DAkkS
Deutsche
Akkreditierungsstelle

Deutsche Akkreditierungsstelle GmbH
German Accreditation Body

Signatory to the Multilateral Agreements of
EA, ILAC and IAF for Mutual Recognition

Accreditation

The DAKkS GmbH (German Accreditation Body) attests that the

Razi Metallurgical Research Center
No. 8, Fernan St., Sorkhehesar Road,
Km 21 Karadj Makhsous Road
Tehran, IRAN

is competent under the terms of DIN EN ISO/IEC 17025:2005 to carry out tests in the following fields:

physical, mechanical-technological and metallographic testing of metals and physical, mechanical-technological testing of polymers;
selected methods of chemical testing of metals and alloys;
optical emission spectroscopy of low and high alloy steels and non-ferrous alloys;
corrosion testing of metallic and non-metallic parts

The accreditation certificate is valid until 10.07.2013. It comprises the cover sheet, the reverse side of the cover sheet and the following annex with a total of 10 pages.

Registration number of the certificate: **D-PL-11154-01-00**

Berlin, 30.06.2010

Norbert Barz
Managing Director

See notes overleaf.

Deutsche Akkreditierungsstelle GmbH
German Accreditation Body

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DAkkS is a signatory to the Multilateral Agreements for Mutual Recognition of the European co-operation for Accreditation (EA), International Accreditation Forum (IAF) and International Laboratory Accreditation Co-operation (ILAC). The signatories to these agreements recognise each others' accreditations.

The up-to-date state of membership can be retrieved from the following websites:
EA: www.european-accreditation.org
ILAC: www.ilac.org
IAF: www.iaf.nu

DAkkS Deutsche Akkreditierungsstelle GmbH
German Accreditation Body

Annex to the Accreditation Certificate D-PL-11154-01-00
Accreditation based on DIN EN ISO/IEC 17025:2005

Period of validity: 25.06.2010 to 10.07.2013

Holder of certificate:

Razi Metallurgical Research Center
No. 8, Fernan St., Sorkhehesar Road,
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abbreviations used: see last page

1 Metallography Laboratory

ASTM A247-10 2010-03	Standard Test Method for Evaluating the Microstructure of Graphite in Iron Castings
ASTM A763-09 2009-04	Standard Practices for Detecting Susceptibility to Intergranular Attack in Ferritic Stainless Steels
ASTM E10-08 2008-12	Standard Test Method for Brinell Hardness of Metallic Materials
ASTM E18-08 2008-12	Standard Test Methods for Rockwell Hardness of Metallic Materials
ASTM E45-05e3 2005-11	Standard Test Methods for Determining the Inclusion Content of Steel

ASTM E92-82e2 2003-01	Standard Test Method for Vickers Hardness of Metallic Materials	
	in connection with:	
	ASTM E140-07 *2007-01*	*Standard Hardness Conversion Tables for Metals Relationship Among Brinell Hardness, Vickers Hardness, Rockwell Hardness, Superficial Hardness, Knoop Hardness and Scleroscope Hardness*
	ASTM E384-10e1 *2010-02*	*Standard Test Method for Knoop and Vickers Hardness of Materials*
ASTM E112-04 2004-01	Standard Test Methods for Determining Average Grain Size	
ASTM E340-00(2006) 2006-10	Standard Test Method for Macroetching Metals and Alloys	
ASTM E381-01(2006) 2006-10	Standard Method of Macroetch Testing Steel Bars, Billets, Blooms, and Forgings	
ASTM E930-99/2007) 2007-10	Standard Test Methods for Estimating the Largest Grain Observed in a Metallographic Section (ALA Grain Size)	
ASTM E1077-01(2005) 2005-05	Standard Test Methods for Estimating the Depth of Decarburization of Steel Specimens	
ASTM E1180-08 2008-10	Standard Practice for Preparing Sulfur Prints for Macro-structural Examination	
ASTM E1268-01(2007) 2007-05	Standard Practice for Assessing the Degree of Banding or Orientation of Microstructures	
DIN 50602 1985-09	Metallographic examination - Microscopic examination of special steels using standard diagrams to assess the content of non-metallic inclusions *(withdrawn standard - used on agreement with the customer)*	
	in connection with:	
	ASTM A561-08 *2008-10*	*Standard Practice for Macroetch Testing of Tool Steel Bars*
	ASTM E3-01(2007) *2007-07*	*Standard Guide for Preparation of Metallographic Specimens*
	ASTM E407-07 *2007-05*	*Standard Practice for Microetching Metals and Alloys*

