

DOSSIER DE QUALIDADE

 ASCH <small>INFRAESTRUCTURAS Y SERVICIOS</small>	Empreitada:	DOCUMENTO Nº:
	4001008 - "Nuevas Plantas de Poliolefinas, Plataformas Logísticas Y Offsites"	DATA:
		FOLHA Nº : / DE:

2.2.1.2 DOSSIER FINAL – POLIETILENO DE ALTA DENSIDADE (HDPE)

ITEM	DESCRIÇÃO	CÓDIGO	DATA
1	DOSSIER DE CONSTRUÇÃO - REDE CONTRA INCÊNDIOS AVENIDA 27	R-R007-006	05/08/2024

20/12/2023			
Data	Qualidade	Director Obra	Repsol
	Verificado	Aprovado	Cliente

PROTOCOLO DE ELEMENTOS CONSTRUÍDOS

 ASCH INFRAESTRUCTURAS Y SERVICIOS	Empreitada:	DOCUMENTO N°: R-R007-006
	4001008 - "Nuevas Plantas de Poliolefinas, Plataformas Logísticas Y Offsites"	DATA: 05/08/ 2024
		FOLHA N° : / DE: 1 / 185

ÂMBITO

REDE CONTRA INCÊNDIOS AVENIDA 27

FIRE WATER-20" – FW900000 – PEB69

Elementos Construídos

Rev.	Data	Descrição	Realizado	Cliente
0	05/08/2024	Protocolo REDE CONTRA INCÊNDIOS AVENIDA 27 FIRE WATER-20" – FW900000 – PEB69	JOSE ANTUNES TECNICO QUALIDADE	

PROTOCOLO DE ELEMENTOS CONSTRUÍDOS



Empreitada:

**4001008 - "Nuevas Plantas de Poliolefinas,
Plataformas Logísticas Y Offsites"**

DOCUMENTO N°:

R-R007-006

DATA:

05/08/ 2024

FOLHA N°: / DE:

2 / 185

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		FOLHA Nº : / DE: 3 / 185

INTRODUÇÃO

O presente documento foi solicitado pela Repsol e visa apresentar os aspetos técnico de execução dos trabalhos englobados na empreitada 40001008 – ALBA - “Nuevas Plantas de Poliolefinas, Plataformas Logísticas Y Offsites”, nas instalações da Repsol Polímeros em Sines – Portugal.

ÂMBITO ESPECÍFICO

Os trabalhos mencionados no presente documento referem-se às atividades de construção de elementos da rede de Contra Incêndios – FW, que foram executados como REDE CONTRA INCÊNDIOS AVENIDA 27- FIRE WATER-20” – FW900000 – PEB69, localizados entre a Avenida 26, Avenida 27 e Avenida 24.

EXECUÇÃO

A ASCH executou os trabalhos de acordo com as especificações e desenhos fornecidos pela Repsol e foi acompanhados pela Supervisão da Obra (Applus).

Não foram registadas situações preocupantes no decorrer dos trabalhos.

QUALIDADE

Inclui-se em anexo toda a documentação relacionada com o controlo de qualidade tais como:

- Desenhos
- Certificados de materiais
- Soldadura
- Ensaios e provas finais
- As built

- **Não** foram detetadas **Não Conformidades** no decorrer da execução dos trabalhos, nesta área.

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1. DESENHOS

Rev.	Data	Descrição	Realizado	Cliente
0	05/08/2024	Protocolo REDE CONTRA INCÊNDIOS AVENIDA 27 FIRE WATER-20" – FW900000 – PEB69	JOSE ANTUNES TECNICO QUALIDADE	

REFERENCE DRAWINGS

DRAWING NUMBER	SHEET	TITLE
00-000-0-21-00001	1	SITE PLAN
00-000-8-05-1501	1	RAINWATER DRAINAGE SYSTEM DETAILS
00-000-8-05-1501	2	RAINWATER DRAINAGE SYSTEM DETAILS
00-000-8-05-1501	3	OL DRAINAGE SYSTEM DETAILS
00-000-8-05-1501	4	DRAINAGE SYSTEM DETAILS
00-000-8-05-1501	5	SANITARY DRAINAGE SYSTEM DETAILS
00-000-8-05-1501	6	LUMINAIRE FOUNDATION AND ELECTRICAL TRENCH DETAILS
00-000-8-05-1500	1	UNDERGROUND SYSTEM, KEY PLAN
00-000-8-05-1500	2 & 6	UNDERGROUND SYSTEM, LOGISTIC PLATFORM, PP AND PEL
00-000-8-05-1500	7 & 9	UNDERGROUND SYSTEM, LOGISTIC PLATFORM
00-000-8-05-1500	8	UNDERGROUND SYSTEM, AVENUE 8 & AVENUE 11
00-000-8-05-1500	10	UNDERGROUND SYSTEM, AVENUE 27
00-000-8-05-1500	11/12	UNDERGROUND SYSTEM, SECTION
00-000-8-11-00001	01	SINES INDUSTRIAL COMPLEX PILOT PLAN
00-000-8-11-00001	02	GENERAL SITES, LOGISTICS STATIONS
00-000-8-11-00001	03	DATUM MILITAR COORDINATES
00-000-8-04-00100	1	GENERAL SERVER SYSTEMS
00-000-8-04-00100	2	GENERAL SERVER SYSTEMS, ALBA PROJECT DISMANTLING PIPE
00-000-8-04-00100	3	GENERAL SERVER SYSTEMS

NOTES

LEGEND

EL. ELEVATION
ID INTERNAL DIAMETER
DN NOMINAL DIAMETER
BM BOTTOM OF MANHOLE
W.P. WORKING POINT

SYMBOLS

CLEAN PANWATER REINFORCED CONCRETE SNA (EN-13476) WILL BE USED UP TO DN100. FOR HIGHER DIAMETERS WILL BE USED REINFORCED CONCRETE CLASS 135 (EN-1976)

DNW
OLW
CL

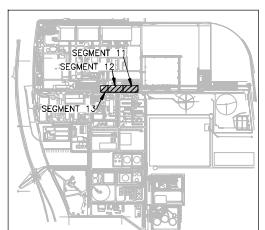
OL. DRAINAGE SYSTEM CARBON STEEL WILL BE USED UP TO DN900, FOR HIGHER DIAMETERS WILL BE USED REINFORCED CONCRETE CLASS 135 (EN-1976) WITH HYDROCARBON COMPLIANT GASKET.
CARBON STEEL PIPE WILL BE TYPE B AS REQUIRED IN EN-10216-4, SMALLER SIZES ARE ALLOWED TO USE CARBON STEEL PIPE AS REQUIRED BY ED-N-03. NOMINAL CORROSION TOLERANCE CONSIDERED FOR CARBON STEEL PIPE IS 6 mm.

EW

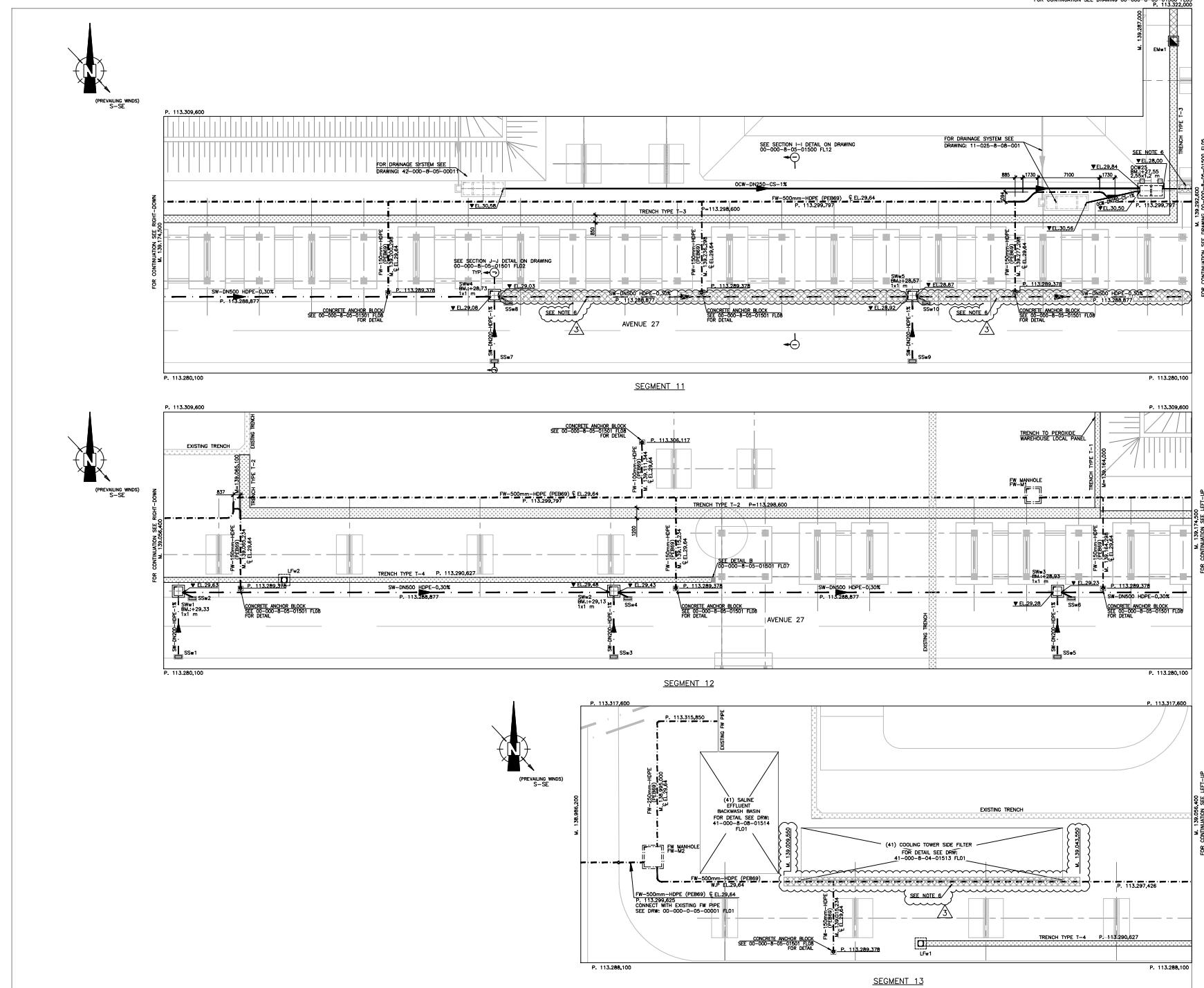
CINE-13476-140204-000000

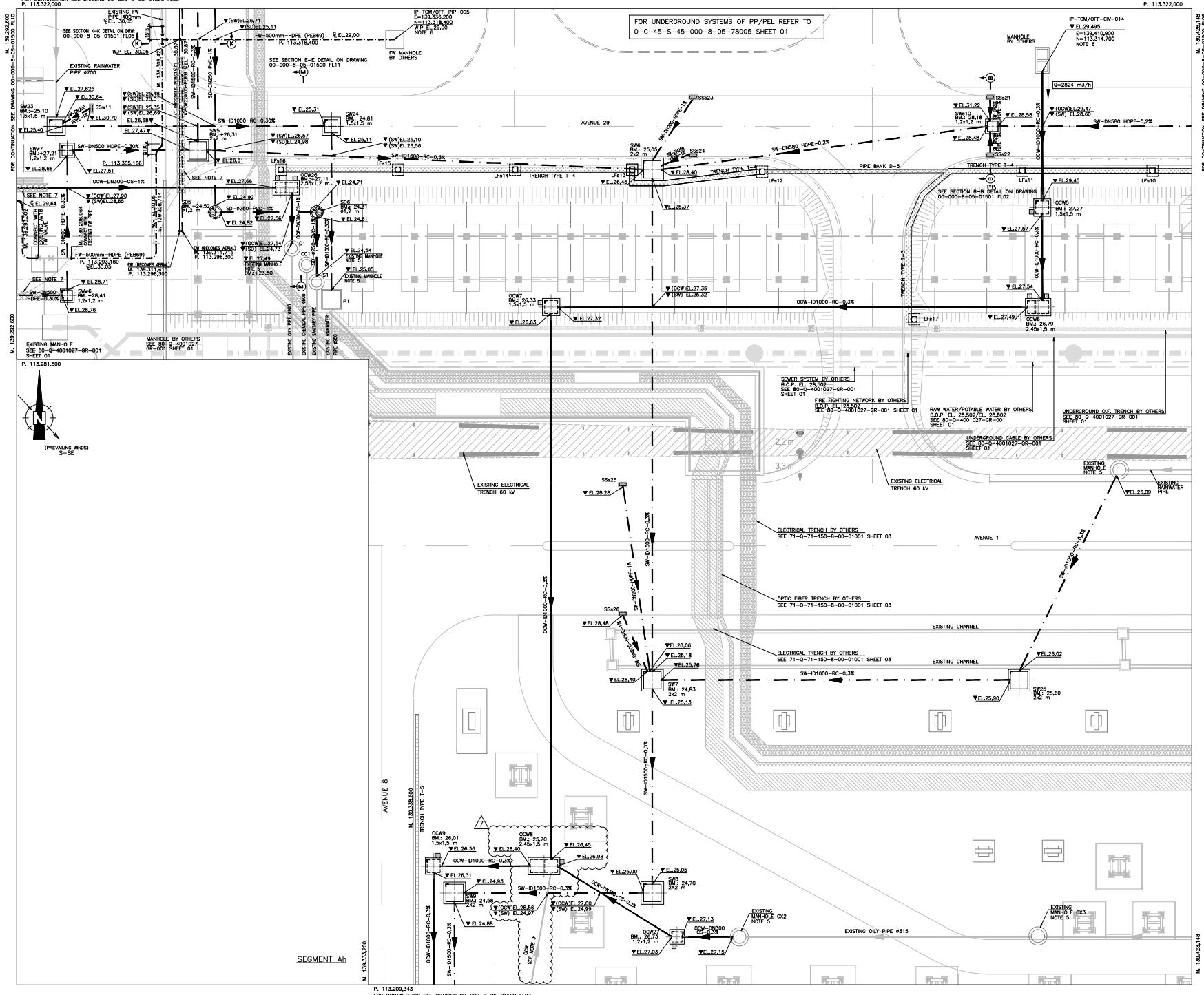
FIRE WATER HOPE (PEB09)

KEY PLAN



3	4001008	MODIFIED WHERE INDICATED	△	06/09/23	C.R.A.	H.B.S.	G.R.C.	P.L.Z.
2	4001008	MODIFIED WHERE INDICATED	△	20/07/23	C.R.A.	H.B.S.	G.R.C.	P.L.Z.
1	4001008	MODIFIED WHERE INDICATED	△	26/05/23	C.R.A.	H.B.S.	G.R.C.	P.L.Z.
PROYECTO:		DESCRIPTION	FEC/AD	FECHAD	REVIS	COMPROV	APROB	ESTADO
		ADAPTACIONES						
  REPSOL AYESA								
NEGOCIO: DISPENSAS REPSON POLÍMEROS, S.A. CENTRO: PAZCATLÁN COMPLEJO INDUSTRIAL SINES								
PROYECTO REPSON AYESA PROYECTO 2023		4001008	FECHA DE REVISIÓN	FECHAD	C.R.A.	H.B.S.	G.R.C.	P.L.Z.
DETALLE DE INGENIEROS:		FECHA DE TOMADA	TOMADA	APROBACIÓN	O.R.C.	O.P.C.	O.R.C.	P.L.Z.
Dra. MARÍA JESÚS GONZALEZ 2020		9576	1:15:00	DIN-A0	V.FE CLIENTE CLAVIJO ARMANDO			
TITULO: MEJORAMIENTO OFFSITES ALBA UNDERGROUND SYSTEMS, LOGISTIC PLATEFORM, PP AND PE GENERAL ARRANGEMENT SEGMENT 11, 12 and 13								
AREA/ANDO:	CLASE:	PLANO N.	DETALLE N.	FECHA:	HOJA/ID	REV.		
00	S	00-00000-8-05-01500			3			





REFERENCE DRAWINGS

DRAWING NUMBER	SHEET	SECTION DIVISIONS	TITLE
00-000-0-05-01001	1	SITE, ROLL PLAN	
00-000-0-05-01001	1	RAINWATER DRAINAGE SYSTEM DETAILS	
00-000-0-05-01001	2	RAINWATER DRAINAGE SYSTEM DETAILS	
00-000-0-05-01001	3	OL DRAINAGE SYSTEM DETAILS	
00-000-0-05-01001	4	OL DRAINAGE SYSTEM DETAILS	
00-000-0-05-01001	5	SANITARY DRAINAGE SYSTEM DETAILS	
00-000-0-05-01001	6	LUMINAIRE FOUNDATION AND ELECTRICAL TRENCH DETAILS	
00-000-0-05-01001	7	LOGISTIC PLATEFORM, PIPES AND CONCRETE	
00-000-0-05-01001	7 1/2 & 9	UNDERGROUND SYSTEM, LOGISTIC PLATEFORM, PP AND PE	
00-000-0-05-01001	7 & 9	UNDERGROUND SYSTEM, AVENUE 8	
00-000-0-05-01001	8	UNDERGROUND SYSTEM, AVENUE 8 & AVENUE 11	
00-000-0-05-01001	10	UNDERGROUND SYSTEM, AVENUE 27	
00-000-0-05-01001	11/12	UNDERGROUND SYSTEM, SECTIONS	
00-000-0-11-00001	01	GENERAL INFORMATION, SITE PLAN	
00-000-0-11-00001	01	GENERAL TOPOGRAPHIC SURVEY STATIONS	
00-000-0-11-00001	01	DATUM, MILITARY COORDINATES	
00-000-0-04-00100	1	GENERAL, SEWER SYSTEMS	
00-000-0-04-00100	2	GENERAL, BIMAX SYSTEMS, ALBA PROJECT, DISMANTLING PIPES	
NOTES			

- 1.- ALL DIMENSIONS ARE IN MILLIMETERS (mm).
- 2.- ALL COORDINATES AND ELEVATIONS ARE IN METERS (m).

13. - COORDINATES REFERRED TO THE DATUM/LOCAL COORDINATE SYSTEM GENERALLY USED IN THE AREA; EXAMPLE:
DATUM: MILITARY
ELLIPSOID: WGS - 1984
MILITARY COORDINATES: MILITARY COORDINATE SYSTEM GEODESIC
GEOTOW - MILITARY COORDINATES

ELEVATIONS REFERRED TO SEA LEVEL AT MARENGO DE CASCAS.

REFERENCE ELEVATION USED ACCORDING BASE: FREEP06, START ELEVATION FOR CONSTRUCTION OF THE PROJECT, WHICH WILL BE USED OUT TO PROVIDE ALTIMETRY TO THE IMPLANTED TOPOGRAPHIC NETWORK BASES.

4. - EXECUTION CONTROLS WILL BE REINFORCED IN ACCORDANCE WITH THE DESCRIBED IN EUROCODE 2

5. - LOCATION OF EXISTING MANHOLES HAVE BEEN ADJUSTED ACCORDING WITH TOPOGRAPHICAL SURVEY

6. - COORDINATES ON BATTERY LIMIT ORDERING DRW: 45-S-45-000-B-05-78005-IS03

7. - PIPE PROTECTION, FOR DETAIL SEE DRAWINGS: 00-000-B-05-01501 FLO4

8. - FINAL ROUTING FOR 30KV ELECTRICAL TRUNCH AND FO TRENCH (100M) IN THIS AREA SHALL BE ADJUSTED ON SITE TO AVOID INTERFERENCES WITH EXISTING ELEMENTS, PIPE RACK FOUNDATION AND UNDERGROUND FACILITIES TO CONTRACTORS AREA.

9. - FOR PIPE INFORMATION SEE DRAWING 44-000-B-05-00022 FLO1

LEGEND

ID INTERNAL DIAMETER	CC1 EXISTING CHEMICAL MANHOLE
DN NOMINAL DIAMETER	S1 EXISTING SANITARY MANHOLE
BM BOTTOM OF MANHOLE	P1 EXISTING RAINWATER MANHOLE
WP WORKING POINT	

SYMBOLICS

CLEAN BIMINATE HIPS CORRODED ENR (EN-1376) WILL BE USED.

AN RAINWATER HDPE CORRUGATED
TO DN1000. FOR HIGHER DIAMETER
1000TE-01460 175 (EN 1210)

CONCRETE CLASS 135 (EN-1916)

OCW - 1000 DIA. STEEL PIPE IS TO BE USED TO DINBU. FOR HIGHER SYSTEMS WILL BE USED REINFORCED CONCRETE CLASS 135 (EN-1916) WITH HYDROCARBON COMPATIBLE GASKET. CARBON STEEL PIPE WILL BE TYPE B4 AS REQUIRED PE-L-201.04 SHALL HAVE A DOUBLE TAPE OILITE COATING AS REQUIRED BY

SD SANITARY DRAINAGE SYSTEM IN CORRUGATED PVC SN-8 (EN-13476)
RW RAW WATER HDPE 4"

DW DRINKING WATER HDPE 4"

FW FIRE WATER HDPE (PEB69)

 EXISTING PIPE
TYPE SW MANHOLE

PRECAST CONCRETE SYPHONIC SCUPPER

 TYPE SD MANHOLE

▼ BOTTOM PIPE ELEVATION
[Hatched Box] ELECTRICAL TRENCH

 ELECTRICAL TRENCH UNDER STREET/PIPE BANK

 FOUNDATION FOR STREET LIGHTING FIXTURE
 VENT ANCHOR BASE

 PIPE PROTECTION

KEY PLAN

400

A small map located in the bottom right corner of the page. It shows a grid-like street pattern with several buildings outlined in black. A specific area is highlighted with a dashed red rectangle, indicating the location of the site described in the text above.

7	4001008	MODIFIED WHERE INDICATED	▲	20/11/23	C.B.A.	H.B.S.	G.R.C.	P.L.Z.
6	4001008	MODIFIED WHERE INDICATED	▲	04/10/23	C.B.A.	H.B.S.	G.R.C.	P.L.Z.

5	4001006	MODIFIED WHERE INDICATED	△	29/09/23	C.B.A.	H.S.S.	G.R.C.	P.L.Z.
4	4001006	MODIFIED WHERE INDICATED	△	06/09/23	C.B.A.	H.S.S.	G.R.C.	P.L.Z.
3	4001006	MODIFIED WHERE INDICATED	△	20/07/23	C.B.A.	H.S.S.	G.R.C.	P.L.Z.
2	4001008	MODIFIED WHERE INDICATED	△	26/05/23	C.B.A.	H.S.S.	G.R.C.	P.L.Z.

1	4001008	GENERAL MODIFICATION	10/05/23	C.B.A.	H.B.S.	G.R.C.	P.L.Z.
REV. PROYECTO REV. PROJECT		DESCRIPCIÓN DESCRIPTION	FECHA DATE	REALIZ. PREF.	COMPR. CHECK	APROB. APPROV.	VALID. ZONAL APPROVAL

 REPSOL	BUSINESS CENTRO: FACILITY:	RD SOL Y COMERIO, S.A. COMPLEJO INDUSTRIAL SINES
CLASIFICACIÓN	Nº PROYECTO REPSOL: REPSOL PROJECT CODE:	REALIZADO PREPARADO C.B.A. 03/03/23

4001008		COMPROB. CHECKED	H.A.S.	11/10/12	
ESCALA: SCALE:		TAMANO: SIZE:	APROBADO APPROVED	G.R.C.	11/10/12
1:150		DIN-A0	V.B. CLIENTE GARANTY CLIENT	P.L.Z.	11/10/12
PROYECTO INGENIERIA EMC COMPANY PROJECT CO. INC.					
9576					

TITULO: OFFSITES ALBA
MILE: UNDERGROUND SYSTEMS. LOGISTIC PLATFORM, PP AND PEL
GENERAL ARRANGEMENT

GENERAL ARRANGEMENT
SEGMENT Ah

PROTOCOLO DE ELEMENTOS CONSTRUÍDOS

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		FOLHA N° : / DE: 7 / 185

2. CERTIFICADOS

Rev.	Data	Descrição	Realizado	Cliente
0	05/08/2024	Protocolo REDE CONTRA INCÊNDIOS AVENIDA 27 FIRE WATER-20" – FW900000 – PEB69	JOSE ANTUNES TECNICO QUALIDADE	

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		FOLHA N° : / DE: 8 / 185

2.1 – TUBOS DE AÇO CARBONO

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0	05/08/2024	Protocolo REDE CONTRA INCÊNDIOS AVENIDA 27 FIRE WATER-20" – FW900000 – PEB69	JOSE ANTUNES TECNICO QUALIDADE	

LISTA DE MATERIAIS DO ARMAZÉM

PROJECTO:

EMPRESA SOLICITANTE:

4008 - PROJETO ALBA

01- ASCH INFRAESTRUCTURAS Y SERVICIOS SA

Nº VALE	DATA ENTREGA	MATERIAL	DIÂMETRO	UNICODE	PEDIDO	ITEM	UNIDADES	QUANTIDADE DESPACHADA	QUANTIDADE UTILIZADA	TOTAL DEVOLVIDA	OBSERVAÇÕES
0009	28/02/2024	FALNGE 6" 15 - PN16					6 ud	6 ud	6 ud	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0012	02/04/2024	CURVAS DE 90° DN500 SDR11/PN16 HDPE 100 (ELBOW)					6 ud	6 ud	6 ud	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0012	02/04/2024	PORTA BRIDAS DN 500 SDR11/PN16 HDPE100 (STUB END)					2 ud	2 ud	2 ud	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0012	02/04/2024	FLANGES LOUCAS 20" 150 lb (LOOSE BACKING FLANGE)					2 ud	2 ud	2 ud	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0012	02/04/2024	T LADOS IGUAIS DN 500 SDR11/PN16 HDPE100 (EQUAL TEE)					1 ud	1 ud	1 ud	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0012	02/04/2024	VARAS DE TUBO - DN 500 SDR11/PN16 HDPE 100	DN500				6 ud	6 ud	72 ml	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0017	13/05/2024	CURVAS 90° DN 500 SDR11 PN16		MF3P0G1226F1230	4500035594	250	5 ud	5 ud	5 ud	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0017		45425 VARAS DE TUBO - DN500 SDR11/PN16 HDPE	DN500	PPBP0R126FD30			2 ud	24 ml	24 ml	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0017	13/05/2024	PORTA BRIDAS DN500 SDR11 PN16		FLBG500CF1350X20	4500035809	50 60 70 80 90	1 ud	1 ud	1 ud	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0017	13/05/2024	REDUÇÃO DN500/DN355 SDR11 PN16		MP8P0G1426F123027	4500035594	380	1 ud	1 ud	1 ud	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0017	13/05/2024	REDUÇÃO DN355/DN250 SDR11 PN16		MF8P0G1426F122724			1 ud	1 ud	1 ud	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0017	13/05/2024	PORTA BRIDAS DN250 SDR11 PN16		MF1P0G1126F1124			2 ud	2 ud	2 ud	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0017	13/05/2024	FLANGES LOUCAS 10" - 150 libra		FLBG500CF13250X10	4500035809	10 20 30 40	2 ud	2 ud	2 ud	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0017	13/05/2024	VALVULA 20" - 150 libra		G2DN500L-G202	4500035333	260	1 ud	1 ud	1 ud	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0017	13/05/2024	VALVULA 10" - 150 libra		G2DN500L-G202	4500034705	190	1 ud	1 ud	1 ud	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0017	13/05/2024	JUNTAS DE CARTÃO 3 mm x 500 DN mm		GFRS101AFF500X20			4 ud	4 ud	4 ud	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0017	13/05/2024	JUNTAS DE CARTÃO 3 mm x 250 DN mm		GFRS101AFF250X10			2	2	2	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0017	13/05/2024	CURVAS 45° - DN250 mm SDR11 PN16		MF2P0G1226F1224			2	2	2	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0017	13/05/2024	CURVAS 45° - DN250 mm SDR11 PN16		MF2P0G1226F1224			2	2	2	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0017	13/05/2024	VARAS TUBO PEAD DN250 SDR11 PN16	DN250	PPBP0R126FD24	4500035594	40	4	24 ml	24 ml	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0017	13/05/2024	PERNOS 1"1/8 com 250 mm de comprimento					80	80	80	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0017	13/05/2024	PERNOS 7/8 com 180 mm de comprimento					24	24	24	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0019	15/05/2024	ANILHAS DE CHAPA PARA PERNOS 1"1/8					160 ud	160 ud	160 ud	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0019	15/05/2024	ANILHAS DE CHAPA PARA PERNOS 7/8					160 ud	160 ud	160 ud	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0021	12/06/2024	JUNTA A-193 G B7 / ASTM A 194 Gr 2H, ASME B16.21 Ø 6", L-6864		NMGQ001R1FB6			7 ud	7 ud	7 ud	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0021	12/06/2024	JUNTA NÃO METÁLICA, C.S.F. 1/16", 150#, ASME B16.21, Ø 10", L-6864		NMGQ001R1FB10			1 ud	1 ud	1 ud	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0021	12/06/2024	ANILHAS DE CHAPA DE EURO 1" 1/8 - (- ou 35 mm)					80 ud	80 ud	80 ud	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0021	12/06/2024	ANILHAS DE CHAPA DE EURO 7/8" - (- ou 25 mm)					48 ud	48 ud	48 ud	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0021	12/06/2024	PARAFUSOS E PORCAS HEXAGONAIS, ASTM A-193 G B7 / ASTM A 194 Gr 2H, ASME B16.31 / B16.32, 3/4", 5", H-251		SB2R051G3/45			56 ud	56 ud	56 ud	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27



3.1 MILL TEST CERTIFICATE ACCORDING TO EN 10204
Certificado de fabricación tipo 3.1 de acuerdo a EN 10204

No. Certificate MTC-4-19-035
Nº certificado:
Date / Fecha: 17/12/2019
Pages/Páginas: 4

GENERAL INFORMATION / Información general:			
Manufacturer: Fabricante:	BAIKA STS	Steel grade: Grado de acero:	API 5L Gr. BN PSL2
Cliente: Client:	CUÑADO	Packing list nº: Nº de listado de tubería:	0275-18-01
Project: Proyecto:	POLIDUCTO REPSOL	Pipe quantity: Número de tuberías:	224
Item: Posición:	1	Size (mm): Dimensiones (mm):	168 x 7,11
		Total length (m): Longitud total (m):	2644,94

APPLIED PRODUCTS / Productos aplicados:			
Abrasive grit: Granalla:	_LG18-W ABRASIVES _LG25 W ABRASIVES	Product standard: Norma de producto	ED-N-03.00-02a
FBE: Epoxy polvo:	ARSONSISI PE 507191	Coating class: Clase de revestimiento:	B3
Adhesive: Adhesivo:	MPB COESIVE L8.92.8	Coating: Revestimiento:	High density polyethylene Polietileno de alta densidad (HDPE)
High density polyethylene: Polietileno de alta densidad (HDPE):	MPB LUXENE HDPE2050	Minimum thickness (mm): Espesor mínimo (mm):	2,7

BAIKA Steel Tubular Systems, S.L., hereby certify that the pipes herein described satisfy the manufacturing, testing, and inspection requirements stated in the purchase order
BAIKA Steel Tubular Systems S.L., certifica que las tuberías referenciadas satisfacen los requisitos de fabricación, ensayos e inspección de la orden de pedido

This certificate cannot be reproduced partially without the written consent of BAIKA Steel Tubular Systems S.L.
Este certificado no puede reproducirse parcialmente sin el consentimiento escrito de BAIKA Steel Tubular Systems, S.L.

Signed for and on behalf of the manufacturer by:
Firmado por y en nombre del fabricante:

Ignacio González Martín
BAIKA Steel Tubular Systems, S.L. - B01559111

CALIDAD



3.1 MILL TEST CERTIFICATE ACCORDING TO EN 10204
Certificado de fabricación tipo 3.1 de acuerdo a EN 10204

No. Certificate: MTC-4-19-035
Nº certificado: _____
Date / Fecha: 17/12/2019
Pages/Páginas: 4

TEST RESULTS / Resultados de ensayo:

Surface Superficie	Pipe ID Nº tubería	ΔT dew point (°C) ΔT punto de rocío (°C)	Salt content (mg/m²) Contenido en sal (mg/cm²)	Roughness (µm) Rugosidad (µm)	Dust Polvo	Grit batch Lote granalla	Water contaminat. (µS/cm)	Contaminación Agua (µS/cm)
	Acc. criteria Criterio acept.	> 3° °C	≤ 2 µg/cm²	50-100 µm	≤ 2		Acc. criteria Criterio acept.	
	1496	4,3	0,3	75,5	2 / 2	LG 25 - 118249	0,14	
	1406	-	-	79,3	2 / 2	LG 18 - 219155	0,13	
	44-1633	-	-	66,75	2 / 2	-	-	
	47-280	-	-	76,68	2 / 2	-	-	
	47-315	5,8	-	70,39	2 / 2	-	-	
	47-1504	7,3	-	72,1	2 / 2	-	-	
	47-645	-	-	70,7	2 / 1	-	-	
	47-479	-	-	82,1	2 / 1	-	-	
	47-1498	-	-	78,7	2 / 2	-	-	
	47-358	8,4	-	77,8	2 / 1	-	-	
	47-500	-	-	73,54	2 / 2	-	-	
	47-340	-	-	70,8	2 / 2	-	-	
	497	-	0,3	-	-	-	-	
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	
	Frequency Frecuencia	2 / shift 2 / turno	1 / shift 1 / turno	1 / hour 1 / hora		Acc. criteria Criterio acept.	≤ 150 µS/cm	
						Frequency Frecuencia	1 / shift 1 / turno	

2 of/ de 4

J. García González Martín
DAVIC Manager

Baika Steel Tubular Systems, S.L. • B01559111



3.1 MILL TEST CERTIFICATE ACCORDING TO EN 10204

No. Certificate MTC-4-19-035
Nº certificado:
Date / Fecha: 17/12/2019
Pages/Páginas: 4

TEST / RESULTADOS / resultados de ensayo:

Pipe ID Nº tubería	FBE / adhesive batch Lotes de FBE / adhesivo	Thickness FBE (µm) Espesor FBE (µm)	[µm] Espesor adhesivo	Degree of cure Grado de curado	Cathodic Disbondment (*) Desprendimiento catódico (*)
47-332	041907/ 2019-A2-003362	135,2	182,7	1,82	-
4455	041907/ 2019-A2-003362	-	-	2,95	-
435	041907/ 2019-A2-003362	131	154,7	0,59	-
453	041907/ 2019-A2-003362	-	-	2,07	-
FBE and adhesive Epoxy polvo y adhesivo	47-343	041907/ 2019-A2-003362	-	-/-	1,95
	-/-	-	-	-/-	-
	-/-	-	-	-/-	-
	-/-	-	-	-/-	-
	-/-	-	-	-/-	-
	-/-	-	-	-/-	-
	-/-	-	-	-/-	-
	-/-	-	-	-/-	-
	-/-	-	-	-/-	-
	-/-	-	-	-/-	-
	-/-	-	-	-/-	-
	-/-	-	-	-/-	-
	-/-	-	-	-/-	-
	-/-	-	-	-/-	-
	-/-	-	-	-/-	-
	-/-	-	-	-/-	-
	-/-	-	-	-/-	-
	-/-	-	-	-/-	-
	-/-	-	-	-/-	-
	-/-	-	-	-/-	-
Acc. criteria Criteria accept.		125-500 µm	≥ 150 µm	ΔTg ± 3°C	≤ 4 mm.
Frequency Frecuencia		1 / shift 1 / turno	2 / shift 2 / turno	1 / batch FBE 1 / late FBE	

(*) Test at 65°C during 24 hours at -3,5 V

3 of/de 4

Balka Steel Tubular Systems, S.L. - 801559111



3.1 MILL TEST CERTIFICATE ACCORDING TO EN 10204
Certificado de fabricación tipo 3.1 de acuerdo a EN 10204

No. Certificate: MTC-4-19-035
 Nº certificado: _____
 Date / Fecha: 17/12/2019
 Pages/Páginas: 4

TEST RESULTS / Resultados de ensayo:

Polyethylene HDPE (*)	Pipe ID	Thickness (mm)	Peel strength (N/mm) (**)	HDPE batch	MFR	Elongation at break (%)	Impact resist. (J/mm)	Indentation resis. (mm)
	Nº tubería	Espesor (mm)	Resistencia a pelado (N/mm)	Lote de HDPE	Índice de fluidez	Elongación a la rotura (%)	Resistencia al impacto (J/mm)	Resistencia a indentación
	332	3,83	33,9	16,1	2019-L2-000295	0,04	>444,09	-
	47-360	3,82	-	-	-	-	-	0,05 23°C / 0,06 80°C
	47-337	3,8	36,9	12,9	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	Acc. criteria Criterio acept.	> mm. - mm.	> 18 N/mm 23°C	>5 N/mm 80°C	Acc. criteria Criterio acept.	ΔMFR ± 20%	≥ 400%	≤ 0,2 mm- 23°C ≤ 0,4 mm- 80°C
	Frequency Frecuencia	Every ten pipes Cada diez tuberías	1 / shift 1 / turno	1 / shift 1 / turno	Frequency Frecuencia		1 / batch 1 / lote	
					HDPE batch	Flexibilidad	Hot water immersion (mm)	
					Lote de HDPE	Flexibility	Inmersión en agua caliente (mm)	
					2019-L2-000295	OK	No disbonding	No disbonding
					-	-	-	-
					-	-	-	-
					-	-	-	-
					-	-	-	-
					Acc. criteria Criterio acept.	No cracks when bending at 0°C	Average disbonding ≤ 2mm	Maximum disbonding ≤ 3 mm
					Frequency Frecuencia		1 / batch 1 / lote	

(*) Continuity test with satisfactory results in 100% of the coating surface. Residual magnetism < 30 G. Flexibility test
 Ensayo de continuidad a 25 kV con resultado satisfactorio en el 100% de la superficie revestida. Magnetismo residual < 30 G

(**) Test performed at 23°C and 80°C

Ensayo realizado a 23°C y 80°C



Manufacturer: ArcelorMittal Tubular Products Roman S.A. STEFAN CEL MARE STR, BL 15, SC. A, PARTER I, ROMAN, NEAMT ROMANIA	MILL TEST CERTIFICATE according to EN 10204/3.1/2004	Page 1/9		ArcelorMittal	
		B 16001/I			
		28.11.2018			
Buyer: CUNADO S.A. CALLE CAMINO DEL OLIVAR ,2, MADRID, SPAIN	SEAMLESS STEEL LINE PIPES	Total weight: 74.737 tons 0 lbs	Total Length: 2 644.97 meters 8 577.72 feet	Pieces 224 Bundles 36	
Buyer's reference PO NO.: PC0052419	Standard: API 5L ed.45-2012/ API 5L ed.46- 2018-PSL2; ASME B36.10M-2015; Pipes acc with Repsol specs and AMR Technical Offer Repsol 25.09.2018	Dimensions: 168.30 x 7.11 mm 6.625 X 0.280 inch	Schedule: 40	Length: 11.50 - 12.00 m 37.73 - 39.37 foot	
Contract 50003868	Hydro Test:	Bar 196	PSI 2849	MPa 19.6 Time(sec) 10	Steel Grade: BN - PSL2

Chemical Analysis(%)

Heat	Bulletin No.	Product Req.	C Max	Mn Max	Si	S	P	Cr	Ni	Cu	Al	Mo	V	Nb	Ti	B	N
			0.24	1.20	0.40	0.015	0.025	0.30	0.30	0.50	-	0.15	-	-	0.040	0.0010	-
63490		Heat analysis	0.15	0.84	0.21	0.005	0.010	0.12	0.10	0.20	0.025	0.03	0.009	0.001	0.001	0.0004	0.0070
63491		Heat analysis	0.14	0.84	0.21	0.005	0.012	0.12	0.10	0.20	0.022	0.02	0.009	0.001	0.001	0.0003	0.0074
63497		Heat analysis	0.15	0.81	0.24	0.004	0.007	0.10	0.08	0.15	0.024	0.02	0.008	0.001	0.001	0.0004	0.0046
63820		Heat analysis	0.15	0.84	0.22	0.003	0.006	0.11	0.07	0.16	0.025	0.02	0.011	0.002	0.001	0.0003	0.0070
63837		Heat analysis	0.14	0.86	0.24	0.003	0.008	0.15	0.12	0.17	0.034	0.03	0.016	0.001	0.001	0.0002	0.0046
63845		Heat analysis	0.15	0.83	0.23	0.004	0.010	0.01	0.07	0.20	0.038	0.02	0.010	0.001	0.001	0.0002	0.0068
63847		Heat analysis	0.14	0.86	0.24	0.004	0.011	0.13	0.08	0.18	0.032	0.02	0.009	0.001	0.001	0.0003	0.0070
63848		Heat analysis	0.15	0.86	0.23	0.002	0.007	0.10	0.09	0.16	0.036	0.03	0.012	0.001	0.001	0.0002	0.0076
63490	18-1918	Product analysis	0.15	0.84	0.21	0.004	0.008	0.10	0.08	0.20	0.026	0.02	0.008	0.002	0.001	0.0002	0.0080
63490	18-1918	Product analysis	0.15	0.83	0.21	0.003	0.008	0.10	0.08	0.20	0.026	0.02	0.008	0.002	0.001	0.0002	0.0078
63491	18-1918	Product analysis	0.15	0.86	0.22	0.005	0.010	0.11	0.09	0.19	0.021	0.02	0.008	0.002	0.001	0.0001	0.0083
63491	18-1918	Product analysis	0.15	0.86	0.22	0.005	0.010	0.11	0.09	0.19	0.021	0.02	0.008	0.002	0.001	0.0001	0.0081
63497	18-1918	Product analysis	0.16	0.83	0.25	0.002	0.007	0.11	0.09	0.17	0.030	0.02	0.007	0.002	0.001	0.0002	0.0066
63497	18-1918	Product analysis	0.16	0.83	0.25	0.002	0.007	0.11	0.09	0.17	0.029	0.02	0.007	0.002	0.001	0.0002	0.0068
63820	18-2015	Product analysis	0.15	0.83	0.24	0.003	0.007	0.09	0.07	0.15	0.026	0.02	0.009	0.001	0.001	0.0001	0.0073
63820	18-2015	Product analysis	0.15	0.83	0.23	0.002	0.007	0.10	0.07	0.15	0.026	0.02	0.009	0.001	0.001	0.0001	0.0071
63837	18-2008	Product analysis	0.14	0.86	0.24	0.002	0.009	0.17	0.11	0.16	0.034	0.02	0.015	0.001	0.001	0.0001	0.0063
63837	18-2008	Product analysis	0.15	0.85	0.24	0.002	0.009	0.17	0.11	0.16	0.034	0.02	0.015	-0.001	0.001	0.0001	0.0061

We state on our sole responsibility that the delivered products are in conformity with the order requirements.

c. originalis
080 - TSK
29. 11. 2018

Quality Control Representative
Eng. Danov Ciprian

Manufacturer: ArcelorMittal Tubular Products Romania S.A. STEFAN CEL MARE STR. BL 15, SC. A, PARTER I, ROMAN, NEAMT ROMANIA	MILL TEST CERTIFICATE according to EN 10284/3.1/2004	Page 2/9		ArcelorMittal			
		B 168807/1	28.11.2018				
Buyer: CUNADO S.A. CALLE CANINO DEL OLIVAR 2, MADRID, SPAIN	SEAMLESS STEEL LINE PIPES	Total weight: 74.737 tons 0 lbs	Total Length: 2 644.97 meters 8 677.72 feet	Pieces: 224 Bundles: 36			
Buyer's reference: PO NO.: PC0052419 Contract: 50083868	Standard: API 5L ed.45-2012 / API 5L ed.46- 2018-PSL2; ASME B36.10M-2015; Pipes acc with Repsol specs and AMR Technical Offer Report 25.09.2018	Dimensions: 168.30 x 7.11 mm 6.625 X 0.280 inch	Schedule: 40	Length: 11.50 - 12.00 m 37.73 - 39.37 feet			
Item	Item Client	Hydro Test:	Bar 196	PSI 2849	MPa 19.6	Time(sec) 10	Steel Grade: BN - PSL2

Chemical Analysis(%)

Heat	Bulletin No.	Product Req.	Max	C	Mn	Si	P	Cr	Ni	Cu	Al	Mo	V	Nb	Ti	B	N	
			Min	0.24	1.20	0.40	0.015	0.025	0.30	0.30	0.50	-	0.15	-	-	0.040	0.0010	-
63845	18-2008	Product analysis	0.15	0.84	0.23	0.003	0.010	0.09	0.07	0.19	0.039	0.02	0.009	0.001	0.001	0.0001	0.0084	
63845	18-2008	Product analysis	0.15	0.84	0.22	0.003	0.010	0.08	0.07	0.19	0.040	0.02	0.009	0.001	0.001	0.0001	0.0082	
63847	18-2008	Product analysis	0.15	0.85	0.24	0.003	0.010	0.11	0.08	0.19	0.036	0.02	0.009	0.001	0.001	0.0002	0.0071	
63847	18-2008	Product analysis	0.15	0.84	0.25	0.003	0.011	0.11	0.08	0.20	0.035	0.02	0.009	0.001	0.001	0.0002	0.0075	
63848	18-2008	Product analysis	0.15	0.85	0.23	0.001	0.008	0.08	0.08	0.16	0.036	0.02	0.009	0.001	0.001	0.0001	0.0078	
63848	18-2008	Product analysis	0.15	0.86	0.23	0.002	0.008	0.09	0.09	0.15	0.036	0.02	0.008	0.001	0.001	0.0001	0.0077	

Chemical Analysis(%)

Heat	Bulletin No.	Product Req.	Max	Nb + V		Nb + Ti + V		CE_HTW	
				0.060	-	-	-	0.43	-
63490		Heat analysis		0.010		0.011		0.34	
63491		Heat analysis		0.010		0.011		0.33	
63497		Heat analysis		0.009		0.010		0.33	
63820		Heat analysis		0.013		0.014		0.33	
63837		Heat analysis		0.017		0.018		0.34	
63845		Heat analysis		0.011		0.012		0.31	
63847		Heat analysis		0.010		0.011		0.33	
63848		Heat analysis		0.013		0.014		0.34	

We state on our sole responsibility that the delivered products are in conformity with the order requirements.

C. CARPENTER
63848, rev.1
27.11.2018
R

Quality Control Representative
Eng. Daniel Capitan

Manufacturer: ArcelorMittal Tubular Products Roman S.A. STEFAN CEL MARE STR, BL 15, SC. A, PARTER L ROMAN, NEAMT ROMANIA	MILL TEST CERTIFICATE according to EN 10204/3.1/2004				Page 3/9		ArcelorMittal	
					B 16001/1	28.11.2018		
					0 Ths			
Buyer: CUNADO S.A. CALLE CAMINO DEL OLIVAR ,2, MADRID, SPAIN		SEAMLESS STEEL LINE PIPES		Total weight:	Total Length:	Pieces	Bundles	
				74.737 tons 0 Ths	2 644.97 meters 8 677.72 feet	224	36	
Buyer's reference PO NO.:PC0052419 Contract: 50003868		Standard: API 5L ed.45-2012/ API 5L ed.46- 2018-PSL2; ASME B36.10M-2015; Pipes acc with Repsol spec and AMR Technical Offer Repsol 23.09.2018		Dimensions: 168.30 x 7.11 mm 6.625 X 0.280 inch	Schedule: 40	Length: 11.50 - 12.00 m	37.73 - 39.37 feet	
Item	Item Client	Hydro Test:	Bar	PSI	MPa	Time(sec)	Steel Grade:	
1	120 L-6- R		196	2849	19.6	10	BN - PSL2	

Chemical Analysis(%)

Heat	Bulleria No.	Product Req.	Max Min	Nb + V	Nb + Ti + V	CE_HW
				0.060	-	0.43
63490	18-1918	Product analysis		0.010	0.011	0.33
63490	18-1918	Product analysis		0.010	0.011	0.33
63491	18-1918	Product analysis		0.010	0.011	0.34
63491	18-1918	Product analysis		0.010	0.011	0.34
63497	18-1918	Product analysis		0.009	0.010	0.34
63497	18-1918	Product analysis		0.009	0.010	0.34
63820	18-2015	Product analysis		0.010	0.011	0.33
63820	18-2015	Product analysis		0.010	0.011	0.33
63837	18-2008	Product analysis		0.016	0.017	0.34
63837	18-2008	Product analysis		0.016	0.017	0.35
63845	18-2008	Product analysis		0.010	0.011	0.33
63845	18-2008	Product analysis		0.010	0.011	0.33
63847	18-2008	Product analysis		0.010	0.011	0.34
63847	18-2008	Product analysis		0.010	0.011	0.34
63848	18-2008	Product analysis		0.010	0.011	0.33
63848	18-2008	Product analysis		0.009	0.010	0.33

$$CE_{pm} = C+Si/30+Mn/20+Cu/20+Ni/60+Cr/20+Mo/15+V/10+5B$$

$$CE_S = C+Mn/6$$

$$CE_{ew} = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15$$

We state on our sole responsibility that the delivered products are in conformity with the order requirements.

