LEACHATE VACUUM TANK

OPERATING MANUAL

VACTANK
LOGISTICS

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TO THE PURCHASER

Your Multi-modal vacuum tanker will give you years of dependable service if the proper operating and maintenance instructions are observed. We recommend that you read this manual carefully to become thoroughly familiar with your tanker equipment prior to operation.

This manual contains sections on safety, specifications and operation. Each section in this manual is clearly identified to help you easily find the information you need.

DISCLAIMER

Your Multi-modal vacuum tanker will give you years of dependable service if the proper operating and maintenance instructions are observed. We recommend that you read this manual carefully to become thoroughly familiar with your tanker equipment prior to operation.

This manual contains sections on safety, specifications and operation. Each section in this manual is clearly identified to help you easily find the information you need. norms. The tank must be inspected on schedule under the supervision of a Classification Society.

VACTANK LOGISTICS cannot and doesn't accept any liability for injury, loss of or damage to persons, property and/or equipment or any other consequence of procedures referred to herein.

The manufacturer reserves the right to change specifications or make improvements without notice and without incurring obligations to products previously sold. Information contained herein is from data available at time of printing.

WARNING

Study this manual before operating or maintaining your vacuum tanker and any of its components. You must understand and follow the instructions in this manual, otherwise you and/or others can be seriously injured.

DO NOT operate this equipment if you have not read and understood all the safety and operating instructions. Also, DO NOT allow any other person to operate this equipment if they have not read and understood all the safety and operating instructions.

SAFETY

General Safety Precautions

DANGER: DO NOT stand near the snifter or discharge valve when loading or unloading the tank. Leachate gases vented out of the snifter may settle downward. Leachate gases can also be expelled out of the discharge valve when releasing tank pressure. Inhaling leachate gases can cause severe injury or death.

WARNING: DO NOT allow children or irresponsible people near your work area or equipment. Fatalities have occurred when children have fallen or climbed into unattended tanks. Secure your work area from entry of unauthorised persons in the vicinity.

WARNING: Secure all access covers against unauthorised entry after pumping septic/holding tank. Fatalities have occurred where children have fallen into tank openings that had not been properly secured. Securely chain and padlock above ground access openings.

WARNING: Always wear protective gloves, eye protection and, appropriate clothing when working with leachate. These materials may contain hazardous chemicals.

DANGER: DO NOT enter a tank without first cleaning and providing adequate ventilation to the interior of the tank. Leachate gas can be deadly if inhaled; especially in a confined space, which can cause asphyxiation.

DANGER: DO NOT enter a tank without using a respirator that supplies grade D breathing air or a self-contained breathing apparatus. In addition, DO NOT use this equipment without training and familiarity with it. Entering a tank exposed to leachate effluent without a correct breathing apparatus, or with improper use of it, can cause death.

DANGER: DO NOT enter a tank without protective clothing.

WARNING: When entering a tank, always have someone standing by to provide assistance, and always have a respirator that supplies self-contained breathing apparatus on hand for them. In the event of an attempted rescue, this equipment is necessary to prevent death of the rescuer.

WARNING: Attach a safety-harness and rope to any person that enters a tank. Have the safety-harness rope held by a person standing by to provide assistance outside the tank.

WARNING: Entry into a tank is confined space entry. Persons entering these tanks for any purpose must be trained in and follow OSHA confined space safety procedures.

SAFETY

General Safety Precautions

WARNING: Keep hands, feet, hair, and clothing away from moving parts. Contact with a moving mechanism can cause entanglement that can lead dismemberment or death.

WARNING: Escaping hydraulic oil under pressure can have sufficient force to penetrate your skin, which can cause serious injury. Before operating hydraulic components, be sure all connections are tight, and hoses are not damaged. Relieve all pressure before disconnecting hydraulic lines or repairing leaks.

CAUTION: When off-loading under pressure, maintain control of the end of the hose. Pressurised discharge can cause a hose end to whip about and create the potential for spraying persons in the area.

WARNING: The truck's cornering and braking abilities are reduced when the tank is loaded. Drive at a reasonable speed with a loaded tank; reduce speed on rough or hilly terrain, before making an anticipated stop, and when cornering.
WARNING: Make certain everyone is clear of the tanker truck and the immediate area before starting the engine, engaging power, and operating the equipment. The inherent hazards of leachate pumping can cause serious
injury or death to untrained persons that enter this area.

