

Meca-inoX

EXPERT IN BALL VALVE

A universe of solutions



OUR COMPANY

MECA-INOX IS CONSIDERED TO BE ONE OF THE BEST SPECIALISTS IN THE DESIGN AND MANUFACTURE OF INDUSTRIAL BALL VALVES.

Founded in France in 1955 by Guy Beurel, the company is now owned and directed by his grandson, Hugues Beurel.

Over nearly 60 years, more than 3 million valves have been installed for our customers.

We continue to grow, strengthening our teams, developing our manufacturing capacity and reinvesting over 3 % of our annual turnover in research and development.

Two manufacturing sites enable us to continue our international growth thanks to:

- a unified product range with continuous interaction of the manufacturing processes
- follow-up of our main accounts with common strategy and management

Le Coudray St Germer - France

Original design and production site



"An heir to strong manufacturing values and driven by the desire to produce, I have chosen always to put first the reliability of our valves for process performance and personal safety."

Hugues Beurel, Chairman and CEO of MECA-INOX

Dalian - China

Manufacturing site set up in 2007 for the Asian market



OUR STRATEGY

OUR STRATEGY IS FOUNDED ON THE CULTURE KNOW-HOW IN THE SERVICE OF QUALITY, SAFETY AND COMPLIANCE WITH REGULATORY REQUIREMENTS IN 2 PRODUCT LINES:

1 To offer a range of ball valves and accessories with the shortest lead times:

- A range comprising 4000 priced products



- High availability of components and finished products with over 3 M€ of stocks



- A network of more than 50 selected stockist-distributors

2 Support of our customers in their customised requirements from the pre-contract phase to post-contract follow-up.

- Direct contact with a multidisciplinary project team to support you in your projects

- Commitment to feasibility based on our expertise in design, quality and manufacturing



- A customised offer based on catalogue products for greater competitiveness

- Documented associated services:

- ▶ **technical files**
- ▶ **plans**
- ▶ **tests on demand**
- ▶ **certified materials**



THE MARKETS SERVED

INTENDED FOR USE ON DEMANDING PROCESSES (PRESSURE, TEMPERATURE, CORROSION, FREQUENCY OF OPERATIONS, DANGEROUS PRODUCTS ETC.), OUR VALVES ARE RECOMMENDED IN MANY INDUSTRIES

ADVANCED CHEMISTRY, SPECIALITY CHEMISTRY, BASIC CHEMISTRY, GREEN CHEMISTRY



Production of active ingredients - clean pharmaceutical facilities - refining of bio-fuels - polymer synthesis processes - resin production

ATMOSPHERIC GASES AND NATURAL GAS



Gas separation units - liquid gas storage and transport - cryogenic pump units - natural gas distribution

AGROCHEMICALS AND FOOD PROCESSING



Starch and sugar refining, distillery, oil extraction - refineries - breweries - freeze drying of coffee - chocolate making

THERMAL AND NUCLEAR POWER PLANTS



Cooling and refrigeration circuits - glove boxes - enrichment - reprocessing

WATER TREATMENT, STEEL MAKING, AUTOMOTIVE, RESEARCH ETC.



Blast furnaces - seawater desalination - paint distribution - particle accelerators...

OUR REFERENCES

Dupont - Roquette Frères - Sanofi - BASF-Cognis - l'Oréal - Nestlé - Air Liquide - Linde - Air Products - BOC - Véolia - GSK - MSD - AstraZeneca - Areva - Alstom Power - GE - Renault - PSA...

FOR EACH MARKET, MECA-INOX UNDERSTANDS THE PROBLEMS AND ISSUES, PROPOSING AN APPROPRIATE PRODUCT RANGE:

Examples:

- 3-way, piggyback valves without retention on paint circulating systems in automotive manufacturers
- valves approved for cryogenic applications in shipbuilding
- fire-resistant valves in special alloy on solvent lines in the chemical industry

OUR CUSTOMERS

MECA-INOX HAS CHOSEN TO PUT ITS CUSTOMERS AT THE CORE OF THE BUSINESS BY SETTING UP A CUSTOMER SERVICE.

ITS MISSION IS TO GUARANTEE CUSTOMER SATISFACTION THROUGH GOOD MANAGEMENT OF THEIR ORDERS. MECA-INOX INCORPORATES THE SPECIFIC EXPECTATION OF EACH CUSTOMER:

■ To the engineering companies and design offices we bring our experience

- Recommendations of materials, sealing, safety etc.
- Work in project mode to meet the requirements of each business deal
- Supply of dedicated technical files

■ For equipment manufacturers, we assist with the integration of our products

- Customisation to requirements (actuators, sleeves, connections etc.)
- Stocking of specific components in order to guarantee speedy deliveries
- Supply of the plans needed for integration in the equipment



■ To installers, we provide our assistance during work on the site

- Urgent deliveries of additional components
- Supply of the required plans and technical notes for the correct installation of our products
- Assistance by telephone and field support if necessary



■ For the end users, we focus on service

- Stocking, assembly, marking and testing of products
- Immediate replacement of equipment if necessary
- Development of our product range on the basis of customer suggestions

"When a customer calls me and is satisfied with the proposed solutions, I realise the extent to which the effort that I put in is essential"

Justine, MECA-INOX Customer Service



OUR KNOW-HOW

MECA-INOX FOCUSES ON A SOUND TRANSMISSION OF KNOW-HOW INITIATIVE, AUTONOMY AND PARTICIPATION ARE THE KEY VALUES OF THE COMPANY MANAGEMENT. OUR REALISATIONS ALWAYS AIM TO ASSURE PERSONAL SAFETY AS WELL AS THAT OF THE INSTALLATIONS AND THE ENVIRONMENT.

■ **Design** that is based on a risk analysis at all phases of the product life cycle

■ **Customised realisations:**
special configurations with options, connections, materials, surface conditions



■ **Control of technical characteristics:**
torques, flows, retention volumes, temperatures, pressure drops etc.

■ **Customer support:**
corrosion resistance, materials compatibility, regulatory aspects

■ **Quality controls** from acceptance of components to the preparation of finished products: material quality, dimensional, roughness...



"For 34 years I have machined and inspected valve components on my machine tool. Each manufactured part is a piece of ourselves, we feel committed to producing a product of high quality and these are the company values that we pass on to the younger generations."

