

APPROVAL OF SERVICE SUPPLIERS

This is to certify that

IMA Materialforschung und Anwendungstechnik GmbH

Dresden, Germany

is granted acceptance for

**Mechanical and analytical testing , in accordance with Class Programme
DNVGL-CP-0484.**

This service supplier certificate will be accepted for use with all rule sets published by DNV GL.
See the following page(s) for details regarding application.

This Certificate is valid until **2020-11-26**.

Issued at **Hamburg Materials & Welding** on **2017-11-27**




for **DNV GL**

This document has been digitally signed and
will therefore not have handwritten signatures

Michalek, Guido
Senior Engineer

This Certificate may be withdrawn if:

1. The service provided has been improperly carried out or the results improperly reported.
2. The surveyor has found any deficiencies in the accepted operating systems of the service supplier.
3. The firm has failed to inform of any major changes having effect on the quality of the service rendered.
4. The conditions listed in the certificate are changed and/or are not fulfilled.



Certificate No: **AOSS0000DGD**
Revision No: **1**

Application:

The certification covers the specific tests, types of tests as well as test methods developed by IMA Dresden as listed and described in the annex.

Remarks:

A laboratory inspection was carried out on 2017-01-24. All facilities and the qualification of the personnel in charge of the above mentioned company were found in good order.

Annex

DNV·GL

to the AOSS0000DGD

Scope of certified tests and types of tests

Test	Test Method
Tribological tests	
Geometrical Product Specifications (GPS) - Surface texture: Profile method - Rules and procedures for the assessment of surface texture	DIN EN ISO 4288
Geometrical Product Specifications (GPS) - Surface texture: Profile method - Terms, definitions and surface texture parameters	DIN EN ISO 4287
Geometrical Product Specifications (GPS) - Surface texture: Profile method - Surfaces having stratified functional properties - Part 1: Filtering and general measurement conditions	DIN EN ISO 13565-1
Geometrical Product Specifications (GPS) - Surface texture: Profile method - Surfaces having stratified functional properties - Part 2: Height characterization using the linear material ratio curve	DIN EN ISO 13565-2
Mechanical vibrations and shock tests and static and dynamical tests with internal pressure	
Environmental testing - Part 2-1: Tests - Test A: Cold	DIN EN 60068-2-1
Environmental testing - Part 2-2: Tests - Test B: Dry heat	DIN EN 60068-2-2
Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)	DIN EN 60068-2-6
Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock	DIN EN 60068-2-27
Environmental testing - Part 2-38: Tests - Test Z/AD: Composite temperature/humidity cyclic test	DIN EN 60068-2-38
Environmental testing - Part 2-53: Tests and guidance: Combined climatic (temperature/humidity) and dynamic (vibration/shock) tests	DIN EN 60068-2-53
Environmental testing - Part 2-64: Tests - Test Fh: Vibration, broadband random and guidance	DIN EN 60068-2-64
Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state	DIN EN 60068-2-78
Environmental testing - Part 2-80: Tests - Test Fi: Vibration - Mixed mode	DIN EN 60068-2-80
Environmental testing - Part 2-81: Tests - Test Ei: Shock - Shock response spectrum synthesis	DIN EN 60068-2-81

to the AOSS0000DGD

Scope of certified tests and types of tests

Thermocouples - Part 1: EMF specifications and tolerances	DIN EN 60584-1
Metallic tube connections for fluid power and general use - Test methods for hydraulic fluid power connections	DIN EN ISO 19879
Mechanical tests and functional analysis of metallic structures, components and specimen	
Aerospace series - Metallic materials - Test methods - Part 1: Tensile testing at ambient temperature	DIN EN 2002-1
Aerospace series - Metallic materials - Test methods - Part 2: Tensile testing at elevated temperature	DIN EN 2002-2
Load controlled fatigue testing - Execution and evaluation of cyclic tests at constant load amplitudes on metallic specimens and components	DIN 50100
Ships and marine technology - Toughened safety glass panes for rectangular windows and side scuttles - Punch method of non-destructive strength testing	DIN ISO 614
Hardmetals - Compression test	DIN ISO 4506
Standard Test Methods for Tension Testing of Metallic Materials	ASTM E 8
Standard Test Methods of Compression Testing of Metallic Materials at Room Temperature	ASTM E 9
Standard Test Method for Linear-Elastic Plane-Strain Fracture Toughness K _{Ic} of Metallic Materials	ASTM E 399
Metallic materials - Tensile testing - Part 1: Method of test at room temperature	DIN EN ISO 6892-1
Metallic materials - Tensile testing - Part 2: Method of test at elevated temperature	DIN EN ISO 6892-2
Standard Practice for Conducting Force Controlled Constant Amplitude Axial Fatigue Tests of Metallic Materials	ASTM E 466
Aerospace series - Metallic materials - Test methods - Constant amplitude fatigue testing	DIN EN 6072
Metallic materials - Fatigue testing - Axial-strain-controlled method	ISO 12106
Metallic materials - Bend test	DIN EN ISO 7438
Aerospace series - Metallic materials; test methods - Part 6: Bend testing	DIN EN 2002-6

to the AOSS0000DGD

Scope of certified tests and types of tests

Aerospace series - Test methods for metallic materials - Part 005: Uninterrupted creep and stress-rupture testing	DIN EN 2002-5
Standard Test Method for Mechanical Hydrogen Embrittlement Evaluation of Plating/Coating Processes and Service Environments	ASTM F 519
Metallic materials - Uniaxial creep testing in tension - Method of test	DIN EN ISO 204
Metallic materials - Brinell hardness test - Part 1: Test method	DIN EN ISO 6506-1
Aerospace series - Metallic materials; test methods - Part 7: Hardness test	DIN EN 2002-7
Metallic materials - Brinell hardness test - Part 1: Test method	ISO 6506-1
Standard Test Method for Brinell Hardness of Metallic Materials	ASTM E 10
Metallic materials - Rockwell hardness test - Part 1: Test method	DIN EN ISO 6508-1
Standard Test Methods for Rockwell Hardness of Metallic Materials	ASTM E 18
Metallic materials - Vickers hardness test - Part 1: Test method	DIN EN ISO 6507-1
Standard Test Method for Microindentation Hardness of Materials	ASTM E 384
Metallic materials - Charpy pendulum impact test - Part 1: Test method	ISO 148-1
Standard Test Methods for Notched Bar Impact Testing of Metallic Materials	ASTM E 23
Standard Test Method for Measurement of Fatigue Crack Growth Rates	ASTM E 647
Aerospace series - Test methods for metallic materials - Determination of fatigue crack growth rates using Corner-Cracked (CC) test pieces	DIN EN 3873
Standard Test Method for KR Curve Determination	ASTM E 561
Metallic materials - Method of test for the determination of quasistatic fracture toughness of welds	DIN EN ISO 15653
Standard Test Method for Determining Susceptibility to Stress-Corrosion Cracking of 2XXX and 7XXX Aluminum Alloy Products	ASTM G 47

to the AOSS0000DGD

Scope of certified tests and types of tests

Uni- and multi-axial static and dynamic tests under tensile-, compressive-, torsion-, flexure- and all possible load combinations	
Railway applications - Structural requirements of railway vehicle bodies - Part 1: Locomotives and passenger rolling stock (and alternative method for freight wagons)	DIN EN 12663-1
Railway applications - Wheelsets and bogies - Method of specifying the structural requirements of bogie frames	DIN EN 13749
Wagons - Suspension gear - Standardisation	UIC 517
Metallic materials - Calibration of force-proving instruments used for the verification of uniaxial testing machines	DIN EN ISO 376
Metallic materials - Calibration and verification of static uniaxial testing machines - Part 1: Tension/compression testing machines - Calibration and verification of the force-measuring system	DIN EN ISO 7500-1
Mechanical and physical tests of non-metallic materials	
Plastics - Determination of tensile properties - Part 1: General principles	DIN EN ISO 527-1
Plastics - Determination of tensile properties - Part 2: Test conditions for moulding and extrusion plastics	DIN EN ISO 527-2
Plastics - Determination of tensile properties - Part 4: Test conditions for isotropic and anisotropic fibre-reinforced plastic composites	DIN EN ISO 527-4
Plastics - Determination of tensile properties - Part 5: Test conditions for unidirectional fibre-reinforced plastic composites	DIN EN ISO 527-5
Plastics - Determination of flexural properties	DIN EN ISO 178
Fibre-reinforced plastic composites - Determination of flexural properties	DIN EN ISO 14125
Plastics - Determination of compressive properties	DIN EN ISO 604
Fibre-reinforced plastic composites - Determination of compressive properties in the in-plane direction	DIN EN ISO 14126
Fibre-reinforced plastic composites - Determination of the in-plane shear stress/shear strain response, including the in-plane shear modulus and strength, by $\pm 45^\circ$ tension test method	DIN EN ISO 14129
Fibre reinforced plastic composites - Determination of apparent interlaminar shear strength by short beam-method	DIN EN ISO 14130

