



**Gasket testing
according to DIN 3535,
DIN 28090, TA Luft,
EN 13555, Shell,
ASTM (ROTT, HOBT, M and Y), ASME, API 6FB**



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Akkreditierungsstelle
D-PL-12008-01-00

RANGE OF SERVICES

Issue: January 2022

German Standards DIN and VDI

DIN 28090-1 (withdrawn – replaced by DIN EN 13555)

- compression tests, creep compression tests, creep-/relaxation tests and leakage tests on request

DIN 28090-2 (dated November 2014)

- compressive creep test

compression modulus at ambient temperature (ϵ_{KSW})

percentage creep relaxation at ambient temperature (ϵ_{KRW})

compression modulus at elevated temperature ($\epsilon_{WSW,T}$)

percentage creep relaxation at elevated temperature ($\epsilon_{WRW,T}$)

short test

long term test

DIN 3535-6 (dated April 2019)

- leakage test

single test

triple test

DIN 52913 (dated April 2002)

- compression creep test

compression creep strength ($\sigma_{dE/16}$)

single test

triple test

VDI 2440 (dated June 2021)

- leakage test – TA-Luft (Version 2002)

- leakage test – TA-Luft component testing (Version 2021)

VDI 2200 (dated June 2007)

- leakage test – safety against blow-out



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European Standards EN

DIN EN 13555 (dated April 2021)

- compression test at ambient temperature
 - determination of the characteristics Q_{SMAX} and E_G at ambient temperature
- compression test at elevated temperature $T (\leq 400 \text{ }^\circ\text{C})$
 - determination of the characteristics Q_{SMAX} and E_G at elevated temperature
- creep-/relaxation test at ambient temperature
 - determination of the characteristic P_{QR} and Δe_{GC}
- creep-/relaxation test at elevated temperature – $T (\leq 400 \text{ }^\circ\text{C})$
 - determination of the characteristic P_{QR} and Δe_{GC}
- leakage test
 - 1 internal pressure level
 - diagram for increasing gasket stress ($Q_{MIN/L}$)
 - diagram for decreasing gasket stress ($Q_{SMIN/L}$)
- Friction test (RT)
 - determination of friction coefficient μ
- Friction test (T)
 - determination of friction coefficient μ

- gasket characteristics for one gasket material:
 - Leakage test at 1 pressure level,
 - Compression tests at ambient and 2 elevated temperatures,
 - creep relaxations tests at 3 different stress levels and 3 temperatures, test report
 - single test (13 tests)
 - double test (26 tests)

BS 7531 (dated 2006)

- compressibility test
 - Triple test
- residual stress test
 - Double test
- gas permeability test
 - Triple test
- flexibility test
 - Double test



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American Standards ASTM

Room Temperature Tightness Test (ROTT) – ASTM F2836 (dated 2018)

- leakage test
 - single test (High Pressure)
 - single test (Low Pressure)
 - double test (High Pressure)
 - double test (Low Pressure)
 - determining gasket characteristics G_b , $G_{s,a}$, T_{pmin} , T_{pmax}

Hot BlowOut Test (HOBT) – ASTM WK61856 (dated 2020)

- leakage test
 - single test
 - double test
 - single test (with thermal cycles – HOBT2C)
 - double test (with thermal cycles – HOBT2C)
 - determining gasket characteristics T_{gr} , S_{gr}

ASTM F36-15 (dated 2015)

- compressibility and recovery test
 - single test
 - triple test

ASTM F37-06 (dated 2019)

- sealability test – test method B
 - single test
 - triple test

ASTM F38-18 (dated 2018)

- creep relaxation test – test method B
 - single test
 - triple test

ASTM F2837-11 (dated 2018)

- hot compression test
 - single test
 - triple test



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ASTM F1574-03a (dated 2017)

- compressive strength test
 - single test (one gasket stress level)
 - triple test (one gasket stress level)
 - single test (6 gasket stress levels)
 - Triple test (6 gasket stress levels)

Hot Mechanical Test (HOMT)