Eric, lathe operator at MECA-INOX



**ENDURANCE:**

up to 2.6 million operations without servicing.

**EXTREME FREQUENCIES:**

25 operations per minute.

**LEAKAGE:**

measured external leakage up to 10-8 mb.l/s

**THERMAL SHOCK:**

withstands a rise of 200 °C in 2 minutes

**RETENTION:**

reduction of the retention zone to 0.7 ml
on a DN 15 pipe

**SERVICE LIFE:**

15 years operation on a chemical site.



Our products



OUR RANGE OF VALVES

CONTROL AND REGULATION

Adjusts the flow or pressure in order to control a level, temperature, pH value etc.

Regulation of a flow of silicon oil (2.5 m³/h, -80 °C) to maintain the internal temperature of a freeze dryer
(> 10 000 cycles/year)

Adjust a flow of hot water to stabilise the temperature of an enclosure at 50 °C +/- 2 °C.
(1500 cycles /year)

- V-opening at 30° or 60°
- Seats PTFE +20 % PEEK
- Actuator 4-20 mA
- Electrical actuator
- Flow curves (Kv - flow according to opening)



CLEAN UTILITIES

Reduces the risk of contamination and facilitates cleaning

“White” steam on cleaning in place circuit (CIP/SIP)

Clean gases (filtered air)

Purified water

Neutral gases

- ASME BPE SF1 to SF6
(Ra 0.4 µm)
- True bore
- Ends 1.4435 anti-roughing
(corrosion when welding)



CORROSION RESISTANCE

Resists aggressive fluids at high temperature and pressure

Circulation of hydrochloric acid, 33 % at 160 °C

Use one acetic and formic acids (200°C) in bio-diesel production unit

Seawater desalination unit, 80 bars.

- PN 100
- Max. temperature 300 °C
- PRen > 40



CRYOGENICS

*Guaranteed leak-proof
and operable at very low
temperature*

Liquefied Natural Gas (LNG)
at -180 °C

Liquid air gases: nitrogen and
liquid oxygen (-196 °C)

Carbon dioxide CO₂ (-60 °C),
for sparkling drinks

- -50 °C
- -196 °C
- Fire-safety design
- 3-way
- Cryo-sealed
- Extension machined from bar
- Compliant with EN 1626



FLUSH MOUNTINGS

*Minimises retention zones
on tee*

Injection of cleaning liquid
on atomiser outlet
(food processing industry)

Solvent / paint distribution
valve (automotive)

Piping drainage
(paper-making)

- For DN 15 to 200 pipe
- Flush ball
- True bore, piggable version



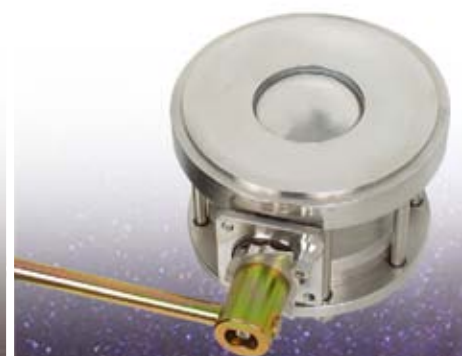
TANK BOTTOM

*Drains and transfers at
tank or reservoir bottom*

On detergent tank of 10 m³,
outlet DN65.

On chemical reactor, with
fire safety version

- Reduced retention zone
- Compatible with all fluids
- Equipped with cavity fillers
- Flush ball



OUR RANGE OF VALVES

MULTI-WAY

For distribution of a fluid or the isolation of a component

Selective isolation of safety valves in the upper part of cryogenic tanks

Distribution of detergent upstream of packaging

Alternating sourcing of liquid cryogenic towards evaporator

- 3-way, horizontal or vertical versions with L or T ball



THERMAL JACKET

Maintains the temperature of the fluid in the valve

Transfer of bitumen by maintaining the valve body at 120 °C

Paraffin production unit, stability of product at 90 °C

- PEEK-loaded PTFE seat to guarantee temperature-resistance
- Optimised jacket volume
- Compatible with heat exchange fluids: steam, hot water, cold water



SIGHT GLASSES

Allows visual inspection of the flow

Checking the circulation of solvent in pharmaceutical production

- Stainless steel protector
- Preloaded cartridge
- Without retention
- Same types of connections and materials as the valves
- Direction indicator
- Anti-drip



NON-RETURN VALVE

Prevents backflow

Disc check valve for gases and liquids (ethanol, nitrogen, etc.)

Cryogenic version for liquefied gases (liquid nitrogen)

Degreased version for oxygen

- No risk of flutter
- PN 40
- PTFE sealed
- All connections



USES

Offers an economical, one-piece solution

All utility fluids

- PTFE sealed
- Gas thread, Briggs thread
- Full bore
- Ungreased



USES

Offers an economical, 3-part solution

All utility fluids

Non-demanding process

- Carbon-loaded PTFE
- End fittings for welding or screw-fitting
- Full bore



OUR RANGE OF VALVES

SAMPLING

Taking a representative sample under pressure

Sampling sulphuric acid at 110 °C, valve in alloy 22, with assured operator safety

- Choice of desired volume
- Main line sealed during operation
- Anti-drip
- Choice of bottles
- Sample holder option, isolating check valve



DOUBLE BLOCK AND BLEED

Isolates and bleeds an upstream and/or downstream line

Provides safe isolation of chemical reactors during maintenance operations

The double-valve assembly guarantees safety with the double seal and the dual operation

- Choice of connections (DIN / ANSI flanges)
- Bleed valve



EMERGENCY OPERATIONS

Guarantees automatic closing in case of emergency

Automatic closing on outlet of mobile tank. In the event of fire, once the ambient temperature is >75 °C or by manual operation the valve closes immediately.



STUDIES AND MANUFACTURE TO CUSTOMER REQUIREMENTS

Meets specific requirements regarding grade, certification, retention, pressure etc.

