

PAROC CLAD SYSTEM

COMPLETE THERMAL INSULATION SYSTEM FOR HIGH AND LOW TEMPERATURES FOR INDOOR AND OUTDOOR USE



OUTSTANDING
WATER REPELLENCY

SAVES COSTS:

- No additional cladding or other prefabrication

SAVES TIME:

- No additional measuring or prefabrication of cladding material
- Easy installation where limited space is a challenge: no risk of loose cladding pieces being caught by strong winds, no sharp edges, easy and smooth installation, less tools needed

SAVES TOTAL WEIGHT OF PIPE SYSTEMS

DEFIES HARSH WEATHER AND ENVIRONMENTAL CONDITIONS:

- resistant against hail impact (HW3)
- UV resistant (when installed with PAROC Clad Alu Tape)
- works also in salt-water environment
- no "bird pecking"/puncture resistant (EN 14477)
- With weather protection cover film
- Water resistant (according to EN 1928:2002 method B)
- Applicable for food industry
- Maximum service temperature up to 680 °C (pipe sections and pipe elbows)
- Surface temperature of the facing must not exceed 80 °C



PAROC[®]

TABLE OF CONTENTS

PAROC Clad System: Insulation solution for external pipework and ductwork applications	3
PAROC Clad Systems can be applied for most industrial applications	4
PAROC Clad products	6
PAROC Pro Section (WR) 140 Clad T	7
PAROC Pro Bend (WR) Clad	7
PAROC Pro Segment (WR) Clad	7
PAROC Pro Combi (WR) 140 Clad T	7
PAROC Pro Lamella Mat Clad	8
PAROC Clad System accessories	9
PAROC Clad Dots	9
PAROC Clad Alu Dots	9
PAROC Clad Tape	9
PAROC Clad Alu Tape	9
PAROC Pro Roof Wedge (WR)	9
PAROC Pallet Hoods	10
PAROC Pro Knife – XTK 001	10
PAROC Pro Knife – XTK 003	10
PAROC Head Pins Insulated	11
PAROC Calculus	12
Contact Us	13

Quick access: Click on the desired product or content page to immediately navigate to it. Clicking on 'Table of Contents' will direct you back to the index page. Hyperlinks will take you to relevant additional pages or research sources.



MINIMUM
INSTALLATION
TEMPERATURE:
10 °C

PAROC CLAD SYSTEM: INSULATION SOLUTION FOR PIPEWORK AND DUCTWORK APPLICATIONS

IMPERMEABLE TO WATER, SALT WATER RESISTANT*, RESISTANT AGAINST HAIL IMPACT**

In today's world, insulation systems that are economically efficient through time saving installation across a wide range of applications, are in demand.

The Clad System by PAROC effectively insulates pipework, equipment and ventilation systems with a durable multiple layer composite facing. It helps protect PAROC stone wool against moisture and mechanical impacts as well as against hail, UV and punctures ("bird-pecking").

As a result of the high temperature resistance of our Pro stone wool products which is the base insulation material for the Clad System, it can be used on temperatures up to 680 °C (PAROC Clad sections and elbows). Therefore, it helps protect against temperature losses on high temperature systems and steam lines for example.

COMPREHENSIVE TEST REPORTS AVAILABLE

In order to increase the range of applications the Clad film underwent specific tests. For example, testing included for safety of use in food industry applications (food contact applications according to EC 1935/2004, EU 10/2011, EC 2023/2006 as well as the German Food and essential Commodities and Animal Feed Code, or LFGB for short).

Additionally - due to its resistance to chemical substances - PAROC Clad products are designed to be used in laboratories and clean rooms.

The Clad System by PAROC can also be used in coastal applications, since its resistance to salt air and salt water* has been proven along with successful puncture resistance testing in accordance with EN 14477 and ASTM F1306.

* see PAROC Clad independent test report (available on request); not to be installed in permanent splash-zone

** IBS test certificate available

UNLOCKING FURTHER APPLICATION POSSIBILITIES

PAROC Clad System offers a light weight and comfortable solution. Perfectly suited for multiple applications. The system can be used to insulate pipework, equipment and ventilation systems. It provides mechanical protection even in tight spaces where traditional inflexible metal cladding systems are difficult to use.

Installation of the Clad System is made easy by comprehensive instructions, specific accessories such as matching tapes, Clad Dots (circular prefabricated tape for covering fastenings and cut-outs), along with documentation and test reports.

