

"Proyecto Alba – Nuevas Plantas de Poliolefinas, Plataformas Logísticas y Offsites"

Data: 01/04/2025

DOSSIER DA QUALIDADE

Documentação Técnica e Certificação

CAPÍTULO 2.2.1.2: DOSSIER FABRICAÇÃO HDPE**✓ APROVADO.**

Documentação de fabricação de linhas ou ramais com tubos de HDPE.

VALIDAÇÃO E VERIFICAÇÃO

Ação	Responsável	Data	Assinatura
Elaborado por: Tecnico da Qualidade	José Antunes	31/03/2025	
Aprovado por: Diretor de Obra	Luis salvado	01/04/2025	

Notas/Observações: O Dossier de Fabricação de linhas ou ramais de HDPE inclui toda a documentação referente aos processos relacionados com a tubagem, abrangendo certificados de materiais, documentação de tubagem, procedimentos e registos de soldadura, homologações de soldadores, relatórios de ensaios bem como verificações e calibrações dos equipamentos utilizados.

VALIDAÇÃO REPSOL	ASSINATURA/CARIMBO
Responsável:	
Data:	

DOSSIER DE QUALIDADE

 ASCH <small>INFRAESTRUCTURAS Y SERVICIOS</small>	Empreitada:	DOCUMENTO N°:
	4001008 - "Nuevas Plantas de Poliolefinas, Plataformas Logísticas Y Offsites"	DATA:
		FOLHA N° : / 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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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 INFRAESTRUTURAS Y SERVICIOS	Empreitada:	DOCUMENTO Nº: R-R007-006
	4001008 - "Nuevas Plantas de Poliolefinas, Plataformas Logísticas Y Offsites"	DATA: 05/08/ 2024
		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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0	05/08/2024	Protocolo REDE CONTRA INCÊNDIOS AVENIDA 27 FIRE WATER-20” – FW900000 – PEB69	JOSE ANTUNES TECNICO QUALIDADE	

PROTOCOLO DE ELEMENTOS CONSTRUÍDOS

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	4001008 - "Nuevas Plantas de Poliolefinas, Plataformas Logísticas Y Offsites"	DATA: 05/08/ 2024
		FOLHA N° : / DE: 4 / 185

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	EXPLANATIONS OR DRAWINGS	TITLE
00-000-0-01-00001	1	SITE PLAN	
00-000-8-05-15001	1	RAINWATER DRAINAGE SYSTEM DETAILS	
00-000-8-05-15001	2	RAINWATER DRAINAGE SYSTEM DETAILS	
00-000-8-05-15001	3	OLIVE DRAYAGE SYSTEM DETAILS	
00-000-8-05-15001	4	SEWER SYSTEM DETAILS	
00-000-8-05-15001	5	SANITARY DRAINAGE SYSTEM DETAILS	
00-000-8-05-15001	6	LUMINAIR FOUNDATION AND ELECTRICAL TRENCH DETAILS	
00-000-8-05-15000	1	UNDERGROUND SYSTEM, KEY PLAN	
00-000-8-05-15000	2 & 8	UNDERGROUND SYSTEM, LOGIST PLATFORM, PP AND PEL	
00-000-8-05-15000	9	UNDERGROUND SYSTEM, ELEVATION 6'	
00-000-8-05-15000	8	UNDERGROUND SYSTEM, AVENUE B & AVENUE 11	
00-000-8-05-15000	10	UNDERGROUND SYSTEM, AVENUE 27	
00-000-8-05-15000	11/12	UNDERGROUND SYSTEM, SECTION	
00-000-8-11-00000	01	GENERAL, SITE PLANNING, CLOTHESLOT PLAN	
		GEOGRAPHICAL SURVEY, STATIONS	
		DATUM, MILITARY COORDINATES	
00-000-5-04-00100	1	GENERAL, SYSTEMS	
00-000-5-04-00100	2	GENERAL, SYSTEMS, ALMA PROJECT DISMANTLING PIPES	
		NOTES:	

NOTES

LEGEND

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

SYMBOLS

SW CLEAN RAINWATER HDPE CORRUGATED SWR (EN-13476) WILL BE USED UP TO D1000. FOR HIGHER DIAMETERS WILL BE USED REINFORCED CONCRETE CLASS 135 (EN-1916).

SCB OI DRAINAGE SYSTEM CARBON STEEL WILL BE USED UP TO DN900. FOR DN900 AND LARGER, USE PRESTRESSED REINFORCED CONCRETE CLASS 0I (EN-1916) WITH WATERPROOFING COMPATIBLE PVC-C. CARBON STEEL PIPE IN HYDRAULIC TYPE B AS REQUIRED. -2014 SMAK 1000 HAS A HYDRAULIC TAPERED SECTION AS REQUIRED. ED-N-03.00. NOMINAL CORROSION TOLERANCE CONSIDERED FOR CARBON STEEL PIPES IS 6 mm.

FW CPTC-HATCHET LUDERS, INC.

ATER HDPE (PE808)

EXISTING PIPE

TYPE SW MANHOLE

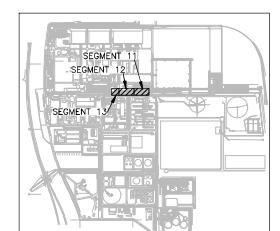
TYPE CW MANHOLE

TYPE FW MANHOLE

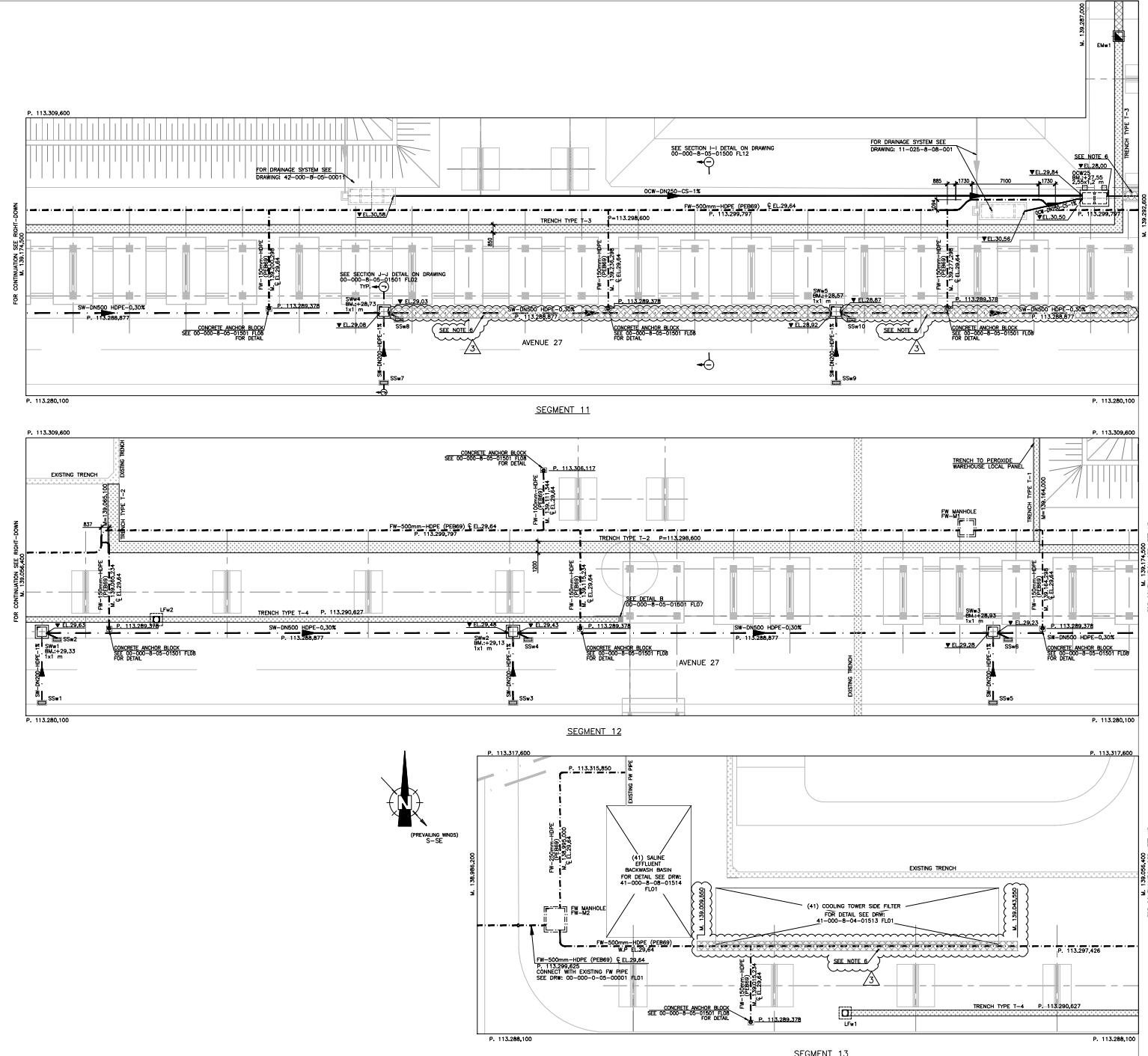
BOTTOM PIPE ELEVATION

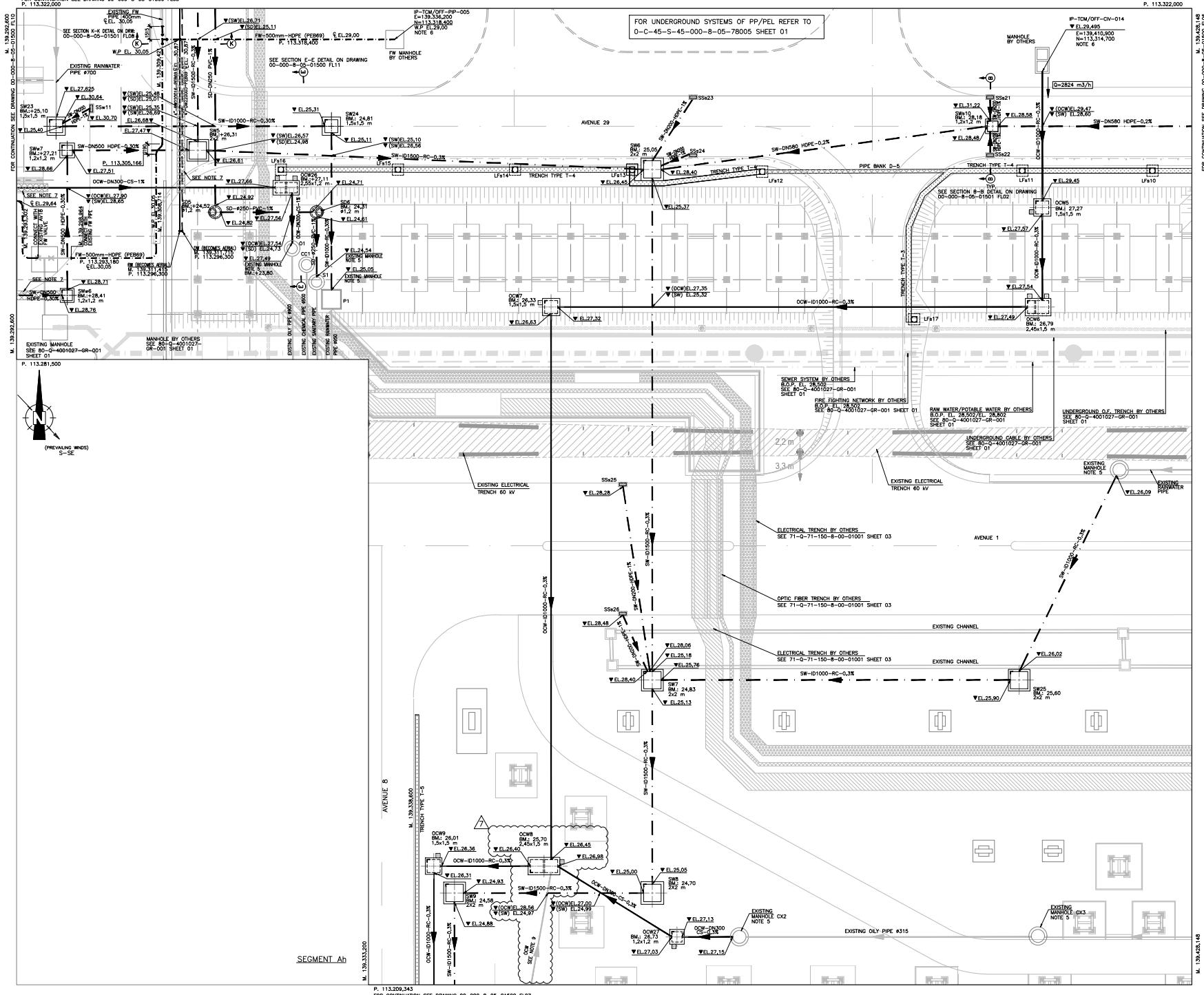
PIPE PROTECTION

KEY PLAN



CONTINUATION SEE DRAWING 00-000-8-05-01500 FL03
P. 113.322,000





REFERENCE DRAWINGS

DRAWING NUMBER	SHEET	TITLE
00-000-B-01-00001	1	STORY PLAN
00-000-B-01-00001	1	PARKHANGER DRAINAGE SYSTEM DETAILS
00-000-B-05-00001	2	RAINWATER DRAINAGE SYSTEM DETAILS
00-000-B-05-00001	3	OLI DRAINAGE SYSTEM DETAILS
00-000-B-05-00001	4	OLI DRAINAGE SYSTEM DETAILS
00-000-B-05-00001	5	SANITARY DRAINAGE SYSTEM DETAILS
00-000-B-05-00001	6	UNDERGROUND FOUNDATION AND ELECTRICAL TRENCH DETAILS
00-000-B-05-00001	1	UNDERGROUND SYSTEMS, LOGISTICAL PLANNING, PP AND PEL
00-000-B-05-00001	2 3/4/6	UNDERGROUND SYSTEM, LOGISTICAL PLATFORM, PP AND PEL
00-000-B-05-00001	7 & 9	UNDERGROUND SYSTEM, AVENUE 8
00-000-B-05-00001	8	UNDERGROUND SYSTEM, AVENUE 8 & AVENUE 11
00-000-B-05-00001	10	UNDERGROUND SYSTEM, AVENUE 27
00-000-B-05-00001	11/12	UNDERGROUND SYSTEM, SECTIONS
00-000-B-11-00000	01	GENERAL, GENERAL TOPOGRAPHIC SURVEY PLAN
00-000-B-04-00000	1	GENERAL, GENERAL SURVEY STATION, DATUM MILITAR COORDINATES
00-000-B-04-00000	2	GENERAL, SURVEY SYSTEMS, ALBA PROJECT DRAWTING PIPES

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

- 3.- COORDINATES REFER TO THE DATUM/LOCAL COORDINATE SYSTEM GENERALLY USED IN SOUTHERN CALIFORNIA
4.- ELLIPSOID: WGS 1984
5.- REFERENCE ELEVATION: MILITARY PROJECTION SYSTEM GEODESIC
GEOTAB-WGS84-MILITARY COORDINATES

ELEVATIONS REFERRED TO SEA LEVEL AT MAREMPOLE DE CASCAIS.

REFERENCE ELEVATION USED ACCORDING BASED FREEFOR, STANF ELEVATION FOR GEODESIC COORDINATES. THIS INFORMATION IS PROVIDED 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 MANIFOLDS HAVE BEEN ADJUSTED ACCORDING WITH TOPOGRAPHICAL SURVEY

6.- COORDINATES ON BATTERY LIMIT ACCORDING DRW: 45-5-45-000-8-05-78005-1503

7.- PIPE PROTECTION, FOR DETAIL INFORMATION 00-000-00-05-01501 FL04

8.- FINAL RIDDING FOR JOKEY ELECTRICAL TREND AND FO TRENCH (IDOM) IN THIS AREA SHALL BE ADVISED ON SITE TO AVOID INTERFERENCES WITH EXISTING ELEMENTS, PIPE RAKE FOUNDATION AND UNDERGROUND FACILITIES TO CONTRACTORS AREA.

9.- FOR PIPE INFORMATION SEE DRAWING 44-000-00-05-00022 FL01

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		
SYMBOLS		
- - -	- - -	CLEAN RAINWATER PIPE, CORRODED SBS (EN-13470) WILL BE USED UP TO DN1000. FOR HIGHER DIAMETERS WILL BE USED REINFORCED CONCRETE CLASS 135 (EN-1916).

DN1000. FOR HIGHER DIAMETER
STE CLASS 135 (EN-1916)

OIL DRAINAGE SYSTEM CARBON STEEL WILL BE USED UP TO DN900.
OD 140MM ID 100MM THICKNESS 10MM. PIPE LENGTHS 2M. CONDUITS 60MM.

SD SANITARY DRAINAGE SYSTEM IN CORRUGATED PVC SN-8 (EN-13476)
SD CARBON STEEL PIPE, SCAFFOLDING, AND DRAINS, 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 OUTER COATING AS REQUIRED BY
ED-N-03.00. NOMINAL CORROSION TOLERANCE CONSIDERED FOR
CARBON STEEL DRAINAGE PIPES IS 6 mm.

RW RAW WATER HDPE 4"

DW DRINKING WATER HDPE 4"

FW FIRE WATER HDPE (PEB69)

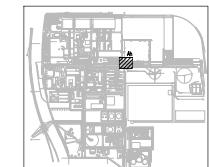
EXISTING PIPE

The diagram illustrates two types of manholes. The top part shows a rectangular manhole cover with a square frame and a central circular opening, labeled "TYPE SW MANHOLE". The bottom part shows a rectangular manhole cover with a horizontal slot-like opening, labeled "PRECAST CONCRETE SIPHONIC SCUPPER".

