

**AUTOMATIC MACHINERY PLANT
'POLNA'**

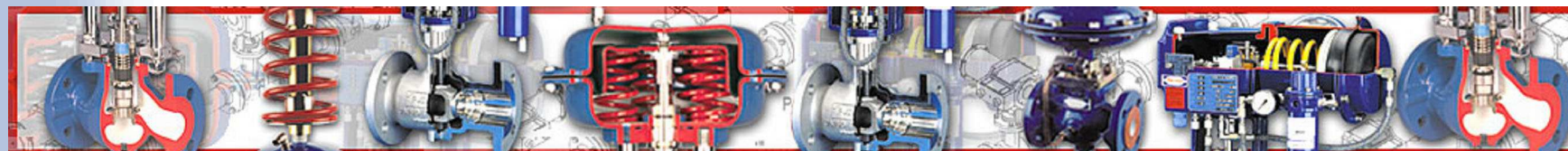
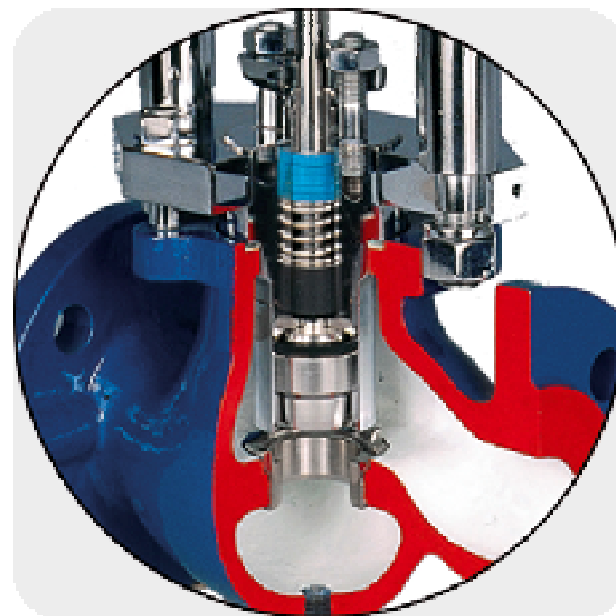
ZAKŁADY AUTOMATYKI 'POLNA' S.A.

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37-700 Przemyśl

tel. +48-16-678-66-01

www.polna.com.pl



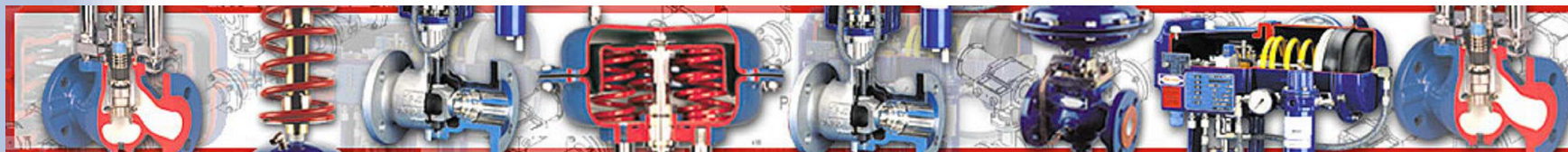
TRADITION AND EXPERIENCE



Beginning of activity

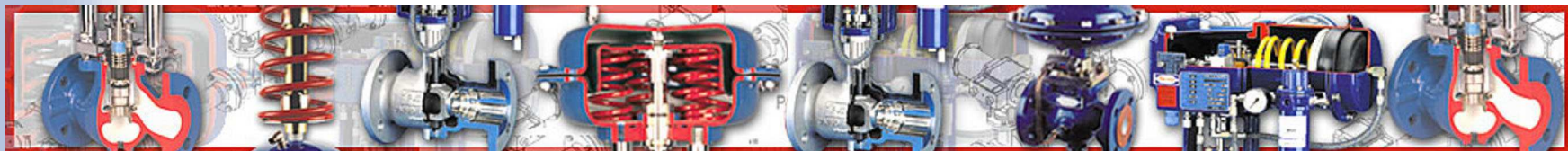
1899

BEGINNING OF ACTIVITY IN INDUSTRIAL AUTOMATICS - 1967





- 1923 - agricultural machines and metal casts**
- 1927 - the company changes its name into POLNA**
- 1964 - POLNA starts manufacturing laboratory equipment**
- 1967 - POLNA purchases from the Masoneilan Company, France, the license for manufacturing control valves and pneumatic servos**
- 1972 - POLNA begins the production of heat-engineering automatic devices**
- 1995 - the company receives a Certificate DIN EN ISO 9001**
- 1998 - entry into the Stock Exchange**



PRIZES AND COMMENDATIONS

Grand Prix – Nafta & Gas 2008 - Warszawa

Gold Medal - Automaticon 2003 and 2008 - Warszawa

Award for the The Best Product - "Chemia 2003" - Płock

2nd position in Contest: The Best Product for Energy Industry -

Energetyka 2003 - Bełchatów

**Medal of "ECODOM '2000" - The International Fair
of Heat Measurement and saving in Katowice.**

**Award at the second Edition of the contest: "The Quality Award of
Małopolska" in 1999**

**Special award at the Fifth Edition of the contest: "Polish Award of
Quality" in 1999**

**Award at the First Edition of the contest: "The Quality Award of
Małopolska" in 1998**

**Medal of "ECODOM '98" - The International Fair of Heat Measurement
and saving in Katowice,**

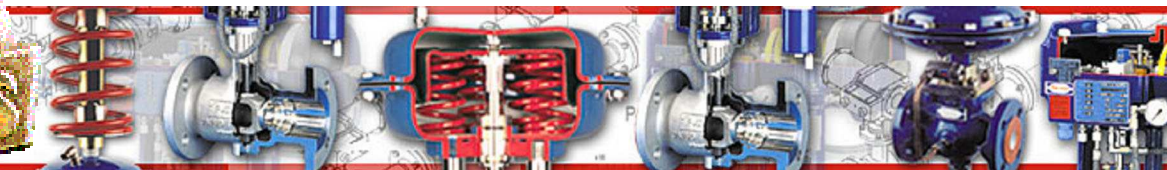
SYRENKA - special award at the International Fair '98" in Gdańsk,

