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The Company

Initially producing air valves for water pipelines in pressure, we expanded our production to include non-return valves for pumping stations and hydraulic systems. Then we started producing large energy-dissipating valves for hydraulic power plants and discharge and butterfly valves for dams. Our manufacturing knowledge and expertise is reinforced by the deep understanding of cavitation and vibration phenomena. This engineering know-how led us to the design and manufacture of more durable and efficient valves. With increasing global demands for special applications, Nencini plays an important role in the supply of customized hydraulic valves currently installed in many different water utility systems around the world.

Established since 1967, Nencini brings over 45 years of design and manufacturing experience to accomplish any job efficiently and effectively.
The team

The success of Nencini would not have been possible without the dedications of all our team members. We are especially proud of our technical and production department consisting of highly qualified engineers, managers and skilled workers with high integrity. Our strength lies in the engineering know-how, in working with European materials while putting great emphasize on quality.

The manufacturing plant

- office area of 450 m²
- workshop area of 3100 m²

The workshop is equipped with vertical lathes, drilling and boring machines, welding machines with submerged arc and rotating plate, to machine components and parts up to 5000 mm (200”). The testing facility is one of the most essential and interesting area. Some common activities carried out in this facility include: the Dye penetrant inspection (DPI), the Magnetic Particle Examination (MT), the ultrasonic testing (UT) and the X-ray testing. Every valve undergoes final workshop hydrostatic tests as per International Standards.

Quality System
The company is ISO 9001 certified

Occupational Health and Safety Management System
The company is OHSAS 18001 certified
Our experience and know-how

Research and Development is an important part of the company strategy and we pride ourselves in our ability to provide you with modern and effective design solutions. Depending on your needs, our engineers will work with you to design the right valves for your specific situation. We collaborate and exchange knowledge with the most important Italian and leading University Hydraulic laboratories all over the world. Ensuring absolute quality to our products, we carry out tests on all our valves, both installed on site and on prototypes.

Design methods

The FEM (Finite Element method) is used to analyse the strength of the valve and of its components, according to the ASME code. The CFD (Computational Fluid Dynamics) is used to check any cavitation phenomenon and the hydraulic performances of the valve, on each opening position. An acoustic simulation software is used to study the propagation of vibration and sound in the pipes, with reference to Standard EN 60534-8-4.

We design and manufacture our valves according to the ISO, DIN, ASME or AWWA standards.
Main materials and coatings

- ductile cast iron
- cast carbon steel
- aluminium bronze
- stainless steel (standard types, duplex and super duplex)
- structural steel
- special alloys (Inconel, Monel, etc.)
- standard painting applications, FBE lining, Halar lining
  (in compliance with worldwide water authorities for potable, sea or raw water)
- other on demand.

Flanges under machining on parallel lathe in our workshop
**Actuation and control units**

Depending on the technical needs of the project, together with our valves we supply several types of actuators:
- manual / gearbox
- electric actuators / gearbox
- servomotors, with or without counterweight
- hydraulic servomotors
- other on demand

In addition to the above, we design and supply the full control system, composing of an electric control panel and when required, a PLC. Great importance is given to the process Control Philosophy of our customers. Every requirement and constraint are taken into consideration in order to design a system that fully complies with the specifications.
Production range

- air valves: air release valves, vacuum breakers, combination air valves
- pressure/flow control valves: needle valves, double flanged sleeve valves, multijet rotative valves
- discharge valves: fixed cone valves, submerged vertical sleeve valves
- on/off valves: butterfly valves, ball and spherical valves, gates, penstock and stoplogs
- check valves: non-return axial valves
- other on demand.

Applications

- hydraulic power plants: safety butterfly valves, ball and spherical valves, submerged vertical sleeve valves, fixed cone valves, gates, penstocks and stoplogs
- network plants: maintenance and emergency butterfly valves, pressure/flow control valves, air valves
- pumping stations: non-return axial valves, pressure/flow control valves.