-  TYPE OCW MANHOLE
-  TYPE SD MANHOLE
- ▼ BOTTOM PIPE ELEVATION

KEY PLAN

KEY PLAN



 **REPSOL** BUSINESS CENTRO: REPSOL POLÍMEROS, S.A.
FACULTAD: COMPLEJO INDUSTRIAL SINES

AYESA • N° PROYECTO REPSOL:
REPSOL PROJECT CODE:
4001008
REALIZADO
PREPARED
COMPROB.
CHECKED
ESPAÑA SPAIN 03/03/23
HUBS. 03/03/23

N. PROYECTO INDONESIA
ENQ. COMPANY PROJECT CODE
9576

TITULO: **OFFSITES ALBA**
TITULO: **UNDERGROUND SYSTEMS, LOGISTIC PLATFORM, PP AND PEL**

FECHA: 1:150 DIN-A0
APPROBADO POR:
V.B. CLIENTE APPROVAL:
P.L.Z. APPROVAL:

O.R.C. 03/07/23
A.P.C. 03/07/23

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: 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	

PROTOCOLO DE ELEMENTOS CONSTRUÍDOS

 ASCH <small>INFRAESTRUCTURAS Y SERVICIOS</small>	Empreitada:	DOCUMENTO N°: R-R007-006
	4001008 - "Nuevas Plantas de Poliolefinas, Plataformas Logísticas Y Offsites"	DATA: 05/08/ 2024
		FOLHA N° : / DE: 8 / 185

2.1 – TUBOS DE AÇO CARBONO

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

LISTA DE MATERIAIS DO ARMAZÉM

REFERÊNCIA: LMA-08/23

Revisão: 0 Obra: R007

PROJECTO:

4008 - PROJETO ALBA

EMPRESA SOLICITANTE:

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		FLBG500CFI3500X20	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		FLBG500CFI3250X10	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	160ud	160 ud	0 ml	REDE DE CONTRA - INCÊNDIOS AVENIDA 27
0021	12/06/2024	JUNTA MÃO METÁLICA C.S.F (1/16", 150#, 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 FURTO 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 FURTO 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 Gr B7 / ASTM A 194 Gr 2H, ASME B18.2.1 / B18.2.2, 3/4", 5/8", 1/2", 1/4", 5/16", 3/8", 1/8", 1/16", 1/32", 1/64"		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):	Total length (m): Longitud total (m):
		168 x 7,11	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 Gómez 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)
	Abrasive grit Granalla							
	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	-	-		-	-
	-	-	-	-	-		-	-
	-	-	-	-	-		-	-
	-	-	-	-	-		-	-
	-	-	-	-	-		-	-
	-	-	-	-	-		-	-
	-	-	-	-	-		-	-
	-	-	-	-	-		-	-
	-	-	-	-	-		-	-
	Acc. criteria Criterio acept.	> 3° °C	≤ 2 μg/cm2	50-100 μm	≤ 2		Acc. criteria Criterio acept.	≤ 150 μS/cm
	Frequency Frecuencia	2 / shift 2 / turno	1 / shift 1 / turno	1 / hour 1 / hora			Frequency Frecuencia	1 / shift 1 / turno

2 of/ de 4

Ignacio González Martín
 DAQC Manager
sts
 TUBULAR SYSTEMS

Baixa 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
Ensayo a 65°C durante 24 horas a -3,5 V

3 of/de 4

Baika Steel Tubular Systems, S.L. - B01559111



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 16081/1	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 8 677.72 feet	Pieces: 224 Bundles: 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 specs 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 196	PSI 2849	MPa 19.6	Time(sec) 10	Steel Grade: 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. GHEORGHE
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
Buyer's reference: PO NO.: PC0052419 Contract: 500013868	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: 11.90 - 12.00 m 37.73 - 39.37 feet
Item: Item Client: 1 120 L-6 R	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
29.11.2018

Quality Control Representative
Eng. Dumitru Ciprian

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:
1	120 L-G-R		196	2849	19.6	10	BN - PSL2

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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20-H-2018
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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> <p>Dimensions: 168.30 x 7.11 mm 6.625 X 0.280 inch</p> <p>Schedule: 40</p>	Page 7/9		
		B 16001/1		
		28.11.2018		
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


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 Contract: 50043368	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	Dimensions: 168.30 x 7.12 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.

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

C. continuu
O&G TSK
29.11.2018

Quality Control Representative
Eng. Dumitru Cioran

Formulare 12A. rev 9



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

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. : 001559111

SAFETY

3 of/de 4



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 / lot 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
 TUBULAR SYSTEMS

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 Romania 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 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 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 50003968						
Item	Item Client	Hydro Test:	Bar	PSI	MPa	Time(sec)
6	170 L-PIP46-R		196		19.6	10
Steel Grade: 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)/15CE_{EW} = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

Tensile Test

Heat	Orientation	Length		Width/Diameter		Thickness		Section		Mechanical test Bulletin No.	YS MPa	VS MPa	UTS MPa	UTS (PSI:1000)	E %	YS/UTS max: 0.90
		mm	inch	mm	inch	mm	inch	mm ²	inch ²							
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
29.11.2018Quality Control Representative
Eng. Cristianus

Eng. Cristianus

Eng. Cristianus

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	ArcelorMittal
						B 16906/1	
						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	KU	90	90	90	0.85	0.80	0.81
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

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 16006/1	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 28.11.2018	 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:	924.92 meters	80	15	
Buyer's reference:	PO NO.: PC0052419	168.30 x 7.11 mm 6.625 X 0.280 inch	40	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 B 16906/1 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 3.034.31 feet	Pieces: 80 Bundles: 15
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 Contract: 5MM3868	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
Item: 6 Item Client: 170 L-PIP46- R	Hydro Test:	Bar 196	PSI -	MPa 19.6	Time(sec) 10	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

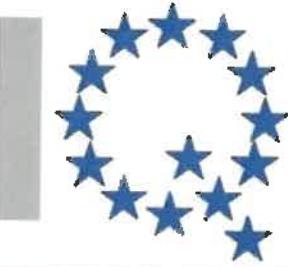
para las actividades: La producción por extrusión de: Tuberías y uniones de poli (cloruro de vinilo) orientado (PVC-O) para conducciones de agua a presión; Tuberías y uniones de poli (cloruro de vinilo) no plastificado (PVC-U) y polietileno (PE) para conducciones de agua a presión, evacuación, saneamiento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

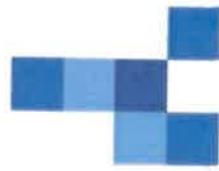
Registration Number: ES-2004/0452

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

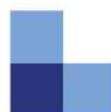
001/006117

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: 1/190/190



青岛伟隆阀门股份有限公司
WEFLO VALVE CO., LTD.

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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,
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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 *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)	45000034705	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



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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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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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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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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+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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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	3.30	2.63	0.42	0.020	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	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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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°:



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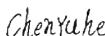
E-Add.:Intersection of Huadong Road and Chunyang Road,
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G-Tel:+86 (532) 8790 5016,8790 5017. Fax: +86 (532) 8790 5015

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: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 (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					



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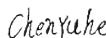
E-Add.:Intersection of Huadong Road and Chunyang Road,
F-Qingdao National High-tech Industrial Development Zone, China
G-Tel:+86 (532) 8790 5016, 8790 5017. Fax: +86 (532) 8790 5015

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	

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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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 *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+EPORX TOT.BB EXT. REDUTOR EPDM HT DI+ / WEFLO	Nº de Encomenda (Order No.)
Coluna (Column)	F221009	Quantidade (Quantity)



青岛伟隆阀门股份有限公司
WEFLO VALVE CO., LTD.

EN 10204 3.1

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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

Chenyuhe

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

Assinatura: 2023-03-27 10:45:25

	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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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.

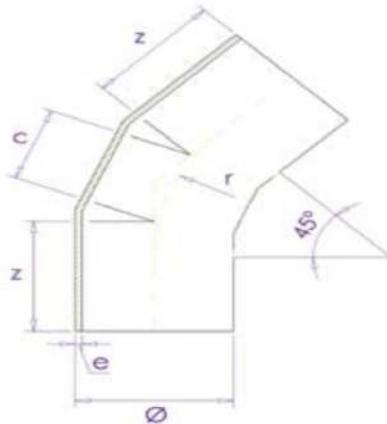
Validated by quality manager

Chenyuhe

2023-03-28

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



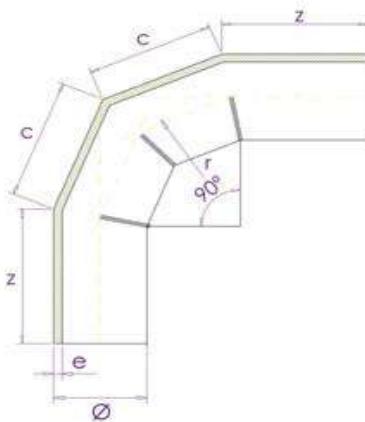
Diámetro exterior mm	Espesor (mm)			C Z	
	Sdr 26 PN6	Sdr 17 PN10	Sdr 11 PN16	mm	mm
1000	38,2	59,3	---	600	750,0
900	34,4	53,3	---	600	750,0
800	30,6	47,4	---	600	750,0
710	27,2	42,1	---	575	620,0
630	24,1	37,4	57,2	510	600,0
560	21,4	33,2	50,8	450	550,0
500	19,1	29,7	45,4	400	500,0
450	17,2	26,7	40,9	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

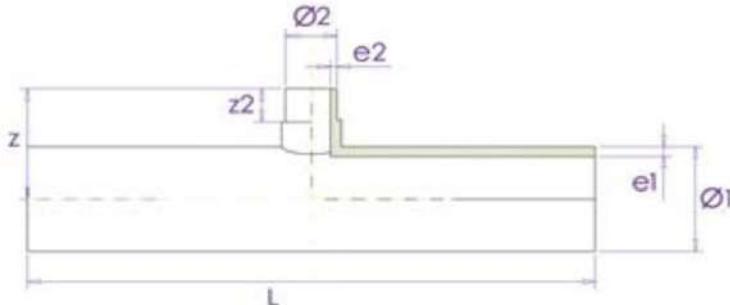
Codo a 90º



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.

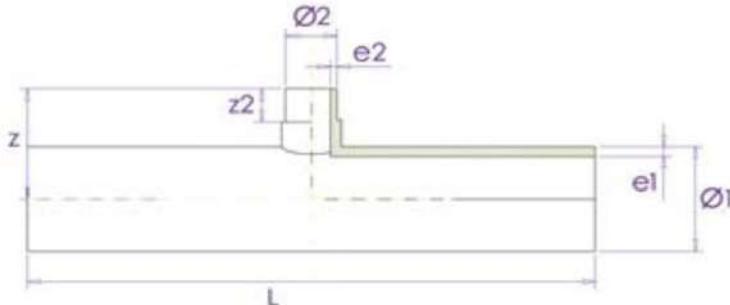
Pieza en T Ø250 a 90º



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.

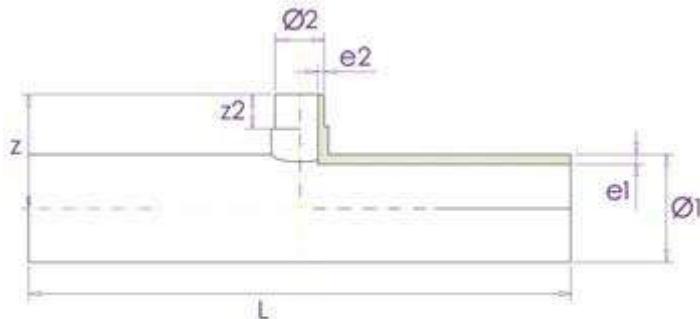
Pieza en T Ø315 a 90º



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



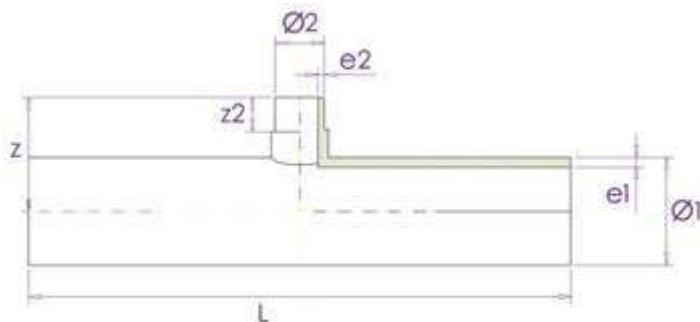
Diámetro exterior Ø1 mm	Diámetro exterior Ø2 mm	Espesor e1 (mm)			Espesor e2 (mm) Sdr 11 PN16	L mm	Z2 mm
		Sdr 26 PN6	Sdr 17 PN10	Sdr 11 PN16			
355	200	13,7	20,9	32,3	18,2	500	30,0
355	180	13,7	20,9	32,3	16,4	500	30,0
355	160	13,7	20,9	32,3	14,6	500	30,0
355	140	13,7	20,9	32,3	12,7	500	30,0
355	125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



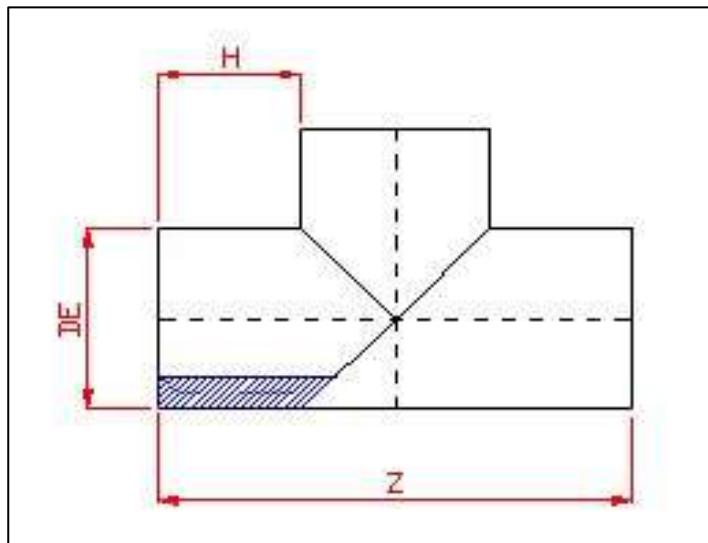
Diámetro exterior Ø1 mm	Diámetro exterior Ø2 mm	Espesor e1 (mm)			Espesor e2 (mm) Sdr 11 PN16	L mm	Z2 mm
		Sdr 26 PN6	Sdr 17 PN10	Sdr 11 PN16			
500	200	19,1	29,7	45,4	18,2	500	30,0
500	180	19,1	29,7	45,4	16,4	500	30,0
500	160	19,1	29,7	45,4	14,6	500	30,0
500	140	19,1	29,7	45,4	12,7	500	30,0
500	125	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.
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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

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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

ERK1326725



青岛伟隆阀门股份有限公司
WEFLO VALVE CO., LTD.

EN 10204 3.1

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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 *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)	45000034705	Envio (Shipment)	EXP1326725
Descripción (Description)	TOT. BB EXT. REDUCTOR EPDM DI+PD /WEFLO	Ref. (Ref.)	XZ30216/X221024	Quantity (Cantidad)	2,00	Albarán (Delivery Note)	Contrato Nro. (Invoice #)



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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	Volume: m³	Weight: kg	Model: N/A



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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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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	Ped. No.: 4500034705	Envio: EXP1326725
Client:	10° CL.150 V. COMP. RF A-536 GR.65-45-12+EPORX	Delivery: 190-G2DN250L-G202	Shipment: S/Ref: 190-G2DN250L-G202
Description:	TOT. BB EXT. REDUCTOR EPDM DI EPDM / WEFLO	Serial No.: /190/190	Factura N°: /Invoice #/
Code:	X230227/X230223	Quantity: 1,00	Date: 19/02/2023



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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

	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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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 (Cooper) Date: XZ30216/XZ21024	Cooper (Cooper) Date: XZ30216/XZ21024	Cooper (Cooper) Date: /150/190	Cooper (Cooper) Date: /150/190



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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	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°:



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WEFLO VALVE CO., LTD.

EN 10204 3.1

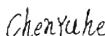
E-Add.:Intersection of Huadong Road and Chunyang Road,
F-Qingdao National High-tech Industrial Development Zone, China
G-Tel:+86 (532) 8790 5016,8790 5017. Fax: +86 (532) 8790 5015

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 

	Grante (Cierre)	REPSOL POLIMEROS UNIPESSOAL LDA	Referencia: 20" CL150 V. COMP. RI A-536 GR.65-45-12-EPORXI TROT.BB EXT. REDUCTOR EPDM HD+ / WEFLO	Fabricante: JUNHUA (Descripción)	4500034705	Envio: JUNHUA (Plazo de envío)	EXP1326725
CUNADO	Comprobado	F221009	Comprobado	1,00	Aluminio /Zn/Zn/Zn	Efecto AN (Efecto AN)	



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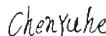
E-Add.:Intersection of Huadong Road and Chunyang Road,
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G-Tel:+86 (532) 8790 5016, 8790 5017. Fax: +86 (532) 8790 5015

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	

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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.: 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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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

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:



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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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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	

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Validated by quality manager

Chenyuhe

2023-03-28

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				

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Validated by quality manager

Chenyuke

ERK1326725



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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	

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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. RE A-536 GR.65-45-12-EPDXI	Qty/ Cant.	190-G2DN250L-G202	Fecha: (Date)	/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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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
			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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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+EPoxy TOT. BB EXT. REDUCTOR EPDM DI EPDM / WEFLO X230227/X230223	4500034705 190-G2DN250L-G202	EP1326725
Cierto: (Client) Descripción: (Description) Colado: (Coated)	FIRE FIGHTING EQUIPMENTS SLU WV23V526	Order No.: PO26 Test No.: MTC23-03-N026	Date: Mar.28, 2023 Page: 1/1	



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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

	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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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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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°:



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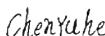
E-Add.:Intersection of Huadong Road and Chunyang Road,
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HYDROSTATIC TEST CERTIFICATE

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 

	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: Kustura N: Name: Phone N:	200-G2DN500L-G202



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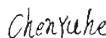
E-Add.:Intersection of Huadong Road and Chunyang Road,
F-Qingdao National High-tech Industrial Development Zone, China
G-Tel:+86 (532) 8790 5016,8790 5017. Fax: +86 (532) 8790 5015

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	

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. 200-6200001-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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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

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: 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	Quantit y (PCS)	Workin g Pressur e	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

Chenyuhe

2023-03-28

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2023-03-28

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	

	REPSOL POLIMEROS UNIPESSOAL, LDA	Repsol [Client]	CE/2023/385 - Rev. 6
Descripción:	1/2" CL-3000 CODO 90° FORJ S/N A-105	S/Ref:	190-L-178
Detall:	7,00	Cantidad:	190/190
Monto:		Envío:	



CERTIFICATE NR.
CE/2023/385 - Rev. 6

DATE
31/03/2023

CUSTOMER ORDER REF.
PC0150943 - 12/12/2022

INTERNAL ORDER NR.
OC/2022/1170

DATE
13/12/2022

CUSTOMER
CUNADO S.A.U.

