



DET NORSKE VERITAS

CERTIFICATE OF FITNESS FOR SERVICE

This is to confirm that qualification of

Basalt Fibre Reinforced Polymer (BFRP) bars

has been conducted in accordance with DNV RP-A203, Qualification Procedure for New Technology /1/ Sections 5, 6, 7, 8, 9 and 10, as reported in DNV Technical Report 2009-0316 /3/. DNV considers the technology documented as fit for service, as defined in DNV-OSS-401 /2/.

Technology owner:	ReforceTech AS.
Name of technology:	Basalt Fibre Reinforced Polymer (BFRP) bars.
Description:	Basalt fibre reinforced vinyl-ester helix-wound bars with irregularly shaped cross section for reinforcement of concrete structures.
Application:	Reinforcement of concrete structures suitable in corrosive environments.
Involvement:	DNV has 1) managed technology qualification, 2) executed qualification activities in collaboration with the technology owner and others, to document with confidence the bar's performance as reinforcement in concrete structures and 3) developed Guidelines for use of these bars (App. 1 of /3/).
Conditions:	The BFRP bars are considered fit for service as reinforcement in concrete structures when the actual bar delivery has been verified to have been produced in accordance with the product specification and limitations specified in Sec. 3.1 of /3/ and under strict QA/QC in accordance with the Guidelines in App. 1 of /3/. Separate verification shall be performed to ensure that concrete structures reinforced with these BFRP bars are designed, constructed and maintained in compliance with these Guidelines. Structures for service in areas with own regulations for design and construction need approval by the applicable regulatory authority.
Reference documents:	<ul style="list-style-type: none">/1/ DNV-RP-A203 , Qualification Procedure for New Technology, September 2001./2/ DNV-OSS-401, Technology Qualification Management, December 2003./3/ DNV Technical Report No. 2009-0316 Rev.0 "Qualification of Basalt Fibre Reinforced Polymer (BFRP) Bars for Application in Reinforced Concrete Structures", 2010-02-01

Høvik, 1 February 2010
for Det Norske Veritas

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DNV shall not be kept legally liable for not having identified failure modes or causes that has resulted in loss or damage or for not having prescribed the qualification activities necessary to avoid the loss or damage.