



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **P-14593**

This is to certify that the
Pipe Couplings, Flared or Welded Nipple Type

with type designation(s)
Cast ORFS SAE J 1453 90° flared fittings

Manufactured by
CAST S.P.A.
Volpiano TO, Italy

is found to comply with
Det Norske Veritas' Rules for Classification of Ships
Det Norske Veritas' Standards for Certification 2.9 No. 5-792.20

Application

The couplings may be used in the following systems: Hydraulic, Fuel, Lubrication oil, Compressed air, Steam and Condensate, Fresh and Sea water and Marsh gas systems.

Temperature range: -60 °C to +200 °C, see certificate
Max. working press.: 630 bar, see certificate
Sizes: 6 to 38 mm

This Certificate is valid until **2017-12-31**.

Issued at **Høvik** on **2013-09-24**

DNV local station: **Milan**

Approval Engineer: **Mohsen Mohebbi**

for **Det Norske Veritas AS**

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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.

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

SAE J 1453 90° flared pipe fittings with o-ring seal.

Materials:

Part	Carbon steel coupling Standard		Stainless steel coupling Standard
	UNI 4838	EN 10087	DIN 17440 or EN 1088
Ring/ Sleeve	CF9SMnPb28 / 36 or CF9SMn28 / 36	11SMnPb30 / 37 or 11SMn30 / 37	X6CrNiMoTi17-12-2 (1.4571) or X5CrNiMo17-12-2 (1.4401)
Nut	CF9SMnPb28 / 36 or CF9SMn28 / 36	11SMnPb30 / 37 or 11SMn30 / 37	X6CrNiMoTi17-12-2 (1.4571) or X2CrNiMo17-12-2 (1.4404)
Straight and forged body	CF9SMnPb28 / 36 or CF9SMn28 / 36	11SMnPb30 / 37 or 11SMn30 / 37	X6CrNiMoTi17-12-2 (1.4571) or X5CrNiMo17-12-2 (1.4401)

Production plant located at Casalgrasso CN, Italy.

Application/Limitation

Maximum allowable working pressure:

Tube O.D (mm)	MAWP (bar)
6 to 12	630
14 to 25	420
28 to 38	280

For couplings made of stainless steel at elevated temperatures, the maximum working pressure has to be reduced with the following factors:

Temperature	≥ 50 °C	≥ 100 °C	≥ 200 °C
Reduction factor in % of the MAWP	- 4	-11	-20

Temperature ranges:

Stainless steel: -60 °C to +200 °C

Carbon steel: -20 °C to +120 °C

NBR: -35 °C to +100 °C

Viton: -25 °C to +200 °C

Couplings made of carbon steel are not to be used at temperatures below -10°C unless the material is normalised.

The wall thickness and the material of the tubes are to be in accordance with the current Rules of Det Norske Veritas.

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

Burst test report V.d.P.n°13/09 dated 2009-07-02.

Burst test report V.d.P.n°36/08 dated 2008-05-05.

Burst test report V.d.P.n°38/08 dated 2008-05-05.

Repeated assembly test report V.d.P.n°104/04 dated 2004-09-06.

IMA Dresden test report C97/04 dated 2005-02-16 (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

Manufacturers ORFS catalogue

Tests carried out

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

Certificate Retention Survey

For retention of the Type Approval, a DNV Surveyor shall perform a survey - before the expiry date of this certificate - to verify that the conditions for the type approval are complied with, and to witness burst testing of samples of couplings selected at random from stock or from the running production.

END OF CERTIFICATE