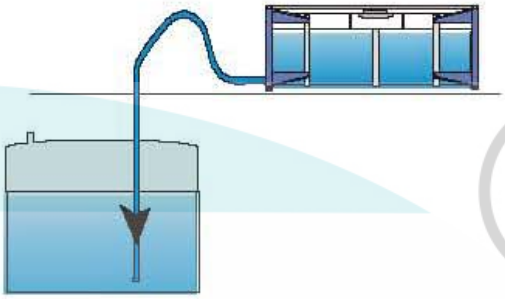
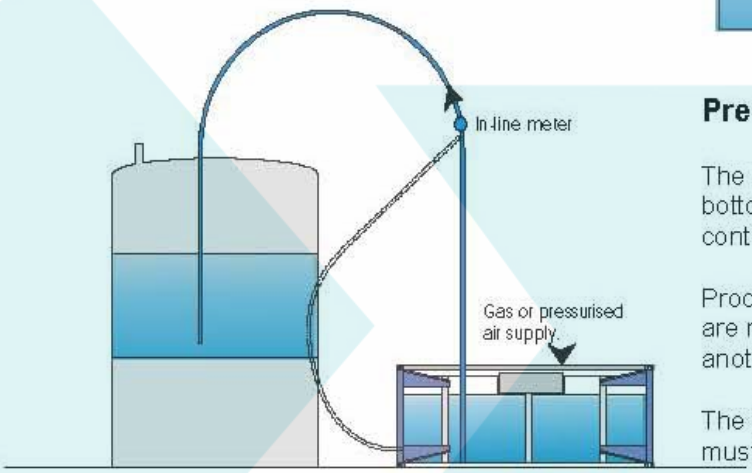
IMPOTANT NOTE: READ SAFETY SECTION

DISCHARGE METHODS

Gravity discharge

The cargo flows freely through the bottom outlet to low-level storage tanks. Ensure adequate venting to prevent damage caused by vacuum. Venting is best achieved by opening the manhole or airline connection.





Pressure discharge

The cargo is discharged through the top or bottom outlets by top pressure in the tank container.

Products carried under an inert gas blanket are normally discharged using nitrogen or another inert gas as the pressure medium.

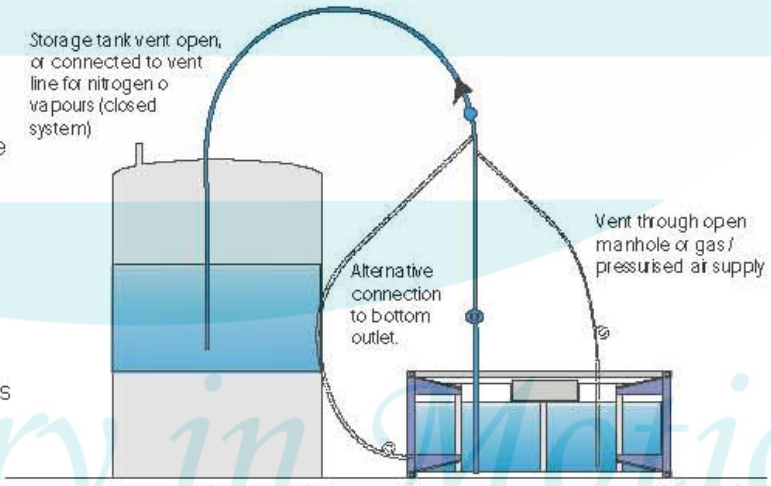
The maximum working pressure of the tank must not be exceeded.

Pumped discharge

The suction side of a suitable pump may be connected to the top or bottom outlet or to a hose via the manhole to pump the cargo to higher-level storage tanks.

Air or gas must be allowed into the tank container to replace the cargo being discharged and maintain the pressure balance.

Depending on the nature of the cargo this can be achieved by opening the man-lid or airline connection, or by connection to an inert gas supply.



When using a high-capacity pump, it is recommended that a vacuum safety valve be incorporated in the suction line to protect the tank from vacuum collapse.

