

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Gasket sheet material**

with type designation(s)

Gambit AF-200 Universal®, **Gambit AF-1000®**, **Gambit AF-Oil®**, **Gambit AF-300B®**, **Gambit AF-Profit®**, **Gambit AF-GL®** and **Gambit AF-GL ZS®**

Issued to

Gambit Lubawka Sp. z o.o.
Lubawka, Poland

is found to comply with

DIN 3535-6:2019-01 Gaskets for gas supply – Part 6: Gasket materials based on fibres, graphite or polytetrafluoroethylene (PTFE) for gas valves, gas appliances and gas mains
EN 13555:2014 Flanges and their joints – Gasket parameters and test procedures relevant to the design rules for gasketed circular flange connections**DIN 28090-2:2014-11 Static gaskets for flange connections – Gaskets made from sheets – Part 2: Special test procedures for quality assurance****DIN 52911:1990-02 Testing of asbestos and asbestos products – Determination of the loss on ignition (Withdrawn 1997-04)****DIN 52913:2002-04 Testing of static gaskets for flange connections – Compression creep testing of gaskets made from sheets****ASTM F36:15 Standard Test Method for Compressibility and Recovery of Gasket Materials****ASTM F1315:17 Standard Test Method for Density of a Sheet Gasket Material****Application :****Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.**Issued at **Hamburg** on **2020-02-20**for **DNV GL**This Certificate is valid until **2025-02-19**.DNV GL local station: **Katowice CMC**Approval Engineer: **Ana Cristina Do Carmo Insfran****Olaf Drews**
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.



- Gambit AF-200 Universal is based on Kevlar® aramide-, mineral fibres, fillers, NBR rubber
- Gambit AF-Oil is based on Kevlar® aramide fibres, mineral fibres, fillers, NBR rubber.
- Gambit AF-1000 is based on Kevlar® aramide fibres, mineral fibres, fillers, NBR rubber, reinforced with galvanized steel mesh.
- Gambit AF-300B is composed of Kevlar® aramide fibres, mineral fibres, fillers, NBR rubber.
- Gambit AF-Profit is based on natural fibres, fillers, NBR rubber.
- Gambit AF-GL is composed of glass fibres, mineral fibres, Kevlar® aramid fibres and fillers bound with NBR rubber.
- Gambit AF-GL ZS is composed of glass fibres, Kevlar® aramid fibres, mineral fibres, fillers, NBR rubber, reinforced with galvanized steel mesh.

| Technical data ² | Product type | | | | | | | unit |
|-----------------------------------|---|----------------------------|-----------------------------|----------------|------------------|--------------|-----------------|------------------------------------|
| | Gambit AF-200 Universal ¹ | Gambit AF-Oil ¹ | Gambit AF-1000 ¹ | Gambit AF-300B | Gambit AF-Profit | Gambit AF-GL | Gambit AF-GL ZS | |
| Thickness range | 0,3 to 5,0 | 0,3 to 5,0 | 0,8 to 5,0 | 0,3 to 5,0 | 0,5 to 4,0 | 0,3 to 5,0 | 0,8 to 5,0 | mm |
| Colour | red | green | graphite | yellow | pink | steel | steel | - |
| Compressibility (ASTM F36) | 9-19 | 5-15 | 5-15 | 7-17 | 9-19 | 5-15 | 5-15 | (%) |
| Recovery (ASTM F36) | 50 | 55 | 50 | 50 | 50 | 55 | 50 | (%) |
| Density (DIN 28090-2) | 2,00 | 2,00 | 2,20-2,45 | 2,00 | 1,90 | 1,90 | 2,00-2,35 | g/cm ³ |
| Leakage (DIN 13555) | <0,1 | <0,1 | <0,1 | <0,1 | <0,1 | <0,1 | <0,1 | mg s ⁻¹ m ⁻¹ |
| Pressure maximum | 60 | 100 | 120 | 100 | 40 | 120 | 130 | bar |
| Temperature, maximum ³ | These conditions are depending from temperature and pressure. (See manufacturer's instruction, p-t diagram and Datasheets). | | | | | | | |

Note¹: Reference "Declaration of Conformity acc. to DIN EN ISO 17050-1" issued by Gambit Lubawka Sp. z o.o., dated on 2020-02-18.

