

# Transportation control

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# Transportation control

The modular units for transportation control are used to control the flow of the workpiece pallets on the transfer system. The direction of travel of the workpiece pallet is decisive for proper function of the transportation control. Transportation control includes:

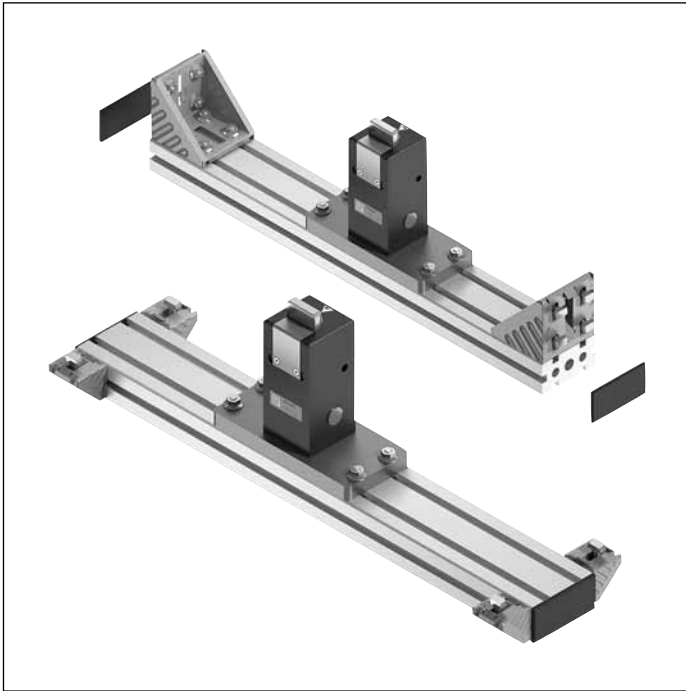
- ▶ Stopping and separating workpiece pallets in the longitudinal conveyor, see page 9-3, 9-6, 9-9, 9-12
- ▶ Stopping workpiece pallets in the transverse conveyor. It is not possible to separate workpiece pallets in the transverse conveyor, see page 9-3, 9-6, 9-9, 9-12
- ▶ Querying the position of a workpiece pallet. A suitable clamping holder for sensors is required for this, see page 9-16
- ▶ Controlling operation sequences
- ▶ Function plans, see page 13-16 ff.

## Stop gate

VE 5/... stop gates are used to separate (only possible in longitudinal conveyors) and stop workpiece pallets, e.g. in an automated station.

Actuation is performed pneumatically. In a pressurefree state, the stop gate is held in the blocking position by a spring and thus contributes significantly to production safety. Stop gates are available with and without shock absorbers.

## VE 5/200, VE 5/OC-200 stop gates



### Use:

- ▶ Stopping one or more accumulating workpiece pallets at the defined workpiece pallet stop surface

### Version:

- ▶ Pneumatic stop gate. When the pressure is released the stop gate is closed by a spring and the workpiece pallet is stopped.
- ▶ Compressed air connection 5 ... 6 bar
- ▶ Pneumatic push-in fitting: 6 mm

### Scope of delivery:

- ▶ Incl. fastening material for assembly on the conveyor section, pneumatic push-in connector  $\varnothing$  6 mm

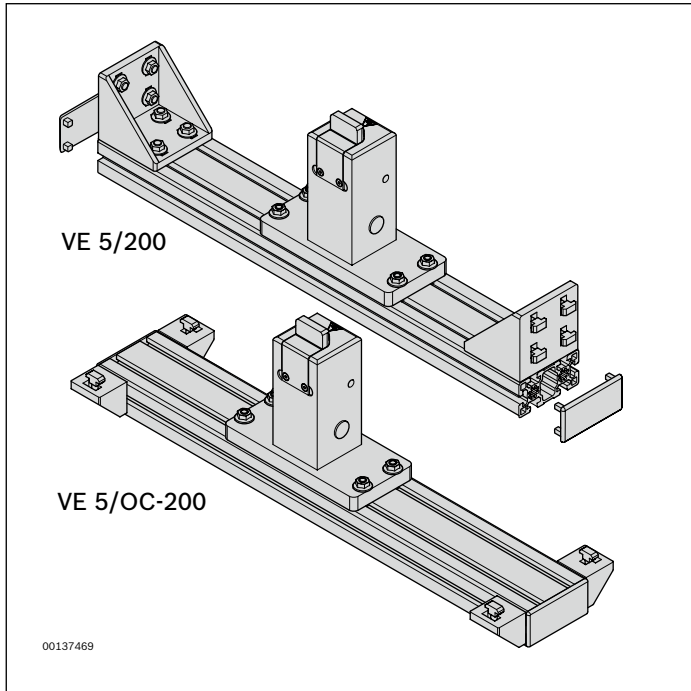
### Recommended accessories:

- ▶ 1 sensor, 3 842 549 811 or 3 842 549 814, for position inquiry (engaged, top position/not engaged, bottom position), see page 9-16
- ▶ Clamping holder for sensor, see page 9-15

### Condition on delivery:

- ▶ Not assembled

**Ordering information**



**VE 5/200 stop gates**

<b>b</b> <b>(mm)</b>	<b>Material number</b>
455; 650; 845; 1,040	<b>3 842 998 518</b>
	b = ... mm

b = track width in direction of transport

**VE 5/OC-200 stop gates**

<b>Material number</b>
<b>3 842 998 577</b>
b = ... mm

b = track width in direction of transport

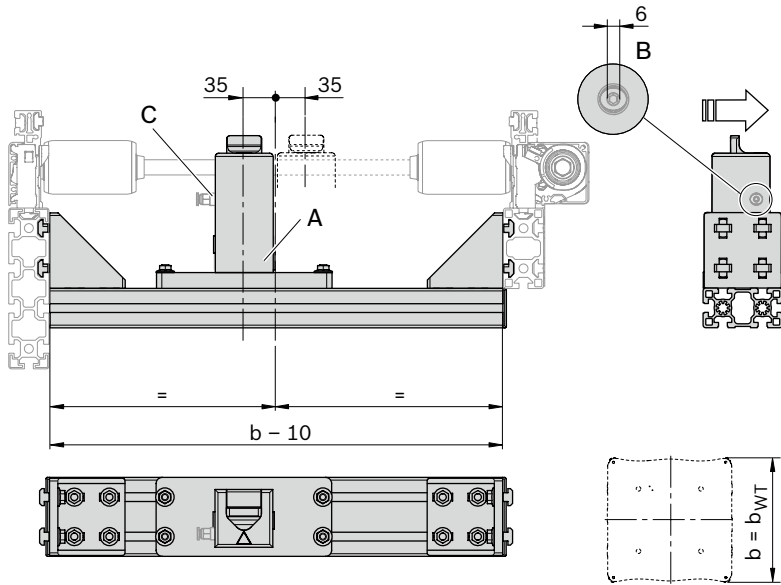
**Permissible impact force per WT**

<b>m<sub>WT</sub></b> <b>(kg)</b>	<b>v<sub>N</sub><sup>1)</sup></b> <b>(m/min)</b>
200	2 ... 9

