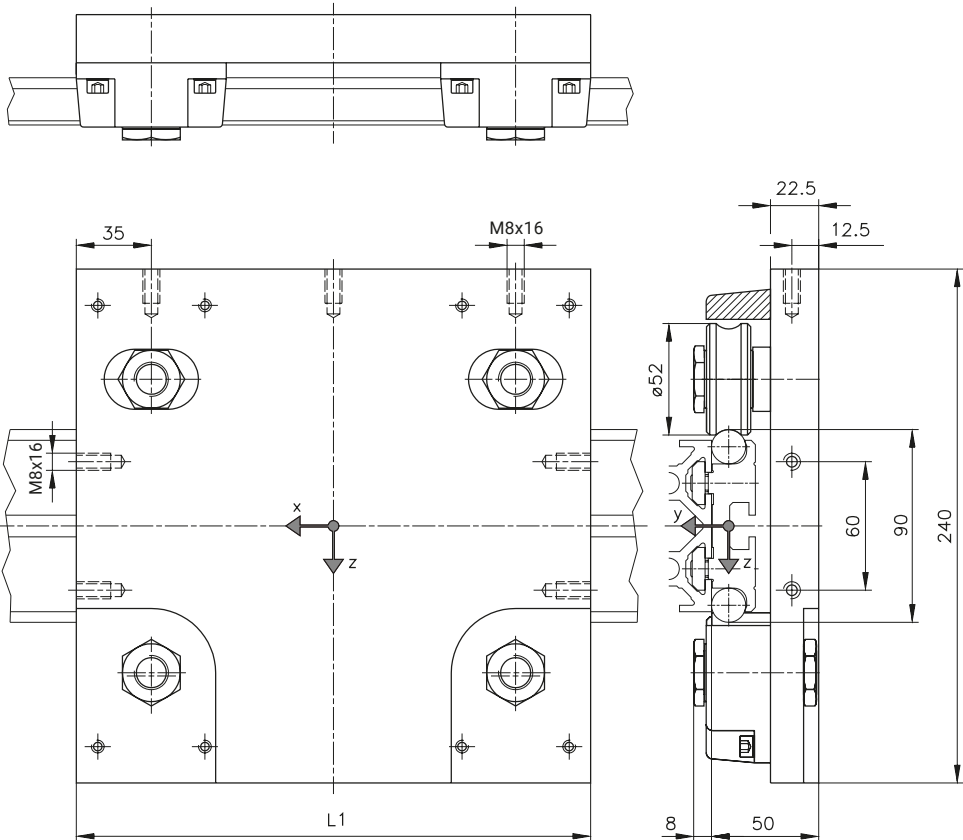
A = distance from the first borehole to the profile edge

N = number of screws



Roller Carriage LW 38.33-04

for Profile Guide PF 16-38.33/56



Technical Values

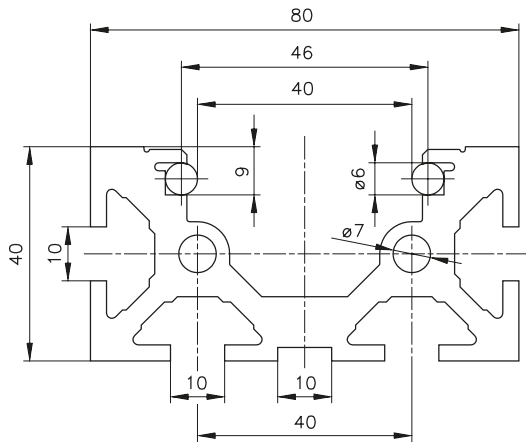
Item no.	Designation	L1 [mm]	F_{y0} [N]	F_{z0} [N]	M_{x0} [Nm]	M_{y0} [Nm]	M_{z0} [Nm]	m_{carriage} [kg]	Plate, individual
B90.40.044	LW 38.33-04	240	1600	4000	60	340	140	5.5	5009CF0240
B90.40.044	LW 38.33-04	400	1600	4000	60	660	260	8	5009CF0400

- Max. load specifications for $v \leq 10$ m/s and $a \leq 10$ m/s²; with $s_0 = 4$
- Max. acceleration $a = 50$ m/s² with reduced load
- Load application point max. 30 mm off-centre
- For X46 Cr13 rods and rollers, the load capacity must be reduced by 30%

Series 40 Linear Units

Internal Profile Guide PF 6-38.75

The profile guide PF 6-38.75 can be combined with the roller carriage shown on the next page. When combined, they form a linear unit.



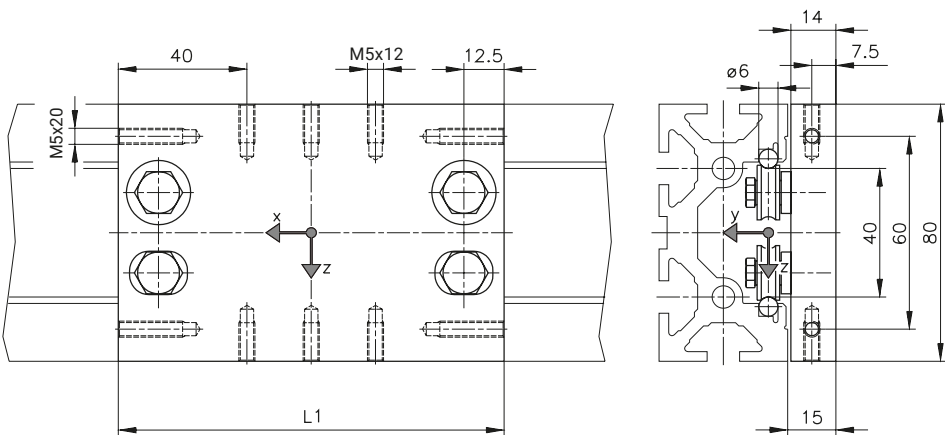
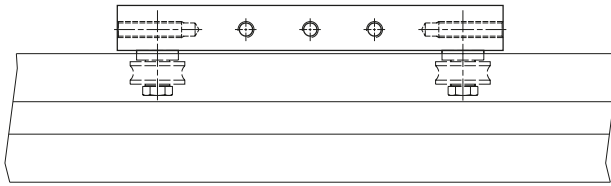
Profile Guide PF 6-38.75

B51.04.140

3.9 kg/m
L1 up to 6000 mm

Roller Carriage LW 38.75-44

For profile guide PF 6-38.75



Technical Values

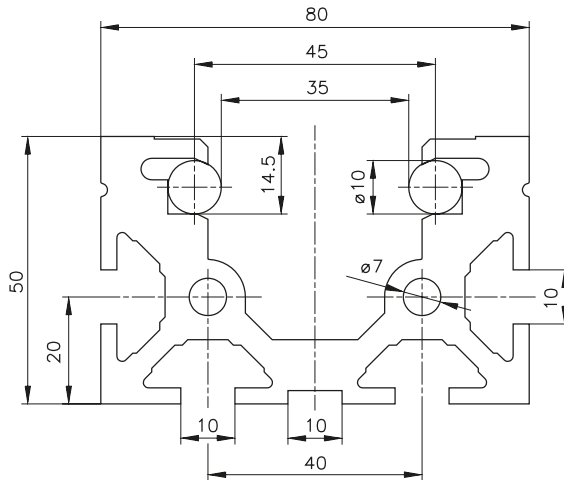
Item no.	Designation	L1 [mm]	F _{y0} [N]	F _{z0} [N]	M _{x0} [Nm]	M _{y0} [Nm]	M _{z0} [Nm]	m _{carriage} [kg]	Plate, individual
B90.40.441	LW 38.75-44	120	200	350	5	15	10	0.5	5009CN0120

- Max. load specifications for $v \leq 10$ m/s and $a \leq 10$ m/s²; with $s_0 = 4$
- Max. acceleration $a = 50$ m/s² with reduced load
- Load application point max. 15 mm off-centre
- For X46 Cr13 rods and rollers, the load capacity must be reduced by 30%

Series 40 Linear Units

Internal Profile Guide PF 10-38.77

The profile guide PF 10-38.77 can be combined with the roller carriage shown on the next page. When combined, they form a linear unit.



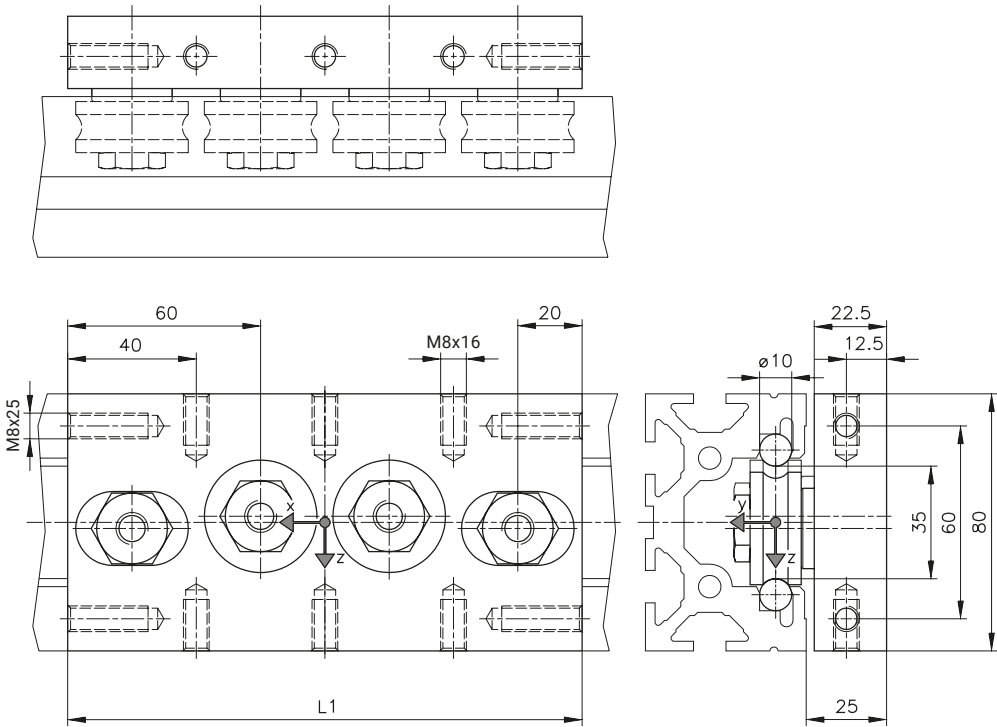
Profile guide PF 10-38.77

B51.04.142

5.6 kg/m
L1 up to 6000 mm

Roller Carriage LW 38.77-44

For profile guide PF 10-38.77



Technical Values

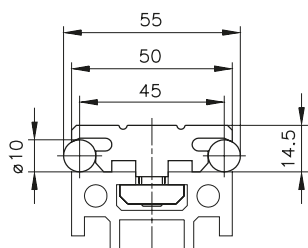
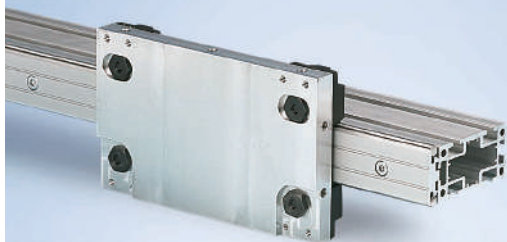
Item no.	Designation	L1 [mm]	F _{y0} [N]	F _{z0} [N]	M _{x0} [Nm]	M _{y0} [Nm]	M _{z0} [Nm]	m _{carriage} [kg]	Plate, individual
B90.40.443	LW 38.77-44	160	1000	1500	20	60	40	1.5	5009CO0160

- Max. load specifications for $v \leq 10$ m/s and $a \leq 10$ m/s²; with $s_0 = 4$
- Max. acceleration $a = 50$ m/s² with reduced load
- Load application point max. 25 mm off-centre
- For X46 Cr13 rods and rollers, the load capacity must be reduced by 30%

Series 50 Linear Units

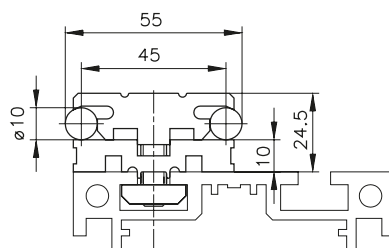
Profile Guide PF 10-38.41/60

The profile guide PF 10-38.41 with or without an adapter profile can be combined with the profiles from series 50 and the roller carriage shown on the next page. When combined, they form a linear unit.



Profile guide PF 10-38.41
B51.04.020

3 kg/m
L1 up to 6000 mm



Profile Guide PF 10-38.41/60
B51.04.015

With adapter profile
4.2 kg/m
L1 up to 6000 mm

Borehole spacing specifications

Range: $150 \leq L1 \leq 6000$

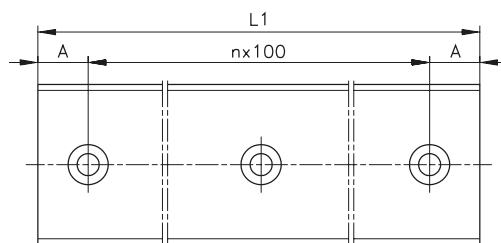
$25 \leq A < 75$

$$N = \frac{L1 - (2 \times A)}{100} + 1$$

L1 = length of the profile guide

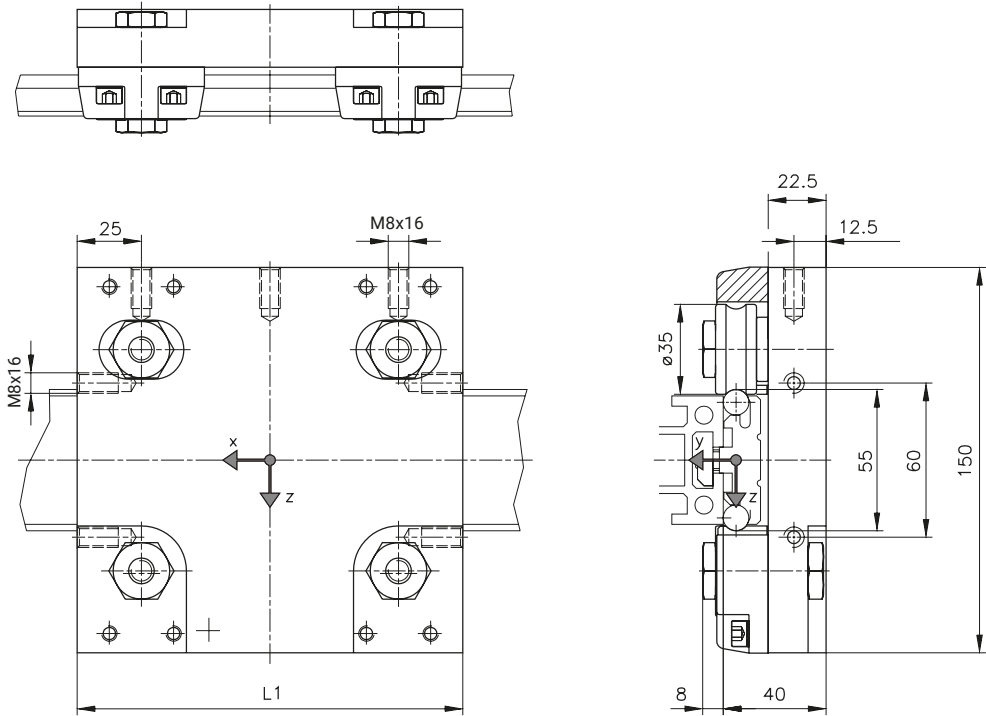
A = distance from the first borehole to the profile edge

N = number of screws



Roller Carriage LW 38.41-04

for Profile Guide PF 10-38.41/60



Technical Values

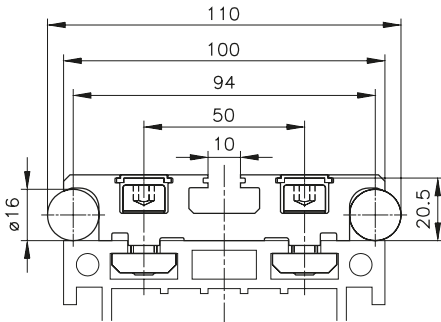
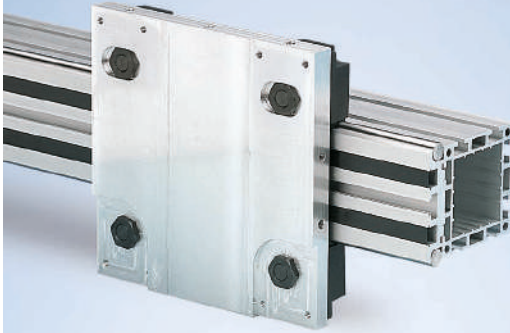
Item no.	Designation	L1 [mm]	F _{y0} [N]	F _{z0} [N]	M _{x0} [Nm]	M _{y0} [Nm]	M _{z0} [Nm]	m _{carriage} [kg]	Plate, individual
B90.50.042	LW 38.41-04	150	1000	2000	25	100	50	2.2	5009CG0150
B90.50.042	LW 38.41-04	250	1000	2000	25	200	100	3	5009CG0250

- Max. load specifications for $v \leq 10$ m/s and $a \leq 10$ m/s²; with $s_0 = 4$
- Max. acceleration $a = 50$ m/s² with reduced load
- Load application point max. 25 mm off-centre
- For X46 Cr13 rods and rollers, the load capacity must be reduced by 30%

Series 50 Linear Units

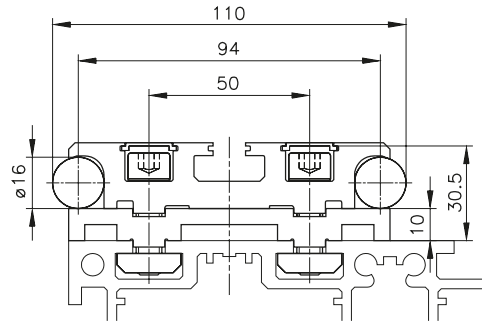
Profile Guide PF 16-38.44/61

The profile guide PF 16-38.44 with or without an adapter profile can be combined with the profiles from series 50 and the roller carriage shown on the next page. When combined, they form a linear unit.



Profile guide PF 16-38.44
B51.04.004

6.8 kg/m
L1 up to 6000 mm



Profile guide PF 16-38.44/61
B51.04.016

With adapter profile
8.8 kg/m
L1 up to 6000 mm

Borehole spacing specifications

Range of app.: $150 \leq L1 < 450$ $450 \leq L1 < 6000$

$25 \leq A < 75$

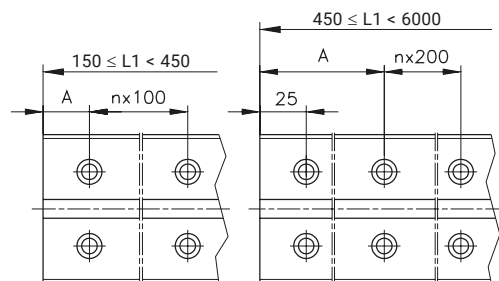
$125 \leq A < 225$

$$N = \left(\frac{L1 - (2 \times A)}{100} + 1 \right) \times 2 \quad N = \left(\frac{L1 - (2 \times A)}{200} + 3 \right) \times 2$$

L1 = length of the profile guide

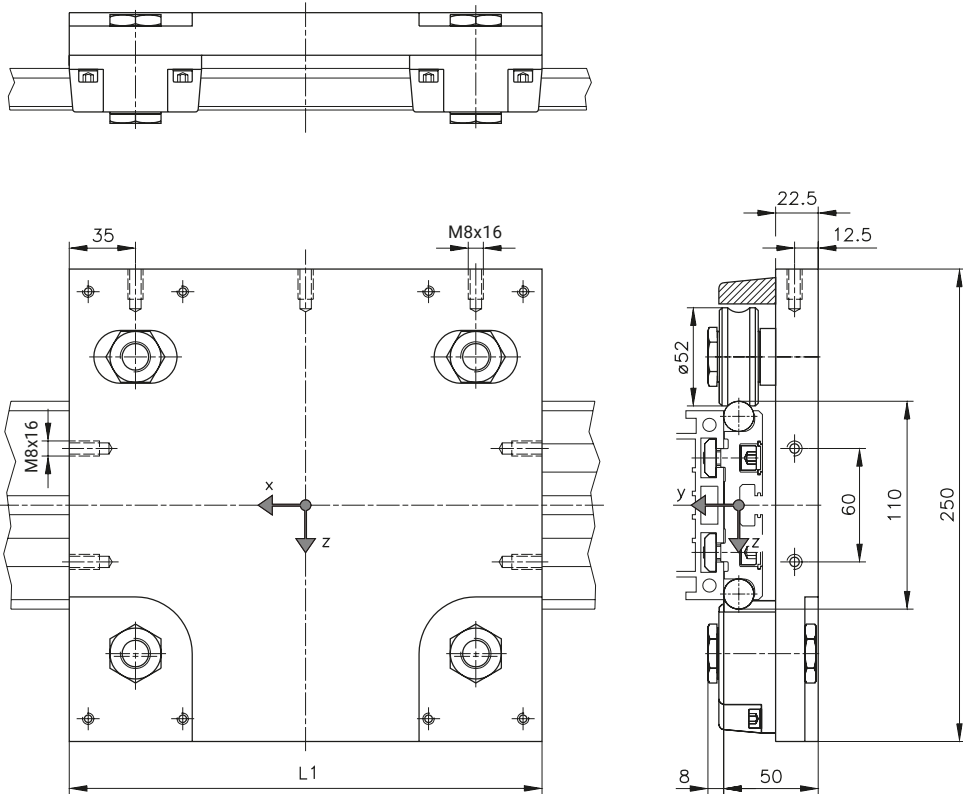
A = distance from the first borehole to the profile edge

N = number of screws



Roller Carriage LW 38.44-04

for Profile Guide PF 16-38.44/61



Technical Values

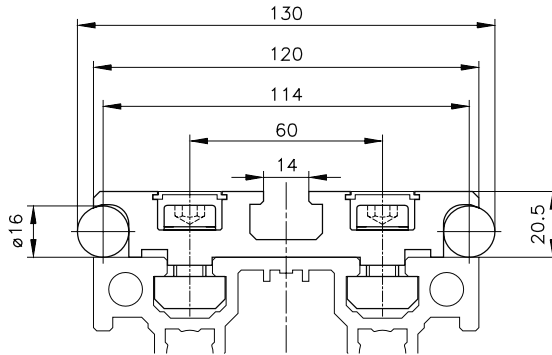
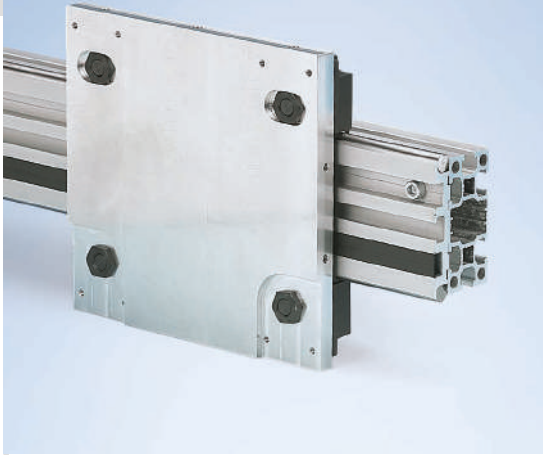
Item no.	Designation	L1 [mm]	F _{y0} [N]	F _{z0} [N]	M _{x0} [Nm]	M _{y0} [Nm]	M _{z0} [Nm]	m _{carriage} [kg]	Plate, individual
B90.50.044	LW 38.44-04	250	1600	4000	80	360	150	5.5	5009CI0250
B90.50.044	LW 38.44-04	450	1600	4000	80	760	300	8.5	5009CI0450

- Max. load specifications for $v \leq 10$ m/s and $a \leq 10$ m/s²; with $s_0 = 4$
- Max. acceleration $a = 50$ m/s² with reduced load
- Load application point max. 30 mm off-centre
- For X46 Cr13 rods and rollers, the load capacity must be reduced by 30%

Series 60 Linear Units

Profile guide PF 16-38.36

The profile guide PF 16-38.36 can be combined with the profiles from series 60 and the roller carriage shown on the next page. When combined, they form a linear unit.



