Marine & Offshore

Certificate number: 61803/A0 BV
File number: .
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

AVK NEDERLAND B.V.

VAASSEN - NETHERLANDS

for the type of product

MECHANICAL JOINTS - SLIP-ON JOINTS - GRIP TYPE

Mechanical coupling - AVK Repico-S Slip type & Repico-SG Slip-Grip type

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 Marine & Offshore 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: 20 May 2027

For Bureau Veritas Marine & Offshore,
At BV GRONINGEN, on 20 May 2022,
Olaf RUITER

This certificate was created electronically and is valid without signature

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

Mechanical coupling - AVK Repico-S Slip type & Repico-SG Slip-Grip type

1.1 Ratings

Type "Repico-S" & "Repico-SG" according to IACS P2.11 (Rev. 4 Mar 2016)

Type	Slip type "S"	Slip Grip Type "SG"
DN (mm)	DN20~DN600	DN20~DN300
Max. Working Pressure (bar)*	16	16

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

** Depending on the nominal diameter*

Temperature range : EPDM : -30°C to 110°C
NBR : -25°C to 80°C
Viton : -30°C to 250°C
Silicone : -70°C to 200°C

1.2 Materials

Body	1.4310 / 1.4301 / 1.4404
Seal	EPDM / NBR / SILICONE / FKM
Bolt	304-PTFE / A2-70-PTFE / 316-PTFE / A4-70-PTFE

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

2. DOCUMENTS AND DRAWINGS

- Drawing N° 74520 Rev. AC dated 12/08/2019
- Drawing N° 74552 Rev. AC dated 12/08/2019
- Document "Type Approval Repico AVK" dated 03/05/2022
- Repico Brochure dated 03/2018

No departure from the above documents 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

Slip type "Repico-S":

3.1 Type tests witnessed by an IACS member including burst test at 4 times the design pressure, tightness test and vacuum test.

- Burst Test report dated 19/04/2021 for DN50 EPDM
- Burst Test report dated 19/04/2021 for DN50 NBR
- Burst Test report dated 19/04/2021 for DN100 EPDM
- Burst Test report dated 19/04/2021 for DN100 NBR
- Burst Test report dated 19/04/2021 for DN200 EPDM
- Burst Test report dated 19/04/2021 for DN200 NBR
- Tightness test report dated 19/04/2021 for DN50 EPDM
- Tightness test report dated 19/04/2021 for DN50 NBR
- Tightness test report dated 19/04/2021 for DN100 EPDM
- Tightness test report dated 19/04/2021 for DN100 NBR
- Tightness test report dated 19/04/2021 for DN200 EPDM
- Tightness test report dated 19/04/2021 for DN200 NBR
- Vacuum test report dated 19/04/2021 for DN50 EPDM
- Vacuum test report dated 19/04/2021 for DN50 NBR
- Vacuum test report dated 19/04/2021 for DN100 EPDM
- Vacuum test report dated 17/09/2021 for DN100 NBR
- Vacuum test report dated 19/04/2021 for DN200 EPDM

- Vacuum test report dated 19/04/2021 for DN200 NBR

3.2 Fire resistance test report N°PRJ1110025893-3 dated 24/11/2020

Slip Grip Type "Repico-SG" :