E. Gheorghiu
080-734
29.11.2018

Quality Control Representative
Eng. Daniel Ciprian

Formular 12A, rev 9

Manufacturer: ArcelorMittal Tubular Products Romania S.A. STEFAN CEL MARE STR. BL 15, SC. A, PARTER I, ROMAN, NEAMT ROMANIA		MILL TEST CERTIFICATE according to EN 10204/3.1/2004						Page 4/9 B.160001/L 28.11.2018			
Buyer: CUNADO S.A. CALLE CAMINO DEL OLIVAR ,2, MADRID, SPAIN								Total weight:	2 644.97 meters 0 lbs		
		SEAMLESS STEEL LINE PIPES									
		Standard: API 5L ed.45-2012 / API 5L ed.46- 2016-PSL2; ASME B36.10M-2015; Pipes acc with Repsol specs and AMR Technical Offer Repsol 25.09.2016									
Buyer's reference PO NO.:PC0032419		Dimensions: 168.30 x 7.11 mm 6.625 X 0.289 inch			Schedule: 40			Length: 11.50 - 12.00 m		37.73 - 39.37 feet	
Contract 50003868		Item	Item Client	Hydro Test:	Bar	PSI	MPa	Time(sec)	Steel Grade:	BN - PSL2	
		1	120 L-6 R		196	2849	19.6	10			

Tensile Test

Heat	Orientation	Length		Width/Diameter		Thickness		Section		Mechanical test Bulletin No.	YS MPa (PSI:1000)	YS MPa (PSI:1000)	UTS MPa (PSI:1000)	UTS MPa (PSI:1000)	E %	YS/UTS max: 0.90
		mm	inch	mm	inch	mm	inch	mm ²	inch ²							
63490	Longitudinal Flat	50.8	2	40.00	1.575	7.60	0.299	304.0	11.969	18-4304	368.00	53.4	517.00	75.0	40.90	0.71
63490	Longitudinal Flat	50.8	2	40.00	1.575	8.50	0.335	340.0	13.386	18-4361	351.00	50.9	491.00	71.2	41.10	0.71
63491	Longitudinal Flat	50.8	2	40.00	1.575	7.90	0.311	316.0	12.441	18-4361	362.00	52.5	513.00	74.4	40.80	0.71
63497	Longitudinal Flat	50.8	2	40.00	1.575	8.10	0.319	324.0	12.756	18-4361	368.00	53.4	512.00	74.3	40.60	0.72
63820	Longitudinal Flat	50.8	2	40.00	1.575	7.80	0.307	312.0	12.283	18-4530	354.00	51.3	487.00	70.6	39.90	0.73
63837	Longitudinal Flat	50.8	2	40.00	1.575	7.60	0.299	304.0	11.969	18-4514	364.00	52.8	507.00	73.5	39.60	0.72
63845	Longitudinal Flat	50.8	2	40.00	1.575	8.30	0.327	332.0	13.071	18-4514	391.00	56.7	536.00	77.7	38.30	0.73
63845	Longitudinal Flat	50.8	2	40.00	1.575	8.60	0.339	344.0	13.543	18-4515	373.00	54.1	513.00	74.4	40.30	0.73
63845	Longitudinal Flat	50.8	2	40.00	1.575	8.20	0.323	328.0	12.913	18-4517	373.00	54.1	514.00	74.5	38.60	0.73
63847	Longitudinal Flat	50.8	2	40.00	1.575	7.70	0.303	308.0	12.126	18-4514	393.00	57.0	550.00	79.8	40.00	0.71
63847	Longitudinal Flat	50.8	2	40.00	1.575	8.30	0.327	332.0	13.071	18-4516	368.00	53.4	509.00	73.8	41.30	0.72
63847	Longitudinal Flat	50.8	2	40.00	1.575	8.30	0.327	332.0	13.071	18-4517	370.00	53.7	512.00	74.3	39.00	0.72
63848	Longitudinal Flat	50.8	2	40.00	1.575	8.20	0.323	328.0	12.913	18-4514	383.00	55.5	528.00	76.6	41.20	0.73
63848	Longitudinal Flat	50.8	2	40.00	1.575	7.90	0.311	316.0	12.441	18-4530	407.00	59.0	564.00	81.8	38.50	0.72

C. CRISTIANUS
08.0.73 K
29.11.2018

Quality Control Representative
Eng. Dumitru Cristianus

We state on our sole responsibility that the delivered products are in conformity with the order requirements.

Manufacturer: ArcelorMittal Tubular Products Roman S.A. STEFAN CEL MARE STR. BL 15, SC. A, PARTER I, ROMAN, NEAMT ROMANIA	MILL TEST CERTIFICATE according to EN 10284/3,1/2004	Page 5/9		ArcelorMittal			
		B 16001/1	28.11.2018				
Buyer: CONADO S.A. CALLE CAMINO DEL OLIVAR, 2, MADRID, SPAIN	SEAMLESS STEEL LINE PIPES	Total weight: 74.737 tons 0 lbs	Total Length: 2.644.97 meters 8.677.72 feet	Pieces 224 36 Bundles			
Standard: API 5L ed.45-2012/ API 5L ed.46- 2018-PSL2; ASME B36.10M-2015; Pipes acc with Repsol specs and AMR Technical Offer Report 25.09.2018							
Buyer's reference: PO NO.:PC0052419 Contract 500013868	Dimensions: 168.30 x 7.11 mm 6.625 X 0.280 inch	Schedule: 40	Length: 11.90 - 12.00 m	37.73 - 39.37 feet			
Item	Item Client	Hydro Test:	Bar 196	PSI 2849	MPa 19.6	Time(sec) 10	Steel Grade: BN - PSL2

Impact Test																			
Heat	Impact Test Bulletin No.	Orientation	Size (mm)	Temp. (°C)	Req.KV (min. J)	KV values (J)			Req.Avt. (min. J)	Ave. fracture energy (J)	KCU min.:J/cm² T:°C	Shear Area min. %			Lateral Expansion min. mm				
63490	18-4943	Longitudinal	10x5x55	+20	14.0	100	91	92	-	94	-	-	-	90	90	90	0.75	0.76	0.77
63490	18-4993	Longitudinal	10x5x55	+20	14.0	93	103	117	-	104	-	-	-	90	90	90	0.78	0.86	1.01
63491	18-4993	Longitudinal	10x5x55	+20	14.0	87	92	86	-	88	-	-	-	90	90	90	0.73	0.77	0.72
63497	18-4993	Longitudinal	10x5x55	+20	14.0	101	94	95	-	97	-	-	-	90	90	90	0.85	0.80	0.81
63820	18-7233	Longitudinal	10x5x55	+20	14.0	102	93	95	-	97	-	-	-	90	90	90	0.85	0.77	0.78
63837	18-7215	Longitudinal	10x5x55	+20	14.0	106	108	103	-	106	-	-	-	90	90	90	0.89	0.91	0.87
63845	18-7215	Longitudinal	10x5x55	+20	14.0	91	91	97	-	93	-	-	-	90	90	90	0.76	0.76	0.81
63845	18-7216	Longitudinal	10x5x55	+20	14.0	89	94	92	-	92	-	-	-	90	90	90	0.74	0.78	0.76
63845	18-7217	Longitudinal	10x5x55	+20	14.0	99	93	94	-	95	-	-	-	90	90	90	0.82	0.78	0.79
63847	18-7215	Longitudinal	10x5x55	+20	14.0	95	94	93	-	94	-	-	-	90	90	90	0.80	0.79	0.79
63847	18-7216	Longitudinal	10x5x55	+20	14.0	93	93	100	-	95	-	-	-	90	90	90	0.77	0.77	0.83
63847	18-7218	Longitudinal	10x5x55	+20	14.0	92	105	93	-	97	-	-	-	90	90	90	0.77	0.89	0.78
63848	18-7215	Longitudinal	10x5x55	+20	14.0	99	91	95	-	95	-	-	-	90	90	90	0.83	0.77	0.80
63848	18-7232	Longitudinal	10x5x55	+20	14.0	83	82	88	-	84	-	-	-	90	90	90	0.68	0.67	0.72

Hardness Test

Heat	Hardness Test Bulletin No.	HB max 215		HV 10 max.-	HV 10 max.-				HRC max.-	
		OD	Midwall		ID	End A	End B			
63490	18-3589	148;149;150;147	-	-	-	-	-	-	-	<
63490	18-3589	150;148;147;149	-	-	-	-	-	-	-	<

We state on our sole responsibility that the delivered products are in conformity with the order requirements.

C. C. Ciprian
000 - 7340
29.11.2018

Quality Control Representative
Eng. Dumitru Ciprian

Formular 12A, rev.9

Manufacturer: ArcelorMittal Tubular Products Roman S.A. STEFAN CEL MARE STR. BL 15, SC. A, PARTER I, ROMAN, NEAMT ROMANIA		MILL TEST CERTIFICATE according to EN 10294/9.1/2004				Page 6/9	
Buyer: CUNADO S.A. CALLE CAMINO DEL OLIVAR 2, MADRID, SPAIN						Total weight: 74.737 tons 0 lbs	
		SEAMLESS STEEL LINE PIPES					
		Standard: API 5L ed.45-2012/ API 5L ed.46- 2018-PSL2; ASME B36.10M-2015; Pipes acc with Repsol specs and AMR Technical Offer Repsol 23.09.2018					
Buyer's reference: PO NO.: PO00032419 Contract: 500033668		Dimensions: 168.30 x 7.11 mm 6.625 X 0.280 inch		Schedule: 40		Length: 11.50 - 12.00 m	37.73 - 39.37 feet
Item	Item Client	Hydro Test:	Bar	PSI	MPa	Time(sec)	Steel Grade: BN - PSL2
1	120 L-G-R		196	2849	19.6	10	

Hardness Test

Heat	Hardness Test Bulletin No.	HB max.215	HV 10 max.-	HV 10 max.-					HRC max.-
				OD	Midwall	ID	End A	End B	
63490	18-3641	164;166;165;163	-	-	-	-	-	-	<
63490	18-3641	165;163;164;163	-	-	-	-	-	-	<
63491	18-3641	162;160;163;161	-	-	-	-	-	-	<
63491	18-3641	160;161;163;162	-	-	-	-	-	-	<
63497	18-3641	162;163;164;163	-	-	-	-	-	-	<
63497	18-3641	162;161;163;164	-	-	-	-	-	-	<
63820	18-3816	158;156;157;159	-	-	-	-	-	-	<
63820	18-3816	157;158;156;158	-	-	-	-	-	-	<
63837	18-3792	161;160;159;162	-	-	-	-	-	-	<
63837	18-3792	160;158;159;161	-	-	-	-	-	-	<
63845	18-3791	163;162;160;161	-	-	-	-	-	-	<
63845	18-3791	162;161;160;161	-	-	-	-	-	-	<
63845	18-3792	162;161;163;164	-	-	-	-	-	-	<
63845	18-3792	163;161;162;161	-	-	-	-	-	-	<
63845	18-3793	163;164;165;162	-	-	-	-	-	-	<
63845	18-3793	164;162;163;161	-	-	-	-	-	-	<
63847	18-3791	161;159;160;162	-	-	-	-	-	-	<
63847	18-3791	159;158;160;161	-	-	-	-	-	-	<
63847	18-3792	158;159;161;160	-	-	-	-	-	-	<

We state on our sole responsibility that the delivered products are in conformity with the order requirements.

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000-75K
20-H-2018
P

Quality Control Representative
Enrique Diaz de Cipriau

<p>Manufacturer: ArcelorMittal Tubular Products Roman S.A. STEFAN CEL MARE STR. BL 15, SC. A, PARTER L ROMAN, NEAMT ROMANIA</p> <p>Buyer: CUNADO S.A. CALLE CAMINO DEL OLIVAR ,2, MADRID, SPAIN</p> <p>Buyer's reference PO NO.: PC0052419 Contract: 50003468</p>	<p>MILL TEST CERTIFICATE according to EN 10284/3.1/2004</p> <p>Standard: API 5L ed.45-2012/ API 5L ed.46-2018-PSL2; ASME B36.1GM-2015; Pipes acc with Repsol specs and AMR Technical Offer Repsol 25.09.2018</p>	Page 7/9	
		B 16001/1	
		28.11.2018	ArcelorMittal
		Total weight: 74.737 tons 0 lbs	Total Length: 2 644.97 meters 8 677.72 feet
		Pieces: 224	Bundles: 36

		Hardness Test						
Heat	Hardness Test Bulletin No.	HB max.215	HV 10 max.-	HV 10 max.-				HRC max.-
63447	18-3792	160;159;158;161	-	OD	Midwall	ID	End A	End B
63447	18-3794	162;161;159;160	-	-	-	-	-	<-
63447	18-3794	159;160;161;160	-	-	-	-	-	<-
63448	18-3792	159;157;158;159	-	-	-	-	-	<-
63448	18-3792	158;159;157;157	-	-	-	-	-	<-
63448	18-3815	163;164;162;161	-	-	-	-	-	<-
63448	18-3815	162;163;161;160	-	-	-	-	-	<-

Heat	Pieces	Length (m)	Weight (kg)
63490	6	-	-
63491	1	-	-
63497	6	-	-
63820	16	-	-
63837	26	-	-
63845	70	-	-
63847	51	-	-
63848	48	-	-

We state on our sole responsibility that the delivered products are in conformity with the order requirements.

Formular 12A, rev.9

C. CHITIMUS
0100. TSK
29. 11. 2018
R

Quality Control Representative
Eng. Daniloc Ciprian

Manufacturer: ArcelorMittal Tubular Products Roman S.A. STEFAN CEL MARE STR. BL.15, SC. A, PARTER I, ROMAN, NEAMTI ROMANIA		MILL TEST CERTIFICATE according to EN 10204/3.1/2004				Page 8/9			
Buyer: CUNADO S.A. CALLE CAMINO DEL OLIVAR, 2, MADRID, SPAIN						B 16001/1		28.11.2018	
		SEAMLESS STEEL LINE PIPES				Total weight: 74.737 tons D lbs	Total Length: 2 644.97 inches 6 677.72 feet	Pieces: 224	Bundles: 36
		Standard: API 5L ed.45-2012/ API 5L ed.46-2018-PSL2; ASME B36.10M-2015; Pipes acc with Repsol spec and AMR Technical Offer Repsol 25.09.2018							
Buyer's reference: PO NO: JPC0052419 Contract: 500033668		Dimensions: 168.30 x 7.11 mm 6.625 X 0.280 inch		Schedule: 40		Length: 11.50 - 12.00 m	32.73 - 39.37 feet		
Item: 1 Item Client: 120 L-6-R		Hydro Test:	Bar 196	PSI 2849	MPa 19.6	Time(sec) 10	Steel Grade: BN - PSL2		

Remarks: PIPES IN COMPLIANCE WITH PED: 2014-68-EU/15.05.2014, ANNEX 1, SECTION 4.3. & 7.5

Manufacturing process - hot rolling.

Hot finished, steel is fully killed and produced by electric furnace, source G000108.

Visual inspection and dimensional check without objection.

Heat treatment: normalizing at temperature 910 - 940°C, time soaking 4 min.

NDT full body:

-100% ultrasonic testing in accordance with ASTM E213 : Le +Li (12.5 % from W.T) - satisfactory.

NDT for the pipe ends:

- ultrasonic testing : Le+Li (12.5 % from W.T.) - satisfactory.

- detection of laminar imperfection on the pipe ends, surface coverage - satisfactory.

- bevel at each pipe end have been inspected for defects by wet magnetical particle, without stratification - satisfactory.

- ultrasonic inspection to verify that the 50 mm wide zone at each pipe end is free of such laminar imperfection.

Hydrostatic test hold for 10 sec. no leakage noticed.

Hydrostatic test hold for 20 sec. no leakage noticed. (for a percentage of 10% of pipes):

serial: 2-18-47-1381; 2-18-47-1476; 2-18-47-1398; 2-18-47-1406; 2-18-47-1469; 2-18-47-1388; 2-18-47-1392; 2-18-47-1483; 2-18-47-1387;

2-18-47-1438; 2-18-47-1455; 2-18-47-1488; heat: 63837

serial: 2-18-47-332; 2-18-47-372; heat: 63847

serial: 2-18-47-519; 2-18-47-591; 2-18-47-520; heat: 63848

serial: 2-18-47-1518; 2-18-47-1516; 2-18-47-1515; 2-18-47-1361; heat: 63820

serial: 2-18-47-483; 2-18-47-402; heat: 63845

NDT After hydrostatic test,(max.5 pcs)

serial : 2-18-47-426; 2-18-47-411; 2-18-47-440 ;heat : 63845

serial : 2-18-47-523; 2-18-47-518; heat : 63848

C. CARIMUS
O&O. T&A.
29.11.2018

R
J

We state on our sole responsibility that the delivered products are in conformity with the order requirements.

Quality Control Representative
Eduardo Chiribin

Formular 12A, rev.9

Manufacturer: ArcelorMittal Tubular Products Roman S.A. STEFAN CEL MARE STR. BL 15, SC. A, PARTER I, ROMAN, NEAMT ROMANIA	MILL TEST CERTIFICATE according to EN 10294/3.1/2004	Page 9/9		ArcelorMittal
		B 16001/1		
		28.11.2018		
Buyer: CUNADO S.A. CALLE CAMINO DEL OLIVAR, 2, MADRID, SPAIN	SHAMLESS STEEL LINE PIPES	Total weight: 74.737 tons 0 lbs	Total Length: 2 644.97 meters 8 677.72 feet	Pieces: 224 Bundles: 36

Buyer's reference: PO NO.: PC0053419	Standard: API 5L ed.45-2012 / API 5L ed.46- 2018-PSL2; ASME B36.10M-2015; Pipes acc with Repsol specs and AMK Technical Offer Repsol 23.09.2018					
Contract 50043368	Dimensions: 168.30 x 7.11 mm 6.625 X 0.280 inch	Schedule: 40	Length: 11.50 - 12.00 m 37.73 - 39.37 feet			
Item: 1	Item Client: 120 L-6-R	Hydro Test: Bar 196	PSI 2849	MPa 19.6	Time(sec) 10	Steel Grade: BN - PSL2

NDT full body:

-100% ultrasonic testing in accordance with ASTM E213 : Le +Li (12.5 % from W.T) – satisfactory.

NDT for the pipe ends:

- ultrasonic testing : Le+Li (12.5 % from W.T) – satisfactory.

- detection of laminar imperfection on the pipe ends, surface coverage - satisfactory.

- bevel at each pipe end have been inspected for defects by wet magnetical particle, without stratification – satisfactory.

- ultrasonic inspection to verify that the 50 mm wide zone at each pipe end is free of such laminar imperfection.

Magnetism residual check : four readings were taken approximately 90° apart around the circumference of each end of the pipe. The average of the four readings is ≤ 25 Gs, and no one reading is exceed 30 Gs.

The products was manufactured, sampled, tested, marked and inspected in accordance with the Standards, the supplementary requirements, and any other requirements designated in the purchase order, and has been found to meet such requirements.

C. continuu
060. TSK
29. 11. 2018

Quality Control Representative
Eng. Dumitru Cioran

Formulare 12A. rev 9

We state on our sole responsibility that the delivered products are in conformity with the order requirements.



3.1 MILL TEST CERTIFICATE ACCORDING TO EN 10204
Certificado de fabricación tipo 3.1 de acuerdo a EN 10204

No. Certificate MTC-4-19-039
Nº certificado:
Date / Fecha: 17/12/2019
Pages/Páginas: 4

GENERAL INFORMATION // Información general:			
Manufacturer: Fabricante:	BAIKA STS	Steel grade: Grado de acero:	API 5L Gr. BN PSL2
Client: Cliente:	CUÑADO	Packing list n°: Nº de listado de tubería:	0275-18-06
Project: Proyecto:	POLIDUCTO REPSOL	Pipe quantity: Número de tuberías:	80
Item: Posición:	6	Size (mm): Dimensiones (mm):	168 x 7,11
		Total length (m): Longitud total (m):	924,58

APPLIED PRODUCTS // Productos aplicados:			
Abrasive grit: Granalla:	_LG18-W ABRASIVES _LG25 W ABRASIVES	Product standard: Norma de producto	ED-N-03.00-02a
FBE: Epoxy polvo:	ARSONISIS PE 507191	Coating class: Clase de revestimiento:	B3
Adhesive: Adhesivo:	MPB COESIVE L8.92.8	Coating: Revestimiento:	High density polyethylene Polietileno de alta densidad (HDPE)
High density polyethylene: Polietileno de alta densidad (HDPE):	MPB LUXENE HDPE2050	Minimum thickness (mm): Espesor mínimo (mm):	5,4

BAIKA Steel Tubular Systems, S.L., hereby certify that the pipes herein described satisfy the manufacturing, testing, and inspection requirements stated in the purchase order

BAIKA Steel Tubular Systems S.L., certifica que las tuberías referenciadas satisfacen los requisitos de fabricación, ensayos e inspección de la orden de pedido

This certificate cannot be reproduced partially without the written consent of BAIKA Steel Tubular Systems S.L.

Este certificado no puede reproducirse parcialmente sin el consentimiento escrito de BAIKA Steel Tubular Systems, S.L.

Signed for and on behalf of the manufacturer by:
Firmado por y en nombre del fabricante:

Ignacio González Martín
QA /QC Manager
BAIKA Steel Tubular Systems, S.L.

1 of/ de 4

Balka Steel Tubular Systems, S.L. • E001559111

CALIDAD



3.1 MILL TEST CERTIFICATE ACCORDING TO EN 10204
Certificado de fabricación tipo 3.1 de acuerdo a EN 10204

No. Certificate: MTC-4-19-039
Nº certificado: 17/12/2019
Date / Fecha: Pages/Páginas: 4

TEST RESULT(S) / Resultados de ensayo:

Surface Superficie	Pipe ID Nº tubería	ΔT dew point (°C) ΔT punto de rocío (°C)	Salt content (mg/m²) Contenido en sal (mg/cm²)	Roughness (µm) Rugosidad (µm)	Dust Polvo	Abrasive grit Granalla	Grit batch Lote granalla	Water contaminat. (µS/cm) Contaminación Agua (µS/cm)
	-	-	-	-	-		-	-
	47-398	8,4	-	72,6	2 / 2		LG 25 - 118249	0,13
	47-537	-	-	78,9	2 / 2		LG 18 - 219155	-
	47-1486	-	-	74,9	2 / 2		-	-
	47-1535	-	-	68,5	2 / 2		-	-
	47-550	-	-	70,1	2 / 2		-	-
	47-1537	8,1	0,2	-	-		-	-
	-	-	-	-	-		-	-
	-	-	-	-	-		-	-
	-	-	-	-	-		-	-
	-	-	-	-	-		-	-
	-	-	-	-	-		-	-
	-	-	-	-	-		-	-
	-	-	-	-	-		-	-
	-	-	-	-	-		-	-
	-	-	-	-	-		-	-
	-	-	-	-	-		-	-
	-	-	-	-	-		-	-
	-	-	-	-	-		-	-
	-	-	-	-	-		-	-
	-	-	-	-	-		-	-
	-	-	-	-	-		-	-
	-	-	-	-	-		-	-
	-	-	-	-	-		-	-
	-	-	-	-	-		-	-
	-	-	-	-	-		-	-
	-	-	-	-	-		-	-
Acc. criteria Criteria acept.	> 3° 9C	≤ 2 µg/cm²	50-100 µm	≤ 2			Acc. criteria Criteria acept.	≤ 150 µS/cm
Frequency Frecuencia	2 / shift 2 / turno	1 / shift 1 / turno	1 / hour 1 / hora				Frequency Frecuencia	1 / shift 1 / turno

Ignacio González Martínez
QA / QC Manager
Balke Steel Tubular Systems, S.L. • 801559111
CALIDAD



3.1 MILL TEST CERTIFICATE ACCORDING TO EN 10204

No. Certicate MTC-4-19-039
Nº certificado:
Date / Fecha: 17/12/2019
Pages/Páginas: 4

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(*) Test at 65°C during 24 hours at -3,5 V
Ensayo a 65°C durante 24 horas a -3,5 V

 Ignacio González Martínez
QA /QC Manager

Balka Steel Tubular Systems, S.L. : 801559111

SALUDAD

CALIDAD.



3.1 MILL TEST CERTIFICATE ACCORDING TO EN 10204
Certificado de fabricación tipo 3.1 de acuerdo a EN 10204

No. Certificate: MTC-4-19-039
 Nº certificado:
 Date / Fecha: 17/12/2019
 Pages/Páginas: 4

TEST RESULTS // Resultados de ensayo:

Pipe ID		Thickness (mm)	Peel strength (N/mm) (**)	HDPE batch	MFR	Elongation at break (%)	Impact resist. (J/mm)	Indentation resis. (mm)
Nº tubería	Espesor (mm)	Resistencia a pelado (N/mm)	Lote de HDPE	Índice de fluidez	Elongación a la rotura (%)	Resistencia al impacto (J/mm)	Resistencia a indentación	
47-1351	6,16	32,1	21,8	2019-L2-000295	-	-	-	-
47-427	6,22	37,7	21,8	-	-	-	-	-
47-427	-	-	-	-	-	-	-	-
STOCK EMPUIE	-	-	-	-	2,24	>444,45	-	0,04 23°C / 0,1 80°C
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
Acc. criteria Criterio acept.	> mm. 23°C	>18 N/mm 80°C	>5 N/mm 80°C	Acc. criteria Criterio acept.	ΔMFR ± 20%	≥ 400%	≥ 7 J/mm - 23°C 1 / batch	≤ 0,2 mm- 23°C ≤ 0,4 mm- 80°C
Frequency Frecuencia	Every ten pipes Cada diez tuberías	1 / shift 1 / turno	1 / shift 1 / turno	Frequency Frecuencia			1 / lote	
				HDPE batch	Flexibilidad	Hot water immersion (mm)		
				Lote de HDPE	Flexibility	Inmersión en agua caliente (mm)		
				2019-L2-000295	OK	No disbonding	No disbonding	
				-	-	-		
				-	-	-		
				-	-	-		
				-	-	-		
				Acc. criteria Criterio acept.	No cracks when bending at 0°C	Average disbonding ≤ 2mm	Maximum disbonding ≤ 3 mm	
				Frequency Frecuencia		1 / batch		
						1 / lote		

(*) Continuity test with satisfactory results in 100% of the coating surface. Residual magnetism < 30 G. Flexibility test
 Ensayo de continuidad a 25 kV con resultado satisfactorio en el 100% de la superficie revestida. Magnetismo residual < 30 G

(**) Test performed at 23°C and 80°C

Ensayo realizado a 23°C y 80°C

Ignacio González Martínez
 QA / QC Manager
 Beika Steel Tubular Systems, S.L. - B01550111
 CALIDAD

Manufacturer: ArcelorMittal Tubular Products Roman S.A. STEFAN CEL MARE STR, BL 15, SC. A, PARTER, I, ROMAN, NEAMT ROMANIA	MILL TEST CERTIFICATE according to EN 10204/3.1/2004						Page 1/8		ArcelorMittal			
							B 16006/1					
							28.11.2018					
Buyer: CUNADO S.A. CALLE CAMINO DEL OLIVAR, 2, MADRID, SPAIN		SEAMLESS STEEL LINE PIPES						Total weight:	Total Length:	Pieces	Bundles	
Buyer's reference: PO NO.: PC0052419 Contract: 50005868		Standard: API 5L ed.45-29(2) / API 5L ed.46- 2018-PSL2; ASME B36.10M-2015; Pipes acc with Repsol specs and AMR Technical Offer Repsol 25.09.2018						26.137 tons 0 lbs	924.92 meters 3.034.51 feet	80	15	
Item: Item Client 6 170 L-PIP46-R		Hydro Test:	Bar	PSI	MPa	Time(sec)	Steel Grade: BN - PSL2					
			196	-	19.6	10						

Chemical Analysis(%)

Heat	Bulletin No.	Product Req.	Max	C	Mn	Si	S	P	Cr	Ni	Cu	Al	Mo	V	Nb	Ti	B	N
			Max	0.14	1.20	0.40	0.015	0.025	0.30	0.30	0.50	-	0.15	-	-	0.040	0.0010	-
			Min	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
63497		Heat analysis	0.15	0.81	0.24	0.004	0.007	0.10	0.08	0.15	0.024	0.02	0.008	0.001	0.001	0.0004	0.0046	
63820		Heat analysis	0.15	0.84	0.22	0.003	0.006	0.11	0.07	0.16	0.025	0.02	0.011	0.002	0.001	0.0003	0.0070	
63837		Heat analysis	0.14	0.86	0.24	0.003	0.008	0.15	0.12	0.17	0.034	0.03	0.016	0.001	0.001	0.0002	0.0046	
63845		Heat analysis	0.15	0.83	0.23	0.004	0.010	0.01	0.07	0.20	0.038	0.02	0.010	0.001	0.001	0.0002	0.0058	
63847		Heat analysis	0.14	0.86	0.24	0.004	0.011	0.03	0.08	0.18	0.032	0.02	0.009	0.001	0.001	0.0003	0.0070	
63848		Heat analysis	0.15	0.86	0.23	0.002	0.007	0.10	0.09	0.16	0.036	0.03	0.012	0.001	0.001	0.0002	0.0076	
63497	18-1918	Product analysis	0.16	0.83	0.25	0.002	0.007	0.11	0.09	0.17	0.030	0.02	0.007	0.002	0.001	0.0002	0.0066	
63497	18-1918	Product analysis	0.16	0.83	0.25	0.002	0.007	0.11	0.09	0.17	0.029	0.02	0.007	0.002	0.001	0.0002	0.0068	
63820	18-2014	Product analysis	0.14	0.84	0.23	0.002	0.007	0.09	0.07	0.15	0.027	0.02	0.010	0.001	0.001	0.0001	0.0074	
63820	18-2014	Product analysis	0.15	0.83	0.23	0.002	0.007	0.09	0.07	0.15	0.026	0.02	0.009	0.001	0.001	0.0001	0.0060	
63837	18-2008	Product analysis	0.14	0.86	0.24	0.002	0.009	0.17	0.11	0.16	0.034	0.02	0.015	0.001	0.001	0.0001	0.0063	
63837	18-2008	Product analysis	0.15	0.85	0.24	0.002	0.009	0.17	0.11	0.16	0.034	0.02	0.015	0.001	0.001	0.0001	0.0061	
63845	18-2008	Product analysis	0.15	0.84	0.23	0.003	0.010	0.09	0.07	0.19	0.039	0.02	0.009	0.001	0.001	0.0001	0.0064	
63845	18-2008	Product analysis	0.15	0.84	0.22	0.003	0.010	0.08	0.07	0.19	0.040	0.02	0.009	0.001	0.001	0.0001	0.0062	
63847	18-2008	Product analysis	0.15	0.85	0.24	0.003	0.010	0.11	0.08	0.19	0.036	0.02	0.009	0.001	0.001	0.0002	0.0071	
63847	18-2008	Product analysis	0.15	0.84	0.25	0.003	0.011	0.11	0.08	0.20	0.035	0.02	0.009	0.001	0.001	0.0002	0.0075	
63848	18-2014	Product analysis	0.15	0.85	0.23	0.002	0.008	0.08	0.08	0.16	0.036	0.02	0.009	0.001	0.001	0.0001	0.0077	
63848	18-2014	Product analysis	0.15	0.85	0.23	0.002	0.008	0.08	0.08	0.17	0.035	0.02	0.009	0.001	0.001	0.0001	0.0076	

We state on our sole responsibility that the delivered products are in conformity with the order requirements.

C. CRISTIANUS

O&G, T3K

29.11.2018

Quality Control Representative

Eng. Dumitru Marian

29.11.2018

R.M.

Manufacturer: ArcelorMittal Tubular Products Roman S.A. STEFAN CEL MARE STR, BL 15, SC. A, PARTER, I, ROMAN, NEAMT ROMANIA	MILL TEST CERTIFICATE according to EN 10204/3.1/2004				Page 2/8		ArcelorMittal	
					B 16006/1			
					28.11.2018			
Buyer: CUNADO S.A. CALLE CAMINO DEL OLIVAR ,2, MADRID, SPAIN	SEAMLESS STEEL LINE PIPES	Total weight:	Total Length:	Pieces	Bundles			
		26.137 tons 0 lbs	924.92 meters 3.034.51 feet	80	15			
Buyer's reference PO NO.:PC0052419 Contract 50003868	Standard: API 5L ed45-2012/ API 5L ed.46- 2018-PSL2; ASME B36.10M-2015; Pipes acc with Repsol specs and AMR Technical Offer Repsol 25.09.2018							
Item	Item Clear	Hydro Test:	Bar	PSI	MPa	Time(sec)	Steel Grade:	
6	170 L-PIP46-R		196	-	19.6	10	BN - PSL2	

Chemical Analysis(%)

Heat	Bulletin No.	Product Req.	Max Min	Nb + V	Nb + Ti + V	CE IIW
				0.060	-	0.43
63497		Heat analysis		0.009	0.010	0.33
63820		Heat analysis		0.013	0.014	0.33
63837		Heat analysis		0.017	0.018	0.34
63845		Heat analysis		0.011	0.012	0.31
63847		Heat analysis		0.010	0.011	0.33
63848		Heat analysis		0.013	0.014	0.34
63497	18-1918	Product analysis		0.009	0.010	0.34
63497	18-1918	Product analysis		0.009	0.010	0.34
63820	18-2014	Product analysis		0.011	0.012	0.32
63820	18-2014	Product analysis		0.010	0.011	0.33
63837	18-2008	Product analysis		0.016	0.017	0.34
63837	18-2008	Product analysis		0.016	0.017	0.35
63845	18-2008	Product analysis		0.010	0.012	0.33
63845	18-2008	Product analysis		0.010	0.011	0.33
63847	18-2008	Product analysis		0.010	0.011	0.34
63847	18-2008	Product analysis		0.010	0.011	0.34
63848	18-2014	Product analysis		0.010	0.011	0.33
63848	18-2014	Product analysis		0.010	0.011	0.33

We state on our sole responsibility that the delivered products are in conformity with the order requirements.

C. GHEORGHE
Ora: 7:54
29.11.2018

Quality Control Representative
Eduard Dumitrescu

Manufacturer: ArcelorMittal Tubular Products Roman S.A. STEFAN CEL MARE STR, BL 13, SC. A, PARTER, I, ROMAN, NEAMT ROMANIA	MILL TEST CERTIFICATE according to EN 10204/3.1/2004				Page 3/8	ArcelorMittal	
					B 16006/1		
					28.11.2018		
Buyer: CUNADO S.A. CALLE CAMINO DEL OLIVAR, 2, MADRID, SPAIN	SEAMLESS STEEL LINE PIPES				Total weight: 26.137 tons 0 lbs	Total Length: 924,92 meters 3.034,51 foot	
					Pieces: 80	Bundles: 15	
Standard: API 5L ed.4S-2012 / API 5L ed.4G- 2018-PSL2; ASME B36.10M-2015; Pipes acc with Repsol specs and AMR Technical Offer Repsol 23.09.2018							
Buyer's reference: PO NG: PC0052419		Dimensions: 168.30 x 7.11 mm 6.625 X 0.280 inch		Schedule: 40		Length: 11.00 - 12.00 m	36.09 - 39.37 feet
Contract 50063968							
Item	Item Client	Hydro Test:	Bar	PSI	MPa	Time(sec)	Steel Grade:
6	170 L-PIP46-R		196		19.6	10	BN - PSL2

Chemical Analysis(%)

Heat	Bulletin No.	Product Req.	Nb + V	Nb + Ti + V	CE _{EW}
			Max	Min	0.43
			0.060		

CEpcm = C-Si/30+Mn/20+Cu/20+Ni/60+Cr/20+Mo/15+V/10+5B

CE_S = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

Tensile Test

Heat	Orientation	Length	Width/Diameter	Thickness	Section	Mechanical test	YS MPa	VS	UTS MPa	UTS (PSI:1000)	E %	YS/UTS max: 0.90				
		mm	inch	mm	inch	mm ²	inch ²	(PSI:1000)								
63497	Longitudinal Flat	50.8	2	40.00	1.575	8.10	0.319	324.0	12.756	18-4361	368.00	53.4	512.00	74.3	40.60	0.72
63820	Longitudinal Flat	50.8	2	40.00	1.575	7.80	0.307	312.0	12.283	18-4530	354.00	51.3	487.00	70.6	39.90	0.73
63837	Longitudinal Flat	50.8	2	40.00	1.575	7.60	0.299	304.0	11.969	18-4514	364.00	52.8	507.00	73.5	39.60	0.72
63843	Longitudinal Flat	50.8	2	40.00	1.575	8.30	0.327	332.0	13.071	18-4514	391.00	56.7	536.00	77.7	38.30	0.73
63845	Longitudinal Flat	50.8	2	40.00	1.575	8.60	0.339	344.0	13.543	18-4515	373.00	54.1	513.00	74.4	40.30	0.73
63845	Longitudinal Flat	50.8	2	40.00	1.575	8.20	0.323	328.0	12.913	18-4517	373.00	54.1	514.00	74.3	38.60	0.73
63847	Longitudinal Flat	50.8	2	40.00	1.575	7.70	0.303	308.0	12.126	18-4514	393.00	57.0	550.00	79.8	40.00	0.71
63847	Longitudinal Flat	50.8	2	40.00	1.575	8.30	0.327	332.0	13.071	18-4517	370.00	53.7	512.00	74.3	39.00	0.72
63847	Longitudinal Flat	50.8	2	40.00	1.575	8.70	0.343	348.0	13.701	18-4530	351.00	50.9	493.00	71.5	41.90	0.71
63848	Longitudinal Flat	50.8	2	40.00	1.575	7.90	0.311	316.0	12.441	18-4530	407.00	59.0	564.00	81.8	38.30	0.72

We state on our sole responsibility that the delivered products are in conformity with the order requirements.

Formular 12A, rev.9

e. CRISTIANUS
QSR: TSK
29.11.2018

Quality Control Representative
Eng. Cristianus

Signature

Manufacturer: ArcelorMittal Tubular Products Romania S.A. STEFAN CEL MARE STR, BL 15, SC. A, PARTER, IL ROMAN, NEAMT ROMANIA	MILL TEST CERTIFICATE according to EN 10204/3.1/2004					Page 4/8	
						B 160067/1	
						28.11.2018	
Buyer: CUNADO S.A. CALLE CAMINO DEL OLIVAR, 2, MADRID, SPAIN		SEAMLESS STEEL LINE PIPES				Total weight: 26.137 tons 0 lbs	Total Length: 924.92 meters 3 034.51 feet
Buyer's reference: PO NO.: PC0052419 Contract: SU003868		Standard: API 5L ed.45-2012/ API 5L ed.46- 2018-PSL2; ASME B36.10M-2015; Pipes acc with Repsol specs and AMR Technical Offer Repsol 25.09.2018		Dimensions: 168.30 x 7.11 mm 6.625 X 0.280 inch		Schedule: 40	Length: 11.00 - 12.00 m 36.09 - 39.37 feet
Item 6	Item Client 170 L-PNP46-R	Hydro Test:	Bar 196	PSI -	MPa 19.6	Time(sec) 10	Steel Grade: BN - PSL2

Impact Test

Heat	Impact Test Bulletin No.	Orientation	Size (mm)	Temp. (°C)	Req.KV (min. J)	KV values (J)		Req.Avg. (min. J)	Ave. fracture energy (J)	KCU min.-J/cm² T:°C			Shear Area min. %			Lateral Expansion min. mm			
						KV values (J)	Ave. fracture energy (J)			KCU min.-J/cm² T:°C	KCU min.-J/cm² T:°C	KCU min.-J/cm² T:°C	Shear Area min. %	Lateral Expansion min. mm	Shear Area min. %	Lateral Expansion min. mm			
63497	18-6993	Longitudinal	10x5x55	+20	14.0	101	94	95	-	97	-	-	-	90	90	90	0.85	0.80	0.81
63820	18-7232	Longitudinal	10x5x55	+20	14.0	98	98	94	-	97	-	-	-	90	90	90	0.81	0.81	0.78
63837	18-7215	Longitudinal	10x5x55	+20	14.0	106	108	103	-	106	-	-	-	90	90	90	0.89	0.91	0.87
63845	18-7215	Longitudinal	10x5x55	+20	14.0	91	91	97	-	93	-	-	-	90	90	90	0.76	0.76	0.81
63843	18-7216	Longitudinal	10x5x55	+20	14.0	89	94	92	-	92	-	-	-	90	90	90	0.74	0.78	0.76
63845	18-7217	Longitudinal	10x5x55	+20	14.0	99	99	94	-	95	-	-	-	90	90	90	0.82	0.78	0.79
63847	18-7215	Longitudinal	10x5x55	+20	14.0	95	94	93	-	94	-	-	-	90	90	90	0.80	0.79	0.79
63847	18-7216	Longitudinal	10x5x55	+20	14.0	93	93	100	-	95	-	-	-	90	90	90	0.77	0.77	0.83
63847	18-7232	Longitudinal	10x5x55	+20	14.0	102	91	99	-	97	-	-	-	90	90	90	0.85	0.75	0.82
63848	18-7232	Longitudinal	10x5x55	+20	14.0	83	82	88	-	84	-	-	-	90	90	90	0.68	0.67	0.72

Hardness Test

Heat	Hardness Test Bulletin No.	HB max.215	HV 10 max.-	HV 10 max.-					HRC max.-	
				OD	Midwall	ID	End A	End B		
63497	18-3641	162;163;164;165	-	-	-	-	-	-	-	<-
63497	18-3641	162;161;163;164	-	-	-	-	-	-	-	<-
63820	18-3815	158;160;159;157	-	-	-	-	-	-	-	<-
63820	18-3815	158;157;160;159	-	-	-	-	-	-	-	<-
63837	18-3792	161;160;159;162	-	-	-	-	-	-	-	<-
63837	18-3792	160;158;159;161	-	-	-	-	-	-	-	<-

We state on our sole responsibility that the delivered products are in conformity with the order requirements.

C. CANTIMUS,
OGR. TSK
29.11.2018
Rm.

Quality Control Department
Eng. Quality Control

Formular 12A, rev.9

Manufacturer: ArcelorMittal Tubular Products Romania S.A. STEFAN CEL MARE STR, BL 15, SC. A, PARTER, 1, ROMAN, NEAMT ROMANIA	MILL TEST CERTIFICATE according to EN 10204-3.1/2004	Page 5/8	B 16996/1	29.11.2018	
Buyer: CUNADO S.A. CALLE CAMINO DEL OLIVAR 2, MADRID, SPAIN	SEAMLESS STEEL LINE PIPES	Total weight:	26.137 tons	Total Length:	924.92 meters 0 lbs 3 034.51 feet
		Pieces	80	Bundles	15
	Standard: API 5L ed.45-2012/ API 5L ed.46-2018-PSL2; ASME B36.10M-2015; Pipes acc with Repsol specs and AMR Technical Offer Repsol 25.09.2018				
Buyer's reference: PO NO.:PC0052419 Contract 50003868	Dimensions: 168.30 x 7.11 mm 6.625 X 0.280 inch	Schedule: 40		Length: 11.00 - 12.00 m	36.09 - 39.37 feet
Item	Item Client	Hydro Test:	Bar	PSI	MPa
6	170 L-PIP46-R	-	196	-	19.6
Time(sec)			Time(sec)		Steel Grade: BN - PSL2

Hardness Test

Hem:	Hardness Test Bulletin No.	HB max.215	HV 10 max.-	HV 10 max.-					HRC max.-
				OD	Midwall	ID	End A	End B	
63845	18-3791	163;162;160;161	-	-	-	-	-	-	<-
63845	18-3791	162;161;160;161	-	-	-	-	-	-	<-
63845	18-3792	162;161;163;164	-	-	-	-	-	-	<-
63845	18-3792	163;161;162;161	-	-	-	-	-	-	<-
63845	18-3793	163;164;165;162	-	-	-	-	-	-	<-
63845	18-3793	164;162;163;161	-	-	-	-	-	-	<-
63847	18-3791	161;159;160;162	-	-	-	-	-	-	<-
63847	18-3791	159;158;160;161	-	-	-	-	-	-	<-
63847	18-3792	158;159;161;160	-	-	-	-	-	-	<-
63847	18-3792	160;159;158;161	-	-	-	-	-	-	<-
63847	18-3815	158;159;161;160	-	-	-	-	-	-	<-
63847	18-3815	159;158;157;160	-	-	-	-	-	-	<-
63848	18-3815	163;164;162;161	-	-	-	-	-	-	<-
63848	18-3815	162;163;161;160	-	-	-	-	-	-	<-

We state on our sole responsibility that the delivered products are in conformity with the order requirements.

Formular 12A, rev.9

C. Crăciunus
OBO-TSK
29.11.2018
R.

Quality Control Representative
Eng. Nicolae Craciunus

Manufacturer: ArcelorMittal Tubular Products Roman S.A. STEFAN CEL MARE STR. BL. 15, SC. A, PARTER, I, ROMAN, NEAMT ROMANIA	MILL TEST CERTIFICATE according to EN 10204/3.1/2004			Page 6/8 B 16000/1 28.11.2016	 ArcelorMittal		
Buyer: CUNADO S.A. CALLE CAMINO DEL OLIVAR 2, MADRID, SPAIN	SEAMLESS STEEL LINE PIPES			Total weight: 26.137 tons 0 kgs		Total Length: 924.92 meters 3 034.51 feet	Pieces: 80
Buyer's reference: PO NO.:PC0052419 Contract: 50003868	Standard: API 5L ed.45-2012 / ASME 5L ed.46- 2018-PSL2; ASME B36.10M-2015; Pipes acc with Repsol specs and AMR Technical Offer Repsol 25.09.2018						
Item	Item Client	Hydro Test:	Bar	PSI	MPa	Time(sec)	Steel Grade:
6	170 L-PIP46-R		196	-	19.6	10	BN - PSL2

Heat

Heat	Pieces	Length (m)	Weight (kg)
63497	1	-	-
63820	30	-	-
63837	10	-	-
63845	16	-	-
63847	7	-	-
63848	16	-	-

We state on our sole responsibility that the delivered products are in conformity with the order requirements.

Formular 12A, rev 9

C. CARPENDE
080.73 K
29.11.2018



Manufacturer: ArcelorMittal Tubular Products Romania S.A. STEFAN CEL MARE STR. BL 15, SC. A, PARTER, I, ROMAN, NEAMT ROMANIA	MILL TEST CERTIFICATE According to EN 10204/3.1/2004				Page 7/8
					R 16986/1
					28.11.2018
				ArcelorMittal	

Buyer:	CUNADO S.A. CALLE CAMINO DEL OLIVAR 2, MADRID, SPAIN	SEAMLESS STEEL LINE PIPES			Total weight:	Total Length:	Pieces	Bundles
		Dimensions:	Schedule:	Length:	26.137 tons 0 lbs	924.93 meters 3 034.51 feet	80	15
Buyer's reference:	PO NO.: PC0052419	Dimensions: 168.30 x 7.11 mm 6.625 X 0.280 inch	Schedule: 40	Length: 11.00 - 12.00 m.	36.09 - 39.37 feet			
Contract:	50003846							

Item	Item Client	Hydro Test:	Bar	PSI	MPa	Time(sec)	Steel Grade:
6	170 L-PIP46-R		196	19.6	10		BN - PSL2

Remarks: PIPES IN COMPLIANCE WITH PED: 2014-68-EU/15.05.2014, ANNEX I, SECTION 4.3. & 7.5

Manufacturing process - hot rolling.

Hot finished, steel is fully killed and produced by electric furnace, source G000108.

Visual inspection and dimensional check without objection.

Heat treatment: normalizing at temperature 910 - 940°C, time soaking 4 min.

NDT full body:

100% ultrasonic testing in accordance with ASTM E213 : Le +Li (12.5 % from W.T) - satisfactory.

NDT for the pipe ends:

ultrasonic testing : Le+Li (12.5 % from W.T.) - satisfactory.

detection of laminar imperfection on the pipe ends, surface coverage - satisfactory.

bevel at each pipe end have been inspected for defects by wet magnetical particle, without stratification - satisfactory.

ultrasonic inspection to verify that the 50 mm wide zone at each pipe end is free of such laminar imperfection.

Hydrostatic test hold for 10 sec. no leakage noticed.

Hydrostatic test hold for 20 sec. no leakage noticed. (for a percentage of 10% of pipes) :

serial: 2-18-47-1362; 2-18-47-1366; 2-18-47-1506; 2-18-47-1517; 2-18-47-1544; heat: 63820

serial: 2-18-47-1490; heat: 63837

serial: 2-18-47-431; 2-18-47-494; heat: 63845

NDT After hydrostatic test, (max. 5 pcs)

serial: 2-18-47-413; 2-18-47-448; 2-18-47-496; heat: 63845

serial: 2-18-47-539; 2-18-47-540 heat: 63848

NDT full body:

100% ultrasonic testing in accordance with ASTM E213 : Le +Li (12.5 % from W.T) - satisfactory.

C. CRISTIANUS
OAO - TSK
28.11.2018
R
d



We state on our sole responsibility that the delivered products are in conformity with the order requirements.

Formular 32A, rev.9

Manufacturer: ArcelorMittal Tubular Products Roman S.A. STEFAN CEL MARE STR. BL 15, SC. A, PARTER, I, ROMAN, NEAMT ROMANIA	MILL TEST CERTIFICATE according to EN 10284/3.1/2004			Page 8/8	ArcelorMittal	
			B 16906/1			
			28.11.2018			
Buyer: CUNADO S.A. CALLE CAMINO DEL OLIVAR ,2, MADRID, SPAIN	Total weight: 26.137 tons 0 lbs	Total Length: 924.92 meters 3.034.31 feet	Pieces: 80	Bundles: 15		
SEAMLESS STEEL LINE PIPES						
Standard: API 5L ed.45-2012/ API 5L ed.46- 2014-PSL2, ASME B36.10M-2015; Pipes acc with Repet spec and AMR Technical Offer Report 25.09.2018						
Buyer's reference: PO NO.: PCOM052419	Dimensions: 168.30 x 7.11 mm 5.625 X 0.280 inch	Schedule: 40	Length: 11.00 - 12.00 m	36.09 - 39.37 feet		
Contract: 5MM3868	Hydro Test:	Bar 196	PSI -	MPa 19.6	Time(sec) 10	
Item: 6 Item Client: 170 L-PIP46- R				Steel Grade: BN - PSL2		

NDT for the pipe ends:

ultrasonic testing : Le+Li (12.5 % from W.T.) – satisfactory.

detection of laminar imperfection on the pipe ends, surface coverage - satisfactory.

bevel at each pipe end have been inspected for defects by wet magnetical particle, without stratification – satisfactory.

ultrasonic inspection to verify that the 50 mm wide zone at each pipe end is free of such laminar imperfection.

Magnetism residual check : four readings were taken approximately 90° apart around the circumference of each end of the pipe. The average of the four readings is ≤ 25 Gs, and no one reading is exceed 30 Gs.

The products was manufactured, sampled, tested, marked and inspected in accordance with the Standards, the supplementary requirements, and any other requirements designated in the purchase order, and has been found to meet such requirements

We take on our sole responsibility that the delivered products are in conformity with the order requirements.