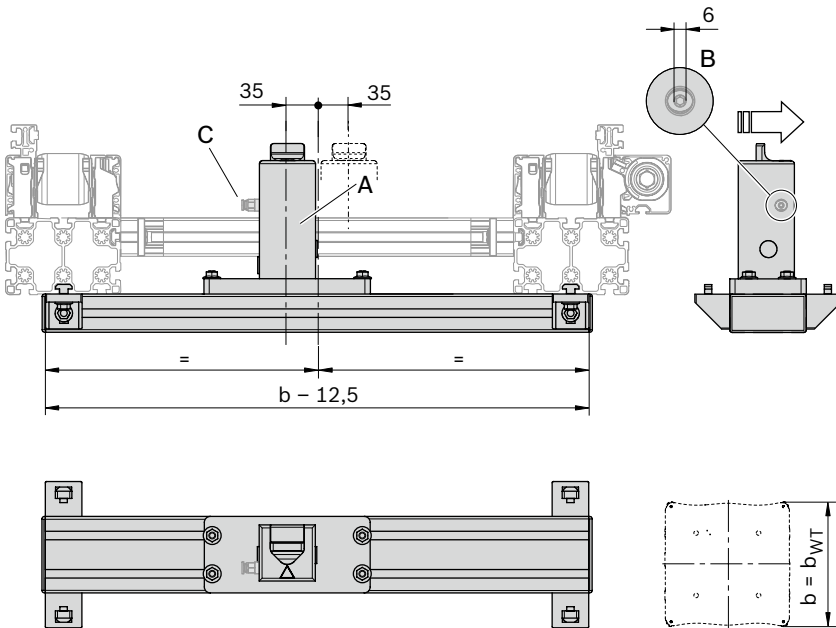
<sup>1)</sup> Conveyor speed

**Dimensions**

**VE 5/200, VE 5/OC-200 stop gates**



VE 5/200: 3 842 998 518

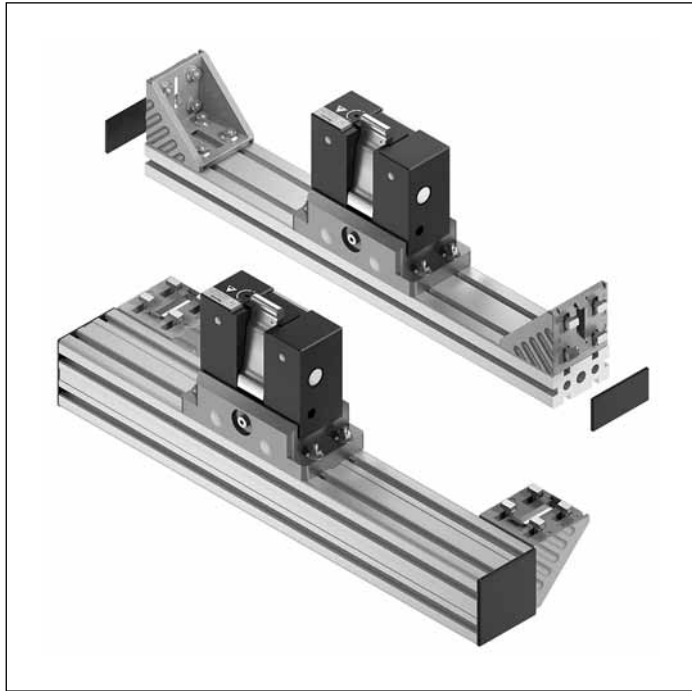


VE 5/OC-200: 3 842 998 577

00137470

- A = Stop gate
- B = 6 mm pneumatic push-in connector
- C = position inquiry VE stop blade up: yes/no

## VE 5/D-300, VE 5/OCD-300 stop gates



### Use:

- ▶ Damped stopping of one or more accumulating workpiece pallets at the defined workpiece pallet stop surface

### Version:

- ▶ Pneumatic stop gate with steplessly adjustable damping. When the pressure is released the stop gate is closed by a spring and the workpiece pallet is stopped.
- ▶ Compressed air connection 5 ... 6 bar
- ▶ Pneumatic push-in fitting: 6 mm

### Scope of delivery:

- ▶ Incl. fastening material for assembly on the conveyor section, pneumatic push-in connector  $\varnothing$  6 mm

### Recommended accessories:

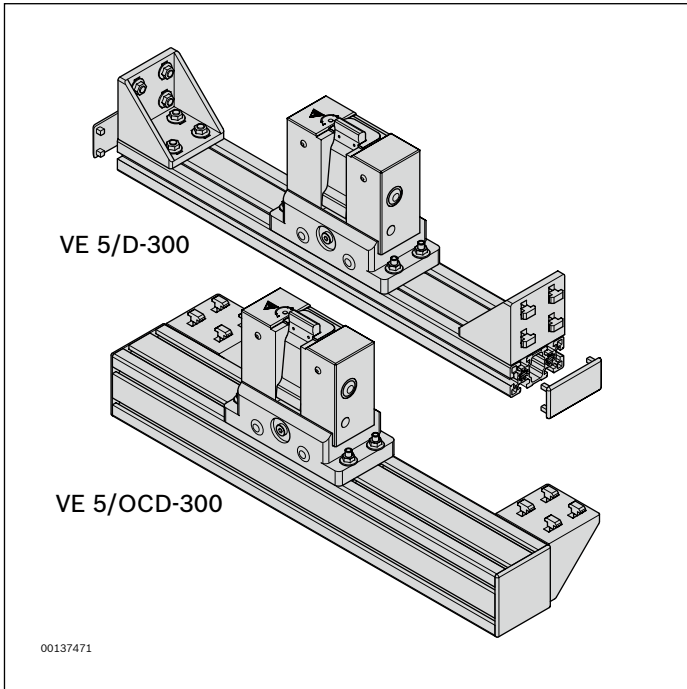
3 sensors, 3 842 549 811 or 3 842 549 814, for position inquiry in respect of