3.3 Type tests witnessed by a BV Surveyor including burst test at 4 times the design pressure and tightness test.

- Burst Test report dated 19/04/2021 for DN50 EPDM
- Burst Test report dated 17/09/2021 for DN50 NBR
- Burst Test report dated 19/04/2021 for DN100 EPDM
- Burst Test report dated 17/09/2021 for DN100 NBR
- Burst Test report dated 19/04/2021 for DN200 EPDM
- Burst Test report dated 17/09/2021 for DN200 NBR
- Tightness test report dated 19/04/2021 for DN50 EPDM
- Tightness test report dated 17/09/2021 for DN50 NBR
- Tightness test report dated 19/04/2021 for DN100 EPDM
- Tightness test report dated 17/09/2021 for DN100 NBR
- Tightness test report dated 19/04/2021 for DN200 EPDM
- Tightness test report dated 17/09/2021 for DN200 NBR
- Vacuum test report dated 19/04/2021 for DN50 EPDM
- Vacuum test report dated 17/09/2021 for DN50 NBR
- Vacuum test report dated 19/04/2021 for DN100 EPDM
- Vacuum test report dated 17/09/2021 for DN100 NBR
- Vacuum test report dated 19/04/2021 for DN200 EPDM
- Vacuum test report dated 17/09/2021 for DN200 NBR

3.4 Fire resistance test report N°PRJ1110025893-3 dated 24/11/2020

4. APPLICATION / LIMITATION

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

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

(1)- 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.

(2)- Only in pump rooms and open decks

(3)- May be used for pipes on deck with a design pressure of 10 bar or less.

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

4.2 Not to be used for scuppers and discharge (overboard), starting/control air and C02 system.

4.3 In all cases, the associated pipes are to be suitable supported and anchored. The joints are to be at any time accessible, excepting inside tanks where permitted by the Bureau Veritas rules.

4.4 Assembly instructions given by the manufacturer are to be complied with.

4.5 The wall thickness and the material of the tubes are to be in accordance with the applicable Society Rules.

4.6 The use of stainless steel is to be restricted as per the requirements of the Bureau Veritas Rules.

4.7 The sealing/packing material is to be compatible with the fluid to be conveyed and the maximum working temperature.

4.8 Tapered threaded end fittings are not to be used in engine rooms, nor in any place containing an ignition source unless otherwise suitably screened at the Society's Surveyor satisfaction.

4.9 Not to be used where pressure impulses may occur.

5. PRODUCTION SURVEY REQUIREMENTS

5.1 The products are to be supplied by **AVK NEDERLAND B.V.** in compliance with the type and the requirements described in this certificate.

5.2 This type of product certificate is within the category HBV of Bureau Veritas Rule Note NR320.

5.3 BV product certificate is not required.

5.4 **AVK NEDERLAND B.V.** has to make the necessary arrangements to have its works recognized by Bureau Veritas in compliance wih the requirements of NR 320 for HBV products.

5.5 For information, **AVK NEDERLAND B.V.** has declared to Bureau Veritas the following production site :

AVK NEDERLAND B.V.
SCHORSWEG 1
8171 ME VAASSEN
NETHERLANDS

6. MARKING OF PRODUCT

The product shall be marked clearly and indelibly with at least:

- Manufacturer's name or logo
- Type designation
- Maximum working pressure
- Size

7. OTHERS

It is **AVK NEDERLAND B.V.**'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

***** END OF CERTIFICATE *****

Marine & Offshore

Certificate number: 61804/A0 BV
File number: .
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

AVK NEDERLAND B.V.

VAASSEN - NETHERLANDS

for the type of product

MECHANICAL JOINTS - SLIP-ON JOINTS - GRIP TYPE

Mechanical coupling - AVK Repico-G Grip type

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 Marine & Offshore 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: 07 Jun 2027

For Bureau Veritas Marine & Offshore,
At BV GRONINGEN, on 07 Jun 2022,
Olaf RUITER

This certificate was created electronically and is valid without signature

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

Mechanical coupling - AVK Repico-G Grip type

1.1 Ratings

Type "G" according to IACS P2.11 (Rev. 4 Mar 2016)

Type	Grip Type "G"
DN (mm)	DN20~DN400
Max. Working Pressure (bar)*	16

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

** Depending on the nominal diameter*

Temperature range : EPDM : -30°C to 110°C
NBR : -25°C to 80°C
Viton : -30°C to 250°C
Silicone : -70°C to 200°C

1.2 Materials

Body	1.4310 / 1.4301 / 1.4404
Seal	EPDM / NBR / SILICONE / FKM
Bolt	304-PTFE / A2-70-PTFE / 316-PTFE / A4-70-PTFE

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

2. DOCUMENTS AND DRAWINGS

- Drawing N° 74501 Rev. AC dated 12/08/2019
- Document "Type Approval Repico AVK" dated 03/05/2022
- Repico Brochure dated 03/2018

No departure from the above documents 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

Grip type "Repico-G"

3.1 Type tests witnessed by an IACS member including burst test at 4 times the design pressure, tightness test, vacuum test, repeated assembly test and pull-out test.