C. CARPENTER
OAO. TSK
28.11.2018
R



Formular 12A, rev 9

PROTOCOLO DE ELEMENTOS CONSTRUÍDOS

 ASCH INFRAESTRUCTURAS Y SERVICIOS	Empreitada:	DOCUMENTO N°: R-R007-006
	4001008 - "Nuevas Plantas de Poliolefinas, Plataformas Logísticas Y Offsites"	DATA: 05/08/ 2024
		FOLHA N° : / DE: 34 / 185

2.2 - TUBOS DE POLIETILENO

Rev.	Data	Descrição	Realizado	Cliente
0	05/08/2024	Protocolo REDE CONTRA INCÊNDIOS AVENIDA 27 FIRE WATER-20" – FW900000 – PEB69	JOSE ANTUNES TECNICO QUALIDADE	

INGENIERIA ENGINEERING COMPANY	CLIENTE / COMPLEJO CLIENT / COMPLEX	ESTADO DEL DOCUMENTO STATE OF THE DOCUMENT		
	REPSOL POLIMEROS S.A. C.I. SINES	X	AF	Aprobado sin comentarios <i>Approved without comments</i>
DESCRIPCION PROYECTO NAME OF THE PROJECT	Nº PEDIDO PROCUREMENT ORDER CODE		C	Aprobado con comentarios. Revisar y reenviar <i>Approved with comments. Revise and submit</i>
NUEVAS PLANTAS DE POLIOLEFINAS Y PLATAFORMA LOGÍSTICA	P-W4008-0410-L0-0109-A-O		NV	No aprobado. Con comentarios. Revisar y reenviar <i>Not approved. With comments. Revise and submit</i>
CODIGO PROYECTO PROJECT CODE	ANEXO /AREA (Nº Y DESCRIPCION) ANNEX /AREA (NUMBER AND NAME)	FECHA Y FIRMA AYESA DATE AND SIGNATURE AYESA		
4001008		27/11/2023	I.L.L.	
EQUIPO (ITEM Y NOMBRE) EQUIPMENT (TAG AND NAME)	TITULO DEL PLANO DOC TITLE	NOTA: LA APROBACIÓN DE ESTE PLANO SE REFIERE ÚNICAMENTE A LAS CONDICIONES GENERALES DEL PROYECTO. ESTA APROBACIÓN NO EXIME AL CONTRATISTA O SUMINISTRADOR DE SU RESPONSABILIDAD EN LOS DETALLES DEL PROYECTO. DIMENSIONES, CONSTRUCCIÓN Y DEMÁS OBLIGACIONES ESPECIFICADAS EN LOS DOCUMENTOS CONTRACTUALES. NOTE: THE APPROVAL OF THIS DRAWING REFERRED ONLY TO THE GENERAL CONDITIONS OF THE PROJECT. THIS APPROVAL DOES NOT RELIEVE THE CONTRACTOR OR SUPPLIER OF HIS RESPONSIBILITY IN THE PROJECT DETAILS DIMENSIONS CONSTRUCTION AND OTHER OBLIGATIONS AS SPECIFIED IN THE CONTRACTUAL DOCUMENTS.		
Nº DE PLANO HOJA DOC. NUMBER	SHEET	REV.		
V-P-W4008-0410-L0-0109-A-O-003	1/3	00		



Certificado AENOR de Producto



001/006117

AENOR certifica que la organización

PLÁSTICOS IMA, S.A.U.

con domicilio social en CARRETERA ARCHIDONA-SALINAS N-342, KM 185 29300 ARCHIDONA
(Málaga - España)

suministra **Tubos de polietileno PE 100 para conducción de agua y saneamiento con presión**

conformes con UNE-EN 12201-2:2012+A1:2014 (EN 12201-2:2011+A1:2013)

Marca comercial TUPLEN

Más información en el anexo.

Centro de producción CARRETERA ARCHIDONA-SALINAS N-342, KM 185 29300 ARCHIDONA
(Málaga - España)

Esquema de certificación Para conceder este Certificado, AENOR ha ensayado el producto y ha comprobado el sistema de la calidad aplicado para su elaboración. AENOR realiza estas actividades periódicamente mientras el Certificado no haya sido anulado, según se establece en el Reglamento Particular RP 01.01.

Este certificado anula y sustituye al 001/006117, de fecha 2020-04-12

Fecha de primera emisión 2013-12-18

Fecha de modificación 2022-09-27

Fecha de expiración 2025-04-12



Rafael GARCÍA MEIRO
Director General





Certificado AENOR de Producto

001/006117

Anexo al Certificado

MARCA COMERCIAL TUPLEN

PN (bar)	DIÁMETROS (mm)
6	50 - 63 - 90 - 110 - 125 - 140 - 160 - 180 - 200 - 250 - 280 - 315 - 355 - 400 - 450 - 500
8	280 - 400
10	25 - 32 - 40 - 50 - 63 - 75 - 90 - 110 - 125 - 140 - 160 - 180 - 200 - 225 - 250 - 280 - 315 - 355 - 400 - 450 - 500
16	20 - 25 - 32 - 40 - 50 - 63 - 75 - 90 - 110 - 125 - 140 - 160 - 180 - 200 - 225 - 250 - 280 - 315 - 355 - 400 - 450 - 500
20	40 - 50 - 63 - 75 - 90 - 110 - 125 - 140 - 160 - 200 - 250 - 280 - 315 - 355
25	25 - 40 - 63 - 90 - 110 - 140 - 160 - 180 - 200 - 250

Fecha de primera emisión 2013-12-18
Fecha de modificación 2022-09-27
Fecha de expiración 2025-04-12



INGENIERIA ENGINEERING COMPANY	CLIENTE / COMPLEJO CLIENT / COMPLEX	ESTADO DEL DOCUMENTO STATE OF THE DOCUMENT		
	REPSOL POLIMEROS S.A. C.I. SINES	X	AF	Aprobado sin comentarios <i>Approved without comments</i>
DESCRIPCION PROYECTO NAME OF THE PROJECT	Nº PEDIDO PROCUREMENT ORDER CODE		C	Aprobado con comentarios. Revisar y reenviar <i>Approved with comments. Revise and submit</i>
NUEVAS PLANTAS DE POLIOLEFINAS Y PLATAFORMA LOGÍSTICA	P-W4008-0410-L0-0109-A-O		NV	No aprobado. Con comentarios. Revisar y reenviar <i>Not approved. With comments. Revise and submit</i>
CODIGO PROYECTO PROJECT CODE	ANEXO /AREA (Nº Y DESCRIPCION) ANNEX /AREA (NUMBER AND NAME)	FECHA Y FIRMA AYESA DATE AND SIGNATURE AYESA		
4001008		27/11/2023	I.L.L.	
EQUIPO (ITEM Y NOMBRE) EQUIPMENT (TAG AND NAME)	TITULO DEL PLANO DOC TITLE	NOTA: LA APROBACIÓN DE ESTE PLANO SE REFIERE ÚNICAMENTE A LAS CONDICIONES GENERALES DEL PROYECTO. ESTA APROBACIÓN NO EXIME AL CONTRATISTA O SUMINISTRADOR DE SU RESPONSABILIDAD EN LOS DETALLES DEL PROYECTO. DIMENSIONES, CONSTRUCCIÓN Y DEMÁS OBLIGACIONES ESPECIFICADAS EN LOS DOCUMENTOS CONTRACTUALES. NOTE: THE APPROVAL OF THIS DRAWING REFERRED ONLY TO THE GENERAL CONDITIONS OF THE PROJECT. THIS APPROVAL DOES NOT RELIEVE THE CONTRACTOR OR SUPPLIER OF HIS RESPONSIBILITY IN THE PROJECT DETAILS DIMENSIONS CONSTRUCTION AND OTHER OBLIGATIONS AS SPECIFIED IN THE CONTRACTUAL DOCUMENTS.		
Nº DE PLANO HOJA DOC. NUMBER	SHEET	REV.		
V-P-W4008-0410-L0-0109-A-O-004	1/3	00		



AENOR Product Certificate Plastics



001/006151

AENOR certifies that the organization

PLÁSTICOS IMA, S.A.U.

registered office CR ARCHIDONA-SALINAS N-342, KM 185 29300 ARCHIDONA
(Málaga - España)

supplies Polyethylene (PE) structured-wall pipes for non-pressure underground drainage and sewerage. Smooth inner surface and outer profiled surface.

in compliance with UNE-EN 13476-1:2018 (EN 13476-1:2018)
UNE-EN 13476-3:2019 (EN 13476-3:2018)

Trademark PLÁSTICOS IMA

See annex for more information.

Production site CR ARCHIDONA-SALINAS N-342, KM 185 29300 ARCHIDONA
(Málaga - España)

Certification scheme In order to grant this Certificate, AENOR has tested the product and has verified the quality system implemented for its manufacture. AENOR performs these tasks periodically while the Certificate has not been cancelled, in accordance with Specific Rules RP 01.45.

This certificate supersedes 001/006151, dated 2020-03-30

First issued on 2014-02-17
Modified on 2021-02-23
Validity date 2024-02-17

Rafael GARCÍA MEIRO
Chief Executive Officer

AENOR

AENOR Product Certificate Plastics

001/006151

Annex to Certificate

TRADEMARK PLÁSTICOS IMA

SN	NOMINAL DIAMETER (mm)	DN/OD - DN/ID	JOIN SYSTEM	APPLICATION AREA
8	300 - 400	ID	Double socket	U
8	160 - 200 - 250 - 315 - 400 - 500	OD	Double socket	U
8	630 - 800 - 1000	OD	Buttwelding	U

First issued on 2014-02-17
Modified on 2021-02-23
Validity date 2024-02-17

Original Electronic Certificate

AENOR INTERNACIONAL S.A.U.
Génova, 6. 28004 Madrid. España
Tel. 91 432 60 00.- www.aenor.com

Product certification body accredited by ENAC, number 1/C-PR271



IQNet

THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

AENOR has issued an IQNet recognized certificate that the organization:

PLÁSTICOS IMA, S.A.U.

**CR. ARCHIDONA-SALINAS N-342, KM 185.
29300 - ARCHIDONA
(MÁLAGA)**

has implemented and maintains a

Quality Management System

for the following scope:

Production by extrusion of: Oriented poly (vinyl chloride) (PVC-O) pipes for water supply under pressure; Unplasticised poly (vinyl chloride) (PVC-U) and polyethylene (PE) pipes for water supply under pressure, soil and waste discharge, drainage and sewerage applications.

which fulfills the requirements of the following standard

ISO 9001:2015

First issued on: **2002-07-02** Last issued: **2022-11-18** Validity date: **2025-11-18**

This attestation is directly linked to the IQNet Partner's original certificate and shall not be used as a stand-alone document

Registration Number: ES-0786/2002

AENOR
Confia

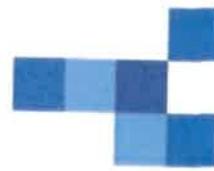
Alex Stoichitoiu
President of IQNet

Rafael GARCÍA MEIRO
Chief Executive Officer

IQNet Partners*:

AENOR Spain AFNOR Certification France APCER Portugal CCC Cyprus CISQ Italy
CQC China CQM China CQS Czech Republic Cro Cert Croatia DQS Holding GmbH Germany EAGLE Certification Group USA
FCAV Brazil FONDONORMA Venezuela ICONTEC Colombia Inspecta Sertifiointi Oy Finland INTECO Costa Rica
IRAM Argentina JQA Japan KFQ Korea MIRTEC Greece MSZT Hungary Nemko AS Norway NSAI Ireland
NYCE-SIGE México PCBC Poland Quality Austria Austria RR Russia SII Israel SIQ Slovenia
SIRIM QAS International Malaysia SQS Switzerland SRAC Romania TEST St Petersburg Russia TSE Turkey YUQS Serbia

* The list of IQNet partners is valid at the time of issue of this certificate. Updated information is available under www.iqnet-certification.com



Certificado del Sistema de Gestión de la Calidad



ER-0786/2002

AENOR certifica que la organización

PLÁSTICOS IMA, S.A.U.

dispone de un sistema de gestión de la calidad conforme con la Norma ISO 9001:2015

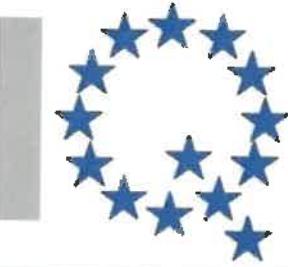
para las actividades: La producción por extrusión de: Tuberías y uniones de poli (cloruro de vinilo) orientado (PVC-O) para conducciones de agua a presión; Tuberías y uniones de poli (cloruro de vinilo) no plastificado (PVC-U) y polietileno (PE) para conducciones de agua a presión, evacuación, saneamiento y canalizaciones.

que se realizan en: CR. ARCHIDONA-SALINAS N-342, KM 185. 29300 - ARCHIDONA (MÁLAGA)

Fecha de primera emisión: 2002-07-02
Fecha de última emisión: 2022-11-18
Fecha de expiración: 2025-11-18

Rafael GARCÍA MEIRO
Director General





IQNet

THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

AENOR has issued an IQNet recognized certificate that the organization:

PLÁSTICOS IMA, S.A.U.

**CR. ARCHIDONA-SALINAS N-342, KM 185.
29300 - ARCHIDONA
(MÁLAGA)**

*has implemented and maintains a
Environmental Management System*

for the following scope:

Production by extrusion of: Oriented poly (vinyl chloride) (PVC-O) pipes for water supply under pressure; Unplasticised poly (vinyl chloride) (PVC-U) and polyethylene (PE) pipes for water supply under pressure, soil and waste discharge, drainage and sewerage applications.

which fulfills the requirements of the following standard

ISO 14001:2015

First issued on: 2004-11-18 Last issued: 2022-11-18 Validity date: 2025-11-18

This attestation is directly linked to the IQNet Partner's original certificate and shall not be used as a stand-alone document

Registration Number: ES-2004/0452

AENOR
Confia

Alex Stoichitoiu
President of IQNet

Rafael GARCÍA MEIRO
Chief Executive Officer

IQNet Partners*: AENOR Spain AFNOR Certification France APCER Portugal CCC Cyprus CISQ Italy
CQC China CQM China CQS Czech Republic Cro Cert Croatia DQS Holding GmbH Germany EAGLE Certification Group USA
FCAV Brazil FONDONORMA Venezuela ICONTEC Colombia Inspecta Sertifointi Oy Finland INTECO Costa Rica
IRAM Argentina JQA Japan KFQ Korea MIRTEC Greece MSZT Hungary Nemko AS Norway NSAI Ireland
NYCE-SIGE México PCBC Poland Quality Austria Austria RR Russia SII Israel SIQ Slovenia
SIRIM QAS International Malaysia SQS Switzerland SRAC Romania TEST St Petersburg Russia TSE Turkey YUQS Serbia



Certificado del Sistema de Gestión Ambiental



GA-2004/0452

AENOR certifica que la organización

PLÁSTICOS IMA, S.A.U.

dispone de un sistema de gestión ambiental conforme con la Norma ISO 14001:2015

para las actividades: La producción por extrusión de: Tuberías y uniones de poli (cloruro de vinilo) orientado (PVC-O) para conducciones de agua a presión; Tuberías y uniones de poli (cloruro de vinilo) no plastificado (PVC-U) y polietileno (PE) para conducciones de agua a presión, evacuación, saneamiento y canalizaciones.

que se realiza/n en: CR. ARCHIDONA-SALINAS N-342, KM 185. 29300 - ARCHIDONA (MÁLAGA)

Fecha de primera emisión: 2004-11-18
Fecha de última emisión: 2022-11-18
Fecha de expiración: 2025-11-18



Rafael GARCÍA MEIRO
Director General



Certificado AENOR de Producto



001/006117

AENOR certifica que la organización

PLÁSTICOS IMA, S.A.U.

con domicilio social en	Carretera Archidona-Salinas N-342, Km 185 29300 Archidona (Málaga - España)
suministra	Tubos de polietileno PE 100 para conducción de agua y saneamiento con presión
conformes con	UNE-EN 12201-2:2012+A1:2020 (EN 12201-2:2011+A1:2013)
Marca comercial	TUPLEN
	Más información en el anexo.
Centro de producción	Carretera Archidona-Salinas N-342, Km 185 29300 Archidona (Málaga - España)
Esquema de certificación	Para conceder este Certificado, AENOR ha ensayado el producto y ha comprobado el sistema de la calidad aplicado para su elaboración. AENOR realiza estas actividades periódicamente mientras el Certificado no haya sido anulado, según se establece en el Reglamento Particular RP 01.01.
	Este certificado anula al 001/006117, de fecha 2022-09-27
Primera emisión	2013-12-18
Modificación	2023-07-18
Expiración	2025-04-12



Rafael GARCÍA MEIRO
CEO



AENOR INTERNACIONAL S.A.U.
Génova, 6. 28004 Madrid. España
Tel. 91 432 60 00.- www.aenor.com



Certificado AENOR de Producto

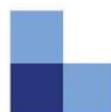
001/006117

Anexo al Certificado

MARCA COMERCIAL TUPLEN

PN (bar)	DIÁMETROS (mm)
6	50 - 63 - 90 - 110 - 125 - 140 - 160 - 180 - 200 - 250 - 280 - 315 - 355 - 400 - 450 - 500
8	280 - 400
10	32 - 40 - 50 - 63 - 75 - 90 - 110 - 125 - 140 - 160 - 180 - 200 - 225 - 250 - 280 - 315 - 355 - 400 - 450 - 500
16	20 - 25 - 32 - 40 - 50 - 63 - 75 - 90 - 110 - 125 - 140 - 160 - 180 - 200 - 225 - 250 - 280 - 315 - 355 - 400 - 450 - 500
20	40 - 50 - 63 - 75 - 90 - 110 - 125 - 140 - 160 - 200 - 250 - 280 - 315 - 355
25	25 - 40 - 63 - 90 - 110 - 140 - 160 - 180 - 200 - 250

Primera emisión 2013-12-18
Modificación 2023-07-18
Expiración 2025-04-12



AENOR INTERNACIONAL S.A.U.
Génova, 6. 28004 Madrid. España
Tel. 91 432 60 00.- www.aenor.com

INGENIERIA ENGINEERING COMPANY	CLIENTE / COMPLEJO CLIENT / COMPLEX	ESTADO DEL DOCUMENTO STATE OF THE DOCUMENT		
	REPSOL POLIMEROS S.A. C.I. SINES	X	AF	Aprobado sin comentarios <i>Approved without comments</i>
DESCRIPCION PROYECTO NAME OF THE PROJECT	Nº PEDIDO PROCUREMENT ORDER CODE		C	Aprobado con comentarios. Revisar y reenviar <i>Approved with comments. Revise and submit</i>
NUEVAS PLANTAS DE POLIOLEFINAS Y PLATAFORMA LOGÍSTICA	P-W4008-0410-L0-0109-A-O		NV	No aprobado. Con comentarios. Revisar y reenviar <i>Not approved. With comments. Revise and submit</i>
CODIGO PROYECTO PROJECT CODE	ANEXO /AREA (Nº Y DESCRIPCION) ANNEX /AREA (NUMBER AND NAME)	FECHA Y FIRMA AYESA DATE AND SIGNATURE AYESA		
4001008		27/11/2023	I.L.L.	
EQUIPO (ITEM Y NOMBRE) EQUIPMENT (TAG AND NAME)	TITULO DEL PLANO DOC TITLE	NOTA: LA APROBACIÓN DE ESTE PLANO SE REFIERE ÚNICAMENTE A LAS CONDICIONES GENERALES DEL PROYECTO. ESTA APROBACIÓN NO EXIME AL CONTRATISTA O SUMINISTRADOR DE SU RESPONSABILIDAD EN LOS DETALLES DEL PROYECTO. DIMENSIONES, CONSTRUCCIÓN Y DEMÁS OBLIGACIONES ESPECIFICADAS EN LOS DOCUMENTOS CONTRACTUALES. NOTE: THE APPROVAL OF THIS DRAWING REFERRED ONLY TO THE GENERAL CONDITIONS OF THE PROJECT. THIS APPROVAL DOES NOT RELIEVE THE CONTRACTOR OR SUPPLIER OF HIS RESPONSIBILITY IN THE PROJECT DETAILS DIMENSIONS CONSTRUCTION AND OTHER OBLIGATIONS AS SPECIFIED IN THE CONTRACTUAL DOCUMENTS.		
Nº DE PLANO HOJA DOC. NUMBER	SHEET	REV.		
V-P-W4008-0410-L0-0109-A-O-002	1/3	00		



FICHA TÉCNICA
TUBERÍA DE POLIETILENO (PE 100)
PARA CONDUCCIÓN DE AGUA CON PRESIÓN
PARA CONSUMO HUMANO
SEGÚN NORMA UNE EN 12201

Rev. 5
10.06.2022

MATERIAL DE BASE: Polietileno (PE 100).

NORMA DE APLICACIÓN: UNE EN 12201 con certificación AENOR.

COLOR: Negro con banda azul para conducciones de agua a presión para consumo humano.

CARACTERÍSTICAS DIMENSIONALES: Según lo establecido en la norma UNE EN 12201-2.

CARACTERÍSTICAS FÍSICAS Y MECÁNICAS:

EXIGENCIAS EN ENSAYOS	VALORES EXIGIDOS	MÉTODO DE ENSAYO
Índice de fluidez	+/- 20 % V.M.P.	UNE EN ISO 1133
Tiempo de inducción a la oxidación	≥ 20 min	ISO 11357-6
Alargamiento a la rotura	≥ 350 %	EN ISO 6259-1
Retracción longitudinal en caliente	≤ 3 %	UNE EN ISO 2505
Resistencia hidrostática 80 °C, 165 h. ($\sigma = 5,4$ MPa)	Sin fallo	UNE EN ISO 1167
Resistencia hidrostática 20 °C, 100 h. ($\sigma = 12,4$ MPa)	Sin fallo	UNE EN ISO 1167
Resistencia hidrostática 80 °C, 1.000 h. ($\sigma = 5,0$ MPa)	Sin fallo	UNE EN ISO 1167

OTRAS CARACTERÍSTICAS TÉCNICAS:

OTRAS CARACTERÍSTICAS TÉCNICAS	VALOR
Densidad media	≥ 0,95 g/cm ³
Esfuerzo de diseño	8,0 MPa
Contenido en negro de carbono	2,0 - 2,5 %
Módulo de elasticidad a corto plazo	1.100 MPa
Resistencia mínima requerida (MRS)	10,0 MPa
Coeficiente medio de dilatación térmica lineal	0,22 mm/m °C
Conductividad térmica	0,37 Kcal/hm °C
Coeficiente de seguridad	1,25

TUBERÍAS DE POLIETILENO PE 100



Barras y Rollos

- Fabricadas según **NORMA UNE EN 12201**. Marca de calidad **AENOR**.
- Longitud total:
 - **BARRAS**: hasta Ø 225 barras 12 m, Ø 250 en adelante barras 13 m.
 - **ROLLOS**: hasta Ø 90 rollos 100 m, Ø 110 rollos 50 m.
- Color: Tubo negro con banda de color azul coextrusionada.
- Aptas para uso alimentario.
- PN = Presión Nominal (bar).

Ø ext. (mm)	PRESIÓN (BAR)															
	PN 4 (SDR 41)		PN 6 (SDR 26)		PN 8 (SDR 21)		PN 10 (SDR 17)		PN 12,5 (SDR 13,6)		PN 16 (SDR 11)		PN 20 (SDR 9)		PN 25 (SDR 7,4)	
	Código	Esp. (mm)	Código	Esp. (mm)	Código	Esp. (mm)	Código	Esp. (mm)	Código	Esp. (mm)	Código	Esp. (mm)	Código	Esp. (mm)	Código	Esp. (mm)
20	-	-	-	-	-	-	-	-	-	20/ 16AD100	2,0	-	-	20/ 25AD100	3,0	
25	-	-	-	-	-	-	-	-	-	25/ 16AD100	2,3	-	-	25/ 25AD100	3,5	
32	-	-	-	-	-	-	32/ 10AD100	2,0	-	-	32/ 16AD100	3,0	32/ 20AD100	3,6	32/ 25AD100	4,4
40	-	-	-	-	-	-	40/ 10AD100	2,4	-	-	40/ 16AD100	3,7	40/ 20AD100	4,5	40/ 25AD100	5,5
50	-	-	50/ 6AD100	2,0	-	-	50/ 10AD100	3,0	-	-	50/ 16AD100	4,6	50/ 20AD100	5,6	50/ 25AD100	6,9
63	-	-	63/ 6AD100	2,5	-	-	63/ 10AD100	3,8	-	-	63/ 16AD100	5,8	63/ 20AD100	7,1	63/ 25AD100	8,6
75	-	-	75/ 6AD100	2,9	-	-	75/ 10AD100	4,5	-	-	75/ 16AD100	6,8	75/ 20AD100	8,4	75/ 25AD100	10,3
90	-	-	90/ 6AD100	3,5	-	-	90/ 10AD100	5,4	-	-	90/ 16AD100	8,2	90/ 20AD100	10,1	90/ 25AD100	12,3
110	-	-	110/ 6AD100	4,2	110/ 8AD100	5,3	110/ 10AD100	6,6	110/ 12,5AD100	8,1	110/ 16AD100	10,0	110/ 20AD100	12,3	110/ 25AD100	15,1
125	-	-	125/ 6AD100	4,8	125/ 8AD100	6,0	125/ 10AD100	7,4	125/ 12,5AD100	9,2	125/ 16AD100	11,4	125/ 20AD100	14,0	125/ 25AD100	17,1
140	-	-	140/ 6AD100	5,4	140/ 8AD100	6,7	140/ 10AD100	8,3	140/ 12,5AD100	10,3	140/ 16AD100	12,7	140/ 20AD100	15,7	140/ 25AD100	19,2
160	-	-	160/ 6AD100	6,2	160/ 8AD100	7,7	160/ 10AD100	9,5	160/ 12,5AD100	11,8	160/ 16AD100	14,6	160/ 20AD100	17,9	160/ 25AD100	21,9
180	-	-	180/ 6AD100	6,9	180/ 8AD100	8,6	180/ 10AD100	10,7	180/ 12,5AD100	13,3	180/ 16AD100	16,4	180/ 20AD100	20,1	180/ 25AD100	24,6
200	-	-	200/ 6AD100	7,7	200/ 8AD100	9,6	200/ 10AD100	11,9	200/ 12,5AD100	14,7	200/ 16AD100	18,2	200/ 20AD100	22,4	200/ 25AD100	27,4
225	-	-	225/ 6AD100	8,6	225/ 8AD100	10,8	225/ 10AD100	13,4	225/ 12,5AD100	16,6	225/ 16AD100	20,5	225/ 20AD100	25,2	225/ 25AD100	30,8
250	-	-	250/ 6AD100	9,6	250/ 8AD100	11,9	250/ 10AD100	14,8	250/ 12,5AD100	18,4	250/ 16AD100	22,7	250/ 20AD100	27,9	250/ 25AD100	34,2
280	-	-	280/ 6AD100	10,7	280/ 8AD100	13,4	280/ 10AD100	16,6	280/ 12,5AD100	20,6	280/ 16AD100	25,4	280/ 20AD100	31,3	280/ 25AD100	38,3
315	-	-	315/ 6AD100	12,1	315/ 8AD100	15,0	315/ 10AD100	18,7	315/ 12,5AD100	23,2	315/ 16AD100	28,6	315/ 20AD100	35,2	315/ 25AD100	43,1
355	355/ 4AD100	8,7	355/ 6AD100	13,6	355/ 8AD100	16,9	355/ 10AD100	21,1	355/ 12,5AD100	26,1	355/ 16AD100	32,2	355/ 20AD100	39,7	-	-

* Para otros diámetros y presiones, consultar.

Barras y Rollos



- Fabricadas según **NORMA UNE EN 12201**. Marca de calidad **AENOR**.
- Longitud total:
 - **BARRAS**: hasta Ø 225 barras 12 m, Ø 250 en adelante barras 13 m.
 - **ROLLOS**: hasta Ø 90 rollos 100 m, Ø 110 rollos 50 m.
- Color: Tubo negro con banda de color azul coextrusión.
- Aptas para uso alimentario.
- PN = Presión Nominal (bar).

Ø ext. (mm)	PRESIÓN (BAR)															
	PN 4 (SDR 41)		PN 6 (SDR 26)		PN 8 (SDR 21)		PN 10 (SDR 17)		PN 12,5 (SDR 13,6)		PN 16 (SDR 11)		PN 20 (SDR 9)		PN 25 (SDR 7,4)	
	Código	Esp. (mm)	Código	Esp. (mm)	Código	Esp. (mm)	Código	Esp. (mm)	Código	Esp. (mm)	Código	Esp. (mm)	Código	Esp. (mm)	Código	Esp. (mm)
400	400/ 4AD100	9,8	400/ 6AD100	15,3	400/ 8AD100	19,1	400/ 10AD100	23,7	400/ 12,5AD100	29,4	400/ 16AD100	36,3	400/ 20AD100	44,7	400/ 25AD100	54,7
450	-	-	450/ 6AD100	17,2	450/ 8AD100	21,5	450/ 10AD100	26,7	450/ 12,5AD100	33,1	450/ 16AD100	40,9	450/ 20AD100	50,3	-	-
500	500/ 4AD100	12,3	500/ 6AD100	19,1	500/ 8AD100	23,9	500/ 10AD100	29,7	500/ 12,5AD100	36,8	500/ 16AD100	45,4	500/ 20AD100	55,8	-	-
560	-	-	560/ 6AD100	21,4	560/ 8AD100	26,7	560/ 10AD100	32,2	560/ 12,5AD100	41,2	560/ 16AD100	50,8	-	-	-	-
630	630/ 4AD100	15,4	630/ 6AD100	24,1	630/ 8AD100	30,0	630/ 10AD100	37,4	-	-	630/ 16AD100	57,2	630/20A D100	70,3	-	-
710	710/ 4AD100	17,4	710/ 6AD100	27,2	710/ 8AD100	33,9	710/ 10AD100	42,1	-	-	-	-	-	-	-	-
800	800/ 4AD100	19,6	800/ 6AD100	30,6	800/ 8AD100	38,1	800/ 10AD100	47,4	-	-	-	-	-	-	-	-
900	-	-	900/ 6AD100	34,4	900/ 8AD100	42,9	900/ 10AD100	53,3	-	-	-	-	-	-	-	-
1.000	1000/ 4AD100	24,5	1000/ 6AD100	38,2	-	-	1000/ 10AD100	59,3	-	-	-	-	-	-	-	-

* Para otros diámetros y presiones, consultar.

EMBALAJE BARRAS:

- **BARRAS:** hasta Ø 225 barras 12 m, Ø 250 en adelante barras 13 m.

DN (mm)	Nº Barras/Palet		Nº Palets/Trailer		Metros/Palet		Metros/Trailer	
	Barras 12 m	Barras 13 m	Barras 12 m	Barras 13 m	Barras 12 m	Barras 13 m	Barras 12 m	Barras 13 m
90	23	-	20	-	276	-	5.520	-
110	19	-	16	-	228	-	3.648	-
125	17	-	16	-	204	-	3.264	-
140	15	-	14	-	180	-	2.520	-
160	13	-	14	-	156	-	2.184	-
180	11	-	12	-	132	-	1.584	-
200	11	-	11	-	132	-	1.452	-
225	5	-	16	-	60	-	960	-
250	-	4	-	18	-	52	-	936
315	-	3	-	16	-	39	-	624
355	-	3	-	10	-	39	-	390
400	-	3	-	10	-	39	-	390
450	-	2	-	10	-	26	-	260
500	-	2	-	8	-	26	-	208
560	-	2	-	5	-	26	-	130
630	-	2	-	6	-	26	-	156
710	-	2	-	4	-	26	-	104
800	-	2	-	4	-	26	-	104
900	-	2	-	2	-	26	-	52
1.000	-	2	-	2	-	26	-	52

EMBALAJE ROLLOS:

- **ROLLOS:** hasta Ø 90 rollos 100 m, Ø 110 rollos 50 m.

DN (mm)	Nº Rollos/Trailer		Metros/Trailer	
	Rollos 50 m	Rollos 100 m	Rollos 50 m	Rollos 100 m
25	-	320	-	32.000
32	-	200	-	20.000
40	-	160	-	16.000
50	-	88	-	8.800
63	-	50	-	5.000
75	-	38	-	3.800
90	-	28	-	2.800
110	28	-	1.400	-

PROTOCOLO DE ELEMENTOS CONSTRUÍDOS

 ASCH INFRAESTRUCTURAS Y SERVICIOS	Empreitada:	DOCUMENTO N°: R-R007-006
	4001008 - "Nuevas Plantas de Poliolefinas, Plataformas Logísticas Y Offsites"	DATA: 05/08/ 2024
		FOLHA N° : / DE: 53 / 185

2.3 – CURVAS

Rev.	Data	Descrição	Realizado	Cliente
0	05/08/2024	Protocolo REDE CONTRA INCÊNDIOS AVENIDA 27 FIRE WATER-20" – FW900000 – PEB69	JOSE ANTUNES TECNICO QUALIDADE	



CUÑADO S.A.U.
Cl. Camino Del Olivar, Nº.2 Esquina Cl. México
28806 ALCALÁ DE HENARES MADRID España
Telf. +34 918878700 - Fax +34 918878733

CERTIFICADOS DE CALIDAD. Quality certificates

REQUERIDO Order No.	ALACION Delivery Note	PO# Item	SOLICITUD Y/Ref.	DESCRIPCION Description	CANTIDAD Quantity	COLEADA Heat	CERTIFICADO Certificate	FACTURA Invoice
4500034705	/190	190	190-G2DN250L-G2 02	10" CL.150 V. COMP. RF A-536 GR.65-45-12+EPOXI TOT, BB EXT. REDUCTOR EPDM DI+EPD / WEFLO	2,00	X230216/X22	MTC23-03-N026-2023	
4500034705	/190	190	190-G2DN250L-G2 02	10" CL.150 V. COMP. RF A-536 GR.65-45-12+EPOXI TOT, BB EXT. REDUCTOR EPDM DI+EPD / WEFLO	1,00	X230227/X23	MTC23-03-N026-2023	
4500034705	/190	190	190-G2DN250L-G2 02	10" CL.150 V. COMP. RF A-536 GR.65-45-12+EPOXI TOT, BB EXT. REDUCTOR EPDM DI+EPD / WEFLO	1,00	X230216/X22	MTC23-03-N026-2023	
4500034705	/200	200	200-G2DN500L-G2 02	20" CL.150 V. COMP. RF A-536 GR.65-45-12+EPOXI TOT, BB EXT. REDUCTOR EPDM HT DI+ / WEFLO	1,00	F221009	MTC23-03-N026-2023	
4500034705	/200	200	200-G2DN500L-G2 02	20" CL.150 V. COMP. RF A-536 GR.65-45-12+EPOXI TOT, BB EXT. REDUCTOR EPDM HT DI+ / WEFLO	1,00	F221009	MTC23-03-N026-2023	

	REPSOL POLIMEROS UNIPESSOAL LDA	10" CL150 V. COMP. RF A-536 GR.65-45-12+ERPOX TOT.BB EXT. REDUCTOR EPDM DI-FPO / WEFLO	X230215/X221024
Cierto: 	Invoice No.: WV23V526	Quantity: 2.00	Weight: 1/90/190



青岛伟隆阀门股份有限公司
WEFLO VALVE CO., LTD.

EN 10204 3.1

Add.: No 789 Chunyang Road, High-tech Zone, Qingdao, Shandong, China
Tel: +86 (532) 8790 5016, 8790 5017. Fax: +86 (532) 8790 5015
E-mail: info@weflovalve.com Web: www.weflovalve.com

MATERIAL TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1 / 1

Item No.	Q'ty (PCS)	Description	Class	Size	Material		Hydrostatic Test		Result							
					Body	Bonnet	Body	Seat								
1	5	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	300psi	DN250	ASTM A536 65-45-12	ASTM A536 65-45-12	42.0 bar	31.0 bar	OK							
2	2	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	200psi	DN500	ASTM A536 65-45-12	ASTM A536 65-45-12	28.0 bar	21.0bar	OK							
Chemical Composition (%)																
Item No.	Name of Part	Heat No.	C	Si	Mn	P	S	Cr	Ni	Mo	Cu	V.	Tensile Strength (Mpa)	Yield Point (Mpa)	Elongation %	HB
			3.68	2.51	0.30	0.033	0.012	N/A	N/A	N/A	N/A	N/A	459	310	17	N/A
1	Body	X230107	3.60	2.57	0.33	0.033	0.011	N/A	N/A	N/A	N/A	N/A	464	310	17	N/A
		X230216	3.59	2.67	0.33	0.034	0.009	N/A	N/A	N/A	N/A	N/A	466	319	14.5	N/A
		X230227	3.63	2.60	0.32	0.031	0.013	N/A	N/A	N/A	N/A	N/A	477	316	17	N/A
	Bonnet	X221024	3.53	2.63	0.33	0.036	0.013	N/A	N/A	N/A	N/A	N/A	498	315	16.5	N/A
2	Body	X221217	3.58	2.56	0.34	0.031	0.011	N/A	N/A	N/A	N/A	N/A	481	318	18	N/A
		X230223	3.30	2.63	0.42	0.020	0.015	N/A	N/A	N/A	N/A	N/A	520	365	12	N/A
	Bonnet	202302031	3.65	2.58	0.33	0.039	0.015	N/A	N/A	N/A	N/A	N/A	516	362	14	N/A
		F221009	3.65	2.58	0.33	0.039	0.015	N/A	N/A	N/A	N/A	N/A				

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager

Chenyuke

ERK1326725



青岛伟隆阀门股份有限公司
WEFLO VALVE CO., LTD.

EN 10204 3.1

E-Add.:Intersection of Huadong Road and Chunyang Road,
F-Qingdao National High-tech Industrial Development Zone, China
G-Tel:+86 (532) 8790 5016, 8790 5017, Fax: +86 (532) 8790 5015

HYDROSTATIC TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1/1

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN250	1	300PSI	42.0	600	31.0	600	OK	
2	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	600	21.0	600	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager *Chenyuhe*

Cliente (Client) descripción: (description) Color: (color)	REPSOL POLIMEROS UNIPESSOAL, LDA 10 CL.150 V. COMP. RT A-536 GR.65 45-12+EPoxy TOT. BB EXT. REDUCTOR EPDM DIF-EPD / WEFLO X230215/X221024	Referencia (Reference) Serie (Series)	4500034705 190-G-DN250L-G-202	Firma (Signature) Firma (Signature)	EXP1326725
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	CUNA DO	Customer (Client)	REPSOL POLIMEROS UNIPESSOAL LDA	Period: (Delivery)	4500034705	Envio (Shipment)	EXP1326725
Descripción (Description)	TOT. BB EXT. REDUCTOR EPDM DI+PD /WEFLO	Ref. (Ref.)	10" CL.150 V. COMP. RF A-536 GR.65-45-12-EPDXI	Period: (Delivery)	190-G2DN250L-G202	Envio (Shipment)	190/190



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G-Tel:+86 (532) 8790 5016,8790 5017. Fax: +86 (532) 8790 5015

HYDROSTATIC TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar.28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1/1

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand:FM/UL/CE: DI.Body&Bonnet OS&Y Gate Valve	DN250	4	300PSI	42.0	180	31.0	60	OK	
2	WEFLO Brand:FM/UL/CE: DI.Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	180	21.0	120	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager *Chenyuke*

	Client REPSOL POLIMEROS UNIPESSOAL LDA	Periodo: 4500034705	Crno. Grafico:	EXR1326725
Description: 10" CL150 V. COMP. RF A-536 GR-65-45-12+EPoxy TOT. BB EKT. REDUCTOR EPDM DI+EPD WEFLO	Quantity: 1,00	Delivery: /190/190	Patent No.: X230227/X230223	Model: Cobain



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Add. :No.789 Chunyang Road,High-tech Zone,Qingdao,Shandong,China
Tel:+86 (532) 8790 5016,8790 5017. Fax: +86 (532) 8790 5015

E-mail: info@weflovalve.com Web: www.weflovalve.com

MATERIAL TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28. 2023
Invce No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1 / 1

Item No.	Q'ty (PCS)	Description	Class	Size	Material		Hydrostatic Test		Result							
					Body	Bonnet	Body	Seat								
1	5	WEFLO Brand FM/UL/CE DI Body&Bonnet OS&Y Gate Valve	300psi	DN250	ASTM A536 65-45-12	ASTM A536 65-45-12	42.0 bar	31.0 bar	OK							
2	2	WEFLO Brand FM/UL/CE DI Body&Bonnet OS&Y Gate Valve	200psi	DN500	ASTM A536 65-45-12	ASTM A536 65-45-12	28.0 bar	21.0bar	OK							
Chemical Composition (%)																
Item No.	Name of Part	Heat No.	C	Si	Mn	P	S	Cr	Ni	Mo	Cu	V.	Tensile Strength (Mpa)	Yield Point (Mpa)	Elongation %	HB
			X230107	3.68	2.51	0.30	0.033	0.012	N/A	N/A	N/A	N/A	459	310	17	N/A
1	Body	X230216	3.60	2.57	0.33	0.033	0.011	N/A	N/A	N/A	N/A	N/A	464	310	17	N/A
		X230227	3.59	2.67	0.33	0.034	0.009	N/A	N/A	N/A	N/A	N/A	466	319	14.5	N/A
		X221024	3.63	2.60	0.32	0.031	0.013	N/A	N/A	N/A	N/A	N/A	477	316	17	N/A
	Bonnet	X221217	3.53	2.63	0.33	0.036	0.013	N/A	N/A	N/A	N/A	N/A	498	315	16.5	N/A
		X230223	3.58	2.56	0.34	0.031	0.011	N/A	N/A	N/A	N/A	N/A	481	318	18	N/A
2	Body	202302031	3.30	2.63	0.42	0.020	0.015	N/A	N/A	N/A	N/A	N/A	520	365	12	N/A
	Bonnet	F221009	3.65	2.58	0.33	0.039	0.015	N/A	N/A	N/A	N/A	N/A	516	362	14	N/A

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager

Chenyuhie

	REPSOL POLIMEROS UNIPESSOAL LDA	Período: 02/2023	Nº do lote: 4500034705	Entregas: Sólo para: 190-G2DN250L-G202	Documento: X230227/X230223
Cliente (Client) Descripción: (Descripción) Código: (Code)	RÉPSOL POLÍMEROS UNIPESSOAL, LDA 10" CL150 V. COMP. RT A 536 GR.65 45-12-FPOX TOT. BB EXT. REDUCER EPDM DIFEPD / WEFLO X230227/X230223	Quantidade: (Quantity) 1,00	Unidade: (Unit) /190/190	Observações: (Observations) Natura da: (Nature of) Início da: (Start date)	



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G-Tel:+86 (532) 8790 5016,8790 5017. Fax: +86 (532) 8790 5015

HYDROSTATIC TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SRL	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1/1

Item No	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN250	1	300PSI	42.0	600	31.0	600	OK	
2	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	600	21.0	600	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager *Chenyuhue*

	REPSOL POLIMEROS UNIPESSOAL, LDA	REF ID: X230227/X230223
Client: [REPSOL]	REPSOL POLIMEROS UNIPESSOAL, LDA	REF ID: X230227/X230223
Description: [Description]	10" CL150 V. COMP. RF A-536 GR.65-45-12+EPoxy TOT. BB EXT. REDUCTOR EPDM DI EPDM / WEFLO	REF ID: X230227/X230223
Code: [Code]		



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G-Tel:+86 (532) 8790 5016,8790 5017. Fax: +86 (532) 8790 5015

HYDROSTATIC TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar.28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1/1

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand:FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN250	4	300PSI	42.0	180	31.0	60	OK	
2	WEFLO Brand:FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	180	21.0	120	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager

REF ID: EXP1326725

	REPSOL POLIMEROS UNIPESSOAL LDA	Customer (Client) Description: 10" CL150 V. COMP. RR A-536 GR.65-45-12+EPDXI TOT. BB EXT. REDUCTOR EPDM DI+PD /WEFLO	Product (Drawing) Ref. X230215/X221024	Issue date (Drawing) 190-G2DN250L-G-202	Envoi (Signed) Date 1/90/190	Document No. (Drawing #) F221009
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WEFLO VALVE CO., LTD.

EN 10204 3.1

Add.: No.789 Chunyang Road, High-tech Zone, Qingdao, Shandong, China
Tel: +86 (532) 8790 5016, 8790 5017. Fax: +86 (532) 8790 5015

E-mail: info@weflovalve.com

Web: www.weflovalve.com

MATERIAL TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:	WV23V528	Test No.:	MTC23-03-N026	Page:	1 / 1

Item No.	Q'ty (PCS)	Description	Class	Size	Material		Hydrostatic Test		Result						
					Body	Bonnet	Body	Seat							
1	5	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	300psi	DN250	ASTM A536 65-45-12	ASTM A536 65-45-12	42.0 bar	31.0 bar	OK						
2	2	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	200psi	DN500	ASTM A536 65-45-12	ASTM A536 65-45-12	28.0 bar	21.0bar	OK						
Chemical Composition (%)															
Item No.	Name of Part	Heat No.	C	Si	Mn	P	S	Cr	Ni	Tensile Strength (Mpa)	Yield Point (Mpa)	Elongation %	HB		
			X230107	3.68	2.51	0.30	0.033	0.012	N/A	N/A	N/A	459	310	17	N/A
1	Body	X230216	3.60	2.57	0.33	0.033	0.011	N/A	N/A	N/A	N/A	464	310	17	N/A
		X230227	3.59	2.67	0.33	0.034	0.009	N/A	N/A	N/A	N/A	466	319	14.5	N/A
		X221024	3.63	2.60	0.32	0.031	0.013	N/A	N/A	N/A	N/A	477	316	17	N/A
	Bonnet	X221217	3.53	2.63	0.33	0.036	0.013	N/A	N/A	N/A	N/A	498	315	16.5	N/A
		X230223	3.58	2.56	0.34	0.031	0.011	N/A	N/A	N/A	N/A	481	318	18	N/A
2	Body	202302031	3.30	2.63	0.42	0.020	0.015	N/A	N/A	N/A	N/A	520	365	12	N/A
		F221009	3.65	2.58	0.33	0.039	0.015	N/A	N/A	N/A	N/A	516	362	14	N/A

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager

Chenyuke

	REPSOL POLIMEROS UNIPESSOAL LDA	Product No.: 4500034705	Engrg. No.: EXP1326725
Client (Client) CONADOC	Description: 10" CL150 V. COMP. RF A-536 GR-65-45-12+EPoxy TOT. BB EXT. REDUCTOR EPDM WEFLO	Quantity (Pcs): 1	Shipment (Ref): 1390-G2DN250L-G202
Cooper Sheet	Cooper Sheet	Cooper Sheet	Cooper Sheet



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G-Tel:+86 (532) 8790 5016,8790 5017. Fax: +86 (532) 8790 5015

HYDROSTATIC TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1/1

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN250	1	300PSI	42.0	600	31.0	600	OK	
2	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	600	21.0	600	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager *Chenyuhue*

	REPSOL POLIMEROS UNIPESSOAL, LDA	Client:	REPSOL POLIMEROS UNIPESSOAL, LDA
Description:	10" CL150 V. COMP. RF A-536 GR.65 45-12+EPoxy TOT. BB EXT. REDUCTOR EPDM DI-FEPD / WEFLO	Client Ref:	190-G2DN250L-G202
Code:	X230216/X221024	Contract:	1,00
Issue Date:	/190/190	Delivery No.:	Factura N°:



青岛伟隆阀门股份有限公司
WEFLO VALVE CO., LTD.

