

INSPECTION CERTIFICATE

Certificato d'ispezione



REPORT N. Rapporto N.	TC-020442-17-0004	Issued on Revised on	17/11/2017	Customer Cliente	PROVEEDORA DE MATERIALES AN CER SA DE CV, AV ADOLFO LOPEZ MATEOS 150, COL LAGRANGE, SAN NICOLAS DE LOS GARZA, N.L. - 66490, MEXICO	Job n. / Com. n. Purchase order and project/Ordine e progetto	20442 8086	Page n. / Pagina n. 2 of 3
Revision Revisione	0	According to In accordo a	EN 10204:2004 UNI EN 10204:2005	Type Tipo	3.1			

DESCRIPTION / DESCRIZIONE						
Test Prova	Item Pos.	Qty Q.tà	Customer code Codice cliente	Material Materiale	Heat Colata	Product Prodotto
ABRK	59	3707		A/SA105-14	17/30319	90 DEG. ELBOW S. 3000 SW A/SA105N 2
AAHX	62	1040		A/SA105-14	238140	45 DEG. ELBOW S. 3000 SW A/SA105N 3/4
ABKP	66	400		A/SA105-14	240258	45 DEG. ELBOW S. 3000 SW A/SA105N 2

Test Prova	HEAT TREATMENT DATA Dettagli di trattamento termico	COUNTRY OF MELT Provenienza	RAW AND FORGING MATERIAL CERTIFICATES Certificati di acciaieria/forgia
ABRK	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.		CERT.2166.METALFAR(VACUUM DEGAISED STEEL)CERT.422 SOLIVERI
AAHX	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.	IT	CERT.177.EVASI(VACUUM DEGAISED STEEL)
ABKP	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.		CERT.299.EVASI (VACUUM DEGAISED STEEL)

Test Prova	Test loc. Preso a	Orient. Direz.	TENSILE TEST AT ROOM TEMPERATURE / Trazione a temperatura ambiente							CVN (KV) / Prova di resilienza					Bend [B] Flatt. [F] Piega Schiacc.	Hardness Durezza
			Specimen / Provino			Yield strength	Tensile strength	Elongation	Red. Of Area	Dimens.	T	Abs. Energy	Shear A	Lat Exp		
			Shape Forma	A Sez. [mm ²]	Gage Length Lungh. [mm]	Snerv. [Mpa] Min:	Rottura [Mpa] Min:	Allung. [%] Min:	Contraz. [%] Min:	Dimens. [mm]	Temp. [°C]	Energia ass. [J]	Area d [%]	Exp. Lat. [mm]		
ABRK	T/2	TRANS	Round	60.100	35.000	288.300	490.500	34.800	71.200	10x10x55	-29	65-32-31	40-20-20	0.87-0.60-0.58	HBW 144-145	
AAHX	T/2	TRANS	Round	31.200	25.000	305.200	513.600	38.300	74.200	10X10X55	-29	31-56-42	20-35-25	0.57-0.77-0.64	HBW 152-153	
ABKP	T/2	TRANS	Round	60.800	35.000	291.800	502.500	31.400	70.400	10x10x55	-29	65-90-61	40-50-35	0.89-1.10-0.83	HBW 149-150	

Test Prova	C [%]	Si [%]	Mn [%]	S [%]	P [%]	Cr [%]	Ni [%]	Mo [%]	Ti [%]	Cu [%]	V [%]	Al [%]	H [%]	Nb [%]	N [%]	Sn [%]	O [%]	B [%]	Fe [%]	Zr [%]	CE ^A [%]	PREN ^B [%]	X fact. ^C [%]	J fact. ^D [%]
ABRK	0.1900	0.2400	0.9400	0.0040	0.0090	0.1300	0.0800	0.0100	0.0180	0.1300	0.0020	0.0290	0.0002	0.0010	0.0088	0.0080	0.0012	0.0003			0.3890			
AAHX	0.1670	0.1800	0.9700	0.0030	0.0090	0.1900	0.1000	0.0200	0.0020	0.1400	0.0050	0.0200	0.0001	0.0020	0.0063	0.0100	0.0013				0.3876			
ABKP	0.1750	0.2200	0.9500	0.0030	0.0100	0.1800	0.0900	0.0300	0.0020	0.1400	0.0050	0.0240	0.0001	0.0010	0.0062	0.0070	0.0013				0.3916			

REMARKS / Note

1: MATERIAL ACCORDING TO NACE MR0175/ISO 15156-1-2-3 Ed.2015
2: MATERIAL ACCORDING TO ASME Sect. II Part A 2017 Edition.
3: FULLY KILLED STEEL, FINE GRAIN TREATED.

