

Tender text model for Modulating Pressure Independent Control Valve (TA-Modulator DN 15 to DN 150)

1. The HVAC system will be equipped with pressure independent balancing and control valves with integrated differential pressure controllers and optimized EQM (Equal Percentage Modified) control characteristic. The valves will be equipped with digital actuators with automatic stroke adaptation to the real lift of the control valve.
2. Setting and measurement
 - a. Flow setting has to be performed stepless by hand with digitally configurable presetting in the actuator, by lift limitation of the control plug from 100% down to 20% of the of the valves max capacity.
 - b. Setting value, type and size of the valve must be visible from top.
 - c. The valve has to be equipped with 2 or 3 measuring points enabling to measure: flow, temperature, stabilized differential pressure and available differential pressure (from pump).
 - d. For easy commissioning and measurement the valve must have uni-directional access to the measuring points, the setting and the connection of the actuator.
 - e. Isolation function for use during system maintenance, must be possible with flow setting mechanism without separate tools.
3. Main characteristics
 - a. For high corrosion resistance the body and main components should be made from dezincification resistant alloy or corrosion protected by Electrophoretic painting.
 - b. The nominal lift for maximum flow capacity of the valve must be:
 - 4,0 mm for DN 15-20
 - 6,5 mm for DN 25-32
 - 15 mm for DN 40-50
 - 20 mm for DN 65-125
 - 30 mm for DN150
 - c. To minimize the pump energy consumption, the minimum differential pressure for proper valve function should not exceed:
 - 15 kPa for valves DN 15-20
 - 23 kPa for valve DN 25-32
 - 30 kPa for valve DN 40-150
 - 55 kPa for DN100-125 High Flow
 - 60 kPa for DN150 High Flow
 - d. The leakage rate should be $\leq 0,01\%$ of maximum flow at the highest flow setting (class IV according to EN 60534-4).
 - e. Nominal pressure (PN) and maximum acceptable differential should be in accordance with the system requirements.
4. Installation
 - a. For easy installation, the valve and actuator should be possible to install in all positions, including position with actuator downwards the valve.
 - b. Pipe connection:
 - DN 15-50 male thread according to ISO 228
 - DN 65-150 flanges according to EN-1092-2, type 21, face to face length according to EN 558 series 3 or ASME 7 ANSI B16.42 Class 150