Our customers

- engineering companies
- construction companies
- general contractors
- designers of water mains
- designers of hydraulic turbines
- pump manufacturers, etc.
We take pride in making good, efficient and reliable valves. That's our job, we like it and we know how to do it. Because we treasure our own experience, we develop, and progress to offer you the peace of mind. Trust that your project will be analysed carefully, and that we will come back to you with the best proposal in terms of efficiency, price/quality ratio, easy operation and maintenance.

A company who cares. Results guaranteed when you choose us.
Air Valves

We engineer and produce several kinds of air valves, based on different operating principles:

• air release valves
• vacuum breakers
• combination air valves.

Functions:

• draw out the air when the main pipe is filling
• allow air into the pipe, breaking the vacuum forming while the pipe is emptying
• release the air normally trapped into the water during operation
• avoid damaging surges and water hammer (valves with anti slam device).

Available for raw, potable, sea and sewage water.

Customization on demand.

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>DN 25 &lt;-&gt; 800</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>DN 1&quot; &lt;-&gt; 32&quot;</td>
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<tr>
<td>Pressure range</td>
<td>PN 10 &lt;-&gt; 100</td>
</tr>
<tr>
<td></td>
<td>ASME/ANSI 150 &lt;-&gt; 600</td>
</tr>
<tr>
<td>Actuation</td>
<td>Self-actuated valves</td>
</tr>
</tbody>
</table>
Combination air valves (Al-Br)
DN 200 ASME/ANSI 150
Saudi Arabia

Vacuum breakers (Al-Br)
DN 300 ASME/ANSI 150
Saudi Arabia
Needle Valves

Pressure/flow control valves.

Main features:

• significant reduction in turbulence, vibration and noise
• fine regulation of the entire range of flow, made possible by the customized trim
• high precision in the flow control
• high rangeability.

Applications:

• pressure control in pumping stations
• intake and distribution waterworks
• irrigation and treatment plants
• tank flow control
• network flow control.

Customization on demand.

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>DN 50 &lt;-&gt; 3000</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>DN 2&quot; &lt;-&gt; 118&quot;</td>
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<td>Pressure range</td>
<td>PN 10 &lt;-&gt; 100</td>
</tr>
<tr>
<td></td>
<td>ASME/ANSI 150 &lt;-&gt; 600</td>
</tr>
<tr>
<td>Actuation</td>
<td>Manual, electric and hydraulic</td>
</tr>
</tbody>
</table>
Needle valve: detail of special anti-cavitation trim

Stainless Steel needle valves bodies
DN 200
After partial machining in our workshop
Fixed Cone Valves

The discharge of the flow is controlled by the movement of the sleeve of the valve against the fixed cone. The fixed cone valve discharges the raw water of dams to free air, chamber or underwater level. This valve is especially suitable to dissipate very high energy without any cavitation when discharge is made into free air. In the case when the water is discharged into chamber or underwater, Nencini is capable of designing the stilling pool or basin which are of primary importance for the effectiveness of the discharging and dissipation system.

Applications:

- hydraulic power plants
- turbine by-pass
- controlled discharges
- automatic pressure surge relief.

Customization on demand.

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
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<th>DN 10&quot; &lt;-&gt; 100&quot;</th>
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<td>Pressure range</td>
<td>PN 10 &lt;-&gt; 100</td>
<td>ASME/ANSI 150 &lt;-&gt; 600</td>
</tr>
<tr>
<td>Actuation</td>
<td>Manual, electric and hydraulic</td>
<td></td>
</tr>
</tbody>
</table>
Fixed cone valve
DN 2400 PN 16
Thailand

Fixed cone valve
DN 1000 PN 10
Under assembling in our workshop
Submerged Vertical Sleeve Valves

Used as turbine by-pass or to draw the water from dams. They reduce the excess head of the inflow, discharging a tamed outflow into the stilling basin and then into the downstream channel. We also design and engineer the stilling well related to the valve.

Applications:

- hydraulic power plants
- turbine by-pass
- controlled discharges.

Customization on demand.

