

Metal Competence



ALUMERO METAL COMPONENTS
NOISE PROTECTION DOCUMENTATION



Systematic Solutions

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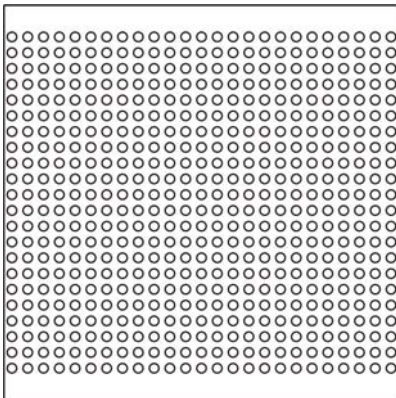
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Overview of Standards for Noise Protection

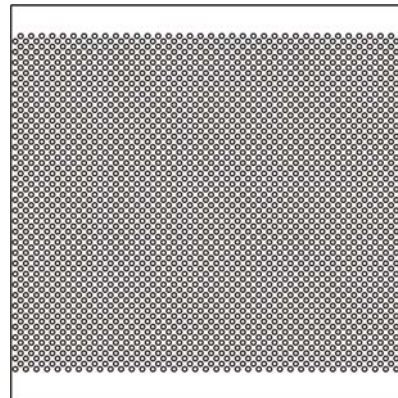
EN 1793-1:	Test method for determining the acoustic performance - Part 1: Intrinsic characteristics of sound absorption;
EN 1793-2:	Test method for determining the acoustic performance - Part 2: Intrinsic characteristics of airborne sound insulation under diffuse sound field conditions;
EN 1793-3:	Test method for determining the acoustic performance - Part 3: Normalised traffic noise spectrum;
EN 1794-1:	Non-acoustic performance - Part 1: Mechanical performance and stability requirements;
EN 1794-2:	Non-acoustic performance - Part 2: General safety and environmental requirements;
ZTV-LSW 06:	Additional technical contract conditions and guidance for the completion of noise protection walls on streets. (Germany and Austria);
ZTV-Ing. Teil 5:	Guidance for tunnelling. (Germany and Austria).

Punching Pattern for Noise Protection Elements

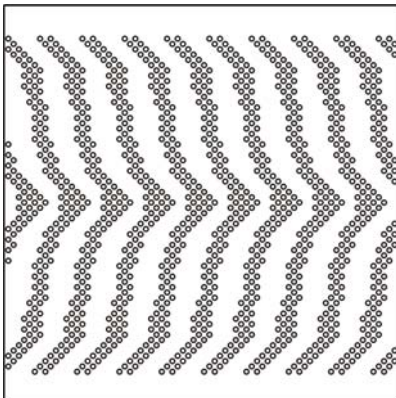
Standard pattern



12 mm – Punching
Hole quantity 25 %
Hole diameter 12 mm



6 mm – punching
Hole quantity 27%
Hole diameter 12 mm



Arrow – punching
Hole quantity 12 %
Hole diameter 12 mm

Reflecting Noise Protection Element

Material:

Aluminium, mill finish or powder coated

Description:

Reflecting noise protection element, regarding ZTV-LSW 06, EN 1793 1-3 and EN 1794 1-2.
Completion with bottom and top boom out of extruded aluminium profiles, front and back wall with two corrugations.
Side-caps made of extruded aluminium profiles with integrated EPDM-sealing for mounting in HE- beams: HE- 160, HE-180 (HE- 200 and HE- 220 only with adapter- profile).



Weight:

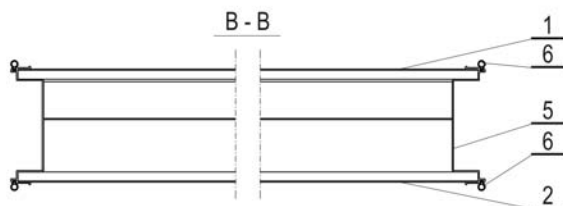
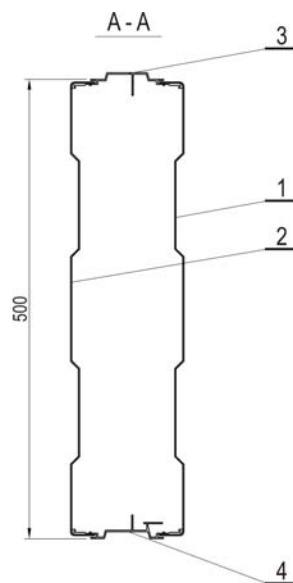
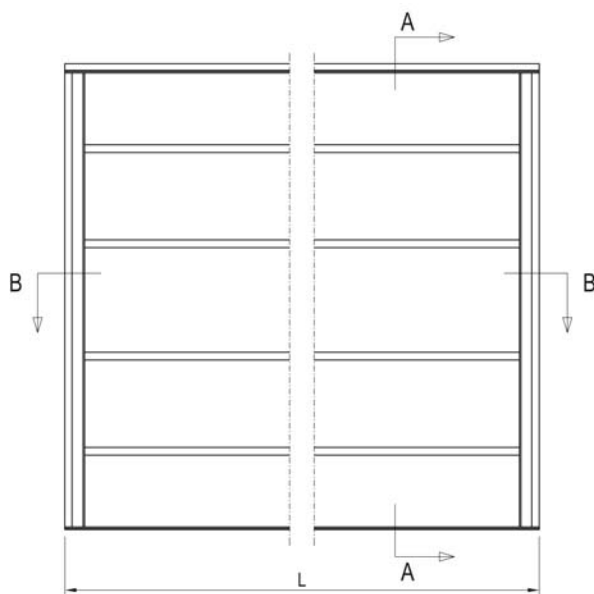
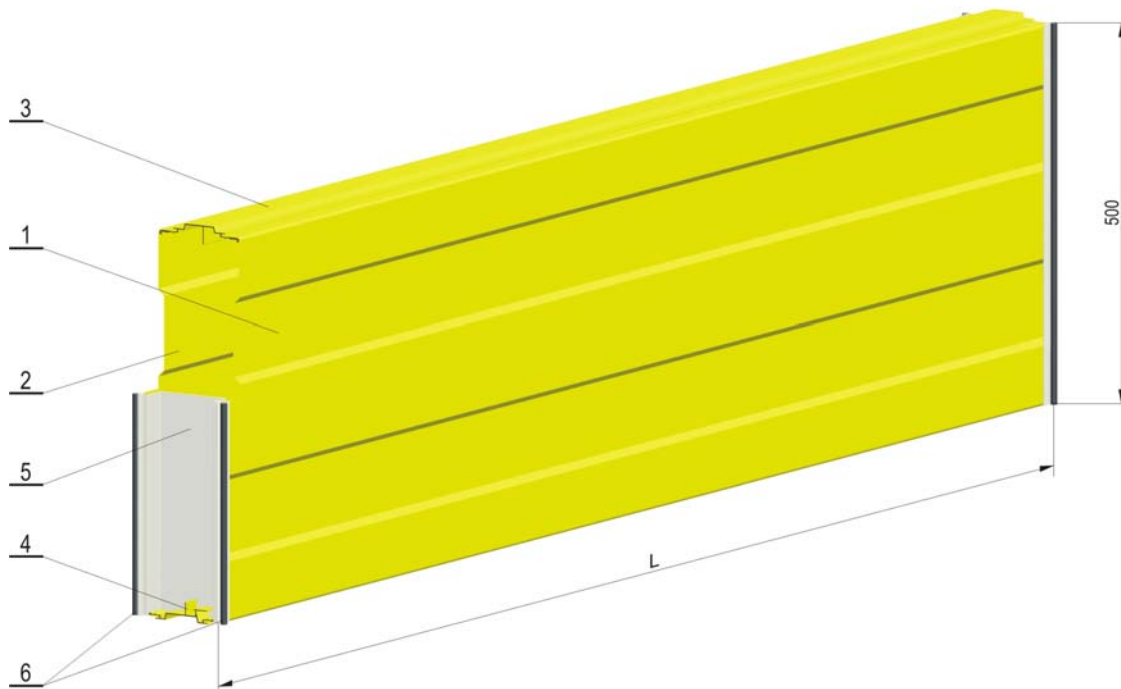
Approx. $8 \pm 1 \text{ kg/m}^2$ (depends on sheet thickness)

