MoT Fire Proof Panels Industry
VAT NUMBER: 997423425, Larissa
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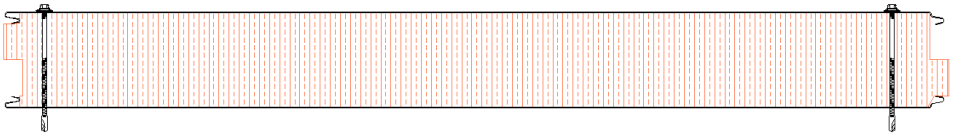
T: +30 2410975140-1, E: office@motpanels.com, **www.motpanels.gr**

fire proof panels industry

lambda RWs® fireproof wall panels with visible joint

Description | Areas of application

lambda-RWs® panels are self-supporting wall composite components with visible joint, manufactured with non-combustible mineral wool with a minimum compressive strength of 50 kPa, enclosed by two slightly modulated steel sheets, according to architect' s choice.
In combination with our high-quality flashings and the available prepainted fixing accessories, they offer an ideal solution for external wall systems and also internal partition walls, ensuring high passive fire protection in all options.
lambda-RWs® panels can be installed both vertically and horizontally.



PATENTED

Technical specifications

2.1. technical specifications

nominal thickness (mm)	**50**	**60**	**80**	**90**	**100**	**120**	**150**	**200**	**240**	**300**
reaction to fire acc. EN 13501-1	A1									
fire resistance acc. EN 13501-2	according to the table 2.2									
weighted sound insulation index - R_w (C, C_{tr})	32dB(-1;-3)				33dB(-2;-5)					
water permeability acc. EN14509	Class A (1.200Pa)									
heat transfer coefficient - U_{value} (W/m²K)	0,72	0,60	0,41	0,38	0,36	0,30	0,24	0,18	0,14	0,11
effective width (mm)	800 - 1200									
panel length (mm)	2.000 - 15.000									
max. recommended length (mm) **0,50/0,50mm**	5.000	5.000	7.000	9.000	9.000	11.000	14.000	15.000	15.000	15.000
weight (Kgr/m²) **0,50/0,50mm**	13,20	14,20	16,20	17,20	18,20	20,20	23,20	28,20	32,20	38,20
weight (Kgr/m²) **0,60/0,60mm**	14,90	15,90	17,90	18,90	19,90	21,90	24,90	29,90	33,90	39,90

CAUTION: (1) The mineral wool core of panels with nominal thickness 50mm is without notch in the joint.
(2) Despite MoT' s capability to handle long panels during their stacking, packing and loading, maximum recommended lengths written above, should be taken under serious consideration regarding the safe unloading and installation at site.

Product Benefits

Fire resistance | Incombustibility | High thermal insulation | Sound insulation

Certification

ISO 9001 | ISO 14001 | CE

Product Tolerances

cover width: ± 2,00 mm | length <3,00m: ± 5,00 mm | length >3,00m: ± 10,00 mm |
thickness: ± 2% | weight: ± 10% | orthogonality: ± 5,00 mm

get the full protection

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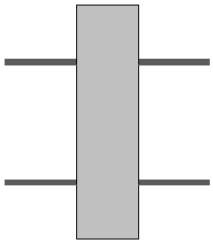
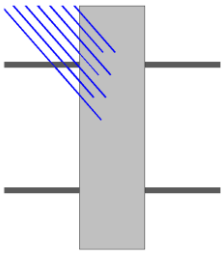
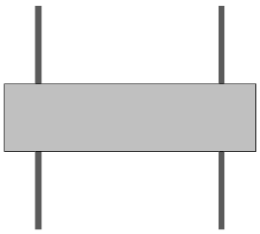
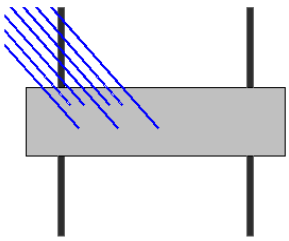
Maximum recommended spans in terms of fire resistance

