

**PETROLEUM & ENERGY INFRASTRUCTURE**  
**BILU-Terminal.**

**TANK N<sup>o</sup> 153 -BILU**  
**160 FT – DIAMETER**

**SECONDERY SEAL FOR**  
**EXTERNAL FLOATING ROOF**  
**TANK**

**MARCH 2022**

**SCOPE:**

This document covers the technical requirements for supply and delivery of one (1) Secondary Seals for External Floating Roof for tanks N<sup>o</sup> 153 at BILU terminal.

The storage tanks are planned to handling crude oil or distillate, as follow:

**1.1 GAS OIL:**

1.1.1 Specific gravity @ 15 <sup>o</sup> C	0.870
1.1.2 Kinematics viscosity @ 37.8 <sup>o</sup> C (cst)	6-7.5
1.1.3 Sulphur content (wt%)	0.25% max
1.1.4 Acidity (mg koh/gr)	0.25
1.1.5 Cold filter plugging point (°C)	9 (max summer) -2 (max winter)
1.1.6 Flash point:	55 <sup>o</sup> C
1.1.7 Copper corrosion (2 HRS/100 c)	1 max

**1.2 GASOLINES:**

1.2.1 Specific gravity @ 15 <sup>o</sup> C	0.73 –0.765
1.2.2 Kinematics viscosity @ 37.8 <sup>o</sup> C (cst)	0.6
1.2.3 Copper corrosion (2 hr/100 C)	1 max
1.2.4 Aromatics (vol %)	60
1.2.5 MTBE (%)	15
1.2.6 1.2.7 Vapor pressure 37.8 <sup>o</sup> C (PSI)	9 max

**1.3 KEROSENE:**

1.3.1 Density 15 <sup>o</sup> C	0.805
1.3.2 Kinematics viscosity (CST at 15 <sup>o</sup> C)	3-4
1.3.3 Copper corrosion (2 hr/ 100 <sup>o</sup> C)	1 Max.
1.3.4 Acidity (mg koh/gr)	0.015
1.3.5 Sulphur content (wt %)	0.2

**SITE CONDITIONS:**

1. Site altitude is about 200 m' above sea level at
2. Ambient temperature varies between 0<sup>0</sup>C- 45<sup>0</sup>C.
3. Relative humidity varies between 45% - 95%.
4. Rain fall around 350 mm' / year.

**GENERAL REQUIREMENTS:****TECHNICAL DATA:****General:**

:	
- Primary seal:	NO ( EXIST TUBE TYPE)
- Secondary seal:	YES.
- Static shunts:	YES.
- Foam ports:	YES.
Tank diameter:	160 FT. 50 meter
Nominal Tank volume:	35,000 m <sup>3</sup>
Floating roof type:	external, pontoons.
Rim angle:	vertical
Rim space:	200 mm
Rim space tolerance (at list):	-X+3X
API spec to be meet –API 650 and 653 last revisions	

The sealing elements comprise mainly of soft wipers and compression plates that maintain full contact with the tank shell and keep the floating roof centered.

The Sealing element on the secondary seal will be suitable to the welded seam on the shell.

The design of the seal system will assure a full contact of both parts with tank shell along all tank perimeters, through the wipers at all times.

The vendor should declare the system as maintenance free during the whole life service.

No welding is required for the installation.

Installation and dismantling should be easy avoiding the use of hot works- in service.

Full IOM documents shall be supply with the goods.

The anticipated life span of the seal working under normal operations shall be at least 15 years.

Primary seal:

The exist primary seal is tube type

Secondary seal:

The secondary seal shall be made of stainless steel, at least 304ss, compression plates fitted with wiper tip that tightly held in continuous contact with the tank shell.

The secondary seal shall be fitted with one of following sealing technique:

1. Vapor membrane.
2. Bolted and gasketed plates.

The vendor shall supply static discharge shunts made of spring grade 304. The vendor shall supply foam ports in the secondary seal according to API 650.

**GENERAL TERMS:**

The vendor shall supply the following information att. to the quotation:

- All drawing including accessories drawings & list of parts
- Maintenance instruction.
- Wight for all components