Specific values:

DIN EN 1793:
 $DL_R = 26 \text{ dB}$ Group B3

Standard Types:

Type:	Sheet thickness Front and Back:
RLC1	1,00 mm
RLC2	1,15 mm
RLC3	1,25 mm
RLC4	1,50 mm



- 1 – Front sheet (unpunched)
- 2 – Back sheet (unpunched)
- 3 – Top boom (extruded)
- 4 – Bottom boom (extruded)
- 5 – Side cap (extruded)
- 6 – rubber gasket
- L = 4960, 3960, 2960, 1960

Reflecting Noise Protection Element

One-side Highly Absorbent Noise Protection Element

Material:

Aluminium, mill finish or powder coated

Description:

Reflecting noise protection element, regarding ZTV-LSW 06, EN 1793 1-3 and EN 1794 1-2.

Completion with bottom and top boom out of extruded aluminium profile, front and back wall come with two corrugations.

Muffling material: 40 mm thick mineral wool pad with a volume weight of approx. 120 kg/m^3 , front side covered with a black glass mat (hydrophobic).

Side-caps made of extruded aluminium profiles with integrated EPDM-sealing for mounting in HE- Beams: HE- 160, HE-180, (HE- 200 and HE- 220 only with adapter profile)



Weight:

Approx. $15 \pm 1 \text{ kg/m}^2$ (depends on sheet thickness)

Specific values:

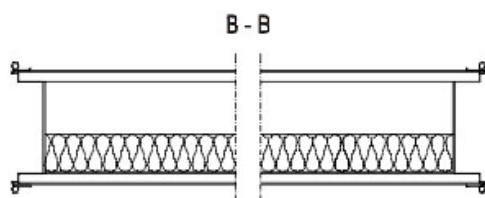
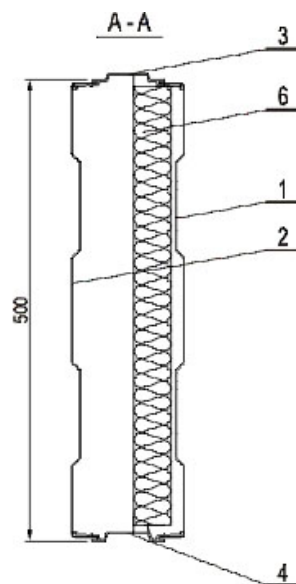
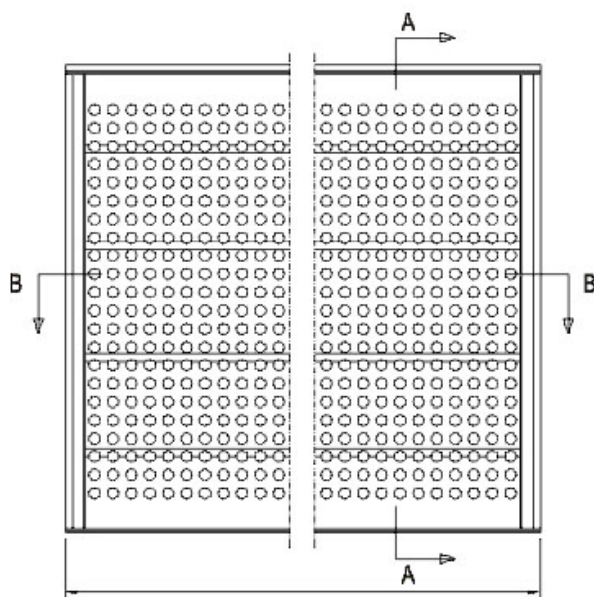
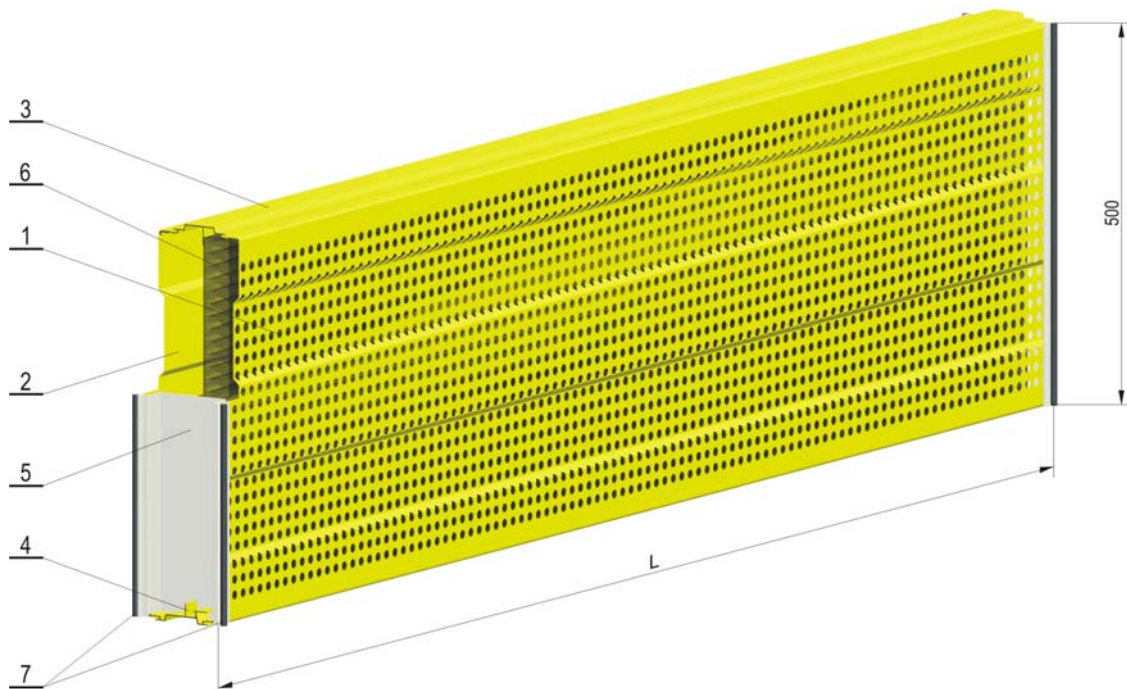
DIN EN 1793:

$DL_R = 25 \text{ dB}$ – Group B3

$DL_a = 11 \text{ dB}$ – Group A3

Standard Types:

Type:	Sheet thickness Front and Back:
ELC1	1,00 mm
ELC2	1,15 mm
ELC3	1,25 mm
ELC4	1,50 mm



- 1 – Front sheet (punched)
- 2 – Back sheet (unpunched)
- 3 – Top boom (extruded)
- 4 – Bottom boom (extruded)
- 5 – Side cap (extruded)
- 6 – Mineral wool pad 40mm – 120kg/m³
- 7 – Rubber gasket
- L = 4960, 3960, 2960, 1960 mm

One-side Highly Absorbent Noise Protection Element

Both-side Highly Absorbent Noise Protection Element

Material:

Aluminium, mill finish or powder coated

Description:

Both-side highly absorbent noise protection element, regarding ZTV-LSW 06, EN 1793 1-3 and EN 1794 1-2.

