

TYPE EXAMINATION CERTIFICATE

This is to certify:

That the Composite Repair Systems

with type designation(s)
Loctite PC 7211

Issued to

Henkel AG & Co. KGaA
Garching, Germany

is found to comply with

ISO 24817:2015 "Petroleum, petrochemical and natural gas industries – Composite repairs for pipework – Qualification and design, installation, testing and inspection"

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. The maximum permissible operating temperature is limited to 130°C.

Issued at **Hamburg** on **2016-07-22**

This Certificate is valid until **2021-07-21**.

DNV GL local station: **Hamburg**
Pressure & Underwater Technology

Approval Engineer: **Henrik Derlien**

for **DNV GL**

Harald Pauli
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 Examination Certificate and not to the approval of equipment/systems installed.

Job Id: **262.1-023320-1**
Certificate No: **TAK00000E2**

Product description

The product is composed of the two component epoxy resin Loctite PC 7211 and the carbon glass fibre reinforcement textile Loctite PC 5085.

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 Examination 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.

Certificate Retention Survey / Periodical assessment

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

Assessment to be performed after 2.5 years (Certificate Retention) and at renewal after 5 years (Certificate Renewal).

The main elements of the Periodical Assessment are:

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

END OF CERTIFICATE