Gold Medal of "AUTOMATICON '97" International Fair, Warszawa

**HIT-HEAT '95: International Exhibition: NOVELTIES IN POLISH HEAT-
ENGINEERING, Gdynia**

Gold Medal of InterRES: TECHNO BUILDING '95 Fair, Rzeszów

Gold THERMOMETER:THERM '94 International Fair, Warszawa



CERTYFICATES

WE POSSESS ALL REQUIRED CERTIFICATES

Certificate acc. to European Directive

Quality Assurance-System Certificate acc. to European Directive



Technical Approval for control and shut-off valves

Sanitary attestation for control valves



Safety Certificate for control valves

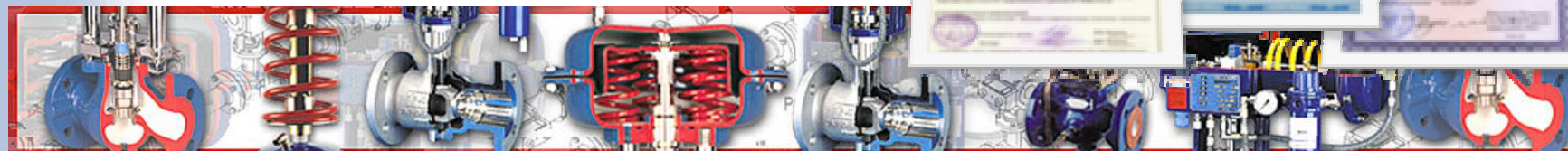
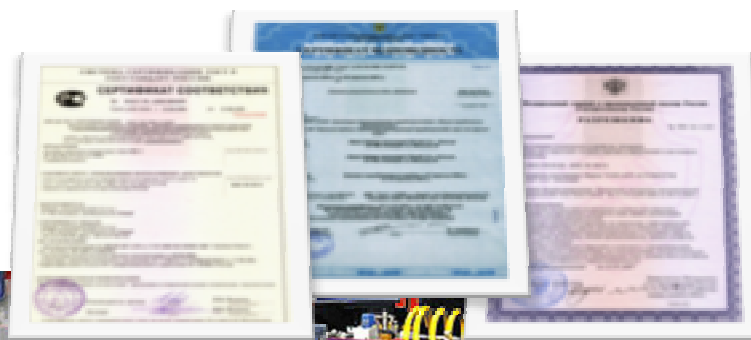
Certificate of compliance with safety requirements for valve bonnet packings

UDT decision for production of valves, butterfly valves and regulators with control elements.

Certificate of Conformity

Certificate of Compliance with GOST

Sanitary attestation for Russian market



POLNA S.A. Przemysł - Poland



REFERENCES

BOT
BUDOWNICTWO NAFTE
„NAFTOMONTAŻ” Spółka z o.o.
ul. Dąbrowska 17
01-040 Warszawa
Tel. (22) 625 95 10
Fax. (22) 625 92 10

PIAZAP
Przedsiębiorstwo Pomiarów i Automatyki „PIAZAP” Sp. z o.o.
ul. Tytusowska 13
24-110 Piława
Tel. (22) 81 827 32 32 • Fax (22) 81 827 37 78 • www.piazap.com.pl • info@piazap.com.pl
ul. Piława 13 • 24-110 Piława • tel. (22) 81 827 32 32 • fax (22) 81 827 37 78 • www.piazap.com.pl • info@piazap.com.pl

PGNiG
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PKE
Polska Energetyka Paliw
ul. Dąbrowska 17
01-040 Warszawa
Tel. (22) 625 95 10
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ELEKTROWNIA SKAWINA
Spółka Akcyjna
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Tel. (22) 625 95 10
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Naftomontaż

PIAZAP

ELEKTROWNIA „KOZIEHNICE”
Spółka Akcyjna
ul. Dąbrowska 17
01-040 Warszawa
Tel. (22) 625 95 10
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Orlen Automatyka

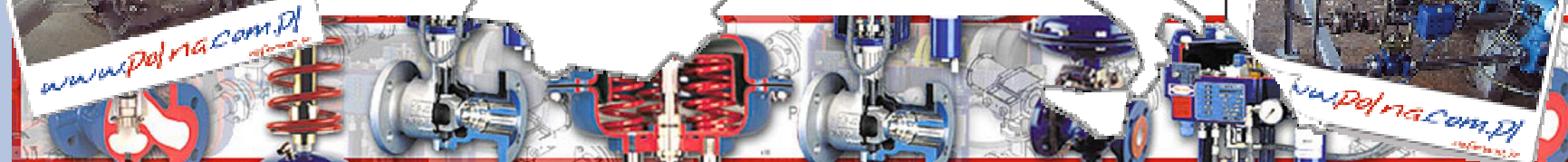
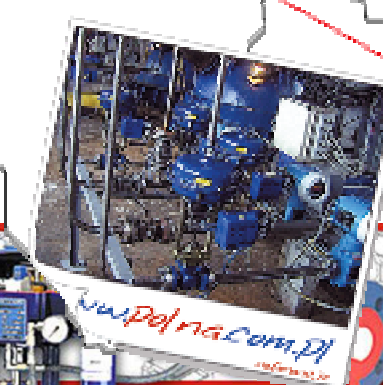
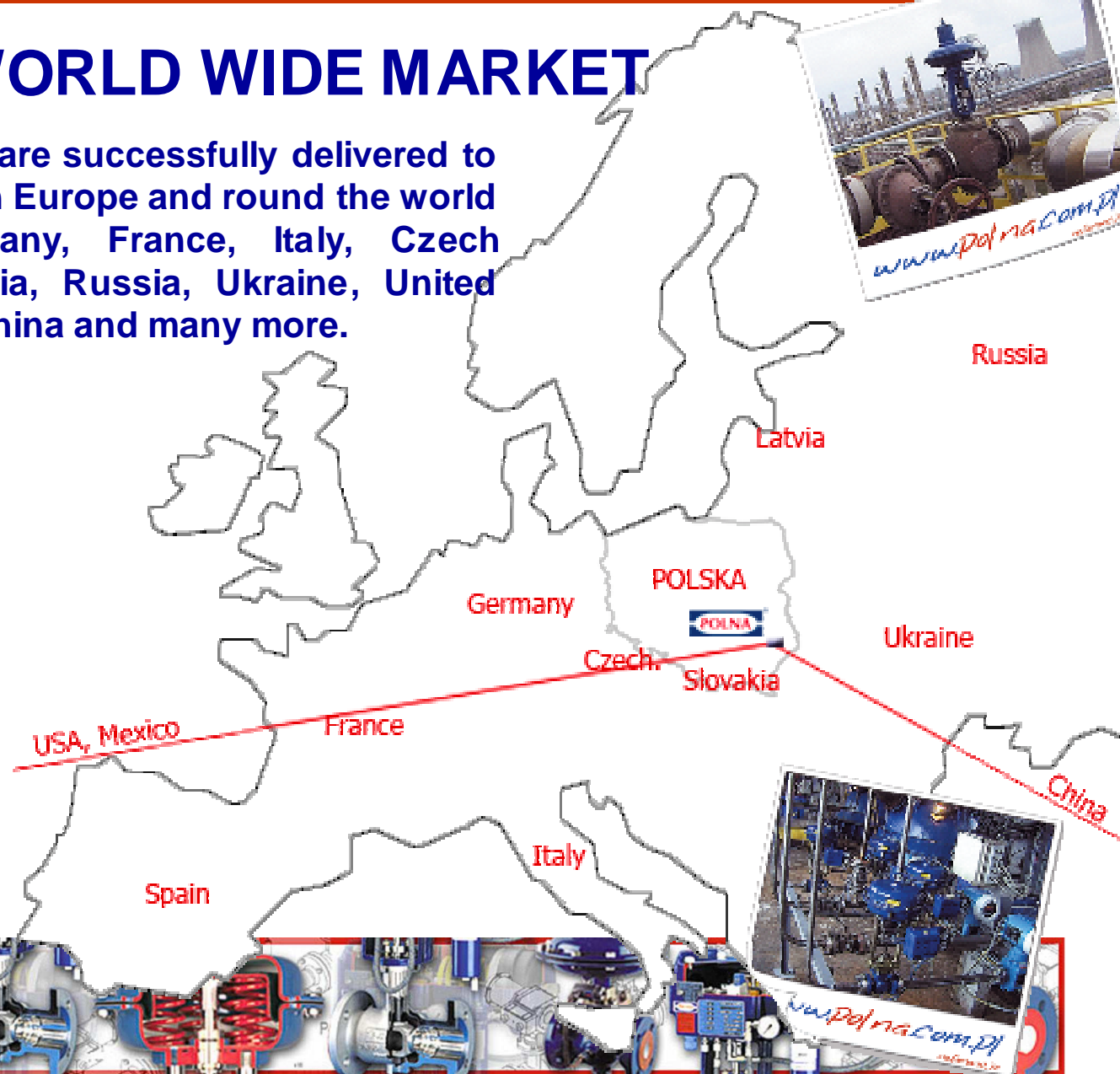
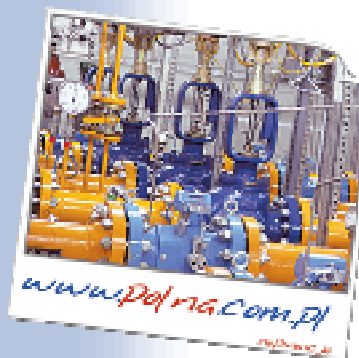
PGNiG