- ▶ Valve meeting DNV (Det Norske Veritas) specifications.
- ▶ Documentation and tests in accordance with specific requirements
- ▶ S2 level valves for use in the nuclear industry
- ▶ Valves and end pieces painted in accordance with specifications
- ▶ Valves in Super Duplex PN 100 on reverse osmosis process



2-PIECE & 3-PIECE VALVES

2-PIECE VALVES

DN 15 TO DN 200
PN 16 TO PN 40

STAINLESS & CARBON STEELS
CHEMICAL & FIRE SAFE VERSION TO EN 10497



3-PIECE VALVES

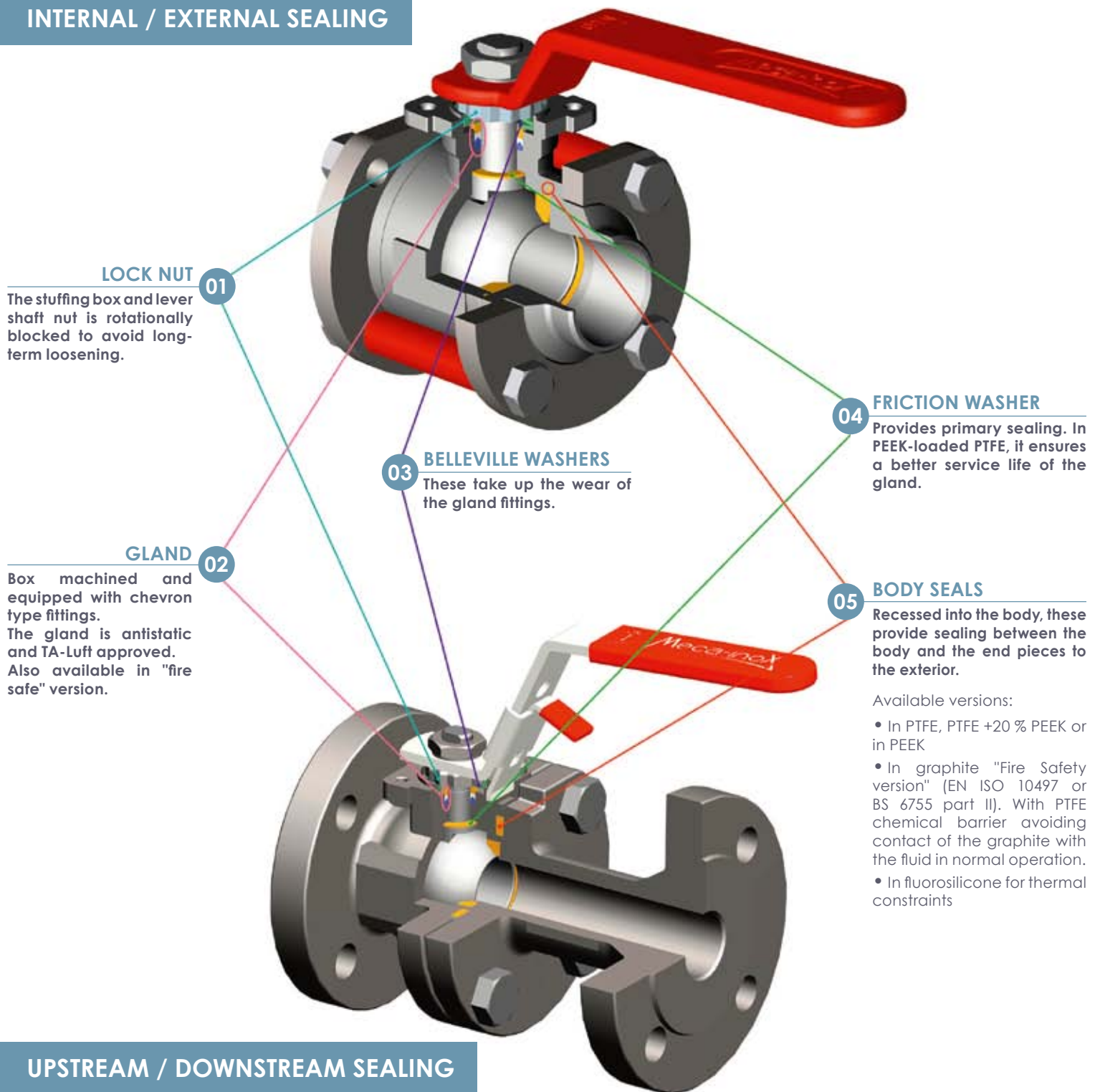
DN 08 TO DN 200
PN 16 TO PN 100

STAINLESS, CARBON & SPECIAL STEELS
