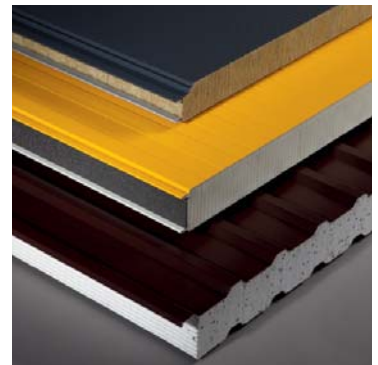
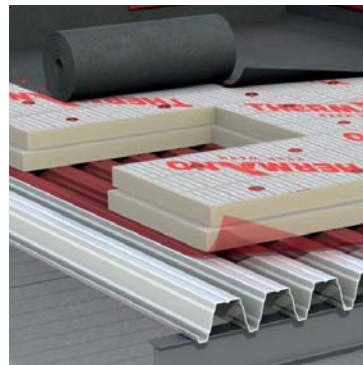


CONFIRMED  
QUALITY

# PRODUCT CATALOGUE

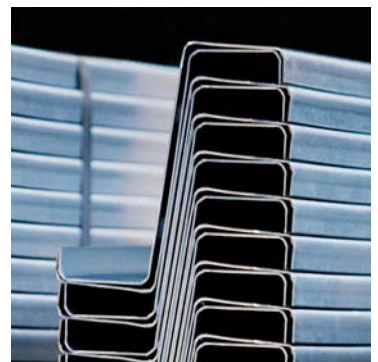
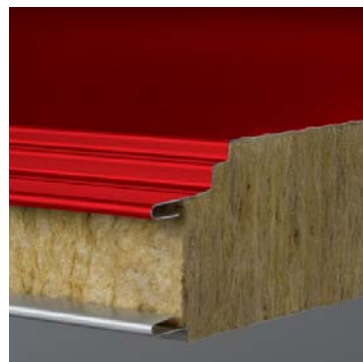
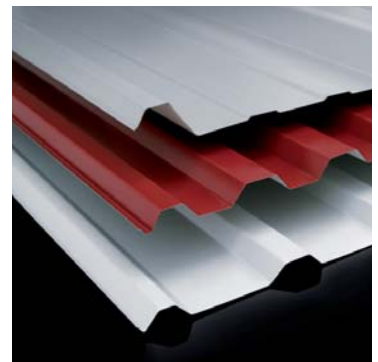
## INDUSTRIAL CONSTRUCTION



Complete solutions in practice:  
[www.balex.eu/en/references](http://www.balex.eu/en/references)



sandwich panels **BALEXTHERM**  
modern insulation  
**energy savings** energy efficiency  
precursor  $U_c = 0,10 \text{ W/m}^2\text{K}$   
complex system



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## ABOUT THE COMPANY

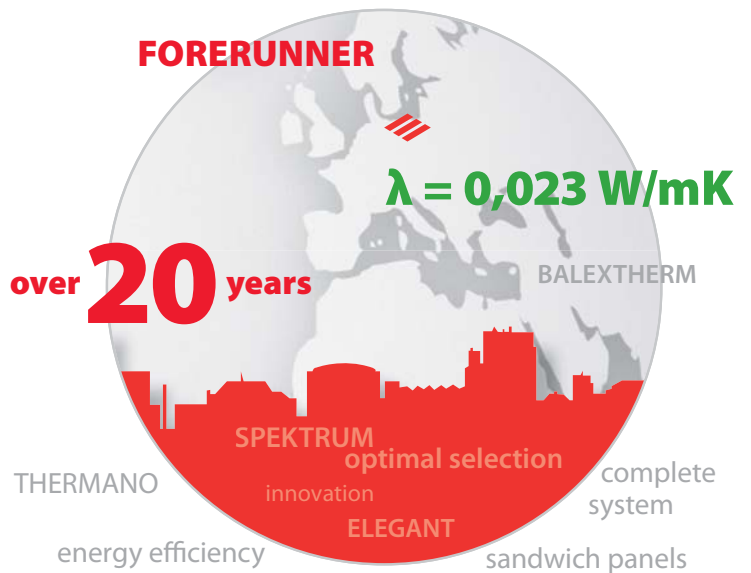
BALEX METAL brand is a guarantee of the highest quality of building materials. For over 20 years it has offered complementary and optimal system solutions for residential industrial and agricultural construction industry. It has gained **13 markets and the trust of over 20 000 local and international brands.**

Advanced technical solutions and modern technology allow the company to create the products that fully meet the needs of the clients nowadays.

Our consulting and sales services are provided through our network of regional branches, distributors and a team of professional sales advisors.

It is worth building with BALEX METAL!

**WE BUILD TOGETHER**



**FORERUNNER**

$\lambda = 0,023 \text{ W/mK}$

over **20** years

BALEXTHERM

THERMANO

SPEKTRUM  
optimal selection

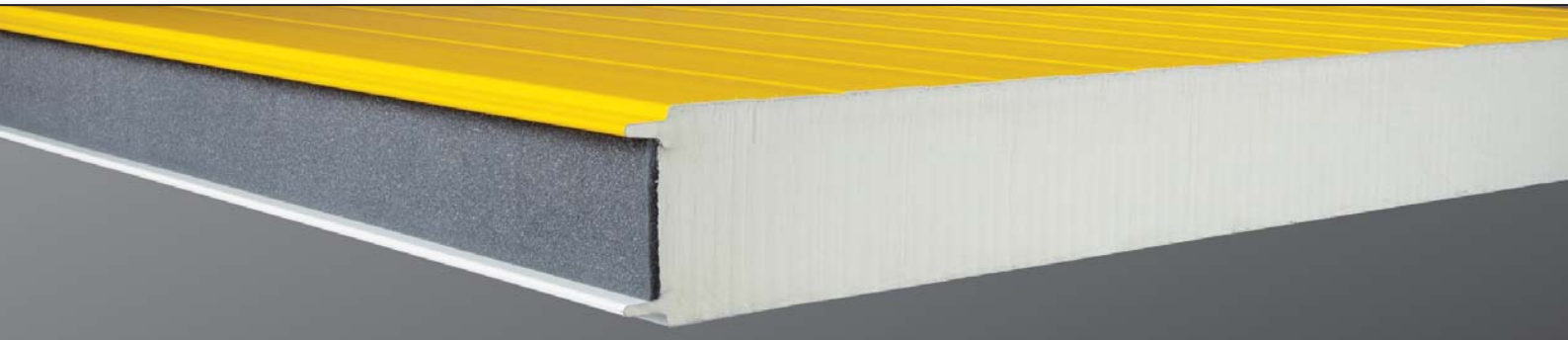
innovation

ELEGANT

energy efficiency

complete system

sandwich panels



## WALL SANDWICH PANELS WITH POLYURETHANE CORE, WITH EXPOSED FASTENING



### BALEXTHERM-PU-W-ST

#### FEATURES

- high thermal insulation properties: the core is made of rigid polyurethane foam and the gasket is introduced in the production process
- **FIRESTOP** – high fire resistance properties; unique, two sided shaping of panel and lock joint
- easy assembly: appropriate profiling of the lock and conical inclination of internal joint surface
- compatible system – the panels are fit to be joined with BALEXTHERM-W-ST panels with different core materials
- highly durable anti-corrosion layers – appropriate lining shape profiling technology
- aesthetic appearance of facades

#### APPLICATION

- light casing of walls
- external and partition walls
- internal ceiling coverings
- insulation
- industrial and services buildings
- agricultural buildings
- logistics buildings
- fruit and vegetable storage buildings
- sports halls



#### TECHNICAL PARAMETERS

<b>Name</b>	Wall sandwich panels with polyurethane core, with exposed fastening - BALEXTHERM-PU-W-ST				
<b>Core</b>	rigid polyurethane foam PUR or PIR / density: 40(+/-3) kg/m <sup>3</sup>				
<b>Lining thickness [mm]</b>	0,40 – 0,70				
<b>Steel type</b>	S250GD - S280GD; stainless (1.4301)				
<b>Cladding</b>	SP polyester, SP polyester matt Pearl, HDP polyester matt, PVC(F) „foodsafte“, PVDF, alu-zinc + easyfilm®, <b>CESAR PUR 55*</b> – polyurethane with polyamide, unparalleled durability and length of life, stainless steel				
<b>Colours</b>	a wide range of colours Balex Metal world of colours – page 50				
<b>Effective width [mm]</b>	1100				
<b>Total width [mm]</b>	1120				
<b>Sheet length [mm]</b>	2500 – 18000				
<b>Core thickness [mm]</b>	<b>40</b>	<b>50</b>	<b>60</b>	<b>80</b>	<b>100</b>
<b>Weight [kg/m<sup>2</sup>]</b>	10,26	10,58	11,08	11,79	12,60
<b>Thermal insulation U<sub>c</sub> [W/m<sup>2</sup>K]</b>	0,55	0,44	0,37	0,28	0,22
<b>Fire resistance</b>	Not dispersing fire NRO		E 60, not dispersing fire NRO		E 60, NRO* (PUR) E 45 / EI 20, NRO (PIR)
<b>Reaction to fire</b>	B-s1, d0 (PIR) B-s2, d0 (PUR)				

\* Not dispersing fire NRO

## LINING PROFILE TYPES

**L** Lines



**M** Micro-profiles



**G** Smooth surface



## AVAILABLE TYPES OF LINING PROFILES

External coating

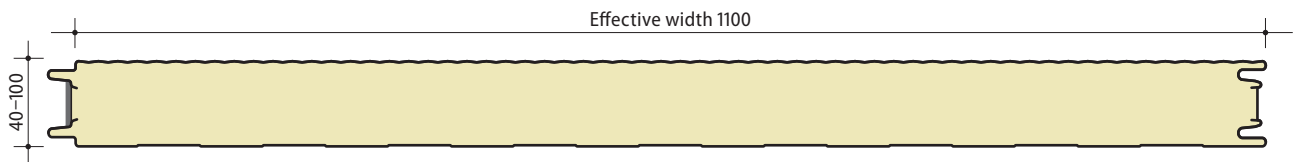
**L** **M** **G\***

Internal coating

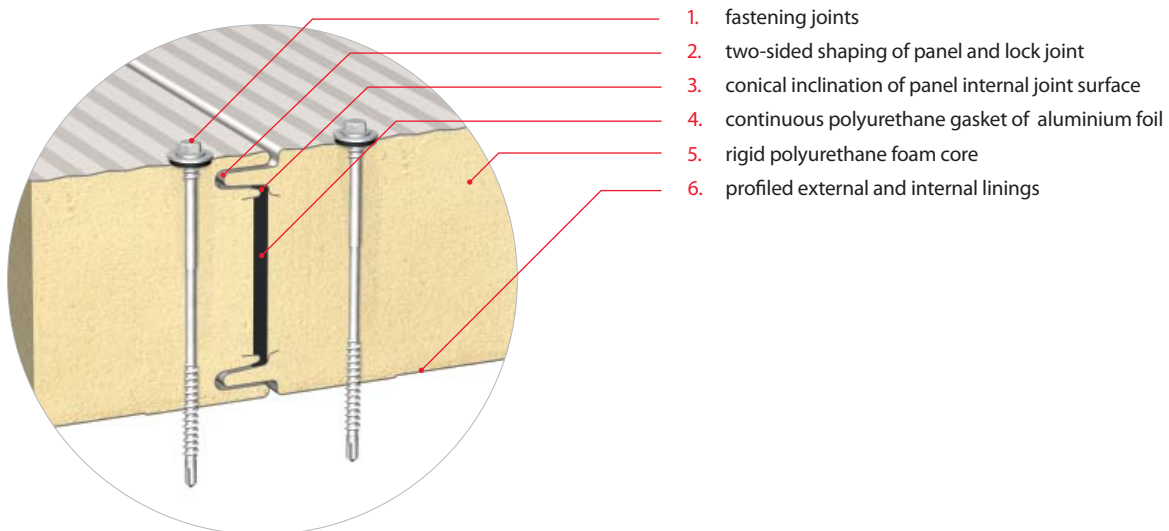
**L** **G\***

\* Available for coatings of minimum 0,50 mm thickness

## CROSS-SECTION OF BALEXTHERM-PU-W-ST PANEL



## DETAIL OF JOINING BALEXTHERM-PU-W-ST PANELS



1. fastening joints
2. two-sided shaping of panel and lock joint
3. conical inclination of panel internal joint surface
4. continuous polyurethane gasket of aluminium foil
5. rigid polyurethane foam core
6. profiled external and internal linings



## WALL SANDWICH PANELS WITH POLYURETHANE CORE, WITH CONCEALED FASTENING



### BALEXTHERM-PU-W-PLUS

#### FEATURES

- high thermal insulation properties: the core is made of rigid polyurethane foam and the gasket is introduced in the production process
- aesthetic appearance of facades: concealed structural connection; a wide range of external lining profiles
- **FIRESTOP** – high fire resistance properties; unique, two sided shaping of panel and lock joint
- easy assembly - appropriate profiling of the lock, longitudinal slot and conical inclination of internal joint surface
- compatible system – the panels are fit to be joined with BALEXTHERM-W-ST panels with different core materials
- highly durable anti-corrosion layers – appropriate lining shape profiling technology

#### APPLICATION

- light casing of walls
- external and partition walls
- internal ceiling coverings
- insulation
- industrial and services buildings
- agricultural buildings
- logistics buildings
- fruit and vegetable storage buildings
- sports halls



#### TECHNICAL PARAMETERS

<b>Name</b>	Wall sandwich panels with polyurethane core, with exposed fastening – BALEXTHERM-PU-W-PLUS							
<b>Core</b>	Rigid polyurethane foam PUR or PIR /density: 40(+/-3) kg/m <sup>3</sup>							
<b>Lining thickness [mm]</b>	0,40 – 0,70							
<b>Type of steel</b>	S250GD - S280GD; stainless (1.4301) (external lining)							
<b>Cladding</b>	SP polyester, SP polyester matt Pearl, HDP polyester matt, PVC(F) „foodsafte“, PVDF, alu-zinc +easyfilm®, <b>CESAR PUR 55*</b> – polyurethane with polyamide, unparalleled durability and length of life							
<b>Colours</b>	a wide range of colours Balex Metal world of colours – page 50							
<b>Panel length[mm]</b>	2 500 – 18 000							
<b>Effective width [mm]</b>	1 000				1 050			
<b>Total width [mm]</b>	1 050				1 100			
<b>Core thickness [mm]</b>	<b>60</b>	<b>80</b>	<b>100</b>	<b>120</b>	<b>60</b>	<b>80</b>	<b>100</b>	<b>120</b>
<b>Weight [kg/m<sup>2</sup>]</b>	11,38	12,11	12,91	<b>13,81</b>	11,41	12,11	12,87	<b>13,75</b>
<b>Thermal insulation U<sub>c</sub> [W/m<sup>2</sup>K]</b>	0,38	0,28	0,23	<b>0,19</b>	0,38	0,28	0,23	<b>0,19</b>
<b>Fire resistance</b>	E 30, NRO*		EI 15/ E 30, Not dispersing fire NRO		E 30, NRO*		EI 15/ E 30, Not dispersing fire NRO	
<b>Reakcja na ogień</b>	B-s3, d0 (PUR) B-s2, d0 (PIR)							

\* Not dispersing fire NRO

**NEW!**

## LINING PROFILE TYPES

**L** Lines



**S** Softline



**M** Micro-profile



**R** Grooves



**G** Smooth surface



## AVAILABLE TYPES OF LINING PROFILES

Module 1050

Module 1000

External lining

**S\*** **M** **R** **G\***

**L** **S\*** **M** **G\***

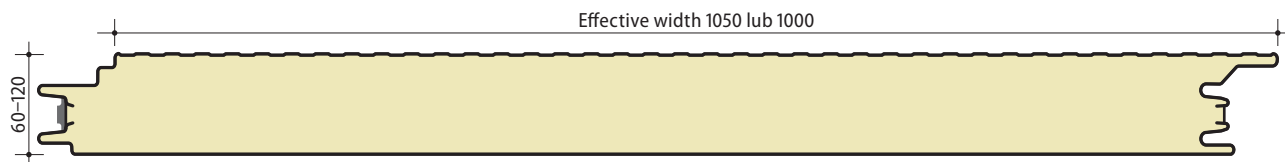
Internal lining

**L** **G\***

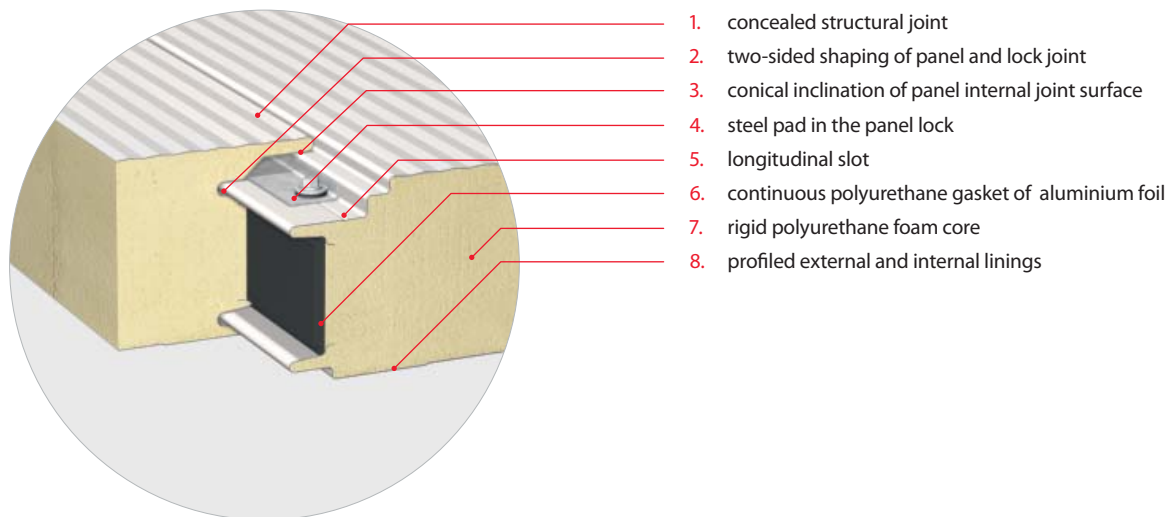
**L** **G\***

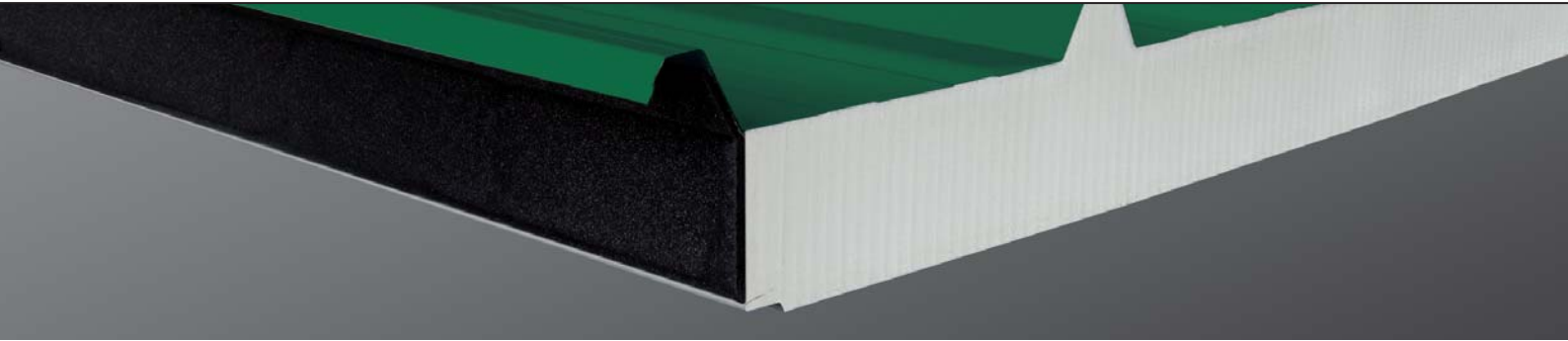
\* S profiling available only for linings of 60-100mm thickness; G profiling available only for minimum 0,50mm panel thickness

