



TECHNICAL CIRCULAR No. 285 of 14th August 2015

To:	All Surveyors/Auditors
Applicable to flag:	All Flags
Subject:	Vents Inspection for All vessels
Reference:	CONARINA Instructions

Vents inspection for all vessels

1. All tanks on the vessel are to have provision of venting system or otherwise open to atmosphere. Vent pipes are provided to permit free passage of air/gases to the atmosphere from all parts of the tank in any service condition, including vessel's list/trim up to 5° with full tanks. Comparatively small tanks may be exempt if they are not fitted with drainage, do not contain any piping passing through them or are otherwise interconnected by sluicing/cross-flooding arrangements or similar arrangements.

2. Verify satisfactory venting by requesting all appropriate calculations.

NOTE: There is nothing to prohibit two (2) vent pipes from being combined into one (1) termination, provided that combined header size (area) is not below the filling capacity of the tanks. When sizing the combined header, the number of tanks being filled simultaneously is to be taken into consideration. Vents that are from tanks containing different products should not be interconnected. Some tanks (e.g., "dirty oil") may be arranged so to accept contents from different systems; however, vents from these same tanks can be interconnected.

3. Origination of the vent pipe(s) is to be from the highest part of the tank and not obscured by vessel's internal structure elements. (Usually, it is arranged in the opposite side of the filling line to achieve good circulation of air / gas vapors.)

4. The run for escaping air is to be arranged with maximum attainable rising pitch in any part from the tank. There should be no valves or fittings creating obstacle to free gas movement. Exception is for the sea chest, allowing it to be purged. It must be ensured that no point the vent pipe arrangement creates a U - seal, blocking free movement of gas.

5. The aggregate area of the tank vents, for tanks that are filled by pressure (through the vessel's pumps or from offshore), is to be at least 125% of the filling line. Also, calculations be

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submitted to demonstrate the adequacy of the vents and overflows to prevent over- or under-pressurization of the ballast tanks when high capacity or high head pumps are employed. Experience shows that the aggregate area of tank vents of 125% of the filling line area is usually satisfactory (i.e., no effect of over-pressurization or under-pressurization in the tanks), when the tanks are filled with or emptied by normal ballast pumps.

The capacity of a normal ballast pump usually ranges from 450 to 500 gpm; it is to be recognized that during normal ballast pumping operation, tanks are not usually made to continuously overflow through their vent pipes; however, modern vessels employ higher capacity/higher head pressure pumps for ballast water exchange purposes. In a flow-through ballast water exchange process, the ballast tanks are usually filled with water until water continuously overflows through the tank vents.

NOTE: Tank vents that have an aggregate area of 125% of the filling line area may not be sufficient for continuous flow of water when high capacity ballast pumps are operated continuously to carry out the ballast water exchange operation. Thus, if such vents are not adequately sized, then tanks may experience over-pressurization during filling operations and under-pressurization while being emptied, even though the aggregate area of tank vents may satisfy the Rule requirement of 125% of the filling area.

Vents for voids, tunnels, and cofferdams should be at least 38 mm (1.5").

Tanks that are not integral to the hull in general should follow the same size criteria; however, smaller sizes may be considered if they are sufficient to prevent build-up of excessive pressure in the tank when exposed to fire (comparing to the pressure the tank is built and tested).

6. Material for the vent pipe is to be in line with the requirements for the appropriate systems (e.g., vents for Fuel Oil tanks are to be of steel, not furnace butt-welded, etc.).

For integral tanks, vents are to terminate above the freeboard deck. Ballast Tanks, Fuel Oil Tanks, except fuel-oil drain tanks with a volume less than 2m^3 (70.6ft^3) which cannot be filled by a pump, thermal oil tanks, tanks containing liquids having a flash point of 60 deg. C (140 deg. F) or below, and void tanks adjacent to tanks containing liquids having a flash point of 60 deg. C (140 deg. F) or below are to terminate in the weather.

NOTE: Venting of Cofferdams adjacent to Fuel Oil Tanks: Vents for cofferdams adjacent to fuel oil tanks need not be led to the weather when the flash point of the fuel oil is 60 C and above. However, vents for compartments required for subdivision are to be led above the freeboard or bulkhead deck.

For termination of vent or overflow pipe of lube oil tank or flammable oil tank required by II-2/4.2.3 and 4.2.4 of SOLAS Amendments 2000,

7. For all vessels the height from the deck to the point where water may gain access into the tank (e.g., for U-bend this corresponds to the lower part of inside diameter), is to be at least

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760 mm (30") for vents on the freeboard deck and at least 450 mm (17.5") on the superstructure decks.

8. Vents terminating in the weather are to have permanently attached, weather-tight means of closing. Further, those vent(s) which may become submerged when the vessel is loaded to the summer load line and inclined up to 40 deg. (or lesser angle acceptable by the Stability Group) should have additional automatic closing devices (e.g., floating ball check valve).

9. Verify fuel tank vents are fitted with corrosion-resistant flame screens. The clear area of the mesh should be not less than the required area of the vent pipe.

10. The air vents arrangement for sea-chest is as follows:

i) Air vent hole(s) may be provided on the shipside shell at the upper part of the sea-chest.

ii) In lieu of air vent hole(s) as in item i) above, where vent piping is proposed at the sea-chest, the following conditions are to be satisfied:

a. The air vent pipe is to be made of extra heavy thickness and attached to the sea-chest by full penetration welds.

b. In selecting the vent pipe size due consideration is to be given to avoid excessive flooding of the compartment in the event of accidental breakage/damage to the vent pipe. The pipe size is to be kept to a minimum to meet the suitability of the intended service.

c. The air vent pipe is to terminate with return bends (gooseneck) above the freeboard deck if a single positive closing shut-off valve is fitted at the sea-chest on the vent pipe.

d. In lieu of item c) above, the air vent pipe may terminate with return bends (gooseneck) at the sea-chest area provided at least two positive closing shut-off valves are fitted on the vent piping such that one valve is located at the sea-chest while the other is as close as practicable to the valve at the sea-chest.

e. A "Warning Plate", stating that "Sea chest shut-off valve(s) on the vent line is to be kept closed at all times except when used in the operator's attendance", is to be posted in a conspicuous place near the sea chest shut-off valves.

REFERENCES:

- CONARINA Instructions and Procedures

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