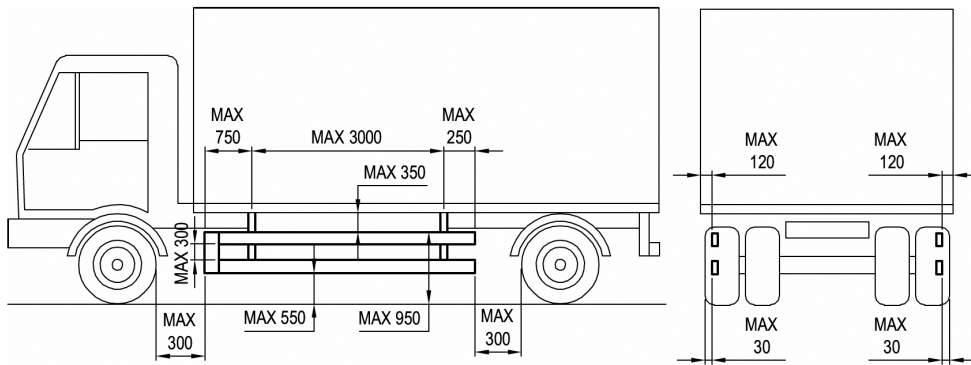


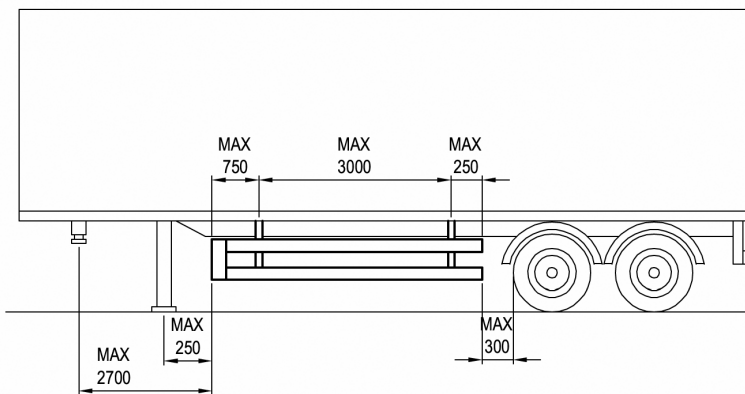
## **08** Structural Parts



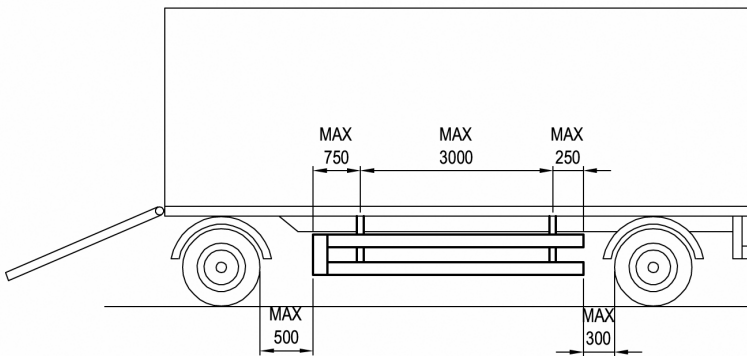
## Positioning and dimensioning of barriers



Regulation for side protection devices and vehicles of Class N2 over 3.5 tonnes up to 12 tonnes gross vehicle weight and N3 over 12 tonnes.



Regulation for side protection devices and vehicles of Class O3 and O4 (trailers and semi-trailers) over 3.5 tonnes up to 10 tonnes gross vehicle weight.



Regulation for side protection devices and vehicles of Class O3 and O4 (trailers and semi-trailers) over 3.5 tonnes up to 10 tonnes gross vehicle weight.

### Structural variant I with one longitudinal profile

For vehicles with a maximum construction height of **up to 1000 mm** measured between the carriageway and the lower edge of the vehicle.

### Structural variant II with two longitudinal profiles

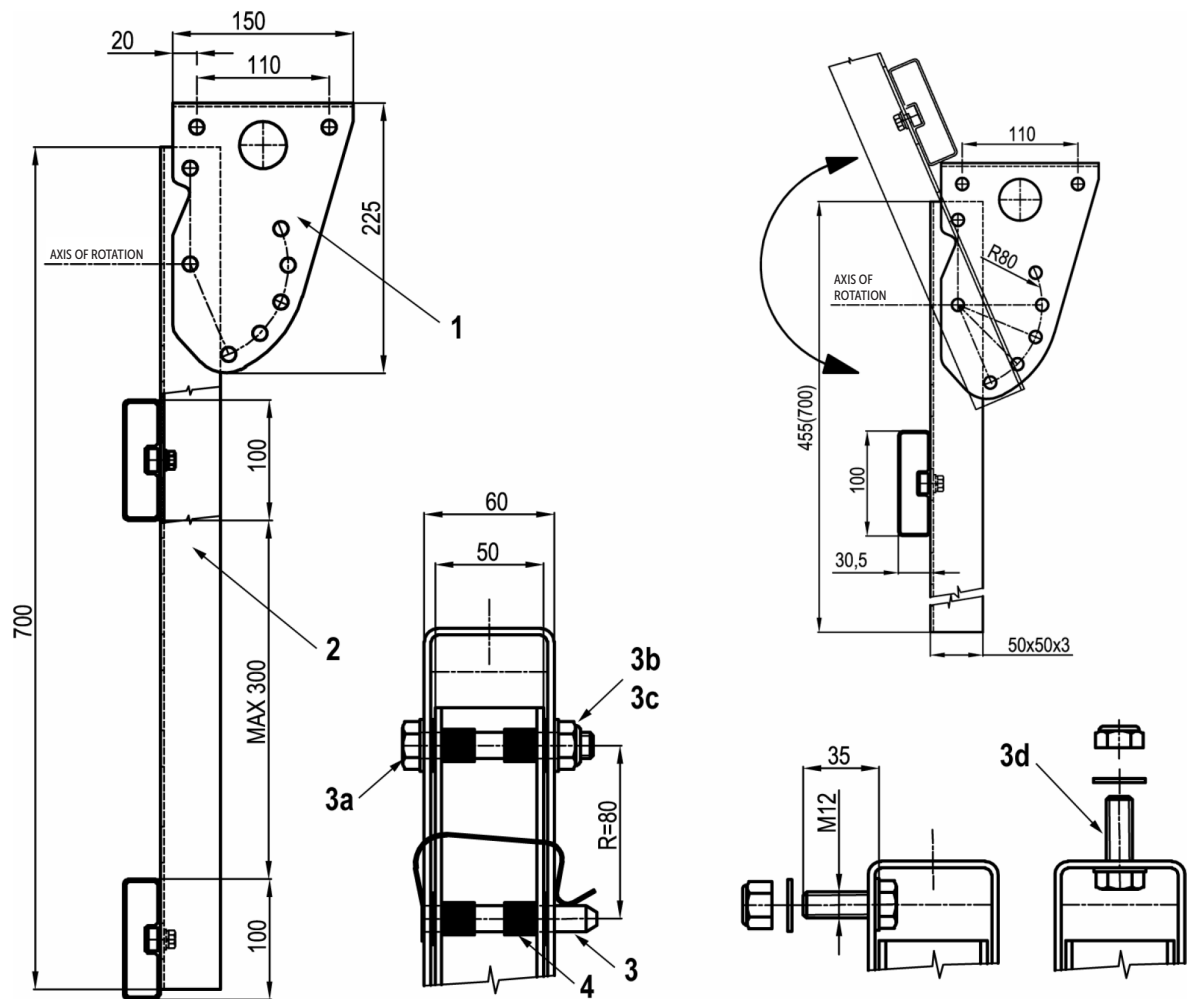
For vehicles with a maximum building height of **up to 1400 mm** measured between the carriageway and the lower edge of the vehicle.



# SIDE PROTECTION DEVICE

UNIVERSAL TILTABLE HOLDER - type VA POZINK

The product is identical to the type approved by the Ministry of Transport and Motorways of the Czech Republic under the number: 2000

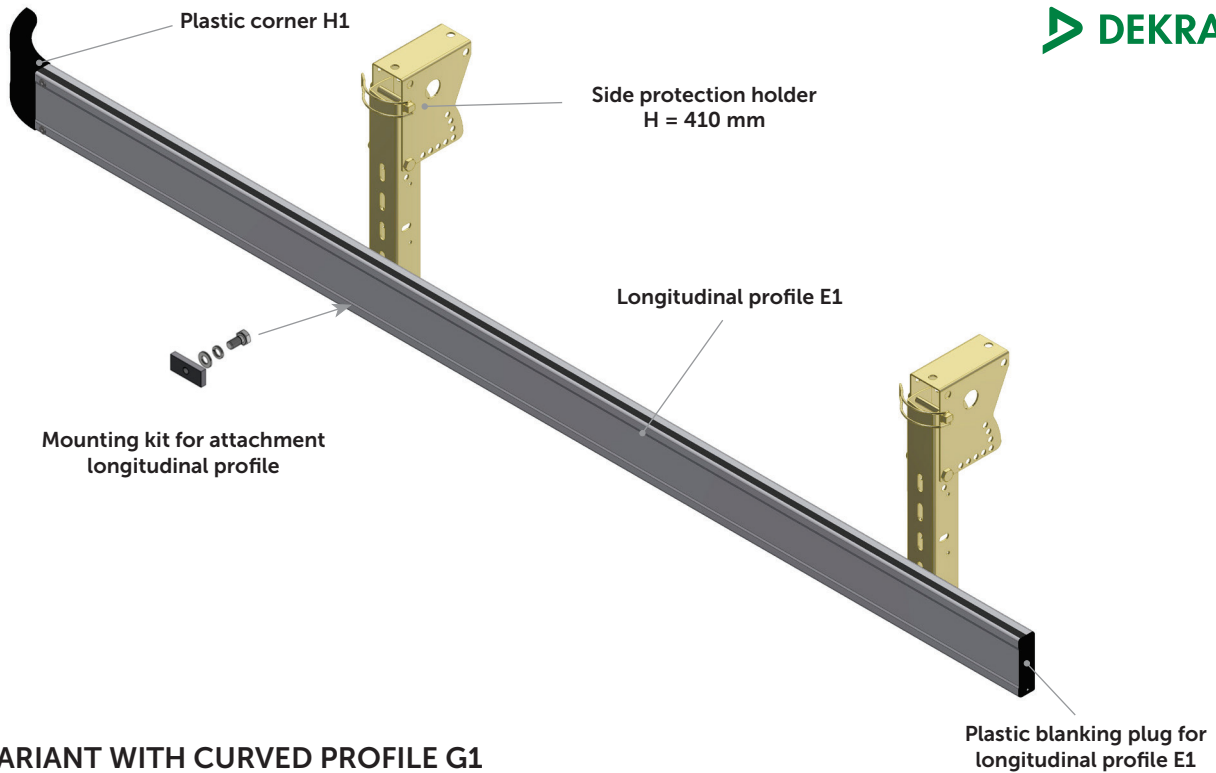


TT-number	Name of component	Position
0811001.000	VA holder - complete 450 mm	-
0811002.000	VA holder - complete 700 mm	-
0811003.000	Holder A	1
0811004.000	Holder B - 700 mm	2
0811005.000	Holder B - 450 mm	2
0811006.000	Flexible safety lock, 1 pc	3
	Screw M 12 x 80, CSN 02 1101.45, 1 pc	3a
	Washer 13, CSN 02 1702.15, 6 pcs	3b
	Self-locking nuts M 12, CSN 02 1492.15, 3 pcs	3c
	Screw M 12 x 35, CSN 02 1101.45, 2 pcs	3d
0811007.000	Plastic case, 4 pcs	4

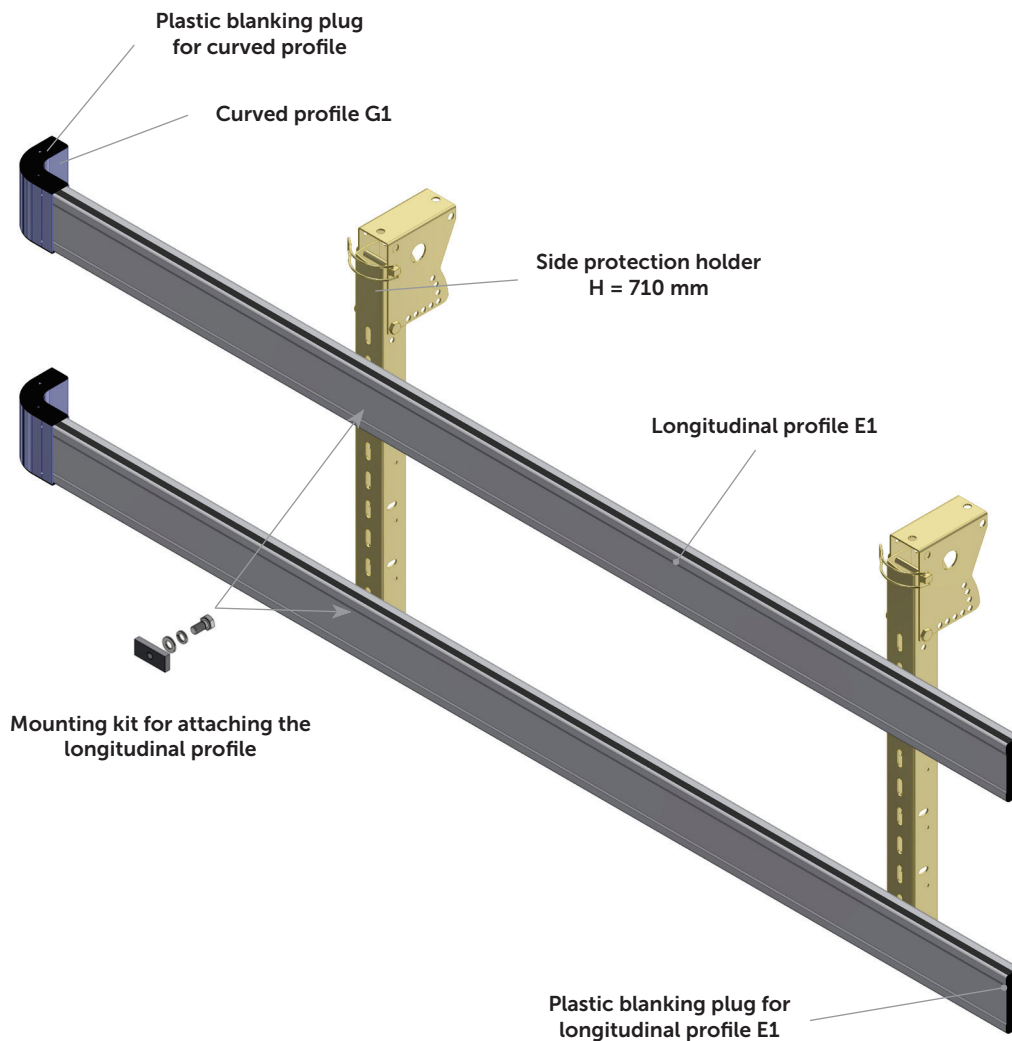


# SIDE PROTECTION DEVICE

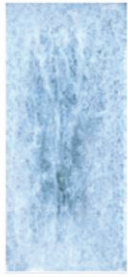
## VARIANT WITH PLASTIC CORNER H1



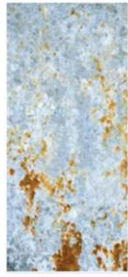
## VARIANT WITH CURVED PROFILE G1



# SIDE PROTECTION DEVICES - HOLDERS



**Magnelis**  
after 34 weeks



**galvanized steel**  
after 34 weeks



**galvanized**  
after 7 weeks

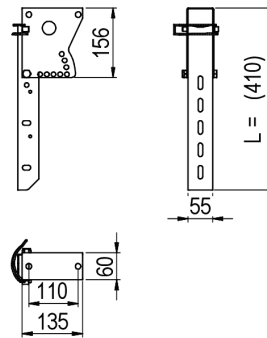
## ADVANTAGES OF MAGNELIS® SURFACE

Magnelis® A new metallic coating that offers protection from even the harshest elements

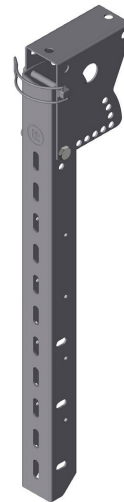
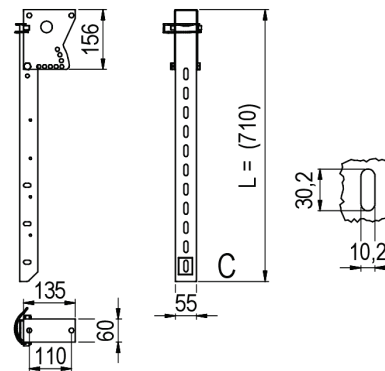
The chemical composition of the Magnelis® coating is optimized to ensure the highest corrosion resistance.

