Calculation and Selection - Pressure reduction controller

Initial data

10.00 m3/h	Estimated water flow rate
50 °C	Maximum water temperature at the installation place
5.00 bar	Pressure before controller
1.00 bar	Allowable pressure loss across controller
4.00 bar	The pressure that will be maintained by the controller

Calculation results

[10.00 m3/h] / [1.00 bar]^0.5 = 10.00 [m3/h]	Required Kv value
Tmax 50°C <= 70°C	There will be no cavitation on the controller
([G 10.00 m3/h] / [Kvs 16 m3/h])^2 = 0.39 [bar]	Pressure drop across a fully open controller with Kvs=16 [m3/h] with flow rate 10.00 [m3/h]
[10.00 m3/h] / {3600 *3.14 *([DN32] *0.001)^2 *0.25} = = 3.5 [m/s]	High flow rate will result in increased controller noise V > 3.0[m/s]

Selection result : Pressure reduction controller

Danfoss : AFD VFG 2

Denmark

maintains a set pressure at the point of connection of the impulse line

closes when the pressure increases

normally open

DN 32 [mm]	Nominal controller diameter
Kvs 16 [m3/h]	Flow coefficient
PN 40/25/16 [bar]	Nominal pressure
dP 1.0...6.0 [bar]	Pressure setting range
dT 5 ... 140°C	Operating temperature
cast iron	Body material
63 %	The percentage of the opening of the controller gate at which Kv=10.00 [m3/h], and the pressure loss on the controller will be 1.00 [bar] when passing the calculated flow rate 10.00 [m3/h]