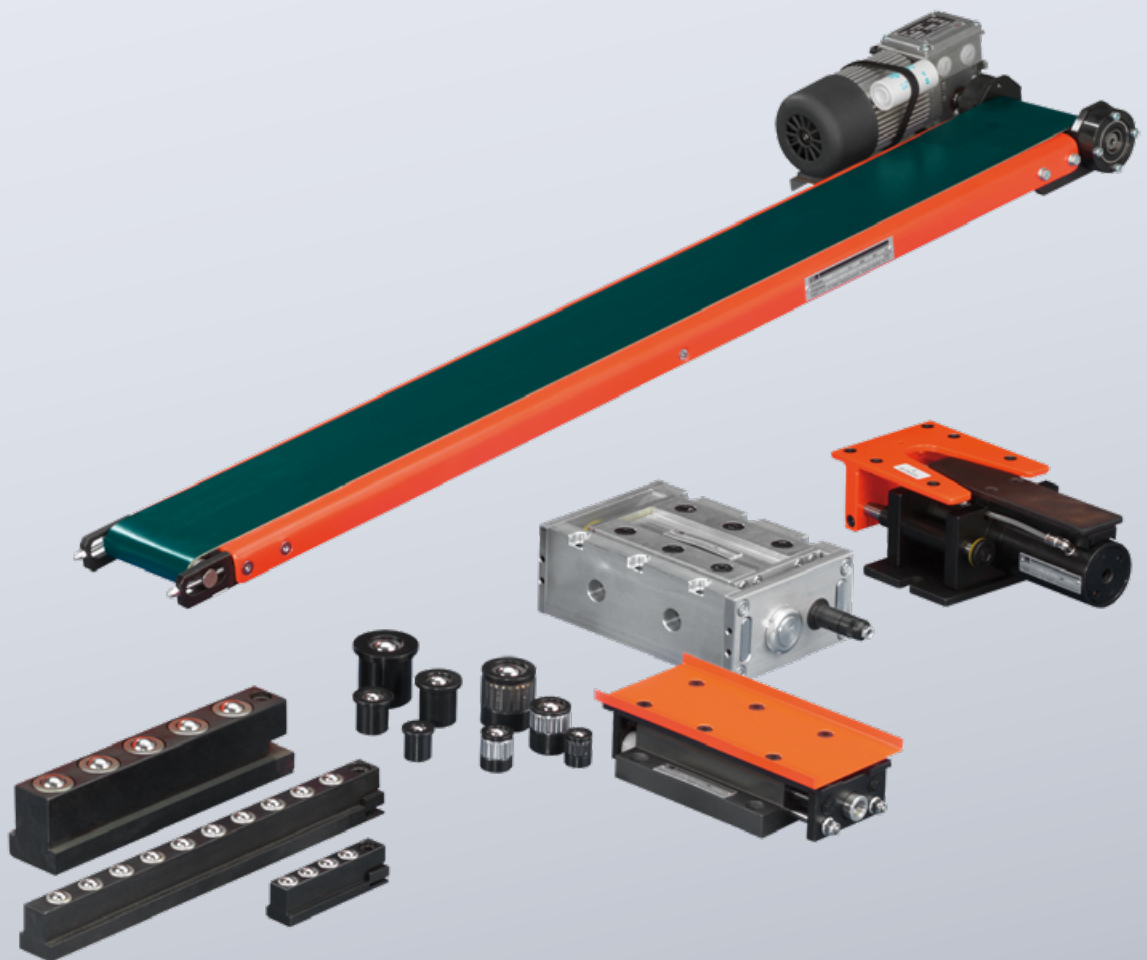


# PERIPHERAL EQUIPMENT



## PERIPHERAL EQUIPMENT

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### Press and tools products

#### Ball bearing inserts and rails

If you need fast and reliable tool changing, you will find that equipping or updating your press with ball bearing inserts and rails is the ideal solution.

With ball bearing inserts and rails you can move or change tools fast, and above all accurately - even if they weigh several tons. In the past this has often been an awkward, inconvenient and sometimes even critical process.

Equipping and retrofitting press tables with ball bearing rails is extremely straightforward as virtually every press table has fixing slots. The ball bearing rails are simply inserted and fixed in these slots.

Ball bearing inserts can be used for press tables which do not have fixing slots. These are fitted in the locating sockets.

The ball bearings of the inserts and rails will move in any direction and project only slightly above the surface of the press table. The result is that only slight force is required for movement on the table. When the tool is clamped in place it sits on the table and the clamping pressure causes the ball bearings to retract into their sockets.

#### Roller inserts and roller rails

Roller inserts and rails will carry twice the load of ball bearing inserts and rails and ensure precise linear movement of the tool. This linear technology requires precise positioning of the tool when it is transferred to the tool bench.

Roller rails are used especially on presses with stationary mounting devices. The special roller bearing technology operates reliably at high temperatures (200 °C).

Unlike ball bearing rails, roller rails can be used in tool base plates, i.e. installed upside down.

### Conveyor belts

Our conveyor belts are designed for use in a wide variety of production applications.

There is a belt width and length to suit almost every application.

The conveyor belts are powered by an electric motor, which is electronically regulated to provide belt speeds from 0.02 to 30 metres per minute.

The motor can be mounted horizontally or vertically, on either side of the belt for either direction of movement. Various limitation guides are also available.

### Pneumatic conveyor

This pneumatic conveyor is unique and is patented. It was designed to provide an effective and affordable solution to the problems of conveying parts and disposing of waste. This beltless system conveys stampings and waste from the tool area by vibration alone.

### Electro-mechanical transporters

The FIBRO electro-mechanical transporters have been developed to effectively and inexpensively solve the problems of transporting parts and the removal of stamping and cutting residues from presses.

The principle behind the electro-mechanical transporter is referred to as the "tablecloth effect". The slow acceleration during the forward stroke pushes the parts or offcuts forwards. The fast return stroke of the guiding system results in a transport movement in only one direction.

### Electric transporter

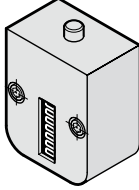

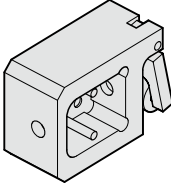

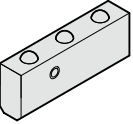
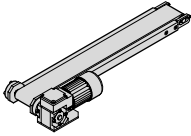


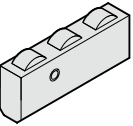
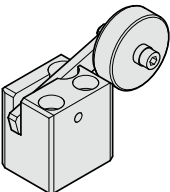
The electric drive transporter conveys the punched and waste parts out of the tooling area with a rhythmic movement in a straight line.

Low energy consumption, infinitely variable speed control, simple automation, low noise (60 dB) and the absence of compressed air ensure high economic efficiency whilst improving the working environment.

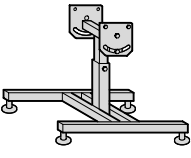
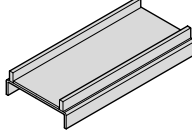
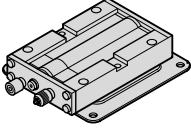
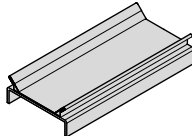
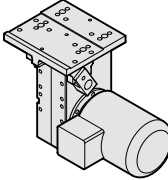
Its main areas of application are conveying and separating solid materials in metal processing and the automotive sector.

The additional "Clean Line" product range can also be used as a replacement in the food and pharmaceutical industries.

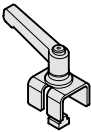
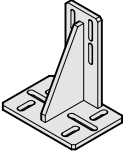
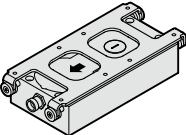
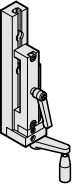
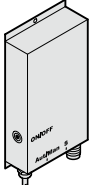
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	<b>2198.33.</b>	<b>J12</b>			<b>J25</b>
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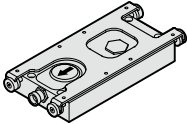

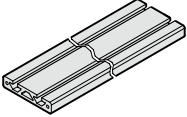
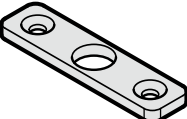
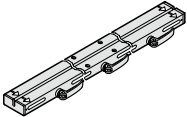
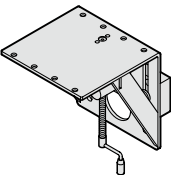
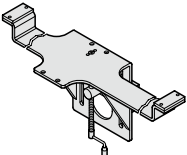
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	<b>2299.61.1x100.12</b>	<b>J53</b>		<b>2299.69.20.</b>	<b>J59</b>
	Control unit CLEAN LINE			Profiled beam	
	<b>2299.60.82.04.1</b>	<b>J55</b>		<b>2299.69.20.01.</b>	<b>J59</b>
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	<b>2299.60.82.04.2</b>	<b>J55</b>		<b>2299.69.30.</b>	<b>J60</b>
	Sealing cap for connection cable			Clamping bar	
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**2191.**

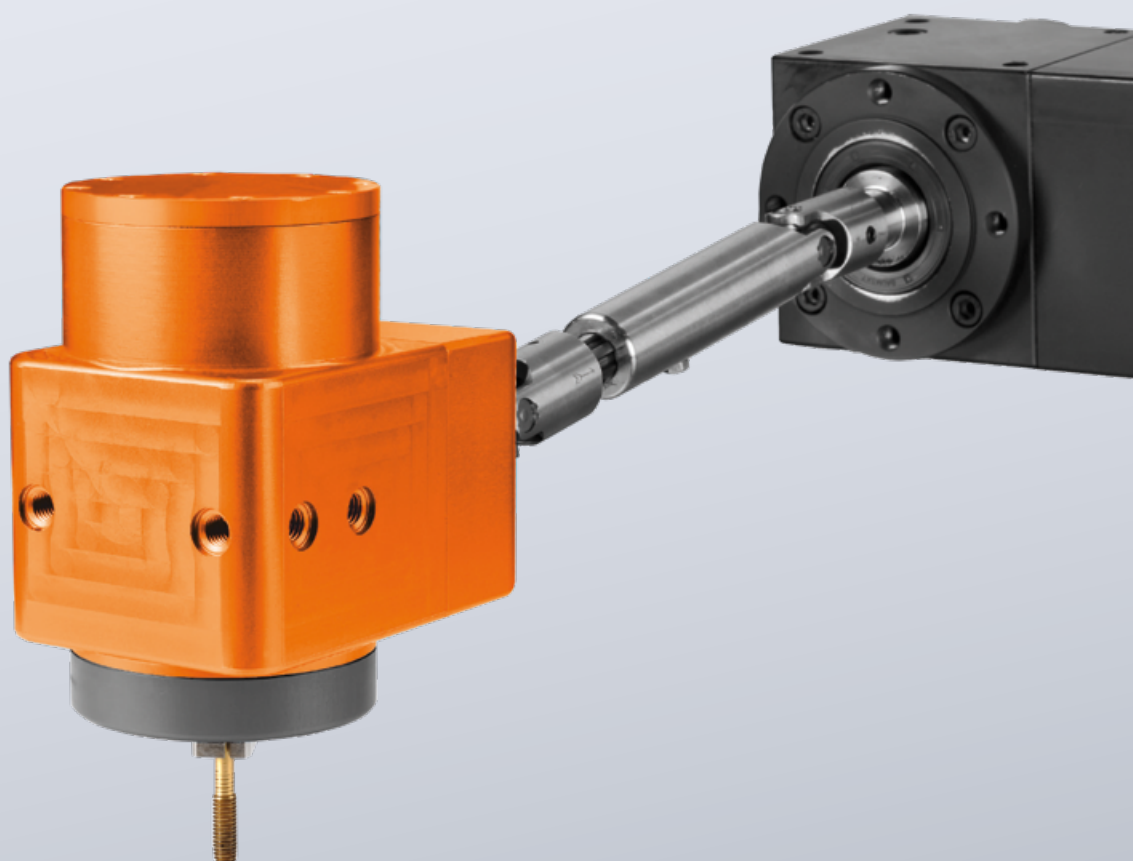
**J63**

Sensors for stamping and forming  
technology

# ELECTRONIC THREAD MOULDING

PATENTED

further information on request





# ELECTRONIC THREAD MOULDING

The electronic thread moulding unit, specially designed for punching and forming processes, stands out thanks to its excellent process integration. Regardless of whether the electronic thread moulding unit is used in progressive dies or progression tools, in presses or in automatic punching and bending machines, the desired threads are created in a reliable and controlled fashion. This improves thread quality, increases reliability and ensures quick, cost-effective production.

## Flexibility

The electronic thread moulding unit can be used in a wide variety of presses, progressive dies and automatic punching machines thanks to its independent drive and versatile control unit. If required, a thread cutter can also be operated instead of the non-cutting thread moulder. The compact design allows for the greatest possible flexibility. Integration takes place through installation in existing equipment. The control unit of the electronic thread moulding unit is coupled with the equipment according to requirements. The simple programming facilitates quick calibration of all parameters.

## Quality

The thread moulding unit produces high quality threads in sizes M2-M24. The threads stand out thanks to:

- great strength and stability
- high surface quality

The quality test includes an ongoing check of the thread moulding cycle. The condition of the thread tool, the tolerance of the core hole and the quality of the resulting thread are inferred from the monitored parameters. If limit values are fallen short of or are exceeded, a stop signal is sent to the press or equipment and a corresponding error message is produced. Furthermore, all data sets can be read out from the controls and summarised externally as a report, for instance within a quality assurance system.

## Cost effectiveness

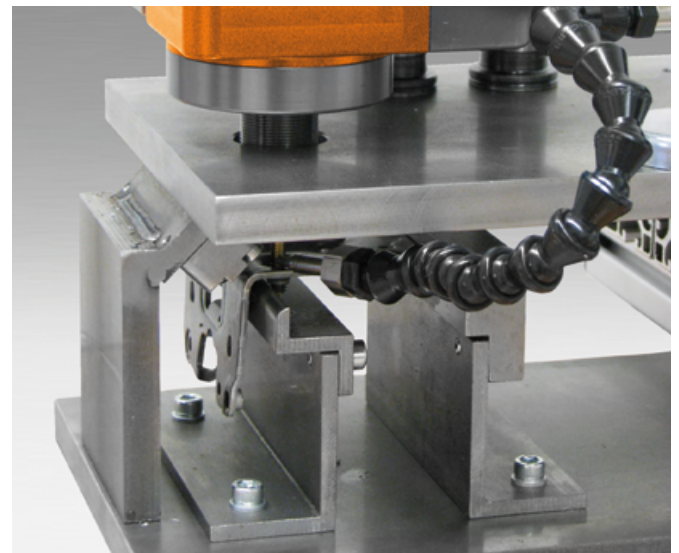
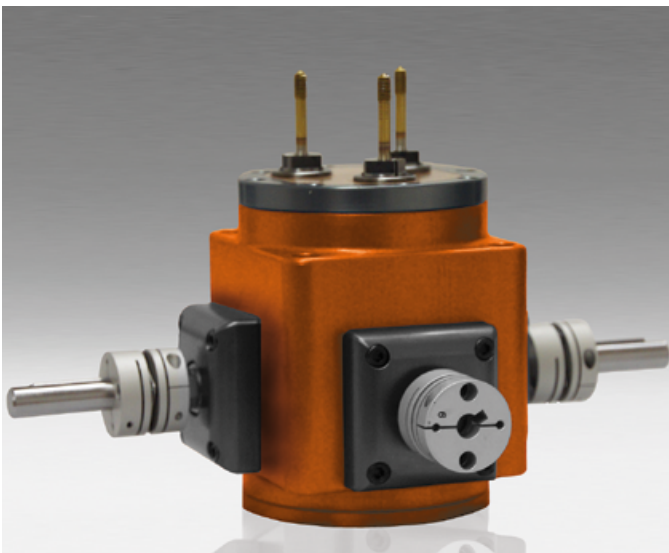
In addition to producing high quality threads, the thread creation is above all extremely cost effective. Cost savings can be achieved through:

- long service life of the tools
- faster processing times
- avoiding rejects
- eliminating the feeding of parts and additional production stages
- a high level of investment security

## At a glance

- Versatile and flexible application
- Autonomous system
- Large spectrum of thread sizes M2-M24 (larger upon request)
- Simple programming and control
- High quality
- Stability and strength
- Surface quality
- Integrated quality control
- Cost effectiveness
- Cost savings
- Short production times
- A high level of investment security

## Application examples



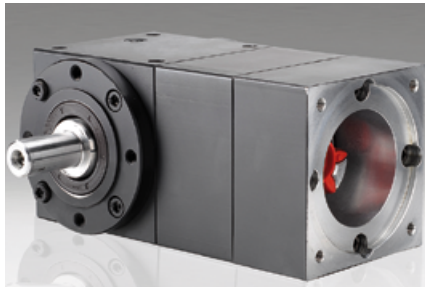
# ELECTRONIC THREAD MOULDING



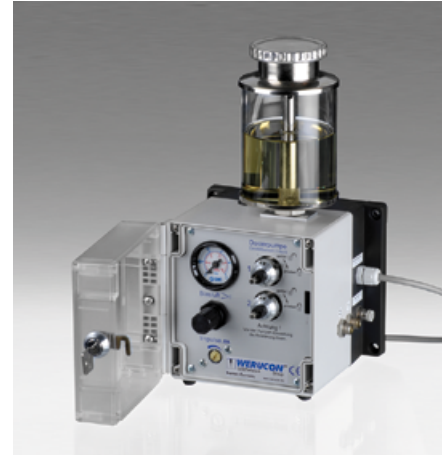
The controls and the servo regulator for the drives are located in the control box. The size of the control box varies according to the number of systems that must be controlled. The control unit can regulate up to 6 independent drives. 10 programmes per unit allow unrestricted programming of the parameters (rotation speed of the leader, limitation of the torque, number of rotations of the leader, cycle time, batch counter, process data monitoring). Data storage may also take place, which serves to record all the torque values.



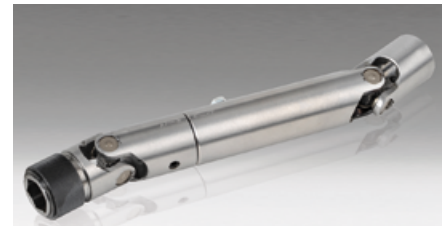
The moulding head transforms horizontal rotation into vertical rotation. The feed motion is carried out by a leader. The thread pitch of the leader corresponds to the pitch of the thread to be moulded. The moulding tool is operated with maximum precision with the help of the head spindle sleeve. A clamping sleeve is used to clamp the thread moulder.



The bevel gear serves to limit the length of the installation space required by the drive. Using the bevel gear is optional.



A flexible and compact micro dosing unit with a volumetric dosing pump allows for precise and reliable lubrication. The nozzle technology was developed for punching and forming processes.



The drive shaft transfers the drive's torque to the moulding head. By evening out differences in height and length, the moulding head can be installed in every position within the tool. It is also manoeuvrable on holding-down plates. The maximum clearance between the drive and the moulding head is 500 mm.



The drive consists of one synchronous servomotor for each moulding head that must be powered. The servomotor is configured according to the thread size. This makes it possible to create different thread sizes in a tool using one control. Thanks to the constant cutting speed, significantly longer service lives are achieved than is the case with mechanical, forced piloted systems. The drive is independent from the press stroke and press motion. The maximum rotation speed is 6000 U/min.

## Process comparison

	electronic thread moulding	thread cutting*	threaded/punched nut	weld nut
++ excellent				
+ good				
• satisfactory				
- adequate				
-- inadequate				
Possible uses				
Thread sizes	+	++	+	+
Tensile strength of the material	•	•	++	++
Flexibility	++	--	--	--
Quality				
Surface	++	•	•	•
(Pull-out) resistance	++	-	-	-
Load capacity	++	+	+	+
Reliability	++	++	--	--
Time				
Number of process stages	++	+	--	--
Processing time	++	•	--	--
Cost				
Production costs	++	-	•	--

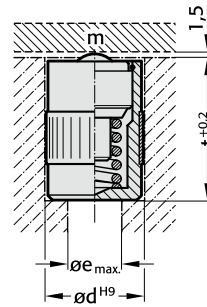
\* as a discrete, downstream process stage

## BALL BEARING INSERT WITHOUT COLLAR

### BALL BEARING INSERT WITH COLLAR



2198.32.



**Note:**

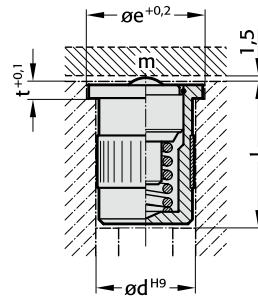
The supporting ball bearings raise the object to be moved (tool) away from the table surface and replace the surface friction with rolling friction. This significantly reduces the force required to move the tool.

**2198.32. Ball bearing insert without collar**

Order No	d	Load capacity	Ball	e	t
		m [daN]	diameter		
2198.32.020	20	25	10	10	30
2198.32.024	24	40	12	14	38
2198.32.030	30	63	15	20	44
2198.32.040	40	100	20	30	53



2198.33.



**Note:**

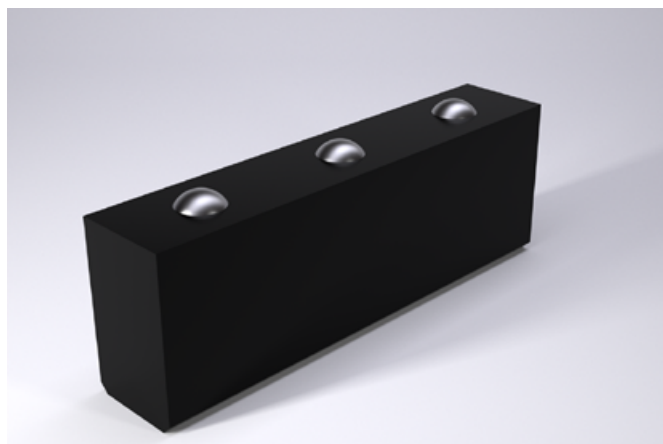
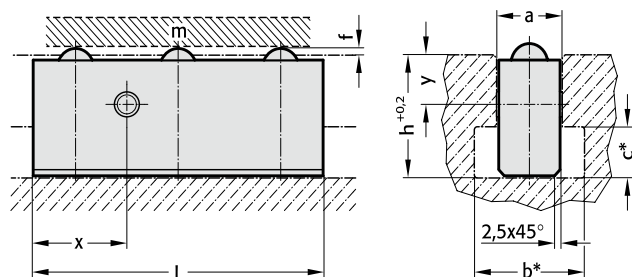
The supporting ball bearings raise the object to be moved (tool) away from the table surface and replace the surface friction with rolling friction. This significantly reduces the force required to move the tool.

**2198.33. Ball bearing insert with collar**

Order No	d	Load capacity	Ball	e	t	l
		m [daN]	diameter			
2198.33.020	20	25	10	25	3,5	31
2198.33.024	24	40	12	30	4	39
2198.33.030	30	63	15	35	5	45
2198.33.040	40	100	20	50	6	54

## BALL BEARING RAIL

2198.42.



### Note:

The ball bearing rails are pushed into the DIN 650 T-shaped grooves in the press table and are fixed in place by the clamping piece. The size and number of the ball bearing rails is determined by the size of the T-shaped groove and the load-bearing capacity required. Once the tool is clamped in place, it lies on the press table and the clamping pressure presses the ball bearings into the holes.

\* T-shaped grooves are not absolutely necessary.