- Burst Test report dated 19/04/2021 for DN50 EPDM
- Burst Test report dated 19/04/2021 for DN50 NBR
- Burst Test report dated 17/09/2021 for DN100 EPDM
- Burst Test report dated 17/09/2021 for DN100 NBR
- Burst Test report dated 19/04/2021 for DN200 EPDM
- Burst Test report dated 19/04/2021 for DN200 NBR
- Tightness test report dated 19/04/2021 for DN50 EPDM
- Tightness test report dated 19/04/2021 for DN50 NBR
- Tightness test report dated 19/04/2021 for DN100 EPDM
- Tightness test report dated 19/04/2021 for DN100 NBR
- Tightness test report dated 19/04/2021 for DN200 EPDM
- Tightness test report dated 19/04/2021 for DN200 NBR
- Vacuum test report dated 19/04/2021 for DN50 EPDM
- Vacuum test report dated 19/04/2021 for DN50 NBR
- Vacuum test report dated 19/04/2021 for DN100 EPDM
- Vacuum test report dated 17/09/2021 for DN100 NBR

- Vacuum test report dated 19/04/2021 for DN200 EPDM
- Vacuum test report dated 19/04/2021 for DN200 NBR
- Pull-out test report dated 17/09/2021 for DN50 NBR
- Pull-out test report dated 17/09/2021 for DN100 EPDM
- Pull-out test report dated 17/09/2021 for DN100 NBR
- Pull-out test report dated 17/09/2021 for DN200 EPDM
- Pull-out test report dated 17/09/2021 for DN200 NBR
- Repeated assembly test dated 19/04/2021 for DN100 EPDM
- Repeated assembly test dated 17/09/2021 for DN200 NBR

3.2 Vibration test not performed.

3.3 Impulse test not performed.

3.4 Fire resistance test report N°PRJ1110025893-3 dated 24/11/2020

4. APPLICATION / LIMITATION

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

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

(1)- 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.

(2)- Only in pump rooms and open decks

(3)- May be used for pipes on deck with a design pressure of 10 bar or less.

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

4.2 Not to be used for scuppers and discharge (overboard), starting/control air and C02 system.

4.3 In all cases, the associated pipes are to be suitable supported and anchored. The joints are to be at any time accessible, excepting inside tanks where permitted by the Bureau Veritas rules.

4.4 Assembly instructions given by the manufacturer are to be complied with.

4.5 The wall thickness and the material of the tubes are to be in accordance with the applicable Society Rules.

4.6 The use of stainless steel is to be restricted as per the requirements of the Bureau Veritas Rules.

4.7 The sealing/packing material is to be compatible with the fluid to be conveyed and the maximum working temperature.

4.8 Tapered threaded end fittings are not to be used in engine rooms, nor in any place containing an ignition source unless otherwise suitably screened at the Society's Surveyor satisfaction.

4.9 Not to be used where pressure impulses may occur.

4.10 Not to be used in case of high level of vibrations where fitted to engines, pumps, compressors and other sources of high vibrations.

5. PRODUCTION SURVEY REQUIREMENTS

5.1 The products are to be supplied by **AVK NEDERLAND B.V.** in compliance with the type and the requirements described in this certificate.

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The product shall be marked clearly and indelibly with at least:

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- Size

7. OTHERS

It is **AVK NEDERLAND B.V.**'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

***** END OF CERTIFICATE *****