RMRC-WI-510-117 2005	Scanning Electron Microscope (SEM), Work instruction for use
	in connection with:
	RMRC-WI-510-118 *2005* — *Scanning Electron Microscope (SEM) - Work instruction for changing the filament*
	TS 5136XM — *Scanning Electron Microscope VEGA TS 5136XM - Complete Instruction for Use*

2 Mechanical Laboratory

2.1 Tensile Tests

2.1.1 Tensile Tests - Room Temperature

ISO 898-1 2009-04	Mechanical properties of fasteners made of carbon steel and alloy steel - Part 1: Bolts, screws and studs with specified property classes - Coarse thread and fine pitch thread Chapter: 8.1: Tensile Test for machined test pieces 8.2: Tensile Test for full size bolts, screws and studs
ISO 6892-1 2009-08	Metallic materials - Tensile testing at ambient temperature
DIN EN 895 1999-05	Destructive tests on welds in metallic materials - Chapter 5.5.3.1: Transverse tensile test
DIN EN 10002-1 2001-12	Metallic materials - Tensile testing - Part 1: Method of testing at ambient temperature *(withdrawn standard - used on agreement with the customer)*
DIN EN 10002-5 1992-02	Tensile testing of metallic materials - Part 5: Method of testing at elevated temperature
ANSI/AWS D1.1/D1.1M 2008-07	Structural Welding Code - Steel Chapter 4.8.3.4: Reduced section tension specimen 4.8.3.5: Acceptance criteria for reduced section tension specimen test
API 1104 2005-11 (20th edition)	Welding of Pipelines and Related Facilities Chapter 5.6 Testing of welded joints 5.6.1 Preparation for testing 5.6.2 Tensile-strength testing
ASME Section IX 2007-07	ASME Boiler and Pressure Vessel Code, Section IX: Welding and Brazing Qualifications - Part QW Welding, Article 1 - General Requirements, QW-150: Tension tests

ASTM A370-09ae1 2009-06	Standard Test Methods and Definitions for Mechanical Testing of Steel Products - Chapter 5: Tension Test
ASTM B557M-07e1 2007-09	Standard Test Methods for Tension Testing Wrought and Cast Aluminium- and Magnesium-Alloy Products [Metric]
ASTM E8/E8M-09 2009-12	Standard Test Methods for Tension Testing of Metallic Materials
ASTM F606M-e1 2007-09	Standard Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, and Rivets [Metric] - Chapter 3.2: Tension Test

2.1.2 Tensile Tests - Elevated Temperature

ASTM E21-09 2009-04	Standard Test Methods for Elevated Temperature Tension Tests of Metallic Materials

2.2 Bend Tests

DIN EN 910 1996-05	Destructive test on welds in metallic materials - Bend tests
ANSI/AWS D1.1/D1.1M 2008-07	Structural Welding Code - Steel Chapter 4.8.3.1: Root, face and side bend specimens 4.8.3.3: Acceptance criteria for bend tests
API 1104 2005-11 (20th edition)	Welding of Pipelines and Related Facilities Chapter 5.6: Testing of welded joints 5.6.1: Preparation for testing 5.6.4: Root- and face-bend test 5.6.5: Side-bend test
ASME Section IX 2007-07	2007 ASME Boiler and Pressure Vessel Code, Section IX: Welding and Brazing Qualifications - Part QW Welding, Article 1 - General Requirements, QW-160: Guided-Bend Tests
ASTM E190-92(2008) 2008-09	Standard Test Method for Guided Bend Test for Ductility of Welds
ASTM E290-09 2009-04	Standard Test Methods for Bend Testing of Material for Ductility
ASTM A370-09ae1 2009-06	Standard Test Methods and Definitions for Mechanical Testing of Steel Products

JIS Z 2248 2006-01	Metallic materials - Bend test

2.3 Impact Tests

ISO 148-1 2009-11	Metallic materials - Charpy pendulum impact test - Part 1: Test method
DIN EN 875 1995-10	Destructive tests on welds in metallic materials - Impact tests - Test specimen location, notch orientation and examination
DIN EN 10045-1 1991-04	Charpy impact test on metallic materials - Part 1: Test method
ASTM E23-07ae1 2007-06	Standard Test Methods for Notched Bar Impact Testing of Metallic Materials
ASTM A370-09ae1 2009-06	Standard Test Methods and Definitions for Mechanical Testing of Steel Products - Chapter 19: Charpy Impact Testing

