

TYPE APPROVAL CERTIFICATE

Certificate No:
TAK00000E2
Revision No:
3

This is to certify:

That the Composite Repair Systems

with type designation(s)

Loctite PC 7211, Loctite PC 5085, Loctite EA 3488, Loctite PC 5090, Loctite PC 7234

Issued to

Henkel AG & Co. KGaA
Düsseldorf, Nordrhein-Westfalen, Germany

is found to comply with

ISO 24817:2017 "Petroleum, petrochemical and natural gas industries – Composite repairs for pipework – Qualification and design, installation, testing and inspection", Edition 2, Corrected version 2018-01

Application :

Repair of all kind of pipe work geometries like pipes, pipe-components and vessels made of carbon (manganese) steel with through wall and non-through wall defects per classes 1, 2 and 3. The maximum permissible operating temperature is limited to 130°C.

Issued at **Hamburg** on **2021-08-03**

for **DNV**

This Certificate is valid until **2026-08-02** .

DNV local unit: **Hamburg Pressure & Underwater Technology**

Approval Engineer: **Henrik Derlien**

Jonathan Struwe
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

The product is composed of

- the two-component epoxy resin Loctite PC 7211 A and B,
- the carbon glass fiber textile Loctite PC 5085,
- the filler Loctite EA 3488 and
- the peel-ply Loctite PC 5090 as well as
- the optional top-coating Loctite PC 7234

Application/Limitation

The installer of the repair must be qualified by the manufacturer / supplier of the repair system.
The repair of saddles is not in the scope of this certification.

Type Approval documentation

See approval letter with the DNV GL Ref. No. **MCADE699/HENDER/262.1-023320-J-2**.

Tests carried out

See approval letter with the DNV GL Ref. No. **MCADE699/HENDER/262.1-023320-J-2**.

Marking of product

Product/package to be marked with manufacturer's name, **Henkel**, and in accordance with above type designation/product name and with storage conditions.

The marking is to be carried out in such a way that it is visible, legible and indelible. The marking of product is to enable traceability to the DNV GL Type Examination Certificate.

There is no marking of the individual repair required.

Periodical assessment

The scope of the Periodical Assessment is to verify that the conditions stipulated for the Type Approval is complied with and that no alterations are made to the product design or choice of materials.

Assessment to be performed at renewal after 5 years (Certificate Renewal).

The main elements of the Periodical Assessment are:

- Ensure that Type Approval documentation is available.
- Review design, materials, production process, and performance with respect to possible changes, in order to ensure compliance with Type Approval documentation and/or referenced material specifications.
- Ensure traceability between manufacturer's product marking and the DNV GL Type Approval Certificate.

This certificate is only valid if required periodical assessments are carried out with satisfactory results. To check the validity of this certificate, please look it up in <https://approvalfinder.dnvgl.com>