Annex

DNV·GL

to the AOSS0000DGD

Scope of certified tests and types of tests

Standard Test Method for Shear Properties of Composite Materials by V-Notched Rail Shear Method	ASTM D 7078
Fibre-reinforced plastics - Determination of fatigue properties under cyclic loading conditions	ISO 13003
Standard Test Method for Tension-Tension Fatigue of Polymer Matrix Composite Materials	ASTM D 3479
Aerospace series - Non-metallic materials - Structural adhesives - Test method - Part 3: Peeling test metal-honeycomb core	DIN EN 2243-3
Adhesives - T-peel test for flexible-to-flexible bonded assemblies	DIN EN ISO 11339
Fibre-reinforced plastic composites - Determination of Mode I interlaminar fracture toughness, G_{IC} , for unidirectionally reinforced materials	ISO 15024
Standard Test Method for Mode I Interlaminar Fracture Toughness of Unidirectional Fiber-Reinforced Polymer Matrix Composites	ASTM D 5528
Plastics - Determination of creep behavior - Part 1: Tensile creep	DIN EN 899-1
Plastics - Determination of creep behavior - Part 2: Flexural creep by three-point loading	DIN EN 899-2
Plastics - Determination of environmental stress cracking (ESC) of polyethylene - Full-notch creep test	ISO 16770
Plastics - Determination of water absorption	DIN EN ISO 62
Aerospace series - Fibre reinforced plastics - Determination of water absorption by immersion	DIN EN 2378
Standard Test Method for Moisture Absorption Properties and Equilibrium Conditioning of Polymer Matrix Composite Materials	ASTM D 5229
Aerospace series. Fibre reinforced plastics. Procedure for the determination of the conditions of exposure to humid atmosphere and the determination of moisture absorption	PR EN 3615
Plastics - Determination of time-temperature limits after prolonged exposure to heat	DIN EN ISO 2578
Plastics - Polyamides - Accelerated conditioning of test specimens	EN ISO 1110
Plastics - Methods of test for the determination of the effects of immersion in liquid chemicals	DIN EN ISO 175
Plastics - Methods for determining the density of non-cellular plastics - Part 1: Immersion method, liquid pycnometer method and titration method	DIN EN ISO 1183-1

Annex

DNV·GL

to the AOSS0000DGD

Scope of certified tests and types of tests

Cellular plastics and rubbers - Determination of apparent density	DIN EN ISO 845
Textile-glass-reinforced plastics - Prepregs, moulding compounds and laminates - Determination of the textile-glass and mineral-filler content; calcination methods	DIN EN ISO 1172
Aerospace series - Carbon fibre laminates - Determination of the fibre-, resin- and void contents	DIN EN 2564
Self-supporting double skin metal faced insulating panels - Factory made products - Specifications	DIN EN 14509
Plastics - Determination of dynamic mechanical properties	DIN EN ISO 6721
Standard Test Method for Glass Transition Temperature (DMA T_g) of Polymer Matrix Composites by Dynamic Mechanical Analysis (DMA)	ASTM D 7028
Plastics - Differential scanning calorimetry (DSC) - Part 2: Determination of glass transition temperature and glass transition step height	ISO 11357-2
Plastics - Differential scanning calorimetry (DSC) - Part 3: Determination of temperature and enthalpy of melting and crystallization	ISO 11357-3
Plastics - Differential scanning calorimetry (DSC) - Part 6: Determination of oxidation induction time (isothermal OIT) and oxidation induction temperature (dynamic OIT)	ISO 11357-6
District heating pipes - Preinsulated bonded pipe systems for directly buried hot water networks - Pipe assembly of steel service pipe, polyurethane thermal insulation and outer casing of polyethylene	DIN EN 253
Glass reinforced plastics - Determination of indentation hardness by means of a Barcol hardness tester	DIN EN 59
Plastics and ebonite - Determination of indentation hardness by means of a durometer (Shore hardness)	DIN EN ISO 868
Viscometry - Measurement of viscosities and flow curves by means of rotational viscometers - Part 1: Principles and measuring geometry	DIN 53019
Plastics - Resins in the liquid state or as emulsions or dispersions - Determination of apparent viscosity using a single cylinder type rotational viscometer method	DIN EN ISO 2555
Plastics - Standard atmospheres for conditioning and testing	DIN EN ISO 291

to the AOSS0000DGD

Scope of certified tests and types of tests

Aerospace series - Fibre reinforced plastics - Determination of the effect of exposure to humid atmosphere on physical and mechanical characteristics	DIN EN 2823
Aerospace series - Fibre reinforced plastics - Standard procedures for conditioning prior to testing unaged materials	DIN EN 2743
Plastics - Thermomechanical analysis (TMA) - Part 2: Determination of coefficient of linear thermal expansion and glass transition temperature	ISO 11359-2
Standard Test Method for Linear Thermal Expansion of Solid Materials by Thermomechanical Analysis	ASTM E 831
Standard Test Method for High Speed Puncture Properties of Plastics Using Load and Displacement Sensors	ASTM D 3763
Mechanical, analytical and physical tests at pipes, part of pipes and their materials	
Thermoplastics pipes, fittings and assemblies for the conveyance of fluids - Determination of the resistance to internal pressure - Part 1: General method	DIN EN ISO 1167-1
Thermoplastics pipes, fittings and assemblies for the conveyance of fluids - Determination of the resistance to internal pressure - Part 2: Preparation of pipe test pieces	DIN EN ISO 1167-2
Thermoplastics pipes, fittings and assemblies for the conveyance of fluids - Determination of the resistance to internal pressure - Part 3: Preparation of components	DIN EN ISO 1167-3
Thermoplastics pipes, fittings and assemblies for the conveyance of fluids - Determination of the resistance to internal pressure - Part 4: Preparation of assemblies	DIN EN ISO 1167-4
Plastics piping systems - Glass-reinforced thermosetting plastics (GRP) pipes - Determination of long-term resistance to internal pressure	DIN EN 1447
Pipe connectors and pipe joints in drinking water installation	DVGW W 534
Plastics piping systems - Thermoplastics pipes and fittings for hot and cold water - Test method for the resistance of mounted assemblies to temperature cycling	DIN EN 12293
Determination of the coefficient of drag for pipe fittings in the drinking water installation	DVGW W 575

Annex

DNV·GL

to the AOSS0000DGD

Scope of certified tests and types of tests

Plastics piping systems - Thermoplastics pipes and associated fittings for hot and cold water - Test methods for resistance of joints to pressure cycling	DIN EN 12295
Plastics piping systems - Systems for hot and cold water - Test method for leaktightness under vacuum	DIN EN 12294
Plastics piping systems; mechanical joints between fittings and polyolefin pressure pipes; test method for leaktightness under internal pressure of assemblies subjected to bending	DIN EN 713
Industrial valves - Test of flow resistance using water as test fluid	DIN EN 1267
Glass-reinforced thermosetting plastics (GRP) pipes - Determination of the resistance to cyclic internal pressure	ISO 15306
Plastics - Determination of creep behavior - Part 1: Tensile creep	DIN EN ISO 899-1
Plastics - Determination of creep behavior - Part 2: Flexural creep by three-point loading	DIN EN ISO 899-2
Thermoplastics pipes - Determination of tensile properties - Part 1: General test method	ISO 6259-1
Thermoplastics pipes - Determination of tensile properties - Part 2: Pipes made of unplasticized poly(vinyl chloride) (PVC-U), chlorinated poly(vinyl chloride) (PVC-C) and high-impact poly(vinyl chloride) (PVC-HI)	ISO 6259-2
Thermoplastics pipes - Determination of tensile properties - Part 3: Polyolefin pipes	ISO 6259-3
Plastics piping systems - Glass-reinforced thermosetting plastics (GRP) pipes - Test methods for the determination of the initial longitudinal tensile strength	ISO 8513
Plastics piping systems - Glass-reinforced thermosetting plastics (GRP) pipes - Test methods for the determination of the apparent initial circumferential tensile strength	ISO 8521
Thermoplastics piping systems; end-load bearing mechanical joints between pressure pipes and fittings; test method for resistance to pull-out under constant longitudinal force	DIN EN 712
Polyolefin pipes for the conveyance of fluids - Determination of resistance to crack propagation - Test method for slow crack growth on notched pipes	DIN EN SO 13479
Polyethylene pipes - Resistance to slow crack growth - Cone test method	ISO 13480

