

# NUCLEAR VALVES

Design, Manufacturing,  
Assembly and Testing

 **DAHER**

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# DAHER VALVES

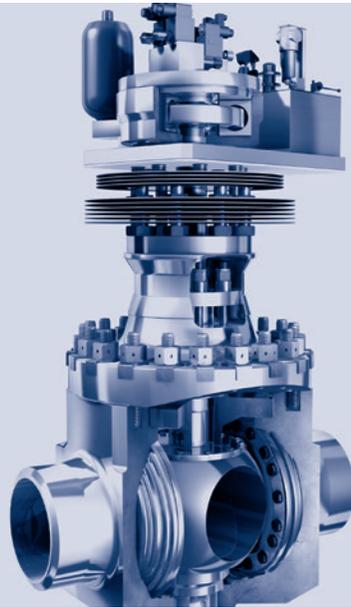


## NUCLEAR MARKET

Daher has been innovating in the nuclear valve sector for nearly 40 years. Its valves are present across the market:

- > Nuclear power plants
- > Defense
- > Research reactors
- > Decommissioning
- > Fuel cycle installations (front end and back end)

## VANATOME



## ENERGY MARKET

Daher offers a wide range of products adapted to the most demanding requirements of industrial groups in the energy sector:

- > Oil & gas
- > Thermal power plants
- > Desalination
- > Industry
- > Renewable energies
- > Cryogenics

## VERDELET

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### HIGH PERFORMANCES FUNCTIONS