- ▶ stop gate position inquiry (engaged, top position), see page 9-16
- ▶ Stop gate position inquiry (not engaged, bottom position), see page 9-16
- ▶ Damper position inquiry (stop blade retracted: yes/no), see page 9-16
- ▶ Clamping holder for sensor, see page 9-15
- ▶ Trap guard, see page 9-7

### Condition on delivery:

- ▶ Not assembled

**Ordering information**



**VE 5/D-300 stop gate**

<b>b</b> <b>(mm)</b>	<b>Material number</b>
455; 650; 845; 1,040	<b>3 842 998 517</b>
	b = ... mm

b = track width in direction of transport

**VE 5/OCD-300 stop gates**

<b>Material number</b>
<b>3 842 998 578</b>
b = ... mm

b = track width in direction of transport

**Permissible impact force per WT**

<b>m<sub>WT</sub></b> <b>(kg)</b>	<b>v<sub>N</sub><sup>1)</sup></b> <b>(m/min)</b>
max. 300	2 ... 9
max. 260	2 ... 12
max. 160	2 ... 18

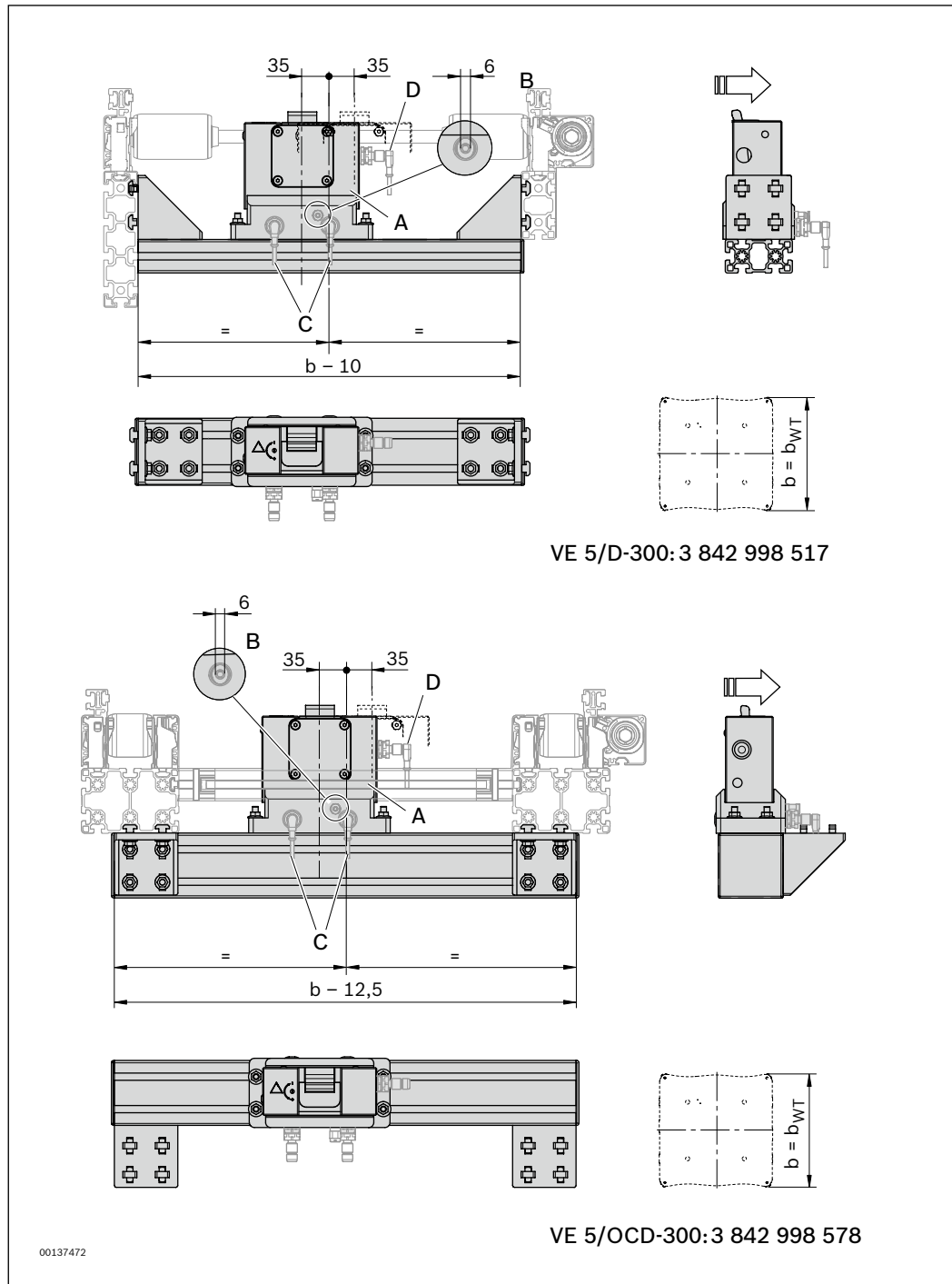
<sup>1)</sup> Conveyor speed

**Trap guard**

<b>Material number</b>
<b>3 842 552 672</b>

**Dimensions**

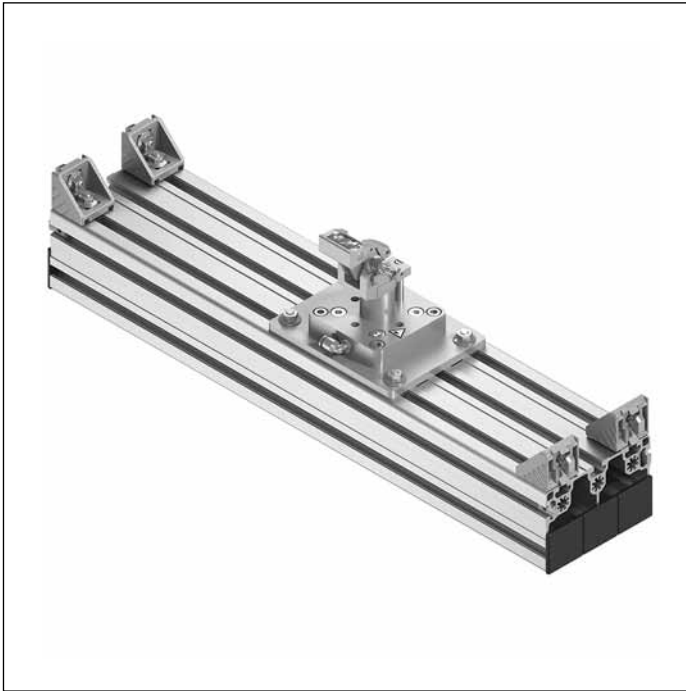
**VE 5/D-300, VE 5/OCD-300 stop gates**



- A = Stop gate
- B = 6 mm pneumatic push-in connector
- C = position inquiry VE stop blade: up/down
- D = position inquiry VE stop blade, damper retracted: yes/no