EN 10204 3.1

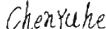
E-Add.:Intersection of Huadong Road and Chunyang Road,
F-Qingdao National High-tech Industrial Development Zone, China
G-Tel:+86 (532) 8790 5016,8790 5017. Fax: +86 (532) 8790 5015

HYDROSTATIC TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar.28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1/1

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand:FM/UL/CE: Di.Body&Bonnet OS&Y Gate Valve	DN250	4	300PSI	42.0	180	31.0	60	OK	
2	WEFLO Brand:FM/UL/CE: Di.Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	180	21.0	120	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager 

	Graite Cortado	REPSOL POLIMEROS UNIPESSOAL LDA	Referencia: 20" CL150 V. COMP. RI A-536 GR.65-45-12-EPORXI [Descripción] TOT.BB EXT. REDUCTOR EPDM HD+ / WEFLO	Fabricante: J.M.H. 200-G2DN500L-G-202	Envio: F221009	Documento: /200/200
CUNADO	Contro					



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Add. :No.789 Chunyang Road,High-tech Zone,Qingdao,Shandong,China
Tel:+86 (532) 8790 5016,8790 5017. Fax: +86 (532) 8790 5015
E-mail: info@weflovalve.com Web: www.weflovalve.com

MATERIAL TEST CERTIFICATE

Customer:			FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:			WV23V526	Test No.:	MTC23-03-N026	Page:	1 / 1

Item No.	Q'ty (PCS)	Description	Class	Size	Material		Hydrostatic Test		Result							
					Body	Bonnet	Body	Seat								
1	5	WEFLO Brand FM/UL/CE DI Body&Bonnet OS&Y Gate Valve	300psi	DN250	ASTM A536 65-45-12	ASTM A536 65-45-12	42.0 bar	31.0 bar	OK							
2	2	WEFLO Brand FM/UL/CE DI Body&Bonnet OS&Y Gate Valve	200psi	DN500	ASTM A536 65-45-12	ASTM A536 65-45-12	28.0 bar	21.0bar	OK							
Chemical Composition (%)																
Item No.	Name of Part	Heat No.	C	Si	Mn	P	S	Cr	Ni	Mo	Cu	V.	Tensile Strength (Mpa)	Yield Point (Mpa)	Elong ation %	HB
			X230107	3.68	2.51	0.30	0.033	0.012	N/A	N/A	N/A	N/A	459	310	17	N/A
1	Body	X230216	3.60	2.57	0.33	0.033	0.011	N/A	N/A	N/A	N/A	N/A	464	310	17	N/A
		X230227	3.59	2.67	0.33	0.034	0.009	N/A	N/A	N/A	N/A	N/A	466	319	14.5	N/A
		X221024	3.63	2.60	0.32	0.031	0.013	N/A	N/A	N/A	N/A	N/A	477	316	17	N/A
	Bonnet	X221217	3.53	2.63	0.33	0.036	0.013	N/A	N/A	N/A	N/A	N/A	498	315	16.5	N/A
		X230223	3.58	2.56	0.34	0.031	0.011	N/A	N/A	N/A	N/A	N/A	481	318	18	N/A
2	Body	202302031	3.30	2.63	0.42	0.020	0.015	N/A	N/A	N/A	N/A	N/A	520	365	12	N/A
	Bonnet	F221009	3.65	2.58	0.33	0.039	0.015	N/A	N/A	N/A	N/A	N/A	516	362	14	N/A

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager

Chenyuke

	REPSOL POLIMEROS UNIPESSOAL, LDA	Pedidos (Delivery) Ref:	4500034705	Envio: Schematic (Ref):	EP1326725
CUNADO <small>Colombia</small>	20" CL150 V. COMP. RF A-536 GR.65 45-12+EPOXI 1.0T. BB EXT. REDUCTOR EPDM HT DI+ / WEFLO F221009	Quantities (Pieces)	1.00	Address: Delivery No:	Karta No: Invoice No:



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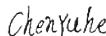
E-Add.:Intersection of Huadong Road and Chunyang Road,
F-Qingdao National High-tech Industrial Development Zone, China
G-Tel:+86 (532) 8790 5016, 8790 5017. Fax: +86 (532) 8790 5015

HYDROSTATIC TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1/1

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand FMUL/CE: DI Body&Bonnet OS&Y Gate Valve	DN250	1	300PSI	42.0	600	31.0	600	OK	
2	WEFLO Brand FMUL/CE: DI Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	600	21.0	600	OK	

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Validated by quality manager 

	REPSOL POLIMEROS UNIPESSOAL, LDA	Pedro: 4500034705	Envio: 10/03/2022	Entrega: 10/03/2022
Nome:	20" CL150 V. COMP. RF A-536 GR.65-45 12+EPoxy	Series:	200-G2DN500L-G202	Modelo:
Descrição:	TOT.BB EXT. REDUCTOR EPDM HT DI+ / WEFLO	Altura:	/200/200	Referência:



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HYDROSTATIC TEST CERTIFICATE

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand FM/UL/CE: DI.Body&Bonnet OS&Y Gate Valve	DN250	4	300PSI	42.0	180	31.0	60	OK	
2	WEFLO Brand FM/UL/CE: DI.Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	180	21.0	120	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager *Chenyuhé*

	CONEXÃO CONEXÃO	REF.: F221009	Quantidade: 1,00	Unidade: M
Cliente (Client)	REPSOL POLIMEROS UNIPESSOAL, LDA	Referência (Reference)	4500034705	Envio (Delivery)
Descrição: (Description)	20" CL150 V. COMP. RF A-536 GR.65-45-12+EPORX TOT.BB EXT. REDUTOR EPDM HT DI+ / WEFLO	Signatura (Signature)	200-G2DN500L-G202	Documento N°: (Document No.)



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WEFLO VALVE CO., LTD.

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Add. :No.789 Chunyang Road,High-tech Zone,Qingdao,Shandong,China
Tel:+86 (532) 8790 5016,8790 5017. Fax: +86 (532) 8790 5015

E-mail: info@weflovalve.com

Web: www.weflovalve.com

MATERIAL TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1 / 1

Item No.	Q'ty (PCS)	Description	Class	Size	Material		Hydrostatic Test		Result								
					Body	Bonnet	Body	Seat									
1	5	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	300psi	DN250	ASTM A536 65-45-12	ASTM A536 65-45-12	42.0 bar	31.0 bar	OK								
2	2	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	200psi	DN500	ASTM A536 65-45-12	ASTM A536 65-45-12	28.0 bar	21.0bar	OK								
Item No.	Name of Part	Heat No.	Chemical Composition (%)								Mechanical Properties						
			C	Si	Mn	P	S	Cr	Ni	Mo	Cu	V.	Tensile Strength (Mpa)	Yield Point (Mpa)	Elongation %	HB	
			X230107	3.68	2.51	0.30	0.033	0.012	N/A	N/A	N/A	N/A	459	310	17	N/A	
			X230216	3.60	2.57	0.33	0.033	0.011	N/A	N/A	N/A	N/A	464	310	17	N/A	
			X230227	3.59	2.67	0.33	0.034	0.009	N/A	N/A	N/A	N/A	466	319	14.5	N/A	
			X221024	3.63	2.60	0.32	0.031	0.013	N/A	N/A	N/A	N/A	477	316	17	N/A	
			X221217	3.53	2.63	0.33	0.036	0.013	N/A	N/A	N/A	N/A	498	315	16.5	N/A	
			X230223	3.58	2.56	0.34	0.031	0.011	N/A	N/A	N/A	N/A	481	318	18	N/A	
			Body	202302031	3.30	2.63	0.42	0.020	0.015	N/A	N/A	N/A	N/A	520	365	12	N/A
			Bonnet	F221009	3.65	2.58	0.33	0.039	0.015	N/A	N/A	N/A	N/A	516	362	14	N/A

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Validated by quality manager

Chenyuhe

2023/3/28

2023/3/28

	REPSOL POLIMEROS UNIPESSOAL LDA	Pedido: 4500034705	Envio: EXP1326725
Ciudad	20" CL150 V. COMP. RE A-536 GR.65-45-12+EPON	(Delivery) 2020-G2DN500L-G202	(Ref)
Colón	TOT. 88 EXT. REDUCTOR EPDM HT DI+ / WEFLO	Abraçao / 200/200	Portaria N:
FEZ1009	FEZ1009	Quantidade: 1,00	Invoice N:



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G-Tel: +86 (532) 8790 5016, 8790 5017. Fax: +86 (532) 8790 5015

HYDROSTATIC TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1/1

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand: FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN250	1	300PSI	42.0	600	31.0	600	OK	
2	WEFLO Brand: FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	600	21.0	600	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager *Chenyuhé*

Client: REPSOL POLIMEROS UNIPESSOAL, LDA
Order No.: FZ221009
Description: 20" CL150 V. COMP. RF A-536 GR.65-45-12+EPOXI TOT. BB EXT. REDUCTOR EPDM HT-DI+ / WEFLO
Quantity: 1,00



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EN 10204 3.1

E-Add.: Intersection of Huadong Road and Chunyang Road,
E-Qingdao National High-tech Industrial Development Zone, China
G-Tel:+86 (532) 8790 5016,8790 5017, Fax: +86 (532) 8790 5015

HYDROSTATIC TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar.28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1/1

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand:FM/UL/CE: DI.Body&Bonnet OS&Y Gate Valve	DN250	4	300PSI	42.0	180	31.0	60	OK	
2	WEFLO Brand:FM/UL/CE: DI.Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	180	21.0	120	OK	

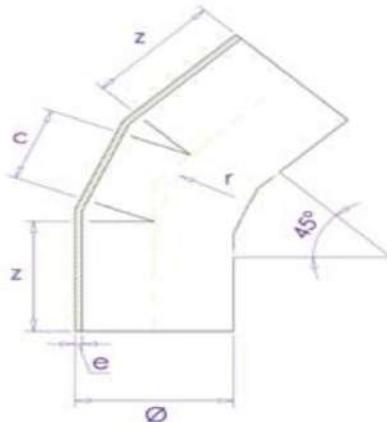
We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager

Period: 2020-62/DN500L-G202	Enviro: EPK1326725
Serial No.: FZ221009	Factura N°: /2020/200

INGENIERIA ENGINEERING COMPANY	CLIENTE / COMPLEJO CLIENT / COMPLEX	ESTADO DEL DOCUMENTO STATE OF THE DOCUMENT				
	REPSOL POLIMEROS S.A. C.I. SINES	X	AF	Aprobado sin comentarios <i>Approved without comments</i>		
DESCRIPCION PROYECTO NAME OF THE PROJECT	Nº PEDIDO PROCUREMENT ORDER CODE		C	Aprobado con comentarios. Revisar y reenviar <i>Approved with comments. Revise and submit</i>		
NUEVAS PLANTAS DE POLIOLEFINAS Y PLATAFORMA LOGÍSTICA	P-W4008-0410-L0-0109-A-O		NV	No aprobado. Con comentarios. Revisar y reenviar <i>Not approved. With comments. Revise and submit</i>		
CODIGO PROYECTO PROJECT CODE	ANEXO /AREA (Nº Y DESCRIPCION) ANNEX /AREA (NUMBER AND NAME)	FECHA Y FIRMA AYESA DATE AND SIGNATURE AYESA				
4001008		02/11/2023	YAP			
EQUIPO (ITEM Y NOMBRE) EQUIPMENT (TAG AND NAME)	TITULO DEL PLANO DOC TITLE	NOTA: LA APROBACIÓN DE ESTE PLANO SE REFIERE ÚNICAMENTE A LAS CONDICIONES GENERALES DEL PROYECTO. ESTA APROBACIÓN NO EXIME AL CONTRATISTA O SUMINISTRADOR DE SU RESPONSABILIDAD EN LOS DETALLES DEL PROYECTO. DIMENSIONES, CONSTRUCCIÓN Y DEMÁS OBLIGACIONES ESPECIFICADAS EN LOS DOCUMENTOS CONTRACTUALES. NOTE: THE APPROVAL OF THIS DRAWING REFERRED ONLY TO THE GENERAL CONDITIONS OF THE PROJECT. THIS APPROVAL DOES NOT RELIEVE THE CONTRACTOR OR SUPPLIER OF HIS RESPONSIBILITY IN THE PROJECT DETAILS DIMENSIONS CONSTRUCTION AND OTHER OBLIGATIONS AS SPECIFIED IN THE CONTRACTUAL DOCUMENTS.				
Nº DE PLANO HOJA DOC. NUMBER	SHEET	REV.				
V-P-W4008-0410-L0-0109-A-O-005	1/3	00				

Codo a 45º



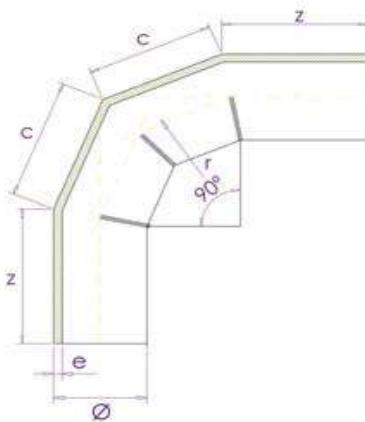
Diámetro exterior mm	Espesor (mm)			C Z	
	Sdr 26 PN6	Sdr 17 PN10	Sdr 11 PN16	mm	mm
1000	38,2	59,3	---	600	750,0
900	34,4	53,3	---	600	750,0
800	30,6	47,4	---	600	750,0
710	27,2	42,1	---	575	620,0
630	24,1	37,4	57,2	510	600,0
560	21,4	33,2	50,8	450	550,0
500	19,1	29,7	45,4	400	500,0
450	17,2	26,7	40,9	360	450,0
400	15,3	23,5	36,4	325	400,0
355	13,7	20,9	32,3	290	350,0
315	12,1	18,5	28,6	250	300,0
280	10,8	16,5	25,5	225	280,0
250	9,6	14,7	22,7	200	250,0
225	8,7	13,2	20,5	180	220,0
200	7,7	11,8	18,2	160	200,0
180	6,9	10,6	16,4	150	180,0
160	6,2	9,4	14,5	130	160,0
140	---	8,2	12,7	113	140,0
125	---	7,4	11,4	100	125,0
110	---	6,5	10,0	90	110,0
90	---	5,3	8,2	75	90,0

Accesorios fabricados a partir de segmentos de Tubería de polietileno de alta densidad PEAD PE100 fabricada según EN 12201 o EN 13244, mediante unión por soldadura a tope.

SISTEMAS DE TUBOS

Teléfono: 902 996553 - Fax: 902 996554 - www.sistemasdetubos.com - mail comercial@sistemasdetubos.com

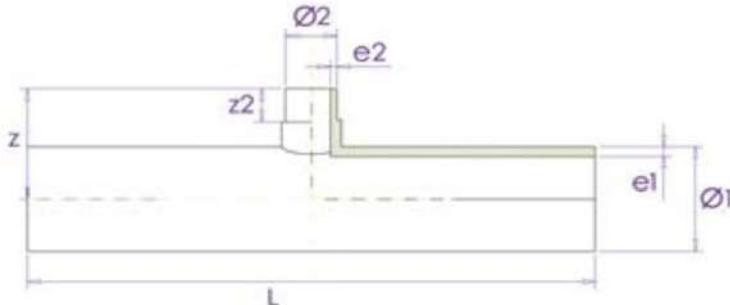
Codo a 90º



Diámetro exterior mm	Espesor (mm)			C mm	Z mm
	Sdr 26 PN6	Sdr 17 PN10	Sdr 11 PN16		
1000	38,2	59,3	---	600	750,0
900	34,4	53,3	---	600	750,0
800	30,6	47,4	---	600	750,0
710	27,2	42,1	---	575	620,0
630	24,1	37,4	57,2	510	600,0
560	21,4	33,2	50,8	450	550,0
500	19,1	29,7	45,4	400	500,0
450	17,2	26,7	40,9	360	450,0
400	15,3	23,5	36,4	325	400,0
355	13,7	20,9	32,3	290	350,0
315	12,1	18,5	28,6	250	300,0
280	10,8	16,5	25,5	225	280,0
250	9,6	14,7	22,7	200	250,0
225	8,7	13,2	20,5	180	220,0
200	7,7	11,8	18,2	160	200,0
180	6,9	10,6	16,4	150	180,0
160	6,2	9,4	14,5	130	160,0
140	---	8,2	12,7	113	140,0
125	---	7,4	11,4	100	125,0
110	---	6,5	10,0	90	110,0
90	---	5,3	8,2	75	90,0

Accesarios fabricados a partir de segmentos de Tubería de polietileno de alta densidad PEAD PE100 fabricada según EN 12201 o EN 13244, mediante unión por soldadura a tope.

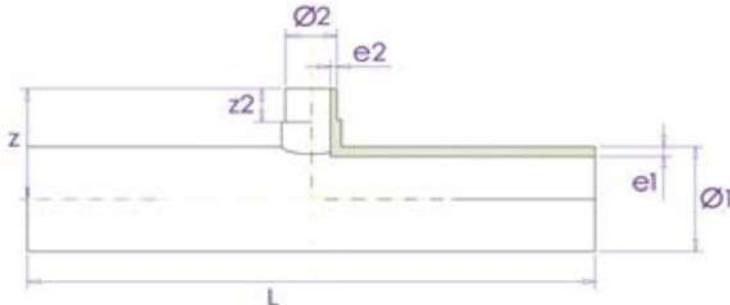
Pieza en T Ø250 a 90º



Diámetro exterior Ø1 mm	Diámetro exterior Ø2 mm	Espesor e1 (mm)			Espesor e2 (mm) Sdr 11 PN16	L mm	Z2 mm
		Sdr 26 PN6	Sdr 17 PN10	Sdr 11 PN16			
250	160	9,6	14,8	22,7	14,6	500	300,0
250	140	9,6	14,8	22,7	12,7	500	300,0
250	125	9,6	14,8	22,7	11,4	500	300,0
250	110	9,6	14,8	22,7	10,0	500	300,0
250	90	9,6	14,8	22,7	8,2	500	300,0
250	75	9,6	14,8	22,7	6,8	500	300,0
250	63	9,6	14,8	22,7	5,8	500	300,0
250	50	9,6	14,8	22,7	4,6	500	300,0
250	40	9,6	14,8	22,7	3,7	500	300,0
250	32	9,6	14,8	22,7	3,0	500	300,0

Accesarios fabricados a partir de segmentos de Tubería de polietileno de alta densidad PEAD PE100 fabricada según EN 12201 o EN 13244, mediante unión por soldadura a tope.

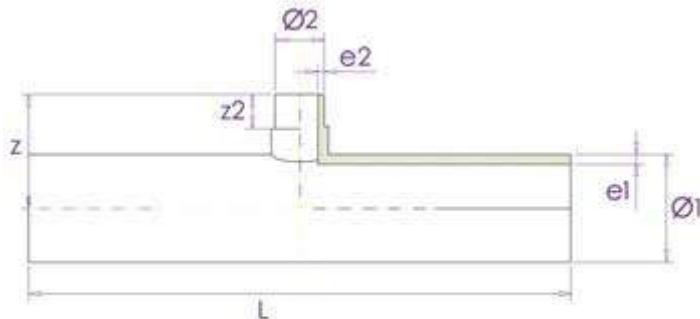
Pieza en T Ø315 a 90º



Diámetro exterior Ø1 mm	Diámetro exterior Ø2 mm	Espesor e1 (mm)			Espesor e2 (mm) Sdr 11 PN16	L mm	Z2 mm
		Sdr 26 PN6	Sdr 17 PN10	Sdr 11 PN16			
315	160	12,1	18,7	28,6	14,6	500	300,0
315	140	12,1	18,7	28,6	12,7	500	300,0
315	125	12,1	18,7	28,6	11,4	500	300,0
315	110	12,1	18,7	28,6	10,0	500	300,0
315	90	12,1	18,7	28,6	8,2	500	300,0
315	75	12,1	18,7	28,6	6,8	500	300,0
315	63	12,1	18,7	28,6	5,8	500	300,0
315	50	12,1	18,7	28,6	4,6	500	300,0
315	40	12,1	18,7	28,6	3,7	500	300,0
315	32	12,1	18,7	28,6	3,0	500	300,0

Accesarios fabricados a partir de segmentos de Tubería de polietileno de alta densidad PEAD PE100 fabricada según EN 12201 o EN 13244, mediante unión por soldadura a tope.

Pieza en T Ø355 a 90º



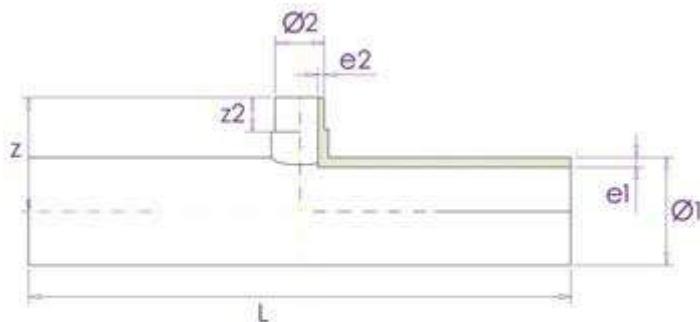
Diámetro exterior Ø1 mm	Diámetro exterior Ø2 mm	Espesor e1 (mm)			Espesor e2 (mm) Sdr 11 PN16	L mm	Z2 mm
		Sdr 26 PN6	Sdr 17 PN10	Sdr 11 PN16			
355	200	13,7	20,9	32,3	18,2	500	30,0
355	180	13,7	20,9	32,3	16,4	500	30,0
355	160	13,7	20,9	32,3	14,6	500	30,0
355	140	13,7	20,9	32,3	12,7	500	30,0
355	125	13,7	20,9	32,3	11,4	500	30,0
355	110	13,7	20,9	32,3	10,0	500	30,0
355	90	13,7	20,9	32,3	8,2	500	30,0
355	75	13,7	20,9	32,3	6,8	500	30,0
355	63	13,7	20,9	32,3	5,8	500	30,0
355	50	13,7	20,9	32,3	4,6	500	30,0
355	40	13,7	20,9	32,3	3,7	500	30,0
355	32	13,7	20,9	32,3	3,0	500	30,0

Accesarios fabricados a partir de segmentos de Tubería de polietileno de alta densidad PEAD PE100 fabricada según EN 12201 o EN 13244, mediante unión por soldadura a tope.

SISTEMAS DE TUBOS

Teléfono: 902 996553 - Fax: 902 996554 - www.sistemasdetubos.com - mail comercial@sistemasdetubos.com

Pieza en T Ø500 a 90º



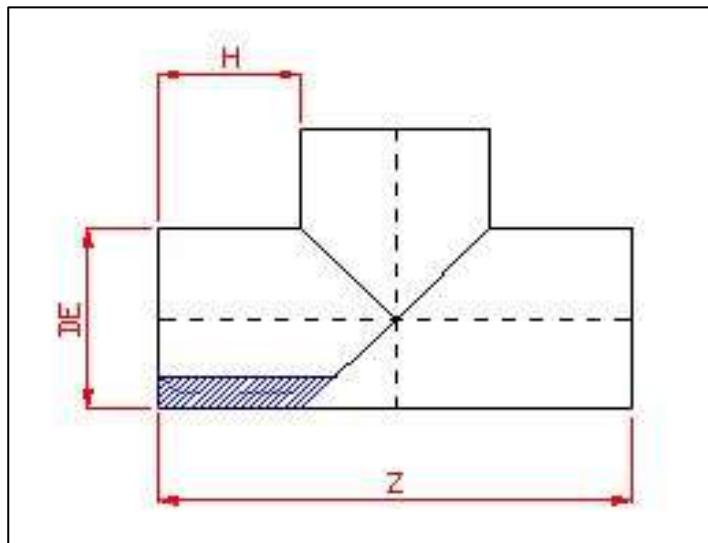
Diámetro exterior Ø1 mm	Diámetro exterior Ø2 mm	Espesor e1 (mm)			Espesor e2 (mm) Sdr 11 PN16	L mm	Z2 mm
		Sdr 26 PN6	Sdr 17 PN10	Sdr 11 PN16			
500	200	19,1	29,7	45,4	18,2	500	30,0
500	180	19,1	29,7	45,4	16,4	500	30,0
500	160	19,1	29,7	45,4	14,6	500	30,0
500	140	19,1	29,7	45,4	12,7	500	30,0
500	125	19,1	29,7	45,4	11,4	500	30,0
500	110	19,1	29,7	45,4	10,0	500	30,0
500	90	19,1	29,7	45,4	8,2	500	30,0
500	75	19,1	29,7	45,4	6,8	500	30,0
500	63	19,1	29,7	45,4	5,8	500	30,0
500	50	19,1	29,7	45,4	4,6	500	30,0
500	40	19,1	29,7	45,4	3,7	500	30,0
500	32	19,1	29,7	45,4	3,0	500	30,0

Accesarios fabricados a partir de segmentos de Tubería de polietileno de alta densidad PEAD PE100 fabricada según EN 12201 o EN 13244, mediante unión por soldadura a tope.

Sistemas de Tubos

Teléfono: 902 996553 - Fax: 902 996554 - www.sistemasdetubos.com - [mail comercial@sistemasdetubos.com](mailto:comercial@sistemasdetubos.com)

T igual manipulada a 90º



Diámetro exterior mm	Espesor (mm)			Z mm	H mm
	Sdr 26 PN6	Sdr 17 PN10	Sdr 11 PN16		
1000	38,2	59,3	---	2200	600,0
900	34,4	53,3	---	2000	550,0
800	30,6	47,4	---	1840	520,0
710	27,2	42,1	---	1600	445,0
630	24,1	37,4	57,2	1500	435,0
560	21,4	33,2	50,8	1500	470,0
500	19,1	29,7	45,4	1500	500,0
450	17,2	26,7	40,9	1400	475,0
400	15,4	23,5	36,4	1200	400,0
355	13,7	20,9	32,3	1050	347,5
315	12,1	18,5	28,6	1000	342,5
280	10,8	16,5	25,5	1000	360,0
250	9,6	14,7	22,7	950	350,0
225	8,7	13,2	20,5	950	362,5
200	7,7	11,8	18,2	900	350,0
180	6,9	10,6	16,4	900	360,0
160	6,2	9,4	14,5	800	320,0
140	---	8,2	12,7	750	305,0
125	---	7,4	11,4	700	287,5
110	---	6,5	10,0	700	295,0
90	---	5,3	8,2	600	255,0

Accesarios fabricados a partir de segmentos de Tubería de polietileno de alta densidad PEAD PE100 fabricada según EN 12201 o EN 13244, mediante unión por soldadura a tope.



CUÑADO S.A.U.
Cl. Camino Del Olivar, Nº.2 Esquina Cl. México
28806 ALCALÁ DE HENARES MADRID España
Telf. +34 918878700 - Fax +34 918878733

CERTIFICADOS DE CALIDAD. Quality certificates

REQUERIDO Order No.	ALACION Delivery Note	PO# Item	SOLICITUD Y/Ref.	DESCRIPCION Description	CANTIDAD Quantity	COLEADA Heat	CERTIFICADO Certificate	FACTURA Invoice
4500034705	/190	190	190-G2DN250L-G2 02	10" CL.150 V. COMP. RF A-536 GR.65-45-12+EPOXI TOT, BB EXT. REDUCTOR EPDM DI+EPD / WEFLO	2,00	X230216/X22	MTC23-03-N026-2023	
4500034705	/190	190	190-G2DN250L-G2 02	10" CL.150 V. COMP. RF A-536 GR.65-45-12+EPOXI TOT, BB EXT. REDUCTOR EPDM DI+EPD / WEFLO	1,00	X230227/X23	MTC23-03-N026-2023	
4500034705	/190	190	190-G2DN250L-G2 02	10" CL.150 V. COMP. RF A-536 GR.65-45-12+EPOXI TOT, BB EXT. REDUCTOR EPDM DI+EPD / WEFLO	1,00	X230216/X22	MTC23-03-N026-2023	
4500034705	/200	200	200-G2DN500L-G2 02	20" CL.150 V. COMP. RF A-536 GR.65-45-12+EPOXI TOT, BB EXT. REDUCTOR EPDM HT DI+ / WEFLO	1,00	F221009	MTC23-03-N026-2023	
4500034705	/200	200	200-G2DN500L-G2 02	20" CL.150 V. COMP. RF A-536 GR.65-45-12+EPOXI TOT, BB EXT. REDUCTOR EPDM HT DI+ / WEFLO	1,00	F221009	MTC23-03-N026-2023	

	REPSOL POLIMEROS UNIPESSOAL LDA	10" CL150 V. COMP. RF A-536 GR.65-45-12+ERPOX TOT.BB EXT. REDUCTOR EPDM DI-FPO / WEFLO	X230215/X221024
Cierto: 	Invoice No.: WV23V526	Quantity: 2.00	Weight: 1/190/190



青岛伟隆阀门股份有限公司
WEFLO VALVE CO., LTD.

EN 10204 3.1

Add.: No 789 Chunyang Road, High-tech Zone, Qingdao, Shandong, China
Tel: +86 (532) 8790 5016, 8790 5017. Fax: +86 (532) 8790 5015
E-mail: info@weflovalve.com Web: www.weflovalve.com

MATERIAL TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1 / 1

Item No.	Q'ty (PCS)	Description	Class	Size	Material		Hydrostatic Test		Result							
					Body	Bonnet	Body	Seat								
1	5	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	300psi	DN250	ASTM A536 65-45-12	ASTM A536 65-45-12	42.0 bar	31.0 bar	OK							
2	2	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	200psi	DN500	ASTM A536 65-45-12	ASTM A536 65-45-12	28.0 bar	21.0bar	OK							
Chemical Composition (%)																
Item No.	Name of Part	Heat No.	C	Si	Mn	P	S	Cr	Ni	Mo	Cu	V.	Tensile Strength (Mpa)	Yield Point (Mpa)	Elongation %	HB
			3.68	2.51	0.30	0.033	0.012	N/A	N/A	N/A	N/A	N/A	459	310	17	N/A
1	Body	X230107	3.60	2.57	0.33	0.033	0.011	N/A	N/A	N/A	N/A	N/A	464	310	17	N/A
		X230216	3.59	2.67	0.33	0.034	0.009	N/A	N/A	N/A	N/A	N/A	466	319	14.5	N/A
		X230227	3.63	2.60	0.32	0.031	0.013	N/A	N/A	N/A	N/A	N/A	477	316	17	N/A
	Bonnet	X221024	3.53	2.63	0.33	0.036	0.013	N/A	N/A	N/A	N/A	N/A	498	315	16.5	N/A
2	Body	X221217	3.58	2.56	0.34	0.031	0.011	N/A	N/A	N/A	N/A	N/A	481	318	18	N/A
		X230223	3.30	2.63	0.42	0.020	0.015	N/A	N/A	N/A	N/A	N/A	520	365	12	N/A
	Bonnet	202302031	3.65	2.58	0.33	0.039	0.015	N/A	N/A	N/A	N/A	N/A	516	362	14	N/A
		F221009	3.65	2.58	0.33	0.039	0.015	N/A	N/A	N/A	N/A	N/A				

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager

Chenyuke

ERK1326725



青岛伟隆阀门股份有限公司
WEFLO VALVE CO., LTD.

EN 10204 3.1

E-Add.:Intersection of Huadong Road and Chunyang Road,
F-Qingdao National High-tech Industrial Development Zone, China
G-Tel:+86 (532) 8790 5016, 8790 5017, Fax: +86 (532) 8790 5015

HYDROSTATIC TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1/1

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN250	1	300PSI	42.0	600	31.0	600	OK	
2	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	600	21.0	600	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager *Chenyuhe*

Cliente (Client) descripción: (description) Color: (color)	REPSOL POLIMEROS UNIPESSOAL, LDA 10 CL.150 V. COMP. RT A-536 GR.65 45-12+EPoxy TOT. BB EXT. REDUCTOR EPDM DIF-EPD / WEFLO X230215/X221024	Referencia (Reference) Serie: (Series)	4500034705 190-G-DN250L-G-202	Firma (Signature)	EXP1326725
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	CUNA DO	Customer (Client)	REPSOL POLIMEROS UNIPESSOAL LDA	Period: (Delivery)	4500034705	Envio (Shipment)	EXP1326725
Descripción (Description)	TOT. BB EXT. REDUCTOR EPDM DI+PD /WEFLO	Ref. (Ref.)	10" CL.150 V. COMP. RF A-536 GR.65-45-12-EPDXI	Period: (Delivery)	190-G2DN250L-G202	Envio (Shipment)	190/190



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HYDROSTATIC TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar.28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1/1

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand:FM/UL/CE: DI.Body&Bonnet OS&Y Gate Valve	DN250	4	300PSI	42.0	180	31.0	60	OK	
2	WEFLO Brand:FM/UL/CE: DI.Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	180	21.0	120	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager *Chenyuke*

	Client REPSOL POLIMEROS UNIPESSOAL LDA	Periodo: 4500034705	Crno. Grafico:	EXR1326725
Description: 10" CL150 V. COMP. RF A-536 GR-65-45-12+EPoxy TOT. BB EKT. REDUCTOR EPDM DI+EPD WEFLO	Quantity: 1,00	Delivery: /190/190	Patent No.:	
Code: X230227/X230223	Unit: kg/m	Unit: kg/m	Unit: kg/m	Unit: kg/m



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Tel: +86 (532) 8790 5016, 8790 5017. Fax: +86 (532) 8790 5015

E-mail: info@weflovalve.com Web: www.weflovalve.com

MATERIAL TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1 / 1

Item No.	Q'ty (PCS)	Description		Class	Size	Material		Hydrostatic Test		Result						
						Body	Bonnet	Body	Seat							
1	5	WEFLO Brand FM/UL/CE DI Body&Bonnet OS&Y Gate Valve		300psi	DN250	ASTM A536 65-45-12	ASTM A536 65-45-12	42.0 bar	31.0 bar	OK						
2	2	WEFLO Brand FM/UL/CE DI Body&Bonnet OS&Y Gate Valve		200psi	DN500	ASTM A536 65-45-12	ASTM A536 65-45-12	28.0 bar	21.0bar	OK						
Chemical Composition (%)																
Item No.	Name of Part	Heat No.	C	Si	Mn	P	S	Cr	Ni	Mo	Cu	V.	Tensile Strength (Mpa)	Yield Point (Mpa)	Elongation %	HB
			X230107	3.68	2.51	0.30	0.033	0.012	N/A	N/A	N/A	N/A	459	310	17	N/A
1	Body	X230216	3.60	2.57	0.33	0.033	0.011	N/A	N/A	N/A	N/A	N/A	464	310	17	N/A
		X230227	3.59	2.67	0.33	0.034	0.009	N/A	N/A	N/A	N/A	N/A	466	319	14.5	N/A
		X221024	3.63	2.60	0.32	0.031	0.013	N/A	N/A	N/A	N/A	N/A	477	316	17	N/A
	Bonnet	X221217	3.53	2.63	0.33	0.036	0.013	N/A	N/A	N/A	N/A	N/A	498	315	16.5	N/A
		X230223	3.58	2.56	0.34	0.031	0.011	N/A	N/A	N/A	N/A	N/A	481	318	18	N/A
2	Body	202302031	3.30	2.63	0.42	0.020	0.015	N/A	N/A	N/A	N/A	N/A	520	365	12	N/A
	Bonnet	F221009	3.65	2.58	0.33	0.039	0.015	N/A	N/A	N/A	N/A	N/A	516	362	14	N/A

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager

Chenyuhie

	REPSOL POLIMEROS UNIPESSOAL LDA	Período: 02/2023	Nº do lote: 4500034705	Entregas: Sólo para: 190-G2DN250L-G202	Documento: X230227/X230223
Cliente (Client) Descripción: (Descripción) Código: (Code)	RÉPSOL POLÍMEROS UNIPESSOAL, LDA 10" CL150 V. COMP. RT A 536 GR.65 45-12-FPOX TOT. BB EXT. REDUCER EPDM DIFEPD / WEFLO X230227/X230223	Quantidade: (Quantity) 1,00	Unidade: (Unit) /190/190	Observações: (Observations) Natura da: (Nature of) Início da: (Start date)	



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F-Qingdao National High-tech Industrial Development Zone, China
G-Tel:+86 (532) 8790 5016,8790 5017. Fax: +86 (532) 8790 5015

HYDROSTATIC TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SRL	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1/1

Item No	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN250	1	300PSI	42.0	600	31.0	600	OK	
2	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	600	21.0	600	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager *Chenyuhue*

	REPSOL POLIMEROS UNIPESSOAL, LDA	10° CL.150 V. COMP. RF A-536 GR.65-45-12+EPORI TOT. BB EXT. REDUCTOR EPDM DI EPDM / WEFLO X230227/X230223	4500034705 190-G21DN250L-G202	EP1326725
Customer: [Client] Description: [Description] Code: [Code]	FIRE FIGHTING EQUIPMENTS SLU WV23V526	Order No.: PO26 Test No.: MTC23-03-N026	Date: Mar.28, 2023 Page: 1/1	



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WEFLO VALVE CO., LTD.

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G-Tel:+86 (532) 8790 5016,8790 5017. Fax: +86 (532) 8790 5015

HYDROSTATIC TEST CERTIFICATE

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand:FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN250	4	300PSI	42.0	180	31.0	60	OK	
2	WEFLO Brand:FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	180	21.0	120	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager

	REPSOL POLIMEROS UNIPESSOAL LDA	Customer (Client) Description: 10" CL150 V. COMP. RR A-536 GR.65-45-12+EPoxy TOT. BB EXT. REDUCTOR EPDM DI+PD / WEFLO	Product (Drawing) Ref. X230215/X221024	4500034705	Envoi (Shipped) Date 190-G2DN250L-G-202	Document (Invoice) No. /190/190	EXP1326725
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青岛伟隆阀门股份有限公司

WEFLO VALVE CO., LTD.

EN 10204 3.1

Add.: No.789 Chunyang Road, High-tech Zone, Qingdao, Shandong, China
Tel: +86 (532) 8790 5016, 8790 5017. Fax: +86 (532) 8790 5015

E-mail: info@weflovalve.com

Web: www.weflovalve.com

MATERIAL TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:	WV23V528	Test No.:	MTC23-03-N026	Page:	1 / 1

Item No.	Q'ty (PCS)	Description	Class	Size	Material		Hydrostatic Test		Result							
					Body	Bonnet	Body	Seat								
1	5	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	300psi	DN250	ASTM A536 65-45-12	ASTM A536 65-45-12	42.0 bar	31.0 bar	OK							
2	2	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	200psi	DN500	ASTM A536 65-45-12	ASTM A536 65-45-12	28.0 bar	21.0bar	OK							
Chemical Composition (%)																
Item No.	Name of Part	Heat No.	C	Si	Mn	P	S	Cr	Ni	Mo	Cu	V.	Tensile Strength (Mpa)	Yield Point (Mpa)	Elongation %	HB
			3.68	2.51	0.30	0.033	0.012	N/A	N/A	N/A	N/A	N/A	459	310	17	N/A
1	Body	X230107	3.60	2.57	0.33	0.033	0.011	N/A	N/A	N/A	N/A	N/A	464	310	17	N/A
		X230216	3.59	2.67	0.33	0.034	0.009	N/A	N/A	N/A	N/A	N/A	466	319	14.5	N/A
		X230227	3.63	2.60	0.32	0.031	0.013	N/A	N/A	N/A	N/A	N/A	477	316	17	N/A
	Bonnet	X221024	3.53	2.63	0.33	0.036	0.013	N/A	N/A	N/A	N/A	N/A	498	315	16.5	N/A
		X221217	3.58	2.56	0.34	0.031	0.011	N/A	N/A	N/A	N/A	N/A	481	318	18	N/A
2	Body	X230223	3.30	2.63	0.42	0.020	0.015	N/A	N/A	N/A	N/A	N/A	520	365	12	N/A
		202302031	3.65	2.58	0.33	0.039	0.015	N/A	N/A	N/A	N/A	N/A	516	362	14	N/A
2	Bonnet	F221009	/190/190	Facturing No. (Invoice #)	Product No. (Drawing #)											

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager

Chenyuke

	REPSOL POLIMEROS UNIPESSOAL LDA	Product No.: 4500034705	Engrg. No.: EXP1326725
Client (Client) CONADOC	Description: 10" CL150 V. COMP. RF A-536 GR-65-45-12+EPoxy TOT. BB EXT. REDUCTOR EPDM WEFLO	Quantity (Pcs): 1	Shipment (Ref): 1390-G2DN250L-G202
Cooper Sheet	Cooper Sheet	Cooper Sheet	Cooper Sheet



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F-Qingdao National High-tech Industrial Development Zone, China
G-Tel:+86 (532) 8790 5016,8790 5017. Fax: +86 (532) 8790 5015

HYDROSTATIC TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1/1

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN250	1	300PSI	42.0	600	31.0	600	OK	
2	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	600	21.0	600	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager *Chenyuhue*


Client:
REPSOL POLIMEROS UNIPESSOAL, LDA
Description:
10" CL150 V. COMP. RF A-536 GR.65 45-12+EP0X1 TOT. BB EXT. REDUCTOR EPDM DI+FPD / WEFLO
Code:
X230216/X221024
Contract:
1,00
Delivery No.
/190/190
Product No.
WEFLO



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HYDROSTATIC TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar.28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1/1

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand:FM/UL/CE: Di.Body&Bonnet OS&Y Gate Valve	DN250	4	300PSI	42.0	180	31.0	60	OK	
2	WEFLO Brand:FM/UL/CE: Di.Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	180	21.0	120	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager *Chenyuhue*

	Graite (Goma)	REPSOL POLIMEROS UNIPESSOAL LDA	Referencia: 20" CL150 V. COMP. RI A-536 GR.65-45-12-EP0X1 (Descripción) TOT.BB EXT. REDUCTOR EPDM HD+ / WEFLO	Fabricante: J.M.H. 200-G2DN500L-G-202	Envio: F221009	Fecha de Envío: /20/2009
CUNADO	Controlo					



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Add.: No.789 Chunyang Road, High-tech Zone, Qingdao, Shandong, China
Tel: +86 (532) 8790 5016, 8790 5017. Fax: +86 (532) 8790 5015
E-mail: info@weflovalve.com Web: www.weflovalve.com

MATERIAL TEST CERTIFICATE

Customer:			FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:			WV23V526	Test No.:	MTC23-03-N026	Page:	1 / 1

Item No.	Q'ty (PCS)	Description	Class	Size	Material		Hydrostatic Test		Result							
					Body	Bonnet	Body	Seat								
1	5	WEFLO Brand FM/UL/CE DI Body&Bonnet OS&Y Gate Valve	300psi	DN250	ASTM A536 65-45-12	ASTM A536 65-45-12	42.0 bar	31.0 bar	OK							
2	2	WEFLO Brand FM/UL/CE DI Body&Bonnet OS&Y Gate Valve	200psi	DN500	ASTM A536 65-45-12	ASTM A536 65-45-12	28.0 bar	21.0bar	OK							
Chemical Composition (%)																
Item No.	Name of Part	Heat No.	C	Si	Mn	P	S	Cr	Ni	Mo	Cu	V.	Tensile Strength (Mpa)	Yield Point (Mpa)	Elongation %	HB
			X230107	3.68	2.51	0.30	0.033	0.012	N/A	N/A	N/A	N/A	459	310	17	N/A
1	Body	X230216	3.60	2.57	0.33	0.033	0.011	N/A	N/A	N/A	N/A	N/A	464	310	17	N/A
		X230227	3.59	2.67	0.33	0.034	0.009	N/A	N/A	N/A	N/A	N/A	466	319	14.5	N/A
		X221024	3.63	2.60	0.32	0.031	0.013	N/A	N/A	N/A	N/A	N/A	477	316	17	N/A
	Bonnet	X221217	3.53	2.63	0.33	0.036	0.013	N/A	N/A	N/A	N/A	N/A	498	315	16.5	N/A
		X230223	3.58	2.56	0.34	0.031	0.011	N/A	N/A	N/A	N/A	N/A	481	318	18	N/A
2	Body	202302031	3.30	2.63	0.42	0.020	0.015	N/A	N/A	N/A	N/A	N/A	520	365	12	N/A
	Bonnet	F221009	3.65	2.58	0.33	0.039	0.015	N/A	N/A	N/A	N/A	N/A	516	362	14	N/A

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager

Chenyuke

	REPSOL POLIMEROS UNIPESSOAL, LDA	Pedidos (Delivery) Ref:	4500034705	Envio: (Shipment) Ref:	EP1326725
CUNADO <small>Colombia</small>	20" CL150 V. COMP. RF A-536 GR.65 45-12+EPOXI 1.0T. BB EXT. REDUCTOR EPDM HT DI+ / WEFLO F221009	Quantities (Pieces)	1.00	Address: (Delivery No.)	Katuta N. (Barcode)



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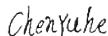
E-Add.:Intersection of Huadong Road and Chunyang Road,
F-Qingdao National High-tech Industrial Development Zone, China
G-Tel:+86 (532) 8790 5016, 8790 5017. Fax: +86 (532) 8790 5015

HYDROSTATIC TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1/1

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand FMUL/CE: DI Body&Bonnet OS&Y Gate Valve	DN250	1	300PSI	42.0	600	31.0	600	OK	
2	WEFLO Brand FMUL/CE: DI Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	600	21.0	600	OK	

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Validated by quality manager 

	Client [Name]:	REPSOL POLIMEROS UNIPESSOAL, LDA	Pedido: [Order No.]:	4500034705	Envio: [Delivery Date]:	EPK1326725
CNPQ CONEXÃO	Descrição: [Description]:	20° CL150 V. COMP. RF A-536 GR.65-45 12+EPoxy TOT.BB EXT. REDUCTOR EPDM HT DI+ / WEFLO	Series/ [Type]:	200-G2DN500L-G202		
	Colón: [Location]:	F221009	Quantidade: [Quantity]:	1,00	Abarca: [Coverage]:	/200/200
	Dia: [Date]:		Recurso M: [Resource M]:		Recurso N: [Resource N]:	



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HYDROSTATIC TEST CERTIFICATE

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand FM/UL/CE: DI.Body&Bonnet OS&Y Gate Valve	DN250	4	300PSI	42.0	180	31.0	60	OK	
2	WEFLO Brand FM/UL/CE: DI.Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	180	21.0	120	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager *Chenyuhé*

	CONEXÃO CONEXÃO	REF. 200-6220001-G202
Cliente (Client)	REPSOL POLIMEROS UNIPESSOAL, LDA	Referência (Reference)
Descrição: (Description)	20" CL150 V. COMP. RF A-536 GR.65-45-12+EPOR TOT.BB EXT. REDUTOR EPDM HT DI+ / WEFLO	Nº de Encomenda (Order No.)
Coluna (Column)	F221009	Quantidade (Quantity)



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Add.: No.789 Chunyang Road, High-tech Zone, Qingdao, Shandong, China
Tel: +86 (532) 8790 5016, 8790 5017. Fax: +86 (532) 8790 5015

E-mail: info@weflovalve.com

Web: www.weflovalve.com

MATERIAL TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1 / 1

Item No.	Q'ty (PCS)	Description	Class	Size	Material		Hydrostatic Test		Result							
					Body	Bonnet	Body	Seat								
1	5	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	300psi	DN250	ASTM A536 65-45-12	ASTM A536 65-45-12	42.0 bar	31.0 bar	OK							
2	2	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	200psi	DN500	ASTM A536 65-45-12	ASTM A536 65-45-12	28.0 bar	21.0bar	OK							
Item No.	Name of Part	Heat No.	Chemical Composition (%)						Mechanical Properties							
			C	Si	Mn	P	S	Cr	Ni	Mo	Cu	V.	Tensile Strength (Mpa)	Yield Point (Mpa)	Elongation %	HB
1	Body	X230107	3.68	2.51	0.30	0.033	0.012	N/A	N/A	N/A	N/A	N/A	459	310	17	N/A
		X230216	3.60	2.57	0.33	0.033	0.011	N/A	N/A	N/A	N/A	N/A	464	310	17	N/A
		X230227	3.59	2.67	0.33	0.034	0.009	N/A	N/A	N/A	N/A	N/A	466	319	14.5	N/A
	Bonnet	X221024	3.63	2.60	0.32	0.031	0.013	N/A	N/A	N/A	N/A	N/A	477	316	17	N/A
		X221217	3.53	2.63	0.33	0.036	0.013	N/A	N/A	N/A	N/A	N/A	498	315	16.5	N/A
		X230223	3.58	2.56	0.34	0.031	0.011	N/A	N/A	N/A	N/A	N/A	481	318	18	N/A
2	Body	202302031	3.30	2.63	0.42	0.020	0.015	N/A	N/A	N/A	N/A	N/A	520	365	12	N/A
	Bonnet	F221009	3.65	2.58	0.33	0.039	0.015	N/A	N/A	N/A	N/A	N/A	516	362	14	N/A

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager

Chenyuhie

Enviado em: 2023-03-27 10:45:25

Documento N°: MTC23-03-N026

	REPSOL POLIMEROS UNIPESSOAL LDA	Pedido: 4500034705	Envio: EXP1326725
Ciudad	20" CL150 V. COMP. RE A-536 GR.65-45-12+EPON	(Delivery) 2020-G2DN500L-G202	(Ref)
Colón	TOT. 88 EXT. REDUCTOR EPDM HT DI+ / WEFLO	Abraçao / 200/200	Portaria N:
FEZ1009	FEZ1009	Quantidade: 1,00	Invoice N:



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HYDROSTATIC TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1/1

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand: FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN250	1	300PSI	42.0	600	31.0	600	OK	
2	WEFLO Brand: FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	600	21.0	600	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager *Chenyuhé*

Client: REPSOL POLIMEROS UNIPESSOAL, LDA
Order No.: FZ221009
Description: 20" CL150 V. COMP. RF A-536 GR.65-45-12+EPOXI TOT. BB EXT. REDUCTOR EPDM HT-DI+ / WEFLO
Quantity: 1,00



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HYDROSTATIC TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar.28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1/1

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand:FM/UL/CE: DI.Body&Bonnet OS&Y Gate Valve	DN250	4	300PSI	42.0	180	31.0	60	OK	
2	WEFLO Brand:FM/UL/CE: DI.Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	180	21.0	120	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager

Period: 4500034705 Enviro: EAP1326725
Delivery: 200-62DN500L-G202
S/N: (P/R#:)
Abur.: /200/200 Factura N°:
Date: / /

PROTOCOLO DE ELEMENTOS CONSTRUÍDOS

 ASCH INFRAESTRUCTURAS Y SERVICIOS	Empreitada:	DOCUMENTO N°: R-R007-006
	4001008 - "Nuevas Plantas de Poliolefinas, Plataformas Logísticas Y Offsites"	DATA: 05/08/ 2024
		FOLHA N° : / DE: 94 / 185

2.4 – VALVULAS

Rev.	Data	Descrição	Realizado	Cliente
0	05/08/2024	Protocolo REDE CONTRA INCÊNDIOS AVENIDA 27 FIRE WATER-20" – FW900000 – PEB69	JOSE ANTUNES TECNICO QUALIDADE	



CUÑADO S.A.U.
C/ Camino Del Olivar, Nº.2 Esquina C/ México
28806 ALCALÁ DE HENARES MADRID España
Telf. +34 918878700 - Fax +34 918878733

CERTIFICADOS DE CALIDAD. Quality certificates

REQUERIDO Order No.	ALACION Delivery Note	PO# Item	SOLICITUD Y/Ref.	DESCRIPCION Description	CANTIDAD Quantity	COLEADA Heat	CERTIFICADO Certificate	FACTURA Invoice
4500034705	/190	190	190-G2DN250L-G2 02	10" CL.150 V. COMP. RF A-536 GR.65-45-12+EPOXI TOT, BB EXT. REDUCTOR EPDM DI+EPD / WEFLO	2,00	X230216/X22	MTC23-03-N026-2023	
4500034705	/190	190	190-G2DN250L-G2 02	10" CL.150 V. COMP. RF A-536 GR.65-45-12+EPOXI TOT, BB EXT. REDUCTOR EPDM DI+EPD / WEFLO	1,00	X230227/X23	MTC23-03-N026-2023	
4500034705	/190	190	190-G2DN250L-G2 02	10" CL.150 V. COMP. RF A-536 GR.65-45-12+EPOXI TOT, BB EXT. REDUCTOR EPDM DI+EPD / WEFLO	1,00	X230216/X22	MTC23-03-N026-2023	
4500034705	/200	200	200-G2DN500L-G2 02	20" CL.150 V. COMP. RF A-536 GR.65-45-12+EPOXI TOT, BB EXT. REDUCTOR EPDM HT DI+ / WEFLO	1,00	F221009	MTC23-03-N026-2023	
4500034705	/200	200	200-G2DN500L-G2 02	20" CL.150 V. COMP. RF A-536 GR.65-45-12+EPOXI TOT, BB EXT. REDUCTOR EPDM HT DI+ / WEFLO	1,00	F221009	MTC23-03-N026-2023	

	REPSOL POLIMEROS UNIPESSOAL LDA	10" CL150 V. COMP. RF A-536 GR.65-45-12+ERPOX TOT.BB EXT. REDUCTOR EPDM DI-FPO / WEFLO	X230215/X221024
Cierto: 	Invoice No.: WV23V526	Quantity: 2.00	Weight: 1/190/190



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MATERIAL TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1 / 1

Item No.	Q'ty (PCS)	Description	Class	Size	Material		Hydrostatic Test		Result							
					Body	Bonnet	Body	Seat								
1	5	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	300psi	DN250	ASTM A536 65-45-12	ASTM A536 65-45-12	42.0 bar	31.0 bar	OK							
2	2	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	200psi	DN500	ASTM A536 65-45-12	ASTM A536 65-45-12	28.0 bar	21.0bar	OK							
Chemical Composition (%)																
Item No.	Name of Part	Heat No.	C	Si	Mn	P	S	Cr	Ni	Mo	Cu	V.	Tensile Strength (Mpa)	Yield Point (Mpa)	Elongation %	HB
			3.68	2.51	0.30	0.033	0.012	N/A	N/A	N/A	N/A	N/A	459	310	17	N/A
1	Body	X230107	3.60	2.57	0.33	0.033	0.011	N/A	N/A	N/A	N/A	N/A	464	310	17	N/A
		X230216	3.59	2.67	0.33	0.034	0.009	N/A	N/A	N/A	N/A	N/A	466	319	14.5	N/A
		X230227	3.63	2.60	0.32	0.031	0.013	N/A	N/A	N/A	N/A	N/A	477	316	17	N/A
	Bonnet	X221024	3.53	2.63	0.33	0.036	0.013	N/A	N/A	N/A	N/A	N/A	498	315	16.5	N/A
2	Body	X221217	3.58	2.56	0.34	0.031	0.011	N/A	N/A	N/A	N/A	N/A	481	318	18	N/A
		X230223	3.30	2.63	0.42	0.020	0.015	N/A	N/A	N/A	N/A	N/A	520	365	12	N/A
	Bonnet	202302031	3.65	2.58	0.33	0.039	0.015	N/A	N/A	N/A	N/A	N/A	516	362	14	N/A
		F221009	3.65	2.58	0.33	0.039	0.015	N/A	N/A	N/A	N/A	N/A				

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager

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HYDROSTATIC TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1/1

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN250	1	300PSI	42.0	600	31.0	600	OK	
2	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	600	21.0	600	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager *Chenyuhe*

Cliente (Client) descripción: (description) Color: (color)	REPSOL POLIMEROS UNIPESSOAL, LDA 10 CL.150 V. COMP. RT A-536 GR.65 45-12+EPoxy TOT. BB EXT. REDUCTOR EPDM DIF-EPD / WEFLO X230215/X221024	Referencia (Reference) Serie: (Series)	45.00034705 190-G-DN250L-G-202	Firma (Signature) Firma: (Signature)	EXP1326725
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	CUNA DO	Customer (Client)	REPSOL POLIMEROS UNIPESSOAL LDA	Period: (Delivery)	4500034705	Envio (Shipment)	EXP1326725
Descripción (Description)	TOT. BB EXT. REDUCTOR EPDM DI+PD /WEFLO	Ref. (Ref.)	10" CL.150 V. COMP. RF A-536 GR.65-45-12-EPDXI	Qty/ Cant.	190-G2DN250L-G202	Fecha: (Date)	/190/190



青岛伟隆阀门股份有限公司
WEFLO VALVE CO., LTD.