### 2198.42. Ball bearing rail

Order No	a	Load capacity m [daN]	L	Number of balls	Ball diameter	f	b*	c*	h	x	y
2198.42.18.105	18	75	105	3	10	1.5	30	12	30	35	14.5
2198.42.18.140	18	100	140	4	10	1.5	30	12	30	35	14.5
2198.42.18.175	18	125	175	5	10	1.5	30	12	30	35	14.5
2198.42.18.210	18	150	210	6	10	1.5	30	12	30	35	14.5
2198.42.18.280	18	200	280	8	10	1.5	30	12	30	35	14.5
2198.42.18.350	18	250	350	10	10	1.5	30	12	30	35	14.5
2198.42.22.120	22	120	120	3	12	1.5	37	16	38	40	14.5
2198.42.22.160	22	160	160	4	12	1.5	37	16	38	40	14.5
2198.42.22.200	22	200	200	5	12	1.5	37	16	38	40	14.5
2198.42.22.240	22	240	240	6	12	1.5	37	16	38	40	14.5
2198.42.22.320	22	320	320	8	12	1.5	37	16	38	40	14.5
2198.42.22.400	22	400	400	10	12	1.5	37	16	38	40	14.5
2198.42.28.135	28	190	135	3	15	1.5	46	20	48	45	19
2198.42.28.180	28	250	180	4	15	1.5	46	20	48	45	19
2198.42.28.225	28	320	225	5	15	1.5	46	20	48	45	19
2198.42.28.270	28	380	270	6	15	1.5	46	20	48	45	19
2198.42.28.360	28	500	360	8	15	1.5	46	20	48	45	19
2198.42.28.450	28	630	450	10	15	1.5	46	20	48	45	19
2198.42.36.150	36	300	150	3	20	1.5	56	25	61	50	24.5
2198.42.36.200	36	400	200	4	20	1.5	56	25	61	50	24.5
2198.42.36.250	36	500	250	5	20	1.5	56	25	61	50	24.5
2198.42.36.300	36	600	300	6	20	1.5	56	25	61	50	24.5
2198.42.36.400	36	800	400	8	20	1.5	56	25	61	50	24.5
2198.42.36.500	36	1000	500	10	20	1.5	56	25	61	50	24.5

## ROLLER INSERT WITHOUT COLLAR

### ROLLER INSERT WITH COLLAR

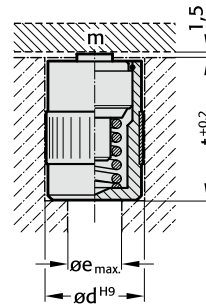


**Note:**

Roller inserts provide double the capacity of ball bearing inserts.

Torsion protection is provided by the customer.

2198.34.



**2198.34. Roller insert without collar**

Order No	d	Load capacity		Roller		
		m [daN]	diameter	e	t	
2198.34.020	20	50	10	10	30	
2198.34.024	24	80	13	14	38	
2198.34.030	30	125	16	20	44	
2198.34.040	40	200	19	30	53	

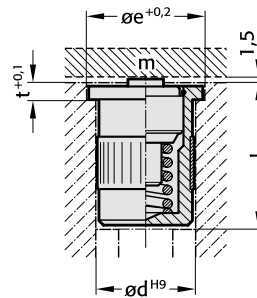


**Note:**

Roller inserts provide double the capacity of ball bearing inserts.

Torsion protection is provided by the customer.

2198.35.

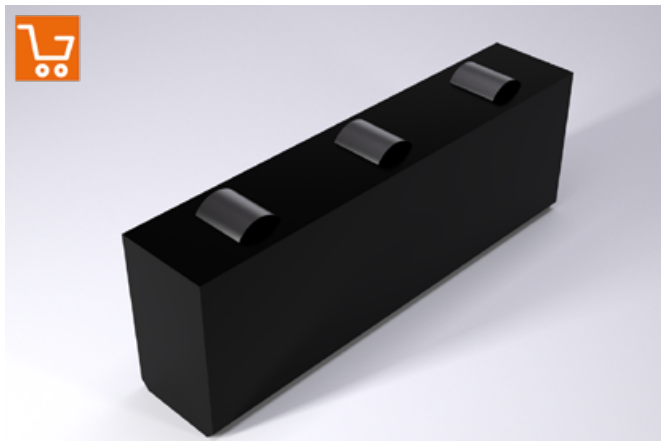
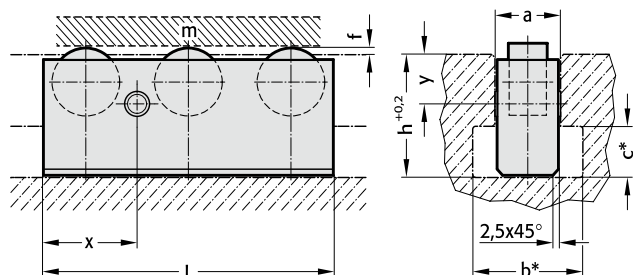


**2198.35. Roller insert with collar**

Order No	d	Load capacity		Roller			l
		m [daN]	diameter	e	t		
2198.35.020	20	50	10	25	3,5	31	
2198.35.024	24	80	13	30	4	39	
2198.35.030	30	125	16	35	5	45	
2198.35.040	40	200	19	50	6	54	

## ROLLER RAIL

2198.44.



### Note:

Roller rails provide double the capacity of ball bearing rails. They ensure precise linear movement of the tool.

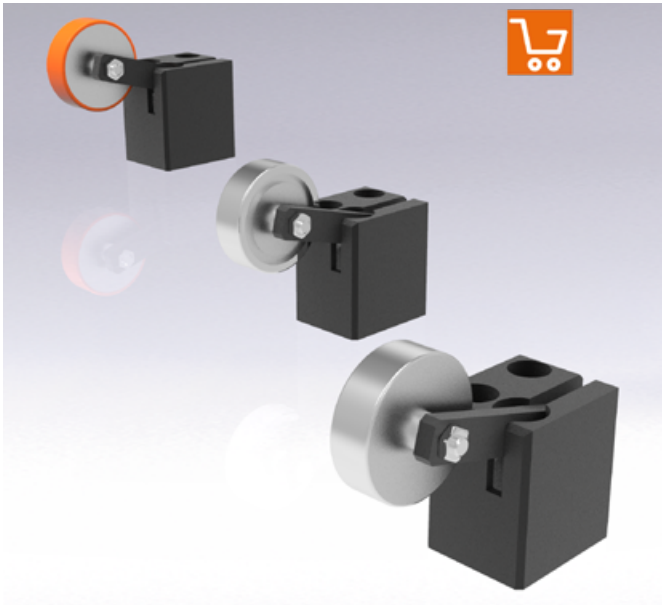
Unlike ball bearing rails, roller rails can be used in tool base plates, i.e. installed upside down.

\* T-shaped grooves are not absolutely necessary.

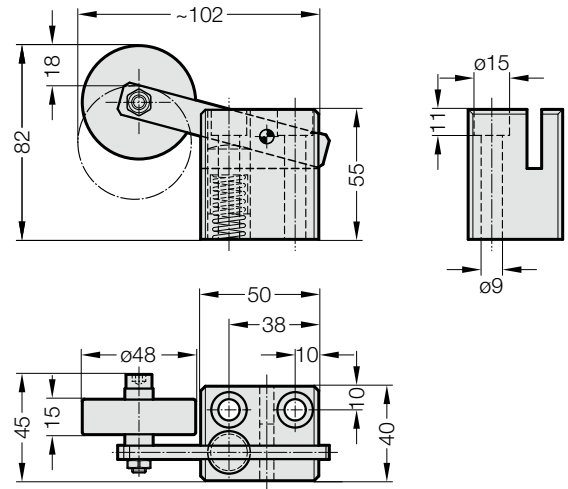
### 2198.44. Roller rail

Order No	a	Load capacity m [daN]	L	Number of rollers	Roller diameter	f	b*	c*	h	x	y
2198.44.18.105	18	150	105	3	10	1.5	30	12	30	35	14.5
2198.44.18.140	18	200	140	4	10	1.5	30	12	30	35	14.5
2198.44.18.175	18	250	175	5	10	1.5	30	12	30	35	14.5
2198.44.18.210	18	300	210	6	10	1.5	30	12	30	35	14.5
2198.44.18.280	18	400	280	8	10	1.5	30	12	30	35	14.5
2198.44.18.350	18	500	350	10	10	1.5	30	12	30	35	14.5
2198.44.22.120	22	240	120	3	13	1.5	37	16	38	40	14.5
2198.44.22.160	22	320	160	4	13	1.5	37	16	38	40	14.5
2198.44.22.200	22	400	200	5	13	1.5	37	16	38	40	14.5
2198.44.22.240	22	480	240	6	13	1.5	37	16	38	40	14.5
2198.44.22.320	22	640	320	8	13	1.5	37	16	38	40	14.5
2198.44.22.400	22	800	400	10	13	1.5	37	16	38	40	14.5
2198.44.28.135	28	380	135	3	16	1.5	46	20	48	45	19
2198.44.28.180	28	500	180	4	16	1.5	46	20	48	45	19
2198.44.28.225	28	630	225	5	16	1.5	46	20	48	45	19
2198.44.28.270	28	750	270	6	16	1.5	46	20	48	45	19
2198.44.28.360	28	1000	360	8	16	1.5	46	20	48	45	19
2198.44.28.450	28	1250	450	10	16	1.5	46	20	48	45	19
2198.44.36.150	36	600	150	3	19	1.5	56	25	61	50	24.5
2198.44.36.200	36	800	200	4	19	1.5	56	25	61	50	24.5
2198.44.36.250	36	1000	250	5	19	1.5	56	25	61	50	24.5
2198.44.36.300	36	1200	300	6	19	1.5	56	25	61	50	24.5
2198.44.36.400	36	1600	400	8	19	1.5	56	25	61	50	24.5
2198.44.36.500	36	2000	500	10	19	1.5	56	25	61	50	24.5

## SPRING MOUNTED ROLLER TO VW STANDARD



2198.50.55.01/.10/.20



### Material:

Base frame: Steel

Track roller, version 01: Steel

Track roller, version 10: Steel / radial deep-groove ball bearing

Track roller, version 20: Steel / coated with polyurethane rubber

### Execution:

Track roller, version 01: Standard

Track roller, version 10: Standard, at high load of the track roller

Track roller, version 20: Standard, for aluminium plates for skin panels

### Note:

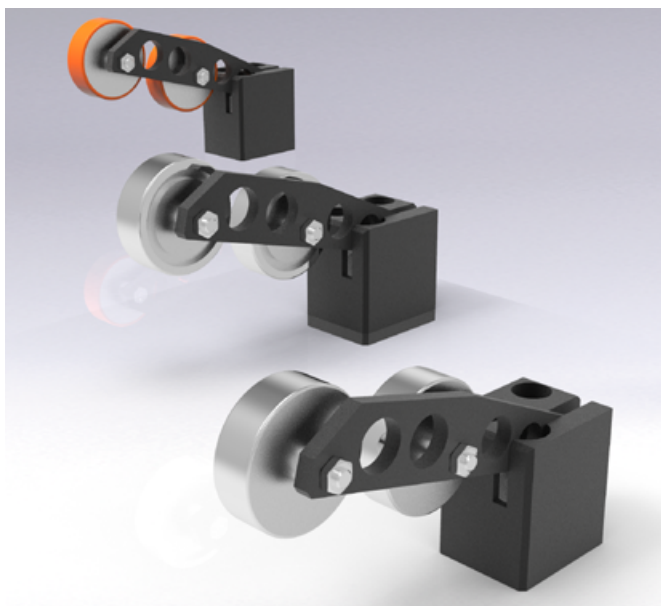
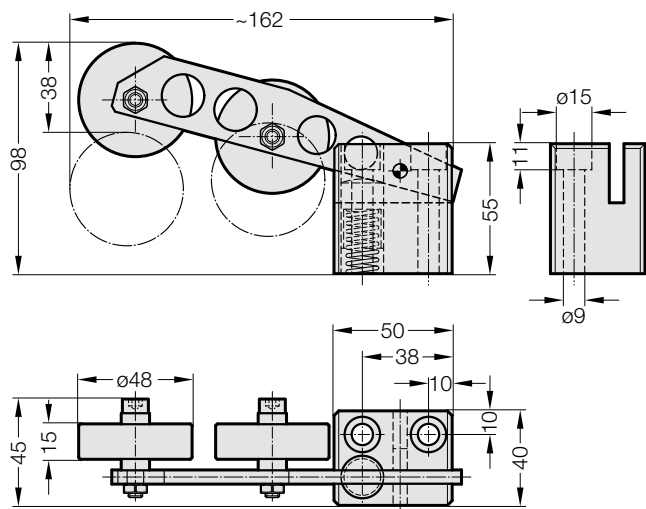
Delivery with cheese head screws DIN EN ISO 4762 M8x60 (2x). For order numbers for track roller spare part and compression springs, see table.

### 2198.50.55.01/.10/.20 Spring mounted roller to VW Standard

Order No	Execution	Track roller	Compression spring	Spring rate [N/mm]
2198.50.55.01	01	2198.50.55.01.07	2198.50.55.01.06	19.1
2198.50.55.10	10	2198.50.55.10.07	2198.50.55.01.06	19.1
2198.50.55.20	20	2198.50.55.20.07	2198.50.55.01.06	19.1

## SPRING MOUNTED ROLLER TO VW STANDARD

2198.50.55.02/.11/.21



### Material:

Base frame: Steel

Track roller, version 02: Steel

Track roller, version 11: Steel / radial deep-groove ball bearing

Track roller, version 21: Steel / coated with polyurethane rubber

### Execution:

Track roller, version 02: In front and sideways of cut-outs

Track roller, version 11: In front and sideways of cut-outs, at high load of the track roller

Track roller, version 21: In front and sideways of cut-outs, for aluminium plates for skin panels

### Note:

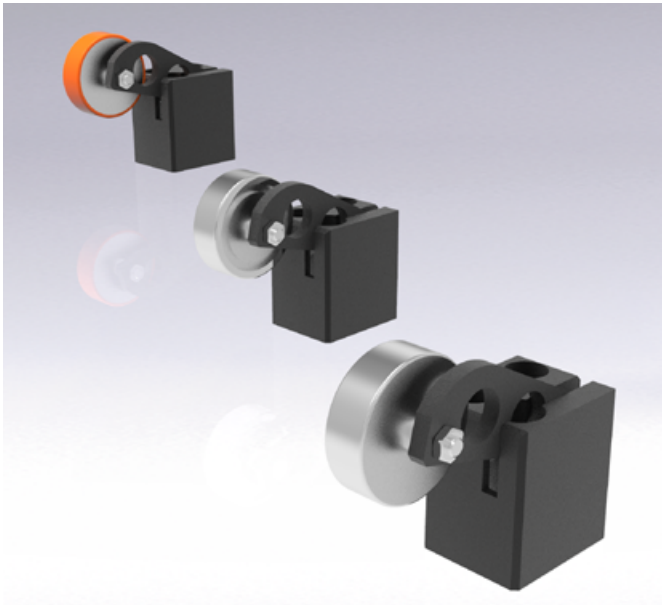
Delivery with cheese head screws DIN EN ISO 4762 M8x60 (2x). For order numbers for track roller spare part and compression springs, see table.

### 2198.50.55.02/.11/.21 Spring mounted roller to VW Standard

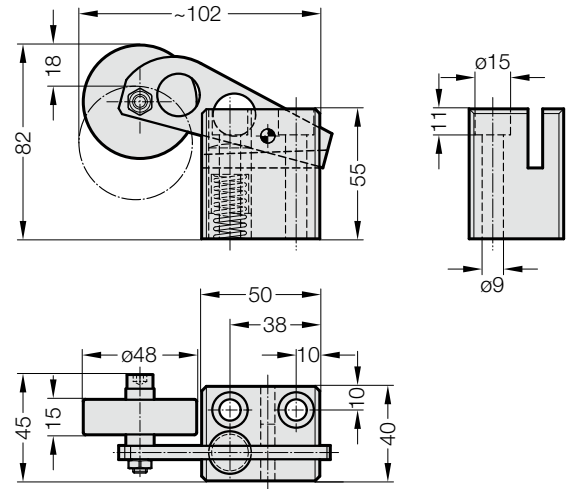
Order No	Execution	Track roller	Compression spring	Spring rate [N/mm]
2198.50.55.02	02	2198.50.55.01.07	2198.50.55.01.06	19.1
2198.50.55.11	11	2198.50.55.10.07	2198.50.55.01.06	19.1
2198.50.55.21	21	2198.50.55.20.07	2198.50.55.01.06	19.1



# SPRING MOUNTED ROLLER TO VW STANDARD



2198.50.55.03/.12/.14/.22



### Material:

Base frame: Steel

Track roller, version 03: Steel

Track roller, version 12/14: Steel / radial deep-groove ball bearing

Track roller, version 22: Steel / coated with polyurethane rubber

### Execution:

Track roller, version 03: In front and sideways of cut-outs

Track roller, version 12/14: In front and sideways of cut-outs, at high load of the track roller

Track roller, version 22: In front and sideways of cut-outs, for aluminium plates for skin panels

### Note:

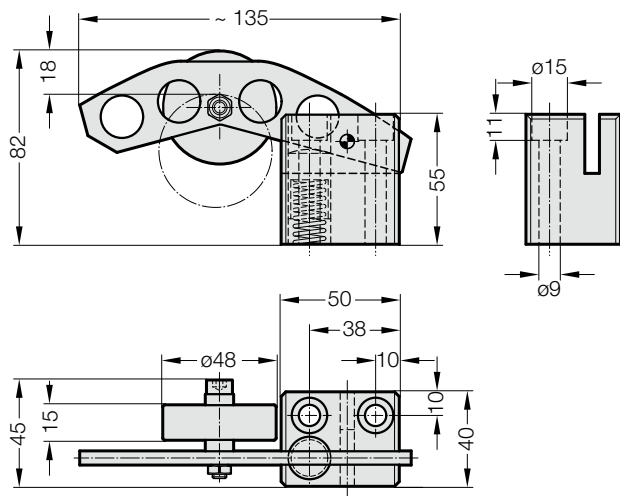
Delivery with cheese head screws DIN EN ISO 4762 M8x60 (2x). For order numbers for track roller spare part and compression springs, see table.

## 2198.50.55.03/.12/.14/.22 Spring mounted roller to VW Standard

Order No	Execution	Track roller	Compression spring	Spring rate [N/mm]
2198.50.55.03	03	2198.50.55.01.07	2198.50.55.01.06	19.1
2198.50.55.12	12	2198.50.55.10.07	2198.50.55.01.06	19.1
2198.50.55.14	14	2198.50.55.10.07	2198.50.55.14.06	7.1
2198.50.55.22	22	2198.50.55.20.07	2198.50.55.01.06	19.1

## SPRING MOUNTED ROLLER TO VW STANDARD

2198.50.55.04/.13/.23



### Material:

Base frame: Steel

Track roller, version 04: Steel

Track roller, version 13: Steel / radial deep-groove ball bearing

Track roller, version 23: Steel / coated with polyurethane rubber

### Execution:

Track roller, version 04: In front and sideways of cut-outs

Track roller, version 13: In front and sideways of cut-outs, at high load of the track roller

Track roller, version 23: In front and sideways of cut-outs, for aluminium plates for skin panels

### Note:

Delivery with cheese head screws DIN EN ISO 4762 M8x60 (2x). For order numbers for track roller spare part and compression springs, see table.

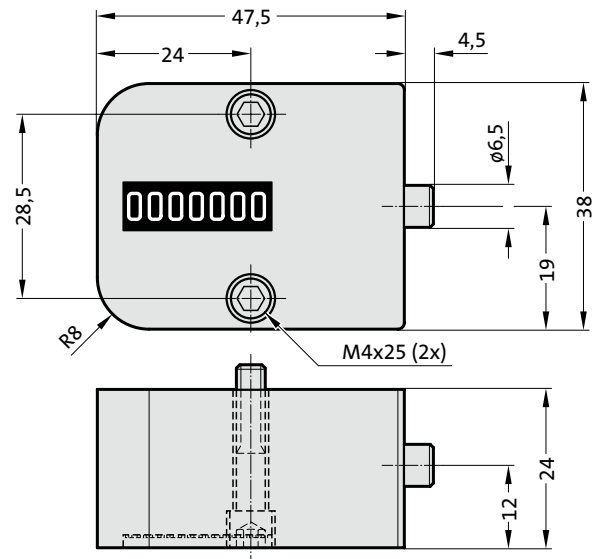
### 2198.50.55.04/.13/.23 Spring mounted roller to VW Standard

Order No	Execution	Track roller	Compression spring	Spring rate [N/mm]
2198.50.55.04	04	2198.50.55.01.07	2198.50.55.01.06	19.1
2198.50.55.13	13	2198.50.55.10.07	2198.50.55.01.06	19.1
2198.50.55.23	23	2198.50.55.20.07	2198.50.55.01.06	19.1

## COUNTER VIEW, MECHANICAL



3710.12.01



### Description:

- monitors the productivity of a moulding tool

### Note:

- max. operational temperature 120 °C
- seven digit display, non-resettable, allows recording up to 10 million cycles
- splash resistant, corrosion resistant
- incl. mounting screws M4x25

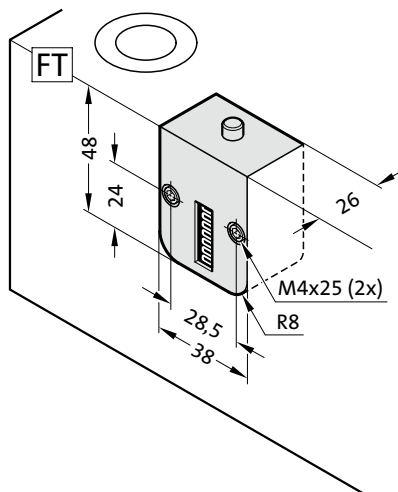
Installation into mould parting surface with 2 cylinder screws M4 x 25 DIN EN ISO 4762.

- An installation in the mould parting surface provides a good reading of the counted values.

3710.12.01 Counter view, mechanical

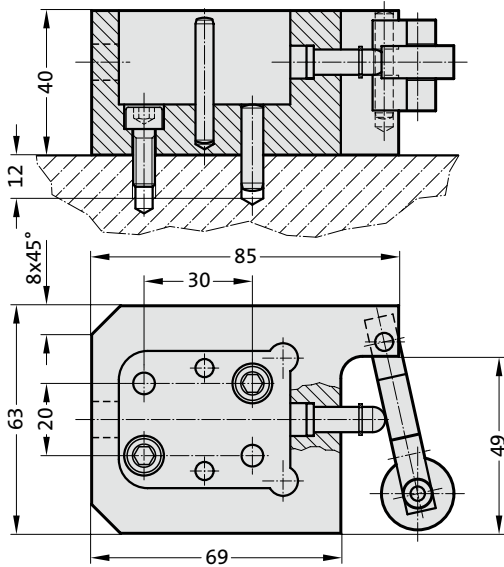
### Patent

### Mounting example



# INSTALLATION FRAME FOR COUNTER VIEW

3710.00.12.01



**3710.00.12.01** Installation frame for counter view

**Note:**

Fasten the installation frame on the tool, then insert the counter view.

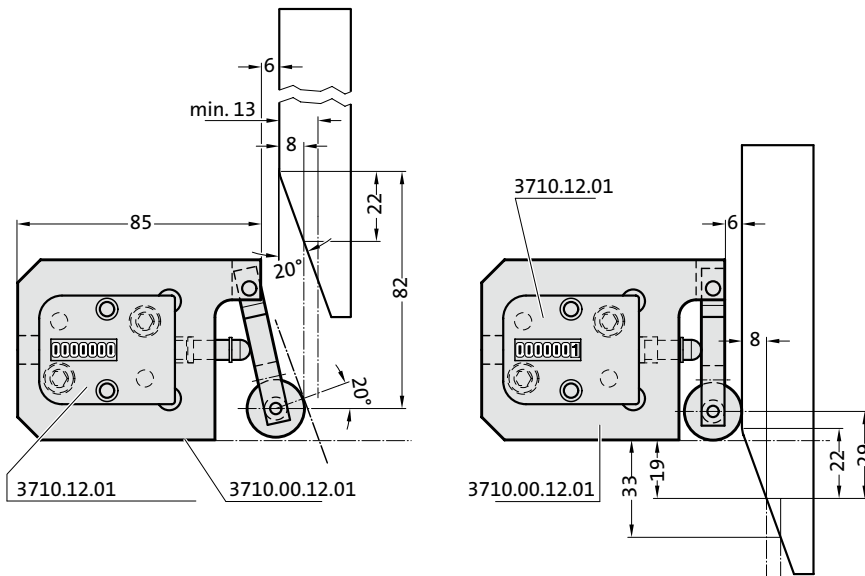
Delivery includes:

2 socket head cap screws M6x16 to DIN EN ISO 4762 and 2 dowel pins 2361.1.0600.024

**Attention:**

After installing the counter view into the installation frame, disassembly is no longer possible (manipulation proof).