Zakłady Azotowe PUŁAWY



WORLD WIDE MARKET

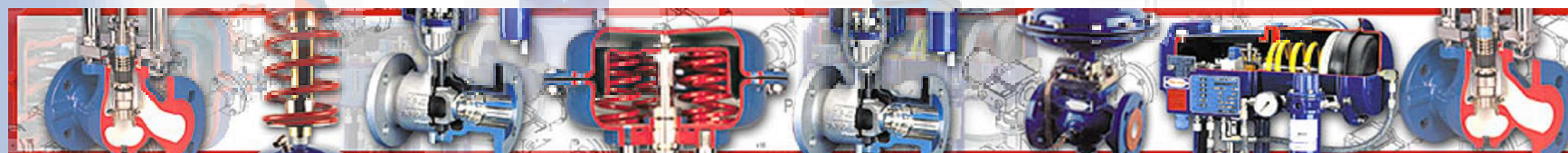
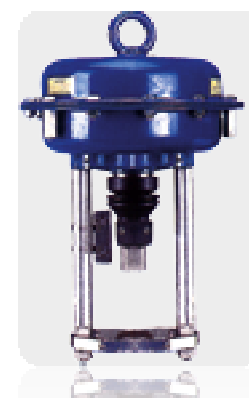
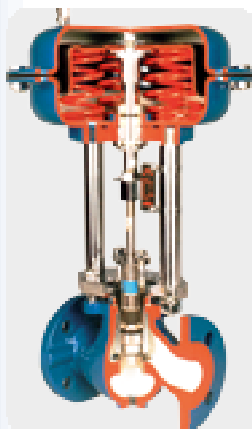
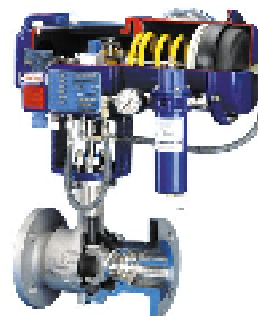
POLNA products are successfully delivered to many countries in Europe and round the world such as: Germany, France, Italy, Czech Republic, Slovakia, Russia, Ukraine, United States, Mexico, China and many more.



OFFER

INDUSTRIAL AUTOMATICS:

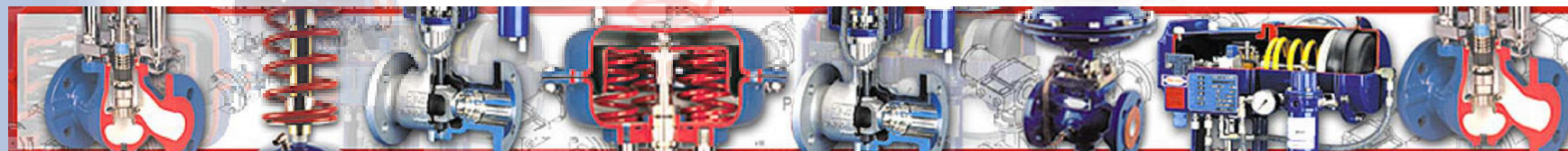
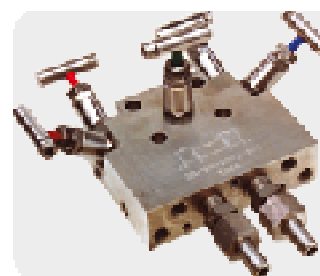
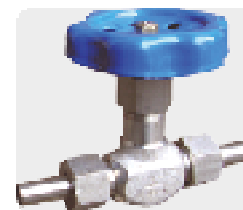
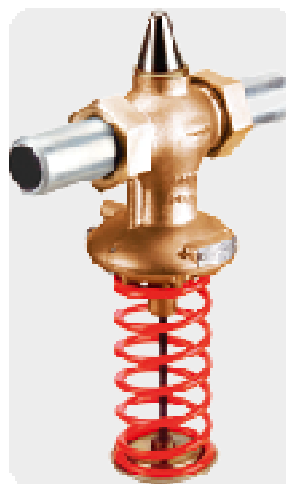
- CONTROL VALVES
- BUTTERFLY VALVES
- PNEUMATIC AND ELECTRIC ACTUATORS
- PNEUMATIC AND ELECTROPNEUMATIC POSITIONERS
- PRESSURE REDUCTERS
- LIMIT STOP ETC.