CAUTION: Avoid contact with the vacuum pump during or immediately after operation. Contact with a hot vacuum pump can cause severe burns

OPERATING SAFETY PRECAUTIONS

The vacuum relief valve serves to safeguard against vacuum pump damage. The vacuum relief valve is factory set to the pump manufacturer's maximum continuous vacuum rating within the design parameters of the tank.

The Pressure Relief Valve is located on top of the tank and is set to ensure against excessive airflows and operating pressures from damaging the vessel.

SAFETY GEAR

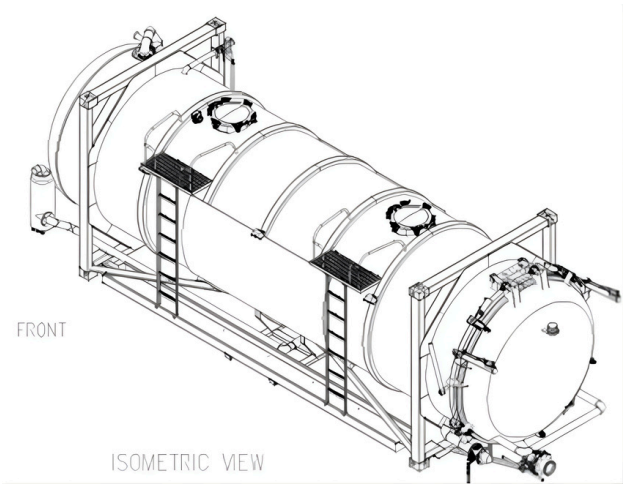
It is recommended that personnel be issued the relevant personal protection gear to prevent any form of injury or illness while operating equipment. Recommended gear as below:

SPECIFICATION

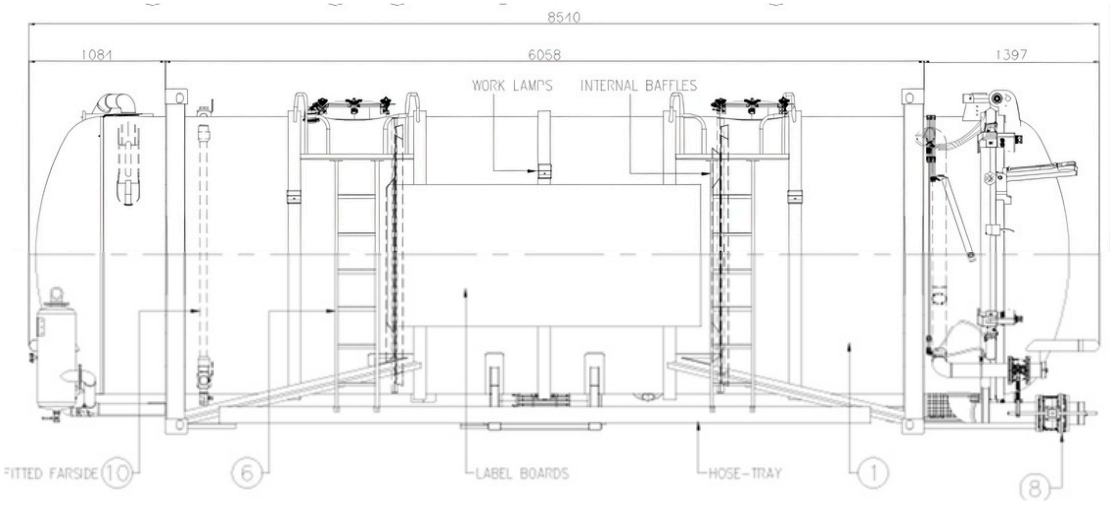
General Description

This tank is a waste tank built to chapter 6.10 of ADR, for carriage of dangerous goods under the provisions allowed under this chapter for a tank L4AH. Please note that under 6.10, products assigned tank code L4BH may be carried in this tank, see section 4.5.1.1 of ADR.

Below offers a breakdown of the various sub-assemblies and key components of the Vac Tank.