**Mounting example**





# ELECTRICALLY CONTROLLED CONVEYOR BELTS





# CONVEYOR BELTS, ELECTRICAL - DESCRIPTION AND ORDERING GUIDELINES



## Conveyor speed:

Default is 5.5 m/min.

Speeds of 2.7–7.5–11–20 m/min are available on request.

5.5	m/min.
2.7	m/min.
7.5	m/min.
11	m/min.
20	m/min.

Code	1			
Code	2			
Code	3			
Code	4			
Code	5			

An electrical controller enables the belt speed to be set to between

0.02	–10 m/min. (Only possible with types 302 and 402)
10	–20 m/min.
20	–30 m/min.
0.02	–30 m/min. (Only possible with types 302 and 402)

Code	6	1	3	6	3	4
Code	7	1	3	7	3	4
Code	8	1	3	8	3	4
Code	9	1	3	9	3	4

with limited control precision.

## Motors: (supply voltage)

Single-phase 230 V–50 HZ
Three-phase 230 V–50 HZ (star delta circuit)
Three-phase 400 V–50 HZ

Code	230 V AC	400 V AC
Code	1-ph.	3-ph.
Code	1	
Code	2	
Code	3	

## Motor position with gearbox:

Motor axis horizontal relative to direction of belt travel, right
Motor axis horizontal relative to direction of belt travel, left
Motor axis vertical relative to direction of belt travel, right
Motor axis vertical relative to direction of belt travel, right, below
Motor axis vertical relative to direction of belt travel, left, above
Motor axis vertical relative to direction of belt travel, left, below

Code	1
Code	2
Code	3
Code	4
Code	5
Code	6

## Control system:

without electrical installation
with manual on/off and motor protection breaker switch
with manual on/off and motor protection breaker switch in addition, emergency stop, 3 m cable with plug IEC 309
Equipment as for 2 + motor protection breaker control for belt speed regulation, 230 V 1-ph → with IEC 309 plug
Equipment as for 2 + motor protection breaker control for belt speed regulation, 400 V 3-ph → with IEC 309 plug

Code	0
Code	1
Code	2
Code	3
Code	4

## Description:

The conveyor belts are used to move parts and waste out of the press. They are suitable for any other application involving the movement of parts or waste.

The belt consists of a woven glass fibre fabric with a polyurethane coating.

The drives are designed for both continuous and intermittent operation.

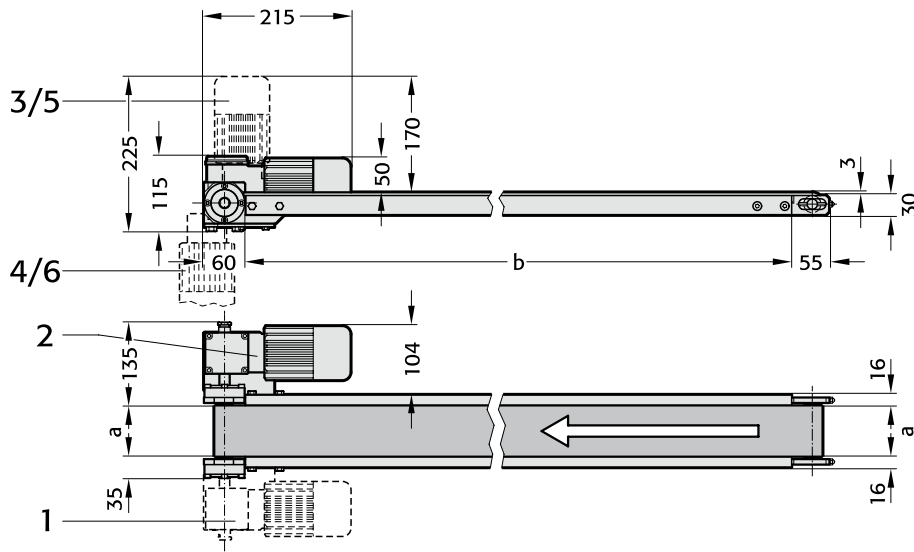
## Accessories:

Delimiting guides, loss prevention and stands (see following pages) only in conjunction with a conveyor belt order.



# CONVEYOR BELT, ELECTRICALLY CONTROLLED

2195.301.



## 2195.301. Conveyor belt, electrically controlled

a	b	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000
030		●	●	●	●	●	●	●	●	●						
050		●	●	●	●	●	●	●	●	●						
075		●	●	●	●	●	●	●	●	●						
100		●	●	●	●	●	●	●	●	●						
125		●	●	●	●	●	●	●	●	●						
150		●	●	●	●	●	●	●	●	●						
175		●	●	●	●	●	●	●	●	●						
200		●	●	●	●	●	●	●	●	●						
225		●	●	●	●	●	●	●	●	●						
250		●	●	●	●	●	●	●	●	●						
275		●	●	●	●	●	●	●	●	●						
300		●	●	●	●	●	●	●	●	●						

### Belt load:

Belt width a	kg per meter conveyed
30- 50- 75	4
100-125-150	7
175-200-225	10
250-275-300	15

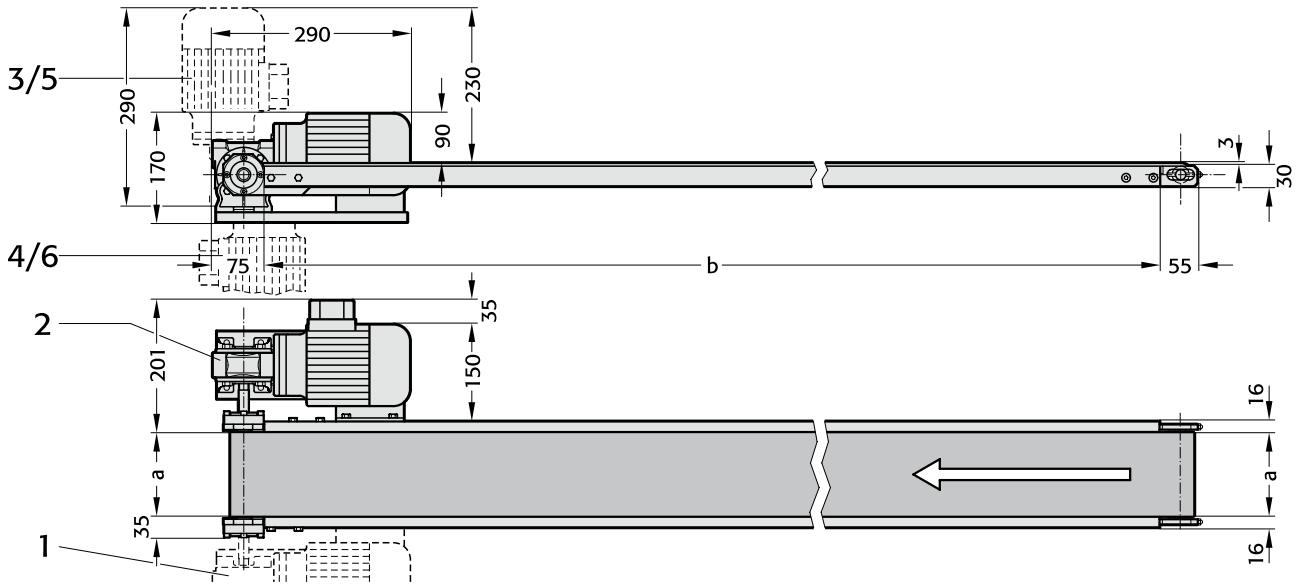
For more information refer to description and ordering guidelines.

### Ordering Code (example):

Conveyor belt, electrically controlled	= 2195.
Typ 301	= 301.
Belt width	a = 100 mm = 100.
Nominal belt length	b = 1750 mm = 1750.
Belt speed	= 1
Motor voltage 400 V	= 3
Motor position	= 1
Motor controller	= 1
Order No.	= 2195.301. 100. 1750. 1 3 1 1

# CONVEYOR BELT, ELECTRICALLY CONTROLLED

2195.302.



2195.302. Conveyor belt, electrically controlled

a	b	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000
030											●	●	●	●	●	●
050											●	●	●	●	●	●
075									●	●	●	●	●	●	●	●
100								●	●	●	●	●	●	●	●	●
125							●	●	●	●	●	●	●	●	●	●
150							●	●	●	●	●	●	●	●	●	●
175						●	●	●	●	●	●	●	●	●	●	●
200						●	●	●	●	●	●	●	●	●	●	●
225					●	●	●	●	●	●	●	●	●	●	●	●
250					●	●	●	●	●	●	●	●	●	●	●	●
275				●	●	●	●	●	●	●	●	●	●	●	●	●
300				●	●	●	●	●	●	●	●	●	●	●	●	●

**Belt load:**

Belt width a	kg per meter conveyed
30- 50- 75	4
100-125-150	7
175-200-225	10
250-275-300	15

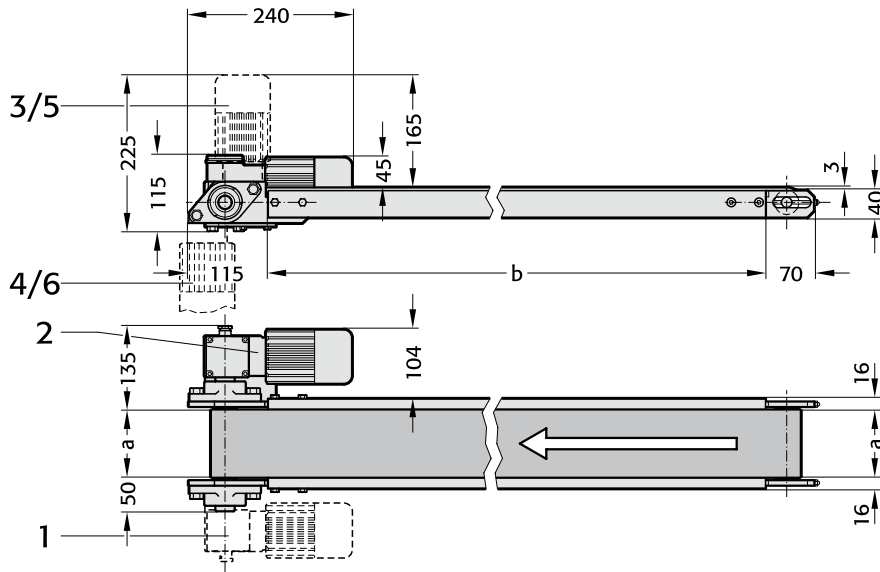
For more information refer to description and ordering guidelines.

**Ordering Code (example):**

Conveyor belt, electrically controlled	= 2195.
Typ 302	= 302.
Belt width	a = 100 mm = 100.
Nominal belt length	b = 2500 mm = 2500.
Belt speed	= 1
Motor voltage 400 V	= 3
Motor position	= 1
Motor controller	= 1
Order No.	= 2195.302. 100. 2500.1 3 1 1

# CONVEYOR BELT, ELECTRICALLY CONTROLLED

2195.401.



## 2195.401. Conveyor belt, electrically controlled

a	b	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000
030		●	●	●	●	●	●	●	●	●						
050		●	●	●	●	●	●	●	●	●						
075		●	●	●	●	●	●	●	●	●						
100		●	●	●	●	●	●	●	●	●						
125		●	●	●	●	●	●	●	●	●						
150		●	●	●	●	●	●	●	●	●						
175		●	●	●	●	●	●	●	●	●						
200		●	●	●	●	●	●	●	●	●						
225		●	●	●	●	●	●	●	●	●						
250		●	●	●	●	●	●	●	●	●						
275		●	●	●	●	●	●	●	●	●						
300		●	●	●	●	●	●	●	●	●						

### Belt load:

Belt width a	kg per meter conveyed
30- 50- 75	5
100-125-150	10
175-200-225	14
250-275-300	17

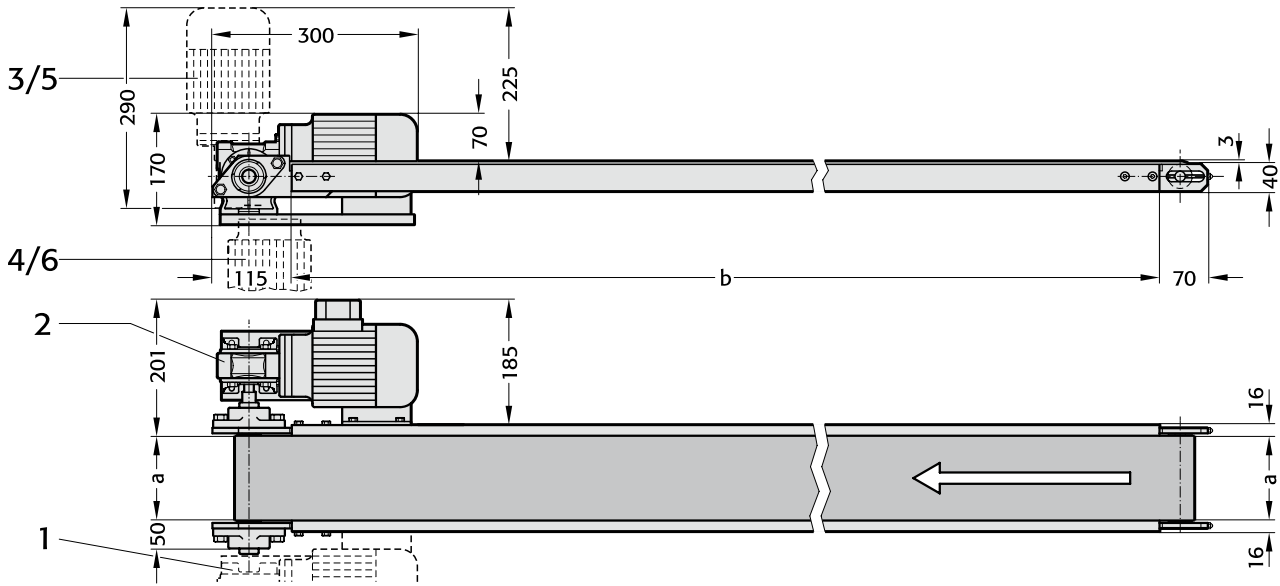
For more information refer to description and ordering guidelines.

### Ordering Code (example):

Conveyor belt, electrically controlled	= 2195.
Typ 401	= 401.
Belt width	a = 100 mm = 100.
Nominal belt length	b = 1750 mm = 1750.
Belt speed	= 1
Motor voltage 400 V	= 3
Motor position	= 1
Motor controller	= 1
Order No.	= 2195.401. 100. 1750. 1 3 1 1

# CONVEYOR BELT, ELECTRICALLY CONTROLLED

2195.402.



2195.402. Conveyor belt, electrically controlled

a	b	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000
030											●	●	●	●	●	●
050											●	●	●	●	●	●
075									●	●	●	●	●	●	●	●
100									●	●	●	●	●	●	●	●
125								●	●	●	●	●	●	●	●	●
150								●	●	●	●	●	●	●	●	●
175							●	●	●	●	●	●	●	●	●	●
200							●	●	●	●	●	●	●	●	●	●
225							●	●	●	●	●	●	●	●	●	●
250							●	●	●	●	●	●	●	●	●	●
275							●	●	●	●	●	●	●	●	●	●
300							●	●	●	●	●	●	●	●	●	●
350		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
400		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
450		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
500		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

**Belt load:**

Belt width a	kg per meter conveyed
30- 50- 75	5
100-125-150	10
175-200-225	14
250-275-300	17
350-400-450	20
500	24

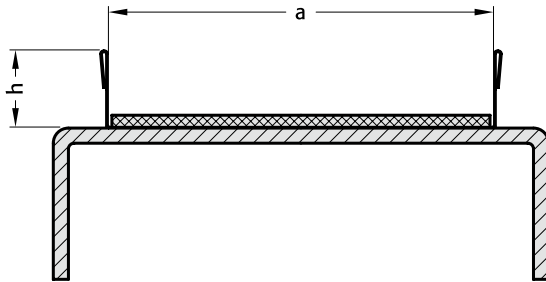
For more information refer to description and ordering guidelines.

**Ordering Code (example):**

Conveyor belt, electrically controlled	= 2195.
Typ 402	= 402.
Belt width	a = 100 mm = 100.
Nominal belt length	b = 2500 mm = 2500.
Belt speed	= 1
Motor voltage 400 V	= 3
Motor position	= 1
Motor controller	= 1
Order No.	= 2195.402. 100. 2500. 1 3 1 1

# DELIMITING GUIDE FOR CONVEYOR BELT

2195.114.



**Note:**

Only in conjunction with a conveyor belt order.

**Delimiting guide for conveyor belt**

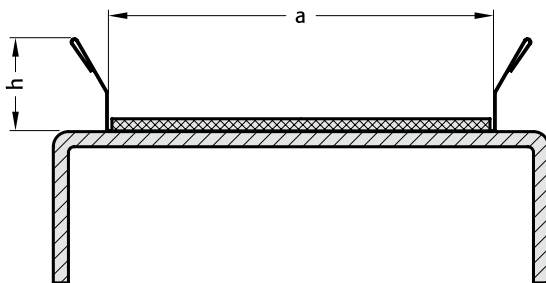
**Description:**

Delimiting guide made of stainless steel  
 h = 15 - 100 mm (in 5 mm increments)

**Ordering Code (example):**

Conveyor belt, electrically controlled	=	2195.
Delimiting guide type	=	2195.114.
Guide height	h = 15 mm	= 2195.114.015.
Belt width	a = 100 mm	= 2195.114.015.100.
Frame length	b = 1500 mm	= 2195.114.015.100.1500
Order No.		= 2195.114.015.100.1500

2195.115.



**Note:**

Only in conjunction with a conveyor belt order.

**Delimiting guide for conveyor belt**

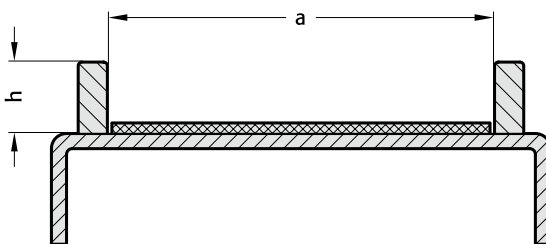
**Description:**

Delimiting guide made of stainless steel  
 h = 25 - 100 mm (in 5 mm increments)

**Ordering Code (example):**

Conveyor belt, electrically controlled	=	2195.
Delimiting guide type	=	2195.115.
Guide height	h = 25 mm	= 2195.115.025.
Belt width	a = 150 mm	= 2195.115.025.150.
Frame length	b = 1500 mm	= 2195.115.025.150.1500
Order No.		= 2195.115.025.150.1500

2195.116.



**Note:**

Only in conjunction with a conveyor belt order.

**Delimiting guide for conveyor belt**

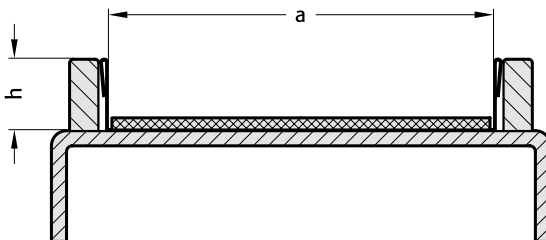
**Description:**

Conveyor edge rails of steel, brazed  
 h = 10 - 100 mm (in 5 mm increments)

**Ordering Code (example):**

Conveyor belt, electrically controlled	=	2195.
Delimiting guide type	=	2195.116.
Guide height	h = 10 mm	= 2195.116.010.
Belt width	a = 100 mm	= 2195.116.010.100.
Frame length	b = 1500 mm	= 2195.116.010.100.1500
Order No.		= 2195.116.010.100.1500

2195.117.



**Note:**

Only in conjunction with a conveyor belt order.

**Delimiting guide for conveyor belt**

**Description:**

Trough conveyor edge rails of stainless steel,  
 with brazed on steel reinforcement walls  
 h = 15 - 100 mm (in 5 mm increments)

**Ordering Code (example):**

Conveyor belt, electrically controlled	=	2195.
Delimiting guide type	=	2195.117.
Guide height	h = 15 mm	= 2195.117.015.
Belt width	a = 100 mm	= 2195.117.015.100.
Frame length	b = 1500 mm	= 2195.117.015.100.1500
Order No.		= 2195.117.015.100.1500

# DELIMITING GUIDE WITH LOSS PREVENTION FOR CONVEYOR BELT

## Delimiting guide with loss prevention for conveyor belt

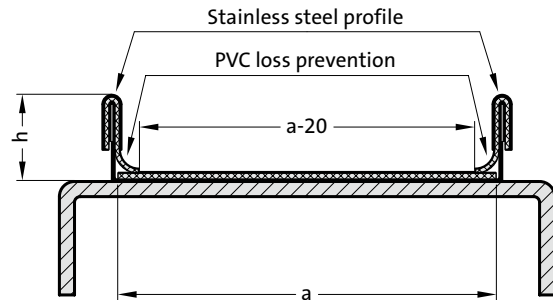
2195.218.

### Description:

with profile on conveyor edge rail 2195.114.  
with loss prevention.  
h = 25 - 50 mm (in 5 mm increments)

### Ordering Code (example):

Conveyor belt, electrically controlled	=	2195.
Delimiting guide type 114 with loss prevention type 218	=	218.
Guide height	h = 25 mm	= 025.
Belt width	a = 150 mm	= 150.
Frame length	b = 1500 mm	= 1500
Order No.	=	2195.218.025.150.1500



## Delimiting guide with loss prevention for conveyor belt

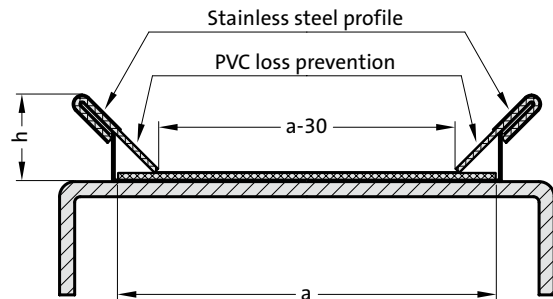
2195.219.

### Description:

with profile on conveyor edge rail 2195.115.  
with loss prevention.  
h = 25 - 50 mm (in 5 mm increments)

### Ordering Code (example):

Conveyor belt, electrically controlled	=	2195.
Delimiting guide type 115 with loss prevention type 219	=	219.
Guide height	h = 25 mm	= 025.
Belt width	a = 150 mm	= 150.
Frame length	b = 1500 mm	= 1500
Order No.	=	2195.219.025.150.1500



## Delimiting guide with loss prevention for conveyor belt

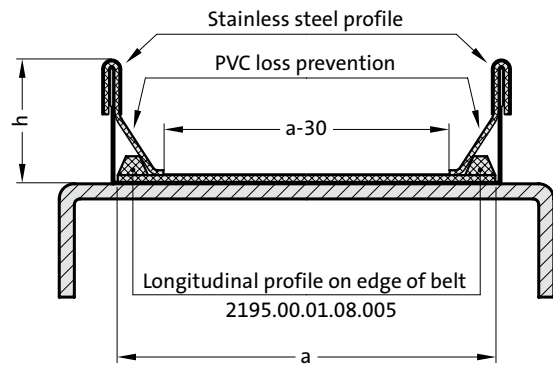
2195.220.

### Description:

with profile on conveyor edge rail 2195.114.  
and longitudinal profile on edge of belt, with loss prevention.  
h = 35 - 50 mm (in 5 mm increments)

### Ordering Code (example):

Conveyor belt, electrically controlled	=	2195.
Delimiting guide type 114 with loss prevention and longitudinal profile 2195.00.01.08.005	=	220.
Guide height	h = 35 mm	= 035.
Belt width	a = 150 mm	= 150.
Frame length	b = 1500 mm	= 1500
Order No.	=	2195.220.035.150.1500



## Delimiting guide with loss prevention for conveyor belt

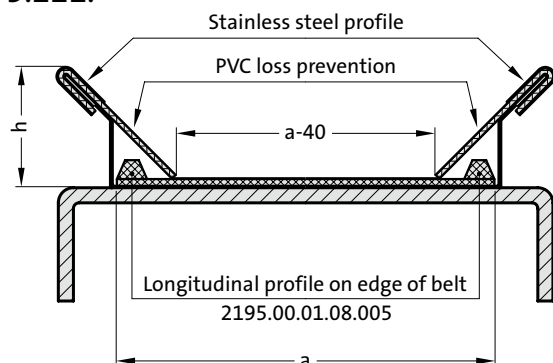
2195.221.