SHEET
1/2

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

POS.	TEST No.	HSAT CODE	HSAT NUMBER	Q.TY	DESCRIPTION / MATERIALLY - TAG N. - ITEM CODE - COMPUTER CODE - UB / ENCLOSURE - NOTES
70	1	59597	P60	21/72537	3.000,00 90° ELBOW SW 5/3000 A105 1/2" / C/C 003282000000
80	1	61322	S1	21/74801	43,00 45° ELBOW SW 5/3000 A105 3/4" / C/C 001193000000
540	1	61350	P51	22/77268	37,00 TEE NPT S/2000 A105 HDG 1/2" / C/C 013120046000
670	1	59410	E-AUX	20/78421	86,00 SOOKK ET SW 6/3000 A105 1/2"X11/4"-21/2" / C/C 018640000000
720	1	59350	D3N	19/78108	15,00 WELDOLET BW 5dn STD/STD A105 3/4" / C/C 018816000000

Materials Heat Number Summary

TEST No.	MATERIAL SPECIFICATION AND GRADE	HEAT NUMBER	BASE MATERIAL CERTIFICATE REF.	STEEL WORKS
52597	ASTM A182-F316L	21/72537	27134	RVA
55350	ASTM A105-21	19/75108	304	RVA
58610	ASTM A105-21	20/78421	24985	RVA
61322	ASTM A105-21	21/74801	29483	RVA
61350	ASTM A105-21	22/77268	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 %:	0.180
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

SHEET
2/2

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

Parts and Materials Inspection Certificate

ASTM A105-21

	Specimen Size	10 x 16 (L)	10 x 19 (L)			
Hardness	Shore D	HWD	HWD	HWD	HWD	HWD
Impact Test	Value 1	154	159	151	154	156
Heel Test	Value 2	158	159	150	156	156
Heel Test	Value 3	160	160	147	155	155
Average Hardness	158.000	158.8	159.333	148.333	155.887	155.887
Heating Rate °C/h	NORMALIZING	NORMALIZING	NORMALIZING	NORMALIZING	NORMALIZING	NORMALIZING
Heating Temperature °C	+150	+150	+150	+150	+150	+150
Heating Time h:min	Min. 1h:00m	Min. 1h:00m	Min. 1h:00m	Min. 1h:00m	Min. 1h:00m	Min. 1h:00m
Cooling Media	STILL AIR	STILL AIR	STILL AIR	STILL AIR	STILL AIR	STILL AIR

NOTES

CUSTOMER INSPECTOR

THIRD PARTS

QUALITY CONTROL

Giulia Macellari

CHERO PIPING S.p.A.

	REPSOL POLIMEROS UNIPESSOAL, IDA	PerfDoz (Quantity)	45000035910	Envio (Shipment)	EXP1417276
Cliente: Client:	80-3X1" CL.3000 SOCKET FOR A-105	Refdoz (Ref.):	880-L-343	S/Ref:	
Descripción: Description:		Cantidad: (Quantity):	1,00	Nrofactura: (Invoice N°):	/890/890
Ubicación: Location:	2/L72994	Ubicación: (Location):		Importe: (Amount):	



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

DATE
06/03/2022

CUSTOMER ORDER REF
PC0131568 - 28/01/2022

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.EQUIVIT. - TAG N. - ITEM CODE - COMPUTER CODE - U/B / ENCLOSURE - NOTES
970	1	56660	E-M0	217/254	52,00 SOCKOLET SW S/3000 A/05 1"X3/8" / CIC:016794000000
972	1	51450		18/7699	56,00 SOCKOLET SW S/3000 A/05 11/16"X5/16" / CIC:016540000000
980	1	56108	E-FN	20/7363	10,00 SOCKOLET SW S/3000 A/05 2"X1/2" / CIC:016520000000
990	1	50528		18/5074	101,00 SOCKOLET FN SW S/3000 A/05 1"X1/2" / CIC:016577600000
1000	1	51114		21/7018	65,00 SOCKOLET SW S/3000 A/05 1"X1/2" / CIC:016718000000
1010	1	51763	E-FD	21/7294	70,00 SOCKOLET SW S/3000 A/05 1"X3/8" / CIC:016719000000
1020	1	54888	1220	21/7933	6,00 WELDOLLET BW Scl ST/D3TD A/05 2"X5/8" / CIC:017530000000
1230	1	54888	1220	21/7933	29,00 WELDOLLET BW Scl ST/D3TD A/05 2 1/8"X12" / CIC:017650000000
1640	1	54888	1220	21/7933	10,00 WELDOLLET BW Scl ST/D3TD A/05 2 1/4"X36" / CIC:017690000000
1660	1	54888	1220	21/7933	2,00 WELDOLLET BW Scl ST/D3TD A/05 2 1/2"X6" / CIC:018153000000
1710	1	56114		21/7046	193,00 SOCKOLET SW S/3000 A/05 3 1/4"X1 3/8" / CIC:017667900000
1830	1	51966	E-FD	21/7294	100,00 SOCKOLET SW S/3000 A/05 1 1/2"X2" / CIC:018147800000

NOTES

THIS IS TO CERTIFY THAT MATERIAL REQUIREMENTS ARE ACCORDING TO ORDER SPECIFICATIONS.
FITTING SUPPLIED ARE ACC. ASME B16.11-LE, 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

J. Paganuzzi

CHERO PIPING S.P.A.


Cliente: REPSOL POLIMEROS UNIPESSOAL, LDA
Colocat: 80-3X1" CL.3000 SOCKET FOR A-105
Descripción: Carga: 21/72994
Qty: 1,00
Quantity: /890/590
Unit: (Peso Neto): 1,000
Unit: (Invoce Neto): 1,000



CERTIFICATE NR.
CE/2022/314 - Rev. 0
INTERNAL ORDER NR.
OC/2022/89

DATE
06/03/2022
DATE
28/01/2022

CUSTOMER ORDER REF.
PC0131569 - 28/01/2022
CUSTOMER
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
57170	ASTM A105 - A350 LF21	1074673	38905	RIVA
51261	ASTM A105 - A350 LF21	207452	29725	RIVA
50373	ASTM A105 - A350 LF21	207945	28715	RIVA
58487	ASTM A105 - A350 LF21	207952	29725	RIVA
58614	ASTM A105 - A350 LF21	21071584	294978	RIVA
58031	ASTM A105 - A350 LF21	2107255	29377	RIVA
58640	ASTM A105 - A350 LF21	21072743	294978	RIVA
58640	ASTM A105 - A350 LF21	21072816	29382	RIVA
58724	ASTM A105 - A350 LF21	21072813	294978	RIVA
58660	ASTM A105 - A350 LF21	21072904	29382	RIVA
59668	ASTM A105 - A350 LF21	1073118	4891	RIVA
59210	ASTM A105 - A350 LF21	21071577	34089	RIVA
58236	ASME A105 F316L 304L	460805	30135	OLAHRA
57276	ASTM A105 F316L 304L	071445	202460103	COIGNE ACCIAI SPECIALI
58073	ASTM A105 F316L 304L	111498	203141123	COIGNE ACCIAI SPECIALI
58592	ASTM A105 F316L 304L	172918	284109548	COIGNE ACCIAI SPECIALI
58693	ASTM A105 F316L 304L	285108	M1570074450221	#COMITETE VALBRUNA
58692	ASTM A105 F316L 304L	294712	M157009202021	#COMITETE VALBRUNA
58648	ASTM A105 F316L 304L	261301	M1570074740201	ACQUAERIE VALBRUNA
59205	ASTM A105 F316L 304L	520295	461931	OLAHRA
59218	ASTM A105 F316L 304L	505199	435609	OLAHRA
58677	ASTM A105 F316L 316L	271834	M1570094440201	ACQUAERIE VALBRUNA
58799	ASTM A105 F316L 316L	271950	M1570094440201	ACQUAERIE VALBRUNA
51193	ASTM A105 F316L 316L	290715	M1570074740201	ACQUAERIE VALBRUNA
58648	ASTM A105 F316L 316L	490505	442397	OLAHRA
58642	ASTM A105 F316L 316L	522805	042682	COIGNE ACCIAI SPECIALI
58617	ASTM A105 F316L 316L	284785	M1570074740201	ACQUAERIE VALBRUNA
58725	ASME A105 F316L 316L	264940	M1570094440201	ACQUAERIE VALBRUNA
58752	ASTM A105 F316L 316L	282124	445102054	ACQUAERIE VALBRUNA
58098	ASTM A105 GR LF21	1076310	4895	RIVA

NOTES

THIS IS TO CERTIFY THAT MATERIAL REQUIREMENTS ARE ACCORDING TO ORDER SPECIFICATIONS
 FITTING SUPPLIED ARE ACC. ASME B16.11 & BS 3744-1:1992 MGS SPEC. 1000
 MATERIAL ACC TO NACE MR-01-75 ED.1.0 & MR-01-85 MATERIAL ACC TO ASME SECTION I ED.2019
 FITTING INSPECTION AND MANUFACTURE CHECK HAVE BEEN CARRIED OUT WITH SATISFACTORY RESULTS
 MATERIAL ACC. WITH PED 2014/68/EU ANNEX 1
 HDG ITEMS ACC TO ASTM A153
 MATERIALE IN ACC. ASME II TABLE D

CUSTOMER INSPECTOR

THIRD PARTS

QUALITY CONTROL

Laura Paganuzzi

CHERO PIPING 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
Ladle Analysis				
C	0.071	0.050	0.063	0.063
Ni	21/72994	18/72118	21/72157	21/72038
Cr	0.000	0.000	0.000	0.000
Mn	0.000	0.000	0.000	0.000
Si	0.210	0.210	0.200	0.200
P	0.005	0.019	0.007	0.004
S	0.005	0.007	0.005	0.004
Ca	0.160	0.160	0.160	0.160
Al	0.000	0.000	0.000	0.000
Na	0.000	0.000	0.000	0.000
Fe	0.000	0.000	0.000	0.000
Co	0.000	0.000	0.000	0.000
Ni/R	0.001	0.001	0.001	0.001
B	0.000	0.000	0.000	0.000
Cr	0.000	0.000	0.000	0.000
Tensile Strength MPa	>20	>20	>20	>20
Yield Strength MPa	516	486	512	504
Yield Strength % (Rm/R0.2)	225	309	231	296
Elongation at Break %	37.10	33.40	38.30	37.70
Reduction Area %	82.30	61.00	58.00	57.10
Tensile Temperature °C	-40	-40	-40	-40
Reduction of Area %	17.2	5.5	5.8	4.6
Impact Energy J (Charpy)	55.8	56.9	55	53.3
Impact Energy J (Torsion)	58.5	62.1	56.6	53.0
Abnormal Hardness & Depth	0.0	0.0	0.0	0.0
Hardness 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	151	160	157
Value 3	160	157	163	158
Average Hardness	157.000	155.333	151.000	160.887
Type	NORMAL	NORMAL	NORMAL	SOL AN
Holding Temperature °C	>400	>400	>400	>400
Cooling Media	AIR	AIR	AIR	WATER

NOTES

CUSTOMER INSPECTOR

THIRD PARTS

QUALITY CONTROL

Laura Paganuzzi

CHERO PIPING S.P.A.

1/2

	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	2077365	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"X8" 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	1220	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		2179048	183.00	SOCKOLET SW 5.3000 A/05 3/4"X3" 30" / CIC: 017767000700
10/80	59960	E-MD	2172994	100.00	SOCKOLET SW 5.3000 A/05 1"X3" 60" / CIC: 081418000500

NOTES

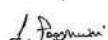
THIS IS TO CERTIFY THAT MATERIAL REQUIREMENTS ARE ACCORDING TO ORDER SPECIFICATIONS
 FITTING SUPPLIED ARE ACC. ASME B16.11 LF & 95 3769-74, MSS SP-97, MSS SP-28 E
 MATERIAL ACC TO NACE MR 01-75 ED 2015 + MR 0103; MATERIAL ACC TO ASME SECTION II ED.2019;
 MATERIAL ACC TO ASME SECTION III ED.2019;
 MARKING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

RECEIVED BY: [Signature]

	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 - A350 LF21	2079452	25125	RIVA
58373	ASTM A193 - A350 LF21	2079452	25125	RIVA
58482	ASTM A193 - A353 LF21	2079452	25125	RIVA
58614	ASTM A193 - A356 LF21	2107554	25308	RIVI
58631	ASTM A193 - A356 LF21	2107555	25307	RIVI
58644	ASTM A193 - A356 LF21	2107554	25309	RIVA
58650	ASTM A193 - A356 LF21	2107556	25310	RIVA
58774	ASTM A193 - A356 LF21	2107552	25305	RIVA
58950	ASTM A193 - A356 LF21	2107558	25302	RIVA
59069	ASTM A193 - A356 LF21	1973118	4231	RIVA
59610	ASTM A193 - A359 LF21	2107577	44678	RIVA
59236	AS - M A193 F304L 304L	40505	22136	CLARIA
57125	ASTM A193 F304L 304L	07256	201100433	COGE ACCIAI SPECIALI
58073	ASTM A193 F304L 304L	17230	2011013733	COGE ACCIAI SPECIALI
58702	ASTM A193 F304L 304L	17231	2011010446	COGE ACCIAI SPECIALI
21441	ASTM A193 F304L 304L	208965	ME187074452021	ACCIAIERIE VALBRUNA
18882	ASTM A193 F304L 304L	204772	ME171922020051	ACCIAIERIE VALBRUNA
58649	ASTM A193 F304L 304L	204501	ME1719877300097	ACCIAIERIE VALBRUNA
59205	ASTM A193 F304L 304L	50539	46133	CLARIA
59218	ASTM A193 F304L 304L	50540	431407	CLARIA
41677	ASTM A193 F304L 304L	273834	ME17055642011	ACCIAIERIE VALBRUNA
41799	ASTM A193 F316L 316L	273053	ME17105584011	ACCIAIERIE VALBRUNA
41193	ASTM A193 F316L 316L	280116	ME171627160091	ACCIAIERIE VALBRUNA
56149	ASTM A193 F316L 316L	402020	44220	CLARIA
56132	ASTM A193 F316L 316L	07265	04265	COGE ACCIAI SPECIALI
58011	ASTM A193 F316L 316L	284755	ME1717057003	ACCIAIERIE VALBRUNA
58025	ASTM A193 F316L 316L	284950	ME1717060602	ACCIAIERIE VALBRUNA
58152	ASTM A193 F316L 316L	286125	ME17180654	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.

	CHERO PIPING...
Client (Name) CUNADO	REPSOL POLIMEROS UNIPESSOAL, LDA
Description: 80-3X1" CL.3000 SOCKOLET FOR A-105	Code: 21/72994
Lot No: PC0131569	Date: 28/01/2022



CERTIFICATE NR. CE/2022/314 - Rev. 0 DATE 06/03/2022 CUSTOMER ORDER REF. PC0131569 - 28/01/2022
 INTERNAL ORDER N.R. OC/2022/B9 DATE 28/01/2022 CUSTOMER CUNADO S.A.U.