## VE 5/D-301, VE 5/OCD-301 stop gates



### Use:

- ▶ Damped stopping of one or more accumulating workpiece pallets at the defined workpiece pallet stop surface

### Version:

- ▶ Pneumatic stop gate with steplessly adjustable damping. When the pressure is released the stop gate is closed by a spring and the workpiece pallet is stopped.
- ▶ Compressed air connection 5 ... 6 bar
- ▶ Pneumatic push-in fitting: 6 mm

### Scope of delivery:

- ▶ Incl. fastening material for assembly on the conveyor section, pneumatic push-in connector  $\varnothing$  6 mm

### Recommended accessories:

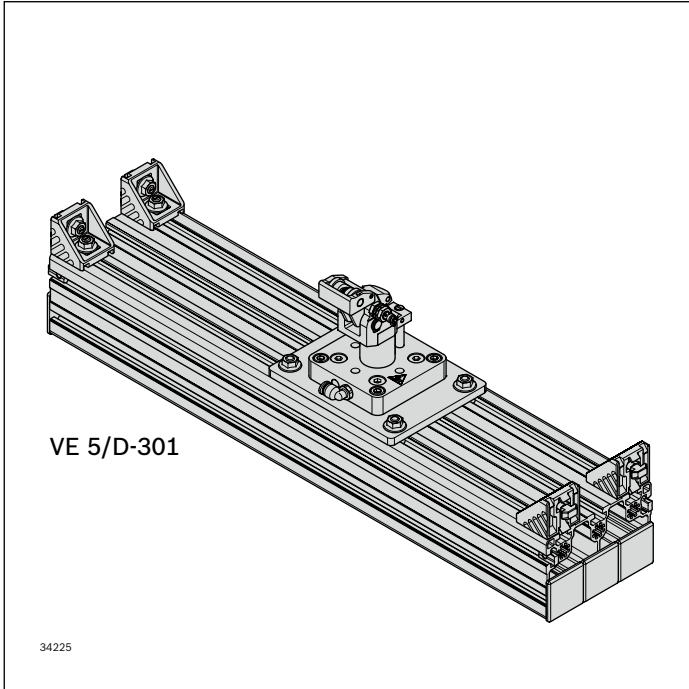
Sensor 3 842 551 761 for

- ▶ position inquiry top/bottom on request see page 9-16
- ▶ Damper position inquiry (stop blade retracted), sensor M8, see page 9-16

### Condition on delivery:

- ▶ Not assembled

**Ordering information**



**VE 5/D-301 stop gate**

<b>b</b> <b>(mm)</b>	<b>AO</b>	<b>Material number</b>
455; 650; 845; 1,040	1; 2	<b>3 842 998 079</b> b = ... mm

b = track width in direction of transport

AO = 1: Main section (stop gate is 35 mm eccentric)

AO = 2: Transverse section (stop gate is in the center, only applies for transverse section HQ 5)