OFFER

HEATING AUTOMATICS:

- SELF-OPERATED REGULATORS OF PRESSURE, FLOW AND DIFFERENCE PRESSURE
- STRAINERS
- MANIFOLD AND NEEDLE VALVES

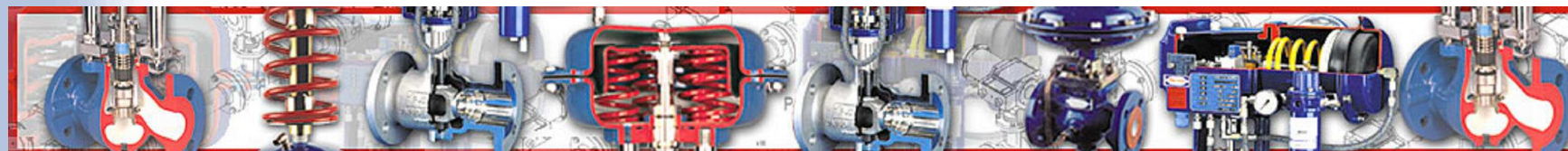
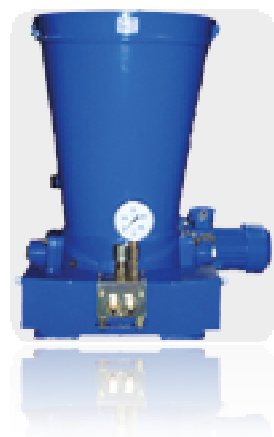


OFFER

DEVICES FOR CENTRAL LUBRICATION STSTEMS:

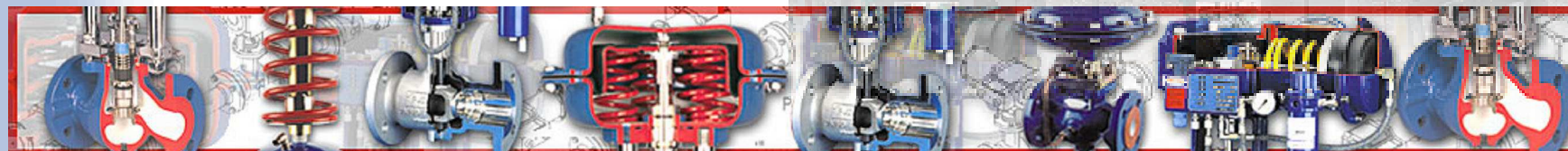
- PUPMS FOR OIL AND GREASE
- GREASE FEEDERS
- COMPLETE SYSTEMS OF LUBRICATION – DESIGN AND PERFORMANCE

DISTILLERS AND RE-DISTILLERS FOR WATER



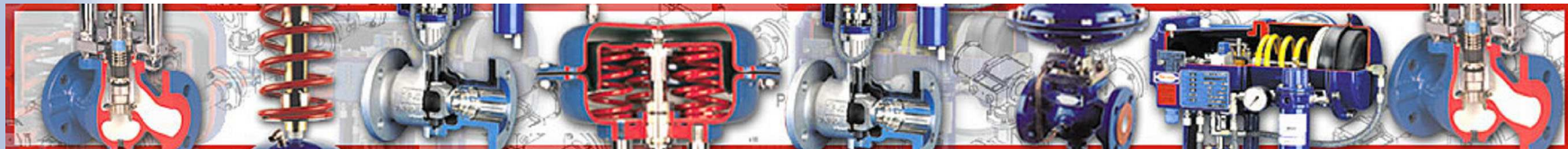
CONTROL VALVES FOR NORMAL FLOW

- GLOBE CONTROL VALVES TYPE „Z”
- GLOBE CONTROL VALVES TYPE „Z2”
- GLOBE CONTROL VALVES TYPE „Z1A”
- THREE-WAY CONTROL VALVES TYPE „Z3”
- ROTARY PLUG CONTROL VALVES TYPE BR 33
- BUTTERFLY VALVES TYPE „PRS”



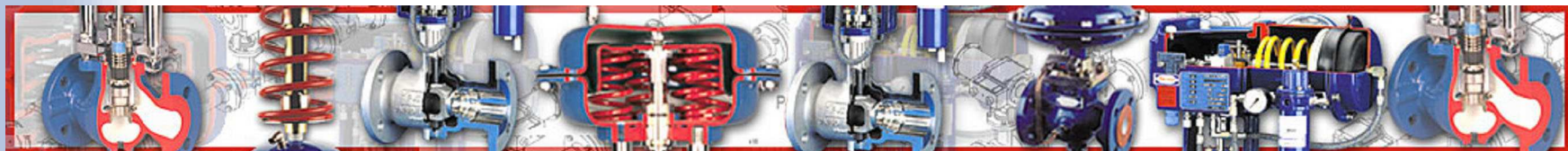
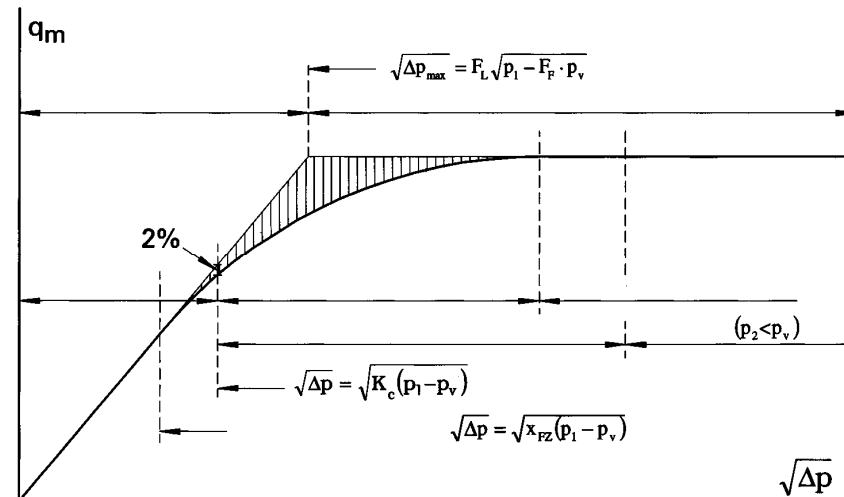
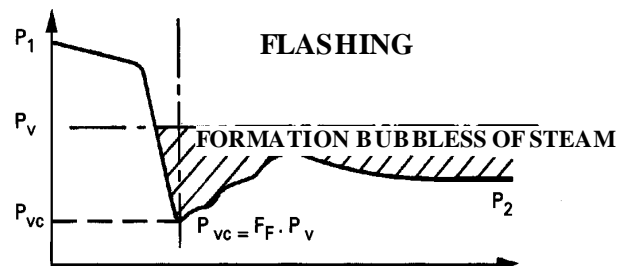
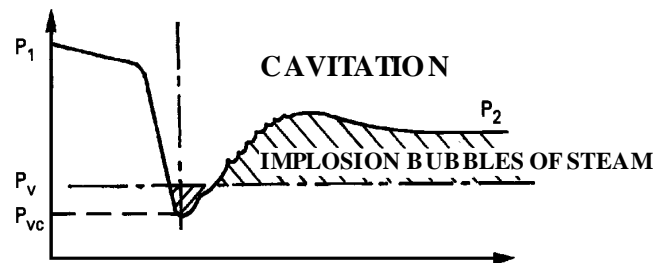
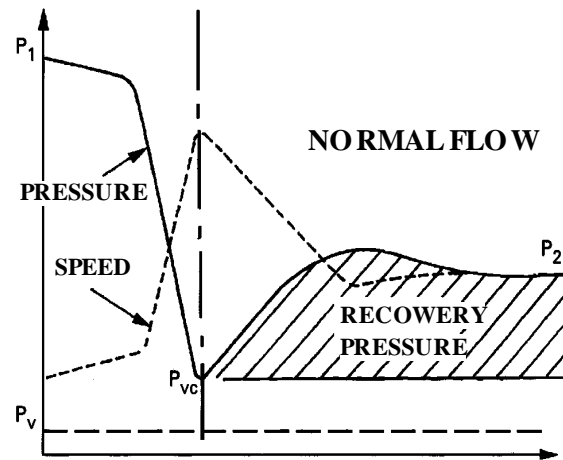
OUR OFFER FOR INDUSTRIAL AUTOMATICS:

- CONTROL VALVES WITH PNEUMATIC OR ELECTRIC ACTUATORS FOR NORMAL FLOW**
- VALVES FOR EXTREME CONDITIONS OF WORK**
- APPLICATIONS FOR POWER INDUSTRY**
- APPLICATIONS FOR PETROCHEMICAL INDUSTRY AND REFINERY PLANTS**

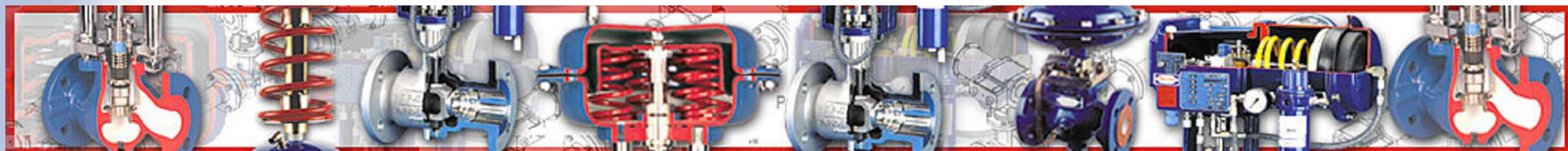


TYPE OF FLOW IN CONTROL VALVES

- NORMAL FLOW
- CAVITATION
- FLASHING
- CHOKED FLOW
- NOISE



**DAMAGE TO INTERNAL ELEMENTS
IN RESULT OF CAVITATION AND FLASHING**



CONTROL VALVES TYPE „Z”

DN15 – 250 (NPS 1/2” – 10”)

PN10 – 40 (CL150 – 300)

KVS 0,01 – 630 (LIN, PROC, ON-OFF)

MATERIAL OPTION :

CAST IRON

SPHEROIDAL IRON

CARBON STEEL

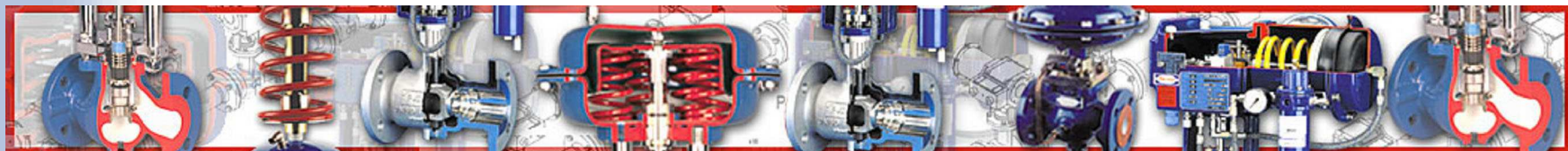
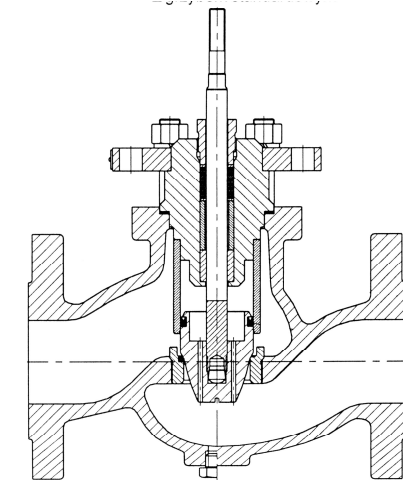
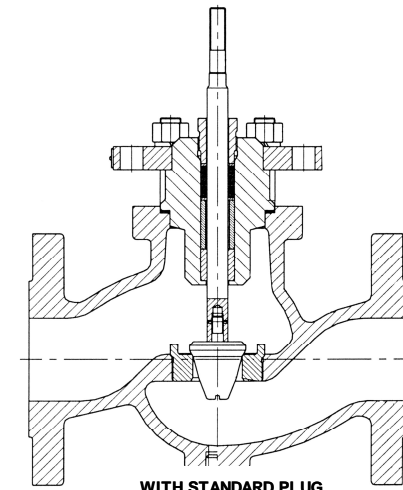
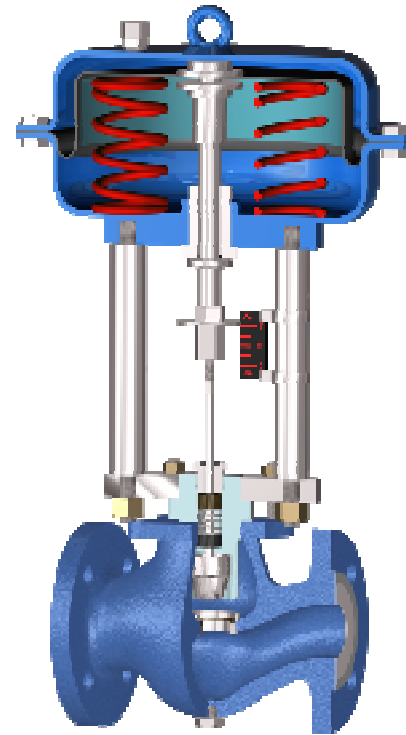
STAINLESS STEEL