## CROSS-SECTION OF BALEXTHERM-PU-W-PLUS PANEL



## DETAIL OF CONNETING BALEXTHERM-PU-W-PLUS PANELS





## ROOF SANDWICH PANELS WITH POLYURETHANE CORE



### BALEXTHERM-PU-R

#### FEATURES

- high thermal insulation properties: the core is made of rigid polyurethane foam and the gasket is introduced in the production process
- **FIRESTOP** – high fire resistance properties; unique, two sided shaping of panel and lock joint
- appropriate profiling of the lock and conical inclination of internal joint surface
- compatible system – the panels are fit to be joined with BALEXTHERM-W-ST panels with different core materials it is possible to join panels of different thicknesses
- highly durable anti-corrosion layers – appropriate lining shape profiling technology
- high load bearing capacity: trapezoidal profiling of external lining
- good rainwater drainage

#### APPLICATION

- light roof covering
- industrial and services buildings
- agricultural buildings
- logistics buildings
- fruit and vegetable storage buildings
- sports halls



#### TECHNICAL PARAMETERS

<b>Name</b>	roof sandwich panels with polyurethane core – BALEXTHERM-PU-R					
<b>Core</b>	rigid polyurethane foam PUR or PIR / density: 40(+/-3) kg/m <sup>3</sup>					
<b>Lining thickness [mm]</b>	0,40 – 0,70					
<b>Steel type</b>	S250GD - S280GD; stainless (1.4301) (internal lining)					
<b>Cladding</b>	SP polyester, SP polyester matt Pearl, HDP polyester matt, PVC(F) „foodsafes“, PVDF, alu-zinc +easyfilm®, <b>CESAR PUR 55°</b> – polyurethane with polyamide, unparalleled durability and length of life					
<b>Colours</b>	a wide range of colours Balex Metal world of colours - page 50					
<b>Panel length [mm]</b>	2 500 - 18 000					
<b>Effective width [mm]</b>	1000					
<b>Total width [mm]</b>	1 062,50					
<b>Core thickness [mm]</b>	<b>40</b>	<b>60</b>	<b>80</b>	<b>100</b>	<b>120</b>	<b>160</b>
<b>Weight [kg/m<sup>2</sup>]</b>	10,84	11,65	12,45	13,26	14,07	15,69
<b>Thermal insulation U<sub>c</sub> [W/m<sup>2</sup>K]</b>	0,52	0,36	0,27	0,22	0,19	0,14
<b>Fire resistance</b>	Not dispersing fire NRO		REI 30 / RE 60, Not dispersing fire NRO (PIR), REI 20 / RE 60, Not dispersing fire NRO (PUR)			
<b>Resistance of the roof to external fire</b>	B <sub>ROOF</sub> (t <sub>1</sub> )					
<b>Minimum roof inclination</b>	> 7 % – for panels joined at length or with skylights > 5 % – for continuous panels and without skylights					



## LINING PROFILE TYPES

**L** Lines



**G** Smooth surface



**T** Trapezoidal



## AVAILABLE TYPES OF LINING PROFILES

External lining

**T**

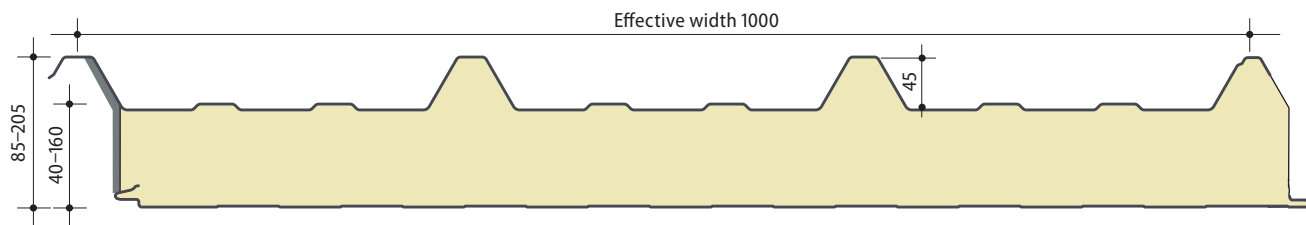
Internal lining

**L**

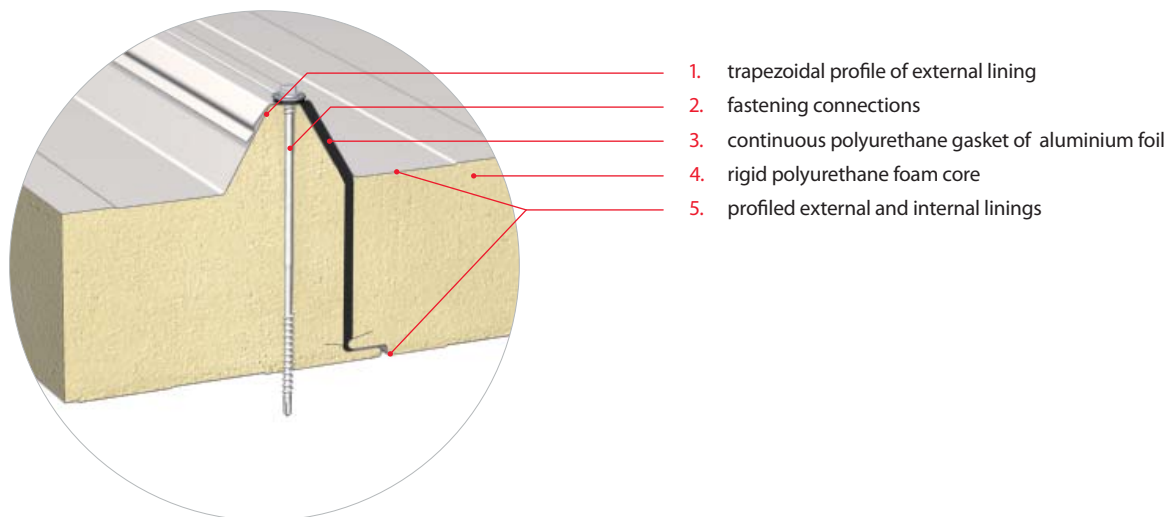
**G\***

\* Available for linings of min. 0,50mm thickness

## CROSS-SECTION OF BALEX THERM-PU-R PANEL



## DETAIL OF JOINING BALEX THERM-PU-R PANELS





## COLD STORAGE SANDWICH PANELS WITH POLYURETHANE CORE



### BALEXTHERM-PU-F

#### FEATURES

- **FIRESTOP** – high fire resistance properties; unique, two sided shaping of panel and lock joint
- high thermal insulation properties – rigid polyurethane foam core and a special panel fastening system eliminating point thermal bridge
- perfect panel connection: milled core joint eliminating a linear thermal bridge
- easy assembly - appropriate profiling of the lock, longitudinal slot and conical inclination of internal joint surface
- highly durable anti-corrosion layers – appropriate lining shape profiling technology
- aesthetic appearance

#### APPLICATION

- external and partition walls of cold-proof structures
- ceilings in cold-proof structures
- cold-store chambers, freezers
- fruit and vegetable storage buildings
- rooms with high hygienic requirements



#### TECHNICAL PARAMETERS

<b>Name</b>	cold storage sandwich panels with polyurethane core - BALEXTHERM-PU-F			
<b>Core</b>	rigid polyurethane foam PUR or PIR /density: 40(+/-3) kg/m <sup>3</sup>			
<b>Lining thickness [mm]</b>	0,50 (on request 0,60 – 0,70)			
<b>Steel type</b>	S250GD – S280GD; stainless (1.4301)			
<b>Cladding</b>	SP polyester, SP polyester matt Pearl, HDP polyester matt, PVC(F) „foodsafes“, PVDF, alu-zinc + easyfilm®, <b>CESAR PUR 55®</b> – polyurethane with polyamide, unparalleled durability and length of life			
<b>Colours</b>	a wide range of colours Balex Metal world of colours – page 50			
<b>Panel length [mm]</b>	2 500 - 18 000			
<b>Effective width [mm]</b>	1 100			
<b>Total width [mm]</b>	1 120			
<b>Core thickness [mm]</b>	<b>120</b>	<b>160</b>	<b>180</b>	<b>200</b>
<b>Weight [kg/m<sup>2</sup>]</b>	13,37	15,00	15,82	16,61
<b>Thermal insulation U<sub>c</sub> [W/m<sup>2</sup>K]</b>	0,18	0,14	0,12	0,10
<b>Fire resistance</b>	E30 / EI 15, Not dispersing fire NRO (PUR) E90 / EI 30, Not dispersing fire NRO (PIR, d≤200mm) EI60, Not dispersing fire NRO (PIR, d=200mm)			
<b>Reaction to fire</b>	B-s2, d0 (PUR) B-s1, d0 (PIR)			

## LINING PROFILE TYPES

**L** Lines



**M** Micro-profile



**G** Smooth surface



## AVAILABLE TYPES OF LINING PROFILES

External lining

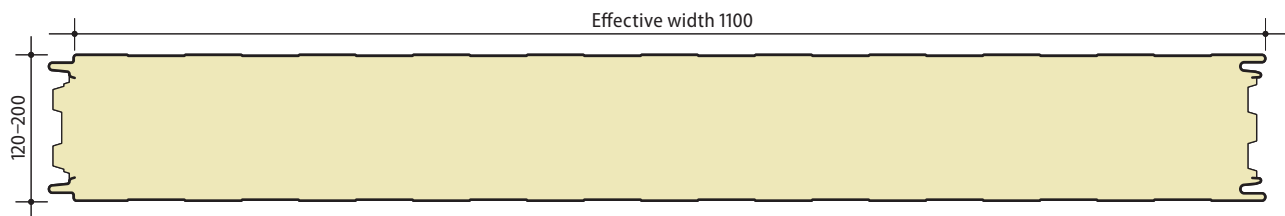
**L** **M** **G\***

Internal lining

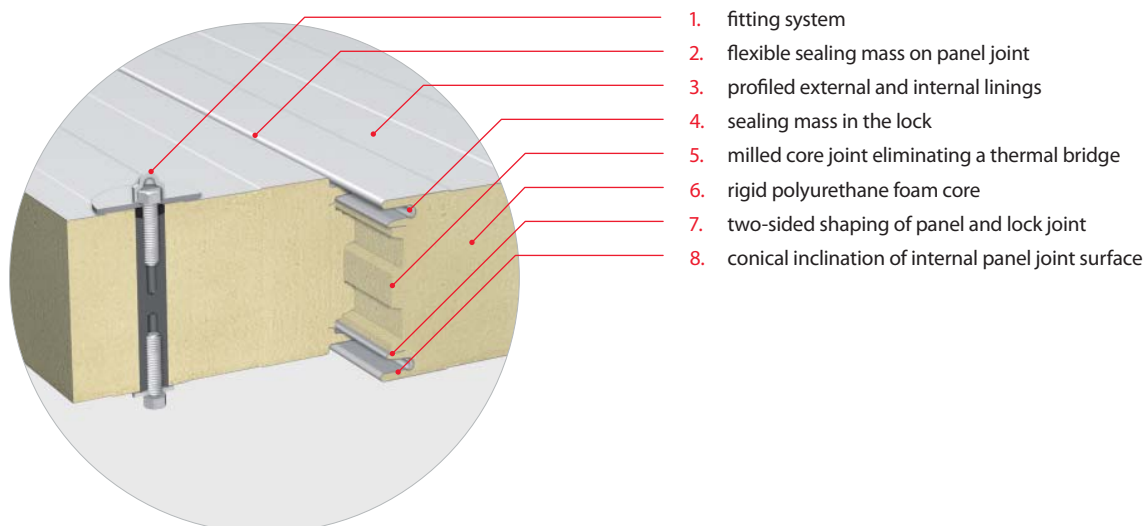
**L** **G\***

\* Available for linings of min. 0,50mm thickness

## CROSS-SECTION OF BALEX THERM-PU-F PANEL



## DETAIL OF BALEX THERM-PU-F CONNECTION





## WALL SANDWICH PANELS WITH MINERAL WOOL CORE, WITH EXPOSED FASTENING

**NEW!**



### BALEXTHERM-MW-D-W-ST DEFENDER

#### FEATURES

- **Anti-burglar.** DEFENDER panel meets the 2 class anti-burglar protection, in accordance with SSF1047
- **FIRESTOP.** Very tight and resistant to fire. Thanks to high density of the wool and unique, two-sided shaping of panel-lock joint, DEFENDER panel may be used as anti-fire partition. Fire resistance according to EI240 standard.
- **SUPERIOR GASKET.** DEFENDER panel provides a maximum increase in tightness and shorter assembly time, thanks to the option of applying a gasket in the lock joint in production, on the internal side or on both sides.
- **Easy assembly.** Lock profile and conical inclination of DEFENDER PANEL internal joint surface is suitable for joining with BALEXTHERM-W-ST panels with various core materials.
- **The highest resistance level.** DEFENDER panels have special line prefabricated mineral wool core
- **Aesthetic appearance of facade.** DEFENDER panels come in a very wide range of external lining profiles and colours.

#### APPLICATION

- external and internal walls of the highest anti-burglar requirements
- commercial, utility and industrial facilities with the highest fire resistance security level: EI240
- logistics, office, sports, agricultural facilities, including fruit and vegetable storage buildings
- internal ceilings



#### TECHNICAL PARAMETERS

<b>Name</b>	wall sandwich panels with mineral wool core, with exposed fastening – BALEXTHERM-MW-D-W-ST DEFENDER	
<b>Core</b>	Rigid mineral wool (apparent nominal density 150 kg/m <sup>3</sup> )	
<b>Lining thickness [mm]</b>	0,60 – 0,70	
<b>Steel type</b>	S250GD	
<b>Cladding</b>	SP polyester, SP polyester matt Pearl, HDP polyester matt, PVC(F) "foodsafe", PVDF, alu-zinc + easyfilm®, <b>CESAR PUR 55®</b> – polyurethane with polyamide, unparalleled durability and length of life	
<b>Colours</b>	a wide range of colours Balex Metal world of colours – page 50	
<b>Effective width [mm]</b>	1100	
<b>Total width [mm]</b>	1120	
<b>Panel length [mm]</b>	2500 – 15 000	
<b>Core thickness [mm]</b>	200	230
<b>Panel weight [kg/m<sup>2</sup>]</b>	41,3	45,7
<b>Thermal insulation U<sub>c</sub> [W/m<sup>2</sup>K]</b>	0,19	0,17
<b>Fire resistance</b>	EI240/EW240* L <sub>max</sub> =4,0m	
<b>Reaction to fire</b>	A2-s1.d0	

## LINING PROFILE TYPES

**L** Lines



**M** Micro-profiles



**R** Grooves



**G** Smooth surface



## AVAILABLE TYPES OF LINING PROFILES

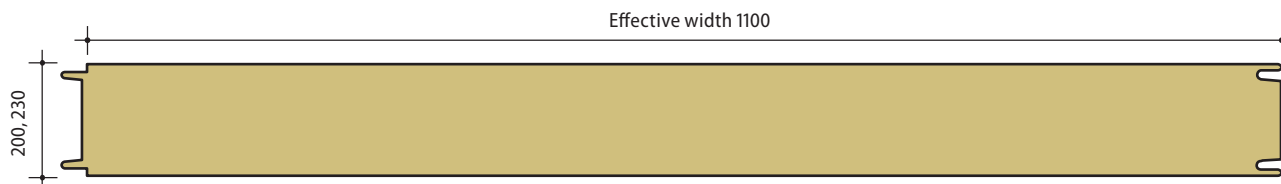
External lining



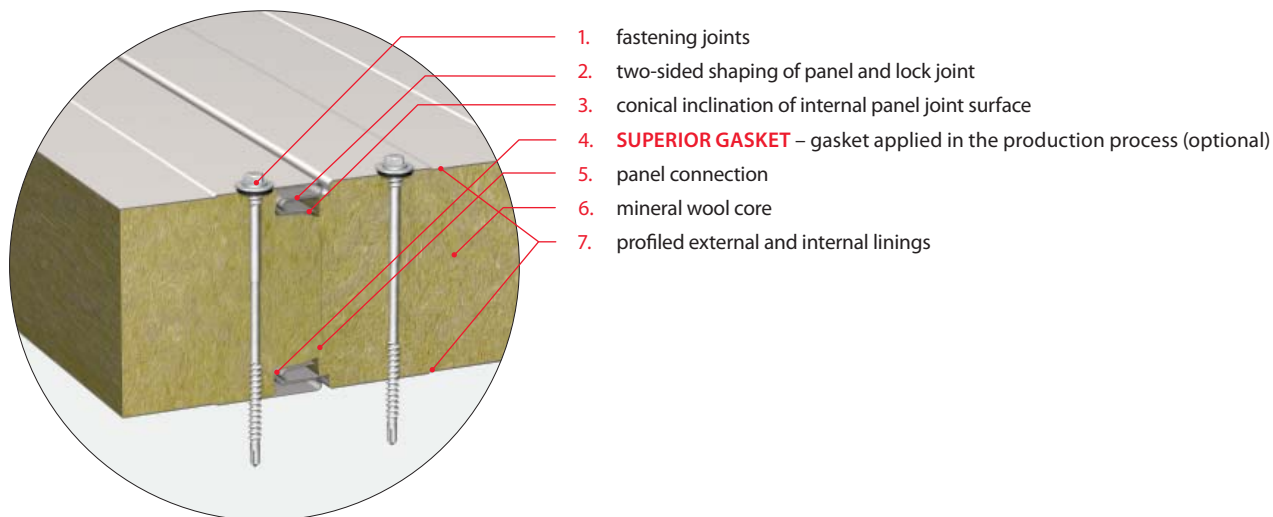
Internal lining



## CROSS-SECTION OF BALEXTHERM-MW-D-W-ST DEFENDER PANEL



## DETAIL OF BALEXTHERM-MW-D-W-ST DEFENDER CONNECTION OF PANELS





## WALL SANDWICH PANELS WITH MINERAL WOOL CORE, WITH EXPOSED FASTENING



### BALEXTHERM-MW-W-ST

#### FEATURES

- **FIRESTOP** – high fire resistance properties; unique, two sided shaping of panel and lock joint
- high fire resistance properties: they may be used as fire partitions
- high thermal insulation properties – tightly fitted panel connections
- **SUPERIOR GASKET** – the panels provide a maximum increase in tightness and shorter assembly time, thanks to the option of applying a gasket in the lock joint in production, on the internal side or on both sides. **NEW!**
- Easy assembly. Lock profile and conical inclination of panel internal joint surface is suitable for joining with BALEXTHERM-W-ST panels with various core materials.
- high durability: special line prefabricated mineral wool core
- highly durable anti-corrosion layers – appropriate lining shape profiling technology
- Aesthetic appearance of facade: a very wide range of external lining profiles and colours.

