



Institut pro testování a certifikaci, a. s.
Divize CSI – Centrum stavebního inženýrství
pracoviště Zlín, K Cihelně 304, 764 32 Zlín - Louky

Testing laboratory of physical properties of materials, structures and buildings – Zlín
Testing laboratory No. 1007.1, accredited by the CAI according to ČSN EN ISO/IEC 17025:2018



Test Report No. 098/20

of thermal resistance and thermal conductivity
according to CSN EN 12667

Order No.: **063 076**

No. of Pages: **7**

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Client: **PLONMAR Sp. z o.o.**
Stanisława Dubois 5
07-300 Ostrów Mazowiecka, Poland

VAT: **PL5321992226**

Manufacturer: **PLONMAR Sp. z o.o.**
Aleja Wojska Polskiego 27A
18-300 Zambrów, Poland

Subject of test: **Window base profiles of type: NX-GR-30 Base, NX-GR-60, NX-BL-60, NX-GR-70, NX-GR-110 a NX-GR-130**

Test result: **See table in Chapter 8**

Date of sample receipt: **11. 3. 2020**

Date of testing: **17. 3. - 20. 3. 2020**

Test carried out by: **Building Thermal Engineering Laboratory**

Technical laboratory head: **Ing. Nizar Al-Hajjar**

Head of Testing

Laboratory No. 1007.1: **Ing. Petra Hrdinová**

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Date: **7. 4. 2020**



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1. TEST SPECIFICATION

On the basis of the order dated 28. 2. 2020 and the Job Order No. 063 076, testing laboratory of physical properties of materials, structures and buildings No. 1007.1, ITC a.s., division CSI, workplace Zlín, carried out for the client PLONMAR Sp. z o.o., Stanislava Duboisova 5, 07-300 Ostrów Mazowiecka, Poland, a thermal conductivity and thermal resistance test of window base profiles of type: NX-GR-30 Base, NX-GR-60, NX-BL-60, NX-GR-70, NX-GR-110 a NX-GR-130 according to standard CSN EN 12 667. The tests were carried out in the corresponding spaces of the testing laboratory, address: K Cihelně 304, 764 32 Zlín – Louky, Czech republic.

2. DESCRIPTION OF THE SUBJECT OF TESTING

The test was carried out according to CSN EN 12 667: "Thermal performance of building materials and products - Determination of thermal resistance by means of guarded hot plate and heat flow meter methods - Products of high and medium thermal resistance" by guarded hot plate method at a stabilized heat flow. The purpose of the test is to determine thermal conductivity λ from the measured value of thermal resistance R supplied specimens, at mean temperature of approx. $t_{str} = 10\text{ }^{\circ}\text{C}$.

3. DESCRIPTION OF TESTED MATERIAL

The client delivered 6 plate test specimens of window base profiles, their types, composition, sizes and marking are given in the following table:

The table of supplied test specimens

Specimen No.	Specimen type and composition	Size (mm)
050/20	NX-GR-30 Base: rigid insulation plate of green colour, 29,6 mm thick; specimen mass 4,35 kg	500 x 500
051/20	NX-GR-60: rigid insulation plate of green colour, 10 mm thick – thermal insulation XPS 300, 19,5 mm thick – rigid insulation plate of green colour, 30 mm thick; specimen mass 5,90 kg	500 x 500
052/20	NX-BL-60: thermal insulation plate of black colour 60,1 mm thick; specimen mass 2,02 kg	500 x 500
053/20	NX-GR-70: rigid insulation plate of green colour, 10 mm thick – thermal insulation XPS 300, 29,6 mm thick – rigid insulation plate of green colour, 30 mm thick; specimen mass 15,10 kg	800 x 800
054/20	NX-GR-110: rigid insulation plate of green colour, 30 mm thick – thermal insulation XPS 300, 48,6 mm thick – rigid insulation plate of green colour, 30 mm thick; specimen mass 22,40 kg	800 x 800
055/20	NX-GR-130: rigid insulation plate of green colour, 30 mm thick – thermal insulation XPS 300, 70,4 mm thick – rigid insulation plate of green colour, 30 mm thick; specimen mass 24,60 kg	800 x 800

Note The testing laboratory is not responsible for the accuracy of the technical data, specifications and the test specimen information supplied by the client.

