07-09-2023

INDOX ENERGY SYSTEMS

Offer number	230703703.A
Client	PRF
Direction	
Country	PORTUGAL
Contact person	Carla Carapinha
Project number	SG dujos HOLDING (Lituania)

1. General:

Tank code VERTICAL	DCV-270-070-11-E	
Tank design	VERTICAL double body, vacuum insulated and perlite.	
Optimised for	GNL	
Pressures	Maximum service	11 bar
	Hydraulic test	17,16 bar
Homologation	Directive 2014/68/UE	
Design code	EN-13458	
Design temperature Inner Vessel	-196ºC...+50ºC	
Design temperature outer Vessel	-40ºC...+50ºC	
Interior material	Stainless Steel	
Exterior material	Carbon Steel. Quality S235J0	
Geometric capacity	**69.527 litters**	
Capacity 95%	**66.051 litters**	
Tare weight	**24.000 kg**	
Approximate heigh	**14.800 mm**	
Approximate width	**3.084 mm**	

2. Documentation, tests and trials:

Documentation	Operating instructions manual with spare parts list in English language. Manufacturing manual with corresponding certificates.
X-rays:	According to UNE-EN ISO 17636-1. 100% Lineal, 100% Crosses and 25% Circular.
Tests & trials:	Required according to homologation and design code: Hydraulic test, manufacturing witnesses, cleanliness certificate of the inner body, etc.
Inspection entity:	Bureau Veritas Spain

Service equipment.

Type of service equipment.	INDOX
Cryogenic valves.	Globe valves HEROSE SOCKET WELL (Type 01641)

☐Economizer line. NOT INCLUDED
Measure according to type of service equipment. Tared according to maximum service pressure.
☐ Vaporizer line for pressurization. Flow according to the deposit model.

☐ Filter and regulator installed in the vaporizer line.

Stainless steel vent pipe. Exit through the top of the tank.

Security valves set according to code.

Termosiphon considered in base prices with one exit pump. Vacuum insulated until first valve (Included)

Upper coil in gas phase tank

Bottom part of the tank painted according to EN-1993-1-2: R60 (60min). Stability under fire.

Coil in the UPPER part of the tank to cold down the LNG with LIN

Seismic Calculation according UBC1997, seismic zone 3.

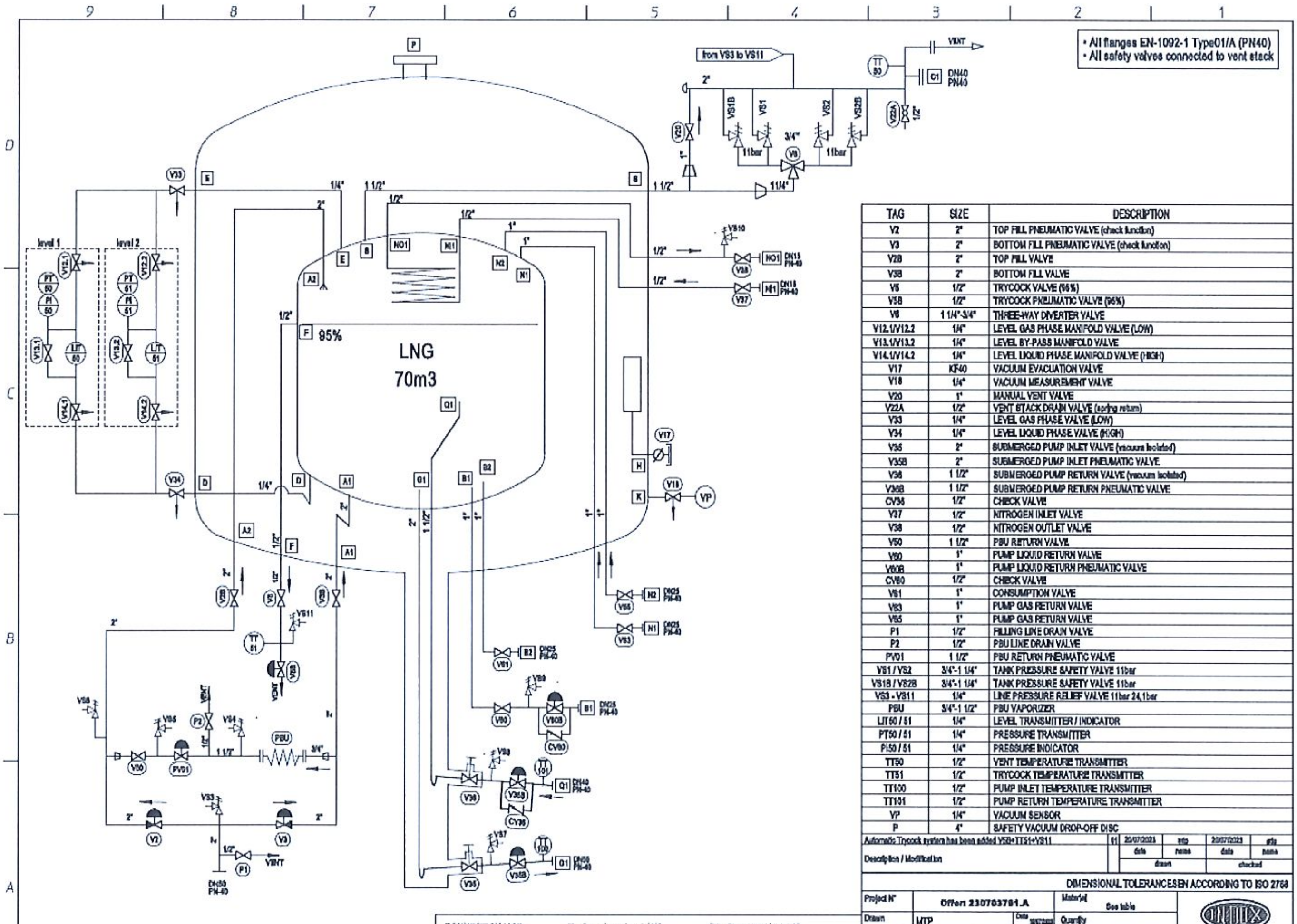
Wind load calculation: 56m/s in accordance with EN1991 1-4