#### APPLICATION

- external walls
- partition walls
- fire partitions
- internal ceilings
- building insulation
- commercial and industrial buildings of increased fire resistance requirements
- logistics facilities
- office facilities
- agricultural facilities
- fruit and vegetable storage facilities
- sports halls



#### TECHNICAL PARAMETERS

<b>Name</b>	wall sandwich panels with mineral wool core, with exposed fastening – BALEXTHERM-MW-W-ST									
<b>Core</b>	Rigid mineral wool (apparent nominal density 110 kg/m <sup>3</sup> )									
<b>Lining thickness [mm]</b>	0,50 – 0,70									
<b>Steel type</b>	S250GD									
<b>Cladding</b>	SP polyester, SP polyester matt Pearl, HDP polyester matt, PVC(F) „foodsafes”, PVDF, alu-zinc + easyfilm®, <b>CESAR PUR 55°</b> – polyurethane with polyamide, unparalleled durability and length of life									
<b>Colours</b>	a wide range of colours Balex Metal world of colours – page 50									
<b>Effective width [mm]</b>	1100									
<b>Total width [mm]</b>	1120									
<b>Panel length [mm]</b>	2.500 - 15.000									
<b>Core thickness [mm]</b>	80	100	120	130	140	150	160	180	200	230
<b>Panel weight [kg/m<sup>2</sup>]</b>	17,79	19,80	21,90	23,00	24,00	25,01	26,10	28,20	30,30	33,50
<b>Thermal insulation U<sub>c</sub> [W/m<sup>2</sup>K]</b>	0,47	0,38	0,32	0,30	0,28	0,26	0,24*	0,22	0,19	0,17
<b>Fire resistance</b>	NRO**	EI 120, Not dispersing fire NRO					EI 240, Not dispersing fire NRO			
<b>Reaction to fire</b>	A2-s1.d0									

\* BALEXTHERM-MW-W-ST panel of 160mm core thickness meets the minimum requirements on thermal permeability coefficient for walls, specified in the Regulation of the Minister for Infrastructure

\*\* Not dispersing fire NRO

## LINING PROFILE TYPES

**L** Lines



**M** Micro-profiling



**R** Grooves



**G** Smooth surface



## AVAILABLE TYPES OF LINING PROFILES

External lining

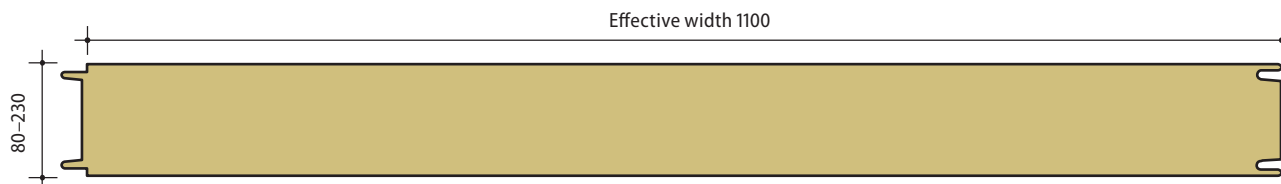
**L** **M** **R** **G\***

Internal lining

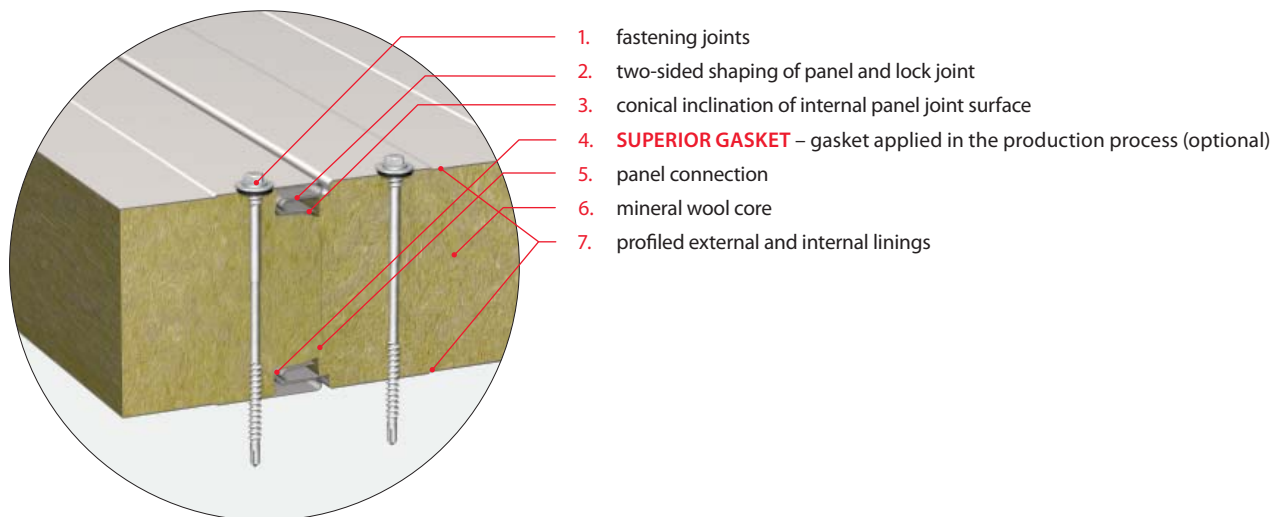
**L** **G\***

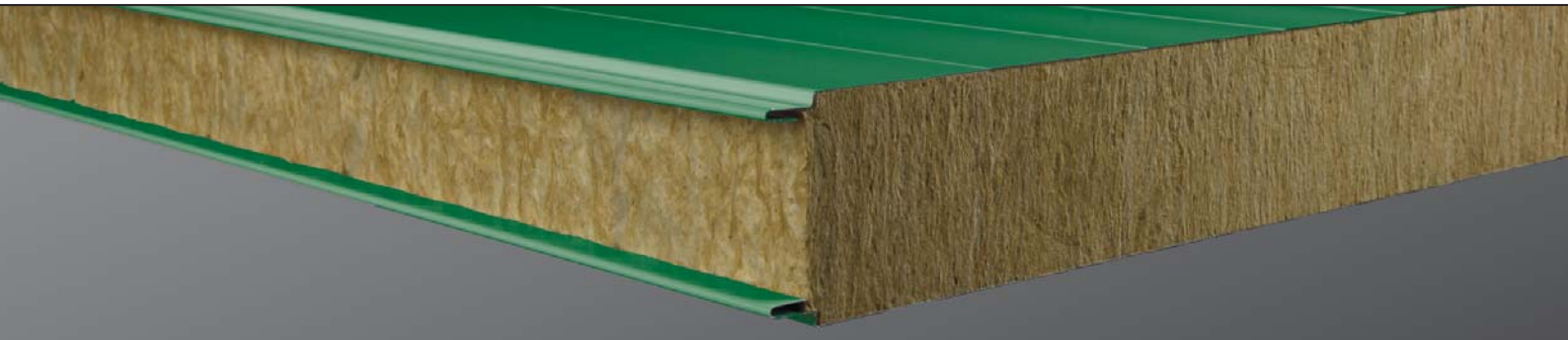
\* Available for linings of min. 0,60mm thickness

## CROSS-SECTION OF BALEXTHERM-MW-W-ST PANEL



## DETAIL OF BALEXTHERM-MW-W-ST CONNECTION OF PANELS





## WALL SANDWICH PANELS WITH MINERAL WOOL CORE, WITH EXPOSED FASTENING

**NEW!**



### BALEXTHERM-MW-LT-W-ST LIGHT

#### FEATURES

- **Tightness and fire resistance.** LIGHT panel fire resistance according to EI60 standard.
- **SUPERIOR GASKET.** The LIGHT panels provide a maximum increase in tightness and shorter assembly time, thanks to the option of applying a gasket in the lock joint in production, on the internal side or on both sides.
- **Easy assembly.** Lock profile and conical inclination of LIGHT panel internal joint surface is suitable for joining with BALEXTHERM-W-ST panels with various core materials.
- **The highest resistance level.** DEFENDER panels have special line prefabricated mineral wool core.
- **Aesthetic appearance of facade.** DEFENDER panels come in a very wide range of external lining profiles and colours.

#### APPLICATION

- external walls
- partition walls
- commercial, utility and industrial facilities
- logistics, office, sports, agricultural facilities, including fruit and vegetable storage buildings
- internal ceilings



#### TECHNICAL PARAMETERS

<b>Name</b>	wall sandwich panels with mineral wool core, with exposed fastening – BALEXTHERM-MW-LT-W-ST LIGHT									
<b>Core</b>	Rigid mineral wool (apparent nominal density 90 kg/m <sup>3</sup> )									
<b>Lining thickness [mm]</b>	0,50									
<b>Steel type</b>	S250GD									
<b>Cladding</b>	SP polyester									
<b>Colours</b>	a wide range of colours Balex Metal world of colours – page 50									
<b>Effective width [mm]</b>	1 100									
<b>Total width [mm]</b>	1 120									
<b>Panel length [mm]</b>	2 500 – 15 000									
<b>Core thickness [mm]</b>	80	100	120	130	140	150	160	180	200	230
<b>Panel weight [kg/m<sup>2</sup>]</b>	14,5	16,2	17,9	18,8	19,6	20,5	21,4	23,1	24,8	27,4
<b>Thermal insulation U<sub>c</sub> [W/m<sup>2</sup>K]</b>	0,47	0,38	0,32	0,3	0,28	0,26	0,25	0,22	0,19	0,17
<b>Fire resistance</b>	-	EI60/EW60								
<b>Resistance to fire</b>	-	A2-s1.d0								



## LINING PROFILE TYPES

**L** Lines



**M** Micro-profiles



**R** Grooves



**G** Smooth surface



## AVAILABLE TYPES OF LINING PROFILES

External lining

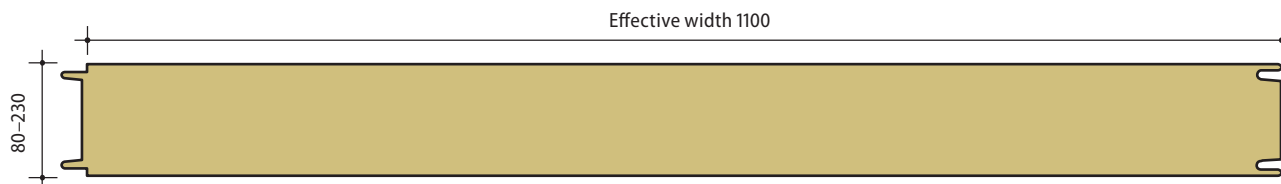
**L** **M** **R** **G\***

Internal lining

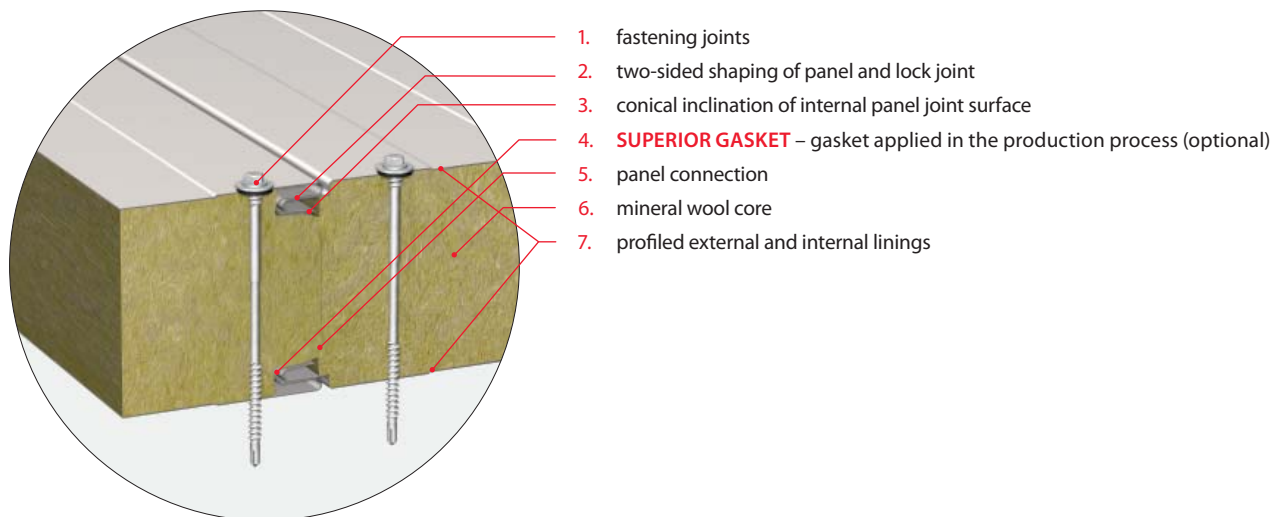
**L** **G\***

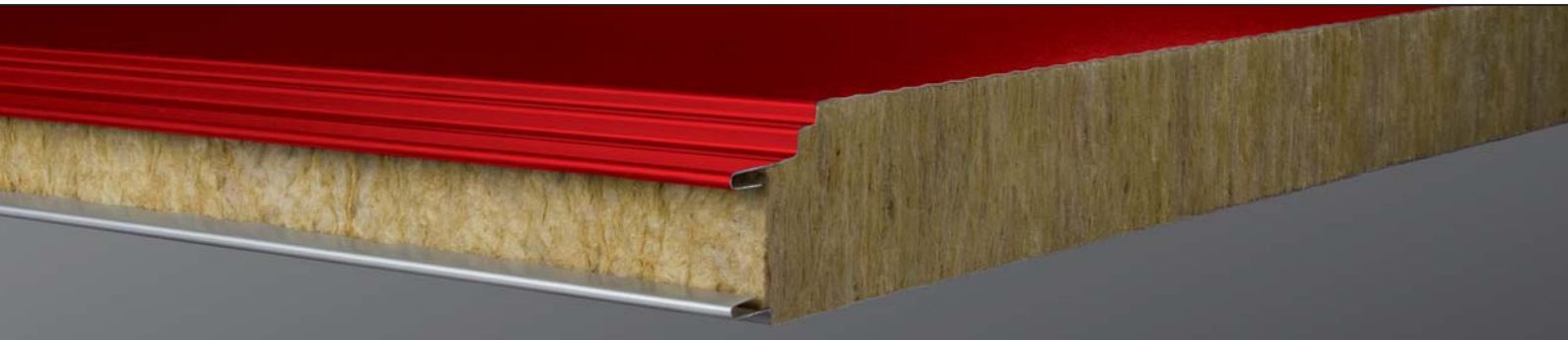
\* Available for linings of min. 0,60mm thickness

## CROSS-SECTION OF BALEXTHERM-MW-LT-W-ST LIGHT PANEL



## DETAIL OF BALEXTHERM-MW-LT-W-ST LIGHT CONNECTION OF PANELS





## WALL SANDWICH PANELS WITH MINERAL WOOL CORE, WITH CONCEALED FASTENING



### BALEXTHERM-MW-W-PLUS

#### FEATURES

- **FIRESTOP** – high fire resistance properties; unique, two sided shaping of panel and lock joint
- high fire resistance properties: they may be used as fire partitions
- high thermal insulation properties – tightly fitted panel connections
- easy assembly-inclination of internal joint surface, longitudinal slot facilitating the positioning of fastening joints
- **SUPERIOR GASKET** – the panels provide a maximum increase in tightness and shorter assembly time, thanks to the option of applying a gasket in the lock joint in production, on the internal side or on both sides. **NEW!**
- compatible system: Lock profile and conical inclination of panel internal joint surface is suitable for joining with BALEXTHERM-W-PLUS panels with various core materials.
- high durability: special line prefabricated mineral wool core
- highly durable anti-corrosion layers – appropriate lining shape profiling technology
- aesthetic appearance of the facade – concealed structural connection; a very wide range of external lining profiles and colours

#### APPLICATION

- external walls
- partition walls
- fire partitions
- internal ceilings
- building insulation
- commercial and industrial facilities of increased fire resistance requirements
- logistics facilities
- office facilities
- agricultural facilities
- fruit and vegetable storage facilities
- sports halls



#### TECHNICAL PARAMETERS

<b>Name</b>	Wall sandwich panels with mineral wool core, with concealed fastening - BALEXTHERM-MW-W-PLUS																	
<b>Core</b>	Rigid mineral wool (apparent nominal density 110 kg/m <sup>3</sup> )																	
<b>Lining thickness [mm]</b>	0,50 – 0,70																	
<b>Steel type</b>	S250GD																	
<b>Cladding</b>	SP polyester, SP polyester matt Pearl, HDP polyester matt, PVC(F) „foodsafes”, PVDF, alu-zinc + easyfilm®, <b>CESAR PUR 55°</b> – polyurethane with polyamide, unparalleled durability and length of life																	
<b>Colours</b>	a wide range of colours Balex Metal world of colours – page 50																	
<b>Panel length [mm]</b>	2 500 - 15 000																	
<b>Effective width [mm]</b>	1 050										1 000							
<b>Total width [mm]</b>	1 100										1 050							
<b>Core thickness [mm]</b>	80	100	120	130	140	150	160	180	200	80	100	120	130	140	150	160	180	200
<b>Panel weight [kg/m<sup>2</sup>]</b>	17,79	19,80	21,90	23,00	24,00	25,01	26,10	28,20	30,30	17,10	19,20	21,30	22,40	23,40	24,50	25,50	27,60	29,70
<b>Thermal insulation U<sub>c</sub> [W/m<sup>2</sup>K]</b>	0,48	0,38	0,32	0,30	0,28	0,26	0,24*	0,22	0,20	0,48	0,38	0,32	0,30	0,28	0,26	0,24*	0,22	0,20
<b>Fire resistance</b>	Not dispersing fire NRO (d=80); EI 30, Not dispersing fire NRO (d=100); EI 60, Not dispersing fire NRO (d≥120)																	
<b>Reaction to fire</b>	A2-s2.d0																	

\* BALEXTHERM-MW-W-PLUS panels of 160mm core thickness meet the minimum requirements on thermal permeability coefficient for walls, specified in the Regulation of the Minister for Infrastructure