2.2. fire resistance acc. EN 13501-2

Direction of installation internal | external wall	fire resistance EN13501-2	nominal thickness (mm)	maximum recommended span (m)
 Vertical installation internal wall	**EI 15**	60	4,00
	EI 20	60	4,00
	EI 30	70	7,50
	EI 45	70	4,00
		80	7,50
	EI 60	80	4,00
		90	7,50
	EI 90	90	4,00
		100	6,00
	EI 120	100	4,00
 Vertical installation external wall	**EI 15**	60	4,00
	EI 20	-	-
	EI 30	70	7,50
	EI 45	-	-
		-	-
	EI 60	80	4,00
		90	7,50
	EI 90	90	4,00
		100	6,00
	EI 120	100	4,00
 Horizontal installation internal wall	**EI 30**	60	7,50
	EI 45	60	4,00
		70	7,50
	EI 60	70	6,00
		80	7,50
	EI 90	80	6,00
		90	7,50
	EI 120	90	4,00
		100	7,50
	EI 180	100	4,00
 Horizontal installation external wall	**EI 30**	60	7,50
	EI 45	-	-
		-	-
	EI 60	70	6,00
		80	7,50
	EI 90	80	6,00
		90	7,50
	EI 120	90	4,00
		100	7,50
	EI 180	**(*)**	**(*)**

(*) There is no EI180 classification for external walls, according to EN13501-2:2016, § 7.5.3.4

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Maximum recommended span distances

2.3. maximum recommended span distances L (m) | steel thickness 0,50mm

support		L (m) L (m)							L (m)						
load (daN/m²)		40	60	80	100	120	150	200	40	60	80	100	120	150	200
d (mm)	50	4,02	3,31	2,50	2,03	1,71	1,39	1,04	4,19	3,50	2,93	2,35	1,98	1,59	1,11
	60	4,43	3,68	3,03	2,43	2,08	1,53	1,11	4,61	3,82	4,13	2,72	2,36	1,96	1,19
	80	5,17	4,29	3,97	3,22	2,72	2,19	1,28	5,45	4,46	3,86	3,45	3,12	2,54	1,43
	90	5,42	4,42	4,10	3,62	3,02	2,44	1,64	5,77	4,72	4,09	3,65	3,32	2,84	1,81
	100	5,67	4,55	4,22	4,01	3,31	2,69	2,01	6,10	4,99	4,31	3,86	3,52	3,14	2,20
	120	6,39	5,18	4,52	4,30	3,89	3,11	2,26	6,71	5,45	4,72	4,23	3,86	3,46	2,54
	150	7,03	5,70	5,08	4,54	4,10	3,32	2,42	7,44	6,08	5,27	4,71	4,29	3,83	2,71
	200	8,58	6,95	6,19	5,53	5,01	4,05	2,95	9,08	7,41	6,42	5,74	5,24	4,67	3,30
	240	9,26	7,54	6,75	6,06	5,51	4,54	3,34	9,81	8,04	7,00	6,29	5,76	5,23	3,73
	300	10,28	8,37	7,43	6,67	6,11	5,04	3,74	10,89	8,93	7,70	6,92	6,39	5,80	4,18

external / internal steel thickness: 0,50mm /0,50mm.
calculation of the safe spans was executed using specialized software developed for MoT.
safe span satisfies both max. deflection l≤200 and working stress ≤4% of the limit moment & 40% of the limit shear.

2.4. maximum recommended span distances L (m) | steel thickness 0,50mm

support		L (m) L (m)							L (m)						
load (daN/m²)		40	60	80	100	120	150	200	40	60	80	100	120	150	200
d (mm)	50	4,67	3,84	2,90	2,36	1,98	1,61	1,20	4,87	4,06	3,40	2,72	2,30	1,85	1,28
	60	5,14	4,27	3,52	2,82	2,41	1,77	1,28	5,35	4,43	4,79	3,15	2,74	2,28	1,38
	80	5,99	4,98	4,60	3,74	3,15	2,54	1,48	6,32	5,17	4,48	4,00	3,62	2,94	1,66
	90	6,28	5,13	4,75	4,20	3,50	2,83	1,91	6,70	5,48	4,74	4,24	3,85	3,29	2,10
	100	6,58	5,27	4,90	4,66	3,84	3,12	2,33	7,08	5,78	5,00	4,48	4,08	3,64	2,55
	120	7,41	6,00	5,24	4,99	4,51	3,60	2,62	7,78	6,32	5,47	4,91	4,48	4,01	2,94
	150	8,15	6,61	5,89	5,26	4,76	3,85	2,81	8,63	7,05	6,11	5,46	4,98	4,44	3,14
	200	9,95	8,06	7,18	6,42	5,81	4,70	3,43	10,53	8,60	7,45	6,66	6,08	5,41	3,83
	240	10,74	8,75	7,83	7,03	6,39	5,26	3,87	11,38	9,33	8,12	7,29	6,68	6,06	4,33
	300	11,92	9,71	8,61	7,73	7,09	5,84	4,34	12,63	10,35	8,93	8,02	7,42	6,73	4,85

external / internal steel thickness: 0,50mm /0,50mm.
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Feedstocks

