

# TYPE APPROVAL CERTIFICATE

Certificate No:  
**TAP00000C1**  
Revision No:  
**3**

## This is to certify:

**That the Pipe Couplings, Bite and Compression Type**

with type designation(s)  
**L-Series, S-Series**

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.**

Type:	Temperature range:	Max. working press.:	Sizes:
L-Series	See Table 3 & 4	160 & 315 bar (see Table 2)	6 to 42 mm (see Table 2)
S-Series	See Table 3 & 4	315, 400 & 630 bar (see Table 2)	6 to 38 mm (see Table 2)

Issued at **Høvik** on **2022-09-29**

for **DNV**

This Certificate is valid until **2027-12-30**.

DNV local station: **Italy/Malta CMC**

Approval Engineer: **Sarah Miller**

**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.

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

Pipe couplings, cutting ring type, Light series (L-series) and heavy series (S-series) - fire resistant.

### Material:

Part	Carbon Steel Coupling	Stainless Steel Coupling
Ring & Body	11SMnPb37/30 or 11SMn37/30 or 36SMnPb14 according to EN ISO 683-4 or 28SMnPb28 (PR60) or C35 or C35R according to UNI EN ISO 683-1	X6CrNiMoTi17-12-2 (WNo. 1.4571) or X5CrNiMo17-12-2 (WNo. 1.4401) or X2CrNiMo17-12-2 (WNo. 1.4404) or X2CrNi18-9 (WNo. 1.4307) or X5CrNi18-10 (WNo. 1.4301) or X8CrNiS18-9 (WNo. 1.4305) or X6CrNiTi18-10 (WNo. 1.4541) according to UNI EN10088-3
Nut	11SMnPb37/30 or 11SMn37/30 according to EN ISO 683-4 or C4C or C10C according to UNI EN10263-2 or C35 or C45 according to EN ISO 683-1	X6CrNiMoTi17-12-2 (WNo. 1.4571) or X5CrNiMo17-12-2 (WNo. 1.4401) or X2CrNiMo17-12-2 (WNo. 1.4404) or X2CrNi18-9 (WNo. 1.4307) or X5CrNi18-10 (WNo. 1.4301) or X8CrNiS18-9 (WNo. 1.4305) or X6CrNiTi18-10 (WNo. 1.4541) according to UNI EN10088-3

Cutting ring type B3 and B4 & Body  
Manufacturing Plant: CAST S.p.A., Casalgrasso CN, Italy

## Application/Limitation

Table 1: Couplings covered by this certificate are only to be used in piping classes I, II and III in below applications:

<b>1) Flammable fluids (flash point <math>\leq 60^{\circ}\text{C}</math>)</b> <ul style="list-style-type: none"> <li>- Cargo oil lines <sup>(1)</sup></li> <li>- Crude oil washing lines <sup>(1)</sup></li> <li>- Vent lines</li> </ul> <b>2) Inert gas</b> <ul style="list-style-type: none"> <li>- Water seal effluent lines</li> <li>- Scrubber effluent lines</li> <li>- Main lines <sup>(1)</sup></li> <li>- Distributions lines <sup>(1)</sup></li> </ul> <b>3) Flammable fluids (flash point <math>&gt; 60^{\circ}\text{C}</math>)</b> <ul style="list-style-type: none"> <li>- Cargo oil lines <sup>(1)</sup></li> <li>- Fuel oil lines</li> <li>- Lubricating oil lines</li> <li>- Hydraulic oil</li> <li>- Thermal oil</li> </ul>	<b>4) Fresh water</b> <ul style="list-style-type: none"> <li>- Cooling water system</li> <li>- Condensate return</li> <li>- Non-essential system</li> </ul> <b>5) Sanitary/drains/scuppers</b> <ul style="list-style-type: none"> <li>- Deck drains (internal) <sup>(2)</sup></li> <li>- Sanitary drains</li> </ul> <b>6) Sounding/vent</b> <ul style="list-style-type: none"> <li>- Water tanks/dry spaces</li> <li>- Oil tanks (f.p. <math>&gt; 60^{\circ}\text{C}</math>)</li> </ul> <b>7) Miscellaneous</b> <ul style="list-style-type: none"> <li>- Service air (non-essential)</li> <li>- Brine</li> <li>- Steam</li> </ul>
<p>(1) Only in pump rooms and open decks  (2) Only above bulkhead deck of passenger ships and freeboard deck of cargo ships.</p>	