SHEET 9/45

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

ASTM A193 - A193 F21										ASTM A333 F504/F594										ASTM A333 F510	
Ludic		HwdNumber	5,8724	5,8740	50216	5215	54740	57476	58673	54562	58853	54802	58946	58205	55219	48677					
Analys		C%	0,218	0,218	0,217	0,217	0,218	0,219	0,218	0,217	0,218	0,218	0,217	0,219	0,219	0,219	0,219	0,219	0,219	0,219	
		Nr %	0,055	0,050	0,040	0,040	0,040	0,040	0,040	0,040	0,040	0,040	0,040	0,040	0,040	0,040	0,040	0,040	0,040	0,040	
		Mn %	0,219	0,219	0,220	0,220	0,220	0,220	0,220	0,220	0,220	0,220	0,220	0,220	0,220	0,220	0,220	0,220	0,220	0,220	
		P %	0,029	0,029	0,029	0,029	0,029	0,029	0,029	0,029	0,029	0,029	0,029	0,029	0,029	0,029	0,029	0,029	0,029	0,029	
		S %	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005	
		Cr %	0,330	0,330	0,330	0,330	0,330	0,330	0,330	0,330	0,330	0,330	0,330	0,330	0,330	0,330	0,330	0,330	0,330	0,330	
		Ni %	0,029	0,029	0,030	0,030	0,030	0,030	0,030	0,030	0,030	0,030	0,030	0,030	0,030	0,030	0,030	0,030	0,030	0,030	
		Mo %	0,009	0,009	0,009	0,009	0,009	0,009	0,009	0,009	0,009	0,009	0,009	0,009	0,009	0,009	0,009	0,009	0,009	0,009	
		Ti %	0,013	0,013	0,013	0,013	0,013	0,013	0,013	0,013	0,013	0,013	0,013	0,013	0,013	0,013	0,013	0,013	0,013	0,013	
		Al %	0,019	0,019	0,019	0,019	0,019	0,019	0,019	0,019	0,019	0,019	0,019	0,019	0,019	0,019	0,019	0,019	0,019	0,019	
		Si %	0,050	0,050	0,050	0,050	0,050	0,050	0,050	0,050	0,050	0,050	0,050	0,050	0,050	0,050	0,050	0,050	0,050	0,050	
		Nb %	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	
		MoS %																			
		N %																			
		B %																			
		Ca %																			
		Si %																			
		Cr %																			
		Mo %																			
		P %																			
		Yield Strength MPa	510	510	512	491	512	504	525	514	524	517	512	514	511	505	504	504	504	504	
		Ultimate Strength MPa	680	680	680	680	680	680	680	680	680	680	680	680	680	680	680	680	680	680	
		Yield Strength MPa	320	320	320	320	320	320	320	320	320	320	320	320	320	320	320	320	320	320	
		Reduction Area %	22,15	22,15	33,40	33,50	28,30	55,50	55,50	55,50	55,50	55,50	55,50	55,50	55,50	55,50	55,50	55,50	55,50	55,50	
		Reduction Area %	82,30	82,30	81,00	81,00	51,10	74,20	74,20	78,20	78,20	78,20	78,20	78,20	78,20	78,20	78,20	78,20	78,20	78,20	
		Impact Test																			
		Test Temperature °C	-40	-40	-40	-40	-40	-40	-40	-40	-40	-40	-40	-40	-40	-40	-40	-40	-40	-40	
		Impact Energy J	17	17	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	
		Absorbed Energy J	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	
		Absorbed Energy / Break	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	
		Impact Energy / Break	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	55,6	
		Impact Test																			
		Sample No:	13_A10_8L	13_B10_8L	13_C10_8L	13_D10_8L	13_E10_8L	13_F10_8L	13_G10_8L	13_H10_8L	13_I10_8L	13_J10_8L	13_K10_8L	13_L10_8L	13_M10_8L	13_N10_8L	13_O10_8L	13_P10_8L	13_Q10_8L	13_R10_8L	
		Scale	HWD	HWD	HWD	HWD	HWD	HWD	HWD	HWD	HWD	HWD	HWD								
		Value 1	152	154	148	159	154	160	152	152	152	152	152	152	152	152	152	152	152	152	
		Value 2	152	155	151	155	157	152	152	152	152	152	152	152	152	152	152	152	152	152	
		Value 3	150	157	154	163	178	161	177	177	177	177	177	177	177	177	177	177	177	177	
		Average Hardness	157,000	155,323	151,000	160,667	176,233	182,000	180	177,667	176,500	180,000	180,000	180,000	180,000	180,000	180,000	180,000	180,000	180,000	
		Hardness Type	HARD	HARD	HARD	HARD	HARD	HARD	HARD	HARD	HARD	HARD	HARD								
		Holding Temperature °C	+900	+900	+900	+900	+900	+900	+900	+900	+900	+900	+900	+900	+900	+900	+900	+900	+900	+900	
		Cooling Method	AIR	AIR	AIR	AIR	AIR	AIR	AIR	AIR	AIR	AIR	AIR								

NOTES

CUSTOMER INSPECTOR

THIRD PARTS

QUALITY CONTROL

Lauro Paganiuzzi

CHERO PIPING S.P.A.

COMPANY WITH MANAGEMENT SYSTEM CERTIFIED BY DNV ISO 9001 ■ ISO 14001 	METALFAR PRODOTTI INDUSTRIALI SPA A01 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 / J.1																																																																																						
Nr.013 2023-C_MFF.02439 Data / Dated 27/09/2023																																																																																						
<p>CUNADO S.A.U. CALLE CAMINO DEL OLIVAR, 2 (esquina calle Mexico) 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> <p>Ordine / PO PC0180203 Item 1480 DDT / Delivery note 2023-3E301-0002443 Packing List 2023-3E401-0002484 Fattura / Invoice 2023-3E401-0002484 Ns. rif. / Our ref. 2023-3E201-0001127-0042</p> <p>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 15156-2: 2020 NACE MR-0103/2015 ISO 17945-1: 2015 Q.A.S.I.N ACCORD WITH PRESS.EQUIPM.DIRECT.2014/68/EU(PED) ANNEX I,PARAGRAPH 4.3 Cert. No.4687-2014-CE-ITA-DNV</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Cod. colata ^{B07} Heat Code</th> <th style="text-align: left;">Nr. colata ^{B07} Heat Nr</th> <th style="text-align: left;">Quantità ^{B08} Quantity</th> <th style="text-align: left;">Descrizione ^{B01-B09-B11} Description</th> </tr> </thead> <tbody> <tr> <td>22/77615</td> <td></td> <td>1.187,00</td> <td>SW 150 RF 1" 80 A105N</td> </tr> </tbody> </table>			Cod. colata ^{B07} Heat Code	Nr. colata ^{B07} Heat Nr	Quantità ^{B08} Quantity	Descrizione ^{B01-B09-B11} Description	22/77615		1.187,00	SW 150 RF 1" 80 A105N																																																																												
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<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Element / Elements</th> <th style="text-align: left;">C</th> <th style="text-align: left;">Si</th> <th style="text-align: left;">Mn</th> <th style="text-align: left;">S</th> <th style="text-align: left;">P</th> <th style="text-align: left;">Cr</th> <th style="text-align: left;">Ni</th> <th style="text-align: left;">Mo</th> <th style="text-align: left;">Ti</th> <th style="text-align: left;">Cu</th> <th style="text-align: left;">V</th> <th style="text-align: left;">Nb</th> <th style="text-align: left;">N</th> </tr> </thead> <tbody> <tr> <td>LADLE ANALYSIS</td> <td>0,190</td> <td>0,230</td> <td>1,040</td> <td>0,006</td> <td>0,013</td> <td>0,130</td> <td>0,070</td> <td>0,010</td> <td>0,016</td> <td>0,180</td> <td>0,002</td> <td>0,001</td> <td>0,009</td> </tr> <tr> <td>PRODUCT ANALYSIS</td> <td>0,191</td> <td>0,228</td> <td>1,037</td> <td>0,007</td> <td>0,012</td> <td>0,128</td> <td>0,067</td> <td>0,012</td> <td>0,015</td> <td>0,181</td> <td>0,003</td> <td>0,002</td> <td>0,010</td> </tr> <tr> <td></td> <td>Al</td> <td>B</td> <td>Ca</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>CE LF</td> <td>CE SF</td> <td>F1</td> <td>F1</td> <td>PREN</td> </tr> <tr> <td>LADLE ANALYSIS</td> <td>0,025</td> <td>0,0000</td> <td>0,002</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>0,408</td> <td>0,363</td> <td>0,392</td> <td>0,140</td> <td>--</td> </tr> <tr> <td>PRODUCT ANALYSIS</td> <td>0,027</td> <td>0,0000</td> <td>0,002</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>0,409</td> <td>0,364</td> <td>0,391</td> <td>0,140</td> <td>--</td> </tr> </tbody> </table>			Element / 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	0,009	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	PREN	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	--
Element / Elements	C	Si	Mn	S	P	Cr	Ni	Mo	Ti	Cu	V	Nb	N																																																																									
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<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Provetta ^{C10} Test specimen</th> <th style="text-align: left;">Forma: ^{C10} Shape</th> <th style="text-align: left;">Snervamento: ^{C11} Yield Strength: >0,2%</th> <th style="text-align: left;">Snervamento: ^{C11} Yield Strength: >1,0%</th> <th style="text-align: left;">Rottura ^{C12} Tensile</th> <th style="text-align: left;">Allungamento ^{C13} Elongation</th> <th style="text-align: left;">Contrazione ^{C14} Reduction of area</th> </tr> </thead> <tbody> <tr> <td>Sez/Sect mm²</td> <td>Gauge L.mm ^{1=O - 2=D}</td> <td>MPa</td> <td>MPa</td> <td>MPa</td> <td>%</td> <td>%</td> </tr> <tr> <td>126,60</td> <td>50,80</td> <td>1</td> <td>20</td> <td>524,0</td> <td>31,6</td> <td>66,7</td> </tr> </tbody> </table>			Provetta ^{C10} Test specimen	Forma: ^{C10} Shape	Snervamento: ^{C11} Yield Strength: >0,2%	Snervamento: ^{C11} Yield Strength: >1,0%	Rottura ^{C12} Tensile	Allungamento ^{C13} Elongation	Contrazione ^{C14} Reduction of area	Sez/Sect mm ²	Gauge L.mm ^{1=O - 2=D}	MPa	MPa	MPa	%	%	126,60	50,80	1	20	524,0	31,6	66,7																																																															
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DUREZZA / HARDNESS ^{C30} RESILIANZA / IMPACT TEST																																																																																						
HBW ^{C31} 153,0, 156,0	Tipo/Type ^{C40} KV	Provetta / Test Specimen ^{C41} 10x10x55 mm	C1°C20 -10	1-Joule ^{C42} 108	2-Joule ^{C42} 103	3-Joule ^{C42} 116	Media/Average ^{C45} 109,0																																																																															
Tratt. Term. / Heat treatment ^{C46} NORMALIZED AT 920 °C - COOLED IN STILL AIR																																																																																						
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. ^{B07}	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-OS-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
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Page 12 - 44

 CUNADO	Cliente: ^{B06} Description: ^{B06} Colada: ^{B06} (Client) (Description) (Heat)	REPSOL POLIMEROS UNIPESSOAL, LDA	Pedida: ^{B07} S/Ref: ^{B07} Albaran: ^{B07} (Delivery) (Ref) (Delivery No.)	4500035910	Envio: ^{B07} Factura N°: ^{B07} (Shipment) (Invoice No.)	EXP1417276
	1" XS CL.150 BRIDA SW FORJ RF A-105	22/77615	2,00	1060-L-295	/1060/1060	

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 Código N.	45000035910 1150- /1150/1150 Fotura 00 /1150/1150 Fotura 00 /1150/1150 Fotura 00

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

28806
ESP

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

PRODUCTO FLANGES

SU PEDIDO N.º PC0177754(Regulador Alcala)

VORMAS APLICABLES ASME B16.5-20

Requirements - Normes Applicables

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

Material Correspondiente Quantité

MODO DE FUSION (*)

Steel Making - Elaboration of the acier

Z = Elec. - Y = Oxigeno básico

PARTIDA CANTIDAD

item Quantity

Posic. Quantité

DESCRIPCION

Description

Descripción

Observaciones	COLADA N.º	RIGIDEZ	UMTE ELAST	ALAMAN	ESTINACION	RESILIENCIA	CHARPY V 10x10mm	PIEZAS INSPECT
Remarks	Cast No.	T Strength	Y Strength	Elongation	Reduc. Area	Impact test	Impact value	Number
N.º Coladas	N.º Coladas	Nm/mm²	Nm/mm²	%	%	Resilience	Joules	
	17A305 NE	531	336	33,54	73,30	144	118	126
	20E23 NE	531	296	38,27	72,89	65	78	84
	14AV22 NE	494	296	38,27	72,89	76	76	29
	19A301 NE	531	336	33,54	73,30	144	118	126
	20E23	531	336	33,54	73,30	144	118	126
	26AV23	506	285	36,12	73,55	71	69	115
	19A301 NE	506	285	36,12	73,55	71	69	115
	26AV23	506	285	36,12	73,55	71	69	115
	03A311 NE	544	354	33,51	75,40	124	129	120
	19AV23	544	354	33,51	75,40	124	129	120
	19EE23	532	323	33,80	73,06	137	124	135
	17E313 NE	512	302	33,52	69,52	102	102	110
	22EE22	512	302	33,52	69,52	102	102	110
	17F304 NE	520	325	34,69	75,63	133	131	129
	J1AV22	520	325	34,69	75,63	133	131	129
	17F306 NE	520	325	34,69	75,63	133	131	129
	J1AV22	520	325	34,69	75,63	133	131	129

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

DEPARTAMENTO

QUALITY ASSURANCE

Company management certifications:

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

Management Systems certified by LRQA

Certified acc. PE0 2014/68/EU+A02000-WG
by TÜV Rheinland
N.º 01 202 E 02 7443 UNE EN 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@ulmagero.com

Packing List: 175281
Expedition: 428970



COMPOSICION QUIMICA - 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
20E23	L 0,192	0,210	1,121	0,012	0,004	0,005	0,012	0,001	0,002	0,081	0,037	0,002	0,002	0,39		France	
14AV22	L 0,189	0,210	1,180	0,012	0,003	0,080	0,100	0,010	0,002	0,004	0,170	0,031	0,092	0,003	0,41		Ukraine
26AV23	L 0,170	0,240	1,120	0,010	0,003	0,120	0,100	0,020	0,002	0,003	0,150	0,029	0,003	0,001	0,40		Croatia
19AV23	L 0,173	0,200	1,149	0,012	0,004	0,120	0,100	0,020	0,002	0,003	0,170	0,027	0,003	0,001	0,41		Croatia
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
22EE22	L 0,180	0,210	1,160	0,010	0,003	0,080	0,100	0,010	0,002	0,003	0,180	0,033	0,002	0,004	0,41		Ukraine
J1AV22	L 0,179	0,200	1,130	0,013	0,004	0,110	0,110	0,010	0,001	0,003	0,180	0,034	0,002	0,004	0,40		Ukraine

- 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

ULMA
ULMA FORJA, S.COOP.
Sociedad Cooperativa
Sociedad Cooperativa
Sociedad Cooperativa

OBSERVACIONES
Remarks
Observations

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

J OBSERVACIONES

REMARKS

Observations

FOTURA 00

EXP1417276

	CUNADO	REPSOL POLIMEROS UNIPERSONAL, S.A.	4" STD CL.150 BRIDA WN FORJ. A-105	07HC23
Centro Cent. Centro	Centro	Centro	Centro	Centro

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

PRODUCTO
Article - Produit
FLANGES
ASME B16.5-20
NOMHMAS API, CARLES
Requirements - Normes Applicables
ASME SA105M-21, ASTM A105M-21, EN 10222-2 P280GH-17.
NF E29-204-08 BF48N
MATERIAL CORRESPONDIENTE
Material Correspondent - Qualité
MODO DE FUSION (*)
Steel Making - Elaboration de l'acier
E = Elec., Y - Oxygénio básico

PARTIDA	CANTIDAD	DESCRIPCION
item	Quantity	Description
1000 023853 0000000	392	WN 4 150LB STD/40 RF A105N
1000 023863 0000000	98	WN 4 150LB STD/40 RF A105N
1000 023863-0000000	136	WN 4 150LB STD/40 RF A105N
1070 023529-0000000	30	WN 12 150LB S20 RF A105N
1070 023529-0000000	30	WN 12 150LB S20 RF A105N
1070 023529-0000000	24	WN 12 150LB S20 RF A105N

CERTIFICADO DE INSPECCION

Inspection Certificate - Certificat de Réception

FECHA: 24/05/2023 N.º 225371 HOJA: Page: 2

Company management certifications:



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

Management Systems certified by LRQA

Certified acc. PED 2014/68/EU/AD2009-W0
by TÜV Rheinland
N.º 01 202 02 7443 UNE EN 10204-56/3,3
ISO 19741-3/3,3

R/º Zubilego, 3 - Aptdo. 14
20560 ONATE (Gipuzkoa) SPAIN
Tel.: 34 - 943 780552
Fax: 34 - 943 781890
E-mail: ulma@ulmaforge.com

MARCA DEL FABRICANTE



Packing List: 176450
Expedition: 429027

Mark of factory
Marque du fabricant

Quality Assurance

DEPARTAMENTO
Section
Département

OBSERVACIONES
Remarks
Observations
(*)

COLADA N.º RESISTENCIA (UNITS ELAST.)
Heat No Strength Tension Tension
N.º Calefección Rendimiento Alargamiento Red. Área

ESTRICHACION
Friction
Friction
(*)

RESILIENCIA
Impact test
Impacto
Resilience
Joules

CHAPY V 10x1mm
Hardness
Dureza
HBW

DUREZA
Hardness
Dureza
HBW

Heat No	Strength N/mm²	Red. Area %	Joules
01M320 NE	509	336	37,01
07HC23	505	304	70,71
29M313 NE	07HC23	505	36,86
30M313 NE	07HC23	504	75,32
02Y307 NE	29EE23	519	326
02Y301 NE	22EE23	520	336
02Y304 NE	23EE23	539	330

COMPOSICION QUIMICA - STEEL MAKER'S LADLE ANALYSIS - ANALYSE CHIMIQUE

COLOA N.º	Heat No	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	Nb %	V %	Cu %	Al %	Ti %	B %	CEq %	Origin of Steel
05H-C23	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	0,003	0,41	Germany	
07H-C23	L 0,182	0,202	1,178	0,009	0,008	0,057	0,054	0,014	0,001	0,003	0,072	0,029	0,001	0,005	0,41	Germany	
23E-E23	L 0,185	0,200	1,141	0,015	0,005	0,090	0,075	0,015	0,001	0,002	0,105	0,040	0,002	0,002	0,41	France	
22E-E23	L 0,184	0,200	1,124	0,012	0,006	0,090	0,084	0,017	0,001	0,002	0,116	0,037	0,002	0,002	0,41	France	

(*) OBSERVACIONES:
Remarks
Observations
MATERIAL FULLY KILLED AND FINE GRAIN PRACTICE
NORMALIZED ABOVE 900°C AND COOLED IN AIR.

Pedido N.º	4500035910	Folio:	EXP1417776
Ref. (Número)	1180-L-149	Entrega:	
Abrev.	1180/1180	Folio n.º	
(Número)			

- 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 - Inspecteur



ULMA FORJA S.Coop
Dept. de Control de calidad
Control Quality Dept.