### Description:

with profile on conveyor edge rail 2195.115.  
and longitudinal profile on edge of belt, with loss prevention.  
h = 35 - 50 mm (in 5 mm increments)

### Ordering Code (example):

Conveyor belt, electrically controlled	=	2195.
Delimiting guide type 115 with loss prevention and longitudinal profile 2195.00.01.08.005	=	221.
Guide height	h = 35 mm	= 035.
Belt width	a = 150 mm	= 150.
Frame length	b = 1500 mm	= 1500
Order No.	=	2195.221.035.150.1500



# STAND FOR CONVEYOR BELT

## Stand for conveyor belt, with adjustable slope

2195.120./2195.121.

### Description:

Stand, inclinable with adjustable feet .120.

Stand, inclinable with adjustable feet .121.

$h$  = height to customer's requirements, min. 450 mm

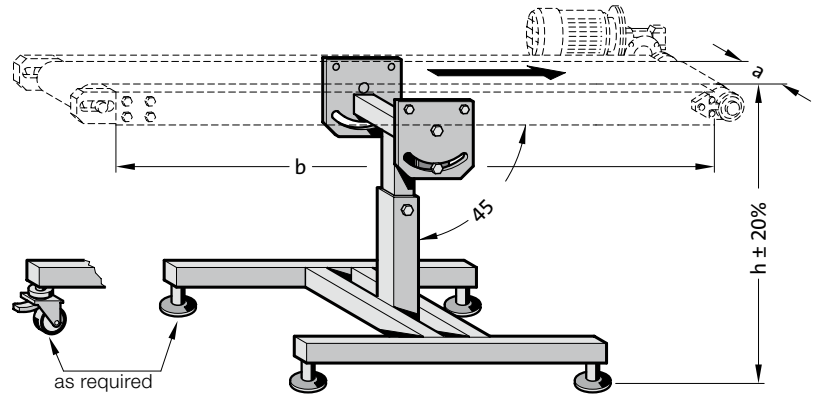
$\pm 20\%$   $h$  = adjustable height range

$a_{max.}$  = 350 mm

$b_{max.}$  = 2000 mm

### Ordering Code (example):

Conveyor belt, electrically controlled	= 2195.
Stand, with adjustable feet	= 2195.120.
Height	$h = 450$ mm = 2195.120.0450.
Belt width	$a = 350$ mm = 2195.120.0450.350
Order No.	= 2195.120.0450.350



## Stand for conveyor belt, table frame

2195.130./2195.131.

### Description:

Table format with adjustable feet .130.

Table format with adjustable castors .131.

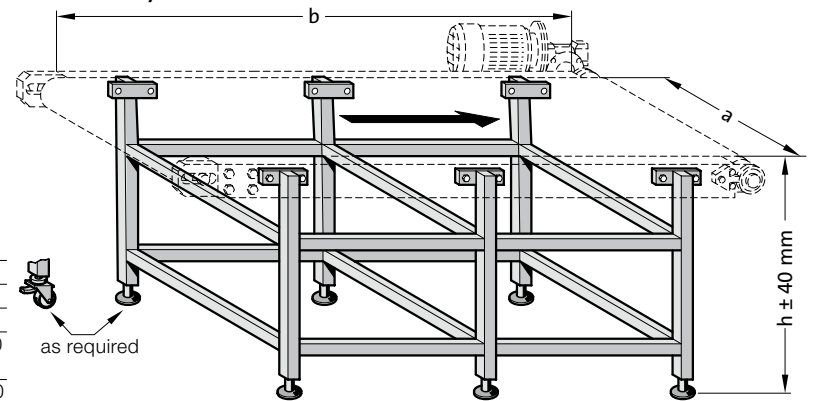
$h$  = height to customer's requirements, min. 450 mm

For use with belt width  $a$

For use with frame length  $b$

### Ordering Code (example):

Conveyor belt, electrically controlled	= 2195.
Stand with adjustable castors	= 2195.131.
Height	$h = 600$ mm = 2195.141.0600.
Belt width	$a = 350$ mm = 2195.141.0450.350.
Nominal belt length	$b = 1000$ mm = 2195.141.4050.350.1000
Order No.	= 2195.131.0600.350.1000



## Stand for conveyor belt, single

2195.140./2195.141.

### Description:

Stand, with adjustable feet .140.

Stand, with adjustable feet .141.

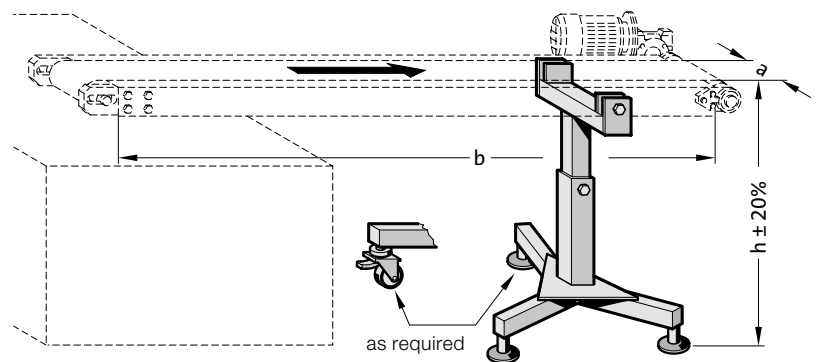
$h$  = height to customer's requirements, min. 450 mm

$\pm 20\%$   $h$  = adjustable height range

$a_{max.}$  = 350 mm

### Ordering Code (example):

Conveyor belt, electrically controlled	= 2195.
Stand with adjustable castors	= 2195.141.
Height	$h = 450$ mm = 2195.121.0450.
Belt width	$a = 350$ mm = 2195.121.0450.350
Order No.	= 2195.141.0450.350



## Stand for conveyor belt, double

2195.150./2195.151.

### Description:

double adjustment with adjustable feet .150.

double adjustment with adjustable castors .151.

$h$  = height to customer's requirements, min. 450 mm

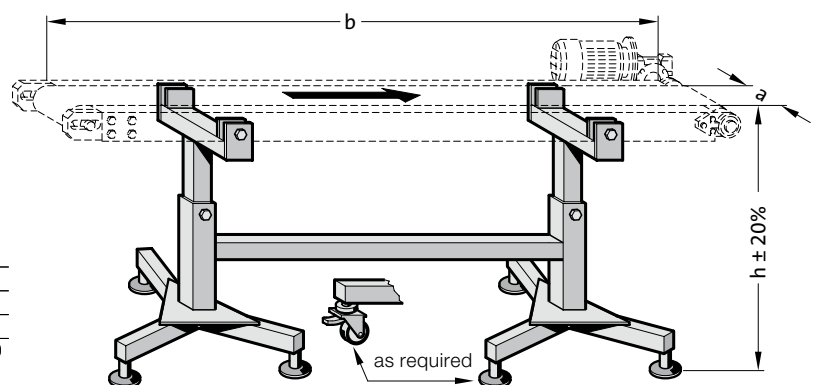
$\pm 20\%$   $h$  = adjustable height range

$a_{max.}$  = 400 mm

$b_{max.}$  = 3000 mm

### Ordering Code (example):

Conveyor belt, electrically controlled	= 2195.
Stand with adjustable castors	= 2195.151.
Height	$h = 450$ mm = 2195.141.0450.
Belt width	$a = 400$ mm = 2195.141.4050.400.
Nominal belt length	$b = 3000$ mm = 2195.141.4050.350.3000
Order No.	= 2195.151.0450.400.3000



# PNEUMATIC CONVEYOR





# PNEUMATIC CONVEYOR

## Description:

This pneumatic conveyor is unique and is patented. It was designed to provide an effective and affordable solution to the problems of conveying parts and disposing of waste. This beltless system conveys stampings and waste from the tool area by vibration alone.

A specially designed guide channel which is screwed to the body of the conveyor vibrates rhythmically slowly forwards and fast backwards. The mass inertia of the parts is used to move them forwards. In this way the parts in the guide channel progress gently towards the storage containers.

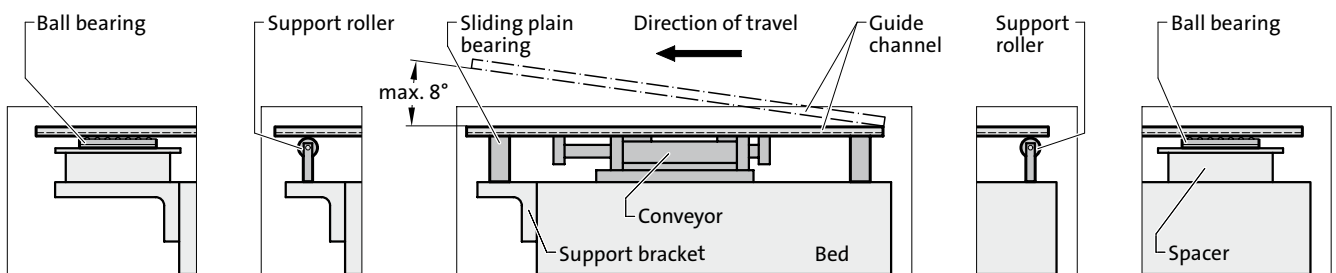
The conveyor is maintenance-free and has a very low air consumption so is extremely economical in operation.

The pneumatic conveyor is quiet running and very user friendly.

The conveyor was originally designed for press shop use but can be used as a conveyor with any tool. Blockages are a thing of the past whether the conveyor is feeding parts for assembly or removing and disposing of stampings and waste parts.

## Guides

We recommend three options for supporting a long guide channel:  
1) Ball bearings 2) Roller supports 3) Sliding plain bearings



## Technical data:

Model	Max. load [kg]	air consumption [l/min.]	sound level [db-A]	Stroke length [mm]	Guide channel weight max. [kg]	Despatch weight [kg]
2199.03	3	0,55	68	20	1,4	1,4
2199.10	10	1,25	68	25	2,7	2,8
2199.40.1	40	5,42	70	27	5,4	7,2
2199.70	70	5,42	70	27	11,3	5,5

Recommended number of strokes: 120 /min.

Speed of travel: 8 - 10 m/min.

Operating pressure: 4 - 5.5 bar



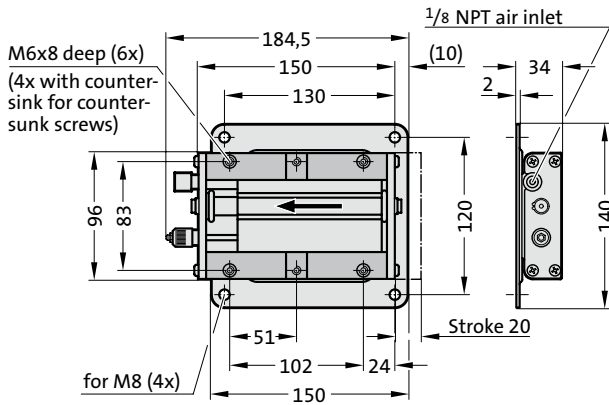
### Note:

Do not exceed 5.5 bar as excess pressure will damage the transporter.

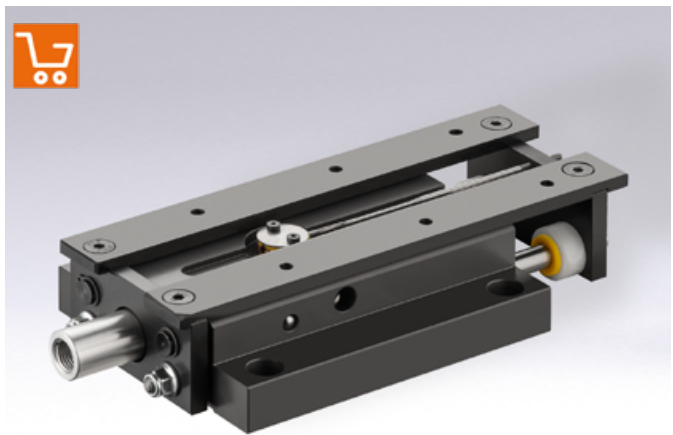
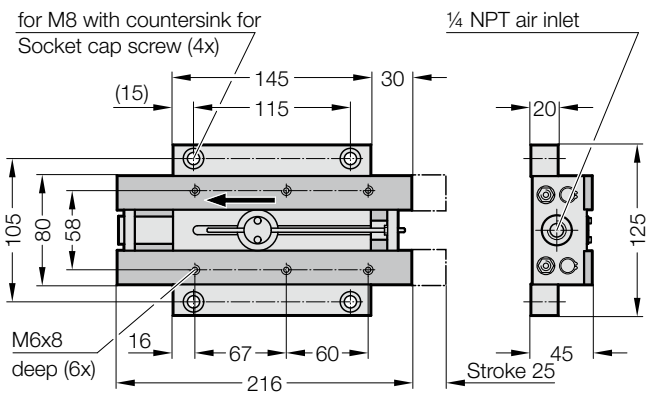
Additional protection for the transporter can be provided by including a service unit in the circuit. This consists of a filter, pressure control valve and lubricator.

# PNEUMATIC CONVEYOR

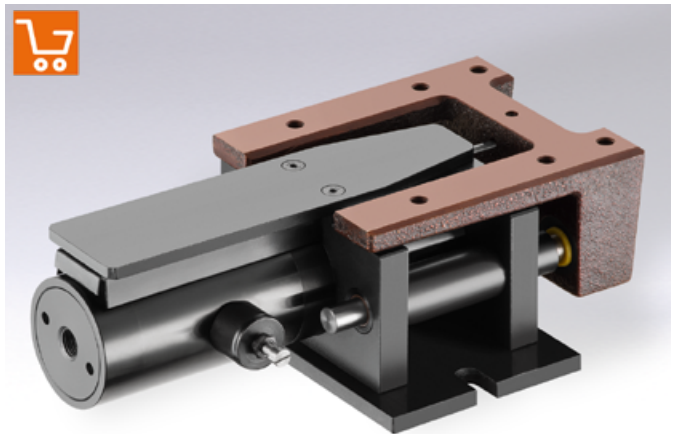
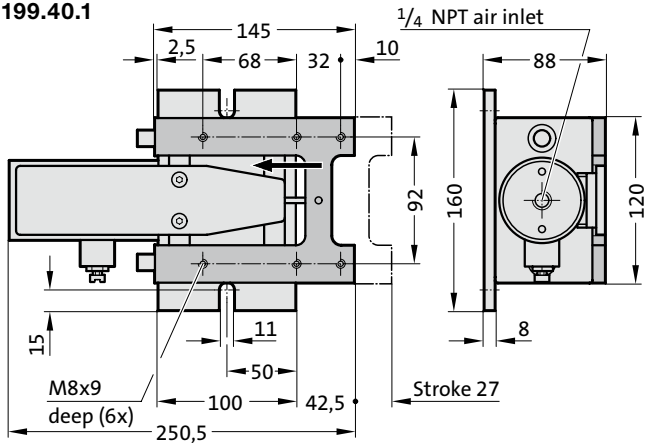
2199.03



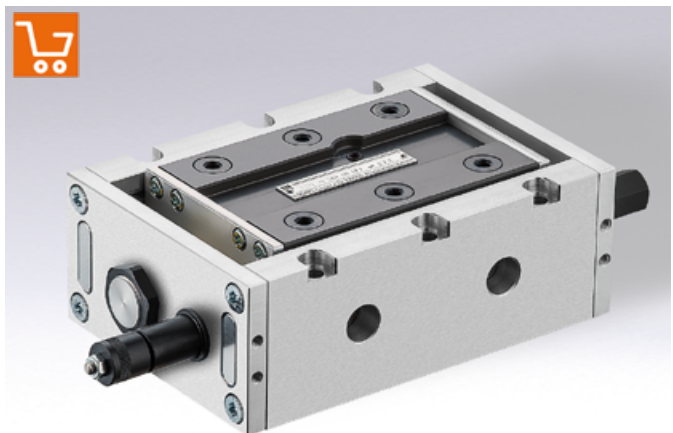
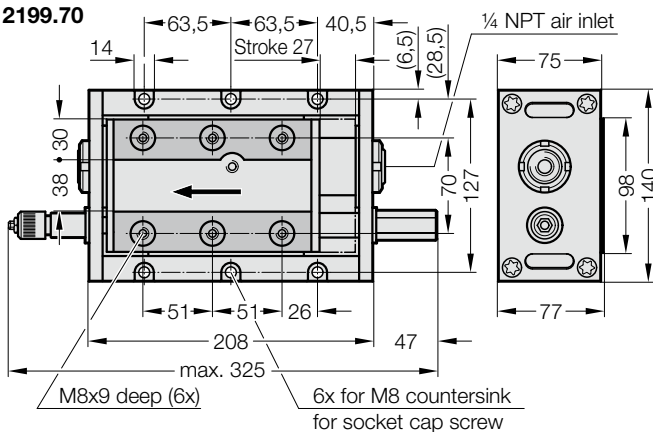
2199.10



2199.40.1



2199.70



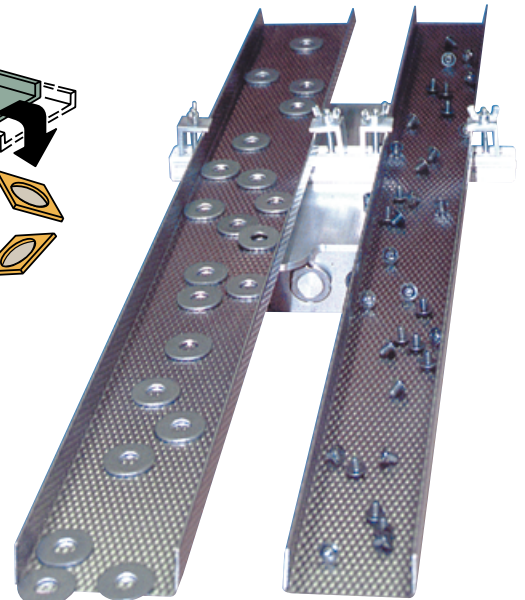
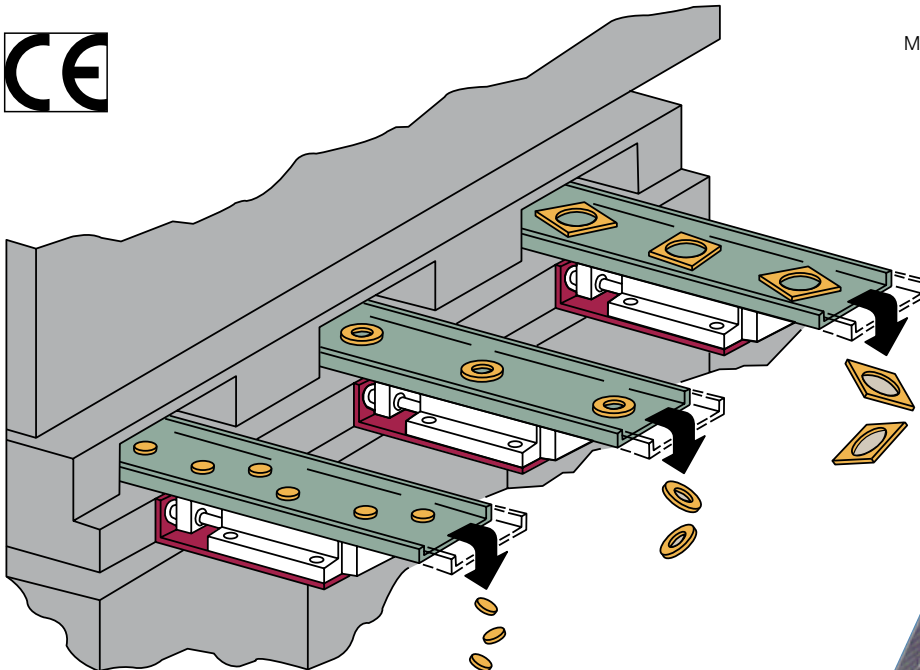
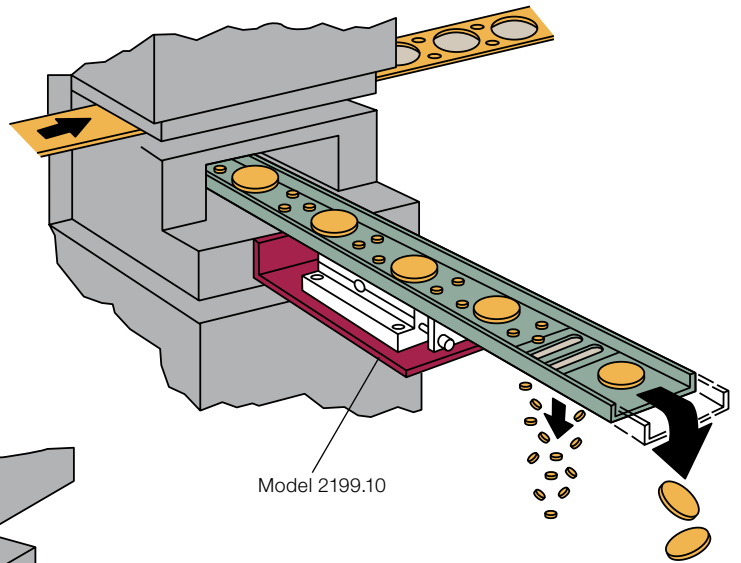
# PNEUMATIC CONVEYOR

2199.03/10/40/70

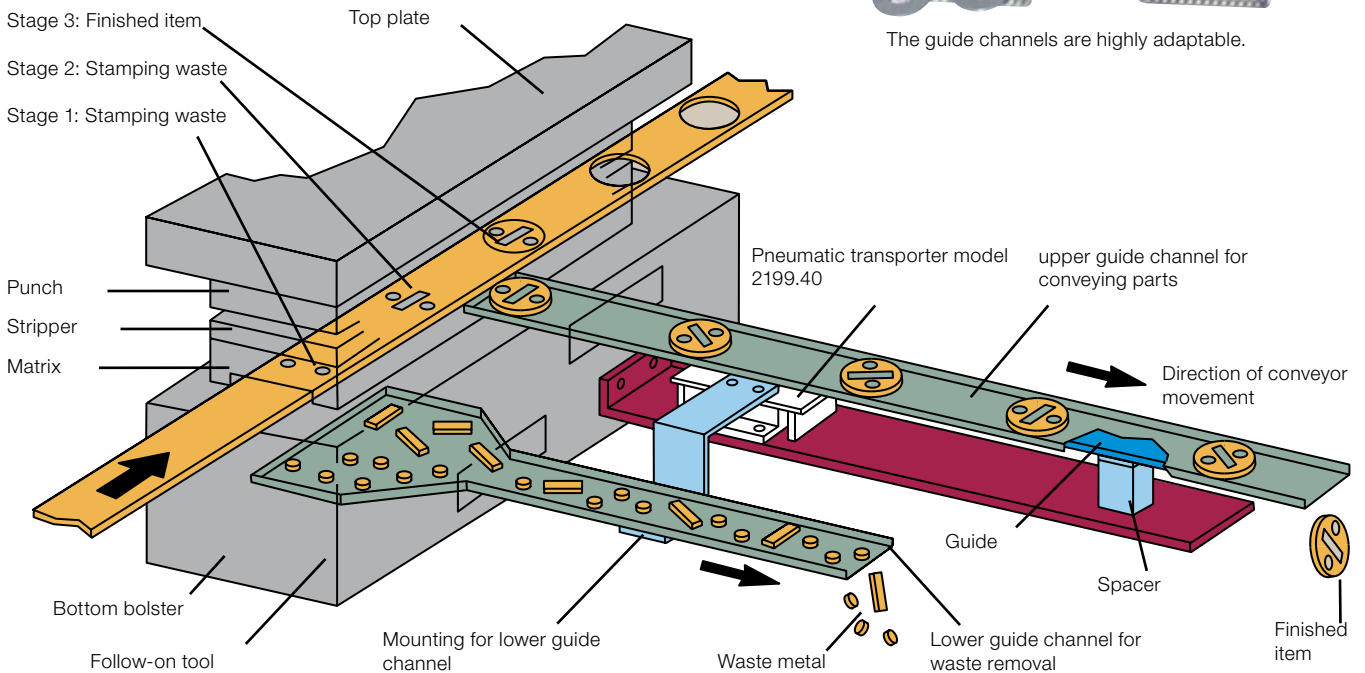
## How does the pneumatic conveyor work?