Profile guide PF 16-38.36
B51.04.109

9.5 kg/m
L1 up to 6000 mm

Borehole spacing specifications

Range of app.: $150 \leq L1 < 450$ $450 \leq L1 < 6000$

$25 \leq A < 75$

$125 \leq A < 225$

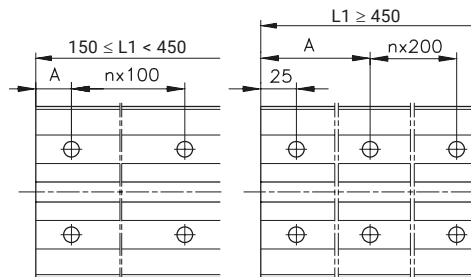
$$N = \left(\frac{L1 - (2 \times A)}{100} + 1 \right) \times 2$$

$$N = \left(\frac{L1 - (2 \times A)}{200} + 3 \right) \times 22$$

L1 = length of the profile guide

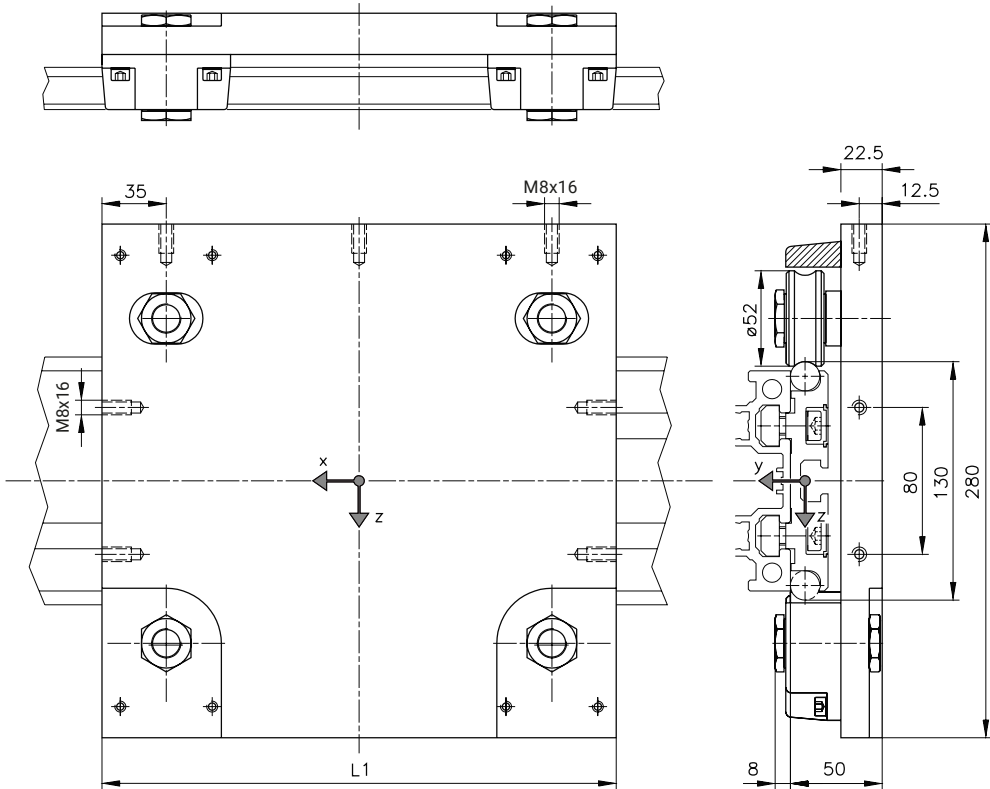
A = distance from the first borehole to the profile edge

N = number of screws



Roller Carriage LW 38.36-04

For profile guide PF 16-38.36



Technical Values

Item no.	Designation	L1 [mm]	F_{y0} [N]	F_{z0} [N]	M_{x0} [Nm]	M_{y0} [Nm]	M_{z0} [Nm]	m_{carriage} [kg]	Plate, individual
B90.60.042	LW 38.36-04	280	1600	4000	100	420	170	6.5	5009CL0280
B90.60.042	LW 38.36-04	480	1600	4000	100	820	330	10	5009CL0480

- Max. load specifications for $v \leq 10$ m/s and $a \leq 10$ m/s²; with $s_0 = 4$
- Max. acceleration $a = 50$ m/s² with reduced load
- Load application point max. 30 mm off-centre
- For X46 Cr13 rods and rollers, the load capacity must be reduced by 30%

Linear Modules LZR

Linear modules with timing belts (LZR) have a modular design and are installed on the track roller assemblies. Their basic components include the mounting profile, profile guide and carriage plate and the timing belt drive components required to transmit power, such as the pulleys and connectors.

The LZR design facilitates the attachment of motors as standard. With the appropriately drilled shafts, the pulleys allow the motor to be attached directly on any side. In addition, shaft ends for flanged mounting of a gearmotor with a hollow shaft, adaptations with a motor flange and coupling and an indirect drive are available on request.

For electromotive drives using a stepper motor or servomotor, we recommend using the optional single-piece drive shafts.

The linear modules can be combined in two-axis and three-axis systems and in area gantries and three-dimensional gantries.

Level of Accuracy that can be achieved by Linear Modules with Timing Belts

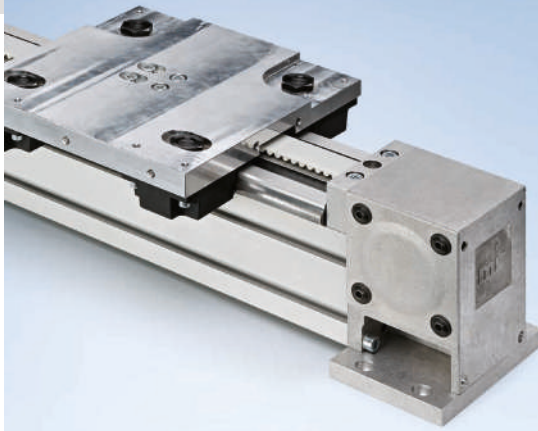
The LZR with a 8M-30-type timing belt can achieve the following values without a load:

Repeatability: 0.1 mm

Positioning accuracy: ± 0.2 mm

Reversal error: 0.2 mm

These values vary depending on the stroke length and application.



Order designation

LZR 2025-38.20-16

System designation

Mounting profile

Clamping profile

Timing belt width

Sample order

Linear module	LZR 2025-38.20-16
Item no.	B38.25.001
Stroke	=mm
Length	L =mm
Roller carriage length	L1 =mm
Drive shaft borehole	\varnothing =mm
Travel speed	v =m/s
Acceleration	a =m/s ²

Notes on the Load Specifications

For information about load specifications for track roller assemblies, refer to the information beginning on page 354.

Notes on the Load Specifications for Timing Belts

The standard timing belts used are PU (polyurethane) with steel cord tension members. Other types, including conductive belts, are available on request.

The maximum track roller assembly travel speed of $v = 10$ m/s can be achieved using timing belts with no reduction of the load capacities.

From $a > 10$ m/s² onwards, the values must be reduced by the usual load factors (e.g. without load peaks $s = 1$ to high load peaks $s = 2.5$).

The allowable tension loads are based on a 0.4% elongation of the timing belt.

The breaking strength of the belts is significantly higher. The normal usable belt pull strength (F_u) and required pretension (F_v) is approximately:

$$F_{\text{allowable}} = F_v + F_u \quad \text{with } F_v = F_u$$

Timing Belts	AT 5-16	5M-15	8M-30
F_{breaking}	3900 N	3600 N	14900 N
$F_{\text{allowable}}$	1200 N	1150 N	4000 N
$F_v = F_u$	600 N	575 N	2000 N

The usable starting torque results from the maximum usable belt pull strength, of the engaged teeth and the pitch diameter of the timing belt pulley.

The values for the mk LZR modules are:

Timing belt	AT 5-16	5M-15	8M-30
D_{Pitch}	41.4 mm	50.9 mm	71.3 mm
Z	26	32	28
M_{Drive}	12 Nm	15 Nm	70 Nm

Motor Selection/ Drive Design

For the drive selection, several factors must be considered, including the timing belt (especially the allowable belt pull strength and required stiffness) and the motor (especially the starting torque, the revolutions per minute and the resulting performance). The most important consideration is the required driving force. As a simple starting point for the calculations, the transition point from acceleration to constant speed can be used.

Constant acceleration (a = constant):

$$v = a \cdot t = \sqrt{2 \cdot a \cdot s}$$

Constant speed (v = constant):

$$v = \frac{s}{t}$$

Max. driving force:

$$F_{\text{Drive}} = F_a + F_{\text{Roll}} + F_{\text{Empty}} + F_{\text{Additional}}$$

$$F_a = m \cdot (a+g)$$

with m = moving mass in kg
 a = const. acceleration in m/s²
 $g = 10$ m/s², for vertical travel
 $g = 0$ m/s², for horizontal travel

$$F_{\text{Roll}} = F_N \cdot \mu_{\text{Roll}}$$

with $F_N = F_G$ for horizontal travel

$$\mu_{\text{Roll}} = 0.05 \text{ for lightly preloaded track roller}$$

$F_{\text{Empty}} = 50$ to 100 N depending on the module and pre-tension of the timing belt

$F_{\text{Additional}} =$ additional loads from the application

$$F_{\text{Drive}} = m \cdot (a+g) + F_N \cdot 0.05 + 100 \text{ N} + F_{\text{Additional}}$$

For timing belt selection:

Indicated $F_{\text{Drive}} < F_u$

For motor selection:

$$M_{\text{req}} = \frac{F_{\text{Drive}} \cdot D_{\text{Pitch}} [\text{m}]}{2 \cdot \eta}$$

$$n_{\text{req}} = \frac{v \cdot 60}{D_{\text{Pitch}} [\text{m}] \cdot \pi}$$

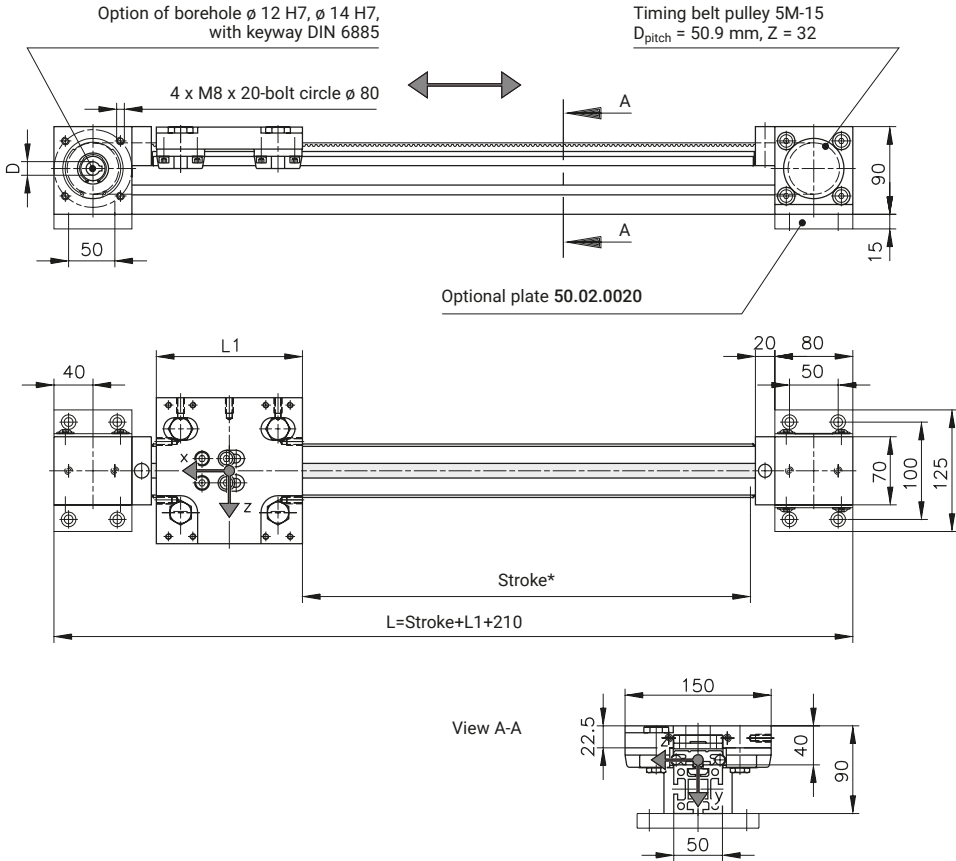
$$P_{\text{req}} = \frac{F_{\text{Drive}} \cdot v}{\eta}$$

With D_{Pitch} in m of timing belt pulley $\eta = 50$ too 75% depending on selected drive (gearbox, motor, etc.)

v in m/s

Linear Modules LZR

LZR 2000-38.41-15 with Plate Carriage



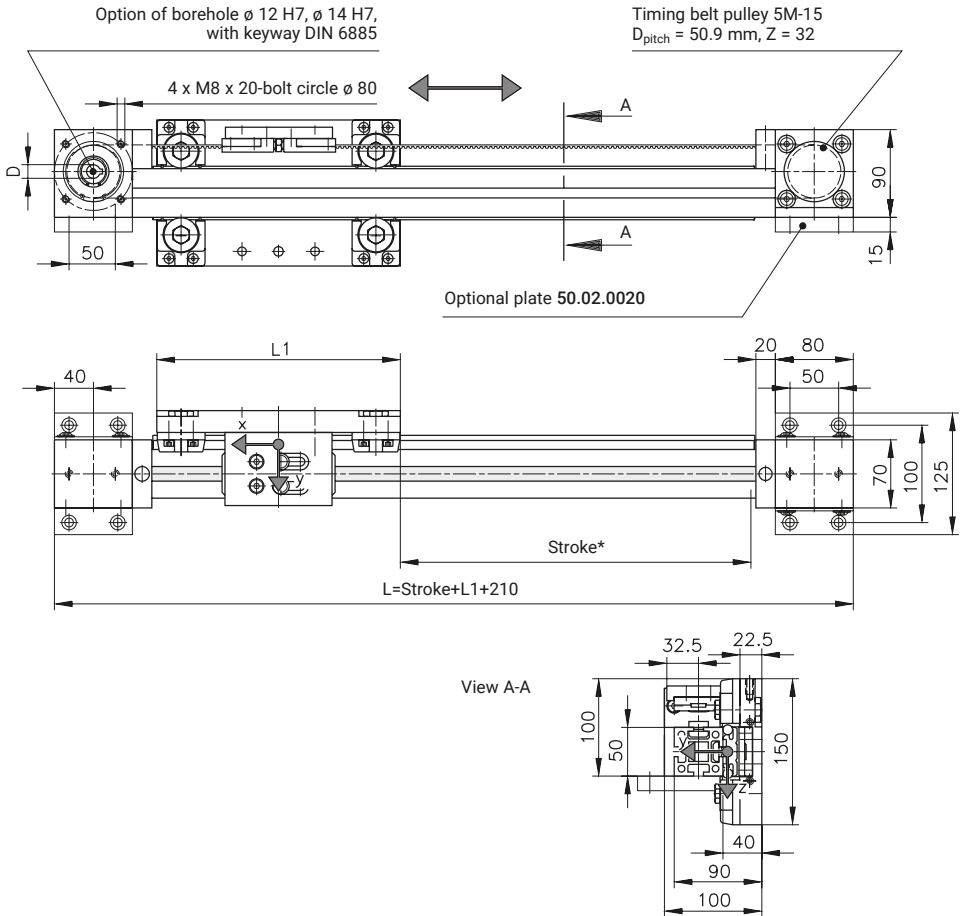
Load Specifications for LZR 2000-38.41-15 with Plate Carriage

Item no.	L1 [mm]	F_x^{**} [N]	F_{y0} [N]	F_{z0} [N]	M_{x0} [Nm]	M_{y0} [Nm]	M_{z0} [Nm]
B38.02.003	150	1150	1000	2000	25	100	50
B38.02.003	250	1150	1000	2000	25	200	100

* Maximum stroke between the mechanical stops. Note the discharge section!

** $F_x = F_{allowable}$; $F_u = 575$ N = F_v

LZR 2000-38.41-15 with Side Mounted Plate Carriage



Load Specifications for LZR 2000-38.41-15 with Side Mounted Plate Carriage

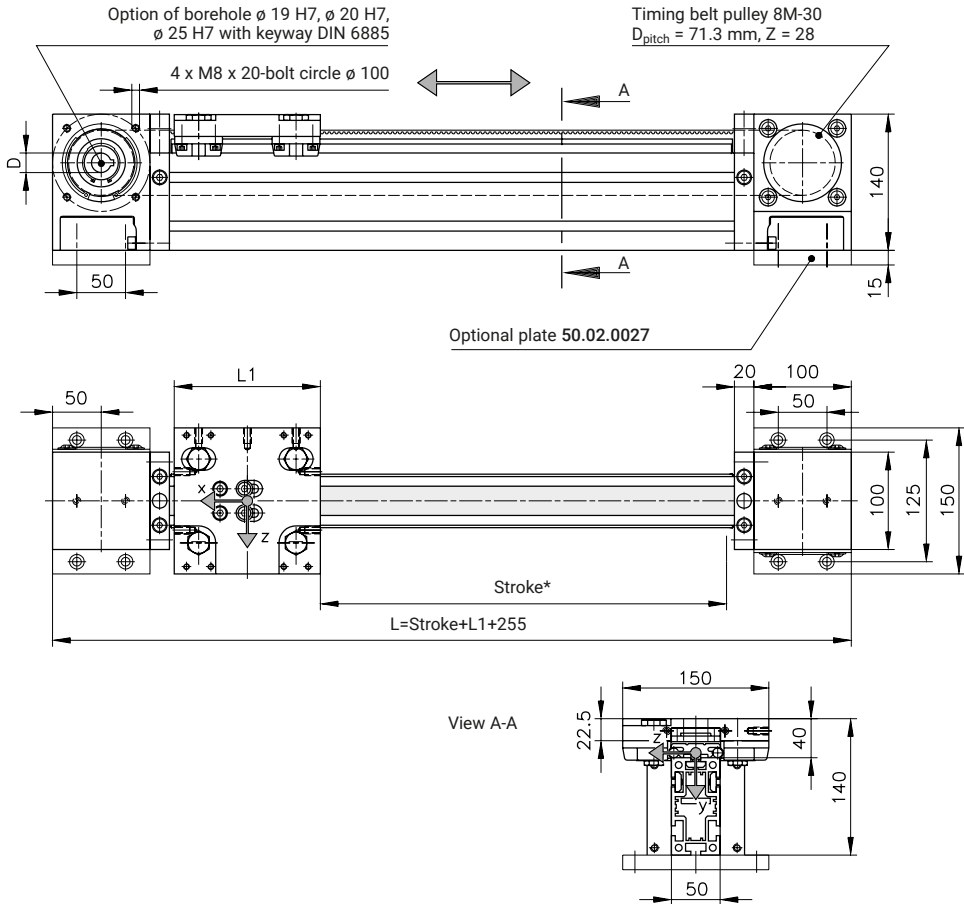
Item no.	L1 [mm]	F_x^{**} [N]	F_{y0} [N]	F_{z0} [N]	M_{x0} [Nm]	M_{y0} [Nm]	M_{z0} [Nm]
B38.02.007	250	1150	1000	2000	25	200	100

* Maximum stroke between the mechanical stops. Note the discharge section!