Quality Assurance Department

HARDNESS CERTIFICATE

Page : 1

[PSG/04.02 - H02.3 HARDNESS TEST IN NDT PL REV B (27/09/2022)]

Report for Certificate: 225371

P.O. No.: PC0175684 regulador. Alcalá
 Component: PIPING PRODUCT
 Date: 26/04/2023 Client: CUNADO, S.A.
 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 :	167 max 137 min	Item	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	144	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	154	154			
420 023783-0000000	A105N	04T422	152	153			
420 023783-0000000	A105N	04T422	155	155			
420 023783-0000000	A105N	04T422	145	146			
420 023783-0000000	A105N	04T422	160	156			
420 023783-0000000	A105N	04T422	149	151			
420 023783-0000000	A105N	04T422	151	153			
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	93AV02	151	152			
420 023529-0000000	A105N	714422	152	149			
420 023529-0000000	A105N	03EE23	149	151			
420 023529-0000000	A105N	03EE23	152	148			
420 023529-0000000	A105N	03EE23	147	152			
420 023529-0000000	A105N	03EE23	147	148			
420 023529-0000000	A105N	05HC23	147	149			
420 023529-0000000	A105N	05HC23	157	152			
420 023529-0000000	A105N	05HC23	154	160			
420 023529-0000000	A105N	05HC23	160	157			
420 023529-0000000	A105N	05HC23	158	160			
420 023529-0000000	A105N	05HC23	148	148			
420 023529-0000000	A105N	05HC23	150	164			
420 023529-0000000	A105N	05HC23	150	148			
420 023529-0000000	A105N	05HC23	156	156			
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-H02.03 REV.0

Operator name ..: ANDER MOJUA YARZA

Inspection date: 24/05/2023

Place: ULMA Forja

Approved by: JON OZETA CC Coordinator NDT

ULMA Forja S.Coop

Client

Date: 24/05/2023

ULMA

S.Coop

	REPSOL POLIMEROS UNIPESSOAL, LDA	Pedido: 4500035910	Envio: EXP1417276
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
1000 023863-0000000	A10SN	05HC23	151	148
1000 023863-0000000	A10SN	05HC23	158	154
1000 023863-0000000	A10SN	05HC23	154	151
1000 023863-0000000	A10SN	05HC23	153	151
1000 023863-0000000	A10SN	05HC23	147	148
1000 023863-0000000	A10SN	05HC23	154	153
1000 023863-0000000	A10SN	05HC23	155	160
1000 023863-0000000	A10SN	05HC23	145	148
1000 023863-0000000	A10SN	05HC23	158	151
1000 023863-0000000	A10SN	05HC23	156	156
1000 023863-0000000	A10SN	05HC23	153	154
1000 023863-0000000	A10SN	05HC23	148	150
1000 023863-0000000	A10SN	05HC23	155	172
1000 023863-0000000	A10SN	05HC23	157	161
1000 023863-0000000	A10SN	05HC23	155	155
1000 023863-0000000	A10SN	05HC23	154	155
1000 023863-0000000	A10SN	05HC23	157	156
1000 023863-0000000	A10SN	05HC23	154	152
1000 023863-0000000	A10SN	05HC23	148	145
1000 023863-0000000	A10SN	05HC23	151	157
1000 023863-0000000	A10SN	07HC23	155	158
1000 023863-0000000	A10SN	07HC23	147	144
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	155
1000 023863-0000000	A10SN	07HC23	157	156
1000 023863-0000000	A10SN	07HC23	154	152
1000 023863-0000000	A10SN	07HC23	158	156
1000 023863-0000000	A10SN	07HC23	151	157
1000 023863-0000000	A10SN	07HC23	152	152
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	152	151
1000 023863-0000000	A10SN	07HC23	146	152
1000 023863-0000000	A10SN	07HC23	158	160
1000 023863-0000000	A10SN	07HC23	160	165
1000 023863-0000000	A10SN	07HC23	152	157
1000 023863-0000000	A10SN	07HC23	151	154
1000 023863-0000000	A10SN	07HC23	153	167
1000 023863-0000000	A10SN	07HC23	154	152
1000 023863-0000000	A10SN	07HC23	154	150
1000 023863-0000000	A10SN	07HC23	152	147
1000 023863-0000000	A10SN	23EE23	152	154
1000 023863-0000000	A10SN	23EE23	153	154
1000 023863-0000000	A10SN	23EE23	154	154
1000 023863-0000000	A10SN	23EE23	152	156
1000 023863-0000000	A10SN	23EE23	147	152
1000 023863-0000000	A10SN	23EE23	150	151
1000 023863-0000000	A10SN	23EE23	141	145
1000 023863-0000000	A10SN	23EE23	145	143
1000 023863-0000000	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

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/Rcf: (V/Rcf)	1180-L-149		
	Colada: (Heat)	07HC23	Cantidad: (Quantity)	19,00	Albarán: (Delivery N#)	/1180/1180
					Factura N#: (Invoice N#)	

CUNADO	REPSOL POLIMEROS UNIPERSONAL, LDA	4"	STD CL150 BRIDA WN FORJADA-105	DTHC23
<i>(Cliente)</i>	<i>(Nombre)</i>	<i>(Descripción)</i>	<i>(Cantidad)</i>	<i>(Unidad)</i>

CUNADO, S.A.
CTRA. DE DAGANZO, KM. 2,4
28606 ALCALA DE HENARES
MADRID
28806
ESP

CERTIFICADO DE INSPECCION

Inspection Certificate - Certificat de Réception

FECHA: 31/05/2023 N.º 225478 HOJA: 1
Date: Page: 1

PRODUCTO: FLANGES
4" flange - Product: FLANGES
NORMAS APPLICABLES: ASME B16.5-20

SU PEDIDO N.º: PC0175684 Reg.dirigidos y crossdos
Your Order No.: Votre Cde. N.º:

MATERIAL CORRESPONDIENTE: ASME SA105M-21, ASTM A105M-21, EN 10222-2 P280GH-17.
Material Correspondent - Qualité
VODO DE FUSION ("')
Steel Making - Fabrication de l'acier
E = Efecto - Y = Oxígeno básico

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

PARTIDA	CANTIDAD	DESCRIPCION	NOTAS	COLADA N.	RESISTENCIA	LIMITE PLAST.	ALARGAM.	ESTRETICION	RESILIENCIA	CHARPY V 10x10mm	DUREZA				
Item	Quantity	Description	Remarks	Heat No	Tensile Strength	V Strength	Elongation	Red. Area	Impact test	Avg. Absorb.	Hardness				
Poste	Quantité	Description	Observations	N° Colada	Resist. Rupt.	0.2% N/mm²	Alargamiento	Redimensión	Resiliencia	Avg. Absorb.	Dureza				
320 020679	9	RUND 4 300LB RF A105N		03L207 NE	49HC22	518	329	38.67	74.43	104	138	133	125	-29	146 149
350 023662	5	WN 2 150LB STD/40 RF A105N		03M315 NE	01EE23	498	298	38.70	74.92	72	98	86	85	-29	146 146
360 023783	25	WN 3 300LB STD/40 RF A105N		28F319 NE	A13A2	535	350	34.20	74.83	122	128	124	125	-29	149 152
370 023863	57	WN 4 150LB STD/40 RF A105N		29M313 NE	07HC23	505	304	36.85	75.32	124	112	106	114	-29	140 140
370 023863	18	WN 4 150LB STD/40 RF A105N		30M309 NE	07HC23	505	304	36.86	75.32	124	112	106	114	-29	140 140
380 023866	18	WN 4 300LB STD/40 RF A105N		17F316 NE	A13A2	531	311	34.14	76.03	92	112	103	102	-29	156 160
390 023921	5	WN 6 300LB STD/40 RF A105N		21M317 NE	05HC23	511	320	35.61	74.31	109	99	108	105	-29	142 146

COMPOSICION QUIMICA - STEEL MAKER'S LADLE ANALYSIS - ANALYSE CHIMIQUE																		
COLADA N.	Heat No	Product P	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	Nb %	V %	Cu %	Al %	Ti %	B %	CEq %	Origin of Steel
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			Ukraine
10EE23	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			Italy
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			France
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			Germany
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			Germany

OBSERVACIONES:
Remarks:
Observations:
MATERIAL FULLY KILLED AND FINE GRAIN PRACTICE
N_NORMALIZED ABOVE 900°C AND COOLED IN AIR.

1) OBSERVACIONES:
Remarks:
Observations:
EXP1417276

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

ULMA
ULMA FORJA S. ZOOP
Dpto. de Garantía de calidad
Quality Assurance Dept.

Management Systems certified by LRQA

Bº Zubillaga, 3 - Apdo. 14
20560. ONATI (Gipuzkoa) SPAIN
Tel. +34-943 780552
Fax: +34-943 781908
E-mail: ulma@ulmatorge.com

Packing List: 176647
Expedition: 427780

QUALITY ASSURANCE

COLADA N.	RESISTENCIA	CHARPY V 10x10mm	DUREZA
Heat No	Impact test	Avg. Absorb.	Hardness
Product P	Resistencia	Resiliencia	Dureza
Quantity	Jcules	%	HBW
45000035910	49HC22	518	146 149
1190-L-149-R	01EE23	298	146 146
1190-L-149-R	A13A2	535	149 152
1190-L-149-R	07HC23	505	140 140
1190-L-149-R	17F316	531	156 160
1190-L-149-R	05HC23	511	142 146

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

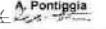
Los materiales citados cumplen las normas aplicables.
Manufacturing requirements are satisfied.

Les dimensions et états de surface sont satisfaisants.

EL INSPECTOR
Works Inspector - L'inspecteur

ULMA
ULMA FORJA S. ZOOP
Dpto. de Garantía de calidad
Quality Assurance Dept.

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																																																																																																																																																																																																																																																																																																																		
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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	A01 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 ES	A02 Nr 403 2023-C_MFF-02534 Data / Dated 06.10.2023 Z02 A06 Ordine / PO PC0160203 A07 Item 2240 A07 DDT / Delivery note 2023-3E301-0002565 A10 Packing List 2023-3E401-0002601 A11 Fattura / Invoice 2023-3E401-0002601 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 ES	

Cod. colata	Nr. colata	Quantità	Descrizione
Heat Code	Heat Nr	Quantity	Description
23/39588	90,00	W/N 150 RF 5° STD	A105N

Mat. in acc. a / Mat. In acc. to ^{Z02-Z03} 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 ^{Z02-Z03} 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	0,195	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
	A1	B	Ca							CE LF	CE SF	F1	F2
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	C	Forma:	I	Q:03	Servimento>0,2% ^{c11}	Servimento>1,0% ^{c11}	Rottura	C12	Allungamento	C13	Contrazione	C14	
Test specimen	Shape				Yield Strength>0,2%	Yield Strength>1,0%	Tensile	Elongation					
Sez/Sect mm ²	Gauge Lmm	I=O - 2	MPa	MPa	MPa	%	%	%					
126,0	50,80	1	398,0	--	494,0	36,4	62,1						
DUREZZA / HARDNESS ^{c13}													
HBW ^{c11} Tipo/Type ^{c12} Provetta / Test Specimen ^{c13} °C ^{c13} 1-Joule ^{c42} 2-Joule ^{c42} 3-Joule ^{c42} Media/Average ^{c43}													
141,0 - 143,0	KV	10x10x55 mm	-10	63	87	74	74	74					
Tratt. Term. / Heat treatment ^{c14} NORMALIZED AT 920 °C - COOLED IN STILL AIR ^{c14} ^{c14} GAS FURNACE													
Dim in acc. a / Dim. acc. to ^{c15} ASME/ANSI B16.5 -2020 ; ASME/ANSI B36.10M -2022													
Finitura / Roughness ^{c16} ASME/ANSI B46.1 -2019 ; RF FINISHING 125 - 150 µin AARH													
Marcatura in acc. ^{c09} ANS/IMSS SP-25-2018 Vis. & Dim. ^{c01} SATISFACTORY Origine ^{c16} Origin of Steel EUROPEAN UNION													

Note / Notes ^{Z01-Z03} 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 ^{Z03} INSPECTION AUTHORITY	MARCHIO PRODUZIONE ^{A04} MANUFACTURER'S SYMBOL 
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M/N/50/00 Rev 29/05/2023

 CUNADO	Cliente: (Client) Descripción: (Description) Colada: (Heat)	REPSOL POLIMEROS UNIPESSOA, LDA 6" STD CL.150 BRIDA WN FORJ RF A-105 23/39588	Pedido: (Delivery) S/Ref. (Ref.) Cantidad: (Quantity) 65,00	Envío: (Shipment) Albarán (Delivery N.) Factura N. (Invoice #) /1230/1230	EXP1417276
--	--	--	--	--	-------------------

	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 FORJ RFA-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

ASME/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 102498/1.3,
ISO 10474.13 / 3.1

Bº Zubillaga 3 - Aptdo. 14

30560 ONATI (Guipúzcoa) SPAIN

Tel.: 34- 943 786552

Fax: 34- 943 781808

E-mail: ulma@ulm-forge.com

MARCA DEL FABRICANTE
Mark of factory
Marque du fabricant



Packing List: 176140

Expedition: 428081

QUALITY ASSURANCE

PARTIDA Item Poste	CANTIDAD Quantity	DESCRIPCION Description Description	OBSERVACIONES Remarks Observations	COLADA N. Heat No Producción Produkt Produit	RESISTENCIA AL FLAM Tensión Strength Y Strength N/mm²	LIMITE ELAST Elongation Elast. Limite % N/mm²	ALARGAMIENTO Alargamiento Elongation % Red. Area Red. Area % L.50mm.4d.	ESTRICHÓN Strichón Striction %	DEPARTAMENTO Section Département				RESILIENCIA Impact test Résilience Joules	CHARPY V10x10mm Impacto Charpy Impact Charpy Média Moyenne °C	DUREZA Hardness Dureza HBW
									(*)	(*)	(*)	(*)			
1150 023388-0000000	36	WN 16 150LB STD/30 RF A105N		15F316 NE	C4AV22	514	310	35,90	73,36	96	100	119	105	-29	141 143
1170 023923-0000000	23	WN 6 600LB STD/40 RF A105N		28M311 NE	18EE23	509	310	38,61	73,66	139	130	117	129	-29	140 143
1160 023877-0000000	59	WN 4 600LB XS/80 RF A105N		30N216 NE	034A22	522	285	30,85	51,02	107	78	90	92	-29	146 149

COMPOSICION QUIMICA - STEEL MAKER'S LADLE ANALYSIS - ANALYSE CHIMIQUE

COLADA N. Heat No Ladle No Produkt Produit	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	Nb %	V %	Cu %	Al %	Ti %	B %	CEq %	Origen de Steel
C4AV22	0,200	0,240	1,140	0,011	0,004	0,050	0,060	0,010	0,001	0,001	0,130	0,030	0,002	0,0002	0,41	France
18EE23	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	0,0002	0,39	France
034A22	0,184	0,240	1,150	0,009	0,004	0,060	0,080	0,008	0,001	0,003	0,220	0,030	0,002	0,0004	0,41	France

(*) OBSERVACIONES:

Remarks

MATERIAL FULLY KILLED AND FINE GRAIN PRACTICE

N_NORMALLY ZED ABOVE 900°C AND COOLED IN AIR

- 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 clados cumplen las normas aplicables.

- Manufacturing requirements are satisfied.

- Les normes applicables sont respectées.

EL INSPECTOR

Works Inspector - L'inspecteur

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 ^{c30}			
155,0 - 157,0 KV	Tipo/Type ^{c40}	Provetta / Test Specimen ^{c41}	1°C ^{c20}	1-Joule ^{c42}	2-Joule ^{c42}
			-10	108	100
				94	100,7
Tratt. Term. / Heat treatment	GAS FURNACE				
Dim in acc. a / Dim. acc. to	NORMALIZED AT 920 °C - COOLED IN STILL AIR				
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 ²⁰³ INSPECTION AUTHORITY	MARCHIO PRODUZIONE ^{A04} MANUFACTURER'S SYMBOL
 CUNADO	A. Pontiggia	

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Cliente (Client)	REPSOL POLIMEROS UNIPESSOAL, LDA	Pedido (Delivery)	4500035910	Envio: (Shipment)	EXP1417276
Désignation: (Description)	6" STD CL.150 BRIDA WN FORJ RF A-105	S/Ref. (Ref.)	1270-L-149-R		
Colata: (Heat)	23/38612	Quantità: (Quantity)	9,00	Albarán: (Delivery th.)	Fattura N°: (Invoice #)

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 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 Prova ^{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} Prova / 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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NAM3090000126692023

	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

 <p>CUNADO, S.A. CTRA DE DAGANZO, KM. 2,4 28800 ALCALÁ DE HENARES MADRID 28806 ESP</p>	<p>REPSOL POLIMEROS UNIPESSOAL, LDA</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td>Item</td> <td>Partida</td> <td>REPSOL POLIMEROS UNIPESSOAL, LDA</td> <td>Peso</td> </tr> <tr> <td>Descripción:</td> <td>10"-SCH-20 CL.150 BRIDA WN FORJA A-105</td> <td>Rodaje</td> <td>26,00</td> </tr> <tr> <td>Destino:</td> <td></td> <td>Referencia:</td> <td></td> </tr> <tr> <td>Ref.:</td> <td>21EE22</td> <td></td> <td></td> </tr> </table>	Item	Partida	REPSOL POLIMEROS UNIPESSOAL, LDA	Peso	Descripción:	10"-SCH-20 CL.150 BRIDA WN FORJA A-105	Rodaje	26,00	Destino:		Referencia:		Ref.:	21EE22			<p align="center">CERTIFICADO DE INSPECCIÓN Inspection Certificate - Certificat de Réception</p> <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">FECHA: Date:</td> <td style="width: 25%;">N.º No.:</td> <td style="width: 25%;">HOJA: Page:</td> </tr> <tr> <td>21/04/2023</td> <td>224868</td> <td>1</td> </tr> <tr> <td>08/05/2023</td> <td></td> <td>Rev. 01</td> </tr> </table> <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 35%; text-align: right;">SU PEDIDO N.º</td> <td>PC0161849 (20-12-2022)</td> <td style="width: 35%; text-align: right;">DE</td> <td>of. - de 22/12/2022</td> </tr> <tr> <td>Your Order No. Votre Cde. N.º</td> <td></td> <td></td> <td></td> </tr> </table> <p align="center">NORMAS APLICABLES ASME B16.5-20 Requirements - Normes Appliquées</p> <p align="center">MATERIAL CORRESPONDIENTE ASME SA105M-21, ASTM A105M-21, EN 10222-2 P280GH-17. Material Correspondent Qualité NF E29-204:08 BF48N</p> <p align="center">MODO DE FUSIÓN (*) Steel Making - Fabrication de l'acier E - Elec. Y - Oxígeno básico</p> <p align="center">ANSI/NACE MR0175-2021/ISO 15156:2020 & ANSI/NACE MR0103/ISO 17495:2015</p>	FECHA: Date:	N.º No.:	HOJA: Page:	21/04/2023	224868	1	08/05/2023		Rev. 01	SU PEDIDO N.º	PC0161849 (20-12-2022)	DE	of. - de 22/12/2022	Your Order No. Votre Cde. N.º																																																																																																																																																																																																
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Joules	Dureté	7 6910	*69	WN 2 150LB S160 RF A105N		12E317 NE	A53A2	523	336	39,24	74,60	104	109	120	111	-29	143 146	8	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		28F304 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
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Company management certifications:
ISO 9001: 2015
ISO 14001: 2015
ISO 45001: 2018

Management Systems certified by LRQA



Packing List: 17587/
Expedition: 426762

+ 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 cumplen las normas aplicables.
+ Manufacturing requirements are satisfied.
+ Les matériaux respectent les normes applicables.

