

# TYPE EXAMINATION CERTIFICATE

**This is to certify:**

**That the Graphite based gasket sheet material**

with type designation(s)  
**UNIMETAL**

Issued to  
**FMI S.p.A.**  
**Erbusco BS Fraz. Zocco BS, Italy**

is found to comply with  
**ASTM F1315:17 Standard Test Method for Density of a Sheet Gasket Material**  
**DIN 3535-6 Gaskets for gas supply - Part 6: Gasket materials based on fibres, graphite or polytetrafluoroethylene (PTFE) for gas valves, gas appliances and gas mains, January 2011**  
**SOLAS 1974 as amended, regulation II-1/3-5 - New installation of materials containing asbestos**

**Application :**

**Gaskets approved by this certificate are accepted for installation on all vessels classed by DNV GL**

Issued at **Hamburg** on **2018-02-12**

for **DNV GL**

This Certificate is valid until **2023-01-11**.

DNV GL local station: **Milan**

Approval Engineer: **Guido Friederich**

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**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 Examination Certificate and not to the approval of equipment/systems installed.



## Product description

UNIMETAL is a graphite based, wire mesh reinforced gasket sheet material with polymer coating both sides.

### UNIMETAL

Technical data		Unit
Thickness range	0,5 to 3,0	mm
Colour	black	
Compressibility (DIN 3535-6)	40 - 50	(%)
Recovery (DIN 3535-6)	3 - 7	(%)
Density (ASTM F 1315):	0,9 - 1,1	g/cm <sup>3</sup>
Gas Permeability / Specific leakage (DIN 3535-6)	<0,1	mg s <sup>-1</sup> m <sup>-1</sup>
Pressure, maximum	150	bar
Temperature, maximum	+450	°C
Temperature, minimum	-200	°C

#### NOTE 1:

The specified data are for gaskets of 1,5 mm thickness.

#### NOTE 2:

The recommended temperatures and pressures applicable for different thicknesses are to be selected according manufacturer's instructions.

## 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.
- 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.
- Steam lines

Job Id: **262.1-027438-1**  
Certificate No: **TAK000013C**

## **Type Examination documentation**

- Inspection Certificate (EN 10204-3.2) no. 140004 dated 2014-09-12;
- FMI - Laboratory Test Reports no. 619, 620, 608;
- Test Report no. 14LA02747 (MADE/HSE) dd. 2014-03-24 (asbestos-free);
- Initial Survey and Audit Report (GL Genoa) dd. 2014-10-06;
- Technical Data Sheet (FMI) – Unimetal - (Sept. 2014);
- Declaration of asbestos-free content dd. 2014-06-12;
- EN ISO 9001:2008 cert. (TÜV Nord) no. 44100110614.
- FMI Laboratory Test Reports No.: 1017, 1018, 1019, 1028, 1029, 1030, dated 2017-10-10

## **Tests carried out**

- Leakage (DIN 3535-6)
- Density (ASTM F 1315)
- Compressibility and Recovery (DIN 3535-6)

## **Marking of product**

The flat gasket material UNIMETAL shall be clearly marked with the following minimum signs:

- Manufacturer's name / label
- Gasket sheet material non asbestos
- Product number

## **Certificate Retention Survey**

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.

The main scope of the periodical assessment will normally include:

- Verification of the TA applicant's production and quality system w.r.t ensuring continued consistent production of the type approved products at the TA applicant's own premises and at other companies that are given the responsibility for manufacturing of the products.
- Review of the TA documentation and that this is still used as a basis for the production
- Review of possible changes to the design, the material and the performance of the product
- Verification of the product marking

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

## **END OF CERTIFICATE**