

## DECLARATION OF PERFORMANCE

No PU-PIR-R/2023/1

1. **Unique identification code of the product-type:** PU-PIR-R <d<sub>N</sub>> <t<sub>Ne</sub>/t<sub>Ni</sub>>
2. **Intended use/es:** roofs and roof cladding
3. **Manufacturer:** BALEX METAL Sp. z o.o., ul. Wejherowska 12C, 84-239 Bolszewo
4. **System of Assessment and Verification of Constancy of Performance:** 1
5. **Harmonised standard:** EN 14509:2013
6. **Notified body:**  
System 1 - Technický a Skúšobný Ústav Stavebný, n. o. (No 1301)  
System 3 – Gryfitlab Sp. z o.o. (No 2253)
7. **Declared performances:** Tables 1÷4

Steel facing profiling designations:

T- trapezoidal; L – lined; G – plain

Other designations:

d<sub>Ne</sub> – nominal thickness of the sandwich panel [mm]

t<sub>Ne</sub> – nominal external facing thickness [mm]

t<sub>Ni</sub> – nominal internal facing thickness [mm]

AVCP - System of Assessment and Verification of Constancy of Performance

NPD – No Performance Determined

The performance of the product identified above is in conformity with the set of declared performance/s.  
This declaration of performance is issued, in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.

Signed for and on behalf of the manufacturer by:

Chief Executive Officer



Marek Dzikiewicz

Bolszewo, 31.08.2023

**BALEXMETAL Sp. z o.o.**  
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## DECLARATION OF PERFORMANCE

No PU-PIR-R/2023/1

**Table 1.** Performances (PIR 40 kg/m<sup>3</sup>, S250GD + SP15, SP25, SP35, Cesar55, PVC(F) 120, t<sub>Ne</sub> = 0,5/0,6/0,7, t<sub>Ni</sub> = 0,4)

Nominal thickness d <sub>N</sub> [mm]			40	60	80	100	120	160	
<b>Essential characteristics</b>		AVCP	<b>Performances</b>						
Mechanical resistance	Compressive strength $\sigma_m$ [MPa]	4	0,14						
	Tensile strength $f_{ct}$ [MPa]	4	0,06						
	Shear strength $f_{cv}$ [MPa]	4	0,16	0,16	0,16	0,14	0,13	0,10	
	Shear modulus $G_c$ [MPa]	4	3,6						
	Creep coefficient $\varphi_t$	4	$\varphi_{2000} = 1,4$ $\varphi_{1000000} = 2,1$						
	Shear strength $f_{cv}$ long-term [MPa]	4	0,08	0,08	0,08	0,075	0,07	0,05	
	Wrinkling stress $\sigma_w$ [MPa] positive	T	4	250	250	250	239	228	215
	Wrinkling stress $\sigma_w$ [MPa] positive elevated temperature	T	4	250	250	250	239	228	215
	Wrinkling stress $\sigma_w$ [MPa] negative	L	4	139	136	132	129	130	120
		G	4	55	58	61	64	83	81
	Wrinkling stress $\sigma_w$ over support [MPa] negative	T	4	250	250	250	239	228	215
	Wrinkling stress $\sigma_w$ over support [MPa] negative elevated temperature	T	4	250	250	250	239	228	215
	Wrinkling stress $\sigma_w$ over support [MPa] positive	L	4	102	101	101	100	127	115
G		4	40	44	47	50	83	78	
Thermal transmittance	Thermal transmittance coefficient $U_{d,s}$ [W/(m <sup>2</sup> K)]	4	0,54	0,35	0,27	0,21	0,18	0,14	
	Thermal conductivity coefficient $\lambda_D$ [W/(mK)]	4	0,022						
External fire performance		4	B <sub>ROOF</sub> (t1), B <sub>ROOF</sub> (t2), B <sub>ROOF</sub> (t3)**						
Reaction to fire; classification*		1	B-s2,d0			B-s1,d0			
Fire resistance, classification*		3	NPD		REI 30 RE 60				
Water permeability; classification		4	NPD						
Air permeability; values n and C		4	NPD						
Water vapour permeability; coefficient $\mu$		4	Pass						
Airborne sound insulation; ratings $R_w$ (C, C <sub>tr</sub> ) [dB]		4	NPD						
Dimensional variation		4	Pass						
Durability	DUR1	4	Pass						
	Resistance to point loads and access loads	4	NPD						
Dangerous substances		3	NPD						

\* - valid under the conditions specified in the classification report

\*\* - performances in accordance with the Annex C.3.1 of EN 14509:2013 (CWFT)