Table 2: Sizes and maximum working pressure:

Series	Size	Max. pressure (bar)
L	6L,8L,10L,12L,15L,18L	315 bar
	22L,28L,35L,42L	160 bar
S	6S,8S,10S,12S,14S	630 bar
	16S,20S,25S,30S	400 bar
	38S	315 bar

Table 3: 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
	FPM Fluorinated rubber	-25 °C to +200 °C

Note: The temperature given in table 3 is the medium temperature. The minimum environmental temperature is -40°C as per DIN 3859-1.

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:
  - o class I, outside diameter not more than 33.7 mm
  - o 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.

Austenitic stainless steel couplings (WNo. 1.4571, 1.4401, 1.4404, 1.4307, 1.4301, 1.4305, 1.4541) are not permitted in seawater systems.

## Type Approval documentation

Drawings (date):

103504.1 (07.01.97), 100204 (04.12.97), 030103 (07.01.97), 103513.1 (07.01.97), 100113.4F (18/12/98), 100213 (04.12.97), 030156 (07.01.97), 030520 (07.01.97), 100504.F (07.01.97), 030501 (07.01.97), 030302 (07.01.97), 100513.F (07.01.97), 103514.1 (07.01.97), 100104 (20.02.97), 100214 (07.01.97), 030502 (07.01.97), 103522.1 (07.01.97), 100122 (20.02.97), 100222 (07.01.97), 100122.4F (02.12.97), 030147 (07.01.97), 030517 (07.01.97), 103523.1 (07.01.97), 100123 (20.02.97), 100223 (07.01.97), 100123.4F (02.12.97), 030153 (07.01.97), 100514.F (07.01.97), 030304 (07.01.97), 100104.4F (02.12.97), 100522.F (07.01.97), 030313 (07.01.97), 100523.F (07.01.97), 030314 (07.01.97), 030519 (07.01.97)

Manufacturer's catalogue '1/C' October 2013

ISMES SpA. test report no. RAT-STR-1598/98 dated October 1998

ISMES SpA test report no. RAT-ISMES-2848/2000 dated 30/08/2000

IMA Test report no. C33/0 dated 26.05.2000

Test report no. 33/08 dated 2008-05-05

Test report no. 69/08 dated 2008-08-28

Test report no. 11/12 dated 2012-11-20

Renewal burst pressure test report V.d.P. n°66/17 dated 2017-12-21

Test report no. F608010

RINA Fire test report numbers:

2013CS011480/2, 2013CS011480/4, 2013CS011480/6, 2013CS011480/8, 2013CS011480/10, 2013CS011480/12, 2013CS011480/14, 2013CS012357, 2013CS011480/19, 2013CS011480/21, 2013CS011480/23

2013CS011480/1, 2013CS011480/3, 2013CS011480/5, 2013CS011480/7, 2013CS011480/9

2013CS011480/11, 2013CS011480/13, 2013CS011480/15, 2013CS011480/18, 2013CS011480/20, 2013CS011480/22

Renewal burst pressure test report 2022-07-13

Renewal Assessment Report. 2022-08-13

## Tests carried out

Leakage, repeated assembly, burst pressure, pull-out, vacuum test, fire test, vibration & pressure pulsation tests

## Marking of product



Job Id: **262.1-004933-8**  
Certificate No: **TAP00000C1**  
Revision No: **3**

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.