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MED(CE) ISO 9001/14001

Top Reliability, Smart Design,
Valuable Product and Better Life

VAPOR EMISSION CONTROL SYSTEM

VECS Series

Applied to SOLAS 74 Chapter II-2 Reg. 59. / IMO MSC/Circ. 731.
IMO MSC/Circ. 680. / USCG CFR 46 Part 39. / ISO 15364:2007

PROSAVE

VECS Series

General

- Minimizing the emissions of VOCS (Volatile Organic Compounds) from oil tankers during the fluctuating ambient conditions experienced during sea voyages is important from both environmental and commercial points of view.
- The controlled release is often undertaken when the gas pressure approaches a pre-set point. However, it is not always clear at what pressure a manually controlled release should be stopped. Without this information, excess vapours can be released, causing air pollution and a loss of cargo.
- To meet this challenge, a VECS and Reporting System can be used to control the vapour pressure in oil cargo tanks to minimise and fully control VOC emissions. Designed to comply with the latest international rules and regulations it is equipped with an advanced reporting system.
- The VECS is installed on the mast riser's bypass line, and controls the vapor pressure in all the cargo tanks during voyage for direct emission control, in order to reduce VOC loss from the tanks during voyage
- By controlling the pressure in the venting system, it is possible to fully control the VOC emissions.
- The VECS can be programmed to enable adjustment of the opening setting on the valve, according to what is optimal for the specific cargo.

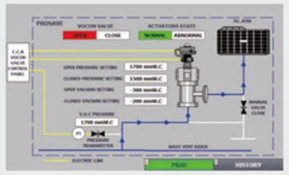
Rules & regulations

- SOLAS 74 Chapter II-2 Reg. 59. : Venting, purging, gas-freeing and ventilation.
- IMO MSC/Circ. 731. : Revised factors to be taken into consideration when designing cargo tank venting and gas-freeing arrangements.
- IMO MSC/Circ. 680. : Systems and Operations/VOC Management plans
- USCG CFR 46 Part 39. : Vapor control system.
- ISO 15364:2007 : Ships and marine technology - pressure/vacuum valves for cargo tanks.

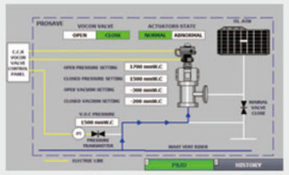
Features

1. Remotely controlled opening/closing from C.C.R (Cargo Control Room)
2. Setting value
   - Opening pressure & Closing pressure : 1,700mmW.G ~ 1,500mmW.G (adjustable)
   - Opening vacuum & Closing vacuum : -200mmW.G ~ -100mmW.G (adjustable)
3. Adjustable of open/close pressure from C.C.R (Cargo Control Room)
   - Opening setting and closing pressure are programmable
4. Manual venting function
5. Full open/close remotely by manual operation
6. Operable from C.C.R (Cargo Control Room)
7. The emission of V.O.C can be automatically controlled during the voyage.
8. Emitted V.O.C flow rate can be recorded and printed.
9. Explosion proof approved electric actuator (EX d IIB T4)
10. Electric power source : AC 220V, 1Ph, 60Hz
11. PLC unit for set adjustable and opening / closing pressure
12. Signal : 4~20mA DC input.
13. Hydraulic or electric actuator on request
14. Local Hydraulic Power Unit (LPU)

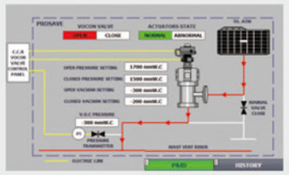
Automatic Pressure Control Valve Panel



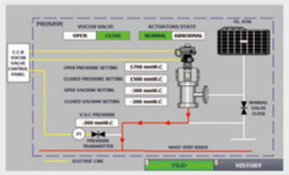
Open Pressure



Close Pressure



Open Vacuum



Close Vacuum

Pressure transmitter

- Base accuracy : ±0.1%
- Span limits
  : 0.3 ... 60,000 kPa;
  1.2 in H2O up to 8,700psi
  : 0.3 ... 3,000 kPa abs.;
  2.25 mmHg up to 435 psia
- Insulation resistance
  : >100MΩ at 500V DC
  (between terminals and ground)
- Explosion protection certification
  : Eex ia IIC T6