EL INSPECTOR /
Works Inspector / L'Inspecteur

ULMA FORJA S.COOP.
Dpto. de Control de calidad /
Quality Control Dept.

	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 FUSIÓN (*)

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) (Quantity)

CERTIFICADO DE INSPECCION

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

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	DESCRIPCION Description	OBSERVACIONES Remarks Observations	COLADA N.º / RESISTENCIA / FRIALIZACION / ESTIRACION / RESILIANCIA		CHARRY V 10X1mm Impact test Resilience	DUREZA Hardness							
				Heat No.	T Strength Y Strength	Elongation	Red Area	Method Averagge Resilience	HBW KvJ					
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
8	17	WN 10 150LB S20 RF A105N	17N206 NE	039A22	543	351	40.18	74.31	149	143	151	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	-29	141 141
8	46	WN 10 150LB S20 RF A105N	27M312 NE	JSAV22	503	287	41.26	74.28	64	86	102	94	-29	147 150
12	6	WN 18 150LB STD RF A105N	30M302 NE	13EE23	532	323	33.80	73.66	107	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	23E312 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	JSAV22	503	287	41.26	74.28	94	86	102	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	-29	143 146
23 433	1	WN 10 150LB STD/40 RF A105N	28F304 NE	20EE22	523	359	35.02	73.07	126	120	139	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	-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

COMPOSICION QUIMICA - 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	0.001	0.003	0.180	0.032	0.002	0.004	0.41	Ukraine		
JSAV22 L 0.176	0.210	1.170	0.012	0.032	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	
18EE23 L 0.180	0.190	1.078	0.012	0.003	0.140	0.144	0.013	0.001	0.007	0.031	0.002	0.002	0.041	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	

* OBSERVACIONES:
Remarks
Observations

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

* 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

ULMA FORJA, S.COOP.

Dpto. de Control de Calidad

Quality Control Dept.

EXPI417726

FAD FLANGE ACCIAIO



SEDE LEGALE: VIA BONESCOGLIO, 1 - 20049 CAMBIO (MI) ITALIA
TEL. +39 02 940470 FAX +39 02 5594323 INTERNET: www.fadflange.it E-MAIL: info@fadflange.it
CAPITALE SOCIALE: 15.484.000,00 REG.IMP. MONZA-BRIANZA N° F. 0354009158
PARTITA IVA/VA.T. N° IT 03763469958 - REA MI 0915087 - N.M.C.C.A.N.O.G.R.A.FICO MI 01012

CERTIFICATO PROVE MATERIALI N.6778/22

1-1

Test certificato - Contratto d'impresa - Invio alla fabbrica e messa a disposizione
EN 10204/1.1

CLIENTE / Garante - Client - Kunde
CUNADO SA

CTRA DAGANZO KM 2,4

28809 ALCALA DE HENARES MADRID SPAGNA

DATA / Date - Datum 24/10/2022
COMMESAI N°/Ref. /Comd. d'ordine / Kennr. 2204424

ORDINE / Order / Command / Auftrag
PC0137708 6.778

CODICE Urt. Art. Cod. Code Kode Kode	COLATA Hes. Cont. Scheide Schraube	CERTIFICATO ORIGINE Certificato d'origine Certifikat der Herkunft Vereinbarungen	NORMA / MAT. / DESCRIZIONE Standard / Material / Description Norme / Material / Beschreibung Standard / Werkstoff / Beschreibung	POS.ORD. Item Pos. Reihen Reihenfolge Reihenfolge Reihenfolge	QUANTITA Quantity Menge Menge	TESTIMONIANZA	
						Per item Per Stück Per Stück	Per item Per Stück Per Stück
75484	RIVA	F. FLG ASME B16.5 ASA105-21	Bl. 150 12" 6.20 RF	290	45		
		ANALISI CHIMICA / Chemical analysis / Analyse chimique / Chemische Zusammensetzung C % Mn % P % S % Cr % Ni % Mo % Ti % Cu % Nb % N % V % Al % Sn % CE % 0.215 0.960 0.010 0.020 0.140 0.070 0.010 0.005 0.002 0.009 0.002 0.022 0.007 0.360 0.145 0.050 0.010 0.020 0.140 0.070 0.010 0.005 0.002 0.009 0.002 0.022 0.007 0.360 B % Ca % H2 % O2 % W % Si % 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 CARATTERISTICHE MECCANICHE / Mechanical properties / Propriétés mécaniques / Mechanische Eigenschaften					
		MPA MPA MPa 40 % HB Tensile strength Yield point Elongation Reduction of area Hardness Impact test Impact resistance Impact strength				1 2 3 4	
		525.0 317.0 35.0 69.3 154 152 10/10 KV 0°C 62.65 70 J				A A X X	
AC05676	RIVA	F. FLG ASME B16.5 ASA105-21	Bl. 150 12" 6.20 RF	380	397		
		ANALISI CHIMICA / Chemical analysis / Analyse chimique / Chemische Zusammensetzung C % Mn % P % S % Cr % Ni % Mo % Ti % Cu % Nb % N % V % Al % Sn % CE % 0.215 0.960 0.007 0.010 0.010 0.005 0.002 0.005 0.000 0.006 0.000 0.000 0.000 0.376 0.215 0.960 0.007 0.010 0.010 0.005 0.002 0.005 0.000 0.006 0.000 0.000 0.000 0.376 B % Ca % H2 % O2 % W % Si % 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 CARATTERISTICHE MECCANICHE / Mechanical properties / Propriétés mécaniques / Mechanische Eigenschaften					
		MPA MPA MPa 40 % HB Tensile strength Yield point Elongation Reduction of area Hardness Impact test Impact resistance Impact strength				1 2 3 4	
		525.0 300.0 34.0 69.5 148 150 10/10 KV 0°C 62.76 74 J				A A X X	
2889	RIVA	F. FLG ASME B16.5 ASA105-21	Bl. 150 12" 6.20 RF	400	5		
		ANALISI CHIMICA / Chemical analysis / Analyse chimique / Chemische Zusammensetzung C % Mn % P % S % Cr % Ni % Mo % Ti % Cu % Nb % N % V % Al % Sn % CE % 0.200 0.880 0.012 0.006 0.250 0.030 0.010 0.010 0.000 0.010 0.010 0.000 0.003 0.350 0.200 0.880 0.012 0.006 0.250 0.030 0.010 0.010 0.000 0.010 0.010 0.000 0.003 0.350 B % Ca % H2 % O2 % W % Si % 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 CARATTERISTICHE MECCANICHE / Mechanical properties / Propriétés mécaniques / Mechanische Eigenschaften					
		MPA MPA MPa 40 % HB Tensile strength Yield point Elongation Reduction of area Hardness Impact test Impact resistance Impact strength				1 2 3 4	
		520.0 300.0 37.0 72.0 152 153 10/10 KV 0°C 74.77 58 J				A A X X	

NACE MR.0103 ED15

Material manufactured in accordance with PED 2014/68/UE PAR.4.3 under quality assurance system ISO 9001 cert. 206967 issued by Bureau Veritas

1. PRESERVATIVE ADDITIVES
A: CAUTERIZZAZIONE ALTERNO-ELETTRICO (indica trattamento indicato per la calza
fornita con la calza elettrica) o trattamento di calza elettrica (indica trattamento
di calza elettrica fornita con la calza).
- B: ELIMINAZIONE ELETTRICO (indica trattamento indicato per la calza elettrica fornita con la calza).

2. TRATTAMENTO
A: INGRASSO DI STAGNA (indica trattamento indicato per la calza elettrica fornita con la calza).
- B: INGRASSO DI STAGNA E FORRATO (indica trattamento indicato per la calza elettrica fornita con la calza).
- C: INGRASSO DI STAGNA E FORRATO CON GOMMA (indica trattamento indicato per la calza elettrica fornita con la calza).

Scritto su controllo d'acquisto
fornito da:
FAD FLANGE ACCIAIO
SpA

Vittorio Belli

Entro il giorno
01/11/2022

3. CERTIFICATO DI PROVENIENZA N.6778/16

- A: CAUTERIZZAZIONE ALTERNO-ELETTRICO (indica trattamento indicato per la calza
fornita con la calza elettrica) o trattamento di calza elettrica (indica trattamento
di calza elettrica fornita con la calza).
- B: ELIMINAZIONE ELETTRICO (indica trattamento indicato per la calza elettrica fornita con la calza).
- C: INGRASSO DI STAGNA (indica trattamento indicato per la calza elettrica fornita con la calza).

D: INGRASSO DI STAGNA E FORRATO (indica trattamento indicato per la calza elettrica fornita con la calza).

E: INGRASSO DI STAGNA E FORRATO CON GOMMA (indica trattamento indicato per la calza elettrica fornita con la calza).

Scritto su controllo d'acquisto
fornito da:
FAD FLANGE ACCIAIO
SpA

Riccardo Longo

Entro il giorno
01/11/2022

	Cliente: (Client)	REPSOL POLIMEROS UNIPESSOAL, LDA	Pedido: (Delivery)	4500035910	Envío: (Shipment)	EXP1417276
	Descripción: (Description)	12" SCH-20 CL.150 BRIDA WN FORJ RF A-105	S/Ref/ Ref/ Ref#	1330-L-149		
	Colata: (Ingot)	A05676	Cantidad: (Quantity)	26,00	Albarán: (Delivery N.)	/1330/1330

	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: Page: 2

Company management certifications:

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



ULMA FORJA, S.COOP.

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

Packing List: 178727
 Expedition: 442358

QUALITY ASSURANCE

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

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 Gálico

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



Packing List: 178727
 Expedition: 442358

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. / Lame, L. Product No.	RESISTENCIA Nº Caudal Resist. Résist.	ALARGAM. Elongation Allongement Red. Ano Reduction of Area	ESTRICTION Elongation Allongement Red. Ano Reduction of Area	RESILIENCE Impact test Résistance Joules	CHAPY V 10x10mm MEDIDA Dimension Mesure	DUREZA Hardness Grado HBW					
	18A311 NF	20E23	531	336	33,54	71,30	144	118	126	129	29	149 152
	19A306 NE	20E23	531	336	33,54	71,30	144	118	126	129	29	149 152
	031304 NE	055A23	534	326	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	326	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	29HC23	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. / Lame, L. Product 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	0,081	0,037	0,002	0,0002	0,39	France	
055A23	L 0,177	0,210	1,129	0,012	0,090	0,000	0,002	0,002	0,001	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	0,002	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:

Fecha Nº:

Abraza N:

1360/1360



Quality Assurance Department
HARDNESS CERTIFICATE
Page: 1
[PSG04.02-HI02.3 HARDNESS TEST IN NDT PL REV B (27/09/2022)]
Report for Certificate: 227128

P.O. No.: PC0183406 Distribucion Alcalá	Date: 28/08/2023 Client: CUNADO, S.A.				
Component: PIPING PRODUCT					
Quantity: 10%					
Item: 16 SCH-20 CL.150 BRIDA WN FORJ RF A-105N					
Grade: ...: ASTM A105N,A350LF2					
Results: SATISFACTORY					
Acceptance criteria A105N : 187 max 137 min					
Item	Material Grade	Heat	Batch	Hardness1	Hardness2
170 020604-0000000	A105N	30EE23		157	168
210 026833-0000000	A105N	20EE23		154	145
390 023493-0000000	A105N	24EE23		152	152
440 023827-0000000	A105N	27HC23		159	155
460 023449-0000000	A105N	26AV23		175	169
460 023449-0000000	A105N	26AV23		152	166
460 023449-0000000	A105N	26AV23		155	157
460 023449-0000000	A105N	26AV23		154	160
470 023450-0000000	A105N	80HC0		151	157
470 023450-0000000	A105N	23HC23		169	173
470 023450-0000000	A105N	23HC23		168	167
470 023450-0000000	A105N	23HC23		170	162
470 023450-0000000	A105N	39HC0		154	159
480 023467-0000000	A105N	20EE23		158	162
480 023467-0000000	A105N	20EE23		157	159
490 023475-0000000	A105N	055A23		165	164
490 023475-0000000	A105N	055A23		170	
510 023603-0000000	A105N	055A23		165	164
510 023603-0000000	A105N	055A23		157	163
510 023603-0000000	A105N	055A23		170	169
510 023603-0000000	A105N	055A23		159	160
510 023603-0000000	A105N	055A23		159	159
510 023603-0000000	A105N	055A23		167	170
510 023603-0000000	A105N	055A23		151	159
510 023603-0000000	A105N	055A23		169	157
510 023603-0000000	A105N	055A23		160	161
510 023603-0000000	A105N	055A23		159	158
520 023568-0000000	A105N	27HC23		159	161
520 023568-0000000	A105N	27HC23		162	162
520 023568-0000000	A105N	27HC23		164	162
520 023568-0000000	A105N	27HC23		165	164
520 023568-0000000	A105N	27HC23		166	162
520 023568-0000000	A105N	27HC23		162	161
520 023568-0000000	A105N	14HC23		155	156
Acceptance criteria A350LF2 : 137 max 122 min					
Item	Material Grade	Heat	Batch	Hardness1	Hardness2
20 025250-0000000	A350LF2	054A23		162	
20 025250-0000000	A350LF2	054A23		164	165
20 025250-0000000	A350LF2	054A23		163	167

Standard: PSG04.02-HI02.03 REV.

Operator name ..: ANDER MOYUA YARZA

Inspection date: 27/09/2023

Place: ULMA Forja

Approved by: JON OZETA CC Coordinator NDT

Date: 28/09/2023

ULMA Forja S.Coop

Client

	Cliente: (Client)	REPSOL POLIMEROS UNIPESSOAL, LDA		Pedido: (Delivery)	4500035910	Envío: (Shipment)	EXP1417276
	Descripción: (Description)	16" SCH-20 CL.150 BRIDA WN FORJ RF A-105	S/Ref: (Ref)	1360-L-149			
	Colada: (Heat)	055A23	Cantidad: (Quantity)	1,00	Albarán: (Delivery N°)	/1360/1360	Factura N°: (Invoice #)

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

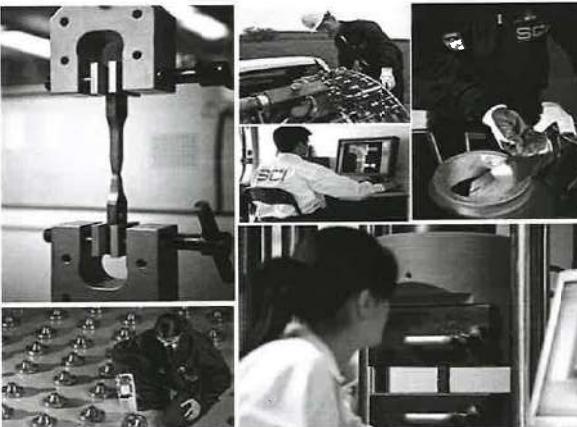
Peticionario: D^a PALOMA CRIADO

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. 34-91-684.43.93
laboratorio.madrid@scisa.es



IGNACIO GONZALEZ BARBERO
Responsable Laboratorio Metalúrgico

Laboratorio de Ensayos:



Digitally signed by:
SERVICIOS DE
INSPECCIÓN S.A.
Date: 2024-01-29 12:29:22

Madrid a 29/01/2024

Los resultados de este informe, solamente afectan a las muestras recepcionadas. (This report is only for the items listed in it)
Prohibida la reproducción parcial sin aprobación escrita de (Do not reproduce partially without written authorization from)
S.C.I. Servicios de Control e Inspección S.A.

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.

Los resultados de este informe, solamente afectan a las muestras recepcionadas. (This report is only for the items listed in it)

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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: 240201LMEPAD-OT0001-IF-01

REV: 0

Report Number

REV: 0

COD. INTERNO: 240201LMEPAD-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

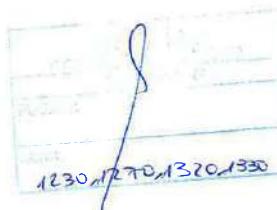
Operador SCI: EVA MAYO VAZQUEZ

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

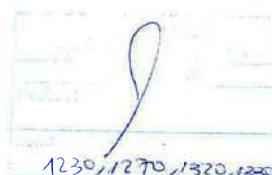
RESULTADOS (Results)

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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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 ^{B09} 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>		

 GRUPPO 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	ES	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	A06			

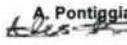
Cod. colata^{B07} Nr. colata^{B07} Quantità^{B08} Desrizione^{B01 - (B09 - B11)}
Heat Code Heat Nr. Quantity Description

23/39010 40,00 W/N 150 RF 8" 20 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	0,180	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				
	AI	B	Ca													
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}	Snergavento>0,2% ^{C11} Yield Strength>0,2%	Snergavento>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 ^{1=0 - 2=□} 50,80	1	20	MPa 334,0	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

CERTIFICADO DE INSPECCION

Inspection Certificate - Certificat de Réception

Company management certifications:

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


ULMA FORJA, S.COOP.