Completion with bottom and top boom made of extruded aluminium profiles. Front and back- wall come with two corrugations.

Both sides of the element come with a mineral wool pad with a volume weight of approx. 120 kg/m³.

Front sides of the muffling plates are delivered with a black glass mat (hydrophobic).

Comes with a cement fibreboard in the middle.

Side caps made of extruded aluminium profiles with integrated EPDM-sealing for mounting in HE- beams: HE- 160, HE-180, (HE- 200 and HE- 220 only with adapter profile)



Weight:

Approx. 29 ± 1 kg/m² (depends on sheet thickness)

Specific values:

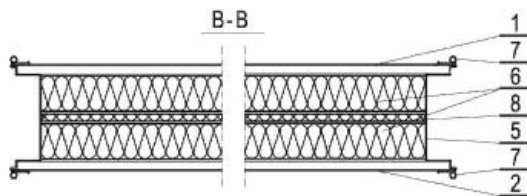
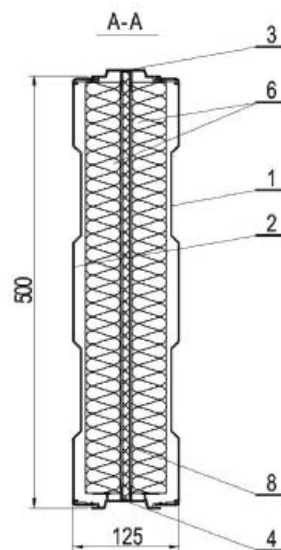
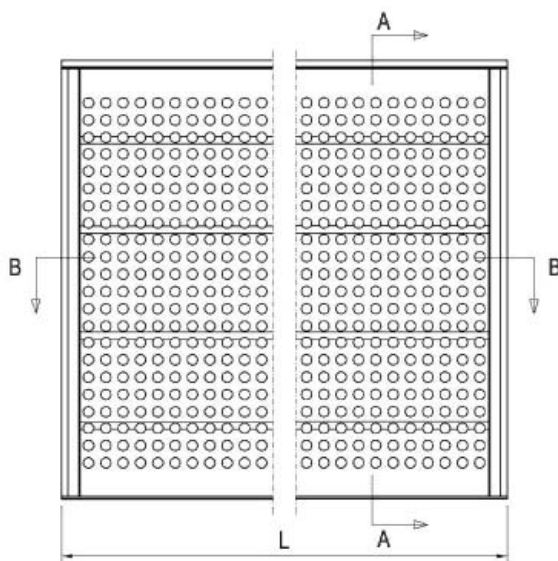
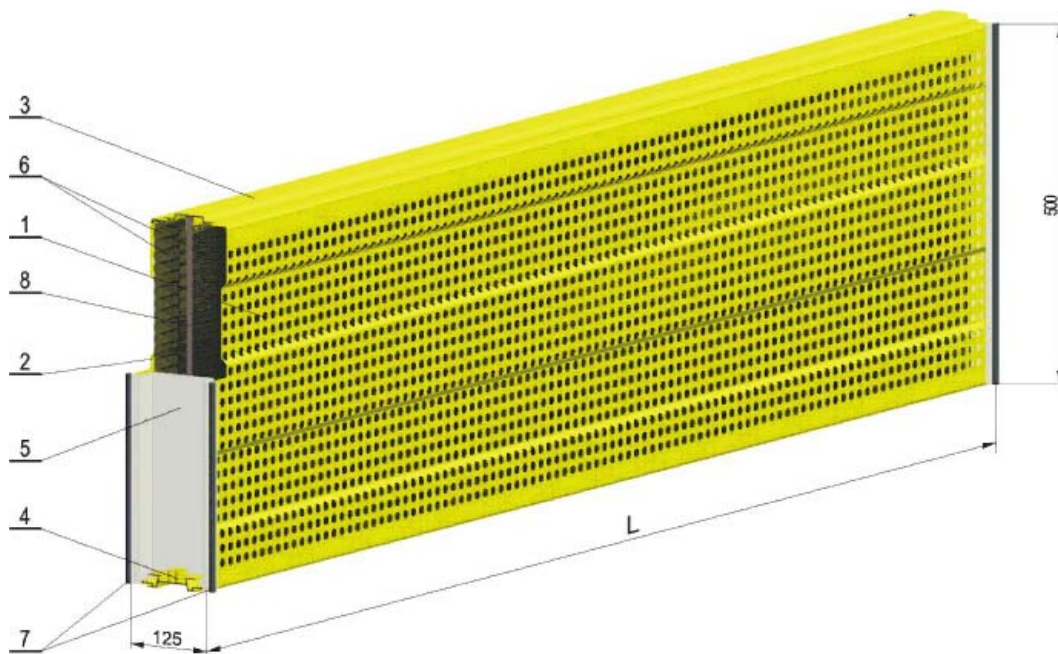
DIN EN 1793:

DL_R = 27 dB – Group B3

DL_a = 12 dB – Group A4

Standard Types:

Type:	Sheet thickness Front and Back:
BLC1	1,00 mm
BLC2	1,15 mm
BLC3	1,25 mm
BLC4	1,50 mm



- 1 – Front sheet (punched)
- 2 – Back sheet (punched)
- 3 – Top boom (extruded)
- 4 – Bottom boom (extruded)
- 5 – Side cap (extruded)
- 6 – Mineral wool pad 40mm – 120kg/m³
- 7 – O-ring cord
- 8 – Cement fibreboard
- L = 4960, 3960, 2960, 1960 mm

Both-side Highly Absorbent Noise Protection Element

Reflecting Noise Protection Element Alumero 80

Material:

Aluminium, mill finish or powder coated

Description:

Reflecting noise protection element, regarding ZTV-LSW 06, EN 1793 1-3 and EN 1794 1-2.
Completion with bottom and top boom made of extruded aluminium profiles, front and back wall with two corrugations.
Side-caps made of extruded aluminium profiles with integrated EPDM-sealing. For mounting in HE- Beams: HE- 120, HE-140.