A: CE = C + Mn/6 + (Cr+Mo+V)/5 + (Cu+Ni)/15 | B: PREN = Cr + 3.3Mo + 16N
C: X factor = (10P + 5Sb+4Sn+As)/100 - elements expressed in ppm
D: J factor = ((Mn + Si) / (P + Sn)) x 10E4

Quality inspector representative

Emmanuel Centeneri

Ispettore controllo qualità

Additional elements: 'AAHX': Co 0,0070 Ca 0,0010 As 0,0040 Sb 0,0010 | 'ABKP': Co 0,0080 As 0,0050 Sb 0,0010

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Revision Revisione	0	According to In accordo a	EN 10204:2004 UNI EN 10204:2005	Type Tipo	3.1	Purchase order and project/Ordine e progetto 8086			

We hereby certify that all items supplied for the above purchase orders meet all the requirements of the applicable specification of manufacture, the purchase item descriptions, purchase specifications and purchase order requirements. Visual, dimensional and marking check of items supplied has been carried out by our internal inspectors with satisfactory results.
The chemical and mechanical values shown on the EN 10204 certificate are true copy of the mill test certificate issued by the steel mill, or by the laboratory that determined it. All material is certified to be mercury free and free from radioactivity contamination. No weld repair was performed. Marking was performed by low stress stamps in accordance with MSS SP25 Ed. 2008

Manufacturing standards:

- 45° and 90° elbows, tees, crosses, full and half couplings, caps, square, hexagonal and round plugs, hexagonal and flush bushings, welding bosses are manufactured in accordance with ASME B.16.11 Ed. 2016; threads in accordance with ANSI/ASME B1.20.1 Ed. 2013

- Outlet branches are manufactured in accordance with: ASME B.31.1 Ed. 2016, B.31.3 Ed. 2016 and MSS-SP-97 Ed. 2012
- Seamless swage nipples are manufactured in accordance with: BS3799-74 or MSS SP95 Ed. 2014
- Seamless pipe nipples are manufactured in accordance with: B36.10 Ed. 2015 or B36.19 Ed. 2004
- Flanged outlet branches are manufactured in accordance with: ASME B.31.1 Ed. 2016, B.31.3 Ed. 2016 and B.16.5 Ed. 2013
- Unions are manufactured in accordance with: BS 3799-74 or MSS SP-83 Ed. 2014

When the length of flanged nipple is not specified in the description, it is 150 mm.

The material is according to ASTM and ASME Boiler and Pressure Vessel Code Section II.

When the Edition/Revision of the listed standards is not mentioned, it is assumed to be the latest.

Yield strength detected by 0.2% off-set method

Austenitic and duplex stainless steels have been pickled and passivated. Machined surfaces do not require pickling and passivation.

M.E.G.A. is approved with certificate 75/2002/MUC by T.U.V. (certification Body N.0036) to issue certificate of specific product control in accordance with the Pressure Equipment Directive 97/23/EC (PED) Annex 1, Paragraph 4.3.

Testing equipment used:

- Tensile test machine Galdabini Quasar 250 serial No. VAOG – Procedure MAC-03 Rev. 3
- Impact test Cermac JB-W500 serial No. 04031 – Procedure MAC-04 Rev. 3
- Brinell and Vickers Hardness test Wolpert Dia Testor 2RC serial No. 8900298/0001 – Procedure MAC-05 Rev. 3 (HBW); MAC-09 Rev.0 (HV10)
- Rockwell Hardness test EMCO Test DJ10 Serial No. 255 - Procedure MAC-06 Rev. 3
- Chemical analysis spectrometer Baird DV4 serial No. P017 (ASTM E415 and E1086) – Procedure QC-07 Rev. 0

Alloy N08020: Material from forgings according to ASTM B462; Material from bars according to ASTM B473; both grades ASTM B462 and ASTM B473 conform also ASTM B366

Alloy N10276: Material from forgings according to ASTM B564; Material from bars according to ASTM B574; both grades ASTM B564 and ASTM B574 conform also ASTM B366

Alloy N06625: material from forgings according to ASTM B564; material from bars according to ASTM B446; material from pipes according to ASTM B444; all grades ASTM B564, ASTM b446 and ASTM B444 conform also ASTM B366

Alloy N08825: Material from forgings according to ASTM B564; Material from bars according to ASTM B425; both grades ASTM B564 and ASTM B425 conform also ASTM B366

The product are manufactured in Italy.

Quality inspector representative Ispettore controllo qualità	Emmanuel Centemeri
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