

REPORT N. Rapporto N.	TC-020442-17-0003	Issued on Revised on	18/10/2017	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. Purchase order and project/Ordine e progetto	20442 8086	Page n. / Pagina n. 1 of 7
Revision Revisione	0	According to In accordo a	EN 10204:2004 UNI EN 10204:2005	Type Tipo	3.1			

DESCRIPTION / DESCRIZIONE						
Test Prova	Item Pos.	Qty Q.tà	Customer code Codice cliente	Material Materiale	Heat Colata	Product Prodotto
AAEH	11	5100		A/SA105-14	17/71943	COUPLING S. 3000 NPT A/SA105N 1/4
ZCAN	13	2000		A/SA105-14	16/70072	COUPLING S. 3000 NPT A/SA105N 1/2
ZAAC	24	350		A/SA105-14	15/76767	COUPLING S. 3000 NPT A/SA105N 1x1/2
ZUTN	24	175		A/SA105-14	16/71748	COUPLING S. 3000 NPT A/SA105N 1x1/2
ZBRX	29	750		A/SA105-14	16/78657	CAP S. 3000 NPT A/SA105N 1/2

Test Prova	HEAT TREATMENT DATA Dettagli di trattamento termico	COUNTRY OF MELT Provenienza	RAW AND FORGING MATERIAL CERTIFICATES Certificati di acciaieria/forgia
AAEH	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.		CERT.2959.RIVA*(VACUUM DEGASED STEEL)
ZCAN	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.		CERT.36400.RIVA*(VACUUM DEGASED STEEL)
ZAAC	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.		CERT.178.RIVA*(VACUUM DEGASED STEEL)
ZUTN	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.		CERT.48845.RIVA*(VACUUM DEGASED STEEL)
ZBRX	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.		CERT.30738.RIVA*(VACUUM DEGASED STEEL)

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 Lungh.[mm]	Snerv. [Mpa] Min:	Rottura [Mpa] Min:	Allung. [%] Min:	Contraz. [%] Min:	Dimens. [mm]	Temp. [°C]	Energia ass. [J]	Area d [%]	Esp. Lat. [mm]		
AAEH	T/2	LONG	Round	122.700	50.000	338.800	516.300	36.900	73.100	10x10x55	-10	161-162-154	80-80-75	1.67-1.70-1.64	HBW 158-160	
ZCAN	T/2	LONG	Round	121.700	50.000	378.800	523.200	34.900	71.800	10x10x55	-10	191-204-203	95-100-100	1.95-2.04-2.03	HBW 154-155	
ZAAC	T/2	LONG	Round	122.700	50.000	375.200	536.700	35.700	71.200	10x10x55	-1	189-165-198	--	--	HBW 151-155	
ZUTN	T/2	LONG	Round	121.200	50.000	347.800	527.400	34.000	66.900	10x10x55	-10	161-145-151	85-80-80	1.76-1.59-1.66	HBW 141-143	
ZBRX	T/2	LONG	Round	124.300	50.000	369.800	523.600	34.400	70.300	10x10x55	-1	186-187-192	90-90-95	1.92-1.94-1.96	HBW 158-161	

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 [%]
AAEH	0.1900	0.2200	1.0500	0.0100	0.0120	0.1100	0.0400	0.0100	0.0190	0.1600	0.0020	0.0280	0.00018	0.0010	0.0095	0.0070	0.0019					0.4027		
ZCAN	0.1900	0.1900	1.0100	0.0090	0.0110	0.1200	0.0500	0.0100	0.0210	0.1900	0.0030	0.0250	0.00019	0.0020	0.0090	0.0250	0.0019					0.4009		
ZAAC	0.1850	0.2000	1.0500	0.0030	0.0100	0.0800	0.0500	0.0100	0.0180	0.1200	0.0020	0.0250	0.00016	0.0020	0.0097	0.0080	0.0016					0.3897		
ZUTN	0.1800	0.2000	1.0000	0.0100	0.0150	0.1500	0.0900	0.0100	0.0130	0.1400	0.0020	0.0250	0.00020	0.0020	0.0095	0.0090	0.0014					0.3943		
ZBRX	0.1900	0.2000	1.0100	0.0090	0.0150	0.1400	0.0600	0.0100	0.0230	0.2000	0.0030	0.0290	0.00018	0.0020	0.0091	0.0100	0.0018					0.4062		

