Calculation and Selection - Balancing Valve

Initial data

7.00 m3/h	Estimated water flow rate	**6.00 bar**	Pressure before the balancing valve
90 °C	Maximum water temperature at the installation place	**0.30 bar**	Permissible pressure drop on the balancing valve

Calculation results

[7.00 m3/h] / [0.30 bar]^0.5 = 12.78 [m3/h]	Required Kv value
0.00000005 * [90 °C]^3.658 = 0.70 [bar]	Absolute saturation vapor pressure of water at temperature 90°C
0.2*(6.00+1-0.70) = 1.26 [bar]	Lower limit without cavitation pressure loss at the valve
0.6*(6.00+1-0.70) = 3.78 [bar]	Upper limit without cavitation pressure loss at the valve
0.30 [bar] <= 1.26 [bar]	There will be no cavitation on the valve
([G 7.00 m3/h] / [Kvs 18,0 m3/h])^2 = 0.15 [bar]	Pressure drop across a fully open valve with Kvs=18,0 [m3/h] with flow rate 7.00 [m3/h]
[7.00 m3/h] / {3600 *3.14 *([DN32] *0.001)^2 *0.25} = = 2.4 [m/s]	The flow rate is within normal limits V < 3.0[m/s]

Selection result : Balancing valve

Danfoss : MSV-BD

Denmark

DN 32 [mm]	Nominal valve diameter
Kvs 18,0 [m3/h]	Flow coefficient
PN 20 [bar]	Nominal pressure
provided	Setting lock
provided	Pressure measurement nipples
provided	Drainage
internal / external thread	Connection type
dT -20 ... 120°C	Operating temperature
71 %	The percentage of the opening of the valve gate at which Kv=12.78 [m3/h], and the pressure loss on the valve will be 0.30 [bar] when passing the calculated flow rate 7.00 [m3/h]