EN 10204 3.1

E-Add.:Intersection of Huadong Road and Chunyang Road,
F-Qingdao National High-tech Industrial Development Zone, China
G-Tel:+86 (532) 8790 5016,8790 5017. Fax: +86 (532) 8790 5015

HYDROSTATIC TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar.28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1/1

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand:FM/UL/CE: DI.Body&Bonnet OS&Y Gate Valve	DN250	4	300PSI	42.0	180	31.0	60	OK	
2	WEFLO Brand:FM/UL/CE: DI.Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	180	21.0	120	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager *Chenyuke*

	Client REPSOL POLIMEROS UNIPESSOAL LDA	Periodo: 4500034705	Crno. Grafico:	EXR1326725
Description: 10" CL150 V. COMP. RF A-536 GR. 65-45-12+EPoxy TOT. BB EKT. REDUCTOR EPDM DI+EPD WEFLO	Quantity: 1,00	Delivery date: /190/190	Patent No.: X230227/X230223	Model: CUNADO



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Add. :No.789 Chunyang Road,High-tech Zone,Qingdao,Shandong,China
Tel:+86 (532) 8790 5016,8790 5017. Fax: +86 (532) 8790 5015

E-mail: info@weflovalve.com Web: www.weflovalve.com

MATERIAL TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28. 2023
Invce No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1 / 1

Item No.	Q'ty (PCS)	Description	Class	Size	Material		Hydrostatic Test		Result							
					Body	Bonnet	Body	Seat								
1	5	WEFLO Brand FM/UL/CE DI Body&Bonnet OS&Y Gate Valve	300psi	DN250	ASTM A536 65-45-12	ASTM A536 65-45-12	42.0 bar	31.0 bar	OK							
2	2	WEFLO Brand FM/UL/CE DI Body&Bonnet OS&Y Gate Valve	200psi	DN500	ASTM A536 65-45-12	ASTM A536 65-45-12	28.0 bar	21.0bar	OK							
Chemical Composition (%)																
Item No.	Name of Part	Heat No.	C	Si	Mn	P	S	Cr	Ni	Mo	Cu	V.	Tensile Strength (Mpa)	Yield Point (Mpa)	Elongation %	HB
			X230107	3.68	2.51	0.30	0.033	0.012	N/A	N/A	N/A	N/A	459	310	17	N/A
1	Body	X230216	3.60	2.57	0.33	0.033	0.011	N/A	N/A	N/A	N/A	N/A	464	310	17	N/A
		X230227	3.59	2.67	0.33	0.034	0.009	N/A	N/A	N/A	N/A	N/A	466	319	14.5	N/A
		X221024	3.63	2.60	0.32	0.031	0.013	N/A	N/A	N/A	N/A	N/A	477	316	17	N/A
2	Bonnet	X221217	3.53	2.63	0.33	0.036	0.013	N/A	N/A	N/A	N/A	N/A	498	315	16.5	N/A
		X230223	3.58	2.56	0.34	0.031	0.011	N/A	N/A	N/A	N/A	N/A	481	318	18	N/A
		Body	202302031	3.30	2.63	0.42	0.020	0.015	N/A	N/A	N/A	N/A	520	365	12	N/A
	Bonnet	F221009	3.65	2.58	0.33	0.039	0.015	N/A	N/A	N/A	N/A	N/A	516	362	14	N/A

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager

Chenyuhie

	REPSOL POLIMEROS UNIPESSOAL LDA	Período: 02/2023	Nº do lote: 4500034705	Entregas: Sólo para: 190-G2DN250L-G202	Documento: X230227/X230223
Cliente (Client) Descripción: (Descripción) Código: (Code)	RÉPSOL POLÍMEROS UNIPESSOAL, LDA 10" CL150 V. COMP. RT A 536 GR.65 45-12-FPOX TOT. BB EXT. REDUCER EPDM DIFEPD / WEFLO X230227/X230223	Quantidade: (Quantity) 1,00	Unidade: (Unit) /190/190	Observações: (Observations) Natura da: (Nature of) Início da: (Start date)	



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G-Tel:+86 (532) 8790 5016,8790 5017. Fax: +86 (532) 8790 5015

HYDROSTATIC TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SRL	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1/1

Item No	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN250	1	300PSI	42.0	600	31.0	600	OK	
2	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	600	21.0	600	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager *Chenyuhue*

	REPSOL POLIMEROS UNIPESSOAL, LDA	REF ID: X230227/X230223
Client: [REPSOL]	REPSOL POLIMEROS UNIPESSOAL, LDA	REF ID: X230227/X230223
Description: [Description]	10" CL150 V. COMP. RF A-536 GR.65-45-12+EPoxy TOT. BB EXT. REDUCTOR EPDM DI EPDM / WEFLO	REF ID: X230227/X230223
Code: [Code]		



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G-Tel:+86 (532) 8790 5016,8790 5017. Fax: +86 (532) 8790 5015

HYDROSTATIC TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar.28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1/1

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand:FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN250	4	300PSI	42.0	180	31.0	60	OK	
2	WEFLO Brand:FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	180	21.0	120	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager

REF ID: EXP1326725

	REPSOL POLIMEROS UNIPESSOAL LDA	Customer (Client) Description: 10" CL150 V. COMP. RR A-536 GR.65-45-12+EPDXI TOT. BB EXT. REDUCTOR EPDM DI+PD /WEFLO	Product (Drawing) Ref. X230215/X221024	Issue (Drawing) No. /190/190	Envoi (Signed) EXP1326725
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WEFLO VALVE CO., LTD.

EN 10204 3.1

Add.: No.789 Chunyang Road, High-tech Zone, Qingdao, Shandong, China
Tel: +86 (532) 8790 5016, 8790 5017. Fax: +86 (532) 8790 5015

E-mail: info@weflovalve.com

Web: www.weflovalve.com

MATERIAL TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:	WV23V528	Test No.:	MTC23-03-N026	Page:	1 / 1

Item No.	Q'ty (PCS)	Description	Class	Size	Material		Hydrostatic Test		Result							
					Body	Bonnet	Body	Seat								
1	5	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	300psi	DN250	ASTM A536 65-45-12	ASTM A536 65-45-12	42.0 bar	31.0 bar	OK							
2	2	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	200psi	DN500	ASTM A536 65-45-12	ASTM A536 65-45-12	28.0 bar	21.0bar	OK							
Chemical Composition (%)																
Item No.	Name of Part	Heat No.	C	Si	Mn	P	S	Cr	Ni	Mo	Cu	V.	Tensile Strength (Mpa)	Yield Point (Mpa)	Elongation %	HB
			3.68	2.51	0.30	0.033	0.012	N/A	N/A	N/A	N/A	N/A	459	310	17	N/A
1	Body	X230107	3.60	2.57	0.33	0.033	0.011	N/A	N/A	N/A	N/A	N/A	464	310	17	N/A
		X230216	3.59	2.67	0.33	0.034	0.009	N/A	N/A	N/A	N/A	N/A	466	319	14.5	N/A
		X230227	3.63	2.60	0.32	0.031	0.013	N/A	N/A	N/A	N/A	N/A	477	316	17	N/A
	Bonnet	X221024	3.53	2.63	0.33	0.036	0.013	N/A	N/A	N/A	N/A	N/A	498	315	16.5	N/A
		X221217	3.58	2.56	0.34	0.031	0.011	N/A	N/A	N/A	N/A	N/A	481	318	18	N/A
2	Body	X230223	3.30	2.63	0.42	0.020	0.015	N/A	N/A	N/A	N/A	N/A	520	365	12	N/A
		202302031	3.65	2.58	0.33	0.039	0.015	N/A	N/A	N/A	N/A	N/A	516	362	14	N/A
	Bonnet	F221009	/190/190	Facturing No. (Drawing #)	Issue No. (Drawing #)											

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager

Chenyuke

	REPSOL POLIMEROS UNIPESSOAL LDA	Product No.: 4500034705	Engrg. No.: EXP1326725
Client (Client) CONADOC	Description: 10" CL150 V. COMP. RF A-536 GR-65-45-12+EPoxy TOT. BB EXT. REDUCTOR EPDM WEFLO	Quantity (Pcs): 1	Shipment (Ref): 1390-G2DN250L-G202
Cooper (Cooper) Date: XZ30216/XZ21024	Cooper (Cooper) Date: XZ30216/XZ21024	Cooper (Cooper) Date: /150/190	Cooper (Cooper) Date: /150/190



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G-Tel:+86 (532) 8790 5016,8790 5017. Fax: +86 (532) 8790 5015

HYDROSTATIC TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1/1

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN250	1	300PSI	42.0	600	31.0	600	OK	
2	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	600	21.0	600	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager *Chenyuhue*


Client:
REPSOL POLIMEROS UNIPESSOAL, LDA
Description:
10" CL150 V. COMP. RF A-536 GR.65 45-12+EP0X1 TOT. BB EXT. REDUCTOR EPDM DI+FPD / WEFLO
Code:
X230216/X221024
Contract:
1,00
Delivery No.
/190/190
Product No.
WEFLO



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G-Tel:+86 (532) 8790 5016,8790 5017. Fax: +86 (532) 8790 5015

HYDROSTATIC TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar.28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1/1

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand:FM/UL/CE: Di.Body&Bonnet OS&Y Gate Valve	DN250	4	300PSI	42.0	180	31.0	60	OK	
2	WEFLO Brand:FM/UL/CE: Di.Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	180	21.0	120	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager *Chenyuhue*

	Graite Cortado	REPSOL POLIMEROS UNIPESSOAL LDA	Referencia: 20" CL150 V. COMP. RI A-536 GR.65-45-12-EPORXI [Descripción] TOT.BB EXT. REDUCTOR EPDM HD+ / WEFLO	Fabricante: J.M.H. 200-G2DN500L-G-202	Envio: F221009	Documento: /200/200
CUNADO	Contro					



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MATERIAL TEST CERTIFICATE

Customer:			FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:			WV23V526	Test No.:	MTC23-03-N026	Page:	1 / 1

Item No.	Q'ty (PCS)	Description	Class	Size	Material		Hydrostatic Test		Result							
					Body	Bonnet	Body	Seat								
1	5	WEFLO Brand FM/UL/CE DI Body&Bonnet OS&Y Gate Valve	300psi	DN250	ASTM A536 65-45-12	ASTM A536 65-45-12	42.0 bar	31.0 bar	OK							
2	2	WEFLO Brand FM/UL/CE DI Body&Bonnet OS&Y Gate Valve	200psi	DN500	ASTM A536 65-45-12	ASTM A536 65-45-12	28.0 bar	21.0bar	OK							
Chemical Composition (%)																
Item No.	Name of Part	Heat No.	C	Si	Mn	P	S	Cr	Ni	Mo	Cu	V.	Tensile Strength (Mpa)	Yield Point (Mpa)	Elong ation %	HB
			X230107	3.68	2.51	0.30	0.033	0.012	N/A	N/A	N/A	N/A	459	310	17	N/A
1	Body	X230216	3.60	2.57	0.33	0.033	0.011	N/A	N/A	N/A	N/A	N/A	464	310	17	N/A
		X230227	3.59	2.67	0.33	0.034	0.009	N/A	N/A	N/A	N/A	N/A	466	319	14.5	N/A
		X221024	3.63	2.60	0.32	0.031	0.013	N/A	N/A	N/A	N/A	N/A	477	316	17	N/A
	Bonnet	X221217	3.53	2.63	0.33	0.036	0.013	N/A	N/A	N/A	N/A	N/A	498	315	16.5	N/A
		X230223	3.58	2.56	0.34	0.031	0.011	N/A	N/A	N/A	N/A	N/A	481	318	18	N/A
2	Body	202302031	3.30	2.63	0.42	0.020	0.015	N/A	N/A	N/A	N/A	N/A	520	365	12	N/A
	Bonnet	F221009	3.65	2.58	0.33	0.039	0.015	N/A	N/A	N/A	N/A	N/A	516	362	14	N/A

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager

Chenyuke

	REPSOL POLIMEROS UNIPESSOAL, LDA	Pedidos (Delivery) Ref:	4500034705	Envio: Schematic (Ref):	EP1326725
CUNADO <small>Colombia</small>	20" CL150 V. COMP. RF A-536 GR.65 45-12+EPOXI 1.0T. BB EXT. REDUCTOR EPDM HT DI+ / WEFLO F221009	Quantities (Pieces)	1.00	Address: Delivery No: Kontrol No: Name: Phone No:	200-G2DN500L-G202



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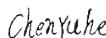
E-Add.:Intersection of Huadong Road and Chunyang Road,
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G-Tel:+86 (532) 8790 5016, 8790 5017. Fax: +86 (532) 8790 5015

HYDROSTATIC TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1/1

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand FMUL/CE: DI Body&Bonnet OS&Y Gate Valve	DN250	1	300PSI	42.0	600	31.0	600	OK	
2	WEFLO Brand FMUL/CE: DI Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	600	21.0	600	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager 

	REPSOL POLIMEROS UNIPESSOAL, LDA	Pedro: 4500034705	Envio: 10/03/2022	Entrega: 10/03/2022
Nome:	20" CL150 V. COMP. RF A-536 GR.65-45 12+EPoxy	Series:	200-G2DN500L-G202	Modelo:
Descrição:	TOT.BB EXT. REDUCTOR EPDM HT DI+ / WEFLO	Altura:	/200/200	Referência:



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HYDROSTATIC TEST CERTIFICATE

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand FM/UL/CE: DI.Body&Bonnet OS&Y Gate Valve	DN250	4	300PSI	42.0	180	31.0	60	OK	
2	WEFLO Brand FM/UL/CE: DI.Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	180	21.0	120	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager *Chenyuhé*

	CONEXÃO CONEXÃO	REF.: F221009	Quantidade: 1,00	Unidade: M
Cliente (Client)	REPSOL POLIMEROS UNIPESSOAL, LDA	Referência (Reference)	4500034705	Envio (Delivery)
Descrição: (Description)	20" CL150 V. COMP. RF A-536 GR.65-45-12+EPORX TOT.BB EXT. REDUTOR EPDM HT DI+ / WEFLO	Signatura (Signature)	200-G2DN500L-G202	Documento N°: (Document No.)



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WEFLO VALVE CO., LTD.

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Add. :No.789 Chunyang Road,High-tech Zone,Qingdao,Shandong,China
Tel:+86 (532) 8790 5016,8790 5017. Fax: +86 (532) 8790 5015

E-mail: info@weflovalve.com

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MATERIAL TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1 / 1

Item No.	Q'ty (PCS)	Description	Class	Size	Material		Hydrostatic Test		Result							
					Body	Bonnet	Body	Seat								
1	5	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	300psi	DN250	ASTM A536 65-45-12	ASTM A536 65-45-12	42.0 bar	31.0 bar	OK							
2	2	WEFLO Brand FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	200psi	DN500	ASTM A536 65-45-12	ASTM A536 65-45-12	28.0 bar	21.0bar	OK							
Chemical Composition (%)																
Item No.	Name of Part	Heat No.	C	Si	Mn	P	S	Cr	Ni	Mo	Cu	V.	Tensile Strength (Mpa)	Yield Point (Mpa)	Elongation %	HB
			X230107	3.68	2.51	0.30	0.033	0.012	N/A	N/A	N/A	N/A	459	310	17	N/A
1	Body	X230216	3.60	2.57	0.33	0.033	0.011	N/A	N/A	N/A	N/A	N/A	464	310	17	N/A
		X230227	3.59	2.67	0.33	0.034	0.009	N/A	N/A	N/A	N/A	N/A	466	319	14.5	N/A
		X221024	3.63	2.60	0.32	0.031	0.013	N/A	N/A	N/A	N/A	N/A	477	316	17	N/A
		X221217	3.53	2.63	0.33	0.036	0.013	N/A	N/A	N/A	N/A	N/A	498	315	16.5	N/A
	Bonnet	X230223	3.58	2.56	0.34	0.031	0.011	N/A	N/A	N/A	N/A	N/A	481	318	18	N/A
2	Body	202302031	3.30	2.63	0.42	0.020	0.015	N/A	N/A	N/A	N/A	N/A	520	365	12	N/A
		F221009	3.65	2.58	0.33	0.039	0.015	N/A	N/A	N/A	N/A	N/A	516	362	14	N/A

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager

Chenyuhe

Enviado em: 2023-03-27 10:45:25

Assinatura: 202302031-F221009

	REPSOL POLIMEROS UNIPESSOAL LDA	Pedido: 4500034705	Envio: EXP1326725
Ciudad	20" CL150 V. COMP. RE A-536 GR.65-45-12+EPON	(Delivery) 2020-G2DN500L-G202	(Ref)
Colón	TOT. 88 EXT. REDUCTOR EPDM HT DI+ / WEFLO	Abraçao / 200/200	Portaria N:
FEZ1009	FEZ1009	Quantidade: 1,00	Invoice N:



青岛伟隆阀门股份有限公司
WEFLO VALVE CO., LTD.

EN 10204 3.1

E-Add.: Intersection of Huadong Road and Chunyang Road,
F-Qingdao National High-tech Industrial Development Zone, China
G-Tel: +86 (532) 8790 5016, 8790 5017. Fax: +86 (532) 8790 5015

HYDROSTATIC TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar. 28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1/1

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand: FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN250	1	300PSI	42.0	600	31.0	600	OK	
2	WEFLO Brand: FM/UL/CE: DI Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	600	21.0	600	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager *Chenyuhé*

Client: REPSOL POLIMEROS UNIPESSOAL, LDA
Order No.: FZ221009
Description: 20" CL150 V. COMP. RF A-536 GR.65-45-12+EPOXI TOT.BB EXT. REDUCTOR EPDM HT-DI+ / WEFLO
Quantity: 1,00



青岛伟隆阀门股份有限公司
WEFLO VALVE CO., LTD.

EN 10204 3.1

E-Add.: Intersection of Huadong Road and Chunyang Road,
E-Qingdao National High-tech Industrial Development Zone, China
G-Tel:+86 (532) 8790 5016,8790 5017, Fax: +86 (532) 8790 5015

HYDROSTATIC TEST CERTIFICATE

Customer:	FIRE FIGHTING EQUIPMENTS SLU	Order No.:	PO26	Date:	Mar.28, 2023
Invoice No.:	WV23V526	Test No.:	MTC23-03-N026	Page:	1/1

Item No.	Product Name	Size	Quantity (PCS)	Working Pressure	Hydrostatic Test				Result	
					Shell Test		Seat Test			
					Pressure (bar)	Duration (s)	Pressure (bar)	Duration (s)		
1	WEFLO Brand:FM/UL/CE: DI.Body&Bonnet OS&Y Gate Valve	DN250	4	300PSI	42.0	180	31.0	60	OK	
2	WEFLO Brand:FM/UL/CE: DI.Body&Bonnet OS&Y Gate Valve	DN500	1	200PSI	28.0	180	21.0	120	OK	

We hereby certify that items mentioned above have been tested and inspected in our presence and are found to be in accordance with the drawings, specification and satisfy the requirements. The guarantee period shall be 12 months from the date of the delivery, for any manufacturing defects.

Validated by quality manager

Period: 2020-62/DN500L-G202	Enviro: EPK1326725
Serial No.: FZ221009	Factura N°: /2020/200

PROTOCOLO DE ELEMENTOS CONSTRUÍDOS

 ASCH INFRAESTRUCTURAS Y SERVICIOS	Empreitada:	DOCUMENTO N°: R-R007-006
	4001008 - "Nuevas Plantas de Poliolefinas, Plataformas Logísticas Y Offsites"	DATA: 05/08/ 2024
		FOLHA N°: / DE: 111 / 185

2.5 – FLANGES

Rev.	Data	Descrição	Realizado	Cliente
0	05/08/2024	Protocolo REDE CONTRA INCÊNDIOS AVENIDA 27 FIRE WATER-20" – FW900000 – PEB69	JOSE ANTUNES TECNICO QUALIDADE	



CUÑADO S.A.U.
Cl. Camino Del Olivar, Nº.2 Esquina Cl. México
28806 ALCALÁ DE HENARES MADRID España
Telf. +34 918878700 - Fax +34 918878733

CERTIFICADOS DE CALIDAD. Quality certificates

PEDIDO <i>Orden No.</i>	ALBARÁN <i>Delivery Note</i>	POS. <i>Item</i>	S/REF. <i>V/Iref.</i>	DESCRIPCIÓN <i>Description</i>	CANTIDAD <i>Quantity</i>	COLADA <i>Heat</i>	CERTIFICADO <i>Certificate</i>	FACTURA <i>Invoice</i>
4500035910	/190	190	190-L-178	1/2" CL.3000 CODO 90° FORJ SW A-105	7,00	21/72537	CE/2023/385/0-2023	
4500035910	/890	890	890-L-343	80-3X1" CL.3000 SOCKOLET FORJ A-105	1,00	21/72994	CE/314-2022	
4500035910	/920	920	920-L-343	80-3X1" CL.3000 SOCKOLET FORJ A-105	2,00	21/72994	CE/314-2022	
4500035910	/1060	1060	1060-L-295	1" XS CL.150 BRIDA SW FORJ RF A-105	2,00	22/77615	2023-C_MFF-02439-12-	
4500035910	/1150	1150	1150-	3" CL.150 BRIDA BLIND FORJ RF A-105	1,00	J4AV22	225308-2023	
4500035910	/1180	1180	1180-L-149	4" STD CL.150 BRIDA WN FORJ RF A-105	19,00	07HC23	225371-2-2023	
4500035910	/1190	1190	1190-L-149-R	4" STD CL.150 BRIDA WN FORJ RF A-105	4,00	07HC23	225478-2023	
4500035910	/1200	1200	1200-L-140-R	4" CL.150 BRIDA BLIND FORJ RF A-105	1,00	22/77273	2023-3E201-0001127-0	
4500035910	/1230	1230	1230-L-149	6" STD CL.150 BRIDA WN FORJ RF A-105	65,00	23/39588	2023-C_MFF-02534-8-4	
4500035910	/1260	1260	1260-L-248	6" STD CL.600 BRIDA WN FORJ RF A-105	1,00	18EE23	225130-2023	
4500035910	/1270	1270	1270-L-149-R	6" STD CL.150 BRIDA WN FORJ RF A-105	9,00	23/38612	2023-3E201-0001127-0	
4500035910	/1270	1270	1270-L-149-R	6" STD CL.150 BRIDA WN FORJ RF A-105	18,00	23/39588	2023-C_MFF-02534-15-	
4500035910	/1320	1320	1320-L-149	10" SCH-20 CL.150 BRIDA WN FORJ RF A-105	26,00	21EE22	224868/01-2023	
4500035910	/1320	1320	1320-L-149	10" SCH-20 CL.150 BRIDA WN FORJ RF A-105	1,00	J5AV22	224868/01-2023	
4500035910	/1330	1330	1330-L-149	12" SCH-20 CL.150 BRIDA WN FORJ RF A-105	26,00	A05676	6778/22-2022	
4500035910	/1360	1360	1360-L-149	16" SCH-20 CL.150 BRIDA WN FORJ RF A-105	1,00	055A23	227128-2-2023	

	Cliente: [Client] Descripción: [Description] Número: [Number]	REPSOL POLIMEROS UNIPESSOAL, LDA	Pedido: [Purchase Order] S/Ref.: 190-L-178	Entrega: [Delivery] Albarán: 190/190	Estado: [Status] Cantidad: 7,00
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CERTIFICATE NR.
CE/2023/385 - Rev. 6
DATE
31/03/2023
INTERNAL ORDER NR.
OC/2022/1170
DATE
13/12/2022
CUSTOMER ORDER REF.
PC0150943 - 12/12/2022
CUSTOMER
CUNADO S.A.U.

SHEET
1/2

TEST CERTIFICATE ACCORDING TO EN 10204 3.1 - EXTENT OF MATERIAL DELIVERY

DESCRIPTION / MATERIALES - TAG N. - ITEM CODE - COMPUTER CODE - UB / ENCLOSURE - NOTES					
70	1	59597	PS6	2177257	3.000,00
80	1	61322	S1	2177480	43,00
540	1	61350	PS7	2277268	37,00
670	1	59410	E-AUX	2978421	86,00
720	1	59350	U3N	1978108	15,00
					SOOKK ET SW 6/300 A105 1/2" / CIC 01844000000000
					WELDOLET BW 5dn STD/STD A105 3/8" / CIC 01846000000000

Materials Heat Number Summary

TEST No.	MATERIAL SPECIFICATION AND GRADE	HEAT NUMBER	BASE MATERIAL CERTIFICATE REF.	STEEL WORKS
52597	ASTM A182-F316L	2177257	27134	RVA
55350	ASTM A105-21	1978108	304	RVA
58410	ASTM A105-21	2078421	24985	RVA
61322	ASTM A105-21	2177480	29483	RVA
61350	ASTM A105-21	2277268	25453	RVA

NOTES
THIS IS TO CERTIFY THAT MATERIAL IS IN FULL COMPLIANCE TO PURCHASE ORDER AND APPLICABLE
SPECIFICATIONS
FITTING SUPPLIED ARE ACC TO ASME B16.11, MSS SP-47, MSS SP-43 AS APPLICABLE AND MARKED ACCORDING TO
MSS SP-25. ALL STANDARDS ARE IN LATEST EDITION
MATERIAL ACC TO ASTM IN LIE AND ASME II ED.2021. MATERIAL ACC TO NACE MR 01.75 ED 2015 AND PED
2014/68/EU ANNEX 1
VISUAL, DIMENSIONAL AND MARKING CHECK HAVE BEEN CARRIED OUT WITH SATISFACTORY RESULTS.

CUSTOMER INSPECTOR

THIRD PARTS

QUALITY CONTROL

Giulia Macellari

CHERO PIPING S.P.A.

CHEMICAL ANALYSIS	ASTM A105 - A350 LF2H
Chemical Analysis	
Test Number:	21/22-037
C %:	0.190
Mn %:	0.920
S %:	0.020
P %:	0.028
N %:	0.010
Cr %:	2.150
Mo %:	0.020
Ni %:	0.050
Ti %:	0.018
Co %:	0.110
V %:	0.016
Al %:	0.021
Nb/Cb %:	0.001
Si %:	0.357
Test Description: Tensile Strength at 20°C	+20
Yield Strength at 20°C	205
Impact Test	210
Absorbed Energy 1 Joule	52.3
Absorbed Energy 2 Joule	50.1
Absorbed Energy 3 Joule	61
Hardness Test	150
Heel Test	190-L-178



CERTIFICATE NR.
CE/2023/385 - Rev. 0
INTERNAL ORDER N.R.
OCT/2022/1170

DATE
31/03/2023
DATE
13/12/2022

CUSTOMER ORDER REF.
PC0180943 - 12/12/2022
CUSTOMER
CUNADO S.A.U.

SHEET
2/2

TEST CERTIFICATE ACCORDING TO EN 10204 3.1 - EXTENT OF MATERIAL DELIVERY

Parts and Materials Inspection Certificate

ASTM A105-21

ASTM A105-21

Specimen Size	10 x 16 (L)	10 x 19 (L)			
Specie	HWDW	HWDW	HWDW	HWDW	HWDW
Value 1	154	159	151	154	156
Value 2	158	158	150	156	156
Value 3	160	166	163	167	155
Average Hardness	158.000	159.333	158.333	158.887	155.887
Heating Rate °C/h	NORMALIZING	NORMALIZING	NORMALIZING	NORMALIZING	NORMALIZING
Heating Temperature °C	+150	+150	+150	+150	+150
Heating Time h:min	Min. 1h:00m				
Cooling Media	STILL AIR				

NOTES

CUSTOMER INSPECTOR

THIRD PARTS

QUALITY CONTROL

Giulia Macellari

CHERO PIPING S.P.A.

	CHERO PIPING S.p.A.
Cliente/ Client:	REPSOL POLIMEROS UNIPESSOAL, LDA
Descripción/ Description:	80-3X1" CL.3000 SOCKET FOR A-105
Clotado/ Closed:	21/72994
Detall/ Detail:	



CERTIFICATE NR.
CE/2022/314 - Rev. 0

DATE
06/03/2022

CUSTOMER ORDER REF
PC0131568 - 28/01/2022

INTERNAL ORDER NR
OC/2022/89

DATE
28/01/2022

CUSTOMER
CUNADO S.A.U.

SHEET
3/45

TEST CERTIFICATE ACCORDING TO EN 10204 3.1 - EXTENT OF MATERIAL DELIVERY

POB.	TEST NR.	HEAT CODE	HEAT NUMBER	Q.TY	DESCRIPTION / MATER.EQUIST. - TAG N. - ITEM CODE - COMPUTER CODE - UB / ENCLOSURE - NOTES
970	1	56660	E-40	217/254	52,00 SOCKOLET SW S/3000 A/05 1"X3/8" / CIC: 01677900000000
972	1	51450		18/7699	56,00 SOCKOLET SW S/3000 A/05 11/16"X5/8"10" / CIC: 01654000000000
980	1	56108	E-FN	20/7363	10,00 SOCKOLET SW S/3000 A/05 2"X1/2" / CIC: 01652100000000
990	1	50528		18/5074	101,00 SOCKOLET FW S/3000 A/05 1"X1/2" / CIC: 01657760000000
1000	1	51114		217/7018	65,00 SOCKOLET SW S/3000 A/05 1"X1/2" / CIC: 01671800000000
1010	1	51763	E-40	217/294	70,00 SOCKOLET SW S/3000 A/05 1"X3/8" / CIC: 01671900000000
1020	1	54888	1220	217/973	6,00 WELDOLLET BW Scl. ST/D3TD A/05 2"X5/8" / CIC: 01753000000000
1230	1	54888	1220	217/973	29,00 WELDOLLET BW Scl. ST/D3TD A/05 2 1/8"X12" / CIC: 01756500000000
1640	1	54888	1220	217/973	10,00 WELDOLLET BW Scl. ST/D3TD A/05 2 1/4"X36" / CIC: 01759100000000
1660	1	54888	1220	217/973	2,00 WELDOLLET BW Scl. ST/D3TD A/05 2 1/2"X6" / CIC: 01815300000000
1710	1	56114		217/7046	193,00 SOCKOLET SW S/3000 A/05 3 1/4"X1 3/8" / CIC: 01758750000000
1830	1	51966	E-40	217/294	100,00 SOCKOLET SW S/3000 A/05 1 1/2"X20" / CIC: 01814780000000

NOTES

THIS IS TO CERTIFY THAT MATERIAL REQUIREMENTS ARE ACCORDING TO ORDER SPECIFICATIONS.
FITTING SUPPLIED ARE ACC. ASME B16.11-LF, BS 3769-74, MSS SP-97, MSS SP-25-L E.
MATERIAL ACC TO NACE NR 0175 ED.2015 + MR 0103. MATERIAL ACC TO ASME SECTION II ED.2019.
THE INSPECTION AND TESTING CHECK HAVE BEEN CARRIED OUT WITH SATISFACTORY RESULTS.
MATERIAL ACC. WITH PED 2014/68/EU ANNEX I.
HOLD ITEMS ACC. TO ASTM A153.
MATERIAL IN ACC. ASME II PART D (TABLE Y).

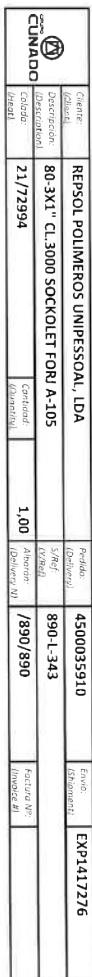
CUSTOMER INSPECTOR

THIRD PARTS

QUALITY CONTROL

Laura Paganuzzi

CHERO PIPING S.p.A.



CERTIFICATE NR.	DATE	CUSTOMER ORDER REF
CE/2022/314 - Rev. 0	06/03/2022	PC013159 - 28/01/2022
INTERNAL ORDER NR.	DATE	CUSTOMER
OC/2022/89	28/01/2022	CUNADO S.A.U.

SHEET
5/45

TEST CERTIFICATE ACCORDING TO EN 10204 3.1 - EXTENT OF MATERIAL DELIVERY

TEST NO.	MATERIAL SPECIFICATION AND GRADE	HEAT NUMBER	BASE MATERIAL CERTIFICATE REF.	STEEL WORKS
57126	AS/NZS A105 - A350 LF2	10/14673	26505	RVA
56261	ASTM A105 - A350 LF2	20/79429	26725	RVA
58373	ASTM A105 - A350 LF2	20/79452	26725	RVA
58487	ASTM A105 - A350 LF2	20/79512	26725	RVA
59614	ASTM A105 - A350 LF2	21/15184	26278	RVA
60031	ASTM A105 - A350 LF2	21/25255	26277	RVA
58945	ASTM A105 - A350 LF2	21/27261	26287	RVA
58610	ASTM A105 - A350 LF2	21/28116	26332	RVA
58724	ASTM A105 - A350 LF2	21/29253	26191	RVA
59000	ASTM A105 - A350 LF2	21/29294	26282	RVA
59568	ASTM A105 - A350 LF2	10/73118	4191	RVA
59215	ASTM A105 - A350 LF2	21/31577	34679	
54236	AS/NZS A105 - F2404-304L	40605	201397	DIAMRA
57129	ASTM A105 - F2404-304L	07/14674	202490430	COONE ACCIAI SPECIALI
58073	ASTM A105 - F2404-304L	17/298	301641250	COONE ACCIAI SPECIALI
58502	ASTM A105 - F2404-304L	17/2918	2610103648	COUNE ACCIAI VALBRUNA
58460	ASTM A105 - F2404-304L	28568	M15707045-2021	ACCIAIERIE VALBRUNA
58692	ASTM A105 - F2404-304L	294772	M1570702/2021/2021	ACCIAIERIE VALBRUNA
59606	ASTM A105 - F2404-304L	285901	M1570702/2021/2021	ACCIAIERIE VALBRUNA
59209	ASTM A105 - F2404-304L	502025	400181	CLARRA
58218	ASTM A105 - F2404-304L	503190	435662	CLARRA
46577	ASTM A105 - F2404-304L	273834	M15705045/2017	ACCIAIERIE VALBRUNA
46794	ASTM A105 - F2404-304L	27350	M15705045/2017	ACCIAIERIE VALBRUNA
21123	ASTM A105 - F2404-304L	200715	M15704104/2019	ACCIAIERIE VALBRUNA
36848	ASTM A105 - F2404-304L	406330	442097	CLARRA
39032	ASTM A105 - F2404-304L	22295	040682	COONE ACC AI SPECIALI
58617	ASTM A105 - F2404-304L	284785	M15707045-0221	ACCIAIERIE VALBRUNA
58825	AS/NZS A105 - F2404-304L	264420	M15706045/2021	ACCIAIERIE VALBRUNA
59052	ASTM A105 - F2404-304L	252124	1415102054	ACCIAIERIE VALBRUNA
53308	ASTM A350 GRL(F2)	1976310	4095	RVA

THIS IS TO CERTIFY THAT MATERIAL REQUIREMENTS ARE ACCORDING TO ORDER SPECIFICATIONS
HITTING SUPPLIED ARE ACC. ASME B16.16-E, BS 3999-74, MSS SP-97, MSS 29-LE.
MATERIAL ACC. TO NACE MR 0175 ED 2015 + MR 0103, MATERIAL ACC. TO ASME SECTION II ED 2019.
VISUAL, DIMENSIONAL AND MARKING CHECK HAVE BEEN CARRIED OUT WITH SATISFACTORY RESULT
MATERIAL ACC. WITH PED 2014/68/EU ANNEX XI.
HDG ITENS ACC TO ASTM A133
MATERIAL IN ACC. ASME II PART D TABLE Y1

CUSTOMER INSPECTOR

THIRD PARTS

QUALITY CONTROL

Laura Paganuzzi

CHEBRI BIRING S.P.A.

CUNADO
Client:
REPSOL POLIMEROS UNIPESSOAL, LDA
Description:
80-3X1™ CL.3000 SOCKET FOR A-105
Code:
21/72994
Quantity:
1,00
Unit:



CERTIFICATE NR.
CE/2022/314 - Rev. 0
INTERNAL ORDER NR.
OC/2022/89
DATE
06/03/2022
CUSTOMER ORDER REF.
PC0131569 - 28/01/2022
INTERNAL ORDER NR.
28/01/2022
DATE
CUSTOME
CUNADO S.A.U.

SHEET
S1/S2

TEST CERTIFICATE ACCORDING TO EN 10204 3.1 - EXTENT OF MATERIAL DELIVERY

	A51/A105	A501/JP01	A51/A102/F964/F304L	A51/A102/F964/F304L
Lewis Acnlysis				
Cr %	18.71	18.65	18.63	18.63
Ni %	21/72994	18/73118	21/21517	21/21517
Mo %	0.10	0.10	0.11	0.10
Si %	3.99	3.99	3.99	3.99
Al %	0.210	0.210	0.210	0.210
P %	0.029	0.019	0.027	0.026
S %	0.005	0.007	0.005	0.005
Ca %	0.16	0.16	0.16	0.16
Mn %	0.520	0.520	0.520	0.520
N %	0.000	0.000	0.000	0.000
T %	0.009	0.019	0.019	0.019
Ge %	0.170	0.150	0.150	0.156
V %	0.017	0.002	0.016	0.001
As %	0.000	0.000	0.000	0.000
NiO %	0.001	0.001	0.001	0.001
Ni %				
B %	0.500		0.003	
Ca %	0.294		0.245	
Mass Temperature °C	+20	+20	+20	+20
Tensile Strength MPa	516	486	512	491
Yield Strength MPa (0.2%)	229	209	231	224
Elongation at Break %	37.16	33.40	38.30	35.60
Reduction Area %	82.30	61.00	86.00	74.20
Hardness Test				
Rockwell C	-40	-40	-40	-40
Brinell Hardness	177	172	175	175
Hardenability Test	55.5	55.5	55.5	55.5
Impact Test				
Charpy Impact Energy J/mm	56.9	55	53.3	53.3
Charpy Impact Energy ft-lb	58.5	62	56.6	53.0
Microstructure Test				
Specimen Size (mm x 100 g)	10 x 10 x 100	10 x 10 x 100	10 x 10 x 100	10 x 10 x 100
Value 1	153	154	148	159
Value 2	155	155	151	153
Value 3	160	167	154	178
Average Hardness	157.000	155.333	151.000	160.887
Rockwell F				
Type	NORMAL	NORMAL	NORMAL	NORMAL
Holding Temperature °C	+400	+400	+400	+400
Cooling Media	AIR	AIR	AIR	AIR

NOTES

CUSTOMER INSPECTOR

THIRD PARTS

QUALITY CONTROL

Laura Paganuzzi

CHERO PIPING S.P.A.

REPSOL POLIMEROS UNIPESSOAL, LDA

Porto: 4500035910 | Email: EXP141776

Ref.: 890-L-343 | VRef.: /890/890

Factura N°: | Imagen N°: |

	Ciente: [Client] Description: Category: Nett:	REPSOL POLIMEROS UNIPESSOAL, LDA 80-3X1" CL.3000 SOCKOLET FOR A-105 21/72594
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CERTIFICATE NR. PC0131559 - 28/01/2022
 CE/2022/314 - Rev. 0 DATE 06/03/2022
 INTERNAL ORDER NR. OC/2022/89 CUSTOMER REF.
 CUNADO S.A.U.

SHEET
3/45

TEST CERTIFICATE ACCORDING TO EN 10204 3.1 - EXTENT OF MATERIAL DELIVERY

POS.	TEST No.	HEAT CODE	HEAT NUMBER	Q.TY	DESCRIPTION / MAT REQUISIT - TAG N. - ITEM CODE - COMPUTER CODE - UBI / ENCLOSURE - NOTES
9/0	59960	E-MD	21/72594	62.00	SOCKOLET SW 5.3000 A/05 1"X3" 5" / CIC: 016779000000
9/10	51456		1876636	58.00	SOCKOLET SW 5.3000 A/05 1 1/2"X6" 10" / CIC: 015944000000
9/90	56268	E-FN	2077385	19.00	SOCKOLET SW 5.3000 A/05 2"X8" 12" / CIC: 016310000000
9/90	55318		189067574	19.00	SOCKOLET SW 5.3000 A/05 1/2"X3" 30" / CIC: 016777000000
10/0	58885		2177008	65.00	SOCKOLET SW 5.3000 A/05 3"X4" 30" / CIC: 016778000000
10/10	58885	E-MD	2172994	70.00	SOCKOLET SW 5.3000 A/05 1"X3" 30" / CIC: 016779000000
10/20	58885		2179133	5.00	WELDOLLET BW 5x1 STGSTD A/05 2"X5" 5" / CIC: 016750000000
10/20	58885	1220	2179133	28.00	WELDOLLET BW 5x1 STGSTD A/05 2"X8" 12" / CIC: 017365000000
10/40	58885		2179733	19.00	WELDOLLET BW 5x1 STGSTD A/05 2"X1" 30" / CIC: 016941050000
10/60	58885	1220	2179733	2.00	WELDOLLET BW 5x1 STGSTD A/05 2"X1" 60" / CIC: 109163000000
10/70	58885		2179748	183.00	SOCKOLET SW 5.3000 A/05 34"X3" 80" / CIC: 077667000700
10/80	59960	E-MD	2172994	100.00	SOCKOLET SW 5.3000 A/05 1"X3" 80" / CIC: 081418000500

NOTES

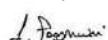
THIS IS TO CERTIFY THAT MATERIAL REQUIREMENTS ARE ACCORDING TO ORDER SPECIFICATIONS
 FITTING SUPPLIED ARE ACC. ASME B16.11 LF & 95 3769-74, MSS SP-97, MSS SP-28 E
 MATERIAL ACC TO NACE MR 01-75 ED 2015 + MR 0103; MATERIAL ACC TO ASME SECTION II ED.2019;
 MATERIAL ACC TO ASME SECTION III ED.2019;
 MARKING CHECK HAVE BEEN CARRIED OUT WITH SATISFACTORIAL RESULTS
 MATERIAL ACC. WITH PER 2014-BNLUE ANNEXA1
 HOG ITEMS ACC. TO ASTM A153
 MATERIALE IN ACC. ASME II PART D TABLE Y1

CUSTOMER INSPECTOR

THIRD PARTS

QUALITY CONTROL

Laura Paganuzzi



CHERO PIPING S.P.A.

	Chromo	Repsol Polímeros Unipessoal, Lda	80-3X1° CL300 SOCKET FOR A-105	21/72994
Grade:	Product:	Part No:	Length:	Quantity:
80-3X1° CL300	SOCKET FOR A-105	4500035910	100mm	2,00
Globo	Code:	Ref:	Ref:	Ref:
Grease				

 CHERO PIPING...

CERTIFICATE NR. DATE CUSTOMER ORDER REF.
CE/2022/314 - Rev. 0 06/03/2022 PC0131569 - 28/01/2022
INTERNAL ORDER NR. DATE CUSTOMER
OC/2022/89 28/01/2022 CUNADO S.A.U.

SHEET
5/45

TEST CERTIFICATE ACCORDING TO EN 10204 3.1 - EXTENT OF MATERIAL DELIVERY

TEST No.	MATERIAL SPECIFICATION AND GRADE	HEAT NUMBER	BASE MATERIAL CERTIFICATE REF.	STEEL WORKS
57428	ASTM A193 - A193 LF21	1974873	36505	RIVA
58251	ASTM A193 - A193 LF21	2079452	25125	RIVA
58373	ASTM A193 - A193 LF21	2079452	25125	RIVA
58482	ASTM A193 - A193 LF21	2079452	25125	RIVA
58614	ASTM A193 - A193 LF21	2107554	25308	RIVI
58631	ASTM A193 - A193 LF21	2107555	25307	RIVI
58644	ASTM A193 - A193 LF21	2107741	25209	RIVA
58650	ASTM A193 - A193 LF21	2107816	25215	RIVA
58774	ASTM A193 - A193 LF21	2107552	25205	RIVA
58950	ASTM A193 - A193 LF21	2107298	25052	RIVA
59069	ASTM A193 - A193 LF21	1973118	4231	RIVA
59610	ASTM A193 - A193 LF21	2107577	14078	RIVA
59236	ASME SA193 F304H 304L	400505	22136	CLARIA
57125	ASTM A193 F304H 304L	07256	201100433	COOGI ACCIAI SPECIALI
58073	ASTM A193 F304H 304L	172398	2011013735	COOGI ACCIAI SPECIALI
58702	ASTM A193 F304H 304L	172398	2011010446	COOGI ACCIAI SPECIALI
21441	ASTM A193 F304H 304L	208965	ME181070445/2021	ACCIAIERIE VALBRUNA
18882	ASTM A193 F304H 304L	204772	ME17102020/2021	ACCIAIERIE VALBRUNA
58649	ASTM A193 F304H 304L	204501	ME171097730/2021	ACCIAIERIE VALBRUNA
59205	ASTM A193 F304H 304L	505398	161333	CLARIA
59218	ASTM A193 F304H 304L	505399	431407	CLARIA
41677	ASTM A193 F304H 304L	273834	ME17051642/2011	ACCIAIERIE VALBRUNA
41799	ASTM A193 F316L 316L	273063	ME17104586/2011	ACCIAIERIE VALBRUNA
41193	ASTM A193 F316L 316L	280116	ME17102716/2011	ACCIAIERIE VALBRUNA
56149	ASTM A193 F316L 316L	400203	42200	CLARIA
56132	ASTM A193 F316L 316L	07265	04266	COOGI ACCIAI SPECIALI
58011	ASTM A193 F316L 316L	284755	ME17105070/2021	ACCIAIERIE VALBRUNA
58025	ASTM A193 F316L 316L	284950	ME1710646/2021	ACCIAIERIE VALBRUNA
58152	ASTM A193 F316L 316L	286125	ME1710954	ACCIAIERIE VALBRUNA
58100	ASTM A193 GR21	1076210	4905	RIVA

NOTES

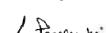
THIS IS TO CERTIFY THAT MATERIAL REQUIREMENTS ARE ACCORDING TO ORDER SPECIFICATIONS
FITTING SUPPLIED ARE ACC. ASME B16.11-L, BS 3799-74, MSS SP-97, MSS SP-25-L.
MATERIAL ACC. TO NACE MR 0175 ED 2015 + MR 0103. MATERIAL ACC. TO ASME SECTION I ED 2015.
MATERIAL ACC. WITH PED 2014/68/E ANNEX I
HDD ITEMS ACC. TO ASTMA153
MATERIAL IN ACC. ASME II PART D TABLE Y1

CUSTOMER INSPECTOR

THIRD PARTS

QUALITY CONTROL

Laura Paganuzzi



CHERO PIPING S.P.A.

