DAkkS
Deutsche
Akkreditierungsstelle

# Deutsche Akkreditierungsstelle

# Annex to the Accreditation Certificate D-PL-12008-01-00 according to DIN EN ISO/IEC 17025:2018

**Valid from:** **01.11.2023**

Date of issue: 08.01.2024

Holder of accreditation certificate:

**AMTEC Advanced Measurement Messtechnischer Service GmbH**
**Hoher Steg 13, 74348 Lauffen am Neckar**

with the location

**AMTEC Advanced Measurement Messtechnischer Service GmbH**
**Hoher Steg 13, 74348 Lauffen am Neckar**

The testing laboratory meets the requirements of DIN EN ISO/IEC 17025:2018 to carry out the conformity assessment activities listed in this annex. The testing laboratory meets additional legal and normative requirements, if applicable, including those in relevant sectoral schemes, provided that these are explicitly confirmed below.

The management system requirements of DIN EN ISO/IEC 17025 are written in the language relevant to the operations of testing laboratories and they conform to the principles of DIN EN ISO 9001.

**Mechanical-physical tests on flange connections, fittings and gasket materials**

**Within the specified test areas, the testing laboratory is permitted to modify, further develop and develop new test methods without having to inform and obtain prior approval from DAkkS. The test methods listed are examples. The testing laboratory has an up-to-date list of all test methods within the flexible scope of accreditation.**

| Test object | Test type | Test parameters | Characteristic test methods |
|---|---|---|---|
| Gaskets | Compression tests<br>Creep relaxation<br>Friction behaviour<br>Leakage measurements<br>Concentration measurements<br>Insulation resistance | Pressure force | DIN 28090-2<br>DIN 28091<br>DIN 3535-6<br>DIN 52913<br>DIN EN 13555<br>VDI 2440<br>VDI 2200<br>ASME B16.20<br>ASTM F 36<br>ASTM F 37<br>ASTM F 38<br>ASTM F 1574-03a<br>ASTM F 2836<br>ASTM F 2837<br>ASTM F 3149<br>ASTM F 3270<br>ASTM WK61856<br>ASTM WK26065<br>FSA-G-605-11<br>GMW 15261<br>BS F125<br>BS 7531<br>Shell Specification SPE 85/300 |
| | | Tractive force | |
| | | Deformation | |
| | | Temperature | |
| | | Pressure (gas) | |
| | | Pressure (liquid) | |
| | | Differential pressure (gas) | |
| | | Leakage rate (He) | |
| | | Leakage rate ($H_2$) | |
| | | Concentration ($C_nH_m$) | |
| | | Insulation resistance | |

| Test object | Test type | Test parameters | Characteristic test methods |
|---|---|---|---|
| Gaskets<br>Packs<br>Valves | Fire safety | Temperature | API 6FB<br>API 6FA<br>API 607<br>DIN EN ISO 10497<br>BS 7531 |
| | | Pressure (liquid) | |
| | | Mass | |
| Packs | Compression tests<br>Friction behaviour<br>Relaxation tests<br>Leakage measurements<br>Concentration measurements | Friction force | API 622 |
| | | Tractive force | |
| | | Deformation | |
| | | Stroke | |
| | | Temperature | |
| | | Pressure (gas) | |
| | | Differential pressure (gas) | |
| | | Leakage rate (He) | |
| | | Leakage rate ($H_2$) | |
| | | Concentration (He) | |
| | | Concentration ($C_nH_m$) | |

| Test object | Test type | Test parameters | Characteristic test methods |
|---|---|---|---|
| Valves | Friction behaviour<br>Leakage measurements<br>Concentration measurements | Temperature | DIN EN ISO 15848-1<br>DIN EN ISO 15848-2<br>API 624<br>API 641<br>Shell Specification<br>SPE 77/312 |
| | | Pressure (gas) | |
| | | Differential pressure (gas) | |
| | | Force | |
| | | Torque | |
| | | Leakage rate (He) | |
| | | Leakage rate ($H_2$) | |
| | | Concentration (He) | |
| | | Concentration ($C_nH_m$) | |