## Technical Data

| Size          | DN 100 <-> 2200  
|              | DN 4" <-> 84"    |
| Pressure range| PN 10 <-> 64     |
|              | ASME/ANSI 150 <-> 400 |
| Actuation    | Manual, electric |
|              | and hydraulic    |
Submerged vertical sleeve valves
DN 2000 PN 16
Under Final Acceptance test (FAT) in our workshop

Submerged vertical sleeve valve
DN 900 PN 10
Detail of special anti-cavitation trim
Double Flanged Sleeve Valves

They allow a very high upstream pressure loss, without any risk of critical phenomena (cavitation, vibration, noise) even with little downstream head pressure. They are also used as synchronous discharge tool for turbine plants (mainly Pelton or Francis turbines) because they are able to work in high pressure condition. The discharge is carried out under high head loss across of the valve.

Applications:

- hydraulic power plants.

Customization on demand.

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>DN 200 &lt;-&gt; 1400</th>
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</thead>
<tbody>
<tr>
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<td>DN 8&quot; &lt;-&gt; 54&quot;</td>
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<td>Pressure range</td>
<td>PN 10 &lt;-&gt; 150</td>
</tr>
<tr>
<td></td>
<td>ASME/ANSI 150 &lt;-&gt; 900</td>
</tr>
<tr>
<td>Actuation</td>
<td>Manual, electric, hydraulic</td>
</tr>
</tbody>
</table>

Double flanged sleeve valve
DN 1500 PN 10
Saudi Arabia
Double flanged sleeve valves
DN 300 PN 16
Italy

Double flanged sleeve valves
DN 800 PN 25
Italy
Butterfly Valves

Valves for maintenance or safety purposes, they are engineered and customized to the special needs of hydroelectric power plants. Used as isolation device, they provide tight shut-off when closed and little pressure loss when open. Relatively easy to operate, they require limited room for installation. Large sizes are designed with biplane disc, lattice type, double eccentric and triple eccentric execution. We produce single or double seat type valves.

Applications:

- water pipelines related to power generation facilities
- water treatment plants
- major water supply and distribution lines
- pumping plants

Available for raw, potable, sea and sewage water.

Customization on demand.

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>DN 100 &lt;-&gt; 3500</th>
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<tbody>
<tr>
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<td>DN 4&quot; &lt;-&gt; 138&quot;</td>
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<tr>
<td>Pressure range</td>
<td>PN 10 &lt;-&gt; 50</td>
</tr>
<tr>
<td></td>
<td>ASME/ANSI 150 &lt;-&gt; 300</td>
</tr>
<tr>
<td>Actuation</td>
<td>Manual, by counterweight, electric and hydraulic</td>
</tr>
</tbody>
</table>
Butterfly valve
DN 2000 PN 10
Iran

Butterfly valve
DN 2000 PN 16
Under exceptional discharge condition - Venezuela
Ball and Spherical Valves

Mainly used in hydroelectric power plants when high values of flow rate speed and/or pressure rating are required.

Functions:

• maintenance operation
• emergency/safety closing operation
• as penstock valve

The main feature of the valves we produce is the actuation of the two movable seal rings, one on upstream and one on downstream side of the valves. They ensure the perfect tightness of the valve and in the same time the upstream one can be used as maintenance tool to work on the downstream one.

Applications:

• hydraulic power plants
• discharge systems
• pumping stations.

Customization on demand.

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>DN 500 &lt;&gt; 2200</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DN 20” &lt;&gt; 84”</td>
</tr>
<tr>
<td>Pressure range</td>
<td>PN 10 &lt;&gt; 100</td>
</tr>
<tr>
<td></td>
<td>ANSI 150 &lt;&gt; 600</td>
</tr>
<tr>
<td>Actuation</td>
<td>Manual, by counterweight, electric and hydraulic</td>
</tr>
</tbody>
</table>
Spherical valve
DN 1500 PN 40
Detail with dismantling joint

Ball valve
DN 1400 ASME/ANSI 600
Algeria
Non-return Axial Valves

One-way valves allowing the fluid to flow in only one direction and preventing the backflow.

Main features:

- optimization of the aerodynamic flow path through the valve, which allows little pressure losses
- highly responsive non-slam operation.

These valves work perfectly in very demanding operating condition.

