Amendment to the Accreditation Certificate Nr.LA.01.077, issued on 2010-08-12 approved on 2010-08-12 by the Order No. V-99 of the Director of the Lithuanian National Accreditation Bureau
1(11) pages

SCOPE OF ACCREDITATION
of JSC „DEKRA Industrial "

Description of testing object	Description of parameters to be tested and (or) examined	Reference, chapter of regulations or another document that regulates testing methods (method name)
Potentially dangerous equipment of all groups, manufactured from plates, pipes and other rolled profile steel. ***Parent metal*** **Metallic products (rolled products, castings, forgings)**	**Internal and external defects:** Cracks, slag's, pores and other discontinuities.	**Visual testing method** GOST 23479-79 LST EN 13018+A1:2005
		Penetrant testing method GOST 18442-80 LST EN 571-1:2006
		Eddy current testing method LST EN 12084+A1:2005
		Ultrasonic testing method GOST 17410-78 LST EN 10308:2002 LST EN 12680-1:2003 LST EN 10160:2001 LST EN 583-6:2009
	Metal thickness	**Ultrasonic thickness measurement** LST EN 14127:2004
	Steel microstructure: Real grain size	**Metallography** GOST 5639-82 (2.1.1 p., 3.3 p.) LST EN ISO 643:2003 (6.1-6.3 p, 7 p.)
	Type and quantity of non-metallic inclusions in steels	GOST 1778-70 (3.1 p.) ISO 4967:1998
	Steel macrostructure	GOST 10243-75 (1.1 p.) ISO 4969-1980
	Ferritic phase quantity in austenitic steels	GOST 11878-66 (2 p.) RD EO 0199-00 (annex D, 3 p.)
	Resistance to Inter-granular corrosion in stainless steels	GOST 6032-2003 (ISO 3651-1:1998, ISO 3651-2:2001) (4 p.) LST EN ISO 3651-2:2001 (4 p., 6.1 p.,6.2 p., 6.4 p., 7 p.)
	Mass percent part of chemical elements in Fe, Ni, Cu based alloys **Mass percent part of chemical elements in low alloy steels** **Mass percent part of chemical elements in alloy steels**	**Spectrum analysis** GOST 18895-97 LST CR 10320:2006 AFtd-86

Description of testing object	Description of parameters to be tested and (or) examined	Reference, chapter of regulations or another document that regulates testing methods (method name)
	$T_{test.}$= 23±5 ^{0}C **Test pieces** Cylindrical, type III; Flat, type I, II	**Mechanical tests** **Tensile tests** GOST 1497-84 GOST 1497-84 (1.11 p.) GOST 1497-84 (1.11 p.)
	Tensile strength	GOST 1497-84 (4.7.2 p.)
	Proof strength	GOST 1497-84 (4.4 p.; 4.5.1 p.)
	Percentage elongation after fracture	GOST 1497-84 (4.10 p.)
	Percentage reduction of area	GOST 1497-84 (4.11 p.)
	(Ttest=23±5 0C) **Test pieces** Cylindrical, Flat	**Tempimo bandymai** LST EN 10002-1:2003 LST EN ISO 6892-1:2009 LST EN 10002-1:2003 (11 fig.) LST EN ISO 6892-1:2009 (13 fig..) LST EN 10002-1:2003 (9 fig.) LST EN ISO 6892-1:2009 (11 fig.)
	Tensile strength	LST EN 10002-1:2003 (10.2.3 p.) LST EN ISO 6892-1:2009 (10.3.4 p., 10.4.2.5 p., 8 fig.)
	Upper yield strength	LST EN 10002-1:2003 (10.2.2.1 p., 10.2.2.3 p.) LST EN ISO 6892-1:2009 (10.3.2 p., 10.4.2.1 p., 10.4.2.3 p., 11 fig.)
	Lower yield strength	LST EN 10002-1:2003 (10.2.2.2 p., 10.2.2.3 p.) LST EN ISO 6892-1:2009 (10.3.3 p., 10.4.2.2 p., 10.4.2.3 p., 12 fig.)
	Proof strength Rp	LST EN 10002-1:2003 (10.2.2.4 p., 13 p.) LST EN ISO 6892-1:2009 (10.3.2 p., 10.4.2.4 p., 13 fig.)
	Percentage elongation after fracture	LST EN 10002-1:2003 (11 p.) LST EN ISO 6892-1:2009 (10.3.4 p., 10.4.2.5 p., 20 p.)
	Percentage reduction of area	LST EN 10002-1:2003 (16 p.) LST EN ISO 6892-1:2009 (21 p.)
	$T_{test.}$=350 ^{0}C	**Tensile tests at elevated temperature** GOST 9651-84; LST EN 10002-5:2000