The photos of tested specimens are given in annexes No. 1 to No. 3.

Specimen condition at the acceptance: Without apparent defects.

4. TESTING REGULATIONS AND TESTING EQUIPMENT USED

4.1 Regulations

- Testing regulation
- Related regulation

CSN EN 12664
CSN 73 0540-3

4.2 Testing equipment

- Plate apparatus P 50
- Plate apparatus P 51
- Plate apparatus P 80
- Dryer STE-39/III
- P 50 Measuring set – Temperature; electric current
- P 51 Measuring set – Temperature; electric current
- TSCALE scales
- Steel coiling measure
- Thickness gauge
- Digital thickness gauge

Z 07 1001
Z 07 1003
Z 07 3010
Z 07 1005
M 07 1055
M 07 1059
M 07 1150
M 07 1104
M 07 1073
M 07 1098

5. DEVIATIONS FROM TEST PROCEDURES

6. NON-STANDARDIZED METHODS USED

7. MEASUREMENT RESULTS

Mean air temperature in the laboratory during the measurement:

21,0 °C

Mean relative air humidity in the laboratory:

48 %

Measuring area:

0,09007 m²

Table of Measured Values

Specimen No.	Thickness	Heat flow of measured area	Mean temperature	Surface temperature difference	Thermal resistance	Thermal conductivity
	d mm	P W	t_m °C	Δt K	R m ² ·K/W	λ W/(m·K)
050/20	29,6	2,585	9,85	9,717	0,3386	0,08741
051/20	59,5	0,8781	10,12	10,113	1,0373	0,05736
052/20	60,1	0,5997	10,03	10,300	1,5469	0,03885
053/20	69,6	2,659	10,03	14,000	1,3094	0,05315
054/20	108,6	1,613	9,98	14,192	2,1878	0,04964
055/20	130,4	1,346	10,07	14,189	2,6209	0,04975

Note Measurements were carried out at pressure 250 Pa.

8. Evaluation

Table of Evaluated Results

Technical regulation	Test method	Specimen No.	Thermal conductivity λ_{10} [W/(m·K)]	Thermal resistance R [m ² ·K/W]
ČSN 73 0540-3	ČSN EN 12667	050/20	0,0874	0,339
		051/20	0,0574	1,038
		052/20	0,0389	1,545
		053/20	0,0532	1,308
		054/20	0,0497	2,185
		055/20	0,0498	2,618

Extended measurement uncertainty of thermal conductivity $u_{(\lambda)} = 2.5\%$.

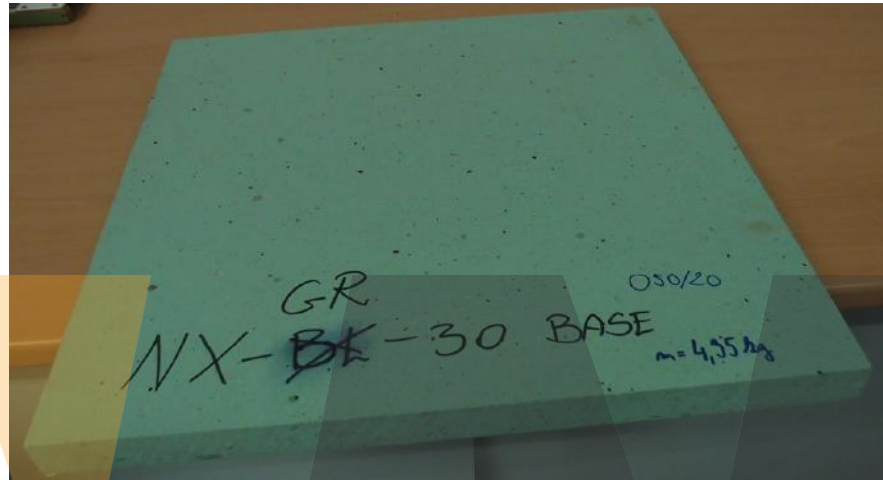
Responsible for the test:
report elaborated by:

Petr Pokorný
Ing. Nizar Al-Hajjar

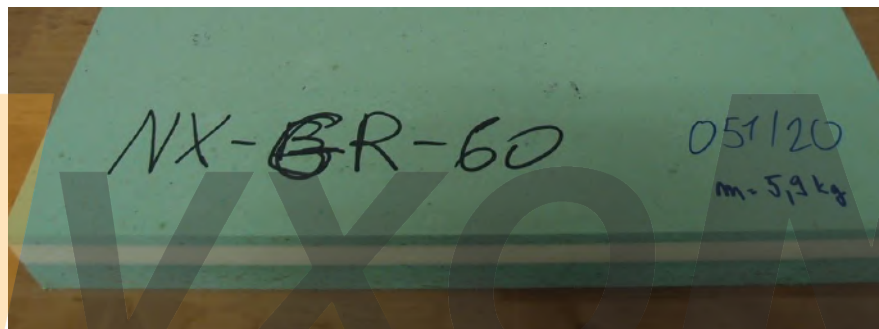
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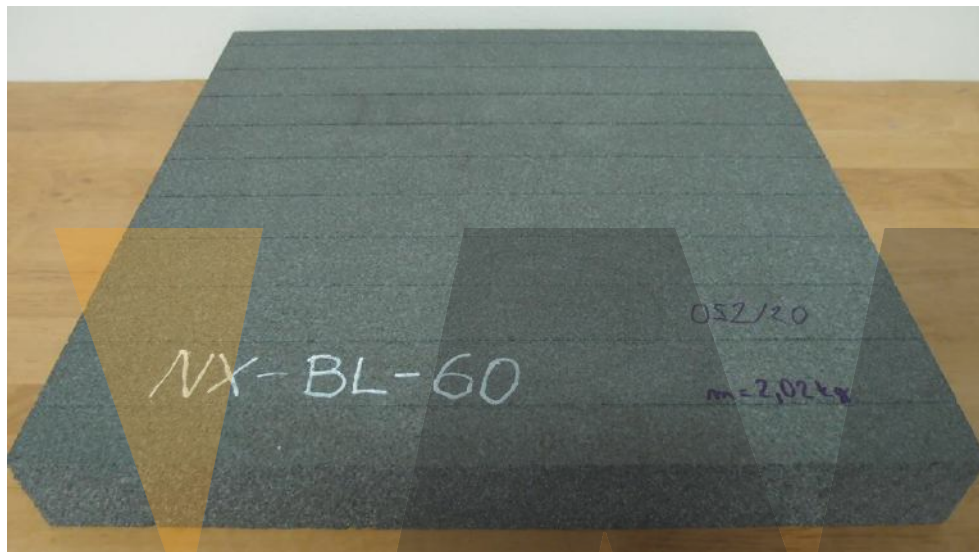
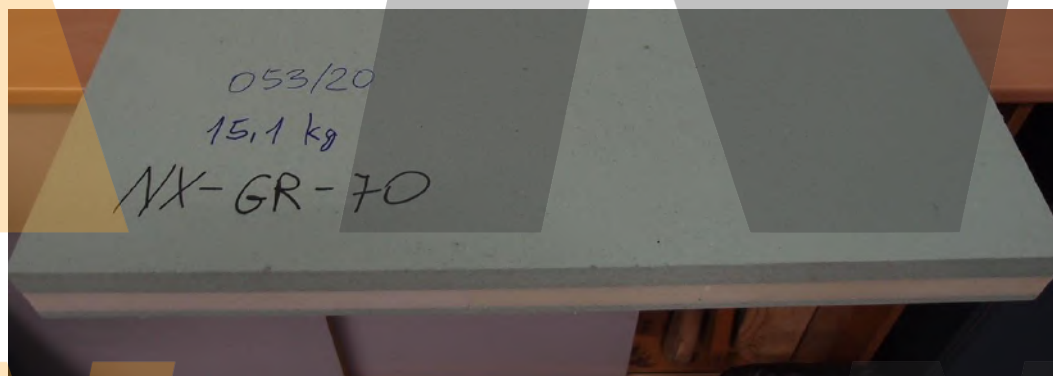
Annex No. 1