## 1 Tests according to standards or equivalent procedures

| | |
|---|---|
| DIN EN 13555<br>2021-04 | Flanges and their joints - Gasket parameters and test procedures relevant to the design rules for gasketed circular flange connections |
| DIN 28090-1<br>1995-09 | Static gaskets for flange connections - Part 1: Characteristic values and test procedures |
| DIN 28090-2<br>2014-11 | Static gaskets for flange connections - Gaskets made from sheets - Part 2: Special test procedures for quality assurance (*Section 9 and 10*) |
| DIN 28091-2<br>2014-11 | Technical delivery conditions for gasket sheets - Part 2: Requirements and testing for fibre-based gasket materials (FA) |
| DIN 28091-3<br>2014-11 | Technical delivery conditions for gasket sheets - Part 3: Requirements and testing for PTFE-based gasket materials (TF) |
| DIN 28091-4<br>2014-11 | Technical delivery conditions for gasket sheets - Part 4: Requirements and testing for expanded graphite-based gasket materials (GR) |
| DIN 3535-6<br>2019-04 | Gaskets for gas supply - Part 6: Gasket material based on fibres, graphite or polytetrafluoroethylene (PTFE) for gas valves, gas appliances and gas mains |
| DIN 52913<br>2002-04 | Testing of static gaskets for flange connections - Compression creep testing of gaskets made from sheets |
| ASTM B 16.20<br>2017 | Metallic Gaskets for Pipe Flanges - Part SW: Spiral Wound Gaskets |
| ASTM F 36<br>2015 | Standard Test Method for Compressibility and Recovery of Gasket Materials |
| ASTM F 37<br>2019 | Standard Test Methods for Sealability of Gasket Materials |
| ASTM F 38<br>2018 | Standard Test Methods for Creep Relaxation of a Gasket Material |

| | |
|---|---|
| ASTM F 1574-03a 2017 | Standard Test Method for Compressive Strength of Gaskets at elevated Temperatures |
| ASTM F 2836 2018 | Standard Practice for Gasket Constants for Bolted Joint Design |
| ASTM F 2837 2011 | Standard Test Method for Hot Compression Properties of Gasket Materials |
| ASTM F 3149 2015 | Standard Practice for Determining the Maintenance Factor (m) and Yield Factor (y) Loading Constants Applicable to Gasket Materials and Design |
| ASTM WK 61856 2020 | New Test Method for Hot Blowout and Thermal Cycling Perfor-mance for Polytetrafluoroethylene (PTFE) Sheet or Sheet-Like Gaskets |
| ASTM WK 26065 2007 | New Test Method for Aged Relaxation Leakage Adhesion (ARLA) Performance |
| ASTM F3270 2017 | Standard Practice for Compression vs. Load Properties of Gasket Materials |
| BS F125 1973-11 | Specification for rubber bonded compressed asbestos fibre jointing |
| BS 7531 2006-10 | Rubber bonded fibre jointing for industrial and aerospace purposes - Specification (*Except section 8.6*) |
| DIN EN ISO 10497 2010-06 | Testing of valves - Fire type-testing requirements |
| DIN EN ISO 15848-1 2017-07 | Industrial valves - Measurement, test and qualification procedures for fugitive emissions - Part 1: Classification system and qualification procedures for type testing of valves |
| ISO 15848-1 2015-06 | Industrial valves - Measurement, test and qualification procedure for Fugitive Emissions |
| DIN EN ISO 15848-2 2015-11 | Industrial valves - Measurement, test and qualification procedures for fugitive emissions - Part 2: Production acceptance test of valves |

## 2 Tests according to specifications or other regulations

| | |
|---|---|
| VDI 2440<br>2000-11 | Emission control - Mineral oil refineries |
| VDI 2200<br>2007-06 | Tight flange connections - Selection, calculation, design and assembly of bolted flange connections |
| GMW 15261<br>2007-01 | Exhaust System Component and Joint Leakage |
| API 6FA<br>2020-08 | Specification for Fire test for Valves |
| API 6FB<br>2019-05 | Specification for Fire test for End Connections |
| API 589<br>1998-07 | Fire Test for Evaluation of valve stem packing |
| API 607<br>2016-06 | Fire Test for Soft-Seated Quarter-Turn Valves |
| API 622<br>2022-03 | Type Testing of Process Valve Packing for Fugitive Emissions |
| API 624<br>2014-02 | Type Testing of Rising & Rotating Stem Valves Equipped with Flexible Graphite Packing for Fugitive Emissions |
| API 641<br>2016-10 | Type Testing of Quarter-turn Valves for Fugitive Emissions |
| FSA-G-605-11<br>2011 | Stand Test Method for Determining (m) and (y) Loading Constants Applicable to Gasket Materials and Designs |
| Shell Specification MESC SPE 85/300<br>2019-02 | Inspection and testing of gaskets |
| Shell Specification T - 2.973.759<br>2005-09 | Shell-GSI OGEM Packing Type Approval Testing Procedure |
| Shell Specification SPE 77/312<br>2012-11 | INDUSTRIAL VALVES: FUGITIVE EMISSIONS (FE) MEASUREMENT, CLASSIFICATION SYSTEM, QUALIFICATION PROCEDURES AND FE-PROTOTYPE AND FE-PRODUCTION TESTS OF VALVES |

**Abbreviations used:**

| | |
|---|---|
| API | American Petroleum Institute |
| ASTM | American Society for Testing and Materials |
| BS | British Standard |
| DIN | Deutsches Institut für Normung e. V. – German Institute for Standardization |
| EN | Europäische Norm – European Standard |
| FSA | Fluid Sealing Association |
| GMW | General Motors Worldwide Standards |
| IEC | International Electrotechnical Commission |
| ISO | International Organization for Standardization |
| VDI | Verein Deutscher Ingenieure - Association of German Engineers |