** $F_x = F_{allowable}$; $F_u = 575 \text{ N} = F_v$

Linear Modules LZR

LZR 2004-38.41-30 with Plate Carriage



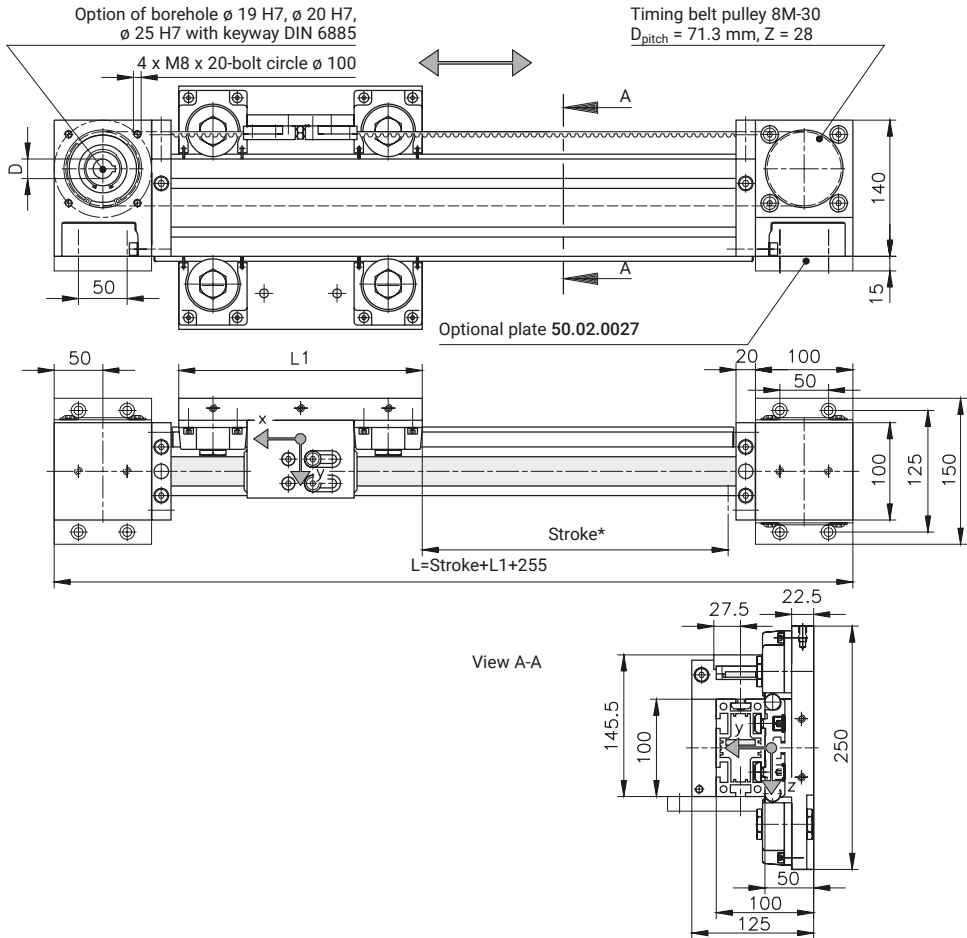
Load Specifications for LZR 2004-38.41-30 with Plate Carriage

Item no.	L1 [mm]	F_x^{**} [N]	F_{y0} [N]	F_{z0} [N]	M_{x0} [Nm]	M_{y0} [Nm]	M_{z0} [Nm]
B38.02.004	150	4000	1000	2000	25	100	50
B38.02.004	250	4000	1000	2000	25	200	100

* Maximum stroke between the mechanical stops. Note the discharge section!

** $F_x = F_{allowable}$; $F_u = 2000$ N = F_v

LZR 2004-38.44-30 with Side Mounted Plate Carriage



Load Specifications for LZR 2004-38.44-30 with Side Mounted Plate Carriage

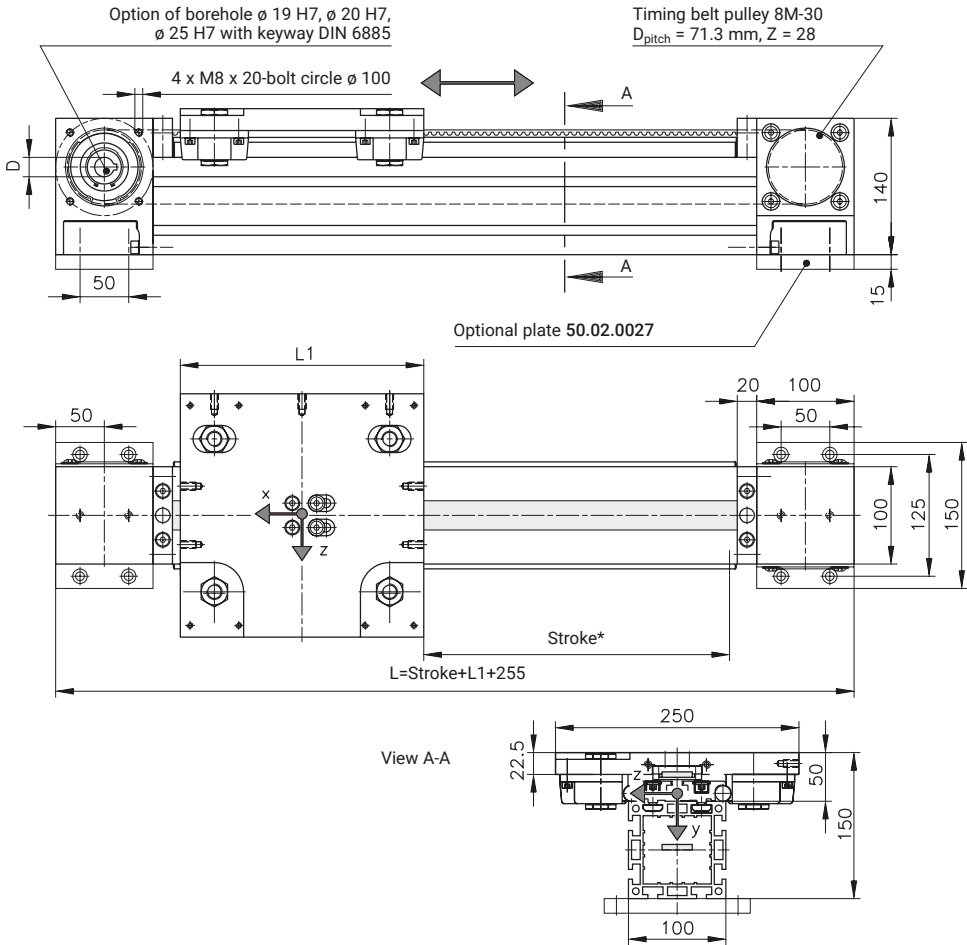
Item no.	L1 [mm]	F_x^{**} [N]	F_{y0} [N]	F_{z0} [N]	M_{x0} [Nm]	M_{y0} [Nm]	M_{z0} [Nm]
B38.02.005	250	4000	1600	4000	80	350	150
B38.02.005	450	4000	1600	4000	80	760	300

* Maximum stroke between the mechanical stops. Note the discharge section!

** $F_x = F_{\text{allowable}}$; $F_u = 2000\text{ N} = F_v$

Linear Modules LZR

LZR 2005-38.44-30 with Plate Carriage



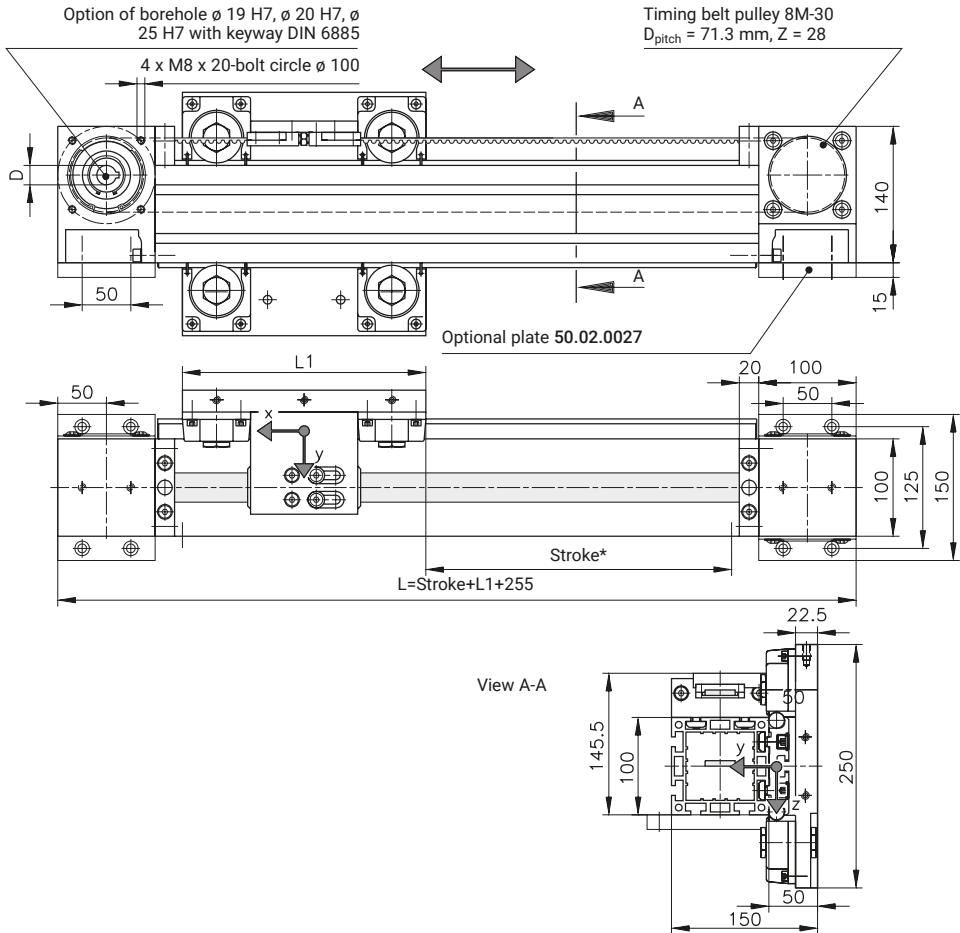
Load Specifications for LZR 2005-38.44-30 with Plate Carriage

Item no.	L1 [mm]	F_x^{**} [N]	F_{y0} [N]	F_{z0} [N]	M_{x0} [Nm]	M_{y0} [Nm]	M_{z0} [Nm]
B38.02.006	250	4000	1600	4000	80	350	150
B38.02.006	450	4000	1600	4000	80	760	300

* Maximum stroke between the mechanical stops. Note the discharge section!

** $F_x = F_{allowable}$; $F_u = 2000$ N = F_v

LZR 2005-38.44-30 with Side Mounted Plate Carriage



Load Specifications for LZR 2005-38.44-30 with Side Mounted Plate Carriage

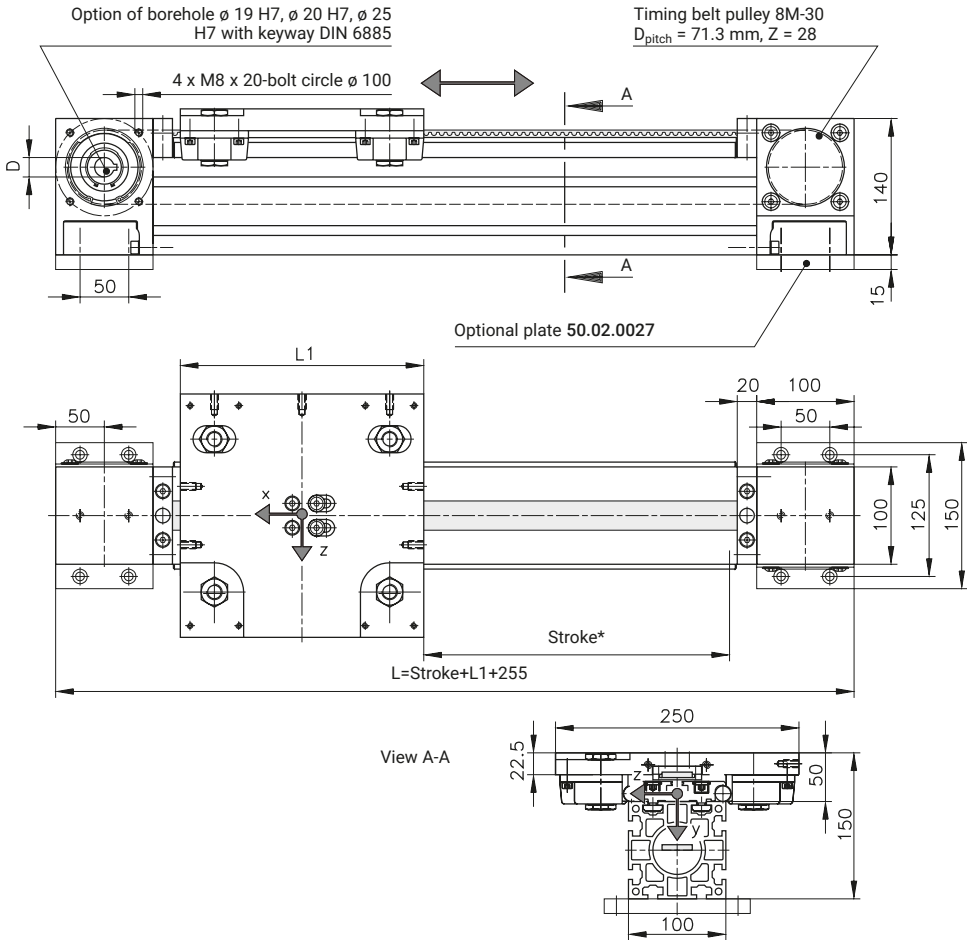
Item no.	L1 [mm]	F _x ** [N]	F _{y0} [N]	F _{z0} [N]	M _{x0} [Nm]	M _{y0} [Nm]	M _{z0} [Nm]
B38.02.009	250	4000	1600	4000	80	350	150
B38.02.009	450	4000	1600	4000	80	760	300

* Maximum stroke between the mechanical stops. Note the discharge section!

** F_x = F_{allowable}; F_u = 2000 N = F_v

Linear Modules LZR

LZR 2011-38.44-30 with Plate Carriage



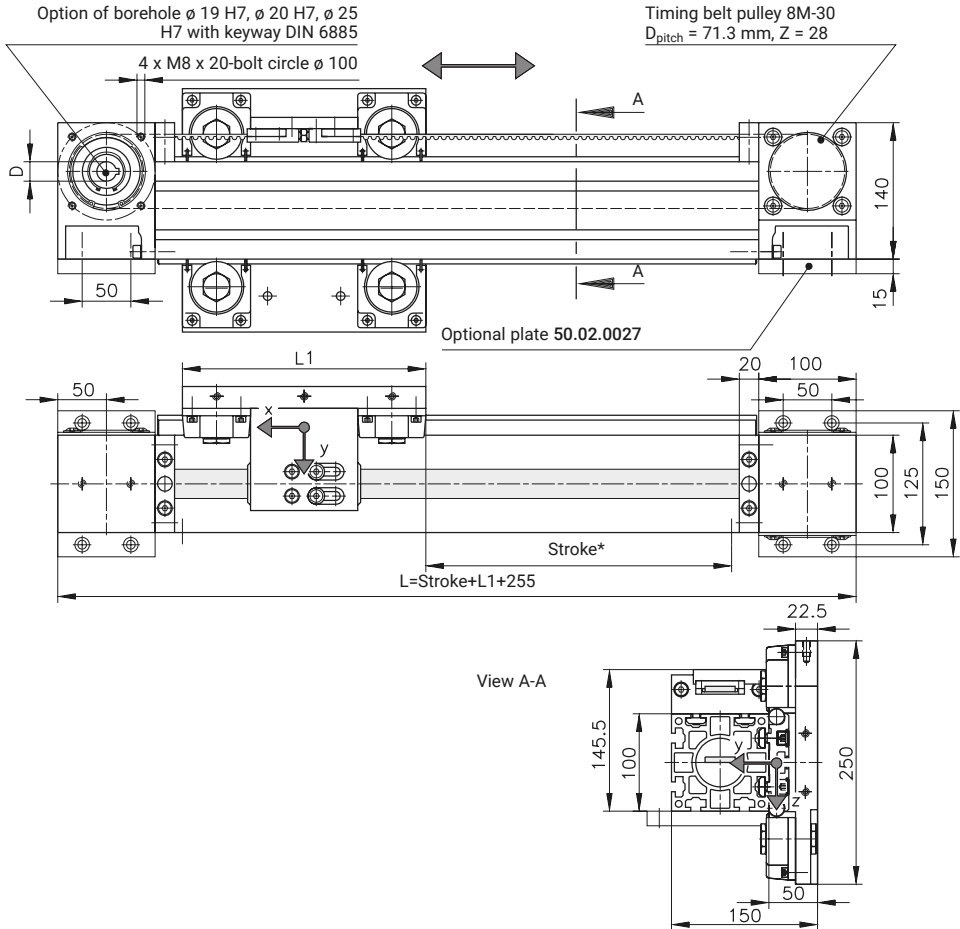
Load Specifications for LZR 2011-38.44-30 with Plate Carriage

Item no.	L1 [mm]	F _x ** [N]	F _{y0} [N]	F _{z0} [N]	M _{x0} [Nm]	M _{y0} [Nm]	M _{z0} [Nm]
B38.02.011	250	4000	1600	4000	80	350	150
B38.02.011	450	4000	1600	4000	80	760	300

* Maximum stroke between the mechanical stops. Note the discharge section!

** F_x = F_{allowable}; F_u = 2000 N = F_v

LZR 2011-38.44-30 with Side Mounted Plate Carriage



Load Specifications for LZR 2011-38.44-30 with Side Mounted Plate Carriage

Item no.	L1 [mm]	F_x^{**} [N]	F_{y0} [N]	F_{z0} [N]	M_{x0} [Nm]	M_{y0} [Nm]	M_{z0} [Nm]
B38.02.010	250	4000	1600	4000	80	350	150
B38.02.010	450	4000	1600	4000	80	760	300

* Maximum stroke between the mechanical stops. Note the discharge section!

** $F_x = F_{allowable}$; $F_u = 2000$ N = F_v

Recirculating Ball Bearing Guides



» Compact linear units with recirculating ball bearing guide. «

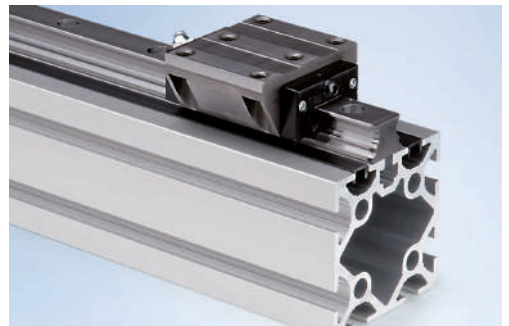
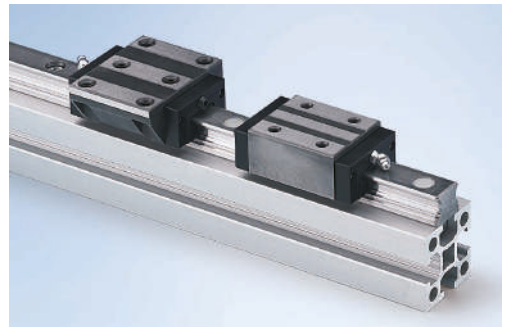
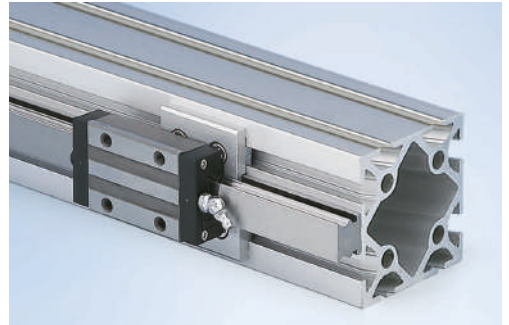
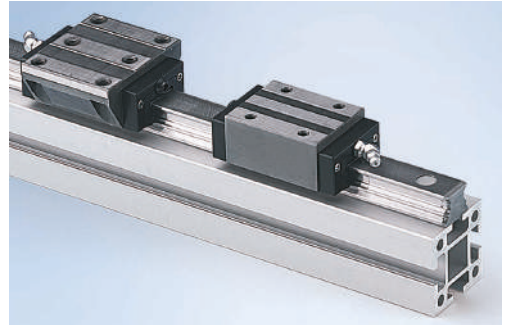
Recirculating ball bearing guides feature high load capacity along with outstanding precision. They have a very compact design. The recirculating ball bearing units can bear loads along multiple axes and are extremely stiff thanks to the steel rails mounted on the guide profile.

A recirculating ball bearing unit consists of a track and a guide carriage with four rows of interior ball bearings, which are recirculated in closed channels with plastic recirculation mechanisms. The recirculating ball bearing unit's roller carriage consists of hardened, ground steel and can be slid directly from the guard rail onto the track.

Our standard guide carriages are lightly pre-tensioned, making them suitable for most common applications. You may require higher pre-tension or no pre-tension, depending on your requirements. The guide carriages are custom-tailored to your specific conditions.

Benefits of mk Recirculating Ball Bearing Guides

- High load capacity and high stiffness
- Compact design
- Just one track for different types of roller carriage
- Lightly pre-tensioned (standard), available with play or high pre-tension
- Medium to high acceleration up to $a = 30\text{m/s}^2$
- Medium to high speed up to $v = 5\text{ m/s}$
- Four-row multi-axial recirculating ball bearing guide bears loads in all directions (forces and torques)
- High precision with appropriate contact surfaces



Recirculating Ball Bearing Guides

Recirculating Ball Bearing Units

General design

mk recirculating ball bearing units consist of a track and the guide carriage.

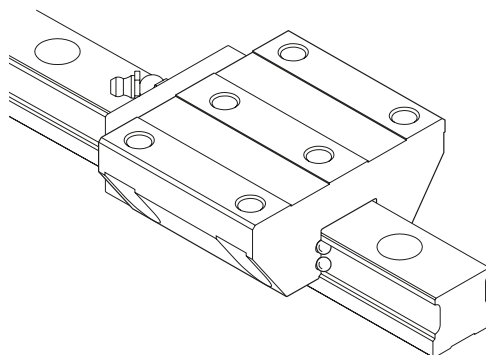
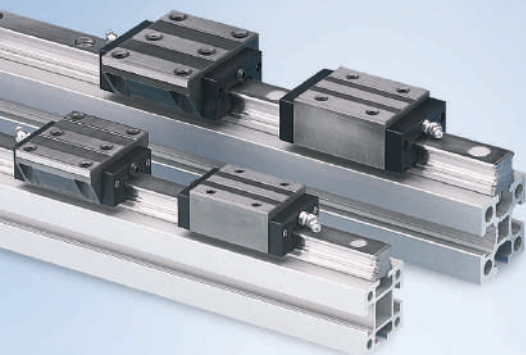
The roller carriage for the recirculating ball bearing unit is made from hardened and ground steel. Closed channels with plastic recirculation mechanisms recirculate the four rows of ball bearings. The roller carriage can be slid directly from the guard rail onto the track.

The recirculating ball bearing units can carry loads from any direction and have very rigid, heavy-duty linear guides.

The standard mk guide carriages are lightly pre-tensioned, making them suitable for most common applications. If multiple carriages are arranged on a rail or in parallel, then we recommend using carriages with no pre-tension and little play to provide better misalignment compensation and ease of movement.

For products with high rigidity or fluctuating loads, we recommend carriages with strong pre-tension and precise, rigid contact surfaces. mk can supply these versions on request.

The specified maximum load specifications already take into account a static safety factor of $s_0 = 5$ in relation to plastic deformation on the roller contact, and $s_0 = 2$ for screw connections with 8.8 screws.