NER according to EN 12 213: 0,1% LNG/day

Electronic trycock – Pneumatic valve + temperature transmitter

Fire safe valves in liquid

P&I DE LA UNDIAD CON LOS DATOS SOLICITADOS POR EL CLIENTE



TAG	SIZE	DESCRIPTION
V2	2"	TOP FILL PNEUMATIC VALVE (check function)
V3	2"	BOTTOM FILL PNEUMATIC VALVE (check function)
V2B	2"	TOP FILL VALVE
V3B	2"	BOTTOM FILL VALVE
V5	1/2"	TRYCOCK VALVE (95%)
V5B	1/2"	TRYCOCK PNEUMATIC VALVE (95%)
V6	1 1/4"-3/4"	THREE-WAY DIVERTER VALVE
V12.1/V12.2	1/4"	LEVEL GAS PHASE MANIFOLD VALVE (LOW)
V13.1/V13.2	1/4"	LEVEL BY-PASS MANIFOLD VALVE
V14.1/V14.2	1/4"	LEVEL LIQUID PHASE MANIFOLD VALVE (HIGH)
V17	KF40	VACUUM EVACUATION VALVE
V18	1/4"	VACUUM MEASUREMENT VALVE
V20	1"	MANUAL VENT VALVE
V22A	1/2"	VENT STACK DRAIN VALVE (spring return)
V33	1/4"	LEVEL GAS PHASE VALVE (LOW)
V34	1/4"	LEVEL LIQUID PHASE VALVE (HIGH)
V35	2"	SUBMERGED PUMP INLET VALVE (vacuum isolated)
V35B	2"	SUBMERGED PUMP INLET PNEUMATIC VALVE
V36	1 1/2"	SUBMERGED PUMP RETURN VALVE (vacuum isolated)
V36B	1 1/2"	SUBMERGED PUMP RETURN PNEUMATIC VALVE
CV36	1/2"	CHECK VALVE
V37	1/2"	NITROGEN INLET VALVE
V38	1/2"	NITROGEN OUTLET VALVE
V50	1 1/2"	PBU RETURN VALVE
V60	1"	PUMP LIQUID RETURN VALVE
V60B	1"	PUMP LIQUID RETURN PNEUMATIC VALVE
CV60	1/2"	CHECK VALVE
V61	1"	CONSUMPTION VALVE
V63	1"	PUMP GAS RETURN VALVE
V65	1"	PUMP GAS RETURN VALVE
P1	1/2"	FILLING LINE DRAIN VALVE
P2	1/2"	PBU LINE DRAIN VALVE
PV01	1 1/2"	PBU RETURN PNEUMATIC VALVE
VS1 / VS2	3/4"-1 1/4"	TANK PRESSURE SAFETY VALVE 11bar
VS1B / VS2B	3/4"-1 1/4"	TANK PRESSURE SAFETY VALVE 11bar
VS3 - VS11	1/4"	LINE PRESSURE RELIEF VALVE 11bar 24,1bar
PBU	3/4"-1 1/2"	PBU VAPORIZER
LIT50 / 51	1/4"	LEVEL TRANSMITTER / INDICATOR
PT50 / 51	1/4"	PRESSURE TRANSMITTER
PI50 / 51	1/4"	PRESSURE INDICATOR
TT50	1/2"	VENT TEMPERATURE TRANSMITTER
TT51	1/2"	TRYCOCK TEMPERATURE TRANSMITTER
TT100	1/2"	PUMP INLET TEMPERATURE TRANSMITTER
TT101	1/2"	PUMP RETURN TEMPERATURE TRANSMITTER
VP	1/4"	VACUUM SENSOR
P	4"	SAFETY VACUUM DROP-OFF DISC