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:												Quality inspector representative						Ispettore controllo qualità						Riccardo Scorsetti 					

REPORT N. Rapporto N.	TC-020442-17-0003	Issued on Revised on	18/10/2017	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. 20442	Page n. / Pagina n. 2 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 8086	

DESCRIPTION / DESCRIZIONE						
Test	Item	Qty	Customer code	Material	Heat	Product
Prova	Pos.	Q.tà	Codice cliente	Materiale	Colata	Prodotto
SBL	38	100		A/SA105-14	AK2670	BUSHING M/F NPT A/SA105N 3/4x1/2
ZUTC	38	1900		A/SA105-14	646668	BUSHING M/F NPT A/SA105N 3/4x1/2
AAKW	39	1000		A/SA105-14	BB6766	BUSHING M/F NPT A/SA105N 1x1/2
AAKW	40	1000		A/SA105-14	BB6766	BUSHING M/F NPT A/SA105N 1x3/4
ABYE	56	4998		A/SA105-14	240971	90 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
SBL	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.		CERT.065651.RODACCIAI/CERT.1201.MEGA*
ZUTC	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.		CERT.112717.RODACCIAI*
AAKW	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.		CERT.023319.RODACCIAI*
AAKW	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.		CERT.023319.RODACCIAI*
ABYE	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.		CERT.000337.EVASI*(VACUUM DEGASED STEEL)

Test	Test loc.	Orient.	TENSILE TEST AT ROOM TEMPERATURE / Trazione a temperatura ambiente							CVN (KV) / Prova di resilienza					Bend [B] Flatt. [F] Piegia Schiacc.	Hardness Durezza
			Specimen / Provino			Yield strength	Tensile strength	Elongation	Red. Of Area	Dimens.	T	Abs. Energy	Shear A	Lat Exp		
			Shape	A	Gage Length	Snerv. [Mpa]	Rottura [Mpa]	Allung. [%]	Contraz. [%]	Dimens.	Temp.	Energia ass.	Area d	Esp. Lat.		
Prova	Preso a	Direz.	Forma	Sez.[mm ²]	Lungh.[mm]	Min:	Min:	Min:	Min:	[mm]	[°C]	[J]	[%]	[mm]		
SBL	T/2	LONG	Round	122.600	50.000	321.500	544.900	36.000	68.400	10x10x55	0	92-94-106	--	--	HBW 156-159	
ZUTC	T/2	LONG	Round	122.600	50.000	334.100	536.400	37.100	65.900	10x10x55	-1	156-160-160	--	--	HBW 162-162	
AAKW	T/2	LONG	Round	122.600	50.000	338.900	551.100	35.100	68.200	10x10x55	-29	124-124-152	--	--	HBW 152-152	
AAKW	T/2	LONG	Round	122.600	50.000	338.900	551.100	35.100	68.200	10x10x55	-29	124-124-152	--	--	HBW 152-152	
ABYE	T/2	TRANS	Round	30.700	25.000	317.400	523.900	30.200	64.000	10x10x55	-29	38-36-39	25-25-25	0.66-0.64-0.65	HBW 145-150	

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	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]
SBL	0.1900	0.2300	1.0000	0.0160	0.0070	0.1400	0.1300	0.0500		0.1200	0.0020	0.0220		0.0010										0.4117
ZUTC	0.1850	0.2400	0.8500	0.0200	0.0140	0.1500	0.0800	0.0200		0.2300	0.0030	0.0240		0.0010										0.3819
AAKW	0.2000	0.2300	0.9500	0.0210	0.0100	0.1000	0.0600	0.0300		0.0700	0.0020	0.0210												0.3933
AAKW	0.2000	0.2300	0.9500	0.0210	0.0100	0.1000	0.0600	0.0300		0.0700	0.0020	0.0210												0.3933
ABYE	0.1560	0.1700	0.9600	0.0020	0.0090	0.2100	0.0700	0.0200	0.0020	0.1400	0.0040	0.0220	0.00011	0.0020	0.0060	0.0060	0.0013							0.3768