COMPANY WITH MANAGEMENT SYSTEM CERTIFIED BY DNV ISO 9001 ■ ISO 14001		METALFAR PRODOTTI INDUSTRIALI SPA Z3651 CESANA BRIANZA (LC) - ITALY VIA G. PARINI, 28 PHONE +39 031 655441 - FAX +39 031 655149 certificate@metalfaritaly.com						A01	COMPANY WITH MANAGEMENT SYSTEM CERTIFIED BY DNV ISO 9001 ■ ISO 14001				
INSPECTION CERTIFICATE EN 10204:2004 / 3.1								A02	Nr. A03	2023-C_MFF 02439	Data / Dated	27.09.2023	
CUNADO S.A.U. CALLE CAMINO DEL OLIVAR, 2 (esquina calle Mexico) 28806 ALCALA DE HENARES MADRID - SPAIN								A04	Ordine / PO Item	PC0180203 1480	A05		
								ES	DDT / Delivery note Packing List	2023-3E301-0002443 2023-3E401-0002464	A06		
									Fattura / Invoice Ns. rif. / Our ref.	2023-3E401-0002484 2023-3E201-0001127-0042	A07		
Dest. GC ALMACEN REGULADOR C/Camino del Olivar, 2 (Esp. c/Mexico) 28806 ALCALA' DE HENARES - MADRID SPAIN								A08					
Cod. colata Heat Code	Nr. colata Heat Nr	Quantità Quantity	SW 150 RF 1" 80 A105N	ES	Descrizione Description								
22/77615		1.187,00											
Mat. in acc. a / Mat. in acc. to B02 ASTM A105M-21 , ASME SA105M-21; ASME CODE SECT. II, PART A, ED. 2021 NACE MR-0175/2021 ISO 15156-2 2020 NACE MR-0103/2015 ISO 17945-1 2015 Q.A.S.JN ACCORD WITH PRESS.EQUIPM.DIRECT 2014/68/EU(PED) ANNEX I,PARAGRAPH 4.3 Cert. No.4687-2014-CE-ITA-DNV													
Ann. mat. / Mat. remarks D02-B03 MATERIAL FULLY KILLED STEEL AND FINE GRAIN PRACTICED													
Elementi / Elements	C	Si	Mn	S	P	Cr	Ni	Mo	Ti	Cu	V	Nb	N
LADLE ANALYSIS	0.190	0.230	1.040	0.006	0.013	0.130	0.070	0.010	0.016	0.180	0.002	0.001	0.001
PRODUCT ANALYSIS	0.191	0.228	1.037	0.007	0.012	0.128	0.067	0.012	0.015	0.181	0.003	0.002	0.010
	Al	B	Ca						CE LF	CE SF	F1	F1	PRE
LADLE ANALYSIS	0.025	0.0000	0.002						0.408	0.363	0.392	0.140	--
PRODUCT ANALYSIS	0.027	0.0000	0.002						0.409	0.364	0.391	0.140	--
CE LF+C+Mn/5+(Cr+Mo+V)/5+(Ni+Cu)/15	CE SF=C+(Mn/5)	F1=Cu+Ni+Cr+Mo+V	F2=Cr+Mo										
Provetta	C10	Forma ^{c10}	°C ^{c10}	Svneramento>0,2% ^{c11}	Svneramento>1,0% ^{c11}	Rottura ^{c12}	Allungamento ^{c13}	Contrazione ^{c14}					
Test specimen		Shape		Yield Strength>0,2%	Yield Strength>1,0%	Tension ^{c15}	Elongation ^{c16}	Reduzione di area ^{c17}					
Sez/Sect mm ^{c20}	Gauge L.m ^{c20}	1=O - 2=D		MPa	MPa	MPa	%	%					
126,60	50,80	1	20	335,0	--	524,0	31,6	68,7					
DUREZZA / HARDNESS ^{c20} RESILLENZA / IMPACT TEST													
HBW	G31	Tipo/Type ^{c40}	Provetta / Test Specimen ^{c41}	°C ^{c43}	1-Joule ^{c42}	2-Joule ^{c42}	3-Joule ^{c42}	Media/Average					
153,0	156,0	KV	10x10x55 mm	-10	108	103	116	109,0					
Tratt. Term. / Heat treatment ^{c44} NORMALIZED AT 920 °C - COOLED IN STILL AIR ^{c45} C ^{c46} GAS FURNACE ^{c47}													
Dim in acc. a / Dim. acc. to ^{c48} ASME/ANSI B16.5 -2020; ASME/ANSI B36.10M-2022													
Finitura / Roughness B11 ASME/ANSI B46.1 -2019 - RF FINISHING 125 - 150 µin AARH													
Marcatura in acc. ^{c49} Marking in acc. to		ANSI/MSS SP 25 2018	Vis. & Dim. ^{c50}	SATISFACTORY	Origine ^{c51} Origin of Steel	EUROPEAN UNION							

Note / Notes 2018-03 MATERIAL 100% MANUFACTURED IN ITALY - MATERIAL IN ACCORDANCE WITH ORDER AND SPECIFICATION
Issued in agreement with TUV SUD Industrie Service GmbH August 12th, 2021".
"QS approved acc. to PED, Annex I, Para. 4.3 by Notified Body 0036"
Certification no.DGR-0036-QS-W-1025/2021/MC-01
TENSILE TEST AND CHARPY KV IMPACT TEST PERFORMED IN ACCORDANCE WITH ASTM A370 -22.



CUNADO, S.A. Ctra. de DAGANZO, KM. 2,4 28806 ALCALA DE HENARES MADRID	
FECHA:	22/05/2023
N.º	225308
HOJA:	1
Page:	1
REPSOL POLIMEROS UNIPERSONAL, LDA	
Client Descripción Código Horn	REPSOL POLIMEROS UNIPERSONAL, LDA 3' CL.150 BRIDA BLIND FORJ RFA-105 14AV22
Reparto Ladle/L Product P Cantidad Cantidad	45000035910 1150- 1,00
Reparto Ladle/L Product P Cantidad Cantidad	45000035910 1150- 1,00

CERTIFICADO DE INSPECCION
Inspection Certificate - Certificat de Réception

FECHA: 22/05/2023 N.º 225308 HOJA: 1
Date: 22/05/2023 No. 225308 Page: 1

GARANTIA Y GARANTIZACIONES
CUNADO, S.A.
CTRA. DE DAGANZO, KM. 2,4
28806 ALCALA DE HENARES
MADRID

PRODUCTO FLANGES
Article : Produit :
SU PEDIDO N.º PC0177754(Regulador Alcala)
Your Order N.º
Votre Cde. N.º

NORMAS APLICABLES ASME B16.5-20
Requirements - Normes Applicables

MATERIAL CORRESPONDIENTE: ASME SA105M-21, ASTM A105M-21, EN 10222-2 P280GH-17.
Material Correspondiente: Qualité
MODO DE FUSION (*)
Steel Making - Elaboration du acier
z = Elec. - Y = Oxígeno básico

ANSI/NACE MR0175-2021/ISO 15156:2020 & ANSI/NACE MR0103/ISO 17495:2015

ARTÍCULO	CANTIDAD	DESCRIPCIÓN
Item	Quantity	Description
Posic.	Quantité	Déscription
380 020579-000000	<25	BLIND 10 300LB RF A105N
390 020649-000000	>227	BLIND 3 150LB RF A105N
430 023470-000000	69	WN 10 300LB STD/40 RF A105N
430 023470-000000	4	WN 10 300LB STD/40 RF A105N
430 023470-000000	30	WN 10 300LB STD/40 RF A105N
470 023749-000000	34	WN 24 150LB STD/20 RF A105N
470 023749-000000	19	WN 24 150LB STD/20 RF A105N
470 023749-000000	2	WN 24 150LB STD/20 RF A105N
470 023749-000000	2	WN 24 150LB STD/20 RF A105N
470 023749-000000	2	WN 24 150LB STD/20 RF A105N

DE
of - de 10/05/2023

Certified acc. PED 2014/68/EU+A2000-WG
by TÜV Rheinland

Company management certifications:
ISO 9001: 2015
ISO 14001: 2015
ISO 45001: 2018

Management Systems certified by LRQA

ISO 9001: 2015
ISO 14001: 2015
ISO 45001: 2018

ULMA FORJA, S.COOP.

Bº Zubillaga, 3 - Aptd. 14
20560 ORÁTI (Gipuzkoa) SPAIN
Tel.: +34 943 780552
Fax: +34 943 781809
E-mail: ulma@ulmagerce.com

Packing List: 175281
Expedition: 428970

MATERIAL CORRESPONDIENTE: ASME SA105M-21, ASTM A105M-21, EN 10222-2 P280GH-17.

ANSI/NACE MR0175-2021/ISO 15156:2020 & ANSI/NACE MR0103/ISO 17495:2015

DEPARTAMENTO
Section
Département

QUALITY ASSURANCE

OBSERVACIONES Remarks Observations (*)	COLEADA N.º Heat No N° Coulée	RESISTENCIA T Strength Strength N/mm²	ALAMBRIC Elongation Allongement % N/mm²	ESTRICHACION Bust Area Rod Area % N/mm²	RESILIENCIA Impact test Resilience Joules	CHARPY V 10x10mm METRA Métallogram Moyenne °C	DUREZA Hardness Dureté HBW
	17A305 NE	20E23	531	336	33,54	73,30	144
	20M323 NE	14AV22	494	296	38,27	72,89	78
	19A301 NE	20E23	531	336	33,54	73,30	144
	19A301 NE	26AV23	506	285	36,12	73,55	71
	19A311 NE	26AV23	506	285	36,12	73,55	71
	03A317 NE	19AV23	544	354	33,51	75,40	124
	03A301 NE	19EE23	532	323	33,80	73,06	137
	17E313 NE	22EE22	512	302	33,52	69,52	102
	17F304 NE	J1AV22	520	325	34,69	75,63	133
	17F306 NE	J1AV22	520	325	34,69	75,63	131

- Las dimensiones y la condición superficial se hallaron satisfactorias.
- Dimension and surface condition were found acceptable.

- Les dimensions et états de surface sont satisfaisants.

- Los materiales citados cumplen las normas aplicables.

- Manufacturing requirements are satisfied.

- Les normes applicables sont respectées.

EL INSPECTOR
Works Inspector - L'Inspecteur



Quality Assurance Department
HARDNESS CERTIFICATE
[PSG/04.02 - H02.3 HARDNESS TEST IN NDT PL REV2 (27/09/2022)]
Report for Certificate: 225371

P.O. No.: PC0175684 regulador. Alcalá
Date: 26/04/2023 Client: CUNADO, S.A.
Component: PIPING PRODUCT Quantity: 13%

Items: 420 023783-0000000,650 023529-0000000,960 029709-0000000,1000 023863-0000000,1070 023529-0000000

Grade: ASTM A105N

Results: SATISFACTORY

Acceptance criteria A105N :	Material Grade	Heat	Batch	Hardness1	Hardness2
420 023783-0000000	A105N	01EE23		143	145
420 023783-0000000	A105N	01EE23		152	150
420 023783-0000000	A105N	01EE23		158	151
420 023783-0000000	A105N	01EE23		153	150
420 023783-0000000	A105N	01EE23		151	149
420 023783-0000000	A105N	01EE23		150	154
420 023783-0000000	A105N	01EE23		150	149
420 023783-0000000	A105N	01EE23		150	152
420 023783-0000000	A105N	01EE23		145	146
420 023783-0000000	A105N	01EE23		147	145
420 023783-0000000	A105N	01EE23		147	153
420 023783-0000000	A105N	01EE23		161	140
420 023783-0000000	A105N	04T422		149	151
420 023783-0000000	A105N	04T422		145	146
420 023783-0000000	A105N	04T422		152	151
420 023783-0000000	A105N	04T422		150	152
420 023783-0000000	A105N	04T422		147	148
420 023783-0000000	A105N	04T422		142	147
420 023783-0000000	A105N	04T422		146	149
420 023783-0000000	A105N	04T422		147	145
420 023783-0000000	A105N	04T422		148	150
420 023783-0000000	A105N	04T422		156	156
420 023783-0000000	A105N	04T422		149	153
420 023783-0000000	A105N	04T422		155	152
420 023783-0000000	A105N	04T422		156	157
420 023783-0000000	A105N	04T422		151	148
420 023783-0000000	A105N	04T422		47	147
420 023783-0000000	A105N	04T422		45	152
420 023783-0000000	A105N	04T422		50	153
420 023783-0000000	A105N	04T422		141	153
420 023783-0000000	A105N	04T422		151	151
420 023783-0000000	A105N	04T422		153	152
420 023783-0000000	A105N	04T422		145	145
420 023783-0000000	A105N	04T422		152	154
420 023783-0000000	A105N	04T422		155	155
420 023783-0000000	A105N	04T422		145	146
420 023783-0000000	A105N	04T422		160	156
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420 023529-0000000	A105N	23EE23		151	150
420 023529-0000000	A105N	23EE23		148	149
420 023529-0000000	A105N	23EE23		152	149
420 023529-0000000	A105N	23EE23		146	145
420 023529-0000000	A105N	23EE23		152	154
420 023529-0000000	A105N	23EE23		150	151
420 023529-0000000	A105N	23EE23		148	150
420 023529-0000000	A105N	23EE23		150	150
420 023529-0000000	A105N	23EE23		151	152
420 023529-0000000	A105N	23EE23		152	152
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420 023529-0000000	A105N	05HC23		147	149
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420 023529-0000000	A105N	05HC23		158	160
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420 023529-0000000	A105N	05HC23		150	164
420 023529-0000000	A105N	05HC23		150	156
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420 023529-0000000	A105N	05HC23		157	156
420 023529-0000000	A105N	05HC23		148	148
420 023529-0000000	A105N	05HC23		153	155
420 023529-0000000	A105N	05HC23		154	160

Standard: PSG/04.02-H02.02 REV2

Operator name ..: ANDER MOJUA YARZA

Inspection date: 24/05/2023

Place: ULMA Forja

Approved by: JON OZETA CC Coordinator NDT

Client

Date: 24/05/2023



	Cliente (Client)	REPSOL POLIMEROS UNIPESSOAL, LDA	Pedido: (Delivery)	4500035910	Envío: (Shipment)	EXP1417276
	Description: (Description)	4" STD CL.150 BRIDA WN FORJ RF-A-105	S/Ref: (V/Ref)	1180-L-149		
	Colada: (Heat)	07HC23	Cantidad: (Quantity)	19,00	Albarán: (Delivery N.)	/1180/1180
					Factura N.:	(Invoice N.)



Quality Assurance Department
HARDNESS CERTIFICATE
[PSG/04.02 - H102.3 HARDNESS TEST IN NDT PL REV B (27/09/2022)]
Report for Certificate: 225371

1000 023863-0000000	A10SN	05HC23	152	157
1000 023863-0000000	A10SN	05HC23	158	156
1000 023863-0000000	A10SN	05HC23	154	154
1000 023863-0000000	A10SN	05HC23	154	151
1000 023863-0000000	A10SN	05HC23	153	154
1000 023863-0000000	A10SN	05HC23	154	148
1000 023863-0000000	A10SN	05HC23	157	155
1000 023863-0000000	A10SN	05HC23	154	154
1000 023863-0000000	A10SN	05HC23	153	152
1000 023863-0000000	A10SN	05HC23	155	153
1000 023863-0000000	A10SN	05HC23	152	156
1000 023863-0000000	A10SN	05HC23	147	148
1000 023863-0000000	A10SN	05HC23	159	159
1000 023863-0000000	A10SN	05HC23	147	146
1000 023863-0000000	A10SN	05HC23	158	149
1000 023863-0000000	A10SN	05HC23	147	147
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1000 023863-0000000	A10SN	05HC23	154	151
1000 023863-0000000	A10SN	05HC23	153	151
1000 023863-0000000	A10SN	05HC23	147	148
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1000 023863-0000000	A10SN	05HC23	155	160
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1000 023863-0000000	A10SN	05HC23	156	156
1000 023863-0000000	A10SN	05HC23	153	154
1000 023863-0000000	A10SN	05HC23	148	150
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1000 023863-0000000	A10SN	07HC23	152	153
1000 023863-0000000	A10SN	07HC23	151	154
1000 023863-0000000	A10SN	07HC23	144	154
1000 023863-0000000	A10SN	07HC23	158	156
1000 023863-0000000	A10SN	07HC23	153	152
1000 023863-0000000	A10SN	07HC23	154	156
1000 023863-0000000	A10SN	07HC23	150	152
1000 023863-0000000	A10SN	07HC23	154	156
1000 023863-0000000	A10SN	07HC23	156	152
1000 023863-0000000	A10SN	07HC23	154	157
1000 023863-0000000	A10SN	07HC23	155	158
1000 023863-0000000	A10SN	07HC23	152	146
1000 023863-0000000	A10SN	07HC23	147	141
1000 023863-0000000	A10SN	07HC23	151	152
1000 023863-0000000	A10SN	07HC23	148	151
1000 023863-0000000	A10SN	07HC23	152	153
1000 023863-0000000	A10SN	07HC23	146	152
1000 023863-0000000	A10SN	07HC23	158	160
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1070 023529-0000000	A10SN	23EE23	153	154
1070 023529-0000000	A10SN	23EE23	152	154
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1070 023529-0000000	A10SN	23EE23	153	156
1070 023529-0000000	A10SN	23EE23	147	152
1070 023529-0000000	A10SN	23EE23	150	151
1070 023529-0000000	A10SN	23EE23	141	145
1070 023529-0000000	A10SN	23EE23	148	143
1070 023529-0000000	A10SN	23EE23	147	152

Standard: PSG/04.02-H102.03 REV.0

Operator name ..: ANDER VOYJA YARZA

Inspection date: 24/05/2023

Place: ULMA Forja

Approved by: JON OZETA - QC Coordinator NDT

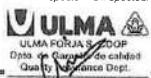
Date: 24/05/2023

ULMA Forja S.Coop

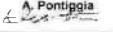
Client



	Cliente: (Client)	REPSOL POLIMEROS UNIPESSOAL, LDA		Pedido: (Delivery)	4500035910	Envío: (Shipment)	EXP1417276
	Description: (Description)	4" STD CL.150 BRIDA WN FORJ RF A-105		S/Rcf: (V/Rcf)	1180-L-149		
	Colado: (Heat)	07HC23	Cantidad: (Quantity)	19,00	Albarán: (Delivery N#)	/1180/1180	Factura N#: (Invoice N#)

CUÑADO, S.A. CTRA. DE DAGANZO, KM. 2,4 28606 ALCALÁ DE HENARES MADRID 28806 ESP		CERTIFICADO DE INSPECCIÓN Inspection Certificate - Certificat de Réception										Company management certifications: ISO 9001: 2015 ISO 14001: 2015 ISO 45001: 2018		 ULMA FORJA, S.COOP.				
		FECHA Date	N.º No.	HOJA: Page:	DE of - de 27/04/2023										Management Systems certified by LRGAE			
		PC0175684	Reg.dirrecos y crossdos											Certified acc. PED 2014/68/EU+A2020-W0 by TÜV Rheinland N° 01 202 E/Q 02 7443 UNE EN 10204 08 / 3.1 ISO 10474 13 / 3.1				
PRODUCTO Article - Product		FLANGES	SU PEDIDO N.º Your Order No. Votre Cde. N.º	MATERIAL CORRESPONDIENTE ASME SA105M-21, ASTM A105M-21, EN 10222-2 P280GH-17.										MARCA DEL FABRICANTE Mark of factory Marque du fabricant				
NORMAS APLICABLES Requirements - Normes Applicables		ASME B16.5-20 ANSI/NACE MR0175-2021/ISO 15156:2020 & ANSI/NACE MR0103/ISO 17495:2015												Packing List: 176647 Expedition: 427780				
REPSOL POLIMEROS UNIPERSONAL, LDA		PARTIDA Item Poste	CANTIDAD Quantity Quantité	DESCRIPCION Description Description	COLADA N.º Heat No Ladle I Product P	RESPONSABLE Person in charge Personne en charge	REMARKS Remarks Observations	OBSERVACIONES Remarks Observations (*)	COLADA N.º Heat No Ladle I Product P	LIMITE PLAST. T.S. Strength N.º Colada	ALARGAM. Elongation Resist.Rupt N/mm²	ESTRECHON. Elongation Resist.Rupt 0.2% N/mm²	RESILIENCIA Impact test Resistencia Jcules	CHARPY V 10x10mm M.º/M.º Averia M.º	DUREZA Hardness Dureté			
4" STD CL150 BRIDA WN FORJADA-A105		4" STD CL150 BRIDA WN FORJADA-A105	4.00	REPSOL POLIMEROS UNIPERSONAL, LDA	49HC22	518	329	38.67	74.43	104	138	133	125	29	146 149			
					03M315	498	38.70	74.92	72	98	86	85	29	146 146				
					28F319	535	34.20	74.83	122	128	124	125	-29	149 152				
					29M313	505	304	36.86	75.32	124	112	106	114	-29	140 140			
					30M309	505	304	36.86	75.32	124	112	106	114	-29	140 140			
					17F316	531	34.14	76.03	92	112	103	102	-29	156 160				
					21M317	511	320	35.61	74.31	109	99	108	105	-29	142 146			
					05HC23													
COMPOSICIÓN QUÍMICA - STEEL MAKER'S LADLE ANALYSIS - ANALYSE CHIMIQUE														Las dimensiones y la condición superficial se hallaron satisfactorias. - Dimension and surface condition were found acceptable. - Les dimensions et états de surface sont satisfaisants.				
49HC22 L 0,180 0,230 1,150 0,011 0,033 0,070 0,090 0,010 0,002 0,003 0,160 0,034 0,002 0,0004 0,40 01EE23 L 0,188 0,249 1,080 0,015 0,008 0,036 0,061 0,033 0,003 0,001 0,096 0,025 0,001 0,0001 0,39 A13A2 L 0,170 0,240 1,130 0,015 0,004 0,100 0,080 0,008 0,001 0,003 0,200 0,032 0,002 0,0004 0,40 07HC23 L 0,192 0,202 1,178 0,009 0,008 0,057 0,055 0,014 0,001 0,003 0,072 0,029 0,001 0,0005 0,41 05HC23 L 0,184 0,227 1,199 0,009 0,008 0,073 0,067 0,013 0,001 0,002 0,092 0,023 0,001 0,0003 0,41														Los materiales citados cumplen las normas aplicables. - Manufacturing requirements are satisfied. - Les normes applicables sont respectées.				
EL INSPECTOR Works Inspector - L'Inspecteur																		
														 ULMA FORJA, S.COOP. Dpto. de Garantía de calidad Quality Assurance Dept.				
"OBSERVACIONES Remarks Observations																		
MATERIAL FULLY KILLED AND FINE GRAIN PRACTICE N_NORMALIZED ABOVE 900°C AND COOLED IN AIR.																		
450000353910		450000353910	Enero (January)	EXP1417276														
1190-L-149-R		1190-L-149-R	Vigida (Valid)	Fatura N (Invoice N)														
1/190/1190		1/190/1190	Aberto (Open)	Entrega N (Delivery N)														

COMPANY WITH MANAGEMENT SYSTEM CERTIFIED BY DNV ISO 9001 ■ ISO 14001 	METALFAR PRODOTTI INDUSTRIALI SPA 23861 CESANA BRIANZA (LC) - ITALY VIA G. PARINI, 2B PHONE +39 031 655441 - FAX +39 031 655149 certificate@metalfaritaly.com	COMPANY WITH MANAGEMENT SYSTEM CERTIFIED BY DNV ISO 9001 ■ ISO 14001																																																																																																																																																																																																																																																																																																														
INSPECTION CERTIFICATE EN 10204-2004 / 3.1																																																																																																																																																																																																																																																																																																																
<p>CUNADO S.A.U. CALLE CAMINO DEL OLIVAR, 2 (esquina calle México) 28806 ALCALA DE HENARES, MADRID - SPAIN</p> <p>Dest. GC ALMACEN REGULADOR C/Camino del Olivar, 2 (Esq. c/Mexico) 28806 ALCALA DE HENARES - MADRID SPAIN</p>																																																																																																																																																																																																																																																																																																																
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<p>Note / Notes Z01-B03 MATERIAL 100% MANUFACTURED IN ITALY; MATERIAL IN ACCORDANCE WITH ORDER AND SPECIFICATION</p> <p>Issued in agreement with TÜV SÜD Industrie Service GmbH August 12th, 2021.</p> <p>"QS approved acc. to PED Annex I, Para. 4.3 by Notified Body 0036" Certification no.DGR-0036-QS-W 1025/2021/MUC-01</p> <p>TENSILE TEST AND CHARPY KV IMPACT TEST PERFORMED IN ACCORDANCE WITH ASTM A370 -22.</p>																																																																																																																																																																																																																																																																																																																

UFFICIO CONTROLLO QUALITÀ^{A05} QUALITY CONTROL DEPARTMENT 	ENTE UFFICIALE DI COLLAUDO^{Z03} INSPECTION AUTHORITY	MARCHIO PRODUZIONE^{A04} MANUFACTURER'S SYMBOL 
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Page 5 - 24

 CUNADO	Cliente: (Client)	REPSOL POLIMEROS UNIPESSOAL, LDA	Perito: (Delivery)	4500035910	Envio: (Shipment)	EXP1417276
	Description: (Description)	4" CL.150 BRIDA BLIND FOR RF A-105	S/Ref: (V/Ref)	1200-L-140-R		
	Colata: (Heat)	22/77273	Contenido: (Quantity)	1,00	Albarán: (Delivery N°)	/1200/1200

COMPANY WITH MANAGEMENT SYSTEM CERTIFIED BY DNV ISO 9001 ■ ISO 14001 	METALFAR PRODOTTI INDUSTRIALI SPA 23861 CESANA BRIANZA (LC) - ITALY VIA G. PARINI, 28 PHONE +39 031 655441 - FAX +39 031 655149 certificate@metalfaritaly.com	<small>A01</small> COMPANY WITH MANAGEMENT SYSTEM CERTIFIED BY DNV ISO 9001 ■ ISO 14001
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INSPECTION CERTIFICATE EN 10204:2004 / 3.1 CUNADO S.A.U. CALLE CAMINO DEL OLIVAR, 2 (esquina calle México) 28806 ALCALA DE HENARES, MADRID - SPAIN Dest. GC ALMACEN REGULADOR C/Camino del Olivar, 2 (Esq. c/Mexico) 28806 ALCALA' DE HENARES - MADRID SPAIN	<small>A02</small> Nr. 403 2023-C_MFF-02534 Data / Dated 06.10.2023 <small>A03</small> <small>A06</small> Ordine / PO PC0160203 <small>A07</small> Item 2240 <small>A07</small> DDT / Delivery note 2023-3E301-0002565 <small>A10</small> Packing List 2023-3E401-0002601 <small>A11</small> Fattura / Invoice 2023-3E401-0002601 <small>A12</small> Ns. rif. / Our ref. 2023-3E201-0001127-0070 <small>A08</small>			
Cod. colata <small>B07</small> Heat Code 23/39588	Nr. colata <small>B07</small> Heat Nr 90.00	Quantità <small>B08</small> Quantity W/N 150 RF 5° STD	A105N	Descrizione <small>B01-(B09-B11)</small> Description

Mat. in acc. a / Mat. In acc. to ²⁰² ASTM A105M-21 ASME SA105M-21 ASME CODE SECT. II, PART A, ED. 2021
NACE MR-0175/2021 ISO 15156-2:2020; NACE MR-0130/2015 ISO 17945-1:2015
Q.A.S IN ACCORD WITH PRESS.EQUIPM.DIRECT.2014/68/EU(PLD) ANNEX I,PARAGRAPH 4.3
Cert. No 4667-2014-CE-ITA-DNV

Ann. mat. / Mat. remarks <small>202-205</small> MATERIAL FULLY KILLED STEEL AND FINE GRAIN PRACTICED													
Elementi / Elements	<small>C</small>	<small>Si</small>	<small>Mn</small>	<small>S</small>	<small>P</small>	<small>Cr</small>	<small>Ni</small>	<small>Mo</small>	<small>Ti</small>	<small>Cu</small>	<small>V</small>	<small>Nb</small>	<small>N</small>
LADLE ANALYSIS	0,195	0,240	1,040	0,004	0,010	0,110	0,080	0,020	0,019	0,150	0,001	0,011	0,010
PRODUCT ANALYSIS	0,187	0,223	1,059	0,001	0,007	0,124	0,065	0,023	0,015	0,142	0,003	0,002	0,006
	<small>A1</small>	<small>B</small>	<small>Ca</small>							<small>CE LF</small>	<small>CE SF</small>	<small>F1</small>	<small>F2</small>
LADLE ANALYSIS	0,029	0,0002	0,001							0,410	0,368	0,361	0,130
PRODUCT ANALYSIS	0,035	0,0000	0,001							0,407	0,364	0,357	0,147
CE LF=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15	CE SF=C+(Mn/6)	F1=Cu+Ni+Cr+Mo+V	F2=C+Mo										
Provetta <small>C01</small> Test specimen	Forma: <small>C10</small> Shape	Snervamento >0,2% <small>C11</small> Yield Strength >0,2%	Snervamento >1,0% <small>C11</small> Yield Strength >1,0%	Rottura <small>C12</small> Tensile	Allungamento <small>C13</small> Elongation	Contrazione <small>C14</small> Reduction of area							
Sez/Sect mm ²	Gauge Lmm	1=O - 2=□	MPa	MPa	%	%							
126,00	50,80	1	398,0	--	494,0	36,4	62,1						
DUREZZA / HARDNESS <small>C33</small>													
HBW <small>C31</small> Tipo/Type <small>C32</small> Provetta / Test Specimen <small>C33</small> °C <small>C32</small> 1-Joule <small>C42</small> 2-Joule <small>C42</small> 3-Joule <small>C42</small> Media/Average <small>C43</small>													
141,0 - 143,0	KV	10x10x55 mm	-10	63	87	74	74	74	74	74	74	74	74
Tratt. Term. / Heat treatment <small>C34</small> NORMALIZED AT 920 °C - COOLED IN STILL AIR <small>C35</small> <small>C36</small> GAS FURNACE													
Dim in acc. a / Dim. acc. to <small>C37</small> ASME/ANSI B16.5 -2020 ; ASME/ANSI B36.10M -2022													
Finitura / Roughness <small>C38</small> ASME/ANSI B46.1 -2019 ; RF FINISHING 125 - 150 µin AARH													
Marcatura in acc. <small>C09</small> ANSI/MSS SP-25-2018 Vis. & Dim. <small>C01</small> SATISFACTORY Origine <small>C16</small> Origin of Steel EUROPEAN UNION													

Note / Notes Z01-B03 MATERIAL 100% MANUFACTURED IN ITALY; MATERIAL IN ACCORDANCE WITH ORDER AND SPECIFICATION
Issued in agreement with TÜV SÜD Industrie Service GmbH August 12th, 2021".
"QS approved acc. to PED, Annex I Para. 4.3 by Notified Body 0036"
Certification no.DGR-0036-QS-W 1025/2021/MUC-01
TENSILE TEST AND CHARPY KV IMPACT TEST PERFORMED IN ACCORDANCE WITH ASTM A370 -22.

UFFICIO CONTROLLO QUALITÀ <small>A05</small> QUALITY CONTROL DEPARTMENT 	ENTE UFFICIALE DI COLLAUDO <small>Z03</small> INSPECTION AUTHORITY	MARCHIO PRODUZIONE <small>A04</small> MANUFACTURER'S SYMBOL 
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Page 8 - 47

MIM9000 Rev 29/05/2023

 CUNADO	Cliente: (Client) Descripción: (Description) Colada: (Heat)	REPSOL POLIMEROS UNIPESSOAL, LDA 6" STD CL.150 BRIDA WN FORJ RF A-105 23/39588	Pedido: (Delivery) S/Ref: (V/Ref) Cantidad: (Quantity) Albarán: (Delivery N.)	4500035910 1230-L-149 65,00	Envío: (Shipment) Factura N.º: (Invoice #)	EXP1417276 /1230/1230
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	CLIENTE / Customer / Client CURADO, S.A. CTRA. DE DAGANZO, KM. 2,4 28806 ALCALÁ DE HENARES MADRID 28806 ESP
Clave: REPSOL POLIMEROS UNIPERSONAL, I.D.A.	Artículo: Product Descripción: 6" STD CL.600 BRIDA WN FORJADA-A-105
FECHA: 09/05/2023	N.º HOJA: 225130 Page: 3
DETALLE: 18EE23	DETALLE: 1.00

CLIENTE / Customer / Client

CURADO, S.A.
CTRA. DE DAGANZO, KM. 2,4
28806 ALCALÁ DE HENARES
MADRID
28806
ESP

PRODUCTO

FLANGES

SU PEDIDO N.º

PC0175684 regulador. Alcala

DE

of. - de 26/04/2023

NORMAS APLICABLES

ASME B16.5-20

Requirements - Normes Applicables

MATERIAL CORRESPONDIENTE ASME SA105M-21, ASTM A105M-21, EN 10222-2 P280GH-17.

Material Correspondiente - Qualité

MODO DE FUSIÓN (*)

Steel Making - Elaboration de l'acier

E = Elec., Y = Oxígeno básico

NF E29-204:08 BF4BN

ANSI/NACE MR0175-2021/ISO 15156:2020 & ANSI/NACE MR0103/ISO 17495:2015

CERTIFICADO DE INSPECCION

Inspection Certificate - Certificat de Réception

FECHA:

Date: 09/05/2023

N.º

No.

225130

HOJA:

Page:

3

Company management certifications:

ISO 9001: 2015

ISO 14001: 2015

ISO 45001: 2018

ULMA FORJA, S.COOP.

Management Systems certified by LRQA

Certified acc. PED 2014/68/EU+AD2000-WG

by TÜV Rheinland

N.º 01.202 E 02 7443 UNE EN 10249/2 3,3

ISO 10474/3 3,3

MARCA DEL FABRICANTE

Mark of factory

Marque du fabricant

Packing List: 176140

Expedition: 428081

Bº Zubillaga 3 - Aptdo. 14

30560 OÑATI (Guipúzcoa) SPAIN

Tel.: +34 943 786552

Fax: +34 943 781808

E-mail: ulma@ulm-forge.com

DEPARTAMENTO

DEPARTAMENTO

QUALITY ASSURANCE

Sectiòn

Département

Observaciones

RESISTENCIA AL FLAMADO

ESTRICCION

RED. AREA

LARGO 50mm.40

STRETCH %

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COMPANY WITH MANAGEMENT SYSTEM CERTIFIED BY DNV ISO 9001 ■ ISO 14001		METALFAR PRODOTTI INDUSTRIALI SPA 23861 CESANA BRIANZA (LC) - ITALY VIA G. PARINI, 28 PHONE +39 031 655441 - FAX +39 031 655149 certificate@metalfaritaly.com	A01	COMPANY WITH MANAGEMENT SYSTEM CERTIFIED BY DNV ISO 9001 ■ ISO 14001	
INSPECTION CERTIFICATE EN 10204:2004 / 3.1		Nr. 2023-C_MFF-02244 Data / Dated 05.09.2023 Z02			
CUNADO S.A.U. CALLE CAMINO DEL OLIVAR, 2 (esquina calle México) 28806 ALCALA DE HENARES, MADRID - SPAIN		A06	Ordine / PO Item DDT / Delivery note Packing List Fattura / Invoice Ns. ref. / Our ref.	A07 2240 2023-3E301-0002265 2023-3E401-0002315 2023-3E401-0002315 2023-3E201-0001127-0070	
Dest. GC ALMACEN REGULADOR C/Camino del Olivar, 2 (Esq. c/Mexico) 28806 ALCALA' DE HENARES - MADRID SPAIN		A08			
Cod. colata Heat Code	Nr. colata Heat Nr	Quantità Quantity	Descrizione Description		
23/38612		90,00	WN 150 RF 6" STD A105N		
Mat. in acc. a / Mat. in acc. to		ASTM A105M - 21 , ASME SA105M-21 ASME CODE SECT. II, PART A, ED. 2021 NACE MR-0175/2021 ISO 15195-2 :2020 ; NACE MR-0103/2015 ISO 17945-1 :2015 Q.A.S IN ACCORD WITH PRESS.EQUIPM.DIRECT.2014/68/EU(PED) ANNEX I,PARAGRAPH 4.3 Cert. No.4687-2014-CE-ITA-DNV			
Ann. mat. / Mat. remarks		MATERIAL FULLY KILLED STEEL AND FINE GRAIN PRACTICED			
Element / Elements	C Si Mn S P Cr Ni Mo Ti Cu V Nb N				
LADLE ANALYSIS	0,180 0,220 1,050 0,006 0,011 0,090 0,060 0,010 0,017 0,130 0,003 0,002 0,010				
PRODUCT ANALYSIS	0,184 0,222 1,048 0,007 0,015 0,091 0,062 0,013 0,020 0,132 0,005 0,003 0,012				
Al B Ca		CE LF	CE SF	F1 F2 PREN	
LADLE ANALYSIS	0,032 0,0002 0,002		0,388	0,355 0,293 0,100	=
PRODUCT ANALYSIS	0,030 0,0000 0,002		0,393	0,359 0,303 0,104	=
CE LF=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15	CE SF=C+(Mn/6)	F1=Cu+Ni+Cr+Mo+V	F2=Cr+Mo		
Provetta C1 Forma 10 °C23	Svavolamento>0,2% ^{c11}	Snevamento>1,0% ^{c11}	Rottura C12	Allungamento C13	Contrazione C14
Test specimen Shape	Yield Strength>0,2%	Yield Strength>1,0%	Tensile	Elongation	Reduction of area
Sez/Sect mm ² Gauge L.mmm 1=O 2=D	MPa	MPa	MPa	%	%
126,60 50,80 1 20 337,0			512,0	30,8	70,1
DUREZZA / HARDNESS ^{c30} HBW ^{c31}		RESILLENZA / IMPACT TEST ^{c40}			
155,0 - 157,0 KV	Tipo/Type ^{c41}	Provetta / Test Specimen ^{c41}	1-Joule ^{c42}	2-Joule ^{c42}	3-Joule ^{c42} Media/Average ^{c43}
			-10	108	94 100,7
Tratt. Term. / Heat treatment	NORMALIZED AT 920 °C - COOLED IN STILL AIR				GAS FURNACE
Dim in acc. a / Dim. acc. to	ASME/ANSI B16.5 - 2020 ; ASME/ANSI B36.10M - 2022				
Finitura / Roughness	ASME/ANSI B46.1 - 2019 ; RF FINISHING 125 ± 150 µin AARH				
Marcatura in acc. a / Marking in acc. to	ANSIMSS SP-25-2018	Vis. & Dim.	SATISFACTORY	Origine ^{c16}	EUROPEAN UNION

Note / Notes Z01-B03 MATERIAL 100% MANUFACTURED IN ITALY - MATERIAL IN ACCORDANCE WITH ORDER AND SPECIFICATION
 Issued in agreement with TÜV SÜD Industrie Service GmbH August 12th, 2021.
 *QS approved acc. to PED, Annex I, Para. 4.3 by Notified Body 0036
 Certification no.DGR-0036-QS-W 1025/2021/MUC-01
 TENSILE TEST AND CHARPY KV IMPACT TEST PERFORMED IN ACCORDANCE WITH ASTM A370-22

UFFICIO CONTROLLO QUALITÀ ^{A05} QUALITY CONTROL DEPARTMENT	ENTE UFFICIALE DI COLLAUDO ^{B03} INSPECTION AUTHORITY	MARCHIO PRODUZIONE ^{A04} MANUFACTURER'S SYMBOL
A. Pontiggia		

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REPSOL POLIMEROS UNIPESSOAL, LDA	Pedido / Delivery	4500035910	Envio: Shipment	EXP1417276
6" STD CL.150 BRIDA WN FORJ RF A-105	S/Ref. (Ref.)	1270-L-149-R		
Colata: (Heat)	23/38612	Centidm: (Quantity)	9,00	Albarán: (Delivery No.)

COMPANY WITH MANAGEMENT SYSTEM CERTIFIED BY DNV ISO 9001 ■ ISO 14001 	METALFAR PRODOTTI INDUSTRIALI SPA A01 23881 CESANA BRIANZA (LC) - ITALY VIA G. PARINI, 28 PHONE +39 031 655441 - FAX +39 031 655149 certificate@metalfaritaly.com	COMPANY WITH MANAGEMENT SYSTEM CERTIFIED BY DNV ISO 9001 ■ ISO 14001									
INSPECTION CERTIFICATE EN 10204:2004 / 3.1											
CUNADO S.A.U. CALLE CAMINO DEL OLIVAR, 2 (esquina calle México) 28806 ALCALA DE HENARES, MADRID - SPAIN											
Dest. GC ALMACEN REGULADOR C/Camino del Olivar, 2 (Esq. c/Mexico) 28806 ALCALA' DE HENARES - MADRID SPAIN											
Cod. colata	Nr. colata	Quantità	Descrizione								
Heat Code	Heat Nr	Quantity	Description								
23/39588	24.00	WN 150 RF 6" STD	A105N								
Mat. in acc. a / Mat. in acc. to ^{A02} ASTM A105M - 21, ASME SA105M-21 ASME CODE SECT. II, PART A, ED. 2021 NACE MR-0175/2021 ISO 15156-2 2020 ; NACE MR-0103/2015 ISO 17945-1,2015 Q.A.S IN ACCORD WITH PRESS EQUIPM.DIRECT.2014/68/EU(PED) ANNEX I,PARAGRAPH 4.3 Cert. No.4687-2014-CE-ITA-DNV											
Ann. mat. / Mat. remarks ^{A02-B03} MATERIAL FULLY KILLED STEEL AND FINE GRAIN PRACTICED											
Elementi / Elements ^{C07-C08} C Si Mn S P Cr Ni Mo Ti Cu V Nb N LADLE ANALYSIS 0.195 0.240 1,040 0,004 0,010 0,110 0,080 0,020 0,019 0,150 0,001 0,001 0,010 PRODUCT ANALYSIS 0.187 0.223 1,059 0,001 0,007 0,124 0,065 0,023 0,015 0,142 0,003 0,002 0,006 Al B Ca CE LF CE SF F1 F2 PREN LADLE ANALYSIS 0,029 0,0002 0,001 0,410 0,368 0,361 0,130 -- PRODUCT ANALYSIS 0,035 0,0000 0,001 0,407 0,354 0,357 0,147 ++											
CE LF=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15 CE SF=C+(Mn/6) F1=Cu+Ni+Cr+Mo+V F2=Cr+Mo Proverta ^{C10} Forma ^{C10} Snervamento >0,2% ^{C11} Snervamento >1,0% ^{C11} Rottura ^{C12} Allungamento ^{C13} Contrazione ^{C14} Test specimen Shape Yield Strength >0,2% Yield Strength >1,0% Tensile Elongation Reduction of area Sz/Sect mm ² Gauge L.mm 1xO - 2x□ MPa MPa % % 126,60 50,80 1 20 308,0 -- 494,0 36,4 62,1											
DUREZZA / HARDNESS ^{C20} RESILLENZA / IMPACT TEST ^{C43}											
HBW ^{C31} Tipo/Type ^{C42} Proverta / Test Specimen ^{C41} °C ^{C33} 1-Joule ^{C42} 2-Joule ^{C42} 3-Joule ^{C42} Media/Average ^{C43} 141.0 143.0 KV 10x10x55 mm -10 83 87 74 31.3											
Tratt. Term. / Heat treatment ^{B04} NORMALIZED AT 920 °C - COOLED IN STILL AIR ^{F76} GAS FURNACE											
Dim. in acc. a / Dim. acc. to ^{B14} ASME/ANSI B16.5 -2020 , ASME/ANSI B36.10M -2022											
Finitura / Roughness ^{B15} ASME/ANSI B46.1 -2019 , RF FINISHING 125 - 150 µin AARH											
Marcatura in acc. ^{B16} ANS/IMSS SP-25-2018 Vis. & Dim. ^{B01} SATISFACTORY Origine ^{B16} Origin of Steel EUROPEAN UNION											
Note / Notes ^{Z01-B03} MATERIAL 100% MANUFACTURED IN ITALY. MATERIAL IN ACCORDANCE WITH ORDER AND SPECIFICATION Issued in agreement with TÜV SÜD Industrie Service GmbH August 12th, 2021*. *Q5 approved acc. to PED. Annex I, Para. 4.3 by Notified Body 0036* Certification no DGR-0036-QS-W-1025/2021/IMUC TENSILE TEST AND CHARPY KV IMPACT TEST PERFORMED IN ACCORDANCE WITH ASTM A370 -22.											

UFFICIO CONTROLLO QUALITÀ QUALITY CONTROL DEPARTMENT 	ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY	MARCHIO PRODUZIONE MANUFACTURER'S SYMBOL 
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NAM3090000126092023

	Cliente (Client)	REPSOL POLIMEROS UNIPESSOAL, LDA	Pedido (Delivery)	4500035910	Envío (Shipment)	EXP1417276
	Descripción: (Description)	6" STD CL.150 BRIDA WN FORJ RF A-105	S/Ref. (Ref.)	1270-L-149-R		
	Colada (Heat)	23/39588	Cantidad: (Quantity)	18,00	Albarán: (Delivery N.)	/1270/1270

	CUNADO, S.A. CTRA DE DAGANZO, KM. 2,4 28800 ALCALÁ DE HENARES MADRID 28806 ESP
REPSOL POLIMEROS UNIPERSONAL, LDA	REPSOL POLIMEROS UNIPERSONAL, LDA
10"-SCH-20 CL.150 BRIDA WN FORJA A-105	10"-SCH-20 CL.150 BRIDA WN FORJA A-105
21EE22	21EE22

MATERIAL CORRESPONDIENTE
Material Correspondent - Qualité
ASME SA105M-21, ASTM A105M-21, EN 10222-2 P280GH-17.
NF E29-204-08 BF48N

NORMAS APLICABLES
Requirements - Normes Applicables
ASME B16.5-20

MODO DE FUSIÓN (*)
Steel Making - Fabrication de l'acier
E - Elec. Y - Oxígeno básico

PARTIDA
Item
Página

CANTIDAD
Quantity
Quantité

DESCRIPCION
Description
Description

SU PEDIDO N.
Your Order No.
Votre Cde. N.

PC0161849 (20-12-2022)

FECHA:
Date:
08/05/2023

N.º
No.:

224868

HOJA:
Page:

1

Rev. 01

DE
of. - de
22/12/2022

CERTIFICADO DE INSPECCIÓN

Inspection Certificate - Certificat de Réception

Company management certifications:
ISO 9001: 2015
ISO 14001: 2015
ISO 45001: 2018

Management Systems certified by LRQA



ULMA FORJA S.COOP.
B7 Zubillaga, 3 - Apdo. 14
20560 ONATE (Gipuzkoa) SPAIN
Tel. +34-943 780552
Fax. +34-943 781809
E-mail: ulma@ulmoforge.com

Packing List: 17587
Expedition: 426762

MARCA DEL FABRICANTE
Mark of factory
Marque du fabricant



Quality Assurance
Section
Department

QUALITY ASSURANCE

PARTIDA Item Página	CANTIDAD Quantity Quantité	DESCRIPCION Description Description	OBSERVACIONES Remarks Observations	COLADA N.º RESISTENCIA FRIAS ESTAT. AL ARDOR		ESTRICHOS Elongation Tensión Extensión	RESILIANCIA Impact test Resistencia	CHARPY Y 10x10mm Media Average Mayenne Joules	DUREZA Hardness Dureté					
				Nº Caucho	Nº2mm²	Nº2mm²	%							
7 6910	*69	WN 2 150LB S160 RF A105N	12E317 NE	A53A2	523	336	39,24	74,80	104	109	120	111	-29	143 146
	17	WN 10 150LB S20 RF A105N	17N206 NE	039A22	513	351	40,18	74,31	149	143	151	143	-29	156 160
8	59	WN 10 150LB S20 RF A105N	20E310 NE	21EE22	511	319	35,80	70,83	134	147	142	141	-29	141 141
8	45	WN 10 150LB S20 RF A105N	27M312 NE	J5AV22	503	287	41,26	74,26	94	86	102	94	-29	147 150
12	*6	WN 18 150LB STD RF A105N	30M302 NE	19EE23	532	323	33,80	73,06	137	124	135	132	-29	152 156
20 432	115	WN 10 150LB S20 RF A105N	20E310 NE	21EE22	511	319	35,80	70,83	134	147	142	141	-29	141 141
20 432	30	WN 10 150LB S20 RF A105N	20E312 NE	21EE22	511	319	35,80	70,83	134	147	142	141	-29	141 141
20 432	125	WN 10 150LB S20 RF A105N	27M312 NE	J5AV22	503	287	41,26	74,26	94	86	102	94	-29	147 150
23 433	88	WN 10 150LB STD40 RF A105N	10M305 NE	16E23	512	300	37,33	72,33	127	124	110	120	-29	143 146
23 433	1	WN 10 150LB STD40 RF A105N	26F304 NE	20E22	523	339	36,02	73,07	126	120	139	128	-29	146 149
23 433	11	WN 10 150LB STD40 RF A105N	20E312 NE	21EE22	511	319	35,80	70,83	134	147	142	141	-29	141 141
27 90931	*22	WN 18 150LB STD RF A105N	29M311 NE	18EE23	509	310	38,61	73,66	139	130	117	129	-29	140 143

COMPOSICIÓN QUÍMICA - STEEL MAKER'S LADLE ANALYSIS - ANALYSE CHIMIQUE

COLADA N.º	Heat No	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	Nb %	V %	Cu %	Al %	Ti %	B %	CEq %	Origin of Steel	
AS3A2	L 0,160	0,220	1,130	0,008	0,005	0,110	0,080	0,013	0,002	0,230	0,029	0,002	0,000	0,41			France	
C39A22	L 0,175	0,260	1,120	0,009	0,008	0,100	0,090	0,010	0,001	0,190	0,050	0,002	0,000	0,40			France	
21EE22	L 0,180	0,200	1,140	0,011	0,008	0,080	0,110	0,010	0,001	0,003	0,180	0,052	0,002	0,004	0,41			Ukraine
J5AV22	L 0,170	0,210	1,170	0,012	0,008	0,100	0,110	0,010	0,002	0,004	0,190	0,032	0,002	0,004	0,41			Ukraine
19EE23	L 0,187	0,180	1,101	0,012	0,003	0,090	0,058	0,013	0,001	0,002	0,088	0,036	0,002	0,002	0,40			France
16EE23	L 0,180	0,190	1,078	0,012	0,003	0,140	0,144	0,013	0,001	0,077	0,031	0,002	0,002	0,41			France	
20EE22	L 0,180	0,230	1,110	0,014	0,004	0,090	0,120	0,010	0,002	0,004	0,200	0,030	0,002	0,005	0,41			Ukraine
18EE23	L 0,181	0,160	1,081	0,011	0,003	0,080	0,071	0,014	0,001	0,098	0,031	0,002	0,002	0,39			France	

OBSERVACIONES:
MATERIAL FULLY KILLED AND FINE GRAIN PRACTICE
N NORMALIZED ABOVE 900°C AND COOLED IN AIR.

