

TECHNICAL SPECIFICATION

Insulating slabs made of ISOVER mineral wool with perpendicular fibres. The production is based on defibring method of the minerals composition melt and additional additives and ingredients. The mineral fibres produced are processed into the final slab shape on the production line. The entire fibre surface is hydrophobic and the fibres are perpendicular to the wall plane. The slabs in the construction have to be protected suitably (layers of the contact wall insulation system).

APPLICATION

ISOVER NF 333 slabs are suitable for ETICS facade systems where the insulating slabs are fully glued on a sufficiently flat and bearing surface. The layers of contact insulating systems are applied on the slabs: bond, reinforcement grid, penetration, plaster, and paint. Smaller slab size and perpendicular orientation of fibres enables matching to curved surfaces. Furthermore, there is possibility to regrinding slabs surface for keeping its smooth face. There are lesser requirements for the mechanical bond due to full gluing (see manufacturers of the ETICS system anchors for recommended bond plans).

DIMENSIONS AND PACKAGING

Thickness	[mm]	20	30	40	50	60	70*	80	100	120	140	150	160	180	200	220*	240*	260*	280*	300*	
Length x width	[mm]	1000 x 333																			
Volume per package	[pcs]	30	20	15	12	8	8	6	6	4	3	4	3	3	3	2	2	40**	40**	32**	
	[m ²]	10.00	6.66	5.00	4.00	2.66	2.66	2.00	2.00	1.33	1.00	1.33	1.00	1.00	0.67	0.67	13.32**	13.32**	10.66**		
	[m ²]	0.200	0.200	0.200	0.200	0.160	0.186	0.160	0.200	0.160	0.140	0.200	0.160	0.180	0.200	0.147	0.160	**	**	**	
Quantity per palette	[m ²]	160.00	106.56	80.00	64.00	53.20	42.56	40.00	32.00	26.60	24.00	21.28	20.00	20.00	16.00	16.08	13.40	13.32**	13.32**	10.66**	
Declared thermal resistance R _D	[m ² ·K·W ⁻¹]	0.45	0.70	0.95	1.20	1.45	1.70	1.95	2.40	2.90	3.40	3.65	3.90	4.35	4.85	5.35	5.85	6.30	6.80	7.30	

* It is necessary to consult with the producer for the terms of delivery. ** Free boards on a pallet, wrapped in PE foil.

TECHNICAL PARAMETERS

Parameter	Unit	Methodology	Value	Designation code
Geometric shape				
Length <i>l</i>	[%, mm]	EN 823	±1 %	
Width <i>b</i>	[%, mm]	EN 822	±1,5 %	
Thickness <i>d</i>	[%, mm]	EN 822	-1 % or -1 mm ¹⁾ and +3 mm	Class of thickness tolerances T5
Deviation from squareness of the edge on length and width <i>S_b</i>	[mm·m ⁻¹]	EN 824	2	
Deviation from flatness <i>S_{max}</i>	[mm]	EN 825	5	
Relative change in length $\Delta\epsilon_l$, in width $\Delta\epsilon_b$, in thickness $\Delta\epsilon_d$	[%]	EN 1604	1	Dimensional stability under the specified temperature and humidity conditions DS(70/90)
Thermal technical properties				
Declared value of the thermal conductivity coefficient $\lambda_D^{2)}$	[W·m ⁻¹ ·K ⁻¹]	Declaration according to EN 13162+A1 Measurement according to EN 12667	0,041	
Design thermal conductivity $\lambda_D^{2)}$	[W·m ⁻¹ ·K ⁻¹]	ČSN 73 0540-3	0,043	
Specific heat capacity <i>c_d</i>	[J·kg ⁻¹ ·K ⁻¹]	ČSN 73 0540-3	800	
Mechanical properties				
Compressive stress at 10% deformation σ_{10}	[kPa]	Declaration according to EN 826	40	Declared level of compressive stress at 10% deformation CS(10)40
Tensile strength perpendicular to faces σ_{mt}	[kPa]	Declaration according to EN 1607	80	Declared level of tensile strength perpendicular to faces TR80
Shear strength	[kPa]	EN 13162+A1 Measurement according to EN 12090	20 ³⁾	Level of shear strength SS20
Shear modulus	[kPa]	Measurement according to EN 12090	1000 ³⁾	
Fire safety properties				
Reaction to fire class	[-]	Declaration according to EN 13501-1+A1	A1	
Maximum temperature for use	[°C]		200	
Melting temperature <i>t_f</i>	[°C]	DIN 4102 part 17	≥ 1000	
Hydrothermal properties				
Short term water absorption <i>W_p</i>	[kg·m ⁻²]	Declaration according to EN 13162+A1 Measurement according to EN 1609	1	Declared level for short term water absorption WS
Long term water absorption by partial immersion <i>W_p</i>	[kg·m ⁻²]	Declaration according to EN 13162+A1 Measurement according to EN 12087	3	Declared level for long term water absorption by partial immersion WL(P)
Water vapour diffusion resistance factor μ	[-]	Declaration according to EN 13162+A1 Measurement according to EN 12086	1	Declared value for water vapour diffusion resistance factor MU1

¹⁾ Whichever gives the greatest numerical tolerance.