BONNET OPTION:

STANDARD (-46℃...+300 ℃)

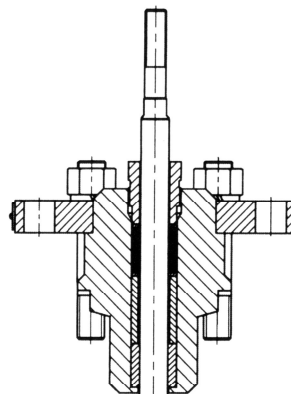
EXTENSION (-198℃...+450 ℃)

BELLOWS (-198℃...+450 ℃)

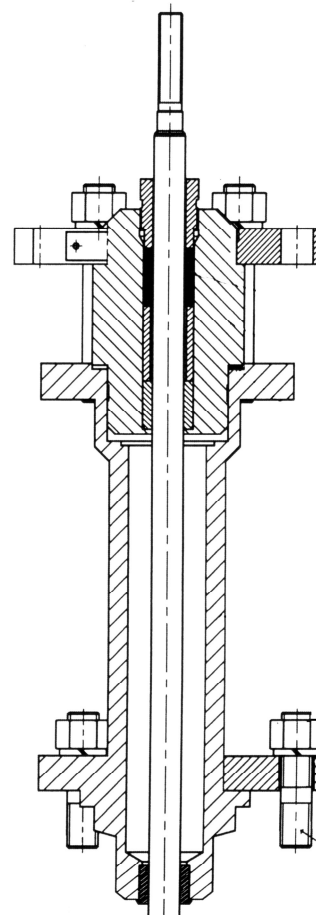


BONNET OPTIONS

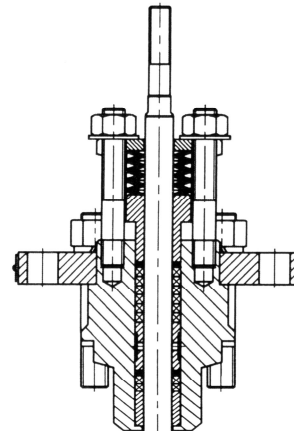
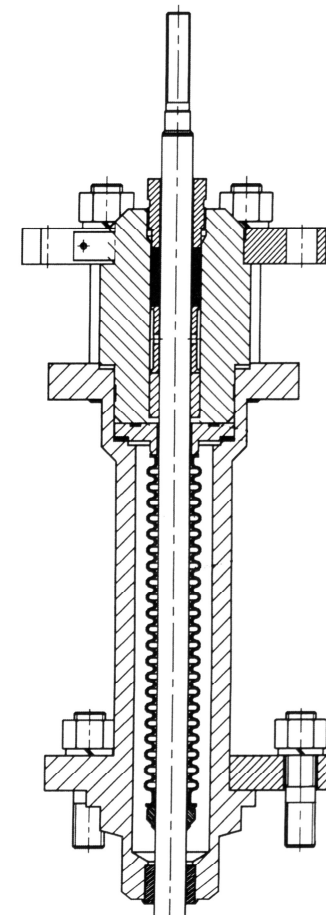
STANDARD



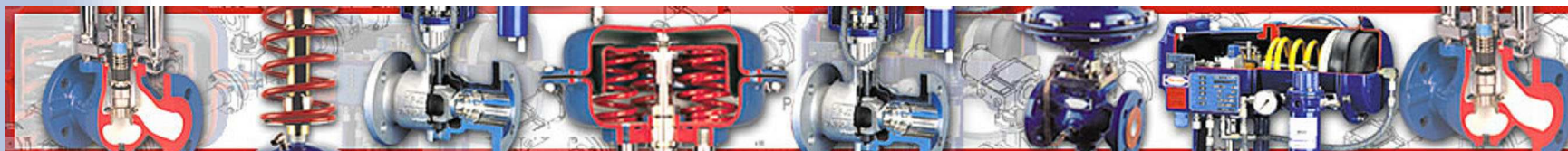
EXTENSION



BELLOWS SEAL



TA-LUFT PACKING



CONTROL VALVES TYPE „Z2”

DN15 – 150 (NPS 1/2” – 6”)

PN10 – 40 (CL150 – 300)

KVS 0,25 – 320 (LIN, PROC)

MATERIAL OPTIONS :

CAST IRON

SPHEROIDAL IRON

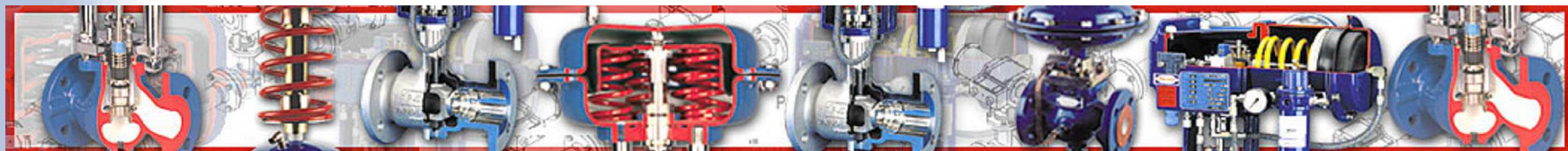
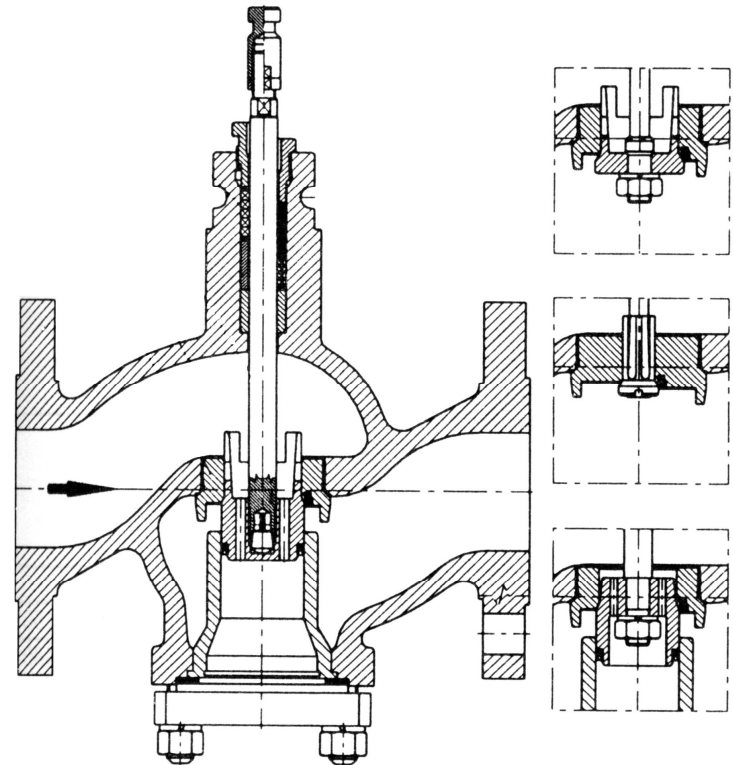
CARBON STEEL