Another advantage of the Clad surface can be found when personal protection is of importance. Due to a high emission ratio (ϵ 0.65) of the Clad-Film, insulation thicknesses can be reduced when compared to insulation in conjunction with metal cladding (low emissivity), resulting in cost savings.

PAROC CLAD SYSTEMS CAN BE APPLIED FOR MANY INDUSTRIAL APPLICATIONS:

HIGH-TEMPERATURE PIPELINES

PAROC Pro Section (WR) 140 Clad T
PAROC Pro Combi (WR) 140 Clad T

VALVE INSULATION BOXES

PAROC Pro Section (WR) 140 Clad T
PAROC Pro Lamella Mat Clad

HEATED PIPELINES

PAROC Pro Section (WR) 140 Clad T
PAROC Pro Combi (WR) 140 Clad T

HIGH-TEMPERATURE PIPE ELBOWS

PAROC Pro Bend (WR) Clad
PAROC Pro Segment (WR) Clad

HEAT EXCHANGERS

PAROC Pro Section (WR) 140 Clad T
PAROC Pro Lamella Mat Clad

INDUSTRIAL EQUIPMENT

PAROC Pro Section (WR) 140 Clad T
PAROC Pro Lamella Mat Clad

TANK WALLS

PAROC Pro Lamella Mat Clad

DISTRICT HEATING LINES

PAROC Pro Section (WR) 140 Clad T
PAROC Pro Combi (WR) 140 Clad T
PAROC Pro Bend (WR) Clad
PAROC Pro Segment (WR) Clad

VENTILATION DUCTS

PAROC Pro Lamella Mat Clad



WATER VAPOUR DIFFUSION RESISTANCE FACTOR

No additional
vapour
barrier

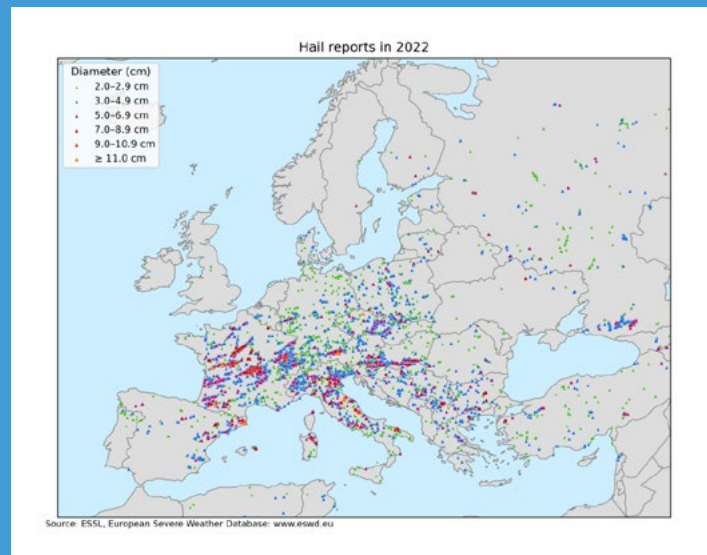
	Test specimen 1	Test specimen 2	Test specimen 3	Test specimen 4	Test specimen 5	Mean value
Water vapor diffusion resistance factor μ , dimensionless	11639	12909	10759	11639	11639	11717

*according to test standard EN 13469:2013-04)

HAIL TEST
available!**

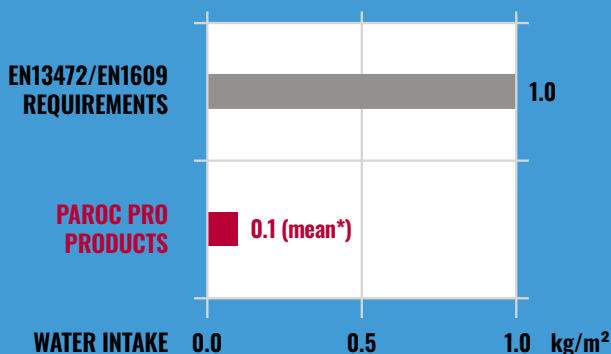
INCREASE OF HAIL STORMS IN EUROPE

PAROC Clad system is certified under hail resistance - Class HW3, therefore it can withstand hailstones up to 30 mm diameter; suitable for regions with higher risk of hailstorms.