Scope

Each 1 pcs for DN 150 or DN 200 type automatic pressure control valve
Type VECS-AG-06 as indicated on drawing no. : PD-VECS-AG-06-01

Materials

As based on customer's purchase order specification;
Body and housing : ductile cast iron (JIS-FCD450) / Disc and seat : 316 stainless steel (JIS-SUS316)

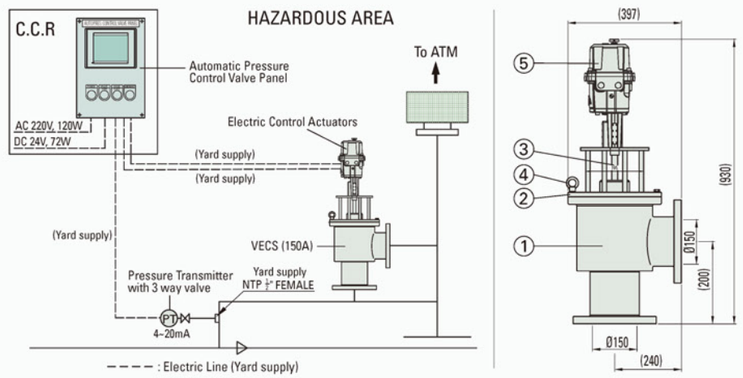
Coating : yard's requirement

Connection flange : JIS 5K F.F

Operating as pressure & vacuum relief valve

- When operating in the automatic mode as a pressure & vacuum relief valve, the valve has a variable opening setting and a variable closing setting.
- The set point for the opening pressure is established reflecting the set points of the individual pressure/vacuum valves and the pressure drop in the piping system.
- The set point for the closing pressure is variable within a certain limit. The closing point for a specific cargo is established in compliance with the vapour pressure for the cargo taking the cargo temperature into consideration. The closing point must be higher than the actual vapour pressure.
- During voyage, the pressure in the tank rises e.g. Due to thermal variations, and the valve will relief the pressure and close before the vapor pressure is reached to avoid inadvertent loss of cargo.
- When automatic pressure control valve opens, it could minimize the emission of V.O.C by controlling the height of valve opening position according to the change in cargo pressure immediately.

System configuration diagram



NO.	DESCRIPTION	MATERIAL	Explosion-proof rating
1	VALVE BODY	FCD450	
2	VALVE COVER	A285-C	
3	VALVE TRIM	A240-316	
4	BOLT, S/W	A193-B8	
5	ELECTRIC CONTROL ACTUATORS	PURCHASED	Eex d II B T4

TOP RELIABILITY OF SAFETY & ENVIRONMENT IS THE FIRST & MOST IMPORTANT

Products

- Air Release Valves
- Combination Air Release and Air/Vacuum Valve
- Vacuum Breaker Valves
- Pilot Operating Pressure/ Vacuum Valves
- Surge Relief Valves
- Crankcase Explosion Relief Valve
- Explosion Venting Devices
- High Velocity Pressure/ Vacuum Valve
- Flame Arrester
- Flame Screen
- Gas Free Cover
- Pressure/Vacuum Relief Valve (Breather Valves)
- Solar Still [HMED/SMED]
- Vapor Emission Control System

Application Fields

- Offshore & Ocean Gas Plants
- Desalination Plants
- Ballast System for Ships & Offshore Plants
- Sea & Fresh Water Plants
- Marine Tank Ships
- Cryogenic gas Facilities
- Petrochemical Plants
- Tank Terminals
- Marine Engines
- Generators
- Duct

ISO9001 / ISO14001 Registered

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