



Marine & Offshore
Division

Certificate number: 43393/A0 BV

File number: ACM 135/2760/2

Product code: 2106H

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

Uni-Coupling B.V.

Sint-Oedenrode - NETHERLANDS

for the type of product

MECHANICAL JOINTS / SLIP-ON JOINTS / GRIP TYPE

UNI-Flex axially non restrained pipe couplings

Requirements:

- BUREAU VERITAS Rules for the Classification of Steel Ships
- BUREAU VERITAS Rules for the Classification of Offshore Units
- BUREAU VERITAS Rules for the Classification of Naval Ships
- BUREAU VERITAS Rules for the Classification of Yachts

This certificate is issued to attest that BUREAU VERITAS did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 03 Nov 2020

For BUREAU VERITAS,

At BV GRONINGEN, on 03 Nov 2015,

John Mondt



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with BUREAU VERITAS. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of BUREAU VERITAS Marine & Offshore Division available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against BUREAU VERITAS for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

UNI-Flex axially non restrained pipe couplings

1.1 Design

UNI-FLEX: Axially non restraint pipe couplings for plain-ended pipes of Carbon steel, Stainless steel, Cu and CuNiFe. T-profile insert to prevent creepage on the pipe and the optional electrical conductivity clips.

1.2 Rating

UNI-Flex Type	Diameter Size (mm)	Version	Pipe OD (mm)	Nominal Pressure (bar)
UNI-Flex L	20.5 - 172	L	21.3 - 168.3	16
UNI-Flex S	20.5 - 172	S	21.3 - 168.3	16
UNI-Flex	180.0 - 2032	SB	219.1	16
		SC	273.0 - 323.9	16
		SG	355.6 - 457.2	16
		SG	508.0 - 711.2	10
		SG2	762.0 - 1117.6	10
		SG3	1219.2 - 1422.4	6
		SG3	1524.0	2.5
		SG4	1625.6 - 2032.0	2.5
UNI-Flex	180.0 - 2032	SA	219.1	10
		SB	273.0 - 323.9	10
		SC	355.6 - 508.0	10
		SC	558.8 - 711.2	6
		SC2	762.0 - 1016.0	6
		SC2	1117.6	2.5
		SC3	1219.2	2.5
		SC3	1422.4 - 1524.0	--*
		SC4	1625.6 - 1828.8	--*
UNI-Flex	180.0 - 2032	SA	273.0 - 323.9	6
		SB	355.6 - 508.0	6
		SB	558.8 - 711.2	2.5
		SB2	762.0 - 812.8	2.5
		SB2	914.4 - 1117.6	--*
		SB3	1219.2	--*

The maximum working pressure is not to exceed one quarter of the burst pressure at the service temperature.

* To be used in open systems only i.e. under atmospheric conditions.

- Lock bars S-Type: Standard massive lock bars

- Lock bars L-Type: Light hollow lock bars

1.3 Materials

The pipe couplings are available in two material composites w5 and w2

Steel material	Material w2	Material w5
Casing	Type 1.4301 / Grade 304 Type 1.4016 / Grade 301	Type 1.4571 / Grade 316 Ti
Bolts	Type A4-80 / Grade 316 Ti	Type A4-80 / Grade 316 Ti
Lock bars	Type 1.4571 / Grade 316 Ti	Type 1.4571 / Grade 316 Ti

Anchoring rings	Type 1.4310 / Grade 301	Type 1.4310 / Grade 301
Pipe	Black steel P235TR1 DIN EN 10220 Stainless steel DIN EN ISO 1127 CuNiFe DIN 86019 Cu SF-CU F25	

When other choices of materials are used per manufacturer's recommendations, the BV agreement is to be obtained.

