

DECLARATION OF PERFORMANCE

No MW-R/2024/1

1. Unique identification code of the product-type: MW-R < d_N > < t_{Ne}/t_{Ni} >
2. Intended use: 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: 3
5. Harmonised standard: EN 14509:2013
6. Notified bodies: Instytut Techniki Budowlanej (No 1488), Gryfitlab Sp. z o.o. (No 2253), Fires, s.r.o. (No 1396)
7. Declared performances: Tables 1÷11
(MW 110kg/m³, S250GD + PE25, PE35M, PUR55, PVC120, AZ)

Designations of steel cladding profiling:

T – Trapezoidal; L – Lined; F – smooth

Other designations:

d_{Ne} – nominal panel thickness [mm]

t_{Ne} – nominal thickness of external cladding [mm]

t_{Ni} – nominal thickness of internal cladding [mm]

NPD – No Performance Determined

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

igned for and on behalf of the manufacturer by
Chief Executive Officer



Bolszewo, 02.12.2024

Marek Dzikiewicz

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Table 1. Performances - mechanical resistance
($t_{Ne}/t_{ni} = 0,5/0,5$)

Nominal thickness d _N [mm]			100	120	150	175	200
Essential characteristics			Performances				
Mechanical resistance	Compressive strength σ _m [MPa]		0,09				
	Tensile strength f _{ct} [MPa]		0,08				
	Shear strength f _{cv} [MPa]		0,052				
	Shear modulus G _c [MPa]		3,00				
	Creep coefficient ϕt		ϕ2000 = 0,20 ϕ100000 = 0,25				
	Shear strength f _{cv} long-term [MPa]		0,02				
	Wrinkling strength σ _w in span [MPa] positive	T	177	165	148	130	108
	Wrinkling strength σ _w in span [MPa] positive, elevated temperature	T	177	165	148	130	108
	Wrinkling strength σ _w in span [MPa] negative	L	86	94	105	111	115
		F	104	114	129	113	79
	Wrinkling strength σ _w at central support [MPa] negative	T	177	165	148	130	108
	Wrinkling strength σ _w at central support [MPa] negative, elevated temperature	T	177	165	148	130	108
	Wrinkling strength σ _w at central support [MPa] positive	L	62	61	61	61	60
F		62	61	61	61	60	

Table 2. Performances - mechanical resistance
($t_{Ne}/t_{ni} = 0,5/0,6$)

Nominal thickness d_N [mm]			100	120	150	175	200
Essential characteristics			Performances				
Mechanical resistance	Compressive strength σ_m [MPa]		0,09				
	Tensile strength f_{ct} [MPa]		0,08				
	Shear strength f_{cv} [MPa]		0,052				
	Shear modulus G_c [MPa]		3,00				
	Creep coefficient ϕt		$\phi 2000 = 0,20$ $\phi 100000 = 0,25$				
	Shear strength f_{cv} long-term [MPa]		0,02				
	Wrinkling strength σ_w in span [MPa] positive	T	177	165	148	130	108
	Wrinkling strength σ_w in span [MPa] positive, elevated temperature	T	177	165	148	130	108
	Wrinkling strength σ_w in span [MPa] negative	L	74	81	91	96	99
		F	104	114	129	113	79
	Wrinkling strength σ_w at central support [MPa] negative	T	177	165	148	130	108
	Wrinkling strength σ_w at central support [MPa] negative, elevated temperature	T	177	165	148	130	108
	Wrinkling strength σ_w at central support [MPa] positive	L	53	53	53	53	52
F		62	61	61	61	60	

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Table 3. Performances - mechanical resistance

($t_{Ne}/t_{ni} = 0,5/0,7$)

Nominal thickness d_N [mm]			100	120	150	175	200
Essential characteristics			Performances				
Mechanical resistance	Compressive strength $\bar{\sigma}_m$ [MPa]		0,09				
	Tensile strength f_{ct} [MPa]		0,08				
	Shear strength f_{cv} [MPa]		0,052				
	Shear modulus G_C [MPa]		3,00				
	Creep coefficient ϕt		$\phi_{2000} = 0,20$ $\phi_{100000} = 0,25$				
	Shear strength f_{cv} long-term [MPa]		0,02				
	Wrinkling strength $\bar{\sigma}_w$ in span [MPa] positive	T	177	165	148	130	108
	Wrinkling strength $\bar{\sigma}_w$ in span [MPa] positive, elevated temperature	T	177	165	148	130	108
	Wrinkling strength $\bar{\sigma}_w$ in span [MPa] negative	L	66	73	81	86	89
		F	104	114	129	103	79
	Wrinkling strength $\bar{\sigma}_w$ at central support [MPa] negative	T	177	165	148	130	108
	Wrinkling strength $\bar{\sigma}_w$ at central support [MPa] negative, elevated temperature	T	177	165	148	130	108
Wrinkling strength $\bar{\sigma}_w$ at central support [MPa] positive	L	48	47	47	47	46	
	F	62	61	61	61	60	

