****

**Microbubble Air and Dirt Separator**

For constant, highly efficient in-line removal of free air, bubbles and microbubbles in combination with separation and removal of dirt particles within chilled and hot water systems.

The Microbubble Air and Dirt Separator shall be sized appropriate to the maximum operating pressure and flow velocity of the system. Manufactured and designed in accordance with European Pressure Equipment Directive PED 97/23/EC.

The cylindrical vessel shall be manufactured from welded steel. Material shall be EN/ISO: S235JR+N. The acceptable design shall incorporate a separating element to force water into tranquillity zones for air and dirt removal. A nozzle shall force de-aerated water into the main flow to divert contaminated water through the separating element. A high capacity, conical brass automatic air vent shall be installed on the top of the vessel for air discharge. Heavier than water dirt particles shall be removed via a blow down valve on the base of the vessel whilst ferrous particles down to 4 µm shall be captured by a magnetic device in the lower part of the vessel. The magnet shall be retractable to enable ferrous particles to be released and discharged through the drain valve which will incorporate an internal scraper to dislodge particles that adhere to the inner surface of the vessel base. Floating debris and scum shall be removed via a high-level drain valve. Inlet and outlet of the unit shall be via horizontally-opposed, coaxial flanged connections in accordance with EN 1092-1 PN 16. Finish shall be epoxy powder coating. The maximum permissible flow velocity shall be 3 m/s. System operating temperature shall be within the range of -10 °C to 120 °C. Glycol mixture up to a maximum ratio of 50 % shall be permissible. The acceptable design shall require minimal maintenance and not require the vessel to be taken out of commission, de-pressurized or drained for routine blow down and cleaning. It shall be of a direct flow-through design and flow shall not be impeded by the use of any coalescing media to ensure that pressure drop is negligible. It shall be able to provide up to 40% separation per cycle. It shall be able to remove at least 15% of 70 µm microbubbles per cycle and at least 35% of 150 µm dirt particles per cycle.

Microbubble Air and Dirt Separator shall be factory assembled. The product shall be installed according to the manufacturer’s instructions using manufacturer’s approved components.

Microbubble Air and Dirt Separator shall be Flamcovent Clean Smart series or similar approved.