Annex

DNV·GL

to the AOSS0000DGD

Scope of certified tests and types of tests

Thermoplastics pipes - Determination of creep ratio	DIN EN ISO 9967
Thermoplastics pipes - Determination of ring stiffness	DIN EN ISO 9969
Plastics piping systems - Glass-reinforced thermosetting plastics (GRP) pipes - Determination of initial specific ring stiffness	ISO 7685
Plastics piping systems - Glass-reinforced thermosetting plastics (GRP) pipes - Test method to prove the resistance to initial ring deflection	ISO 10466
Multilayer piping systems for hot and cold water installations inside buildings - Part 2: Pipes	DIN EN ISO 21003-2 Annex C
Plastics - Determination of time-temperature limits after prolonged exposure to heat	DIN EN ISO 2578
Plastics piping and ducting systems - Thermoplastics pipes - Test method for resistance to external blows by the round-the-clock-method	DIN EN 744
Plastics - Determination of Charpy impact properties - Part 1: Non-instrumented impact test	DIN EN ISO 179-1
Thermoplastics pipes - Longitudinal reversion - Test methods and parameters	DIN EN ISO 2505
Plastics - Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics - Part 1: Standard method	DIN EN ISO 1133-1
Pipes and fittings made of crosslinked polyethylene (PE-X) - Estimation of the degree of crosslinking by determination of the gel content	DIN EN ISO 10147
Aenor Mark specific rules for plastics piping systems for hot and cold water installations	AENOR RP 01.52
Standard Test Method for Longitudinal Tensile Properties of "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe and Tube	ASTM D 2105
Standard Test Method for Cyclic Pressure Strength of Reinforced, Thermosetting Plastic Pipe	ASTM D 2143
Standard Test Method for Apparent Hoop Tensile Strength of Plastic or Reinforced Plastic Pipe	ASTM D 2290
Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading	ASTM D 2412
Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials or Pressure Design Basis for Thermoplastic Pipe Products	ASTM D 2837
Standard Practice for Obtaining Hydrostatic or Pressure Design Basis for "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe and Fittings	ASTM D 2992

to the AOSS0000DGD

Scope of certified tests and types of tests

Standard Specification for "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Sewer Pipe	ASTM D 3262
Standard Specification for "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pressure Pipe	ASTM D 3517
Standard Test Method for Chemical Resistance of "Fiberglass" (Glass - Fiber - Reinforced Thermosetting-Resin) Pipe in a Deflected Condition	ASTM D 3681
Standard Specification for "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Sewer and Industrial Pressure Pipe	ASTM D 3754
Standard Test Method for Long-Term Ring-Bending Strain of "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe	ASTM D 5365
Standard Specification for Crosslinked Polyethylene/Aluminum/Crosslinked Polyethylene Tubing OD Controlled SDR9	ASTM F 2262
Pipe fittings and joint assemblies for polybutene pressure pipes - Type PB 125 - Part 1: Dimensions of injection-moulded elbows for socket welding	DIN 16831-1
Pipe fittings and joint assemblies for polybutene pressure pipes - Type PB 125 - Part 2: Dimensions of injection-moulded tees for socket welding	DIN 16831-2
Pipe fittings and joint assemblies for polybutene pressure pipes - Type PB 125 - Part 3: Dimensions of injection-moulded sockets and caps for socket welding	DIN 16831-3
Pipe fittings and joint assemblies for polybutene pressure pipes - Type PB 125 - Part 4: Dimensions of injection-moulded reducers for socket welding	DIN 16831-4
Pipe joints and components of polybutene (PB) for pipes under pressure; PB 125 - Part 5: General quality requirements, testing	DIN 16831-5
Pipe fittings and joint assemblies for polybutene pressure pipes - Type PB 125 - Part 6: Dimensions of fittings for resistance welding	DIN 16831-6
Pipe fittings and joint assemblies for polybutene pressure pipes - Type PB 125 - Part 7: Dimensions of bushings, flanges and sealing elements for socket welding	DIN 16831-7
Polyethylene pipes of raised temperature resistance (PE-RT) - PE-RT Type I and PE-RT Type II - General quality requirements, testing	DIN 16833
Polyethylene pipes of raised temperature resistance (PE-RT) - PE-RT Type I and PE-RT Type II - Dimensions	DIN 16834

Annex

DNV·GL

to the AOSS0000DGD

Scope of certified tests and types of tests

Thermoplastics materials for fittings - Polyphenylene sulfone (PPSU) - General quality requirements and testing	DIN 16838
Thermoplastics materials for fittings - Polysulfone (PSU) - General quality requirements and testing	DIN 16839
Thermoplastics materials for fittings - Polyvinylidene fluoride (PVDF) - General quality requirements and testing	DIN 16840
Polyethylene (PE) pipes - PE-HD for pressureless applications - General quality requirements, dimensions and testing	DIN 16842
Glass fibre reinforced unsaturated polyester resin (UP-GF) pipes - Part 1: Wound, filled, dimensions	DIN 16868-1
Glass fibre reinforced unsaturated polyester resin (UP-GF) pipes - Part 2: Wound, filled, general quality requirements, testing	DIN 16868-2
Centrifugally cast filled glass fibre reinforced unsaturated polyester resin (UP-GF) pipes - Part 1: Dimensions	DIN 16869-1
Centrifugally cast filled glass fibre reinforced unsaturated polyester resin (UP-GF) pipes - Part 2: General quality requirements, testing	DIN 16869-2
Pipes of high-density polyethylene (PE-HD) for buried telecommunication - Dimensions and technical delivery conditions	DIN 16874
Determination of the long-term hydrostatic pressure resistance of thermoplastics pipes	DIN 16887
Crosslinked polyethylene (PE-X) pipes - General requirements, testing	DIN 16892
Crosslinked polyethylene (PE-X) pipes - Dimensions	DIN 16893
Pipes of crosslinked medium density polyethylene (PE-MDX) - General quality requirements and testing	DIN 16894
Crosslinked medium density polyethylene (PE-MDX) pipes - Dimensions	DIN 16895
Thermoplastics pipes and fittings with profiled wall and smooth pipe inside - Part 1: Dimensions	DIN 16961-1
Thermoplastics pipes and fittings with profiled wall and smooth pipe inside - Part 2: Technical delivery specifications	DIN 16961-2
Glass fibre reinforced polyester resin (UP-GF) pipe fittings and joint assemblies; fittings; general quality requirements and testing	DIN 16966-1
Glass fibre reinforced polyester resin (UP-GF) pipe fittings and joints; Elbows, Dimensions	DIN 16966-2