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: 'ABYE': Co 0,0080 Ca 0,0010 As 0,0030 Sb 0,0010	Quality inspector representative Ispettore controllo qualità

Riccardo Scorsetti

REPORT N. Rapporto N.	TC-020442-17-0003	Issued on Revised on	18/10/2017	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. 20442	Page n. / Pagina n. 3 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 8086	

DESCRIPTION / DESCRIZIONE						
Test	Item	Qty	Customer code	Material	Heat	Product
Prova	Pos.	Q.tà	Codice cliente	Materiale	Colata	Prodotto
ZRSX	56	12		A/SA105-14	13/78399	90 DEG. ELBOW S. 3000 SW A/SA105N 1
ZFCX	57	297		A/SA105-14	16/79080	90 DEG. ELBOW S. 3000 SW A/SA105N 1.1/4
ZNAX	57	3		A/SA105-14	244301	90 DEG. ELBOW S. 3000 SW A/SA105N 1.1/4
ABAP	58	3600		A/SA105-14	16/71238	90 DEG. ELBOW S. 3000 SW A/SA105N 1.1/2
ABTS	59	900		A/SA105-14	240001	90 DEG. ELBOW S. 3000 SW A/SA105N 2

Test	HEAT TREATMENT DATA	COUNTRY OF MELT	RAW AND FORGING MATERIAL CERTIFICATES
Prova	Dettagli di trattamento termico	Provenienza	Certificati di acciaieria/forgia
ZRSX	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 880 C COOLED IN STILL AIR.		CERT.FC-005612-16-0136.MEGA/CERT.3211.MEGA*
ZFCX	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 880 C COOLED IN STILL AIR.		CERT.FC-005612-16-0149.MEGA/CERT.3230.MEGA*
ZNAX	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.		CERT.000516.EVASI*(VACUUM DEGASED STEEL)
ABAP	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.		CERT.FC-005612-16-0369.MEGA/CERT.3789.MEGA*
ABTS	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.		CERT.000357.EVASI*(VACUUM DEGASED STEEL)

Test	Test loc.	Orient.	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	A	Gage Length	Snerv. [Mpa]	Rottura [Mpa]	Allung. [%]	Contraz. [%]	Dimens.	Temp.	Energia ass.	Area d	Esp. Lat.		
Prova	Preso a	Direz.	Forma	Sez. [mm ²]	Lungh. [mm]	Min:	Min:	Min:	Min:	[mm]	[°C]	[J]	[%]	[mm]		
ZRSX	T/2	TRANS	Round	60.100	35.000	322.400	523.700	29.200	59.900	10x10x55	-29	34-31-44	20-20-25	0.57-0.54-0.62	HBW 164-166	
ZFCX	T/2	LONG	Round	30.400	25.000	324.400	521.400	32.000	67.100	10x10x55	-10	42-44-42	40-40-40	0.58-0.62-0.59	HBW 143-145	
ZNAX	T/2	TRANS	Round	31.200	25.000	293.500	489.900	34.500	68.100	10x10x55	-10	110-91-103	55-45-50	1.33-1.13-1.22	HBW 141-142	
ABAP	T/2	TRANS	Round	60.800	35.000	297.100	493.100	30.900	71.800	10x10x55	-29	37-49-33	25-30-20	0.61-0.71-0.58	HBW 147-151	
ABTS	T/2	TRANS	Round	60.300	35.000	274.500	488.700	38.700	73.000	10x10x55	-29	35-37-66	20-25-35	0.60-0.63-0.90	HBW 145-147	