**VE 5/OCD-301 stop gates**

<b>Material number</b>
<b>3 842 998 080</b> b = ... mm

b = track width in direction of transport

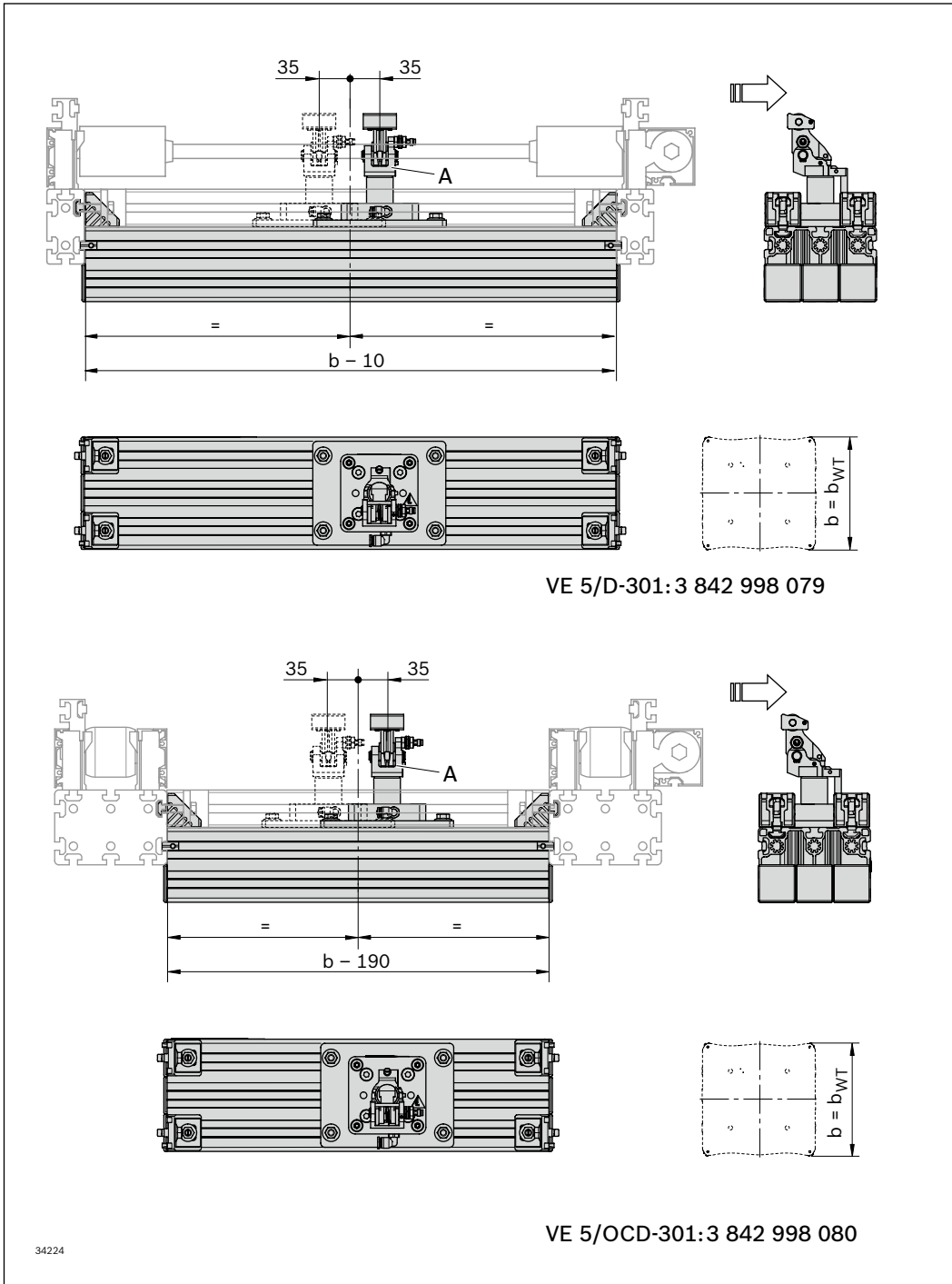
**Permissible impact force per WT**

<b>m<sub>WT</sub></b> <b>(kg)</b>	<b>v<sub>N</sub><sup>1)</sup></b> <b>(m/min)</b>
max. 300	2 ... 9
max. 260	2 ... 12
max. 160	2 ... 18

<sup>1)</sup> Conveyor speed

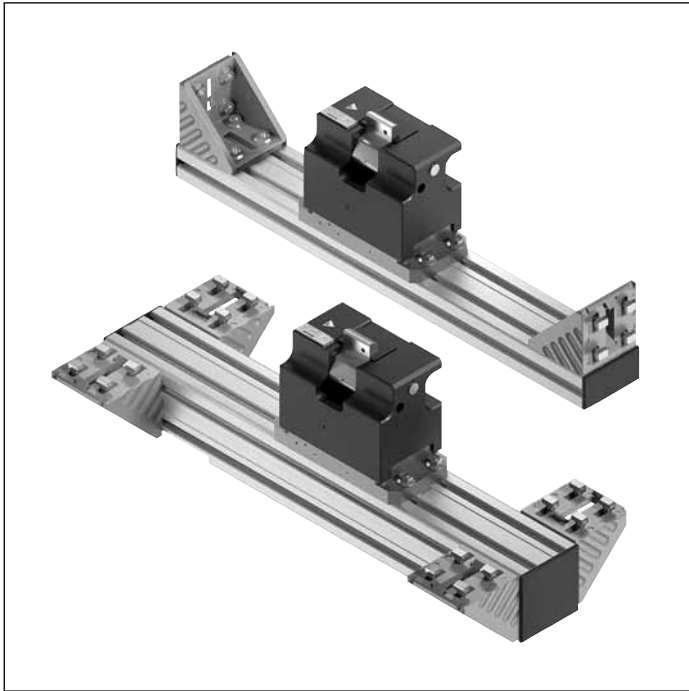
**Dimensions**

**VE 5/D-301, VE 5/OCD-301 stop gates**



- A = Stop gate
- B = 6 mm pneumatic push-in connector
- C = position inquiry VE stop blade: up/down
- D = position inquiry VE stop blade, damper retracted: yes/no

## VE 5/D-1000, VE 5/OCD-1000 stop gates



### Use:

- ▶ Oil-damped stopping of one or more accumulating workpiece pallets at the defined workpiece pallet stop surface

### Version:

- ▶ Pneumatic stop gate. When the pressure is released the stop gate is closed by a spring and the workpiece pallet is stopped.
- ▶ Compressed air connection 5 ... 6 bar
- ▶ Pneumatic push-in fitting: 6 mm

### Note:

Cannot be combined with ST 5/H-FR and ST 5/XH-FR if spacing  $p = 130$ .

### Scope of delivery:

- ▶ Incl. fastening material for assembly on the conveyor section, pneumatic push-in connector  $\varnothing 6$  mm

### Recommended accessories:

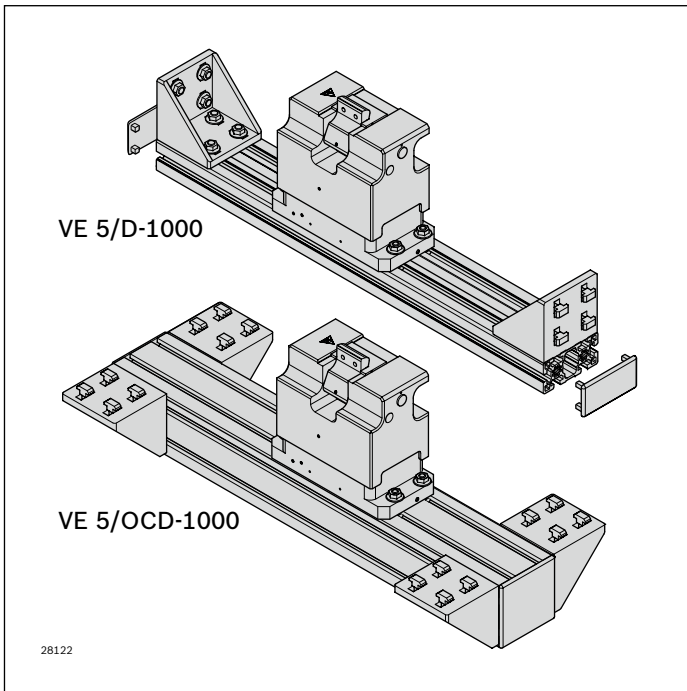
2 or 3 sensors 3 842 549 811 or 3 842 549 814 for

- ▶ stop gate position inquiry (engaged, top position), see page 9-16
- ▶ Stop gate position inquiry (not engaged, bottom position), see page 9-16
- ▶ Damper position inquiry (stop blade retracted: yes/no), see page 9-16
- ▶ Clamping holder for sensor, see page 9-15
- ▶ Trap guard, see page 9-13

### Condition on delivery:

- ▶ Not assembled

**Ordering information**



**VE 5/D-1000 stop gate**

<b>b</b> <b>(mm)</b>	<b>Material number</b>
455; 650; 845; 1,040	<b>3 842 998 805</b>
	b = ... mm

b = track width in direction of transport

**VE 5/OCD-1000 stop gates**

<b>b</b> <b>(mm)</b>	<b>Material number</b>
455; 650; 845; 1,040	<b>3 842 998 806</b>
	b = ... mm

b = track width in direction of transport

**Permissible impact force per WT**

<b>m<sub>WT</sub></b> <b>(kg)</b>	<b>v<sub>N</sub><sup>1)</sup></b> <b>(m/min)</b>
min. 50 max. 1,000	2 ... 9
min. 50 max. 900	2 ... 12
min. 50 max. 700	2 ... 18