Note²: The specified data are for gaskets of 2 mm thickness.

Note³: The recommended temperatures and pressures are applicable for different thicknesses are to be selected according manufacturer's instructions / p-t diagram.

Application/Limitation

The above listed gasket material sheet type may be used under consideration of the mechanical and technical characteristics as well as physical and chemical properties for the following applications:

- Ship's piping systems, pressurized items and machinery containing e.g. the following fluids: non flammable gases, oil, fuel oil, water, steam.

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

Limitations and exclusions:

Pipe lines for LNG and flammable gas systems, cryogenic fluids, cargo lines on chemical and gas tankers carrying flammable and/or noxious media, propylene oxide and mixtures of ethylene and propylene oxide.

Type Approval documentation

Old certificate:12883 11HH

Application Type Approval dated on 2019-10-15

Type Approval Assessment dated on 2020-01-23

AF-200 Universal – Datasheet: WT-101/I/2019 dated on 2019-07-23

Declaration of Conformity- Gambit AF-200 Universal acc. to ISO /IEC17050-1;

No. 4/2020, dated on 2020-02-18

AF-1000 – Datasheet: WT-78/G/2019 dated on 2019-07-23

Declaration of Conformity – Gambit AF-1000 acc. to ISO /IEC17050-1;

No. 5/2020, dated on 2020-02-18

AF-Oil – Datasheet: WT-80/I/2019 dated on 2019-07-23

Declaration of Conformity – Gambit AF- Oil acc. to ISO /IEC17050-1;

No. 3/2020, dated on 2020-02-18

AF-PROFIT - Datasheet: WT-340/A/2019 dated on 2019-07-23

AF-Profit PN-EN 13555 dated on 2020-01-20

Compression creep test dated on 2019-11-12

Compression creep test, Test No.: 19-260 dated 2020-01-09

Compression creep test, Test No.: 19-261 dated 2020-01-10

Sealability (Leakage), Test No.:08-231 dated on 2019-10-30

AF-GL- Datasheet: WT-332/A/2019 dated on 2019-07-23

AF-GL PN-EN 13555 dated on 2015-05-11

Compression creep test, Test No.: 19-263 dated 2020-01-14

Compression creep test dated on 2019-11-13

Sealability (Leakage), Test No.:08-233 dated on 2019-10-31

Compression creep test, Test No.: 19-262 dated 2020-01-13

AF-GL ZS- Datasheet: WT-339/A/2019 dated on 2019-07-23

AF-GL ZS PN-EN 13555 dated on 2020-01-20

Compression creep test, Test No.: 08-257 dated 2019-11-19

Compression creep test dated on 2019-10-14

Compression creep test, Test No.: 19-264 dated 2020-01-15

AF-300B- Datasheet: WT-255/H/2019 dated on 2019-07-23

AF-300B PN-EN 13555 dated on 2012-05-31

Compression creep test, Test No.: 19-259 dated 2020-01-07

Compression creep test dated on 2019-10-15

Sealability (Leakage), Test No.:08-230 dated on 2019-10-30

Compression creep test, Test No.: 19-257 dated 2019-12-19

Job Id: **262.1-032620-1**
Certificate No: **TAK00001V8**

Tests carried out

- Leakage (DIN 13555)
- Density (DIN 28090-2)
- Compressibility and Recovery (DIN 52913)

Marking of product

The flat gasket materials Gambit AF-200 Universal®, Gambit AF-1000®, Gambit AF-Oil®, Gambit AF-300B®, Gambit AF-Profit®, Gambit AF-GL® and Gambit AF-GL ZS® shall be clearly marked with the following minimum signs:

- Manufacturer's name / label
- Product type
- Product number

Periodical assessment

A condition for retention of the type approval certificate in its validity period is that periodical assessments are successfully carried out. The objective of the periodical assessment is to verify that the conditions for the type approval have not been altered. Regulations for the periodical assessment of the type approval certificate are to be found in the DNV GL Class Programme CP-0338.

It is further to be noted that the Society shall be informed of any:

Modifications to the product which are liable to affect its characteristics and functions, as originally specified and tested;

Shifting of the production site and additional production site.

If such notifications are not made, the validity of the type approval certificate terminates.

END OF CERTIFICATE