2.4 Proof Load Tests

ISO 898-1 2009-09	Mechanical properties of fasteners made of carbon steel and alloy steel - Part 1: Bolts, screws and studs with specified property classes - Coarse thread and fine pitch thread - Chapter 8.5: Proof load test for full size bolts and screws
	in connection with:
	ASTM F836M-02 *2002-04* — *Standard Specification for Style 1 Stainless Steel Metric Nuts*
ISO 898-2 1992-11	Mechanical properties of fasteners - Part 2: Nuts with specified proof load values - Coarse thread - Chapter 8.1: Proof load Test
ISO 898-6 1996-02	Mechanical properties of fasteners - Part 6: Nuts with specified proof load values, Fine pitch thread - Chapter 8.1: Proof load Test
ASTM A194/A194M 2009-05	Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both
ASTM A370-09ae1 2009-06	Standard Test Methods and Definitions for Mechanical Testing of Steel Products - Annex 3.2.1.1: Proof Load
ASTM F606M-07e1 2007-09	Standard Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, and Rivets [Metric] - Chapter 4.2: Proof Load

in connection with:

ASTM F836M-02 2002-04	*Standard Specification forStyle 1 Stainless Steel Metric Nuts*

2.5 Other tests

DIN EN ISO 4288 1998-04	Geometrical Product Specifications (GPS) - Surface texture: Profile method - Rules and procedures for the assessment of surface texture
DIN EN ISO 8492 2004-10	Metallic materials - Tube - Flattening test

This testing method has been replaced by DIN EN ISO 8492 and will be used on agreement with the customer only:

DIN EN 10233 1994-01	*Metallic materials - Tube - Flattening test (withdrawn standard - used on agreement with the customer)*

ANSI/AWS D1.1/D1.1M 2008-07	Structural Welding Code - Steel Chapter 4.30.4 Fillet weld break test 4.30.4.1 Acceptance criteria for fillet weld break test
API 1104 2005-11 (20th edition)	Welding of Pipelines and Related Facilities (Includes 2007 Errata) Chapter 5.6: Testing of welded joints 5.6.1: Preparation for testing 5.6.3: Nick break test
ASME Section IX 2007-07	2007 ASME Boiler and Pressure Vessel Code, Section IX: Welding and Brazing Qualifications Part QW Welding, Article 1 - General Requirements QW 182: Fracture tests
ASTM E466-07 2007-11	Standard Practice for Conducting Force Controlled Constant Amplitude Axial Fatigue Tests of Metallic Materials
RMRC-WI-540-108-1 2007-07	Test of Spring Coefficient

in connection with:

DIN EN 875 1995-10	*Destructive tests on welds in metallic materials - Impact tests - Test specimen location, notch orientation and examination*
ASTM A194/A194M-09 2009-05	*Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both (Chapter 8.2)*
ASTM F836M-02 2002-04	*Standard Specification for Style 1 Stainless Steel Metric Nuts*

3 Quantometery Laboratory

DIN EN 15079 2007-08	Copper and copper alloys - Analysis by spark source optical emission spectrometry (S-OES)
RMRC-WI-560-112 2009	Work Instruction for Analyzing metallic Sample by Emission Spectrometer Method

The spectrometric methods are performed in connection with:

ASTM E415-08 *2008-06*	*Standard Test Method for Atomic Emission Vacuum Spectrometric Analysis of Carbon and Low-Alloy Steel*
ASTM E634-05 *2005-10*	*Standard Practice for Sampling of Zinc and Zinc Alloys for Optical Emission Spectrometric Analysis*
ASTM E716-94 *2002-01*	*Standard Practices for Sampling Aluminium and Aluminium Alloys for Spectrochemical Analysis*
ASTM E1010-09 *2004-10*	*Standard Practice for Preparation of Disk Specimens of Steel and Iron for Spectro-chemical Analysis by Remelting*
ASTM E1086-08 *2008-10*	*Standard Test Method for Optical Emission Vacuum Spectrometric Analysis of Stainless Steel by the Point-to-Plane Excitation Technique*
ASTM E1251-07 *2007-06*	*Standard Test Method for Analysis of Aluminium and Aluminium Alloys by Atomic Emission Spectrometry*
ASTM E1999-99 *2004-10*	*Standard Test Method for Analysis of Cast Iron Using Optical Emission Spectrometry*
RMRC-WI-560-110 *2008*	*Work Instruction for Maintenance, Recalibration and Working with Emission Spectrometer (ARL)*
RMRC-WI-560-111 *2008*	*Work Instruction for Maintenance, Recalibration and Working with Emission Spectrometer (Foundry Master)*