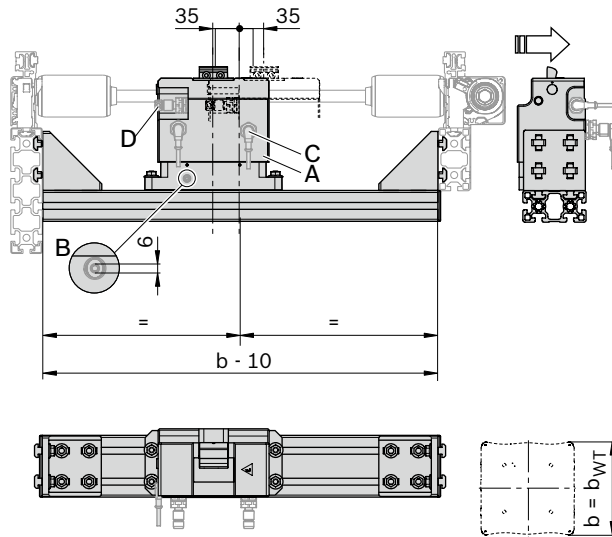
<sup>1)</sup> Conveyor speed

**Trap guard**

<b>Material number</b>
<b>3 842 552 672</b>

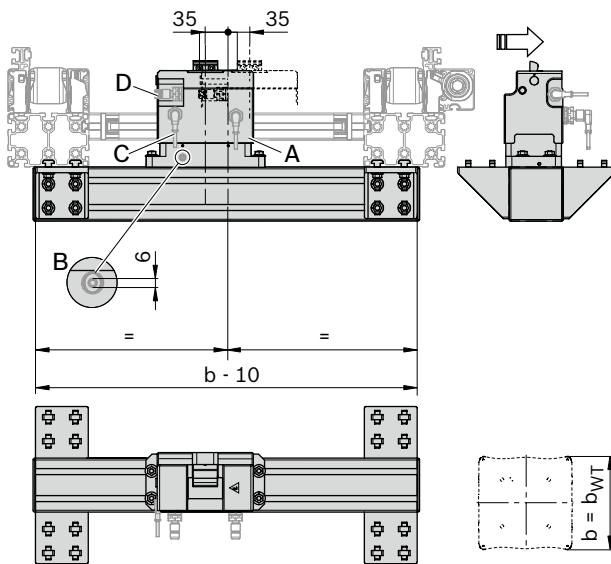
**Dimensions**

**VE 5/D-1000, VE 5/OCD-1000 stop gates**



VE 5/D-1000: 3 842 998 805

28123



VE 5/OCD-1000: 3 842 998 806

28124

- A = Stop gate
- B = 6 mm pneumatic push-in connector
- C = position inquiry VE stop blade: top/bottom
- D = position inquiry VE stop blade, damper retracted: yes/no

# Clamping holder for sensors



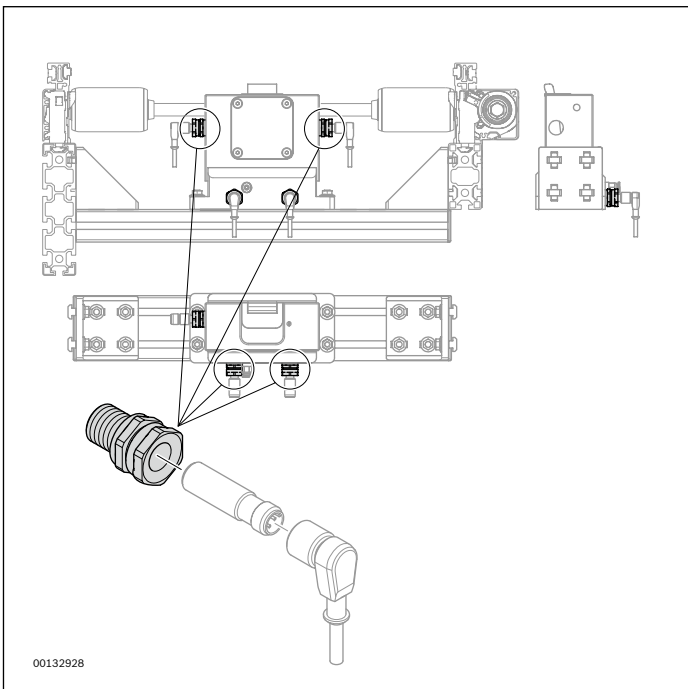
## Clamping holder for sensors

### Use:


- ▶ Clamping holder for sensor  $\varnothing$  12 mm, for screwing onto the stop gate

### Material:

- ▶ brass, nickel-plated



## Clamping holder

		Material number
	1	3 842 545 974

## M12 sensors with M12x1 or M8x1 push-in fitting



### Use:

- Detection of the position of a workpiece pallet, position inquiry in respect of lift transverse units and positioning units.

### Version:

	3 842 549 811 <sup>1)</sup>	3 842 549 813 <sup>2)</sup>	3 842 551 761 <sup>1)</sup>	3 842 549 814 <sup>1)</sup>	3 842 537 995 <sup>2)</sup>	3 842 555 421 <sup>2)</sup>
Size	M12 x 44 mm	M12 x 44 mm	M12 x 30 mm	M12 x 45 mm	M12 x 45 mm	M12 x 60 mm
Nominal switching distance $S_N$	4 mm	8 mm	2 mm	4 mm	7 mm	10 mm
Switching frequency	2,500 Hz	800 Hz	1,500 Hz	300 Hz	500 Hz	600 Hz
Operating current	200 mA	200 mA	200 mA	200 mA	200 mA	200 mA
Housing material	CuZn coated, LCP	CuZn coated, LCP	CuZn coated, LCP	CuZn coated, LCP	CuZn coated, LCP	CuZn coated, LCP
Ambient temperature	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C	-25 ... +85 °C
Protection class	IP 67	IP 67	IP 68	IP 67	IP 67	IP 68
Mech. installation	Flush	Not flush	Flush	Flush	Not flush	Not flush
Plug connection	M8x1	M8x1	M8x1	M12x1	M12x1	M12x1
Function display	LED	LED	LED	LED	LED	LED
Switching output	PNP	PNP	PNP	PNP	PNP	PNP
Switching function	Normally open (NO)	Normally open (NO)	Normally open (NO)	Normally open (NO)	Normally open (NO)	Normally open (NO)
Operating voltage	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
Approvals	CE, UL, CSA	CE, UL, CSA	CE, cULus	CE, UL, CSA	CE, UL, CSA	CE, cULus, EAC
Conformity with standards	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2

<sup>1)</sup> Not suitable for position inquiry in respect of lift transverse units.

