


<b>REPORT N.</b> Rapporto N.		<b>TC-022703-18-0003</b>		<b>Issued on</b> Revised on		<b>21/01/2019</b>		<b>Customer</b> Cliente		PROVEEDORA DE MATERIALES ANCER SA DE CV, AV ADOLFO LOPEZ MATEOS 150, COL LAGRANGE, SAN NICOLAS DE LOS GARZA, N.L. - 66490, MEXICO					<b>Job n. / Com. n.</b> 22703		<b>Page n. / Pagina n.</b> 3 of 5							
<b>Revision</b> Revisione		0		<b>According to</b> In accordo a		EN 10204:2004 UNI EN 10204:2005		<b>Type</b> Tipo		3.1		<b>DESCRIPTION / DESCRIZIONE</b>					<b>Purchase order and project/Ordine e progetto</b> 8966							
<b>Test</b> Prova	<b>Item</b> Pos.	<b>Qty</b> Q.tà	<b>Customer code</b> Codice cliente		<b>Material</b> Materiale		<b>Heat</b> Colata		<b>Product</b> Prodotto															
AEED	47	300			ASTM A105-18		17/32053		90 DEG. ELBOW S. 3000 SW A/SA105N 3															
AAHR	48	641			ASTM A105-18		245948		45 DEG. ELBOW S. 3000 SW A/SA105N 1.1/4															
ACBC	48	3359			ASTM A105-18		17/74375		45 DEG. ELBOW S. 3000 SW A/SA105N 1.1/4															
ZUDB	49	1005			ASTM A105-18		15/77180		45 DEG. ELBOW S. 3000 SW A/SA105N 1.1/2															
SDCS	52	862			ASTM A105-18		231752		UNION S. 3000 SW A/SA105N 1.1/4 male															
<b>Test</b> Prova	<b>HEAT TREATMENT DATA</b> Dettagli di trattamento termico						<b>COUNTRY OF MELT</b> Provenienza		<b>RAW AND FORGING MATERIAL CERTIFICATES</b> Certificati di acciaieria/forgia															
AEED	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 880 C COOLED IN STILL AIR.						IT		CERT.2017-C-MFF-04587MET*(VACUUM DEGASED STEEL)*CERT.482.MEGA															
AAHR	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.						IT		CERT.000160.EVASI*(VACUUM DEGASED STEEL)															
ACBC	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 880 C COOLED IN STILL AIR.						IT		CERT.FC-010160-17-0146.MEGA/CERT.4485.MEGA															
ZUDB	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 880 C COOLED IN STILL AIR.						IT		CERT.FC-005612-16-0349.MEGA/CERT.3711.MEGA															
SDCS	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.						IT		CERT.000580.EVASI*(VACUUM DEGASED STEEL)															
<b>Test</b> Prova	<b>Test loc.</b> Preso a	<b>Orient.</b> Direz.	<b>TENSILE TEST AT ROOM TEMPERATURE / Trazione a temperatura ambiente</b>							<b>CVN (KV) / Prova di resilienza</b>					<b>Bend [B]</b> Flatt. [F] Piega Schiacc.	<b>Hardness</b> Durezza [HBW <sub>2,5/187,5</sub> ]	<b>Grain Size</b> Dimens. grano							
			<b>Specimen / Provino</b>			<b>Yield strength</b>	<b>Tensile strength</b>	<b>Elongation</b>	<b>Red. Of Area</b>	<b>Dimens.</b>	<b>T</b>	<b>Abs. Energy</b>	<b>Shear A</b>	<b>Lat Exp</b>										
			<b>Shape</b>	<b>A</b>	<b>Gage Length</b>	<b>Snerv. [Mpa]</b>	<b>Rottura [Mpa]</b>	<b>Allung. [%]</b>	<b>Contraz. [%]</b>	<b>Dimens.</b>	<b>Temp.</b>	<b>Energia ass.</b>	<b>Area d</b>	<b>Esp. Lat.</b>										
			<b>Forma</b>	<b>Sez. [mm<sup>2</sup>]</b>	<b>Lungh. [mm]</b>	<b>Min:</b>	<b>Min:</b>	<b>Min:</b>	<b>Min:</b>	<b>[mm]</b>	<b>[°C]</b>	<b>[J]</b>	<b>[%]</b>	<b>[mm]</b>										
AEED	T/2	LONG	Round	126.300	50.000	345.000	485.700	35.400	73.600	10x10x55	-29	256-37-85	100-20-45	2.47-0.64-0.99			135-139							
AAHR	T/2	TRANS	Round	30.700	25.000	292.500	495.600	33.300	68.500	10x10x55	-29	38-42-50	30-35-40	0.62-0.65-0.70			144-148							
ACBC	T/2	TRANS	Round	30.500	25.000	297.400	502.600	34.600	67.900	10x10x55	-29	31-60-60	20-30-30	0.70-0.87-0.81			144-145							
ZUDB	T/2	TRANS	Round	30.800	25.000	315.400	521.900	32.500	67.700	10x10x55	-29	47-42-44	30-25-30	0.74-0.70-0.72			147-148							
SDCS	T/2	LONG	Round	30.000	25.000	322.500	510.300	36.100	73.900	10x10x55	0	152-149-144	--	--			152-157							
<b>Test</b> Prova	<b>C</b>	<b>Si</b>	<b>Mn</b>	<b>S</b>	<b>P</b>	<b>Cr</b>	<b>Ni</b>	<b>Mo</b>	<b>Ti</b>	<b>Cu</b>	<b>V</b>	<b>Al</b>	<b>H</b>	<b>Nb</b>	<b>N</b>	<b>Sn</b>	<b>O</b>	<b>B</b>	<b>Fe</b>	<b>Zr</b>	<b>CE<sup>A</sup></b>	<b>PREN<sup>B</sup></b>	<b>CE<sup>E</sup></b>	<b>J fact.<sup>D</sup></b>
	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]
AEED	0.1950	0.2300	0.9700	0.0060	0.0120	0.1200	0.0600	0.0100	0.0180	0.1700	0.0030	0.0300	0.00024	0.0010	0.0082	0.0090	0.0012	0.0003				0.3985		0.3566
AAHR	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		0.3318	
ACBC	0.1900	0.2000	1.0200	0.0100	0.0100	0.1500	0.0600	0.0100	0.0190	0.1900	0.0020	0.0300	0.00020	0.0020	0.0100	0.0090	0.0016				0.4090		0.3600	
ZUDB	0.1900	0.2200	1.0400	0.0050	0.0150	0.1200	0.0700	0.0200	0.0160	0.1900	0.0030	0.0250	0.00020	0.0010	0.0080	0.0090	0.0014				0.4092		0.3633	
SDCS	0.1660	0.1850	1.0210	0.0020	0.0090	0.1080	0.2050	0.0360		0.1650	0.0040	0.0280	0.00014	0.0040	0.0108	0.0080	0.0018				0.3904		0.3361	
<b>REMARKS / Note</b>																								
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   E: CE <sub>s</sub> = C + Mn/6												
<b>Additional elements:</b> 'AEED': Ca 0.0011   'SDCS': As 0.0060												<b>Quality inspector representative</b>					Riccardo Scorsetti 							
												Ispettore controllo qualità												