Sample order for a guide

Recirculating ball bearing guide KU 25.10

Item no. **B51.04.404**

Size =mm

Length L =mm

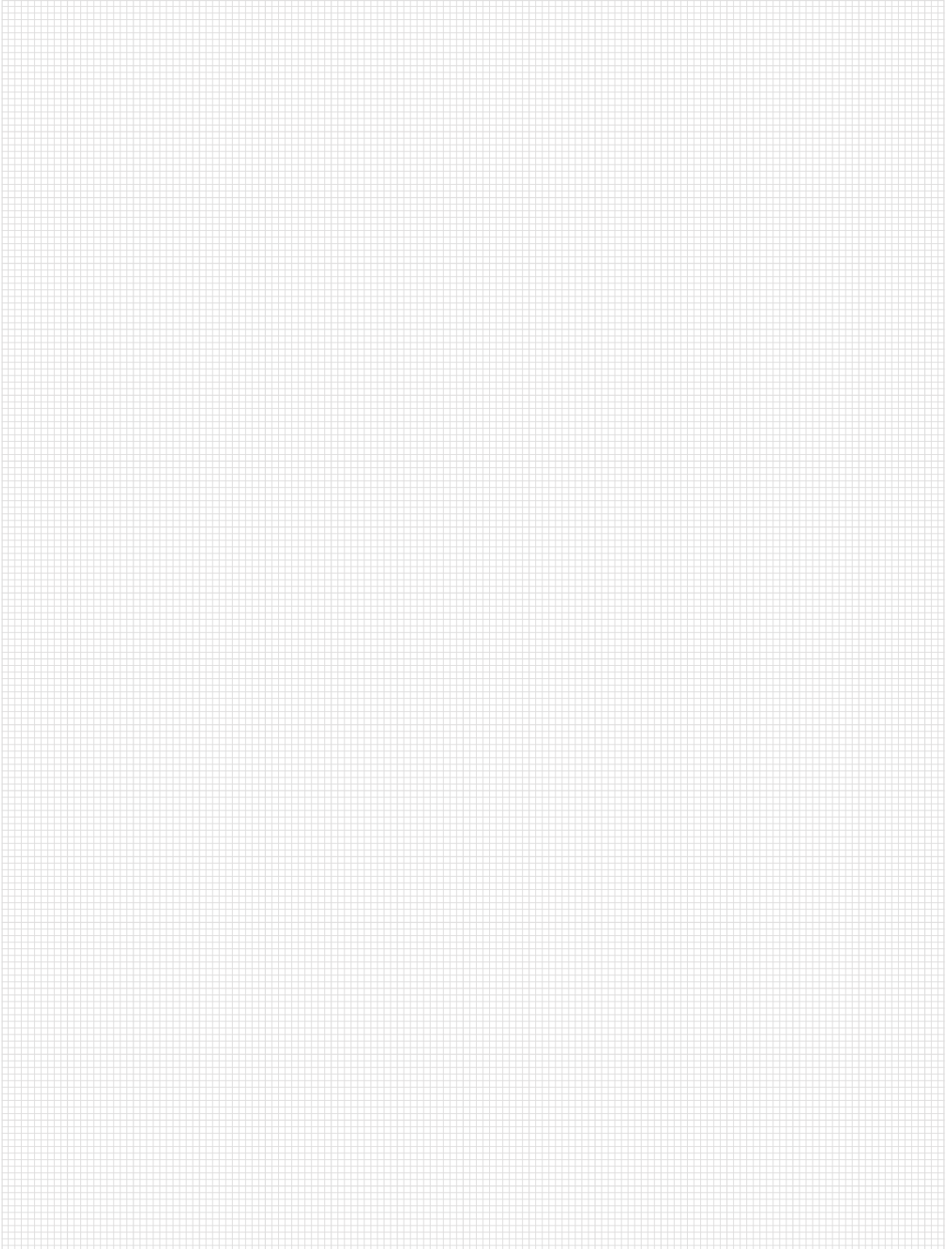
Sample order for a carriage

Guide carriage KU 25.11

Item no. **K116041125**

Size =mm

Carriage Normal

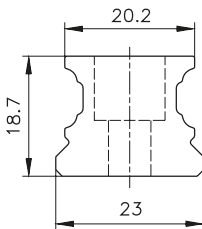
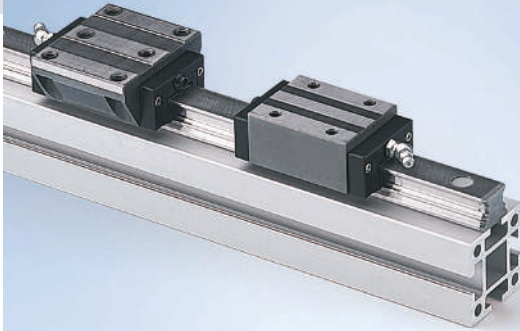


Recirculating Ball Bearing Guides

Recirculating Ball Bearing Guide KU 25.10

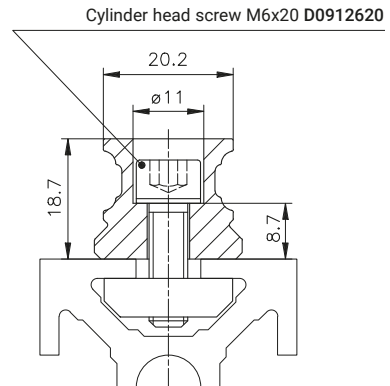
The track KU 25.10 must be combined into one unit with the guide carriages KU 25.11 and KU 25.13. However, they must be ordered individually.

The KU 25.10 track is especially suitable for Series 40 and 50. Due to its small contact surface, it is not suitable for the 14 mm slot in Series 60.



Track KU 25.10
K116041025

$m = 2.7 \text{ kg/m}$



Track KU 25.10 with
mounting elements
B51.04.404

Borehole spacing specifications

Support rail, L up to 1980 mm, single piece

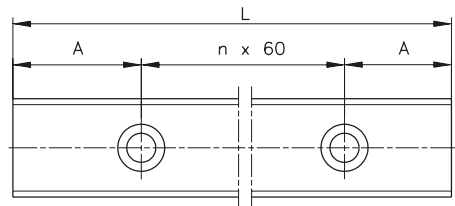
Scope of application for A: $20 \leq A < 50$

$$N = \frac{L1 - (2 \times A)}{60} + 1 \text{ (+1 per joint)}$$

L1 = length of the support rail

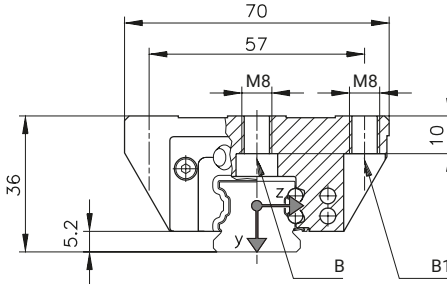
A = distance from the first borehole to the profile edge (symmetrical)

N = number of screws

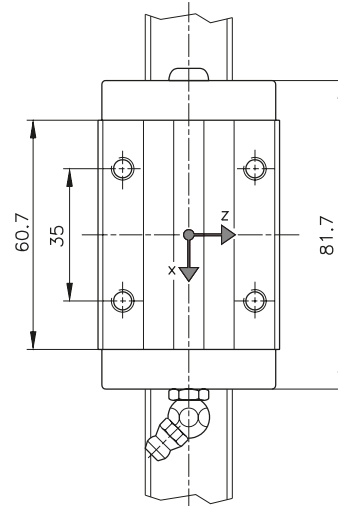
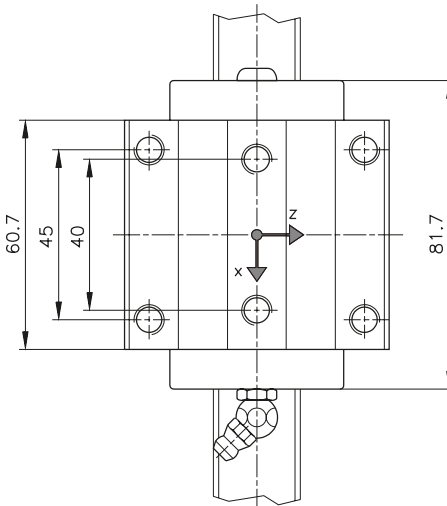
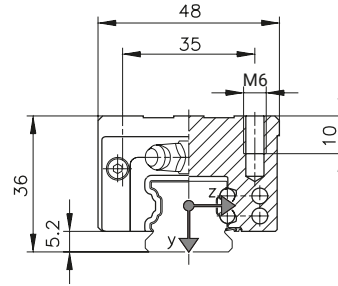


Guide Carriages

Guide carriage, normal
 KU 25.11



Guide carriage, narrow
 KU 25.13



B= through-bore for screw M6 DIN 6912

B1= through-bore for screw M6 DIN EN ISO 4762

Load specifications

Item no.	Designation	F_{y0} [N]	F_{z0}^* [N]	M_{x0} [Nm]	M_{y0} [Nm]	M_{z0} [Nm]	C_0 [N]	C_0 [N]	m_{carriage} [kg]
K116041125	KU 25.11	7000	7000	75	75	75	37,000	17,900	0.71
K116041325	KU 25.13	7000	7000	75	75	75	37,000	17,900	0.56

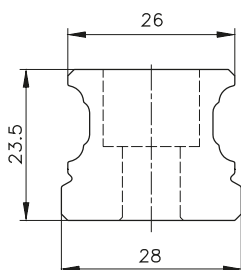
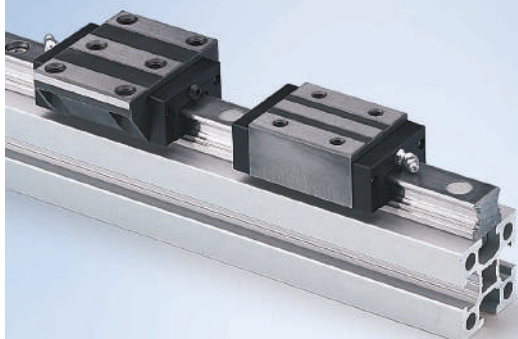
*Lateral load without close fit,
 only frictional connection on design profile with screw 8.8 – reduced to 2000N

Recirculating Ball Bearing Guides

Recirculating Ball Bearing Guide KU 30.10

The track KU 30.10 must be combined into one unit with the guide carriages KU 30.11 and KU 30.13. However, they must be ordered individually.

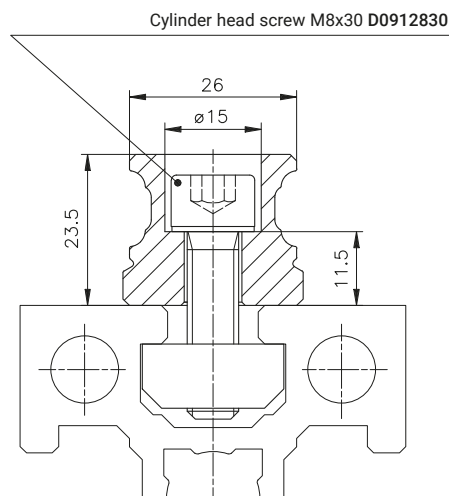
The KU 30.10 track is especially suitable for Series 60.



Track KU 30.10

K116041030

m = 4.3 kg/m



Track KU 30.10 with

mounting elements

B51.04.406

Borehole spacing specifications

Support rail, L1 up to 2000 mm, single piece

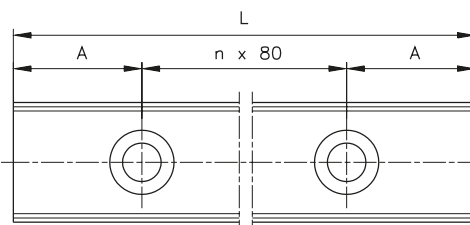
Scope of application for A: $20 \leq A < 60$

$$N = \frac{L1 - (2 \times A)}{80} + 1 \text{ (+1 per joint)}$$

L1 = length of the support rail

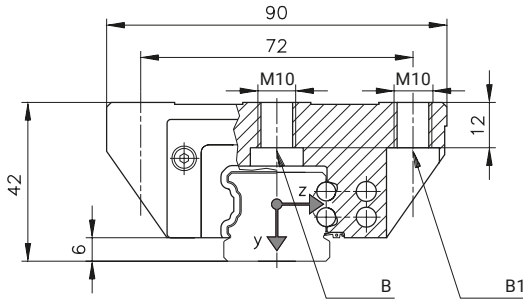
A = distance from the first borehole to the profile edge (symmetrical)

N = number of screws

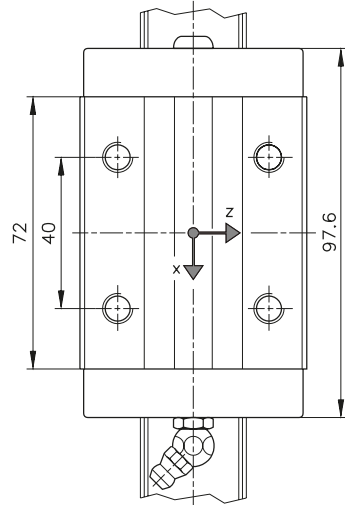
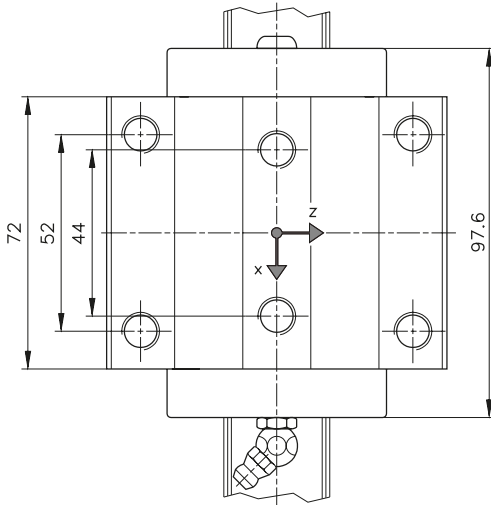
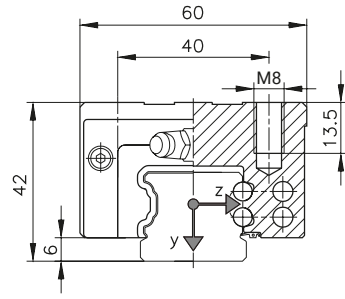


Guide Carriages

Guide carriage, normal
 KU 30.11



Guide carriage, narrow
 KU 30.13



B= through-bore for screw M8 DIN 6912

B1= through-bore for screw M8 DIN EN ISO 4762

Load specifications

Item no.	Designation	F_{y0} [N]	F_{z0}^* [N]	M_{x0} [Nm]	M_{y0} [Nm]	M_{z0} [Nm]	C_0 [N]	C_0 [N]	m_{carriage} [kg]
K116041130	KU 30.11	10000	10000	140	140	140	55,000	27,500	1.4
K116041330	KU 30.13	10000	10000	140	140	140	55,000	27,500	1.09

*Lateral load without close fit,
 only frictional connection on structural profile with screw 8.8 – reduced to 3500N

Chapter 12 Customer Applications



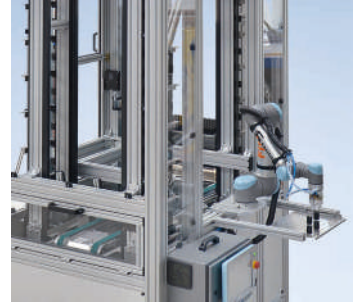
Customer Applications Conveyor Technology

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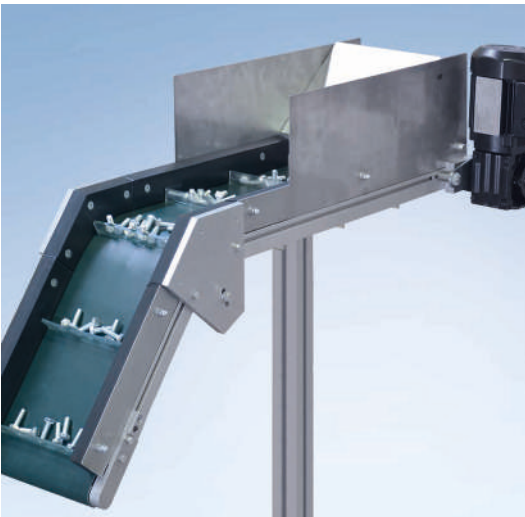
11

12

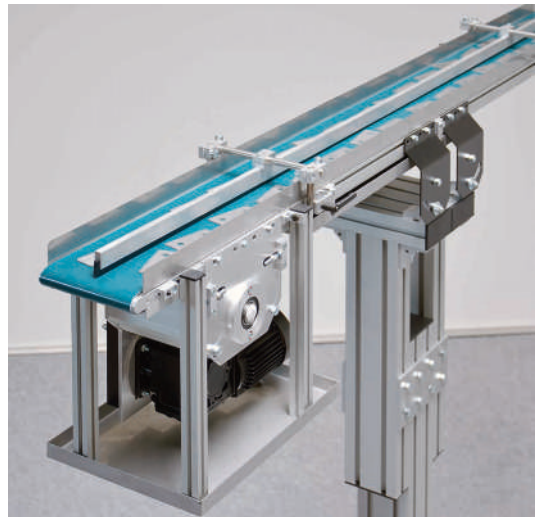
Customer Applications – Belt Conveyors



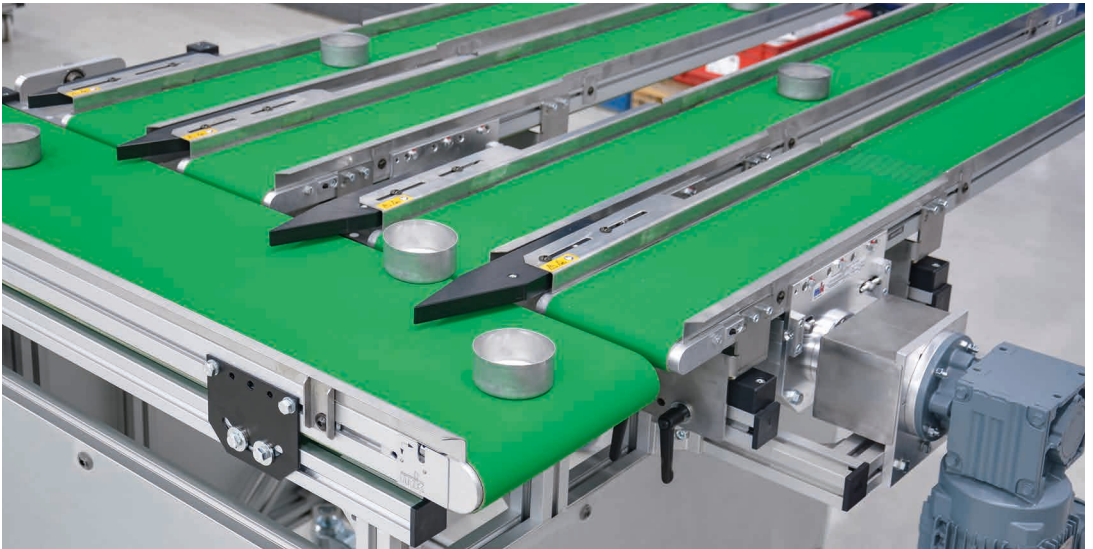
GUF-P MINI with lower belt drive BC as special configuration with 5 conveying lines. The inner conveying lines can be moved manually and are guided by guide rods



GUF-P MINI with head drive AF as incline conveyor type L, for transporting parts to a lower transport level



GUF-P MINI with single-belt stand and drip pan below the motor for slightly oily stamped parts



Belt conveyor combination of GUF-P MINI and GUF-P 2000, whereby the GUF-P MINI belt conveyors are adjustable on the drive shaft



GUF-P MINI with perforated belt as vacuum conveyor



Telescopic GUF-P 2000, infeed can be extended using recirculating ball bearing guide

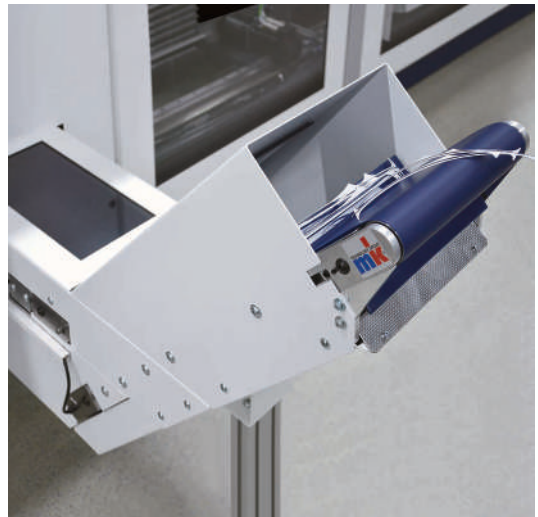
Customer Applications – Belt Conveyors



GUF-P 2000 can be moved on track roller assembly, with manual swivelling belt infeed



GUF-P 2000 with head drive AC with wire mesh belt for conveyed goods at up to 150° C



Belt conveyor with low installation height integrated into blister packing system



GUF-P 2000 with mechanism for folding and setting up paper bags upstream of the filling process



GUF-P 2000 with side rail SF02 type 21 and device for turning cardboard boxes 90°



GUF-P 2000 CA with 6 belt tracks and compact drum motor

Customer Applications – Belt Conveyors



Combination of INOX belt conveyor and angled belt conveyor for transport of praline balls with granulate



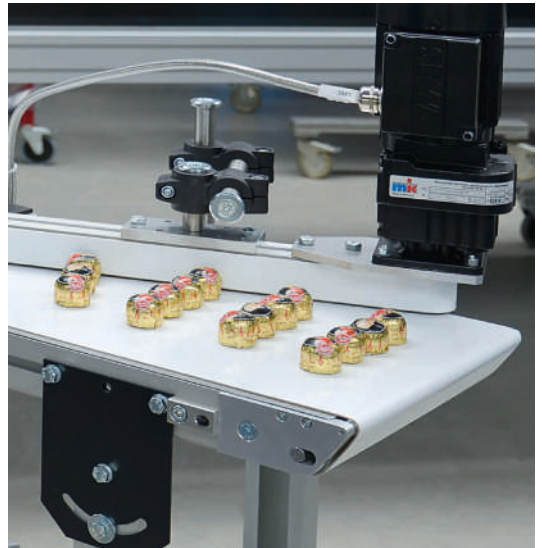
GUF-P 2000 as a conveyor belt for serial packers with a heat sealing station for producing custom shipping bags



GUF-P 2000 with integrated adjusting unit (VST 2011) for height adjustment of the wiper brushes