Annex

to the AOSS0000DGD

Scope of certified tests and types of tests

Glass fibre reinforced polyester resin (UP-GF) pipe fittings and joints; Tees, Nozzles, Dimensions	DIN 16966-4
Glass fibre reinforced polyester resin (UP-GF) pipe fittings and joints; Reducers, Dimensions	DIN 16966-5
Glass fibre reinforced polyester resin (UP-GF) pipe fittings and joint assemblies; collars, flanges, joint rings, dimensions	DIN 16966-6
Pipe joints and their elements of glass fibre reinforced polyester resins - Part 7: Bushings, flanges, flanged and butt joints; general quality requirements and test methods	DIN 16966-7
Glass fibre reinforced polyester resin (UP-GF) pipe fittings and joints; Laminated joints; Dimensions	DIN 16966-8
Pipes made of Polybutene-1 (PB-1) - PB 125 - General quality requirements and testing	DIN 16968
Pipes made of polybutene-1 (PB-1) - PB 125 - Dimensions	DIN 16969
Polyamide tubes of circular cross-section (PA); dimensions	DIN 16982
Pipes and fittings of unplasticized poly(vinyl chloride) (PVC-U) with ring seal socket for non pressure underground drainage and sewerage - Part 3: Quality control and installation	DIN 19534-3
Prefabricated high density polyethylene (PE-HD) manholes for use in sewerage systems; dimensions and technical delivery conditions	DIN 19537-3
PVC tapping valves for plastic pipes; dimensions	DIN 3543-3
High density polyethylene (HDPE) tapping valves for HDPE pipes; dimensions	DIN 3543-4
High-density polyethylene (HDPE) valves; tapping valves; requirements and test	DIN 3544-1
Pipes and fittings for subsoil drainage of trafficked areas and underground engineering - Part 1: Pipes, fittings and their joints made from PVC-U, PP and PE	DIN 4262-1
Warm water surface heating systems and radiator connecting systems - Plastics piping systems and multilayer piping systems	DIN 4726
Plastic piping systems for warm water floor heating systems and radiator pipe connecting - Crosslinked polyethylene of medium density (PE-MDX)	DIN 4724
Testing of glass fibre reinforced plastics pipes; determination of the longitudinal shear strength of type B pipe fittings	DIN 53769

to the AOSS0000DGD

Scope of certified tests and types of tests

Testing of glass fibre reinforced plastics pipes; long-term hydrostatic pressure test	DIN 53769-2
Testing of glass fibre reinforced plastics pipes; Testing of pipes and fittings under pulsating internal pressure	DIN 53769-6
Unplasticized polyvinyl chloride (PVC-U) pipes - General quality requirements, testing	DIN 8061
Unplasticized polyvinyl chloride (PVC-U) pipes - Dimensions	DIN 8062
Pipe joint assemblies and fittings for unplasticized polyvinyl chloride (U-PVC) pressure pipelines; dimensions of socket bends	DIN 8063-1
Polyethylene (PE) - Pipes PE 80, PE 100 - Dimensions	DIN 8074
Polyethylene (PE) pipes - PE 80, PE 100 - General quality requirements, testing	DIN 8075
Pressure pipelines made from thermoplastics materials - Metal and plastics compression fittings for polyethylene (PE) pipes - General quality requirements and testing	DIN 8076
Polypropylene (PP) pipes - PP-H, PP-B, PP-R, PP-RCT - Dimensions	DIN 8077
Polypropylene (PP) pipes - PP-H, PP-B, PP-R, PP-RCT - General quality requirements and testing	DIN 8078
Chlorinated polyvinyl chloride (PVC-C) pipes - Dimensions	DIN 8079
Chlorinated polyvinyl chloride (PVC-C) pipes - General quality requirements, testing	DIN 8080
Multilayer piping systems for hot and cold water installations inside buildings - Part 7: Guidance for the assessment of conformity	DIN CEN ISO/TS 21003-7 DIN SPEC 19851
Plastics piping systems for hot and cold water installations - Polyethylene of raised temperature resistance (PE-RT) - Part 7: Guidance for the assessment of conformity	DIN CEN ISO/TS 22391-7 DIN SPEC 19576
Plastics piping systems for water supply, and for drainage and sewerage under pressure - Polyethylene (PE) - Part 7: Guidance for the assessment of conformity	DIN CEN/TS 12201-7 DIN SPEC 11557
Plastics piping systems for non-pressure underground drainage and sewerage - Polyethylene (PE) - Part 1: Specifications for pipes, fittings and the system	DIN EN 12666-1

Annex

to the AOSS0000DGD

Scope of certified tests and types of tests

Plastics piping systems for buried and above-ground pressure systems for water for general purposes, drainage and sewerage - Polyethylene (PE) - Part 7: Guidance for the assessment of conformity	DIN CEN/TS 13244-7
Plastics piping systems for drainage, sewerage and water supply, pressure and non-pressure - Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP) - Guidance for the assessment of conformity	DIN CEN/TS 14632 DIN SPEC 19939
Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 7: Guidance for assessment of conformity	DIN CEN/TS 1555-7 DIN SPEC 16454
Plastics piping systems - Joints for glass-reinforced thermosetting plastics (GRP) pipes and fittings - Test methods for leaktightness and resistance to damage of non-thrust resistant flexible joints with elastomeric sealing elements	DIN EN 1119
Plastics piping systems - Glass-reinforced thermosetting plastics (GRP) pipes and fittings - Determination of the resistance to chemical attack from the inside of a section in a deflected condition	DIN EN 1120
Plastics piping systems - Polyethylene piping materials and components - Determination of volatile content	DIN EN 12099
Plastics piping systems - Polyethylene (PE) pipes - Test method for the resistance to internal pressure after application of squeeze-off	DIN EN 12106
Plastics piping systems for water supply, and for drainage and sewerage under pressure - Polyethylene (PE) - Part 1: General	DIN EN 12201-1
Plastics piping systems for water supply, and for drainage and sewerage under pressure - Polyethylene (PE) - Part 2: Pipes	DIN EN 12201-2
Plastics piping systems for water supply, and for drainage and sewerage under pressure - Polyethylene (PE) - Part 3: Fittings	DIN EN 12201-3
Plastics piping systems for water supply, and for drainage and sewerage under pressure - Polyethylene (PE) - Part 4	DIN EN 12201-4
Plastics piping systems for water supply, and for drainage and sewerage under pressure - Polyethylene (PE) - Part 5: Fitness for purpose of the system	DIN EN 12201-5
Plastics piping systems - Glass-reinforced thermosetting plastics (GRP) pipes - Determination of initial specific ring stiffness	DIN EN 1228

to the AOSS0000DGD

Scope of certified tests and types of tests

Plastics piping systems - Thermoplastics pipes and fittings for hot and cold water - Test method for the resistance of mounted assemblies to temperature cycling	DIN EN 12293
Plastics piping systems - Systems for hot and cold water - Test method for leaktightness under vacuum	DIN EN 12294
Plastics piping systems - Thermoplastics pipes and associated fittings for hot and cold water - Test methods for resistance of joints to pressure cycling	DIN EN 12295
Industrial valves - Test of flow resistance using water as test fluid	DIN EN 1267
Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Unplasticized poly(vinyl chloride) (PVC-U) - Part 1: Specifications for pipes, fittings and the system	DIN EN 1329-1
Plastics piping systems for non-pressure underground drainage and sewerage - Structured-wall piping systems of unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) - Part 1: General requirements and performance characteristics	DIN EN 13476-1
Plastics piping systems for non-pressure underground drainage and sewerage - Structured-wall piping systems of unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) - Part 2: Specifications for pipes and fittings with smooth internal and external surface and the system, Type A	DIN EN 13476-2
Plastics piping systems for non-pressure underground drainage and sewerage - Structured-wall piping systems of unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) - Part 3: Specifications for pipes and fittings with smooth internal and profiled external surface and the system, Type B	DIN EN 13476-3
Plastics piping systems - Glass-reinforced thermosetting plastics (GRP) pipes; Determination of initial longitudinal tensile properties	DIN EN 1393
Plastics piping systems - Glass-reinforced thermosetting plastics (GRP) pipes - Determination of the apparent initial circumferential tensile strength	DIN EN 1394
Plastics piping systems for non-pressure underground drainage and sewerage - Unplasticized poly(vinyl chloride) (PVC-U) - Part 1: Specifications for pipes, fittings and the system	DIN EN 1401-1

to the AOSS0000DGD

Scope of certified tests and types of tests

Plastics piping and ducting systems - Thermoplastics pipes - Determination of resistance to external blows by the staircase method	DIN EN 1411
Plastics piping systems for drainage and sewerage with or without pressure - Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP) - Specifications for pipes, fittings and joints	DIN EN 14364
Plastics piping systems - Glass-reinforced thermosetting plastics (GRP) pipes - Determination of long-term resistance to internal pressure	DIN EN 1447
Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 1: General	DIN EN 1555-1
Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 2: Pipes	DIN EN 1555-2
Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 3: Fittings	DIN EN 1555-3
Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 4: Valves	DIN EN 1555-4
Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 5: Fitness for purpose of the system	DIN EN 1555-5
Plastics piping systems for water supply with or without pressure - Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP)	DIN EN 1796
Plastics piping systems for non-pressure underground drainage and sewerage - Polypropylene (PP) - Part 1: Specifications for pipes, fittings and the system	DIN EN 1852-1
General requirements for components used in drains and sewers	DIN EN 476
Plastics piping systems - Unplasticized poly(vinyl chloride) (PVC-U) pipes - Test method for the resistance to dichloromethane at a specified temperature (DCMT)	DIN EN 580
Thermoplastics piping systems; end-load bearing mechanical joints between pressure pipes and fittings; test method for resistance to pull-out under constant longitudinal force	DIN EN 712
Plastics piping systems; mechanical joints between fittings and polyolefin pressure pipes; test method for leaktightness under internal pressure of assemblies subjected to bending	DIN EN 713