Steel

Substrate: S280 - 320GD acc. to EN 10346
Zn 140 - 275 acc. to EN 10169 **(1)**

Thickness: 0,50mm – 1,00 mm

Coating (2): organic 20-25 μm /Pvdf 20-50μm/ PU Duro50-55μm/ PVC film120μm **(3)**.
Color palette of the commercial organic coated steel available at **color palette** **(4)**

(1) upon request stainless steel AISI 304, Mat surface (2B).

(2) upon request substrate without coating

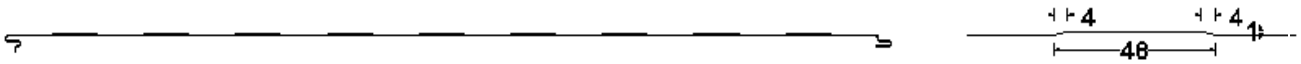
(3) steel coated with PVC film120 μm should not be exposed to external environment or internal with UV radiation.

(4) contact our sales department to receive the confirmation of the colors availability.

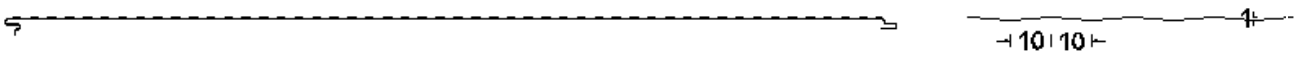
All steel surfaces are delivered with protective film, in order to avoid scratches, dirt or any other damage.
It has to be removed from all panels' surfaces during their installation and in any case, in maximum 60 days from their production date, which is written on the packages' labels.

External | Internal steel modulations

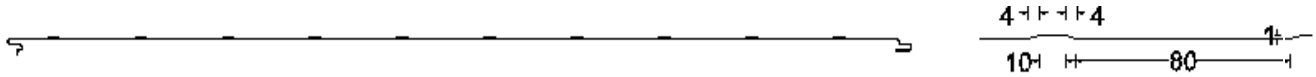
s-rib



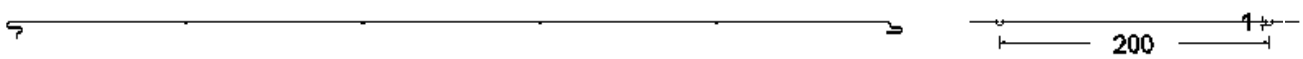
micro
-rib



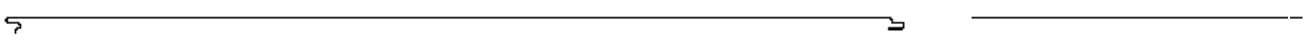
linear



4-rib
(1)



flat
(1)



(1) The minimum allowed steel thickness for Flat & 4-Rib modulations is 0.6mm.
(2) All the modulations above can be applied in both steel surfaces.

Photos of the steel modulations available at **steel modulations**

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Core

Mineral wool of density 100Kgr/m³ is applied in the form of lamella, vertically to steel surface.
Lamella's characteristics as following:

Reaction to Fire:	Class A1 acc. to EN 13501.
Thermal conductivity:	λD=0,039 W/Mk acc. to EN 12667
Compression Strength:	≥ 50KPa acc. to EN 826.
Tensile Strength:	≥ 90KPa acc. to EN 1607.
Shear Strength:	≥ 45KPa acc. to EN 12090.

Accompanying products

Self-drilling, double thread screws for sandwich panels with integrated washer.
Galvanized or coated steel flashings, potentially manufactured by the same steel as panels' surfaces.
Fire proof sealant Sikacryl 621 FIRE, to be applied as strip into the panels' joint.

Packaging – Transportation

Panels are automatically stacked, in packages with maximum height 1,00 m for road transport and 1,30 m for sea transport. At the bottom of the package an EPS sheet is applied through its entire surface, along with EPS blocks, in order to avoid any damage, during loading and unloading procedure. All of them are tightly wrapped with stretch film.