graphic: <https://www.essl.org/cms/major-hailstorms-of-2022/>

**according to test standard 323052305-1-en, October 2023



MINIMISE THE RISK OF CORROSION

10 TIMES BETTER THAT THE REQUIREMENTS OF THE TOUGHEST KNOWN STANDARD AVAILABLE (EN13472 AND EN1609), EVEN AFTER BEING EXPOSED TO TEMPERATURES UP TO 300 °C*

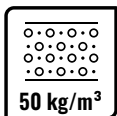
* average water absorption level <0,1 kg/m² after 300 °C/24h prebake; based on 3rd party testing in 2019 and internal testing in 2023 and 2024

PAROC CLAD PRODUCTS

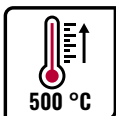
EXPLANATION OF SYMBOLS

TECHNICAL SPECIFICATIONS

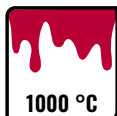
Nominal density



Maximum service temperature



Melting point

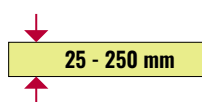


Non-combustible

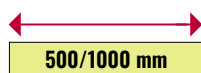


DIMENSIONS

Thickness



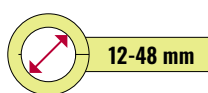
Width



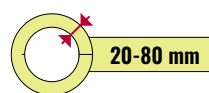
Length



Inner diameter



Insulation thickness



Section length



ADDITIONAL INFORMATION

Data sheet

Accessories

Installation video

Packing details

Dimension Guide

Installation manual

Water-repellent version available

(WR)

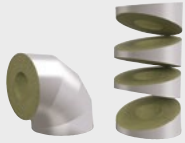
CLAD SYSTEM

PAROC PRO SECTION (WR) 140 CLAD T

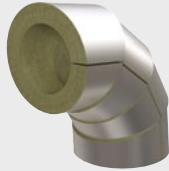
Stonewool pipe section with a uv-resistant, fibre reinforced aluminium coating

Accessories
 PAROC Clad Tape
 PAROC Pro Knife XTK001/003
 PAROC Pallet Hoods
 PAROC Clad Alu Tape

ADDITIONAL SYSTEM PRODUCTS



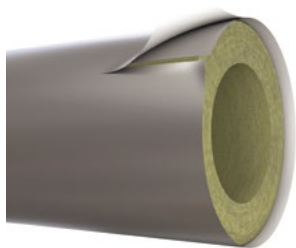
PAROC PRO BEND (WR) CLAD



PAROC PRO SEGMENT (WR) CLAD



PAROC PRO COMBI (WR) 140 CLAD T

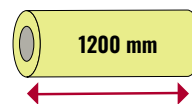
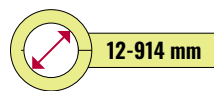
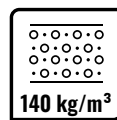
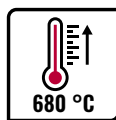
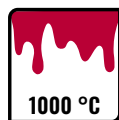


APPLICATION

- Thermal insulation of pipelines
- Due to a weather-resistant aluminum coating, outdoor installation without additional cladding systems; additionally the mineral wool is protected from mechanical loads, moisture as well as chemical substances

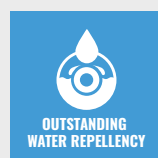
TECHNICAL SPECIFICATIONS

- Facing is water-resistant according to EN 1928:2002, method B
- Insulation is water-repellent according to EN 1609
- AS quality according to EN 13468 and AGI Q 132
- Surface temperature of the facing must not exceed 80 °C (temperature restriction determined in accordance with heat resistance adhesive)
- CE designation Code: MW-EN 14303-T8/T9-ST(+)-680-WS1-MV2-CL10
- PAROC Pro WR products are tested according to LABS conformity standard VDMA 24364
- PAROC WR pipe sections provide very low water absorption properties: average of <0,1 kg/m² after 300 °C prebake/24h (less than 10 times the requirement of EN 13472)



Nominal value of the thermal conductivity λ according to DIN EN 12667

t	°C	50	100	150	200	300	400
$\lambda_{N,P}$	W/mK	0.041	0.047	0.054	0.063	0.085	0.110



CLAD SYSTEM

PAROC PRO LAMELLA MAT CLAD

Stonewool lamella mat with UV-resistant, fibre reinforced aluminium coating



Accessories

- PAROC Clad Tape
- PAROC Clad Dots
- PAROC Clad Alu Dots
- PAROC Clad AluTape
- PAROC Head Pins Insulated
- PAROC Pro Knife XTK001/003
- PAROC Pallet Hoods
- PAROC Pro Roof Wedge (WR)