This compact pneumatic conveyor is driven by compressed air. The vibrating rhythmic motion conveys stampings and stamping waste whilst reducing your costs.

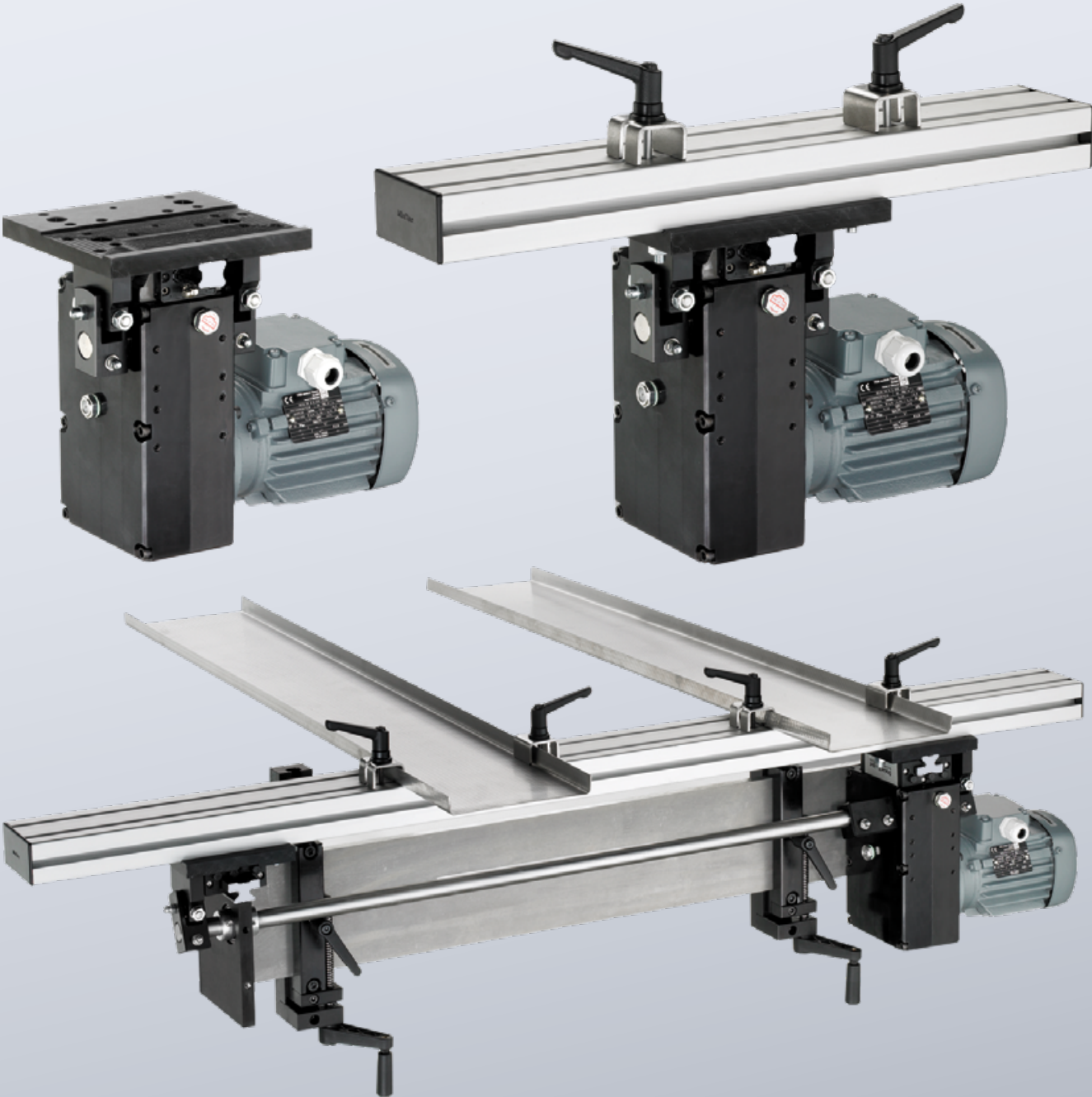
Guide channels can be matched to any tool opening and used for sorting various types of waste.



The guide channels are highly adaptable.



# ELECTRO-MECHANICAL TRANSPORTER



# ELECTRO-MECHANICAL TRANSPORTERS - GENERAL INFORMATION

The FIBRO electro-mechanical transporters have been developed to effectively and inexpensively solve the problems of transporting parts and the removal of stamping and cutting residues from presses. The principle behind the electro-mechanical transporter is referred to as the "tablecloth effect". The slow acceleration during the forward stroke pushes the parts or offcuts forwards. The fast return stroke of the guiding system results in a transport movement in only one direction. Due to its compact design, the FIBRO electro-mechanical transporter is also suitable for applications where only limited space is available. The simple, sturdy and flexible design provides a safe, reliable, efficient and a cost efficient solution.

Basic advantages:

- compact design
- low maintenance
- low noise level (< 70 dB)

## Executions:

- 2299.001 vertical gear position
- 2299.002 horizontal gear position
- 2299.011 vertical gear position, with profile and support
- 2299.012 horizontal gear position, with profile and support
- 2299.121 vertical gear position, with two slides, profile and support
- 2299.122 horizontal gear position, with two slides, profile and support
- 2299.221 vertical centre gear position, two slides, with profile and support
- 2299.222 horizontal centre gear position, two slides, with profile and support

Supplied components:

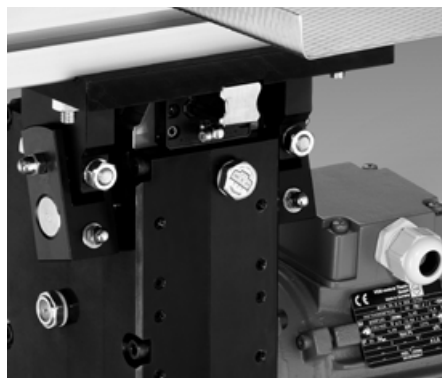
The transporters are supplied without connection cable.

Design data (CAD):

2D + 3D CAD data for various CAD systems as well as system-neutral interfaces are available on the internet at: <http://fibro.partcommunity.com>

## Technical data:

	Alternating current (3 phases) 1375 min <sup>-1</sup>
	0.09 kW rated capacity
Drive:	0.51 A nominal current at 400 V
	Weight 4.4 kg
	Protection class IP55 (DIN EN 60529)
Delivery stroke:	20 mm
Conveying speed:	approx. 4.5 m/min
Stroke frequency:	4 strokes/second
max. guiding system weight (incl. profile):	35 kg
max. bulk weight	100 kg
(guiding system weight, profile, transport items):	
Temperature range (permissible ambient temperature):	-20 to +60 °C

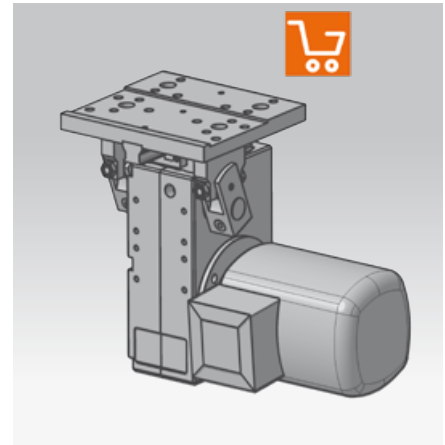
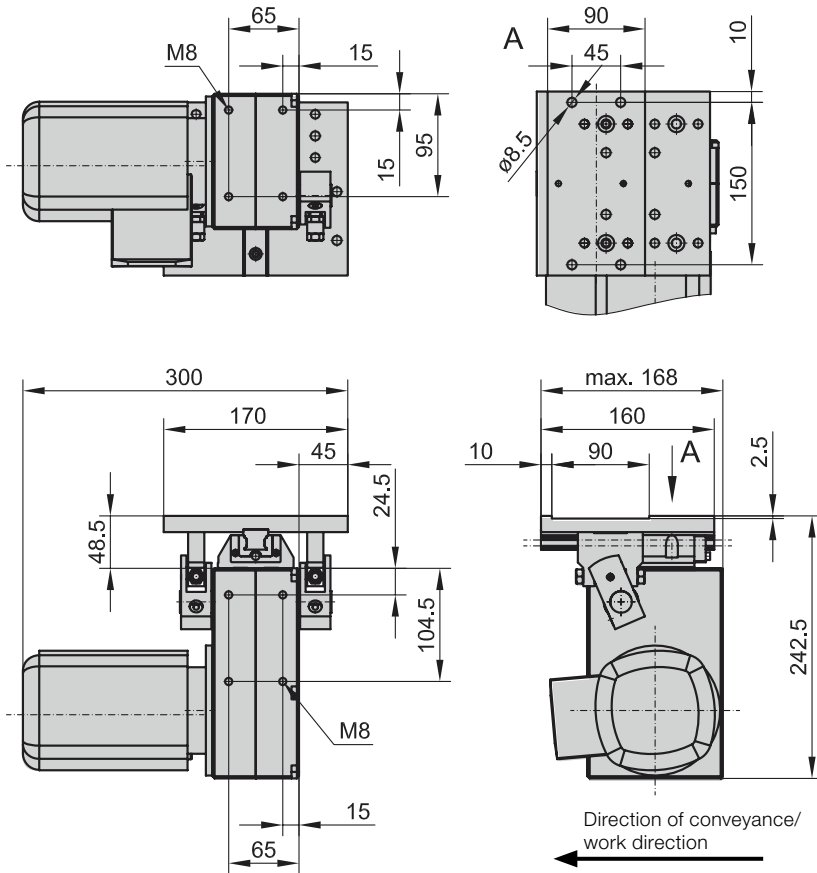


# ELECTRO-MECHANICAL TRANSPORTER

## VERTICAL GEAR POSITION

### HORIZONTAL GEAR POSITION

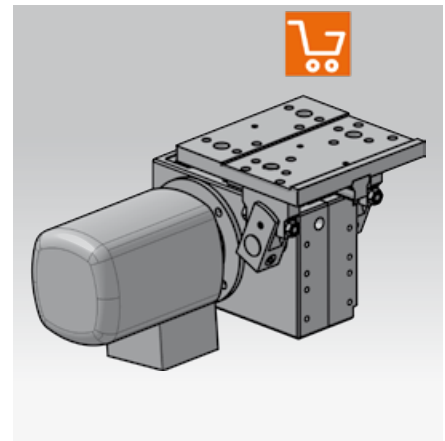
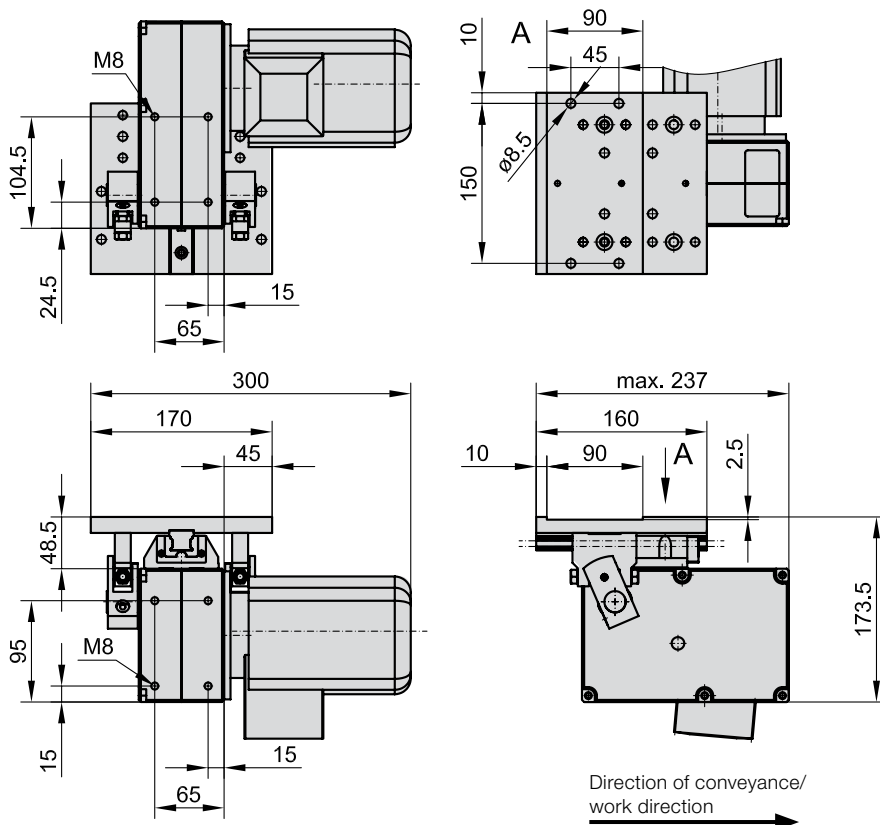
2299.001 vertical gear position



**Note:**

The transporter can be attached at two levels.

2299.002 horizontal gear position



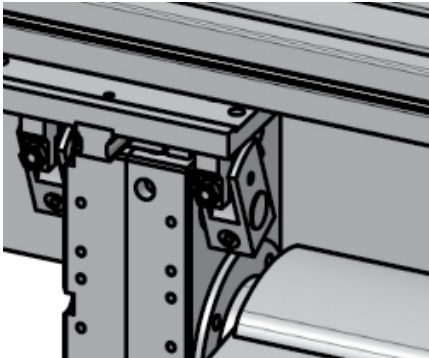
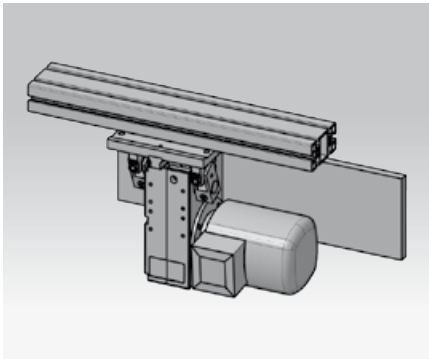
**Note:**

The transporter can be attached at two levels.

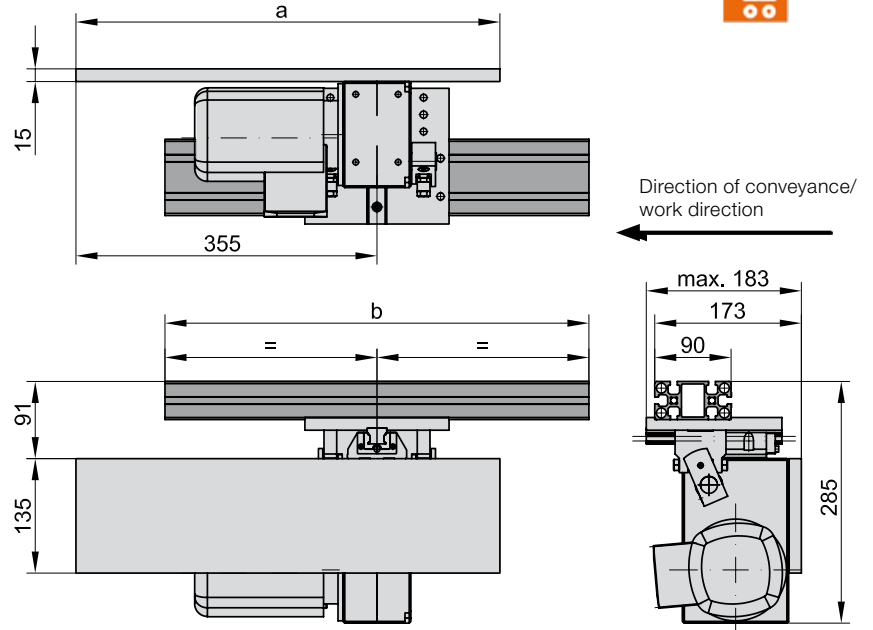
# ELECTRO-MECHANICAL TRANSPORTER

## VERTICAL GEAR POSITION, WITH PROFILE AND SUPPORT

## HORIZONTAL GEAR POSITION, WITH PROFILE AND SUPPORT



2299.011.

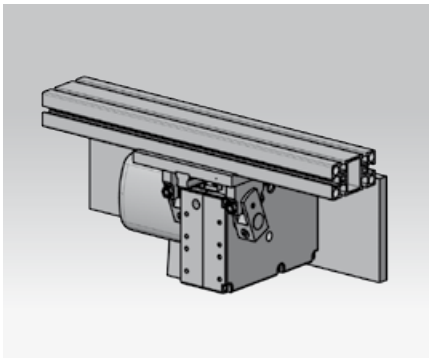


### Ordering Code (example):

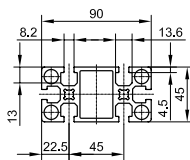
Transporter	= 2299.
Type 011	= 011.
b = 1100 mm	= 1100.
a = 500 mm	= 0500
Order No.	= 2299.011. 1100.0500

### 2299.011. vertical gear position, with profile and support

b	500	600	700	800	900	1000	1100	1200
a	500							



Profile cross-section

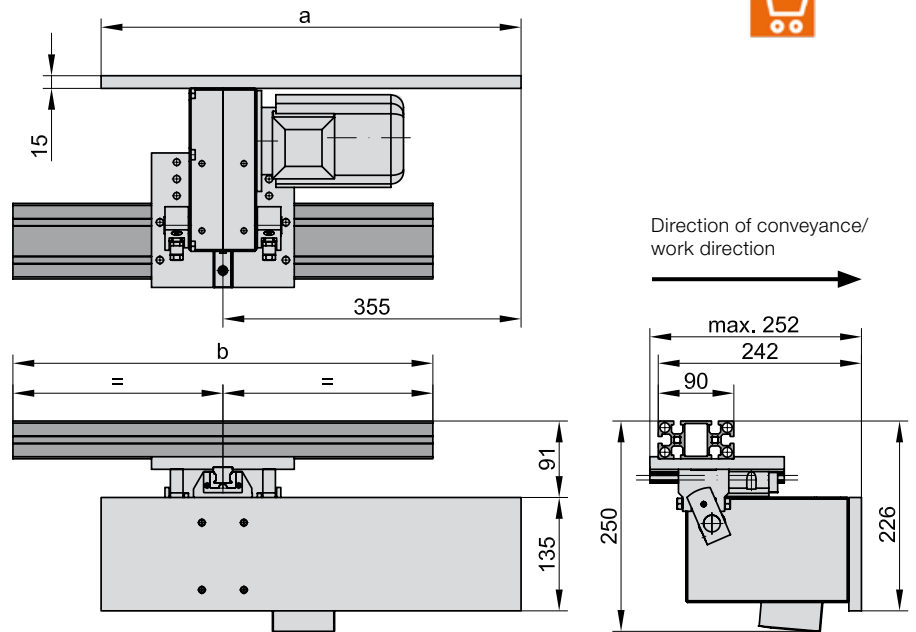


Suitable screw for T-slot  
2140.30.08.08.□□

### Ordering Code (example):

Transporter	= 2299.
Type 012	= 012.
b = 1100 mm	= 1100.
a = 500 mm	= 0500
Order No.	= 2299.012. 1100.0500

2299.012.



### 2299.012. horizontal gear position, with profile and support

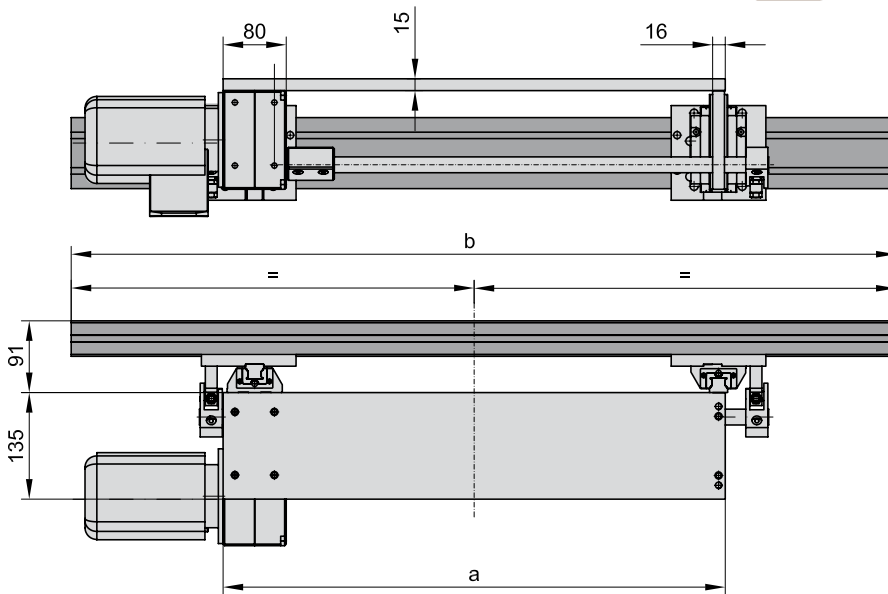
b	500	600	700	800	900	1000	1100	1200
a	500							

# ELECTRO-MECHANICAL TRANSPORTER

## VERTICAL GEAR POSITION, TWO SLIDES, WITH PROFILE AND SUPPORT

## HORIZONTAL GEAR POSITION, TWO SLIDES, WITH PROFILE AND SUPPORT

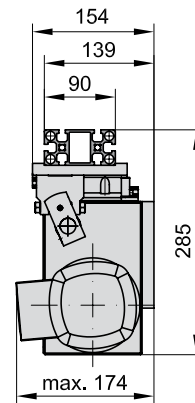
2299.121.



### Ordering Code (example):

Transporter	= 2299.
Type 121	= 121.
b = 1400 mm	= 1400.
a = 900 mm	= 0900
Order No.	= 2299.121.1400.0900

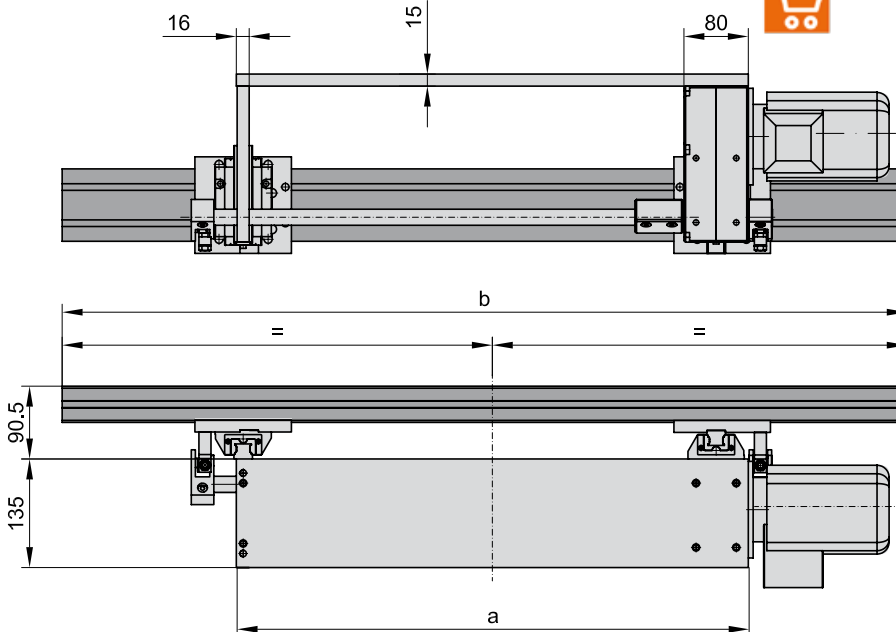
Direction of conveyance/  
work direction



### 2299.121. vertical gear position, two slides, with profile and support

b	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	
a	●																		
900	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1200	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1500	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

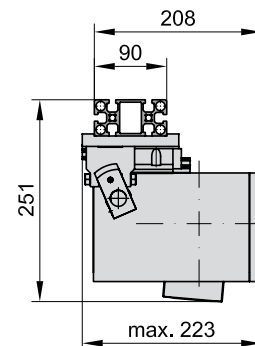
2299.122.