Weight:

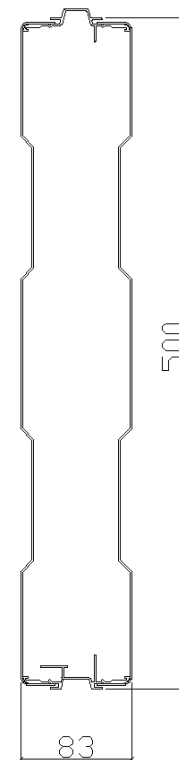
Approx. $8 \pm 1 \text{ kg/m}^2$ (depends on sheet thickness)

Specific values:

According to test report.

Standard Types:

Type:	Thickness:
RLC 80/1	1,00 mm
RLC 80/2	1,15 mm
RLC 80/3	1,25 mm
RLC 80/4	1,50 mm



Reflecting Noise Protection Element
Alumero 80

One-side Highly Absorbent Noise Protection Element Alumero 80

Material:

Aluminium, mill finish or powder coated

Description:

Reflecting noise protection element, regarding ZTV-LSW 06,
EN 1793 1-3 and EN 1794 1-2.

Completion with bottom and top boom made of extruded aluminium profile,
front and back wall with two corrugations.

Muffling- material: 40 mm thick mineral wool pad with a volume weight of
ca. 120 kg/m³. Front side with a black glass mat covered (hydrophobic).
Side caps made of extruded aluminium profiles with integrated EPDM-
sealing.

For mounting in HE- Beams: HE- 120, HE-140.



Weight:

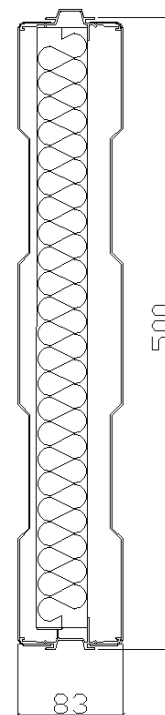
Approx. 15 ± 1 kg/m² (depends on sheet
thickness)

Specific values:

According to test report

Standard Types:

Type:	Thickness:
ELC 80/1	1,00 mm
ELC 80/2	1,15 mm
ELC 80/3	1,25 mm
ELC 80/4	1,50 mm



One-side Highly Absorbent Noise
Protection Element Alumero 80

Cladding for Noise Protection

Material:

Aluminium, mill finish or powder coated

Description:

Noise protection element according to ZTV-Ing. Part 5- Tunnelling, ZTV-LSW 06, DIN 1055-4, EUROCODE 9. Completion with Top- and Bottom- boom made of extruded aluminium profiles. Front wall with two corrugations.

Muffling material: 40 mm thick mineral wool pad with a volume weight of approx. 120 kg/m^3 , front side with a black glass mat covered (hydrophobic). The distance between the Elements and the bearing wall can be changed from 20 mm to 40 mm by using different holding angles.



Weight:

Approx. $8,3 \text{ kg/m}^2$

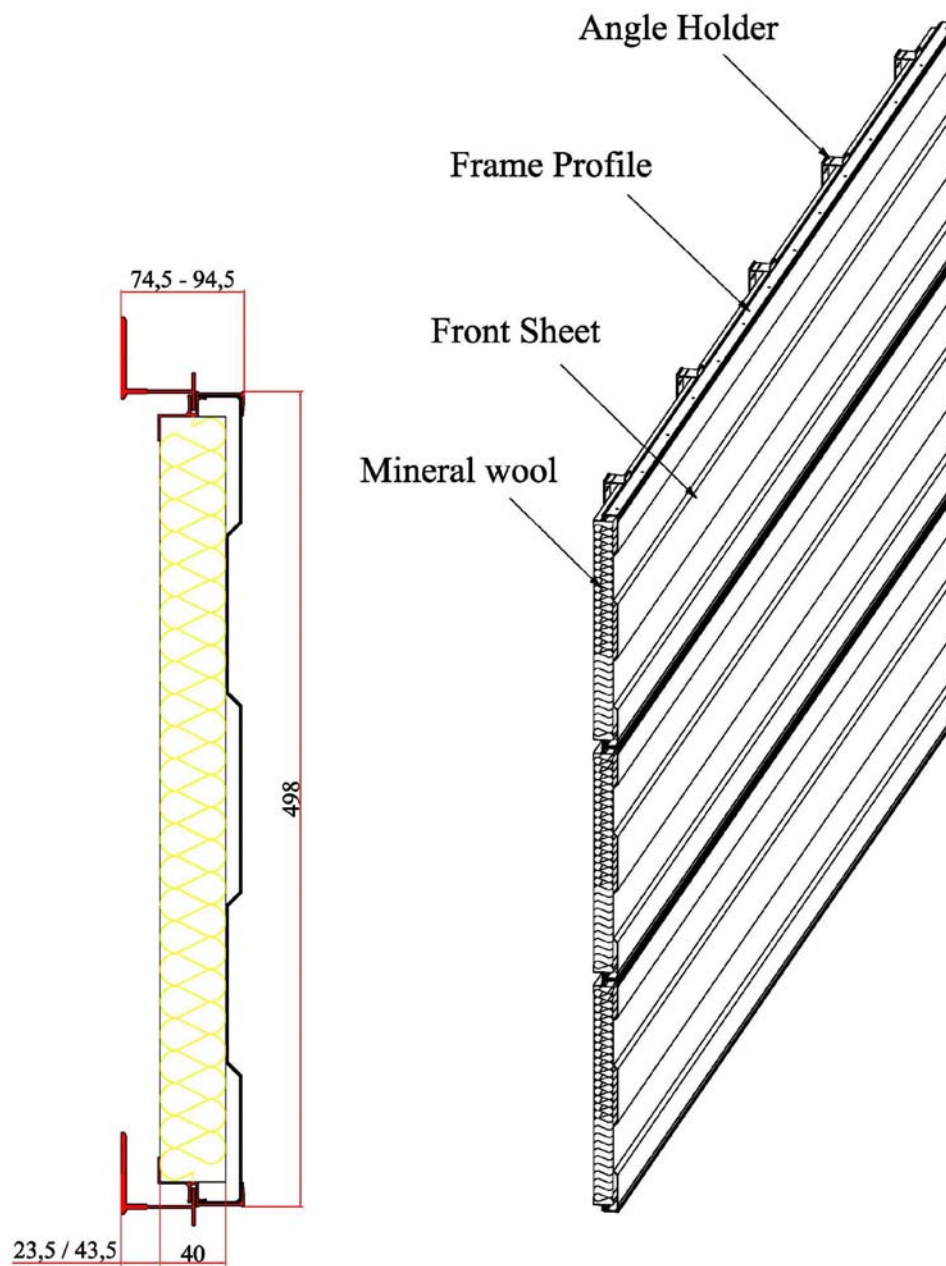
Specific values:

Distance 20mm:

DIN EN 1793: $DL_a = 14 \text{ dB}$ Group A4

Distance 40mm:

DIN EN 1793: $DL_a = 12 \text{ dB}$ Group A4



Cladding for Noise Protection, „Alu Cladding 500“

Glass Element Standard

Material:

Aluminium, mill finish or powder coated.

Acryl glass optional with moulded in polyamide strings or screen printing (GSCC / XT).

Glass thickness: 15 mm, 20 mm or 25 mm, depending on static demands.