Remarks

Observations

COLADA N.º 1320-L-149

1320-L-149

1320/L-1320

	ULMA CUNADO / CUNADO
CUNADO, S.A.	
CTRA. DE DAGANZO, KM. 2,4	
28800 ALCALÁ DE HENARES	
MADRID	
28806	
ESP	

ULMA CUNADO / CUNADO

CUNADO, S.A.
CTRA. DE DAGANZO, KM. 2,4
28800 ALCALÁ DE HENARES
MADRID
28806
ESP

PRODUCTO FLANGES
Artile - Produt

SUPER DEDO N.º
Your Order No.
Volte Cde. N.º

PC0161849 (20-12-2022)

NORMAS APLICABLES ASME B16.5-20
Requirements - Normes Applicables

MATERIAL CORRESPONDIENTE ASME SA105M-21, ASTM A105M-21, EN 10222-2 P280GH-17.

Material Correspondent - Couplé

MODO DE FUSION (*)

Steel Making - Elaboration de l'acier

E - Elec. Y - Oxígeno básico

REPSOL POLIMEROS UNIPESSOAL, LDA

10" SCH-20 CL.150 BRIDA WN FORJADA-A-105

JSAN22

1.00

(Cantidad)

Aluminio (Al)

(Oxígeno)

CERTIFICADO DE INSPECCIÓN

Inspection Certificate - Certificat de Réception

FECHA: 21/04/2023 N.º 224868 HOJA: 1
Date: 21/04/2023 No. 224868 Page: 1
09/05/2023 Rev. 01

DE
of. - de 22/12/2022

Company management certifications:

ISO 9001: 2015
ISO 14001: 2015
ISO 45001: 2016

Management Systems certified by ULMA



ULMA FORJA, S COOP.

Bº Zúñiga, 3 - Appd. 14
20560: ONATI (Gipuzkoa) SPAIN
Tel. +34 - 943 780552
Fax +34 - 943 781809
E-mail: ulm@ulmorge.com

Packing List: 175877
Expedition: 426/52



QUALITY ASSURANCE

DEPARTAMENTO
Section
Departamento

PARTIDA Item Posic.	CANTIDAD Quantity Quantité	DESCRIPCION Description Description	OBSERVACIONES Remarks Observations	COLADA N.º / RESISTENCIA / FRIALIZACION / ESTIRACION / RESISTENCIA		CHAPPIE V. 10X10mm Impact test Impact test Resist. / Resistencia	DUREZA Hardness Dureté
				Heat No.	Tensile Strength Y Strength Strength Nº Colada / Resist. Rap. / 0.2% / 0.2% / 0.2%	Number Número Nº	
7 6910	• 69	WN 2 150LB S160 RF A105N	12E317 NE	A53A2 523	336 39.24 74.80 104 109 120	111 111 -29	143 146
8	17	WN 10 150LB S20 RF A105N	17N206 NE	039A22 543	351 40.18 74.31 149 143 151	148 148 -29	156 160
6	59	WN 10 150LB S20 RF A105N	20E310 NE	21EE22 511	319 35.30 70.83 134 147 142	141 141 -29	141 141
8	46	WN 10 150LB S20 RF A105N	27M312 NE	JSAV22 503	287 41.26 74.28 64 86 102	94 94 -29	147 150
12	6	WN 18 150LB STD RF A105N	30M302 NE	13EE23 532	323 33.80 73.66 137 124 135	132 132 -29	152 156
20 432	115	WN 10 150LB S20 RF A105N	20E310 NE	21EE22 511	319 35.80 70.83 134 147 142	141 141 -29	141 141
20 432	30	WN 10 150LB S20 RF A105N	23E312 NE	21EE22 511	319 35.80 70.83 134 147 142	141 141 -29	141 141
20 432	125	WN 10 150LB S20 RF A105N	27M312 NE	JSAV22 503	287 41.26 74.28 94 86 102	94 94 -29	147 150
23 433	88	WN 10 150LB STD/40 RF A105N	10M305 NE	16EE23 512	300 37.33 72.33 127 124 110	120 120 -29	143 146
23 433	1	WN 10 150LB STD/40 RF A105N	28F304 NE	20EE22 523	339 35.02 73.07 126 120 139	128 128 -29	146 149
23 433	11	WN 10 150LB STD/40 RF A105N	23E312 NE	21EE22 511	319 35.80 70.83 134 147 142	141 141 -29	141 141
27 90931	• 22	WN 18 150LB STD RF A105N	29M311 NE	18EE23 509	310 38.61 73.66 139 130 117	129 129 -29	140 143

COMPOSICIÓN QUÍMICA - STEEL MAKER'S LADLE ANALYSIS - ANALYSE CHIMIQUE

Heat No. Product. P	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	Nb %	V %	Cu %	Al %	Ti %	B %	CEq %	Origin of Steel
A53A2 L 0.180 0.220 1.130 0.008 0.005 0.110 0.080 0.013 0.001 0.002 0.230 0.029 0.002 0.005 0.41																France
039A22 L 0.178 0.260 1.120 0.009 0.005 0.100 0.090 0.010 0.001 0.004 0.190 0.030 0.002 0.000 0.40																France
21EE22 L 0.180 0.200 1.140 0.011 0.008 0.110 0.010 0.010 0.001 0.003 0.180 0.032 0.002 0.004 0.41																Ukraine
JSAV22 L 0.176 0.210 1.170 0.012 0.012 0.100 0.110 0.010 0.010 0.002 0.004 0.190 0.032 0.002 0.004 0.41																Ukraine
19EE23 L 0.187 0.180 1.101 0.012 0.003 0.090 0.058 0.013 0.001 0.002 0.088 0.036 0.002 0.002 0.40																France
18EE23 L 0.180 0.190 1.078 0.012 0.003 0.140 0.144 0.013 0.001 0.001 0.077 0.031 0.002 0.002 0.41																France
20EE22 L 0.180 0.230 1.110 0.014 0.004 0.090 0.120 0.019 0.002 0.004 0.200 0.030 0.002 0.005 0.41																Ukraine
18EE23 L 0.181 0.160 1.081 0.011 0.003 0.080 0.071 0.014 0.001 0.001 0.098 0.031 0.002 0.002 0.39																France

* Las dimensiones y la condición superficial se hallaron satisfactorias.
+ Dimension and surface condition were found acceptable.

* Los dimensiones y el estado de superficie son satisfactorios.

+ Los materiales citados cumplen las normas aplicables.

+ Manufacturing requirements are satisfied.

+ Les normes applicables sont respectées.

EL INSPECTOR

Works Inspector - L'Inspecteur

ULMA FORJA, S COOP.

Dpto. de Control de Calidad

Quality Control Dept.

* OBSERVACIONES:
Remarks
Observations

MATERIAL FULLY KILLED AND FINE GRAIN PRACTICE
N NORMALIZED ABOVE 900°C AND COOLED IN AIR.

EXPI417726

FRAD FLANGE ACCIAIO



SEDE LEGALE VIA BONESCHI, 1 - 20040 CAMBIAGO (MI) ITALIA
TEL. +39 02 956420 FAX +39 02 95942323 INTERNET www.faglione.it E-MAIL Info@faglione.it
CAPITALE SOCIALE / SHARE EQUITY € 3.000.000,00 REGIMP. MCNZA BRIANZA IC/FI 03840089154
PARTITA IVA / VAT. Nr. 07785200958 REA MI/795075 N. MECCANOGRAFICO MI 100012

CERTIFICATO PROVE MATERIALI N.6778/22

1

Test certificatie - Certificat de preuve - Worksheetsmazougnis
EN 10204 / 3.1

CLIENTE / Customer - Client - Kund
CUNADO SA

28808 ALCALA DE HENARES MADRID

DATA / Date / Datum 24/10/2
COMISSARIA / Município / Gemeinde / Kreis 220442

EG013

Scheda di Prodotto - Materiale / Componente / Utensile																		
CODICE Line code Code Kode	COLATA Höhe Height Höhe Schnitte	CERTIFICATO DI ORIGINE Certifikat Ursprung Vereinfachung	NORMA / MAT. / DESCRIZIONE Standard / Material Description Norme / Matériel Description Norma / Material Beschreibung						POS.ORD. Pos. ord. Pos. de num. Position Aufstellung	QUANT. Quant. Quantité Menge								
			M	%	P	S%	Cr%	N%	Mn%	Ti%	Cu%	Nb%	N%	V%	Al%	Sa%	CE%	
7544	RIVA	F.FL.G ASME B16.5 A/SA105-21	BL	150		2.1/2"												
		ANALISI CHIMICA / Chemical analysis / Analyse chimique / Chemische Analyse / Analysen																
		C %	Mn %	P %	S %	Cr %	N %	Mn %	Ti %	Cu %	Nb %	N %	V %	Al %	Sa %	CE %		
		0.15	0.950	0.010	0.003	0.200	0.150	0.070	0.010	0.005	0.180	0.002	0.009	0.002	0.022	0.007	0.360	
		B %	Ca %	H2 %	O2 %	W %	Sb %	As %	Fe %	Co %	PRE %							
		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
		CARATTERISTICHE MECCANICHE / Mechanical properties / Propriétés mécaniques / Mechanische Eigenschaften																
		MPa																
		Tensile Strength / Tensile strength / Tension de la traction / Zugfestigkeit																
		Blanks	Yield point	Reduction of area	Impact test													
		555.6	317.0	35.0	90.3	154	152	10/10 KV	9°C	62	65	70 J			A	A	X	
80576	RIVA	F.FL.G ASME B16.5 A/SA105-21	BL	150		2.1/2"												
		ANALISI CHIMICA / Chemical analysis / Analyse chimique / Chemische Analyse / Analysen																
		C %	Mn %	P %	S %	Cr %	N %	Mn %	Ti %	Cu %	Nb %	N %	V %	Al %	Sa %	CE %		
		0.210	0.950	0.010	0.003	0.190	0.070	0.010	0.005	0.005	0.020	0.005	0.009	0.000	0.000	0.000	0.376	
		B %	Ca %	H2 %	O2 %	W %	Sb %	As %	Fe %	Co %	PRE %							
		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
		CARATTERISTICHE MECCANICHE / Mechanical properties / Propriétés mécaniques / Mechanische Eigenschaften																
		MPa																
		Tensile Strength / Tensile strength / Tension de la traction / Zugfestigkeit																
		Blanks	Yield point	Reduction of area	Impact test													
		555.6	300.0	34.0	95.6	146	150	10/10 KV	0°C	62	76	74 J			A	A	X	
2889	RIVA	F.FL.G ASME B16.5 A/SA105-21	BL	150		2.1/2"												
		ANALISI CHIMICA / Chemical analysis / Analyse chimique / Chemische Analyse / Analysen																
		C %	Mn %	P %	S %	Cr %	N %	Mn %	Ti %	Cu %	Nb %	N %	V %	Al %	Sa %	CE %		
		0.200	0.880	0.013	0.006	0.280	0.030	0.010	0.010	0.005	0.030	0.010	0.000	0.010	0.000	0.000	0.350	
		B %	Ca %	H2 %	O2 %	W %	Sb %	As %	Fe %	Co %	PRE %							
		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
		CARATTERISTICHE MECCANICHE / Mechanical properties / Propriétés mécaniques / Mechanische Eigenschaften																
		MPa																
		Tensile Strength / Tensile strength / Tension de la traction / Zugfestigkeit																
		Blanks	Yield point	Reduction of area	Impact test													
		555.6	300.0	34.0	95.6	146	150	10/10 KV	0°C	62	76	74 J			A	A	X	

NACE MR 0101 ED15

Material manufactured in accordance with PED 2014/68/EU PAR 4.3, under quality assurance system ISO 9001 cert. 205867 issued by Bureau Veritas

<p>1. PROBLEMAS ADICIONALES que surgen en el desarrollo del trabajo y que no se han podido solucionar.</p> <p>2. HABITOS que surgen en el desarrollo del trabajo.</p>	<p>A. CANTIDADES ECONOMICAS (el personal tiene que cumplir con ciertas asignaciones de horas o días de trabajo y no se ha podido cumplir).</p> <p>B. INFLUENCIAS EXTERNAS (el personal tiene que cumplir con ciertas asignaciones de horas o días de trabajo).</p>	<p>C. DIFERENCIAS DE PERSONAL (el personal tiene que cumplir con ciertas asignaciones de horas o días de trabajo).</p>
		<p>D. CONFLICTOS DE PERSONAL</p> <p>E. NACIMIENTO DE HIJOS</p>
<p>RESUMEN CONTROL DE DATOS Recuerde que: - Los datos se registran en la parte superior de la hoja. - Los datos se registran en la parte superior de la hoja.</p>		

 CUNADO	REPSOL POLIMEROS UNIPESSOAL, LDA	Frete: <i>(Delivery cost)</i>	4500035910	Promo: <i>(Discount)</i>	EXP1417276
	Descrição: <i>(Description)</i>	12" SCH-20 CL.150 BRIDA WN FORJ RF A-105	Unidade: <i>(Unit)</i>	1330-L-149	
Quantidade: <i>(Quantity)</i>	A05676	Contabil: <i>(Quantity)</i>	26,00	Albaran: <i>(Delivery N°)</i>	/1330/1330
					Factura N°: <i>(Invoice #)</i>

	CUNADO	Ciudad	REPSOL POLIMEROS UNIPERSONAL, LDA	REPSOL	055423
cliente / Client	referencia / Reference	descripción / Description	artículo / Article	referencia / Reference	cantidad / Quantity

CUÉNTA / Customer / Client
CUNADO, S.A.
 CTRA. DE DAGANZO, KM. 2,4
 28806 ALCALA DE HENARES
 MADRID
 28806
 ESP

CERTIFICADO DE INSPECCIÓN

Inspection Certificate - Certificat de Réception

FECHA: 28/09/2023 N.º 227128 HOJA: 2

Company management certifications:

ISO 9001: 2015
 ISO 14001: 2015
 ISO 45001: 2018



ULMA FORJA, S.COOP.

Bº Zubillaga, 3 - Aptd. 14
 25600 ONATE (Gipuzkoa) SPAIN
 Tel.: 34 - 943 780552
 Fax: 34 - 943 781808
 E-mail: ulma@ulmaforg.com

Packing List: 178727
 Expedition: 442358

PRODUCTO: FLANGES
 Artículo: Product
 Referencia: Descripción:
16" SCH-20 CL.150 BRIDA WN FORJADA-105
 Código: 055423

SU PEDIDO N.º: PC0183406 Distribucion Alcala
 Your Order No.
 Votre Cde, N.º

DE OF: de 28/06/2023

NORMAS APLICABLES: ASME B16.5-20
 Requirements - Normes Applicables

MATERIAL CORRESPONDIENTE ASME SA105M-21, ASTM A105M-21, EN 10222-2 P280GH-17.

Material Correspondiente - Qualité
 MODO DE FUSIÓN (*)
 Steel Making - Élaboration de l'acier
 E = Elec - Y = Oxígeno Glúlico

ANSI/NACE MR0175-2021/ISO 15156 2020 & ANSI/NACE MR0103/ISO 17945:2015

Management Systems certified by LRQA

Certified acc. PED 2014/68/EU+A2/2000 WD
 by TÜV Rheinland
 N.º 01 202 EIQ 02 7443 UNI EN 10204 08 / 3.1
 ISO 19014 13 / 3.1

MARCA DEL FABRICANTE
 Mark of factory
 Marque du fabricant



ULMA FORJA, S.COOP.

Bº Zubillaga, 3 - Aptd. 14
 25600 ONATE (Gipuzkoa) SPAIN
 Tel.: 34 - 943 780552
 Fax: 34 - 943 781808
 E-mail: ulma@ulmaforg.com

Packing List: 178727
 Expedition: 442358

Quality Assurance

PARTIDA Item	CANTIDAD Quantity	DESCRIPCION Description	DESCRIPCION Description
480 023457 0000000	2	WN 10 150LB STD/40 RF A105N	18A311 NF
480 023457 0000000	13	WN 10 150LB STD/40 RF A105N	19A306 NE
490 023476 0000000	14	WN 10 150LB X56/60 RF A105N	031304 NE
510 023603 0000000	18	WN 16 150LB S20 RF A105N	29J304 NE
510 023603 0000000	20	WN 16 150LB S20 RF A105N	29J307 NE
510 023603 0000000	60	WN 16 150LB S20 RF A105N	29J314 NE
520 023368 0000000	20	WN 16 150LB STD/30 RF A105N	29J321 NE
520 023368 0000000	22	WN 16 150LB STD/30 RF A105N	30J301 NE
520 023368 0000000	1	WN 16 150LB STD/30 RF A105N	29J319 NE
560 023712 0000000	5	WN 20 300LB STD/20 RF A105N	27L309 NE

OBSERVACIONES Remarks Observations	COLETA N.º Head No.	RESISTENCIA RESISTENCE LIMITACIÓN ALARGAM. Y Strength Elongation Red. Area	ESTRICHON Elongation Red. Area	RESILUENCIA Impact test Resilience	CHAPY V 10x10mm Impact Joules	DUREZA Hardness HVW
	18A311 NF	20E23 531 336 33,54 73,30 144 118 126 129 29 149 152				
	19A306 NE	20E23+ 531 336 33,54 73,30 144 118 126 129 29 149 152				
	031304 NE	055A23+ 534 328 34,77 74,08 120 122 134 125 29 152 152				
	29J304 NE	055A23+ 534 328 34,77 74,08 120 122 134 125 29 152 152				
	29J307 NE	055A23+ 534 328 34,77 74,08 120 122 134 125 29 152 152				
	29J314 NE	055A23+ 534 328 34,77 74,08 120 122 134 125 29 152 152				
	29J321 NE	27HC23+ 543 345 33,12 69,47 118 110 122 117 29 152 152				
	30J301 NE	23HC23+ 529 322 32,90 71,18 86 84 115 95 29 149 152				
	29J319 NE	27HC23+ 543 345 33,12 68,47 118 110 122 117 29 152 152				
	27L309 NE	14HC23+ 529 338 36,46 72,45 133 140 130 134 29 146 146				

COMPOSICIÓN QUÍMICA - STEEL MAKER'S LADLE ANALYSIS - ANALYSE CHIMIQUE

COLETA N.º Head No.	C %	Si %	Mn %	P %	S %	Ni %	Mo %	Nb %	V %	Cu %	Al %	Ti %	B %	CEq %	Origen de Steel
20F23 L 0.192	0.210	1.121	0.012	0.094	0.000	0.055	0.012	0.001	0.002	0.081	0.037	0.002	0.0002	0.39	France
055A23 L 0.177	0.210	1.129	0.012	0.090	0.000	0.007	0.001	0.002	0.190	0.027	0.002	0.0002	0.39	France	
27HC23 L 0.189	0.220	1.130	0.014	0.097	0.050	0.100	0.009	0.001	0.002	0.210	0.031	0.002	0.0003	0.41	France
23HC23 L 0.182	0.220	1.150	0.015	0.097	0.080	0.080	0.011	0.001	0.003	0.200	0.027	0.001	0.0003	0.41	France
14HC23 L 0.187	0.190	1.150	0.014	0.002	0.060	0.050	0.009	0.002	0.001	0.057	0.036	0.002	0.0002	0.40	France

- Las dimensiones y la condición superficial se hallaron satisfactorias.
 Dimension and surface condition were found acceptable.

= Los materiales citados cumplen las normas aplicables.

= Manufacturing requirements are satisfied.

= Les normes applicables sont respectées.

EL INSPECTOR
Works Inspector - L'inspecteur



(*): OBSERVACIONES:
 Remarks
 Observations

MATERIAL FULLY KILLED AND FINE GRAIN PRACTICE
 N. NORMALIZED ABOVE 900°C AND COOLED IN AIR.

EXP141726

Envío Nº:

1360-L-149

Referencia Nº:

1360/1360



Quality Assurance Department

HARDNESS CERTIFICATE

Page : 1

Results: SATISFACTORY									
Acceptance criteria A105N : 167 max 137 min			Material Grade			Heat	Batch	Hardness1 Hardness2	
Item									
30	020008-0000000	A105N				32E23	167	166	
210	0262633-0000200	A105N				24E23	147	145	
390	023493-0000000	A105N				24E23	152	152	
440	022827-0000000	A105N				07HC23	159	155	
460	023449-0000000	A105N				26AV23	175	169	
460	023449-0000000	A105N				26AV23	152	166	
460	023449-0000000	A105N				26A23	159	159	
460	023449-0000000	A105N				80HC0	164	160	
470	022450-0000000	A105N				23C23	169	173	
470	022450-0000000	A105N				23C23	168	177	
470	022450-0000000	A105N				23C23	162	162	
470	022450-0000000	A105N				39HC0	154	159	
480	022461-0000000	A105N				20EE23	158	158	
480	022461-0000000	A105N				20EE23	157	159	
490	023475-0000000	A105N				05SA23	155	155	
490	023475-0000000	A105N				05SA23	167	170	
510	025693-0000000	A105N				05SA23	165	164	
510	026363-0000000	A105N				05SA23	157	163	
510	026363-0000000	A105N				05SA23	160	170	
510	021033-0000000	A105N				05SA23	159	160	
510	021033-0000000	A105N				05SA23	153	153	
510	023563-0000000	A105N				05SA23	167	170	
510	021903-0000000	A105N				05SA23	151	151	
510	021903-0000000	A105N				05SA23	169	169	
510	023603-0000000	A105N				05SA23	160	161	
510	023603-0000000	A105N				05SA23	159	158	
510	023603-0000000	A105N				27A23	159	161	
520	023684-0000000	A105N				27A23	152	152	
520	023684-0000000	A105N				27HC23	154	162	
520	023684-0000000	A105N				29HC23	165	164	
520	023684-0000000	A105N				29HC23	164	162	
520	023684-0000000	A105N				29HC23	162	161	
560	027312-0000000	A105N				14HC23	155	156	
Acceptance criteria A150LF2 : 197 max 123 min			Material Grade			Heat	Batch	Hardness1 Hardness2	
Item									
30	025550-0000000	A105N				54CA23	152	162	
20	025550-0000000	A150_LF2				05SA23	164	165	
20	025550-0000000	A150_LF2				05SA23	158	158	

Standard: A BSC124-02-N02 in BSC1

Operator name : ANDER MARYIA XABZAEV

Approved by : ION Q3AFTA - QC Coordinator NPT

Data: 2020-02-20

 CUNADO	REPSOL POLIMEROS UNIPESSOAL, LDA	Pedido: <i>(Delivery)</i>	4500035910	Envio: <i>(Shipment)</i>	EXP1417276
Cliente: <i>(Client)</i>	16" SCH-20 CL.150 BRIDA WN FORJ RF A-105	Referencia: <i>(Reference)</i>	1360-L-149		
Direccion: <i>(Address)</i>					
Colegio Street	055A23	Continuidad: <i>(Quantity)</i>	1,00	Abarro: <i>(Delivery-NL)</i>	/1360/1360
					Factura-NL: <i>(Invoice #L)</i>

CALIDAD Y EXPERIENCIA A SU SERVICIO. (QUALITY AND EXPERIENCE AT YOUR SERVICE)

Ensayos no destructivos, Laboratorio Metalúrgico, Inspección Industrial, Organismo de control autorizado. Protección radiológica. Conducción por tubería. Consultoría y formación.

CUÑADO S.A.

C/ CAMINO DEL OLIVAR 2 ESQUINA C/
MÉXICO,
28806 ALCALA DE HENARES
MADRID

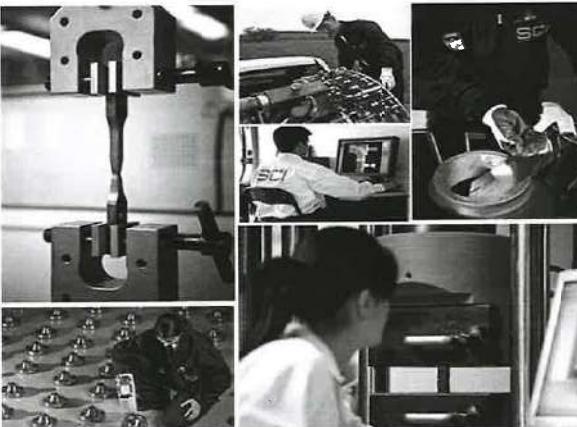
Peticionario: D^a PALOMA CRIADO

Peticioner:

S/REF: ME0014388

Order

ASUNTO: ENSAYOS DE DUREZA BRINELL EN BRIDAS DE ACERO A105.
Subject



Realizado por: Laboratorio Metalúrgico SCI S.A.

Realized by

Ctra. Ajalvir-Torrejón Km 1,8
28864 Ajalvir (Madrid)
Teléfono. 34-91-884.43.93
laboratorio.madrid@scisa.es



IGNACIO GONZALEZ BARBERO

Responsable Laboratorio Metalúrgico

Laboratorio de Ensayos:



Madrid a 29/01/2024

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RECEPCIÓN DE MUESTRAS (SPECIMEN RECEPTION):

En fecha 25/01/2024 se recepcionaron las siguientes muestras (Specimen received on 25/01/2024):

Nº Muestra: Specimen n°	240201-1	Identificación cliente:(1) Client id	MARCAS *			
Descripción: Description	2-BRIDA 10" SCH-20 CL.150 WN FORJ RF A-105		Tipo pieza: Piece	BRIDA WN 10" SCH-20 CL.150		
Colada:(1) Heat	21EE22	Diámetro: Diameter	---mm.	Espesor: Thickness	---	
Identif. del material:(1) Material Id	A105/A105N	Norma material:(1) Material specification	ASTM A105/A105M 2018			
Foto: Photo	---					
Observaciones: Remarks	(") 10"-150-B16 20 6,35 WN ISO PN-20-DN250 RF SA-A105N/C21 M29C P280GH EN 1759-1 21EE22 LT20E310 04/23 MADE IN SPAIN					

Nº Muestra: Specimen n°	240201-2	Identificación cliente:(1) Client id	MARCAS: FAD B16 12" WN 150 20 A/S/A105N A05676			
Descripción: Description	2-BRIDA 12" SCH-20 CL.150 WN FORJ RF A-105		Tipo pieza: Piece	BRIDA WN 12" SCH-20 CL.150		
Colada:(1) Heat	A05676	Diámetro: Diameter	---mm.	Espesor: Thickness	---	
Identif. del material:(1) Material Id	A105/A105N	Norma material:(1) Material specification	ASTM A105/A105M 2018			
Foto: Photo	---					
Observaciones: Remarks	N/A					

Nº Muestra: Specimen n°	240201-3	Identificación cliente:(1) Client id	MARCAS: B MFF 6" 150 B16.5 STD SA/A105N/C21/P280GH 23/39588 D MFF ITALY			
Descripción: Description	7-BRIDA 6" STD CL.150 WN FORJ RF A-105		Tipo pieza: Piece	BRIDA WN 6" STD CL.150		
Colada:(1) Heat	23/39588	Diámetro: Diameter	---mm.	Espesor: Thickness	---	
Identif. del material:(1) Material Id	A105/A105N	Norma material:(1) Material specification	ASTM A105/A105M 2018			
Foto: Photo	---					
Observaciones: Remarks	N/A					

ENSAYOS SOLICITADOS (TEST REQUESTED):

DUREZA BRINELL - BRINELL HARDNESS


La incertidumbre asociada a los ensayos mecánicos son las siguientes:

The uncertainties associated with the mechanical tests are:

- Tensión de Rotura (Tensile Strength): $\pm 0.2\%$
- Resistencia (Charpy) (ASTM): $\pm 2.42\%$
- Alargamiento: $\pm 1.0\%$
- Resistencia (Charpy) (EN): $\pm 10.1\%$
- - Límite Elástico (Yield Strength): $\pm 0.9\%$
- Durezas (Hardness) HRC: $\pm 8.1\%$
- Durezas (Hardness) HV10: $\pm 3.4\%$
- Durezas (Hardness) HB: $187.5 \pm 4.3\%$
- Durezas (Hardness) HRB: $\pm 6.3\%$
- Durezas (Hardness) HB-3000: $\pm 6.3\%$

La incertidumbre expandida indicada se basa en una incertidumbre típica multiplicada por un factor de cobertura k = 2, que para una distribución normal proporciona un nivel de confianza de aproximadamente el 95%. (Indicated expanded uncertainty is based on a standard uncertainty multiplied by a factor of k UN Coverage = 2, which for a normal distribution provides UN Confidence level of approximately 95%)

Los datos marcados con (1) han sido facilitados por el cliente, por lo tanto SCI no puede asumir responsabilidades sobre su veracidad.

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CONTROL & INSPECCIÓN
CR Ajalvir-Torrejón Km 1.8
Pol. Ind. Los Madroños 2-4
28864 - AJALVIR (MADRID)
Tlf: 918844393, Fax: 918844324

ENSAYO DE DUREZA (*)

HARDNESS TEST

INFORME DE ENSAYO: 240201LMEAD-OT0001-IF-01

REV: 0

Report Number

REV: 0

COD. INTERNO: 240201LMEAD-OT0001-HB01

Internal code

Fecha de ensayo: 25/01/2024

Test date

Cliente: CUÑADO S.A.

Client

Dirección ensayo: CR Ajalvir-Torrejón Km 1.8
Pol. Ind. Los Madroños 2-4, 28864, AJALVIR, MADRID

Probeta Specimen	Muestra Specimen	Material Material	Norma ensayo Standard Test	Observaciones: Remarks
240201-1-1	240201-1	ASTM A105/A105M 2018	---	---
240201-1-2	240201-1	ASTM A105/A105M 2018	---	---

EQUIPOS UTILIZADOS (Test Equipment)

Equipo Nº: EME07048-Durómetro Portátil
Equipment nº: EQUOTIP

Tipo de dureza:
Hardness type

DUREZA BRINELL

Penetrador: N/A
Indenter:

Carga aplicada:
Applied Load

N/A Kgf

RESULTADOS (Results)

PROBETA Specimen	PUNTO Point Nº	DUREZA Hardness	PUNTO Point Nº	DUREZA Hardness	PUNTO Point Nº	DUREZA Hardness
240201-1-1	1	149	2	146	3	145
240201-1-2	1	142	2	152	3	150

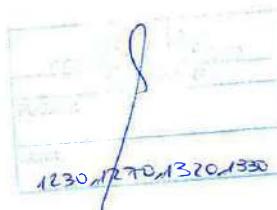
Operador SCI: EVA MAYO VAZQUEZ

Operator

Observaciones:

Remarks

Procedimiento: DU-01.000 Rv.06



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CONTROL & INSPECCIÓN
CR Ajalvir-Torrejón Km 1,8
Pol. Ind. Los Madroños 2-4
28864 - AJALVIR (MADRID)
Tel: 918844393, Fax: 918844324

ENSAYO DE DUREZA (*)

HARDNESS TEST

INFORME DE ENSAYO: 240201LMEPAD-OT0001-IF-01

Report Number

COD. INTERNO: 240201LMEPAD-OT0001-HB02

Internal code

REV: 0

REV: 0

Fecha de ensayo: 25/01/2024

Test date

Cliente: CUÑADO S.A.

Client

Dirección ensayo: CR Ajalvir-Torrejón Km 1,8
Pol. Ind. Los Madroños 2-4, 28864, AJALVIR, MADRID

Probeta Specimen	Muestra Specimen	Material Material	Norma ensayo Standard Test	Observaciones: Remarks
240201-2-1	240201-2	ASTM A105/A105M 2018	---	---
240201-2-2	240201-2	ASTM A105/A105M 2018	---	---

EQUIPOS UTILIZADOS (Test Equipment)

Equipo Nº: EME07048-Durómetro Portátil
Equipment n°: EQUOTIP

Tipo de dureza:
Hardness type

DUREZA BRINELL

Penetrador: N/A

Carga aplicada:
Applied Load

N/A Kgf

RESULTADOS (Results)

PROBETA Specimen	PUNTO Point N°	DUREZA Hardness	PUNTO Point N°	DUREZA Hardness	PUNTO Point N°	DUREZA Hardness
240201-2-1	1	142	2	145	3	148
240201-2-2	1	147	2	143	3	143

Operador SCI: EVA MAYO VAZQUEZ

Operator

Observaciones:

Remarks

Procedimiento: DU-01.000 Rv.06



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CONTROL & INSPECCIÓN
CR Ajalvir-Torrejón Km 1,8
Pol. Ind. Los Madroños 2-4
28864 - AJALVIR (MADRID)
Tel: 918844333, Fax: 918844324

ENSAYO DE DUREZA (*)

HARDNESS TEST

INFORME DE ENSAYO: 240201LMECAD-OT0001-IF-01

Report Number

COD. INTERNO: 240201LMECAD-OT0001-HB03

Internal Code

REV: 0

REV: 0

Fecha de ensayo: 25/01/2024
Test date

Cliente: CUÑADO S.A.
Client

Dirección ensayo: CR Ajalvir-Torrejón Km 1,8
Pol. Ind. Los Madroños 2-4, 28864, AJALVIR, MADRID
Test address

Probeta Specimen	Muestra Specimen	Material Material	Norma ensayo Standard Test	Observaciones: Remarks
240201-3-1	240201-3	ASTM A105/A105M 2018	---	---
240201-3-2	240201-3	ASTM A105/A105M 2018	---	---
240201-3-3	240201-3	ASTM A105/A105M 2018	---	---
240201-3-4	240201-3	ASTM A105/A105M 2018	---	---
240201-3-5	240201-3	ASTM A105/A105M 2018	---	---
240201-3-6	240201-3	ASTM A105/A105M 2018	---	---
240201-3-7	240201-3	ASTM A105/A105M 2018	---	---

EQUIPOS UTILIZADOS (Test Equipment)

Equipo Nº: EME07048-Durómetro Portátil
Equipment n°: EQUOTIP **Tipo de dureza:** DUREZA BRINELL
Hardness type

Penetrador: N/A **Carga aplicada:** N/A Kgf
Indenter Applied Load

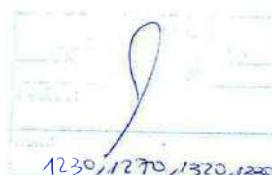
RESULTADOS (Results)

PROBETA Specimen	PUNTO Point N°	DUREZA Hardness	PUNTO Point N°	DUREZA Hardness	PUNTO Point N°	DUREZA Hardness
240201-3-1	1	152	2	161	3	168
240201-3-2	1	161	2	156	3	150
240201-3-3	1	142	2	141	3	143
240201-3-4	1	140	2	138	3	143
240201-3-5	1	144	2	142	3	146
240201-3-6	1	162	2	166	3	165
240201-3-7	1	146	2	142	3	144

Operador SCI: EVA MAYO VAZQUEZ
Operator

Observaciones:

Remarks
Procedimiento: DU-01.000 Rv.06



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CUÑADO S.A.U.
Cl. Camino Del Olivar, Nº.2 Esquina Cl. México
28806 ALCALÁ DE HENARES MADRID España
Telf. +34 918878700 - Fax +34 918878733

CERTIFICADOS DE CALIDAD. *Quality certificates*

PEDIDO <i>Order No.</i>	ALBARÁN <i>Delivery Note</i>	POS. <i>Item</i>	S/REF. <i>Y/Ref.</i>	DESCRIPCIÓN <i>Description</i>	CANTIDAD <i>Quantity</i>	COLADA <i>Heat</i>	CERTIFICADO <i>Certificate</i>	FACTURA <i>Invoice</i>
4500035910	/1230	1230	1230-L-149	6" STD CL.150 BRIDA WN FORJ RF A-105	6,00	23/39588	2023-C_MFF-02439-38-	
4500035910	/1280	1280	1280-L-149	8" SCH-20 CL.150 BRIDA WN FORJ RF A-105	5,00	23/39010	2023-3E201-0001127-0	
4500035910	/1320	1320	1320-L-149	10" SCH-20 CL.150 BRIDA WN FORJ RF A-105	2,00	21EE22	224868/01-2023	

COMPANY WITH
MANAGEMENT SYSTEM
CERTIFIED BY DNV
ISO 9001 ■ ISO 14001



METALFAR PRODOTTI INDUSTRIALI SPA
23861 CESANA BRIANZA (LC) - ITALY
VIA G. PARINI, 28
PHONE + 39 031 655441 - FAX +39 031 655149
certificate@metalfaritaly.com

COMPANY WITH
MANAGEMENT SYSTEM
CERTIFIED BY DNV
ISO 9001 ■ ISO 14001

INSPECTION CERTIFICATE EN 10204:2004 / 3.1				A02	Nr ^{A03}	2023-C_MFF-02439	Data / Dated	27.09.2023	Z02
CUNADO S.A.U. CALLE CAMINO DEL OLIVAR, 2 (esquina calle México) 28806 ALCALA DE HENARES, MADRID - SPAIN				A06	Ordine / PO	PC0180203			A07
				ES	Item	2240			A07
					DDT / Delivery note	2023-3E301-0002443			A10
					Packing List	2023-3E401-0002484			A11
					Fattura / Invoice	2023-3E401-0002484			A12
					Ns. rif. / Our ref.	2023-3E201-0001127-0070			A08
Dest. GC ALMACEN REGULADOR C/Camino del Olivar, 2 (Esq. c/Mexico) 28806 ALCALA' DE HENARES - MADRID SPAIN				A06					
ES									
Cod. colata ^{B07} Heat Code	Nr. colata ^{B07} Heat Nr	Quantità ^{B08} Quantity			Descrizione Description				B01 - (B09 - B11)
	23/39588	90,00	W/W 150 RF 6" STD	A105N					

Mat. in acc. a / Mat. in acc. to ^{B02} ASTM A105M - 21 ,ASME SA105M-21 ASME CODE SECT. II, PART A, ED. 2021
NACE MR-0175/2021 ISO 15156-2 :2020 , NACE MR-0103/2015 ISO 17945-1 :2015
Q.A.S IN ACCORD WITH PRESS EQUIPM.DIRECT 2014/68/EU(PED) ANNEX I,PARAGRAPH 4.3
Cert. No.4687-2014-CE-ITA-DNV

Ann. mat. / Mat. remarks	D02-B03	MATERIAL FULLY KILLED STEEL AND FINE GRAIN PRACTICED										
Elementi / Elements	(C71 - C92)	C Si Mn S P Cr Ni Mo Ti Cu V Nb N										
LADLE ANALYSIS	0,195	0,240	1,040	0,004	0,010	0,110	0,080	0,020	0,019	0,150	0,001	0,001 0,010
PRODUCT ANALYSIS	0,187	0,223	1,059	0,001	0,007	0,124	0,065	0,023	0,015	0,142	0,003	0,002 0,006
	AI	B	Ca						CE LF	CE SF	F1 F2 PREN	
LADLE ANALYSIS	0,029	0,0002	0,001						0,410	0,368	0,361	0,130 --
PRODUCT ANALYSIS	0,035	0,0000	0,001						0,407	0,364	0,357	0,147 --
CE LF=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15		CE SF=C+(Mn/6)			F1=Cu+Ni+Cr+Mo+V				F2=Cr+Mo			
Provetta ^{C10} Test specimen	Forma ^{C10} Shape	°C ^{C03}	Snergamento>0,2% ^{C11}	Snergamento>1,0% ^{C11}	Rottura ^{C12}	Allungamento ^{C13}	Contrazione ^{C14}					
Sez/Sect mm ²	Gauge L.mmm ^{1=O - 2=} <input checked="" type="checkbox"/>	MPa	Yield Strength>0,2%	Yield Strength>1,0%	Tensile MPa	Elongation %	Reduction of area %					
126,60	50,80	1	20	308,0	--	494,0	36,4				62,1	
DUREZZA / HARDNESS ^{C30}												
HBW ^{C31}	Tipo/Type ^{C40}	Provetta / Test Specimen ^{C41}	°C ^{C03}	1-Joule ^{C42}	2-Joule ^{C42}	3-Joule ^{C42}	Media/Average ^{C43}					
141,0 ; 143,0	KV	10x10x55 mm	-10	83	87	74	81,3					
Tratt. Term. / Heat treatment	B04	NORMALIZED AT 920 °C - COOLED IN STILL AIR						C70	GAS FURNACE			
Dim in acc. a / Dim. acc. to	B14	ASME/ANSI B16.5 -2020 ; ASME/ANSI B36.10M -2022										
Finitura / Roughness	B15	ASME/ANSI B46.1 -2019 ; RF FINISHING 125 - 150 µin AARH										
Marcatura in acc. ^{B06} Marking in acc. to	ANSI/MSS SP-25-2018	Vis. & Dim. ^{D01}	SATISFACTORY	Origine ^{B16} Origin of Steel	EUROPEAN UNION							

Note / Notes Z01-B03 MATERIAL 100% MANUFACTURED IN ITALY; MATERIAL IN ACCORDANCE WITH ORDER AND SPECIFICATION
Issued in agreement with TUV SUD Industrie Service GmbH August 12th, 2021".
"QS approved acc. to PED, Annex I, Para. 4.3 by Notified Body 0036"
Certification no.DGR-0036-QS-W 1025/2021/MUC-01
TENSILE TEST AND CHARPY KV IMPACT TEST PERFORMED IN ACCORDANCE WITH ASTM A370 -22.

UFFICIO CONTROLLO QUALITÀ ^{A05} QUALITY CONTROL DEPARTMENT	ENTE UFFICIALE DI COLLAUDO ^{Z03} INSPECTION AUTHORITY	MARCHIO PRODUZIONE ^{A04} MANUFACTURER'S SYMBOL
A. Pontiggia <i>[Signature]</i>		

 CUNADO	Cliente: (Client)	REPSOL POLIMEROS UNIPESSOAL, LDA			Pedido: (Delivery)	4500035910	Envio: (Shipment)	EXP1439250
	Descripción: (Description)	6" STD CL.150 BRIDA WN FORJ RF A-105			S/Ref: (Y/Ref)	1230-L-149		
	Colada: (Heat)	23/39588			Albarán: (Delivery N)	/1230/1230	Factura Nº: (Invoice #)	

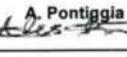
COMPANY WITH MANAGEMENT SYSTEM CERTIFIED BY DNV ISO 9001 ■ ISO 14001	 METALFAR PRODOTTI INDUSTRIALI SPA 23861 CESANA BRIANZA (LC) - ITALY VIA G. PARINI, 28 PHONE +39 031 655441 - FAX +39 031 655149 certificate@metalfaritaly.com	A01	COMPANY WITH MANAGEMENT SYSTEM CERTIFIED BY DNV ISO 9001 ■ ISO 14001
---	---	-----	---

INSPECTION CERTIFICATE EN 10204:2004 / 3.1			A02	Nr ^{A03} 2023-C_MFF-01783	Data / Dated 23.06.2023	Z02
CUNADO S.A.U. CALLE CAMINO DEL OLIVAR, 2 (esquina calle México) 28806 ALCALA DE HENARES, MADRID - SPAIN			A06	Ordine / PO Item DDT / Delivery note Packing List Fattura / Invoice Ns. rif. / Our ref.	PC0180203 0860 2023-3E301-0001793 2023-3E401-0001837 2023-3E401-0001837 2023-3E201-0001127-0027-11	A07 A07 A10 A11 A12 A08
Dest. GC ALMACEN REGULADOR C/Camino del Olivar, 2 (Esq. c/Mexico) 28806 ALCALA' DE HENARES - MADRID SPAIN			ES			
Cod. colata ^{B07} Heat Code	Nr. colata ^{B07} Heat Nr	Quantità ^{B08} Quantity	23/39010 40,00	W/N 150 RF 8" 20	A105N	Descrizione Description

Mat. in acc. a / Mat. in acc. to ^{B02} ASTM A105M - 21 .ASME SA105M-21 ASME CODE SECT. II, PART A, ED. 2021
NACE MR-0175/2021 ISO 15156-2 :2020 ; NACE MR-0103/2015 ISO 17945-1 :2015
Q.A.S.IN ACCORD.WITH PRESS.EQUIPM.DIRECT.2014/68/EU(PED) ANNEX I,PARAGRAPH 4.3
Cert. No.4687-2014-CE-ITA-DNV

Ann. mat. / Mat. remarks	D02-B03	MATERIAL FULLY KILLED STEEL AND FINE GRAIN PRACTICED												
Elementi / Elements	(C71 - C92)	C	Si	Mn	S	P	Cr	Ni	Mo	Ti	Cu	V	Nb	N
LADLE ANALYSIS		0,180	0,240	1,050	0,008	0,010	0,100	0,050	0,020	0,018	0,100	0,002	0,001	0,010
PRODUCT ANALYSIS		0,182	0,242	1,052	0,009	0,013	0,102	0,052	0,023	0,020	0,103	0,004	0,002	0,012
		Al	B	Ca							CE LF	CE SF	F1	F2 PREN
LADLE ANALYSIS		0,028	0,0003	0,001							0,389	0,355	0,272	0,120
PRODUCT ANALYSIS		0,029	0,0000	0,001							0,393	0,357	0,284	0,125
CE LF=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15		CE SF=C+(Mn/6)		F1=Cu+Ni+Cr+Mo+V		F2=Cr+Mo								
Provetta ^{C10} Test specimen	Forma ^{C10} Shape	^{°C} ^{C03}	Snervamento>0,2% ^{C11} Yield Strength>0,2%	Snervamento>1,0% ^{C11} Yield Strength>1,0%	Rottura ^{C12} Tensile	Allungamento ^{C13} Elongation	Contrazione ^{C14} Reduction of area							
Sez/Sect mm ² 126,60	Gauge Lmm ² 50,80	1=0 - 2=□	MPa 334,0	MPa	MPa --	MPa 516,0	% 33,1	% 70,6						
DUREZZA / HARDNESS ^{C30} HBW ^{C31}	Tipo/Type ^{C40} KV	Provetta / Test Specimen ^{C41} 10x10x55 mm	^{°C} ^{C03}	1-Joule ^{C42} -10	2-Joule ^{C42} 108	3-Joule ^{C42} 94	Media/Average ^{C43} 101,0							
Tratt. Term. / Heat treatment	B04	NORMALIZED AT 920 °C - COOLED IN STILL AIR											C70	GAS FURNACE
Dim in acc. a / Dim. acc. to	B14	ASME/ANSI B16.5 -2020 ; ASME/ANSI B36.10M -2022												
Finitura / Roughness	B15	ASME/ANSI B46.1 -2019 ; RF FINISHING 125 - 150 µin AARH												
Marcatura in acc. ^{B06} Marking in acc. to	ANSI/MSS SP-25-2018	Vis. & Dim. ^{D01}	SATISFACTORY	Origine ^{B16} Origin of Steel	EUROPEAN UNION									

Note / Notes Z01-B03 MATERIAL 100% MANUFACTURED IN ITALY
MATERIAL IN ACCORDANCE WITH ORDER AND SPECIFICATION
Issued in agreement with TÜV SÜD Industrie Service GmbH August 12th, 2021".
"QS approved acc. to PED, Annex I, Para. 4.3 by Notified Body 0036"
Certification no.DGR-0036-QS-W 1025/2021/MUC-01
TENSILE TEST AND CHARPY KV IMPACT TEST PERFORMED IN ACCORDANCE WITH ASTM A370 -22.