Magnelis® is applied in conventional industrial hot-dip galvanizing plants. However, the zinc bath has a different chemical composition: it contains 3.5% aluminium and 3% magnesium. The 3% magnesium content is crucial as it forms a stable and durable layer over the entire surface of the underlying metal, providing much more effective corrosion protection than coatings with a lower magnesium content. Magnelis® therefore has much better functional characteristics than conventional galvanizing.

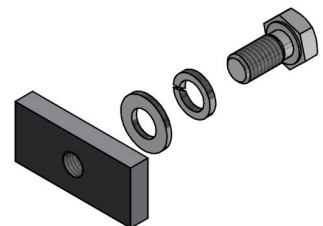
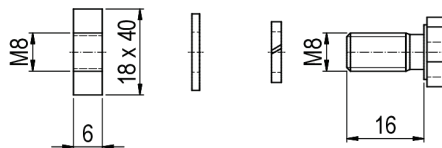
**0811045.410**  
**VA side protection holder, complete set**  
H = 410 mm  
Material: steel, Magnelis finish



**0811045.710**  
**VA side protection holder, complete set**  
H = 710 mm  
Material: steel, Magnelis finish



**Mounting kit for mounting the longitudinal profile screw + plate + washers**  
**0811017.000**  
Material: galvanized steel  
Weight: 0.05 kg/pc



# SIDE PROTECTION DEVICES - COMPONENTS

## Longitudinal profile E1

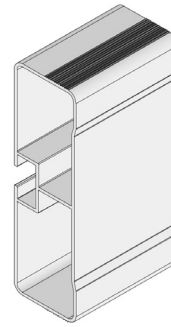
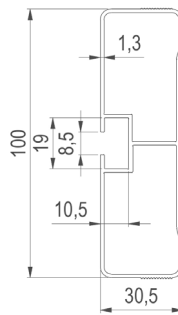
Material: Al

Weight: 1.08 kg/m

The profile is supplied in stock lengths, from which individual profiles can be cut in lengths according to customer requirements.

0811018.000 - Al anodized

0811019.000 - Al natural

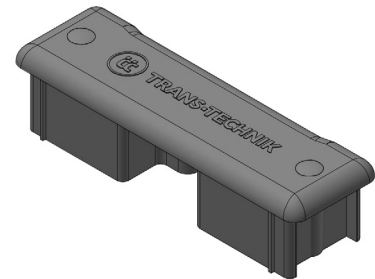
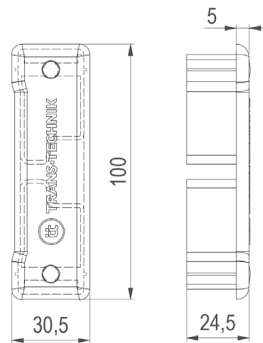


## Plastic blanking plug for longitudinal profile E1

0811013.100

Material: black plastic

Weight: 0.05 kg/pc

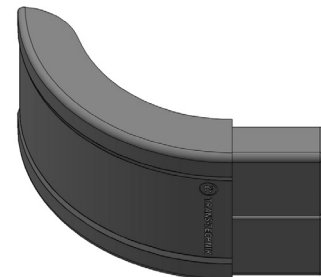
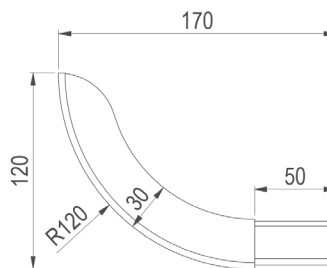


## Plastic corner for longitudinal barrier profile H1

0811011.100

Material: black plastic

Weight: 1.08 kg/m



## Curved profile G1

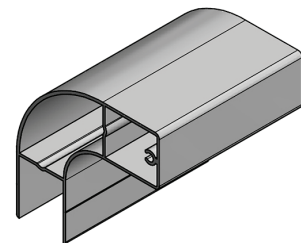
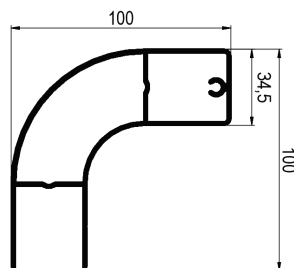
Material: Al

Weight: 1.08 kg/m

0811010.001 - L = 100 mm

0811010.036 - L = 360 mm

0811010.005 - L = 500 mm

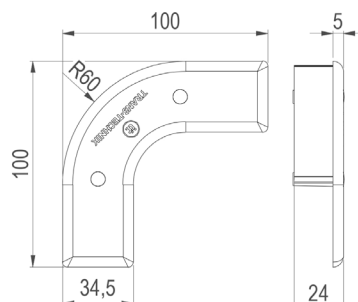


## Plastic blanking plug for curved profile G1

0811012.000

Material: black plastic

Weight: 0.08 kg/m



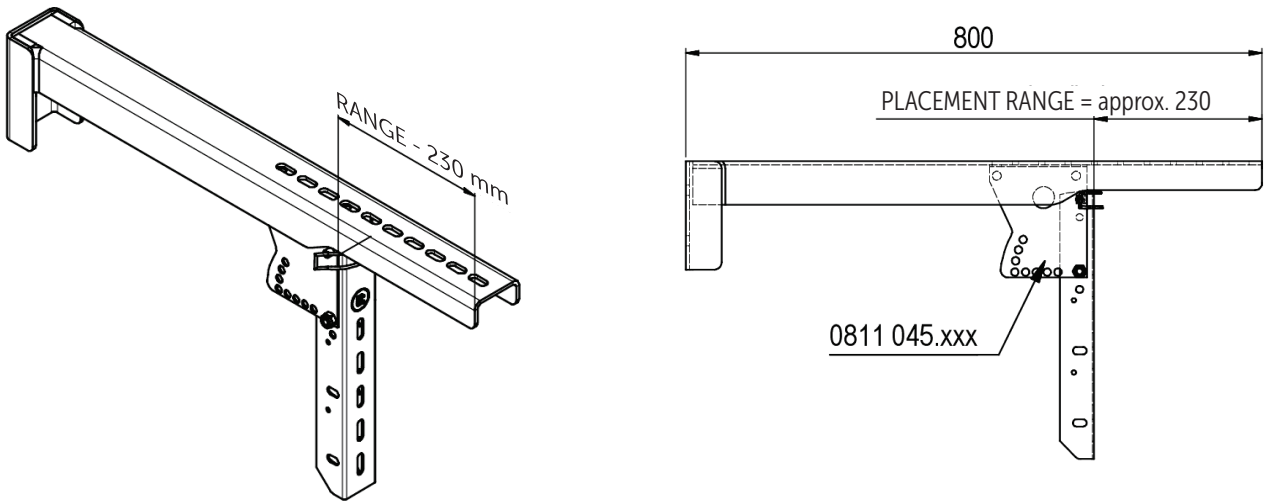
# SIDE PROTECTION DEVICES - COMPONENTS

Side protection holder, L = 800 mm, natural steel

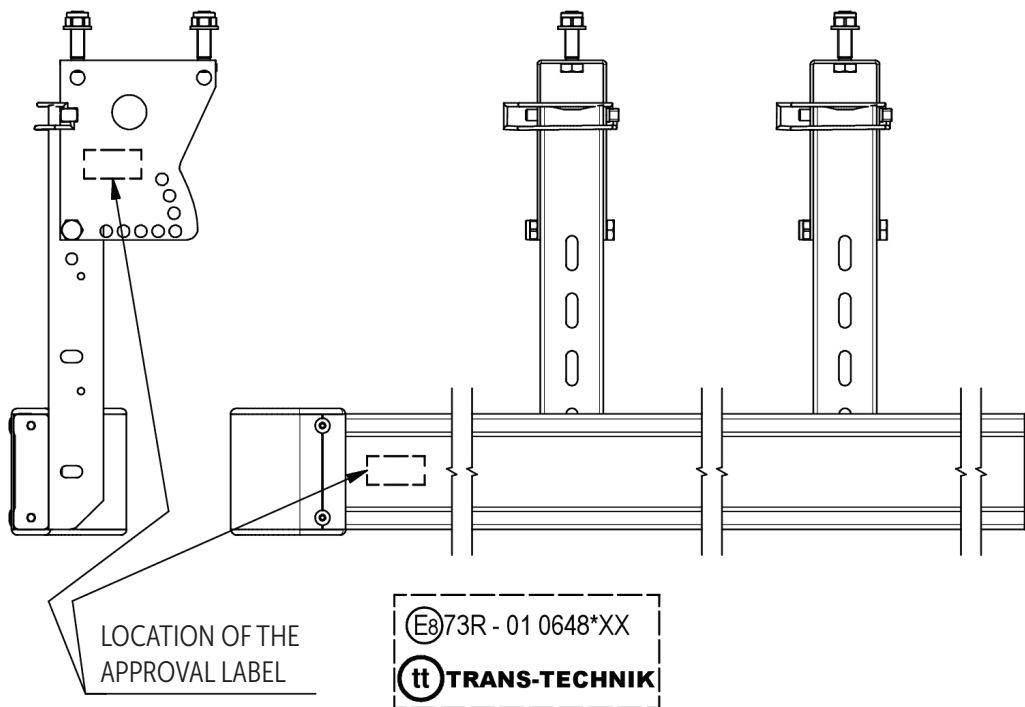
0811048.000

Material: natural steel

Weight: 6.0 kg/m



The device is approved as a whole.



## E8 73R – 1 0648\*02





# SIDE PROTECTION DEVICE

## 0811075.000

### Tiltable side protection holder AVIA L = 615 mm - complete set.

The location of the holders and the length of the barrier's lower Al profile are determined according to the installation instructions.

The product is identical to the type approved by the Ministry of Transport and Motorways of the Czech Republic under the number: 2000.

The set includes:

- 1x - Bracket L = 618 mm, including fasteners - material: galvanized steel
- 1x - Plastic blanking plug 40 x 40 mm - material: black plastic
- 1x - Plastic case (1x bag = 4 pcs) - material: black plastic
- 1x - Short rod - material: galvanized steel

## 0811076.000

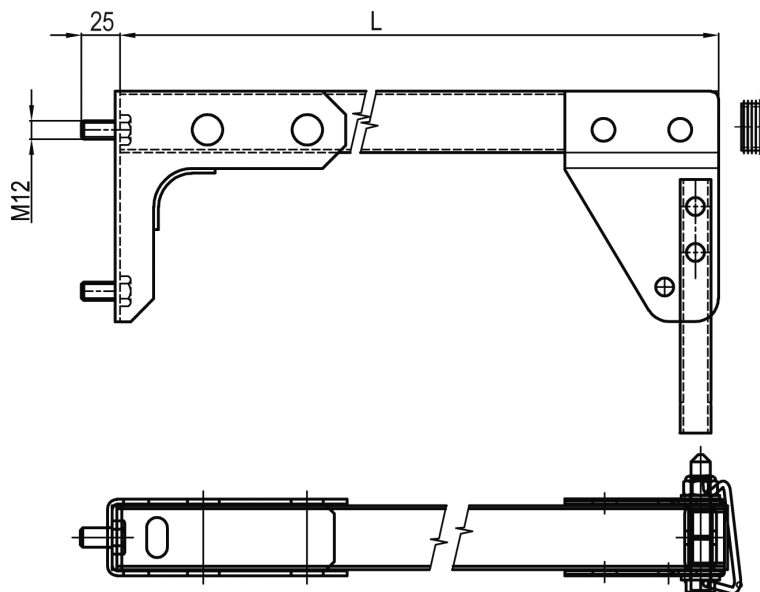
### Tiltable side protection holder AVIA L = 716 mm - complete set.

The location of the holders and the length of the barrier bottom Al profile are determined according to the installation instructions.

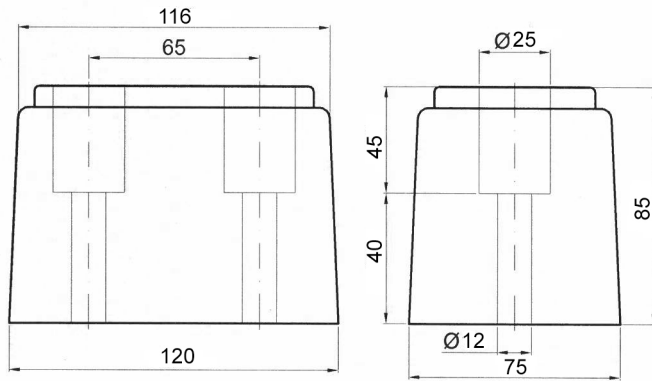
The product is identical to the type approved by the Ministry of Transport and Motorways of the Czech Republic under the number: 2000.