FULL OR REDUCED BORE

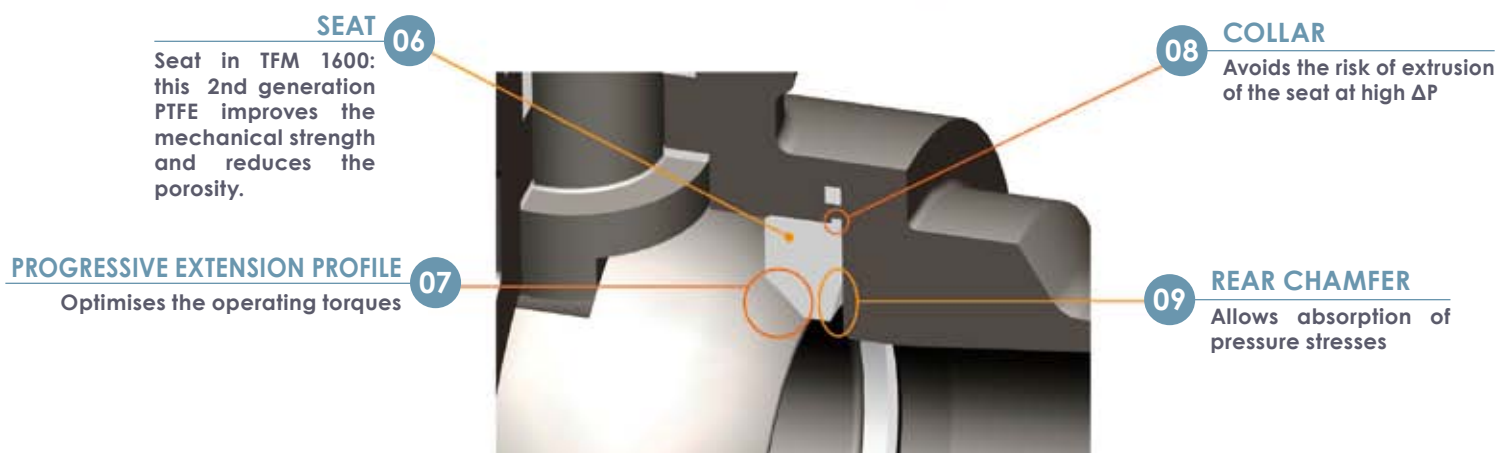


SEALING

INTERNAL / EXTERNAL SEALING

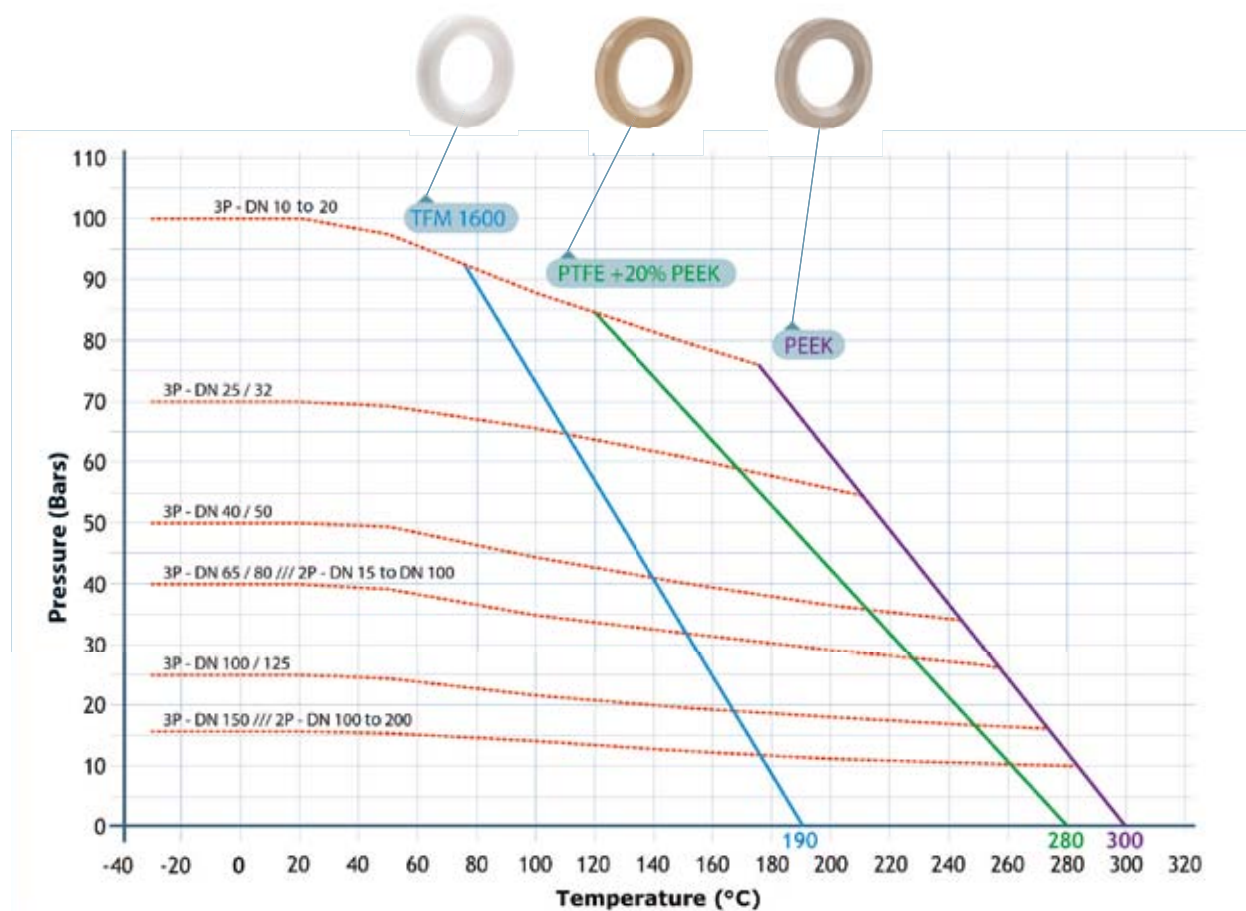


UPSTREAM / DOWNSTREAM SEALING



PRESSURE/TEMPERATURE-RESISTANCE

Curves according to the various types of seat



Different sealing materials and designs are possible.
Please consult us.



CONNECTIONS

BUTT WELDING

TYPE PS4 BW

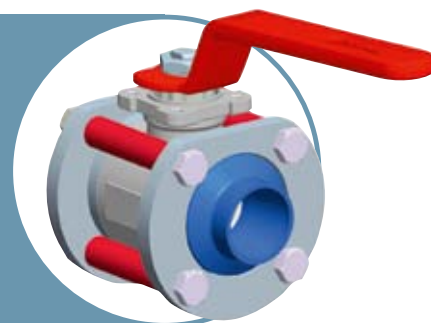
SOCKET WELDING

TYPE PS4 SW

BSP & NPT TAPPED

TYPE PS4 TG (BSP) PS4 TB (NPT)

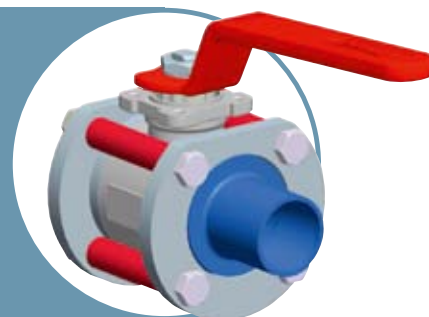
FULL BORE DN 08 TO DN 150 OR REDUCED BORE DN 15 TO DN 200