## LINING PROFILE TYPES

**L** Lines



**M** Micro-profile



**R** Grooves



**G** Smooth surface

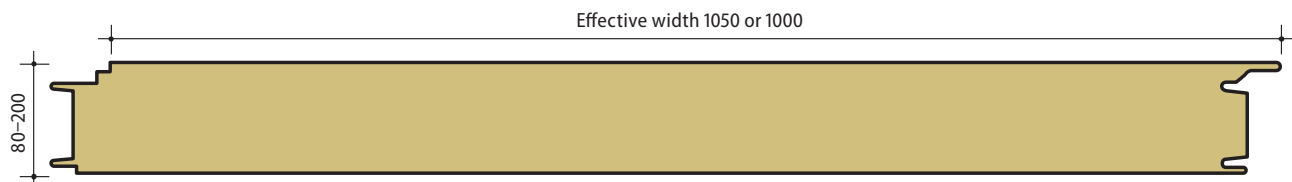


## AVAILABLE TYPES OF LINING PROFILES

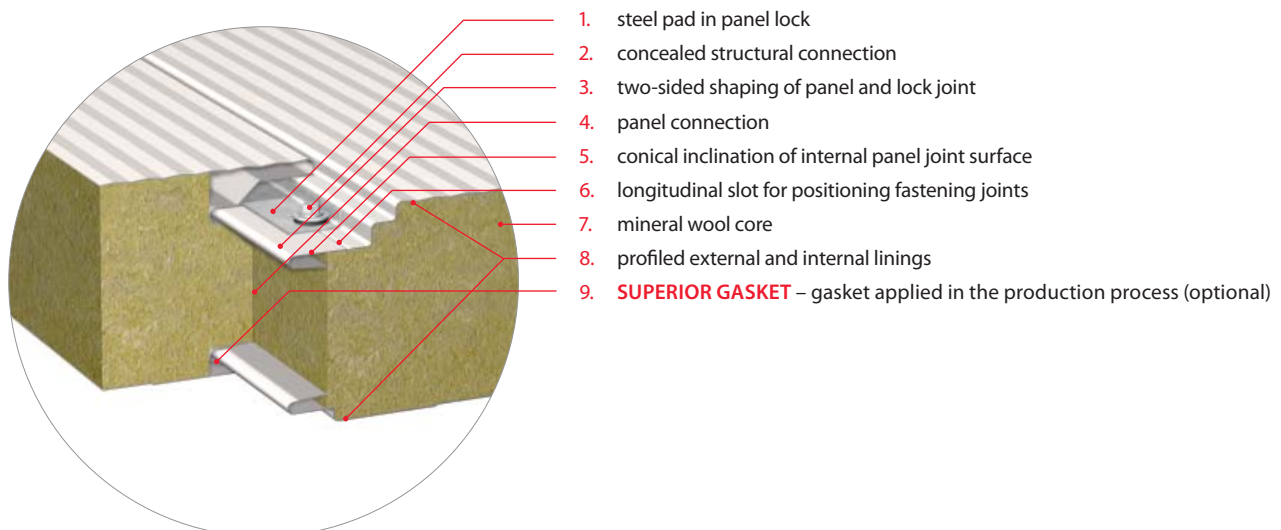
	Module 1050				Module 1000		
External lining	<b>L</b>	<b>M</b>	<b>R</b>	<b>G*</b>	<b>L</b>	<b>M</b>	<b>G*</b>
Internal lining	<b>L</b>			<b>G*</b>	<b>L</b>		<b>G*</b>

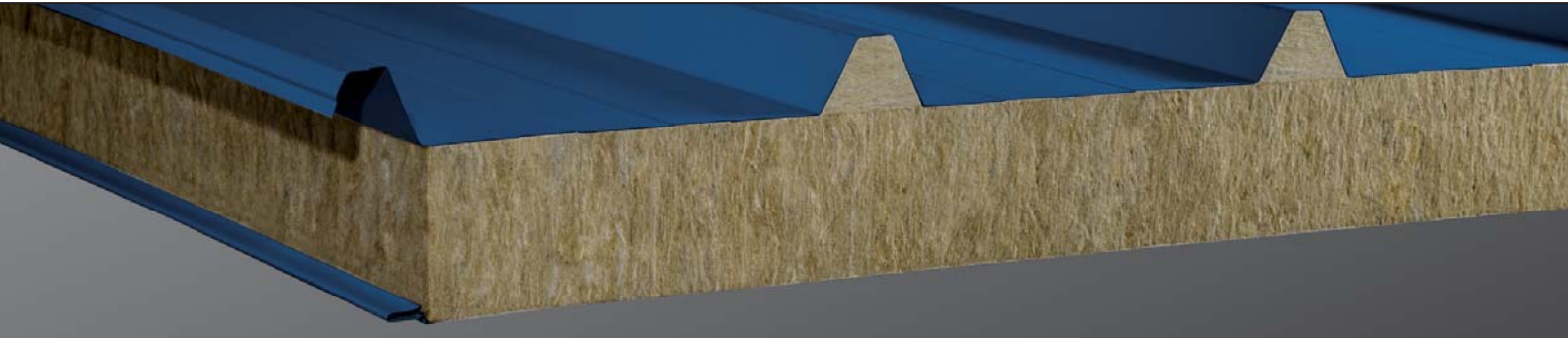
\* Available for linings of min. 0,60mm thickness

## CROSS-SECTION OF BALEXTHERM-MW-W-PLUS PANELS



## DETAIL OF BALEXTHERM-MW-W-PLUS CONNECTION OF PANELS





## ROOF SANDWICH PANELS WITH MINERAL WOOL CORE



### BALEXTHERM-MW-R

#### FEATURES

- **FIRESTOP** – high fire resistance properties; unique, two sided shaping of panel and lock joint
- high thermal insulation properties – tightly fitted panel connections
- easy assembly – the lock is profiled with a clamp and conical inclination of internal joint surface, suitable for joining with other core plates
- **SUPERIOR GASKET** – the panels provide a maximum increase in tightness and shorter assembly time, thanks to the option of applying a gasket in the lock joint in production, on the internal side NEW!
- compatible system: the panels are suitable for joining with BALEXTHERM-R panels with various core materials.
- high durability: special line prefabricated mineral wool core
- highly durable anti-corrosion layers – appropriate lining shape profiling technology
- high load bearing capacity – trapezoidal profile of external lining
- good rainwater drainage

#### APPLICATION

- roof ceilings
- commercial and industrial facilities of increased fire resistance requirements
- logistics facilities
- office facilities
- agricultural facilities



#### TECHNICAL PARAMETERS

<b>Name</b>	roof sandwich panels with mineral wool core – BALEXTHERM-MW-R			
<b>Core</b>	Rigid mineral wool (apparent nominal density 110 kg/m <sup>3</sup> )			
<b>Lining thickness [mm]</b>	0,50 – 0,70			
<b>Steel type</b>	S250GD			
<b>Cladding</b>	SP polyester, SP polyester matt Pearl, HDP polyester matt, PVC(F) „foodsafe“, PVDF, alu-zinc + easyfilm®, <b>CESAR PUR 55®</b> – polyurethane with polyamide, unparalleled durability and length of life			
<b>Colours</b>	a wide range of colours Balex Metal world of colours – page 50			
<b>Effective width [mm]</b>	1 000			
<b>Total width [mm]</b>	1 063,50			
<b>Panel length [mm]</b>	2 500 – 15 000			
<b>Core thickness [mm]</b>	<b>100</b>	<b>120</b>	<b>150</b>	<b>160</b>
<b>Panel weight [kg/m<sup>2</sup>]</b>	20,30	22,40	25,60	26,60
<b>Thermal insulation U<sub>c</sub> [W/m<sup>2</sup>K]</b>	0,38	0,32	0,26	0,24
<b>Fire resistance</b>	NRO*	REI 90, Not dispersing fire NRO		
<b>Reaction to fire</b>	B <sub>ROOF</sub> (t <sub>i</sub> )			
<b>Minimum roof inclination</b>	> 7% – for panels joined at length or with skylights > 5% – for continuous panels and without skylights			

\* Not dispersing fire NRO

## LINING PROFILE TYPES

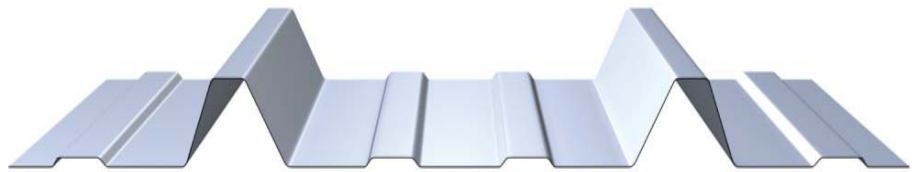
**L** Lines



**G** Smooth surface



**T** Trapezoidal



## AVAILABLE TYPES OF LINING PROFILES

External lining

**T**

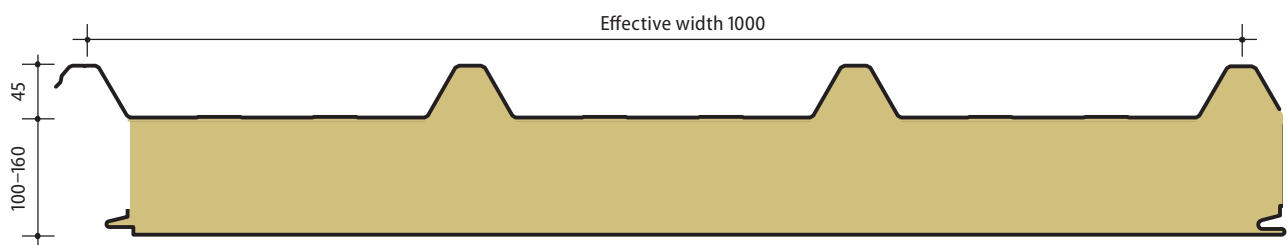
Internal lining

**L**

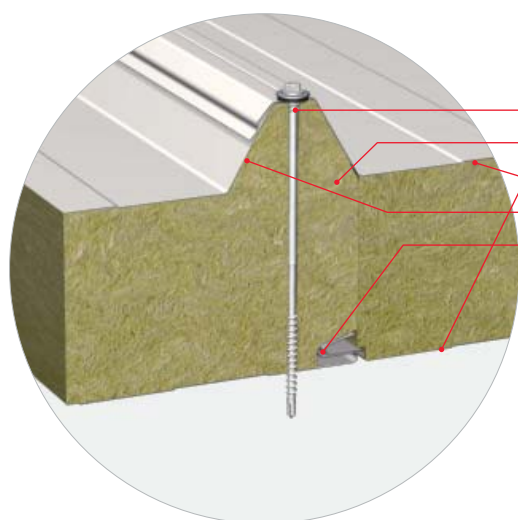
**G\***

\* Available for linings of min. 0,60mm thickness

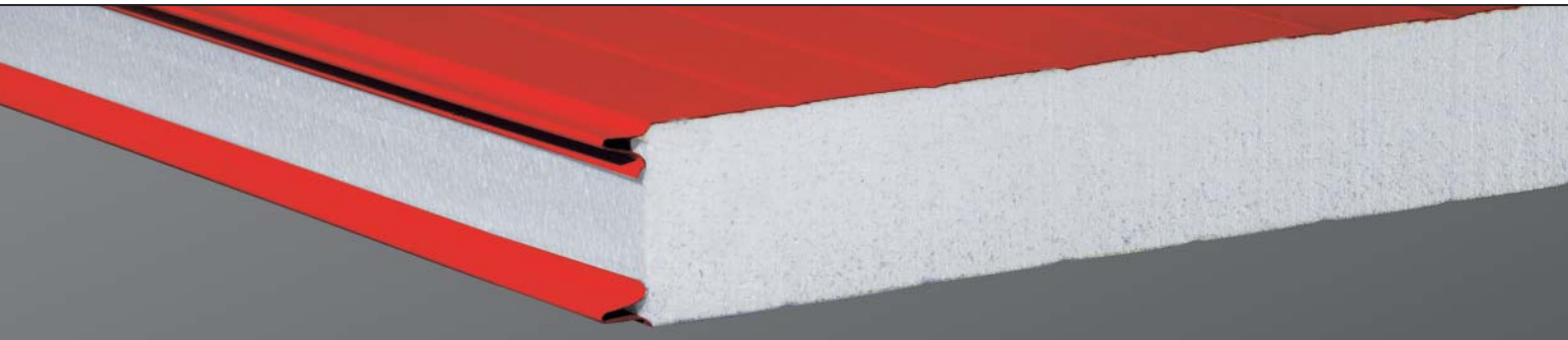
## CROSS-SECTION OF BALEXTHERM-MW-R PANEL



## DETAIL BALEXTHERM-MW-R CONNECTION OF PANELS



1. fastening joints
2. rigid mineral wool core
3. profiled external and internal linings
4. trapezoidal profile of external lining
5. **SUPERIOR GASKET** – gasket applied in the production process (optional)



## WALL SANDWICH PANELS WITH POLYESTER CORE

### PWS

#### FEATURES

- high thermal insulation properties: self-extinguishing polyester core
- high fire resistance properties – two-side shaping of panel and lock joint
- easy assembly: the lock is correctly profiled; low weight
- highly durable anti-corrosion layers – appropriate metal lining shape profiling technology
- aesthetic appearance

#### APPLICATION

- internal, partition walls
- insulation of facilities
- industrial and services facilities
- agricultural facilities
- cold storages, freezers



#### TECHNICAL PARAMETERS

<b>Name</b>	Wall sandwich panel with polyester core – PWS					
<b>Core</b>	Self-extinguishing polyester with increased resistance properties – EPS CS(10)80 class					
<b>Lining thickness [mm]</b>	0,50 (on request: 0,60)					
<b>Steel type</b>	S250GD - S280GD					
<b>Cladding</b>	SP polyester, SP polyester matt Pearl, HDP polyester matt, PVC(F) „foodsafes“, PVDF, alu-zinc +easyfilm®, <b>CESAR PUR 55®</b> – polyurethane with polyamide, unparalleled durability and length of life					
<b>Colours</b>	a wide range of colours Balex Metal world of colours - page 50					
<b>Laminate</b>	laminated unbleached paper z aluminium foil and polyethylene (approx. 160g/m <sup>2</sup> )					
<b>Effective width [mm]</b>	1155					
<b>Total width [mm]</b>	1173 +/-2					
<b>Core thickness [mm]</b>	75	100	125	150	175	200
<b>Minimum panel length [mm]</b>	2 000					
<b>Maximum PWS panel length [mm]</b>	10 000	15 000			17 000	
<b>PWS panel weight [kg/m<sup>2</sup>]</b>	10,00	10,39	10,80	11,20	11,61	12,01
<b>Thermal insulation UC [W/m<sup>2</sup>K]</b>	0,50	0,38	0,30	0,25	0,22	0,19
<b>Fire resistance</b>	NRO*	E60 / EW60, Not dispersing fire NRO				
<b>Reaction to fire</b>	D-s2,d0					

\* Not dispersing fire NRO

## LINING PROFILE TYPES

**R** Grooves R 25mm



## AVAILABLE TYPES OF LINING PROFILES

PWS

External lining

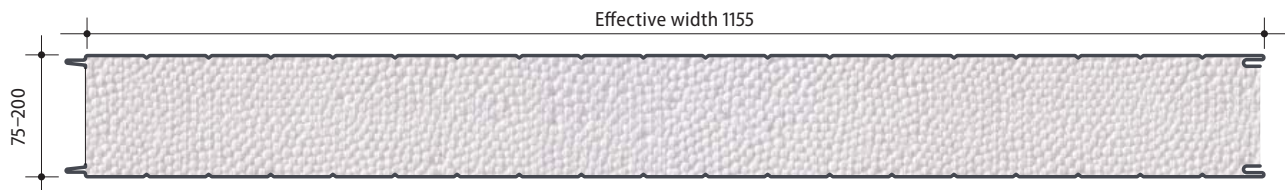
**R\***

Internal lining

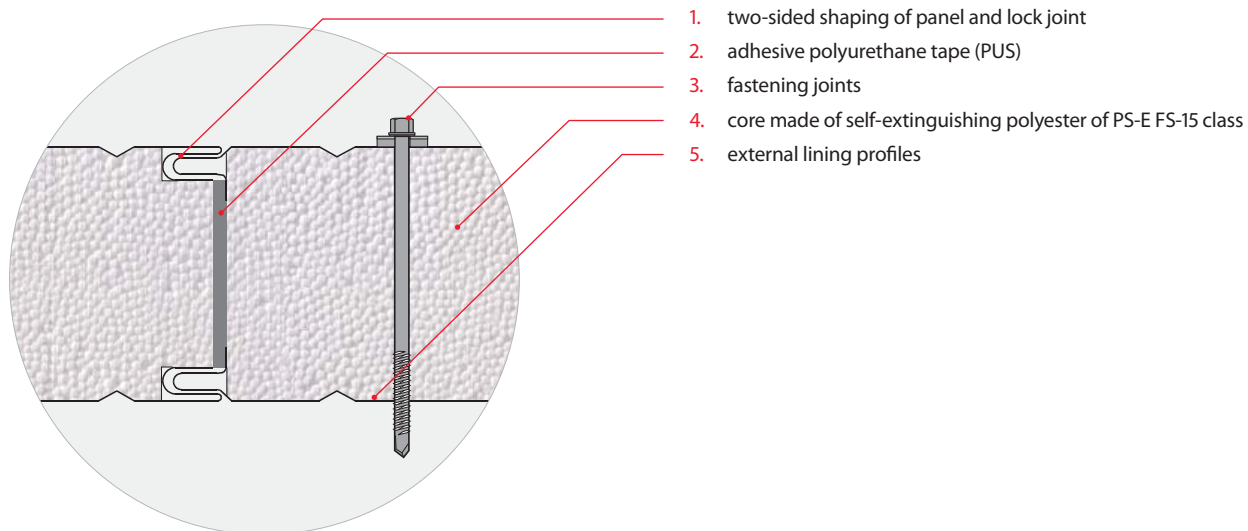
**R\***

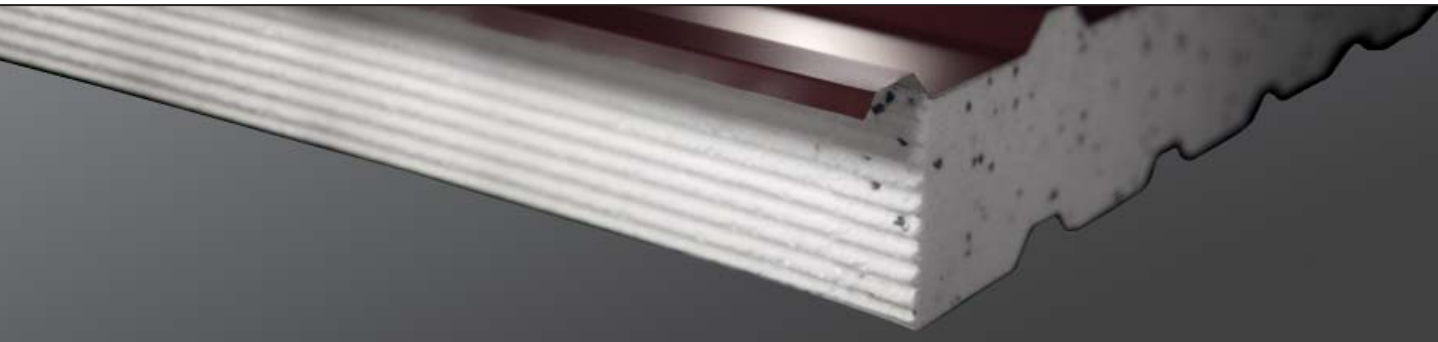
\* grooves on PWS panel lining are different from the grooves on BALEX THERM panel lining