The set includes:

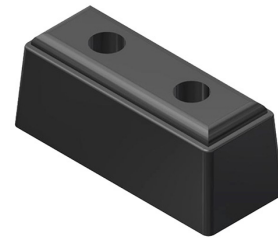
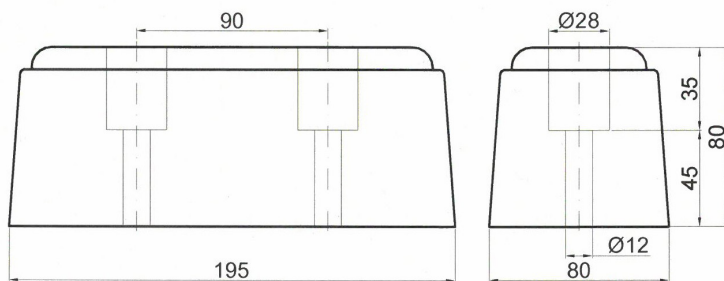
- 1x - Bracket L = 716 mm, including fasteners - material: galvanized steel
- 1x - Plastic blanking plug 40 x 40 mm - material: black plastic
- 1x - Plastic case (1x bag = 4 pcs) - material: black plastic
- 1x - Short rod - material: galvanized steel



**0821002.200**  
**116 x 75 x 85**  
 Weight: 0.750 kg/pc



**0821003.200**  
**195 x 80 x 80**  
 Weight: 1.180 kg/pc



**0821004.200**  
**210 x 50 x 55**  
 Weight: 0.600 kg/pc

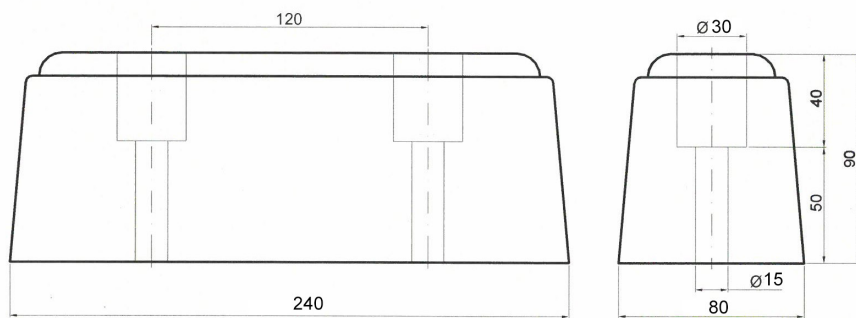


# RUBBER BUMPERS AND STOPS

**0821005.200**

**240 x 80 x 90**

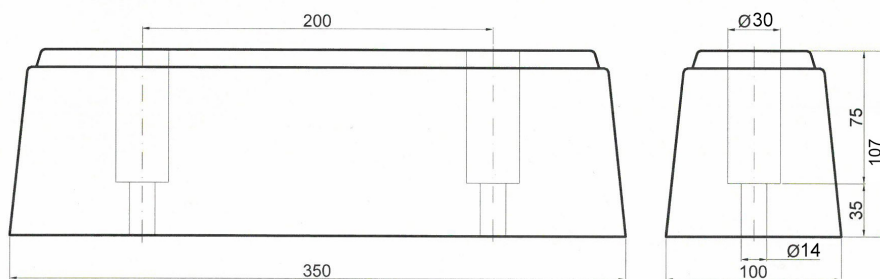
Weight: 1.650 kg/pc



**0821006.200**

**350 x 100 x 107**

Weight: 3.250 kg/pc



# RUBBER BUMPERS AND STOPS

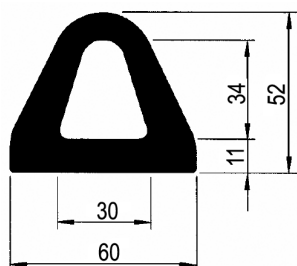
Rubber bumpers are used as protection when driving up and backing up to a ramp, for example, to protect the vehicle (sideboards) from damage.

Material: rubber

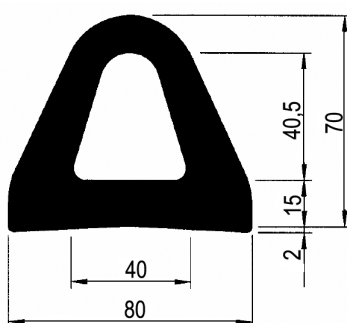
Colour: black

Length: 2,600 mm

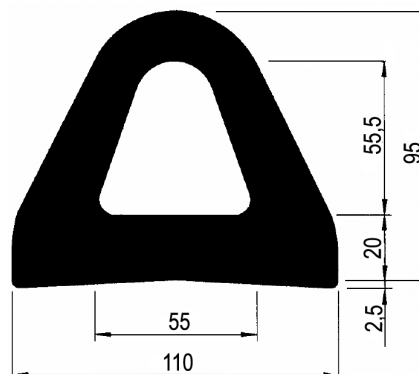
**0821021.000**  
**Bumper 60 x 52**  
 Weight: 2.0 kg



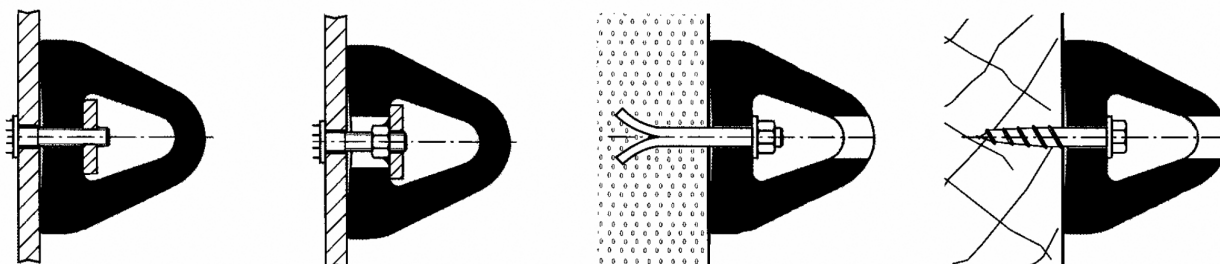
**0821022.000**  
**Bumper 80 x 70**  
 Weight: 3.0 kg



**0821023.000**  
**Bumper 110 x 95**  
 Weight: 7.0 kg

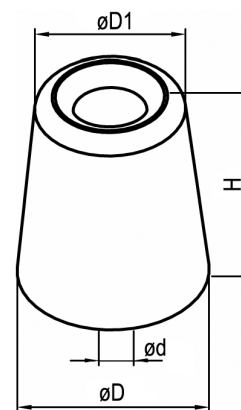


## Examples of mounting rubber bumpers



## Bumpers of circular cross-section

TT-number	ø D mm	ø D1 mm	ø d mm	H mm	Weight kg/pc
0821011.200	65	50	9	75	0.210
0821012.200	45	35	10	60	0.09
0821013.000	37	30	7	49	0.050
0821014.000	32	29	7	30	0.030



# PVC BUMPERS - STOP AND SEALING PROFILE

**0821031.000**

## PVC bumper

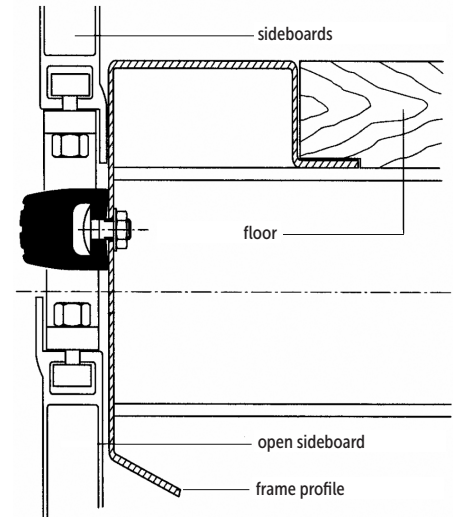
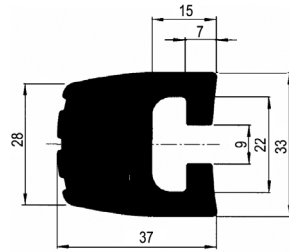
It is used as impact protection, especially for dropside superstructures and semi-trailers, when loading and unloading with forklifts and other handling equipment. Location - between the hinges on the outer frame of the dropside superstructure or trailer.

Material: hard PVC

Colour: black

Length: 3000 mm

Weight: 7.0 kg/pc



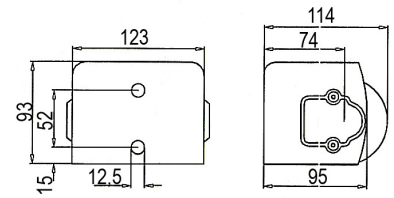
# RUBBER BUMPERS AND STOPS

**0821209.000**

**Rubber bumper, 1 roll**

Material: galvanized steel

Weight: 2.89 kg

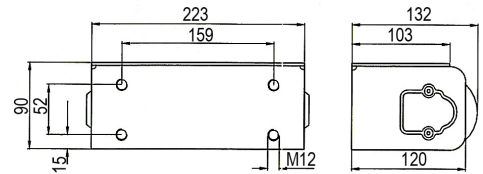
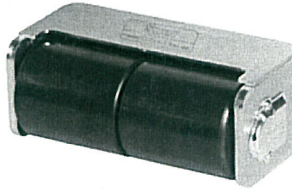


**0821211.000**

**Rubber bumper, 2 rolls**

Material: galvanized steel

Weight: 4.15 kg

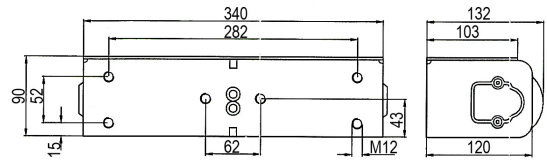
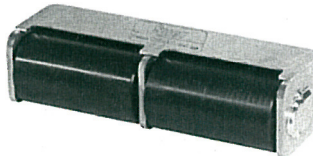


**0821212.000**

**Rubber bumper, 2 rolls**

Material: galvanized steel

Weight: 6.34 kg

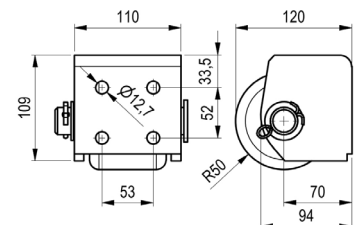
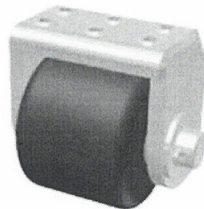


**0821213.000**

**Rubber bumper, 1 roll**

Material: galvanized steel

Weight: 6.34 kg

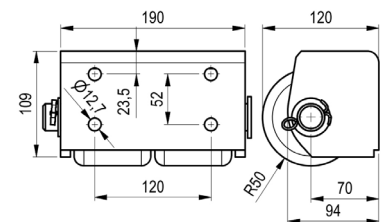
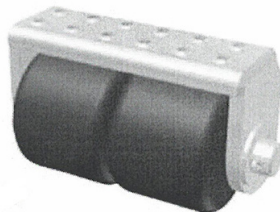


**0821214.000**

**Rubber bumper, 2 rolls**

Material: galvanized steel

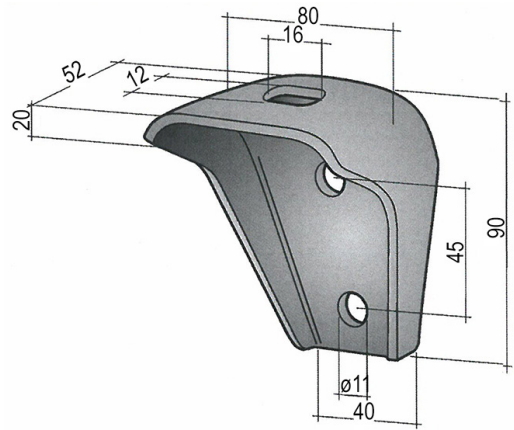
Weight: 6.34 kg



# CLAMPS FOR ATTACHING THE SUPERSTRUCTURE

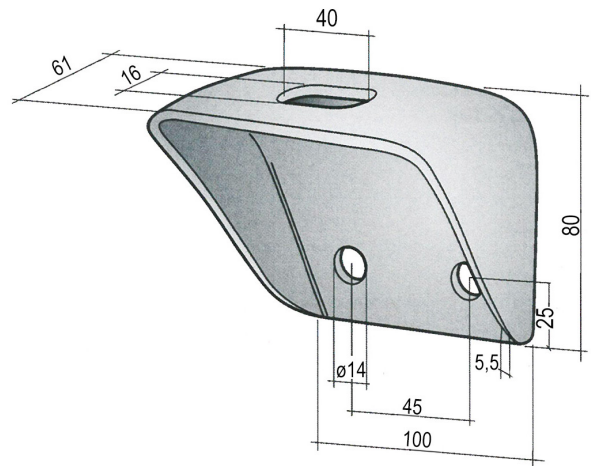
## Clamp 90 x 80

TT-number	Material	Weight kg/pc
0831001.250	galvanized steel	0.32



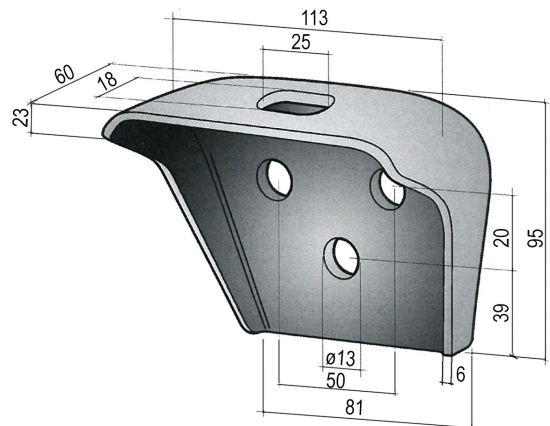
## Clamp 80 x 100

TT-number	Material	Weight kg/pc
0831002.200	steel black	0.550
0831002.250	galvanized steel	



## Clamp 95 x 113

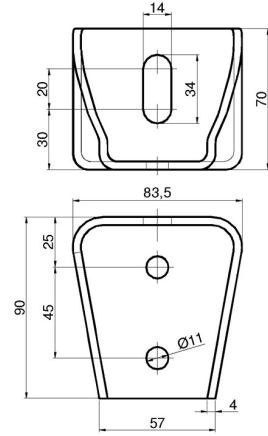
TT-number	Material	Weight kg/pc
0831005.200	steel black	0.720
0831005.250	galvanized steel	



# CLAMPS FOR ATTACHING THE SUPERSTRUCTURE

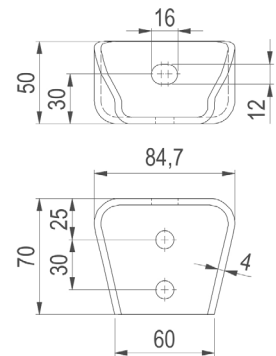
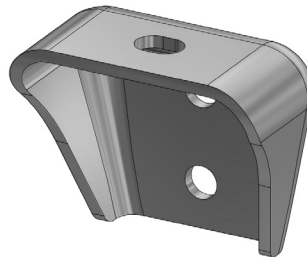
## Clamp 90 x 83.5 x 4

TT-number	Material	Weight kg/pc
0831012.000	galvanized steel	0.450



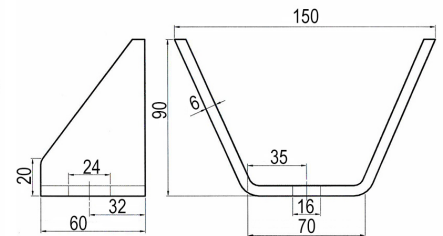
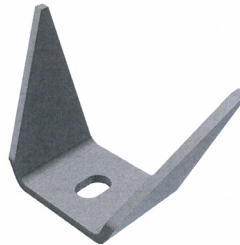
## Clamp 70 x 80

TT-number	Material	Weight kg/pc
0831013.000	steel black	0.3
0831013.100	galvanized steel	



