

*Medidas en Chaqueta Interna*



*Medidas tomadas en Chaqueta Interna*



*Medidas tomadas en Chaqueta Interna*



*Medidas tomadas en Zona Internas a 135°*





*Angulos de medición Chaqueta Interna*



*Medidas tomadas en Zona interior a 180°*

# **ANEXO II**

## **REPORTES DE INSPECCIÓN**

<div><div>ARKHAM</div><div>QUALITY TRADING</div></div>		REPORTE DE INSPECCIÓN POR ULTRASONIDO MEDICIÓN DE ESPESORES		<div><div></div><div>IAT</div><div>Inter Andean Trading</div></div>					
PROYECTO:		MEDICIÓN DE ESPESORES A CHAQUETA INTERNA SECADOR DE TUBOS FRT 8000 SC		REPORTE N°:		1			
EJECUTOR:		ARKHAM INDUSTRIAL S.R.L - INTER ANDEAN TRADING		VERSIÓN:		1			
CLIENTE:		PESQUERA AUSTRAL S.A.A		PROCEDIMIENTO:		ARK-PR-UTT-STD			
COMPONENTE:		SECADOR DE TUBOS FRT 8000 SC - ZONA CHAQUETA INTERNA		FECHA:		20/02/2025			
EQUIPO / TRANSDUCTOR		MATERIAL		NORMA / CÓDIGO					
Equipo	YUSHI NDT - UM - 2D	Material	ASTM A36	Evaluación	Información del fabricante				
Serie	5205120	Espesor	19 mm	CALIBRACIÓN					
Transductor / Serie	PT-08 / 18283	Proceso Sold.	N/A	Bloque de ref.	Escala 5 - 25 mm				
Tamaño	10mm	Junta	N/A	Sensibilidad.	8,5 db				
Frecuencia	5 Mhz	Acoplante	Pasta celulosa	Velocidad (m/s)	5900 m/s				
GRÁFICO DE INSPECCIÓN									
<div><div><div>1er anillo</div><div>2do anillo</div><div>3do anillo</div><div>4do anillo</div><div>5do anillo</div><div>6do anillo</div><div>7do anillo</div><div>8do anillo</div><div>9do anillo</div><div>10do anillo</div></div></div>									
Lado Carga		Leyenda: La Secante A está de color ROJO, y la Secante B está de color AZUL. Las secantes están a 1" del cordón de soldadura				Lado Descarga			
<div><div>Vista lateral de zona interior</div><div><div>0°</div><div>315°</div><div>45°</div><div>90°</div><div>135°</div><div>180°</div><div>225°</div><div>270°</div></div></div> <div>Vista frontal de zona interior</div>									
RESULTADOS OBTENIDOS EN LA MEDICIÓN DE ESPESORES									
ANILLO	SECANTE	0°	45°	90°	135°	180°	225°	270°	315°
1	A	15.05	14.72	14.95	15.02	15.22	14.46	15.18	14.97
	B	15.56	15.79	15.40	15.68	15.51	15.44	15.50	15.46
2	A	15.83	15.56	15.28	15.49	15.41	15.66	14.96	15.42
	B	15.93	15.61	15.67	15.76	15.98	15.95	15.24	15.68
3	A	15.63	15.74	15.74	15.81	15.88	15.86	15.30	15.30
	B	15.92	15.76	15.59	16.23	15.76	15.71	15.42	15.47
4	A	15.93	15.67	15.74	15.98	15.83	15.98	15.69	15.64
	B	15.85	15.49	15.63	15.61	15.71	15.41	15.65	15.33
5	A	15.88	15.85	15.56	15.95	15.83	15.78	15.83	15.44
	B	15.65	15.61	15.79	15.98	16.05	15.83	15.98	15.60
6	A	15.49	15.35	15.69	15.91	16.18	15.93	15.76	15.74
	B	15.32	15.65	15.65	15.94	15.88	15.88	15.61	15.55
7	A	15.52	15.74	15.76	15.81	16.13	15.95	15.98	15.89
	B	15.61	15.90	15.52	15.81	15.93	15.86	15.92	15.83
8	A	15.64	15.69	15.79	15.79	16.08	15.65	16.06	16.00
	B	15.65	15.56	15.76	15.40	15.91	15.88	15.79	15.81
9	A	15.55	15.49	15.52	15.30	15.91	15.74	15.72	15.74
	B	15.49	15.64	15.20	15.41	15.95	15.74	15.79	15.91
10	A	15.69	15.37	15.45	15.28	15.93	15.66	15.87	15.71
	B	15.74	15.79	15.64	15.47	15.88	15.54	15.65	15.83
Aprobado por: Inspector NDT Level II VT PT MT UT		Aprobado por: Residente IAT			Aprobado por: Cliente				
<div><div></div><div>Gerson Herrera Manrique Inspector UT Nivel II</div></div>									

# **ANEXO III**

## **CERTIFICACIONES DEL PERSONAL INSPECTOR.**





# NDT CERTIFICATE

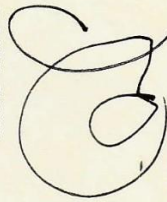
This is to certify that the individual named below has successfully completed experience, training and examination requirements in accordance with the provisions of **MARS ULTOR NDT Written Practice for the Qualification and Certification of Nondestructive Testing Personnel (P OPE 012 VER.0)** established following the guidelines of **Recommended Practice SNT TC 1 A 2024 Personnel Qualification and Certification in Nondestructive Testing**

**GERSON ALD AIR HERRERA MANRIQUE**

Is hereby certified to perform the following Nondestructive Method:

NDT Method	NDT Level	NDT Technique	Limitations	Certificate	Issue date	Expiration date
Ultrasonic Testing (UT)	II	Contact - Pulse Echo (Thickness measurement, Straight and Angle Beam)	N/A	UT 00357	03/11/2024	03/11/2029

MARS ULTOR – Calle Teniente Enrique Deluchi 240 Barranco Lima Perú / Cel +51941833673 / administrador@mars-ultor.com



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ING. OCTAVIO ARCE  
ASNT NDT LEVEL III Cert. 236365  
VT PT MT RT UT IR ET MFL LT AE  
oarce@mars-ultor.com





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LORENA CARBAÑO  
GENERAL MANAGER  
MARS ULTOR  
administrador@mars-ultor.com

## **ANEXO IV**

# **CERTIFICADO DE CALIBRACIÓN DEL EQUIPO DE ULTRASONIDO**

CERTIFICATE N° UT.CE.PG.300-25

WORK ORDER N° OD-PG-300-25

# Certificate of Calibration

CUSTOMER ARKHAM INDUSTRIAL SRL

INSTRUMENT DESCRIPTION Thickness Gauge UM-2D PURCHASE ORDER N° Verbal  
MODEL UM-2D SERIAL N° 63100  
CONDITION CODE A

I here certify, that on this date, PRINCIPIA INSPECCIONES S.A.C., verified the Ultrasonic Thickness Gauge instrument in accordance with all applicable requirements for work. I further certify that the supplies are of the quality and quantity specified and are in all respects in conformance with the requirements of ASME V-10, ASTM E797-05, ASTM E114-95 (R2005) and ASTM E317. The unit was calibrated and certified in according to the manufacturer calibration and test procedure. The blocks used are traceable to the NIST requirement.(Ref.:INF.PG.3456-25)

This instrument meets or exceeds the specification of the manufacturer.

Date Certified Febrery 05, 2025

Recertification Date Febrery 05, 2026

## \*Condition Codes\*


A-Instrument in tolerance. No adjustment required. None made.  
B-Instrument in tolerance. Adjustment made only to center Tolerance range.  
C-Instrument not in tolerance. Adjustment required.  
D-Instrument not in tolerance. Repairs performed.  
E-Instrument inoperative. Repairs performed.



  
ING. ANTONIO NAVARRO POLO  
ASNT NDT Level III ID# 209479  
NDT Level II (RT, PT, UT, MT, AV, PAUT)  
Operador/Oficial IPEN N°0990-07/0051-10  
Especialista en Tratamiento Térmico  
Mobile Crane Insp. NACB(USA) ID9803-14-006

This certificate is not official without the PRINCIPIA S.A.C. Corporate Seal



	<b>Ultrasonic Unit Calibration Report</b> (Reference Standard ASTM E797 and E317)	Review: 00
		Edition: 2025
		Page: 01 of 01
		Code: FO.PG.012-25

Ultrasonic Unit Model UM-2D Client Arkham Industrial SRL Serial N° 5205120  
 Search Unit-Size 10mm Type 0° Frequency 5.0 Mhz  
 Calibration-Date 5-Feb-25 Interval 12 Month Method ASME V, ASTM E317  
 Block Serial N° 63100 Type of block Block 5, mm Block Material A1018 Steel

Report N° INF.PG.3456-25

Thickness	Step Thickness (mm)	Actual Block Thickness (mm)	Actual Thickness (mm)	Range 2% (mm)	Remark
T1	5.00	5.00	4.98	4.9-5.1	OK
T2	10.00	10.00	10.01	9.8-10.2	OK
T3	15.00	15.00	15.00	14.7-15.3	OK
T4	20.00	20.00	19.97	19.6-20.4	OK
T5	25.00	25.00	24.96	24.5-25.5	OK

Measuremnet Ranges in Steel verified:
5 Mhz Ø10mm probe


T: Thickness Material

The block standars used to perform this calibration are traceable to NML/ROC and NIST/USA.

This instrument is considered ☒ Acceptable  
☐ Not Acceptable

Date Calibration: Febrery 05, 2025  
 Recalibration Date: Febrery 05, 2026

Calibrated By

  
**Ing. Antonio Navarro Polo**  
**ASNT Level III ID#209479**  
**OUTSIDE AGENCY**  
[www.asnt.org](http://www.asnt.org)



# NDT CERTIFICATE

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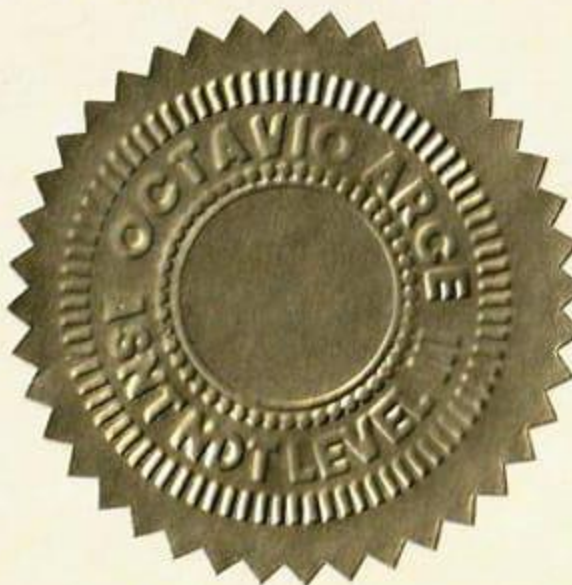
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