M.E.G.A.

INSPECTION CERTIFICATE

Certificato d'ispezione

REPORT N. / Rapporto N. TC-021659-18-0003	**Issued on** 09/04/2018 / **Revised on**	**Customer** / Cliente	PROVEEDORA DE MATERIALES ANCER SA DE CV, AV ADOLFO LOPEZ MATEOS 150, COL LAGRANGE, SAN NICOLAS DE LOS GARZA, N.L. - 66490, MEXICO	**Job n.** / Com. n. 21659	**Page n.**/ Pagina n. 1 of 4
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 8308	

DESCRIPTION / DESCRIZIONE

Test / Prova	Item / Pos.	Qty / Q.tà	Customer code / Codice cliente	Material / Materiale	Heat / Colata	Product / Prodotto
ZNBB	4	2004		A/SA105-14	238885	90 DEG. ELBOW S. 3000 NPT A/SA105N 1.1/4
ABXA	6	2265		A/SA105-14	17/30505	90 DEG. ELBOW S. 3000 NPT A/SA105N 2
ABXC	6	927		A/SA105-14	17/30503	90 DEG. ELBOW S. 3000 NPT A/SA105N 2
ZNTA	17	400		A/SA105-14	234373	TEE S. 3000 NPT A/SA105N 1.1/4
ZBUX	31	24		A/SA105-14	9108	COUPLING S. 3000 NPT A/SA105N 3

Test / Prova	HEAT TREATMENT DATA / Dettagli di trattamento termico	COUNTRY OF MELT / Provenienza	RAW AND FORGING MATERIAL CERTIFICATES / Certificati di acciaieria/forgia
ZNBB	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.		CERT.000575.EVASI*(VACUUM DEGASED STEEL)
ABXA	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 880 C COOLED IN STILL AIR.		CERT.2450.METALFAR*(VACUUM DEGASED STEEL)CERT.449.MEGA
ABXC	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 880 C COOLED IN STILL AIR.		CERT.2702.METALFAR*(VACUUM DEGASED STEEL)CERT.418.MEGA
ZNTA	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 880 C COOLED IN STILL AIR.		CERT.FC-005528-15-0012.MEGA/CERT.3017.MEGA*
ZBUX	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 860^C min COOLED IN STILL AIR.		CERT.E15505 ART-ROM

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.[mm²]	Gage Length / Lungh.[mm]	Snerv. [Mpa] Min:	Rottura [Mpa] Min:	Allung. [%] Min:	Contraz. [%] Min:	Dimens. [mm]	Temp. [°C]	Energia ass. [J]	Area d [%]	Esp. Lat. [mm]		
ZNBB	T/2	TRANS	Round	60.100	35.000	299.300	494.000	33.000	70.200	10x10x55	-10	72-115-121	35-55-60	0.96-1.34-1.42		HBW 148-148
ABXA	T/2	TRANS	Round	60.100	35.000	327.500	486.100	34.100	78.300	10x10x55	-29	120-123-126	60-60-60	1.31-1.33-1.33		HBW 143-148
ABXC	T/2	TRANS	Round	58.500	35.000	342.500	512.500	31.900	76.100	10x10x55	-29	125-108-101	60-55-55	1.41-1.22-1.18		HBW 154-157
ZNTA	T/2	TRANS	Round	60.100	35.000	297.600	505.500	34.900	71.600	10x10x55	-1	87-113-107	45-55-55	1.10-1.26-1.18		HBW 150-152
ZBUX	T/2	LONG	Round	30.600	25.000	348.800	517.100	36.400	69.100	10x10x55	-1	157-153-147	80-80-75	1.69-1.65-1.57		HBW 158-160

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] [%]
ZNBB	0.1610	0.2100	0.9900	0.0020	0.0110	0.2100	0.1100	0.0200	0.0150	0.1700	0.0050	0.0220	0.00011	0.0030	0.0060	0.0090	0.0013				0.3916			
ABXA	0.1800	0.2300	0.9700	0.0050	0.0070	0.1400	0.0900	0.0200	0.0200	0.1800	0.0020	0.0290	0.00024	0.0010	0.0094	0.0120	0.0012	0.0001			0.3920			
ABXC	0.1900	0.2400	0.9500	0.0040	0.0090	0.1800	0.0800	0.0200	0.0190	0.1700	0.0020	0.0280	0.00023	0.0010	0.0084	0.0120	0.0013	0.0002			0.4053			
ZNTA	0.1830	0.2100	1.0400	0.0020	0.0130	0.1400	0.0600	0.0200	0.0024	0.0900	0.0040	0.0280	0.00012	0.0040	0.0056	0.0080	0.0012	0.0001			0.3991			
ZBUX	0.1900	0.2000	1.0400	0.0020	0.0100	0.0500	0.0800	0.0200		0.2600	0.0030	0.0270		0.0010	0.0080			0.0002			0.4005			

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

Additional elements: 'ZNBB': Ca 0,0010 As 0,0060 Sb 0,0010 | 'ABXA': Ca 0,0011 | 'ABXC': Ca 0,0013 | 'ZNTA': Co 0,0060 Ca 0,0011 As 0,0030

Quality inspector representative / Ispettore controllo qualità

Riccardo Scorsetti

This certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the trademark M.E.G.A. is printed in green color.

Form QC-01-01 Rev. 0 2013-03-15

M.E.G.A.

INSPECTION CERTIFICATE

Certificato d'ispezione

REPORT N. Rapporto N.	TC-021659-18-0003	**Issued on** 09/04/2018 **Revised on**		**Customer** Cliente	PROVEEDORA DE MATERIALES ANCER SA DE CV, AV ADOLFO LOPEZ MATEOS 150, COL LAGRANGE, SAN NICOLAS DE LOS GARZA, N.L. - 66490, MEXICO	**Job n.** / Com. n. **21659**	**Page n.**/ Pagina n. 4 of 4
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 **8308**

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 ASMEB.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 nipolet 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 2014/68/EU (PED) Annex 1, Section 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	Riccardo Scorsetti

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