Description of testing object	Description of parameters to be tested and (or) examined	Reference, chapter of regulations or another document that regulates testing methods (method name)
	Test pieces Cylindrical, type 1 Cylindrical	GOST 9651-84 (1.1 p.) LST EN 10002-5:2000 (fig.11)
	Tensile strength	GOST 1497-84 (4.7 p.) LST EN 10002-5:2000 (10.3.3 p.)
	Percentage elongation after fracture	GOST 1497-84 (4.10 p.) LST EN 10002-5:2000 (11 p.)
	Percentage reduction of area	GOST 1497-84 (4.11 p.) LST EN 10002-5:2003 (table 1, 11 p.)
	T_{band}=23±5 ^{0}C T_{band}=(-40÷23)±5 ^{0}C	**Charpy impact test** GOST 9454-78 LST EN 10045-1:1998
	Test pieces with U- and V-type notch	GOST 9454-78 (1.1 p., drawing 1) LST EN 10045-1:1998 (5.2 p..)
	Impact toughness Energy absorbed during fracture	GOST 9454-78 (5 p.) LST EN 10045-1:1998 (7 p.)
	Test pieces Round, square, rectangular, polygonal	**Static bending test** GOST 14019-2003 (fig. 1) LST EN ISO 7438:2005
		GOST 14019-2003 (6.2 p.) LST EN ISO 7438:2005 (5 p.)
	Plasticity determined by cracks appearance or not when bended to required angle	GOST 14019-2003 (7.1-7.3 p., 8.1 p.) LST EN ISO 7438:2005 (7 p.)
	Test samples: Tube DN≤ 600мм Tube DN≤ 400мм	**Flattening tests** LST EN ISO 8492:2004 GOST 8695-75 LST EN ISO 8492:2004 (5 p.) ГОСТ 8695-75
	Plasticity determined by cracks appearance or not when flattened to required distance	LST EN ISO 8492:2004 (6.6 p.) GOST 8695-75 (4 p.)
	Brinell hardness 8÷450HB 8÷650HBW Rockwell hardness 20÷70HRC Vickers hardness 200÷900HV	**Hardness** GOST 9012-59 LST EN ISO 6506-1:2006 GOST 9013-59 LST EN ISO 6508-1:2006 GOST 2999-75 LST EN ISO 6507-1:2006

Description of testing object	Description of parameters to be tested and (or) examined	Reference, chapter of regulations or another document that regulates testing methods (method name)
Potentially dangerous equipment of all groups. ***Welded joints and claddings***	**Determination of external defects** undercuts; surface cracks; pores; welded joint geometry; beads; lack of fusion; burn-through	**Visual testing method** LST EN 970:2004 GOST 23479-79
		Penetrant testing method GOST 18442-80 LST EN 571-1:2006
		Magnetic particle testing method LST EN 1290:1998 LST EN 1290:1998/A1:2002 LST EN 1290:1998/A2:2004 GOST 21105-87
		Eddy current testing method LST EN 12084+A1:2005 LST EN 1711:2000 LST EN 1711/A1:2004
	Determination of internal defects cracks; slag's and inclusions; lack of fusion and lack of penetration; defect shape and dimensions; other defects and discontinuities	**Ultrasonic testing method** LST EN 1714:2000lt; LST EN 1714:200/A1:2003; LST EN 1714:2000/A2:2004 GOST 14782-86 BS 7706-1993 LST EN ISO 22825:2006 LST EN 583-6:2009
		Radiographic method GOST 7512-82 LST EN 1435:1998 LST EN 1435:1998/A1:2002 LST EN 1435:1998/A2: 2004
		Fracture test LST EN 1320:1998
	Throughwall defects	**Leak test** LST EN 13185:2002 LST EN 13185/A1:2004 LST EN 13184:2002 LST EN 13184/A1:2004 LST EN 1593:2001 LST EN 1593/A1:2004
	Micro and Macro structure of welded joints	**Metallography** LST EN 1321:1998
	Resistance to Inter-granular corrosion in stainless steels	GOST 6032-2003 (ISO 3651-1:1998, ISO 3651-2:2001) (4 p.)
	Delta ferrite content in austenitic weld metal	RD EO 0199-2000 (6 p.), LST EN ISO 17655:2003
	Mass percent part of chemical elements in Fe, Ni, Cu based alloys	**Spectrum analysis**