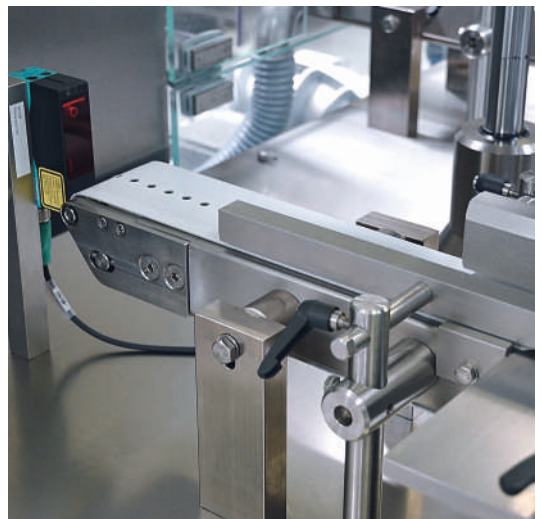
INOX belt conveyor with rolling blade edge for the transfer/handling of small transport goods



GUF-P 2000 with rolling knife edge and separator conveyor with head drive AF



Vacuum belt conveyor for fast and cycled transport of plastic cups

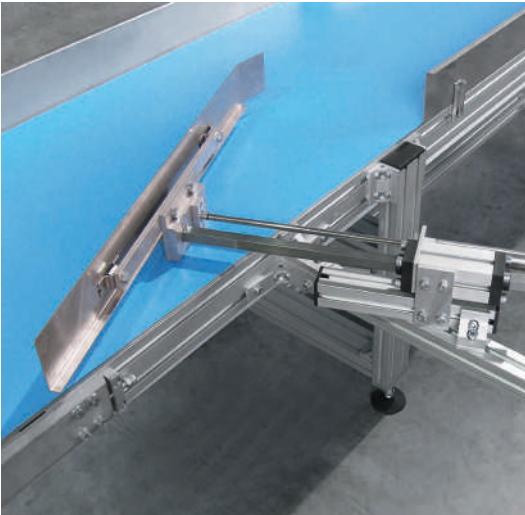


INOX vacuum belt conveyor with custom side rail

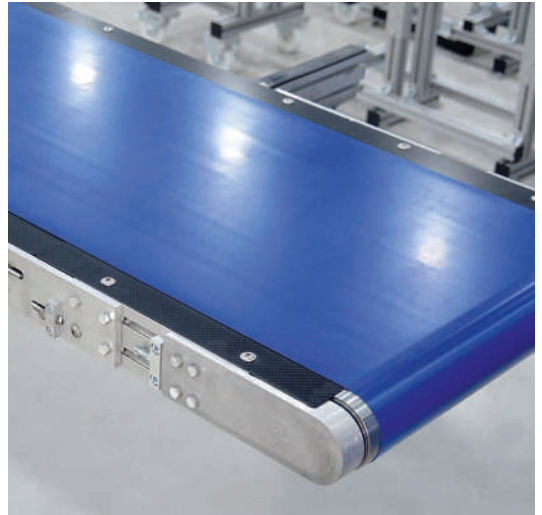
Customer Applications – Belt Conveyors



Circulation system for manually sorting laundry based on GUF-P 2041 and GUF-P 2000 conveyors with AC head drive



GUF-P 2041 with pneumatic diverter



GUF-P 2041 in customer-specific design with carbon plate instead of slide bed



GUF-P 2041 with lower belt drive BC; the height of the frame can be adjusted using a hydraulic pump



GUF-P 2041 with head drive AC and 90 watt fans in the conveyor frame, reglomat mounted on top of the conveyor frame



Two GUF-P 2041 units in tandem arrangement with mobile stand system for mobile dual system supply

Customer Applications – Belt Conveyors



GUF-P 2041 as telescopic belt conveyor through manual adjustment with handwheel on movable stand



GUF-P 2041, head drive AC with support pan and transverse cleats



GUF-P 2041 with a special design as a vacuum conveyor for offset pressure plates



45 metre long GUF-P 2004 as a feed line in the just-in-sequence production of car seats

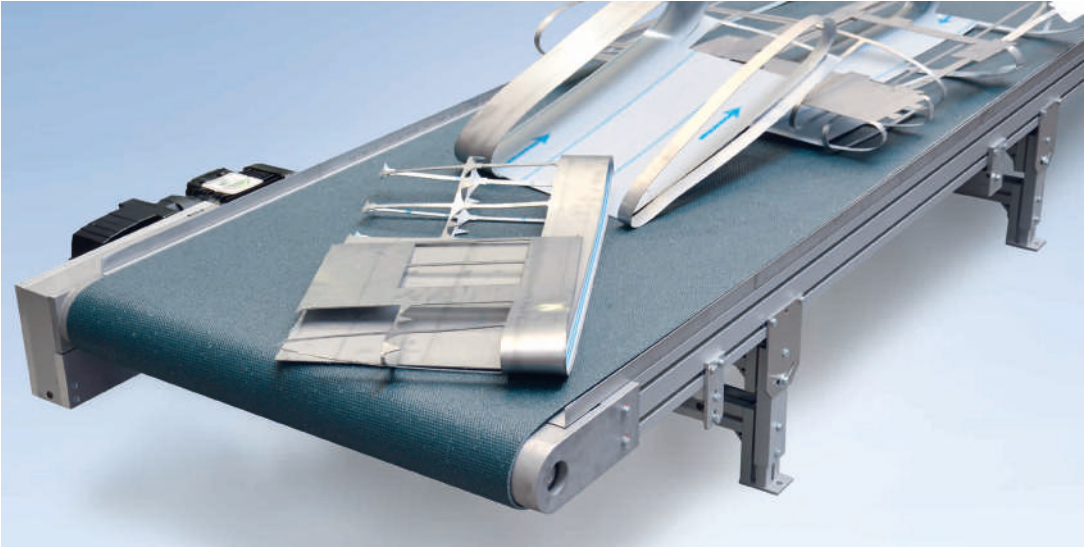


C-frame with recirculating ball bearing guides, each with 2 roller carriages for lifting or lowering the GUF-P 2004 conveyors



GUF-P 2004 with head drive AS fitted laterally on the outside as a two-level conveyor with drip pans on a shared base frame

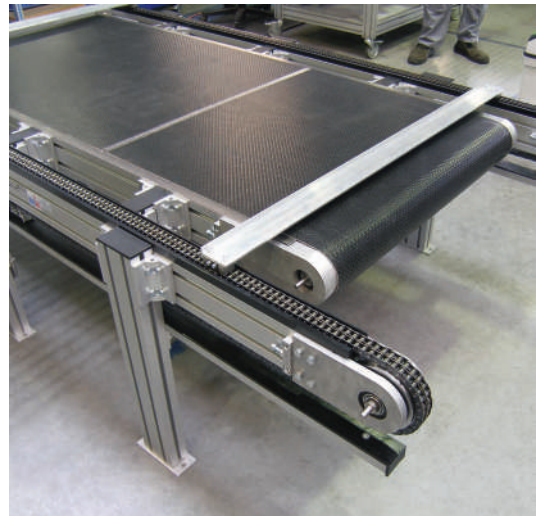
Customer Applications – Belt Conveyors



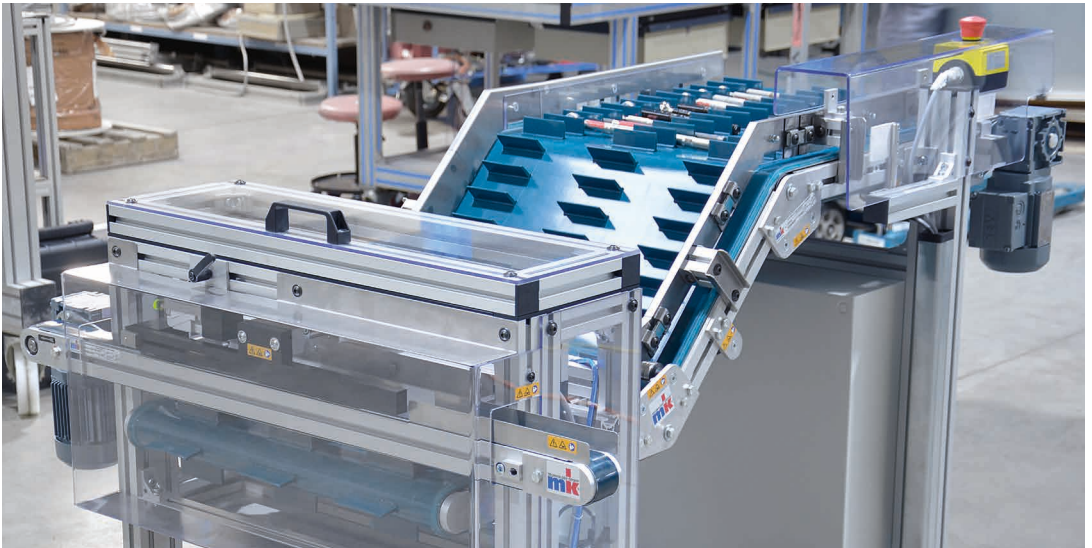
GUF-P 2004 with lateral outer AS head drive and robust special belt for punch scrap



GUF-P 2004 with divided upper run and lower run



Belt conveyor combination of GUF-P 2004 with drum motor CA and dual line KTF-P 2004



KFG-P 2000 with protected part sensor for removal and buffering in a production system



Mobile KFG-P 2000, type K with side rail SF 9.1 (VA sheet steel, tilted) and transfer hopper at the beginning of the conveyor, including controller



KFG-P 2000 ECO with white FDA-compliant wear strip as side rail

Customer Applications – Belt Conveyors



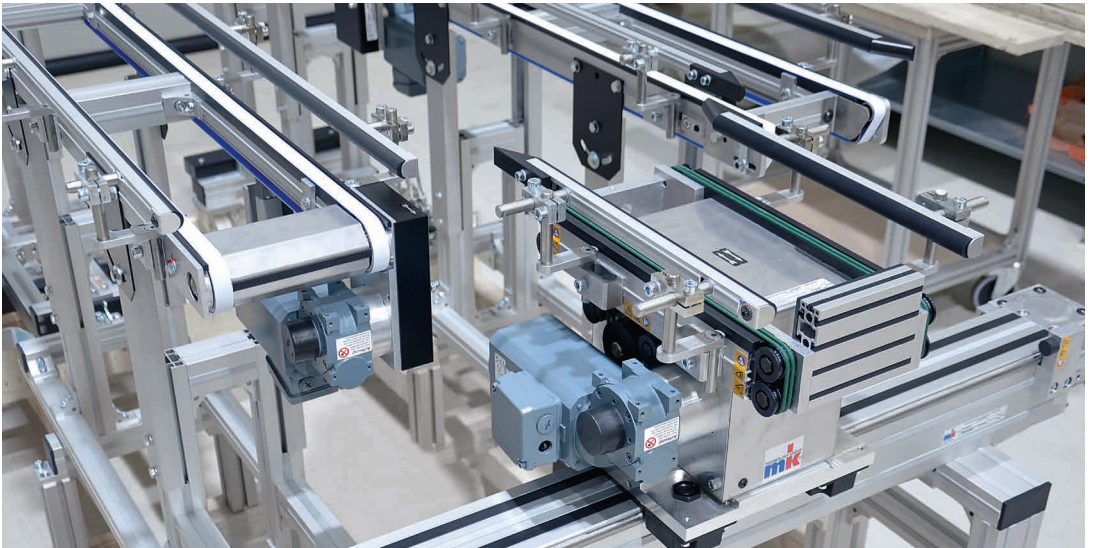
KGF-P 2040 with lower belt drive BI and hydraulic adjustment of the stand height using a hand crank



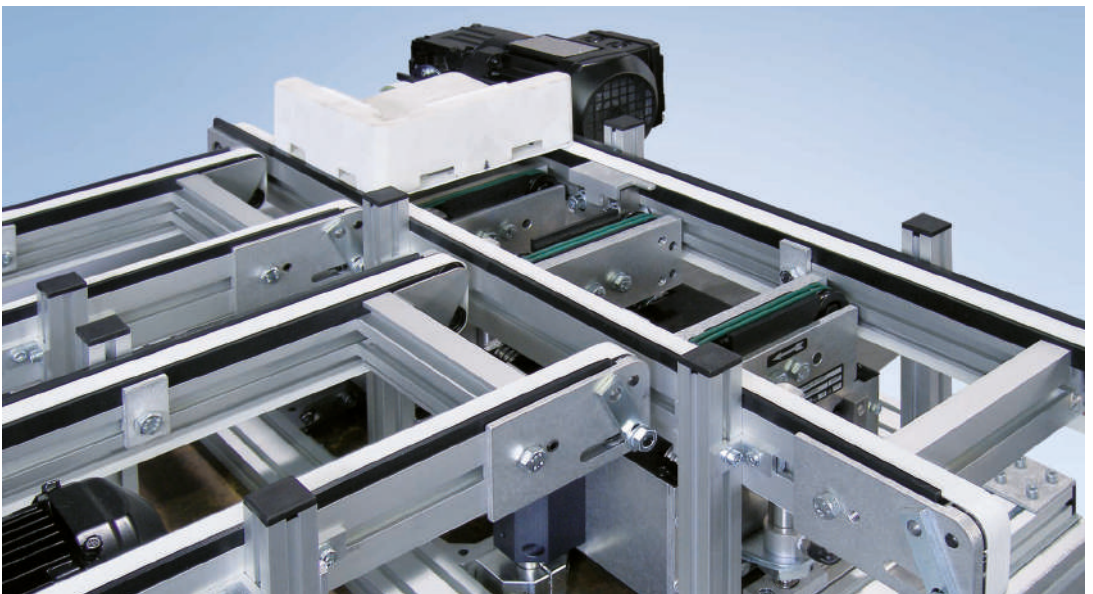
Combination of two 90° KGF-P 2040 curved belt conveyors with lower belt drive BI, reversible



KGF-P 2040 with lower belt drive BI and rotating wiper brush underneath the conveyor (return)

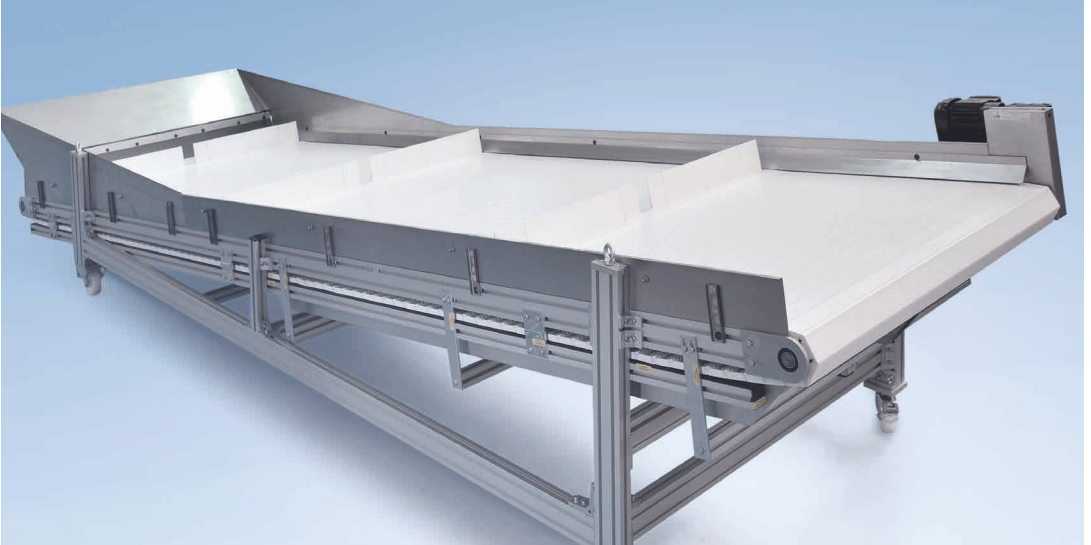


Double belt conveyor DGF-P 2001 with side rail SF02 and shuttle system using track roller assembly



Pallet circulation from the conveyor DGF-P 2001, integrated lift-and-transfer conveyor with round belt or separating pallets

Customer Applications – Modular Belt Conveyors



MBF-P 2040 with head drive AU as inclined conveyor with collection hopper and movable support frame



MBF-P 2040 interlinking with a side rail on one side and a side wall on the opposite side to support the product



Modular belt conveyor MBF-P 2040 with head drive AC and plastic bristles for gentle transport



42 m long MBF-P 2040 with side creep zone protection and a protective guard for just-in-sequence mounting in non-stop operation



KFM-P 2040 with drip pan and separator flap



Swivelling KFM-P 2040 with fixed fulcrum, swivel casters and locking mechanism

Customer Applications – Modular Belt Conveyors



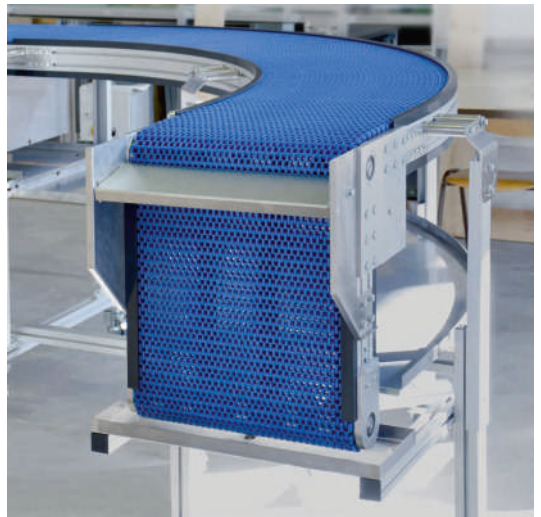
Incline conveyor KFM-P 2040 with side rail, guide rail type 22



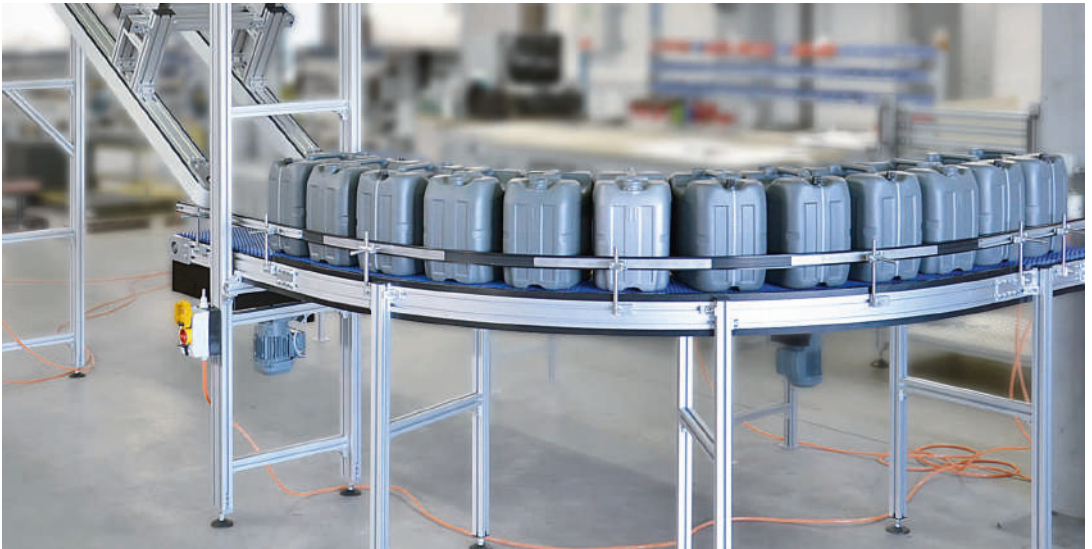
Incline conveyor KFM-P 2040 with white side plates and drip pan



Curved KMF-P 2040 with 90° curve and adjustable side rails



KMF-P 2040 with drip pan and discharge chute for oily stamped parts



KMF-P 2040 as an infeed for empty canisters

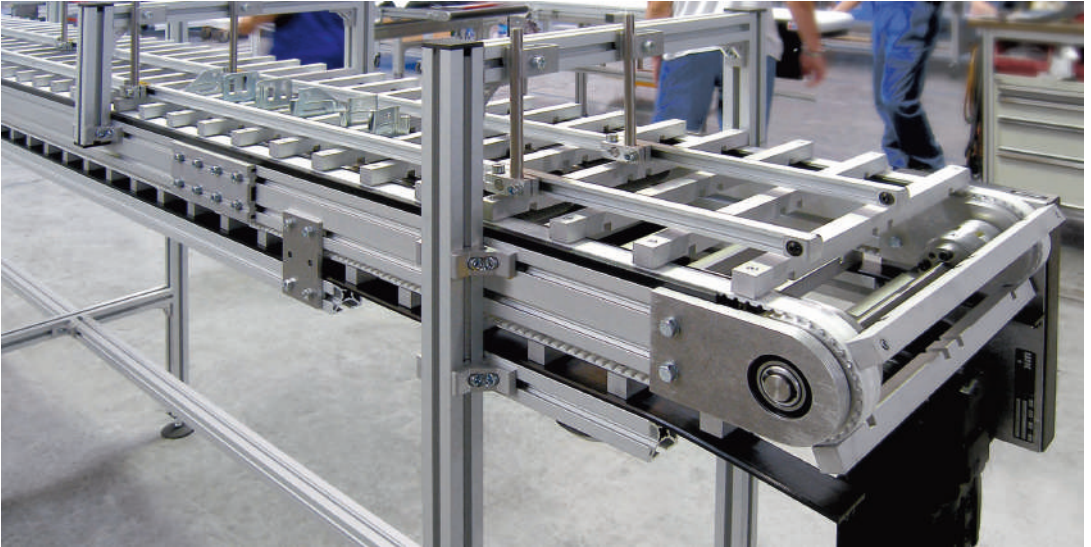


KF S-P 2040.86 head drive AC with perforated hinged plate belt, transverse cleats and burls for better product grip



KFS-P 2040.86 for hot product with resizable supply reservoir

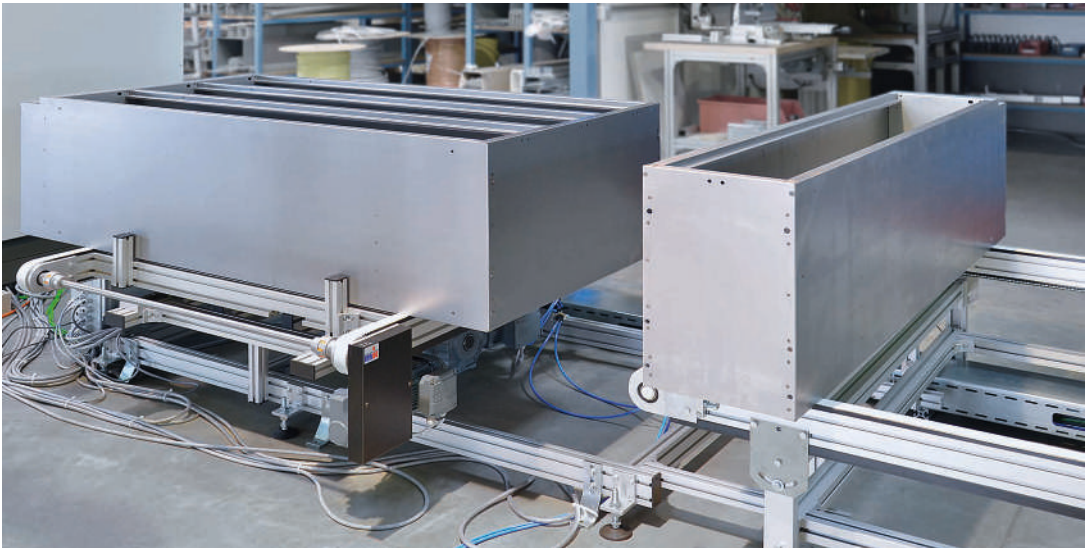
Customer Applications – Timing Belt Conveyors