 ULMA Zabillaña, 3 - Aptdo. 14
 20560 ONATE (Gipuzkoa) SPAIN
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 Tel.: +34 943 789352
 Fax: +34 943 781808
 E-mail: ulma@ulmatorge.com

QUALITY ASSURANCE

PARTIDA Item Posita	CANTIDAD Quantity Quantité	COMPOSICIÓN QUÍMICA - STEEL MAKER'S LADLE ANALYSIS - ANALYSE CHIMIQUE													
		C%	Si%	Mn %	P %	S %	Cr %	Ni %	Mo %	Nb %	V %	Cu %	Al %	Ti %	B %
7 6910	• 69	WN 2 150LB S160 RF A105N													
8	17	WN 10 150LB S20 RF A105N													
8	59	WN 10 150LB S20 RF A105N													
8	46	WN 10 150LB S20 RF A105N													
12	• 6	WN 18 150LB STD RF A105N													
20 432	115	WN 10 150LB S20 RF A105N													
20 432	30	WN 10 150LB S20 RF A105N													
20 432	125	WN 10 150LB S20 RF A105N													
23 433	88	WN 10 150LB STD40 RF A105N													
23 433	1	WN 10 150LB STD40 RF A105N													
23 433	11	WN 10 150LB STD40 RF A105N													
27 90931	• 22	WN 18 150LB STD RF A105N													
		29M311 NE													
		18EE23													
		509													
		310													
		38,61													
		73 66													
		130													
		117													
		129													
		140													

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

 * OBSERVACIONES:
 Remarks
 Observations

 ULMA FORJA, S.COOP.
 ULMA Zabillaña, 3 - Aptdo. 14
 20560 ONATE (Gipuzkoa) SPAIN

 ULMA FORJA, S.COOP.
 ULMA Zabillaña, 3 - Aptdo. 14
 20560 ONATE (Gipuzkoa) SPAIN

 ULMA FORJA, S.COOP.
 ULMA Zabillaña, 3 - Aptdo. 14
 20560 ONATE (Gipuzkoa) SPAIN

 ULMA FORJA, S.COOP.
 ULMA Zabillaña, 3 - Aptdo. 14
 20560 ONATE (Gipuzkoa) SPAIN

 ULMA FORJA, S.COOP.
 ULMA Zabillaña, 3 - Aptdo. 14
 20560 ONATE (Gipuzkoa) SPAIN

 ULMA FORJA, S.COOP.
 ULMA Zabillaña, 3 - Aptdo. 14
 20560 ONATE (Gipuzkoa) SPAIN

 ULMA FORJA, S.COOP.
 ULMA Zabillaña, 3 - Aptdo. 14
 20560 ONATE (Gipuzkoa) SPAIN

 ULMA FORJA, S.COOP.
 ULMA Zabillaña, 3 - Aptdo. 14
 20560 ONATE (Gipuzkoa) SPAIN

	Cliente: (Client)	REPSOL POLIMEROS UNIPESSOAL, LDA			Pedido: (Delivery)	4500035910	Envio: (Shipment)	EXP1439250
	Descripción: (Description)	10" SCH-20 CL.150 BRIDA WN FORJ RF A-105			S/Ref: (V/Ref)	1320-L-149		
Colada: (Heat)	21EE22	Cantidad: (Quantity)	2,00	Albarán: (Delivery N)	/1320/1320	Factura Nº: (Invoice #)		

PROTOCOLO DE ELEMENTOS CONSTRUÍDOS

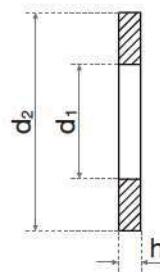
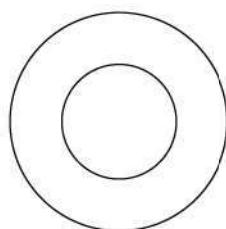
 ASCH INFRAESTRUCTURAS Y SERVICIOS	Empreitada:	DOCUMENTO N°: R-R007-006
	4001008 - "Nuevas Plantas de Poliolefinas, Plataformas Logísticas Y Offsites"	DATA: 05/08/ 2024
		FOLHA N° : / DE: 146 / 185

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



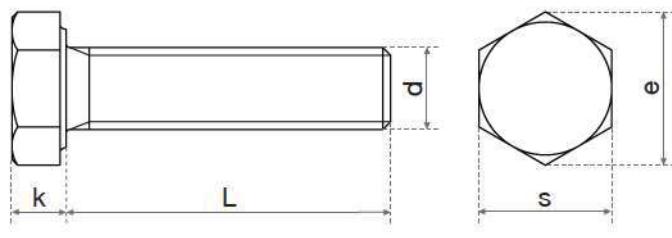
Inox A2 ■
Inox A4 ■■
Acero ■■■

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 ■■■■■

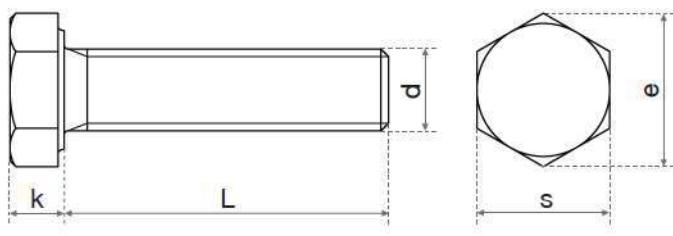
d	M2	M2,5	M3	M4	M5	M6	M8
L							
3							
4							
5							
6							
8							
10							
12							
14							
16							
18							
20							
22							
25							
30							
35							
40							
45							
50							
55							
60							
65							
70							
75							
80							
90							
100							
110							
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	[Green]
Inox	A4	[Red]
Acero	8.8	[Grey]
Acero	10.9	[Dark Grey]
Acero	12.9	[Black]

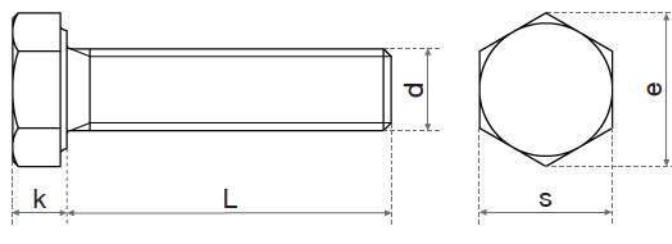
	d	M10	M12	M14	M16	M18	M20	M22
L	10	[Green]	[Red]	[Grey]				
12								
14								
16			[Green]	[Red]	[Grey]			
18				[Green]	[Red]	[Grey]		
20					[Green]	[Red]	[Grey]	
22						[Green]	[Red]	[Grey]
25							[Green]	[Red]
30								[Grey]
35								[Grey]
40								[Grey]
45								[Grey]
50								[Grey]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

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 ■■■■■

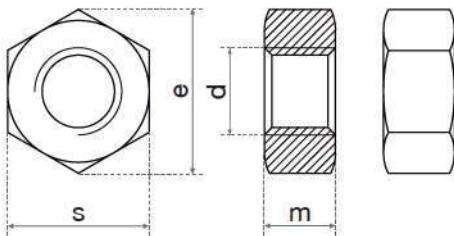
d	M24	M27	M30	M33	M36	M39	M42
L							
30	■■■■■						
35							
40							
45							
50	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■
55							
60	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■
65							
70							
75	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■
80							
85							
90							
95							
100							
110							
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

Projeto: REPSOL

Página 1/1

Nº Unidade	H01	Linha nº:	H01	Desenho:	H01	Rev:													
Line	Spool	Nº Juntas	Type Joint	Description Produto	Heat Number	CMT	WPS	WPSR	Welding Setting	Visual Inspection Report	PT/MT	RT/UT	PMI	Hardness Test	Heat Treatment	RT/UT PWHT	Consumables	GIAW	SMAW
4	H01	BJ300	BW	LINHA EXISTENTE Ø 6" FLANGE ASTM A-105, Cara con resulte de 1/16", 150#, ASME B16.5, SCH 40	23/39588	CMT-3													
5	H01	SW01	BW	Ø 6" FLANGE ASTM A-105, Cara con resulte de 1/16", 150#, ASME B16.5, SCH 40 Ø 6" Tubo, ASTM A-106 B SMLS, Extremos biselados, ASME B36.10, SCH 40	23/39588	CMT-3	4PRT2_001	2019/0152	11/03/2024	16/03/2024								24223583	
6	H01	SW02	BW	Ø 6" Tubo, ASTM A-106 B SMLS, Extremos biselados, 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	11/03/2024	16/03/2024	15/03/2024							24223583	
7	H01	SW03	BW	Ø 6" ELBOW 90° LR-BW Ends Sch.40 ASTM A234 Gr. WPB Ø 6" Tubo, ASTM A-106 B SMLS, Extremos biselados, ASME B36.10, SCH 40	486912	CMT-1	4PRT2_001	2019/0152	11/03/2024	16/03/2024								24223583	
8	H01	SW04	BW	Ø 6" Tubo, ASTM A-106 B SMLS, Extremos biselados, ASME B36.10, SCH 40 Ø 6" FLANGE ASTM A-105, Cara con resulte de 1/16", 150#, ASME B16.5, SCH 40	63820	CMT-2	4PRT2_001	2019/0152	11/03/2024	16/03/2024	15/03/2024							24223583	
9	H01	BJ301		Ø 6" FLANGE ASTM A-105, Cara con resulte de 1/16", 150#, ASME B16.5, SCH 40 LINHA EXISTENTE	23/39588	CMT-3													
Notes: BW: Butt Weld; PW: Butt Weld; SW: Socket Weld; TBW: Branch Location PT: Penetrant Test; MT: Magnetic Test; RT: Radiographic Test; UT: Ultrasonic Test PMI: Positive Material Identification																			
Name: APPROVED by: CIMONTUBO 					Name: APPROVED by: TEN					Name: APPROVED by: GALP					Name: APPROVED by: Neste / IO				
Sign: Date: 25.3.2024					Sign: Date:					Sign: Date:					Sign: Date:				



Caderno de Soldaduras
ISO Summary List

n° H02

Cliente: REPSOL

Contrato: 4PRT2

Local: Complexo Petroquímico de Sines

Projeto: REPSOL

Pagina 1/1

Nº Unidade:

H02

Linha n°:

H02

Desenho: H02

Rev:

H02

Line	Steel	Nr Ident.	Type steel	Descrição Produto	Heat Number	CMT	WPS	WPQR	Weld Type Serie	Visual Inspection Report	NOT			CONSUMABLES				
											PT/MT	RT/UT	PMS	Hardness Test	Heat treatment	RT/UT PWHT	GTAW	SMAW
10	H02	BJ300		LINHA EXISTENTE Ø 6" FLANGE ASTM A-105, Cara com resalte de 1/16", 150W, ASME B16.5, SCH 40	23/39588	CMT-3												
11	H02	SW01	BW	Ø 6" FLANGE ASTM A-105, Cara com resalte de 1/16", 150W, ASME B16.5, SCH 40 Ø 6" Tubo, ASTM A-106 B SMHS, Extremos biselados, ASME B36.10, SCH 40	23/39588	CMT-3	4PRT2_001	2019/0152	12/03/2024	16/03/2024			15/03/2024					24223583
12	H02	SW02	BW	Ø 6" Tubo, ASTM A-106 B SMHS, Extremos biselados, 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	12/03/2024	16/03/2024								24223583
13	H02	SW03	BW	Ø 6" ELBOW 90° LR BW Ends Sch 40 ASTM A234 Gr. WPB Ø 6" Tubo, ASTM A-106 B SMHS, Extremos biselados, ASME B36.10, SCH 40	486912	CMT-1	4PRT2_001	2019/0152	12/03/2024	16/03/2024								24223583
14	H02	SW04	BW	Ø 6" Tubo, ASTM A-106 B SMHS, Extremos biselados, ASME B36.10, SCH 40 Ø 6" FLANGE ASTM A-105, Cara com resalte de 1/16", 150W, ASME B16.5, SCH 40	63820	CMT-2	4PRT2_001	2019/0152	12/03/2024	16/03/2024	15/03/2024							24223583
15	H02	BJ301		Ø 6" FLANGE ASTM A-105, Cara com resalte de 1/16", 150W, ASME B16.5, SCH 40 Linha Existente	23/39588	CMT-3												
Notes: BW: Butt Weld; FW: Flange Weld; SW: Socket Weld; TW: Branch Connection; PT: Penetrant Test; MT: Magnetic Test; RT: Radiographic Test; UT: Ultrasonic Test; PM: Positive Material Identification.																		
Name: <i>Raulo S. Lira</i> Sign: _____ Date: <i>25/03/2024</i>				APPROVED by: CIMONTUBO				Name: <i>T.B.H</i> Sign: _____ Date: <i> </i>				APPROVED by: GALP				APPROVED by: NoBo I/O		

BW: Butt Weld; FW: Flange Weld; SW: Socket Weld; TW: Branch Connection;
PT: Penetrant Test; MT: Magnetic Test; RT: Radiographic Test; UT: Ultrasonic Test;
PM: Positive Material Identification.



Caderno de Soldaduras ISO Summary List

n° H03

Cliente:			REPSOL	Contrato:			4PR12	Projeto:			REPSOL	Linha n°:	H03	Desenho:	H03	Rev:	H03	Consumíveis								
Local:			Complexo Petroquímico de Sines																			GTAW				
Nº Unidade:			H03																			GTAW				
Line	Spec	Nº Assnt	Type	Descrição Produto	Heat Number	CMT	WPS	WPS	Welding	Visual Inspection Report	PT/MT	RT/UT	PMI	NDT	Hardness Test	Heat treatment	RT/UT PWHT	CONSUMABIL	GTAW	SMAW						
16	H03	BJ300	-	LINHA EXISTENTE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
				Ø 6" FLANGE ASTM A-125, Cara con resalte de 1/16", 150# ASME B16.5, SCH 40	23/39588	CMT-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
17	H03	SW01	BW	Ø 6" FLANGE ASTM A-125, Cara con resalte de 1/16", 150# ASME B16.5, SCH 40	23/39588	CMT-3	4PR12_001	2019/0152	15/03/2024	16/03/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	24223583		
				Ø 6" Tubo, ASTM A-106 B SMLS, Extremos biselados, ASME B36.10, SCH 40	63820	CMT-2	-	-	NP	VT 001	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
18	H03	SW02	BW	Ø 6" Tubo, ASTM A-106 B SMLS, Extremos biselados, ASME B36.10, SCH 40	63820	CMT-2	4PR12_001	2019/0152	12/03/2024	16/03/2024	15/03/2024	-	-	-	-	-	-	-	-	-	-	-	-	24223583		
				Ø 6" Elbow 90° LR BW Ends Sch 40 ASTM A234 Gr. WPB	486912	CMT-1	-	-	NP	VT 001	24_CRT_15952_585_4PR12_0_01	-	-	-	-	-	-	-	-	-	-	-	-	-		
19	H03	SW03	BW	Ø 6" Elbow 90° LR BW Ends Sch 40 ASTM A234 Gr. WPB	486912	CMT-1	4PR12_001	2019/0152	13/03/2024	16/03/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	24223583		
				Ø 6" Tubo, ASTM A-106 B SMLS, Extremos biselados, ASME B36.10, SCH 40	63820	CMT-2	-	-	NP	VT 001	-	-	-	-	-	-	-	-	-	-	-	-	-			
20	H03	SW04	BW	Ø 6" Tubo, ASTM A-106 B SMLS, Extremos biselados, ASME B36.10, SCH 40	63820	CMT-2	4PR12_001	2019/0152	13/03/2024	16/03/2024	-	-	15/03/2024	-	-	-	-	-	-	-	-	-	-	24223583		
				Ø 6" FLANGE ASTM A-125, Cara con resalte de 1/16", 150# ASME B16.5, SCH 40	23/39588	CMT-3	-	-	NP	VT 001	-	-	-	IIS-ENC-23-94973.0/PAUT0007	-	-	-	-	-	-	-	-	-			
21	H03	BJ301	-	Ø 6" FLANGE ASTM A-125, Cara con resalte de 1/16", 150# ASME B16.5, SCH 40	23/39588	CMT-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
				LINHA EXISTENTE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Notes:				APPROVED by: CIMONTUBO Name: <u>Acielo S. Lda</u> Sign: <u>_____</u> Date: <u>25/03/2024</u>				APPROVED by: TEN				APPROVED by: GALP				APPROVED by: Nobez JO				APPROVED by: Nobez JO						



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: Nabilo HO		
Name: <i>Alessio S. Lira</i> Sign: <i>25.03.2024</i>															Name: <i></i> Sign: <i></i>	APPROVED by: TEN		Name: <i></i> Sign: <i></i>	APPROVED by: OALP		Name: <i></i> Sign: <i></i>	APPROVED by: Nabilo HO	



Caderno de Soldaduras
ISO Summary List

n° H05

Cliente:			REPSOL	Contrato:			4PRT2				Projeto:			REPSOL	Pagina 1/1					
Local:			Complexo Petroquímico de Sines	Linha n°:			H05				Desenho:			H05						
Nº Unidade:			H05	Visual Inspection Report			NDT			Rev: H05										
Line	Spool	RF Joint	Type Joint	Description Product	Heat Number	CMT	WPS	WPQR	Welding Type	Visual Inspection Report	PT/WT	RT/UT	PMI	Hardness Test	Heat treatment	RT/UT PWHT	GIAW	SMAW		
28	H05	BW	BJ300	LINHA EXISTENTE Ø 6" FLANGE ASTM A-105, Cara con resultado de 1/16", 150R, ASME B16.5, SCH 40	23/39588	CMT-3														
29	H05	BW	SW01	Ø 6" FLANGE ASTM A-105, Cara con resultado de 1/16", 150R, ASME B16.5, SCH 40	23/39588	CMT-3	4PRT2_001	2019/0152	14/03/2024	16/03/2024								24223583		
30	H05	BW	SW02	Ø 6" Tubo, ASTM A-106 B SMLS, Extremos biselados, ASME B36.10, SCH 40	63820	CMT-2	4PRT2_001	2019/0152	14/03/2024	16/03/2024	15/03/2024							24223583		
31	H05	BW	SW03	Ø 6" ELBOW 90° LR BW Ends Sch.40 ASTM A234 Gr. WPB	486912	CMT-1	4PRT2_001	2019/0152	14/03/2024	16/03/2024	24_CRT_15952_585_4PRT2_001							24223583		
32	H05	BW	SW04	Ø 6" Tubo, ASTM A-106 B SMLS, Extremos biselados, ASME B36.10, SCH 40	63820	CMT-2	4PRT2_001	2019/0152	14/03/2024	16/03/2024	15/03/2024							24223583		
33	H05	BW	BJ301	Ø 6" FLANGE ASTM A-105, Cara con resultado de 1/16", 150R, ASME B16.5, SCH 40	23/39588	CMT-3														
				LINHA EXISTENTE																
Notes:				Name: <u>Tauco S. Almeida</u>	APPROVED by: CIMONTUBO			Name: _____			APPROVED BY: TEN			Name: _____			APPROVED by: GALP			
				Sign: _____ Date: <u>25/03/2024</u>				Name: _____			Sign: _____ Date: <u> </u>			Name: _____			APPROVED by: NoBe / ID			