Description / Modification		date	name	date	name
Automatic Trycock system has been added V5B+TT51+VS11	01	20/07/2023	mtp	20/07/2023	gfa
		drawn		checked	

DIMENSIONAL TOLERANCES EN ACCORDING TO ISO 2768

Project N°	Offer: 230703701.A		Material: See table	INDOX
Drawn	MTP	Date	Quantity	
Checked	ADP		See table	
Scale	AX:			DCV-250-070-110AG (1GNL+LIN)
1:1	CRYOGENIC TANK MODEL DCV-250-070-11	LNG FUELLING STATION P&ID (1 GNL + LIN)	-	N° 0900

CONNECTION LIST:
A1 - Bottom fill 2"
A2 - Top fill 2"
B1 - Pump liquid return 1"
B2 - Liquid consumption 1"
D - Liquid phase level 1/4"
E - Gas phase level 1/4"
F - Trycock 1/4"
H - Vacuum connection KF40
K - Vacuum sensor port 1/4"
P - Drop-off disc 4"
S - Safety 1 1/2"
G1 - Pump liquid inlet 2"
Q1 - Pump liquid return 1 1/2"
N1 - Gas phase return 1"
N2 - Gas phase return 1"
NI1 - Nitrogen inlet 1/2"
NO1 - Nitrogen outlet 1/2"

INDOX ENERGY SYSTEMS, S.L.
Pol. Industrial La Serra - C/ Tres Tombs, s/n 25320 ANGLESOLA (LLEIDA) ESPAÑA - Tel: (34) 973 50 06 50 - N.I.F. B-25803974
http://www.indox.com - e-mail: indox@indox.com

3. Instrumentation

Differential level with pressure indicator	MEDIA 7
☒ Level and pressure transmitter	MEDIA 7
Vacuum measurement socket type	TELEDYNE DV-6

4. Accessories.

Roof to correctly locate the instrumentation.
Vinyl with operating diagram of service equipment.
Vinyl indicating the correct stowage and lift points for transport and placement of the tank.

5. Painting

Stainless Steel interior composition.