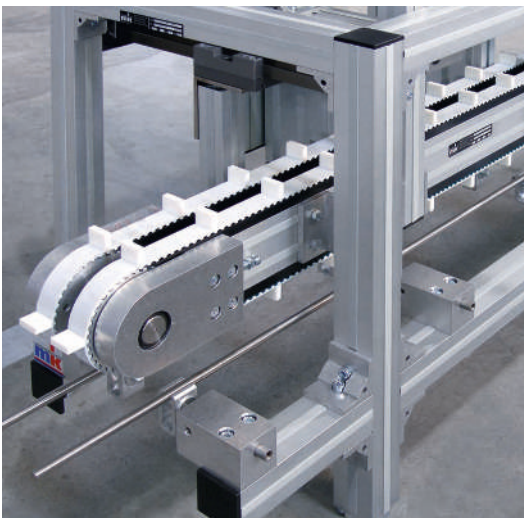
ZRF-P 2040, threaded sleeves integrated into the timing belt enable customer-specific cams to be bolted on



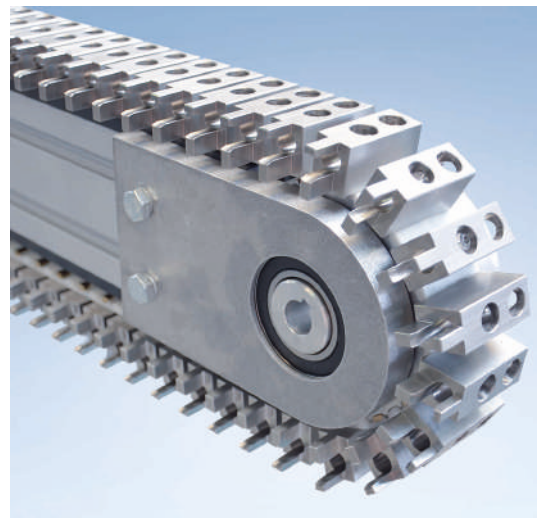
Double dual-line timing belt conveyor ZRF-P 2040 with separation unit and adjustable incline



Interlink ZRF-P 2040 with lift and transfer for lockers



Width-adjustable dual timing belt conveyor with cleats

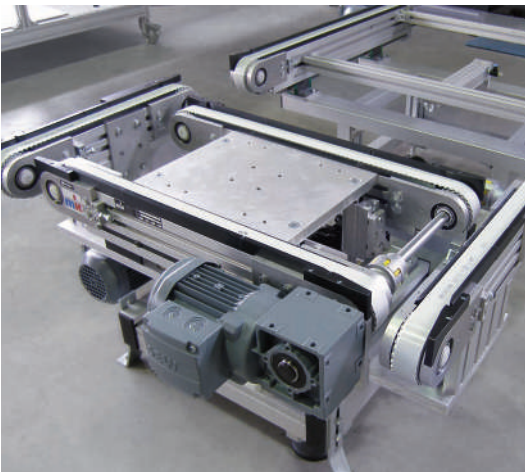


ZRF-P 2040 with VA steel insert frames bolted onto the timing belt for picking up the product

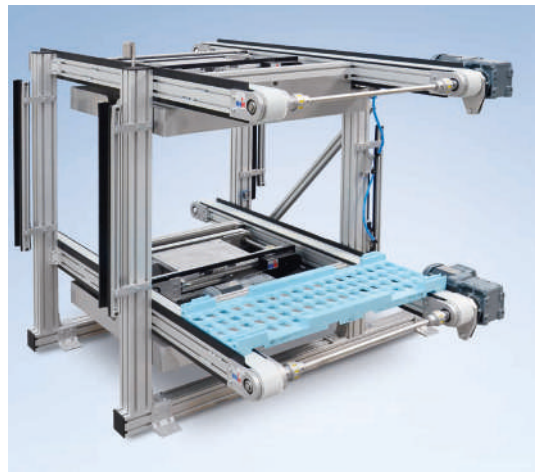
Customer Applications – Timing Belt Conveyors



Dual-line timing belt conveyor ZRF-P 2040 with lines with 10° incline and lift at the outfeed



Lift and transfer with turn station and pneumatic feed stroke



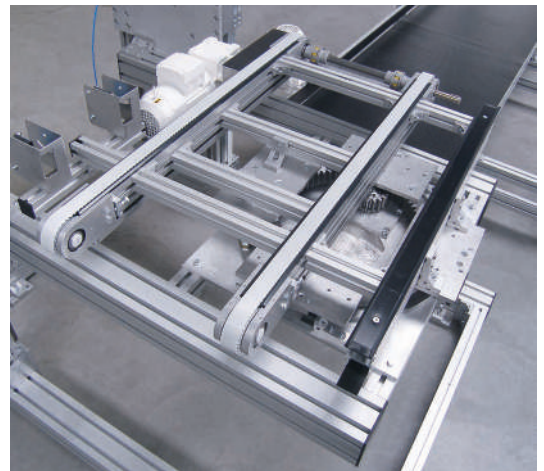
ZRF-P 2040 as channelling and separating module with lift and transfer



Interlink ZRF-P 2010 as loading and unloading station for bread roll production with stacking unit as a buffer



Interlink ZRF-P 2010 as discharge line for fuel tank



ZRF-P 2010 with head drive AS on rotary module (0/90/180/270°)

Customer Applications – Chain Conveyors



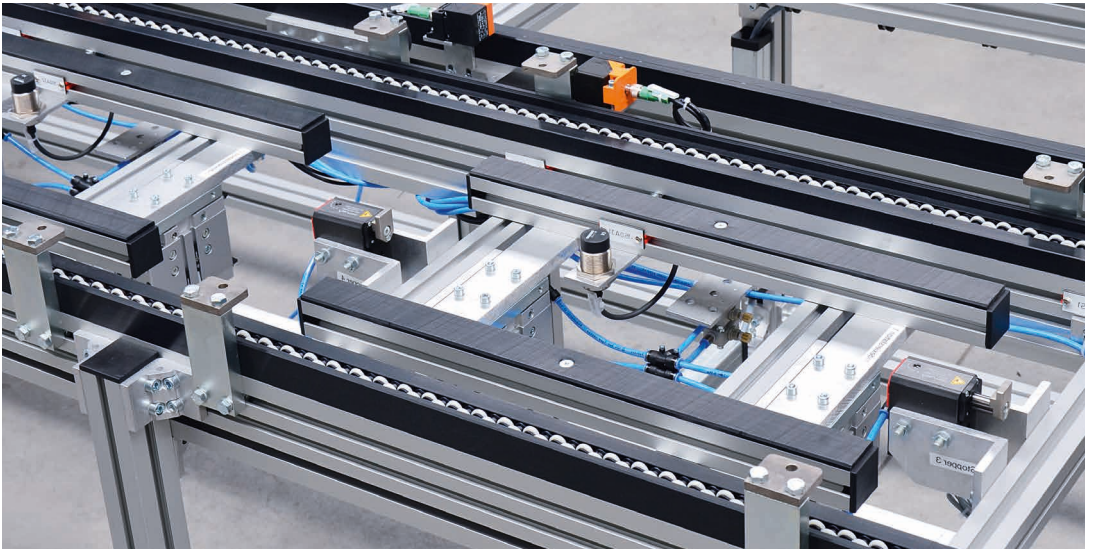
KTF-P 2010 with head drive AC with drip pan and movable support frame



Dual-lane KTF-P 2010 with 80° C temperature resistance



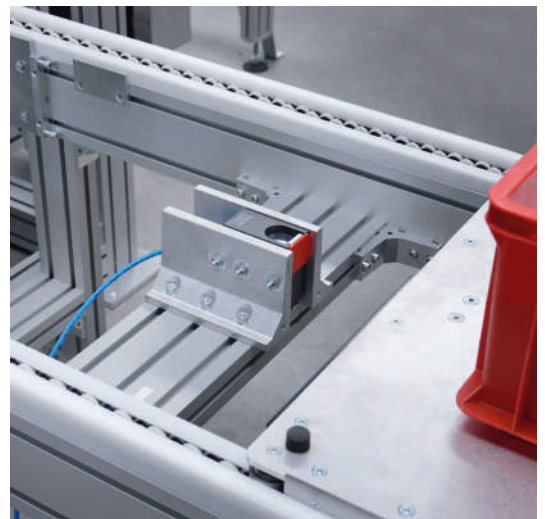
Combination of belt conveyor and chain conveyor with transverse rail for simulating a floor obstacle




Robot unloading point with damped stoppers, pneumatic lifting feature with indexing from above and RFID read/write head



Customer-specific pallet with corrosion-resistant design for cleaning systems



System SRF-P 1212 as a heavy-duty version with offset accumulating roller chain in POM wear strips and stopper SU 800

 See also the application examples for the Versamove from page 456

Customer Applications – Flat Top Chain Conveyors



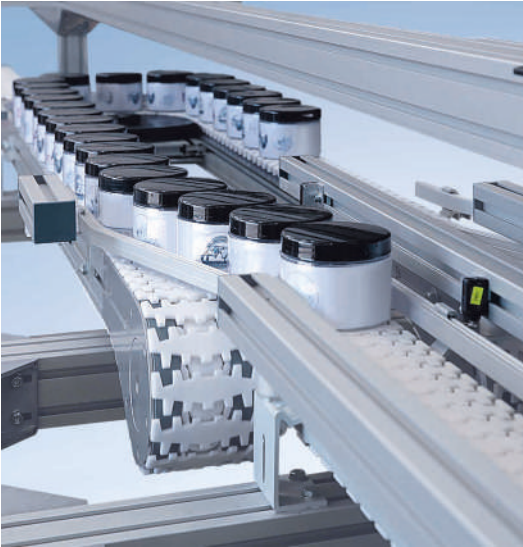
Pallet system based on SBF Versaflex A08 with separator



Versaflex SBF A08 with magnetic chain for vertical transport



Versaflex SBF A08 as spiral conveyor



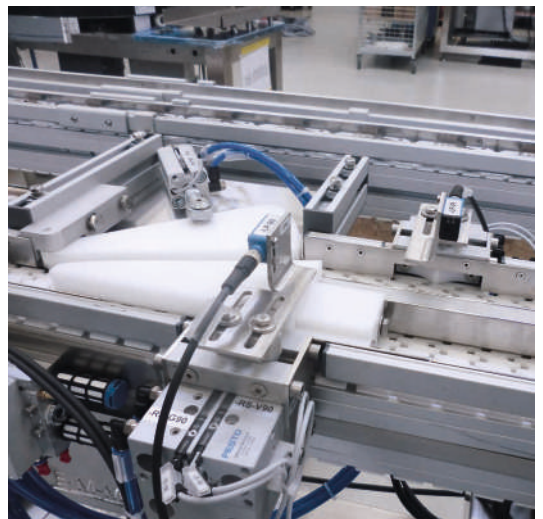
SBF Versaflex with adjustable side rails



Versaflex SBF A08 with height and width-adjustable side rail



SBF-P 2254 with transfer pusher for the packaging industry, for instance



Versaflex SBF with custom separation function

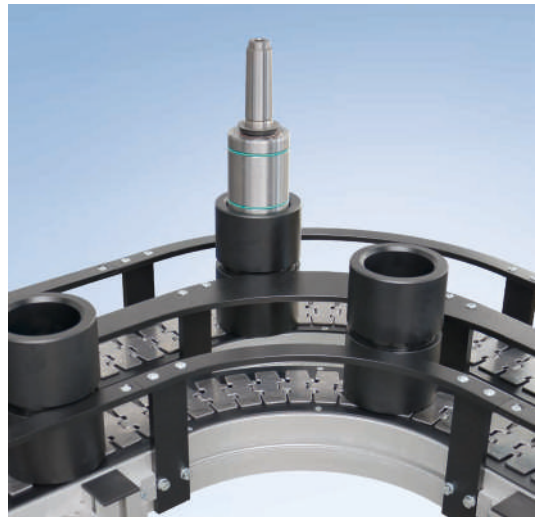
Customer Applications – Flat Top Chain Conveyors



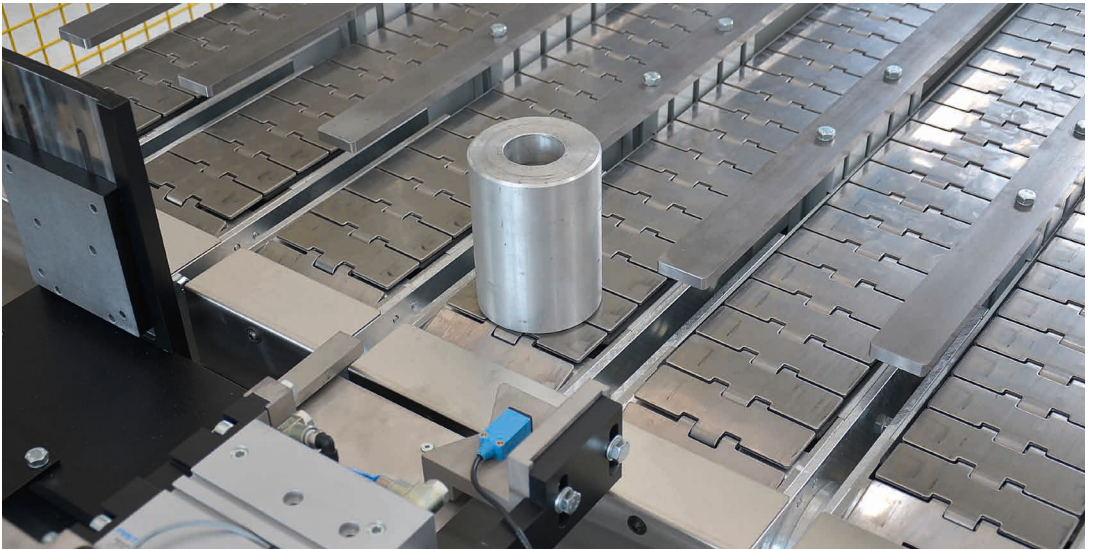
Versaflex SBF A08 for transferring cardboard boxes with pressure rollers for reliable transport in a stable position



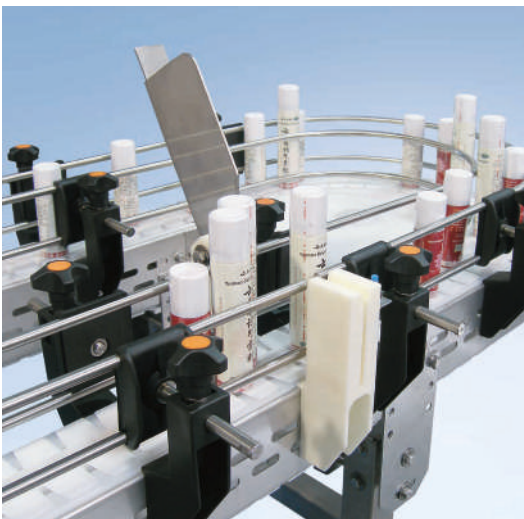
Double-line flat top chain conveyor with one motor



SBF-P 2254 with 90° sliding curve and steel flat top chain as an interlinking device for shaft parts



Multiple flat top chain conveyors on a shared conveyor frame for transporting various classified goods



Interlink with INOX flat top chain conveyor with rolling 180° curve



INOX flat top chain conveyor curve, sliding 90°

Customer Applications – Roller Conveyors



Kanban workstation with RBS-P 2065 gravity conveyors for feeding products



Gravity roller conveyor RBS-P 2065 as feed and discharge conveyor for laundry baskets



Gravity roller conveyor RBS-P 2066 with height-adjustable stand and angle plate as side rail



Interlink with RBM-P 2255 driven roller conveyors and RBS-P 2066 gravity roller conveyors for mail crates



Tangential chain roller conveyor RBT-P 2255 for continuous and accumulated operation with test parts

Customer Applications – Roller Conveyors



Friction roller conveyor RBT-P 2255 with oscillating conveyor operating as a lift for returning empty baskets



Transport belt combination RBT-P 2255 with integrated lift-and-transfer conveyor



Driven curved roller conveyor RBT-P 2255 90°



RBT-P 2255 with integrated lift-and-transfer conveyor, 100 kg/m load capacity with additional side rail and drip pan

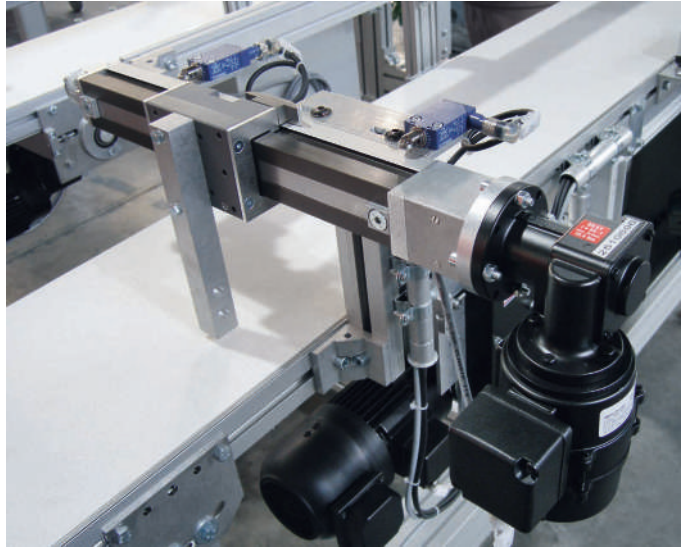


Drive roller conveyor RBM-P 2255 with \varnothing 50 mm steel rollers and drive control

Customer Applications – Gliding Assemblies



Electromotive VST 2015 with recirculating ball bearing guide



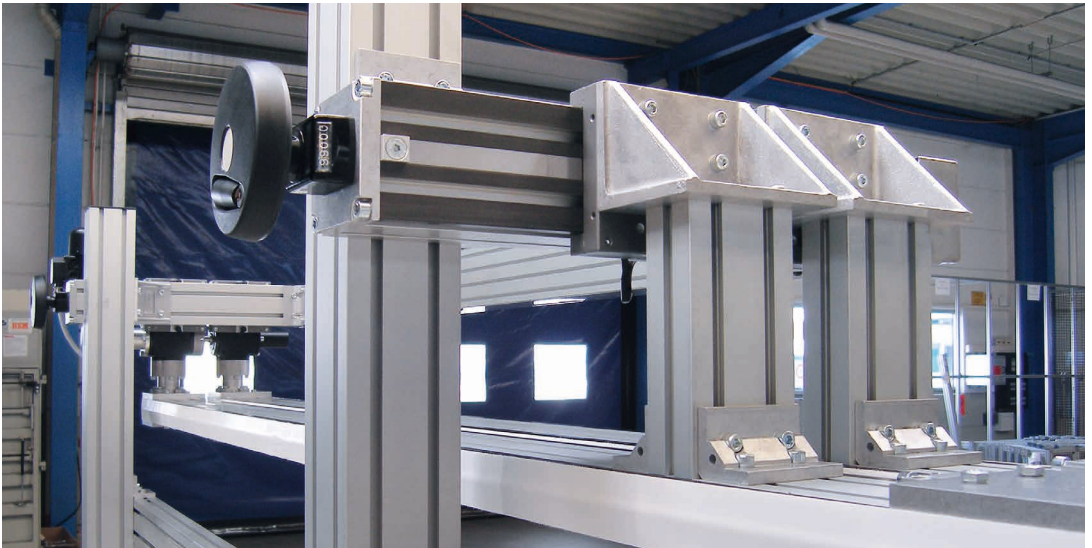
Dual electromotive VST 2015 for automatic width adjustment with scanning via safety limit switch



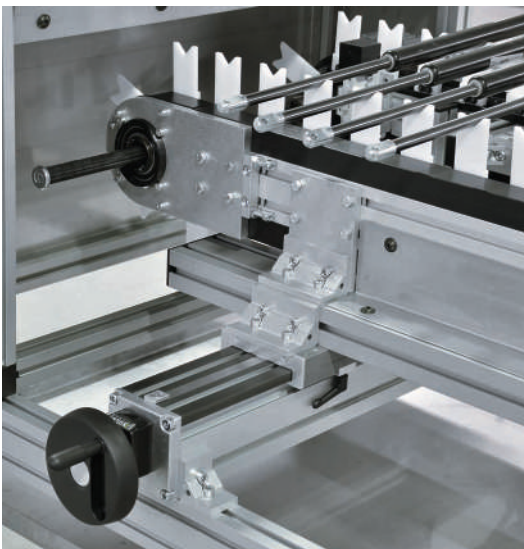
Dual VST 2015 with manual digital display for adjusting the stop bar



Manual two-axis adjustment system for holding a marking device with VST 2015



Dual VST 2011 for manual lane width adjustment on a side conveyor

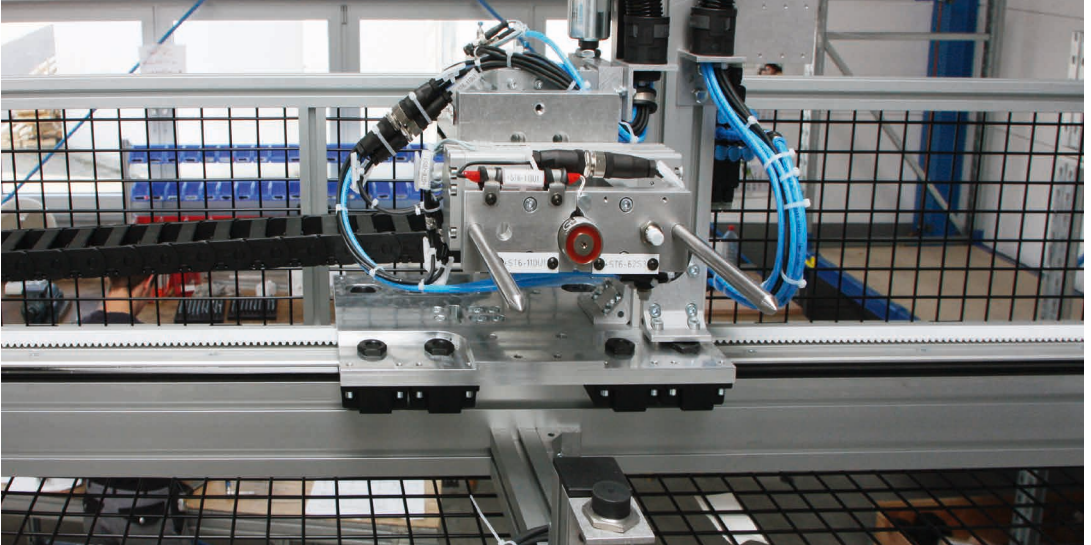


VST 2011 adjusting unit used for semi-automatic conveyor width adjustment in a chain conveyor system