UFFICIO CONTROLLO QUALITA' ^{A05} QUALITY CONTROL DEPARTMENT	ENTE UFFICIALE DI COLLAUDO ^{Z03} INSPECTION AUTHORITY	MARCHIO PRODUZIONE ^{A04} MANUFACTURER'S SYMBOL
A. Pontiggia 		

	Cliente: (Client)	REPSOL POLIMEROS UNIPESSOAL, LDA	Pedido: (Delivery)	4500035910	Envio: (Shipment)	EXP1439250
	Descripción: (Description)	8" SCH-20 CL.150 BRIDA WN FORJ RF A-105	S/Ref: (V/Ref)	1280-L-149		
	Colada: (Heat)	23/39010	Cantidad: (Quantity)	5,00	Albarán: (Delivery N)	/1280/1280

PROTOCOLO DE ELEMENTOS CONSTRUÍDOS

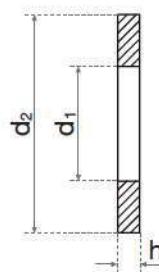
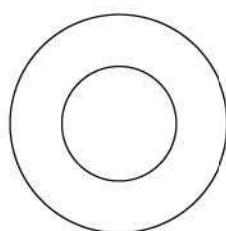
 ASCH INFRAESTRUCTURAS Y SERVICIOS	Empreitada:	DOCUMENTO N°: R-R007-006
	4001008 - "Nuevas Plantas de Poliolefinas, Plataformas Logísticas Y Offsites"	DATA: 05/08/ 2024
		FOLHA N° : / DE: 146 / 185

2.6 – ACESSÓRIOS

Rev.	Data	Descrição	Realizado	Cliente
0	05/08/2024	Protocolo REDE CONTRA INCÊNDIOS AVENIDA 27 FIRE WATER-20" – FW900000 – PEB69	JOSE ANTUNES TECNICO QUALIDADE	

ARANDELA PLANA, FORMA A

PLAIN WASHERS, TYPE A



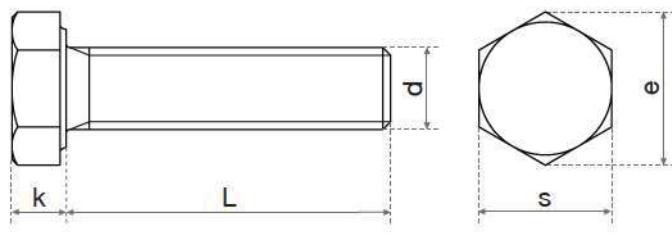
Inox A2 ■
Inox A4 ■■
Acero ■■■

Para M		d ₁	d ₂	h
1,6		1,7	4	0,3
2		2,2	5	0,3
2,5		2,7	6,5	0,5
3		3,2	7	0,5
3,5		3,7	8	0,5
4		4,3	9	0,8
5		5,3	10	1
6		6,4	12	1,6
7		7,4	14	1,6
8		8,4	16	1,6
10		10,5	20	2
12		13	24	2,5
14		15	28	2,5
16		17	30	3
18		19	34	3
20		21	37	3
22		23	39	3
24		25	44	4
27		28	50	4
30		31	56	4
33		34	60	5
36		37	66	5
39		40	72	6
42		43	78	7
45		46	85	7
48		50	92	8
52		54	98	8
56		58	105	9
60		62	110	9
64		66	115	9
72		74	125	10

Medidas indicadas en mm

TORNILLO CABEZA HEXAGONAL

HEXAGON HEAD SCREWS



Inox A2 ■
 Inox A4 ■■
 Acero 8.8 ■■■
 Acero 10.9 ■■■■
 Acero 12.9 ■■■■■

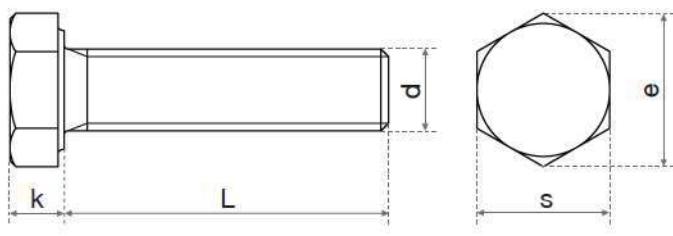
d	M2	M2,5	M3	M4	M5	M6	M8
L							
3							
4							
5							
6							
8							
10							
12							
14							
16							
18							
20							
22							
25							
30							
35							
40							
45							
50							
55							
60							
65							
70							
75							
80							
90							
100							
110							
120							
130							
140							
150							
160							
170							
180							
190							
200							

k	1,4	1,7	2	2,8	3,5	4	5,3
e	4,32	5,45	6,01	7,66	8,79	11,05	14,38
s	4	5	5,50	7	8	10	13

Medidas indicadas en mm

TORNILLO CABEZA HEXAGONAL

HEXAGON HEAD SCREWS



Inox A2
 Inox A4
 Acero 8.8
 Acero 10.9
 Acero 12.9

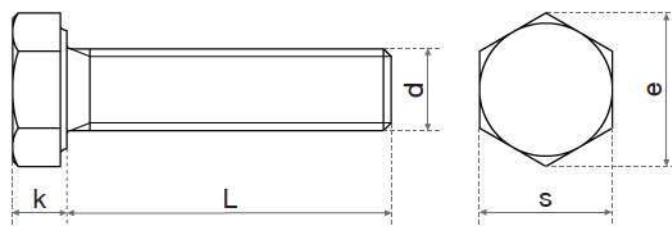
	d	M10	M12	M14	M16	M18	M20	M22
L	10	■■■■■						
12								
14								
16		■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■
18								
20		■■■■■						
22								
25								
30								
35								
40								
45								
50								
55								
60								
65								
70								
75								
80								
85								
90								
100								
110								
120								
130								
140								
150								
160								
170								
180								
190								
200								
220								
240								
260								
280								
300								

k	6,4	7,5	8,8	10	11,5	12,5	14
e	18,9	21,1	24,49	26,75	30,14	33,53	35,72
s	17	19	22	24	27	30	32

Medidas indicadas en mm

TORNILLO CABEZA HEXAGONAL

HEXAGON HEAD SCREWS



Inox A2 ■
 Inox A4 ■■
 Acero 8.8 ■■■
 Acero 10.9 ■■■■
 Acero 12.9 ■■■■■

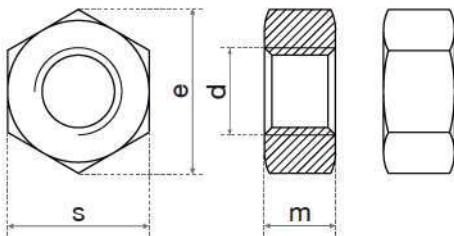
d	M24	M27	M30	M33	M36	M39	M42
L 30							
35							
40							
45							
50							
55							
60							
65							
70							
75							
80							
85							
90							
95							
100							
110							
120							
130							
140							
150							
160							
170							
180							
190							
200							
220							
240							
260							
280							
300							

k	15	17	18,7	21	22,5	25	26
e	39,98	45,2	50,85	55,37	60,79	66,14	71,3
s	36	41	46	50	55	60	65

Medidas indicadas en mm

TUERCA HEXAGONAL

HEXAGON NUTS



Inox	A2
Inox	A4
Acero	C-6
Acero	C-8
Acero	C-10
Acero	C-12
Latón	

d	s	e	m
M1,6	3,2	3,48	1,3
M2	4	4,38	1,6
M2,5	5	5,45	2
M3	5,5	6,01	2,4
M3,5	6	6,58	2,8
M4	7	7,66	3,2
M5	8	8,79	4
M6	10	11,05	5
M7	11	12,12	5,5
M8	13	14,38	6,5
M10	17	18,9	8
M12	19	21,1	10
M14	22	24,49	11
M16	24	26,75	13
M18	27	29,56	15
M20	30	32,95	16
M22	32	35,03	18
M24	36	39,55	19
M27	41	45,2	22
M30	46	50,85	24
M33	50	55,37	26
M36	55	60,79	29
M39	60	66,44	31
M42	65	72,09	34
M45	70	76,95	36
M48	75	82,6	38
M52	80	88,25	42
M56	85	93,56	45
M60	90	99,21	48
M64	95	104,86	51
M68	100	110,51	54
M72	105	116,16	58

Medidas indicadas en mm

PROTOCOLO DE ELEMENTOS CONSTRUÍDOS

 ASCH INFRAESTRUCTURAS Y SERVICIOS	Empreitada: 4001008 - "Nuevas Plantas de Poliolefinas, Plataformas Logísticas Y Offsites"	DOCUMENTO N°: R-R007-006
		DATA: 05/08/ 2024
		FOLHA N° : / DE: 152 / 185

3. SOLDADURA

Rev.	Data	Descrição	Realizado	Cliente
0	05/08/2024	Protocolo REDE CONTRA INCÊNDIOS AVENIDA 27 FIRE WATER-20" – FW900000 – PEB69	JOSE ANTUNES TECNICO QUALIDADE	

PROTOCOLO DE ELEMENTOS CONSTRUÍDOS

 ASCH INFRAESTRUCTURAS Y SERVICIOS	Empreitada:	DOCUMENTO N°: R-R007-006
	4001008 - "Nuevas Plantas de Poliolefinas, Plataformas Logísticas Y Offsites"	DATA: 05/08/ 2024
		FOLHA N° : / DE: 153 / 185

3.1 – MAPA DAS SOLDADURAS

Rev.	Data	Descrição	Realizado	Cliente
0	05/08/2024	Protocolo REDE CONTRA INCÊNDIOS AVENIDA 27 FIRE WATER-20" – FW900000 – PEB69	JOSE ANTUNES TECNICO QUALIDADE	



Caderno de Soldaduras
ISO Summary List

n° H01

Cliente: REPSOL

Contrato: 4PRT2

Local: Complexo Petroquímico de Sines

Projecto: REPSON

Nº Unidade:

• 808 •



Caderno de Soldaduras
ISO Summary List

n° H02

Cliente: REPSOL

150 Sat

Local: Complexo Petroquímico de Sines

REPSOL

Pagina 1/1

Nº Unidade:

H02

Linha n°:

5

1

Notes
BW-Butt Weld; FW-Fillet Weld; SW-Socket Weld; TBW-Branch Connection
PT-Penetrant Test; MT-Magnetic Test; RT-Radiographic Test; UT-Ultrasonic Test
PMI-Positive Material Identification



Caderno de Soldaduras
ISO Summary List

n° H03

Cliente: REPSOL

Contrato: 4PRT2

Local: Complexo Petroquímico de Sines

Projecto: REPSOL

Nº Unidade: H03

H03

Visual Inspection NDT CONSUMABLES



Caderno de Soldaduras
ISO Summary List

n.º H04

Cliente:			REPSOL			Contrato:			4PRT2			Projeto:										
Local:			Complexo Petroquímico de Sines																			
Nº Unidade:			H04			Linha nº:			H04			Desenho:			H04							
Line	Spool	Nº Joint	Type Joint	Description Product	Head Number	CMT	WPS	WPOR	Welding Status	Visual Inspection Report	PT/MT	RT/UT	PMI	Hardness Test	Heat treatment	RT/UT PWHT	GTAW	SMAW				
22	H04	BJ300	BW	LINHA EXISTENTE Ø 6" FLANGE ASTM A-105, Cara con resalte de 1/16", 150W, ASME B16.5, SCH 40	23/39588	CMT-3	-	-	-	-	-	-	-	-	-	-	-					
23	H04	SW01	BW	Ø 6" FLANGE ASTM A-105, Cara con resalte de 1/16", 150W, ASME B16.5, SCH 40 Ø 6" Tubo, ASTM A-106 B SMLS, Extremos isolados, ASME B36.10, SCH 40	23/39588	CMT-3	4PRT2_001	2019/0152	13/03/2024	16/03/2024	-	-	-	-	-	-	-	24223583				
24	H04	SW02	BW	Ø 6" Tubo, ASTM A-106 B SMLS, Extremos isolados, ASME B36.10, SCH 40 Ø 6" ELBOW 90° LR BW Ends Sch 40 ASTM A234 Gr. WPB	63820	CMT-2	4PRT2_001	2019/0152	13/03/2024	16/03/2024	15/03/2024	-	-	-	-	-	-	24223583				
25	H04	SW03	BW	Ø 6" ELBOW 90° LR BW Ends Sch 40 ASTM A234 Gr. WPB Ø 6" Tubo, ASTM A-106 B SMLS, Extremos isolados, ASME B36.10, SCH 40	486912	CMT-1	4PRT2_001	2019/0152	13/03/2024	16/03/2024	-	-	-	-	-	-	24223583					
26	H04	SW04	BW	Ø 6" Tubo, ASTM A-106 B SMLS, Extremos isolados, ASME B36.10, SCH 40 Ø 6" FLANGE ASTM A-105, Cara con resalte de 1/16", 150W, ASME B16.5, SCH 40	63820	CMT-2	4PRT2_001	2019/0152	13/03/2024	16/03/2024	15/03/2024	-	-	-	-	-	24223583					
27	H04	BJ301	-	Ø 6" FLANGE ASTM A-105, Cara con resalte de 1/16", 150W, ASME B16.5, SCH 40 LINHA EXISTENTE	23/39588	CMT-3	-	-	-	-	-	-	-	-	-	-	-					
Notes: BW: Butt Weld; FW: Flanged Weld; SW: Socket Weld; TBW: Branch Connection PT: Penetration Test; MT: Magnetic Test; RT: Radiographic Test; UT: Ultrasonic Test PMI: Positive Material Identification															APPROVED by: CIMONTUBO		APPROVED by: TEN		APPROVED by: OALP		APPROVED by: Nabil HO	
Name: <i>Alessio S. Lira</i> Sign: <i>25.03.2024</i>															Name: <i></i> Sign: <i></i> Date: <i></i>							



Caderno de Soldaduras
ISO Summary List

n° H05

Cliente: REPSOL

Contrato: 4PRT2

Local: Complexo Petroquímico de Sines

REPSOL

Pagina 1/1

Nº Unidade:

Linha n°:

5

10

10

Une Spool

WPS

5MAW

Notas
BW-Butt Weld; FW-Fillet Weld; SW-Socket Weld; TBW-Branch Connection
PT-Penetrant Test; MT-Magnetic Test; RT-Radiographic Test; UT-Ultrasonic Test
PMI-Positive Material Identification



PUNTO	CIRCUITO /TEST PACK	TIE-IN /TH	ZONA	PROJECTO	LINHA	SPOOL	Hoja	Rev	Ø	MATERIAL	#	#	ESTADO DE SOLDADURA	ST (TALLER) SC (OBRA) SCP (PARADA)	
											I	F			
											U	L	E	T	
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW1		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW2		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW3		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW4		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW5		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW6		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW7		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW8		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW9		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW10		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW11		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW12		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW13		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW14		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW15		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW16		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW17		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW18		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW19		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW20		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW21		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW22		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW23		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW24		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW25		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW26		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW27		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW28		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW29		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW30		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW31		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW32		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW33		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW34		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW35		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW36		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW37		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					500	PEAD	FW38		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					PEAD		FW40		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					PEAD		FW41		Montaje	BW
1			AV27	4001008	20"-FW900000-PEB69					PEAD		FW42		Montaje	BW

Control de Soldaduras y Spools

W.P.S.		Nº SOLDADOR	Fecha	PARTES NR°	HEAT NR°	Nº CERTIFICADO	DESCRIPCION 1	NORMA/CALIDAD
		IGOR	11/04/2024			Usado	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	11/04/2024			N/Disponible	500mm SDR11 ELBOW 90, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	12/04/2024			N/Disponible	500mm Flange, Adaptor, Long Type BFW, PN16, HDPE, PE100, EN 12201,	EN12201
		IGOR	16/04/2024			N/Disponible	500mm SDR11 ELBOW 90, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	17/04/2024			Usado	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	17/04/2024			Usado	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	18/04/2024			Usado	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	19/04/2024			Usado	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	19/04/2024			Usado	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	22/04/2024			Usado	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	22/04/2024			Usado	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	22/04/2024			Usado	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	24/04/2024			Usado	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	02/05/2024			N/Disponible	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	02/05/2024			N/ Disponible	500mm SDR11 ELBOW 90, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	02/05/2024			N/ Disponible	500mm SDR11 ELBOW 90, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	02/05/2024			N/ Disponible	500mm SDR11 ELBOW 90, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	03/05/2024			N/ Disponible	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	03/05/2024			N/ Disponible	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	03/05/2024			N/ Disponible	500mm Flange, Adaptor, Long Type BFW, PN16, HDPE, PE100, EN 12201,	EN12201
		IGOR	06/05/2024			N/ Disponible	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	06/05/2024			N/ Disponible	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	06/05/2024			N/ Disponible	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	07/05/2024			N/ Disponible	500mm SDR11 ELBOW 90, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	08/05/2024			Usado	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	09/05/2024			Usado	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	09/05/2024			Usado	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	10/05/2024			Usado	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	10/05/2024			Usado	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	14/05/2024			Usado	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	14/05/2024			Usado	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	15/05/2024			Usado	500mm Flange, Adaptor, Long Type BFW, PN16, HDPE, PE100, EN 12201,	EN12201
		IGOR	15/05/2024			Usado	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR	17/05/2024			Usado	280mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR				N/Disponible	250mm Flange, Adaptor, Long Type BFW, PN16, HDPE, PE100, EN 12201,	EN12201
		IGOR				N/Disponible	250mm Reducer, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR				N/Disponible	355mm Reducer, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR				N/Disponible	500mm Flange, Adaptor, Long Type BFW, PN16, HDPE, PE100, EN 12201,	EN12201
		IGOR				N/Disponible	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR				N/Disponible	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201
		IGOR				Usado	500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221	EN12201



PROGRESO DE PRODUCCIÓN

PROTOCOLO DE ELEMENTOS CONSTRUÍDOS

 ASCH INFRAESTRUCTURAS Y SERVICIOS	Empreitada: 4001008 - "Nuevas Plantas de Poliolefinas, Plataformas Logísticas Y Offsites"	DOCUMENTO N°: R-R007-006
		DATA: 05/08/ 2024
		FOLHA N° : / DE: 164 / 185

4. ENSAIOS E PROVAS FINAIS

Rev.	Data	Descrição	Realizado	Cliente
0	05/08/2024	Protocolo REDE CONTRA INCÊNDIOS AVENIDA 27 FIRE WATER-20" – FW900000 – PEB69	JOSE ANTUNES TECNICO QUALIDADE	

PROTOCOLO DE ELEMENTOS CONSTRUÍDOS

 ASCH INFRAESTRUCTURAS Y SERVICIOS	Empreitada:	DOCUMENTO N°: R-R007-006
	4001008 - "Nuevas Plantas de Poliolefinas, Plataformas Logísticas Y Offsites"	DATA: 05/08/ 2024
		FOLHA N° : / DE: 165 / 185

4.1 – ENSAIO VISUAL EM SOLDADURA

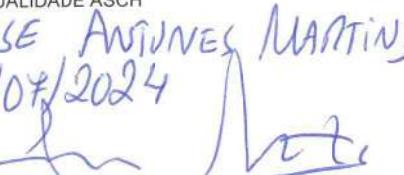
Rev.	Data	Descrição	Realizado	Cliente
0	05/08/2024	Protocolo REDE CONTRA INCÊNDIOS AVENIDA 27 FIRE WATER-20" – FW900000 – PEB69	JOSE ANTUNES TECNICO QUALIDADE	

4001008 - "NUEVAS PLANTAS DE POLIOLEFINAS , PLATAFORMAS LOGÍSTICAS Y OFFSITES"

RELATÓRIO DIÁRIO DE INSPEÇÃO VISUAL DE SOLDADURAS

Nº Sol	Sistema operativo	Subsistema	Plano	Ø	Soldadura Data	Soldador	Inspeção Visual Data	Resultado		Observações
								Aceite	Não aceite	
21	REDE CONEXIONES AN27 AV18-AV20	42.000.1.01.0010	20"	06/05/2024	1601L	06/05/2024		X		
22			20"	06/05/2024	1601L	06/05/2024		X		
23			20"	07/05/2024	1601L	07/05/2024		X		
24			20"	08/05/2024	1601L	08/05/2024		X		
25			20"	09/05/2024	1601L	09/05/2024		X		
26			20"	09/05/2024	1601L	09/05/2024		X		
27			20"	10/05/2024	1601L	10/05/2024		X		
28			20"	10/05/2024	1601L	10/05/2024		X		
29			20"	14/05/2024	1601L	14/05/2024		X		
30			20"	14/05/2024	1601L	14/05/2024		X		
31			20"	15/05/2024	1601L	15/05/2024		X		
32			20"	15/05/2024	1601L	15/05/2024		X		
33			20"	14/05/2024	1601L	14/05/2024		X		
34			20"	20/05/2024	1601L	20/05/2024		X		
35			20"	20/05/2024	1601L	20/05/2024		X		
36			20"	20/05/2024	1601L	20/05/2024		X		
37			20"	24/05/2024	1601L	24/05/2024		X		
38			20"	21/05/2024	1601L	21/05/2024		X		
39			20"	22/05/2024	1601L	22/05/2024		X		
40			20"	22/05/2024	1601L	22/05/2024		X		

CONTROLO QUALIDADE ASCH

Nome: JOSE ANTUNES MARTINS
 Data: 14/05/2024
 Rubrica: 

CONTROLO QUALIDADE/SUPERVISÃO REPSOL

Nome:
 Data:
 Rubrica

REPSOL

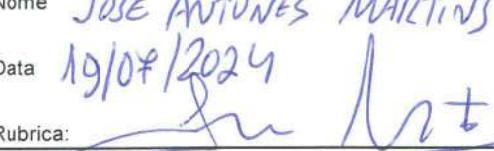
Nome:
 Data:
 Rubrica

4001008 - "NUEVAS PLANTAS DE POLIOLEFINAS , PLATAFORMAS LOGÍSTICAS Y OFFSITES"

RELATÓRIO DIÁRIO DE INSPEÇÃO VISUAL DE SOLDADURAS

Nº Sol	Sistema operativo	Subsistema	Plano	Ø	Soldadura Data	Soldador	Inspeção Visual Data	Resultado		Observações
								Aceite	Não aceite	
1	REDE CONTINUA INTENSOS AN2Z	AV18-AV20	42.000.101.0010	20"	11/04/2024	iGOR	11/04/2024	X		
2				20"	11/04/2024	iGOR	11/04/2024	X		
3				20"	12/04/2024	iGOR	12/04/2024	X		
4				20"	16/04/2024	iGOR	16/04/2024	X		
5				20"	17/04/2024	iGOR	17/04/2024	X		
6				20"	17/04/2024	iGOR	17/04/2024	X		
7				20"	18/04/2024	iGOR	18/04/2024	X		
8				20"	18/04/2024	iGOR	18/04/2024	X		
9				20"	19/04/2024	iGOR	19/04/2024	X		
10				20"	21/04/2024	iGOR	22/04/2024	X		
11				20"	22/04/2024	iGOR	22/04/2024	X		
12				20"	22/04/2024	iGOR	22/04/2024	X		
13				20"	24/04/2024	iGOR	24/04/2024	X		
14				20"	02/05/2024	iGOR	02/05/2024	X		
15				20"	02/05/2024	iGOR	02/05/2024	X		
16				20"	02/05/2024	iGOR	02/05/2024	X		
17				20"	03/05/2024	iGOR	03/05/2024	X		
18				20"	03/05/2024	iGOR	03/05/2024	X		
19				20"	03/05/2024	iGOR	03/05/2024	X		
20				20"	06/05/2024	iGOR	06/05/2024	X		

CONTROLO QUALIDADE ASCH

 Nome: JOSE ANTUNES MARTINS
 Data: 19/04/2024
 Rubrica: 

CONTROLO QUALIDADE/SUPERVISÃO REPSOL

 Nome
 Data
 Rubrica

REPSOL

 Nome
 Data
 Rubrica

4001008 - "NUEVAS PLANTAS DE POLIOLEFINAS , PLATAFORMAS LOGÍSTICAS Y OFFSITES"

RELATÓRIO DIÁRIO DE INSPEÇÃO VISUAL DE SOLDADURAS

CONTROLO QUALIDADE ASCH

Nome JOSE ANTUNES Martins
Data 11/07/2024
Rubrica:

Rubrica:

CONTROLO QUALIDADE/SUPERVISÃO REPSOL

Nome

Data

Rubrica

REPSO

Nome

Dat

Rubrica

4001008 - "NUEVAS PLANTAS DE POLIOLEFINAS , PLATAFORMAS LOGÍSTICAS Y OFFSITES"

FOTOS DE INSPEÇÃO VISUAL DE SOLDADURA DIÁRIA



Soldadura 01



Soldadura 02



Soldadura 03



Soldadura 04



Soldadura 05



Soldadura 06



Soldadura 07



Soldadura 08

4001008 - "NUEVAS PLANTAS DE POLIOLEFINAS , PLATAFORMAS LOGÍSTICAS Y OFFSITES"

FOTOS DE INSPEÇÃO VISUAL DE SOLDADURA DIÁRIA



Soldadura 09



Soldadura 10



Soldadura 11



Soldadura 12



Soldadura 13



Soldadura 14



Soldadura 15



Soldadura 16

4001008 - "NUEVAS PLANTAS DE POLIOLEFINAS , PLATAFORMAS LOGÍSTICAS Y OFFSITES"

FOTOS DE INSPEÇÃO VISUAL DE SOLDADURA DIÁRIA



Soldadura 17



Soldadura 18



Soldadura 19



Soldadura 20



Soldadura 21



Soldadura 22



Soldadura 23



Soldadura 24

4001008 - "NUEVAS PLANTAS DE POLIOLEFINAS , PLATAFORMAS LOGÍSTICAS Y OFFSITES"

FOTOS DE INSPEÇÃO VISUAL DE SOLDADURA DIÁRIA



Soldadura 25



Soldadura 26



Soldadura 27



Soldadura 28



Soldadura 29



Soldadura 30



Soldadura 31



Soldadura 32

4001008 - "NUEVAS PLANTAS DE POLIOLEFINAS , PLATAFORMAS LOGÍSTICAS Y OFFSITES"

FOTOS DE INSPEÇÃO VISUAL DE SOLDADURA DIÁRIA



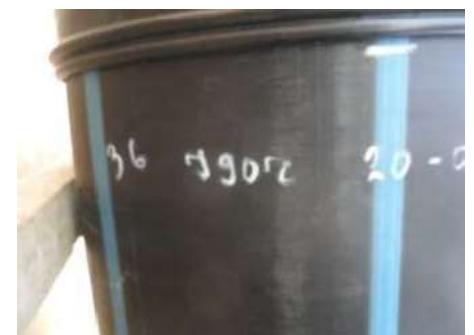
Soldadura 33



Soldadura 34



Soldadura 35



Soldadura 36



Soldadura 37



Soldadura 38



Soldadura 39



Soldadura 40

4001008 - "NUEVAS PLANTAS DE POLIOLEFINAS , PLATAFORMAS LOGÍSTICAS Y OFFSITES"

FOTOS DE INSPEÇÃO VISUAL DE SOLDADURA DIÁRIA



Soldadura 41



Soldadura 42



Soldadura 43



Soldadura 44



Soldadura 45



Soldadura 46



Soldadura 47



Soldadura 48

4001008 - "NUEVAS PLANTAS DE POLIOLEFINAS , PLATAFORMAS LOGÍSTICAS Y OFFSITES"

FOTOS DE INSPEÇÃO VISUAL DE SOLDADURA DIÁRIA



Soldadura 49



Soldadura 50



Soldadura 51



Soldadura 52

PROTOCOLO DE ELEMENTOS CONSTRUÍDOS

 ASCH INFRAESTRUCTURAS Y SERVICIOS	Empreitada:	DOCUMENTO N°: R-R007-006
	4001008 - "Nuevas Plantas de Poliolefinas, Plataformas Logísticas Y Offsites"	DATA: 05/08/ 2024
		FOLHA N° : / DE: 176 / 185

4.2 – PROVAS DE PRESSÃO

Rev.	Data	Descrição	Realizado	Cliente
0	05/08/2024	Protocolo REDE CONTRA INCÊNDIOS AVENIDA 27 FIRE WATER-20" – FW900000 – PEB69	JOSE ANTUNES TECNICO QUALIDADE	

 REPSOL		PRECOMISIONADO PRECOMMISIONING			Formato / Task Form DI-L.02
		PROTOCOLO DE PRUEBAS DE PRESIÓN PROTOCOL FOR PRESSURE TESTS		Rev. 4	
<small>LA ACEPTACIÓN DE ESTE PROTOCOLO Y DE LAS PRUEBAS REALIZADAS NO LIBERA AL CONTRATISTA DEL CUMPLIMIENTO DE LAS ESPECIFICACIONES, REQUISITOS LEGALES Y CONTRACTUALES</small> <small>THE ACCEPTATION OF THIS PROTOCOL AND THE TESTS PERFORMED DOES NOT RELEASE THE CONTRACTOR FROM THE COMPLIANCE WITH SPECIFICATIONS, LEGAL REQUIREMENTS AND CONTRACTUAL REQUIREMENTS.</small>					
TAG: 20 " - FW900000 - PEB9 Tag: SISTEMA: REDE CONTRA INCÉNDIOS AVENIDA 27 System: CONTRATISTA: ASCH INFRAESTRUCTURAS Y SERVICIOS SA Contractor:		CONTRATO: PROJECTO ALBA - 4001008 Contract: SUBSISTEMA: AV18-AV20 Subsystem: SECC./AREA: AREA 42 Section / Area:			
<small>P&ID REF(Adjuntar y marcar límites de prueba y discos ciegos, así como aquellas válvulas de retención a las que se le retira la claveta);</small> <small>P&ID Ref (Attach and mark pressure limits of the test and blind discs, and also those check valves whose chaper have been removed);</small>					
ISOMÉTRICAS <small>Iso metric drawings</small>					
TAG DE LA LÍNEA LINE TAG 20" - FW900000		MATERIAL MATERIAL PEB-69	HOJAS Sheets 1/2	TAG DE LA LÍNEA LINE TAG	
				MATERIAL MATERIAL	HOJAS Sheets
DATOS DE LA PRUEBA <small>Test data</small>					
FLUIDO DE PRUEBA: TEST FLUID: AGUA X WATER		TIPO DE PRUEBA: HIDRAULICA TYPE OF TEST: PRESIÓN: 14,28 PRESSURE		PRESIÓN DE DISEÑO (Kg/cm2): N.A. DESIGN PRESSURE (Kg/cm2): PRESIÓN DE PRUEBA (Kg/cm2): N.A. TEST PRESSURE (Kg/cm2): TEMPERATURA DE DISEÑO: N.A. DESIGN TEMPERATURE: TIEMPO DE MANTENIMIENTO: 8h HOLDING TIME:	
AIRE AIR AGUA DEMI DEMIN WATER OTRO (ESPECIFICAR): OTHER (SPECIFY):		ESTANQUEIDAD LEAKAGE TEST VISUAL VISUAL			
LISTA DE VERIFICACIONES <small>Check list</small>					
PREVIO A LA PRUEBA <small>Before test</small>				ACEPTADO <small>Accepted</small>	RECHAZADO <small>Rejected</small>
1 DOCUMENTACIÓN CORRECTA <small>THE DOCUMENTATION IS CORRECT</small>					
2 CONTROL DE CALIDAD APROBADO <small>THE QUALITY CONTROL HAS BEEN APPROVED</small>					
3 MONTAJE COMPLETO <small>THE INSTALLATION IS COMPLETED</small>				X	
4 INSTRUMENTOS DESMONTADOS <small>THE INSTRUMENTS HAVE BEEN REMOVED</small>					X
5 VALV. DE RETENC. INVERTIDAS <small>CHECK VALVES REVERSED</small>					X
6 LISTA DE FALTAS EMITIDA <small>THE PUNCH LIST HAS BEEN ISSUED</small>					
7 FALTAS "A" RESUELTA (AUTORIZACION PARA PRUEBA) <small>FAULTS "A" SOLVED (AUTHORIZATION TO DO TEST)</small>					
INSTRUMENTOS INSTRUMENTS MANÓMETRO 1 MANOMETER 1		REF. REF. FONDO ESCALA FULL SCALE RANGE	CERTIF. CALIBR. CALIBR. CERTIF.	ACEPTADO <small>Accepted</small>	RECHAZADO <small>Rejected</small>
8 MANÓMETRO 2 MANOMETER 2 MANÓMETRO 3 MANOMETER 3 MANOTERMÓGRAFO THERMAL MANOMETER					
DISCOS CIEGOS (usar juntas provisionales <small>sintéticas)/DESCRIPCIÓN</small> BLIND DISCS (use synthetic provisional gaskets) <small>DESCRIPTION</small>					
DISCO N° 1 DISC N° DISCO N° 2 DISC N° DISCO N° 3 DISC N° DISCO N° 4 DISC N° DISCO N° 5 DISC N° DISCO N° 6 DISC N° DISCO N° 7 DISC N° DISCO N° 8 DISC N° 10 REALIZACIÓN PRUEBA (VISTO BUENO) Y FECHA TEST PERFORMANCE (APPROVAL) AND DATE		COLOCACIÓN <small>Installation</small>	RETIRADA <small>Removal</small>	ACEPTADO <small>Accepted</small>	RECHAZADO <small>Rejected</small>
POSTERIOR A LA PRUEBA: <small>After test</small>					
10 DESPRESURIZADO <small>DEPRESSURIZATION</small>				X	
11 VENTOS DE PRUEBA SOLDADOS (SELLADO) <small>TEST VENTS WELDING (SEALING)</small>					X
12 VALVULAS DE RETENCION Y FIGURAS EN OCHO EN POSICION SEGUN P&I <small>CHECK VALVES AND SPECTACLE BLINDS AS PER P&I</small>					X
OBSERVACIONES / Comments:					
<small>Puntos a verificar por Contratista: Todos excepto 2 y 8</small> <small>To be checked by Contractor: All except 2 and 8</small> <small>Puntos a verificar por REPSOL DI: Todos</small> <small>To be checked by REPSOL DI: All</small> <small>Puntos a verificar por Organismo de control: Todos excepto 9</small> <small>To be checked by Control body: All except 9</small> <small>Puntos a verificar por el Grupo de Comisionado: Ninguno</small> <small>To be checked by Commissioning group: None</small>		CONTRATISTA <small>Contractor</small> 	SUPERVISIÓN CONSTRUC. / <small>Construction Supervision / Repsol ED</small> 	ORGANISMO DE CONTROL <small>Control body</small> 	GRUPO DE COMISIONADO <small>Commissioning group</small> 

PROTOCOLO DE ELEMENTOS CONSTRUÍDOS

 ASCH INFRAESTRUCTURAS Y SERVICIOS	Empreitada:	DOCUMENTO N°: R-R007-006
	4001008 - "Nuevas Plantas de Poliolefinas, Plataformas Logísticas Y Offsites"	DATA: 05/08/ 2024
		FOLHA N° : / DE: 178 / 185

4.3 – APERTO DE TORQUE

Rev.	Data	Descrição	Realizado	Cliente
0	05/08/2024	Protocolo REDE CONTRA INCÊNDIOS AVENIDA 27 FIRE WATER-20" – FW900000 – PEB69	JOSE ANTUNES TECNICO QUALIDADE	

REGISTO DE TORQUES

REGISTO DE TORQUES

Código nº RT/01,2024
 Data: Revisão 0
 01/06/2024

PROJECTO: 4001008 — Alba. Nuevas plantas de poliolefinas, plataformas logísticas y offsites

IDENTIFICAÇÃO: Rede Incendios AV.27

Empresa: SADE

DESIGNAÇÃO			Nº			CERT. Nº					Gama
Chave Dinamométrica			Force SA03867/Carolus SA03867			1386/24 - 1387/24					650 a 450 N.m / 110-550
REGISTO	ITEM	BC Nº	Ø	Ø PERNOS	CIASSE (#)	MONTAGE M	TORQUE (N/m)	TORQUE (N/m)	TORQUE (N/m)	TORQUE (N/m)	TORQUE OK (S/N) / DATA
1	1	AH31	6"	3/4"	150 #	IGOR	27 - 30%	53-60%	89-100%	-	S - 07/05/2024
1	2	AH32	6"	3/4"	150#	IGOR	28 - 30%	53-60%	89-100%	-	S - 07/05/2024
1	3	AH33	6"	3/4"	150 #	IGOR	29 - 30%	53-60%	89-100%	-	S - 07/05/2024
1	4	AH34	6"	3/4"	151 #	IGOR	30 - 30%	53-60%	89-100%	-	S - 07/05/2024
1	5	AH35	6"	3/4"	150#	IGOR	31 - 30%	53-60%	89-100%	-	S - 07/05/2024
1	6	AH36	6"	3/4"	150 #	IGOR	32 - 30%	53-60%	89-100%	-	S - 07/05/2024
2	1	BV1	10"	7/8"	150#	IGOR	24-20%	71-40%	95-80%	119-100%	S-19-08-2024
2	2	AV18	20"	1 1/8"	150#	IGOR	57-20%	171-40%	228-80%	285-100%	S-19-08-2024
2	3	AV19	20"	1 1/8"	150#	IGOR	57-20%	171-40%	228-80%	285-100%	S-19-08-2024
2	4	AV20	20"	1 1/8"	150#	IGOR	57-20%	171-40%	228-80%	285-100%	S-19-08-2024
3	1	AH31	6"	3/4"	150 #	IGOR	70-30%	140-60%	225-100%	-	S - 30-08-2024
3	2	AH32	6"	3/4"	150#	IGOR	70-30%	140-60%	225-100%	-	S - 30-08-2024
3	3	AH33	6"	3/4"	151 #	IGOR	70-30%	140-60%	225-100%	-	S - 30-08-2024
3	4	AH34	6"	3/4"	150#	IGOR	70-30%	140-60%	225-100%	-	S - 30-08-2024
3	5	AH35	6"	3/4"	152 #	IGOR	70-30%	140-60%	225-100%	-	S - 30-08-2024
3	6	AH36	6"	3/4"	150#	IGOR	70-30%	140-60%	225-100%	-	S - 30-08-2024



Registo nº:

01

Data:

07-06-2024

REGISTO DE TORQUES

CLIENTE: ASCH

PROJECTO: 4001008 – Alba. Nuevas plantas de poliolefinas, plataformas logísticas y offsites

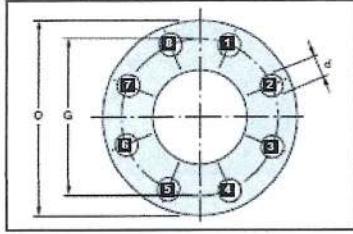
IDENTIFICAÇÃO: Rede Incendios AV.27

Local da Instalação: Repsol Polímeros

EQUIPAMENTO UTILIZADO

Designação	Nº		Cert. Nº	Gama					
Chave	Force SA03867		1386/24	65 a 450 N.m					
ITEM	BC nº	Ø	Ø PERN	Classe (#)	Montagem OK (Nome / Data)	Torque (N/m) 30%	Torque (N/m) 60%	Torque (N/m) 100%	TORQUE OK (Nome / Data)
1	AH31	6"	3/4"	150#	Ygor/21/04-2024	27	53	89,00	Ygor/7-05-2024
2	AH32	6"	3/4"	150#	Ygor/22-04-2024	27	53	89,00	Ygor/7-05-2024
3	AH33	6"	3/4"	150#	Ygor/22-04-2024	27	53	89,00	Ygor/7-05-2024
4	AH34	6"	3/4"	150#	Ygor/24-04-2024	27	53	89,00	Ygor/7-05-2024
5	AH35	6"	3/4"	150#	Ygor/24-04-2024	27	53	89,00	Ygor/7-05-2024
6	AH36	6"	3/4"	150#	Ygor/26-05-2024	27	53	89,00	Ygor/7-05-2024

1. Será seguida a seguinte sequência de torque.



Obs:

Resultado:

Aceite

Aceite c/ indicações registradas

Não Aceite



O Executante:



Ygor Constantino

Data:

7-06-2024

C. Qualidade:



ASCH

Segula

Inspeção

Data:

07-06-2024



Registo nº: 02
Data: 05-08-2024

REGISTO DE TORQUES

CLIENTE: ASCH

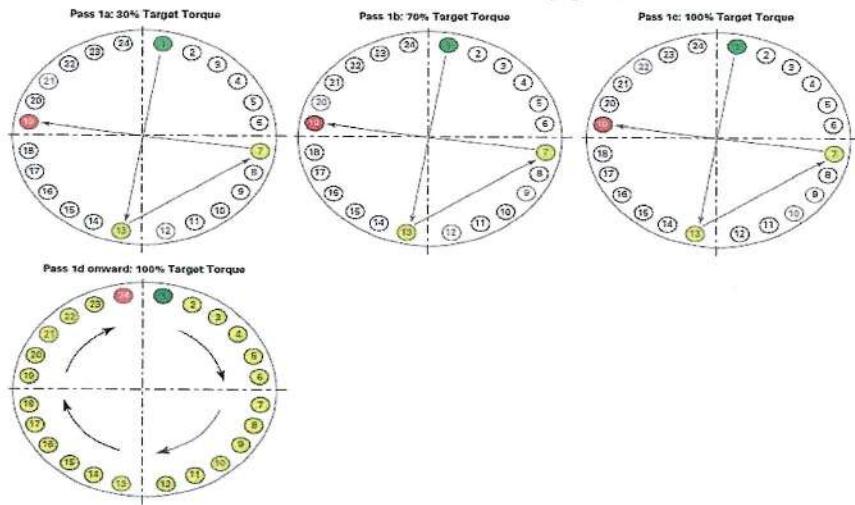
PROJECTO: 4001008 – Alba. Nuevas plantas de poliolefinas, plataformas logísticas y offsites

IDENTIFICAÇÃO: REDE Incendios AV.27

Local da Instalação: Repsol Polímeros

EQUIPAMENTO UTILIZADO

Fig. F-9 Alternative Pattern #3: Circular Pattern (Single Tool)



ASME PG-1-2013

Obs:

Resultado:

Aceite

Aceite c/ indicações registadas

| Não Aceite

8

O Executante:

C. Qualidade:

[Signature]

ASCH

Segula

Inspecção

Df13

Data:

17

Data:
19-08-2024

Data:
19-08-2024



Registro nº:

03

| Data:

Data: 30-08-2024

REGISTO DE TORQUES

CLIENTE: ASCH

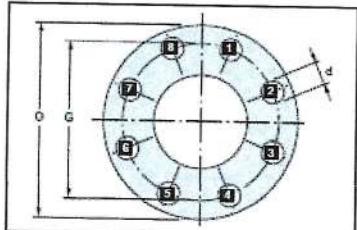
PROJECTO: 4001008 – Alba. Nuevas plantas de poliolefinas, plataformas logísticas y offsites

IDENTIFICAÇÃO: Rede Incêndios AV-27

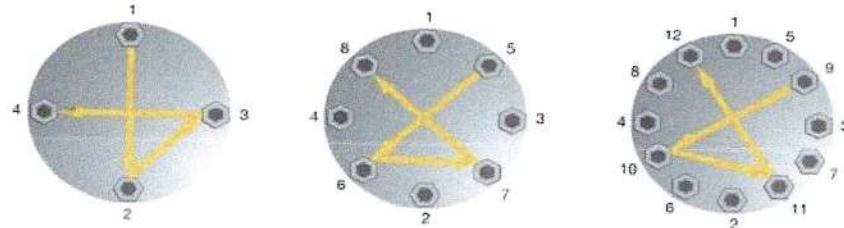
Local da Instalação: Repsol Polímeros

EQUIPAMENTO UTILIZADO

1. Será seguida a seguinte sequência de torque.



Seqüência de Torque



Obs:

TORQUE EFETUADO NA FLANGE BASE DO HIGROMETRO

Resultado:		O Executante:		Data:	
Aceite	<input checked="" type="checkbox"/>			30.08.2021	
Aceite c/ indicações registadas	<input checked="" type="checkbox"/>	C. Qualidade:		30.08.2021	
Não Aceite	<input type="checkbox"/>				
		ASCH	Segula	Inspeção	Data:

PROTOCOLO DE ELEMENTOS CONSTRUÍDOS

 ASCH INFRAESTRUCTURAS Y SERVICIOS	<p>Empreitada:</p> <p>4001008 - "Nuevas Plantas de Poliolefinas, Plataformas Logísticas Y Offsites"</p>	<p>DOCUMENTO N°: R-R007-006</p> <p>DATA: 05/08/ 2024</p> <p>FOLHA N° : / DE: 184 / 185</p>
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5. AS-BUILT

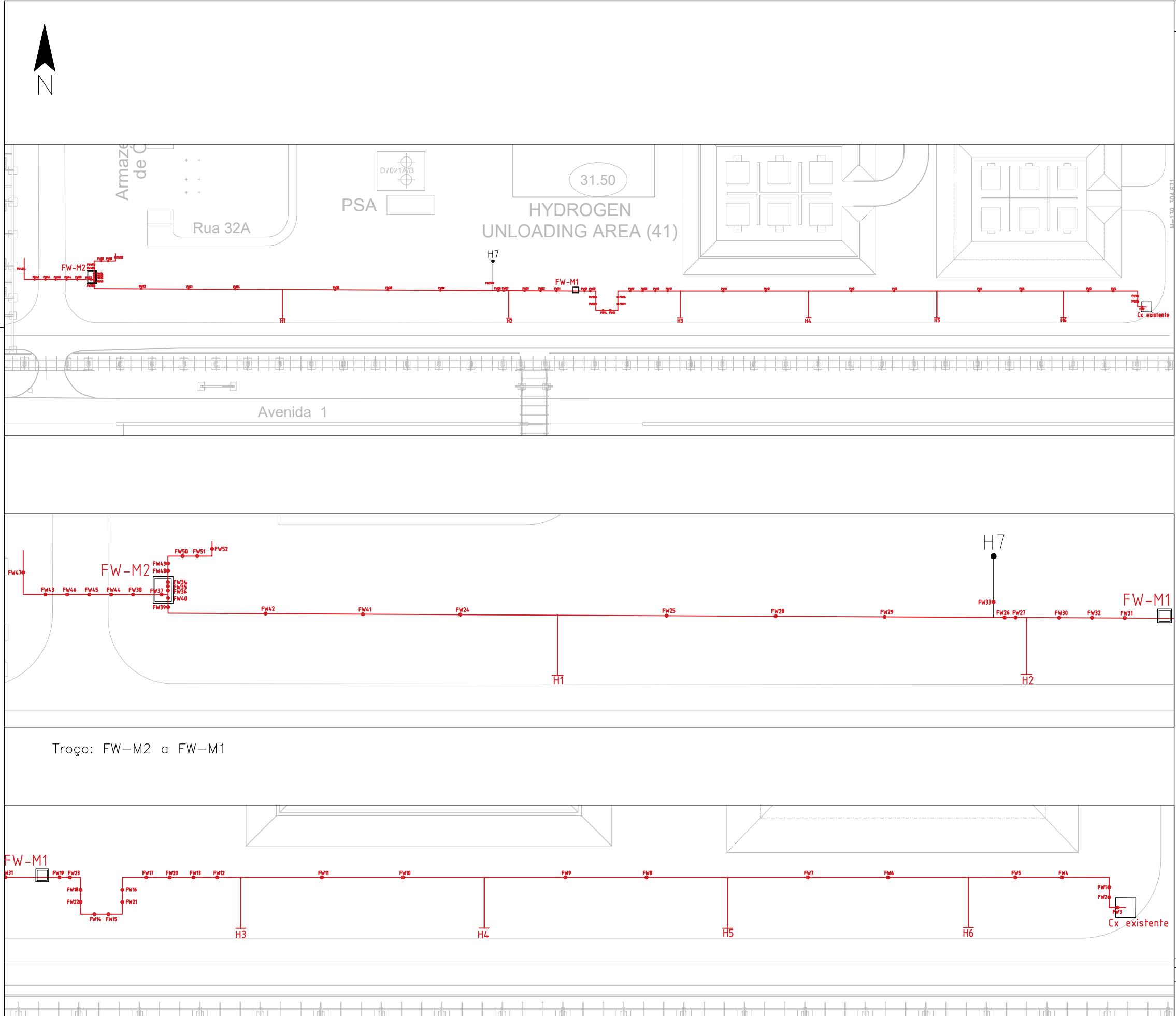
Rev.	Data	Descrição	Realizado	Cliente
0	05/08/2024	<p>Protocolo REDE CONTRA INCÊNDIOS AVENIDA 27 FIRE WATER-20" – FW900000 – PEB69</p>	JOSE ANTUNES TECNICO QUALIDADE	

Notas Gerais
General Notes

1-TODAS AS MEDIDAS ESTÃO EXPRESSAS EM METROS, SALVO AS EXPLICITAMENTE INDICADAS NO DESENHO.
ALL MEASUREMENETS ARE IN EXPRESSED IN METERS, EXCEPT THOSE EXPLICITLY INDICATED IN THE DRAWING.

Ponto	Coordenadas	
	X	Y
FW3	139294,617	113293,058
FW2	139293,392	113294,554
FW1	139293,392	113296,051
FW4	139286,404	113297,543
FW5	139279,415	113297,543
FW6	139260,496	113297,530
FW7	139248,565	113297,530
FW8	139224,563	113297,530
FW9	139212,493	113297,530
FW10	139188,353	113297,530
FW11	139176,284	113297,530
FW12	139160,692	113297,530
FW13	139157,169	113297,530
FW20	139153,646	113297,530
FW17	139150,123	113297,530
FW16	139146,600	113295,696
FW21	139146,600	113293,863
FW15	139144,533	113292,030
FW14	139142,467	113292,030
FW22	139140,400	113293,863
FW18	139140,400	113295,696
FW23	139138,812	113297,530
FW19	139137,223	113297,530
FW31	139129,242	113297,557
FW32	139124,767	113297,601
FW30	139120,292	113297,602
FW27	139114,353	113297,632
FW26	139112,856	113297,632
FW33	139111,345	113299,735
FW29	139096,487	113297,721
FW28	139081,622	113297,815
FW25	139066,955	113297,869
FW24	139038,616	113298,030
FW41	139025,337	113298,076
FW42	139012,058	113298,162
FW39	138998,761	113299,039
FW40	138998,755	113300,284
FW36	138998,745	113301,321
FW35	138998,738	113301,879
FW34	138998,745	113302,433
FW48	138998,761	113303,988
FW49	138998,761	113304,988
FW50	139000,752	113305,989
FW51	139002,752	113305,989
FW52	139004,752	113306,989
FW37	138997,868	113300,754
FW38	138993,988	113300,756
FW44	138990,993	113300,756
FW45	138987,998	113300,758
FW46	138985,004	113300,759
FW43	138982,009	113300,760
FW47	138979,015	113303,761

Hidrantes		
Pontos	X	Y
H1	139051,881	113289,737
H2	139115,835	113289,886
H3	139164,215	113289,973
H4	139200,422	113289,999
H5	139236,634	113289,974
H6	139272,427	113290,082



0	08/10/2024	AS-BUILT - Rede de Incêndios	LS	LS	GM
REV.	DATA DATE	DESCRIÇÃO DESCRIPTION	DESENHO DRAWN	VERIFICOU CHECKED	APROVOU APPROVED
 			ESTE DOCUMENTO É PROPRIEDADE DA ASCH E NÃO DEVERÁ SER COPIADO, REPRODUZIDO E OU DIVULGADO A TERCEIROS SEM A SUA AUTORIZAÇÃO.		
Projeto Project			4001008 - ALBA		
Título Title			Rede de Incêndios		
Coordenadas Soldaduras					
Tamanho Size	Piano Drawing n°	Escala Scale	Hoja Sheet N°	Rev.	
A3	R007-AB-004	S/E	1/1	0	