to the AOSS0000DGD

Scope of certified tests and types of tests

Thermoplastics piping systems - Non-end-load-bearing elastomeric sealing ring type joints between pressure pipes and moulded fittings - Test method for leaktightness under internal hydrostatic pressure without end thrust	DIN EN 714
Thermoplastics piping systems; end-load bearing joints between small diameter pressure pipes and fittings; test method for leaktightness under internal water pressure, including end thrust	DIN EN 715
Plastics piping and ducting systems; thermoplastics pipes and fittings; determination of Vicat softening temperature	DIN EN 727
Plastics piping and ducting systems; thermoplastics pipes; test method for resistance to external blows by the round-the-clock-method	DIN EN 744
Pipes and fittings made of crosslinked polyethylene (PE-X) - Estimation of the degree of crosslinking by determination of the gel content	DIN EN ISO 10147
Plastics - Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics - Part 1: Standard method	DIN EN ISO 1133-1
Plastics - Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics - Part 2: Method for materials sensitive to time-temperature history and/or moisture	DIN EN ISO 1133-2
Thermoplastics pipes, fittings and assemblies for the conveyance of fluids - Determination of the resistance to internal pressure - Part 1	DIN EN ISO 1167-1
Thermoplastics pipes, fittings and assemblies for the conveyance of fluids - Determination of the resistance to internal pressure - Part 2: Preparation of pipe test pieces	DIN EN ISO 1167-2
Thermoplastics pipes, fittings and assemblies for the conveyance of fluids - Determination of the resistance to internal pressure - Part 3: Preparation of components	DIN EN ISO 1167-3
Thermoplastics pipes, fittings and assemblies for the conveyance of fluids - Determination of the resistance to internal pressure - Part 4: Preparation of assemblies	DIN EN ISO 1167-4
Textile-glass-reinforced plastics - Prepregs, moulding compounds and laminates - Determination of the textile-glass and mineral-filler content; calcination methods	DIN EN ISO 1172

Annex

to the AOSS0000DGD

Scope of certified tests and types of tests

Thermoplastics pipes for the conveyance of fluids - Determination of resistance to rapid crack propagation (RCP) - Small-scale steady-state test (S4 test)	DIN EN ISO 13477
Polyolefin pipes for the conveyance of fluids - Determination of resistance to crack propagation - Test method for slow crack growth on notched pipes	DIN EN ISO 13479
Thermoplastics fittings - Determination of ring stiffness	DIN EN ISO 13967
Plastics piping and ducting systems - Thermoplastics pipes - Determination of ring flexibility	DIN EN ISO 13968
Fibre-reinforced plastic composites - Determination of flexural properties	DIN EN ISO 14125
Plastics piping systems for water supply and for buried and above-ground drainage and sewerage under pressure - Unplasticized poly(vinyl chloride) (PVC-U) - Part 1: General	DIN EN ISO 1452-1
Plastics piping systems for water supply and for buried and above-ground drainage and sewerage under pressure - Unplasticized poly(vinyl chloride) (PVC-U) - Part 2: Pipes	DIN EN ISO 1452-2
Plastics piping systems for water supply and for buried and above-ground drainage and sewerage under pressure - Unplasticized poly(vinyl chloride) (PVC-U) - Part 3: Fittings	DIN EN ISO 1452-3
Plastics piping systems for water supply and for buried and above-ground drainage and sewerage under pressure - Unplasticized poly(vinyl chloride) (PVC-U) - Part 4: Valves	DIN EN ISO 1452-4
Plastics piping systems for water supply and for buried and above-ground drainage and sewerage under pressure - Unplasticized poly(vinyl chloride) (PVC-U) - Part 5: Fitness for purpose of the system	DIN EN ISO 1452-5
Plastics piping systems for hot and cold water installations - Polypropylene (PP) - Part 1: General	DIN EN ISO 15874-1
Plastics piping systems for hot and cold water installations - Polypropylene (PP) - Part 2: Pipes	DIN EN ISO 15874-2
Plastics piping systems for hot and cold water installations - Polypropylene (PP) - Part 3: Fittings	DIN EN ISO 15874-3
Plastics piping systems for hot and cold water installations - Polypropylene (PP) - Part 5: Fitness for purpose of the system	DIN EN ISO 15874-5

to the AOSS0000DGD

Scope of certified tests and types of tests

Plastics piping systems for hot and cold water installations - Crosslinked polyethylene (PE-X) - Part 1: General	DIN EN ISO 15875-1
Plastics piping systems for hot and cold water installations - Crosslinked polyethylene (PE-X) - Part 2: Pipes	DIN EN ISO 15875-2
Plastics piping systems for hot and cold water installations - Crosslinked polyethylene (PE-X) - Part 3: Fittings	DIN EN ISO 15875-3
Plastics piping systems for hot and cold water installations - Crosslinked polyethylene (PE-X) - Part 5: Fitness for purpose of the system	DIN EN ISO 15875-5
Plastics piping systems for hot and cold water installations - Polybutene (PB) - Part 1: General	DIN EN ISO 15876-1
Plastics piping systems for hot and cold water installations - Polybutene (PB) - Part 2: Pipes	DIN EN ISO 15876-2
Plastics piping systems for hot and cold water installations - Polybutene (PB) - Part 3: Fittings	DIN EN ISO 15876-3
Plastics piping systems for hot and cold water installations - Polybutene (PB) - Part 5: Fitness for purpose of the system	DIN EN ISO 15876-5
Plastics piping systems for hot and cold water installations - Chlorinated poly(vinyl chloride) (PVC-C) - Part 1: General	DIN EN ISO 15877-1
Plastics piping systems for hot and cold water installations - Chlorinated poly(vinyl chloride) (PVC-C) - Part 2: Pipes	DIN EN ISO 15877-2
Plastics piping systems for hot and cold water installations - Chlorinated poly(vinyl chloride) (PVC-C) - Part 3: Fittings	DIN EN ISO 15877-3
Plastics piping systems for hot and cold water installations - Chlorinated poly(vinyl chloride) (PVC-C) - Part 5: Fitness for purpose of the system	DIN EN ISO 15877-5
Plastics - Determination of Charpy impact properties - Part 1: Non-instrumented impact test	DIN EN ISO 179-1
Multilayer piping systems for hot and cold water installations inside buildings - Part 1: General	DIN EN ISO 21003-1
Multilayer piping systems for hot and cold water installations inside buildings - Part 2: Pipes	DIN EN ISO 21003-2
Multilayer piping systems for hot and cold water installations inside buildings - Part 3: Fittings	DIN EN ISO 21003-3
Multilayer piping systems for hot and cold water installations inside buildings - Part 5: Fitness for purpose of the system	DIN EN ISO 21003-5

