B20.14.0-I

# QUICK CLOSING NON-RETURN VALVE

**Why the Quick Closing Non-Return Valve?**

Non-return valves mounted on water supply networks and pumping stations are required to operate very frequently.

Statistics show that the main reason of penstocks crack or other accidents taking place in the hydraulic systems are due to from elevated surges produced from the classical type non-return valve

operational failures or its circuit inadaptation.

For example, when a pump in a pumping station is switched off, the flow begun to lose its speed, until it stops and is subsequently reversed (back-flow).

The check Valve than closes if operated under the effect of its own weight, spring force or by the back-flow load. Experience and calculations show that flow reversal can occur within an extremely short time, from 1/100 to 1/10 seconds. If the valve does not respond quickly, its closure will occur at a high negative speed back flow condition resulting in:

- Violent contact of the valve obturator against its seating,

- Water Hammer is produced, with a steep wave front.

Shock and overpressure caused by water hammer overstrain the valve material causing irrecuperable cracks and breackdowns of the valve´s components with serious consequences for the pumping station.

hydrostec

**Basic requirements of a check Valve:**

- Shorter closing time limiting the overpressure caused by surging originated by the valve itself,
- No vibration, and ability to operate in maximum aperture, even at low flow speeds,
- No bump operation without impact or bumps on closure,
- Operational durability and safety.

**Quick Closing Non-Return Valve meets all these requirements because of its innovative design conception assuring:**

- Light weight obturator with low inertia,
- Short operation travel limited to 1/10 of nominal diameter,
- Obturator made of polyurethane to absorb the shock,
- No mechanical parts,
- Hydraulically optimized flow passage section.

**Quick Closing Non-Return Valve Advantages:**

- Prevents water hammer with high overpressure values,
- Operates silently,
- Damped closing due to obturator elasticity,
- Good sealing in closed position,
- Optimum hydraulic operation: flow partialization and concentricity,
- Small dimensions: valve width ~ DN/2 (for DN ≥ 200mm - 8"),
- No maintenance is necessary,
- Simple technical design,
- Operation in all installation positions,
- No wear in operation, therefore no spare parts needed,
- Wide range of diameters: DN 50 to 1800 mm (2" to 72"),
- Small disc valve stroke (~DN/10).

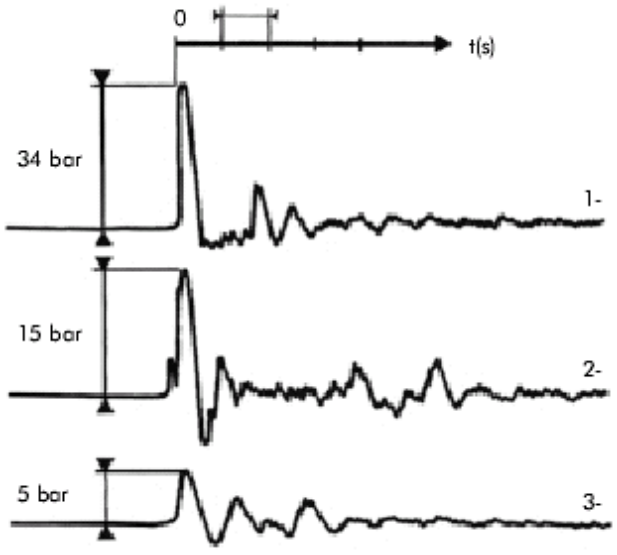
**Excellent dynamic response:**

Sample of overpressure records taken during water hammer tests of various types of valves operating under the identical conditions (network pressure: 5 bar);