- creep test (thermal cycles)
 - single test
 - double test

API 6FB (dated 2019)

- fire test – leakage test

- new flanges or special bolts on request

FSA-G-605-11 (dated 2011) // ASTM F3149-15

- two leakage tests
 - determination y-Factor
 - determination m-Factor

ASTM F3270 (dated 2017)

- compression test
 - single test
 - triple test

ASME B16.20 (dated 2017)

- compression test
 - single test
 - triple test
- leakage test (Methane)
 - single test
 - triple test



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Shell-Type Acceptance Testing

MESC SPE 85/300 (dated February 2019)

- 3.3.1 Visual Examination
- 3.3.2 Fugitive Emissions
 - leakage test – RT
 - leakage test - T (≤ 400 °C)
- 3.3.3 Fire Test
 - API 6FB (dated 2019)
- 3.3.4 Room Temperature Operation Tightness Test (ROTT)
according to EN 13555 (dated April 2021)
 - compression test - RT
 - compression test – T (≤ 400 °C)
 - creep-/ relaxation test – RT
 - creep-/ relaxation test – T (≤ 400 °C)
 - leakage test
- 3.3.5 High Temperature Operational Tightness Test (HOTT)
 - leakage test with thermal cycles ($T \leq 400$ °C)
- 3.3.6 Hot Blowout Test
 - leakage test ($T \leq 400$ °C)
- 3.3.8 Gasket Adhesion
- 3.3.14 BAM (external laboratory)
 - reactivity of gaskets with gaseous oxygen
- 3.3.15 Electrical Isolation Test



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Certificate/ confirmation
englisch

Test report
single report
multiple report
special report





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Special Tests

Cryogenic Tests

- compression test – T (-50 °C)
determination of the characteristics Q_{SMAX} and E_G
- compression test – T (-150 °C)
determination of the characteristics Q_{SMAX} and E_G
- creep-/relaxation test – T (-50 °C)
determination of the characteristic P_{QR} and Δe_{Gc}
- creep-/relaxation test – T (-150 °C)
determination of the characteristic P_{QR} and Δe_{Gc}
- leakage test – T (-50 °C)
1 pressure level
loading and unloading curve
- leakage test – T (-150 °C)
1 pressure level
loading and unloading curve

High Pressure Tests

- leakage test – RT
1 pressure level (> 200 bar)
Loading and unloading curve

Permeability Tests

- leakage Test – RT
1 pressure level (Helium)
- leakage test – RT
1 pressure level (Methane CH₄)

Leakage tests with Hydrogen H₂

- leakage Test – RT
1 pressure level
Loading and unloading
- leakage test – RT
1 pressure level (forming gas)



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Gasket Segment Tests

- compression test – RT
compression curve of segments of gaskets with nominal size
> DN150
- compression test – RT
determination of gasket stress at metal to metal contact of spiral
wound gaskets
Nominal size > DN150

High temperature Tests

- compression test – ($T > 600\text{ °C}$)
determination of the characteristics Q_{SMAX} and E_G
- creep-/relaxation test – ($T > 600\text{ °C}$)
determination of the characteristic P_{QR} and Δe_{Gc}
- leakage test – ($T > 600\text{ °C}$)
1 pressure level
loading and unloading curve

Leakage tests at elevated temperature

- leakage test – $T (< 400\text{ °C})$
1 pressure level
loading and unloading curve

A test report or a certificate is charged in addition.

For high temperature tests ($> 400\text{ °C}$ up to 600 °C), there's an extra charge of € 180,00 each test.

For high quantity tests, please call for special prices. Special tests, leakage tests and long term tests on request.

The prices are FCA Lauffen without packing excluding VAT and customs. Subject to change.

The range of services offered as part of the accreditation of the test laboratory can be found in the annex to the accreditation certificate. Within the flexible accreditation areas marked in the appendix to the accreditation certificate, the test laboratory is permitted to use the standardized test procedures with variable issue dates, assumed that the measuring principle is already included in the scope of accreditation.