## CROSS SECTION OF PWS PANEL



## DETAIL OF PWS PANEL CONNECTION





## ROOF SANDWICH PANELS WITH POLYESTER CORE

### PWD

#### FEATURES

- high thermal insulation properties: self-extinguishing polyester core and tight panel joint
- easy assembly: the lock is correctly profiled; low weight
- good thermal insulation properties: precise panel fitting
- aesthetic appearance
- unique utility model (The Patent Office: notification no. W114316)

#### APPLICATION

- roof and wall elements
- insulation of facilities
- industrial and services facilities
- agricultural facilities



#### TECHNICAL PARAMETERS

<b>Nazwa</b>	Roof sandwich panel with polyester core – PWD					
<b>Core</b>	Self-extinguishing polyester with increased resistance properties – EPS CS(10)80 class					
<b>Lining thickness [mm]</b>	0,50 (on request 0,60)					
<b>Steel type</b>	S250GD - S280GD					
<b>Cladding</b>	SP polyester, SP polyester matt Pearl, HDP polyester matt, PVC(F) „foodsafte“, PVDF, alu-zinc + easyfilm®, <b>CESAR PUR 55®</b> – polyurethane with polyamide, unparalleled durability and length of life					
<b>Colours</b>	a wide range of colours Balex Metal world of colours - page 50					
<b>Laminate</b>	laminated unbleached paper z aluminium foil and polyethylene (approx. 160g/m <sup>2</sup> )					
<b>Effective width [mm]</b>	1 100					
<b>Total width [mm]</b>	1 165 ±2					
<b>Core thickness [mm]</b>	75	100	125	150	175	200
<b>Minimum panel length [mm]</b>	2 500					
<b>Maximum PWD panel length [mm]</b>	10 000	15 000			17 000	
<b>PWD panel weight [kg/m<sup>2</sup>]</b>	10,34	10,74	11,15	11,55	11,96	12,36
<b>Thermal insulation U<sub>c</sub> [W/m<sup>2</sup>K]</b>	0,54	0,41	0,32	0,26	0,22	0,20
<b>Fire resistance</b>	Not dispersing fire NRO			RE 30, Not dispersing fire NRO		
<b>Roof resistance to external fire</b>	B <sub>ROOF</sub> (t <sub>1</sub> )					
<b>Minimalny spadek dachu</b>	> 7% – for panels joined at length or with skylights > 5% – for continuous panels and without skylights					



**LINING PROFILE TYPES**

**T** Trapezoidal BTD18



**AVAILABLE TYPES OF LINING PROFILES**

PWD

External lining

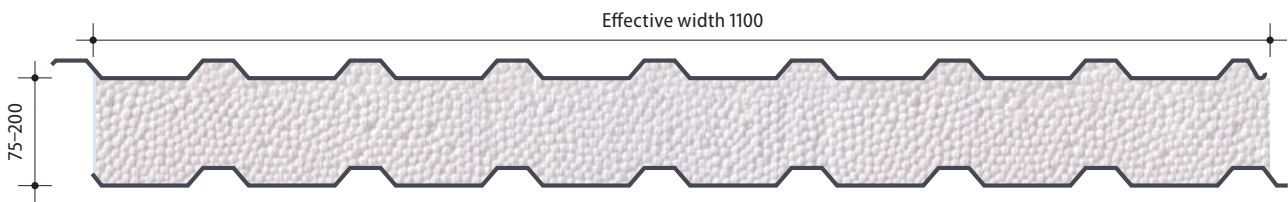


Internal lining

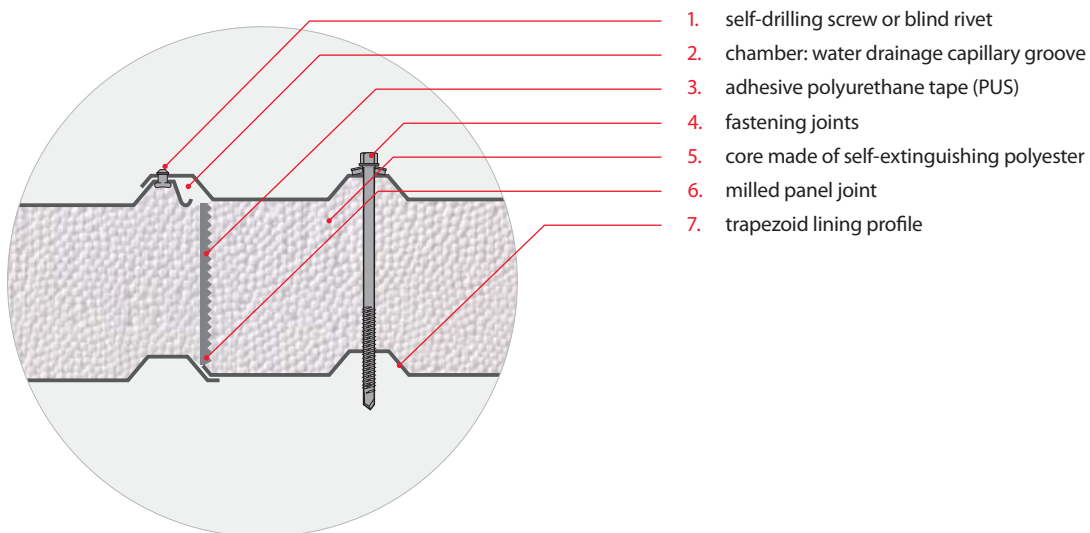


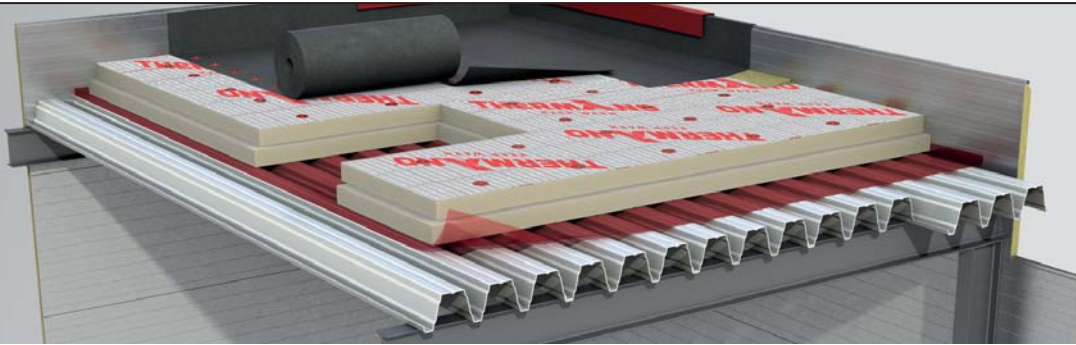
\* BTD18 T-Trapezoidal profiles are different from BALEX THERM-R T-Trapezoidal profiles

**CROSS-SECTION OF PWD PANEL**



**DETAIL OF PWD PANEL CONNECTION**





## THERMANO® MODERN INSULATION



### FOR FLAT ROOFS

#### FEATURES

- **easy and weldless insulation** of standard and critical places, on virtually every surface, at temperatures from -70°C to +140°C
- **unparalleled energy efficiency** – the best insulator in the market! - eliminates thermal bridges, the so-called dew point problem and vapour condensation; more efficient in comparison to polystyrene and wool
- **easy and incredibly fast assembly** - less material, fast joining of the plates, stability of the surface, easy to handle and assemble in all kinds of conditions
- **a durable product**, resistant to deterioration, resistant to most solvents commonly used in building industry
- **stable thermal insulation parameters** throughout full lifetime
- **safe for the natural environment** and pro-ecological (according to Bio-Bauforschung IBBF Institute)

#### APPLICATION

- one-layer and multi-layer roofs on various bases
- roofs on trapezoidal metal sheet
- roofs on concrete
- industrial and service buildings
- residential buildings
- agricultural facilities
- new and renovated facilities

#### TECHNICAL PARAMETERS

<b>Name</b>	THERMANO thermal insulation boards for flat roofs
<b>Type of lock (connection of sheets)</b>	→ lock / TOP → simple / BASIC
<b>Cladding</b>	multi-layer cladding with aluminium
<b>Total width [mm]</b>	1 200
<b>Modular (cover) width [mm]</b>	1 185 (TOP lock); 1 200 (BASIC lock)
<b>PIR foam thickness [mm]</b>	40 – 120
<b>Standard length [mm]</b>	2400
<b>Regulated length [mm]</b>	max. 5 000
<b>Other dimensions [mm]</b>	1200x1200
<b>Heat conductivity coefficient <math>\lambda</math> [W/mK]</b>	0,023
<b>Bulk density [kg/m<sup>3</sup>]</b>	30
<b>Resistance to water vapour penetration <math>\mu</math></b>	50-100
<b>Resistance to pressure</b>	min. 150kPa at 10% deformation
<b>Fire resistance class</b>	euroklasa E, wg EN ISO 11925-2
<b>Certificates</b>	CE in accordance to EN 13165:2001; meets the requirements of the Directive 2012/31/UE



Energy efficient roof of **113 mm** thickness.



Barrier insulation coefficient  $U_c = 0,20$  W/m<sup>2</sup>K in accordance with the requirements of the Ministry of Building Industry.

#### TYPES OF LOCKS





## THERMANO® MODERN THERMAL INSULATION



### FOR FLOORS

#### FEATURES

- **solid floors** for many years, without cracks and dampness
- **heating bills** lower by up to 40%!  
(depending on the type of floor)
- **easy and weldless insulation** of standard and critical places, on virtually every surface, at temperatures from -70°C to +140°C
- **unparalleled energy efficiency** - the best insulator in the market! - eliminates thermal bridges, the so-called dew point problem and vapour condensation; more efficient in comparison to polystyrene XPS and EPS
- **stable thermal insulation parameters** throughout full lifetime
- **absorbability <2%** thanks to closed cell structure
- **easy and fast assembly** - less material and lower workmanship costs
- safe for the natural environment

#### APPLICATION

- standard and heated floors
- floors on the ground and on ceilings
- terraces and balconies
- residential buildings
- industrial and service facilities
- agricultural facilities
- new and renovated facilities

#### TECHNICAL PARAMETERS

<b>Name</b>	THERMANO thermal insulation panels for floors
<b>Types of locks (connection of sheets)</b>	→ lock / TOP → tongue and groove/ MASTER
<b>Cladding</b>	multi-layer cladding with aluminium
<b>Total width [mm]</b>	1 200
<b>Modular (cover) width [mm]</b>	1 185 (TOP lock); 1 190 (MASTER)
<b>PIR foam thickness [mm]</b>	40 – 120
<b>Standard length [mm]</b>	600; 2400
<b>Regulated length [mm]</b>	max. 5 000
<b>Heat conductivity coefficient <math>\lambda</math> [W/mK]</b>	0,023
<b>Bulk density [kg/m<sup>3</sup>]</b>	30
<b>Resistance to water vapour penetration <math>\mu</math></b>	50-100
<b>Resistance to pressure</b>	min. 150kPa at 10% deformation
<b>Fire reaction class</b>	Euro-class E, according to EN ISO 11925-2
<b>Certificates</b>	CE according to EN 13165:2001; meets the requirements of the Directive 2012/31/UE

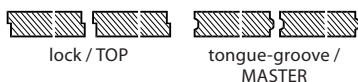


Energy efficient floor of **80 mm** thickness



Barrier insulation coefficient  $U_e = 0,30$  W/m<sup>2</sup>K in accordance with the requirements of the Ministry of Building Industry.

#### TYPES OF LOCKS





## THERMANO® AGRO MODERN THERMAL INSULATION



**NEW!**

### OF AGRICULTURAL BUILDINGS

#### FEATURES

- **Reliable energy efficiency.** Thermano thermal insulation is more efficient in comparison to polyester and wool. Heat conductivity coefficient is only  $\lambda=0,023$  [W/m•K], which gives better insulation properties at a comparable material thickness.
- **It is resistant to ammonia and other volatile organic compounds.** The special cladding of Thermano panels does not corrode when ammonia condensation is increased. Contrary to other materials, this insulator remains equally indifferent to all organic compounds that can be found in agricultural buildings, thanks to which the material has a long life.
- **The panels may be pressure washed.** PIR THERMANO AGRO panels are secured, on both sides, with 50 µm aluminium foil, with high mechanical resistance, thanks to which the surface may be washed directly by pressure jets. It is a very important parameter that facilitates maintaining high sanitary standards of agricultural buildings. THERMANO AGRO panels are additionally covered with uniform white paint, which gives a neutral environment for the animals in the building.
- **Resistant to rodents, insects, fungi, mould.** Contrary to other insulators available on the market, THERMANO AGRO polyurethane panels provide complete protection against any volatile organic compounds, fungi, mould, and also against nests and burrows of insects, rodents and birds. THERMANO AGRO guarantees the best insulation parameters for many years, irrespective of the conditions outside the agricultural building.
- **Low moist absorbability.** THERMANO AGRO absorbs moist at a level of only 2%. This means that the insulation properties are not lost, and insulation is very durable.

#### FEATURES

- **Low weight:** THERMANO AGRO has only 30kg/m<sup>3</sup> weight. It is up to 4-5 less in comparison to wool. THERMANO is light and rigid, which is why its assembly is easy and quick.
- **The panels may be mounted directly to rafters or trusses.** THERMANO AGRO may be directly screwed to rafters or trusses without PVC profiles, or as a suspended ceiling with PVC profiles. The assortment dedicated for mounting as a suspended ceiling is presented below.

#### APPLICATION

- agricultural facilities
- increased internal humidity facilities
- high ammonia content and high volatile organic compounds facilities
- industrial and service facilities



PERFECT  
INSULATION



RESISTANT  
TO AMMONIA



ALUMINIUM  
SUPER-LAYER



RESISTANCE TO RODENTS,  
MOULD AND FUNGI



SUPER  
WATER-TIGHTNESS



SUPER  
LIGHT



SUPER EASY  
ASSEMBLY

## TECHNICAL PARAMETERS

<b>Name</b>	THERMANO AGRO thermal insulation panels
<b>Types of locks (panel hooks)</b>	→ lock / BASIC
<b>Cladding</b>	multi-layer cladding with aluminium
<b>Total width [mm]</b>	1 200
<b>Available panel thicknesses [mm]</b>	50, 80, 100
<b>Standard panel lengths [mm]</b>	1 200 x 2 400 i 1 200 x 4 000
<b>Panel dimensions on request [mm]</b>	1 200 x 2 400-5 000
<b>Heat conductivity coefficient</b> $\lambda$ [W/mK]	0,023
<b>Bulk density [kg/m<sup>3</sup>]</b>	30
<b>Resistance to pressure</b>	150kPa at 10% deformation
<b>Fire resistance class</b>	Euro-class E, according to EN ISO 11925-2
<b>Certificates</b>	CE according to EN 13165:2001; meets the requirements of the Directive 2012/31/UE

## TYPES OF LOCKS



simple / BASIC

## THERMAL INSULATION PROPERTIES

Thickness [mm]	Insulation coefficient U [W/m <sup>2</sup> ·K]	Heat resistance R [m <sup>2</sup> ·K/W]
50	0,43	2,34
80	0,27	3,65
100	0,22	4,52

## ASSORTMENT



### H JOINING PROFILES

For all panel thicknesses, available at lengths of 4000mm and 6000mm



### C FINISHING PROFILES

For all panel thicknesses, available at lengths of 4000mm



### MOUNTING BRACKETS

Height h=35mm mounted to H profiles

## REMEMBER! CORRECT THERMAL ISULATION OF AGRICULTURAL BUILDINGS HAS AN INFLUENCE ON:

- increased productivity and profitability of animal breeding
- maximum results in milk yields and stable weight gain in the bred animals
- optimum use of feed properties
- avoiding heat stress in the bred animals in the summer
- decrease in the number of diseases of the bred animals
- longer storage period of agricultural produce
- minimalized daily temperature differences



## FACADE COFFERS

### FEATURES

- modern and elegant
- a wide range of architectural possibilities
- possibility of combining them with glass, wood, concrete or aluminium on the facade
- easy assembly
- durable and resistant
- robust construction

### APPLICATION

- representative facades of office buildings
- representative facades of public utility buildings
- representative facades of commercial facilities



### TECHNICAL PARAMETERS

<b>Name</b>	Facade coffers
<b>Steel type</b>	S320GD-S350GD
<b>Thickness [mm]</b>	1,20; 1,50
<b>Cladding</b>	SP polyester min. 25 µm, powder painted cladding
<b>Colours</b>	cladding is powder painted in any colour according to RAL, NCS, organic cladding in any colour according to Balex Metal world of colours – page 50
<b>Corrosive resistance</b>	up to RC5 according to PN-EN 10169-2
<b>Resistance to UV</b>	up to RUV4 according to PN-EN 10169-2

### DIMENSIONS OF FACADE COFFERS

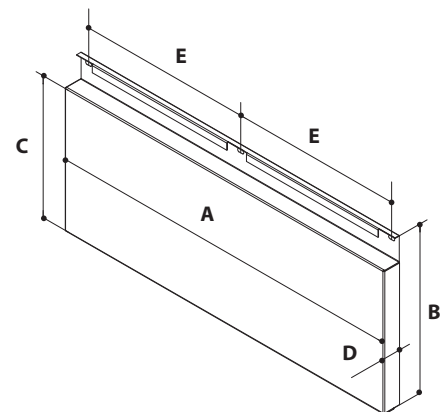
<b>Standard covering width A [mm]</b>	300 – 2 500
<b>Recommended covering height B [mm]*</b>	600
<b>Regulated covering height B [mm]*</b>	225-600
<b>Recommended height of external surface C [mm]</b>	580
<b>Standard depth D [mm]</b>	30
<b>Pitch of mounting holes E [mm]</b>	200 – 1 000

### DIMENSIONS OF CORNER COFFERS

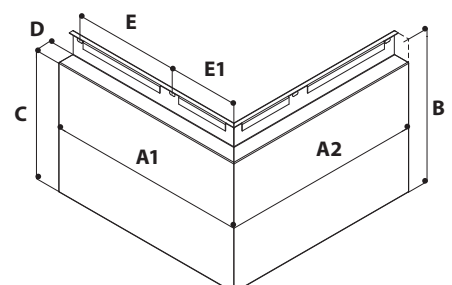
<b>Side covering width A1 [mm]</b>	300 - 2 300
<b>Side covering width A2 [mm]</b>	300 - 1 500
<b>Standard covering heights B [mm]*</b>	225, 350, 600
<b>Regulated covering heights B [mm]*</b>	225-600
<b>Standard height of the external surface C [mm]</b>	205, 330, 580
<b>Standard depth D [mm]</b>	30
<b>Pitch of mounting holes E [mm]</b>	200 - 1 000
<b>Distance of a mounting hole to the building edge E1 [mm]</b>	max. 250
<b>Opening angle</b>	90° - 180°

\* Covering height is the sum of the coffer external surface and gaps between the respective elements.