Annex

to the AOSS0000DGD

Scope of certified tests and types of tests

Plastics piping systems for hot and cold water installations - Polyethylene of raised temperature resistance (PE-RT) - Part 1: General	DIN EN ISO 22391-1
Plastics piping systems for hot and cold water installations - Polyethylene of raised temperature resistance (PE-RT) - Part 2: Pipes	DIN EN ISO 22391-2
Plastics piping systems for hot and cold water installations - Polyethylene of raised temperature resistance (PE-RT) - Part 3: Fittings	DIN EN ISO 22391-3
Plastics piping systems for hot and cold water installations - Polyethylene of raised temperature resistance (PE-RT) - Part 5: Fitness for purpose of the system	DIN EN ISO 22391-5
Thermoplastics pipes - Longitudinal reversion - Test methods and parameters	DIN EN ISO 2505
Plastics - Determination of time-temperature limits after prolonged exposure to heat	DIN EN ISO 2578
Plastics piping systems - Plastics components - Determination of dimensions	DIN EN ISO 3126
Paints and varnishes - Pull-off test for adhesion	DIN EN ISO 4624
Thermoplastics pipes - Determination of tensile properties - Part 1: General test method	DIN EN ISO 6259-1
Plastics - Determination of creep behaviour - Part 1: Tensile creep	DIN EN ISO 899-1
Plastics - Determination of creep behaviour - Part 2: Flexural creep by three-point loading	DIN EN ISO 899-2
Plastics piping and ducting systems - Determination of the long-term hydrostatic strength of thermoplastics materials in pipe form by extrapolation	DIN EN ISO 9080
Thermoplastics pipes - Determination of creep ratio	DIN EN ISO 9967
Thermoplastics pipes - Determination of ring stiffness	DIN EN ISO 9969
Plastics piping systems for hot and cold water installations - Polypropylene (PP) - Part 7: Guidance for the assessment of conformity	DIN ISO/TS 15874-7
Plastics piping systems for hot and cold water installations - Crosslinked polyethylene (PE-X) - Part 7: Guidance for the assessment of conformity	DIN ISO/TS 15875-7
Plastics piping systems for hot and cold water installations - Polybutylene (PB) - Part 7: Guidance for the assessment of conformity	DIN ISO/TS 15876-7

to the AOSS0000DGD

Scope of certified tests and types of tests

Plastics piping systems for hot and cold water installations - Chlorinated poly(vinyl chloride) (PVC-C) - Part 7: Guidance for the assessment of conformity	DIN ISO/TS 15877-7 DIN SPEC 1030
Kunststoffrohre aus vernetztem Polyethylen (PE-X) für die Trinkwasser und Gasinstallation - Gasinnenleitungen mit einem Betriebsdruck kleiner/gleich 100 m bar	DVGW VP 624
Werkstoffübergangsverbinder aus Metall für Gasrohrleitungen aus Polyethylen - Anforderungen und Prüfungen	DVGW G 5600-1
Unlösbare Rohrverbindungen für metallene Gasleitungen; Pressverbinder	DVGW G 5614
Auskleidung von Gas- und Wasserrohrleitungen mit einzuklebenden Gewebesclhäuchen	DVGW GW 327
Kunststoff-Rohrleitungssysteme in der Gas- und Wasserverteilung - Anforderungen und Prüfungen - Teil A 1: Rohre und daraus gefertigte Formstücke aus PVC-U für die Wasserverteilung	DVGW GW 335-A1
Kunststoff-Rohrleitungssysteme in der Gas- und Wasserverteilung - Anforderungen und Prüfungen - Teil A2: Rohre aus PE 80 und PE 100	DVGW GW 335-A2
Beiblatt 1 zu DVGW-Arbeitsblatt GW 335-A2:2005-11: Kunststoff-Rohrleitungssysteme in der Gas- und Wasserverteilung - Anforderungen und Prüfungen - Teil A2: Rohre aus PE 80 und PE 100	DVGW GW 335-A2-B1
Kunststoff-Rohrleitungssysteme in der Gas- und Wasserverteilung - Anforderungen und Prüfungen - Teil A 3: Rohre aus PE-Xa	DVGW GW 335-A3
2. Beiblatt zum DVGW-Arbeitsblatt GW 335 - Kunststoff-Rohrleitungssysteme in der Gas- und Wasserverteilung - Anforderungen und Prüfungen - Teil B2: Formstücke aus PE 80 und PE 100	DVGW GW 335-B2
1. Beiblatt zu DVGW-Arbeitsblatt GW 335-B2:2004-09 - Kunststoff-Rohrleitungssysteme in der Gas- und Wasserverteilung; Anforderungen und Prüfungen - Teil B2: Formstücke aus PE 80 und PE 100	DVGW GW 335-B2-B1
Kunststoff-Rohrleitungssysteme in der Gas- und Wasserverteilung - Teil B3: Mechanische Verbinder aus Kunststoffen (POM, PP) für die Wasserverteilung	DVGW GW 335-B3
1. Beiblatt für Verbinder aus PE 100 zu DVGW GW 335-B3:2011-09 Kunststoff-Rohrleitungssysteme in der Gas- und Wasserverteilung - Teil B3: Mechanische Verbinder aus Kunststoffen (POM, PP) für die Wasserverteilung	DVGW GW 335-B3-B1

to the AOSS0000DGD

Scope of certified tests and types of tests

2. Beiblatt für Verbinder aus PA GF zu DVGW GW 335-B3:2011-09 Kunststoff-Rohrleitungssysteme in der Gas- und Wasserverteilung - Teil B3: Mechanische Verbinder aus Kunststoffen (POM, PP) für die Wasserverteilung	DVGW GW 335-B3-B2
Kunststoff-Rohrleitungssysteme in der Gas- und Wasserverteilung - Teil B4: Metallene Formstücke mit mechanischen oder Steckmuffenverbindungen für die Wasserverteilung - Anforderungen und Prüfungen	DVGW GW 335-B4
Rohre aus nichtrostenden Stählen für die Gas- und Trinkwasser-Installation - Anforderungen und Prüfungen; Arbeitsblatt	DVGW GW 541
Druckrohre, Formstücke und Rohrverbindungen aus glasfaserverstärktem Polyesterharz (UP-GF) für Trinkwasserleitungen	DVGW VP 615
Kunststoff-Rohrleitungssysteme in der Gas- und Wasserverteilung - Anforderungen und Prüfungen - Rohre aus PE-Xb und PE-Xc	DVGW VP 640
Kupferrohrleitung mit fest haftendem Kunststoffmantel für die Trinkwasser-Installation	DVGW VP 652
Einzuklebende Gewebesläuche für Wasserrohrleitungen	DVGW W 330
Rohrverbinder und Rohrverbindungen in der Trinkwasser-Installation	DVGW W 534
Mehrschichtverbundrohre in der Trinkwasser-Installation - Anforderungen und Prüfungen	DVGW W 542
Druckfeste flexible Schlauchleitungen für Trinkwasser-Installationen - Anforderungen und Prüfungen	DVGW W 543
Kunststoffrohre in der Trinkwasser-Installation	DVGW W 544
Sanitärarmaturen als Entnahmearmaturen für Trinkwasser-Installationen - Anforderungen und Prüfungen	DVGW W 574
Ermittlung von Widerstandsbeiwerten für Form- und Verbindungsstücke in der Trinkwasser-Installation	DVGW W 575
Imperfections in thermoplastic welding joints - Features, descriptions, evaluation	DVS 2202-1
Testing of welded joints of thermoplastics sheet and pipes - Test methods - Requirements	DVS 2203-1
Testing of welded joints between panels and pipes made of thermoplastics - Requirements in the tensile test - Short-time tensile welding factor fz	DVS 2203-1 supplement 1

Annex

to the AOSS0000DGD

Scope of certified tests and types of tests

Testing of welded joints between panels and pipes made of thermoplastics - Requirements in the tensile creep test - Tensile creep welding factor f_{\square}	DVS 2203-1 supplement 2
Testing of welded joints between panels and pipes made of thermoplastics - Requirements in the technological bending test - Bending angle/bending path	DVS 2203-1 supplement 3
Testing of welded joints between panels and pipes made of thermoplastics - Tensile test	DVS 2203-2
Testing of welded joints between panels and pipes made of thermoplastics - Low-temperature tensile test	DVS 2203-2 supplement 1
Testing of welded joints between panels and pipes made of thermoplastics - Tensile impact test	DVS 2203-3
Testing of welded joints of thermoplastics plates and tubes - Tensile creep test	DVS 2203-4
Testing of welded joints of thermoplastic sheets and pipes - Tensile creep test - Testing of socket joints	DVS 2203-4 supplement 1
Testing of welded joints of thermoplastic panels and pipes - Tensile creep test for resistance to slow crack growth in the full notch creep test (FNCT)	DVS 2203-4 supplement 2
Testing of welded joints in thermoplastic panels and pipes - Tensile creep test - Checking the required tensile creep test weld strength reduction factor and the minimum service life of polyethylene welded joints (PE 80 and PE 100)	DVS 2203-4 supplement 3
Testing of welded joints of thermoplastics plates and tubes - Technological bend test	DVS 2203-5
Testing of joints between polymeric materials - Shear and peeling tests	DVS 2203-6
Testing of joints between polymeric materials - Torsion shear test, radial peel test and linear shear test for sleeve welding with incorporated electric heating element and heated tool sleeve welded joints	DVS 2203-6 supplement 1
Testing of joints between polymeric materials - Testing of adhesive-bonded joints in the shear and peeling tests	DVS 2203-6 supplement 2
Welding of thermoplastics - Heated element welding of pipes, piping parts and panels made out of polyethylene	DVS 2207-1
Welding of thermoplastics - Heated tool welding of pipes made of PE-Xa with pipeline components made of PE-HD	DVS 2207-1 supplement 1