1.4 Temperature range in dependance of the elastomer material

Rubber material	Temperature Range (°C)
EPDM sleeve	- 30 up to + 125 for version L and S
	- 20 up to + 80 for all other versions
NBR sleeve	- 20 up to + 80 for all versions

2. DOCUMENTS AND DRAWINGS

- Lloyd's type approval certificate for UNI-Flex N° 15/30001 dated 20/01/2015
- DNV-GL type approval certificate for UNI-Flex N° 11563-14HH dated 04/11/2014
- HUWA international pipeline products drawings dated 19/08/2014 and 23/09/2014
- Uni-Coupling B.V. technical manual dated 24/09/2014

No departure from the above documentation shall be made without the prior consent of the Society. The manufacturer must inform the Society of any modification or changes to these documents and drawings.

3. TEST REPORTS

Type tests carried out under supervision of Society's Surveyors for each specimen 33.7 mm, 168.3 mm, 219.1 mm and 406.4 mm dated July, August and September 2014:

- Tightness test, burst pressure test, vacuum test and fire resistance test according to ISO 19921/ 19922
- Fire resistance test report N° 0-1-L-F-W5-E(F) for size 33.7 mm dated 25/07/2015, N° 1-1-L-F-W5-E-164-172 for size 168.3 mm dated 28/07/2014, N° 3C-2-S-F-B-W5-E-213-223(T,F) for size 219.1 mm dated 06/08/2014, N° 4C-2-S-F-B-W5-E(T,F) for size 406.4 mm dated 15/08/2014 and N° 6C-2-F-G-W5-E (T,F) for size 406.4 mm dated 15/08/2014 witnessed by Society's surveyors
- DNV-GL final test plan dated 18/09/2014

4. APPLICATION / LIMITATION

4.1 May be used on board for services of class II and class III piping systems:

- **Flammable fluids (flash point ≤ 60°C)** - cargo oil 5, crude oil washing 5, vent lines 3
- **Inert gas** - water seal/scrubber effluent, main 2+5, distributions lines 5
- **Flammable fluids (flash point > 60°C)** - cargo oil 5, fuel oil 2+3, lubricating oil 2+3, hydraulic oil 2+3, thermal oil lines 2+3
- **Sea water** - bilge/ballast/cooling water 1, fire main/water spray/foam/sprinkler systems 3, tank cleaning/non-essential lines
- **Fresh water** - cooling water, condensate return 1, non-essential lines
- **Deck drains (internal)** 4, sanitary drains
- **Sounding and venting** - water tanks/dry spaces, oil tanks 2+3 (flash point > 60°C)
- **Miscellaneous** - service air (non-essential), brine

Footnotes:

- 1- Inside machinery spaces of category A - only approved fire resistant type.
- 2- Not inside machinery spaces of category A or accommodation spaces. May be accepted in other machinery space provided the joints are located in easily visible and accessible positions.
- 3- Approved fire resistant type.
- 4- Above freeboard deck only.
- 5- In pump rooms and open decks - only approved fire resistant type.

4.2 The packing material must be compatible with the fluid to be conveyed and the maximum working temperature.

4.3 Assembly instructions given by the manufacturer are to be complied with the manufacturer's recommendations.

4.4 In all cases, the associated pipes are to be suitably supported and anchored. The joints are to be at any time accessible, excepting inside tanks where permitted by the BUREAU VERITAS Rules.

5. PRODUCTION SURVEY REQUIREMENTS

5.1 The products are to be supplied by **Uni-Coupling B.V.** in compliance with the type described in this certificate and in compliance with the requirements stated on the front page of this certificate. This type of product is within the category HBV of Bureau Veritas Rule Note NR 320.

5.2 **Uni-Coupling B.V.** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR 320 for HBV products.

5.3 No BUREAU VERITAS Certificate is required.

Place of production

Uni-Coupling B.V.
Kerkdijk-Zuid 11A
5492 HW Sint-Oedenrode
5492 Sint-Oedenrode
NETHERLANDS

6. MARKING OF PRODUCT

The product shall be marked with at least:

- Manufacturer's name or logo
- Type designation
- Size

7. OTHERS

This approval is given with the understanding that the manufacturer will accept full responsibility for informing shipbuilders or their sub-contractors of the proper methods of fitting and general maintenance of the product and of the conditions of this approval.

*** END OF CERTIFICATE ***