DISCHARGE PROCEDURES

Procedure before discharge

In addition to the local on-site safety regulations and procedures the following must be noted:

1. Ensure that the vehicle is securely braked, choking the wheels if necessary.
2. Contact the local supervisor to ensure that there is adequate capacity in the receiving tank. If product is already present in the receiving tank, check that it is compatible with the cargo being discharged.
3. Where safety or fire-fighting equipment is required, including adequate water and showers, position it upwind of the tank.
4. Ensure that the earth connection is made from the tank earthing point to a local earth position before making the hose connections.
5. Ensure that the hose connections have the same thread or fitting as the tank connections and that correct joint rings and gaskets are used which are compatible with the cargo.
6. Ensure that appropriate facilities exist for the draining of hoses and valves.
7. Check the setting of the valves to the receiving tanks.
8. For discharge by pumping or by gravity ensure that the danger of implosion is avoided by opening the man-lid (or connecting the airline connection to a vapour return line if 'closed system' is being used). Ensure that venting is not prevented by any solidified cargo in the air-line connection or vacuum relief valves if fitted (remove plug and depress vacuum valve poppet using rod or pencil, ensure poppet re-seats and replace plug).
9. For discharge with top pressure ensure that a pressure gauge is visible and in a serviceable condition to monitor the pressure applied and to ensure that the maximum working pressure of the tank is not exceeded.
10. Discharge through top or bottom outlet will be assisted if the tank is sited to drain towards the rear.
11. Notify the station supervisor when the tank is ready for discharge.

***NOTE**: For cargoes being carried under an inert gas blanket, see section on gas blanketing.*

Gravity discharge

1. Refer to "Procedure before discharge" section.
2. Remove bottom outlet blanking cap or flange and connect hose ensuring that the connection is correct and tight.
3. Open man-lid or airline to vent the tank or vent back to storage tank.
4. Open outlet valves and commence discharge. Check constantly for leaks in hoses and connections.
5. Drain tank.
6. **For tanks with single bottom-outlet valve:**
   Close valve and then drain hose. Disconnect hose and replace blanking cap or flange.

   For tanks with foot valve and external valve:
   Close foot valve. Drain hose. Close external valve. Disconnect hose and replace blanking cap or flange. This sequence is to ensure that no product remains between foot valve and external valve.
7. Close man-lid and tighten down, or close airline connection and replace blanking cap.
8. Refer to "Procedure after discharge" section.

Pumped discharge

Refer to " Procedure before discharge" section.

For top-outlet discharge

Remove top-outlet blank flange, bolt hose coupling to top-outlet flange ensuring connection is correct and tight.

For bottom-outlet discharge:

Remove bottom-outlet blanking cap or flange, connect hose ensuring that hose connection is correct and tight. Open man-lid or airline connection in order to vent tank.

1. Open tank outlet valve or valves and commence discharge. Check constantly for leaks in hoses and connections.
2. Drain tank.

For top outlet discharge:

Drain hose, close top-outlet valve and remove hose from tank. Replace top-outlet blank flange.

For bottom-outlet discharge: *tanks with single bottom-outlet valve:*

Close valve and then drain hose. Disconnect hose and replace blanking cap or flange.

For tanks with foot valve and external valve:

Close foot valve. Drain hose. Close external valve. Disconnect hose and replace blanking cap or flange. This sequence is to ensure that no product remains between foot valve and external valve.

3. Close man-lid and tighten down, or close airline connection and replace blanking cap.
4. Refer to " Procedure after discharge" section.

Pressure discharge

Refer to "Procedure before discharge" section.

For top out-let discharge:

Remove top-outlet blank flange, bolt hose coupling to top-outlet flange ensuring connection is correct and tight and open top-outlet valve.

For bottom-outlet discharge

Remove bottom-outlet blanking cap or flange, connect hose, ensuring that hose connection is correct and tight, open foot valve (if fitted) and open external valve.

1. Connect air-line and open air-line valve (if fitted)
2. Apply pressure until discharge is completed, (do not exceed tank and hose working pressure). Check constantly for leaks in hoses and connections. Pressure will drop when discharge is complete.
3. When discharge is complete and hose line is empty, release pressure, close airline valve, disconnect airline and replace blanking cap.

NOTE: *It is important to relieve any remaining pressure in tank through the hose when noxious and hazardous vapours are present.*

For top-outlet discharge:

Drain hose, close top-outlet valve and remove hose from tank. Replace top-outlet blank flange.

For top-outlet discharge:

Close valve and then drain hose. Disconnect hose and replace blanking cap or flange.

For tanks with foot valve and external valve:

Close foot valve. Drain hose. Close external valve. Disconnect hose and replace blanking cap or flange.

Procedure after discharge

1. Clean and stow hoses, replacing caps and blanks.
2. Ensure that all tank fittings are correctly closed and capped and that any cargo spillage is removed including any spillage on the tank.
3. Remove earth connection.
4. Replace safety equipment.
5. After discharge of a hazardous cargo, the tank must be considered dangerous until it has been certified clean and gas-free. Until that time, do not remove the hazard labels.
6. Where cargo residue may spoil or become corrosive to the tank when in contact with the atmosphere, the nitrogen used to discharge the tank should remain in the tank until it is cleaned or re-loaded with the same cargo.
7. Appropriate steps should be taken to prevent cargoes such as resin and latex from forming a hard layer on the tank interior.