

TYPE APPROVAL CERTIFICATE

This is to certify:
that the Slip-on Couplings

with type designation(s)
Style 38 Coupling

issued to
**Natural Gas Solutions North America, LLC - Dresser Pipeline Solutions
Bradford, PA, USA**

is found to comply with
**DNV rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV class programme DNV-CP-0185 – Type approval – Mechanical joints**

Application:

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Temperature range: see certificate
Max. working press.: see certificate
Sizes: 2"~ 36"

Issued at **Hamburg** on **2024-04-25**

This Certificate is valid until **2029-04-24**.

DNV local unit: **Houston Offshore Services**

Approval Engineer: **Ana Cristina Do Carmo Insfran**

for **DNV**



Digitally Signed By:
Sven Klinger
Location: DNV Hamburg,
Germany

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

Slip on coupling, with removable centre pin pipe stops.

Sizes: 2" through 36" with 5/8 tie bolts (3-44 bolt pattern)

Materials¹:

Component	Material	Standard
Middle ring	Carbon steel Stainless steel	AISI 1020 or equivalent ASTM A240
Follower ring	Carbon Steel Stainless steel	A 283 Gr. C or equivalent ASTM A240
Tie bolts	Carbon steel Stainless steel	ASTM 307 or equivalent ASTM A593
Nuts	Carbon steel	ASTM A563 or ASTM A 563M or equivalent

* and comply with ANSI/ASME B18.2.1 or B18.2.4.5M or equivalent

** and comply with ANSI/ASME B18.2.2 or B18.2.4.6M or equivalent

Notes:

¹ Tube wall thickness acc. to DNV Ship Rules Pt.4, Ch.6 - Section 9.

Application/Limitation

Natural Gas Solutions North America, LLC - Dresser Pipeline Solutions Mechanical joints, Slip on coupling, with removable centre pin pipe stops are type approved for class I, II and III-piping systems for application: mechanical connecting for marine piping, as specified in the DNV Rules Pt. 4, Ch. 6, Sec. 9 Table 9 and 10 – pipe union, bite type, fire resistant type.

Selection of materials

It shall be noted that the selection of the materials considers the applicable service condition with respect to type of media, flow velocity, media temperature etc. and installation area of the piping system.

In particular, the resistance to corrosion, erosion, oxidation and other deterioration during projected service life are to be taken into account.

Reference is made to DNV Rules Pt.4, Ch.6 – Section 2 – Materials.

Temperature range

-20°F to + 212°F

Pressure range

300 psi for Non-Fire Resistant

275 psi for Fire Resistant -200°F

Type Approval documentation


Type Approval Application dated on 2022-01-19
 Type Approval Assessment Report dated on 2023-01-23
 ISO 9001:2015, certificate No.: 63145, dated on 2024-10-30
 Test Report no. 6964 – Style 38 Coupling 2” IPS (“3/8 “OD) dated on 2008-01-04
 Drawing no. 38-2938 Rev. B
 Test Report no. 6966 Style 38 coupling 16” OD size
 Test Report no. 6963 Style 38 coupling 30” OD size
 Installation Instruction 0001-0735-999 dated on 2018-12
 Report of Fire test dated on 2008-10-13 no. 8-5230 (2”, 6” – coupling)
 Report of Fire test dated on 2008-04-17 no. 8-5181 (16” – coupling)
 Installation Instruction 0001-0723-999 dated on 2018-12
 Inspection Test Plan
 Testing acc. to ISO 19921 – Fire endurance test – Final Test Report no.01-27009.01.207c dated on 2023-11-22
 Test report no. 7170- Style 38 – 2”, 20”, 36” (Vacuum Tightness + Burst test) dated on 2023-05-09
 Testing acc. to ISO 19921 – Final Report no. 01.27009.01.207a (Fire endurance) dated on 2023-11-22
 Testing acc. to ISO 19921 – Final Report no. 01.27009.01.207d (Fire endurance) dated on 2023-11-22
 Testing acc. to ISO 19921 – Final Report no. 01.27009.01.207b (Fire endurance) dated on 2023-11-22

Tests carried out

Tightness test, repeated assembly test, burst pressure test, pull-out test, vibration test, pressure pulsation test, fire resistance test.

Marking of product

For traceability to this type approval each mechanical joint is to be marked with:

Component	Scope	Example
Middle ring	Manufacturer trademark, size, identification number	
Follower ring		
Tie bolts		
Nut		

Periodical assessment

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment as per DNV-CP-0338, Sec.4 to verify that the conditions for the Type Approval are complied with.

To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>

Ende of Certificate