Electromotive VST 2011 with custom measuring system on LZR 2005-38.44-30

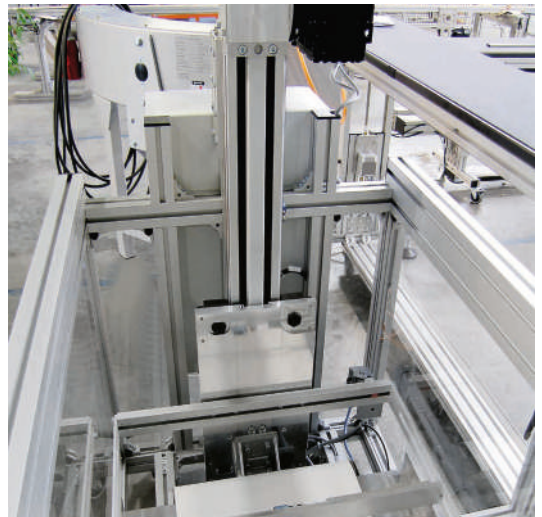
Customer Applications – Track Roller Assemblies



Horizontal slides comprised of linear module type LZR 2005-38.44-30 with fork grippers and swivel unit for moving and emptying workpiece baskets



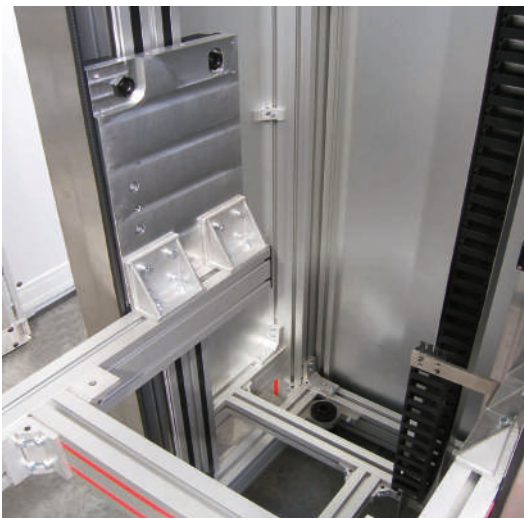
Linear module type LZR 2005-38.44-30 as a direct length measuring system with measuring head on the roller carriage



Linear module type LZR 2005-38.44-30 with motor and controller as a lift with a belt conveyor



Pneumatic linear module with PF 38.77 and LW 38.77-44
 as a transfer unit with 10 vacuum suction grippers



Double-LZR 2005-38.44-30 with side
 mounted carriage plate and
 cantilever for conveyor as lift



Linear unit LZR 2004-38.41-30
 drive coupled via a slip clutch

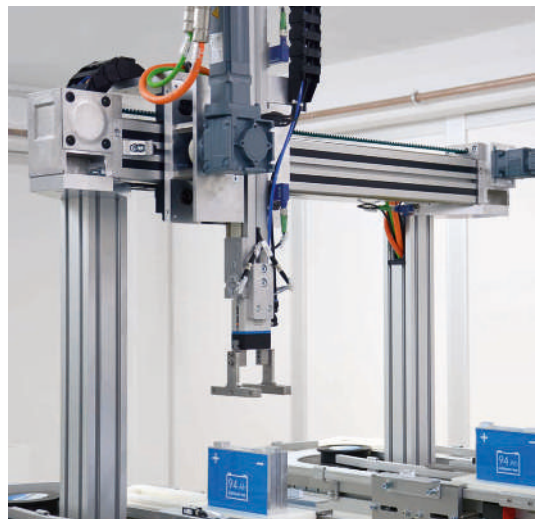
Customer Applications – Track Roller Assemblies



Two-dimensional gantry with vacuum gripper as a handling and loading system for steel. Two independent loading systems on a common X axis with gear rack with track rollers and riding rack drive



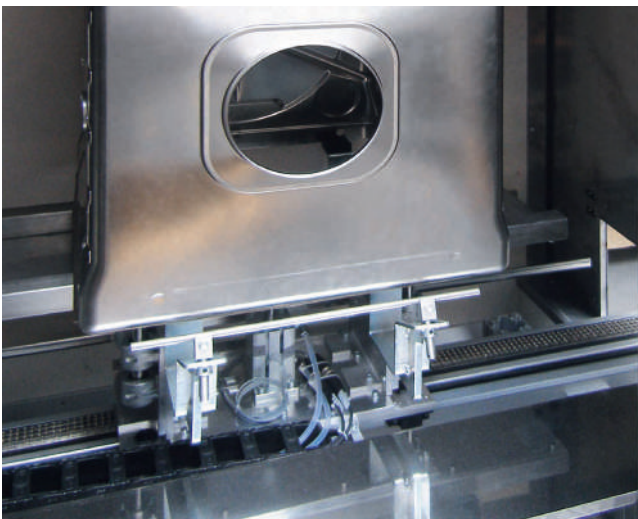
Base LZR 2005-38.44-30 with side roller carriage on foamed combined profile as gantry, with support rollers for torque loads and manual VST 2011 as Z axis



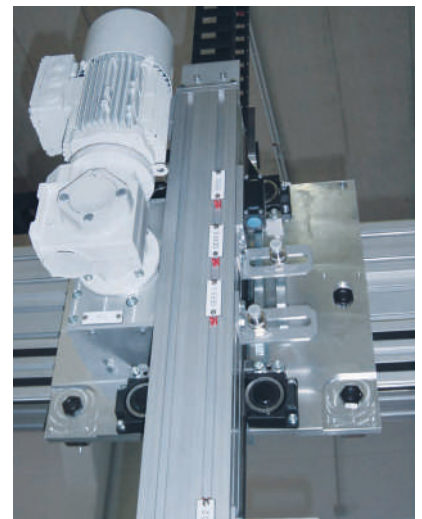
Two-axis gantry with driven linear modules, gripper and controller



LZR Series 60 linear module based on the mk 2060.07 profile with track rollers and rails from Rollon



Linear module with chain for HT range and in ESD version Product intake with pneumatic lift for lifting/depositing before, in and after the oven



Gantry with LZR 2005 on foamed combined profile Roller carriage with support rollers as cross-carriage with LZR 2005 and Omega drive as X-Z surface gantry

Customer Applications – Track Roller Assemblies



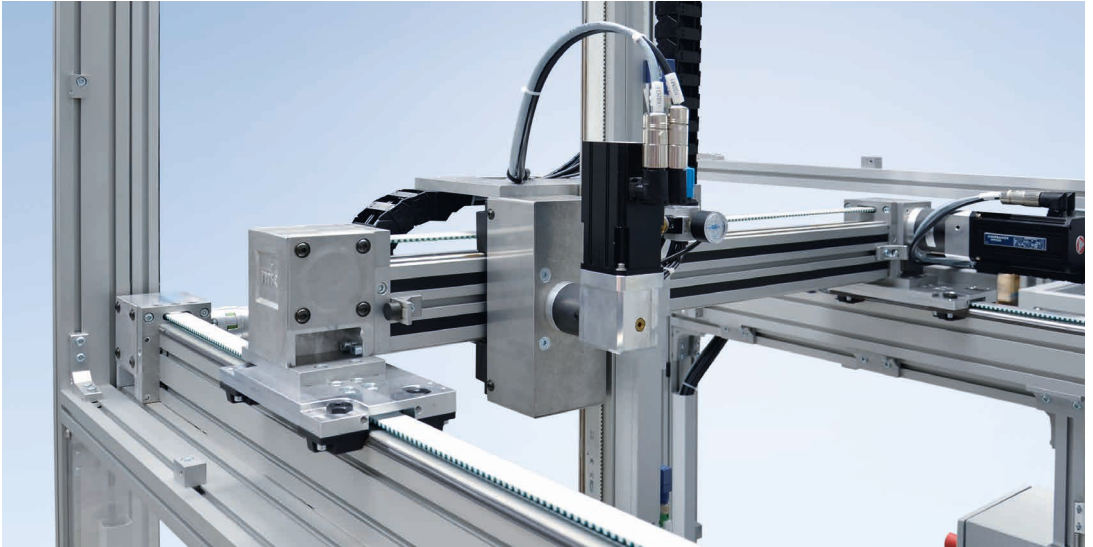
Linear module type LZR 2004-38.41-30 with absolute value rotary encoder mounted on the tail



Dual-axis linear module comprising LZR 2011-38.44.30 with side mounted carriage plate



Linear axis from linear module LZR 2005-38.44-30 with movable gripping and transfer system



Three-axis gantry with driven linear modules, gripper and controller



Dual LZR 2005-38.44 with cantilever for dual ZRF-P 2010 for lift and transfer from a dual ZRF-P as a lift-and-transfer module



Dual linear module type LZR 2005-38.44-30 with cantilever for conveyor as a lifting unit

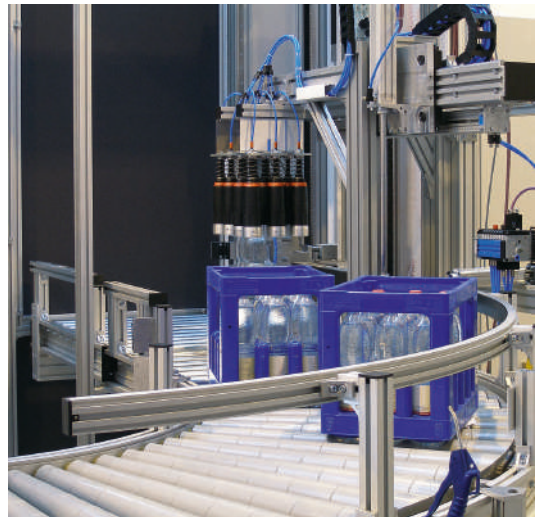
Customer Applications – Track Roller Assemblies



Two-axis gantry for handling sleeves with parallel gripper



X-Z gantry with gripper for transferring crankshafts.
X axis as LZR with support roller and timing belts, Z axis with timing belt Omega drive and fall arrest



X-Z axis combination with pneumatic drive and vacuum grippers for loading and unloading beverage crates



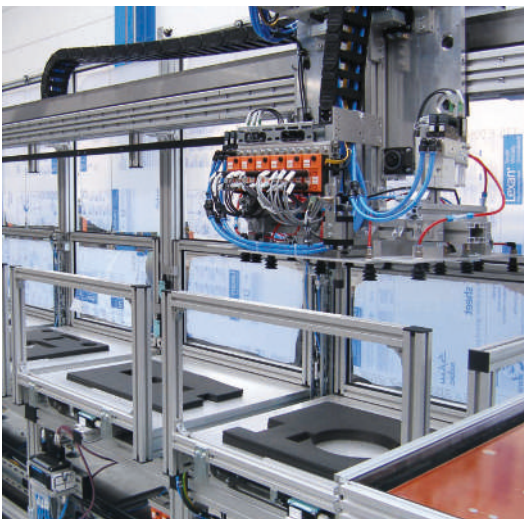
Gantry stand with telescopic gripper unit



Horizontal axis with foamed combined profile for reinforcement



Lift for storage system



X-Z gantry with additional pneumatic weight balancing as a holder for a vacuum gripping system



Short stroke lift based on PF-38.44 linear guide system

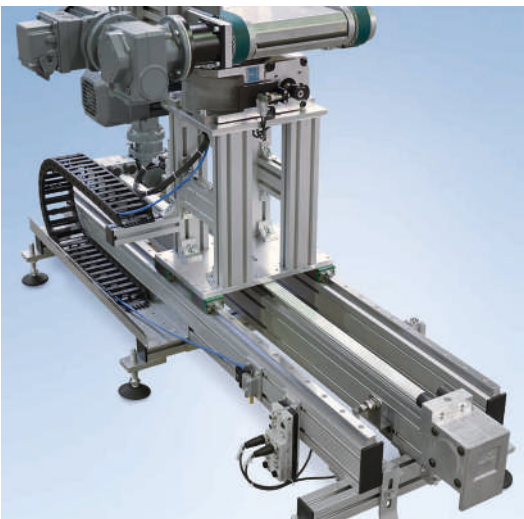
Customer Applications – Recirculating Ball Bearing Guides



Lift station for lifting and lowering conveyors on two conveyor levels. Cross-conveyor unit with recirculating ball bearing guides positioned horizontally in the frame



Lifting unit with KU 25 recirculating ball bearing guide and angle bracket



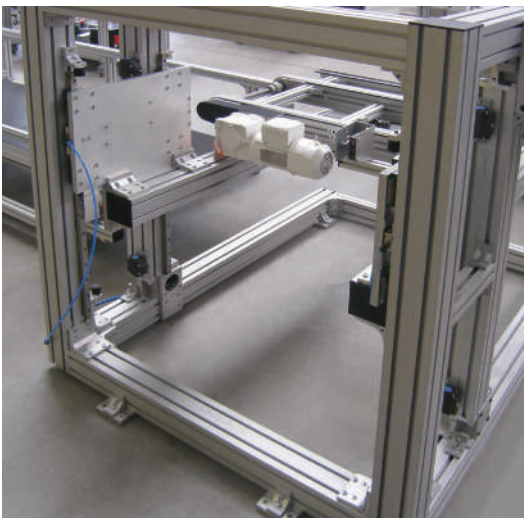
Shuttle system with rotary indexing table for pallet transport, guided via a double linear axis with recirculating ball bearing guide



Frame for stress testing based on KU 30.10 recirculating ball bearing guide



Timing chain conveyor with alignment unit for camshafts using recirculating ball bearing guide



Lifting unit with LZR with recirculating ball bearing guide KU 25 with profile cantilever for supporting the ZRF-P 2010 conveyor



Two-track feed for machine loading. The separator can be adjusted for various diameters using a recirculating ball bearing guide

Customer Applications – System Solutions



Below we show you a sample of the customer-specific applications from our System Solutions business unit that are used successfully in a huge variety of sectors around the world.

Versamove

Versamove is a pallet circulation system that can be optimally tailored to the customer's specific requirements. Divided into three weight and size classes, it always has the right system for any application.

Versaflex

The modular Versaflex flat top chain conveyor system is ideal for complex track designs within a three dimensional space. The different chain widths available mean that systems can be planned quickly and constructed easily.

SPU

The SPU 2040 accumulating pallet recirculation system with automatic pallet return is suitable for dynamic feeding, buffering, and positioning in the tightest of spaces. The pallets are transported from above and then conveyed back below the transport level once the workpieces have been removed.

TKU

The robust TKU 2040 indexing chain conveyor system with optional adjustable width for various workpieces is especially well suited for cycled, defined and position-oriented supply and removal as well as for interlinking machines and machining centres.

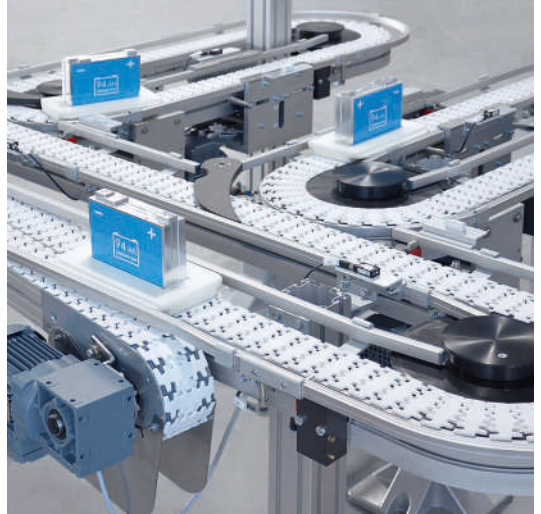
Handling Systems

Handling systems such as multi-axis gantry systems with linear modules and custom grippers are used either as pick-and-place units in combination with transfer systems or as standalone solutions.

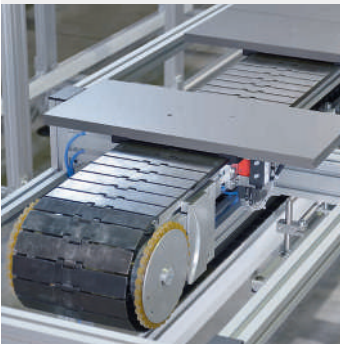
versamove



versaflex



SPU



TKU

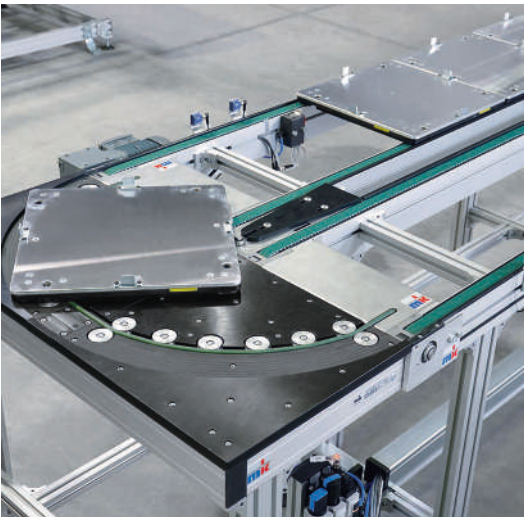


Handling Systems





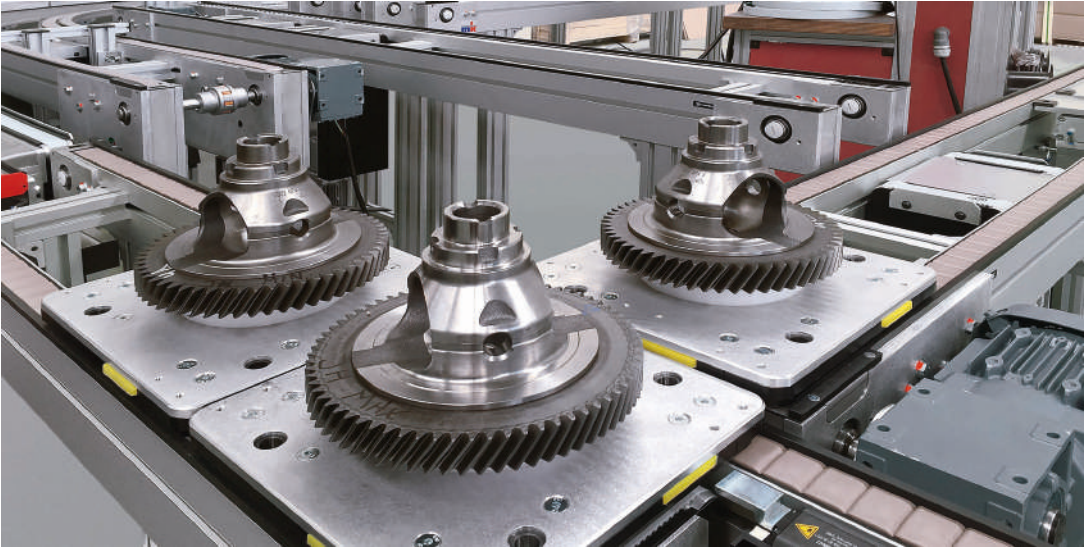
Versamove standard pallet circulation system with FPF-P 2045 curved flat top chain conveyor and custom workpiece holder



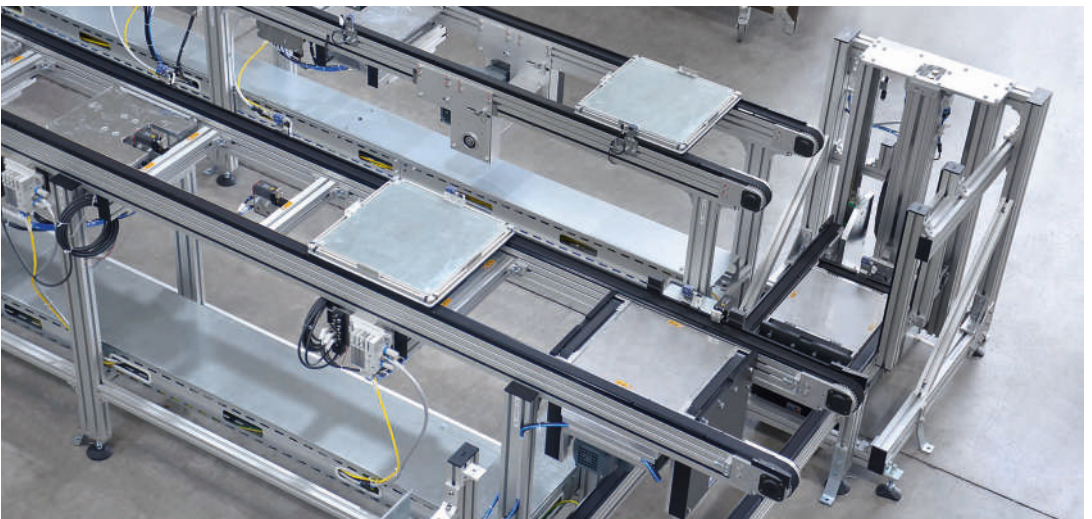
Versamove standard pallet circulation system with compact 180° KER 320 curved section



Lift-and-transfer conveyor with coupled drive and central stroke unit for bridging very short transverse sections



Versamove *standard* with flat top chain conveyor
and lift-and-transfer conveyors



Versamove *plus* pallet circulation system with ZRF-P 2010 conveyors
and KHL short stroke lift, interlink with antistatic design



Separation of pallets from the main line in two parallel cross conveyor tracks



Electrically driven lift in "stand-alone" frame with guarding



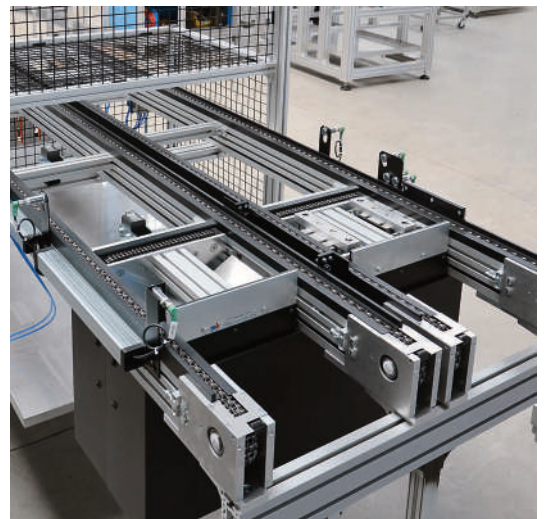
Lift that is accessible from three sides, with rotating assembly in the lift carriage and feed via a Versamove ultra



Versamove plus with large custom pallets



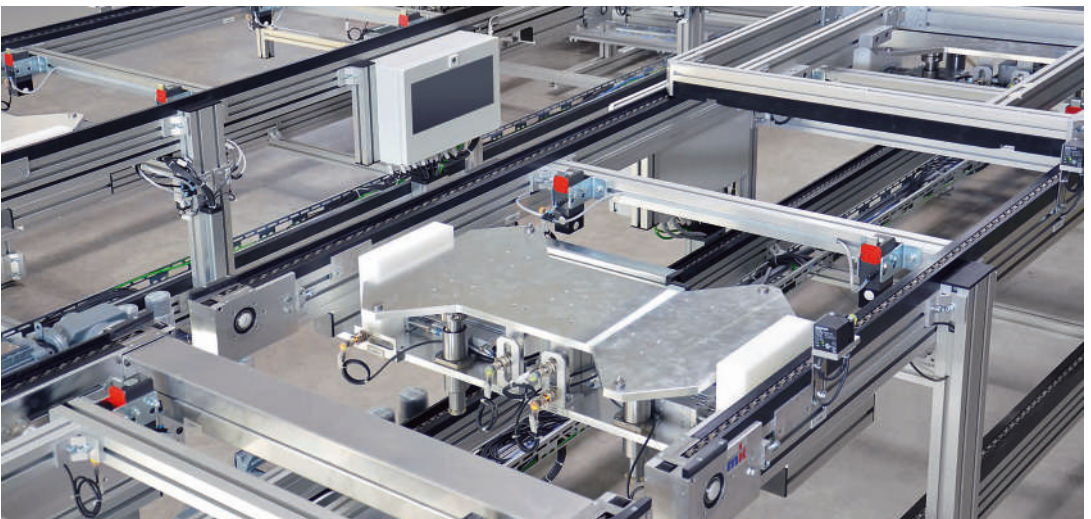
Versamove plus turnkey pallet system
in assembly automation



Lift-and-transfer conveyor with chain
and coupled drive for the automatic removal of
products with indexing from below



Interlinking production cells in the automotive industry
Manual pallet stocking, removal with customer-supplied handling
system and robot. Lower return level with lift and shuttle.