NUCLEAR PLANT



OIL & GAS



CHEMICAL PLANT



HIGH TECH



THERMAL & RENEWABLE



DEFENSE

ISOLATION SYSTEM

TECHNOLOGY	RANGE	MATERIAL	MAIN FEATURES	OPTIONS
<b>BALL VALVE SOFT SEATED</b> 	ND 8 (1/4") to ND 400 (16")	Carbon steel Stainless steel Alloy steel High Alloy duplex Nickel alloy Titanium alloy Other on request...	<ul style="list-style-type: none"> <li>• Top Entry, Side Entry or Cell Type</li> <li>• Trunnion or floating</li> <li>• Low operating torque and seat wear compensation</li> <li>• Low and fast maintenance</li> <li>• Cobalt free</li> </ul>	<ul style="list-style-type: none"> <li>• Quick interchangeable cartridge</li> <li>• Anti-retention sleeve</li> <li>• Fire safe</li> <li>• Multi-way valve</li> <li>• Limit switch</li> <li>• Padlocking hand-wheel</li> <li>• All actuation types</li> </ul>
	Class 150 to class 2500 Max temp = 210°C			
<b>BALL VALVE METAL SEATED</b> 	ND 8 (1/4") to ND 750 (30")	Carbon steel Stainless steel Alloy steel High Alloy duplex Nickel alloy Titanium alloy Other on request...	<ul style="list-style-type: none"> <li>• Top Entry, Side Entry or Cell Type</li> <li>• Trunnion or floating</li> <li>• Low operating torque and seat wear compensation</li> <li>• Low and fast maintenance</li> <li>• Cobalt free</li> <li>• Back seat absolute tightness</li> </ul>	<ul style="list-style-type: none"> <li>• Pressure balancing system by internal or external bypass</li> <li>• Mechanical recoil system of seat</li> <li>• Anti-retention sleeve</li> <li>• Fire safe</li> <li>• Multi-way valve</li> <li>• Limit switch</li> <li>• Padlocking hand-wheel</li> <li>• All actuation types</li> </ul>
	Class 150 to class 2500			
<b>CYLINDRICAL PLUG VALVE</b> 	ND 10 (3/8") to ND 100 (4")	Carbon steel Stainless steel Alloy steel High Alloy duplex Nickel alloy Titanium alloy Other on request...	<ul style="list-style-type: none"> <li>• Top entry type</li> <li>• Piston seat</li> <li>• Low operating torque and seat wear compensation</li> <li>• Low and fast maintenance</li> <li>• Cobalt free</li> <li>• No retention area</li> </ul>	<ul style="list-style-type: none"> <li>• With scraper</li> <li>• With jacket</li> <li>• Fire safe</li> <li>• Three-way design</li> <li>• Position limit switches</li> <li>• Padlocking hand-wheel</li> <li>• All actuation types</li> </ul>
	Class 150 to class 900 Max temp = 110°C			
<b>GLOBE VALVE</b> 	ND 8 (1/4") to ND 400 (16")	Carbon steel Stainless steel Alloy steel High Alloy duplex Nickel alloy Titanium alloy Other on request...	<ul style="list-style-type: none"> <li>• Globe valve with non rotating stem and non rotating swivel plug</li> <li>• Screwed / screwed welded / bolted / pressure seal bonnet</li> <li>• Weldable Lips</li> <li>• Progressive Closing by elastic system</li> <li>• Easy and fast maintenance</li> <li>• High performance packing gland or bellows valve</li> <li>• Cobalt free</li> </ul>	<ul style="list-style-type: none"> <li>• Easy and fast maintenance with cage</li> <li>• Balancing pilot plug</li> <li>• Bellows leak detector</li> <li>• Position limit switches</li> <li>• Padlocking hand-wheel</li> <li>• All actuation types</li> <li>• Angle Body type</li> <li>• Z Body type</li> </ul>
	Class 150 to class 2500			
<b>BUTTERFLY VALVE</b> 	ND 80 (3") to ND 2000 (80")	Carbon steel Stainless steel Alloy steel High Alloy duplex Nickel alloy Titanium alloy Other on request...	<ul style="list-style-type: none"> <li>• Body types: Wafer / Lug / Double flanged</li> <li>• Safe Quick Closing</li> <li>• Low pressure drop design</li> <li>• Mechanical vibration free</li> <li>• Double and Triple Offset</li> </ul>	<ul style="list-style-type: none"> <li>• Steam injection</li> <li>• Steam jacket</li> <li>• Position limit switches</li> <li>• All actuation types</li> </ul>
	Class 150 to class 2500			
<b>GATE VALVE</b> 	ND 80 (3") to ND 600 (24")	Carbon steel Stainless steel Alloy steel High Alloy duplex Nickel alloy Titanium alloy Other on request...	<ul style="list-style-type: none"> <li>• Parallel slide gate valve</li> <li>• Bolted bonnet or Pressure Seal bonnet</li> <li>• No binding effect</li> <li>• Cobalt free</li> <li>• Free expanding Discs</li> </ul>	<ul style="list-style-type: none"> <li>• Automatic anti-overpressure balancing device</li> <li>• Disc substitution ring in order to reduce pressure drop</li> <li>• Connection for periodic sampling</li> <li>• Bellows</li> <li>• Position limit switches</li> <li>• Padlocking hand-wheel</li> <li>• All actuation types</li> </ul>
	Class 150 to class 2500			