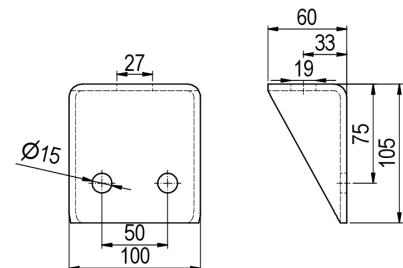
## Clamp 150x90 x 70x6, weldable

TT-number	Material	Weight kg/pc
0831014.000	natural steel	0.450



## Clamp 105 x 100

TT-number	Material	Weight kg/pc
0831017.100	galvanized steel	0.450





# CLAMPS FOR ATTACHING THE SUPERSTRUCTURE

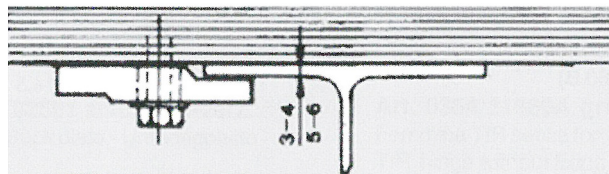
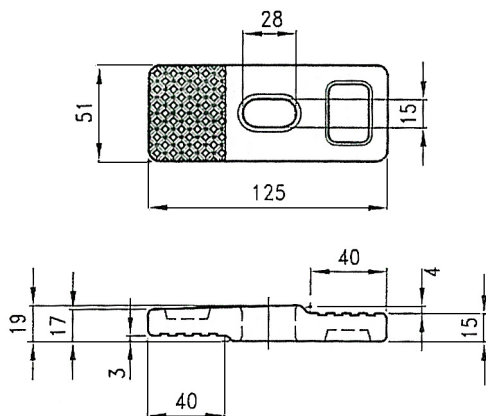
**0831007.010**

**Clamp**

Material: galvanized steel - forged  
Weight: 0.59 kg/pc

**Mounting method:**

for thickness 3-4/5-6 mm



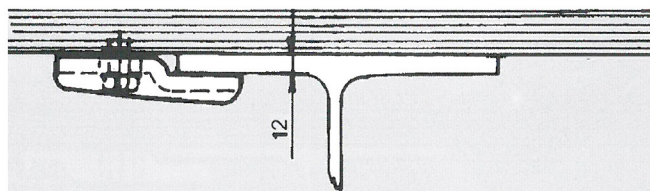
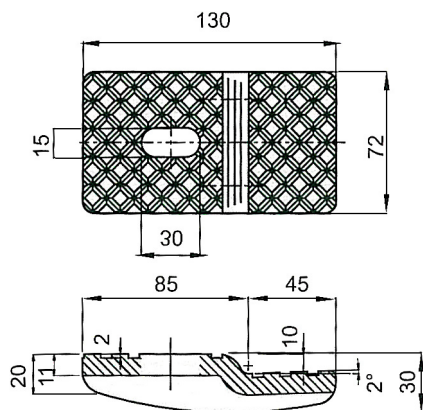
**0831008.000**

**Clamp**

Material: galvanized steel - forged  
Weight: 0.88 kg/pc

**Mounting method:**

for thickness 12 mm



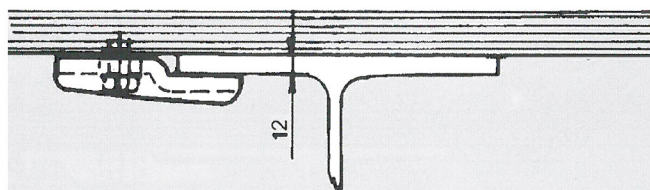
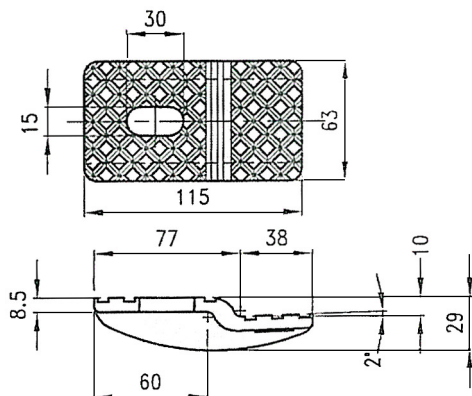
**0831009.000**

**Clamp**

Material: galvanized steel - forged  
weight: 0.55 kg/pc

**Mounting method:**

for thickness 12 mm



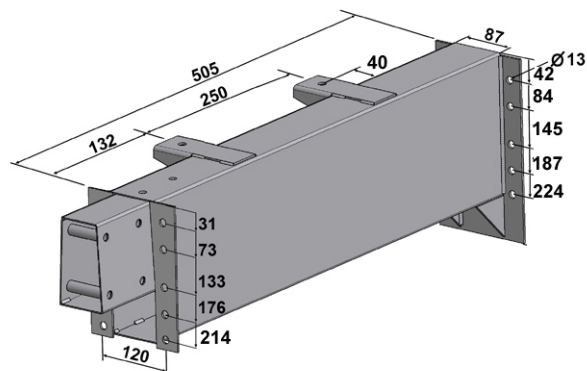
# FRAME EXTENSION

## 0832001.000

Frame extension CITROEN, FIAT, PEUGEOT, OPEL 2022

L = 505 mm

Set includes L+R design

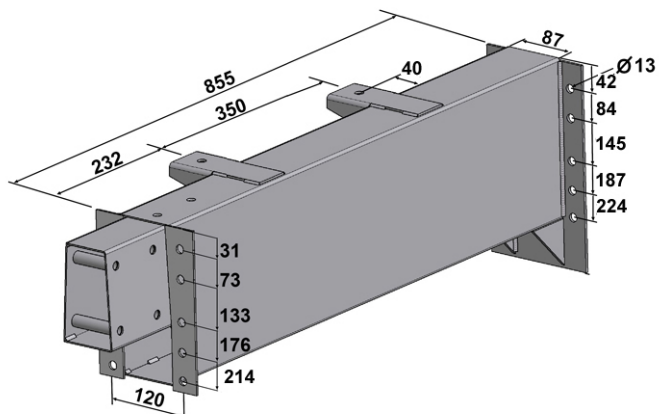


## 0832002.000

Frame extension CITROEN, FIAT, PEUGEOT, OPEL 2022

L = 855 mm

Set includes L+R design

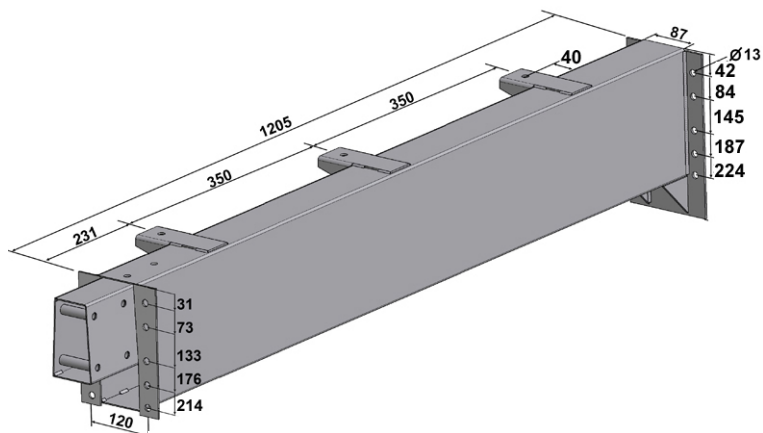


## 0832003.000

Frame extension CITROEN, FIAT, PEUGEOT, OPEL 2022

L = 1205 mm

Set includes L+R design



## 0832004.000

Extension cable for extension

CITROEN, FIAT, PEUGEOT, OPEL 2022



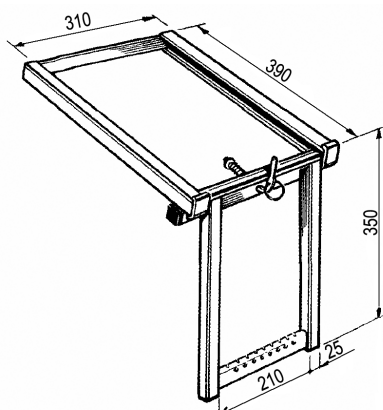
# STEPS AND FOOTRESTS - EXTENDABLE STEPS

Design: steel steps, pull-out.  
In the retracted position, secured by a spring-loaded locking hook.  
Material: hot-dip galvanized steel

## 0841001.000

### Extendable one-stage step

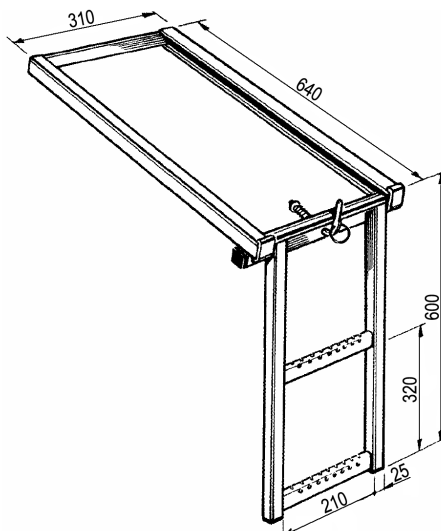
Weight: approx. 3.300 kg/pc



## 0841002.000

### Extendable two-stage steps

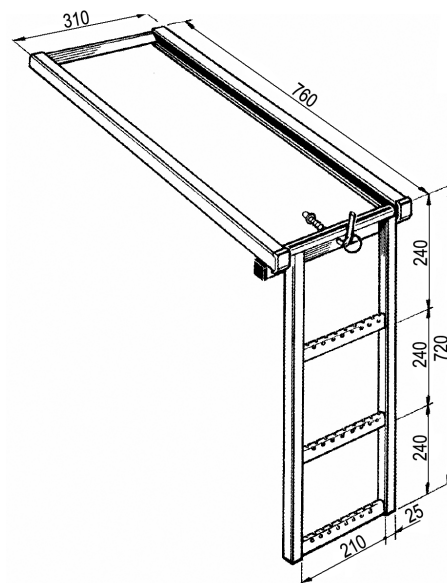
Weight: approx. 4.700 kg/pc



## 0841003.000

### Extendable three-stage steps

Weight: approx. 5.600 kg/pc



## 0841001.100

### Extendable one-stage step with footplates

Weight: approx. 3.310 kg/pc

## 0841002.100

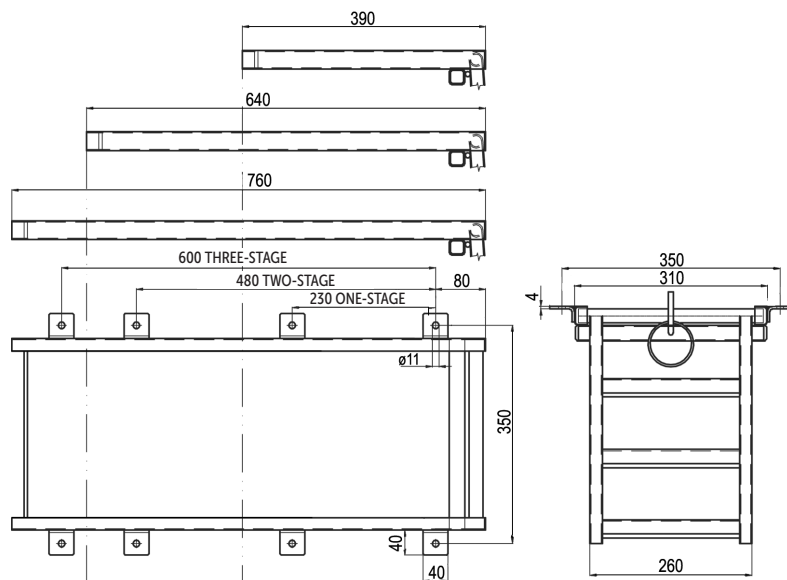
### Extendable two-stage steps with footplates

Weight: approx. 4.710 kg/pc

## 0841003.100

### Extendable three-stage steps with footplates

Weight: approx. 5.610 kg/pc

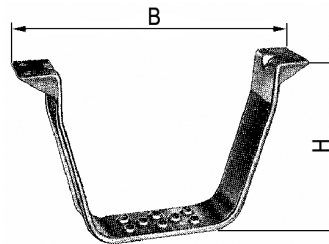


# STEPS AND FOOTPLATES - FIXED STEPS AND FOLDING FOOTPLATES

## 0841004.000

**Fixed steps (B x H) 405 x 240 mm**

Weight: 1.200 kg/pc



## 0841005.000

**Fixed steps (B x H) 420 x 360 mm**

Weight: 1.550 kg/pc

## 0841006.000

**Folding footplate with recessed bowl**

Suitable for rear wall made of Al sideboards profile

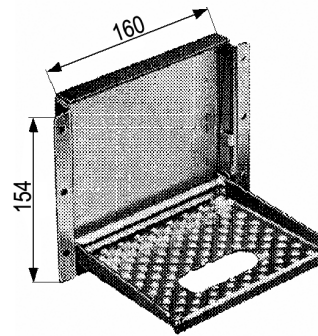
Foot plate size: approx. 150 x 130 x 21 mm