### Ordering Code (example):

Transporter	= 2299.
Type 122	= 122.
b = 2200 mm	= 2200.
a = 1200 mm	= 1200
Order No.	= 2299.122.2200.1200

Direction of conveyance/  
work direction



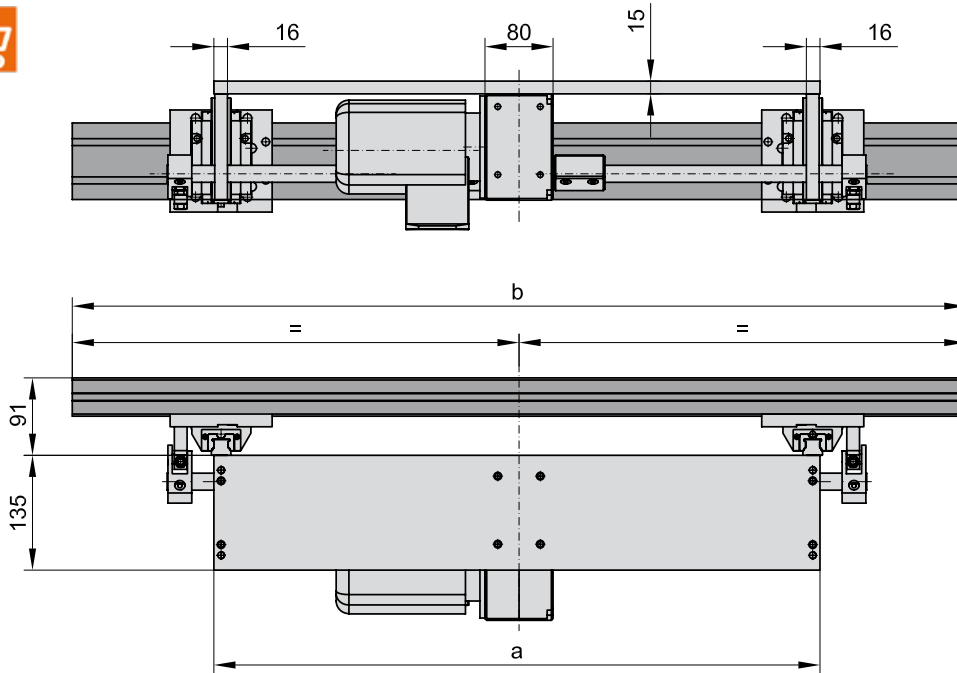
### 2299.122. horizontal gear position, two slides, with profile and support

b	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	
a	●																		
900	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1200	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1500	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



# ELECTRO-MECHANICAL TRANSPORTER VERTICAL CENTRE GEAR POSITION / HORIZONTAL CENTRE GEAR POSITION TWO SLIDES, WITH PROFILE AND SUPPORT

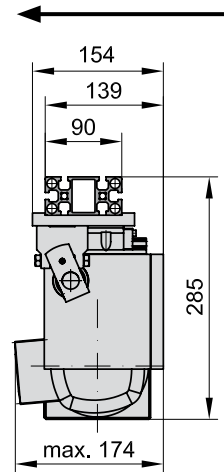
2299.221.



**Ordering Code (example):**

Transporter	= 2299.
Type 221	= 221.
b = 3400 mm	= 3400.
a = 1720 mm	= 1720
Order No.	= 2299. 221. 3400. 1720

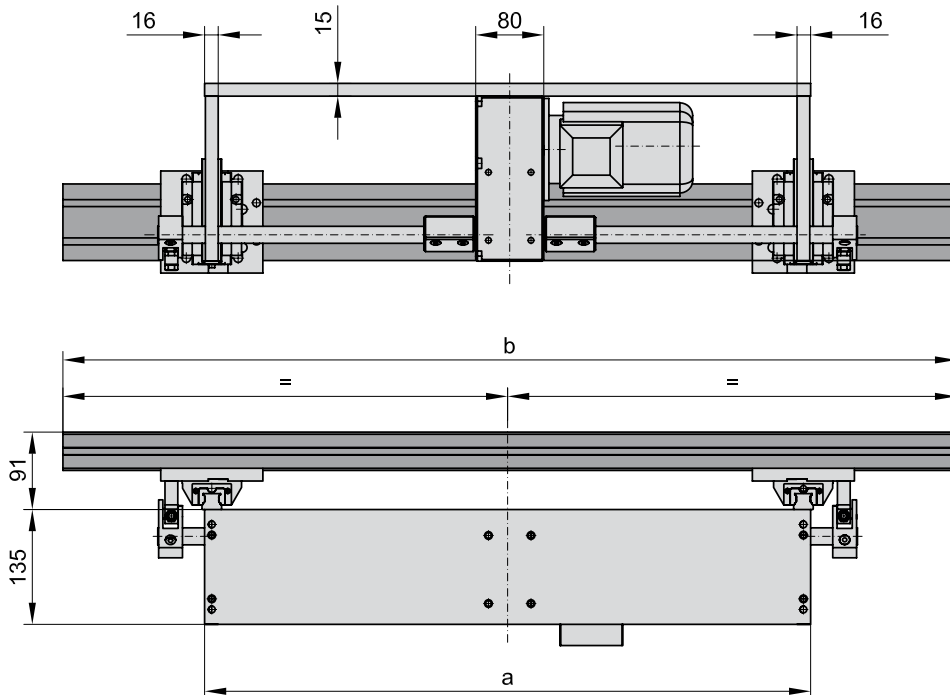
Direction of conveyance/  
work direction



**2299.221. vertical centre gear position, two slides, with profile and support**

b	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000												
a	.....																															
1720	●	●	●	●	●	●														●	●	●	●	●	●							
2320																				●	●	●	●	●	●	●	●	●	●	●	●	●
2920																			●	●	●	●	●	●	●	●	●	●	●	●	●	

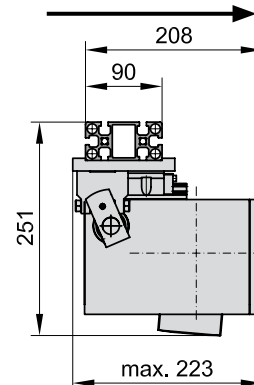
2299.222.



**Ordering Code (example):**

Transporter	= 2299.
Type 222	= 222.
b = 3400 mm	= 3400.
a = 1720 mm	= 1720
Order No.	= 2299. 222. 3400. 1720

Direction of conveyance/  
work direction

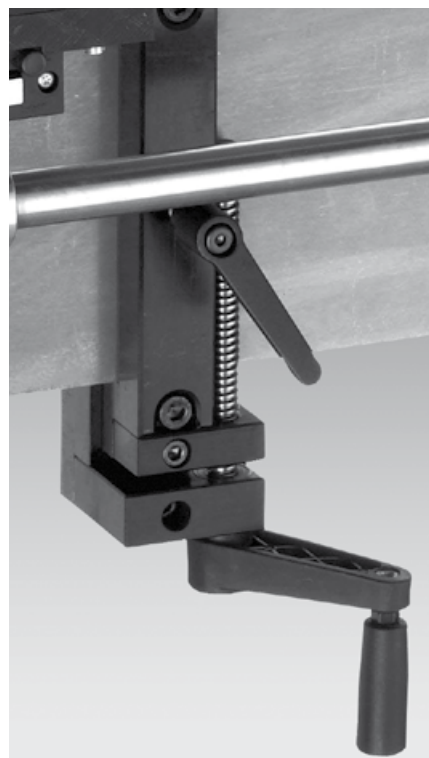
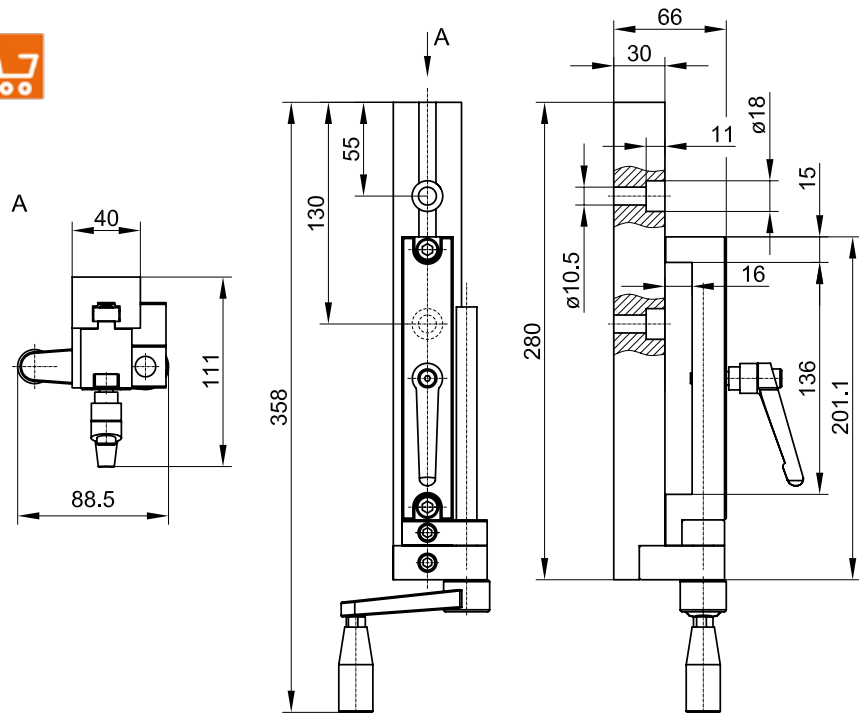


**2299.222. horizontal centre gear position, two slides, with profile and support**

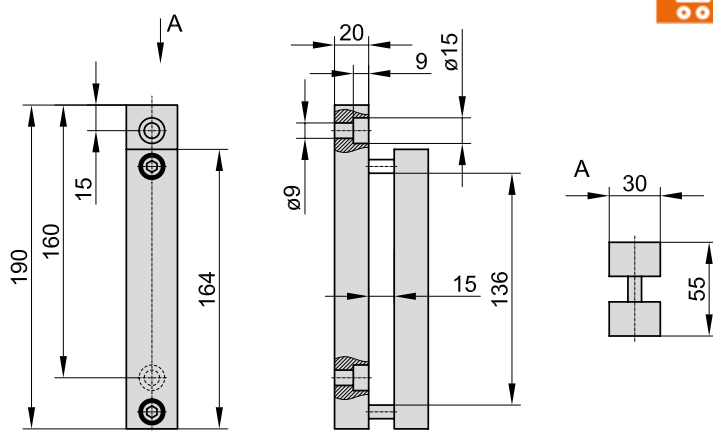
b	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000											
a	.....																														
1720	●	●	●	●	●	●														●	●	●	●	●							
2320																				●	●	●	●	●	●	●	●	●	●	●	●
2920																			●	●	●	●	●	●	●	●	●	●	●		

# ELECTRO-MECHANICAL TRANSPORTER FASTENING ELEMENT WITH HEIGHT ADJUSTMENT SYSTEM FASTENING ELEMENT

2299.510 Fastening element with height adjustment system



2299.511 Fastening element

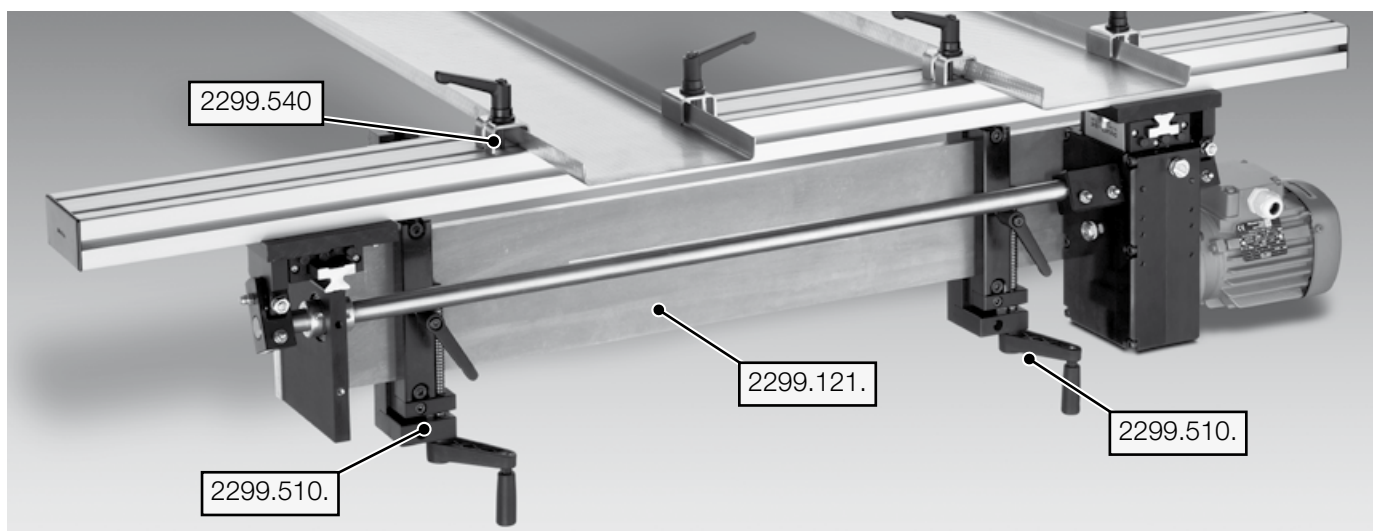


**Note:**

Fastening of the transporters  
2299.011./012./121./122./221./222.  
with or without height adjustment system.

- 2299.510 2x M10
- 2299.511 2x M8

Fastening screws are not included in  
scope of delivery.

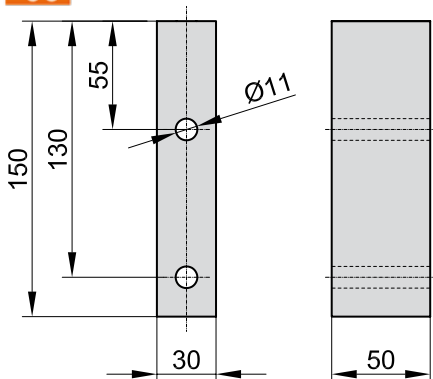


# ELECTRO-MECHANICAL TRANSPORTER

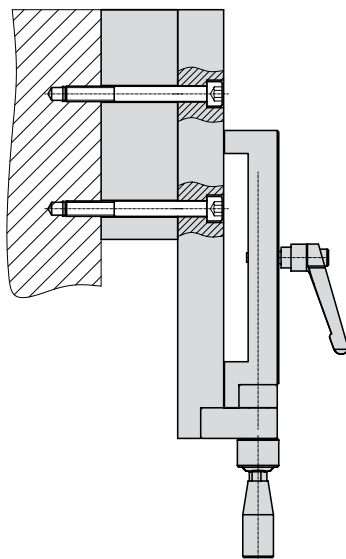
## DISTANCE

### GUIDE CHANNEL CLAMP

2299.520 Distance



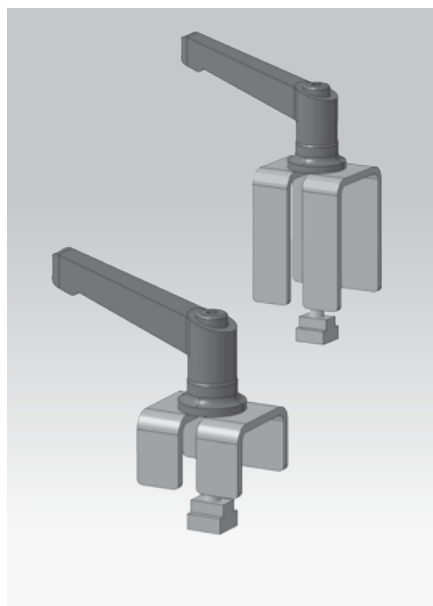
Application example



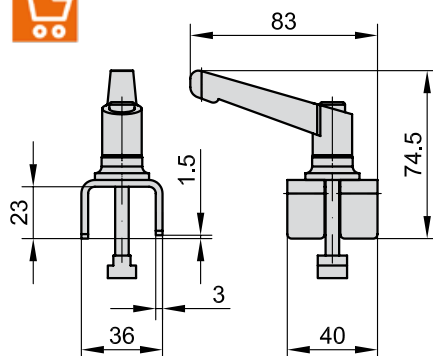
**Note:**

Distance for fastening element with height adjustment 2299.510

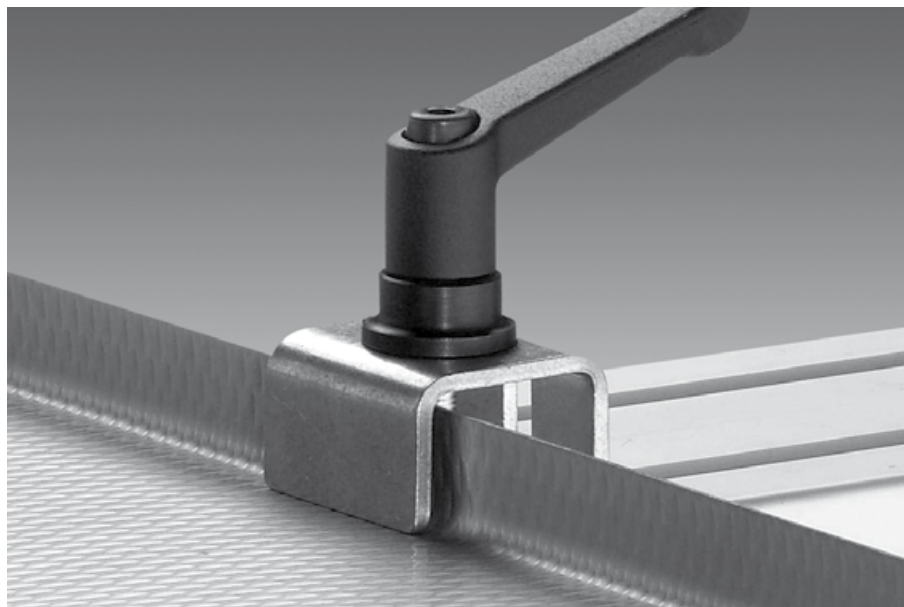
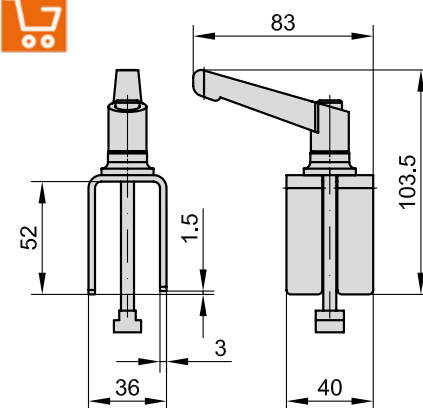
Fastening screws are not included in scope of delivery.



2299.540 Guide channel clamp, low version



2299.541 Guide channel clamp, high version



**Note:**

The guiding system tensioners fit the T-slots of the profile used for the transporters.

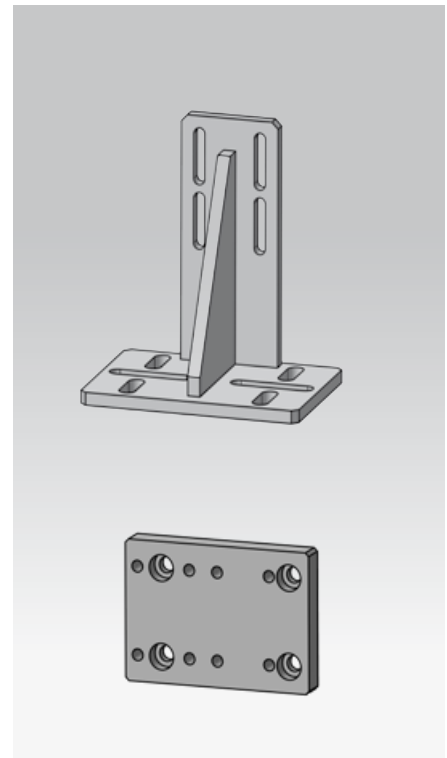
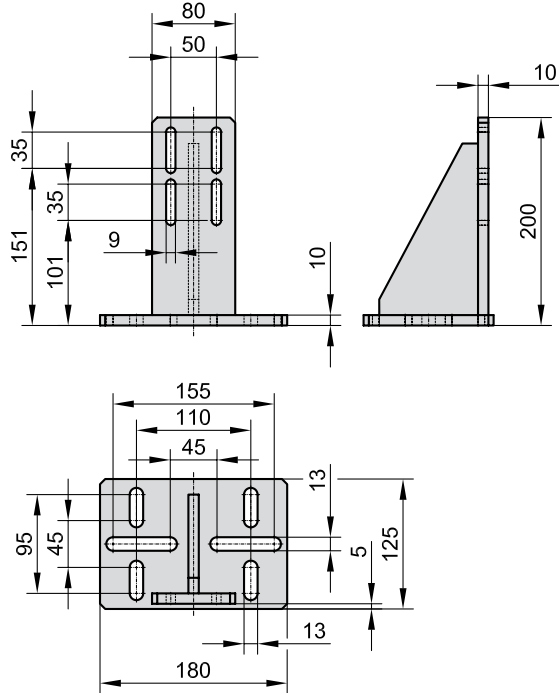
Max. side wall height of the guiding system ( l1 ):

2299.540 = 23 mm

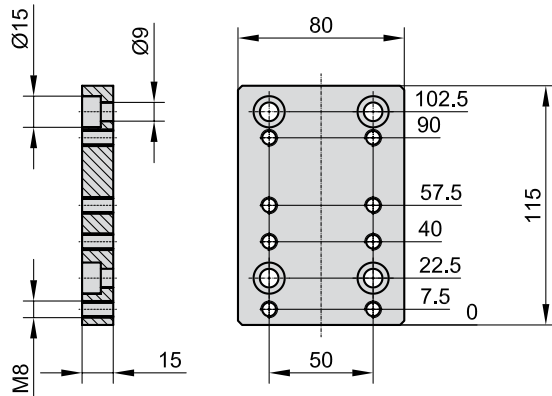
2299.541 = 52 mm

# ELECTRO-MECHANICAL TRANSPORTER MOUNTING BRACKET WITH ADAPTER PLATE

## 2299.530 Mounting bracket



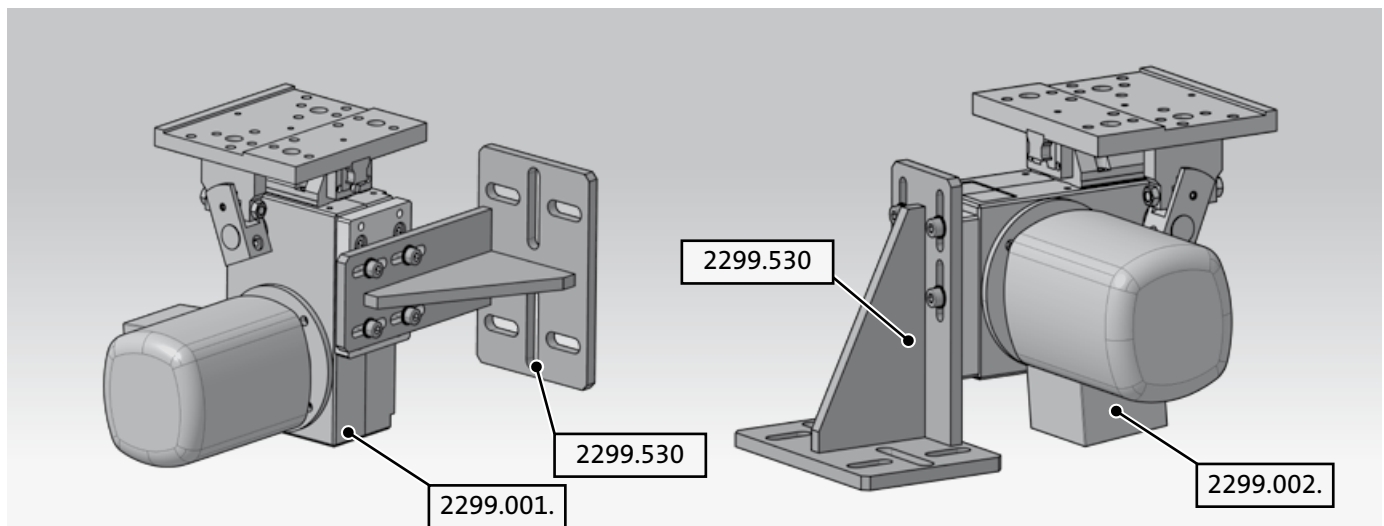
## Adapter plate



## Note:

The mounting bracket and the adapter together allow individual mounting of the transporters 2299.001 and 2299.002.

Fastening screws are not included in scope of delivery.