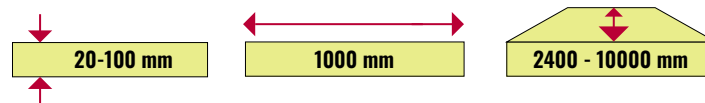
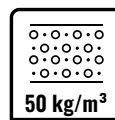
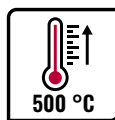
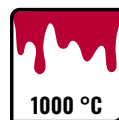


APPLICATION

- Insulation of valve and flange insulation boxes, industrial equipment, tank walls and ventilation ducts
- The insulation system does not require any further cladding systems; additionally
- The mineral wool is protected from mechanical loads, moisture and chemical substances

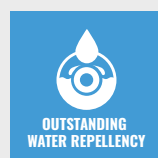
TECHNICAL SPECIFICATIONS

- Facing is water-resistant according to EN 1928:2002, method B
- Insulation is water-repellent according to EN 1609
- AS quality according to EN 13468 and AGI Q 132
- Compressive strength > 10 kPa according to EN 826
- The surface temperature of the lamination must be limited to 80 °C
- CE designation Code: MW-EN 14303-T4-CS(10)10-ST(+500-WS1-MV2-CL10
- PAROC Pro WR products are tested according to LABS conformity standard VDMA 24364



Nominal value of the thermal conductivity λ according to DIN EN 12667

t	°C	10	50	100	150	200	300	400	500
$\lambda_{N,P}$	W/mK	0.039	0.045	0.055	0.066	0.082	0.125	0.175	0.235



CLAD SYSTEM ACCESSORIES

PAROC CLAD DOTS

Water resistance butyl rubber Clad dots designed to cover pins' heads



Application

- Maximum surface temperature where PAROC Clad Dots will be applied must not exceed 80 °C

Ø mm	Piece / roll	Rolls per box
90	100	6

PAROC CLAD ALU DOTS

UV resistant tape made from clad facing designed to cover pins' heads



Application

- Maximum surface temperature where PAROC Clad Alu Dots will be applied must not exceed 80 °C

Ø mm	Piece / roll	Rolls per box
90	600	8

PAROC CLAD TAPE

Water resistant butyl rubber tape with very high adhesion and ageing resistance



Application

- Recommended for closing joint on installations with Clad faced products.
The butyl sealing tape can be used as moisture and diffusion barriers
- PAROC Clad Tape gives a great finish
- Maximum surface temperature where PAROC Clad Tape will be applied must not exceed 80 °C

Length mm	Width mm	Rolls per box
10000	30	20
10000	50	12
10000	75	8
10000	100	6

PAROC CLAD ALU TAPE

UV resistant tape made from clad facing



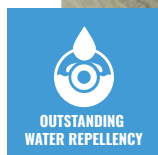
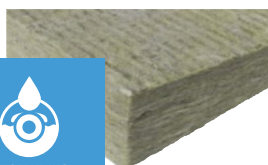
Application

- The tape provides excellent ageing resistance and is ideal e. g. for sealing the joints of PAROC Clad faced elbows. Recommended for outdoor applications.
- Clad Alu Tape gives a great finish
- Maximum surface temperature where PAROC Clad Tape will be applied must not exceed 80 °C

Length mm	Width mm	Rolls per box
50000	50	12
50000	75	18
50000	100	12

PAROC PRO ROOF WEDGE (WR)

Stonewool wedge plate with a gradient of at least 3%. The length measure corresponds to the longitudinal direction of the duct



Thickness mm	Length mm	Width mm
25/60	600/1200	1200/600
42/60	600	1200

ACCESSORIES

PAROC PALLET HOODS



Application

- Protective hood is great for covering pallets against dirt, moisture and dust

Length mm	Width mm	Max. pallet size in mm	PU
1600	1200	1200 x 1200	10
2900	3300	2300 x 1150 und 2400 x 1000	1

PAROC PRO KNIFE – XTK 001



- Particularly suitable for cutting PAROC products (Clad systems)
- Number scale on the blade (determination of insulation thickness)

Blade	Grind blade	Item
approx.300 mm	Serrated edge (serrated)	XTK 001

PAROC PRO KNIFE – XTK 003



- Suitable for cutting PAROC products
- Number scale on the blade (determination of insulation thickness)