Table 4. Performances - mechanical resistance

($t_{Ne}/t_{ni} = 0,6/0,5$)

Nominal thickness d_N [mm]			100	120	150	175	200
Essential characteristics			Performances				
Mechanical resistance	Compressive strength σ_m [MPa]		0,09				
	Tensile strength f_{ct} [MPa]		0,08				
	Shear strength f_{cv} [MPa]		0,052				
	Shear modulus G_C [MPa]		3,00				
	Creep coefficient ϕt		$\phi 2000 = 0,20$ $\phi 100000 = 0,25$				
	Shear strength f_{cv} long-term [MPa]		0,02				
	Wrinkling strength σ_w in span [MPa] positive	T	153	143	128	112	93
	Wrinkling strength σ_w in span [MPa] positive, elevated temperature	T	153	143	128	112	93
	Wrinkling strength σ_w in span [MPa] negative	L	86	94	105	111	115
		F	104	114	129	103	79
	Wrinkling strength σ_w at central support [MPa] negative	T	153	143	128	112	93
	Wrinkling strength σ_w at central support [MPa] negative, elevated temperature	T	153	143	128	112	93
Wrinkling strength σ_w at central support [MPa] positive	L	62	61	61	61	60	
	F	62	61	61	61	60	

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Table 5. Performances - mechanical resistance
($t_{Ne}/t_{ni} = 0,6/0,6$)

Nominal thickness d_N [mm]			100	120	150	175	200
Essential characteristics			Performances				
Mechanical resistance	Compressive strength σ_m [MPa]		0,09				
	Tensile strength f_{ct} [MPa]		0,08				
	Shear strength f_{cv} [MPa]		0,05				
	Shear modulus G_c [MPa]		3,00				
	Creep coefficient ϕt		$\phi 2000 = 0,20$ $\phi 100000 = 0,25$				
	Shear strength f_{cv} long-term [MPa]		0,02				
	Wrinkling strength σ_w in span [MPa] positive	T	153	143	128	112	93
	Wrinkling strength σ_w in span [MPa] positive, elevated temperature	T	153	143	128	112	93
	Wrinkling strength σ_w in span [MPa] negative	L	74	81	91	96	99
		F	104	114	129	103	79
	Wrinkling strength σ_w at central support [MPa] negative	T	153	143	128	112	93
	Wrinkling strength σ_w at central support [MPa] negative, elevated temperature	T	62	61	61	61	60
Wrinkling strength σ_w at central support [MPa] positive	L	53	53	53	53	52	
	F	62	61	61	61	60	

Table 6. Performances - mechanical resistance
($t_{Ne}/t_{ni} = 0,6/0,7$)

Nominal thickness d _N [mm]			100	120	150	175	200
Essential characteristics			Performances				
Mechanical resistance	Compressive strength σ _m [MPa]		0,09				
	Tensile strength f _{ct} [MPa]		0,08				
	Shear strength f _{cv} [MPa]		0,052				
	Shear modulus G _C [MPa]		3,00				
	Creep coefficient φt		φ2000 = 0,20 φ100000 = 0,25				
	Shear strength f _{cv} long-term [MPa]		0,02				
	Wrinkling strength σ _w in span [MPa] positive	T	153	143	128	112	93
	Wrinkling strength σ _w in span [MPa] positive, elevated temperature	T	153	143	128	112	93
	Wrinkling strength σ _w in span [MPa] negative	L	66	73	81	86	89
		F	104	114	129	113	79
	Wrinkling strength σ _w at central support [MPa] negative	T	153	143	128	112	93
	Wrinkling strength σ _w at central support [MPa] negative, elevated temperature	T	153	143	128	112	93
	Wrinkling strength σ _w at central support [MPa] positive	L	48	47	47	47	46
		F	62	61	61	61	60

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Table 7. Performances - mechanical resistance
($t_{Ne}/t_{ni} = 0,7/0,5$)