### COFFER STRUCTURE OUTLINE



### CORNER COFFER STRUCTURE OUTLINE





## WALL PANELS

### FEATURES

- easy assembly
- a wide range of architectural possibilities m (they may be put horizontally, vertically or diagonally)
- they may be connected with glass, wood, concrete, aluminium
- it is possible to exchange single elements

### APPLICATION

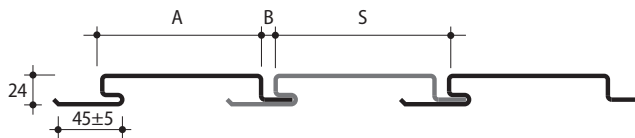
- industrial facilities
- commercial and service facilities
- sports facilities



### TECHNICAL PARAMETERS

<b>Name</b>	Wall panel PS 205
<b>Steel type</b>	S250GD - S280GD
<b>Length</b>	at Client's request
<b>Max. length [mm]</b>	6 000
<b>Effective width S [mm]</b>	205 (regulated width from 200 to 350 mm depending of panel thickness)
<b>Width of external surface A [mm]</b>	194
<b>Slot width B [mm]</b>	1 - 10 ( $\pm 1$ )
<b>Panel thickness [mm]</b>	0,50; 0,60; 0,70
<b>Cladding</b>	SP polyester, SP polyester matt Pearl, HDP polyester matt, PVDF, zined, alu-zinc + easyfilm, <b>CESAR PUR 55°</b> – polyurethane with polyamide, unparalleled durability and length of life
<b>Colours</b>	a wide range: Balex Metal world of colours – page 50

### WALL PANEL CROSS-SECTION



S – standard effective width 205 mm



## STEEL STRUCTURE

### FOR METAL FACADES



#### FEATURES

- patented solution – registered in the Polish Patent Office (notification no. P.393157) and International Office for EU Market Harmonisation
- quick and easy to assemble – special structural sling
- even load distribution on facade surface
- ready facade is resistant to wind load
- steel facades are easy to assemble – even surface

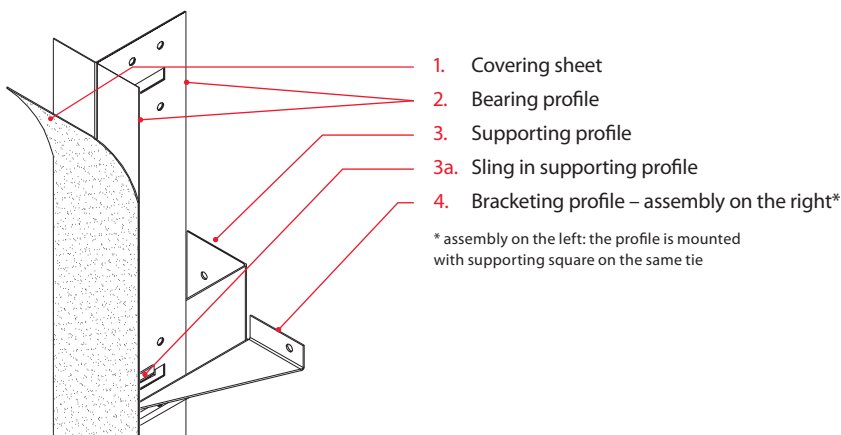
#### APPLICATION

- the structure is for quick assembly of metal facades made of e.g. facade coffers, wall panels
- all types of walls
- new and renovated buildings

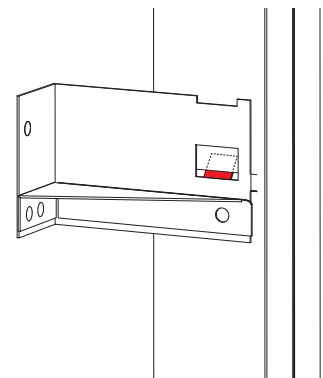
#### TECHNICAL PARAMETERS

<b>Name</b>	Mounting system for metal facades
<b>Material</b>	zincd steel sheet
<b>Steel type</b>	S350GD
<b>Thickness [mm]</b>	1,50
<b>Length of bearing profiles [m]</b>	max 4
<b>Maximum thickness of insulating layer [mm]</b>	180
<b>Pitch between supporting profiles</b>	max 1,20 m vertically
<b>Pitch between holes in sling bearing profiles [m]</b>	0,30
<b>Pitch between bracing profiles</b>	max 2,40 m vertically
<b>Pitch between bearing profiles for a typical surface [m]</b>	0,80
<b>Pitch between bearing profiles in edge zones [m]</b>	0,60

#### OUTLINE OF THE STRUCTURE



#### SLING IN SUPPORTING PROFILE







## TRAPEZOIDAL SCREEN SHEETS

### FOR WALLS AND ROOFS

#### FEATURES

- universal wall and roof elements  
(sheets may be selected to fit the existing construction panels)
- false ceilings (optical profile)
- economical and light solutions for small and large surfaces
- fast assembly
- a wide range of colours makes it possible to adjust the roof to landscape architecture

#### APPLICATION

- residential buildings
- commercial and services facilities
- agricultural facilities
- new and renovated facilities
- carports, garages
- fencings
- vestibule covering



#### TECHNICAL PARAMETERS

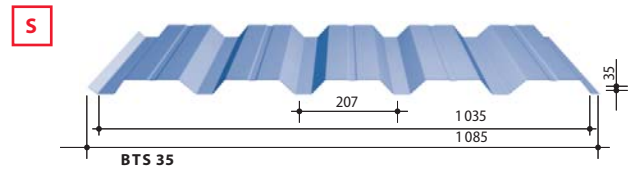
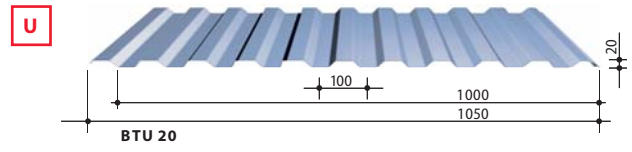
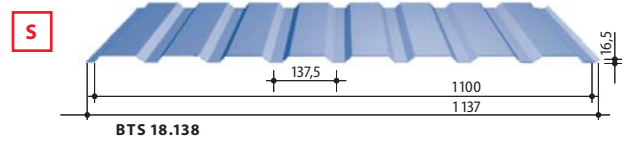
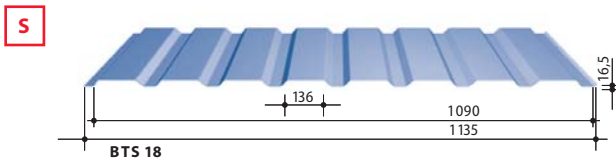
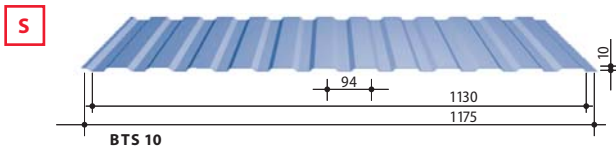
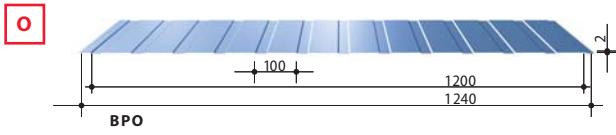
<b>Name</b>	BPO trapezoidal sheet, optical profile BTS wall trapezoidal sheet BTU universal trapezoidal sheet BTD roof trapezoidal sheet
<b>Steel type</b>	S250GD
<b>Sheet thickness [mm]</b>	0,50; 0,60; 0,70
<b>Cladding</b>	SP polyester, SP polyester matt Pearl, HDP polyester matt, PVC(F) „foodsafes“, PVDF, alu-zinc + easyfilm®, zincd, <b>CESAR PUR 55°</b> – polyurethane with polyamide, unparalleled durability and length of life
<b>Colours</b>	a wide range: Balex Metal world of colours – page 50
<b>Max sheet length [mm]</b>	6 000 – 10 000 (depending on a profile)
<b>Special finish</b>	DRIPSTOP – optional special anti-drip layer for trapezoidal roof sheets BTD 35, BTD 45.900, BTD 55 – page 36
<b>Minimalny spadek dachu</b>	3° (5%) for full sheets 5° (7%) for sheets that are joined on length

**WALL TRAPEZOIDAL SHEETS**

**O** BPO trapezoidal sheet, optical profile

**S** BTS wall trapezoidal sheet

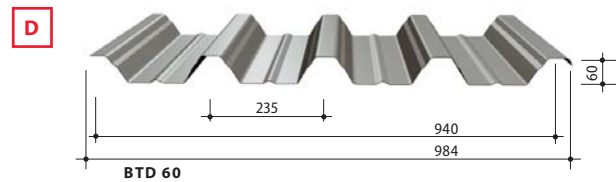
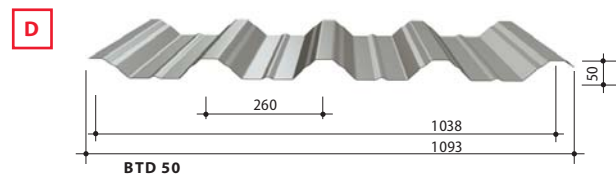
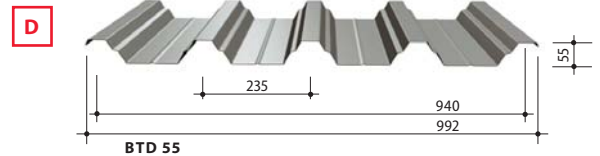
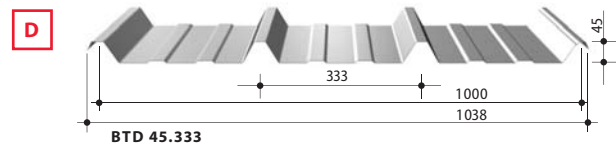
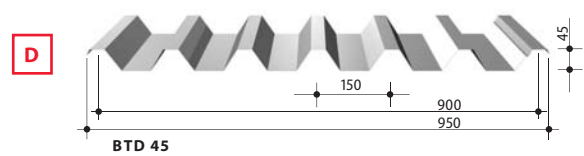
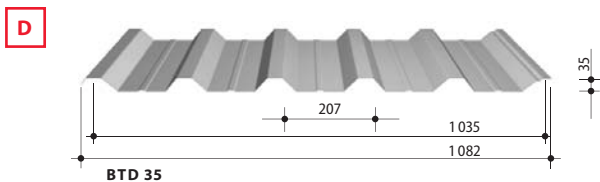
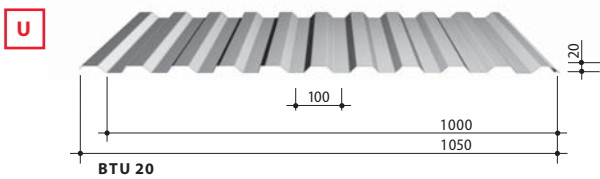
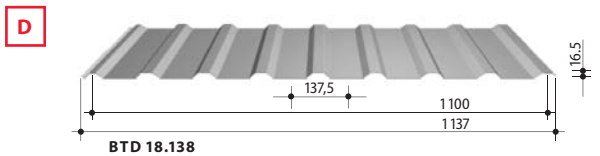
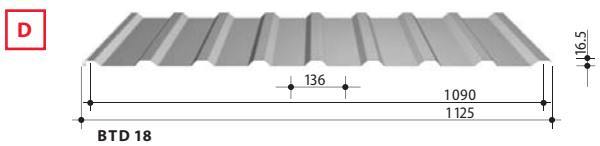
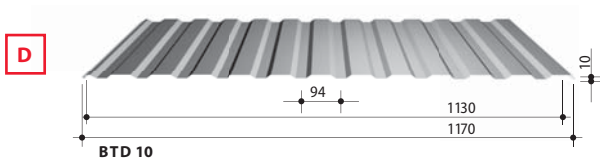
**U** BTU universal trapezoidal sheet



**ROOF TRAPEZOIDAL SHEETS**

**D** BTD roof trapezoidal sheet

**U** BTU universal trapezoidal sheet



## STRUCTURAL TRAPEZOIDAL SHEETS

### FEATURES

- high bearing capacity and rigidity of profiles
- light and suitable for quick assembly
- purlin-free roof constructions
- large span bearing constructions
- economical solutions for medium and large surfaces
- stay in place formwork for reinforced concrete constructions

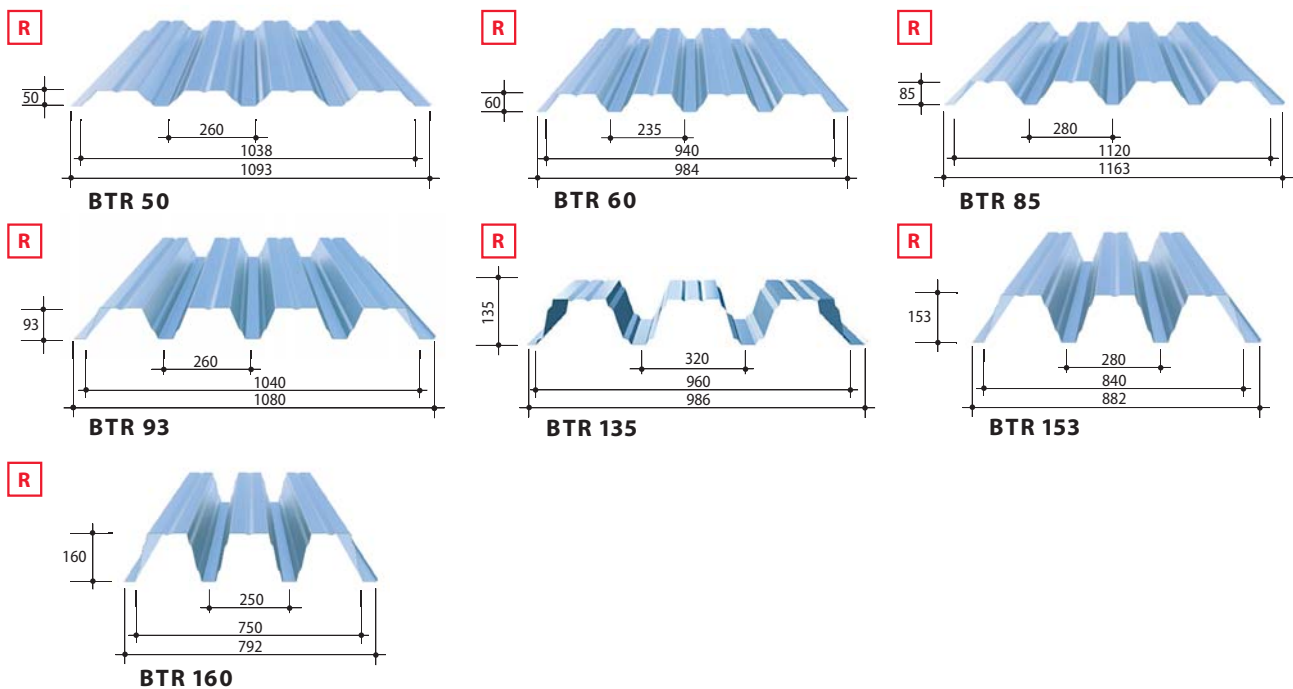
### APPLICATION

- industrial and services facilities
- agricultural facilities
- new and renovated facilities
- carports, garages
- logistics centres

### TECHNICAL PARAMETERS

<b>Name</b>	BTR – structural trapezoidal sheet
<b>Sheet thickness [mm]</b>	0,75; 0,88; 1,00; 1,25; 1,50
<b>Steel type</b>	S250GD - S320GD
<b>Cladding</b>	SP polyester 15µm, SP polyester 25µm
<b>Colours</b>	colours 9002 and 9010 – page 50
<b>Length</b>	according to the Client's request, maximum 15000 mm
<b>Special finish of trapezoidal sheets</b>	DRIPSTOP – optional, special anti-drip cladding for structural trapezoidal sheets placed positive manner – page 36 ACOUSTIC PROFILE – optional sheet perforation – page 36

### R BTR STRUCTURAL TRAPEZOIDAL SHEETS





## SPECIAL FINISH OF TRAPEZOIDAL SHEETS

### DR!PSTOP – ANTI-DRIP COATING

#### FEATURES

- high absorbability – prevents condensation water dripping - absorbs 900g of water/m<sup>2</sup>!
- durability – in contrast to standard insulation and vapour barrier it is not sensitive to breaking or tearing apart and it does not deteriorate
- acoustic comfort – it damps the noise generated by e.g. rain or building works
- additional anti-corrosion layer – longer life of roof covering, which is particularly important in aggressive environments
- high fire resistance - class A2-s1, d0 (EN 13501-1)
- versatility – trapezoidal sheet with DR!PSTOP may be used in any building and environment where water condensation is a problem
- hygiene – resistant to bacteria
- easy to maintain in clean condition – cleaning with water

#### APPLICATION

- roof trapezoidal sheets BTD 35, BTD 45.900 and BTD 55
- construction trapezoidal sheets laid in a basic manner
- residential buildings
- industrial and service facilities
- agricultural and livestock facilities
- new and renovated facilities
- car shades and garages
- logistics centres
- covering for vestibules



### PERFORATION – ACOUSTIC TRAPEZOIDAL PROFILE

#### FEATURES

- less construction load - perforated sheets with 15% transparency are approximately 6% lighter than the same sheets prior to perforation!
- acoustic comfort – in the perforated areas, the sheet lets sound go through freely and reduces the sound reflection effect
- resistance – the perforation has a slight influence on resistance and bearing capacity of sheets

#### APPLICATION

- public utility facilities and facilities with increased acoustic insulation requirements
- sports and show halls, gymnastics halls
- cinemas, shopping centres, theatres, etc.



