

## Linear windscreen automatic washing equipment

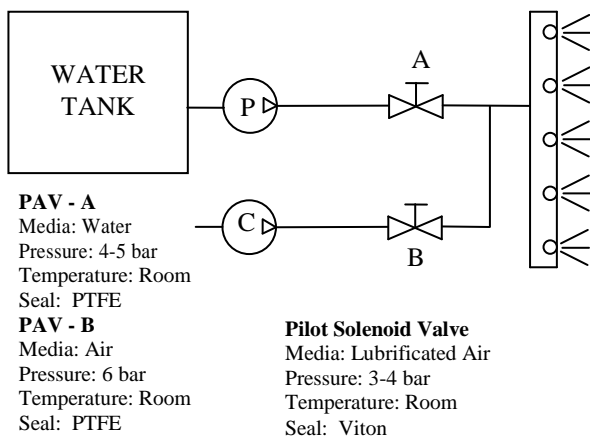


The equipment is used to clean portholes during navigation.

In the past portholes were cleaned during the day by cleaners on moving trolleys. The hydraulic system was made up of pilot operated solenoid valves that sprayed water at 80 bar with dangers to passengers. The solenoid valves were not perfectly synchronized and did not close at the same time, so at the end of every cycle water left inside the circuit mixed with rust and dripped on the portholes.

Nowadays both the logic and the hydraulic system have been revisited. The system is totally automatic, it is operated in the control room and cleaning is usually carried out at night to avoid dangers to passengers. Pilot operated solenoid valves have been replaced by PAVs operated by direct acting solenoid valves. The quality of water has been improved as well; it is now mixed with air at lower pressures. PAVs suitable for controlling water are equipped with travel switches to guarantee that they open simultaneously.

### PLANT DESIGN



### APPLICATION

#### 1<sup>st</sup> stage– Cleaning

Valve (A) controls water taken from a tank and pumped into the circuit by pump (P) at the pressure of 4-5 bar. Simultaneously valve (B) controls air from compressor (C) at the pressure of 6 bar. Water mixed with air is sprayed on the portholes by a system of perforated pipes. Pipes line the whole length of the ship and are perforated next to each porthole.

#### 2<sup>nd</sup> stage – Drying

Once the cleaning stage is over, valve (A) closed so that only air enters the circuit. Sprayed air dries the portholes and prevents water left inside the circuit from dripping.

### SOLUTION

TYPE A



TYPE B



#### TYPE A - BSD208LXZI5 / SXS code 7588763285014

S/S normally closed bi-directional PAV with travel switch  
Body Actuator Ø90 – Flange Connection DN 32  
Flow direction over / under seat  
Pilot pressure over seat min. 5 bar  
Pilot pressure under seat min. 3,3 bar  
Pilot pressure max 8 bar

Working pressure 0-16 bar - Seal material PTFE

#### TYPE B - SG205SXWI0 / SXS code 75883732090

S/S normally closed PAV with travel switch  
Body Actuator Ø63 – Connection ½" gas  
Flow direction over seat

Pilot pressure min 3,7 bar - max 10 bar

Working pressure 0-20 bar - Seal material PTFE