ITEM	DWG NO.	ISSU.	NAME
13			SECONDARY SHUT-OFF
12			PRIMARY SHUT-OFF
11			VACUUM PUMP JURO
10			LEVEL GAUGE
9			FILL-1" NB
8			OUTLET-6" NB
7			WALKWAY
6			LADDER & HANDRAIL
5			RELIEF VALVE-2.5", FV
4			MANWAY-6PT
3			VACUUM RING
2			FRAME
1			VESSEL



SPECIFICATION

General Description

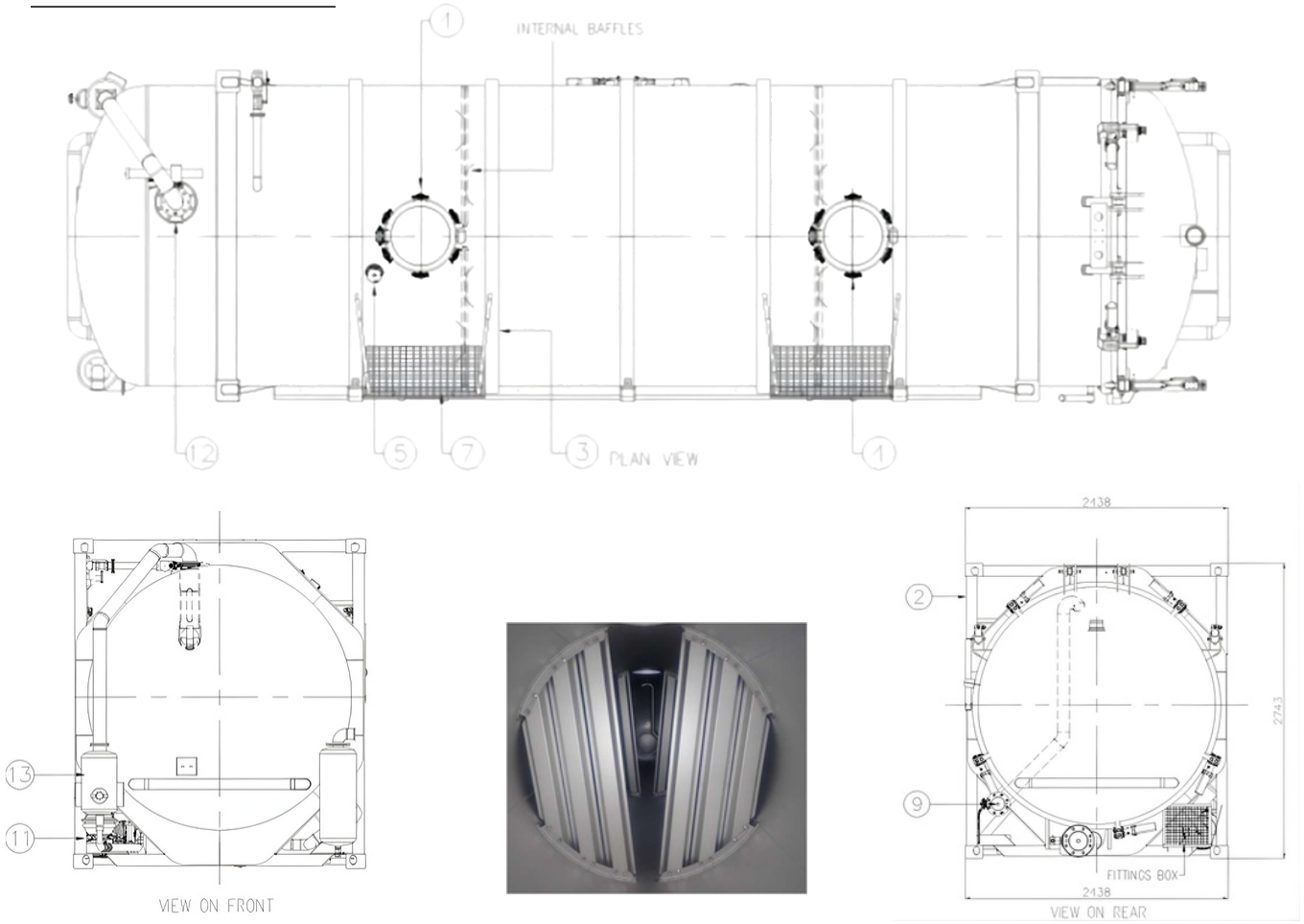


Figure 1: Vac Tank Assembly and Part Identification

Operating Pressure

Maximum operating pressure for this tank is 1.0 bar internal, and max 1.0 bar external (theoretical)

Internal Design

Mass:

Tare mass of 4760 Kg, Max gross weight dependent upon road/rail restrictions by country. VacTank Logistics take no responsibility for operator error in the event of overfilling exceeding local road or rail restrictions.

Baffles The tank is fitted with 2 baffles. These are provided for safe operation against product surge, but do not allow for transport at less than 80% full carrying dangerous goods??

