

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Pipe Couplings, Bite and Compression Type

with type designation(s)

L - according to DIN2353, S - according to DIN2353

Issued to

DISTRIBUIDORA INTERNACIONAL CARMEN, S.A -DICSA- Zaragoza Zaragoza, Spain

is found to comply with

**DNVGL-OS-D101 – Marine and machinery systems and equipment, Edition July 2015
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV GL class programme DNVGL-CP-0185 – Type approval – Mechanical joints**

Application :

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

Type:	Temperature range:	Max. working press.:	Sizes:
L - according to DIN2353	-40°C to +400°C	630 bar / 315 bar / 160 bar (dependent on size)	O.D. in mm: 6, 8, 10, 12, 15, 18, 22, 28, 35 & 42
S - according to DIN2353	-40°C to +400°C	630 bar / 400 bar / 315 bar (dependent on size)	O.D. in mm: 6, 8, 10, 12, 14, 16, 20, 25, 30 & 38

Issued at **Høvik** on **2017-12-07**

for **DNV GL**

This Certificate is valid until **2022-02-07**.

DNV GL local station: **Barcelona**

Approval Engineer: **Maheshraja Venkatesan**

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Marianne 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.



Product description

Compression fittings constructed according to DIN 2353

Materials in body and cutting ring:

- austenitic stainless steels 316 (UNS S31600) and 316L (UNS S31603)
- carbon steel 11SMnPb30 from EN 10277-3 and EN 10087

Couplings are manufactured at DICSA, Zaragoza, Spain.

Application/Limitation

Couplings covered by this certificate may be used in below applications (as described in DNV GL ship rules Pt.4 Ch.6 Sec.9 Table 12 & 13):

- | | |
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| <p><i>I.</i> Flammable fluids (flash point $\leq 60^{\circ}\text{C}$)</p> <ul style="list-style-type: none"> - Vent lines - Cargo oil lines ⁽³⁾ - Crude Oil Washing lines ⁽³⁾ <p><i>II.</i> Inert gas</p> <ul style="list-style-type: none"> - Water seal effluent lines - Scrubber effluent lines - Main lines ⁽³⁾ - Distribution lines ⁽²⁾⁽³⁾ <p><i>III.</i> Flammable fluids (flash point $> 60^{\circ}\text{C}$)</p> <ul style="list-style-type: none"> - Fuel oil lines ⁽¹⁾ - Lubricating oil lines ⁽¹⁾ - Hydraulic Oil ⁽¹⁾ - Thermal Oil ⁽¹⁾ - Cargo oil lines ⁽³⁾ | <p><i>IV.</i> Fresh water</p> <ul style="list-style-type: none"> - Cooling water system - Condensate return - Non-essential system <p><i>V.</i> Sanitary/drains/scuppers</p> <ul style="list-style-type: none"> - Deck drains (internal) ⁽²⁾ - Sanitary drains - Scuppers and discharge (overboard) <p><i>VI.</i> Sounding/vent</p> <ul style="list-style-type: none"> - Water tanks/Dry spaces - Oil tanks (f.p. $> 60^{\circ}\text{C}$) ⁽¹⁾ <p><i>VII.</i> Miscellaneous</p> <ul style="list-style-type: none"> - Starting/Control air - Service air (non-essential) - Brine - CO2 system - Steam |
|--|--|

(1) 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.

(2) Only above bulkhead deck of passenger ships and freeboard deck of cargo ships.

(3) Only in pump rooms and open decks

Type	Sizes (mm)	Maximum working pressue
L	6,8,10,12	630 bar
	15,18	315 bar
	22,28,35,42	160 bar
S	6,8,10,12,14	630 bar
	16,20,25,30	400 bar
	38	315 bar

For elevated temperatures the maximum allowable pressure have to be reduced according to DNVGL-CP-0185 Section 2 Table 1.

The approval is only valid when the couplings are assembled with tubing of correct temper and tolerances as recommended by the manufacturer.

Couplings covered by this certificate shall not be installed in systems subject to pressure below atmospheric.

Type Approval documentation

DICSA product description

DICSA instruction manual I071900 dated 2015-10-27

IMA test report K024/16 dated 2016-10-11 (pull-out and pressure pulsation/vibration tests)

IMA test report K135/15 dated 2016-02-08 (pull-out and pressure pulsation/vibration tests)

Job Id: **262.1-017905-2**
Certificate No: **TAP00000U6**
Revision No: **1**

Witnessed burst test reports by DNV GL surveyor: IPP131018/1,4,5 & 6 dated 2016-10-18 and IPP170119/1,2 & 3 dated 2017-01-19
Repeated assemblies and leakage test reports: ET151027/1, ET151027/2, ET161024/1, ET161024/2, ET151029/1, ET161025/1, ET151029/2, ET161025/2, ET161026/1, ET15114/1, ET161026/2, ET15114/2, ET161027/1, ET151111/1, ET161027/2, ET151111/2, ET161028/1, ET151112/1, ET161028/2, ET151112/2
Burst test report (for carbon steel couplings) nos.: IPP17620/1, IPP17620/2, IPP17620/3, IPP17620/4, IPP17620/5, IPP17620/6 and IPP17620/7 witnessed by DNV GL surveyor dated 2017-06-20
Test report No. K086/17 (pull-out, pressure pulsation & vibration for carbon steel couplings) from IMA Dresden dated 2017-10-11.

Tests carried out

Burst, tightness, repeated assembly, vibration/pressure pulsation, pull-out test

Marking of product

For traceability to this type approval, each product is at least to be marked with:

- Manufacturer's name or trademark
- Type designation
- Material of construction
- Pressure rating

Periodical assessment

For retention of the Type Approval, a DNV GL 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 DNVGL-CP-0338.

Renewal assessment

For renewal of this certificate, during the renewal assessment (as described in DNVGL-CP-0338), burst pressure tests shall be witnessed on couplings selected at random from stock or from the running production.