surface with anti-slip protrusions

6 fixing holes  $\varnothing$  5 mm

Material: galvanized steel

Weight: approx. 1.200 kg/pc



## 0841008.000

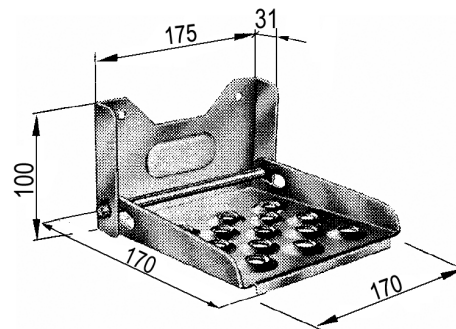
**Folding footplate**

Connection holes  $\varnothing$  8.4 mm

Footplate size: approx. 150 x 170

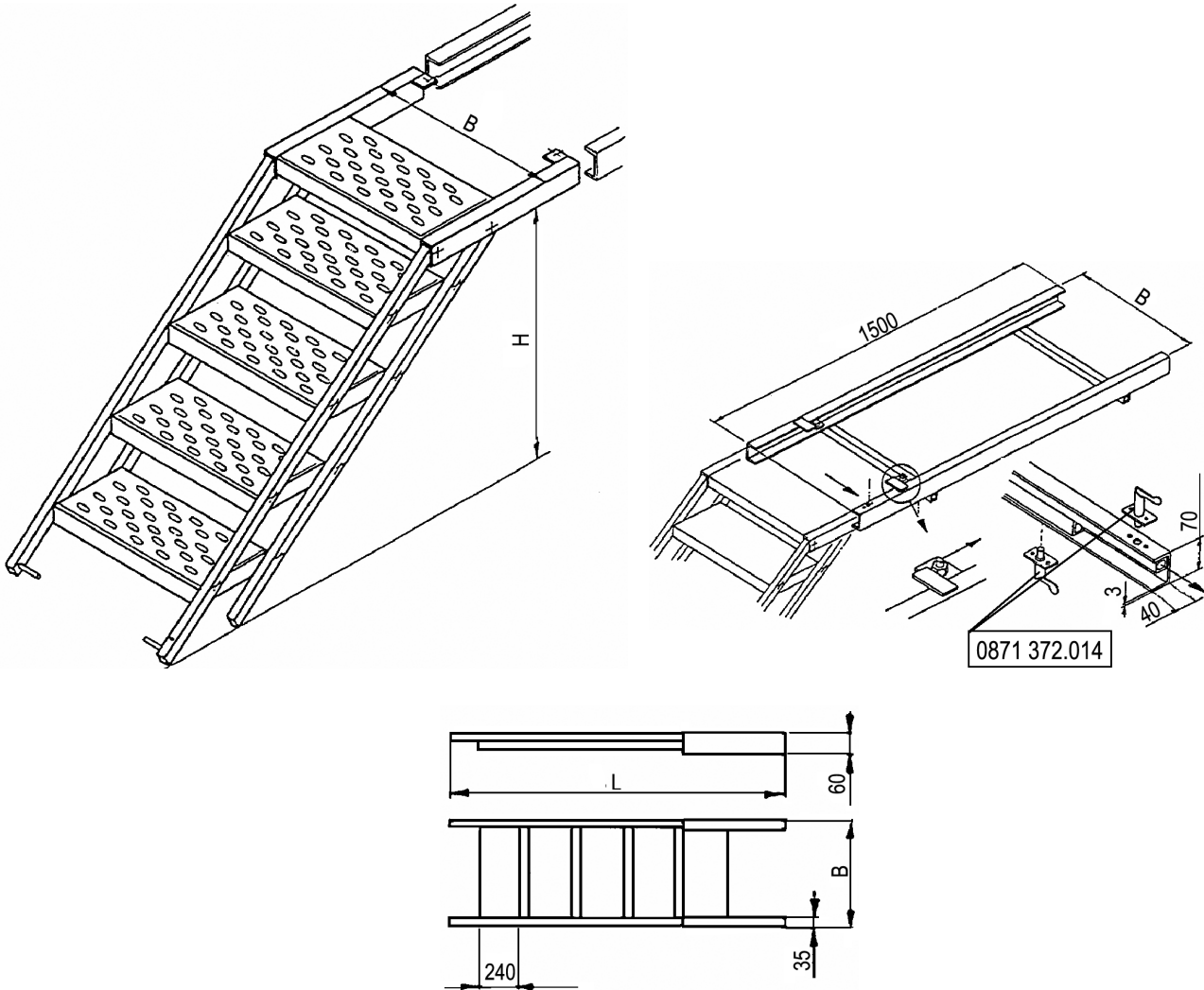
Material: galvanized steel

Weight: approx. 1.0 kg/pc



# STEPS AND FOOTPLATES - FOLDING STEPS

Folding steps  
Material: steel, hot-dip galvanized



TT-number	H = mm	B = mm ± 5 mm	L = mm ± 5 mm	Number of stages	Weight kg/pc
0841101.000	1100 - 1250	575	2470	7	39
0841102.000	950 - 1100		2185	6	32
0841103.000	800 - 950		1900	5	28
0841104.000	650 - 800		1615	4	22
0841109.000	1100 - 1250	845	2470	7	48
0841110.000	950 - 1100		2185	6	42
0841111.000	800 - 950		1900	5	35
0841112.000	650 - 800		1615	4	29
<b>Spare parts</b>					
0871372.014	Swivel belay device		galvanized steel	0.165	

The extendable steps are supplied as a complete set including the conduit (frame)



# STEPS AND FOOTPLATES - FOLDING STEPS

Folding steps  
Material: steel, hot-dip galvanized



0841114.000



0841115.000



0841140.000



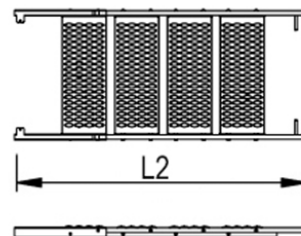
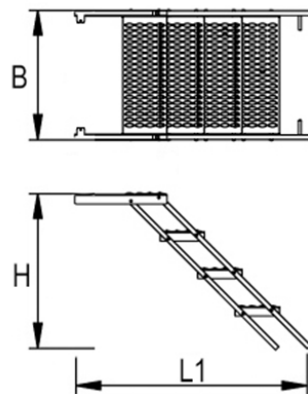
0841116.000



0841117.000



0841142.000



TT-number	B mm	H mm	L1 mm	L2 mm	Number of stages	Weight kg/pc
0841114.000	706	639	1068	1307	3	18.9
0841115.000		841	1269	1592	4	24.6
0841116.000		1042	1471	1877	5	26.0
0841117.000		1244	1672	2162	6	35.7
0841140.000	Step conduit B = 710 mm, L = 1210 mm, hot dip galvanized					
0841142.000	Step conduit B = 710 mm, L = 2065 mm, hot dip galvanized					

# STEPS AND FOOTPLATES - FOLDING STEPS WITH HANDRAIL

Folding steps with handrail  
Material: steel, hot-dip galvanized



0841123.000



0841124.000



0841125.000



0841126.000

TT-number	B mm	H mm	L1 mm	L2 mm	Number of stages	Weight kg/pc
0841123.000	757	690	2150	1330	3	41.3
0841124.000		891	2634	1615	4	46.5
0841125.000		1093	3115	1900	5	53.8
0841126.000		1294	3606	2185	6	61.6



# STEPS AND FOOTPLATES - FOLDING STEPS

Folding steps with swivel handrail  
Material: steel, hot-dip galvanized



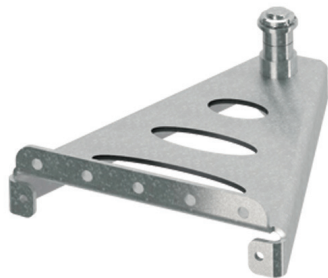
0841135.000



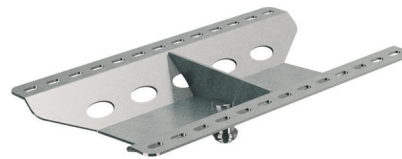
0841136.000



0841137.000



0841138.000



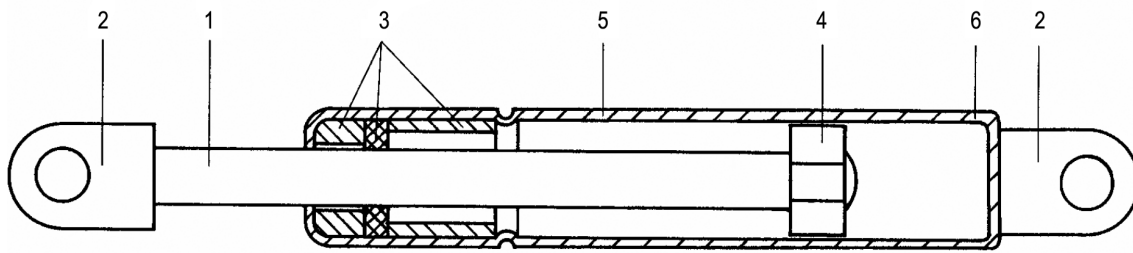
0841139.000

TT-number	B mm	H mm	L1 mm	L2 mm	Number of stages	Weight kg/pc
0841135.000	600	866	1380	1707	4	43.1
0841136.000		1069	1564	1988	5	47.41
0841137.000		1264	1781	2273	6	52.46
0841138.000	Chassis holder for swivel steps, hot-dip galvanized					
0841139.000	Flat holders for swivel steps, hot-dip galvanized					

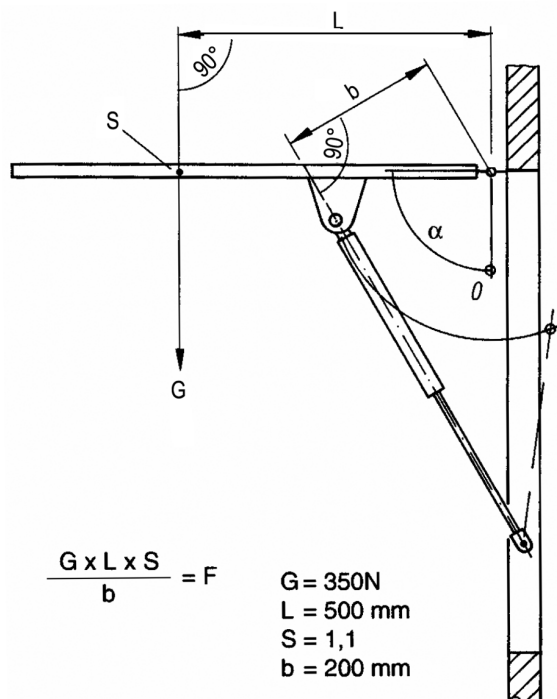




# GAS SPRINGS - DESIGN, FUNCTION, CALCULATION



The gas spring consists of a cylinder (5) which is gas-tight sealed on one side by an end latch (6) and on the other side by a sealing system (3). The piston rod (1) is guided axially by the sealing system, at the end of which a piston (4) is fixed; the piston has the functions of a conduit and shock absorber and, at the same time, limits the displacement of the piston rod. The outer ends of the piston rod and cylinder are fitted with corresponding fixing lugs. (Additional fasteners supplied to order).  
The sealing system (3) in the cylinder (5) seals the gas-filled cylinder against the atmosphere. The required lifting force is achieved by filling the cylinder with a defined gas pressure. By retracting the piston rod (1) the gas pressure is increased. This increase in pressure is a measure of the increase in the gas spring force when the piston rod is retracted. The overall result is the lifting force (F).



$$\frac{G \times L \times S}{b} = F$$

G = 350N  
L = 500 mm  
S = 1,1  
b = 200 mm

$$\frac{350 \times 500 \times 1,1}{200} = 963 \text{ N}$$

## Calculation of pressure struts

See picture (example of folding door):

1. G = weight of the door
2. L = distance of the centre of gravity from the axis of rotation
3. S = safety coefficient = 1.1
4. b = distance of the gas spring mounting on the door from the axis of rotation; b can be selected as the gas spring stroke minus 50 mm
5. F = strut force (result)

Door weight **G times the** horizontal distance of the centre of gravity from the axis of rotation **L**, **divided by** the effective lever arm of the gas springs **b** (smallest distance from the axis of rotation), times S = 1.1 (safety coefficient 10%) = **lifting force F**.

The formula and an example calculation are shown in the adjacent figure.

Please pay attention to our installation instructions and recommendations for proper installation and efficient operation with regard to the deadlocking and damping process when extending the piston rod.



# GAS SPRINGS - INSTALLATION AND MAINTENANCE

If your **gas springs** are to perform their function in the long term, please pay attention to the following recommendations:

**Caution:** there is high pressure in the cylinder

## Therefore:

1. Do not dismantle the pressure struts - this applies to all types of pressure struts.
2. Avoid exposure to heat, for example, do not weld on gas springs!
3. Prevent damage and contamination of the piston rod! This applies to scratches and scuffs, as well as contamination from used lubricants, paint, etc.
4. Where possible, fit our locking shackles together with the gas spring.

Wind pressure or heavy layers of snow can change the weight of the door or cap and therefore also overcome the force of the gas spring.

## Assembly:

1. **Mount the piston rod in a downwards direction, see page 25!** Thanks to this mounting position, the damping effect of the gas spring is fully operational at the end of the piston rod stroke. In addition, the piston rod is constantly lubricated and the sealing system in the cylinder is kept in a pliable state. The gas springs have damping towards the end of the stroke.

2. **Avoid a crossover of the gas spring!** A crossover causes wear on the conduit, bearings and attachment fittings and puts a strain on the sealing system in the strut cylinder. In order to avoid crossing over the strut, a certain consistency in the assembly of the fixing and bearing fittings is required.

## Maintenance:

**Lubricate the eyes of fastening and bearing fittings with oil from time to time! Do not use grease!** Closing via deadlock, extension speed control, hydraulic damping in extended position.

1. Corresponding choice of position of the push rod clamping point: for example, the door can be pressed by the gas spring in the closed position (closing via the dead centre), it can be opened immediately when unlocked or it can be lifted independently only after a certain opening angle has been reached.
2. The desired opening speed can also be achieved by selecting the clamping point.
3. Shortly before the piston rod is fully extended (before the piston hits the end position), hydraulic damping occurs.

The operating temperature for the struts is -30 to +80°C.

Store piston rod in the down position.

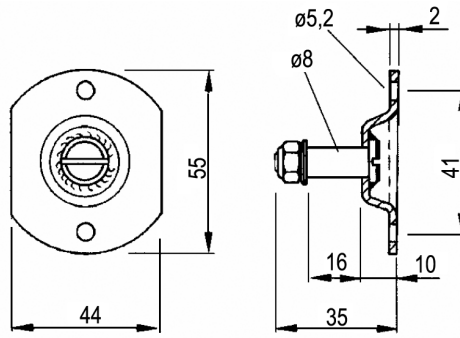


## 0851201.000

### Gas spring pin

Material: galvanized steel

Weight: 0.045 kg/pc

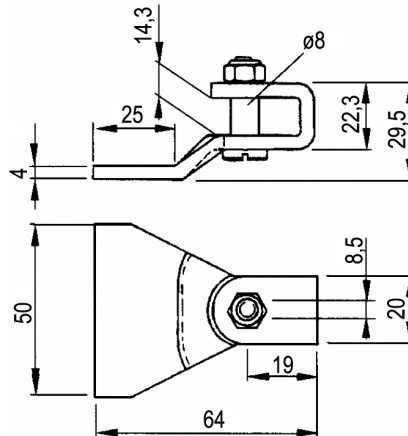


## 0851202.000

### Gas spring shackle

Material: galvanized steel

Weight: 0.095 kg/pc

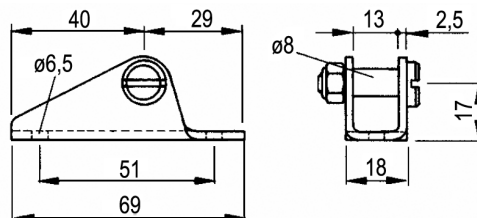


## 0851203.000

### Gas spring foot - small

Material: galvanized steel

Weight: 0.065 kg/pc

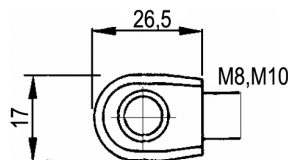


## 0851204.000

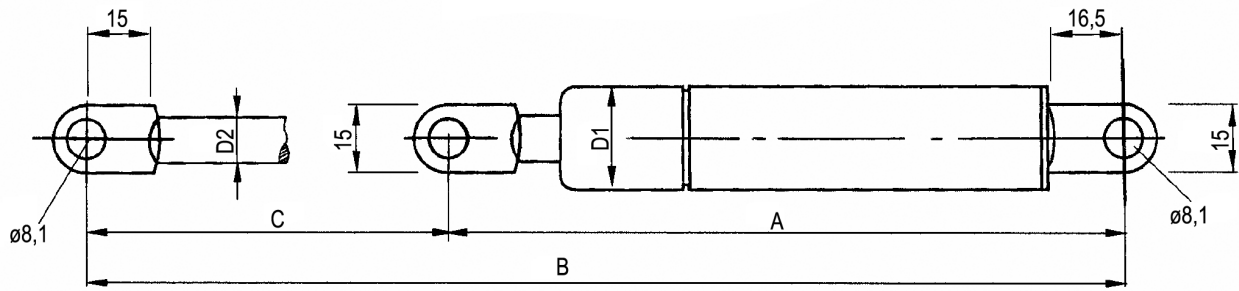
### Gas spring eye M8

## 0851205.000

### Gas spring eye M10



# GAS SPRINGS WITH WELDED LUGS



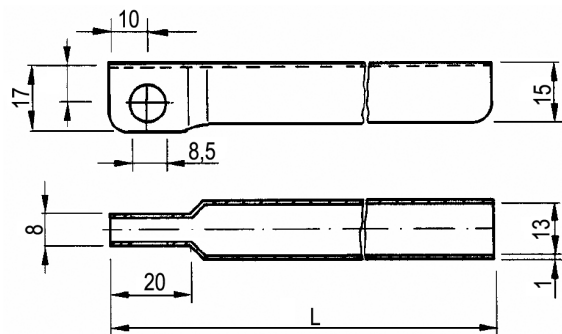
TT-number	Force F N	Stroke C mm	Length		Cylinder D1 mm	Piston rod D2 mm	Weight approx. kg/pc	Locking shackle TT-number	Length 3 L mm
			A mm	B mm					
0851508.010	100	85	170	255	19	8	0.18	-	-
0851510.025	250	100	185	285	22	10	0.265	0851010.000	130
0851510.035	350								
0851510.050	500								
0851515.025	250	150	235	385			0.330	0851015.000	177
0851515.050	500								
0851515.075	750								
0851515.100	1000								
0851515.115	1150	200	285	485			0.400	0851020.000	230
0851520.025	250								
0851520.050	500								
0851520.075	750								
0851520.100	1000								
0851520.115	1150								
0851525.025	250	250	335	585			0.470	0851025.000	276
0851525.050	500								
0851525.075	750								
0851525.100	1000								
0851525.115	1150	300	385	685	0.550	0851030.000	328		
0851530.050	500								
0851530.075	750								
0851530.100	1000								
0851530.115	1150	400	490	890	0.650	0851040.000	433		
0851540.050	500								
0851540.075	750								
0851540.095	950								