ORBITAL WELDING

TYPE PS4 O4

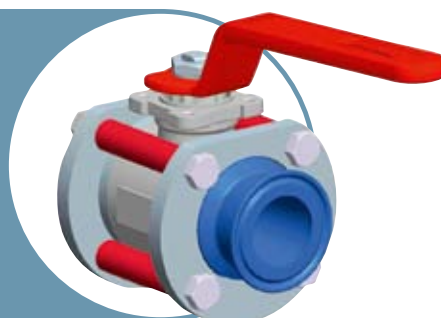
FULL BORE DN 08 TO DN 150



CLAMP

TYPE PS4 CL

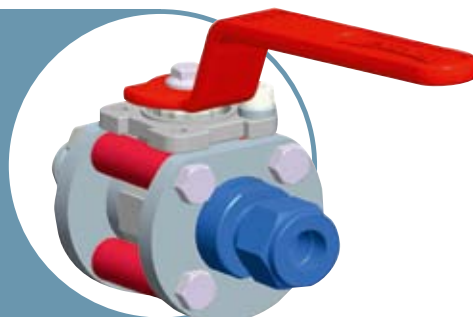
FULL BORE DN 08 TO DN 150



COMPRESSION FITTING

TYPE PS4 DB

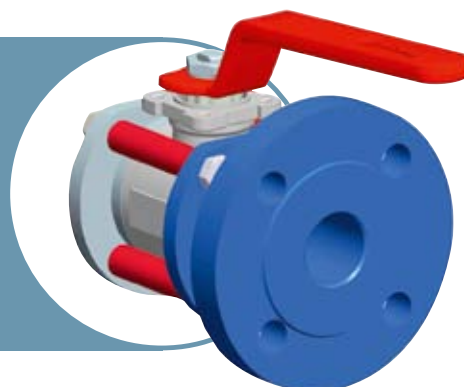
FULL BORE DN 06 TO DN 18



FLANGE PN16 / PN40

TYPE PS4 BC

FULL BORE DN 08 TO DN 50 OR
REDUCED BORE DN 15 TO DN 65



3-PIECE ADVANTAGES

ADVANTAGES OF THE KIT BOX:

- ▶ SAVES TIME WHEN FITTING
- ▶ IDENTIFICATION OF THE MATERIALS BY DISTINCT COLOURS
- ▶ PROTECTION OF THE COMPONENTS DURING INSTALLATION



ADVANTAGES OF THE MACHINED END PIECES:

- ▶ LARGE CHOICE OF CONNECTIONS
- ▶ CUSTOMISED DIMENSIONS
- ▶ FAST PRODUCTION



3-PIECE ADVANTAGES

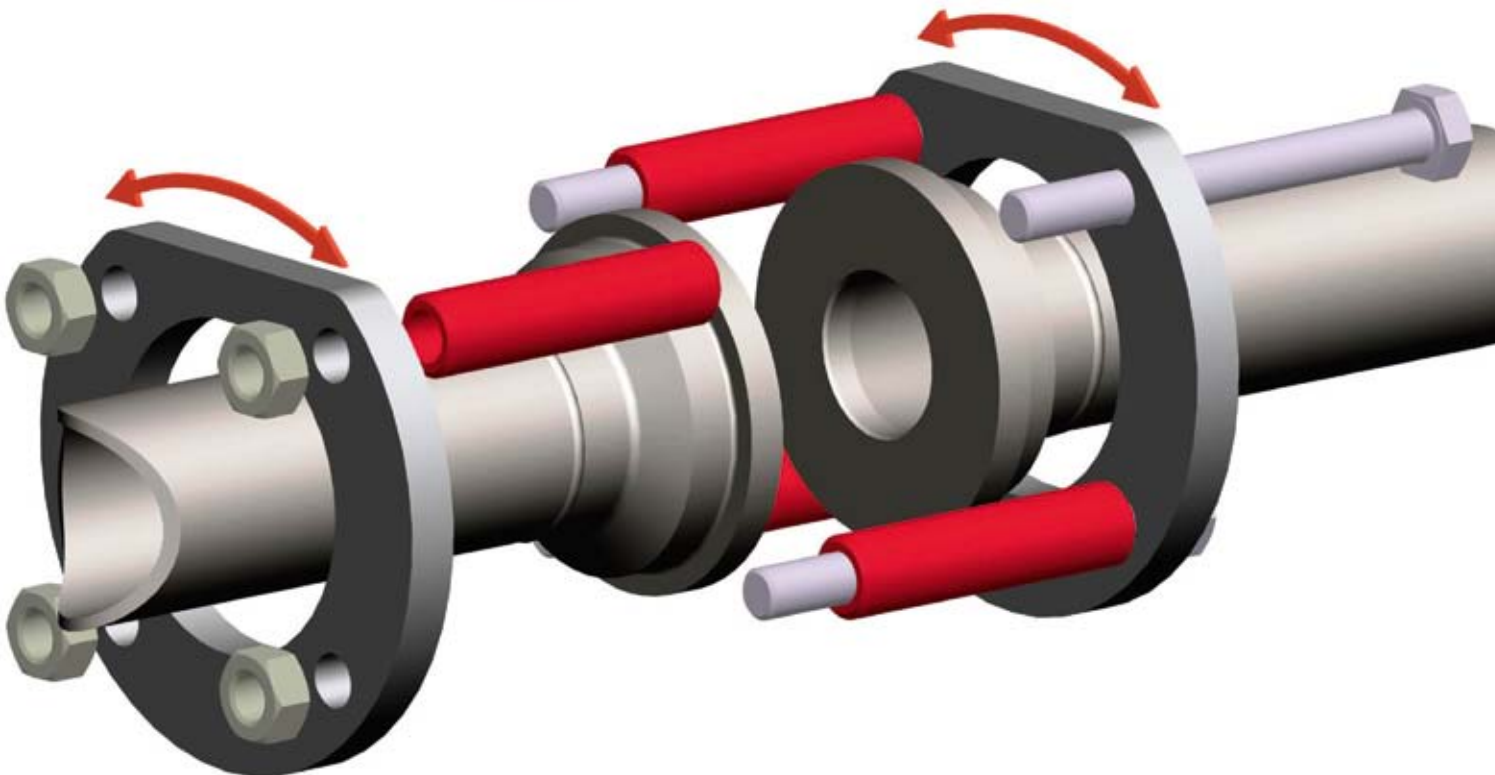
ADVANTAGES OF THE ROTATING FLANGES:

- ▶ EASE OF INSTALLATION WITHOUT ALIGNMENT OF THE END PIECES
- ▶ ORIENTATION OF THE VALVE BODY THROUGH 360°
- ▶ ELIMINATION OF THE STRESSES DUE TO FAULTY ALIGNMENT