Nominal thickness d_N [mm]			100	120	150	175	200
Essential characteristics			Performances				
Mechanical resistance	Compressive strength σ_m [MPa]		0,09				
	Tensile strength f_{ct} [MPa]		0,08				
	Shear strength f_{cv} [MPa]		0,052				
	Shear modulus G_c [MPa]		3,00				
	Creep coefficient ϕt		$\phi 2000 = 0,20$ $\phi 100000 = 0,25$				
	Shear strength f_{cv} long-term [MPa]		0,02				
	Wrinkling strength $\bar{\sigma}_w$ in span [MPa] positive	T	137	128	115	101	83
	Wrinkling strength $\bar{\sigma}_w$ in span [MPa] positive, elevated temperature	T	137	128	115	101	83
	Wrinkling strength $\bar{\sigma}_w$ in span [MPa] negative	L	86	94	105	111	115
		F	104	114	129	113	79
	Wrinkling strength $\bar{\sigma}_w$ at central support [MPa] negative	T	137	128	115	101	83
	Wrinkling strength $\bar{\sigma}_w$ at central support [MPa] negative, elevated temperature	T	137	128	115	101	83
Wrinkling strength $\bar{\sigma}_w$ at central support [MPa] positive	L	62	61	61	61	60	
	F	62	61	61	61	60	

Table 8. Performances - mechanical resistance
($t_{Ne}/t_{ni} = 0,7/0,6$)

Nominal thickness d_N [mm]			100	120	150	175	200
Essential characteristics			Performances				
Mechanical resistance	Compressive strength σ_m [MPa]		0,09				
	Tensile strength f_{ct} [MPa]		0,08				
	Shear strength f_{cv} [MPa]		0,052				
	Shear modulus G_C [MPa]		3,00				
	Creep coefficient ϕt		$\phi 2000 = 0,20$ $\phi 100000 = 0,25$				
	Shear strength f_{cv} long-term [MPa]		0,02				
	Wrinkling strength σ_w in span [MPa] positive	T	137	128	115	101	83
	Wrinkling strength σ_w in span [MPa] positive, elevated temperature	T	137	128	115	101	83
	Wrinkling strength σ_w in span [MPa] negative	L	74	81	91	96	99
		F	104	114	129	113	79
	Wrinkling strength σ_w at central support [MPa] negative	T	137	128	115	101	83
	Wrinkling strength σ_w at central support [MPa] negative, elevated temperature	T	137	128	115	101	83
	Wrinkling strength σ_w at central support [MPa] positive	L	53	53	53	53	52
F		62	61	61	61	60	

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Table 9. Performances - mechanical resistance
($t_{Ne}/t_{ni} = 0,7/0,7$)

Nominal thickness d_N [mm]			100	120	150	175	200
Essential characteristics			Performances				
Mechanical resistance	Compressive strength σ_m [MPa]		0,09				
	Tensile strength f_{ct} [MPa]		0,08				
	Shear strength f_{cv} [MPa]		0,052				
	Shear modulus G_C [MPa]		3,00				
	Creep coefficient ϕt		$\phi 2000 = 0,20$ $\phi 100000 = 0,25$				
	Shear strength f_{cv} long-term [MPa]		0,02				
	Wrinkling strength σ_w in span [MPa] positive	T	137	128	115	101	83
	Wrinkling strength σ_w in span [MPa] positive, elevated temperature	T	137	128	115	101	83
	Wrinkling strength σ_w in span [MPa] negative	L	66	73	81	86	89
		F	104	114	129	113	79
	Wrinkling strength σ_w at central support [MPa] negative	T	137	128	115	101	83
	Wrinkling strength σ_w at central support [MPa] negative, elevated temperature	T	137	128	115	101	83
Wrinkling strength σ_w at central support [MPa] positive	L	48	47	47	47	46	
	F	62	61	61	61	60	

Table 10. Performances - fire, valid under the conditions specified in the classification reports

Nominal thickness d_N [mm]		100	120	150	175	200
Essential characteristics		Performances				
External fire performance		$B_{ROOF}(t1), B_{ROOF}(t2), B_{ROOF}(t3)^*$				
Reaction to fire; classification		A2-s1,d0				
Fire resistance, classification		NPD	REI90 RE180	NPD		

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

Table 11. Performances - others

Nominal thickness d_N [mm]		100	120	150	175	200
Essential characteristics		Performances				
Thermal transmittance	Thermal transmittance coefficient U_{ds} [W/(m ² K)]	0,40	0,33	0,27	0,23	0,21
	Thermal conductivity coefficient λ_D [W/(mK)]	0,041				
Water permeability; classification		A				
Air permeability; value n, C		NPD				
Water vapour permeability; coeff. μ		Pass				
Airborne sound insulation; indicators R_w (C, C_{tr}) [dB]		33 (-1, -3)				
Dimensional variation		Pass				
Durability	DUR2	Pass				
	Resistance to point loads and access loads	NPD				
Dangerous substances		NPD				