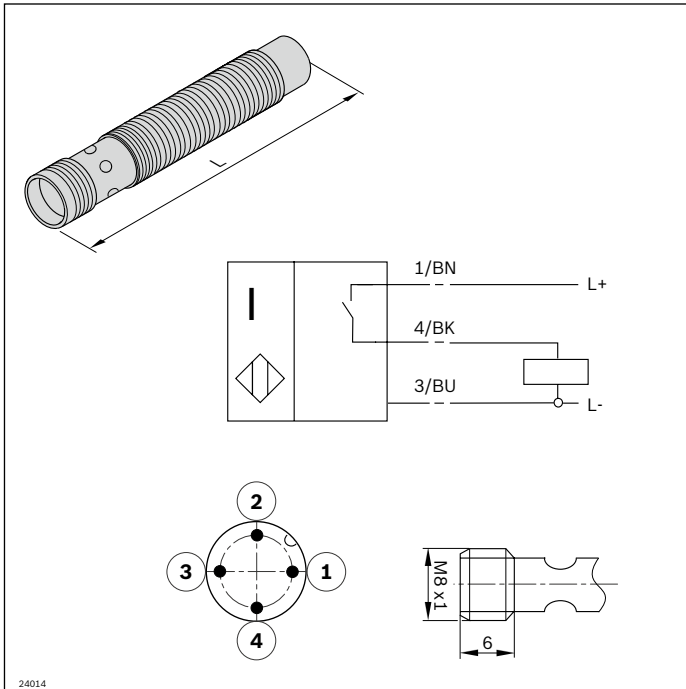
<sup>2)</sup> Not suitable for position inquiry in respect of stop gates.

### Required accessories:

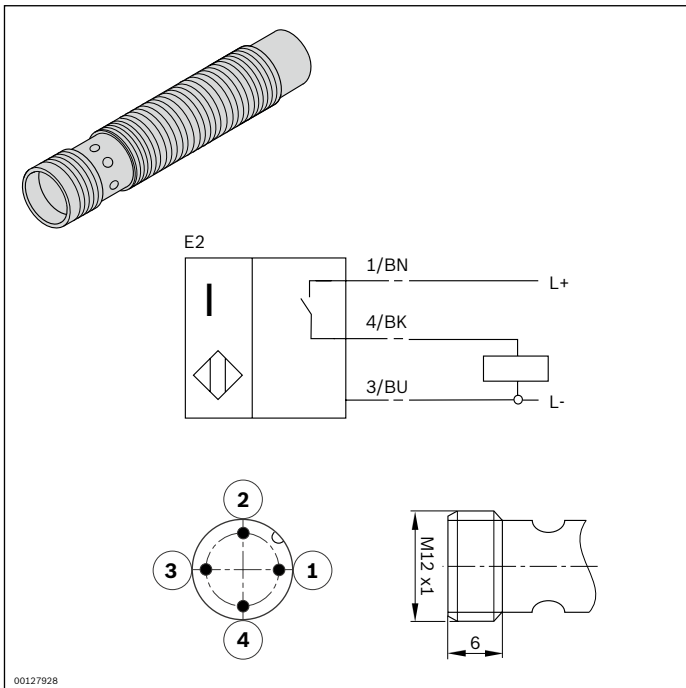
- SH 2/U-H switch bracket, see page 9-18
- Assembly kit for switch bracket, see page 9-20
- Clamping holder for sensor, see page 9-15



**Ordering information**  
**Circuit diagram M8x1**



**Circuit diagram M12x1**



**Sensor M12**

Plug connection	Length (mm)	Material number
M8x1	44	<b>3 842 549 811</b>
	44	<b>3 842 549 813</b>
	30	<b>3 842 551 761</b>
M12x1	45	<b>3 842 549 814</b>
	45	<b>3 842 537 995</b>
	60	<b>3 842 555 421</b>

## Accessories, sensor



### SH 2/U-H switch bracket

#### Use:

- ▶ Fastening for a M12x1 sensor for workpiece pallet position sensing from below.
- ▶ Especially sturdy metal design

#### Version:

- ▶ Die-cast aluminum
- ▶ Integrated stop for 12 mm sensor

#### Mounting location:

- ▶ On the assembly kit for the switch bracket

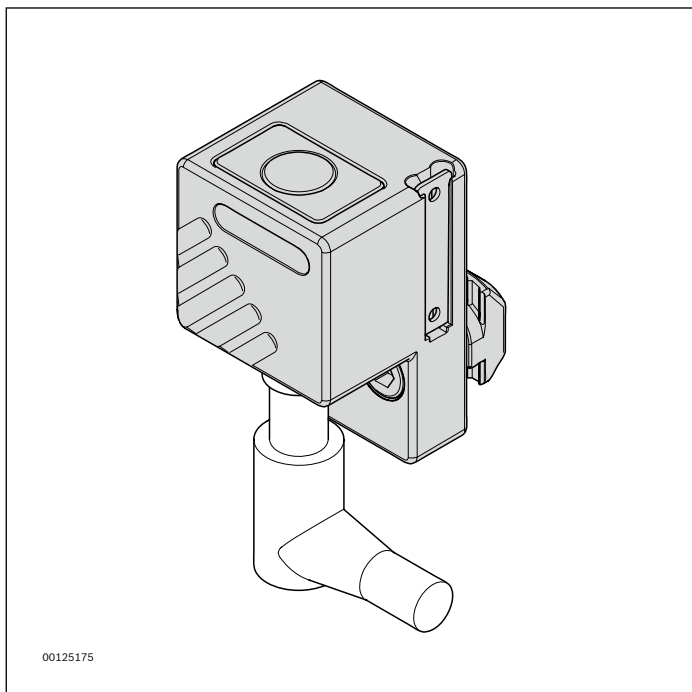
#### Scope of delivery:

- ▶ Incl. fastening material for assembly

#### Required accessories:

- ▶ Assembly kit for SH 2/U-H switch bracket
- ▶ M12x1 sensor with  $S_N \geq 4$  mm rated sensing range, see p. 9-16