	TECHNOLOGY	RANGE	MATERIAL	MAIN FEATURES	OPTIONS
CONTROL SYSTEM	GLOBE CONTROL VALVE	ND 8 (1/4") to ND 400 (16")	Carbon steel Stainless steel Alloy steel High Alloy duplex Nickel alloy Other on request..	<ul style="list-style-type: none"> <li>• Non rotating stem and non rotating swivel plug</li> <li>• Screwed bonnet /screwed welded bonnet / bolted bonnet / pressure seal bonnet</li> <li>• Progressive closing by elastic system</li> <li>• Range of high performance packing gland or bellows valve, with improved service life</li> <li>• Cobalt free</li> <li>• Seating face protection against excessive fluid velocity speed</li> <li>• Curve of valve flow Cv: linear or equal percentage</li> <li>• Single Offset and Triple Offset</li> </ul>	<ul style="list-style-type: none"> <li>• Three-way valve</li> <li>• Bellows leak detector</li> <li>• Position limit switches</li> <li>• All actuation types</li> <li>• Angle body type</li> <li>• Z body type</li> <li>• Easy and fast maintenance for the Globe valve with cage</li> </ul>
		Class 150 to class 2500			
	SAMPLING CONTROL VALVE	ND 6 (1/8") to ND 25 (1")	Carbon steel Stainless steel Alloy steel High alloyed duplex Nickel alloy Other on request..	<ul style="list-style-type: none"> <li>• Needle or geometrical profile plug or metallic membrane</li> <li>• Soft seated or metal seated</li> </ul>	<ul style="list-style-type: none"> <li>• Bellows</li> </ul>
		Class 150 to class 2500			
BUTTERFLY CONTROL VALVE	ND 80 (3") to ND 2400 (96")	Carbon steel Stainless steel Alloy steel High alloyed duplex Nickel alloy Titanium alloy Other on request..	<ul style="list-style-type: none"> <li>• Body Types: Wafer/ Lug / Double flanged</li> <li>• Safe quick closing</li> <li>• Low pressure drop design</li> <li>• Mechanical vibration proof</li> <li>• Control of fluid while avoiding cavitation</li> <li>• Low noise and no vibration</li> </ul>	<ul style="list-style-type: none"> <li>• Steam injection system</li> <li>• Anti-cavitation device</li> <li>• Low noise device</li> <li>• Position limit switches</li> <li>• All actuation types</li> </ul>	
	Class 150 to class 2500				
DIAPHRAGM CONTROL VALVE	ND 15 (1/2") to ND 300 (12")	Carbon steel Stainless steel Alloy steel High alloyed duplex Nickel alloy Other on request..	<ul style="list-style-type: none"> <li>• Cell type</li> <li>• Modular and quick maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• Position limit switches</li> <li>• All actuation types</li> </ul>	
	Class 150 to class 2500				