Annex

to the AOSS0000DGD

Scope of certified tests and types of tests

Qualification testing of plastics laminators and adhesive bonders - Laminates as well as laminate and adhesive bonded joints between GFRPs (UP-GF and EP-GF)	DVS 2220
Plastics piping systems - Glass-reinforced thermosetting plastics (GRP) pipes - Test method to prove the resistance to initial ring deflection	ISO 10466
Plastics piping systems for pressure and non-pressure drainage and sewerage - Glass-reinforced thermosetting plastics (GRP) systems based on unsaturated polyester (UP) resin	ISO 10467
Glass-reinforced thermosetting plastics (GRP) pipes - Determination of the long-term specific ring creep stiffness under wet conditions and calculation of the wet creep factor	ISO 10468 ISO 10468 AMD 1
Glass-reinforced thermosetting plastics (GRP) pipes - Determination of the long-term ultimate bending strain and the long-term ultimate relative ring deflection under wet conditions	ISO 10471 ISO 10471 AMD 1
Plastics piping systems for hot and cold water installations - Guidance for classification and design	ISO 10508
Plastics piping systems for pressure and non-pressure water supply - Glass-reinforced thermosetting plastics (GRP) systems based on unsaturated polyester (UP) resin	ISO 10639
Structured-wall thermoplastics pipes - Oven test	ISO 12091
Polyethylene pipes - Resistance to slow crack growth - Cone test method	ISO 13480
Polyethylene(PE) pipes and fittings - Determination of the tensile strength and failure mode of test pieces from a butt-fused joint	ISO 13953
Glass-reinforced thermosetting plastics (GRP) pipes - Determination of the resistance to cyclic internal pressure	ISO 15306 ISO 15306 AMD 1
Plastics - Determination of environmental stress cracking (ESC) of polyethylene - Full-notch creep test (FNCT)	ISO 16770
Plastics piping systems - Multilayer pipes - Test method for the adhesion of the different layers using a pulling rig	ISO 17454
Plastics piping systems - Multilayer pipes - Determination of long-term strength	ISO 17456
Method for the assessment of the degree of pigment or carbon black dispersion in polyolefin pipes, fittings and compounds	ISO 18553 ISO 18553 AMD 1

to the AOSS0000DGD

Scope of certified tests and types of tests

Plastics piping systems - Multilayer pipes and their joints, based on thermoplastics, for water supply	ISO 21004
Thermoplastic pipes - Universal wall thickness table	ISO 4065
Thermoplastics pipes - Determination of tensile properties - Part 2: Pipes made of unplasticized poly(vinyl chloride) (PVC-U), chlorinated poly(vinyl chloride) (PVC-C) and high-impact poly(vinyl chloride) (PVC-HI)	ISO 6259-2
Thermoplastics pipes - Determination of tensile properties - Part 3: Polyolefin pipes	ISO 6259-3
Glass-reinforced thermosetting plastics (GRP) pipes and fittings - Test methods to prove the design of locked socket-and-spigot joints, including double-socket joints, with elastomeric seals	ISO 7432
Plastics piping systems - Glass-reinforced thermosetting plastics (GRP) pipes - Determination of initial specific ring stiffness	ISO 7685
Plastics piping systems for pressure and non-pressure drainage and sewerage - Glass-reinforced thermosetting plastics (GRP) pipes and fittings - Test methods to prove the design of bolted flange joints	ISO 8483 ISO 8483 AMD 1
Plastics piping systems - Glass-reinforced thermosetting plastics (GRP) pipes - Test methods for the determination of the initial longitudinal tensile strength	ISO 8513
Plastics piping systems - Glass-reinforced thermosetting plastics (GRP) pipes - Test methods for the determination of the apparent initial circumferential tensile strength	ISO 8521
Plastics piping systems for pressure and non-pressure drainage and sewerage - Glass-reinforced thermosetting plastics (GRP) systems based on unsaturated polyester (UP) resin - Test methods to prove the design of cemented or wrapped joints	ISO 8533 ISO 8533 AMD 1
Plastics piping systems - Glass-reinforced thermosetting plastics (GRP) pipes and fittings - Determination of the resistance to chemical attack for the inside of a section in a deflected condition	ISO 10952
Kunststoff-Verbundrohrsysteme für Heiß- und Kaltwasser - Abmessungen, Anforderungen, Prüfungen, Normkennzeichnung	ÖNORM B 5157

to the AOSS0000DGD

Scope of certified tests and types of tests

Rohrleitungssysteme für die Wasserversorgung sowie für Abwasserleitungen und -kanäle mit oder ohne Druck - Rohre, Rohrverbindungen und Formstücke aus glasfaserverstärkten duroplastischen Kunststoffen (GFK) auf der Basis von ungesättigtem Polyesterharz (UP) - Ergänzende Anforderungen zu ÖNORM EN 1796 und ÖNORM EN 14364	ÖNORM B 5161
Gasrohrsysteme aus Polyethylen PE 80 und PE100, Teil 1: Werkstoffe; Anforderungen und Prüfungen für die Zuerkennung der ÖVGW-Qualitätsmarke	ÖVGW PG 392/1
Gasrohrsysteme aus Polyethylen PE 80 und PE 100, Teil 2: Rohre; Anforderungen und Prüfungen für die Zuerkennung der ÖVGW-Qualitätsmarke	ÖVGW PG 392/2
Rohrleitungssysteme aus Polyethylen PE 100-RC für nicht konventionelle Verlegetechniken in der Trinkwasserversorgung, Teil 1 Rohre aus Polyethylen PE 100-RC (Resistance to crack); Anforderungen und Prüfungen für die Zuerkennung der ÖVGW/GRIS-Qualitätsmarke	ÖVGW/GRIS PW 405/1
Rohrleitungssysteme aus Polyethylen (PE 40, PE 80 und PE 100) für die Trinkwasserversorgung, Teil 1 Rohre aus Polyethylen; Anforderungen und Prüfungen für die Zuerkennung der ÖVGW-Qualitätsmarke und des GRIS-Gütezeichens	ÖVGW/GRIS PW 406/1
Rohrleitungssysteme aus Polyethylen für die Trinkwasserversorgung, Teil 2 Formstücke aus Polyethylen (PE 80 und PE 100)	ÖVGW/GRIS QS-W 406/2
Rohre und Formstücke aus vernetztem Polyethylen PE-Xa für die Trinkwasserversorgung; Anforderungen und Prüfungen für die Zuerkennung der ÖVGW/GRIS-Qualitätsmarke	ÖVGW/GRIS PW 408
Rohre, Formstücke, Vortriebsrohre und Rohrverbindungen aus GF-UP für die Trinkwasserversorgung, Anforderungen und Prüfungen für die Zuerkennung der ÖVGW/GRIS-Qualitätsmarke	ÖVGW/GRIS QS-W 407
Nondestructive testing of metallic and composite materials	
Plain bearings - Metallic multilayer plain bearings - Part 1: Non-destructive ultrasonic testing of bond of thickness $\geq 0,5$ mm	DIN ISO 4386-1
Non-destructive testing - Ultrasonic examination - Part 1: General principles	DIN EN 583-1
Non-destructive testing - Ultrasonic testing - Part 3: Transmission technique	DIN EN 583-3
Non-destructive testing of welds - Ultrasonic testing of welded joints	DIN EN ISO 17640

