

		Nomenclature - Requirements
number: NP-3192920		
review: A	REGULATING VALVE DN500 PN10	

1 Closure requirements

- Order quantity 1 pc.
- This is an operational control valve in the discharge branch of the bypass of the DN4200 PN10 dampers.
- Type considered: plunger valve; the manufacturer will suggest a suitable type. •

The valve is installed in a DN500 pipe, the valve axis position is horizontal with minimal inclination.

- Required connection DN500 PN10.
- Electromotive control (we assume Auma).
- Medium: river water, can also carry sand.
- The assumed operating velocity of water through the discharge pipe is $v = 2.5 \text{ m/s}$.
- We require regulation of the water speed by a valve depending on the pressure before the closure.
- We require operation free of cavitation and dangerous vibrations throughout the entire control range.
- To suppress cavitation behind the control valve, an "air vent" piece can be used.
- Maximum operating pressure up to 64 m water column (mvs).
- Maximum pressure during emergency closing 0.8 MPa (water hammer).
- Materials: steel body, closing member + spindle stainless steel.
- Valve operating temperature $-25 \text{ }^{\circ}\text{C} \div +30 \text{ }^{\circ}\text{C}$.
- Seismicity dle „Seismic design code – Part I – Design provision for buildings“ indicative P 100-1/2013,
 acceleration $g_{\text{design}} = 0.20 \text{ g}$ for an earthquake with an average recurrence interval $\text{IMR} = 225 \text{ years}$ and 20%
 probability of exceedance in 50 years, control spectrum of response spectrum $\text{TC} = 0.7 \text{ s}$.

2 Function description

This is a control valve in the discharge branch of the bypass of the butterfly valves of the hydropower plant's feeder. It is assumed that the butterfly valves will be open for a long time.

The bypass, and therefore the bypass discharge branch, will be closed most of the time. The pressure upstream of the control valve will be between 64 mvs and 0 mvs. The pressure behind the control valve will be 0 mvs when it is closed. The valve manufacturer can recommend its periodic opening and closing to verify its functionality.

Only in the case of inspection of the feeder or the valves will it be necessary to empty the slightly descending feeder (about 220,000 m³). It can be assumed that the discharge will take several tens of hours (we assume 5 days). When emptying the feeder, the gradient on the control valve will decrease from 64 mvs to 0 mvs ($64 \div 10 \text{ mvs}$ for 1 day, $10 \div 0 \text{ mvs}$ for 4 days). It will therefore be necessary to regulate the outflow rate with the valve. The feeder will be discharged max. 1x in 10 years.

Developed by: Martin KOUTNÝ	Checked: PLCH / RUDEŇKO	Datum: 25. 9. 2026	Number of pages: 1 / 3
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3 Flange design requirement

- We require sealing surface type H according to ČSN EN 1092-1, (see appendix). • Unspecified dimensions will be in accordance with ČSN EN 1092-1.
- We prefer flange designs while maintaining the standard cap length.
- Centering collar type H according to EN 1092-1 with diameter "z" in tolerance h10; required height "f4" = 4.5 mm (according to EN it is only 3 mm). Starting chamfer "mx 45°" = 1 x 45°.
- We require the recesses for the contact surfaces of the nuts (bolts) on the inside of the flanges to be unpainted, only preserved (countersink with diameter Dz = 48 mm to depth t = max. 2 mm). For stainless steel body there is no Countersinking is necessary if the seating surface is machined and parallel to the flange face.
- Surfaces with the required roughness Ra 1.6 μm and Ra 3.2 μm should only be preserved, other surfaces should be painted.

4 Requirements for the electric drive

- We require a self-locking drive, Auma solution or similar.
- We require a maximum opening/closing time of 60 seconds (please specify the exact time in the offer).
- Voltage for the drive 1x 230 V AC / 3x 400 V AC; 50 Hz. • Sensors 24 V DC (positions open - closed). Sensors with the possibility of alternatively connecting as a normally open or normally closed contact. • Continuous position sensor 4-20 mA.
- Optical position indicator, heating element, thermostat, torque switches, operation indicator light.
- We prefer sensors with connection to a terminal block or with a connector without wiring. • An alternative manual control option is required (e.g. handwheel).
- AUMA must be equipped with an AUMAMATIC control unit (e.g. wiring diagram TPCA-1B1-1C1-A000 TPA 00R100-0/1-000).

5 Surface treatment requirements

- The requirement for coatings does not apply to stainless steel parts and surfaces.
- Surface protection for environments with 100% humidity, risk of splashing water, etc.
- Coatings will be carried out according to the enclosed coating specification.
- Upon mutual agreement, it can be performed according to the manufacturer's technology.

6 Required documentation according to the Quality Control Plan (during implementation)

- Documentation language: English and Czech.
- Declaration of conformity with the order according to ČSN EN 10204-2.1.
- Inspection certificate (test report) according to EN 10204-3.1.
- Catalog sheet for the closure.
- Installation, operation and maintenance instructions for the closure.
- Result of tests P10 (body strength), P11 (body tightness) and P12 (seat tightness) according to EN 12 266-1.
- Result of functional test F20 according to EN 12 266-2.