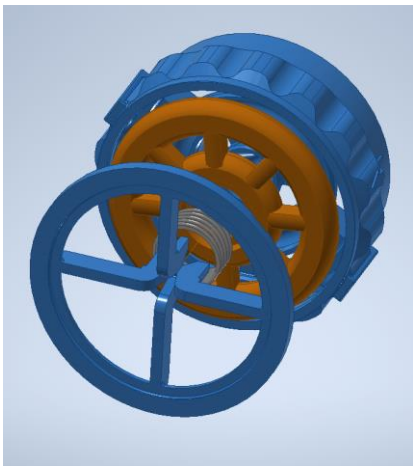
1- Single-flap valve,

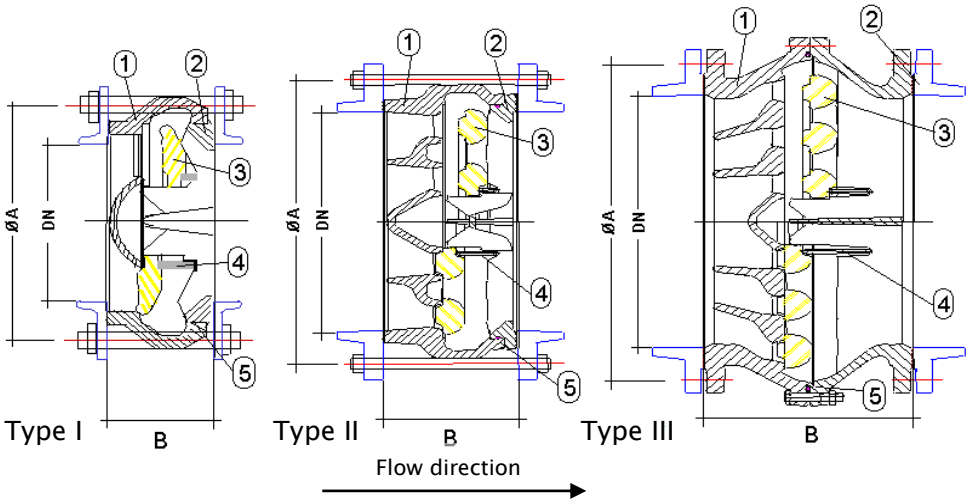
2- Multi-flap valve,

3- Quick Closing No-Return Valve.




hydrostec






| Ref | Designation | Description | Material (*) |
|---|---|---|---|
| 1 | Body | One-piece cast body in the form of profiled concentric rings supported by spacers | Cast iron<br>GG25 - GGG40 - GGG60 |
| 2 | Ring seat (for Wafer type body) or counter flange (for flanged type) | Cast part with frame flaps and spring holder | Cast iron<br>GG25 - GGG40 - GGG60 |
| 3 | Obturator | With longitudinal movement incorporating profiled concentric rings | Polyurethane |
| 4 | Helical spring | Helps the disc valve closure | Stainless steel<br>AISI 302 |
| 5 | Thoroidal joint | O-Ring | Synthetic rubber |

(*) Other special material and lining may be supplied upon request.

