



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **K-5525**

This is to certify that the
Plastic Pipes, Fibre Reinforced Thermosetting

with type designation(s)
CSPM-16C GRE EXPANSION JOINT

issued to
DACC-CSP Co., Ltd.
Sacheon-si Gyeongsangnamdo, Republic of Korea

is found to comply with
Det Norske Veritas' Rules for Classification of Ships
Det Norske Veritas' Type Approval Programme 1-501.1, 2011, Fibre Reinforced Thermosetting Plastic Pipes
IMO Resolution A.753(18). Guidelines for the Application of Plastic Pipes on Ships

Application

To be used as expansion joint on approved glass fibre reinforced epoxy pipes of size 125-600 mm (OD). DACC-CSP's installation procedure is to be followed. Applications/limitations as for the approved GRE pipes and fittings made by DACC-CSP. The expansion couplings are approved to Fire Endurance L3 in accordance with IMO Resolution A.753(18). The expansion couplings have not been tested w.r.t. to Low Flame Spread characteristics.

This Certificate is valid until **2017-06-30**.

Issued at **Høvik** on **2013-04-16**

DNV local station: **Changwon**

Approval Engineer: **Helene Bjerke**

for **Det Norske Veritas AS**

.....
Lars André Moen
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.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.

Product description

CSPM-16C GRE Expansion Joint.

Application/Limitation

- To be used as expansion couplings on approved glass fibre reinforced epoxy pipes of size 125-600 mm (OD).
- DACC-CSP's installation procedures are to be followed.
- Double O-Ring Expansion Couplings' material and fabrication to be of same quality as originally tested.
- The expansion couplings are approved to Fire Endurance L3 in accordance with IMO Resolution A.753(18).
- The expansion couplings have not been tested w.r.t. Low Flame Spread characteristics.

Type Approval documentation

Letter from DNV Changwon of 2013-02-26, incl. Survey Report from DNV Changwon of 2013-02-07, Application for Type Approval of 2013-01-16, Inspection & Test Plan of 2012-12-06 and Test Reports from KOMERI of 2013-01-04.

Tests carried out

Type Testing carried out according to **Type Approval documentation**, and in accordance with DNV's Type Approval Programme No. 5-792.20, *Pipe Couplings* (April 2010), including tightness test, burst pressure test, fire endurance test and vacuum test:

- KOMERI Testing Certificate of 2013-01-04 for GRE PIPE DOUBLE O-RING JOINT, Model 600A, Receipt No. 13T021.
- KOMERI Testing Certificate of 2013-01-04 for GRE PIPE DOUBLE O-RING JOINT, Model 300A, Receipt No. 13T022.
- KOMERI Testing Certificate of 2013-01-04 for GRE PIPE DOUBLE O-RING JOINT, Model 125A, Receipt No. 13T023.

Marking of product

Product shall be marked with *manufacturer's name*; **DACC-CSP Co., LTD** and *type designation*; **CSPM-16C GRE Expansion Joint**.

Certificate Retention/Renewal Survey

The scope of the Retention/Renewal Survey 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.

Survey to be performed after two (2) years (Certificate Retention Survey) and at renewal after four (4) years (Certificate Renewal Survey).

The main elements of the survey 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 Type Approval Certificate.

END OF CERTIFICATE