VALVE BODY ROTATABLE THROUGH 360°



FLANGES ROTATABLE THROUGH 360°





Accessories



LEVERS

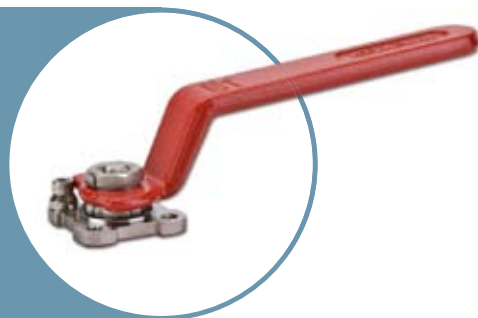
STANDARD LEVER IN STEEL WITH EPOXY PAINT TYPE BP4NA
LEVER IN STAINLESS STEEL 304L, LOCKABLE TYPE BR4NI CVMM

FROM DN 08 TO DN 50

LEVER IN STAINLESS STEEL 304L, LOCKABLE, WITH RETURN SPRING
TYPE RR4NI CVMM

FROM DN 08 TO DN 50

MOUNTED AS STANDARD ON 2-PIECE VALVES



STANDARD LEVER IN STEEL

TYPE 2PNA

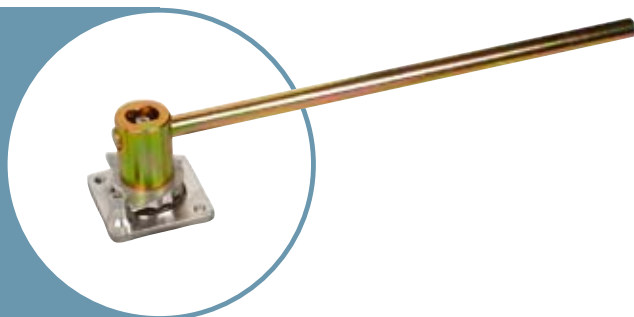
EXTENDED OPERATING LEVER

TYPE P4NIRH

OPTION: LOCKING KIT IN STAINLESS STEEL

TYPE KCADI

FROM DN 65 TO DN 150



HANDWHEEL IN STAINLESS STEEL SHEET, LOCKABLE

TYPE RVONICVRM (LOW WHEEL)

TYPE RVONICVHM (HIGH WHEEL)

FROM DN 08 TO DN 50

ON 2-PIECE VALVES, HIGH HANDWHEEL ONLY



EXTENDED LEVER IN STAINLESS STEEL

TYPE PLRJ

FROM DN 08 TO DN 50

LOCKING OPTION ON REQUEST

TYPE PLRJ CV



STEM EXTENSION IN STAINLESS STEEL

TYPE RH4

FROM DN 08 TO DN 50



MOTORISATIONS



PNEUMATIC ACTUATOR SINGLE OR DOUBLE ACTING

TORQUES: FROM 10 Nm TO 2000 Nm
AIR MOTOR: FROM 3 TO 10 BARS



NICKEL-COATED PNEUMATIC ACTUATOR HIGH RESISTANCE TO CORROSIVE ENVIRONMENTS SINGLE OR DOUBLE ACTING

TORQUES: FROM 10 Nm TO 2000 Nm
AIR MOTOR: FROM 3 TO 10 BARS



ELECTRIC ACTUATOR

TORQUES: FROM 35 Nm TO 600 Nm
SUPPLY 24V / 400V

ATEX VERSION

**"FLOW CONTROL" VERSION
BY CURRENT LOOP**



ELECTRIC ACTUATOR

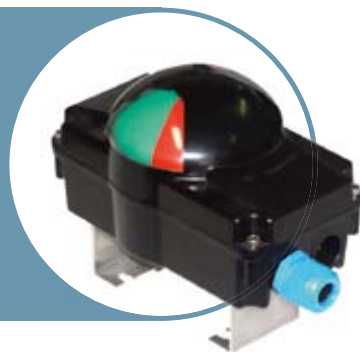
TORQUES: FROM 35 Nm TO 100 Nm
SUPPLY 24V / 220V

**"FLOW CONTROL" VERSION
BY CURRENT LOOP**

INDICATION & CONTROL

LIMIT SWITCH BOX IN VESTAMIDE WITH PROXIMITY DETECTORS Eex "ia" TYPE BVL430

FOR EXPLOSIVE ATMOSPHERE



LIMIT SWITCH BOX IN POLYCARBONATE + ABS

TYPE BML102

FOR CLEAN ATMOSPHERE

LIMIT SWITCH BOX IN VESTAMIDE, EXPLOSION PROOF Eex "ed" TYPE BVL730

FOR EXPLOSIVE ATMOSPHERE



PROXIMITY DETECTORS Eex "ia" TYPE NN5013

FOR MANUAL OR MOTORISED VALVES IN
EXPLOSIVE ATMOSPHERE



CLEAN ZONE VERSION AVAILABLE
TYPE IN5285

SOLENOID VALVES 5/2 OR 3/2 TYPE 2JCG551A01

FOR CLEAN ATMOSPHERE



SOLENOID VALVES 5/2 OR 3/2 WITH PILOT:

Eex "ia" TYPE 2EVB65191IA

Eex "d" TYPE 2JCG551B301

Eex "em" TYPE 2EVB6519-M

FOR EXPLOSIVE ATMOSPHERE





Valves with actuators on agrochemical process



Sampling of acid for quality control



Valves with welded and clamp connections in a research laboratory



Cryogenic valve at the outlet of a liquid nitrogen tank



Installation in bio-fuel refinery



Cryogenic valves on mobile tank

STANDARDS

MECA-INOX IS COMPLIANT WITH:

Pressure equipment: 97/23/EC.

Transportable pressure equipment: 2010/35/EC.

Equipment intended for use in explosive atmosphere: 94/9/EC, ATEX.

EN 1983 :2006, Industrial valves. Steel ball valves

EN 19:2002, Industrial valves. Marking of metallic valves

EN 5581, Industrial valves - Face-to-face and centre-to-face dimensions of metal valves for use in flanged pipe systems - PN and Class designated valves

EN 736-1:1995 / EN 736-2:1997 / EN 736-3:1999, Valves. Terminology Part 1 Definition of types of valves / Part 2 Definition of components of valves / Part 3: Definition of terms

EN 1092-1, Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, PN designated - Part 1: Steel flanges.