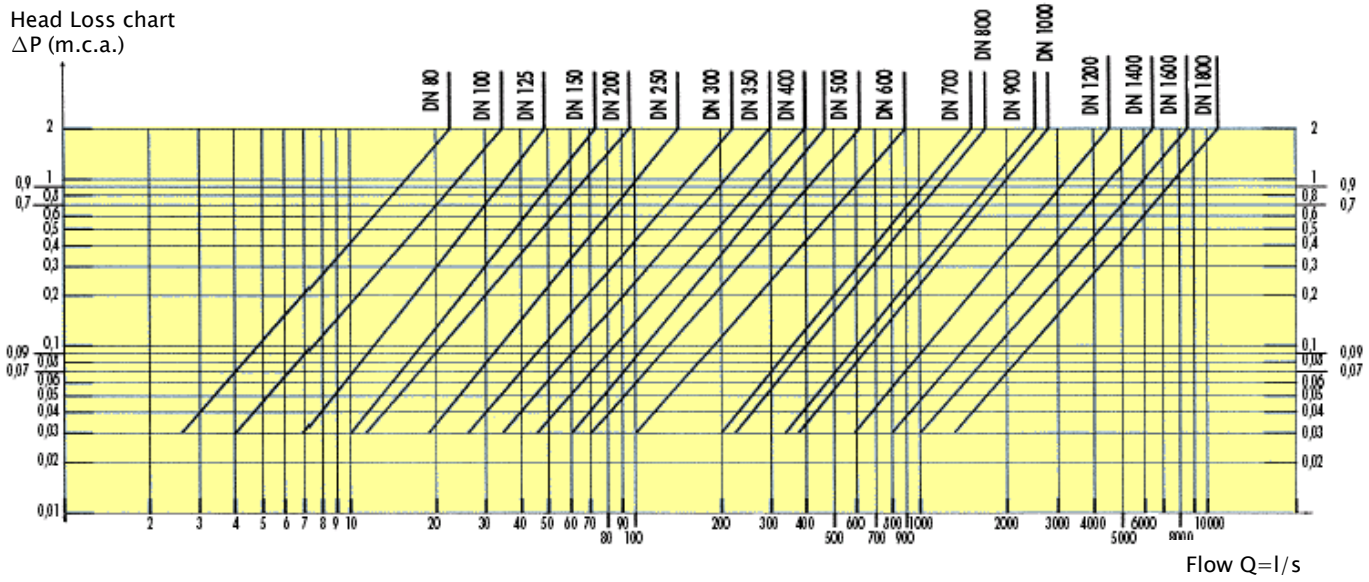
**Range and dimensions**

| Type | | DN | | PN | | | | | | Dimensions | | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | mm | inches | 10 | 16 | 20 | 25 | 40 | 50 | ØA mm | B mm | Kg |
| Wafer | I | 50 | 2" | GG 25 | | | | | | 91 | 50 | 1 |
| | | 80 | 3" | | | | | | | 142 | 80 | 2 |
| | | 100 | 4" | | | | | | | 174 | 100 | 6 |
| | | 125 | 5" | | | | | | | 210 | 125 | 11 |
| | | 150 | 6" | | | | | | | 246 | 150 | 17 |
| | II | 200 | 8" | | | | | | | 290 | 127 | 22 |
| | | 250 | 10" | | | | | | | 352 | 146 | 35 |
| | | 300 | 12" | | | | | | | 398 | 181 | 50 |
| | | 350 | 14" | | | | | | | 460 | 222 | 80 |
| | | 400 | 16" | | | | | | | 520 | 232 | 100 |
| | | 450 | 18" | | | | | | | 554 | 260 | 135 |
| | | 500 | 20" | | | | | | | 626 | 292 | 180 |
| Flanged | III | 600 | 24" | | GGG 40 | | | | | 900 | 435 | 500 |
| | | 700 | 28" | | | | | | | 1120 | 500 | 800 |
| | | 800 | 32" | | | | | | | 1180 | 515 | 1000 |
| | | 900 | 36" | | | | | | | 1480 | 710 | 1700 |
| | | 1000 | 40" | | | | | GGG 60 | | 1500 | 730 | 1900 |
| | | 1200 | 48" | | | | | Upon Request | | 1890 | 900 | 3400 |
| | | 1400 | 56" | | | | | | | 2205 | 1120 | 5400 |
| | | 1600 | 64" | | | | | | | 2520 | 1352 | 8100 |
| | | 1800 | 72" | | | | | | | 2850 | 1440 | 11850 |

Used for water and other liquids up to 60ºC (140 fahrenheit).

hydrostec

## Hydraulic characteristics




### Applications

- Water pumping,
- Pump discharge,
- Industries and petrochemical industry.

All construction features described for Quick Closing Non-Return Valve point to its excellent hydraulic performance and place it as a definitive technical solution for Pumping Station problems originated by surging.

The main application fields of Quick Closing Non-Return Valve are listed below:

- Potable water, water supply systems,
- Raw water,
- Water loaded after grading and Treatment Stations,
- Hydraulic loops in industrial and petrochemical processes.

### Necessary for order information:

- Fluid specification,
- Nominal diameter DN,
- Nominal pressure PN,
- Fluid temperature.