### Ordering information



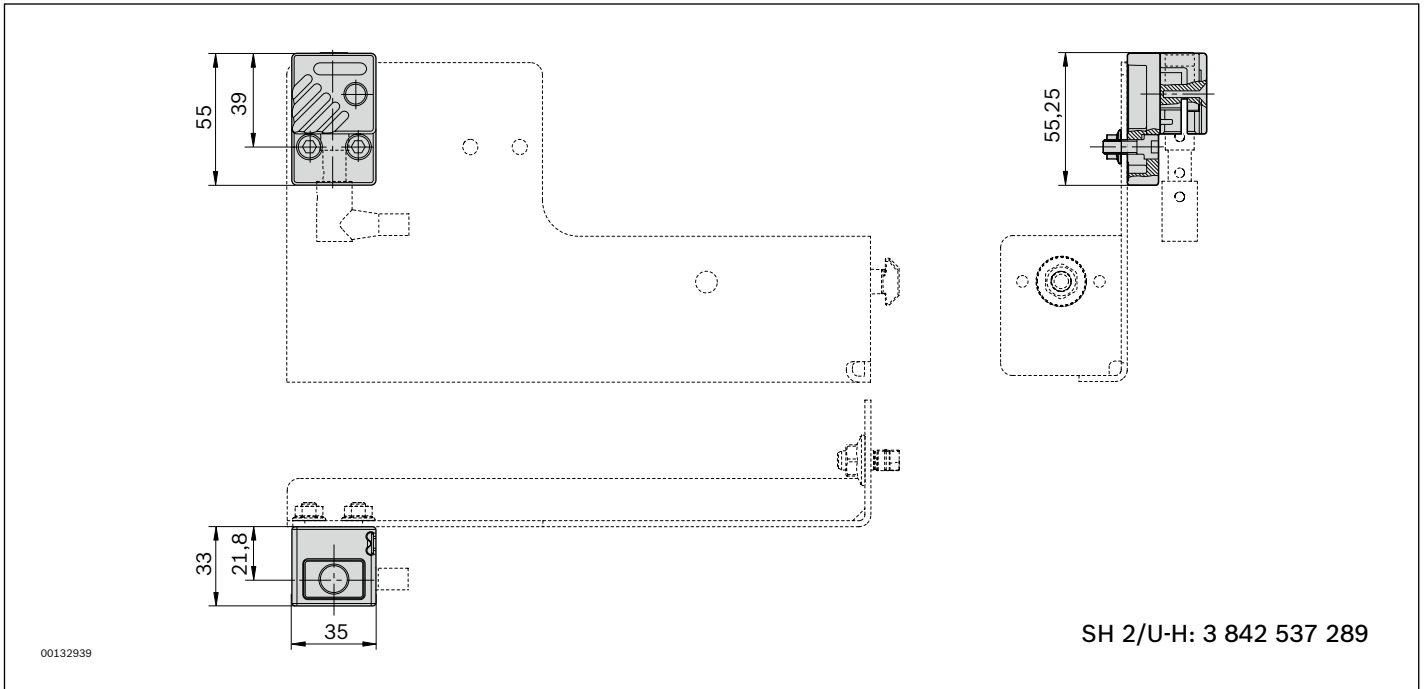
00125175

### SH 2/U-H switch bracket

Material number
3 842 537 289

**Dimensions**

**SH 2/U-H switch bracket**





#### Assembly kit for SH 2/U-H switch bracket

##### Use:

- ▶ Holding plate to bring the switch bracket into the correct inquiry position

##### Version:

- ▶ Centering lugs for pre-positioning and fast assembly

##### Condition on delivery:

- ▶ Not assembled

##### Required accessories:

- ▶ SH 2/U-H switch bracket
- ▶ M12x1 sensor with  $S_N \geq 4$  mm rated sensing range, see p. 9-16

#### SH 2/U-H assembly kit on ST 5/H, ST 5/XH conveyor unit

b (mm)	Material number
455; 650; 845; 1,040	<b>3 842 545 134</b>

b = track width in direction of transport

##### Mounting location:

- ▶ 3 842 545 134: on ST 5/H, ST 5/XH conveyor unit

##### Scope of delivery:

- ▶ Incl. fastening material for assembly and a 45x90 bracket for reinforcement as needed.

#### SH 2/U-H assembly kit on PE 5 positioning unit or HQ 5 lift transverse unit

Material number
<b>3 842 545 132</b>

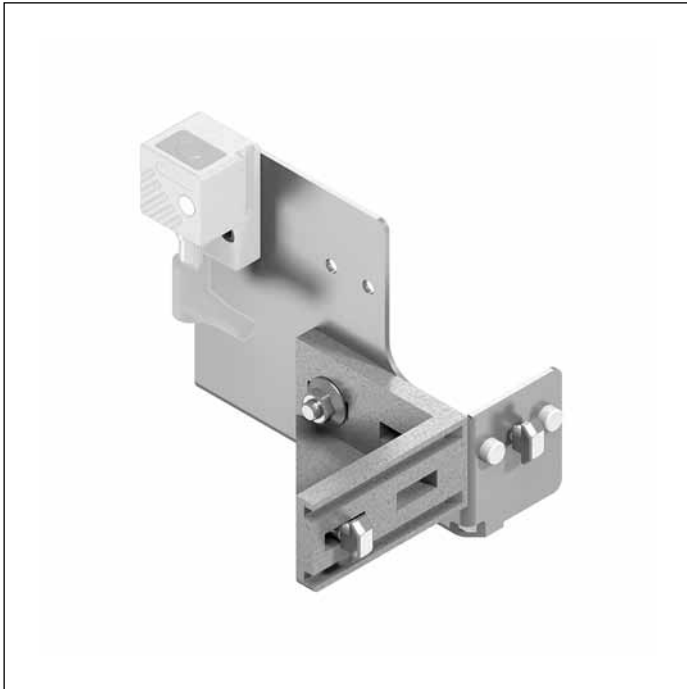
##### Mounting location:

- ▶ on the PE 5 positioning unit and HQ 5 lift transverse unit; not required for b = 455 mm (fitted to stop gate without assembly kit)

##### Scope of delivery:

- ▶ Incl. fastening material for assembly

## Accessories, sensor in Open Center Assembly kit for SH 2/U-H switch bracket

**Use:**

- ▶ Holding plate to bring the switch bracket into the correct inquiry position

**Version:**

- ▶ Centering lugs for pre-positioning and fast assembly

**Mounting location:**

- ▶ on the section profile

**Scope of delivery:**

- ▶ Incl. fastening material for assembly

**Condition on delivery:**

- ▶ Not assembled

**Required accessories:**

- ▶ SH 2/U-H switch bracket
- ▶ M12x1 sensor with  $S_N \geq 4$  mm rated sensing range, see p. 9-16

**SH 2/U-H assembly kit on ST 5/OC conveyor unit**

<b>b (mm)</b>	<b>Material number</b>
455; 650; 845	<b>3 842 545 533</b>

b = track width in direction of transport