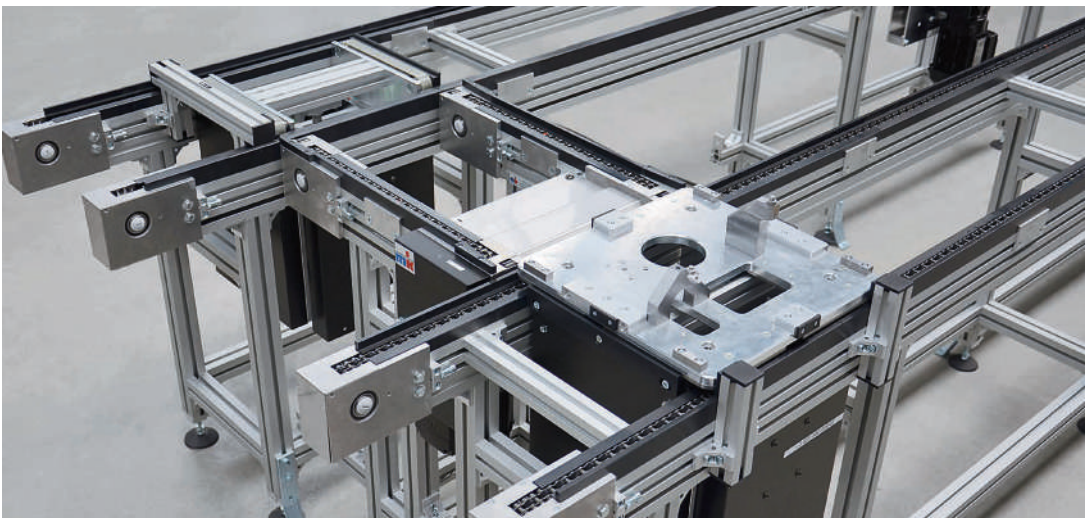
Versamove *plus* with accumulating roller chain conveyor SRF-P 2010 AF



Lift and storage system for pallets with two chain conveyors running in opposite directions and pallet slots



Pallet circulation system for various transport levels with three-axis gantry



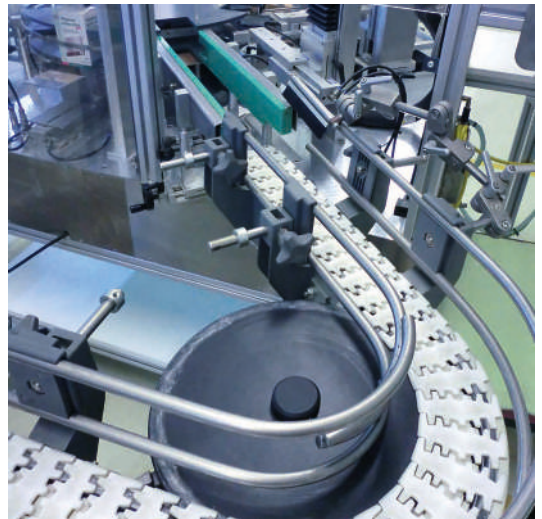
Versamove *plus* pallet circulation system with SRF-P 2010 conveyors and custom pallet



Versaflex SBF A06 with flat top chain with cams for vertical transport



4-track Versaflex flat top chain conveyor A06 with cleats



Versaflex flat top chain conveyor with wheel bend and side rail



Versaflex flat top chain conveyor
 as clamping conveyor



Versaflex SBF stainless steel conveyor with
 automatically adjustable side rail ASTRRA



Versaflex SBF as a parallel multi-line system



Versaflex SBF with pressure
 rollers for vertical transport

Customer Applications for SPU 2040



SPU accumulating pallet circulation system with pallet separation function as a feed for parts for a production system

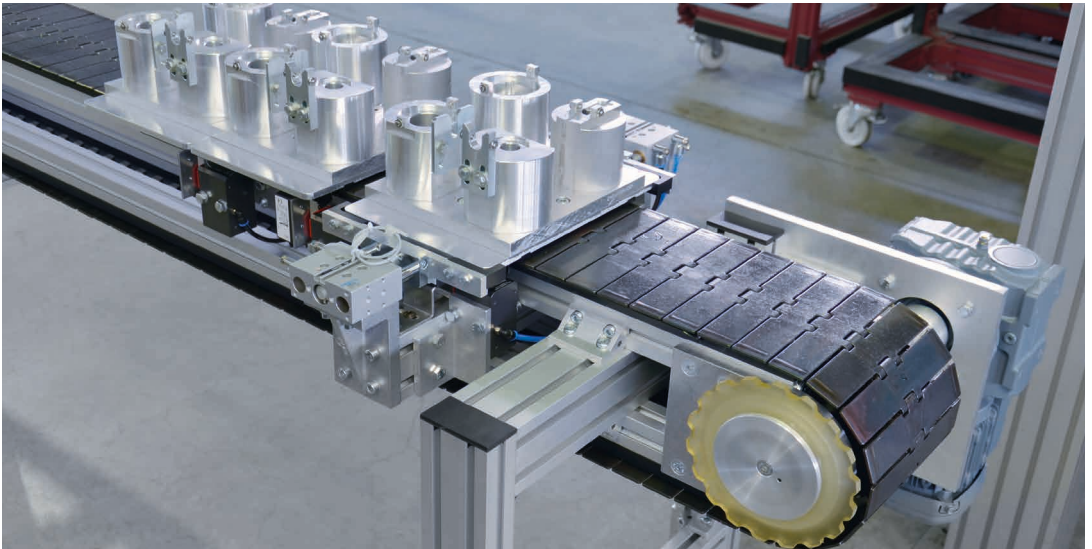


Interlink of dual-line pallet circulation system with GUF-P 2000 belt conveyor as a discharge conveyor for faulty parts

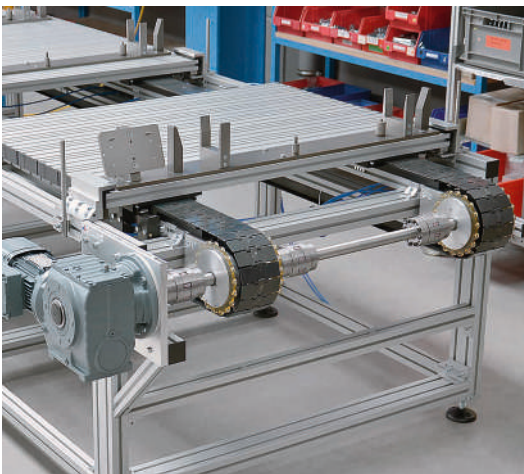


SPU double-line as an infeed conveyor for dishwasher housings

12



SPU with separator function for loading by hand and removal by robot



SPU double-line 114 system with custom pallet



Single-line SPU with custom pallet holder

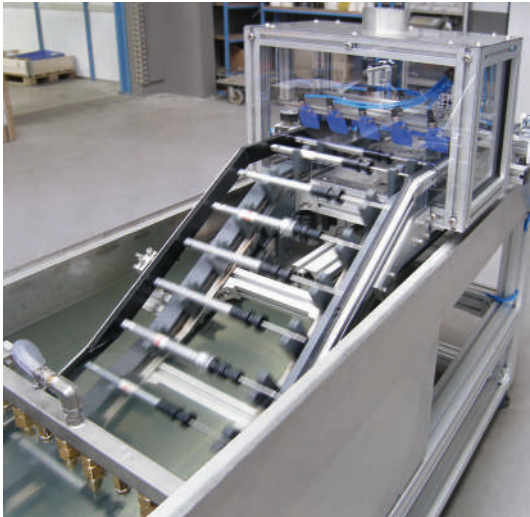
Customer Applications for TKU 2040



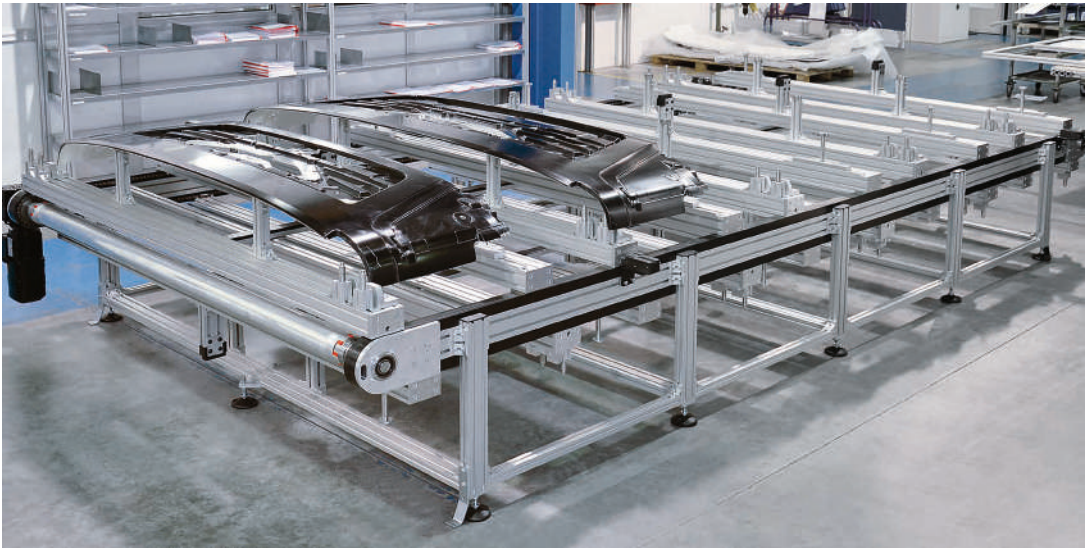
TKU as dual-line system with custom profile pallets and holders



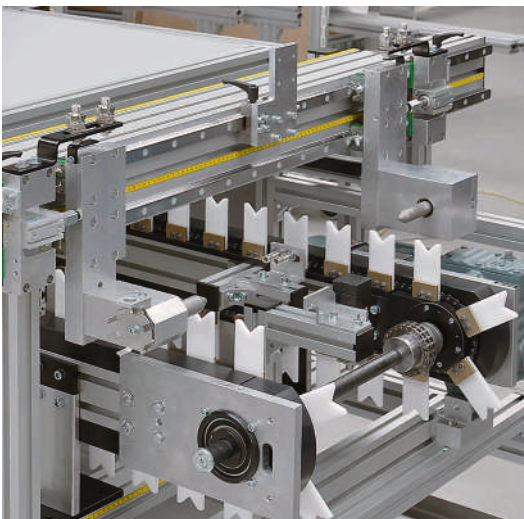
TKU 2040 with special adjusting unit for adjusting the distance between the conveyor chains



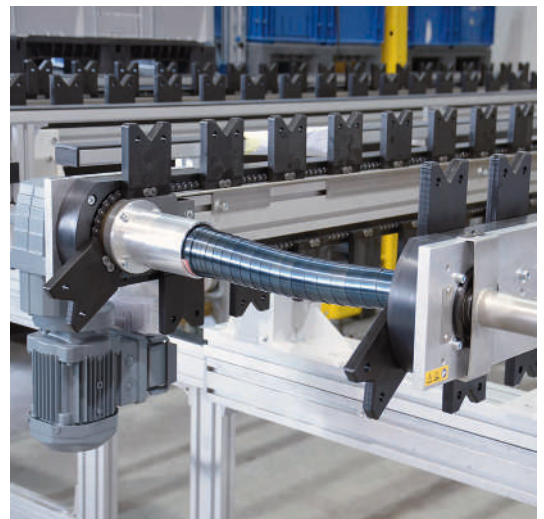
TKU 2040 with 20° inclination and transport of workpieces through a cleansing bath



TKU 2040 indexing chain conveyor system with custom workpiece holder and centring system for the automotive industry

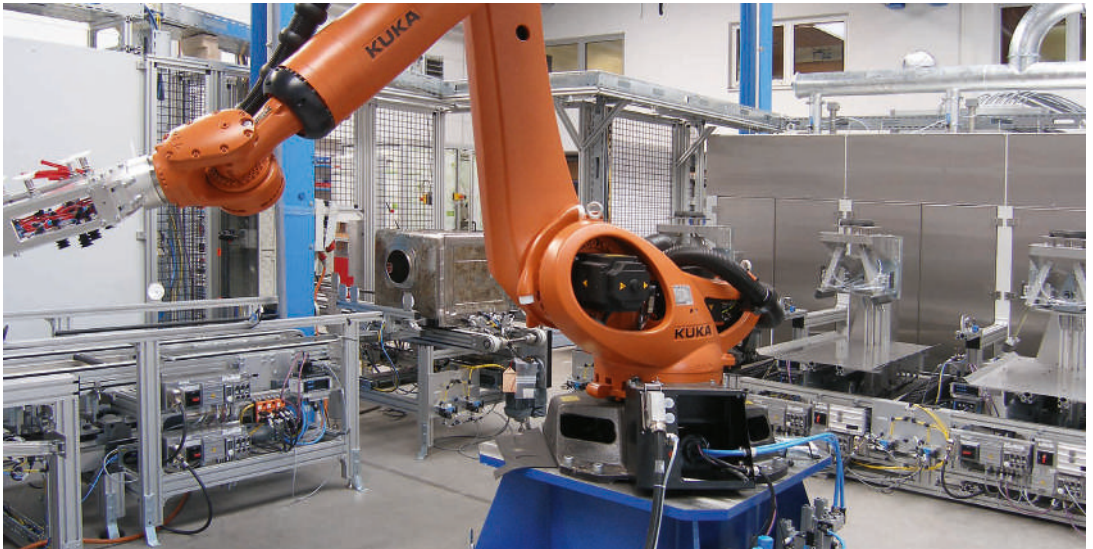


TKU 2040 for transporting camshafts with positioning sensors



TKU 2040 for transporting camshafts with a spiralled cover as a protective guard on the connecting shaft

Customer Applications for Handling Systems



Turnkey interlink system, including controller and protective device guard with integrated robot island and melting ovens



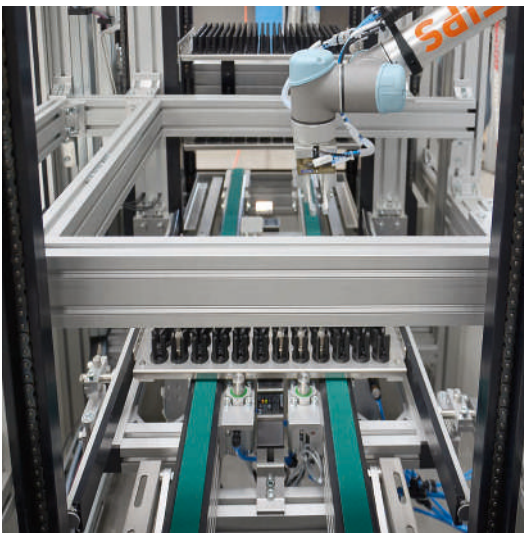
Two-axis gantry with servomotors and custom gripper in combination with Versaflex flat top chain conveyor



System for filling boxes with interlinking of an upstream tube filling station and integration of the provided scale with a discharge for defective boxes.



X-Y-Z handling gantry for regular monitoring of plant growth



The pallet is transported in and out of a production cell through a double-line timing belt conveyor

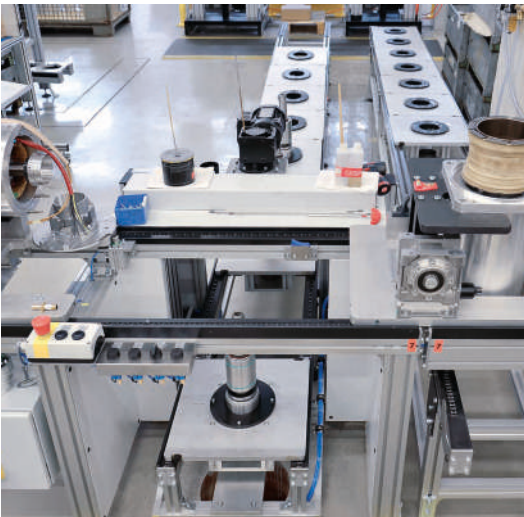


Production cell with paternoster storage for infed and discharged parts

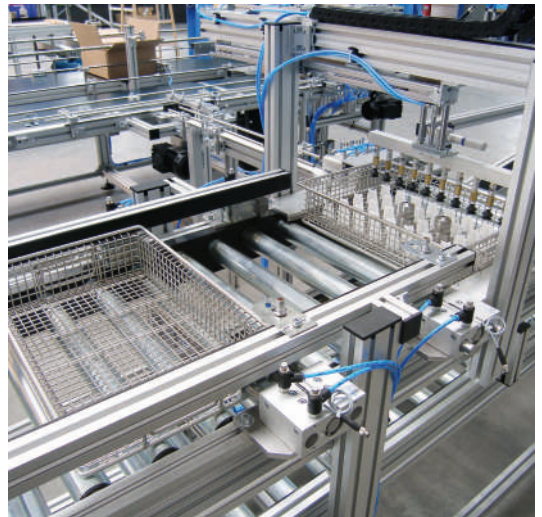
Customer Applications for Handling Systems



Handling and loading system for large parts



Merge station for two production lines



Transport in and out for a customer's measuring and packaging unit



Automated interlink with pallets, including rotating, stopping, separating and centring, based on flat top chain conveyor



RBT-P 2255 roller conveyor as a storage conveyor with central loading and unloading tasks



XYZ handling gantry for stacking and unstacking product pallets and euro pallets

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B90.25.041	Roller carriage LW 38.2004 L1 75	371	K106044	Roller type 44	280

K106045	Roll type 45	280	K116041030	Track, KU 30.10	406
K106046	Roller type 46	280	K116041125	Guide carriage KU 25.11	405
K106047	Roller type 47	280	K116041130	Guide carriage KU 30.11	407
K106048	Roller type 48	280	K116041325	Guide carriage KU 25.13	405
K106049	Roller type 49	280	K116041330	Guide carriage KU 30.13	407
K106050	Roller type 50	280	K307000002	Sensor cable	321
K106051	Roller type 51	281	K307000026	Sensor cable	321
K106052	Roller type 52	281	K307000027	Sensor cable	321
K106055	Roller type 55	281	K308000009	Initiator M12x1	321
K106056	Roller type 56	281	K308000010	Initiator M12x1	321
K106057	Roller type 57	280	K309000034	Clamp mount M12x1	321
K106058	Roller type 58	280	K309000035	Clamp mount M12x1	321
K106059	Roller type 59	280	K309000095	Initiator M12x1	321
K106060	Roller type 60	280	K503011401	Stopper SU 400	178/222
K106061	Roller type 61	280	K503011402	Stopper SU 400	178/222
K106066	Roller type 66	281	K503011404	Stopper SU 400	178/222
K106066VK54	Extension cable EC310 L = 2 m	281	K503011405	Stopper SU 400	178/222
K106067	Roller type 67	281	K503011406	Stopper SU 400	178/222
K110030061	Clamping lever K M6x40	340	K503012401	Stopper SU 400	178/222
K11402	Roller chain 1/2" x 5/16"	218	K503012404	Stopper SU 400	178/222
K114020001	Locking link	218	K503012405	Stopper SU 400	178/222
K11407	Accumulating roller chain	219	K503021061	Stopper SD 60	179/223
K11415	Accumulating roller chain	219	K503021063	Stopper SD 60	179/223
K11416	Roller chain, double	218	K503021064	Stopper SD 60	179/223
K114060001	Locking link	218	K503021101	Stopper SD 100	179/223
K11418	Accumulating roller chain	219	K503021102	Stopper SD 100	179/223
K114180001	Locking link	219	K503022061	Stopper SD 60	179/223
K11420	Accumulating roller chain	219	K503022063	Stopper SD 60	179/223
K11421	Accumulating roller chain	219	K503022064	Stopper SD 60	179/223
K11422	Accumulating roller chain	219	K503022101	Stopper SD 100	179/223
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