STAINLESS STEEL

BONNET OPTION:

STANDARD (-46℃...+300 ℃)

EXTENSION (-198℃...+450 ℃)



THREE-WAY CONTROL VALVES TYPE „Z3”

DN15 – 150 (NPS 1/2” – 6”)

PN10 – 40 (CL150 – 300)

KVS 0,63 – 320 (LIN)

MATERIAL OPTIONS :

CAST IRON

SPHEROIDAL IRON

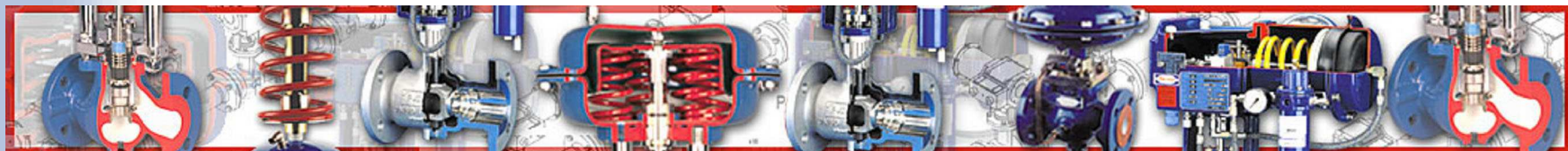
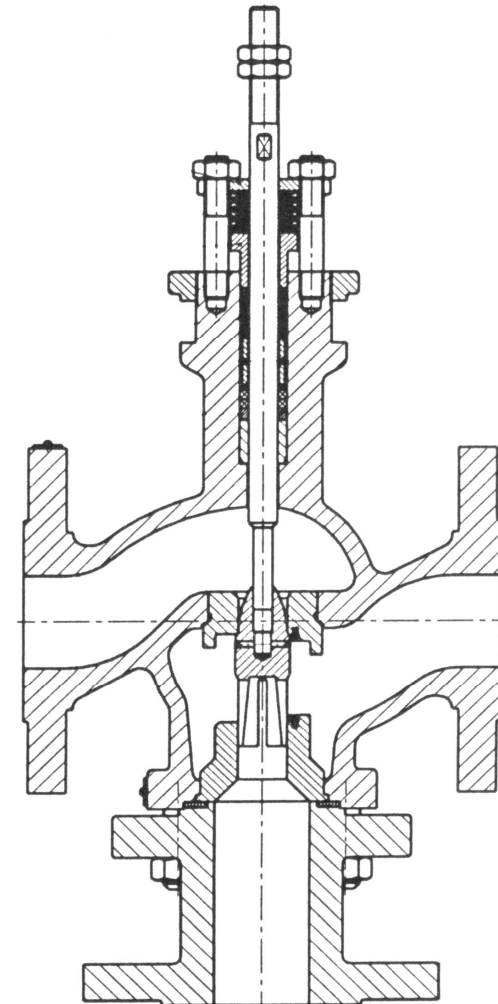
CARBON STEEL

STAINLESS STEEL

BONNET OPTIONS:

STANDARD (-46℃...+300 ℃)

EXTENTION (-198℃...+450 ℃)



CONTROL VALVES TYPE „Z1A”

DN15 – 250 (NPS 1/2” – 10”)

PN10 – 400 (CL150 – 2500)

KVS 0,1 – 800 (LIN, PROC, ON-OFF)

MATERIAL OPTIONS :

CARBON STEEL

ALLOY STEEL

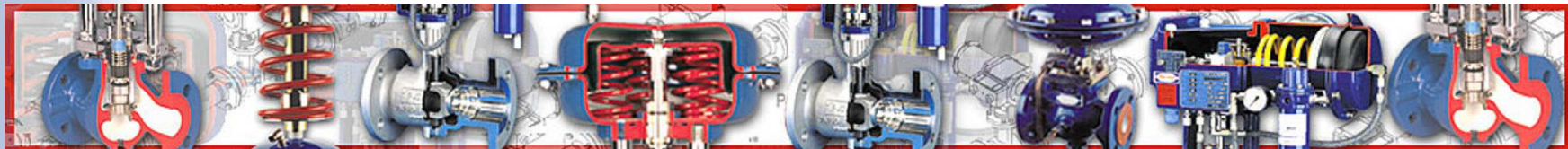
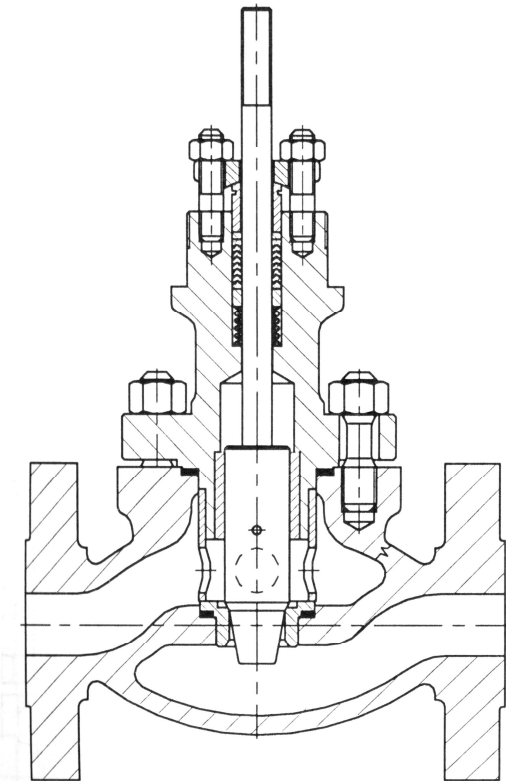
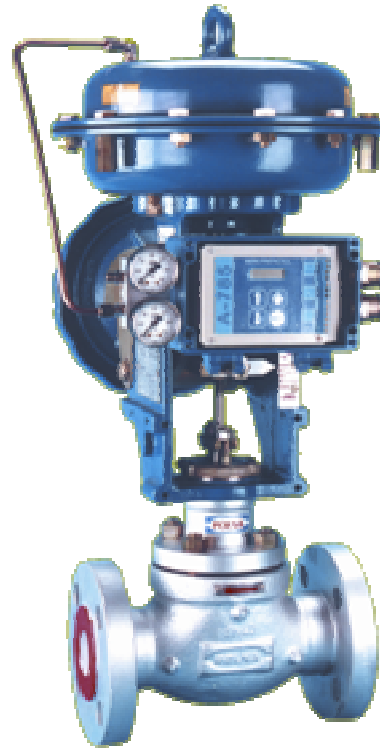
STAINLESS STEEL