## DECLARATION OF PERFORMANCE

No PU-PIR-R/2023/1

**Table 2.** Performances (PIR 40 kg/m<sup>3</sup>, S250GD + SP15, SP25, SP35, Cesar55, PVC(F) 120, t<sub>Ne</sub> = 0,5/0,6/0,7, t<sub>Ni</sub> = 0,5)

Nominal thickness d <sub>N</sub> [mm]		40	60	80	100	120	160		
<b>Essential characteristics</b>		AVCP	<b>Performances</b>						
Mechanical resistance	Compressive strength $\sigma_m$ [MPa]	4	0,14						
	Tensile strength $f_{ct}$ [MPa]	4	0,06						
	Shear strength $f_{cv}$ [MPa]	4	0,16	0,16	0,16	0,14	0,13	0,10	
	Shear modulus $G_c$ [MPa]	4	3,6						
	Creep coefficient $\varphi_t$	4	$\varphi_{2000} = 1,4$ $\varphi_{100000} = 2,1$						
	Shear strength $f_{cv}$ , long-term [MPa]	4	0,08	0,08	0,08	0,075	0,07	0,05	
	Wrinkling stress $\sigma_w$ [MPa] positive	T	4	250	250	250	239	228	215
	Wrinkling stress $\sigma_w$ [MPa] positive elevated temperature	T	4	250	250	250	239	228	215
	Wrinkling stress $\sigma_w$ [MPa] negative	L	4	119	117	114	111	111	103
		G	4	47	50	53	55	71	69
	Wrinkling stress $\sigma_w$ over support [MPa] negative	T	4	250	250	250	239	228	215
	Wrinkling stress $\sigma_w$ over support [MPa] negative elevated temperature	T	4	250	250	250	239	228	215
	Wrinkling stress $\sigma_w$ over support [MPa] positive	L	4	87	87	86	86	109	99
G		4	35	37	40	43	71	67	
Thermal transmittance	Thermal transmittance coefficient $U_{d,s}$ [W/(m <sup>2</sup> K)]	4	0,54	0,35	0,27	0,21	0,18	0,14	
	Thermal conductivity coefficient $\lambda_D$ [W/(mK)]	4	0,022						
External fire performance		4	B <sub>ROOF</sub> (t1), B <sub>ROOF</sub> (t2), B <sub>ROOF</sub> (t3)**						
Reaction to fire; classification*		1	B-s2,d0		B-s1,d0				
Fire resistance, classification*		3	NPD		REI 30 RE 60				
Water permeability; classification		4	NPD						
Air permeability; values n and C		4	NPD						
Water vapour permeability; coefficient $\mu$		4	Pass						
Airborne sound insulation; ratings $R_w$ (C, C <sub>tr</sub> ) [dB]		4	NPD						
Dimensional variation		4	Pass						
Durability	DUR1	4	Pass						
	Resistance to point loads and access loads	4	NPD						
Dangerous substances		3	NPD						

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\*\* - performances in accordance with the Annex C.3.1 of EN 14509:2013 (CWFT)

## DECLARATION OF PERFORMANCE

No PU-PIR-R/2023/1

**Table 3.** Performances (PIR 40 kg/m<sup>3</sup>, S250GD + SP15, SP25, SP35, Cesar55, PVC(F) 120, t<sub>Ne</sub> = 0,5/0,6/0,7, t<sub>Ni</sub> = 0,6)