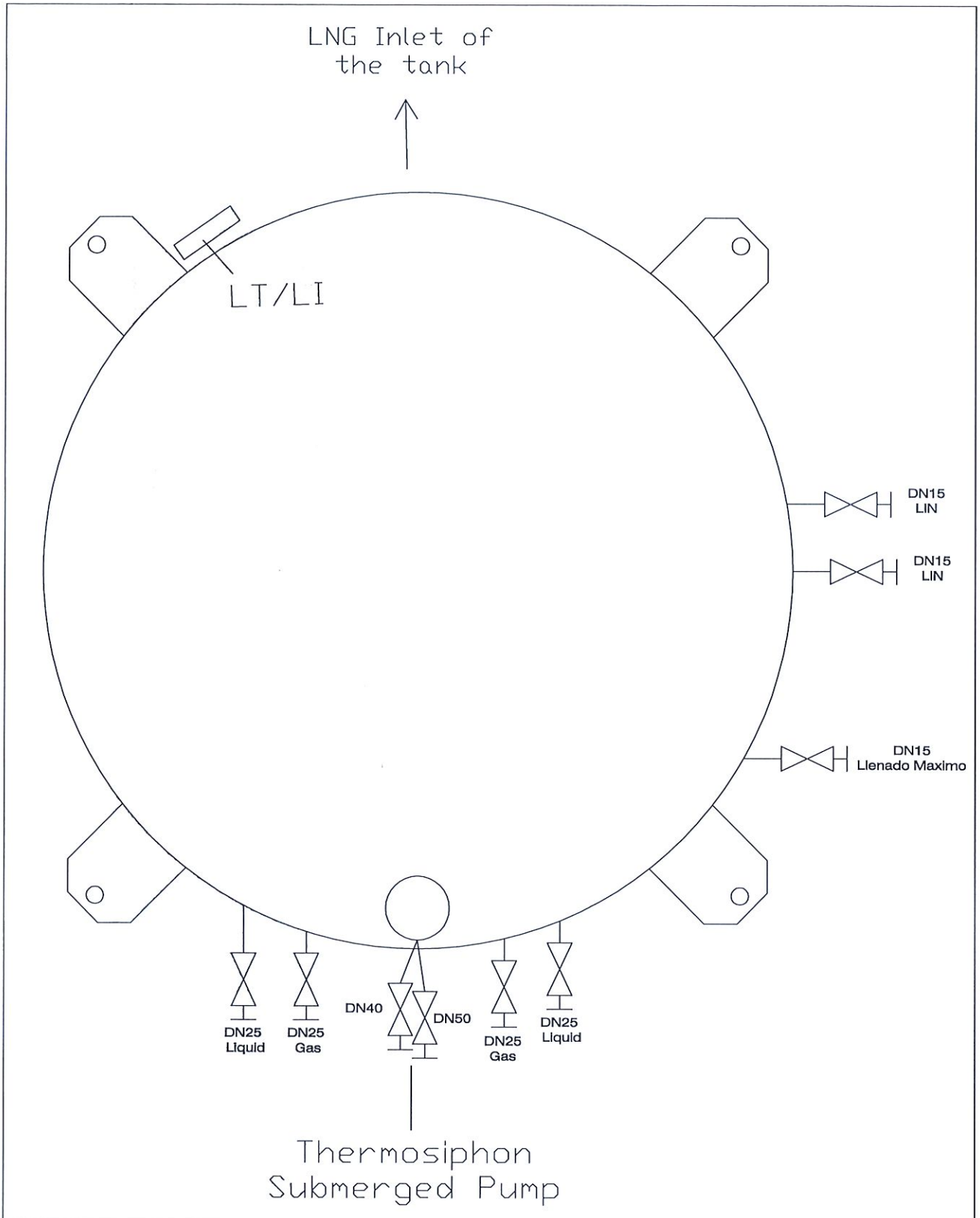
Cleaning according to design code.

Exterior

White colour RAL 9016.

☐ Customer logo NOT INCLUDED

Fireproof paint (structural parts)



REV REV	DATA DATE	DESCRIÇAO DESCRIPTION	DES. DRAWN	VERIF. VERIFIED	APROV. APPROVED

GNV

EU23018 - Tank Layout

TÍTULO
TITLE
Tank Layout

ESCALA
SCALE
s/esc

NÚMERO DO DOCUMENTO
DOCUMENT NUMBER

ÁREA AREA	CATEG. CATEGORY	NÚMERO NUMBER	REV REV
GNV	PMN	01	00

			Acabado mat.				Espesor imprimación			Espesor acabado		
V	Elemento Depósito	Mat.	pm	pu	pi	Color	1	2	3	1	2	3
(1)		(2)	(3)	(4)	(5)			(6)	(7)		(6)	(7)
	Cuerpo Exterior	**ACERO**			**X**	Blanco RAL 9016	80 µ			60 µ		
	Tuberias F. Liq /Gas	**INOX**	**X**									
	Vaporizador PPR	**ALU**	**X**									

Observaciones Especiales Cliente:

Ver unidades anteriores pintadas para este Cliente, miran todo los detalle sy comrpueban espesores

	SÍ	NO	
Rotulación		x	
En caso de que sí:			Medidas
La suministra el cliente			
La compra Indox			A determinar
Pintura Ignífuga			*Según procedimiento PPG PITT-CHAR-NIX*
Fondo Exterior		X	*Cumplimiento de ISO16924:2018 (8.1.1.5)*
Patas		X	
Tectilado		X	*Protección transporte marítimo*
Tejadillo Instrumentación	X		

Observaciones. Cliente.: **PRF-GAS**

Vinilo P&I
Vinilos zona izado y fijacion
Vinilos purga tuberías
Vinilo INDOX
Vinilo No pisar proteccion Teledyne

Verificado por. Fecha. 28/04/2023

Resultado

Tomar medidas con IQF164 o IQF165

Procedimiento de pintura

IT 750.03 140 µ (mín 100) Pintura

Nº Fabricación	**DG-16993-IK**		Fecha:
Proyectista OT.			07/09/2023
Comprobado OT.			
HOJA DE PINTURA DEPÓSITO CRIOGÉNICO			Doc. ref.

(1) Verificado. (2) Al,Fe, Inx, Pol, Pvc (3) Propio material (4) pulid((5) pintado (6) Toma espesores (7) Espesor medio.