

INSPECTION CERTIFICATE

Certificato d'ispezione



REPORT N. Rapporto N.	TC-019212-16-0001	Issued on Revised on	31/01/2017	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 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 7902			

DESCRIPTION / DESCRIZIONE						
Test Prova	Item Pos.	Qty Q.tà	Customer code Codice cliente	Material Materiale	Heat Colata	Product Prodotto
IBLD	52	1020		A/SA105-14	020573	HEX. HEAD PLUG NPT A/SA105N 1.1/2
ZNAS	57	4000	*	A/SA105-14	244302	90 DEG. ELBOW S. 3000 SW A/SA105N 3/4
YRAX	60	2974		A/SA105-14	15/77185	90 DEG. ELBOW S. 3000 SW A/SA105N 1.1/2
YUDU	60	2030		A/SA105-14	431812	90 DEG. ELBOW S. 3000 SW A/SA105N 1.1/2
YTLL	63	325		A/SA105-14	14/71264	45 DEG. ELBOW S. 3000 SW A/SA105N 3/4

Test Prova	HEAT TREATMENT DATA AND REFERENCES TO OTHER CERTIFICATES / Dettagli di trattamento termico e riferimenti ad altri certificati					RAW AND FORGING MATERIAL CERTIFICATES / Certificati di acciaieria/forgia				
IBLD	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.					CERT.9157.91 RODACCIAI*				
ZNAS	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.					CERT.000466.EVASI*				
YRAX	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 880 C COOLED IN STILL AIR.					CERT.FC-005329-15-0014.MEGA/CERT.2437.MEGA*				
YUDU	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.					CERT.000284.EVASI*				
YTLL	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 880 C COOLED IN STILL AIR.					CERT.FC-005494-15-0008.MEGA/CERT.3108.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 [mm ²] Sezione	L [mm] Lungh.	Snerv. [Mpa] Min:	Rottura [Mpa] Min:	Allung. [%] Min:	Contraz. [%] Min:	Dimens. [mm]	Temp. [°C]	Energia ass. [J]	Area d [%]	Exp. Lat. [mm]		
IBLD	T/2	LONG	Round	122.600	50.000	400.000	550.000	29.000	63.000	10x10x55	0	46-48-54	--	--	HBW 156-160	
ZNAS	T/2	LONG	Round	121.400	50.000	306.200	487.800	34.400	73.100	10x10x55	-10	182-153-167	85-75-80	1.89-1.69-1.79	HBW 148-149	
YRAX	T/2	LONG	Round	125.100	50.000	308.400	506.100	33.100	66.300	10x10x55	-1	60-76-69	--	--	HBW 150-151	
YUDU	T/2	LONG	Round	61.000	35.000	293.400	490.300	33.400	63.500	10x10x55	-1	86-142-111	45-70-55	1.12-1.60-1.36	HBW 141-144	
YTLL	T/2	LONG	Round	29.800	25.000	329.900	502.800	24.700	47.800	10x10x55	-10	71-88-69	35-45-35	0.95-1.12-0.93	HBW 152-154	

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 [%]
IBLD	0.2100	0.2680	0.9510	0.0100	0.0200	0.1230	0.0100	0.0050		0.0160	<0.0800											0.3958		
ZNAS	0.1640	0.2000	1.0270	0.0030	0.0070	0.1190	0.0910	0.0160	0.0120	0.0830	0.0030	0.0230	0.00015	0.0010	0.0088	0.0050	0.0016					0.3743		
YRAX	0.1800	0.1900	1.0500	0.0070	0.0150	0.1100	0.0500	0.0100	0.0150	0.1500	0.0030	0.0200	0.00020	0.0010	0.0100	0.0080	0.0018					0.3929		
YUDU	0.1680	0.1900	0.9800	0.0020	0.0060	0.2100	0.0800	0.0200	0.0020	0.1100	0.0040	0.0190	0.00009	0.0030	0.0057	0.0080	0.0014					0.3907		
YTLL	0.2000	0.2100	0.9700	0.0030	0.0130	0.1100	0.0400	0.0200	0.0200	0.1400	0.0030	0.0340	0.00019	0.0020	0.0089	0.0100	0.0011					0.4002		

REMARKS / Note	
1: MATERIAL ACCORDING TO NACE MR0175/ISO 15156-1-2-3 Ed 2009	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: YUDU: Co 0,0060 Ca 0,0010 As 0,0040 Sb 0,0010	Quality inspector representative Ispettore controllo qualità

Riccardo Scorsetti

Ispettore controllo qualità



REPORT N. Rapporto N.	TC-019212-16-0001	Issued on Revised on	31/01/2017	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.	2 of 2
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 7902			

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.

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; threads in accordance with ANSI/ASME B1.20.1.
- Outlet branches are manufactured in accordance with: ASME B.31.1, B.31.3 and MSS-SP-97
- Seamless swage nipples are manufactured in accordance with: BS3799-74 or MSS SP95-86
- Seamless pipe nipples are manufactured in accordance with: B36.10-95 or B36.19-85
- Flanged outlet branches are manufactured in accordance with: ASME B.31.1, B.31.3 and B.16.5
- Unions are manufactured in accordance with: BS 3799 or MSS SP-83

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. 1
- Impact test Cermac JB-W500 serial No. 04031 – Procedure MAC-04 Rev. 1
- Brinell Hardness test Wolpert Dia Testor 2RC serial No. 8900298/0001 – Procedure MAC-05 Rev. 1
- Rockwell Hardness test EMCO Test DJ10 Serial No. 255 - Procedure MAC-06 Rev. 1
- 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