

REPORT N. Rapporto N.	TC-019212-16-0004	Issued on Revised on	20/04/2017	Customer Cliente	PROVEEDORA DE MATERIALES ANGER SA DE CV, AV ADOLFO LOPEZ MATEOS 150, COL LAGRANGE, SAN NICOLAS DE LOS GARZA, N.L. - 66490, MEXICO	Job n. / Com. n.	19212	Page n. / Pagina n.	1 of 2
Revision Revisión	0	According to In accordo a	EN 10204:2004 UNI EN 10204:2005	Type Tipo	3.1	Purchase order and project/Ordine e progetto 7902			

DESCRIPTION / DESCRIZIONE						
Test Prova	Item Pos.	Qty Q.tà	Customer code Codice cliente	Material Materiale	Heat Colata	Product Prodotto
ZUDA	57	2250	*	A/SA105-14	15/77276	90 DEG. ELBOW S. 3000 SW A/SA105N 3/4
ZNDA	58	5520	*	A/SA105-14	245948	90 DEG. ELBOW S. 3000 SW A/SA105N 1
AABT	61	2400	*	A/SA105-14	245697	90 DEG. ELBOW S. 3000 SW A/SA105N 2
ZXXX	61	1600	*	A/SA105-14	16/79079	90 DEG. ELBOW S. 3000 SW A/SA105N 2
ZLUS	62	200	*	A/SA105-14	15/77273	90 DEG. ELBOW S. 3000 SW A/SA105N 2.1/2

Test Prova	HEAT TREATMENT DATA Dettagli di trattamento termico	COUNTRY OF MELT Provenienza	RAW AND FORGING MATERIAL CERTIFICATES Certificati di acciaieria/forgia
ZUDA	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 880 C COOLED IN STILL AIR.		CERTFC-005479-15-0022.MEGA/CERT.3381.MEGA*
ZNDA	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.		CERT.000651.EVASI*
AABT	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.		CERT.000107.EVASI*
ZXXX	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 880 C COOLED IN STILL AIR.		CERT.FC-005509-15-0014.MEGA/CERT.3483.MEGA*
ZLUS	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 880 C COOLED IN STILL AIR.		CERT.FC-005611-16-0019.MEGA/CERT.2879.MEGA*

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 Lunghezza [mm]	Snerv. [Mpa] Min:	Rottura [Mpa] Min:	Allung. [%] Min:	Contraz. [%] Min:	Dimens. [mm]	Temp. [°C]	Energia ass. [J]	Area d [%]	Esp. Lat. [mm]			
ZUDA	T/2	TRANS	Round	31.100	25.000	347.500	535.200	29.700	66.500	10x10x55	-10	49-31-46	30-20-30	0.73-0.56-0.70	HBW 157-158		
ZNDA	T/2	LONG	Round	120.800	50.000	335.400	504.500	35.500	73.500	10x10x55	-10	201-169-177	95-80-80	2.13-1.73-1.89	HBW 145-147		
AABT	T/2	TRANS	Round	59.700	35.000	317.100	512.900	32.700	71.000	10x10x55	-29	120-139-124	60-70-60	1.44-1.53-1.46	HBW 153-154		
ZXXX	T/2	TRANS	Round	60.700	35.000	295.300	500.000	30.300	59.800	10x10x55	-29	31-32-33	20-20-20	0.56-0.60-0.61	HBW 146-148		
ZLUS	T/2	LONG	Round	121.600	50.000	289.400	495.700	31.000	77.500	10x10x55	-1	80-95-101	50-60-60	0.91-1.00-1.05	HBW 140-143		

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 [%]
ZUDA	0.1800	0.2500	1.0500	0.0070	0.0140	0.1300	0.0700	0.0100	0.0150	0.1800	0.0020	0.0250	0.00020	0.0010	0.0093	0.0090	0.0019				0.4000			
ZNDA	0.1650	0.2100	1.0010	0.0050	0.0120	0.1310	0.1010	0.0170	0.0110	0.1330	0.0040	0.0280	0.00015	0.0050	0.0077	0.0070	0.0018				0.3778			
AABT	0.1650	0.1790	1.0360	0.0050	0.0090	0.1300	0.1020	0.0130	0.0080	0.1770	0.0040	0.0230	0.00015	0.0010	0.0089	0.0070	0.0015				0.3856			
ZXXX	0.1900	0.2500	1.0300	0.0070	0.0150	0.1400	0.0600	0.0100	0.0180	0.1900	0.0020	0.0270	0.00018	0.0020	0.0096	0.0100	0.0016				0.4087			
ZLUS	0.1900	0.2000	1.0300	0.0040	0.0140	0.1200	0.0600	0.0100	0.0160	0.1900	0.0020	0.0250	0.00019	0.0010	0.0099	0.0090	0.0018				0.4047			

REMARKS / Note																							
1: MATERIAL ACCORDING TO NACE MR0175/ISO 15156-1-2-3 Ed.2015												A: CE = C + Mn/6 + (Cr+Mo+V)/5 + (Cu+Ni)/15 B: PREN = Cr + 3.3Mo + 16N											
2: MATERIAL ACCORDING TO ASME Sect. II Part. A 2015 Edition.												C: X factor = (10P + 5Sb+4Sn+As)/100 - elements expressed in ppm											
3: FULLY KILLED STEEL, FINE GRAIN TREATED.												D: J factor = ((Mn + Si) (P + Sn)) x 10E4											
Additional elements:												Quality inspector representative						Ispettore controllo qualità					
												Riccardo Scorsetti											

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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 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. 2007, B.31.3 Ed. 2010 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. 2007, B.31.3 Ed. 2010 and B.16.5 Ed. 2009
 - 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

The product are manufactured in Italy.

Quality inspector representative

Ispettore controllo qualità

Riccardo Scorsetti