EN 1503-1 / EN 1503-2, Valves - Materials for bodies, bonnets and covers. Part 1: Steels specified in European Standards. Part 2: Steels other than those specified in European Standards.

EN 1515-1 / EN 1515-2, Flanges and their joints - Bolting. Part 1: Selection of bolting. Part 2: Classification of bolt materials for steel flanges, PN designated

EN 1626, Cryogenic vessels - Valves for cryogenic service

EN 1759-1, Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, class designated - Part 1: Steel flanges, NPS 1/2 to 24.

EN 10213, Steel castings for pressure purposes

EN 10272, Stainless steel bars for pressure purposes

EN 10273, Hot rolled weldable steel bars for pressure purposes with specified elevated temperature properties.

EN 12266-1 / EN 12266-2, Industrial valves - Testing of metallic valves - Part 1: Pressure tests, test procedures and acceptance criteria - Mandatory requirements

Part 2: Tests, test procedures and acceptance criteria - Supplementary requirements.

EN 12516-1:2005, Industrial valves - Shell design strength - Part 1: Tabulation method for steel valve shells

EN 12570, Industrial valves - Method for sizing the operating element.

EN 12627, Industrial valves - Butt welding ends for steel valves

EN 12760, Valves - Socket welding ends for steel valves

EN 12982:2000, Industrial valves - End-to-end and centre-to-end dimensions for butt welding end valves

EN ISO 228-1, Pipe threads where pressure-tight joints are not made on the threads Part 1: Dimensions, tolerances and designation (ISO 228-1:2000).

EN ISO 5211, Industrial valves - Part-turn actuator attachments (ISO 5211:2001).

EN ISO 10497:2004, Testing of valves - Fire type-testing requirements (ISO 10497:2004)

EN ISO 3506-1, Mechanical properties of corrosion-resistant stainless steel fasteners

EN 13463-1, Non-electrical equipment for use in potentially explosive atmospheres - Part 1: Basic method and requirements

ISO 7-1, Pipe threads where pressure-tight joints are made on the threads

ASME B 12.01, Pipe threads-General purpose. **ASME B 16.34**, Valves Flanged, threaded and welding end.



Leakage test at very low temperature



"Fire safety" qualification in accordance with EN ISO 10497

TECHNICAL NOTE

Type of valve			Conditions of use			Control range		
3-piece	<input type="checkbox"/>	<input type="checkbox"/>	Fluid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
2-piece	<input type="checkbox"/>		Pressure	<input type="checkbox"/>				
1-piece	<input type="checkbox"/>		Temperature	<input type="checkbox"/>				
Other	<input type="checkbox"/>		Flow	<input type="checkbox"/>				
Design								
Body material		<input type="checkbox"/>	Ways		<input type="checkbox"/>	Dimension (inch) (mm)		
S.S. - AISI 316L	<input type="checkbox"/>		2-way	<input type="checkbox"/>		1/4"	8	<input type="checkbox"/>
Steel	<input type="checkbox"/>		Bore in V (30° or 60°)	<input type="checkbox"/>		3/8"	12	<input type="checkbox"/>
904L (UB6)	<input type="checkbox"/>		3-way, passage in L	<input type="checkbox"/>		1/2"	15	<input type="checkbox"/>
Alloy 22	<input type="checkbox"/>		3-way, passage in T	<input type="checkbox"/>		3/4"	20	<input type="checkbox"/>
Inox 304L	<input type="checkbox"/>		Other	<input type="checkbox"/>		1.	25	<input type="checkbox"/>
Other	<input type="checkbox"/>				1 1/4"	32	<input type="checkbox"/>	
Seat materials		<input type="checkbox"/>	Passage		<input type="checkbox"/>			
PTFE	<input type="checkbox"/>		Full bore	<input type="checkbox"/>		1 1/2"	40	<input type="checkbox"/>
PTFE +20 % PEEK	<input type="checkbox"/>		Reduced bore	<input type="checkbox"/>		2.	50	<input type="checkbox"/>
PEEK	<input type="checkbox"/>		Total bore	<input type="checkbox"/>		2 1/2"	65	<input type="checkbox"/>
Cryogenic	<input type="checkbox"/>			<input type="checkbox"/>		3.	80	<input type="checkbox"/>
Other	<input type="checkbox"/>			<input type="checkbox"/>		4.	100	<input type="checkbox"/>
Cavity fillers	<input type="checkbox"/>				5.	125	<input type="checkbox"/>	
			Cryogenic body (with extension)	<input type="checkbox"/>	6"	150	<input type="checkbox"/>	
					8"	200	<input type="checkbox"/>	
Connections								
Type	Orbital welding	<input type="checkbox"/>	Roughness: ends + ball (Ra)		<input type="checkbox"/>			
	Butt weld	<input type="checkbox"/>						
	Socket weld	<input type="checkbox"/>	Pipe standards			Flanges		
	BSP threaded	<input type="checkbox"/>	ISO		<input type="checkbox"/>	PN		
	NPT threaded	<input type="checkbox"/>	SMS		<input type="checkbox"/>	DIN 3202 F1		
	Clamp	<input type="checkbox"/>	Metric		<input type="checkbox"/>	DIN 3202 F4		
	Compression fitting	<input type="checkbox"/>	DIN		<input type="checkbox"/>	ANSI 150lbs		
	Flanged	<input type="checkbox"/>	Schedule		<input type="checkbox"/>	ANSI 300lbs		
	Tank bottom	<input type="checkbox"/>	BSOD		<input type="checkbox"/>	Other		
	Flush mounted	<input type="checkbox"/>						
Options								
		Operating options			Other options			
Standard lever in steel		<input type="checkbox"/>	Extended lever		<input type="checkbox"/>	ATEX		
Lever in stainless steel		<input type="checkbox"/>	Extension		<input type="checkbox"/>	FDA		
Lockable lever		<input type="checkbox"/>	Handwheel		<input type="checkbox"/>	Paint finish		
Dead man's handle		<input type="checkbox"/>	Other		<input type="checkbox"/>			
Motorisation								
Pneumatic		<input type="checkbox"/>	Double-acting		<input type="checkbox"/>	Air motor		
Delta P		<input type="checkbox"/>	Single-acting		<input type="checkbox"/>	Analogue positioner		
		bar				Digital positioner		
Electric		<input type="checkbox"/>	Voltage		<input type="checkbox"/>	Protection class		
Delta P		<input type="checkbox"/>	Frequency		<input type="checkbox"/>	IP		
		bar				EX"ed"		
						EX"d"		
Solenoid valves								
Body material		<input type="checkbox"/>	Piloting		<input type="checkbox"/>	Protection class		
Anodised aluminium	<input type="checkbox"/>		Single piloting			<input type="checkbox"/>	IP	
Polyamide	<input type="checkbox"/>		Double piloting			<input type="checkbox"/>	EX"ia"	
			Voltage		<input type="checkbox"/>	EX"em"		
						EX"d"		
Position indicators								
Body material		<input type="checkbox"/>	Type		<input type="checkbox"/>	Protection class		
Housing in polyamide	<input type="checkbox"/>		Inductive sensors			<input type="checkbox"/>	IP	
Housing in polycarbonate	<input type="checkbox"/>		Capacitive sensors			<input type="checkbox"/>	EX"ia"	
						EX"ed"		