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	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]
ZRSX	0.2000	0.2400	0.9100	0.0090	0.0120	0.0700	0.0600	0.0100	0.0180	0.2000	0.0020	0.0250	0.00025	0.0020	0.0090	0.0090	0.0016					0.3853		
ZFCX	0.1800	0.2400	1.0500	0.0070	0.0110	0.1100	0.0600	0.0100	0.0160	0.1900	0.0020	0.0260	0.00018	0.0020	0.0086	0.0100	0.0016					0.3960		
ZNAX	0.1600	0.1810	1.0240	0.0060	0.0090	0.1230	0.0930	0.0300	0.0100	0.1340	0.0030	0.0230	0.00013	0.0010	0.0082	0.0050	0.0018					0.3769		
ABAP	0.1800	0.2100	1.0000	0.0090	0.0150	0.1300	0.0600	0.0100	0.0150	0.1900	0.0020	0.0210	0.00020	0.0010	0.0099	0.0090	0.0017					0.3917		
ABTS	0.1600	0.2100	0.9700	0.0020	0.0070	0.2100	0.1100	0.0300	0.0010	0.1500	0.0040	0.0220	0.00011	0.0010	0.0050	0.0060	0.0013					0.3877		

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: 'ABTS': Co 0,0090 As 0,0060 Sb 0,0010												Quality inspector representative						Ispettore controllo qualità						Riccardo Scorsetti					

REPORT N. Rapporto N.	TC-020442-17-0003	Issued on Revised on	18/10/2017	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. 20442	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 8086	

DESCRIPTION / DESCRIZIONE						
Test	Item	Qty	Customer code	Material	Heat	Product
Prova	Pos.	Q.tà	Codice cliente	Materiale	Colata	Prodotto
ZTNX	64	3000		A/SA105-14	16/47588	45 DEG. ELBOW S. 3000 SW A/SA105N 1.1/4
ZUAC	68	50		A/SA105-14	15/77183	45 DEG. ELBOW S. 3000 SW A/SA105N 3
ABIJ	71	2000		A/SA105-14	17/73450	TEE S. 3000 SW A/SA105N 1
YTLF	73	1430		A/SA105-14	15/77179	TEE S. 3000 SW A/SA105N 1.1/2
ZNTA	73	70		A/SA105-14	234373	TEE S. 3000 SW A/SA105N 1.1/2

Test	HEAT TREATMENT DATA	COUNTRY OF MELT	RAW AND FORGING MATERIAL CERTIFICATES
Prova	Dettagli di trattamento termico	Provenienza	Certificati di acciaieria/forgia
ZTNX	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.		CERT.FC-005612-16-0403.MEGA/CERT.3864.MEGA*
ZUAC	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 880 C COOLED IN STILL AIR.		CERT.FC-005494-15-0007.MEGA/CERT.3098.MEGA*
ABIJ	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 880 C COOLED IN STILL AIR.		CERT.1857.METALFAR*CERT.3704.MEGA*(VACUUM DEGASED STEEL)
YTLF	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 880 C COOLED IN STILL AIR.		CERT.FC-005528-15-0008.MEGA/CERT.2868.MEGA*
ZNTA	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 880 C COOLED IN STILL AIR.		CERT.FC-005528-15-0012.MEGA/CERT.3017.MEGA*

Test	Test loc.	Orient.	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	A	Gage Length	Snerv. [Mpa]	Rottura [Mpa]	Allung. [%]	Contraz. [%]	Dimens.	Temp.	Energia ass.	Area d	Esp. Lat.		
Prova	Preso a	Direz.	Forma	Sez.[mm ²]	Lunghezza [mm]	Min:	Min:	Min:	Min:	[mm]	[°C]	[J]	[%]	[mm]		
ZTNX	T/2	TRANS	Round	30.700	25.000	311.700	512.100	38.900	75.100	10x10x55	-29	111-73-50	55-40-30	1.30-0.93-0.72		HBW 153-154
ZUAC	T/2	LONG	Round	120.700	50.000	286.300	500.400	31.100	64.100	10x10x55	-10	44-51-43	25-30-25	0.68-0.75-0.66		HBW 150-153
ABIJ	T/2	TRANS	Round	31.200	25.000	296.400	493.100	37.000	67.400	10x10x55	-29	43-33-30	25-20-20	0.66-0.58-0.54		HBW 144-145
YTLF	T/2	TRANS	Round	122.300	50.000	316.400	502.000	28.100	56.400	10x10x55	0	76-47-67	50-45-50	0.80-0.51-0.69		HBW 141-144
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