EW = Butt weld; FW = Flat 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

nº H06

Cliente:	REPSOL	Contrato:	4PRT2	Pagina 1/1
Local:	Complexo Petroquímico de Sines	Projeto:	REPSOL	

Nº Unidade:	H06	Linha nº:	H06	Desenho:	H06	Rev:	H06												
Line	Spool	Nº Joint	Type joint	Description Product	Part Number	CMT	WPS	WPSR	Welding	Visual Inspection Report	PT/MT	RT/UT	PMI	Hardness Test	Heat treatment	RT/UT PWHT	CONSUMABLES	GTAW	SWAW
34	H06	BJ300		LINHA EXISTENTE Ø 6" FLANGE ASTM A-105, Cara con resalte de 1/16", 150#, ASME B16.5, SCH 40	23/39588	CMT-3			S										
35	H06	SW01	BW	Ø 6" FLANGE ASTM A-105, Cara con resalte de 1/16", 150#, ASME B16.5, SCH 40 Ø 6" Tubo, ASTM A-106 B SMLS, Extremos biselados, ASME B36.10, SCH 40	23/39588	CMT-3	4PRT2_001	2019/0152	14/03/2024	16/03/2024									24223583
36	H06	SW02	BW	Ø 6" Tubo, ASTM A-106 B SMLS, Extremos biselados, 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	14/03/2024	16/03/2024	15/03/2024								24223583
37	H06	SW03	BW	Ø 6" ELBOW 90° LR BW Ends Sch.40 ASTM A234 Gr. WPB Ø 6" Tubo, ASTM A-106 B SMLS, Extremos biselados, ASME B36.10, SCH 40	486912	CMT-1	4PRT2_001	2019/0152	15/03/2024	16/03/2024								24223583	
38	H06	SW04	BW	Ø 6" Tubo, ASTM A-106 B SMLS, Extremos biselados, ASME B36.10, SCH 40 Ø 6" FLANGE ASTM A-105, Cara con resalte de 1/16", 150#, ASME B16.5, SCH 40	63820	CMT-2	4PRT2_001	2019/0152	14/03/2024	16/03/2024			15/03/2024					24223583	
39	H06	BJ301		Ø 6" FLANGE ASTM A-105, Cara con resalte de 1/16", 150#, ASME B16.5, SCH 40 Linha Existente	23/39588	CMT-3			S										

Notes: BW: Butt Weld, FW: Flare Weld, SW: Square Weld, TWD: Branch Connection PT: Penetrant Test, MT: Magnetic Test, RT: Radiographic Test, UT: Ultrasonic Test PPM: Positive Material Identification	Name: <u>Taunay Silveira</u>	APPROVED by: CIMONTUBO	Name: <u>TEN</u>	APPROVED by: TEN	Name: <u>GALP</u>	APPROVED by: Nobe / IO
	Name: <u>Sign</u>	Date: <u>25.03.2024</u>	Name: <u>Sign</u>	Date: <u></u>	Name: <u>Sign</u>	Date: <u></u>



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	FW39		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



TRAZABILIDAD		PARTE NR°	HEAT NR°	Nº CERTIFICADO	FABRICACIÓN	PINTURA
DESCRIPCIÓN 2					EJECUTADO	EJECUTADO
500mm SDR11 ELBOW 90, PN16, HDPE, PE100, Dims to EN1221				N/Disponível		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 ELBOW 90, PN16, HDPE, PE100, Dims to EN1221				N/Disponível		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				N/Disponível		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				N/Disponível		
500mm SDR11 ELBOW 90, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				N/Disponível		
500mm SDR11 ELBOW 90, PN16, HDPE, PE100, Dims to EN1221				N/Disponível		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				N/Disponível		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				N/Disponível		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
280mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		
250mm Reducer, PN16, HDPE, PE100, Dims to EN1221				N/Disponível		
355mm Reducer, PN16, HDPE, PE100, Dims to EN1221				N/Disponível		
500mm SDR11 Tee igual, PN16, HDPE, PE100, Dims to EN1221				N/Disponível		
500mm SDR11 Tee igual, PN16, HDPE, PE100, Dims to EN1221				N/Disponível		
500mm SDR11 ELBOW 90, PN16, HDPE, PE100, Dims to EN1221				N/Disponível		
500mm SDR11 Tee igual, PN16, HDPE, PE100, Dims to EN1221				N/Disponível		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				N/Disponível		
500mm SDR11 Pipe, PN16, HDPE, PE100, Dims to EN1221				Usado		

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

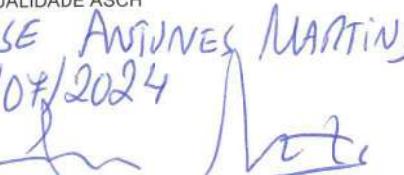
Rev.	Data	Descrição	Realizado	Cliente
0	05/08/2024	Protocolo REDE CONTRA INCÊNDIOS AVENIDA 27 FIRE WATER-20" – FW900000 – PEB69	JOSE ANTUNES TECNICO QUALIDADE	

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"	21/05/2024	1601L	21/05/2024		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 17/07/2024
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



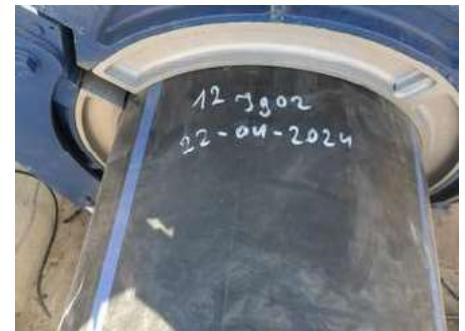
Soldadura 09



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



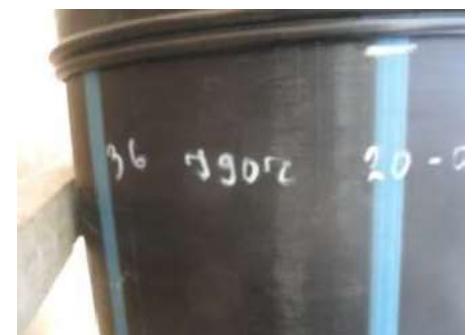
Soldadura 33



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

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



Registro n°:

on

Data: 07-06-2024

REGISTO DE TORQUES

CLIENTE: ASCH

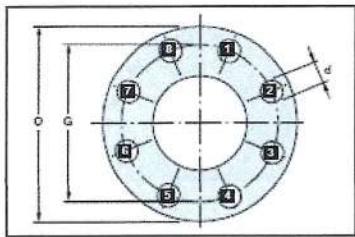
PROJECTO: 4001008 – Alba. Nuevas plantas de poliolefinas, plataformas logísticas y offsites

IDENTIFICAÇÃO: Rede Incendios AV.27

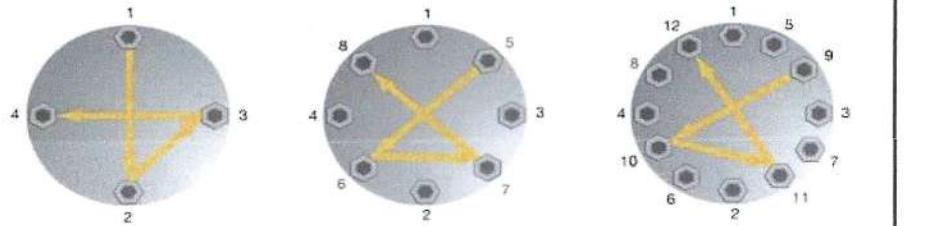
Local da Instalação: Repsol Polímeros

EQUIPAMENTO UTILIZADO

1. Será seguida a seguinte sequência de torque.



Seqüência de Torque



Obs:

Resultado:		O Executante:		Ygor Constantino	Data: 07-06-2024	
Aceite	X	C. Qualidade:			Data: 07-06-2024	
Aceite c/ indicações registadas						
Não Aceite		ASCH		Segula	Inspeção	Data:



Registo nº: 02
Data: 05-08-2024

REGISTO DE TORQUES

CLIENTE: ASCH

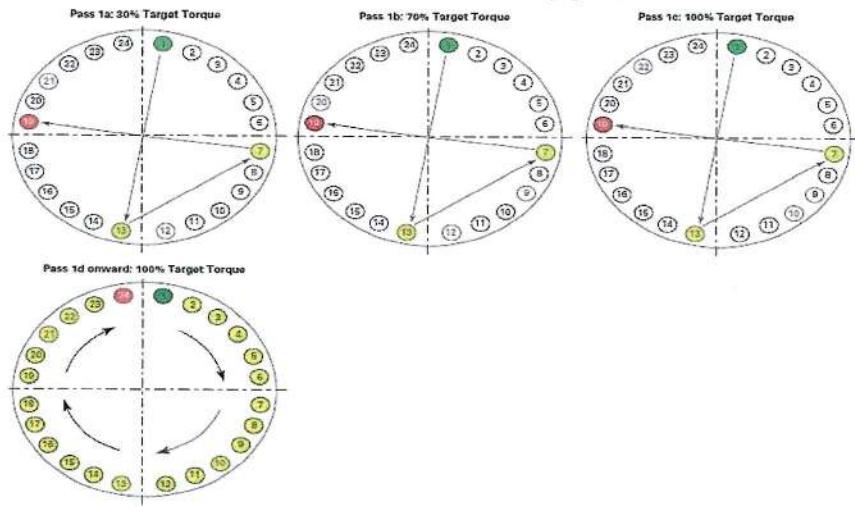
PROJECTO: 4001008 – Alba. Nuevas plantas de poliolefinas, plataformas logísticas y offsites

IDENTIFICAÇÃO: REDE Incendios AV.27

Local da Instalação: Repsol Polímeros

EQUIPAMENTO UTILIZADO

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



ASME PGC-1-2013

Obs:

Resultado:

Aceite

Aceite c/ indicações registadas

| Não Aceite

1

O Executante:

C. Qualidade:

ASCH

ASCH

Segula

Inspecção

Df13

Data:

Part

9-08-2024

REGISTO DE TORQUES

CLIENTE: ASCH

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

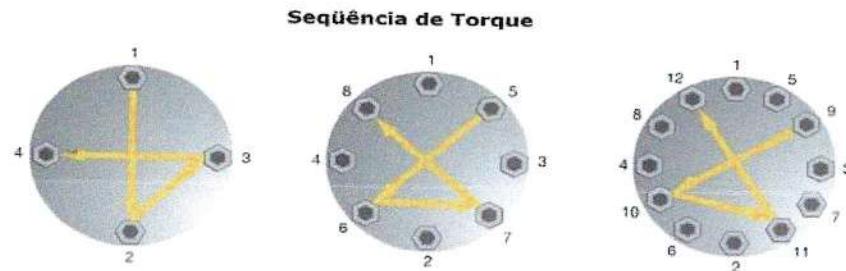
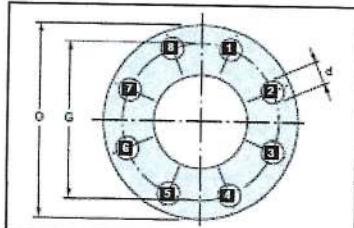
IDENTIFICAÇÃO: Rede Incendios AV.27

Local da Instalação: Repsol Polímeros

EQUIPAMENTO UTILIZADO

Designação	Nº		Cert. Nº	Gama				
Chave	Force SA03867		1386/24	65 a 450 N.m				
ITEM	BC nº	Ø PERN	Classe (#)	Montagem OK (Nome / Data)	Torque (N/m)	Torque (N/m)	Torque (N/m)	TORQUE OK (Nome / Data)
1	AH31	6"	3/4"	150# Pedro Costa	70	140	225,00	Pedro Costa 30.08.24
2	AH32	6"	3/4"	150# Pedro Costa	70	140	225,00	Pedro Costa 30.08.24
3	AH33	6"	3/4"	150# Pedro Costa	70	140	225,00	Pedro Costa 30.08.24
4	AH34	6"	3/4"	150# Pedro Costa	70	140	225,00	Pedro Costa 30.08.24
5	AH35	6"	3/4"	150# Pedro Costa	70	140	225,00	Pedro Costa 30.08.24
6	AH36	6"	3/4"	150# Pedro Costa	70	140	225,00	Pedro Costa 30.08.24

1. Será seguida a seguinte sequência de torque.



Obs:

TORQUE EFETUADO NA FLANGE BASE DO HIRANTE

Resultado:	O Executante:	C. Qualidade:	Data:
Aceite			30.08.2024
Aceite c/ indicações registadas	<input checked="" type="checkbox"/>		Data:
Não Aceite	<input type="checkbox"/>		30.08.2024
	ASCH	Segula	Inspecção
			Data:

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: 184 / 185

5. AS-BUILT

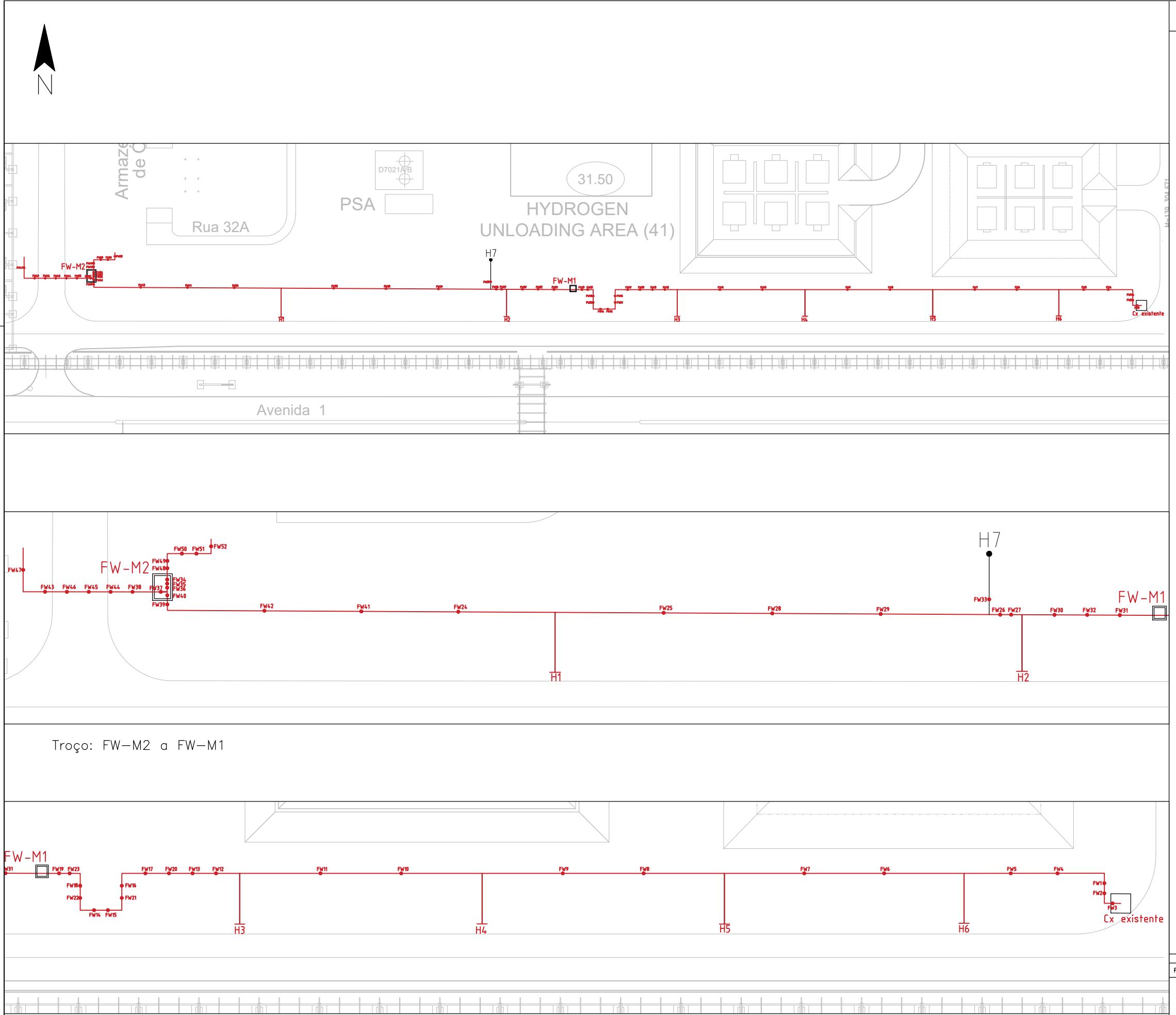
Rev.	Data	Descrição	Realizado	Cliente
0	05/08/2024	Protocolo REDE CONTRA INCÊNDIOS AVENIDA 27 FIRE WATER-20" – FW900000 – PEB69	JOSE ANTUNES TECNICO QUALIDADE	

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 N° Drawing n°		Escala Scale	Hoja N° Sheet N°	Rev.
A3	R007-AB-004		S/E	1/1	0