²⁾ Declared values were set under the following conditions (reference temperature 10 °C, humidity u_{dry} , which is reached by drying) according EN ISO 10456.

³⁾ It is valid for typical use in construction with risk of condensation. In the case of construction without any risk of condensation it is possible to use the declared value of thermal conductivity.

RELATED DOCUMENTS

- Certificate of constancy of performance 1390-CPR-312/11/P
- Declaration of Performance CZ0001-023
- Quality class A
- Environmental Product Declaration
- ISO 9001, ISO 14001, ISO 45001, ISO 50001





ISOVER NF 333

Mineral insulation from stone wool

TECHNICAL PARAMETERS

Parameter	Unit	Methodology	Value	Designation code					
Other properties									
Density	[kg·m ⁻³]	EN 1602	80-100 ⁴⁾						
Acoustic properties⁵⁾									
The practical sound absorption coefficient α_p	[-]	EN 13162+A1	Level of practical sound absorption coefficient				AP		
		EN ISO 11654							
		Measurement according to EN ISO 354							
Frequency		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz		
Thickness	60 mm		0.20	0.70	1.00	1.00	0.95	0.95	
	100 mm		0.45	1.00	1.00	1.00	1.00	1.00	
	140 mm		0.65	1.00	1.00	1.00	1.00	1.00	
Weighted sound absorption coefficient α_w	[-]	EN ISO 11654 (for NRC according ASTM C423)	Level of weighted sound absorption coefficient				AW		
Sound Absorption Average α_{avr}	Single number value		α_w				NCR		
Noise Reduction Coefficient NRC	60 mm		0.95				0.90		
	100 mm		1.00				1.00		
	140 mm		1.00				1.00		
Specific air flow resistivity r	[mm]	EN 13162+A1	Level of air flow resistivity						
	[kPa·s·m ⁻²]	Measurement according to EN ISO 9053-1	100	120 ⁶⁾	140 ⁶⁾	150 ⁶⁾	160	180 ⁶⁾	200 ⁶⁾
Dynamic rigidity s'	[MN·m ⁻³]	EN 13162+A1	Value of dynamic rigidity					SD	
	[mm]		100	120 ⁶⁾	140 ⁶⁾	150 ⁶⁾	160	180 ⁶⁾	200 ⁶⁾
	[MN·m ⁻³]		Měřeno dle ČSN ISO 9052-1 (idt. EN 29052-1)	81.5	73.4	65.4	61.3	57.3	49.2
Environmental properties / impacts									
Non-hazardous waste disposed ⁷⁾	[kg /FU ⁸⁾]	EN 15804+A1, ČSN ISO 14025	3.9	NHWD					
Total use of non-renewable primary energy resources	[MJ /FU]	EN 15804+A1, ČSN ISO 14025	310	PENRT					
Global Warming Potential	[kg CO ₂ ekv. /FU]	EN 15804+A1, ČSN ISO 14025	21	GWP					
Ozone Depletion	[kg CFC 11 ekv. /FU]	EN 15804+A1, ČSN ISO 14025	8.5 E-07	ODP					
Acidification potential	[kg SO ₂ ekv. /FU]	EN 15804+A1, ČSN ISO 14025	0.14	AP					
Eutrophication potential	[kg PO ₄ ³⁻ ekv. /FU]	EN 15804+A1, ČSN ISO 14025	0.0082	EP					
Photochemical ozone creation	[kg C ₂ H ₄ ekv. /FU]	EN 15804+A1, ČSN ISO 14025	0.0076	POPC					
Abiotic depletion potential for non-fossil resources	[kg Sb ekv. /FU]	EN 15804+A1, ČSN ISO 14025	5.3 E-06	ADP-elements					
Abiotic depletion potential for fossil resources	[MJ (Calorific value) /FU]	EN 15804+A1, ČSN ISO 14025	350	ADP-fossil fuels					

⁴⁾ The density is not constant and varies with the thickness of the product.
⁵⁾ Informative non-declared value beyond scope of CPR, obtained by concrete tests.
⁶⁾ Interpolated and extrapolated values.
⁷⁾ In this case it is standard mixed waste.
⁸⁾ FU = functional unit (1 m² of insulation by 120 mm thick for live cycle phases A1-A3).



Example of product application ISOVER NF 333