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	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]
ZTNX	0.1700	0.2200	1.0900	0.0040	0.0120	0.1600	0.0600	0.0200	0.0150	0.1500	0.0020	0.0290	0.00024	0.0020	0.0086	0.0120	0.0015	0.0003				0.4020		
ZUAC	0.1900	0.1800	1.0500	0.0060	0.0150	0.1100	0.0600	0.0100	0.0150	0.1900	0.0030	0.0250	0.00018	0.0010	0.0097	0.0080	0.0012				0.4062			
ABIJ	0.1850	0.1800	0.9400	0.0090	0.0100	0.1400	0.0600	0.0100	0.0160	0.1900	0.0020	0.0250	0.00018	0.0010	0.0100	0.0080	0.0013				0.3887			
YTLF	0.1900	0.2300	0.9900	0.0080	0.0150	0.1500	0.0700	0.0200	0.0170	0.2000	0.0030	0.0250	0.00020	0.0010	0.0095	0.0100	0.0017				0.4076			
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			

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+45n+As)/100 - elements expressed in ppm																	
3: FULLY KILLED STEEL, FINE GRAIN TREATED.												D: J factor = ((Mn + Si) (P + Sn)) x 10E4																	
Additional elements: 'ZNTA': Co 0,0060 Ca 0,0011 As 0,0030 Sb 0,0010												Quality inspector representative						Ispettore controllo qualità						Riccardo Scorsetti 					

REPORT N. Rapporto N.	TC-020442-17-0003	Issued on Revised on	18/10/2017	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. 20442	Page n. / Pagina n. 5 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 8086	

DESCRIPTION / DESCRIZIONE						
Test	Item	Qty	Customer code	Material	Heat	Product
Prova	Pos.	Q.tà	Codice cliente	Materiale	Colata	Prodotto
JFNL	76	50		A/SA105-14	11/79741	UNION S. 3000 SW A/SA105N 1.1/4 male
JLUF	76	50		A/SA105-14	13/76057	UNION S. 3000 SW A/SA105N 1.1/4 female
JLUF	76	50		A/SA105-14	13/76057	UNION S. 3000 SW A/SA105N 1.1/4 nut
SDCS	76	139		A/SA105-14	231752	UNION S. 3000 SW A/SA105N 1.1/4 male
SDCS	76	113		A/SA105-14	231752	UNION S. 3000 SW A/SA105N 1.1/4 female

Test	HEAT TREATMENT DATA				COUNTRY OF MELT	RAW AND FORGING MATERIAL CERTIFICATES
Prova	Dettagli di trattamento termico				Provenienza	Certificati di acciaieria/forgia
JFNL	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.					CERT.000152.EVASI*
JLUF	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.					CERT.000174.EVASI*
JLUF	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.					CERT.000174.EVASI*
SDCS	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.					CERT.000580.EVASI*(VACUUM DEGASED STEEL)
SDCS	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.					CERT.000580.EVASI*(VACUUM DEGASED STEEL)

