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Industrie Service

CERTIFICATE

Test report-no.: P-IS-DDB-MAN-13-042

Manufacturer: Rich. Klinger Dichtungstechnik GmbH & Co KG
Am Kanal 8-10
A – 2352 Gumpoldskirchen

product: High-pressure gasket, type "KLINGERSIL C-4500", DN 40, PN 40, thickness 1,5 mm

The above mentioned object is successfully fire safe tested and approved following DIN EN ISO 10497:2010-06 and API 607, fifth edition, June 2005.

Scope

DN 40 and smaller - DN 80 PN 40, PN 63, PN 100

Mannheim, 2013-04-16

TÜV SÜD Industrie Service GmbH
Abteilung Druckbehälter
The expert

Dipl.-Ing. John

TÜV SÜD Industrie Service GmbH

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Technical Report

IS-DDB-MAN-13-042

Fire-Safe-Test following DIN EN ISO 10497:2010-06, resp. API 607, fifth edition, 06.2005 at 1 gasket of the type "KLINGERSIL C-4500"

Datum: 20.03.2013

Unsere Zeichen:
IS-DDB-MAN/Jo
Dokument: PB Fire-Safe_Klinger-Austria_EN-10497_Dichtung_Klingersil-C4500_E-13.docx

Das Dokument besteht aus 5 Seiten and 2 attachments.
Seite 1 von 5

Die auszugsweise Wiedergabe des Dokumentes und die Verwendung zu Werbezwecken bedürfen der schriftlichen Genehmigung der TÜV SÜD Industrie Service GmbH.

Die Prüfergebnisse beziehen sich ausschließlich auf die untersuchten Prüfgegenstände.

Applicant: Rich. Klinger Dichtungstechnik GmbH & Co.KG
Am Kanal 8-10

A – 2352 Gumpoldskirchen

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1. Order

Company Rich. Klinger Dichtungstechnik GmbH & Co.KG applied at TÜV SÜD Industrie Service GmbH the accomplishment of a Fire-Safe-Test following DIN EN ISO 10497:2010-06 resp. API 607, fifth edition at 1 gasket of the type „KLINGERSIL C-4500", which was clipped between 2 flanges (consecutively called "test system").

The test was done on the 11.03.2013 in Graben-Neudorf with presence of an authorised expert of TÜV SÜD Industrie Service GmbH.

2. Accomplishment of the test

The test assembly and the accomplishment were carried out following DIN EN ISO 10497.

3. Test result

The test results mentioned in the attachment show that the requirements following DIN EN ISO 10497 resp. API 607, fifth edition have been achieved by the gasket

KLINGERSIL C-4500, DN 40, nominal pressure PN 40, thickness 1,5 mm.

The gasket was tightened with a torque of 100 Nm which is equal to a surface pressure of 25 N/mm^2.

4. Area of application

According to the testing of a gasket DN 40 simultaneously the requirements for gaskets of the same type are valid for nominal size DN 40 and below, DN 50, DN 65 and DN 80.

According to the testing of the gasket for a nominal pressure PN 40, gaskets of the same type for nominal pressures PN 40, PN 63 and PN 100 are also covered.

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Test protocol

1. **Date of the test** — March 11, 2013

2. **Location of the test** — KLINGER SCHÖNEBERG GmbH
Heidelberger Straße 3
76676 Graben-Neudorf

3. **Test specifications** — DIN EN ISO 10497:2010-06 resp. API 607, fifth edition, 6.2005

4. **Gasket manufacturer** — Rich. Klinger Dichtungstechnik GmbH & Co. KG
Am Kanal 8-10
A – 2352 Gumpoldskirchen

5. **Tested gasket**

Gasket KLINGERSIL C-4500; DN 40, PN 40
Thickness 1,5 mm; Torque 100 Nm;
Surface pressure 25 N/mm^2
Limits of use: see data sheet as attachment

6. **Test conditions**

Test fluid:	Water
Test fuel:	Liquid gas acc. DIN 51622
Burn period:	30 minutes
Thermocouples:	The temperature of the flames after 2 minutes should be 750 °C; the average temperature at the flame area should be between 750 °C and 1000 °C and should not fall below 700 °C.
Calorimeter cubes:	The average temperature after 15 minutes should be 650 °C. This temperature should be held during the burn period and should not fall below 560 °C.
Test pressure:	
(Low-pressure)	2 bar
(High-pressure)	30 bar

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7. Test procedure

7.1 Preliminary test: Tightness test of the gasket, which was clipped between 2 flanges with water (1,4 x PN)

Test pressure: 56 bar

Result: Test system was tight

7.2 Burn period

Temperatures of the Calorimetercubes

Temperature after 15 min	Average temperature after 15 min till end of the burn period	
K12	K1	K2
742	699	727

Temperatures of the thermocouples

Temperature after 2 min	Average temperature	
T12	T1	T2
852	934	936

7.3 Cooling-down period of the ball valve to 100°C

Test system 6 Min

7.4 Closing of the fuel supply and cooling down to 100 °C

Cooling down with air blast cooling and water.

7.5 External leakage during the burn period and the cooling-down period

max. permissible leakage during the burn period and cooling down period: 40 ml/min

determined leakage: Test system 0 ml

Result: passed

7.6 Operability

Increase the test pressure to high pressure, close the shut-off valve (Nr. 15) and open the test system against the upcoming pressure.

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Holding of the high test pressure and measuring of the outer leakage over a period of 5 minutes.

7.7 External leakage following operational test

max. permissible Leakage:		40 ml/min
determined Leakage:	Test system:	23 ml
Result:	passed	

7.8 Optical appearance of the gasket after completion of the Fire-Safe-test

The gasket was divided. The bigger part was sticking on one flange, the smaller part on the other flange. The surface was clearly burnt and had become darker.

Mannheim, 20th March, 2013
IS-DDB-MAN/jo

TÜV SÜD Industrie Service GmbH
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Attachment: Data sheet