# TRANSPORTER ELECTRICAL

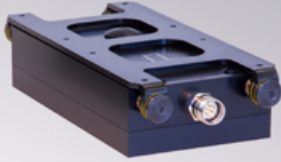
## BLACK LINE

## CLEAN LINE



# TRANSPORTER ELECTRICAL

**2299.60. Transporter, BLACK LINE**



**Description:**

The electrically driven and patented transporter has been constructed to provide effective and affordable solutions to problems in parts transport, waste disposal as well as parts sorting. This system conveys punched and waste parts out of the tooling area with a rhythmic movement in a straight line.

A specially designed guide channel which is screwed to the body of the conveyor vibrates rhythmically slowly forwards and fast backwards. The mass inertia of the parts is used to move them forwards. In this way the parts in the guide channel progress gently towards the storage containers.

Low energy consumption, infinitely variable speed control, simple automation, low noise (60 dB) and the absence of compressed air ensure high economic efficiency whilst improving the working environment.

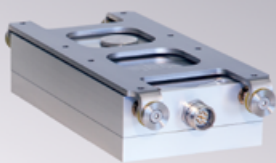
Its main areas of application are conveying and separating solid materials in metal processing and the automotive sector. The additional "CLEAN LINE" product range can also be used in the food and pharmaceutical industries.

**2299.60. Control unit, BLACK LINE**



The electric transporter is always operated with the corresponding 2299.6X. control unit. Integration with the PLC on the power press or production machine allows the programming of the transport time or shutdown of the press in the event of faults.

**2299.61. Transporter, CLEAN LINE**



**Removal waste**



**Simple automation**

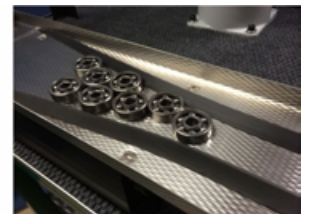
**Infeed**



**Separation**



**Organising**



**2299.61. Transporter, CLEAN LINE**



**Positioning**



**Storage**

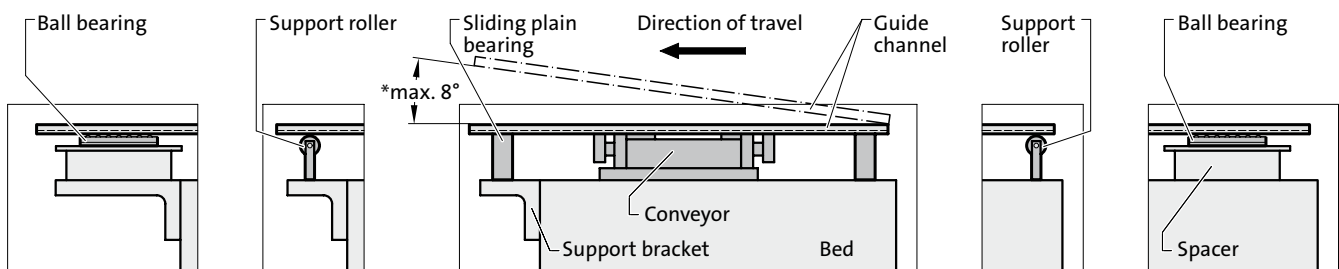
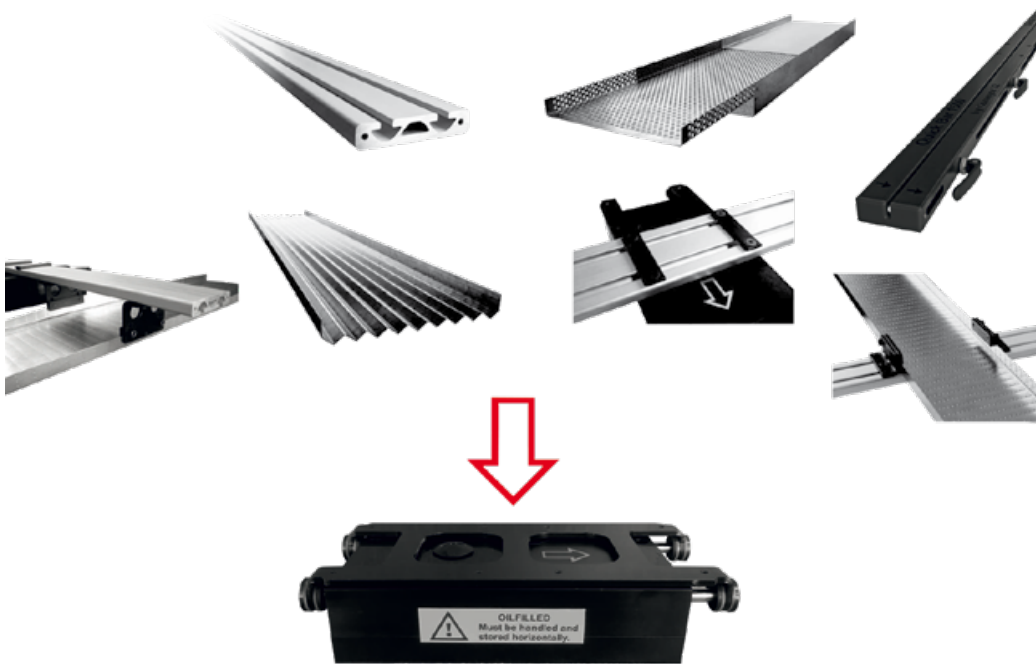


**Picking**



# TRANSPORTER ELECTRICAL

Mounting examples:

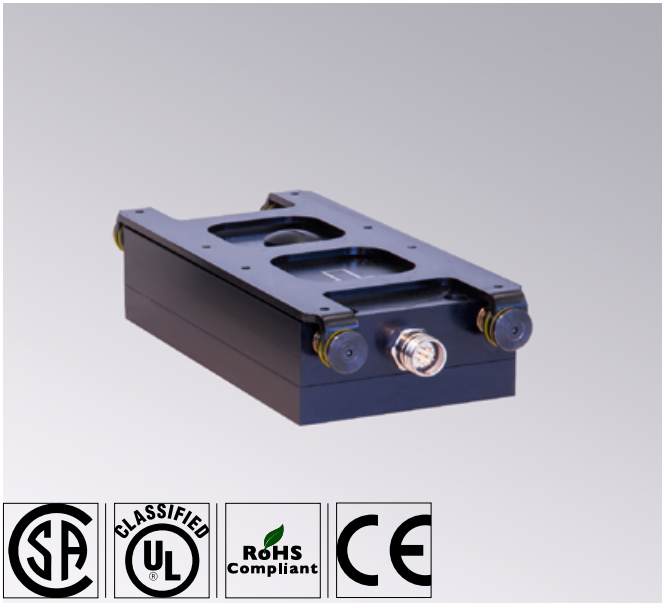


We recommend three options for supporting a long guide channel: 1) Ball bearings 2) Roller supports 3) Sliding plain bearings

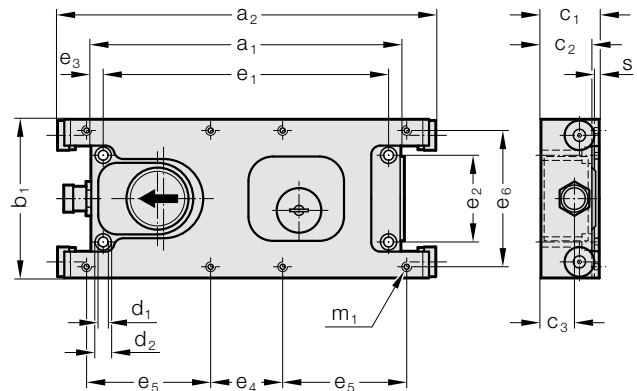
\*A chute incline can reduce the conveyor speed by up to 50%.



# ELECTRIC TRANSPORTER, BLACK LINE



2299.60.1□100.



## Description:

The electric transporter simplifies automation, increases energy efficiency and reduces noise pollution. The speed can be adjusted mechanically and, depending on the task type, the transporter conveys, sorts or separates electrically.

Used predominantly in metal processing and the automotive industry.

## Material:

High-strength steel and anodised aluminium

## Note:

Order numbers for BLACK LINE electric transporter **with** control unit, 230 V

2299.60.18100.01 MINI  
2299.60.14100.01 COMPACT  
2299.60.12100.01 MAX

Replacement **without** control unit:

2299.60.18100.00 MINI  
2299.60.14100.00 COMPACT  
2299.60.12100.00 MAX

The connection cable, control unit transporter and optionally the signal cable, control unit press are to be ordered separately.

For more information on the electrical connections, control unit and channel fastening, see Accessories.

Socket head bolts DIN EN ISO 4762 for fastening the transporter are included in delivery.

## 2299.60. Electric transporter, BLACK LINE

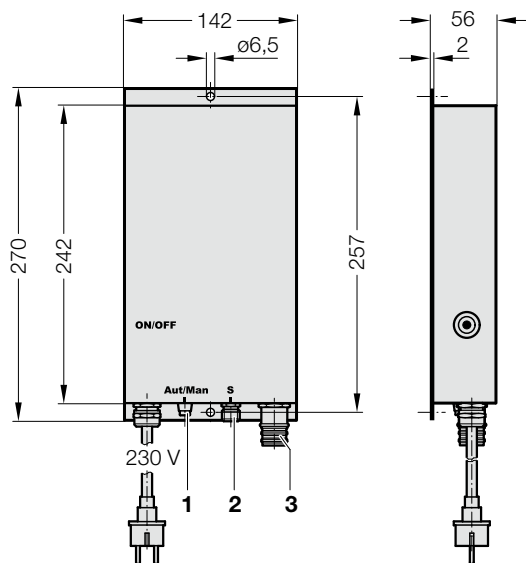
Order No	a <sub>1</sub>	a <sub>2</sub>	b <sub>1</sub>	c <sub>1</sub>	c <sub>2</sub>	c <sub>3</sub>	d <sub>1</sub>	d <sub>2</sub>	e <sub>1</sub>	e <sub>2</sub>	e <sub>3</sub>	e <sub>4</sub>	e <sub>5</sub>	e <sub>6</sub>	m <sub>1</sub>	s
2299.60.18100.00	220	271	118	38.7	33.5	20.9	6.3	10	206	70	7	25	107	100	M5	3
2299.60.14100.00	250	305	128	47	41	27	8.2	13.5	230	70	10	58	100	110	M6	4
2299.60.12100.00	260	316	138	68	61	38	8.2	13.5	238	70	11	58	105	110	M6	6

Execution	MINI	KOMPAKT	MAX
Transport weight max. (excl. channel) [kg]	10	20	40
Guide channel weight max. [kg]	4	8	16
Stroke	20	20	20
Conveying speed (mechanically adjustable) [m/min.]	4 - 8	4 - 8	4 - 8
Warning system (motion sensor)	integrated	integrated	integrated
Start/stop	Controllable via PLC	Controllable via PLC	Controllable via PLC
Motor and overload protection	integrated	integrated	integrated
Noise emissions [dB-A]	60	60	60
Power consumption [kW]	0.05	0.07	0.15
Electrical connection, control unit	M23	M23	M23
Protection type	IP62	IP62	IP62
Weight [kg]	2.65	3.7	6.3
Temperature operating range (environment temperature)	-20 to +100 °C	-20 to +100 °C	-20 to +100 °C

# TRANSPORTER ELECTRICAL - ACCESSORIES

## CONTROL UNIT BLACK LINE, SIGNAL CABLE, CABLE

2299.60.1□100.12



### Description:

The control unit is the electrical module for controlling the transporter.

### Material:

Steel  
IP54

### Technical data:

Temperature operating range: -20 to +40 °Celsius (environment temperature)

### Note:

The control unit must be mounted on a metal surface for heat dissipation. Before connecting the electric transporter, check that the channel can move freely in the direction of travel.

Included in the delivery,

Mains connection incl. plugs for USA and GB

Fixing bolts ISO 7380-1 M6 x 8 (x2)

### 1 - Changeover between PLC and manual operation



PLC mode:

In this position, this start/stop function is controlled via the straight signal cable (M12 plug).



Manual mode:

In this position, the start/stop function is controlled by the control unit.

### 2 - 2299.60.81.01. Signal cable straight, to the press

order separately

Order No	l [m]
2299.60.81.01.03	3
2299.60.81.01.05	5
2299.60.81.01.10	10

For further information, see catalogue page for straight signal cable

### 2299.60. Control unit BLACK LINE

Order No	Connection [V]	Power requirement [A]
2299.60.12100.12	230	1,2 - 2,2
2299.60.14100.12	230	0,75 - 1,7
2299.60.18100.12	230	0,55 - 1,3

1-phase 110-230 V, 50-60 Hz, earthed connection

### 3 - 2299.60.82.01. Connection cable straight/straight, control

unit - transporter

order separately

Order No	l [m]
2299.60.82.01.03	3
2299.60.82.01.05	5
2299.60.82.01.10	10
2299.60.82.01.15	15

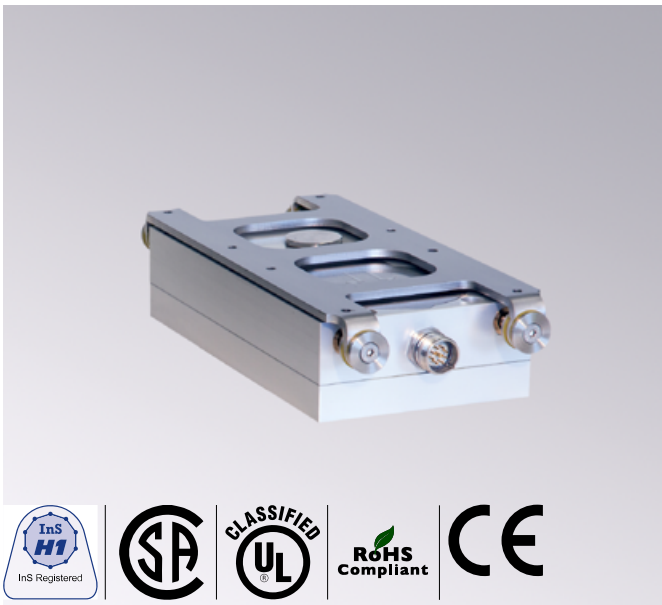
### 2299.60.82.02. Connection cable straight/90°, control unit -

transporter

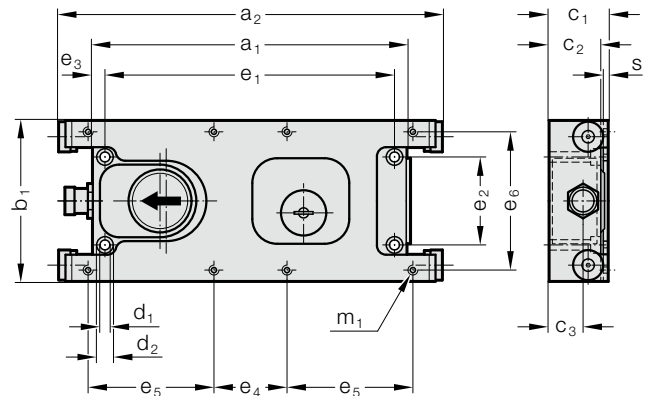
order separately

Order No	l [m]
2299.60.82.02.03	3
2299.60.82.02.05	5
2299.60.82.02.10	10
2299.60.82.02.15	15

# ELECTRIC TRANSPORTER, CLEAN LINE



2299.61.1□100.



**Description:**

The electric transporter simplifies automation, increases energy efficiency and reduces noise pollution. The speed can be adjusted mechanically and, depending on the task type, the transporter conveys, sorts or separates electrically.

Used predominantly in the food and pharmaceutical industries.

**Material:**

made from stainless steel and anodised aluminium

**Note:**

Order numbers for CLEAN LINE electric transporter, **with** control unit, 230 V

- 2299.61.18100.01 MINI
- 2299.61.14100.01 COMPACT
- 2299.61.12100.01 MAX

Replacement **without** control unit:

- 2299.61.18100.00 MINI
- 2299.61.14100.00 COMPACT
- 2299.61.12100.00 MAX

The connection cable, control unit transporter and optionally the signal cable, control unit press are to be ordered separately.

For more information on the electrical connection, control unit and channel fastening, see Accessories.

Socket head bolts DIN EN ISO 4762 in stainless steel A2 for fastening the transporter are included in delivery.

**2299.61. Electric transporter, CLEAN LINE**

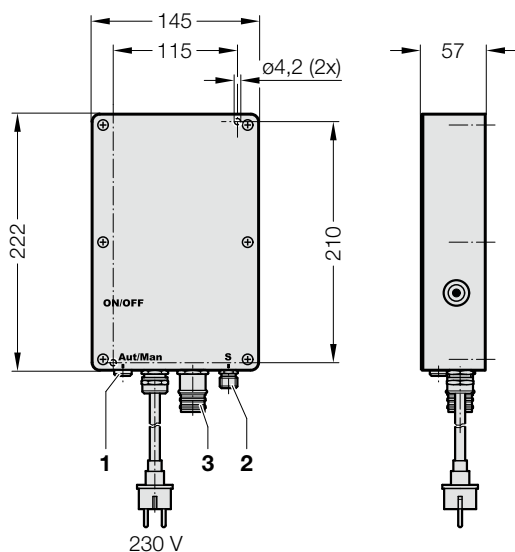
Order No	a <sub>1</sub>	a <sub>2</sub>	b <sub>1</sub>	c <sub>1</sub>	c <sub>2</sub>	c <sub>3</sub>	d <sub>1</sub>	d <sub>2</sub>	e <sub>1</sub>	e <sub>2</sub>	e <sub>3</sub>	e <sub>4</sub>	e <sub>5</sub>	e <sub>6</sub>	m <sub>1</sub>	s
2299.61.18100.00	220	271	118	38.7	33.5	20.9	6.3	10	206	70	7	25	107	100	M5	3
2299.61.14100.00	250	305	128	47	41	27	8.2	13.5	230	70	10	58	100	110	M6	4
2299.61.12100.00	260	316	138	68	61	38	8.2	13.5	238	70	11	58	105	110	M6	6

Execution	MINI	KOMPAKT	MAX
Transport weight max. (excl. channel) [kg]	10	20	40
Guide channel weight max. [kg]	4	8	16
Stroke	20	20	20
Conveying speed (mechanically adjustable) [m/min.]	4 - 8	4 - 8	4 - 8
Warning system (motion sensor)	integrated	integrated	integrated
Start/stop	Controllable via PLC	Controllable via PLC	Controllable via PLC
Motor and overload protection	integrated	integrated	integrated
Noise emissions [dB-A]	60	60	60
Power consumption [kW]	0.05	0.07	0.15
Electrical connection, control unit	M23	M23	M23
Protection type	IP66	IP66	IP66
Weight [kg]	2.65	3.7	6.3
Temperature operating range (environment temperature)	-20 to +100 °C	-20 to +100 °C	-20 to +100 °C

# TRANSPORTER ELECTRICAL - ACCESSORIES

## CONTROL UNIT CLEAN LINE, SIGNAL CABLE, CABLE

2299.61.1□100.12



### Description:

The control unit is the electrical module for controlling the transporter.

### Material:

Aluminium die casting  
IP67

### Technical data:

Temperature operating range: -20 to +40 °Celsius (environment temperature)

### Note:

The control unit must be mounted on a metal surface for heat dissipation. Before connecting the electric transporter, check that the channel can move freely in the direction of travel.

Included in the delivery,

Mains connection incl. plugs for USA and GB,

Fixing bolts DIN EN ISO 4762 M4 x 20 (x 2) stainless steel A2

### 1 - Changeover between PLC and manual operation



PLC mode:

In this position, this start/stop function is controlled via the straight signal cable (M12 plug).



Manual mode:

In this position, the start/stop function is controlled by the control unit.

### 2 - 2299.60.81.01. Signal cable straight, to the press

order separately

Order No	l [m]
2299.60.81.01.03	3
2299.60.81.01.05	5
2299.60.81.01.10	10

For further information, see catalogue page for straight signal cable

### 2299.61. Control unit CLEAN LINE

Order No	Connection [V]	Power requirement [A]
2299.61.12100.12	230	1,2 - 2,2
2299.61.14100.12	230	0,75 - 1,7
2299.61.18100.12	230	0,55 - 1,3

1-phase 110-230 V, 50-60 Hz, earthed connection

### 3 - 2299.60.82.01. Connection cable straight/straight, control

unit - transporter

order separately

Order No	l [m]
2299.60.82.01.03	3
2299.60.82.01.05	5
2299.60.82.01.10	10
2299.60.82.01.15	15

### 2299.60.82.02. Connection cable straight/90°, control unit -

transporter

order separately

Order No	l [m]
2299.60.82.02.03	3
2299.60.82.02.05	5
2299.60.82.02.10	10
2299.60.82.02.15	15

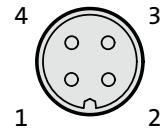
# TRANSPORTER ELECTRICAL - ACCESSORIES

## SIGNAL CABLE STRAIGHT, TO THE PRESS



Assignment:

M12 - Plug  
4-pin /  
A-coded



1 (brown)	= Start/stop	Digital input 24 V DC	= Start
2 (white)	= Fault	Digital output 24 V DC	= Fault
3 (blue)	= 0 V DC	Together 0 V DC	= 0 V
4 (black)	= Control unit	Digital output 24 V DC	= OK

Output	
Conditions	Pin 2                      Pin 4
Fault	24 V                      0 V
OK	0 V                      24 V

Input	
Conditions	Pin 1
started	24 V
stopped	0 V

**Description:**

The signal cable connects the control unit to the power press/production machine.

**2299.60.81.01. Signal cable straight, to the press**

Order No	l [m]
2299.60.81.01.03	3
2299.60.81.01.05	5
2299.60.81.01.10	10

## TRANSPORTER ELECTRICAL - ACCESSORIES

### SEALING CAP FOR ELECTRIC TRANSPORTER

### SEALING CAP FOR CONNECTION CABLE

---



#### 2299.60.82.04.1 Sealing cap for electric transporter

**Description:**

Sealing cap for electric transporter - control unit connection

**Material:**

Nickel-plated copper/zinc alloy

**Note:**

Sealing cap incl. M4x6 pan head bolt and connection chain  
IP67 in mounted position



#### 2299.60.82.04.2 Sealing cap for connection cable

**Description:**

Sealing cap for connection cable 2299.60.82.01./02.

**Material:**

Nickel-plated copper/zinc alloy

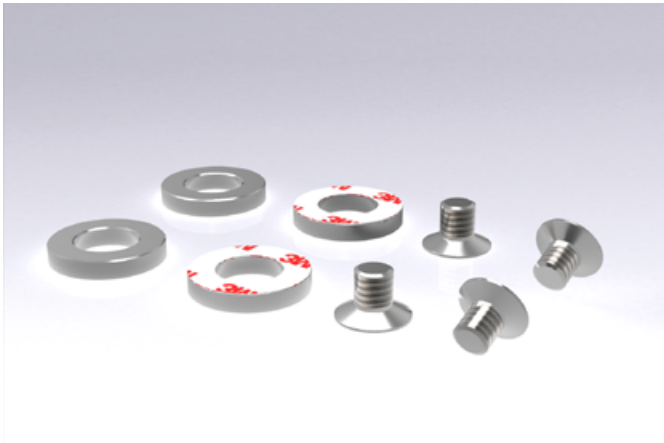
**Note:**

Sealing cap incl. connection chain  
IP67 in mounted position

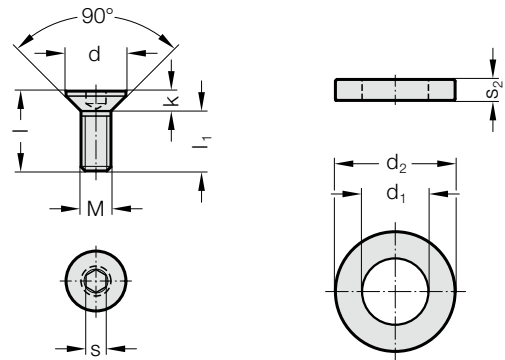
# TRANSPORTER ELECTRICAL - ACCESSORIES

## CHANNEL FASTENING STANDARD

### CHANNEL FASTENING STANDARD, INCLUDING SLOT STONE



2299.69.10.1□.