## Locking shackle for gas springs

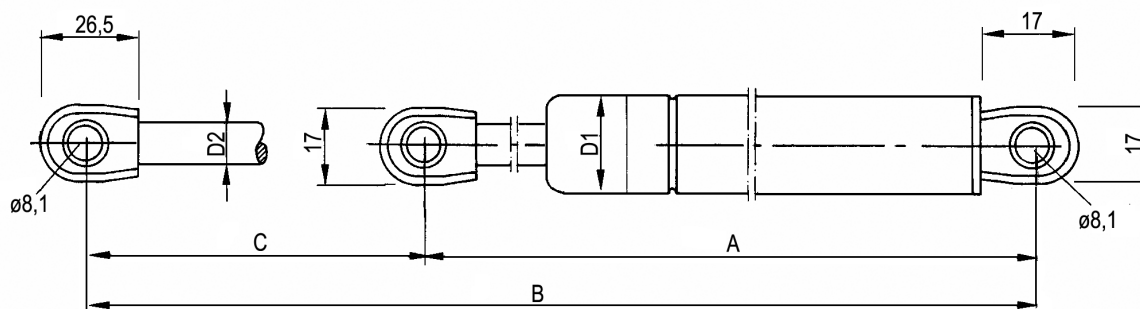
TT-number: see table

Material: galvanized steel

Used to secure the loaded strut in the extended position



# GAS SPRINGS WITH SCREW-IN LUGS



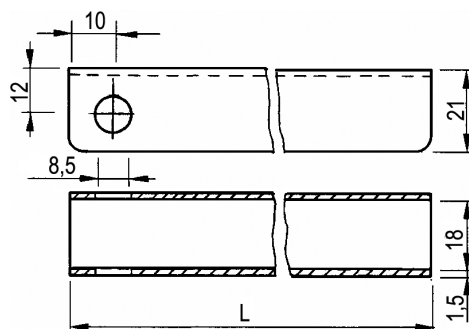
TT-number	Force F N	Stroke C mm	Length		Cylinder D1 mm	Piston rod D2 mm	Weight approx. kg/pc	Locking shackle TT-number	Length 3 L mm
			A mm	B mm					
0851410.025	250	100	201	300.5	22	10	0.290	0851110.000	113
0851410.050	500	100	201	300.5					
0851415.025	250	150	295	444.5			0.392	0851110.000	173
0851415.050	500								
0851415.075	750								
0851415.100	1000	200	305	504.5			0.432	0851120.000	223
0851420.025	250								
0851420.050	500								
0851420.075	750								
0851425.025	250	250	402	651.5			0.540	0851125.000	273
0851425.050	500								
0851425.075	750								
0851430.050	500	300	451	750.5	0.611	0851125.000	323		
0851430.075	750								
0851430.100	1000		450	749.5					
0851430.125	1250								
0851430.150	1500	400	496.5	896.5	1.090				
0851440.050	500								
0851440.075	750								
0851440.100	1000								
0851440.125	1250								
0851440.150	1500								
0851440.200	2000								

## Locking shackle for gas springs

TT-number: see table

Material: galvanized steel

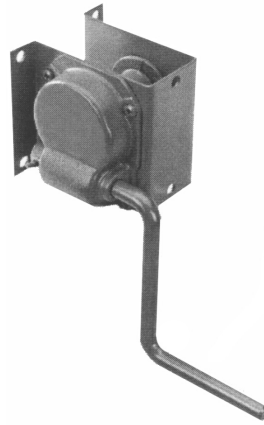
Used to secure the loaded strut in the extended position



## 0861005.500

### Reserve jack

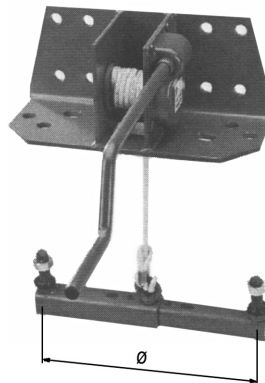
Load capacity: 250 kg  
Rope: length 3.3 m,  $\varnothing$  6 or 8 mm  
- not included  
Material: steel  
Weight: 4.100 kg



## 0861006.000

### Reserve jack - complete set

Suitable for wheel disc with hole spacing  $\varnothing$  205, 225, 275 and 335 mm with 6, 8 and 10 holes  
Load capacity: 250 kg  
Rope: length 1.75 m,  $\varnothing$  8 mm  
- is included as standard  
Material: steel  
Weight: 16.0 kg



## OTHER ACCESSORIES - FLEXIBLE HOLDERS

### 0871001.000

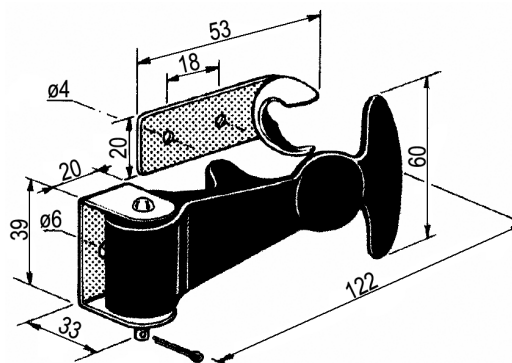
#### Rubber holder - complete

Material: flexible part - rubber

metal parts - galvanized steel

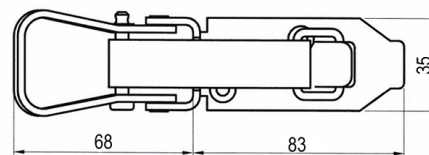
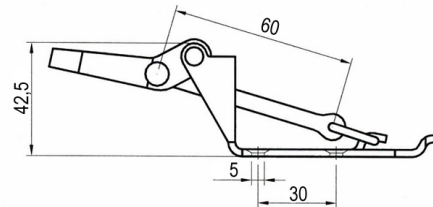
Weight: 0.117 kg/pc

TT-number	Name	Weight kg/pc
0871002.000	Flexible rubber part	0.055
0871003.000	Hitch	0.036
0871004.000	Counterpart for anchoring the flexible part	0.020
0871005.000	Pin, cotter pin	0.006



# OTHER ACCESSORIES - TOOL HOLDERS

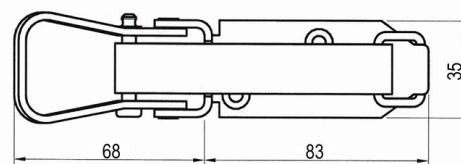
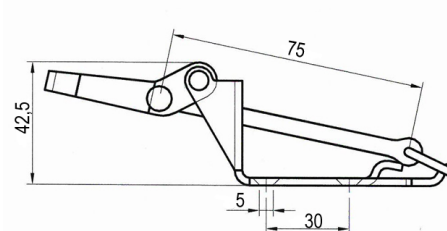
**0871020.000**  
**Tool holder, small type**  
 for shafts  $\varnothing$  28-40 mm  
 Weight: 0.145 kg/pc



**0871020.100**  
**Tensioning rubber - ND**  
 Weight: 0.01 kg/pc



**0871021.000**  
**Tool holder, large type**  
 for shafts  $\varnothing$  40-80 mm  
 Weight: 0.145 kg/pc



**0871021.100**  
**Tensioning rubber - ND**  
 Weight: 0.01 kg/pc



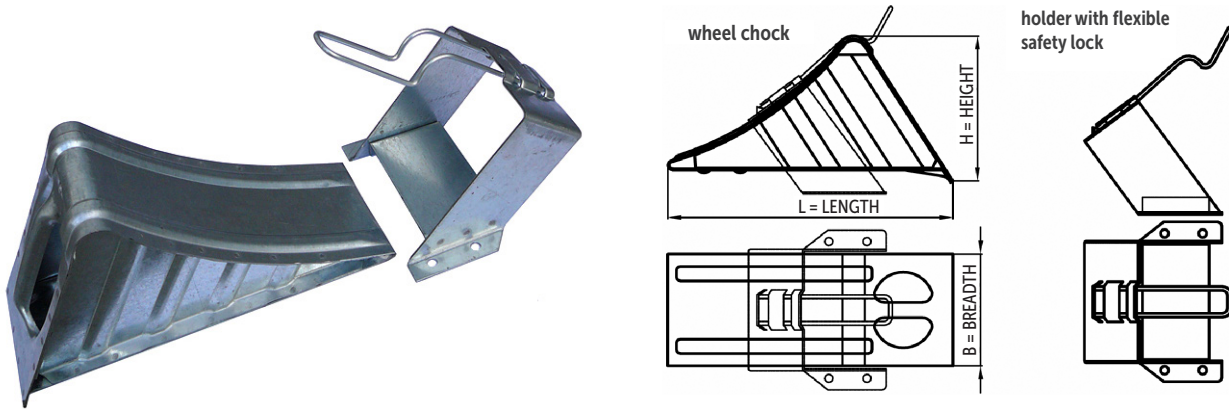
**0871022.000**  
**Tool holder, universal**  
 for shafts  $\varnothing$  20-27 mm



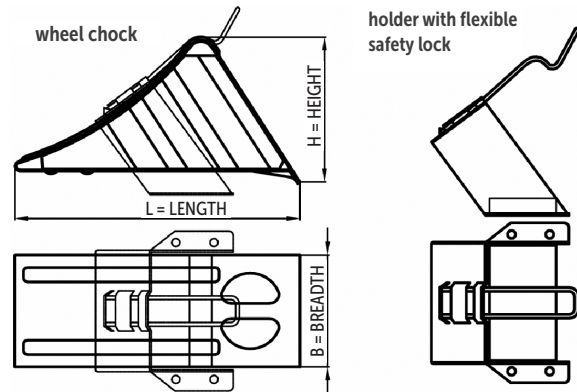
**0871023.000**  
**Tool holder, universal**  
 for shafts  $\varnothing$  28-41 mm



# OTHER ACCESSORIES - WHEEL CHOCKS



Wheel chocks - galvanized steel							Wheel chock holders - galvanized steel	
TT-number	Radius approx. mm	Length mm	Width mm	Height mm	Wheel chock load max. kg	Weight kg/pc	TT-number	Weight kg/pc
0871101.000	360	260	120	145	1600	1.2	0871104.000	0.600
0871102.000	460	360	160	190	5000	3.0	0871105.000	1.300
0871103.000	560	470	200	230	6500	4.5	0871106.000	2.200



Wheel chocks - plastic, yellow							Wheel chock holders - galvanized steel	
TT-number	Radius approx. mm	Length mm	Width mm	Height mm	Weight kg/pc	TT-number	Weight kg/pc	
0871109.200	355	336	123	148	0.49	0871104.000	0.6	
0871110.200	460	383	160	190	0.75	0871105.000	1.3	
0871111.200	555	467	198	225	1.19	0871106.000	2.2	

## 0871201.000

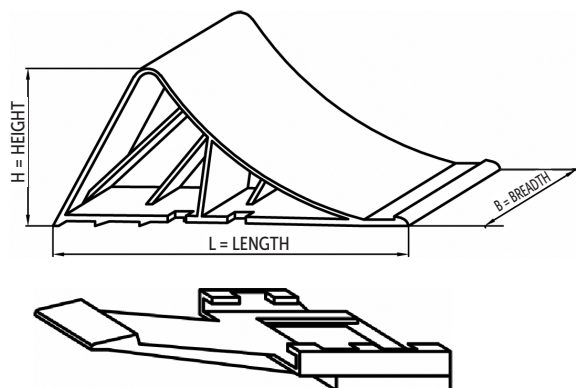
### Wheel chock

Material: PE - white colour  
 Dimensions: L x H x D, 224 x 90 x 99  
 Wheel chock load max. 800 kg  
 Weight: 0.220 kg/pc

## 0871202.000

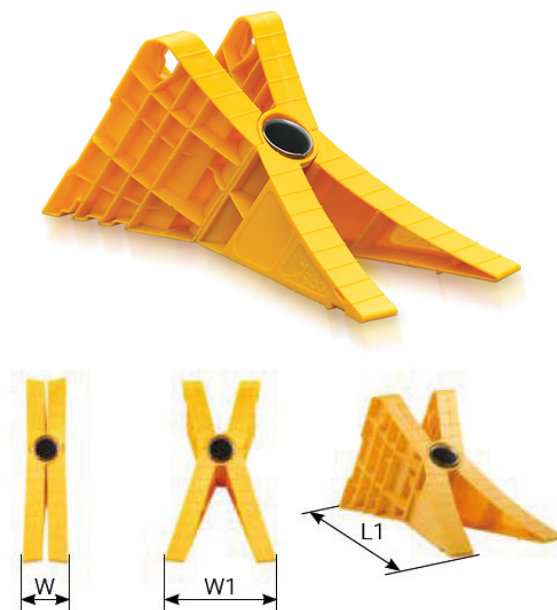
### Wheel chock holder

Material: PE - white colour  
 Weight: 0.040 kg/pc



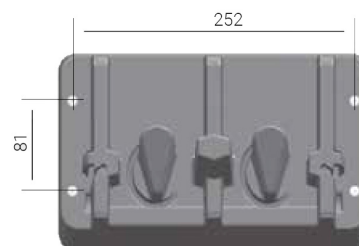
## Wheel chock G46 and G53

TT-number	L1 mm	W mm	W1 mm	Weight
0871112.200	378	78	186	0.86 kg
0871112.100	454	82	210	1.20 kg