## MODULE ZET HALL

### FEATURES

- quick and economic building process
- easy assembly
- module construction enables extensions at any time
- demountable steel construction

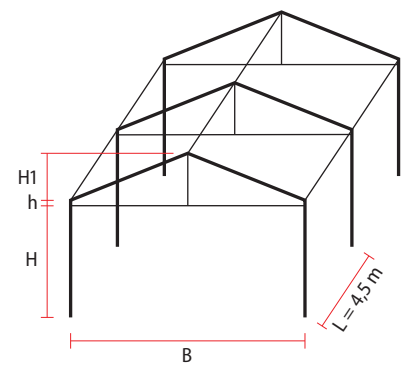
### APPLICATION

- building carcasses
- industrial and services facilities
- agricultural facilities
- warehouses

BALEX METAL provides a working design in the price of the construction

### TECHNICAL PARAMETERS

<b>Name</b>	Module ZET hall
<b>Construction material</b>	cold bent zet sections of zinc coated
<b>Carcass structure</b>	<ul style="list-style-type: none"> <li>→ ZET sections jointed in multi-branch elements by means of lacings</li> <li>→ beams jointed with system steel joints</li> </ul>
<b>Hall widths [m]</b>	6; 8; 10; 12; 15; 18
<b>Modular frame spacing [m]</b>	4,50
<b>Hall length</b>	multiplication of module length (4,50 m)
<b>Wall bolts spacing [m]</b>	1,18
<b>Roof purlins spacing [m]</b>	1,19
<b>Side wall height [m]</b>	from 3,10 to 4,60
<b>Height at ridge [m]</b>	from 4,10 to 7,88
<b>Roof inclination</b>	20°



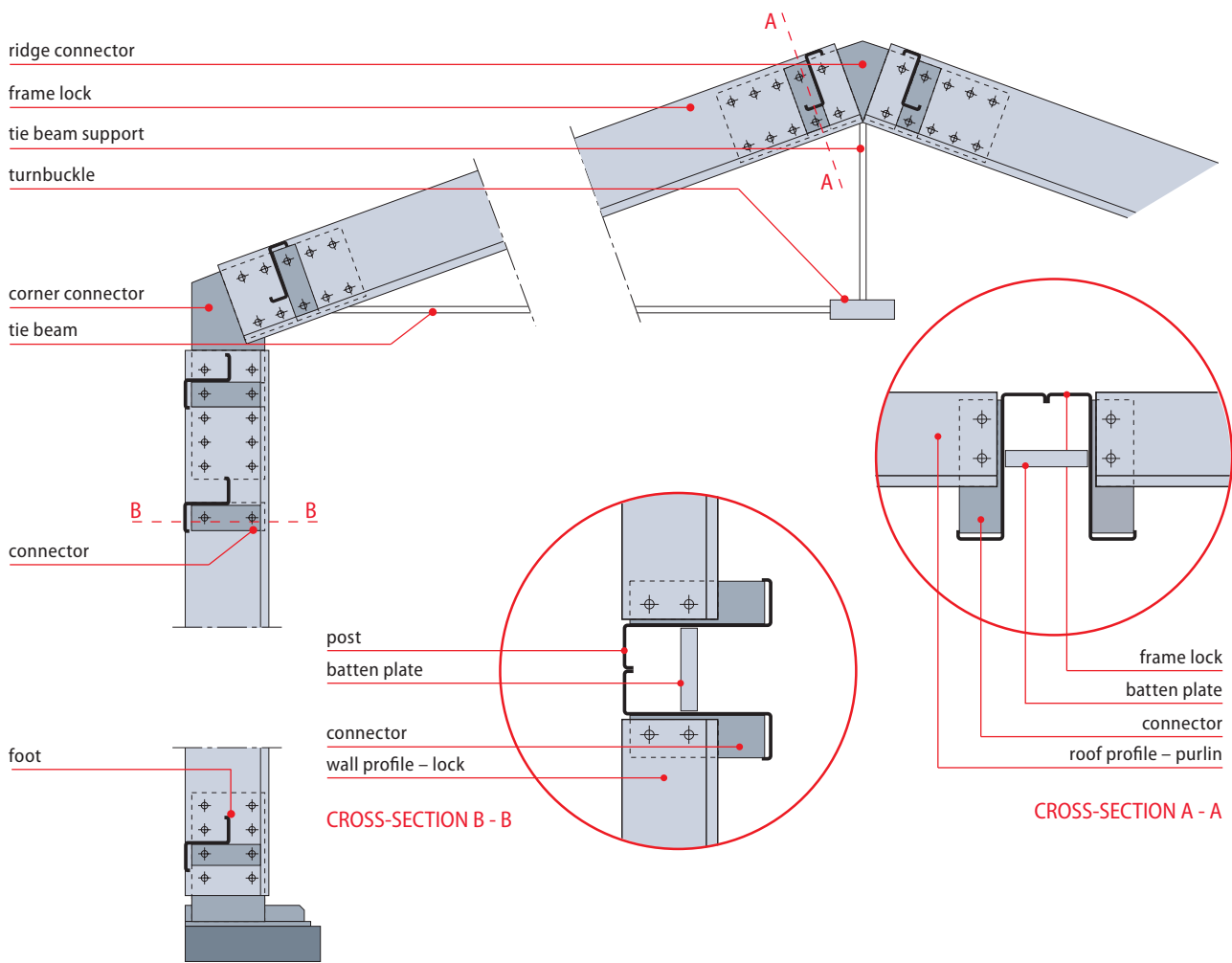
#### Key:

- B** shall width
- L** modular frame spacing
- H** hall height
- h** reduction in usable height
- H1** difference in height at ridge versus side wall height

### AVAILABLE DIMENSION VARIANTS FOR ZET HALLS

H – side wall height	TYPE	B – hall width					
		6 m	8 m	10 m	12 m	15 m	18 m
4,60 m	45	–	v	v	v	v	v
4,10 m	40	–	v	v	v	v	v
3,60 m	35	v	v	v	v	–	–
3,10 m	30	v	–	–	–	–	–
<b>H1 – difference in height at ridge versus side wall height</b>		+1,09 m	+1,46 m	+1,82 m	+2,18 m	+2,73 m	+3,28 m
<b>h – reduction in usable height</b>		9,80 cm	9,80 cm	9,80 cm	11,80 cm	11,80 cm	11,80 cm

**CONSTRUCTION OF THE ZET HALL**



## EXAMPLES OF HALL COVERINGS

### SANDWICH PANELS

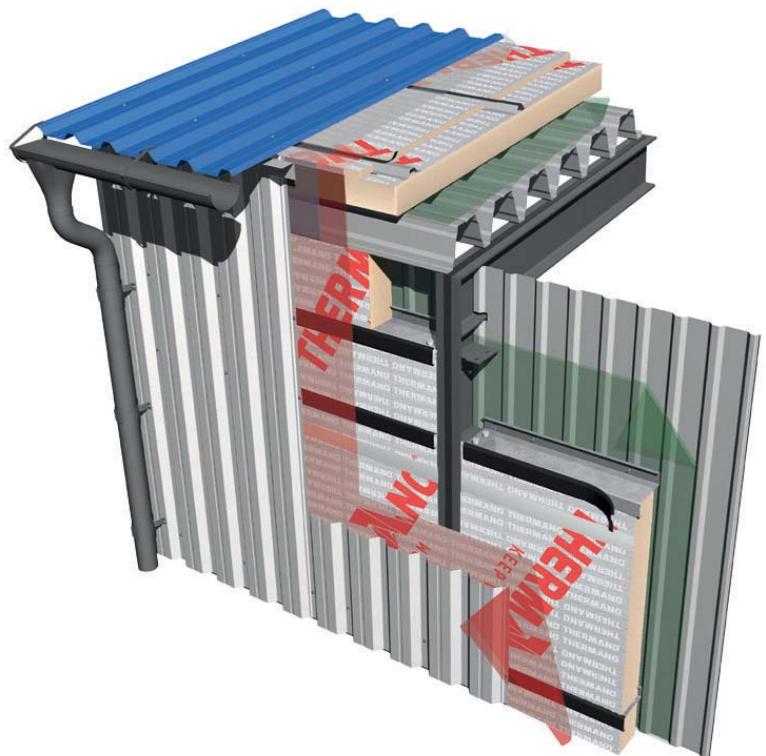
WITH POLYURETHANE CORE BALEX THERM-PU  
WITH MINERAL WOOL CORE BALEX THERM-MW  
WITH POLYESTER CORE PWS AND PWD

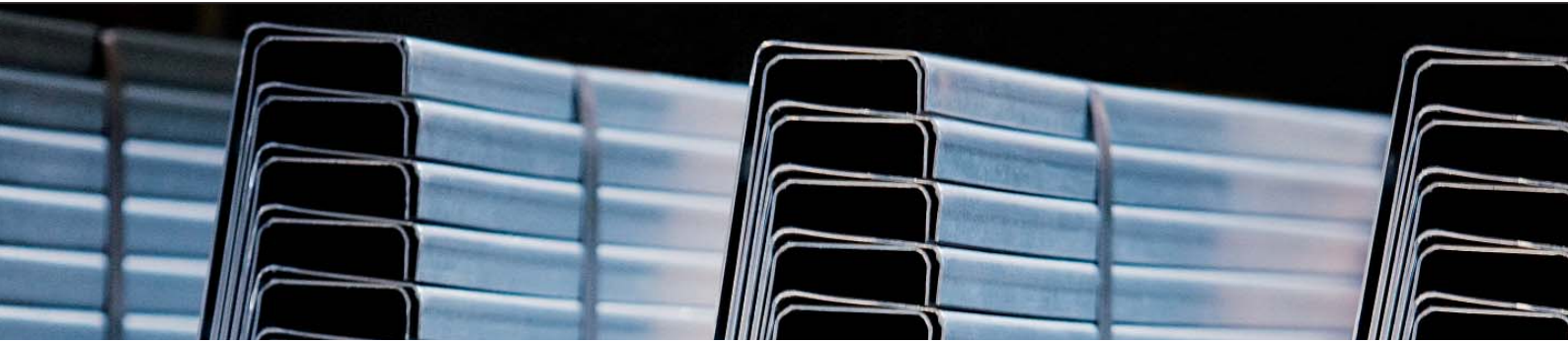
- mounted by self-drilling screws to locks or purlins
- wall or roof made of ready sandwich panels means that it is possible to use the facility immediately



### TRAPEZOIDAL SHEETS

- insulation layers (thermal insulation, wind insulation, vapour insulation) are mounted between the external and internal lining
- used when fire resistance requirements are high





## COLD BENT SECTIONS

### SIGMA SECTIONS

#### FEATURES

- screen wall structures
- partition wall structures
- wall locks
- roof purlins

#### APPLICATION

- industrial and services facilities
- agricultural facilities
- new and renovated facilities
- warehouses, storage buildings

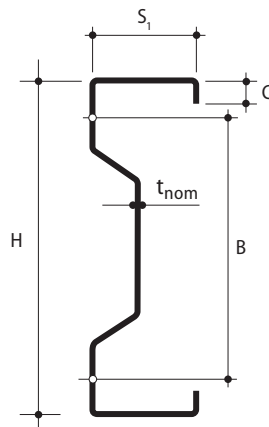
#### TECHNICAL PARAMETERS

Product	Height H	Metal sheet thickness $t_{nom}$	Material	Max length	Ridge stiffening length C	Strip width $S_1$	Hole spacing B	Hole diameter
	[mm]	[mm]		[m]	[mm]	[mm]	[mm]	[mm]
$\Sigma 140$	140	1,50 2,00 2,50	S280GD + zinc; S350GD + zinc	14	15	56,00	100	14
$\Sigma 170$	170						130	
$\Sigma 200$	200						160	18
$\Sigma 230$	230						190	

#### SIGMA SECTION



#### CROSS-SECTION OF SIGMA SECTION



#### Key:

- $t_{nom}$  sheet thickness
- B hole span
- C length of edge bracket
- $S_1$  strap width counted from the external surface
- H height



## ZET SECTIONS

### FEATURES

- screen wall structures
- partition wall structures
- wall locks
- roof purlins

### APPLICATION

- industrial and services facilities
- agricultural facilities
- new and renovated facilities
- warehouses, storage buildings

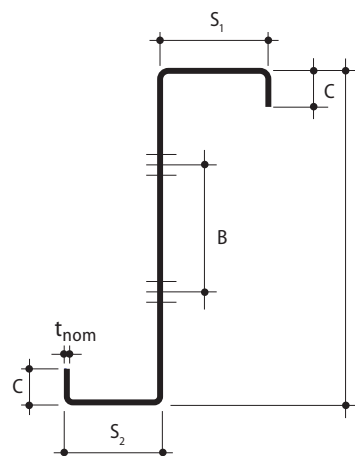
### TECHNICAL PARAMETERS

Product	Height H	Material	Metal sheet thickness $t_{nom}$	Strip width S1	Strip width S2	Ridge stiffening length C	Hole spacing B	Round hole diameter	Slotted hole dimension	Max length
	[mm]		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[m]
Z150	150	S350GD + zinc	1,50	64,00	58,50	20	70	14 17 18	14 x 26 18 x 26	16
			2,00	64,50						
			2,50	65,00						
Z175	175		1,50	64,00						
			2,00	64,50						
			2,50	65,00						
Z200	200		1,50	64,00	67,00	22	150	14 18	14 x 25 18 x 30	
			2,00	64,50						
			2,50	65,00						
Z225	225		1,50	64,00	85,00	30	190	14 18	14 x 25 18 x 30	
			2,00	64,50						
			2,50	65,00						
Z250	250	2,00	78,00	86,00	30	190	14 18	14 x 25 18 x 30		
		2,50	79,00							
		3,00	80,00							
Z300	300	2,00	93,00	87,00	30	190	14 18	14 x 25 18 x 30		
		2,50	94,00							
		3,00	95,00							

### ZET SECTION

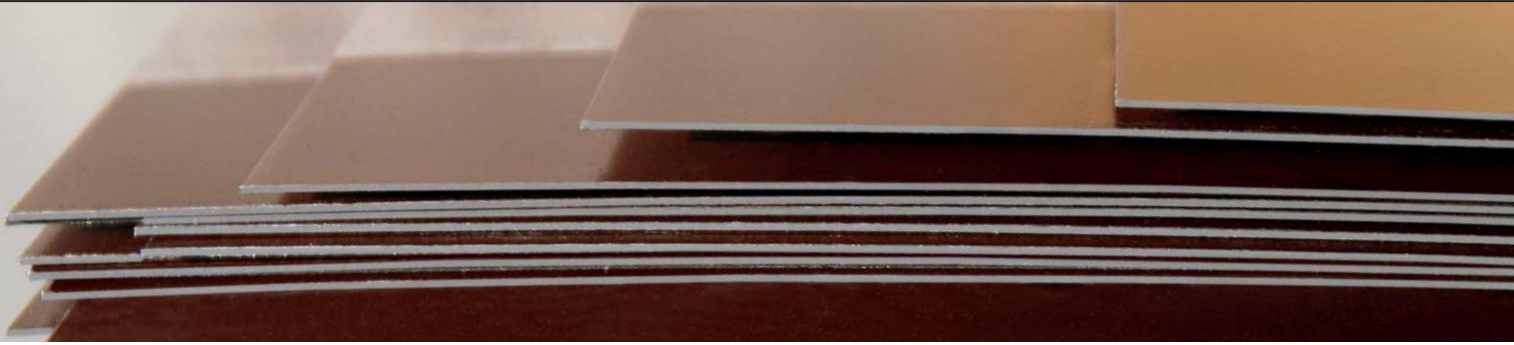


### CROSS-SECTION OF ZET SECTION



#### Key:

- $t_{nom}$  sheet thickness
- B hole span
- C edge bracket length
- $S_1, S_2$  strap width counted from the external surface
- H height



## FLAT SHEET

### FEATURES

- material for standard and non-standard flashings
- a wide range of colours adjusted to the colours of roof covering
- secured by foil as standard

### APPLICATION

- residential buildings
- industrial and services facilities
- agricultural facilities
- new and renovated facilities

### FLAT STEEL SHEETS

#### TECHNICAL PARAMETERS

<b>Name</b>	Flat sheet
<b>Sheet width [mm]*</b>	1240 (max. 1500)
<b>Length [mm]</b>	2000 (other lengths also available on request)
<b>Sheet thickness [mm]</b>	0,40 - 1,25
<b>Cladding**</b>	SP polyester, SP polyester matt Pearl, HDP polyester matt, PVC(F) „foodsafe“, PVDF, zincd, alu-zinc + easyfilm®, <b>CESAR PUR 55®</b> – polyurethane with polyamide, unparalleled durability and longevity
<b>Steel type</b>	S250GD - S280GD, stainless (1.4301)

\* Cut to any format

\*\* Foil cladding secured as standard

### TAPES IN ROLLS, CUT LENGTHWISE FROM THE RINGS

#### TECHNICAL PARAMETERS

<b>Name</b>	Tapes in rolls
<b>max width [mm]</b>	1310
<b>minimum width [mm]</b>	80
<b>number of tapes from the ring</b>	7
<b>Max ring weight [t]</b>	3,50
<b>Sheet thickness [mm]</b>	0,50 - 2,50
<b>Cladding**</b>	SP polyester, SP polyester matt Pearl, HDP polyester matt, PVC(F) „foodsafe“, PVDF, alu-zinc + easyfilm®, <b>CESAR PUR 55®</b> – polyurethane with polyamide, unparalleled durability and longevity
<b>Steel type</b>	S250GD - S350GD



## NON-STANDARD FLASHINGS

### FEATURES

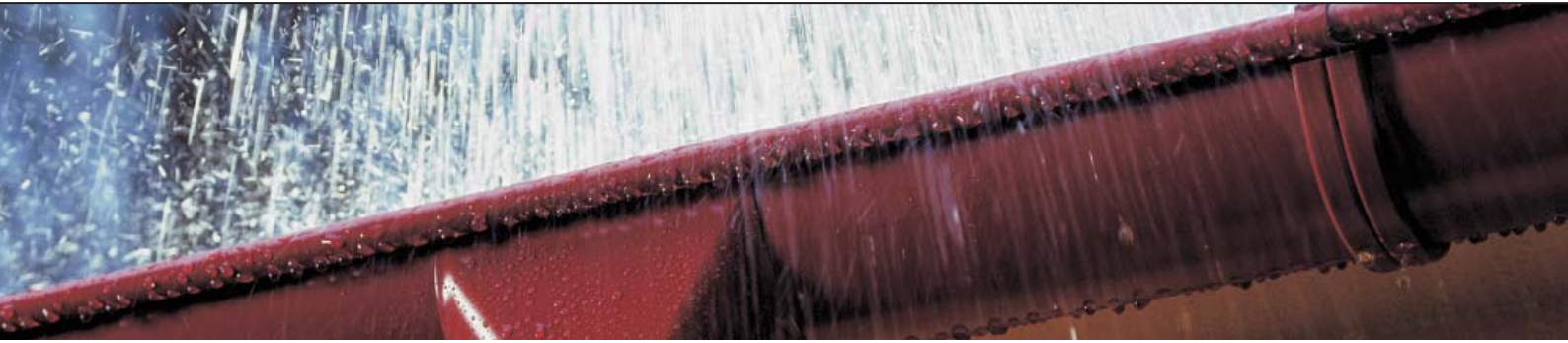
- finishing element for all kinds of wall and roof coverings
- roof and wall flashing
- aesthetic appearance of the whole covering

### APPLICATION

- industrial facilities
- agricultural facilities
- residential buildings
- individual flashings on request
- flashings made of the given material