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<b>Revision</b> Revisione	<b>0</b>	<b>According to</b> In accordo a	<b>EN 10204:2004</b> <b>UNI EN 10204:2005</b>	<b>Type</b> Tipo	<b>3.1</b>	<b>Purchase order and project/Ordine e progetto</b> <b>8966</b>	

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 2014/68/EU (PED) Annex 1, Section 4.3.

Testing: Test results are relevant only to the specimens belonging to the indicated heat, batch and material.

- Tensile test machine Galdabini Quasar 250 serial No. VAOG – Procedure MAC-03 Rev. 3 – ASTM A370 paragraph 6. Elongation determined after fracture, Yield strength determined using the offset method
- Impact test machine Cermac JB-W500 serial No. 04031 – Procedure MAC-04 Rev. 3 – ASTM A370 Paragraph 20 / ASTM E23
- Brinell and Vickers Hardness test machine Wolpert Dia Testor 2RC serial No. 8900298/0001 – Procedure MAC-05 Rev. 3 – ASTM E10 (HBW); MAC-09 Rev.0 – ASTM E92 (HV10)
- Rockwell Hardness test machine EMCO Test DJ10 Serial No. 255 - Procedure MAC-06 Rev. 3 – ASTM E18
- Chemical analysis spectrometer Baird DV4 serial No. P017 (ASTM E415 and E1086) – Procedure QC-07 Rev. 0
- Grain size determined according to ASTM E112

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