## Holder for two wheel chocks

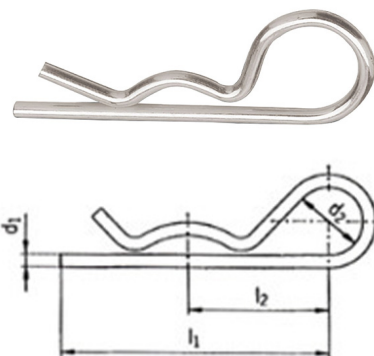
TT-number	L1 mm	W mm
0871203.000	378	78



## Single spring-loaded cotter pin

Material: galvanized steel

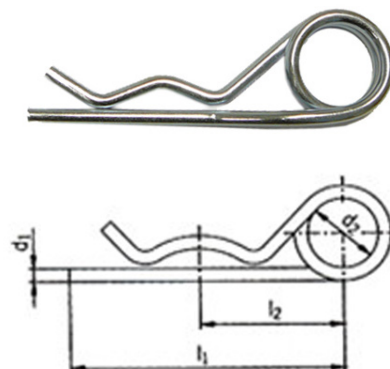
TT-number	Ø d <sub>1</sub> mm	Length <sub>l<sub>1</sub></sub> mm	Length <sub>l<sub>2</sub></sub> mm	Ø d <sub>2</sub> mm	Scope mm
0871300.000	2	42	24	12	8-14
0871301.000	3	62	35	18	10 - 16
0871295.000	4	64	35	20	16 - 20
0871296.000	5	86	50	26	20 - 28
0871297.000	6	102	55	32	28 - 40
0871298.000	7	108	62	32	28 - 45
0871299.000	8	120	62	32	30 - 45



## Double spring-loaded cotter pin

Material: galvanized steel

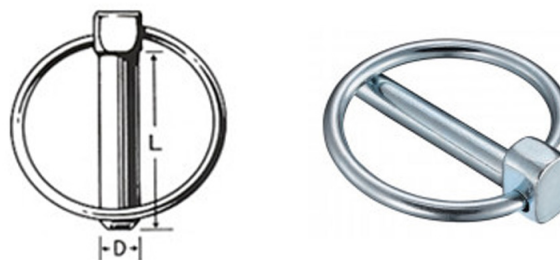
TT-number	Ø d <sub>1</sub> mm	Length <sub>l<sub>1</sub></sub> mm	Length <sub>l<sub>2</sub></sub> mm	Ø d <sub>2</sub> mm	Scope mm
0871306.100	2	38	20	10	8-14
0871302.000	3	63	34	17	14 - 20
0871303.000	4	75	45	21	17 - 24
0871304.000	5	90	53	27	18 - 30
0871305.000	6	122	72	30	24 - 36
0871307.000	7	125	70	30	26 - 40



## Safety pin (Linch pin)

Material: galvanized steel

TT-number	Ø D mm	L mm
0871401.100	4.5	36
0871404.100	8	44
0871405.000	6	40
0871406.100	10	44

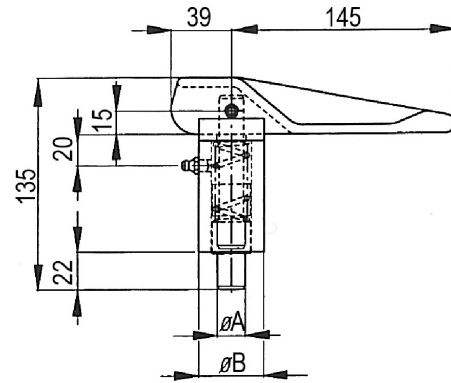


# OTHER ACCESSORIES - SWIVEL BELAY DEVICE

## Swivel belay device complete set FS97

Material: natural steel, uncoated

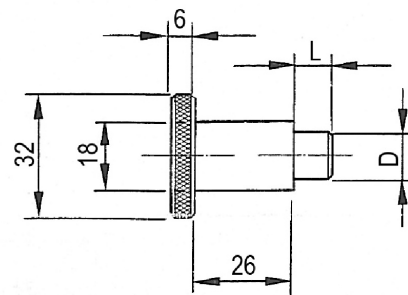
TT-number	TYPE	Ø A mm	Ø B mm	Weight kg/pc
0812008.000	FS 97	16	42	1.2
0812009.000	FS 97	18	42	1.2
0812010.000	FS 97	20	42	1.2
0812012.000	FS 97	30	42	1.2



## Locking pin with spring Type F (L x L), for welding

Material: natural steel

TT-number	Ø D mm	L mm	Weight kg/pc
0871331.000	8	6	0.08
0871332.000	8	10	0.09
0871333.000	10	10	0.09
0871334.000	12	10	0.09

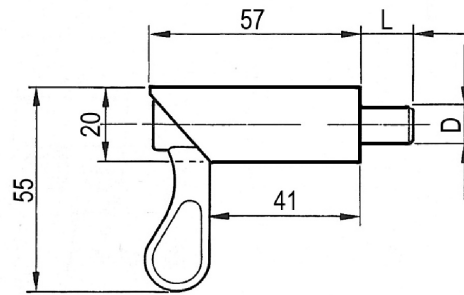


## OTHER ACCESSORIES - SWIVEL BELAY DEVICE

### Swivel belay device complete set FS97

Material: natural steel, uncoated

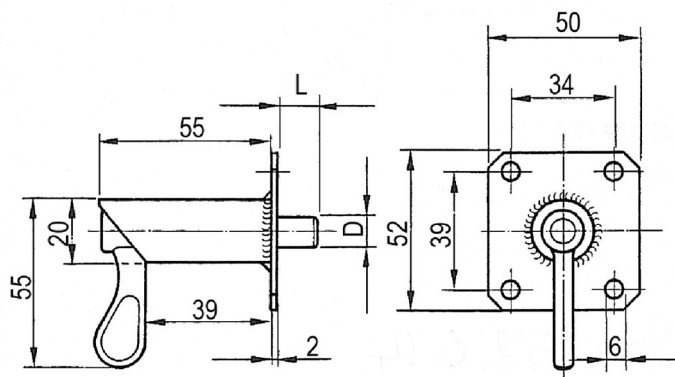
TT-number	Ø D mm	L mm	Weight kg/pc
0871351.014	8	14	0.12
0871352.010	10	10	0.13
0871352.014	10	14	0.13
0871353.014	12	14	0.135
0871354.010	15	14	0.14

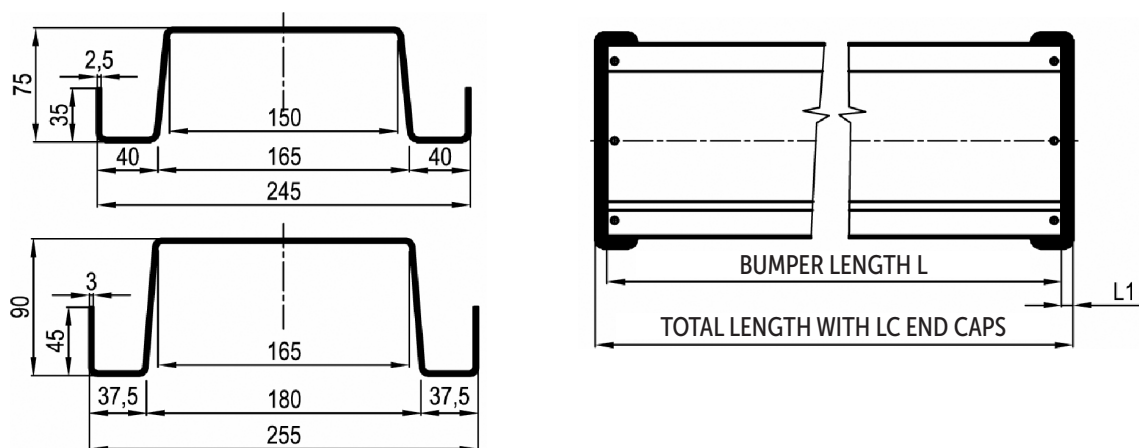


### Swivel belay device with 50 x 52 mm plate for screwing

Material: body - galvanized steel, other parts - natural steel

TT-number	Ø D mm	L mm	Weight kg/pc
0871360.000	8	14	0.16
0871361.000	10	10	0.165
0871362.000	10	14	0.165
0871363.000	12	14	0.17
0871364.000	15	14	0.175



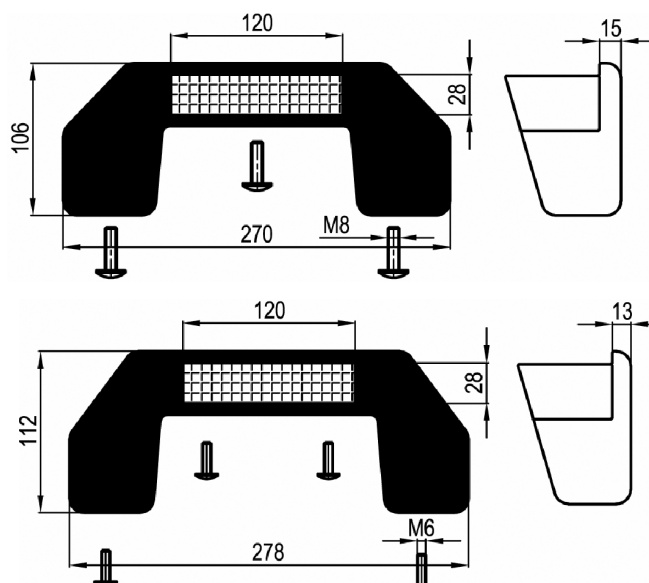


### Bumper end cap with yellow side reflector

Fastening materials are included as standard.

Material: PUR - black

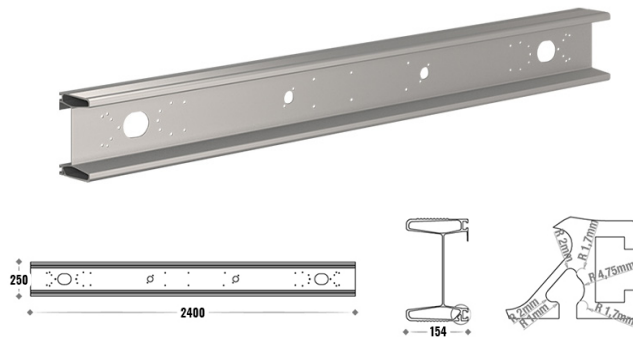
The weight is given including fasteners.



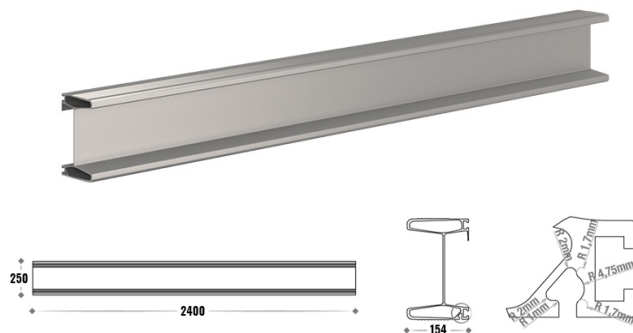
Rear bumpers							
TT-number	L bumper length L mm	LC total length L mm	L1 length of plastic end cap mm	Material	Weight kg/pc	TT-end number	Weight kg/pc
0822002.240	2400	2430	15	galvanized steel	19.6	0822001.000	0.6
0822003.240	2400	2430	15	AlMgSi0,5 - anodised	7.5	0822001.000	
0822005.230	2300	2326	13	steel	27.0	0822004.000	0.4

# REAR BUMPERS WITH APPROVAL ACCORDING TO R58-03

**0822021.240**  
Al-anodized bumper including holes  
250 x 153.5 x 2400 mm



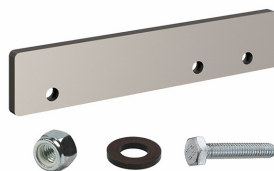
**0822020.240**  
Al-anodized bumper without holes  
250 x 153.5 x 2400 mm



## Accessories



**0822020.100**  
Bumper holder for 08220020.000  
and 08220021.000 set



**0822020.200**  
Fastening materials for bumper  
08220020.000 and 08220021.000



# RAMPS AL - AVS, FOR TYRES AND RUBBER BELTS

With the use of non-slip surfaces and additional anti-slip locking elements, loading can be carried out in complete safety. The load capacity data is valid for a two-axle vehicle with a load distribution between the axles of 1/3 to 2/3 and an axle distance of 1500 mm. For single-axle vehicles, the total load capacity is reduced to 2/3 of the stated value. The gradient should not exceed an angle of 16.5° or 30%.

**The length of the ramp can be calculated according to the following formula:**

$$\text{Length in mm} = \frac{\text{height difference in mm} \times 100}{\text{gradient in \%}}$$

The AVS ramps can be supplied according to the customer's requirements with edging - on one or both of the sides. The AVS ramps listed below can be used by wheeled and tracked vehicles with rubber tracks. All loading ramps are also available in a folding design.

## ANTI-SLIP LOCK

Loading ramps must be secured by the operator prior to any commissioning. Loading ramps must be checked for correct operation before each use.

**The following anti-slip safeguards can be used:**

### 1. CLAMP

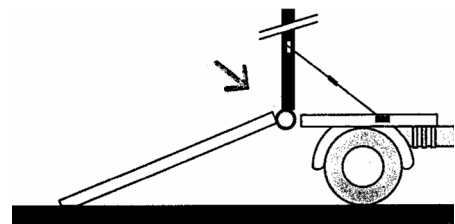
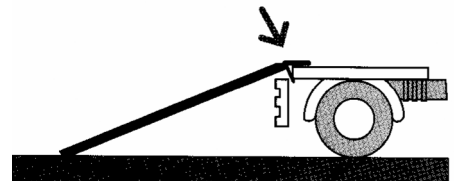
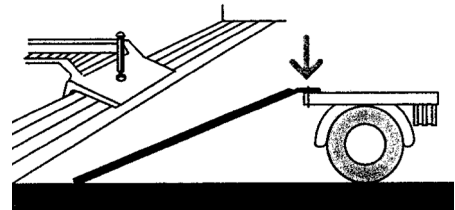
The loading bay and the vehicle have a drilled hole through which a bolt is pushed to ensure that they are fixed together.

### 2. MOVABLE LOCKING PLATE

(AVS 80 - 130 + AOS). The locking plate slides between the floor of the carriage and the side rail. A movable locking plate is standard on AVS 80 - 130 and AOS types.

### 3. ARTICULATED JOINT

Instead of a ramp landing area, a round profile is installed to act as a joint. A retractable axle mounted on the vehicle is connected to the joint by a shackler. The retractable pin is secured against sideways extension.