Nominal thickness d <sub>N</sub> [mm]			40	60	80	100	120	160	
<b>Essential characteristics</b>		AVCP	<b>Performances</b>						
Mechanical resistance	Compressive strength $\sigma_m$ [MPa]	4	0,14						
	Tensile strength $f_{ct}$ [MPa]	4	0,06						
	Shear strength $f_{cv}$ [MPa]	4	0,16	0,16	0,16	0,14	0,13	0,10	
	Shear modulus $G_c$ [MPa]	4	3,6						
	Creep coefficient $\varphi_t$	4	$\varphi_{2000} = 1,4$ $\varphi_{100000} = 2,1$						
	Shear strength $f_{cv}$ long-term [MPa]	4	0,08	0,08	0,08	0,075	0,07	0,05	
	Wrinkling stress $\sigma_w$ [MPa] positive	T	4	250	250	250	239	228	215
	Wrinkling stress $\sigma_w$ [MPa] positive elevated temperature	T	4	250	250	250	239	228	215
	Wrinkling stress $\sigma_w$ [MPa] negative	L	4	105	103	100	98	98	91
		G	4	42	44	46	49	63	61
	Wrinkling stress $\sigma_w$ over support [MPa] negative	T	4	250	250	250	239	228	215
	Wrinkling stress $\sigma_w$ over support [MPa] negative elevated temperature	T	4	250	250	250	239	228	215
	Wrinkling stress $\sigma_w$ over support [MPa] positive	L	4	77	77	76	76	96	87
G		4	31	33	36	38	63	59	
Thermal transmittance	Thermal transmittance coefficient $U_{d,s}$ [W/(m <sup>2</sup> K)]	4	0,54	0,35	0,27	0,21	0,18	0,14	
	Thermal conductivity coefficient $\lambda_D$ [W/(mK)]	4	0,022						
External fire performance		4	B <sub>ROOF</sub> (t1), B <sub>ROOF</sub> (t2), B <sub>ROOF</sub> (t3)**						
Reaction to fire; classification*		1	B-s2,d0			B-s1,d0			
Fire resistance, classification*		3	NPD		REI 30 RE 60				
Water permeability; classification		4	NPD						
Air permeability; values n and C		4	NPD						
Water vapour permeability; coefficient $\mu$		4	Pass						
Airborne sound insulation; ratings $R_w$ (C, C <sub>tr</sub> ) [dB]		4	NPD						
Dimensional variation		4	Pass						
Durability	DUR1	4	Pass						
	Resistance to point loads and access loads	4	NPD						
Dangerous substances		3	NPD						

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\*\* - performances in accordance with the Annex C.3.1 of EN 14509:2013 (CWFT)

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**Table 4.** Performances (PIR 40 kg/m<sup>3</sup>, S250GD + SP15, SP25, SP35, Cesar55, PVC(F) 120, t<sub>Ne</sub> = 0,5/0,6/0,7, t<sub>Ni</sub> = 0,7)

Nominal thickness d <sub>N</sub> [mm]			40	60	80	100	120	160		
Mechanical resistance	Essential characteristics		AVCP	Performances						
	Compressive strength $\bar{\sigma}_m$ [MPa]		4	0,14						
	Tensile strength f <sub>ct</sub> [MPa]		4	0,06						
	Shear strength f <sub>cv</sub> [MPa]		4	0,16	0,16	0,16	0,14	0,13	0,10	
	Shear modulus G <sub>c</sub> [MPa]		4	3,6						
	Creep coefficient $\varphi_t$		4	$\varphi_{2000} = 1,4$ $\varphi_{100000} = 2,1$						
	Shear strength f <sub>cv</sub> long-term [MPa]		4	0,08	0,08	0,08	0,075	0,07	0,05	
	Wrinkling stress $\bar{\sigma}_w$ [MPa] positive		T	4	250	250	250	239	228	215
	Wrinkling stress $\bar{\sigma}_w$ [MPa] positive elevated temperature		T	4	250	250	250	239	228	215
	Wrinkling stress $\bar{\sigma}_w$ [MPa] negative		L	4	94	92	90	88	88	81
			G	4	37	39	41	44	56	55
	Wrinkling stress $\bar{\sigma}_w$ over support [MPa] negative		T	4	250	250	250	239	228	215
	Wrinkling stress $\bar{\sigma}_w$ over support [MPa] negative elevated temperature		T	4	250	250	250	239	228	215
	Wrinkling stress $\bar{\sigma}_w$ over support [MPa] positive		L	4	69	69	68	68	86	78
G			4	27	30	32	34	56	53	
Thermal transmittance	Thermal transmittance coefficient U <sub>d,s</sub> [W/(m <sup>2</sup> K)]		4	0,54	0,35	0,27	0,21	0,18	0,14	
	Thermal conductivity coefficient $\lambda_D$ [W/(mK)]		4	0,022						
External fire performance			4	B <sub>ROOF</sub> (t1), B <sub>ROOF</sub> (t2), B <sub>ROOF</sub> (t3)**						
Reaction to fire; classification*			1	B-s2,d0			B-s1,d0			
Fire resistance; classification*			3	NPD		REI 30 RE 60				
Water permeability; classification			4	NPD						
Air permeability; values n and C			4	NPD						
Water vapour permeability; coefficient $\mu$			4	Pass						
Airborne sound insulation; ratings R <sub>w</sub> (C, C <sub>tr</sub> ) [dB]			4	NPD						
Dimensional variation			4	Pass						
Durability	DUR1		4	Pass						
	Resistance to point loads and access loads		4	NPD						
Dangerous substances			3	NPD						

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\*\* - performances in accordance with the Annex C.3.1 of EN 14509:2013 (CWFT)

