eurofins | Expert Services

Kivimiehentie 4
FI-02150 Espoo, FINLAND
www.eurofins.fi/expertservices

Designated according to Article 29 of Regulation (EU) No 305/2011

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European Technical Assessment ETA 23/0539 of 17/08/2023

General Part

Technical Assessment Body issuing the ETA	**Eurofins Expert Services Oy**
Trade name of the construction product	**PAROC CGL 20*** is used here to describe all product variants mentioned below PAROC CGL 20 PAROC CGL 20c PAROC CGL 20cc PAROC CGL 20cy PAROC CGL 20cyc PAROC CGL 20y PAROC CGL 20yc
Product family to which the construction product belongs	Fire protection of loadbearing reinforced concrete slab constructions
Manufacturer	**Paroc Group Oy** **Energiakuja 3, P.O. Box 240** **FI-00181 Helsinki, Finland**
Manufacturing plants	Annex 3
This European Technical Assessment contains	8 pages including 3 Annexes which form an integral part of this assessment
This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of	European Assessment Document (EAD) 350142-00-1106 - Fire protective board, slab and mat products and kits

Specific Part

1. Technical description of the product

The products PAROC CGL 20* are stone wool insulation lamellas. The lamellas are faced or unfaced as given in Table 1.

Table 1. Product variants **PAROC CGL 20***

Product name	Facing
PAROC CGL 20	-
PAROC CGL 20c	top side primer
PAROC CGL 20cc	primer on both sides
PAROC CGL 20cy	top side primer & cut edges
PAROC CGL 20cyc	primer on both sides and cut edges
PAROC CGL 20y	cut edges
PAROC CGL 20yc	cut edges and primer on back side

Dimensions and density of the boards are given in Table 2.

Table 2. Dimensions and density of PAROC CGL 20*

	Nominal value	Tolerance
Density	58-65 kg/m^3	
Length	1200	< ± 24 mm
Width	200 mm	< ± 3 mm
Thickness	50-400 mm	T5 (EN13162)

The lamellas are CE marked according to harmonized product standard EN 13162:2012 with designation code MW-EN13162-T5-DS(70,90)-CS(Y)20-TR20-WS-WL(P)-MU1-AFr10. The fire protective system is fixed by gluing the stone wool insulation boards with Paroc SW glue (XPG 001) (layer between the concrete and insulation 5 kg/m^2) mortar. The glues / mortars are not covered by this ETA and cannot be CE marked on the basis of it.

2. Specification of the intended use in accordance with the applicable European Assessment Document (hereinafter EAD)

PAROC CGL 20* lamellas are intended to be used for fire protection of structural concrete elements as specified in Table 2.

Table 3. Intended use of PAROC CGL 20*

Product	Use category	Protection of	Climatic conditions use category
PAROC CGL 20*	Type 3	Load-bearing concrete elements as specified in Annex 1	Type Z_2

The provisions made in this European Technical Assessment are based on an assumed intended working life of 10 years provided that the products are subject to appropriate installation and maintenance.

The indication given as to the working life of the construction product cannot be interpreted as a guarantee neither given by the product manufacturer or his representative nor by the Technical Assessment Body issuing this ETA, but is regarded only as a means for expressing the expected economically reasonable working life of the product.

3. Performance of the product and references to the methods used for its assessment

Table 4. Basic requirements for construction works and essential characteristics

Basic requirement and essential characteristics	Performance
BWR 2. Safety in case of fire	
Reaction to fire	Clause 3.1
Resistance to fire	Clause 3.2
Durability and serviceability	Clause 3.3
BWR 3. Hygiene, health and the environment	
Water permeability	No performance assessed
BWR 4. Safety and accessibility in use	
Flexural strength	No performance assessed
Dimensional stability	Clause 3.4.
BWR 6. Energy economy and heat retention	
Thermal resistance	Clause 3.5
Water vapour transmission coefficient	Clause 3.6.

3.1. Reaction to fire

PAROC CGL 20* insulation lamellas have been tested and classified according to Commission Delegated Regulation (EU) No 2016/364. Reaction to fire class of the products is A1.

3.2. Resistance to fire

Resistance to fire of assemblies incorporating PAROC CGL 20* boards has been tested according to EN 13381-3:2015 and classified according to EN 13501-2:2016. Description of the tested fire protection assemblies is presented in Annex 1.

Resistance to fire performance classes of the tested assemblies is REI 240. Tables of insulation thickness required to achieve the resistance to fire class, in relation to section factor and design temperature, are presented in Annex 2.

3.3. Durability and serviceability

Working life of the boards is 10 years for the intended use Z2 (internal use), if not more than accidental wetting and no frosting inside the building is to be expected.