Description of testing object	Description of parameters to be tested and (or) examined	Reference, chapter of regulations or another document that regulates testing methods (method name)
	Mass percent part of chemical elements in low alloy steels **Mass percent part of chemical elements in alloy steels**	GOST 18895-97 LST CR 10320:2006 AFtd-86
	$T_{test.}$= 23±5 ^{0}C **Test pieces:** Flat (type XII, XIII); Cylindrical (type XVI, XVII); Tubular (type XVIII, XIX)	**Mechanical tests** **Tensile tests** GOST 6996-66 LST EN 895: 1998 GOST 6996-66 (8.4 p.) GOST 6996-66 (8.8 p.) GOST 6996-66 (8.9 p.)
	Test pieces: Flat (Fig.2a); Cylindrical (Fig.4); Tubular (Fig.2b, 3)	LST EN 895: 1998 (5.5.3.1 p.) LST EN 895: 1998 (5.5.3.3 p.) LST EN 895: 1998 (5.5.3.1 p., 5.5.3.2 p.)
	Tensile strength (maximum tensile strength)	GOST 6996-66 (8.1 p.) LST EN 10002-1:2003 (10.2.3 p.)
	Test pieces: Flat (type XXVI, XXVIa, XXVII, XXVIIa, XXVIII, XXVIIIa)	**Static bending test** GOST 6996-66 (9 p.) GOST 6996-66 (9.2 p.)
	Plasticity described by the cracks appearance or not when bended to required angle	GOST 6996-66 (9.1 p.)
	Plasticity determined by the bend angle when first crack appears	GOST 6996-66 (9.1 p.)
	Test pieces: Flat (fig.1a, 1b, 1c)	**Static bending test** LST EN 910:1998 (6.2.1 p.) LST EN 910:1998 (2.1 p., 2.2 p., 2.3 p.)
	Bending angle (when cracks appear or not)	LST EN 910:1998 (7 p.)
	T_{test}=23±5 ^{0}C T_{test}=(-40÷23)±5 ^{0}C	**Charpy impact test** GOST 6996-66 (5 p.) LST EN 875:1998

Description of testing object	Description of parameters to be tested and (or) examined	Reference, chapter of regulations or another document that regulates testing methods (method name)
	Test pieces with U- and V-type	GOST 6996-66 (5.2 p., drawing 5, 6.) LST EN 10045-1:1998 (5 p.)
	Impact toughness Energy absorbed during fracture	GOST 6996-66 (5.1 p.) LST EN 10045-1:1998 (7 p.)
		Welded joints hardness **LST EN 1043-1:1998**
	Vickers hardness 200÷900HV	LST EN ISO 6507-1:2006
	Brinell hardness 8÷650 HBW	LST EN ISO 6506-1:2006
Welding materials ***Test welded joints and claddings***	**Cracks, pores, slag's, inclusions and other discontinuities**	**Visual testing method** GOST 23479-79 LST EN 13018+A1:2005
		Penetrant testing method GOST 18442-80 LST EN 571-1:2006
		Radiographic method GOST 7512-82 LST EN 1435:1998; LST EN 1435:1998/A1:2002; LST EN 1435:1998/A2:2004
		Ultrasonic testing method LST EN 1714:2000 LST EN 1714:200/A1:2003 LST EN 1714:2000/A2:2004 GOST 14782-86
	Mass percent part of chemical elements in Fe, Ni, Cu based alloys **Mass percent part of chemical elements in low alloy steels** **Mass percent part of chemical elements in alloy steels**	**Spectrum analysis** GOST 18895-97 LST CR 10320:2006 AFtd-86
	Resistance to Inter-granular corrosion in stainless steels	**Metallography** GOST 6032-2003 (ISO 3651-1:1998, ISO 3651-2:2001) (4 p.)
	Delta ferrite content of austenitic welded metal	RD EO 0199-2000 (5 p.) LST EN ISO 8249:2000 (7 p.)

