

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Gaskets and Sealings**with type designation(s)
KLINGER®graphit-Laminat PSM

Issued to

**Klinger AG Egliswil
Egliswil, AG, Switzerland**

is found to comply with

DIN 52913**DIN 52910****ASTM F152****ASTM F36****Application :****Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.****Temperature range:** see manufacturer's instructions**Max. working press.:** see manufacturer's instructions**Design:****Sizes:**Issued at **Hamburg** on **2019-05-06**for **DNV GL**This Certificate is valid until **2024-05-05**.DNV GL local station: **Augsburg**Approval Engineer: **Guido Friederich****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.



Product description

KLINGER®graphit-Laminat PSM

Gasket material designed and fabricated of graphite with a 0,1mm inserted stainless steel sheet.

Stainless steel material types: EN 1.4401 / AISI 316

Dimensions:

Sizes: 1000 x 1000 mm; 2000x1000; 1500x1500
Tolerances: Thickness ± 5% acc. DIN 28091-1
Length ± 5 mm, width ± 5 mm

Technical data for KLINGERmilam®PSM gaskets :

Technical data	Standard	PSM	Unit
Purity of Graphite		min. 98	%
Density of Graphite		1,0 ± 5%	g/cm ³
Chloride content of graphit layer		≤ 50	ppm
Tang insert / thickness	AISI 316	0,1	mm
Compressibility	ASTM F36A	25-45	%
Recovery	ASTM F36A	10-20	%
Stress relaxation	DIN 52913	≥ 46	MPa
Continuous Service temperature		max. 450 °C	°C
Stress		≤ 100	MPa
Thickness		0,6; 0,8; 1,0; 1,5; 2,0; 3,0	mm

Application

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:

On board ships and other structures classed by DNV GL as follows:

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.

LIMITATION / EXCLUSIONS

- Pipe lines for LNG and flammable gas systems and 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

Druckstandversuch DIN52913, Type PSM150B, PSM200B, PSM300B, dated 2013-10-21
Measure record FM3580 Raw material Graphit, dated 2019-01-29
Test Report EN 10204 2.2, Type PSM 100B, PSM200B, PSM300B, datd 2019-02-06.
Inspection Certificate EN 10204 3.1 for PSM 100B, 150B, 200B, 300B, dated 2019-01-17
Specification Klinger Graphite Laminate PSM...B, dated 09-2016
Klinger_Kempchen Overview Chemical Values Graphite Material, dated 2010-09-27
COGEBY Graphite Analysis Certificate - ASBESTOS FREE, dated 1992-06-30
KLinger Specification Graphit Laminate PSM, dated 01.2008
Klinger datasheet PSM, issue May 2015
Klinger_Ash content analysis on Graphite Laminate, dated 2019-01-29
Audit Report Flat Gaskets_DNV GL_PGier_2013-11
SWISO Certificates ISO 9001 (2015) + ISO 14001 (2015)
Type Approval Assessment Report (Audit Report), dated 2019-01-11

Marking of product

For traceability of products, marking shall be legible and indelible.

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

- Manufacturer's name / label
- Product type

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 DNVGL 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