Test	Test loc.	Orient.	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	A	Gage Length	Snerv. [Mpa]	Rottura [Mpa]	Allung. [%]	Contraz. [%]	Dimens.	Temp.	Energia ass.	Area d	Esp. Lat.		
Prova	Preso a	Direz.	Forma	Sez.[mm ²]	Lungh.[mm]	Min:	Min:	Min:	Min:	[mm]	[°C]	[J]	[%]	[mm]		
JFNL	T/2	TRANS	Round	30.600	25.000	309.000	528.000	28.800	65.800	10x10x55	0	38-46-48	--	--	HBW 151-152	
JLUF	T/2	TRANS	Round	30.600	25.000	320.000	539.000	29.100	66.900	10x10x55	0	48-58-60	--	--	HBW 151-161	
JLUF	T/2	TRANS	Round	30.600	25.000	320.000	539.000	29.100	66.900	10x10x55	0	48-58-60	--	--	HBW 151-161	
SDCS	T/2	LONG	Round	30.000	25.000	322.500	510.300	36.100	73.900	10x10x55	0	152-149-144	--	--	HBW 152-157	
SDCS	T/2	LONG	Round	30.000	25.000	322.500	510.300	36.100	73.900	10x10x55	0	152-149-144	--	--	HBW 152-157	

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	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	
JFNL	0.1800	0.2300	0.8800	0.0080	0.0110	0.0900	0.0700	0.0200	0.0180	0.1700	0.0180	0.0280		0.0030		0.0100							0.3682		
JLUF	0.1800	0.2100	0.8500	0.0100	0.0140	0.1500	0.0600	0.0100	0.0160	0.1800	0.0210	0.0220		0.0010		0.0080							0.3738		
JLUF	0.1800	0.2100	0.8500	0.0100	0.0140	0.1500	0.0600	0.0100	0.0160	0.1800	0.0210	0.0220		0.0010		0.0080							0.3738		
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		
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		

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: 'SDCS': As 0,0060												Quality inspector representative						Ispettore controllo qualità						Riccardo Scorsetti					

REPORT N. Rapporto N.	TC-020442-17-0003	Issued on Revised on	18/10/2017	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. 20442	Page n. / Pagina n. 6 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 8086	

DESCRIPTION / DESCRIZIONE						
Test Prova	Item Pos.	Qty Q.tà	Customer code Codice cliente	Material Materiale	Heat Colata	Product Prodotto
SDCS	76	113		A/SA105-14	231752	UNION S. 3000 SW A/SA105N 1.1/4 nut
SDAL	76	26		A/SA105-14	231752	UNION S. 3000 SW A/SA105N 1.1/4 female
SDAL	76	26		A/SA105-14	231752	UNION S. 3000 SW A/SA105N 1.1/4 nut

Test Prova	HEAT TREATMENT DATA Dettagli di trattamento termico	COUNTRY OF MELT Provenienza	RAW AND FORGING MATERIAL CERTIFICATES Certificati di acciaieria/forgia
SDCS	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.		CERT.000580.EVASI*(VACUUM DEGASED STEEL)
SDAL	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.		CERT.000182.EVASI*(VACUUM DEGASED STEEL)
SDAL	MATERIAL PRODUCED BY ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.		CERT.000182.EVASI*(VACUUM DEGASED STEEL)

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 Lungh.[mm]	Snerv. [Mpa] Min:	Rottura [Mpa] Min:	Allung. [%] Min:	Contraz. [%] Min:	Dimens. [mm]	Temp. [°C]	Energia ass. [J]	Area d [%]	Esp. Lat. [mm]		
SDCS	T/2	LONG	Round	30.000	25.000	322.500	510.300	36.100	73.900	10x10x55	0	152-149-144	--	--	HBW 152-157	
SDAL	T/2	TRANS	Round	30.400	25.000	315.100	542.600	34.800	65.200	10x10x55	0	75-71-60	--	--	HBW 145-149	
SDAL	T/2	TRANS	Round	30.400	25.000	315.100	542.600	34.800	65.200	10x10x55	0	75-71-60	--	--	HBW 145-149	

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 [%]
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			
SDAL	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			
SDAL	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			

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: 'SDAL': As 0,0060												Quality inspector representative						Riccardo Scorsetti					
												Ispettore controllo qualità											

REPORT N. Rapporto N.	TC-020442-17-0003	Issued on Revised on	18/10/2017	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. 20442	Page n. / Pagina n. 7 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 8086	

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 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
--	------------------------