### TECHNICAL PARAMETERS

<b>Name</b>	Non-standard flashings	
<b>Sizes</b>	shapes and sizes of flashings according to the drawings submitted by the client	
<b>Sheet thickness [mm]</b>	0,50 - 1,00	1,25 - 2,50
<b>Maximum length [m]</b>	11,50	6,00
<b>Steel type</b>	S250GD - S280GD, stainless steel (1.4301)	
<b>Cladding</b>	SP polyester, SP polyester matt Pearl, HDP polyester matt, PVC(F) „foodsafte“, PVDF, zined, alu-zinc + easyfilm®, <b>CESAR PUR 55®</b> – polyurethane with polyamide, unparalleled durability and longevity	
<b>Production possibilities</b>	<ul style="list-style-type: none"> <li>– cutting</li> <li>– bending</li> <li>– sheet machining and perforating in an automatically controlled process</li> <li>– securing foil inlet material</li> </ul>	



## WIJO COATED STEEL GUTTERS

### FEATURES

- efficiency- good rainwater drainage
- exceptional resistance to weather conditions
- high quality - made of steel produced by SSAB, a Swedish company;
- versatility - the gutter system is compatible with every roof covering
- no special maintenance required
- quick assembly thanks to unique adjustable hooks

### APPLICATION

- residential buildings
- industrial and service facilities
- agricultural facilities
- new and renovated facilities

### TECHNICAL PARAMETERS

<b>Name</b>	Wijo coated steel gutters
<b>Material</b>	galvanized steel coated on both sides
<b>Steel thickness [mm]</b>	0,60
<b>Coating</b>	Prelaq Nova (HBP 35µm)
<b>Colouring</b>	brick-red, red, chocolate-brown, grey-white, silver-metallic, graphite-grey, black
<b>Gutter/pipe diameters [mm]</b>	125/90, 150/100, 100/75*
<b>Gutter length [mm]</b>	4 000
<b>Pipe length [mm]</b>	3 000

\* in the chocolate-brown colour only

### WIJO GUTTERS COLOURING

Prelaq Nova both-sided coating 35 µm – HBP (High Build Polyester)



brick-red



red



chocolate-brown



grey-white



silver-metallic

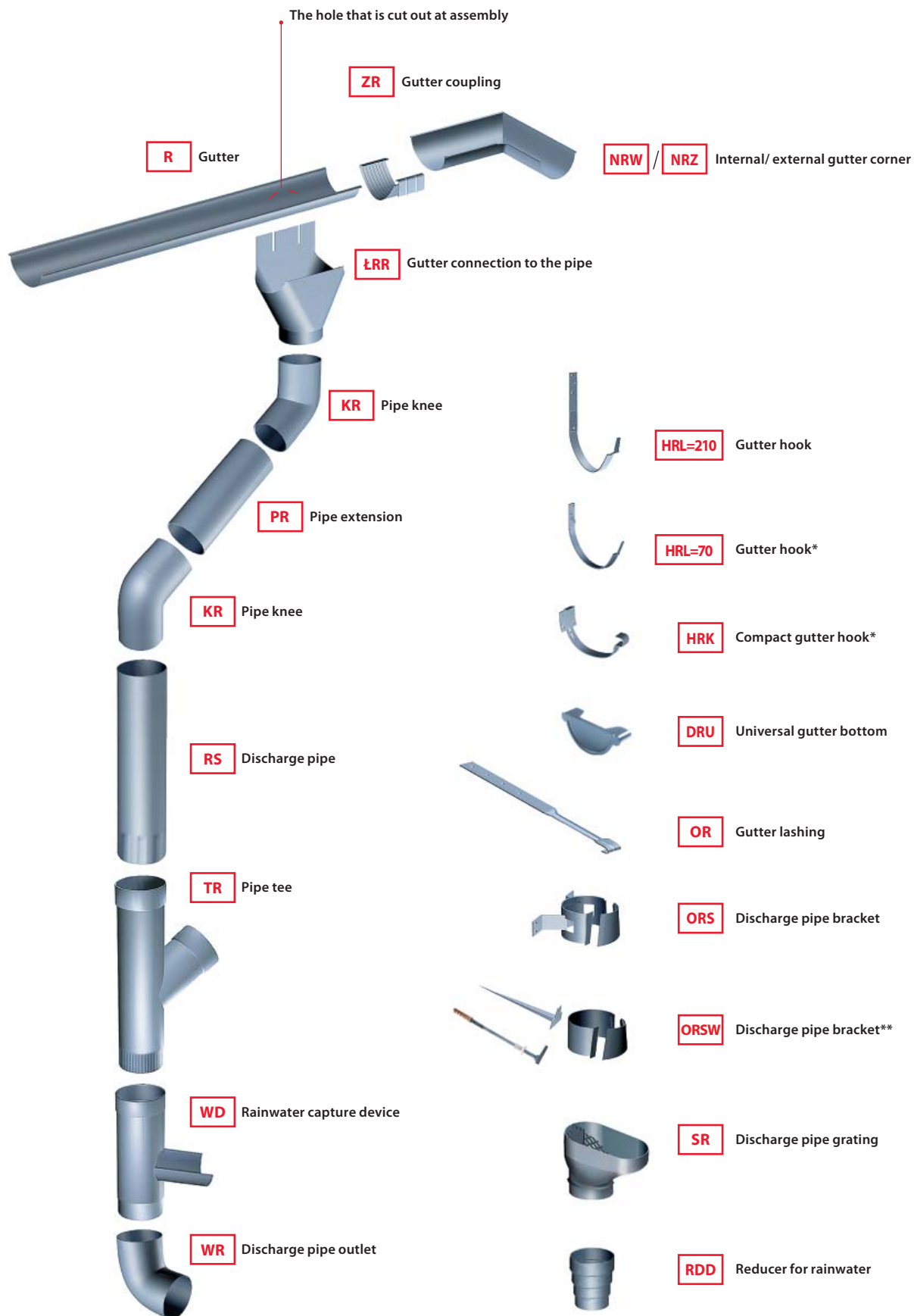


graphite-grey



black

## WIJO GUTTER SYSTEM ELEMENTS



\* Mounting recommended for layer panels

\*\* Two elements for brackets to select: driven, screwed



## PROTEKTOR GALVANIZED STEEL GUTTERS

### FEATURES

- durability for years – sheets galvanized on both sides
- large gutter diameter: 150 mm and pipe diameter 100 mm
- attractive price – application of universal elements
- highly resistant to snow or ice loads

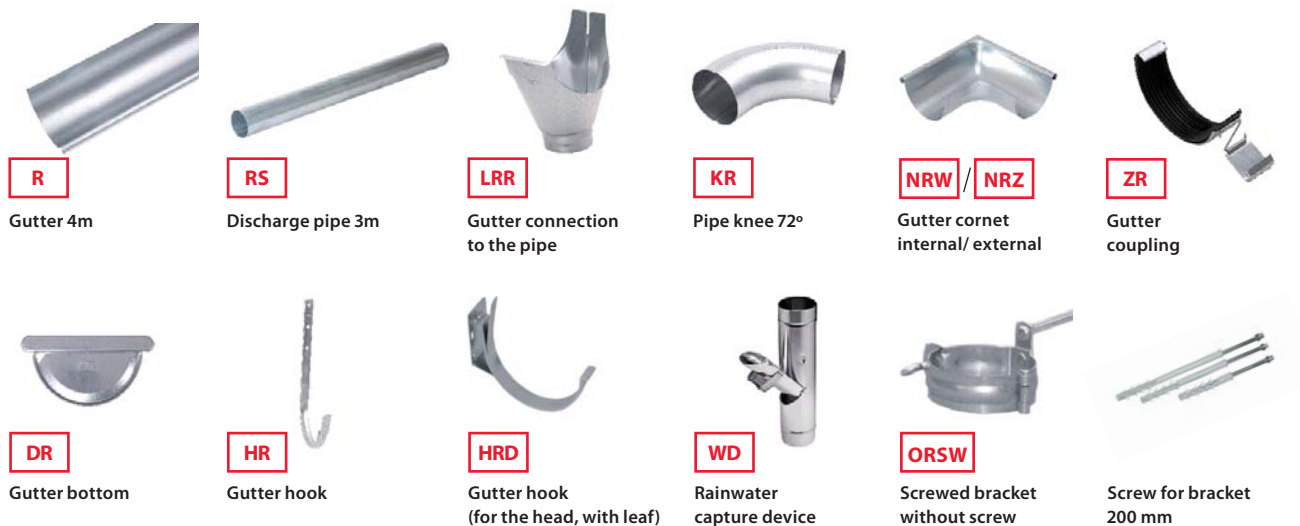
### APPLICATION

- residential buildings
- industrial and service facilities
- agricultural facilities
- new and renovated buildings

### TECHNICAL PARAMETERS

Name	PROTEKTOR galvanized steel gutters
Type of steel	stal DX51D
Steel thickness [mm]	0,60
Cladding	galvanized
Colours	may be painted with paints for metal
Standard gutter / pipe diameter [mm]	125/100 (28/100), 150/100 (33/100)
Standard gutter / pipe diameter on request [mm]	150/120, 200/120
Gutter length [mm]	4 000
Pipe length [mm]	3 000

### PROTEKTOR GUTTER SYSTEM ELEMENTS



## ASPIRA VAPOUR PERMEABLE MEMBRANES

### FEATURES

- highly permeable layers of sheet metal roof an facade structure
- water tight, vapour permeable
- resistant to long exposure to ultraviolet radiation
- make the roof and facade more durable
- the roof is easier to assemble
- efficient protection during roofing and facade assembly
- additional thermal insulation

### APPLICATION

- residential buildings
- industrial and service facilities
- agricultural facilities
- new and renovated facilities

### AVAILABLE PRODUCTS

- **ASPIRA Max**  
classified as roof screen  
reliable in the most difficult conditions
- **ASPIRA Plus**  
universal membrane for roofs and facades
- **ASPIRA Standard**  
high quality and low price  
very good parameters of vapour permeability and durability



### TECHNICAL PARAMETERS

Name	ASPIRA Max	ASPIRA Plus	ASPIRA Standard
Weight (g/m <sup>2</sup> )	165 ±20g	135 ±15g	115 ±20g
Number of layers	3	3	3
Resistance to longitudinal breakaway [N/5 cm]	>330	>250	>230
Resistance to diagonal breakaway [N/5 cm]	>190	>170	>135
Lengthening at longitudinal breakaway [%]	>40	>50	>60
Lengthening at diagonal breakaway [%]	>80	>75	>80
SD – vapour diffusion thickness [m]	>0,02	≥0,007	>0,005
Vapour permeability MVTR Lyssy [g/m <sup>2</sup> /24h]	>2 400	>2 700	>2 880
Applicable temperature range [°C]	from -40 to +120°C		
Resistance to water penetration	Class W1		
Stabilisation against ultraviolet radiation	3 months		
Standard roll dimensions [m]	1,50 x 50		
Fire resistance class	E		



## ACCESSORIES AND SKYLIGHTS

### VENTILATION SYSTEM

#### FEATURES

- high efficiency
- insulated insert
- reduction of airflow vibrations
- protection against rain and snow blown in

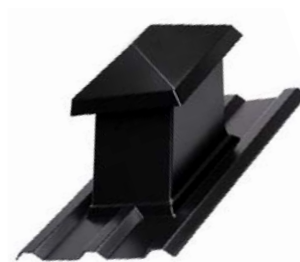
#### APPLICATION

- roofing ventilation
- ventilation of vertical sewage ducts

#### TECHNICAL PARAMETERS

<b>Name</b>	attic ventilation chimney
<b>System elements</b>	ventilated chimney, reduction connector, insulated insert
<b>Fitted to roofing profiles of</b>	– trapezoidal sheets BTD18 – sandwich panels PWD
<b>Material</b>	high quality vinyl polychloride
<b>Colours</b>	black

#### ATTIC VENTILATED CHIMNEY FITTED TO ROOFING PROFILES OF TRAPEZOIDAL SHEETS BTD AND SANDWICH PANELS PWD



### SEALING

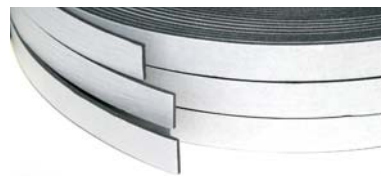
#### FEATURES

- indispensable for maintaining the correct roof insulation
- adjusted to the profiling of the roofing and the finish elements of the roof

#### TYPES OF SEALS

- adhesive tapes
  - polyethylene PES 3x20
  - polyurethane PUS 5x40, PUS 5x80
- impregnated polyurethane sealing 20x30, 20x40, 20x50
- sealing butyl tape
- expandable impregnated polyurethane tapes
- shaped sealing for roof panels, trapezoidal sheets and steel sheet tiles
  - TUP – under sheet sealing tape
  - TUN – on sheet sealing tape

#### PES SEALING (FOR STEEL STRUCTURES)



#### TUN AND TUP SEALING (TRAPEZOIDAL SHEETS)





## SPECIALIST FITTINGS

### APPLICATION

- for correct mounting of all the roofing and facade elements
- for joining sheets

### TYPES OF MOUNTS

- roof and facade screws
- screws for sandwich boards
- mounting screws
- rivets

### SCREWS



## REPAIR KITS

### APPLICATION

- securing fine scratches, abrasions of the organic layer

### KIT ELEMENTS

- repair paint – available in all colours suitable for the colours of the offered steel sheet tiles (20ml and 200ml)
- brush – for applying paint

### REPAIR PAINTER



## POLYESTER SKYLIGHTS REINFORCED WITH FIBRE GLASS, FOR TRAPEZOIDAL SHEETS

### FEATURES

- polyester reinforced with fibre glass: high resistance level
- they provide daylight to interiors
- they limit electricity provision needs
- weight  $\geq 1,50 \text{ kg/m}^2$
- various thicknesses depending on the profile of the sheet with which the given skylight is compatible
- resistant to UV radiation

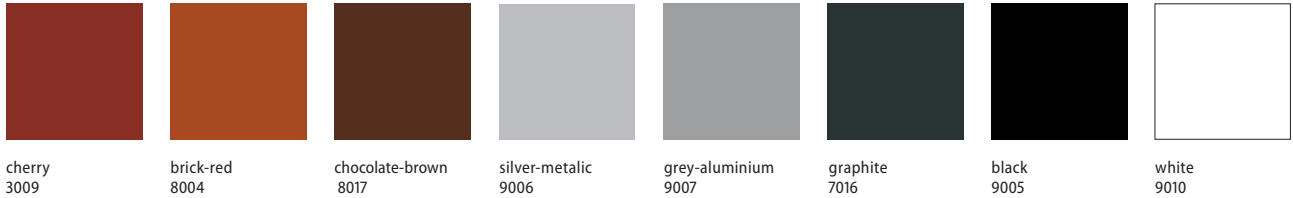
### APPLICATION

- trapezoidal sheets BTD 18.136, BTD 35, BTD 45.150, BTD 45.333, BTD 55
- residential buildings
- industrial and services facilities
- agricultural facilities
- carports, garages
- new and renovated facilities

## BALEX METAL WORLD OF COLOURS

### PREMIUM COATINGS

**CESAR PUR 55®** - A POLYURETHANE COATING WITH POLYAMIDE BALLS

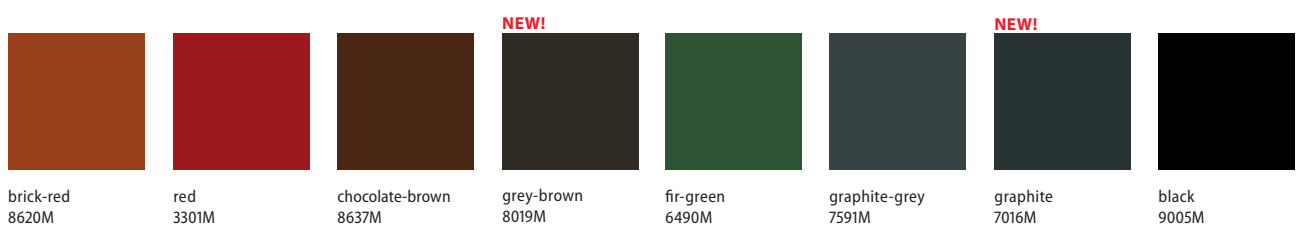


### ORGANIC COATINGS

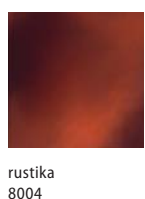
SP POLIESTER



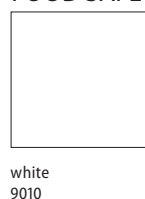
MATT PEARL SP POLYESTER



MATT HDP POLYESTER



PVC(F)  
FOOD SAFE



### METALLIC COATINGS

AZ - ALU-ZINC + EASYFILM®      Z - ZINC



### OTHER

STAINLESS STEEL      TITANIUM ZINC



Colours presented in the materials are only visual. Balex Metal stipulates the right to occurrence of colour differences between sample-card and actual product colour.

Presented colours available in offer of 0.50mm thick steel

1) colour available also for steel of thickness 0.60mm

2) colour available also for steel of thickness 0.60mm and 0.70 mm



## BALEX METAL OFFER FOR INDIVIDUAL CONSTRUCTION

### Balex Metal offers COMPLETE ROOF SYSTEMS:



#### ROOFING

Roofing gives character to buildings and its choice is strictly connected with architectural style.

We offer you the choice among the following products:

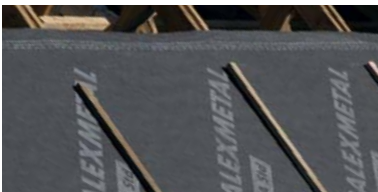
- PANORAMA steel roof tiles
- SPEKTRUM steel sheet roof tiles
- HORYZONT steel sheet roof tiles
- ELEGANT seam roof panels
- Trapezoidal screening sheets



#### THERMANO THERMAL INSULATION

THERMANO thermal insulation consists of modern insulation panels with PIR core of the highest energy efficiency level. Our offer for individual construction includes effective insulation of:

- pitched roofs
- flat roofs
- sandwich walls
- floors and floorings



#### ROOF MEMBRANES

Membranes improve tightness, secure thermal insulation against moist and provide air circulation in roofing layers. Our offer includes:

- Aspira Max roof screens that are the most durable ones
- Aspira Plus and Aspira Standard roof membranes with high vapour permeability parameters
- AQ Metal structural membranes, used for flat sheet coverings



#### GUTTER SYSTEMS

We offer the following gutter systems: Wijo gutters made of steel with Prelaq Nova cladding, and Protektor gutters made of galvanized steel. These systems are easy to assemble and are very durable. Wijo gutter system has elements that enable its assembly on every roofing and every facade.



#### FLASHINGS AND ACCESSORIES

Roof flashings make it possible to finish the roof in an aesthetic way.

They are available in all roofing colours.

Roof accessories provide safety, tightness and appropriate roof ventilation.



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 kontakt@balex.eu  
[www.balex.eu](http://www.balex.eu)

**Balex Metal sp. z o.o.** is a leading manufacturer of construction materials in Poland.

The offer of the company includes complete solutions, steel roof and wall systems for residential, commercial and rural constructions. BALEX METAL is also one of the biggest manufacturers of sandwich panels in Eastern Europe – **10 mln m<sup>2</sup> of sandwich panels are produced annually on 5 production lines.**

## BRANCH OFFICES

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