Description:

Transparent, reflecting noise protection element, according to ZTV-LSW 06, EN 1793 1-3 and EN 1794 1-2.

Frame completion with extruded omega profiles out of aluminium, if necessary with centre bar.

Omega aluminium profiles with EPDM- sealing for mounting in HE-Beams 160 to 180.

Maximum Dimensions:

With centre bar:

4960 x 2000 mm (L x H)

(maximal wind load: 1,05 kN/m²)

without centre bar:

1960 x 4000 mm (L x H)

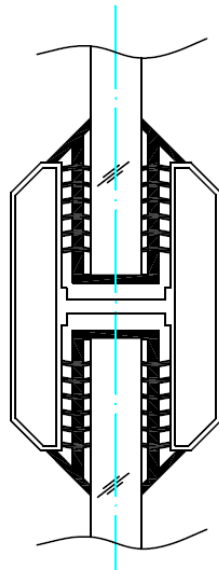
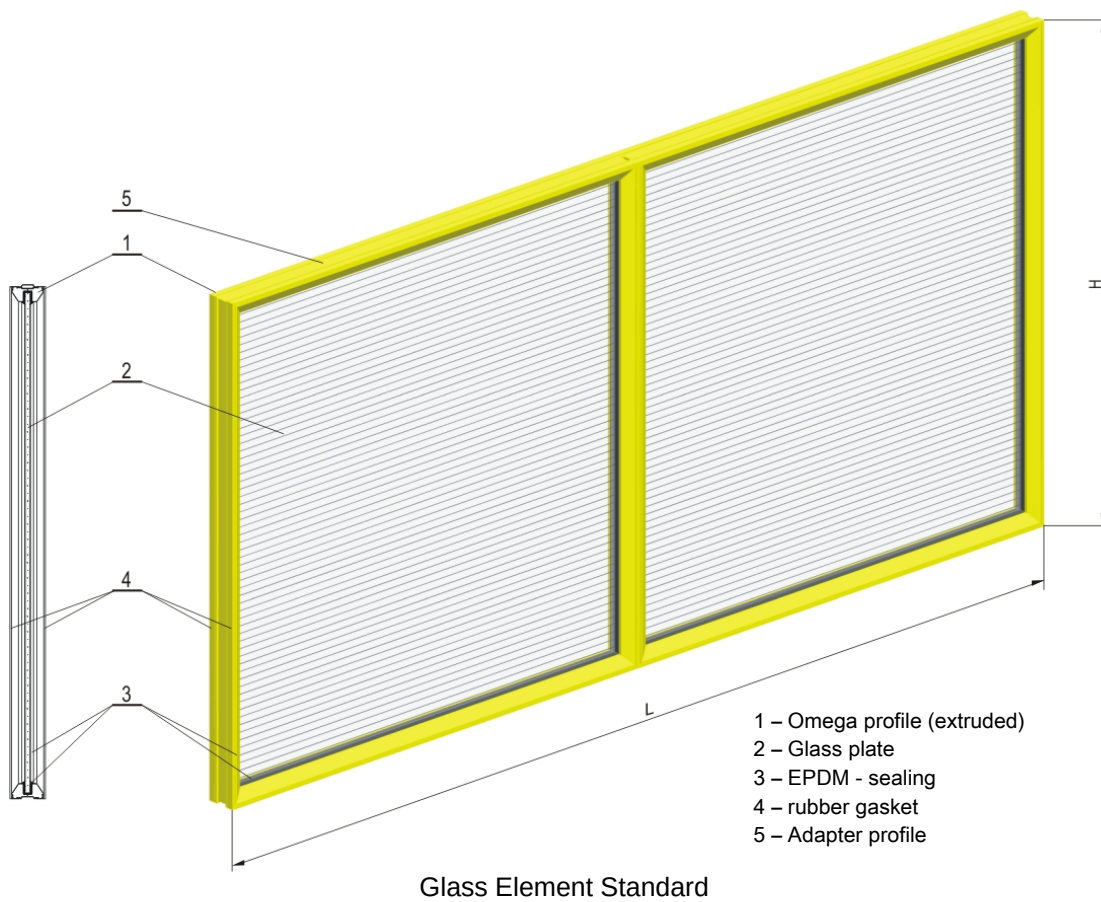
2960 x 2000 mm (L x H)

(maximal wind load: 1,45 kN/m²)

Specific Values:

According to following standards:

- EN 1793-2 and EN 1793-3
- EN 1794-1 and EN 1794-2
- ZTV-LSW 06
- Approval for glass in accordance with Evonik Para-Chemie



Cross section of centre bar

Glass Element with U-shaped Top Boom or Bolted Fastening

Material:

Aluminium, mill finish or powder coated.
Glass thickness: 15 mm, 20 mm or 25 mm, depending on static demands.
Acryl glass optional with moulded in polyamide strings or screen printing (GSCC/ XT).

Description:

Transparent, reflecting noise protection element, according to ZTV-LSW 06, EN 1793 1-3 and EN 1794 1-2.
Frame completion with U-shaped top-boom made of extruded aluminium.
Omega aluminium profiles with EPDM- sealing, for mounting in HE-beams 160 and 180.(HE- 200 and HE 220 possible with adapter profile)

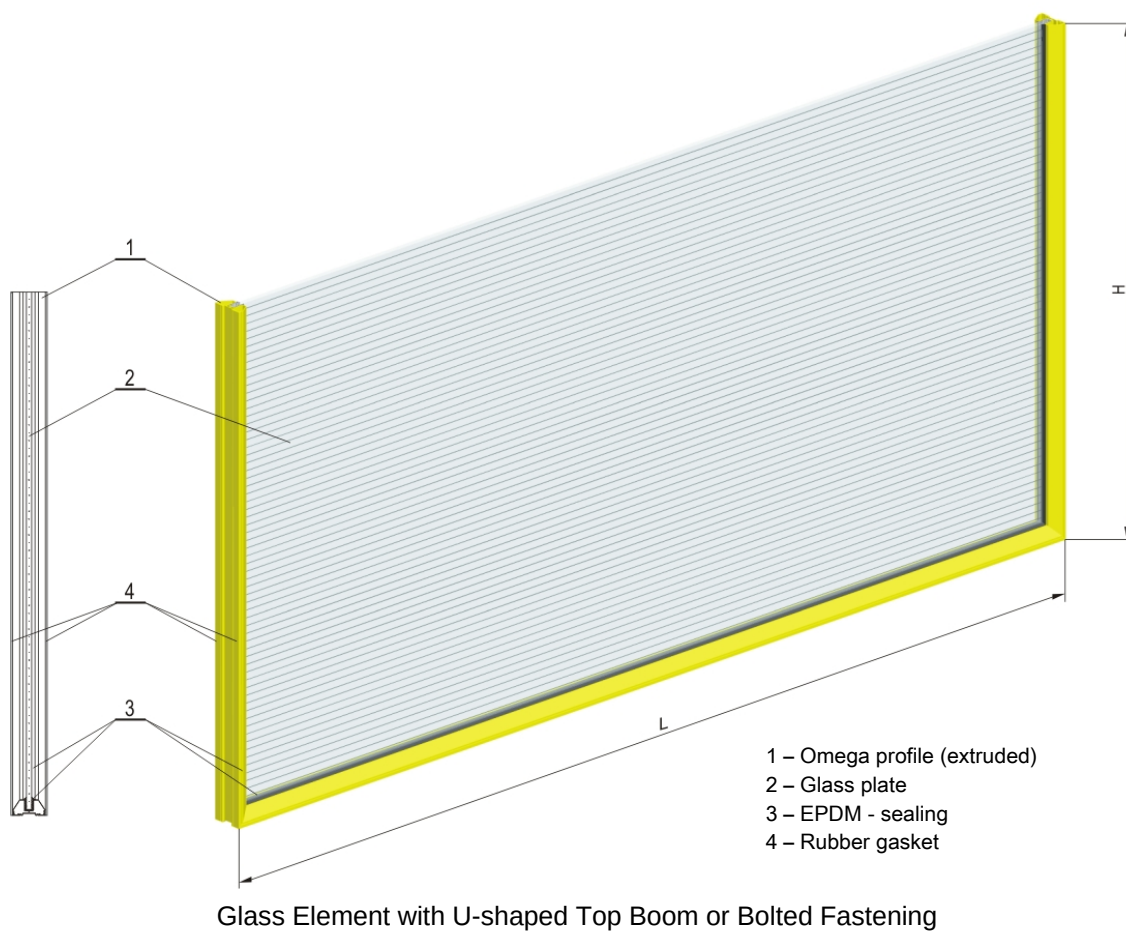
Maximal Dimensions:

1960 x 2000 mm (L x H)
2460 x 1500 mm (L x H)
(Wind load max. 1,45 kN/m²)

Specific values:

According to following standards:

- EN 1793-2 und EN 1793-3
- EN 1794-1 und EN 1794-2
- ZTV-LSW 06
- Approval for glass in accordance with Evonik Para-Chemie



Emergency and Service Doors

Material:

Aluminium, mill finish or powder coated

Description:

Reflecting or one-side absorbing noise protection door.

Frame construction is made up of door frame and leaf with lip seal and door closer.

If desired, completion with glass (Acryl glass 15mm). Muffling material: 40 mm mineral wool, volume weight approx. 100 kg/m³, front side with a black glass mat covered (hydrophobic).

For clip mounting in HE beams.

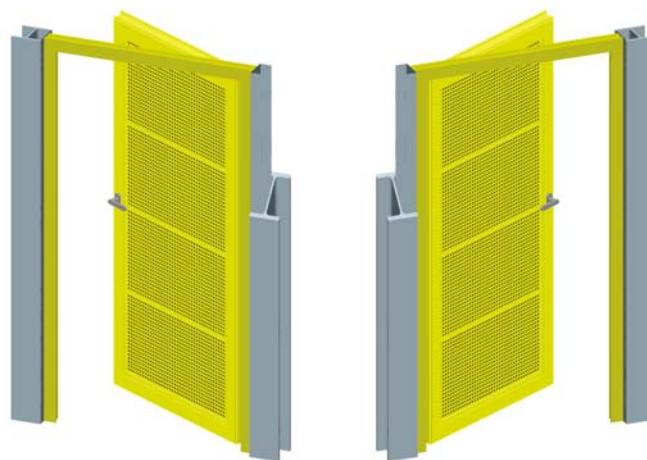
Dimensions:

Standard size: 1000 x 2030 mm

Specific values:

According to following standards:

- EN 1793-1 und EN 1793-2 und EN 1793-3
- EN 1794-1 und EN 1794-2
- ZTV-LSW 06
- EN ISO 11654



Left door

Right door

Emergency and Service Doors – Street side

Gates

Material:

Frame: galvanized Steel, powder coating available.
Filling: Aluminium, mill finish or powder coated.

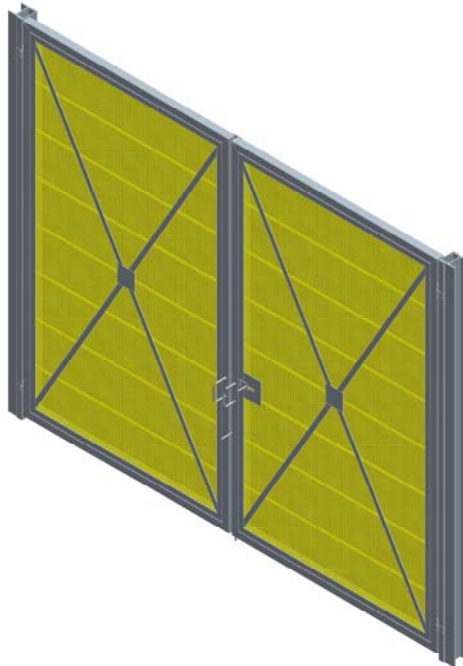
Description:

Reflecting, one-side or both-side absorbing noise protection gate.
Leaf made up of frame construction System Alumero, filling with Alumero noise protection elements.
Anchorage with the ground through bars.
Prepared for mounting in HE Steel beams.

Dimensions:

Beam clearance maximum 5000 mm maximum height 4100 mm

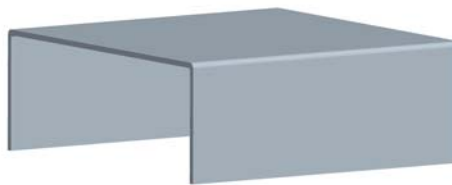
Specific values: according to Alumero test report for Aluminium elements.



Gate

Accessories - Standard

- Covering caps

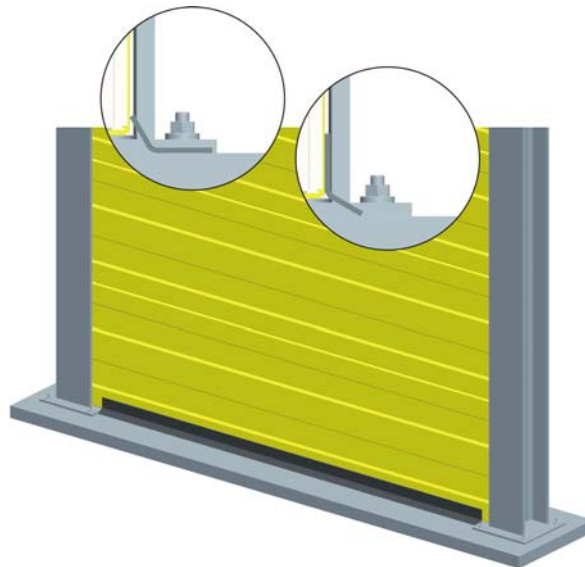


If desired, different forms and sizes available.