#### Description:

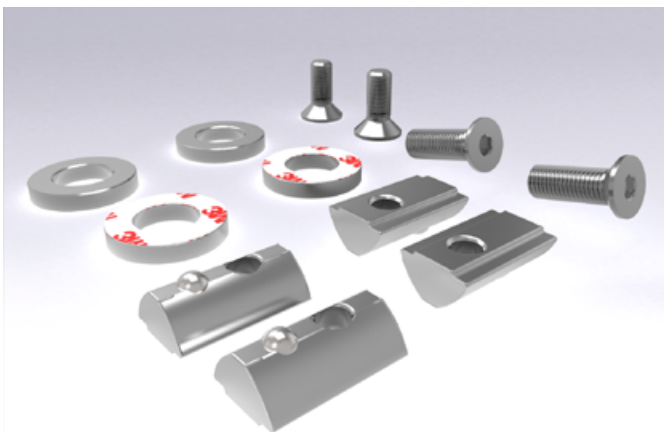
The standard channel fastening is a mounting kit for fastening the channel directly to the electric transporter. It consists of 4 flat head screws and 4 washers, self-adhesive.

#### Material:

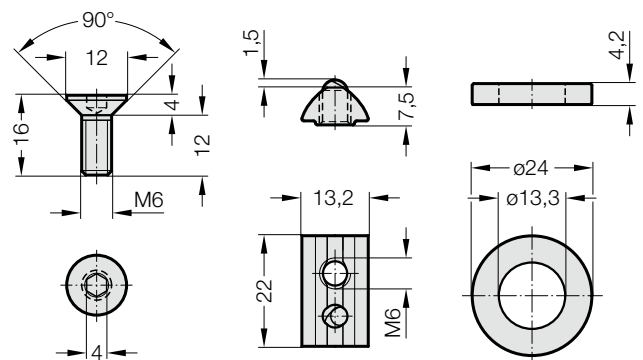
2299.69.10.10. Steel, zinc-plated  
2299.69.10.11. Stainless steel A2

#### 2299.69.10.1x. Channel fastening standard

Order No	M	d	k	l	l <sub>1</sub>	s	d <sub>1</sub>	d <sub>2</sub>	s <sub>2</sub>	for electric transporter
2299.69.10.10.05	M5	10	2.8	8	5.2	3	13.3	24	4.2	2299.60.18100.
2299.69.10.10.06	M6	12	3.3	10	6.7	4	13.3	24	4.2	2299.60.14100./12100.
2299.69.10.11.05	M5	10	2.8	8	5.2	3	13.3	24	4.2	2299.61.18100.
2299.69.10.11.06	M6	12	3.3	10	6.7	4	13.3	24	4.2	2299.61.14100./12100.



2299.69.10.20



#### 2299.69.10.20 Channel fastening standard, including slot stone

#### Description:

The channel fastening, incl. slot stone, is a mounting kit for fastening the channel on the profiled beam. It consists of four slot stones, four countersunk screws and four washers, self-adhesive, which allows continuous adjustment of the channel on the profiled beam after mounting.

#### Material:

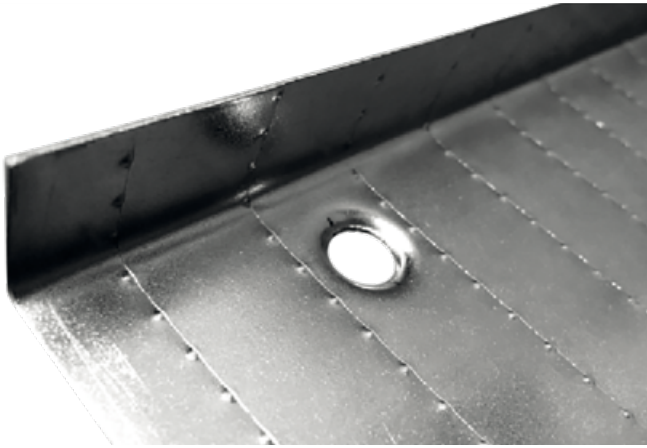
Steel, zinc-plated

#### Note:

2299.69.10.20 use only for electric transporter, BLACK LINE  
2299.60.12100. and 2299.60.14100.

## TRANSPORTER ELECTRICAL - ACCESSORIES MOUNTING TOOL

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### 2299.69.10.00.01. Mounting tool

#### **Description:**

The mounting tool is used for chamfering the mounting holes in the channel.

#### **Note:**

2299.69.10.00.01.05 use only for electric transporter  
BLACK LINE 2299.60.18100.  
CLEAN LINE 2299.61.18100.

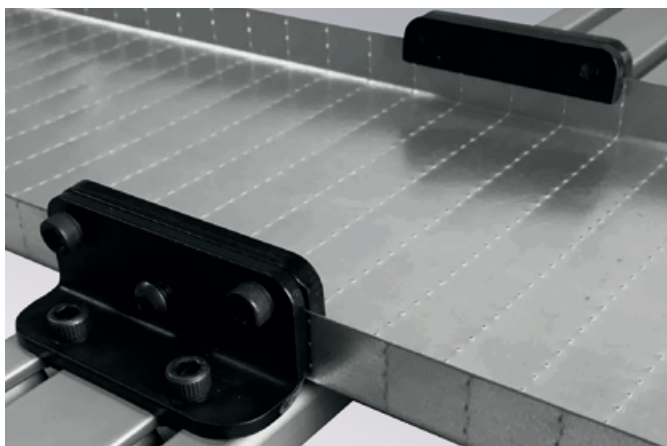
2299.69.10.00.01.06 use only for electric transporter  
BLACK LINE 2299.60.12100.  
CLEAN LINE 2299.61.12100.  
BLACK LINE 2299.60.14100.  
CLEAN LINE 2299.61.14100.



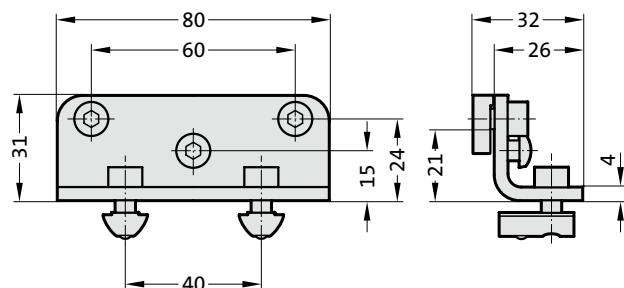
# TRANSPORTER ELECTRICAL - ACCESSORIES

## CHANNEL FASTENING TOPMOUNT

## CHANNEL FASTENING UNDERMOUNT



2299.69.10.30



### Description:

The topmount channel fastening, with its simple clamping principle, allows flexible mounting of the channel (without additional processing) on the top of the 2299.69.20.80 profiled beam.

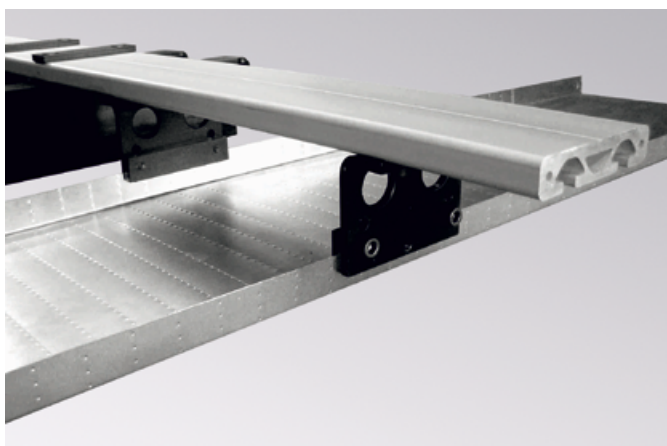
### Material:

High-strength steel, black zinc-plated  
Weight: 0.4 kg (per pair)

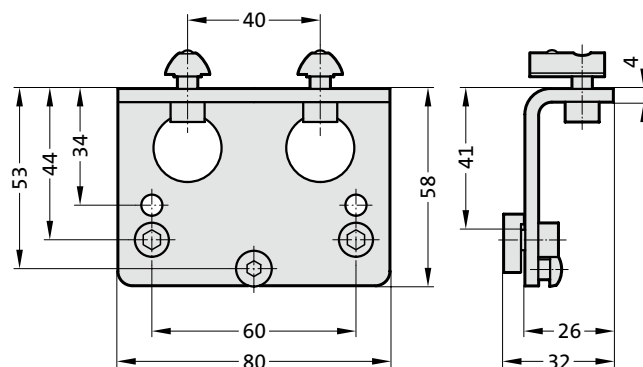
### Note:

Included in the scope of delivery are the topmount channel fixings, in pairs, socket head bolts and slot stones.  
Construction height above beam: 30 mm

2299.69.10.30 Channel fastening topmount



2299.69.10.40



### Description:

The undermount channel fastening, with its simple clamping principle, allows flexible mounting of the channel (without additional processing) underneath the 2299.69.20.80 profiled beam, as well as mounting of the electric transporter at the same construction height.

### Material:

High-strength steel, black zinc-plated  
Weight: 0.6 kg (per pair)

### Note:

Included in the scope of delivery are the undermount channel fastenings, in pairs, socket head bolts and slot stones.  
Construction height below beam: 58.5 mm

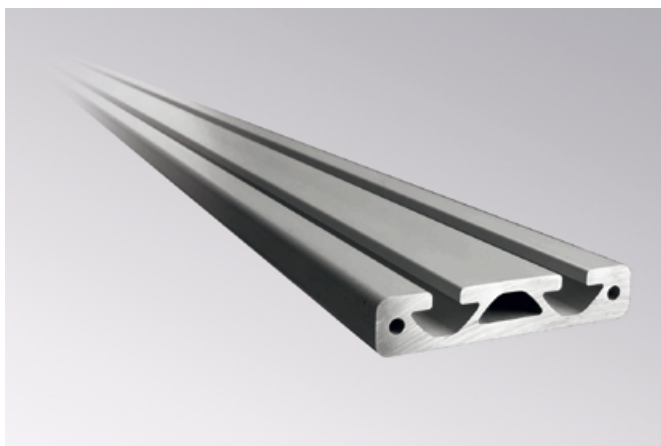
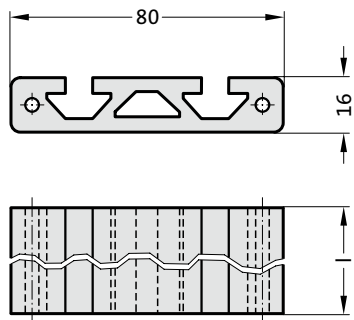
2299.69.10.40 Channel fastening undermount

# TRANSPORTER ELECTRICAL - ACCESSORIES

## PROFILED BEAM

### RETAINER BAR

2299.69.20.80.



#### 2299.69.20.80. Profiled beam

Order No	l [m]
2299.69.20.80.1000	1000
2299.69.20.80.2000	2000

#### Description:

Flexible set-up of multiple channel sections is possible using the profiled beam.

#### Material:

Aluminium, anodised (corrosion-resistant)

Weight: 2.2 kg/m

#### Note:

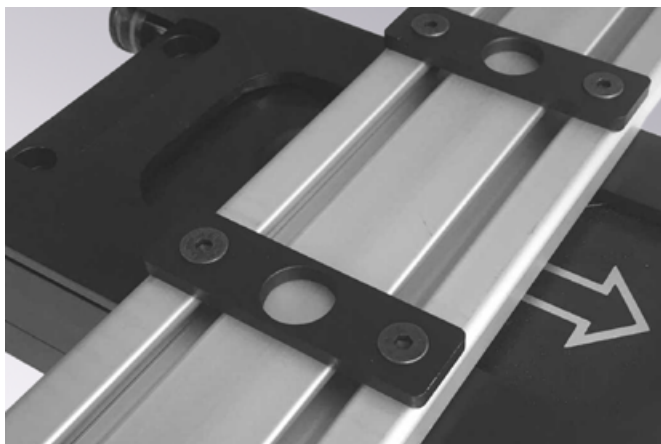
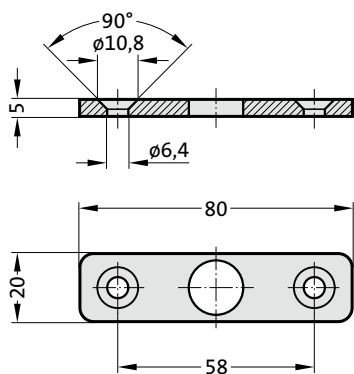
Only use for transporter,

BLACK LINE 2299.60.12100./14100.

Profiled shape SP3100N profile 8 x 80

For fastening the profiled bar onto the electric transporter, the 2299.69.20.02.06 flat head screw (M6x20) or the 2299.69.20.01.06 retainer strip must be ordered separately.

2299.69.20.01.06



#### 2299.69.20.01.06 Retainer bar

#### Description:

The retainer bar is used to fasten the 2299.69.20.80 profiled bar to the electric transporter.

#### Material:

High-strength steel, black zinc-plated

Weight: 0.16 kg/per pair

#### Note:

Included in the scope of delivery are two retainer bars with 4 x flat head screws ISO 10642 - 8.8 M6x20.

Only use for transporter,

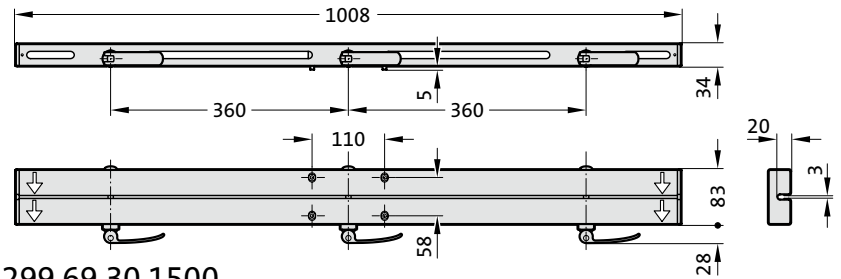
Electric BLACK LINE 2299.60.12100./14100.

# TRANSPORTER ELECTRICAL - ACCESSORIES

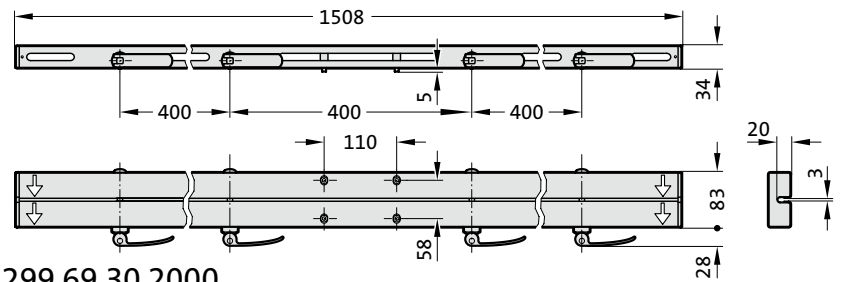
## CLAMPING BAR



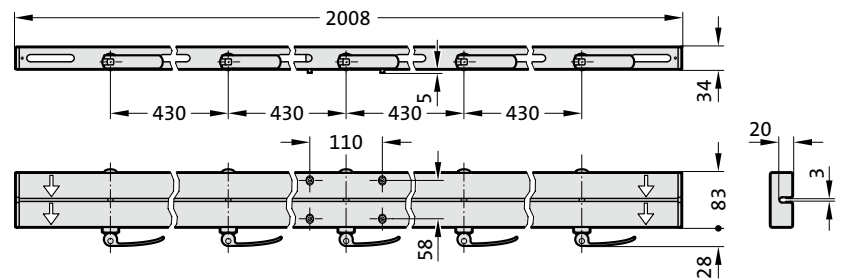
2299.69.30.1000



2299.69.30.1500



2299.69.30.2000



### Description:

The clamping bar is used for rapid changeover between multiple transport channels. The mechanical clamping lever securely clamps the channel to the 2299.69.30.00.01.1230 angled profile in the slot without tools.

### Material:

High-strength steel (laser-cut),  
Black zinc-plated

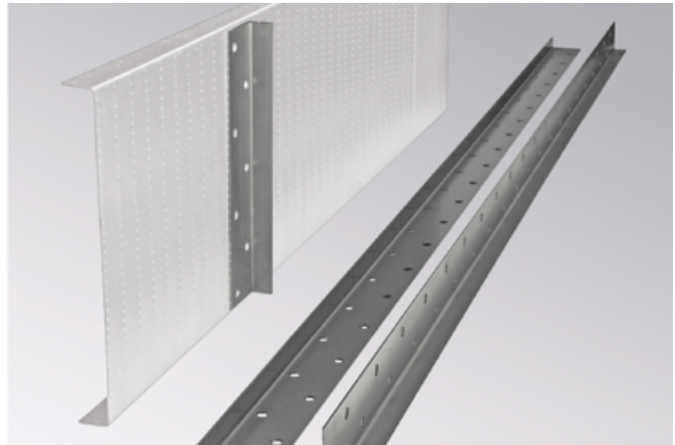
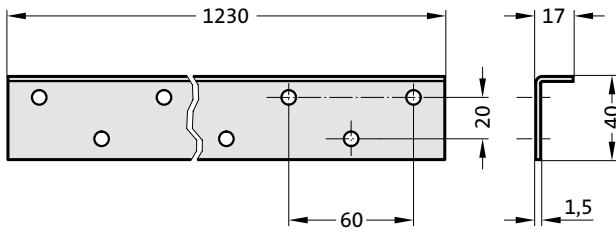
### 2299.69.30. Clamping bar

Order No	for electric transporter	Weight [kg]
2299.69.30.1000	2299.60.12100.	2.5
2299.69.30.1500	2299.60.12100.	4.5
2299.69.30.2000	2299.60.12100.	6.5

## TRANSPORTER ELECTRICAL - ACCESSORIES

### ANGLED SECTION FOR CLAMPING BAR

2299.69.30.00.01.1230



**2299.69.30.00.01. Angled section for clamping bar**

**Description:**

Angled section for welded connection underneath the channel when using the clamping bar.

**Material:**

High-strength steel

**Note:**

Dimensions: 1230 mm x 17 mm x 40 mm

Weight: 0.7 Kg

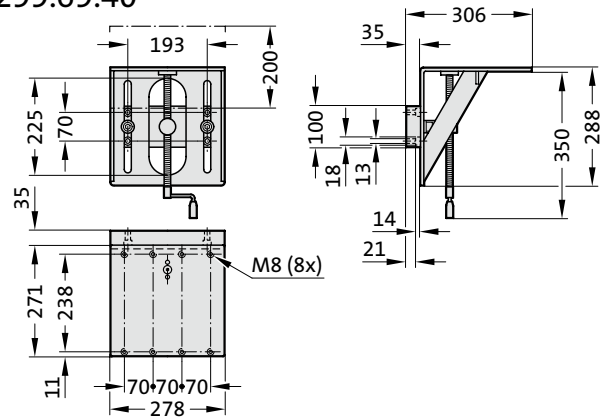
# TRANSPORTER ELECTRICAL - ACCESSORIES

## HEIGHT-ADJUSTABLE MOUNTING BRACKET

### HEIGHT-ADJUSTABLE MOUNTING BRACKET, FOR BEAM MOUNTING



2299.69.40



#### Description:

The height-adjustable mounting bracket is attached to the power press/production machine using four bolts. The mounting bracket has three pre-defined mounting options on the top (left, centre and right) for the transporter.

#### Material:

Steel, black zinc-plated

#### Note:

Only use for 2299.60.12100.

Electric transporter, BLACK LINE, MAX

Included in the delivery scope: socket head bolts DIN EN ISO 4762

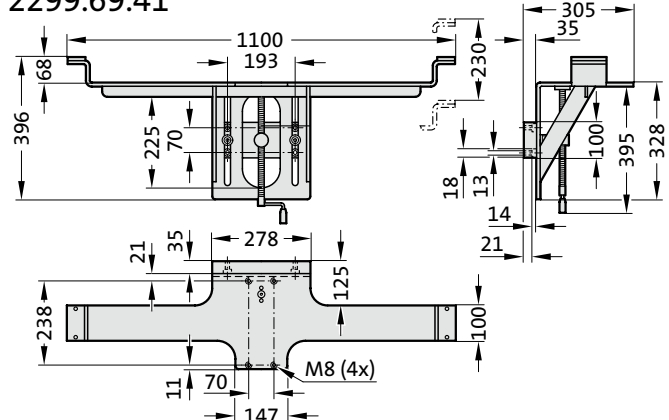
4x M12x50 -12.9.

#### 2299.69.40 Height-adjustable mounting bracket

Max. load	100 kg
Height adjustment of the angled support (with ball bearing-mounted crank)	200 mm
Weight	18,2 kg



2299.69.41



#### Description:

The height-adjustable mounting bracket is attached to the power press/production machine using four bolts. The lateral outriggers prevent the profiled beam from bending with a larger span.

#### Material:

Steel, black zinc-plated

#### Note:

Only use for 2299.60.12100.

Electric transporter, BLACK LINE, MAX

Replacement slide element: 2299.69.41.00.01

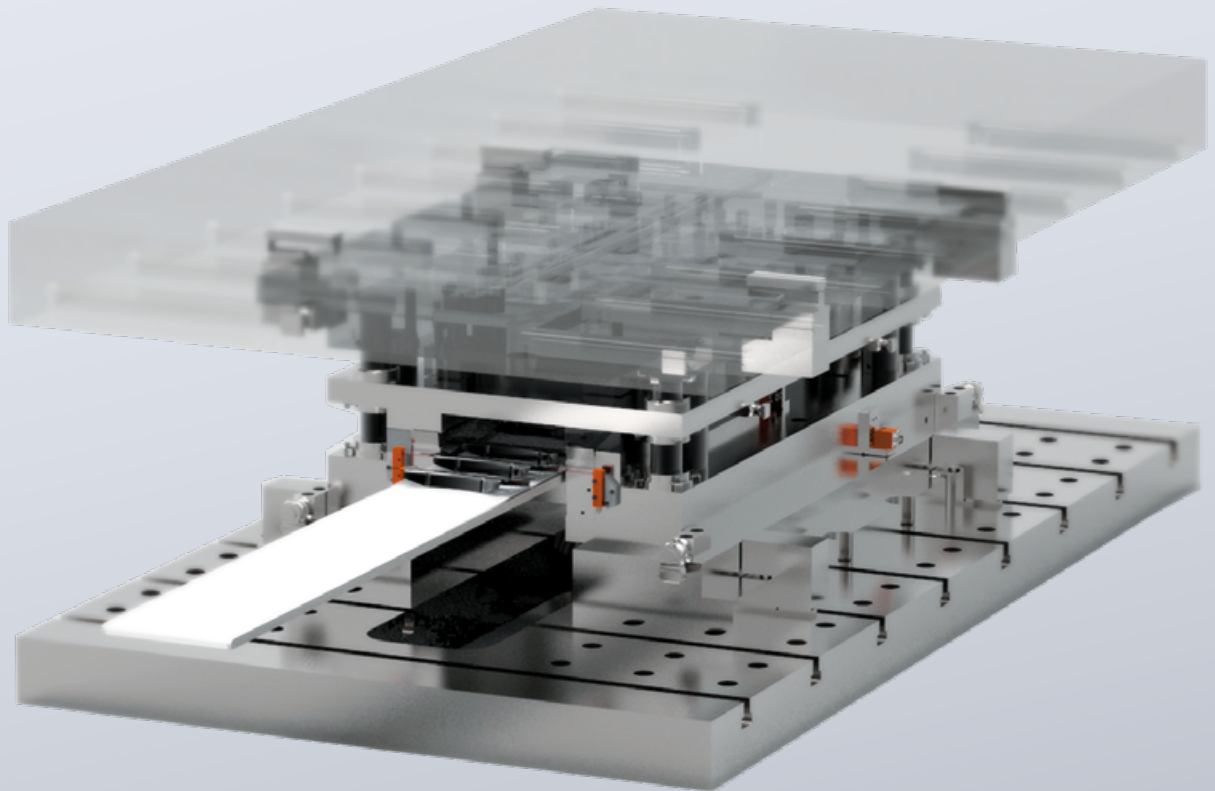
Included in the delivery scope: socket head bolts DIN EN ISO 4762

4x M12x50 -12.9.

#### 2299.69.41 Height-adjustable mounting bracket, for beam mounting

Max. load	100 kg
Max. length of aluminium bar	3000 mm
Max. length of clamping bar	2000 mm
Height adjustment of the angled support (with ball bearing-mounted crank)	230 mm
Weight	28,5 kg

# SENSORS FOR STAMPING AND FORMING TECHNOLOGY



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