



Certificate no.:
TAP000030Z

TYPE APPROVAL CERTIFICATE

This is to certify:

that the **Gaskets and Sealings**

with type designation(s)
6000OR, 6000IOR

issued to

Cixi Aiflon Sealing Materials Co., Ltd.
Cixi, Zhejiang Province, China

is found to comply with

ASME B16.20-2023, Metallic Gaskets for Pipe Flanges
ISO 28921-1:2022 – Industrial valves – Isolating valves for low-temperature applications – Part 1: Design, manufacturing and production testing

Application:

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

Temperature range: -196°C to 450°C (Graphite); -163°C to 160°C (PTFE);
Max. working press.: LNG using acc. DNV Rules: -163°C
Design: Acc. ASME B16.5_Class 150 to 2500 (cryogenic application max. 2 MPa)
Sizes: Spiral Wound Gasket with filler Graphite (FG) or PTFE
DN15 to DN 600 / NPS ½" to 24"

Issued at **Hamburg** on **2025-11-11**

This Certificate is valid until **2030-11-10**.

for **DNV**

DNV local unit: **Ningbo FIS**

Approval Engineer: **Thilo Pabst**

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

Asbestos free Spiral Wound Gasket Aiflon 6000IOR (with Inner & Outer/centering Ring) and Aiflon 6000OR (with Outer/centering Ring). Designed acc. ASME B16.20 and intended for pipe flanges.
Gaskets are with two different fillers available: Graphite filler (FG) or PTFE filler.

Material:

Spiral Wound Gasket Type	Standard	6000OR / 6000IOR (FG - Graphite)	6000IOR (PTFE)
Inner Ring (if applicable) ³	ASTM A240M-24 / AISI	304/316L	304/316L
Outer (locating/centering) Ring			
Metal Strip/Winding			
Filler Graphite / PTFE	FG: JB/T 7758.2-2005 PTFE: JB/T 6618-2005	Graphite (FG)	PTFE

Properties:

Technical data	unit	Standard ²	6000OR / 6000IOR ¹ (FG - Graphite)	6000IOR ¹ (PTFE)
Nominal diameter	DN / Inch	ASME B16.20-2023	DN15 to DN 600 / NPS ½" to 24" ⁴	
Sealing high	mm		4.5 ± 0.13	
Pressure Rating	LB	ASME/ANSI B16.5	CL150 to CL2500	
Temperature Range	°C	./.	-196°C to 450°C	-163°C to 160°C
Compression	./.	ASME B16.20-2023	passed	passed
Leakage rate (ambient T)	mm³/s	ISO 28921-1: 2022	≤ 1.0	≤ 1.0
	mg/s x m	ASME B16.20-2023	≤ 0,0137	≤ 0,0137
Leakage rate (-196°C)	mm³/s	ISO 28921-1: 2022	≤ 1.0	≤ 1.0

Size/Type/Pressure Class table:

Pressure Class	Type ³	Sizes ⁴
150, 300, 400, 600, 900	6000OR 6000IOR	all sizes: DN15 to DN 600 / NPS ½" to 24"
1500	6000OR	DN15 to DN 250 / NPS ½" to 10"
	6000IOR	all sizes: DN15 to DN 600 / NPS ½" to 24"
2500	6000OR	DN15 to DN 80 / NPS ½" to 3"
	6000IOR	DN15 to DN 300 / NPS ½" to 12"

Note1: values partly depending on size and temperature

Note2: ISO 28921-1 : 2002 tests at – 6000IOR 304/304+PTFE/304 or FG/304 (Class150, NPS 4)

Note3 : Acc ASME B16.20 – Inner ring mandatory for PTFE filler in general and for other filler depending from size and pressure class

Note4: ½" / DN15, ¾" / DN20, 1" / DN25, 1 ¼" / DN32, 1 ½" / DN40, 2" / DN50, 2 ½" / DN65, 3" / DN80, 4" / DN100, 5" / DN125, 6" / DN150, 8" / DN200, 10" / DN250, 12" / DN300, 14" / DN350, 16" / DN400, 18" / DN450, 20" / DN500, 24" / DN600

APPLICATION

This is a Non-Class Type Approval Certificate (TA-NONCL - for products where a Type Approval is not mandatory) on basis of test according to international standards.

The above listed types of Spiral Wound Gasket may be used under consideration of the mechanical and technical characteristics as well as physical and chemical properties for the following applications:

- On board of ships and other structures classed by DNV as follows:
Ship's piping systems as specified in DNV Rules Pt.4, Ch.6 Piping systems, pressurized items and machinery containing including cryogenic applications.
e.g. the following fluids: non-flammable gases, oil, fuel oil, water, LNG, LPG

The selection of the gaskets for the corresponding application and appropriate installation has to be in accordance with the instructions of the manufacturer.

Piping/Gaskets shall be hydrostatically tested: 1.5 times of the system design pressure (DNV Pt.4 Ch.6 – Piping)

Piping of all cargo handling systems shall be electrically bonded. (DNV Pt.5 Ch.5 – Oil Tanker and Pt.5 Ch. 7 – Liquefied Gas Tanker).

Limitation / Exclusions

- Pipelines on chemical and gas tankers carrying flammable gases (except LNG, LPG), noxious media, propylene oxide and mixtures of ethylene and propylene oxide.

TESTS CARRIED OUT

Documentation of tests performed are the basis for this Type Approval as referenced in the list above and DNV Ref.-Nos. 262.1-043967

MARKING OF PRODUCT

For traceability to this Type Approval products shall bear legible and durable marked as following:

- Manufacturer's registered trademark: AIFLON - Size: DN or NPS (inch) - Nominal Pressure: CL... - Materials (inner/outer ring+filler/metal strip/winding) - Applicable Standard: ASME B16.20 - color (filler): Graphite = dark grey; PTFE = white Sample: see product pictures	Sample: product pictures 
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PERIODICAL ASSESSMENT

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment to verify that the conditions for the Type Approval are complied with (refer to the Class Programme DNV-CP-0338, Sec. 4).

To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>

END OF CERTIFICATE