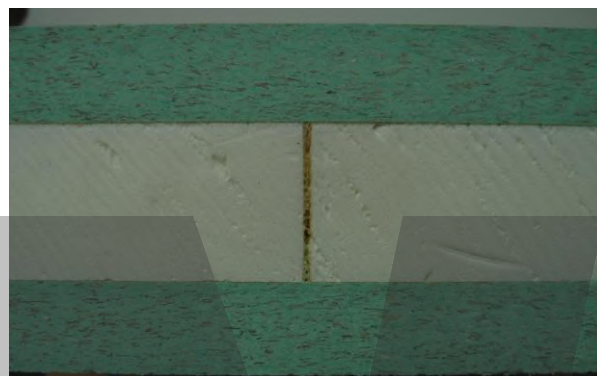
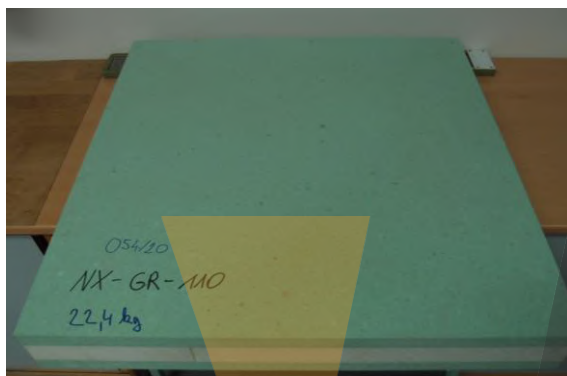
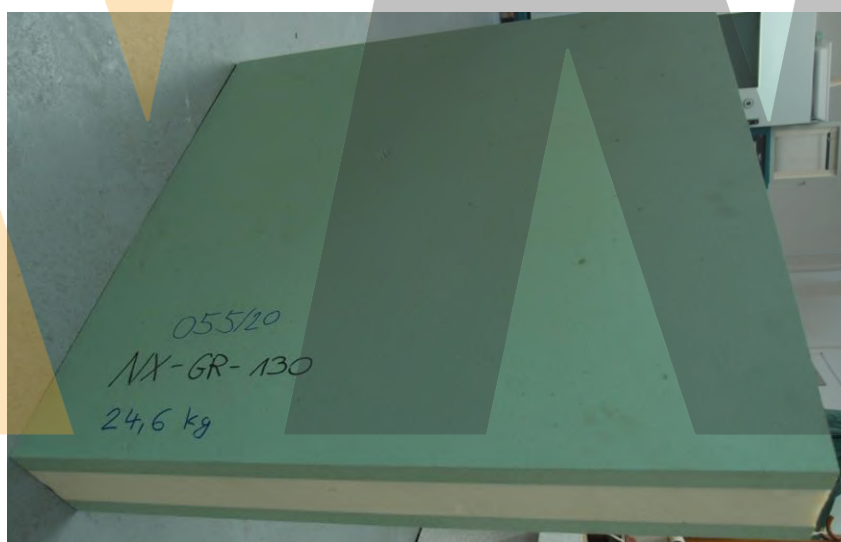
Specimen No. 050/20 – NX-GR-30 Base



Specimen No. 051/20 – NX-GR-60



Annex No. 2**Specimen No. 052/20 – NX-BL-60****Specimen N o.. 053/20 – NX-GR-70**

Annex No. 3**Specimen No. 054/20 – NX-GR-110****Specimen No. 055/20 – NX-GR-130**

..... Test report end.