DNV·GL

Certificate No:
TAP0000063

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Pipe Couplings

with type designation(s)
Quickflange

Issued to
Quickflange Technology AS
Tvedestrand, Norway

is found to comply with
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNVGL-OS-D101 – Marine and machinery systems and equipment, Edition July 2015
DNVGL-OS-E101 – Drilling plant, Edition July 2015
DNVGL-OS-E201 – Oil and gas processing systems, Edition July 2015

Application :

Designed as mechanical joints according to ASME B31.3, Process Piping - 2014

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

Temperature range:	**-46°C to +205°C for A350LF2, -29°C to + 205°C for the other materials**
Max. working press.:	**102,1 bar, complying with ASME B16.5 pressure/temperature rating**
Sizes:	**1" to 10"**

This Certificate is valid until **2019-06-30**.

Issued at **Høvik** on **2016-01-13**

for **DNV GL**

DNV GL local station: **Kristiansand S**

Approval Engineer: **Tom Berg-Nielsen**

Marianne Spæren Marveng
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.

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Product description

Quickflange is a slip-on flange that fastens to the pipe by means of a swaging process. The connection between flange hub and pipe is considered a grooved swage type compression coupling.

Materials:

Carbon steels:	ASTM A350 LF2, A105, A105N, A694 F52
Stainless Steels:	ASTM A182 F316 & 316L
Duplex stainless steel:	ASTM A182 F51 & F60 (22Cr Duplex)
Super duplex steel:	ASTM A182 F53, F55 & F61 (25Cr Duplex)
Super austenitic steel:	ASTM A182 F44, UNS N08367 & UNS08926 (6Mo)

Sizes: 1" to 10" with schedule 10S, 20, 30, 40, 40S, 60 & 80
Flange facing & Pressure-Temperature ratings (150#, 300#, 600#) according to ASME B16.5
Manufactured by: Tore Olsen Produksjon A/S, Songe, Norway

Application/Limitation

Swage type compression couplings may be used in the following systems:

- According to DNV GL ship rules Pt.4 ch.6 or DNVGL-OS-D101:
  - Flammable fluids (flash point ≤60°C):
    Cargo oil lines – Crude oil washing lines – vent lines
  - Inert gas:
    Water seal effluent lines – Scrubber effluent lines – Main lines – Distributions lines
  - Flammable fluids (flash point > 60°C):
    Cargo oil lines – Fuel oil lines – Lubricating oil lines – Hydraulic oil – Thermal oil
  - Seawater: (Only Duplex stainless steel, Super duplex steel and super austenitic steel)
    Bilge lines – Fire main and water spray – Foam system – Sprinkler system – Ballast system – Cooling water system – Tank cleaning services – Nonessential systems
  - Fresh water:
    Cooling water system – Condensate return – Nonessential system
  - Sanitary/drains/scuppers:
    Deck drains (internal) – Sanitary drains - Scuppers and discharge (overboard)
  - Sounding/vent:
    Water tanks/Dry spaces - Oil tanks (flash point > 60°C)
  - Miscellaneous:
    Service air (nonessential) – Brine - Steam
    Starting/Control air & CO2 system (Inside machinery spaces of category A)
- According to DNVGL-OS-E201 or DNVGL-OS-E101 (in addition to above applications):
  - Hydrocarbon liquids and gases
  - Glycol
  - TEG
  - MEG
  - Solid systems (barite, cement)
  - Water
  - Produced water

Products according to DNV GL ship rules Pt.4 Ch.6 or DNVGL-OS-D101 shall be delivered with reference to this type approval certificate. (No product certificate is required.)

Categorization of quickflanges certified according to DNVGL-OS-E101 shall be in accordance with DNVGL-OS-E101 Ch.3 Sec.3 Table10. Equipment category I shall be delivered with a product certificate.

Categorization of quickflanges certified according to DNVGL-OS-E201 shall be in accordance with DNVGL-OS-E101 Ch.3 Sec.3 Table 2. Equipment category I shall be delivered with a product certificate. (e.g. in system with flammable or toxic fluids product certificate is required.)

Temperature range: -46°C to +205°C for A350LF2, -29°C to + 205°C for the other materials.
The following size/pressure/materials combinations are covered by this TA:

Class150							
Pipe Size	Materials						
	A350 LF2	A105	A694 F52	316/L	6Mo	22Cr Duplex	25 Cr Duplex
1" DN25	Sch 40	Sch 40	N/A	Sch 10S	Sch 40S	Sch 40S	Sch 40S
	Sch 80	Sch 80		Sch 40S			
1 1/2" DN40	Sch 40	Sch 40	N/A	Sch 10S	Sch 40S	Sch 40S	Sch 40S
	Sch 80	Sch 80		Sch 40S			
2" DN50	Sch 40	Sch 40	Sch 40	Sch 10S	Sch 10S	Sch 10S	Sch 10S
	Sch 80	Sch 80		Sch 40S			
3" DN80	Sch 40	Sch 40	N/A	Sch 10S	Sch 10S	Sch 10S	Sch 10S
	Sch 80	Sch 80		Sch 40S			
4" DN100	Sch 40	Sch 40	N/A	Sch 10S	Sch 10S	Sch 10S	Sch 10S
	Sch 80	Sch 80		Sch 40S			
5" DN125	Sch 40	Sch 40	N/A	Sch 10S	N/A	N/A	N/A
	Sch 80	Sch 80					
6" DN150	Sch 40	Sch 40	N/A	Sch 10S	Sch 10S	Sch 10S	N/A
	Sch 80	Sch 80					
8" DN200	Sch 20	Sch 20	N/A	Sch10S	N/A	N/A	N/A
	Sch 30	Sch 30					
	Sch 40	Sch 40					
	Sch 60	Sch 60					
	Sch 80	Sch 80					
10" DN250	Sch 40	Sch 40	N/A	N/A	N/A	N/A	N/A

Class300			**Class600**	
Pipe Size	Materials		Materials	
	A350 LF2	CS A105	A350 LF2	CS A105
1" DN25	Sch 40	Sch 40	Sch 80	Sch 80
	Sch 80	Sch 80		
1 1/2" DN40	Sch 40	Sch 40	Sch 80	Sch 80
	Sch 80	Sch 80		
2" DN50	Sch 40	Sch 40	Sch 80	Sch 80
	Sch 80	Sch 80		
3" DN80	Sch 40	Sch 40	Sch 80	Sch 80
	Sch 80	Sch 80		
4" DN100	Sch 40	Sch 40	Sch 80	Sch 80
	Sch 80	Sch 80		
5" DN125	Sch 40	Sch 40	Sch 80	Sch 80
	Sch 80	Sch 80		
6" DN150	Sch 40	Sch 40	Sch 80	Sch 80
	Sch 80	Sch 80		
8" DN200	Sch 40	Sch 40	Sch 80	Sch 80
	Sch 80	Sch 80		

All combinations of material, diameter, wall thickness and pressure rating are individually tested and test report issued.

Each product shall be hydrostatic pressure tested at a pressure 1.5 times the maximum working pressure.

Type Approval documentation

Tests carried out

Leakage test, Pressure test, Burst test, Axial load test, Combined bending and torsion test, Fatigue test, Vibration test, Corrosion test, Fire test

Marking of product

For traceability to this type approval the flanges are marked:
- QF-production batch no – serial no.
- Type, pressure class, size, schedule, face type and material.

Periodical assessment

For retention of the Type approval, DNV GL Surveyor shall perform a survey - every year and before the expiry date of this certificate. This is in order to verify that the conditions for the type approval are complied with and witness burst test on selection of sizes.