



# Isover PIANO

Mineral fibreglass insulation

## TECHNICAL SPECIFICATION

Insulation rolls made of Isover fibreglass wool. The production is based on defibration of melt of glass and other additives and ingredients. Produced mineral fibres are then shaped into rolls on the production line. Fibres are made water-repellent on their entire surface. Rolls in construction have to be protected suitably (steam protection foil, partition wall lining, other layers of construction).

## APPLICATION

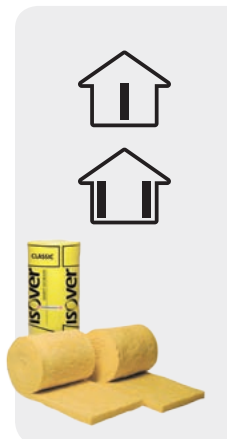
ISOVER PIANO rolls are suitable for thermal, acoustic, no-load insulation which are a part of light construction with metal reinforcement. In residential or administrative buildings, attics, hotels, hospitals, and industry premises, the PIANO rolls increase total acoustic absorption of construction and therefore acoustic insulation capacity (improvement in sound reduction of up to 18dB, according to solution for side ways noise travel and the number of holes in the construction), especially if the entire cavity is filled (5-7 dB improvement in sound reduction from cavity only half filled). The improvement in sound reduction depends on how side ways noise travel is limited, i.e. how the carrying frame of partition walls is insulated from the floor, ceiling, and walls with a flexible insulation tape.

## PACKAGING, TRANSPORT, WAREHOUSING

The Isover PIANO rolls are packaged into PE foil. They come in MPS packs (1MPS = 24 rolls, volume 4.09 m<sup>3</sup>). Loose packages can be supplied after an agreement with the manufacturer. Rolls have to be transported in covered vehicles under conditions preventing them from getting wet or being degraded. The products are stored indoors or outdoors depending on the conditions specified in the current ISOVER price list.

## BENEFITS

- fire-resistant
- very good thermal insulation performance
- excellent acoustic properties in terms of noise absorption
- low vapour resistance - good water vapour penetrability
- environmentally friendly and hygienic
- completely hydrophobic
- long life span
- resistant to wood-destroying pests, rodents, and insect
- easy workability - can be cut, drilled into, etc.
- dimensional stability during temperature change



## DIMENSIONS AND PACKAGING

Thickness	[mm]	TWIN 80/40	TWIN 100/50	TWIN 120/60
Length × width	[mm]	7 500 × 625	6 000 × 625	5 000 × 625
Volume per package	[m <sup>3</sup> ]	9.38/18.75	7.50/15.00	6.25/12.50
Quantity per palette	[m <sup>2</sup> ]	225/450	180/360	150/300
Declared thermal resistance R <sub>D</sub>	[m <sup>2</sup> ·K·W <sup>-1</sup> ]	2.10/1.05	2.65/1.30	3.20/1.60

Note: Name TWIN 80/40 - in the packing are 2 rolls, same thickness 40 mm, applicable as one roll 80 mm.

## TECHNICAL PARAMETERS

Parameter	Unit	Methodology	Value	Designation code
<b>Geometric shape</b>				
Length <i>l</i>	[% , mm]	EN 822	±2 %	
Width <i>b</i>	[% , mm]	EN 822	±1.5 %	
Thickness <i>d</i>	[% , mm]	EN 823	-5 % or -5 mm <sup>1)</sup> and +15 mm or +15 mm <sup>2)</sup>	Class of thickness tolerances T2
Deviation from squareness of the edge on length and width <i>S<sub>b</sub></i>	[mm·m <sup>-1</sup> ]	EN 824	5	
Deviation from flatness <i>S<sub>max</sub></i>	[mm]	EN 825	6	
Relative change in length Δ <i>ε<sub>l</sub></i> , in width Δ <i>ε<sub>b</sub></i> , in thickness Δ <i>ε<sub>d</sub></i>	[%]	EN 1604	1	Dimensional stability under the specified temperature and humidity conditions DS (23,90)
<b>Thermal technical properties</b>				
Declared value of the thermal conductivity coefficient λ <sub>D</sub> <sup>3)</sup>	[W·m <sup>-1</sup> ·K <sup>-1</sup> ]	Declaration according to EN 13162+A1	0.037	
Design thermal conductivity λ <sub>D</sub> <sup>4)</sup>	[W·m <sup>-1</sup> ·K <sup>-1</sup> ]	Measurement according to EN 12667	0.040	
Specific heat capacity <i>c<sub>p</sub></i>	[J·kg <sup>-1</sup> ·K <sup>-1</sup> ]	ČSN 73 0540-3	840	
<b>Fire safety properties</b>				
Reaction to fire class	[-]	Declaration according to EN 13501-1+A1	A1	
Maximum temperature for use	[°C]		200	
Melting temperature <i>t<sub>f</sub></i>	[°C]	DIN 4102 part 17	< 1000	
<b>Hydrothermal properties</b>				
Water vapour diffusion resistance factor μ	[-]	EN 13162+A1	1	Declared value for water vapour diffusion resistance factor MU1
<b>Other properties</b>				
Density	[kg·m <sup>-3</sup> ]	EN 1602	15	

<sup>1)</sup> Whichever gives the greatest numerical tolerance.