Description of testing object	Description of parameters to be tested and (or) examined	Reference, chapter of regulations or another document that regulates testing methods (method name)
	T_{test}=23±5 ^{0}C **Test pieces:** Cylindrical, type III;	**Mechanical tests** **Tensile test** GOST 1497-84
		GOST 1497-84 (1.11 p., Appendix 2, Drawing 3)
	Tensile strength	GOST 1497-84 (4.7.2 p.)
	Proof strength	GOST 1497-84 (4.4 p.; 4.5.1 p.)
	Percentage elongation after fracture	GOST 1497-84 (4.10 p.)
	Percentage reduction of area	GOST 1497-84 (4.11 p.)
	T_{test}=23±5 ^{0}C **Test pieces**	**Mechanical tests** **Tensile test** LST EN 876:1998
	Cylindrical	LST EN 10002-1:2003 (fig.11)
	Tensile strength	LST EN 10002-1:2003 (10.2.3 p.)
	Upper yield strength	LST EN 10002-1:2003 (10.2.2.1 p., 10.2.2.3 p.)
	Lower yield strength	LST EN 10002-1:2003 (10.2.2.2 p., 10.2.2.3 p.)
	Proof strength Rp	LST EN 10002-1:2003 (10.2.2.4 p., 13 p.)
	Percentage elongation after fracture	LST EN 10002-1:2003 (11 p.)
	Percentage reduction of area	LST EN 10002-1:2003 (16 p.)
	T_{test}=23±5 ^{0}C **T_{test}=(-40÷23)±5 ^{0}C**	**Charpy impact test** GOST 9454-78 LST EN 10045-1:1998
	Test pieces with U- and V-type notch	GOST 9454-78 (1.1 p., drawing 1) LST EN 10045-1:1998 (5.2 p..)
	Impact toughness Energy absorbed during fracture	GOST 9454-78 (5 p.) LST EN 10045-1:1998 (7 p.)
	Brinell hardness 8÷450HB 8÷650HBW Rockwell hardness 20÷70HRC Vickers hardness 200÷900HV	**Hardness** GOST 9012-59, LST EN ISO 6506-1:2006 GOST 9013-59 GOST 2999-75

Description of testing object	Description of parameters to be tested and (or) examined	Reference, chapter of regulations or another document that regulates testing methods (method name)
NPP equipment and pipework. *Parent metal*	**External and internal defects** Cracks, slag's, inclusions, pores and other discontinuities	**Visual testing method** PNAE G-7-016-79 GOST 23479-79 RD 34.10.130-96
		Penetrant testing method PNAE G-7-018-89 GOST 18442-80
		Magnetic particle testing method GOST 21105-87 PNAE G-7-015-89
		Ultrasonic testing method: PNAE G-7-014-89 BS 7706-1993 GOST 17410-78
	Metal thickness measurement	PNAE G-7-031-91
	Steel microstructure Real grain size	**Metallography** GOST 5639-82 (2.1.1 p., 3.3 p.)
	Type and quantity of non-metallic inclusions	GOST 1778-70 (3.1 p.)
	Steel macrostructure	GOST 10243-75 (1.1 p.) ISO 4969:1980
	Steel microstructure	RD 70 0015-94 (4 p.)
	Ferritic phase quantity in austenitic steels	GOST 11878-66 (p. 2), RD EO 0199-00 (Appendix D, 3 p.)
	Resistance to Inter-granular corrosion in stainless steels	GOST 6032-2003 (ISO 3651-1:1998, ISO 3651-2:2001) (4 p.)
	Mass percent part of chemical elements in Fe, Ni, Cu based alloys	**Spectrum analysis** GOST 18895-97
	T_{test}=23±5 ^{0}C	**Mechanical tests** **Tensile tests** GOST 1497-84
	Test pieces: Cylindrical, type III Flat, type I, II	GOST 1497-84 (1.11 p.) GOST 1497-84 (1.11 p.)
	Tensile strength	GOST 1497-84 (4.7.2 p.)
	Proof strength	GOST 1497-84 (4.4, 4.5.1 p.)