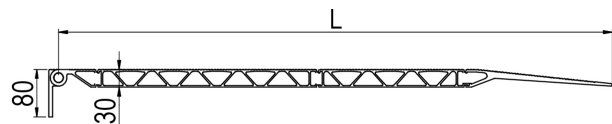
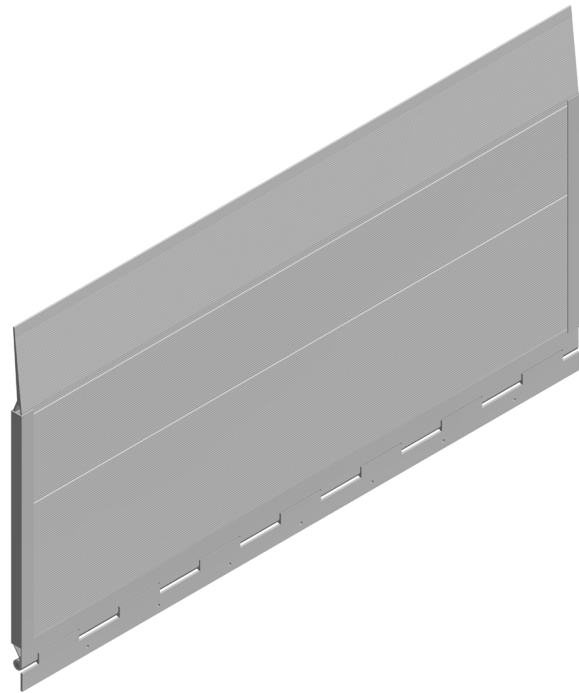


# RAMPS AL - TT BRIDGES

Bridge without latch  
type **TT 30-P**, with Al hitch

TT-number	Marking	Length L mm
0881530.xxx	TT 30-P-565	565
0881531.xxx	TT 30-P-690	690
0881532.xxx	TT 30-P-815	815
0881533.xxx	TT 30-P-940	940
0881534.xxx	TT 30-P-1065	1065
0881535.xxx	TT 30-P-1190	1190
0881536.xxx	TT 30-P-1315	1315
0881537.xxx	TT 30-P-1565	1565
0881538.xxx	TT 30-P-1690	1690
0881539.xxx	TT 30-P-1815	1815
0881540.xxx	TT 30-P-1940	1940
0881541.xxx	TT 30-P-2065	2065 taper</td

The bridge with a steel hitch can be ordered on prior request



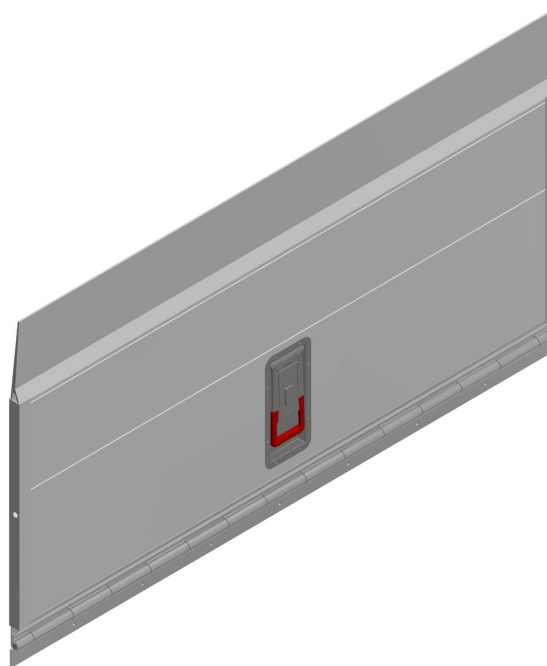
## 1021301.023

### Recessed swivel latch

Material: stainless steel

Bridge with recessed swivel latch  
type **TT 30-PO with** Al hitch

TT-number	Marking	Length L mm
0881511.xxx	TT 30-PO-690	690
0881512.xxx	TT 30-PO-815	815
0881513.xxx	TT 30-PO-940	940
0881514.xxx	TT 30-PO-1065	1065
0881515.xxx	TT 30-PO-1190	1190
0881516.xxx	TT 30-PO-1350	1350
0881517.xxx	TT 30-PO-1565	1565
0881518.xxx	TT 30-PO-1690	1690
0881519.xxx	TT 30-PO-1815	1815
0881520.xxx	TT 30-PO-2065	2065



## 0423011.000

### Recessed sideboard latch

Material: galvanized steel

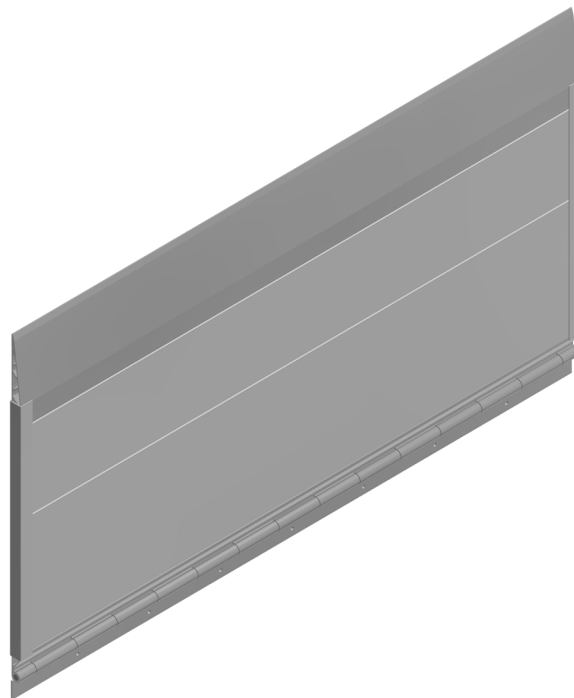
Bridge with recessed sideboard latch  
type **TT 30-PZ with** Al hitch

TT-number	Marking	Length L mm
0881521.xxx	TT 30-P7-690	690
0881522.xxx	TT 30-PZ-815	815
0881523.xxx	TT 30-PZ-940	940
0881524.xxx	TT 30-PZ-1065	1065
0881525.xxx	TT 30-PZ-1190	1190
0881526.xxx	TT 30-PZ-1350	1350
0881527.xxx	TT 30-PZ-1565	1565
0881528.xxx	TT 30-PZ-1690	1690
0881529.xxx	TT 30-PZ-1815	1815

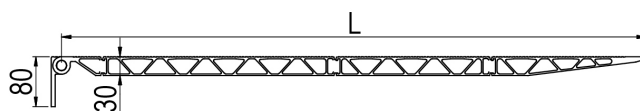


Ramp-bridge without latch  
type **TT 30-N with** Al hitch

TT-number	Marking	Length L mm
0881568.xxx	TT 30-N-315	315
0881569.xxx	TT 30-N-690	690
0881570.xxx	TT 30-N-565	565
0881571.xxx	TT 30-N-815	815
0881572.xxx	TT 30-N-940	940
0881573.xxx	TT 30-N-1065	1065
0881574.xxx	TT 30-N-1190	1190
0881575.xxx	TT 30-N-1315	1315
0881576.xxx	TT 30-N-1565	1565
0881577.xxx	TT 30-N-1690	1690
0881578.xxx	TT 30-N-1815	1815
0881579.xxx	TT 30-N-1940	1940
0881580.xxx	TT 30-N-2065	2065
0881581.xxx	TT 30-N-2190	2190
0881589.xxx	TT 30-N-2815	2815



The ramp-bridge with a steel hitch can be ordered on prior request



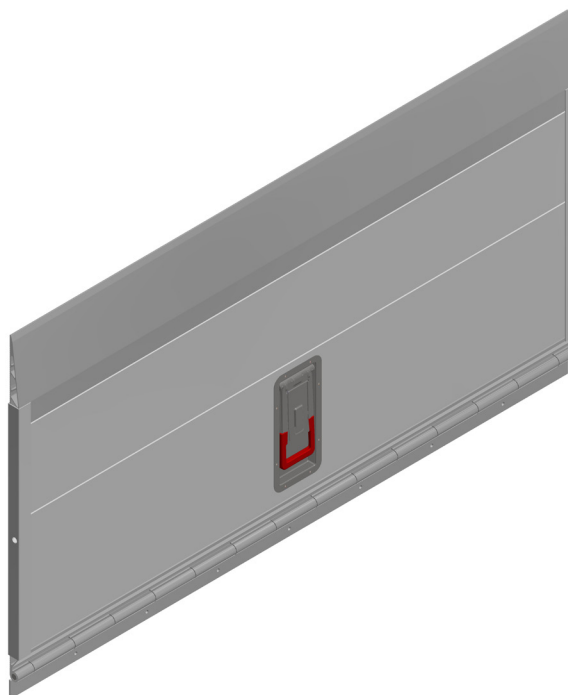
## 1021301.023

### Recessed swivel latch

Material: stainless steel

Ramp-bridge with recessed swivel latch  
type **TT 30-PO with** Al hitch

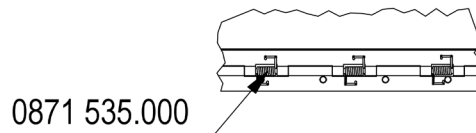
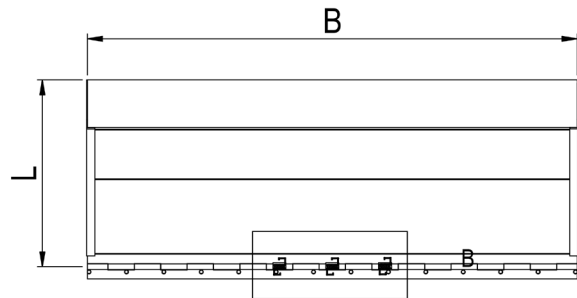
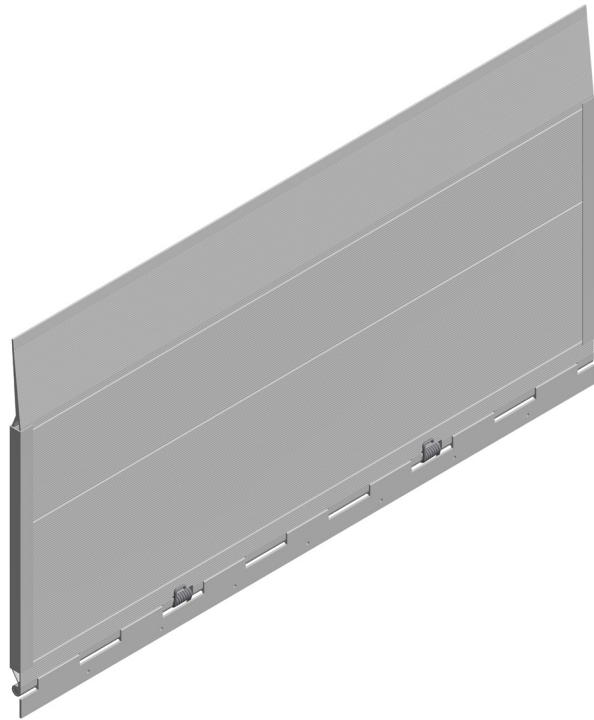
TT-number	Marking	Length L mm
0881551.xxx	TT 30-NO-690	690
0881552.xxx	TT 30-NO-815	815
0881553.xxx	TT 30-NO-940	940
0881554.xxx	TT 30-NO-1065	1065
0881555.xxx	TT 30-NO-1190	1190
0881556.xxx	TT 30-NO-1350	1350
0881557.xxx	TT 30-NO-1565	1565
0881558.xxx	TT 30-NO-1690	1690
0881559.xxx	TT 30-NO-1815	1815
0881560.xxx	TT 30-NO-1940	1940
0881561.xxx	TT 30-NO-2065	2065



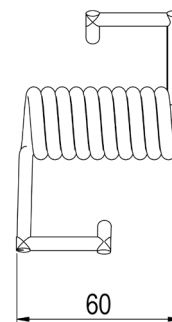
# RAMPS AL - TT BRIDGES SPRING-LOADED

Bridge without latch  
type **TT 30-P**, with Al hitch

TT-number	Marking	Length L mm
0881530.xxxS	TT 30-P-565	565
0881531.xxxS	TT 30-P-690	690
0881532.xxxS	TT 30-P-815	815
0881533.xxxS	TT 30-P-940	940
0881534.xxxS	TT 30-P-1065	1065
0881535.xxxS	TT 30-P-1190	1190
0881536.xxxS	TT 30-P-1315	1315
0881537.xxxS	TT 30-P-1565	1565
0881538.xxxS	TT 30-P-1690	1690
0881539.xxxS	TT 30-P-1815	1815
0881540.xxxS	TT 30-P-1940	1940 </td
0881541.xxxS	TT 30-P-2065	2065



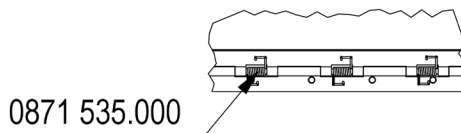
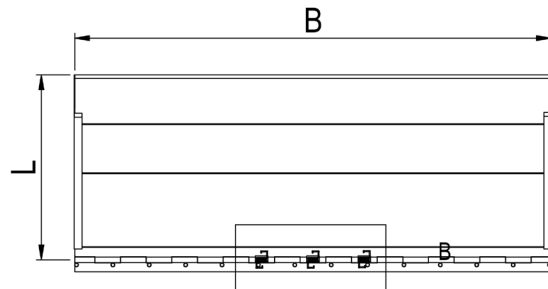
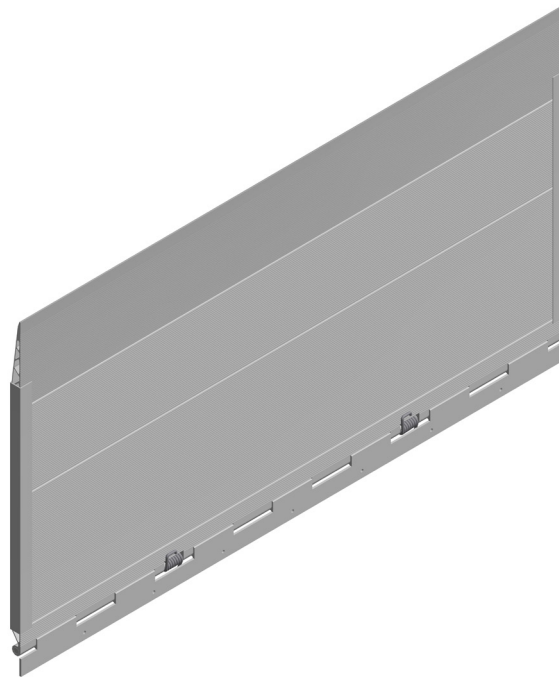
**0871535.000**  
Torsion spring for ramps diameter  
5.0/60/ for bar diameter 16 mm



# RAMPS AL - SPRING-LOADED RAMP-BRIDGES

Ramp-bridge without latch  
type **TT 30-N** with Al hitch

TT-number	Marking	Length L mm
0881568.xxx	TT 30-N-315	315
0881569.xxx	TT 30-N-690	690
0881570.xxx	TT 30-N-565	565
0881571.xxx	TT 30-N-815	815
0881572.xxx	TT 30-N-940	940
0881573.xxx	TT 30-N-1065	1065
0881574.xxx	TT 30-N-1190	1190
0881575.xxx	TT 30-N-1315	1315
0881576.xxx	TT 30-N-1565	1565
0881577.xxx	TT 30-N-1690	1690
0881578.xxx	TT 30-N-1815	1815
0881579.xxx	TT 30-N-1940	1940
0881580.xxx	TT 30-N-2065	2065
0881581.xxx	TT 30-N-2190	2190
0881589.xxx	TT 30-N-2815	2815



**0871535.000**  
Torsion spring for ramps diameter  
5.0/60/ for bar diameter 16 mm