Blade	Grind blade	Item
approx.300 mm	Smooth finish	XTK 003

ACCESSORIES

PAROC HEAD PINS INSULATED



Application

- Fastening of PAROC products

Technical specifications

- Pin made of St37 copper-plated
- Plate made of St37 galvanized
- Resistant against hail impact

Length mm	Plate diameter [mm]	Number of pieces/box
19.0	30	1000
22.2	30	1000
28.5	30	1000
30.5	30	1000
38.0	30	1000
41.0	30	1000
47.6	30	1000
50.0	30	1000
54.0	30	1000
58.0	30	1000
60.5	30	1000
62.0	30	1000
68.0	30	500
72.0	30	500
78.0	30	500
89.0	30	500
98.5	30	500
101.6	30	500

PAROC CALCULUS: DESIGN ENERGY-EFFICIENT INSULATION TAILORED TO YOUR PROJECT

PAROC® Calculus is a technical insulation calculation program for dimensioning thermal insulation for different HVAC and Process Industry applications e.g. pipes, ventilation ducts and process industry tanks. With PAROC Calculus it is also possible to calculate the heat loss for insulated and uninsulated valves and flanges, which usually increases the risk of heat loss. Additionally, the heat loss caused by thermal bridges in pipe and duct suspensions can be taken into account.

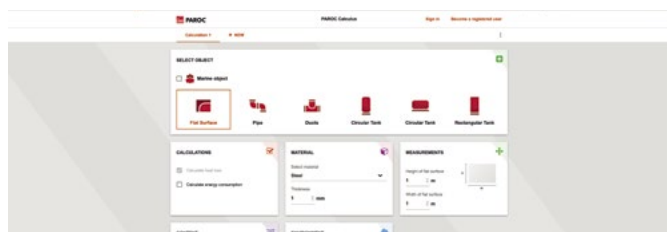
With PAROC Calculus you can design energy efficient and economical insulation solutions for different HVAC and process industry applications with PAROC products.

PAROC Calculus features:

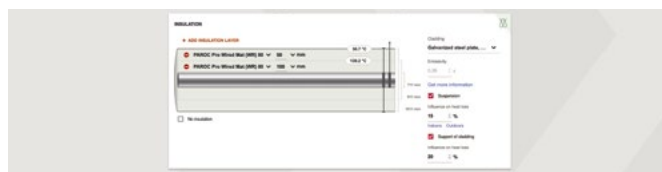
- Easy to use interface
- Works on pc, tablets and mobile phones
- Calculations for heat loss, surface temperature and temperature drop in pipes, ventilation ducts, process industry tanks, valves and flanges.
- Easy input of pipe diameters and duct dimensions (predefined)
- Thermal bridges of pipe and duct suspensions
- Print out your calculations to pdf
- All calculations are based on equations described in the EN ISO 12241 standard.

Updated according to ISO 12241:2022

Select application



Calculate with surface temperature display - cladding systems, suspensions and substructures can optionally be used for the calculation



This software (the Service) calculates properties of insulation solutions made by PAROC Technical Insulation products. Calculations are based on standard ISO 12241. The latest version is always on Paroc web pages. The information contained in the online insulation, energy and CO₂ calculations (the Service) is provided in good faith and for general information purpose only. Owens Corning as well as any of its direct or indirect affiliates, including Paroc Group OY (individually and jointly "Owens Corning") assumes no responsibility for errors or omissions in the contents of the Service, including technical or product data, product recommendations, research information, data and/or content contained in the Service. In providing the Service, Owens Corning does not make any warranties about its completeness, its reliability and its accuracy. Any action you take upon the information you find in using the Service, is strictly at your own risk. In no event shall Owens Corning be liable for any special, direct, indirect, consequential, or incidental damages or any other damages whatsoever, whether in an action of contract, negligence or other tort, arising out of or in connection with the use of the Service or the contents of the Service. Owens Corning reserves the right to make additions, deletions, or modification to the contents on the Service at any time without prior notice. By using the Service, you hereby consent to the present disclaimer and agree to its terms.

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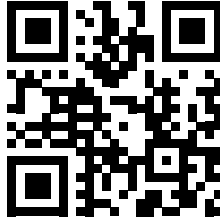
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Users of the provided Information assume full responsibility for all concept/design decisions made relating to the suitability of use.

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Applications: September 2024

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