4 Polymer Laboratory

ISO 306 2004-07	Plastics - Thermoplastic materials - Determination of Vicat softening temperature (VST)

ISO 1402 2009-10	Rubber and plastics hoses and hose assemblies - Hydrostatic testing
ASTM D256-06ae1 2006-12	Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics
ASTM D412-06ae2 2006-12	Standard Test Methods for Vulcanized Rubber and Thermo-plastic Elastomers-Tension
ASTM D638-08 2008-04	Standard Test Method for Tensile Properties of Plastics
ASTM D648-07 2007-03	Standard Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position
ASTM D790-07e1 2007-09	Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
ASTM D792-08 2008-06	Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
ASTM D1238-10 2010-02	Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer
ASTM D1525-09 2009-09	Standard Test Method for Vicat Softening Temperature of Plastics
ASTM D2240-05 2005-08	Standard Test Method for Rubber Property - Durometer Hardness
ASTM D3677-10 2010-02	Standard Test Methods for Rubber - Identification by Infrared Spectrophotometry
ASTM D6110-08 2008-08	Standard Test Methods for Determining the Charpy Impact Resistance of Notched Specimens of Plastics
ASTM E1252-98(2007) 2007-12	Standard Practice for General Techniques for Obtaining Infrared Spectra for Qualitative Analysis

5 Chemical Laboratory

ASTM B117-09 2009-06	Standard Practice for Operating Salt Spray (Fog) Apparatus
ASTM D3174-04 2004-07	Standard Test Method for Ash in the Analysis Sample of Coal and Coke from Coal

ASTM D3175-07 2007-03	Standard Test Method for Volatile Matter in the Analysis Sample of Coal and Coke	
ASTM E34-94(2002) 2002-01	Standard Test Methods for Chemical Analysis of Aluminium and Aluminium-Base Alloys	
ASTM E62-89(2004) 2004-06	Standard Test Methods for Chemical Analysis of Copper and Copper Alloys (Photometric Methods) *(here: Analysis of Phosphor)* *(withdrawn standard - used on agreement with the customer)*	
ASTM E350-95(2005)e1 2005-05	Standard Test Methods for Chemical Analysis of Carbon Steel, Low-Alloy Steel, Silicon Electrical Steel, Ingot Iron, and Wrought Iron	
	in connection with:	
	RMCR-WI-520-147	*Determination of Ni, Cu, Mn, Mo in steel samples*
ASTM E353-93(2006) 2006-06	Standard Test Methods for Chemical Analysis of Stainless, Heat-Resisting, Maraging, and Other Similar Chromium-Nickel-Iron Alloys	
	in connection with:	
	RMCR-WI-520-147	*Determination of Ni, Cu, Mn, Mo in steel samples*
ASTM E478-08 2008-12	Standard Test Methods for Chemical Analysis of Copper Alloys	
ASTM E536-08 2008-03	Standard Test Methods for Chemical Analysis of Zinc and Zinc Alloys	
ASTM E1019-08 2008-11	Standard Test Methods for Determination of Carbon, Sulfur, Nitrogen, and Oxygen in Steel, Iron, Nickel, and Cobalt Alloys by Various Combustion and Fusion Techniques *(here: Analysis of Carbon and Sulfur)*	
ASTM E1915-09 2009-12	Standard Test Methods for Analysis of Metal Bearing Ores and Related Materials for Carbon, Sulfur and Acid-Base Characteristics	
ASTM E1771-07 2007-02	Standard Test Method for Determination of Copper in Anode and Blister Copper	
JIS H 1121 1995-06	Methods for Chemical Analysis of Lead Metal	
	in connection with:	
	RMCR-WI-520-148	*Determination of Sb in Pb-/Sn-samples*

JIS H 1141 1993-01	Methods for chemical analysis of tin metal
	in connection with:
	RMCR-WI-520-148 *Determination of Sb in Pb-/Sn-samples*
JIS H 1291 1977-05 (1986-02)	Method for Atomic Absorption Spectrochemical Analysis of Copper and Copper Alloys
NACE Standard TM 0284-2003	Evaluation of Pipeline and Pressure Vessels Steels for Resistance to Hydrogen-Induced Cracking (H_2S)

abbreviations used:

ANSI	American National Standards Institute
API	American Petroleum Institute
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
BS	British Standard
JIS	Japanese International Standard
NACE	NACE, The Corrosion Society
RMRC	Razi Metallurgical Research Center
TS	TESCAN Co., s.r.o., Brno, Czech Republic