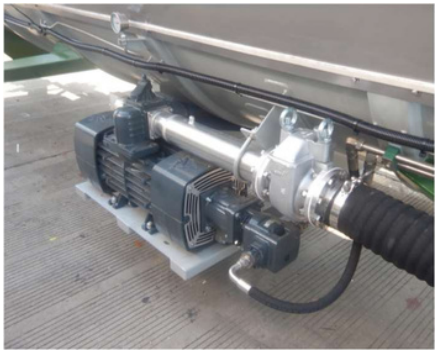
Volume

Tank has a capacity of 30,000 Litres. Always consider regulatory and product safe loading capacity when filling the tank.

SPECIFICATION

General Description

Tank Pump Equipment



Jurop RV520 pump

Hydraulically driven Jurop RV520 pump, which can pull vacuum on the tank for filling the tank and provide positive pressure to discharge the tank.

The tank is fitted with hydraulic inlet and outlet at the front end, to achieve full performance, the hydraulic supply must be 180 bar, with a flow of at least 120 litres/minute.

Moisture Separator Assembly

Acts as a condenser to water vapour. Prevents accumulated water from entering the vacuum exhauster.

Snifting Assembly

Float operated overflow prevention valve

Table 1: List of Process equipment assemblies

Connections

The tank features a 4” fill connection and a 6” discharge connection, both with URT threaded connections.

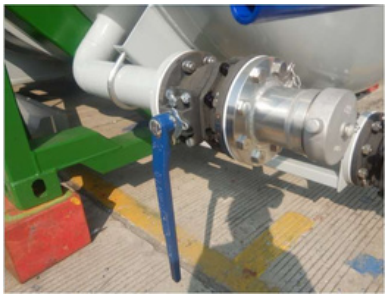


Figure 2: URT product fill line

Figure 3: 6” URT Product discharge line

ELECTRICAL SUPPLY

Operating lights are provided, the power to these is provided via a 7-pin plug. The lights will all be on when the power is connected. The unit should not be transported with the lights on.

LIGHTING

The tank is fitted with work lights around all operational equipment. These are powered by a 7-pin plug. When the plug is connected, all lights come on and switch off when disconnected. Lights should be disconnected during transport.

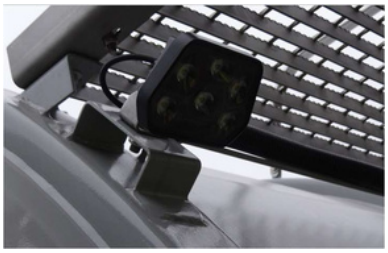


Figure 4: Lighting

LADDER ACCESS

The tank has side ladders to access the top manways provided for cleaning the front 2 “compartments”, the rear compartment may be cleaned from the rear manway.

Figure 5: 2 sets of ladders for tank top access

STORAGE

The tank is fitted with a hose tray on the left side viewed from the rear, and a fittings box on the right side at the rear.

Figure 6: Cage for storage of fittings duringtransport

OPERATING PROCEDURE

FILL OPERATION

The process for filling the tank is as follows:

1. Ensure all valves are closed.
2. Ensure that the pump is set to vacuum:

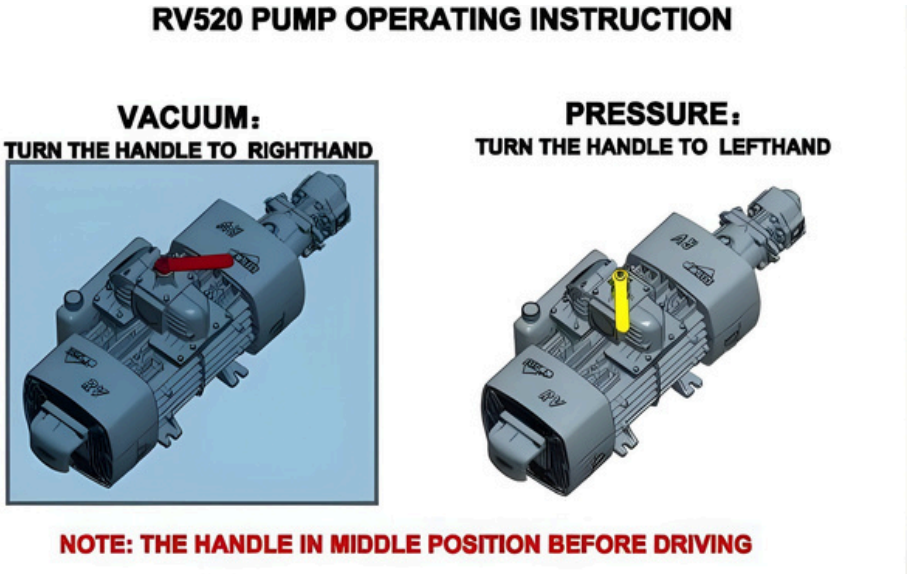


Figure 7: Vacuum and pressure operating modes

3. Connect the hydraulic supply to the tank, and once connected, engage the hydraulic pump.

Figure 8: Hydraulic hose connections and control switch

4 Once oil is flowing, engage the flow to the pump using the lever shown below.

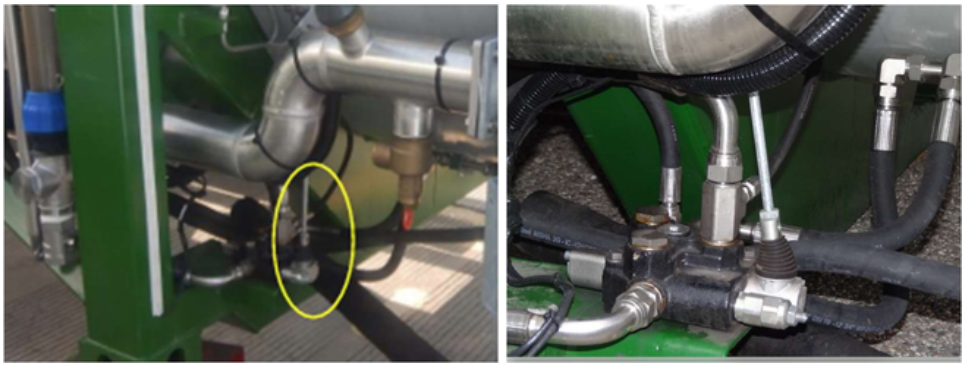


Figure 9: Pump open / close lever

5. Monitor the pressure gauge adjacent to the pump. The target pressure is 0.8 bar vacuum. The vacuum will pump faster if the hydraulic power supply is on max, there are regulators to ensure that the pump cannot over-rev.

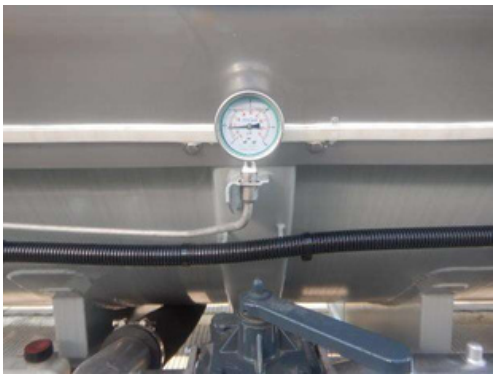


Figure 10: Oil pressure gauge to observe vacuum in tank during fill

6. Connect the fill hose to the 4” rear fill using the 4” URT connection, with the other end positioned to where you want to pump from.

Figure 11: 4” URT product fill line (in closed position)

7. Once the 0.8 bar pressure is hit, the rear fill valve can be opened.

8. As the tank is filling, open the sight glass valves to monitor progress, see image below.

Figure 12: Sight Glass, observe product fill levels

9. When the tank is filled to max fill level, the primary cut-off will stop the pump from pumping more air out of the tank, stopping the fill. You will hear a change in the tone of the pump.

10. At this stage, close the rear fill valve.

Figure 13: 4” URT product fill line (in closed position)

11. Move the pump handle to neutral (directly between vacuum and pressure).
12. Shut off the hydraulic flow to the pump using the lever as per point 4.
13. The hydraulic pump on the truck can then be shut off. 14) The hydraulic lines can be disconnected from the truck when safe to do so (Note! they will be hot to touch after operation).

End of Fill Procedure

OPERATING PROCEDURE

DISCHARGE OPERATION

The process for discharge is as follows:

1. Ensure all valves are closed.
2. Ensure that the pump is set to pressure

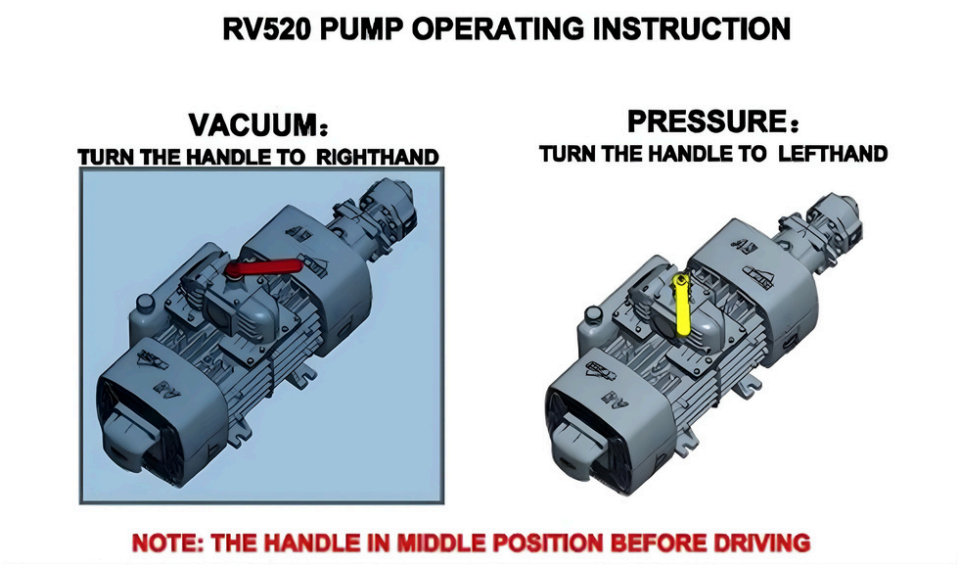


Figure 14: Vacuum and pressure operating modes

3. Connect the hydraulic supply to the tank, and once connected, engage the hydraulic pump on the truck.

Figure 15: Hydraulic connection points and control switch

4. Once oil is flowing, engage the flow to the pump using the lever shown below.

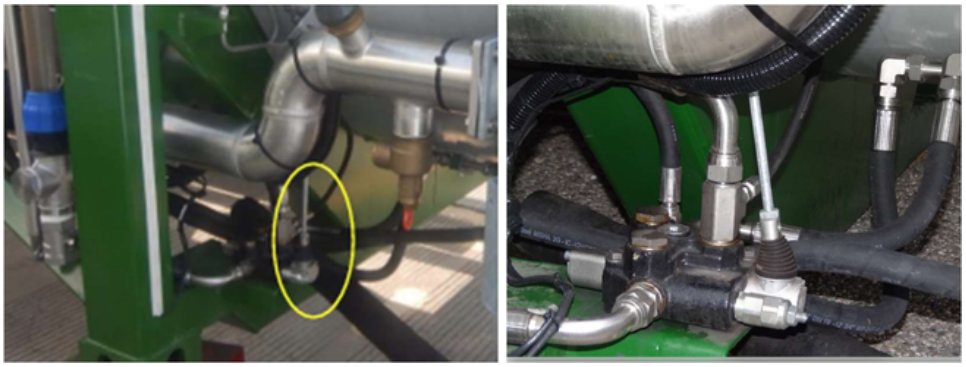


Figure 16: Pump open / close lever

5. Monitor the pressure gauge adjacent to the pump. The target pressure is 0.8 bar pressure. The vacuum will pump faster if the hydraulic power supply is on max, there are regulators to ensure that the pump cannot over-rev.

Figure 17: Oil pressure gauge to monitor positive pressure inside tank during discharge cycle

6. Connect the discharge hose to the 6” URT connection at the rear, with the other end connected to the discharge point.

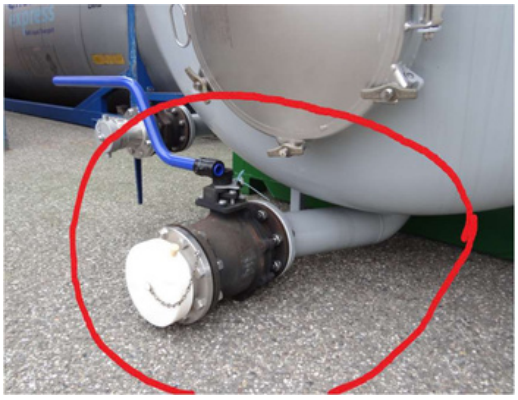


Figure 18: 6” URT product discharge connection

7. Once 0.8 bar has been reached, the rear discharge ball valve can be opened.

8. As the tank discharges, progress can be monitored by opening the sight glass valves.
9. Once empty, you will hear a change in tone of the pump. At this stage, close the rear discharge valve.
10. Move the pump handle to neutral (directly between vacuum and pressure). Tank will vent any remaining pressure.
11. Once venting is complete, shut off the hydraulic flow to the pump using the lever as per point 4.
12. The hydraulic pump on the truck can then be shut off.
13. The hydraulic lines can be disconnected from the truck when safe to do so (they will be hot after operation).

End of Discharge Procedure

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