3.4. Dimensional stability

Dimensional stability of the boards has been determined according to EN 1604 in condition 48 h, 70 °C. The change in product length, width and thickness is less than 1 % fulfilling the requirements of product standard EN 13162 designation DS(70,90).

3.5. Thermal resistance

Thermal conductivity λ_D of the boards is 0,037 W/mK.

3.6. Water vapour transmission coefficient

Water vapour transmission coefficient (μ) is 1.

4. Assessment and verification of constancy of performance (hereinafter AVCP) system applied, with reference to its legal base

According to the European Commission Decision 99/454/EC as amended, the system of assessment and verification of constancy of performance is System 1.

5. Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at Eurofins Expert Services Oy.

Issued in Espoo on 17/08/2023
by Eurofins Expert Services Oy

Anssi Pekkarinen
BU Manager, Certification & Inspection

Teemu Vesala
Manager, Structural Fire

PAROC CGL 20* protection for reinforced concrete structures

Installation of fire protection

Fire protective boards and fixing:

Components:

Fire protection material	Stone wool lamellas PAROC CGY 20* manufactured by Paroc Group
Lamella sizes	1200 mm x 200 mm
Nominal density	58 - 65 kg/m^3
Nominal thickness	50 mm - 400 mm
Fixing:	
PAROC SW glue (XPG 001)	5kg/m^2 layer between the concrete and the insulation.

Tested applications:

PAROC CGY 20* were tested to cover following applications:

Structural members	All concrete slabs and walls (including pre-stressed structures) in both horizontal and vertical orientation Concrete class: C20-C32 for massive concrete slabs or C40-C70 for hollow core slabs
Protection	One sided fire exposure
Concrete slabs	Fixed with PAROC SW glue (XPG 001)
Design temperature	300 °C to 650 °C

Installation

Fire protective system is installed according to the manufacturer's detailed installation instructions and provisions given in this ETA.

PAROC CGL 20* lamellas are glued directly on the bottom of the massive concrete slab or hollow core slab with PAROC SW glue (XPG 001).

The glue can be used both outside and inside climate conditions. During the application and drying phase of the adhesive, the temperature of substrate and air should be between: +5 °C - +30 °C.

The substrate must be firm, level, dry, load-bearing, and free from grease, mold oil and dust. Check whether the fixing is suitable for the substrate at the building site. Damp or not fully cured substrates can lead to reduced adhesion of stone wool lamellas, poor adhesion or defects in possible coatings of the lamellas, e.g. bubble formation, cracks.

Application

Apply the 1st layer of PAROC SW glue all over the back side of lamella using a rust-free steel trowel. Press the trowel's solid edge firmly against the lamella so that the glue infiltrates inside to the wool and leaves an even 1-2 mm thick layer of glue on the top of lamella.

Apply the 2nd layer of glue crosswise all over the lamella length with the toothed edge (10 x 10 mm) of trowel keeping it on 45 degree inclined position. Consumption of glue shall be ~5 kg/m^2 (unmixed material).

Installation

Install the lamellas on the bottom of the concrete ceiling so that no glue and no gap is left between the lamella joints. Lamellas shall be installed on rows having ½ lamella step between lamella's short end

compared to the previous row. Make sure the air is pressed out from the toothed channels of glue. To do this properly, use a clean steel trowel to press the lamella against the substrate.

For the best possible adhesion strength, install lamellas immediately after spreading the glue. Use proper gear to avoid leaving fingerprints on the lamella.

PAROC CGL 20* is used here to describe all the different PAROC CGL 20 variants:

PAROC CGL 20
PAROC CGL 20c
PAROC CGL 20cc
PAROC CGL 20cy
PAROC CGL 20cyc
PAROC CGL 20y
PAROC CGL 20yc

Insulation thickness in resistance to fire classes REI 30 - REI 240 in relation to design temperature

Insulation thickness for REI 240 reinforced concrete structures

Fire resistance period 30-240 minutes								
Design temperature [°C]	300	350	400	450	500	550	600	650
Protection time	Minimum thickness in mm of fire protection material to maintain concrete temperature below design temperature							
30	50	50	50	50	50	50	50	50
60	50	50	50	50	50	50	50	50
90	50	50	50	50	50	50	50	50
120	50	50	50	50	50	50	50	50
150	50	50	50	50	50	50	50	50
180	50	50	50	50	50	50	50	50
210	50	50	50	50	50	50	50	50
240	60	50	50	50	50	50	50	50

!!! NOTE !!! Design temperatures are measured inside the concrete slab,15 mm from the bottom surface of the slab.

ANNEX 3. Manufacturing plants

UAB Paroc
Savanoriu 124
LT-03153 Vilnius, Lithuania

Paroc Polska Sp. z o.o.
Ul. Gnieznienska 4
PL-62-240 Trzemeszno, Poland