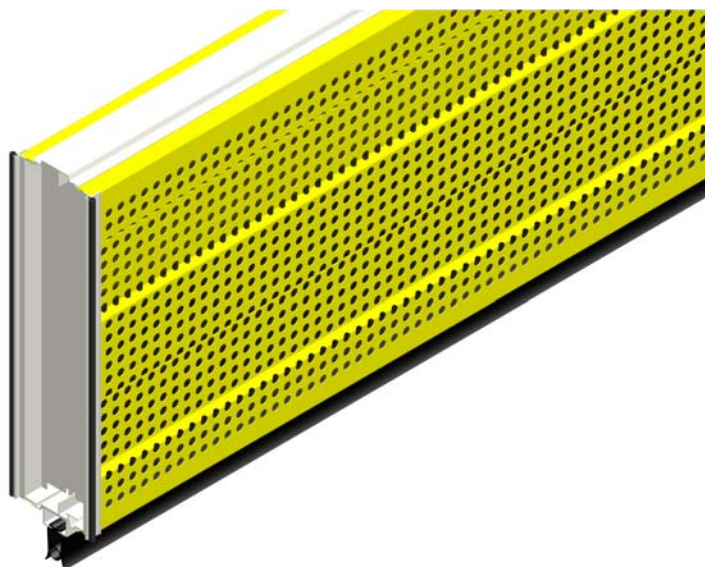
Cover Angle for Noise Protection Elements

Fastening with anchor

Fastening with rivet



EPDM – Profile for Noise Protection Elements



Maximum 80mm gap covering between element and structure

Highly Absorbing Noise Protection Element - Oktagon

Material:

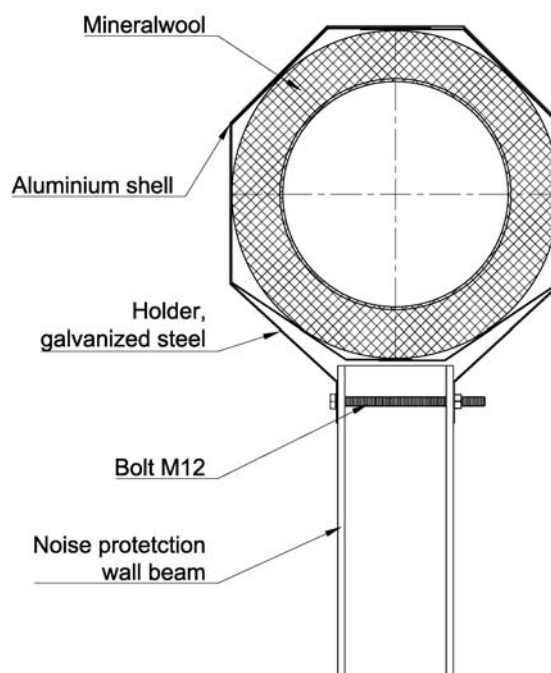
Aluminium and galvanized steel, mill finish or powder coated

Description:

The octagonal noise protection element, known as „Oktagon“, is mounted on top of the noise protection wall and serves as additional absorbing element and diffracts the sound waves.

It also can be mounted on finished noise protection walls if a raise of the noise protection wall is not desired.

The length of the Oktagon depends on the distance between the beams. Referring to fabrication the maximal length of the Oktagon is 6,00 meters.



Highly Absorbing Noise Protection Element - Oktagon

One-side Highly Absorbent Curved Noise Protection Element

Material:

Aluminium, mill finish or powder coated

Description:

One side highly absorbing noise protection element, according to following standards: EN 1793 1-3 and EN 1794 1-2.

Completion with top and bottom boom of extruded aluminium profiles, front and back wall with two corrugations.

Muffling material: 40 mm thick mineral wool pad with a volume weight of approx. 120 kg/m³, Front side with a black glass mat covered (hydrophobic).

Side caps out of bent aluminium sheets. For mounting in HE- Beams: HE-160, HE-180, (HE- 200 and HE-220 only with adapter profile)

Weight:

Approx. 15 ± 1 kg/m² (depends on thickness of Aluminium sheets)

Specific values:

DIN EN 1793:

DL_R = 25 dB

DL_a = 11 dB

Standard Types:

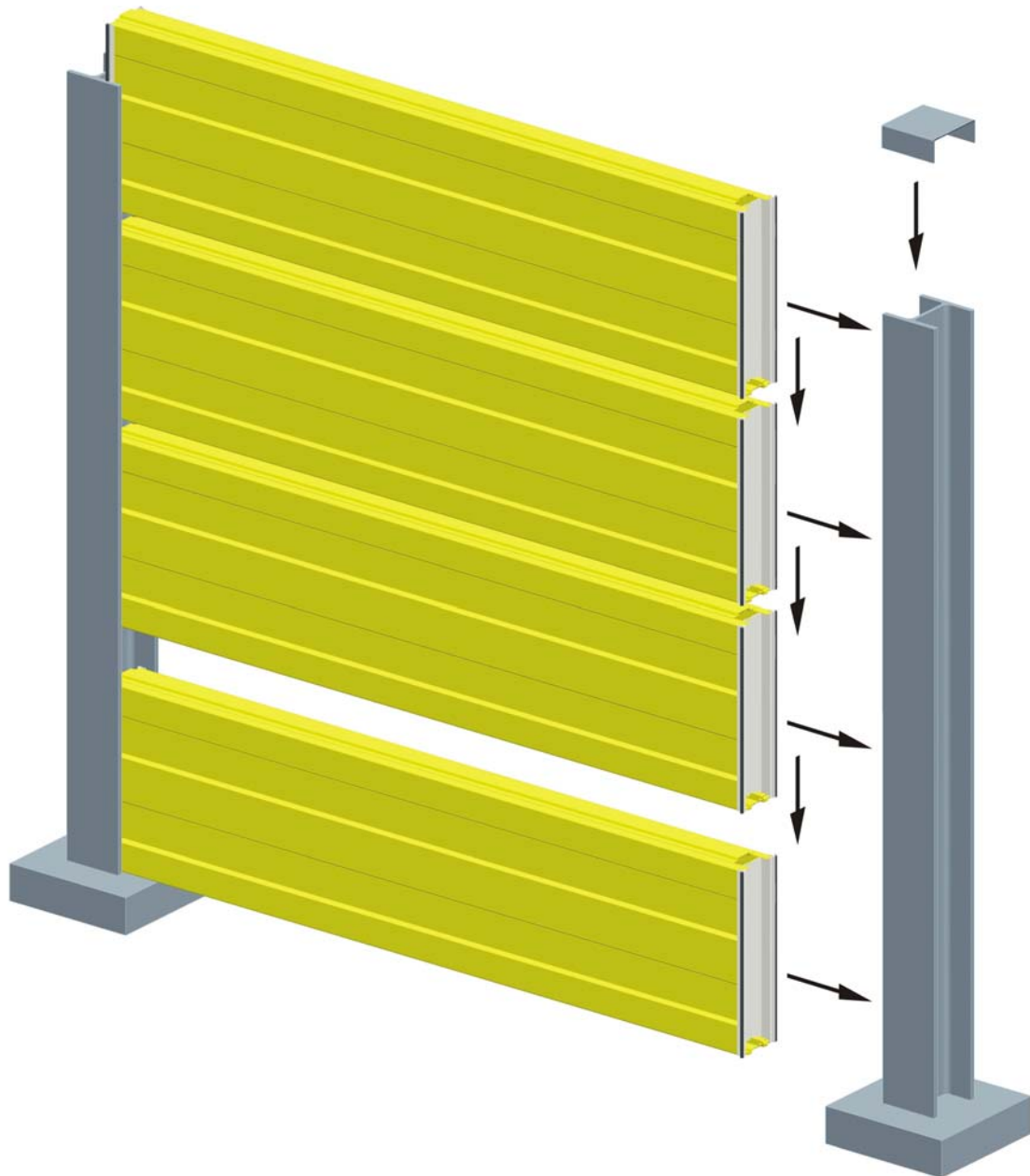
Type: Thickness:

