

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.

This certificate annex is only valid together with the written accreditation certificate and reflects the status as indicated by the date of issue. The current status of any given scope of accreditation can be found in the directory of accredited bodies maintained by Deutsche Akkreditierungsstelle GmbH at <https://www.dakks.de>.

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

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Test object	Test type	Test parameters	Characteristic test methods
Gaskets	Fire safety	Temperature	API 6FB API 6FA API 607 DIN EN ISO 10497 BS 7531
Packs		Pressure (liquid)	
Valves		Mass	
Packs	Compression tests Friction behaviour Relaxation tests Leakage measurements 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 _n H _m)			

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Test object	Test type	Test parameters	Characteristic test methods
Valves	Friction behaviour	Temperature	DIN EN ISO 15848-1 DIN EN ISO 15848-2 API 624 API 641 Shell Specification SPE 77/312
		Pressure (gas)	
		Differential pressure (gas)	
	Leakage measurements	Force	
		Torque	
	Concentration measurements	Leakage rate (He)	
		Leakage rate (H ₂)	
		Concentration (He)	
		Concentration (C _n H _m)	

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1 Tests according to standards or equivalent procedures

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

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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 Performance 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 (<i>Except section 8.6</i>)
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

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2 Tests according to specifications or other regulations

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

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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