Applications:

- prevention of reverse flow
- prevention of water-hammer
- pump protection.

Customization on demand.

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>DN 100 &lt;&gt; 1500</th>
<th>DN 4” &lt;&gt; 60”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure range</td>
<td>PN 10 &lt;&gt; 100</td>
<td>ASME/ANSI 150 &lt;&gt; 600</td>
</tr>
</tbody>
</table>

Actuation

It remains in open position during normal flow. A drop in the flow rate causes the spring to move, thereby closing the valve.
Non-return axial valve
DN 1400 ASME/ANSI 600
Algeria

Non-return axial valve
DN 1600 PN 25
Lebanon
Gates, Penstocks and Stoplogs

Generally used as guard valves in high-pressure outlet for dams, the gates operate in wide open or full closed position and therefore are suitable for all on/off applications. According to the project requirements we engineer and produce several kinds of gates:

- slide gates
- ring follower gates
- radial gates.

Penstocks and stoplogs are low pressure intake devices for channels, tanks and basins, and are usually wall-mounted. The normal position is the open one, they close when maintenance is required. To allow an easy handling, stoplogs are usually composed by several units that must be lifted by a lifting beam and positioned one on top of the other to reach a level higher than the required water level.

Materials:

- body in structural steel (carbon or stainless steel)
- leaf (for gates) in structural steel (carbon or stainless steel)
- sliding guides in stainless steel, bronze or special alloy
- tightness system: metal on metal or by soft seal (EPDM, NBR, Teflon, etc.).

Applications:

- hydraulic power plants (gates)
- low-pressure intakes in channels, tanks and basins (penstocks and stoplogs).

Customization on demand.
## Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>Round bore</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Up to DN 2000</td>
</tr>
<tr>
<td></td>
<td>• Up to DN 80”</td>
</tr>
<tr>
<td>Square bore</td>
<td>• Up to 2000x2000mm</td>
</tr>
<tr>
<td></td>
<td>• Up to 80x80”</td>
</tr>
<tr>
<td>Rectangular bore</td>
<td>• Up to 2500x3500mm</td>
</tr>
<tr>
<td></td>
<td>• Up to 100x130”</td>
</tr>
<tr>
<td>Other on demand</td>
<td></td>
</tr>
</tbody>
</table>

| Pressure range for gates | PN 6 ↔ 64                        |
|                         | ASME/ANSI 150 ↔ 300               |

| Actuation for gates    | Electric or hydraulic             |
| Actuation for penstock and stoplogs | Manual, electric or hydraulic |
Multijet Rotative Valves

The simplicity of the design allows this valve to work under heavy flow condition for a long time. It is composed by one multi-hole plate assembled between two propeller-shaped plates, one fixed and the other rotating on the common axis. The valve control the flow operating in the full range between two end positions:
• open when the blades of the two propellers are perfectly aligned
• closed when the blades of the movable propeller overlap the empty room of the fixed propeller.
The multi-hole plate provides a downstream flow in evenly distributed jets.

Applications

• water distribution systems
• supply of reclaimed water for agricultural use and recharge of basins
• headwork of water treatment plants
• flow relief for pump, turbine by-pass and other hydroelectric utility applications
• water intake at the bottom of dams and discharge control.

Customization on demand.
## Technical Data

| Size         | DN 100 <-> 2000  
<table>
<thead>
<tr>
<th></th>
<th>DN 4” &lt;-&gt; 80”</th>
</tr>
</thead>
</table>
| Pressure range| PN 10 <-> 64    
|             | ASME/ANSI 150 <-> 300 |
| Actuation    | Manual, electric or hydraulic |

Multijet rotative valve DN 500 PN 16  
Italy

Multijet rotative valve DN 600 PN 16  
Italy

Multijet rotative valve DN 500 PN 25  
Saudi Arabia
Other valves

We also design and manufacture:

• plug valves
• globe valves
• level control valves

Special design and customization on demand.
Additional services

We provide you with:

- customer support
- design
- project support
- commissioning
- on site inspection
- training
- maintenance
- spare parts.