

REPORT N. Rapporto N.	TC-021079-17-0003	Issued on Revised on	20/12/2017	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. 21079	Page n. / Pagina n. 4 of 7
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 8136	

DESCRIPTION / DESCRIZIONE						
Test	Item	Qty	Customer code	Material	Heat	Product
Prova	Pos.	Q.tà	Codice cliente	Materiale	Colata	Prodotto
AAME	66	100		A/SA105-14	245697	HEX. HEAD PLUG NPT A/SA105N 3
ZNCD	67	1800		A/SA105-14	238459	90 DEG. ELBOW S. 3000 SW A/SA105N 1/2
ACYH	70	2493		A/SA105-14	17/32054	90 DEG. ELBOW S. 3000 SW A/SA105N 1.1/2
ACDM	72	50		A/SA105-14	16/71230	90 DEG. ELBOW S. 3000 SW A/SA105N 2.1/2
ZRTX	74	320		A/SA105-14	16/78363	45 DEG. ELBOW S. 3000 SW A/SA105N 1

Test	HEAT TREATMENT DATA	COUNTRY OF MELT	RAW AND FORGING MATERIAL CERTIFICATES
Prova	Dettagli di trattamento termico	Provenienza	Certificati di acciaieria/forgia
AAME	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.		CERT.000257.EVASI*(VACUUM DEGASED STEEL)
ZNCD	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.		CERT.000615.EVASI*(VACUUM DEGASED STEEL)
ACYH	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 880 C COOLED IN STILL AIR.		CERT.2017-C MFF 03565 METALFAR*(VACUUM DEGASED STEEL)
ACDM	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 880 C COOLED IN STILL AIR.		CERT.FC-005612-16-0442.MEGA/CERT.4025.MEGA*
ZRTX	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 880 C COOLED IN STILL AIR.		CERT.FC-005612-16-0111.MEGA/CERT.3133.MEGA*

Test	Test loc.	Orient.	TENSILE TEST AT ROOM TEMPERATURE / Trazione a temperatura ambiente							CVN (KV) / Prova di resilienza					Bend [B]	Hardness
			Specimen / Provino			Yield strength	Tensile strength	Elongation	Red. Of Area	Dimens.	T	Abs. Energy	Shear A	Lat Exp		
			Shape	A	Gage Length											
Prova	Preso a	Direz.	Forma	Sez.[mm ²]	Lungh.[mm]	Min:	Min:	Min:	Min:	[mm]	[°C]	[J]	[%]	[mm]	Piega Schiacc.	Durezza
AAME	T/2	TRANS	Round	31.100	25.000	322.500	506.600	34.000	68.900	10x10x55	-29	69-78-71	40-45-40	0.92-1.03-0.94		HBW 149-152
ZNCD	T/2	LONG	Round	30.800	25.000	312.500	503.400	39.000	76.300	10x10x55	-10	119-163-135	60-80-65	1.40-1.72-1.51		HBW 148-151
ACYH	T/2	TRANS	Round	29.600	25.000	282.500	490.300	38.000	73.000	10x10x55	0	80-91-94	50-55-55	1.21-1.38-1.43		HBW 139-140
ACDM	T/2	TRANS	Round	122.500	50.000	316.900	489.200	32.000	72.200	10x10x55	-29	114-85-103	60-45-50	1.31-1.02-1.20		HBW 145-146
ZRTX	T/2	LONG	Round	122.700	50.000	311.800	528.400	33.300	69.400	10x10x55	-11	77-79-76	40-40-40	1.03-1.06-1.01		HBW 154-155

Test	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
Prova	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]
AAME	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		
ZNCD	0.1610	0.1700	0.9600	0.0020	0.0080	0.2000	0.1000	0.0200	0.0030	0.1400	0.0050	0.0210	0.00010	0.0010	0.0047	0.0090	0.0013					0.3820		
ACYH	0.1900	0.2200	0.9500	0.0070	0.0100	0.1000	0.0700	0.0200	0.0180	0.1600	0.0020	0.0270	0.00023	0.0010	0.0090	0.0080	0.0011	0.0004				0.3880		
ACDM	0.1750	0.2100	1.0600	0.0100	0.0150	0.1400	0.0600	0.0100	0.0250	0.1800	0.0020	0.0320	0.00018	0.0010	0.0095	0.0090	0.0016					0.3980		
ZRTX	0.1900	0.2100	1.0500	0.0060	0.0140	0.1400	0.0600	0.0100	0.0220	0.1600	0.0020	0.0200	0.00020	0.0030	0.0100	0.0090	0.0019					0.4100		

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 2017 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: 'ZNCD': As 0,0050 Sb 0,0010 'ACYH': Ca 0,0009												Quality inspector representative						Riccardo Scorsetti					
												Ispettore controllo qualità											

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

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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, 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

Riccardo Scorsetti