TYPE APPROVAL CERTIFICATE

Certificate No:
TAP000011U
Revision No:
2

This is to certify:

That the Pipe Couplings, Flared or Welded Nipple Type

with type designation(s)
SAE J 514 37° flared pipe fittings

Issued to
CAST S.p.A.
Volpiano, TO, Italy

is found to comply with
DNV rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV-OS-D101 – Marine and machinery systems and equipment, Edition July 2021
DNV class programme DNV-CP-0185 – Type approval – Mechanical joints

Application :

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

Temperature range:	**-60°C to 200 °C (see Table 2 & 4)**
Max. working press.:	**240, 290 & 350 bar (see Table 1)**
Sizes:	**6 to 38 mm**

Issued at **Høvik** on **2022-10-04**

This Certificate is valid until **2027-12-29**.
DNV local station: **Italy/Malta CMC**

Approval Engineer: **Sarah Miller**

for **DNV**

van der Merwe, Bosman
Høvik
2022.10.04 13:28:13
+02'00'

Sinisa Sedlan
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.

Product description

SAE J514 37° flared pipe fittings with or without o-ring seal
Materials:

Part	Carbon Steel Coupling	Stainless Steel Coupling
Ring/Sleeve & Body	11SMnPb37/30 or 11SMn37/30 or 36SMnPb14 according to UNI EN10087 or C4C or C10C according to UNI EN 10263-2 or 28SMnPb28 (PR60) or C35 or C35R according to UNI EN10083-2	X6CrNiMoTi17-12-2 (WNo. 1.4571) or X5CrNiMo17-12-2 (WNo. 1.4401) or X2CrNiMo17-12-2 (WNo. 1.4404) or according to UNI EN10088-3
Nut	11SMnPb37/30 or 11SMn37/30 according to UNI EN10087 or C4C or C10C according to UNI EN10263-2 or C35 or C45 according to UNI EN10083-2	X6CrNiMoTi17-12-2 (WNo. 1.4571) or X5CrNiMo17-12-2 (WNo. 1.4401) or X2CrNiMo17-12-2 (WNo. 1.4404) or according to UNI EN10088-3

Production plant located at Casalgrasso CN, Italy

Application/Limitation

Table 1 - Maximum working pressure in bar as below table:

Tube O.D. (mm)	Maximum Pressure (bar)
6,8,10,12, 14,15,16,18,20	350
25	290
30,32,38	240

Table 2 - Temperature ranges:

Part	Material	Temperature Range
Body	Stainless Steel	-60°C to +200°C
	Carbon Steel	-20°C to +120°C
Sealing	NBR	-35°C to +100°C
	Viton	-25°C to +200°C

Table 3 - Couplings covered by this certificate are only to be used in piping classes I, II and III in below applications:

- Flammable fluids (flash point ≤ 60°C)
  - Vent lines
  - Cargo oil lines (1)
  - Crude oil washing lines (1)
- Inert gas
  - Water seal effluent lines
  - Scrubber effluent lines
  - Main Lines (1) (2)
  - Distribution lines (1)
- Flammable fluids (flash point > 60°C)
  - Cargo Oil lines (1)
  - Fuel oil lines (2)
  - Lubricating oil lines (2)
  - Hydraulic oil (2)
  - Thermal oil (2)
- Fresh water
  - Cooling water system
  - Condensate return
  - Non-essential system
- Sounding/vent
  - Water tanks/Dry spaces
  - Oil tanks (f.p. > 60°C) (2)
- Sanitary/drains/scuppers
  - Deck drains (internal) (3)
  - Sanitary drains
  - Scuppers and discharge (overboard)
- Miscellaneous
  - Starting/Control air
  - Service air (non-essential)
  - Brine
  - CO2 system
  - Steam

(1) Only in pump rooms and open decks
(2) Not inside machinery spaces of category A or accommodation spaces. May be accepted in other machinery spaces provided the joints are located in easily visible and accessible positions.
(3) Only above bulkhead deck of passenger ships and freeboard deck of cargo ships.

Couplings covered by this certificate shall not be used in systems subject to pressure below atmospheric or vacuum condition.

Table 4 - The maximum pressure for which the mechanical joints will be type approved is defined as maximum allowable pressure for continuous service at +20°C. For elevated temperatures the maximum allowable pressure have to be reduced according to Pressure reduction factors in the below table:

Temperature	20°C	50°C	100°C	120°C	150°C	200°C
Carbon steels	1	1	1	0.96	-	-
Stainless steels	1	0.95	0.85	0.82	0.77	0.71

Threaded connections where pressure-tight joints are made on the threads with parallel or tapered threads shall not be used for piping systems conveying toxic or flammable media or services where fatigue, severe erosion or crevice corrosion is expected to occur. For other applications threaded connections with pressure-tight joints on threads may be used for outside diameters:

- In CO2 systems shall be allowed only inside protected spaces and in CO2 cylinder rooms
- Threaded joints with tapered thread shall be allowed for:
    - class I, outside diameter not more than 33.7 mm
    - class II and class III, outside diameter not more than 60.3 mm
- Threaded joints with parallel thread shall be allowed for class III, outside diameter not more than 60.3 mm.

The approval is only valid when the couplings are assembled with tubing of correct temper and tolerances as recommended by the manufacturer. These couplings should not be used on tubes in cold fabricated (hard temper) conditions.

Type Approval documentation

Drawings Nos: 200303.3.F, 200309.3.F.
Manufacturer's catalogue October 2013.
Manufacturer's repeated assembly and burst test report V.d.P.n°97/04 dated 30.03.2005.
IMA Dresden test report C97/04 dated 16.02.2005 (containing test result from leakage test, combined impulse/vibration test and fire test)
IMA Dresden supplement 1 of test report C97/04
IMA Dresden supplement 2 of test report C97/04
Burst pressure test report V.d.P.n°12/09 dated 2009-07-02
Burst pressure test report V.d.P. n°14/13 dated 2013-06-27
Burst pressure test report V.d.P. n°67/17 dated 2013-12-21
Renewal burst pressure test report 2022-07-13
Renewal Assessment Report. 2022-08-13

Tests carried out

Burst test, repeated assembly test, leakage test, pressure impulse/vibration test, fire test, pull out test

Marking of product

For traceability to this type approval, the products are to be marked with:

- Manufacturer's name or trade mark
- Type designation

Periodical assessment

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNV-CP-0338.