Description of testing object	Description of parameters to be tested and (or) examined	Reference, chapter of regulations or another document that regulates testing methods (method name)
	Percentage elongation after fracture	GOST 1497-84 (4.10 p.)
	Percentage reduction of area	GOST 1497-84 (4.11 p.)
	$T_{test.}$=350 ^{0}C **Test pieces** Cylindrical, type 1	**Tensile tests at elevated temperature** GOST 9651-84; GOST 9651-84 (1.1 p.)
	Tensile strength	GOST 1497-84 (4.7 p.)
	Percentage elongation after fracture	GOST 1497-84 (4.10 p.)
	Percentage reduction of area	GOST 1497-84 (4.11 p.)
	T_{test}=23±5 ^{0}C	**Impact bending test** GOST 9454-78
	Test pieces with U- and V-type notch	GOST 9454-78 (1.1 p., drawing 1)
	Impact toughness	GOST 9454-78 (5 p.)
	Test samples:	**Flattening test** GOST 8695-75
	Tube DN≤ 400мм	GOST 8695-75
	Plasticity determined by cracks appearance or not when flattened to required distance	GOST 8695-75 (4 p.)
		Static bending test GOST 14019-2003 (fig. 1)
	Test pieces: Round, square, rectangular, polygonal	GOST 14019-2003 (6.2 p..)
	Plasticity determined by the cracks appearance or not when bended by required angle	GOST 14019-2003 (7.1-7.3 p., 8.1 p.)
	Brinell hardness 8÷450HB Rockwell hardness 20÷70HRC Vickers hardness 200÷900 HV	**Hardness** GOST 9012-59, GOST 9013-59 GOST 2999-75
NPP equipment and pipework. Welded joints and claddings	**Determination of external defects:** undercuts; cracks; pores; beads; welded joint geometry lack of penetration; burn-through	**Visual testing method** PNAE G-7-016-89 RD 34.10.130-96 GOST 23479-79

Description of testing object	Description of parameters to be tested and (or) examined	Reference, chapter of regulations or another document that regulates testing methods (method name)
		Penetrant testing method PNAE G-7-018-89 GOST 18442-80 LST EN 571-1:2006
		Magnetic particle testing method GOST 21105-87 PNAE G-7-015-89
	Determination of internal defects: cracks; slag's and inclusions; lack of penetration and lack of fusion; defect shape and dimensions; other defects and discontinuities	**Ultrasonic testing method** PNAE G-7-030-91 PNAE G-7-032-91 GOST 14782-86 BS 7706-1993
		Radiographic testing method GOST 7512-82 PNAE G-7-017-89
	Throughwall defects	**Leak test** **PN AE G-7-019-89**
	Macro and micro structure of welded joints	**Metallography** RD 700015-94 (4.3 p., 9.2 p., 10, 2 p.)
	Resistance to Inter-granular corrosion in stainless steels	GOST 6032-2003 (ISO 3651-1:1998, ISO 3651-2:2001) (4 p.)
	Ferritic phase quantity in austenitic steels	RD EO 0199-2000 (6 p.)
	T_{test}=23±5 ^{0}C **Test pieces:** Flat (type XII, XIII); Cylindrical (type XVI, XVII); Tubular (type XVIII, XIX)	**Tensile tests** GOST 6996-66 GOST 6996-66 (8.4 p.) GOST 6996-66 (8.8 p.) GOST 6996-66 (8.9 p.)
	Tensile strength (maximum tensile strength)	GOST 6996-66 (8.1 p.)
	Test pieces: Flat (type XXVI, XXVIa, XXVII, XXVIIa, XXVIII, XXVIIIa)	**Static bending test** GOST 6996-66, (9 p.) GOST 6996-66 (9.2 p.)
	Plasticity determined by the cracks appearance or not when bended by required angle	GOST 6996-66 (9.1 p.)
	Plasticity determined by bend angle when first crack appears	GOST 6996-66 (9.1 p.)
	T_{test}=23±5 ^{0}C	**Charpy impact test** GOST 6996-66 (5 p.)
	Test pieces with U- and V-type notch	GOST 6996-66 (5.2 p., drawing 5, 6.)

Description of testing object	Description of parameters to be tested and (or) examined	Reference, chapter of regulations or another document that regulates testing methods (method name)
	Impact toughness	GOST 6996-66 (5.1 p.)
	Brinell hardness 8÷450HB Rockwell hardness 20÷70HRC Vickers hardness 200÷900HV	**Hardness** GOST 9012-59, GOST 9013-59 GOST 2999-75

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