Each package bears its unique ID label, declaring its dimension and weight, the order' s number and production date, as well as the full information about the panels contented.

2.5. table of typical packaging

		sea transport | 40' HC Containers			road transport | 2,6m min. truck' s effect. height		
		Pieces / package 1st - 2nd row	Total height (mm)	Pieces / package 1st - 2nd - 3rd row	Pieces / package 1st - 2nd - 3rd row	Total height (mm)	Total height (mm)
 d (mm)	50	22 - 23	2.490	990,00	14 - 14 - 14	2.460	1.008,00
	60	19 - 19	2.520	836,00	12 - 12 - 12	2.520	864,00
	90	14 - 14	2.480	616,00	9 - 9 - 9	2.520	648,00
	80	12 - 13	2.490	550,00	8 - 8 - 8	2.520	576,00
	100	11 - 11	2.440	484,00	7 - 7 - 7	2.460	504,00
	120	10 - 9	2.520	418,00	6 - 6 - 6	2.520	432,00
	150	8 - 7	2.490	330,00	6 - 4 - 4	2.460	336,00
	200	6 - 5	2.440	242,00	4 - 3 - 3	2.360	240,00
	250	5 - 4	2.400	198,00	3 - 3 - 3	2.520	216,00
	300	4 - 3	2.340	154,00	3 - 2 - 2	2.460	168,00

CAUTION: Typical packaging may be modified depending on the special demands of each loading.

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Unloading

The packages of **length<6,00m** should be unloaded, either with an overhead travelling crane, using a cross- beam, or with a single fork forklift.
The packages of **length>6,00m** should be unloaded by using metal frame in combination with hollow sections and lifting straps. The use of crane as described above, can ONLY be substituted by the use of double fork forklifts (four forks with the appropriate distance between them).

It is **NOT recommended**
– to use only lifting straps without using metal frame.
– to use metal strips, chains and wire ropes.
It is **HIGHLY recommended**
– to use only the appropriate lifting straps.
– to use the appropriate number of lifting straps and at the right position, in terms of avoiding the packages' bending.
– to protect the edges of the panels, by using hard plastic angles.

More information is available at **tips-documents | unloading.**

Storage

Panels shouldn't be stored on external areas, being exposed to weather conditions such as rain, snow, strong winds and intense sunlight. On the contrary, they should be stored on covered and sufficiently ventilated areas. In case such areas are not available and only during a short-term storage on the project site, packages should be stored in slightly inclined position, to ensure free drainage of rainwater which might otherwise penetrate into the package.

Provide to the panels intended for open-air-storage with adequate protection against rainwater, snow, wind, sunlight, dust and dirt, such as canvas covers. It is forbidden to use plastic film for their protection, since canvas covers ensure adequate ventilation and prompt evaporation of accumulated moisture. Absolutely avoid water collection between the panels, as in case of prolonged storage without adequate ventilation, this may damage them. To avoid

indentations and prints on the panels, it is forbidden to store the panel packages one on top of the other at the construction site and the surface, where stored has to be hardened flat. Partially unpacked packages must be always protected against rainwater and strong wind.
Due to the additional load exerted on the roof structure, for temporary on-roof storage and during assembly, the roof panels can only be placed on the load-bearing framework and always upon agreement with the chief supervisor. Panel packages must be based on the load-bearing framework on their bottom EPS slab and they should not be stored one on top on the roof structure.

Installation - Safety

All works related to the installation of sandwich panels, have to be carried out in keeping with the applicable occupational health and safety regulations, for the assembly and roofing works, following the local laws and regulations, under supervision of authorized staff. In any case, use of the following fall restraint equipment during panels assembly is recommended:
- rope barriers to secure the buildings in perimeter
- lifelines and safety belts of assembler
- anti-slip safety shoes

More information is available at **tips-documents | installation.**

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Cleaning - Maintenance

It is highly recommended to clean and check carefully the panels and all the structural components connected with them, at least annually.

More information is available at **cleaning | maintenance instructions**

Environmental performance

Environmentally friendly and safe for public health.
100% recyclable material.
All the packaging materials & the protective film of the panels should be sent for recycling from the construction site, following the relevant legislation in each place, where the installation is executed.
For the waste code contact MoT

MoT reserves the right to modify the specifications of its products without notice and the information provided in this form is valid at the time of its publication. Users of the products should always consult the current version of the Product Data Sheet, copies of which are available upon request.