ELC B/1	1,00 mm
ELC B/2	1,15 mm
ELC B/3	1,25 mm
ELC B/4	1,50 mm

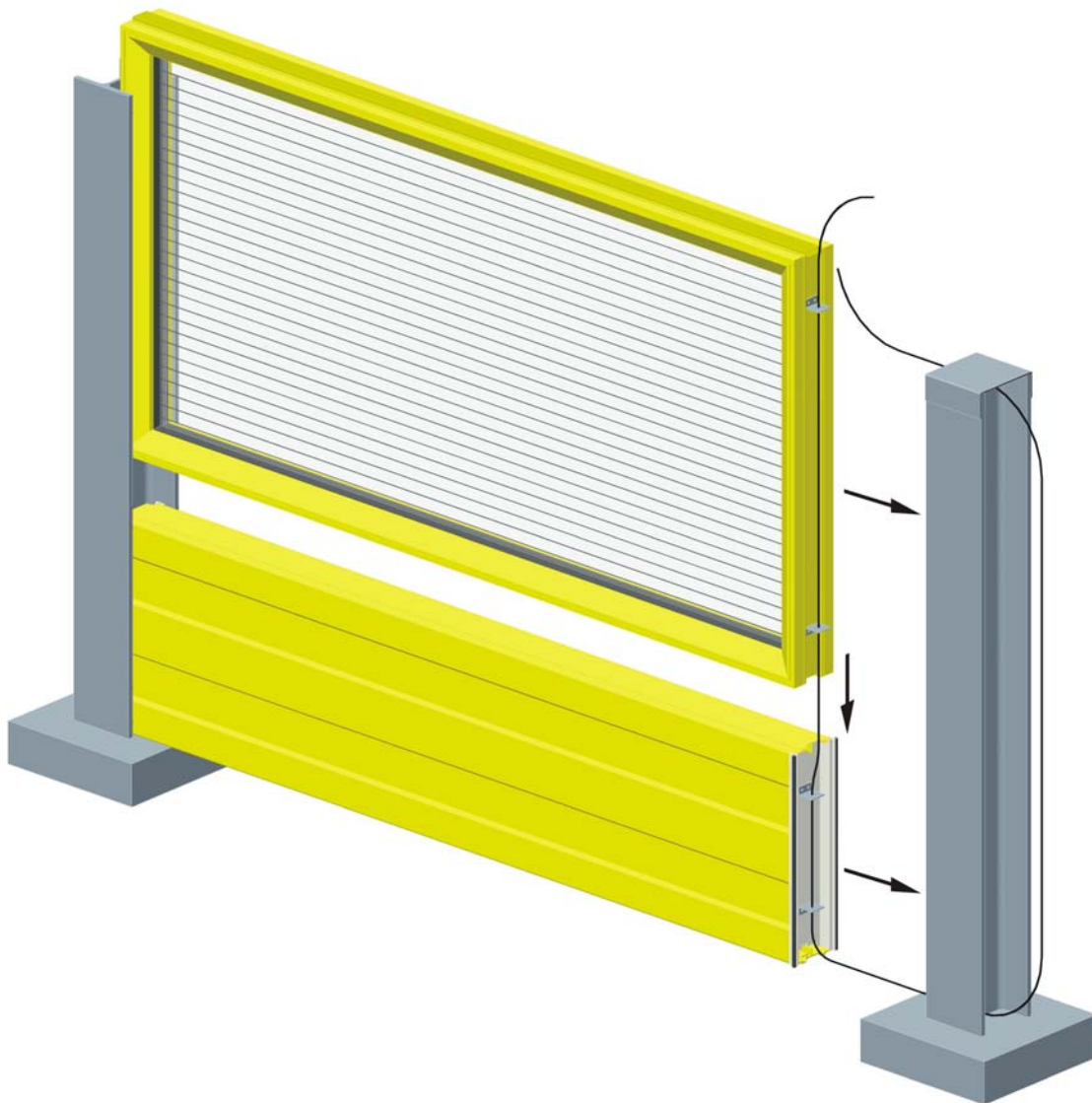


One-side Highly Absorbent Curved Noise Protection Element

Mounting of Noise Protection Elements



Aluminium Noise Protection Elements and Glass Elements Combined with Steel Cable as Anti – Fall Guard



RAL Colour - Selection List

Price bracket I (included in standard price)

RAL	1000	1001	1002	1011	1013	1014	1015	1019	1020	1024
	3007	3009	3012	3014	3015	3017	4001	4002	4003	4005
	4009	5000	5001	5002	5003	5004	5005	5007	5008	5009
	5010	5011	5012	5013	5014	5015	5017	5018	5019	5020
	5021	5023	5024	6000	6003	6004	6005	6006	6007	6008
	6011	6012	6013	6014	6015	6016	6019	6020	6021	6022
	6024	6025	6026	6027	6028	6032	6033	6034	7000	7001
	7002	7003	7004	7005	7006	7008	7009	7010	7011	7012
	7013	7015	7016	7021	7022	7023	7024	7026	7030	7031
	7032	7033	7034	7035	7036	7037	7037	7039	7040	7042
	7043	7044	7045	7046	7047	8000	8001	8002	8003	8004
	8007	8008	8011	8012	8014	8015	8016	8017	8019	8022
	8023	8024	8025	8028	9001	9002	9003	9004	9005	9010
	9011	9016	9017	9018						

Price bracket II

RAL	1006	1017	1034	2000	2001	3000	3005	3013	3016	3018
	3022	3027	4004	4006	4007	4008	4010	5022	6001	6002
	6009	6010	6017	6018	6029	9006	9007			

Price bracket III

RAL	1003	1004	1005	1007	1012	1016	1018	1021	1023	1027
	1028	1032	1033	1037	2001	2003	2004	2008	2009	2010
	2011	2012	3001	3002	3003	3004	3011	3020	3031	

Cleaning and Maintenance Information:

Cleaning:

- For cleaning use only clear cold water, with neutral, detergent free, mild scrubbing agent. The surface temperature should not be higher than hand temperature.
- The cleaning of the Aluminium Elements occurs with a smooth, non- scraping sponge/cloth. Only use non lubricating cleaning agents (pH value 5-8). After cleaning, rinse down the elements with clear water and wipe them dry.
- We do not recommend an after treatment with mothballing products (f.e.: Wax, Vaseline, Lanolin).
- Solvents (f.e.: Alcohol, Fuel, Acetone), alkali-containing Products (Ammoniac, Sodium) or scrubbing agents (f.e.: steel wool, sandpaper, scouring pad) must not be used!
- We recommend to clean the elements in suburban areas 2 times a year, in urban areas or areas with similar conditions 4 times a year.
- For cleaning of EPDM or silicon – fittings obtain the same measures as for surface cleaning. Fittings must not be removed from the Aluminium element!
- For maintenance of the surface we recommend the use of adequate caring products referring to the surface.

Maintenance:

- Noise Protection elements out of Aluminium do not require any maintenance.

Area for notes:

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