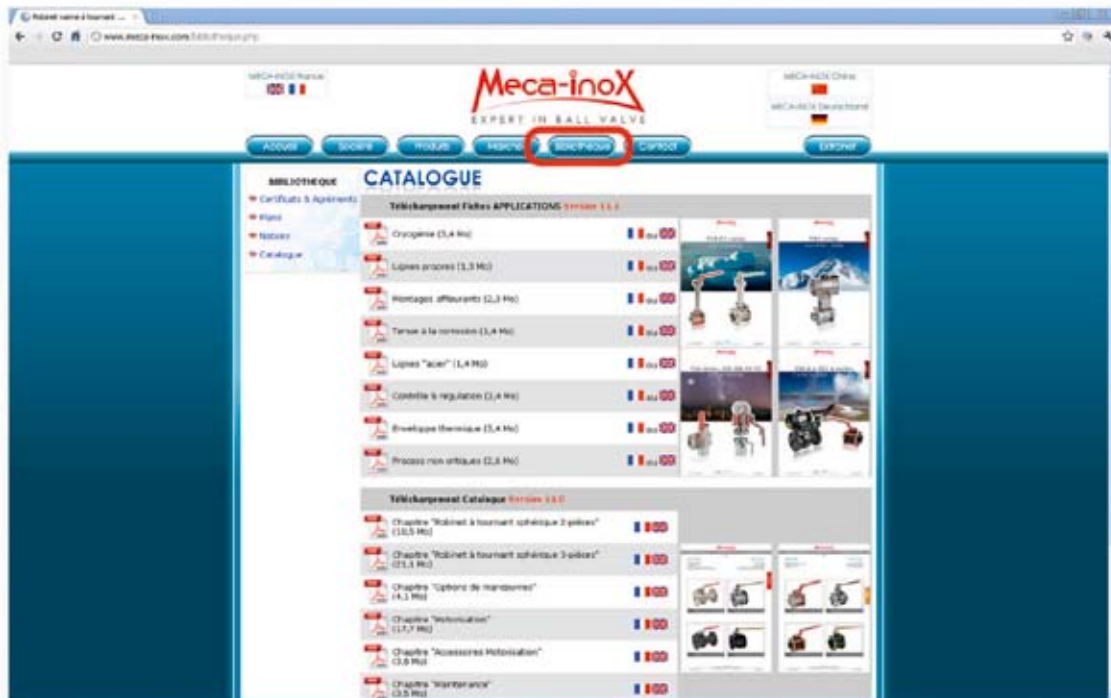
NOTES

ALL OUR TECHNICAL DOCUMENTATION AND NEWS IS AVAILABLE AT:

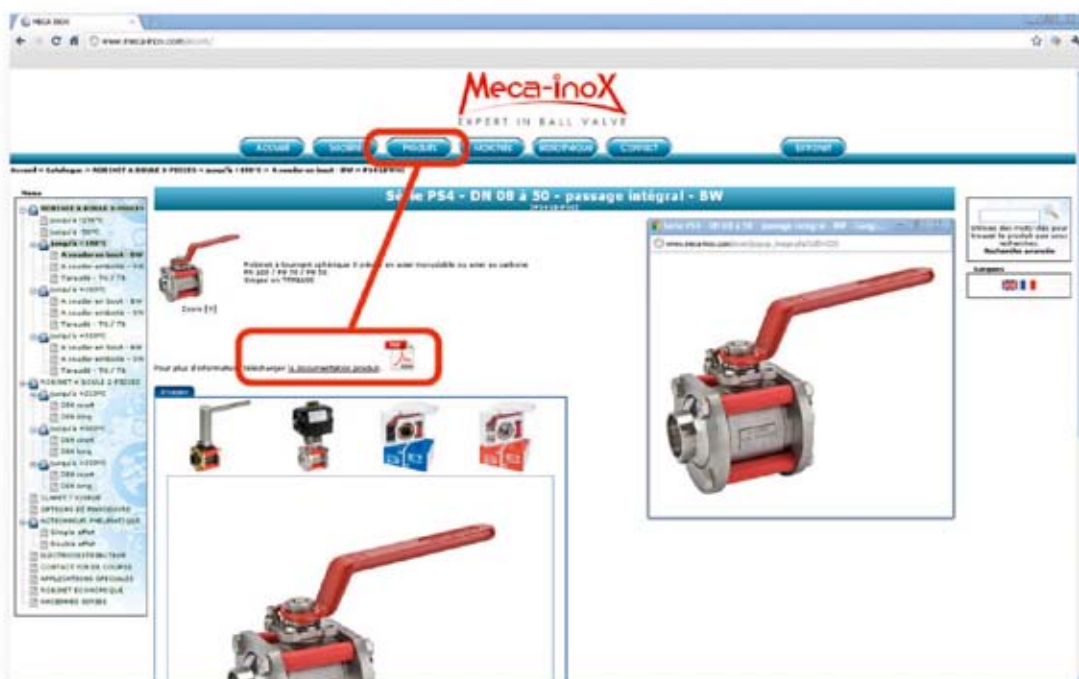
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