<sup>2)</sup> Whichever gives the smallest numerical tolerance.

<sup>3)</sup> Declared values were set under the following conditions (reference temperature 10 °C, humidity *u<sub>dry</sub>*, which is reached by drying) according EN ISO 10456.

<sup>4)</sup> 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

- Declaration of Performance 024-WS1-DoP-14-w2
- Environmental Product Declaration
- ISO 9001, ISO 14001, OHSAS 18001

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## TECHNICAL PARAMETERS

Parameter	Unit	Methodology	Value	Designation code			
<b>Acoustic properties<sup>5)</sup></b>							
<b>The practical sound absorption coefficient <math>\alpha_p</math></b>	[-]	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	40 mm	0.15	0.45	0.85	0.95	1.00
60 mm		0.25	0.65	1.00	1.00	1.00	
80 mm		0.40	0.95	1.00	1.00	1.00	
100 mm		0.40	1.00	1.00	1.00	1.00	
<b>Weighted sound absorption coefficient <math>\alpha_w</math></b> <b>Sound Absorption Average <math>\alpha_{sfr}</math></b> <b>Noise Reduction Coefficient NRC</b>	[-]	EN ISO 11654 (for NRC according ASTM C423)	Level of weighted sound absorption coefficient			AW	
		Single number value	$\alpha_w$	$\alpha_{sfr}$	NCR		
	Thickness	40 mm	0.75 (MH)	0.81	0.80		
		60 mm	0.95	0.91	0.90		
		80 mm	1.00	1.00	1.00		
100 mm		1.00	1.05	1.05			
<b>Specific air flow resistivity <math>r</math></b>	[kPa·s·m <sup>-2</sup> ]	EN 13162+A1	Level of air flow resistivity		AFr		
		Measurement according to EN 29053	12.3				
<b>Environmental properties / impacts</b>							
<b>Volume of Pre-consumer recycled content for production</b>	[%]	ČSN ISO 14021	55				
<b>Volume of Post-consumer recycled content for production</b>	[%]	ČSN ISO 14021	0				
<b>Non-hazardous waste disposed<sup>6)</sup></b>	[kg /FU <sup>7)</sup> ]	EN 15804+A1, ČSN ISO 14025	1.7	NHWD			
<b>Total use of non-renewable primary energy resources</b>	[MJ /FU]	EN 15804+A1, ČSN ISO 14025	130	PENRT			
<b>Global Warming Potential</b>	[kg CO <sub>2</sub> ekv. /FU]	EN 15804+A1, ČSN ISO 14025	9.4	GWP			
<b>Ozone Depletion</b>	[kg CFC 11 ekv. /FU]	EN 15804+A1, ČSN ISO 14025	3.0 E-07	ODP			
<b>Acidification potential</b>	[kg SO <sub>2</sub> ekv. /FU]	EN 15804+A1, ČSN ISO 14025	0.06	AP			
<b>Eutrophication potential</b>	[kg PO <sub>4</sub> <sup>3-</sup> ekv. /FU]	EN 15804+A1, ČSN ISO 14025	0.0036	EP			
<b>Photochemical ozone creation</b>	[kg C <sub>2</sub> H <sub>4</sub> ekv. /FU]	EN 15804+A1, ČSN ISO 14025	0.0032	POPC			
<b>Abiotic depletion potential for non-fossil resources</b>	[kg Sb ekv. /FU]	EN 15804+A1, ČSN ISO 14025	1.5 E-06	ADP-elements			
<b>Abiotic depletion potential for fossil resources</b>	[MJ (Calorific value) /FU]	EN 15804+A1, ČSN ISO 14025	150	ADP-fossil fuels			

<sup>5)</sup> Informative non-declared value beyond scope of CPR, obtained by concrete tests.  
<sup>6)</sup> In this case it is standard mixed waste.  
<sup>7)</sup> FU = functional unit (1 m<sup>2</sup> of insulation by 100 mm thick for live cycle phases A1-A3).



Example of product application Isover PIANO