## CERTIFICATIONS

ISO 9001:2008 14001:2004 18001:2007

SIL 3

GOST-R & ROSTEKHNADZOR Russia

ASME III

EUROPEAN PRESSURE EQUIPMENT DIRECTIVE 97.23EC PED H & H1 Module

ATEX Directive 94/9/EC n° 18015/05

ESPN

EUROPEAN NUCLEAR PRESSURE EQUIPMENT DIRECTIVE H & H1 Module

EDF-POLE Industrie

HAF604

## NUCLEAR CODES

FRANCE: RCCM, RCCM-R, RCCM-X, RCCM-RX

USA: ASME III – N&NV stamp

RUSSIA: НП-068-05

## INDUSTRIAL CODES

FRANCE: CODAP – CODETI – EN12516

INTERNATIONAL: ASME VIII / ANSI B16.34

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SAFETY OR PROTECTION SYSTEM

TECHNOLOGY		RANGE	MATERIAL	MAIN FEATURES	OPTIONS
SAFETY RELIEF VALVE		ND 8 (1/4") to ND 350 (14')	Carbon steel Stainless steel Alloy steel High Alloy duplex Nickel alloy Other on request..	<ul style="list-style-type: none"> <li>• Direct acting / Assisted / Supplementary loaded / spring loaded / pilot operated</li> <li>• Flanged or connection with fittings</li> <li>• Instantaneous tripping, closing pressure resetting</li> <li>• Cobalt free</li> </ul>	<ul style="list-style-type: none"> <li>• Anti back-pressure balancing system</li> <li>• Remote controlled assisted safety valve (pneumatic or electric)</li> <li>• Safety relief valve coupled with VANATOME rupture disc</li> <li>• Moving parts protected by bellows for corrosive fluids</li> </ul>
		Class 150 to class 2500			
RUPTURE DISC		ND 10 (3/8") to ND 900 (36')	Stainless steel Alloy steel High Alloy duplex Nickel alloy Other on request..	<ul style="list-style-type: none"> <li>• Concave free bursting / fitted with knife / pre-cut in composite material / reverse grooved without knife</li> <li>• Assembly: Wafer / threaded / screwed / welded</li> <li>• Manufacturing by hydroforming system</li> </ul>	<ul style="list-style-type: none"> <li>• Support to withstand vacuum or back pressure</li> <li>• Bursting detector</li> <li>• Package of rupture disc and associated safety relief valve</li> </ul>
		set pressure 0.5 to 1000 bar			
SELF PRESSURE CONTROL VALVE		ND 8 (1/4") to ND200 (8')	Carbon steel Stainless steel Alloy steel High Alloy duplex Nickel alloy Titanium alloy Other on request..	<ul style="list-style-type: none"> <li>• Balanced plug</li> <li>• Flanged or connection with union fittings</li> <li>• Pressure release power operated by membrane or piston actuator</li> <li>• Soft seated or metal seated</li> <li>• High temperature: over 240°C with bellows</li> <li>• Flow limitation</li> </ul>	<ul style="list-style-type: none"> <li>• Pressure gauge tap</li> </ul>
		Class 150 to class 1500			
CHECK VALVE		ND 8 (1/4") to ND 600 (24')	Carbon steel Stainless steel Alloy steel High Alloy duplex Nickel alloy Titanium alloy Other on request..	<ul style="list-style-type: none"> <li>• Piston check valve</li> <li>• Swing check valve</li> <li>• Axial check valve</li> <li>• Bolted bonnet or pressure seal bonnet</li> <li>• Soft seated or metal seated</li> <li>• Low pressure drop, acoustic discretion, all installation positions (axial check valve)</li> <li>• Easy and fast maintenance for the check valve with cage or cell type</li> <li>• Cobalt free</li> </ul>	<ul style="list-style-type: none"> <li>• Lock closed system (stop check valve)</li> <li>• Spring loaded calibrating system to adjust the opening pressure</li> <li>• Counterweight, dash pot</li> <li>• Position indicator</li> <li>• Lockable in closed position</li> <li>• Bellows leak detector</li> </ul>
		Class 150 to class 2500			

INSTRUMENTATION SYSTEM

INSTRUMENTATION VALVE		ND 6 (1/8") to ND 25 (1')	Carbon steel Stainless steel Alloy steel High Alloy duplex Nickel alloy Titanium alloy Other on request..	<ul style="list-style-type: none"> <li>• Easy and fast maintenance for the valve with cage</li> <li>• Progressive closing by elastic system to compensate the differential expansions</li> <li>• Screwed, screwed welded or welded bonnet</li> <li>• Needle type or throttling needle type with metal/metal seating</li> <li>• Cobalt free</li> </ul>	<ul style="list-style-type: none"> <li>• With cage</li> <li>• Swivelling non rotating plug</li> <li>• Anti-vibrating mass kit</li> <li>• Bellows leak detector</li> <li>• Variations performance packing gland or bellows valve, with improved service life, suitable for operation involving large thermal variations</li> </ul>
		Class 150 to class 2500			
MANIFOLD		ND 6 (1/8") to ND 15 (1/2')	Carbon steel Stainless steel Alloy steel High Alloy duplex Nickel alloy Titanium alloy Other on request..	<ul style="list-style-type: none"> <li>• Direct or remote mounting</li> <li>• Screwed bonnet with mechanical locking or bolted bonnet for high temperature</li> <li>• High-performance</li> </ul>	<ul style="list-style-type: none"> <li>• Bellows for absolute external tightness for hazardous fluids and gas</li> <li>• Integrated steam tracing</li> <li>• Drain plug</li> <li>• 2" pipe support kit</li> <li>• Ball plug (ceramic, stellite..)</li> </ul>
		Class 1500 to class 2500			
FITTING		ND 6 (1/8") to ND 25 (1')	Carbon steel Stainless steel Alloy steel High Alloy duplex Other on request..	<ul style="list-style-type: none"> <li>• Elastomer o-ring for temperatures up to 160°C or graphite for temperatures above 160°C</li> <li>• Screwed on sensor side and welded on pipe side</li> <li>• Tightness without additional sealing products on sensor side</li> </ul>	<ul style="list-style-type: none"> <li>• Double sealing</li> </ul>
		Class 150 to class 2500			