Annex

DNV·GL

to the AOSS0000DGD

Scope of certified tests and types of tests

Ultrasonic testing of steel flat product of thickness equal to or greater than 6 mm (reflection method)	DIN EN 10160
Non-destructive testing of steel forgings - Part 3: Ultrasonic testing of ferritic or martensitic steel forgings	DIN EN 10228-3
Non-destructive testing of steel forgings - Part 4: Ultrasonic testing of austenitic and austenitic-ferritic stainless steel forgings	DIN EN 10228-4
Non-destructive testing - Ultrasonic testing of steel bars	DIN EN 10308
Non-destructive testing of steel tubes - Part 8: Automated ultrasonic testing of seamless and welded steel tubes for the detection of laminar imperfections	DIN EN ISO 10893-8
Non-destructive testing - Ultrasonic testing of austenitic and austenitic-ferritic stainless steels flat products of thickness equal to or greater than 6 mm (reflection method)	DIN EN 10307
Non-destructive testing - Ultrasonic thickness measurement	DIN EN 14127
Non-destructive Test; Ultrasonic Method of Testing Claddings, Produced by Welding, Rolling and Explosion	DIN 54123
Ultraschallprüfung von Stahlrohren auf Längsfehler	SEP 1915
Ultraschallprüfung von Stahlrohren auf Querfehler	SEP 1918
Ultraschallprüfung auf Dopplungen von Rohren aus warmfesten Stählen	SEP 1919
Ultraschallprüfung von gewalztem Halbzeug auf innere Werkstoffungängen	SEP 1920
Ultraschallprüfung von Gussstücken aus ferritischem Stahl	SEP 1922
Non-conductive coatings on non-magnetic electrically conductive base metals - Measurement of coating thickness - Amplitude-sensitive eddy-current method	DIN EN ISO 2360
Assembly tools for screws and nuts - Technical specifications - Part 1: Hand-operated wrenches and sockets	DIN ISO 1711-1
Non-destructive testing - Eddy current testing - General principles	DIN EN ISO 15549
Electromagnetic testing of pipes for the proof of impermeability	SEP 1925
Non-destructive testing - Penetrant testing - Part 1: General principles	DIN EN 571-1

Annex

DNV·GL

to the AOSS0000DGD

Scope of certified tests and types of tests

Founding - Liquid penetrant testing - Part 1: Sand, gravity die and low pressure die castings	DIN EN 1371-1
Founding - Liquid penetrant testing - Part 2: Investment castings	DIN EN 1371-2
Plain bearings - Metallic multilayer plain bearings - Part 1: Non-destructive ultrasonic testing of bond of thickness $\geq 0,5$ mm	DIN ISO 4386-1
Non-destructive testing of steel forgings - Part 2: Penetrant testing	DIN EN 10228-2
Non-destructive testing of steel tubes - Part 4: Liquid penetrant inspection of seamless and welded steel tubes for the detection of surface imperfections	DIN EN ISO 10893-4
Implants for surgery; non-destructive testing; liquid penetrant inspection of metallic surgical implants	ISO 9583
Seam testing of castings of steel – penetration testing	SEP 1936
Non-destructive testing of welds - Magnetic particle testing	DIN EN ISO 17638
Founding - Magnetic particle testing	DIN EN 1369
Non-destructive testing - Magnetic particle testing - Part 1: General principles	DIN EN ISO 9934-1
Non-destructive testing of steel tubes - Part 5: Magnetic particle inspection of seamless and welded ferromagnetic steel tubes for the detection of surface imperfections	DIN EN ISO 10893-5
Non-destructive testing of steel forgings - Part 1: Magnetic particle inspection	DIN EN 10228-1
Guidelines for magnetic particle flaw detection	DGZfP-EM 0
Seam testing of castings of steel – magnetic powder test	SEP 1936
Founding - Examination of surface condition	DIN EN 1370
Surface dressing - Test methods - Part 2: Visual assessment of defects	DIN EN 12272-2
Non-destructive testing - Visual testing - General principles	DIN EN 13018
Non-destructive testing of welds - General rules for metallic materials	DIN EN ISO 17635
Unfired pressure vessels - Part 5: Inspection and testing	DIN EN 13445-5

to the AOSS0000DGD

Scope of certified tests and types of tests

State of railway vehicles - Basic principles and production technology - Part 7: Non-destructive testing	DIN 27201-7
Manufacture and testing of joints - Non-destructive testing of welded joints	AD 2000-Merkblatt HP 5/3
Ultrasonically tested heavy plate – technical delivery specifications	SEL 072
Non-destructive testing of fusion-welded seams in pipes of stainless steels	SEP 1914
Zerstörungsfreie Prüfung, schmelzgeschweißter ferritischer Stahlrohre	SEP 1916
Nondestructive testing of resistance welded pipes of ferritic steels	SEP 1917
Materialographic Testmethods and spark spectrometrical determination of the chemical composition of steel and alloys based on Aluminium, Copper and Titanium	
Steel - Micrographic determination of the apparent grain size	DIN EN ISO 643
Failure analysis - Fundamentals and performance of failure analysis	VDI 3822
Standard Test Method for Measurement of Metal and Oxide Coating Thickness by Microscopical Examination of Cross Section	ASTM B 487
Standard Guide for Preparation of Metallographic Specimens	ASTM E 3
Standard Practice for Macro etching Metals and Alloys	ASTM E 340
Standard Practice for Micro etching Metals and Alloys	ASTM E 407
Standard Test Methods for Estimating the Depth of Decarburization of Steel Specimens	ASTM E 1077
Standard Practice for Measuring Intergranular Attack or End Grain Pitting on Metals Caused by Aircraft Chemical Processes	ASTM F 2111a

Remark

Mechanical strength, function and endurance tests of complex components, structures and complete products.



Annex

DNV·GL

to the AOSS0000DGD

Scope of certified tests and types of tests

The following personnel are authorised to approve test reports:

Names and responsibilities are regulated in the Lab-Specific Information

A-1.1, A-2.1, B-1.1, C-1.1,
C-2.1, B-1.1, V-1.1 and X-1.1

Approved Testing Facility

IMA Materialforschung und Anwendungstechnik GmbH
Wilhelmine-Reichard-Ring 4
01109 Dresden
Germany

to the AOSS0000DGD

Accepted test method

Title	IMA-up-UDFA
Scope	Fatigue testing of Unidirectional (UD) Fibre Reinforced Plastics with a thermosetting matrix
Developed by	IMA Materialforschung und Anwendungstechnik GmbH Wilhelmine-Reichard-Ring 4 01109 Dresden Germany
Description	Cycling loading with double waisted test specimen and a gauge area of 15 x 25 mm and a maximum thickness of 5 mm. The load ratio R is 0.1 (tension – tension) or -1 (tension – compression)
Reference	- ISO 13003:2003 Determination of fatigue properties under cyclic loading conditions - T/B1/02 Validierung IMA-up-UDFA-Prüfverfahren, dated 23.01.2017

to the AOSS0000DGD

Accepted test method

Title	IMA DPV 150 and DPV 500
Scope	Determination of plain compression properties of Unidirectional (UD) Fibre Reinforced Plastics with a thermosetting matrix by using a test fixture with hydraulic clamps and parallel guidance.
Developed by	IMA Materialforschung und Anwendungstechnik GmbH Wilhelmine-Reichard-Ring 4 01109 Dresden Germany
Description	Compression testing with combined loading (direct and shear) and a maximum load of 150kN (DPV 150) and 500kN (DPV 500). Specimen dimensions according to referred standards.
Reference	<ul style="list-style-type: none">- QTP-14-1 Compression test according to AITM 1-0008 for TQ of cat 1 tests according to AP 2294- Qualification Test Report No.: B652/12, issued by IMA Dresden.- ISO 14126:1999 - Determination of compressive properties in the in-plane direction- prEN 2850:2017 - Compression test parallel to fibre direction- ASTM D 3410:2016 - Standard Test Method for Compressive Properties of Polymer Matrix Composite Materials with Unsupported Gage Section by Shear Loading- ASTM D 6641:206 - Standard Test Method for Compressive Properties of Polymer Matrix Composite Materials Using a Combined Loading Compression (CLC) Test Fixture

to the AOSS0000DGD

Accepted test method

Title	IMA-Rail-Shear-Test (IMA-RS Test Fixture)
Scope	Determination of intralaminar shear properties of Fibre Reinforced Plastics with a thermosetting matrix by using a test fixture with hydraulic clamps and transversal specimen deformation.
Developed by	IMA Materialforschung und Anwendungstechnik GmbH Wilhelmine-Reichard-Ring 4 01109 Dresden Germany
Description	Rail shear testing with V-Notched specimen according to referred standard
Reference	<ul style="list-style-type: none">- T/B1/01Validierung der Prüfvorrichtung IMA-RS- Qualification Test Report No.: B496/13, issued by IMA Dresden.- ASTM D 7078:2012 - Standard Test Method for Shear Properties of Composite Materials by V-Notched Rail Shear Method