BONNET OPTIONS:

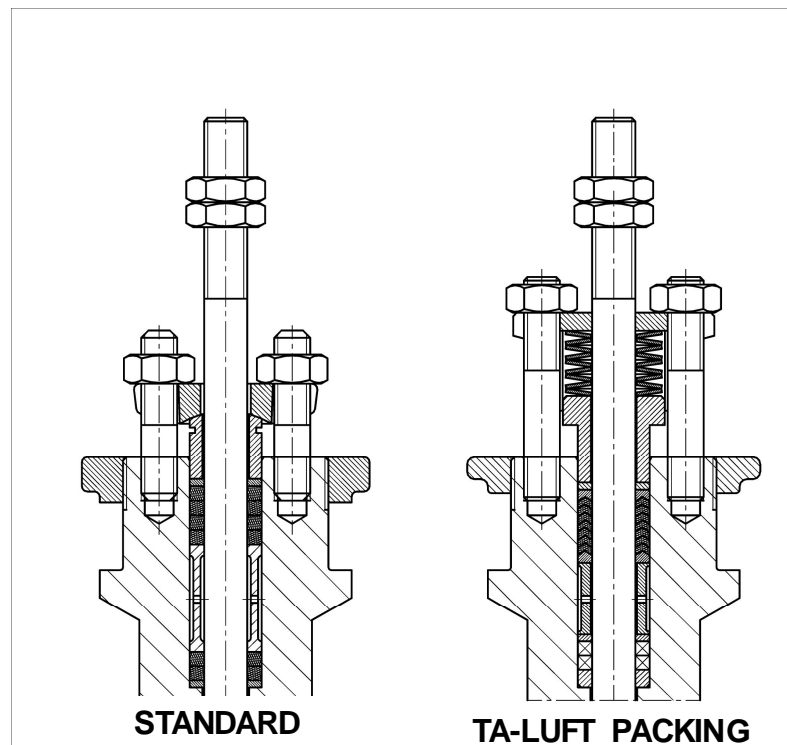
STANDARD (-46℃...+300 ℃)

EXTENSION (-198℃...+650 ℃)

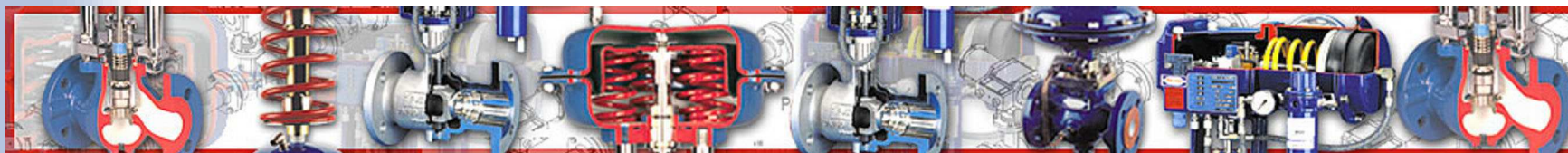
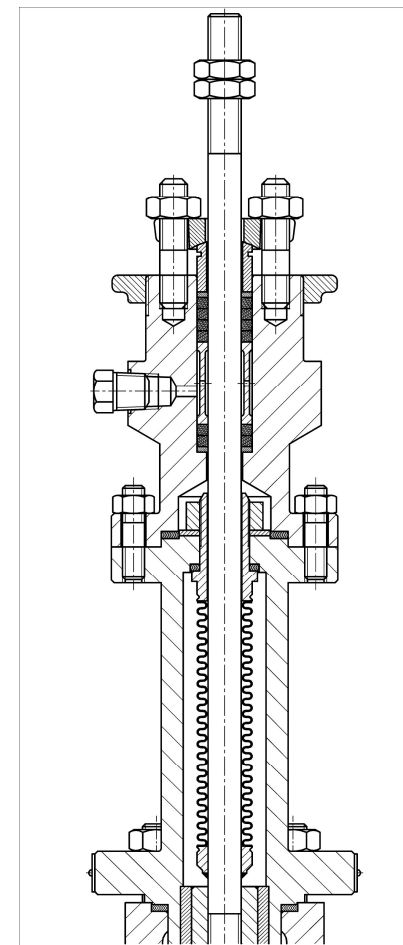
BELLOWS (-198℃...+450 ℃)



PACKING OPTIONS



BELLOWS



ROTARY PLUG CONTROL VALVES

TYPE „BR33”

DN25 – 300 (NPS 1” – 12”)

PN10 – 40 (CL150 – 300)

KVS 3 – 2160 (LIN)

MATERIAL OPTIONS:

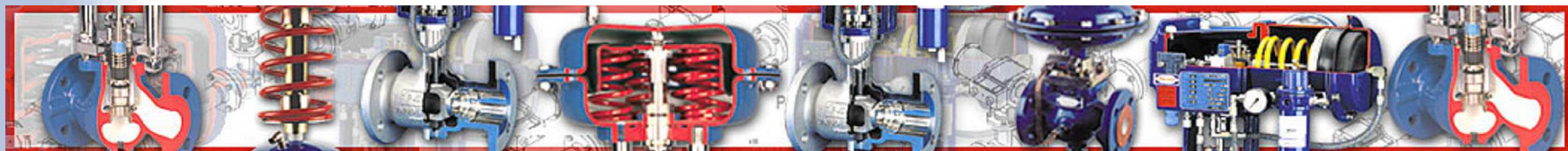
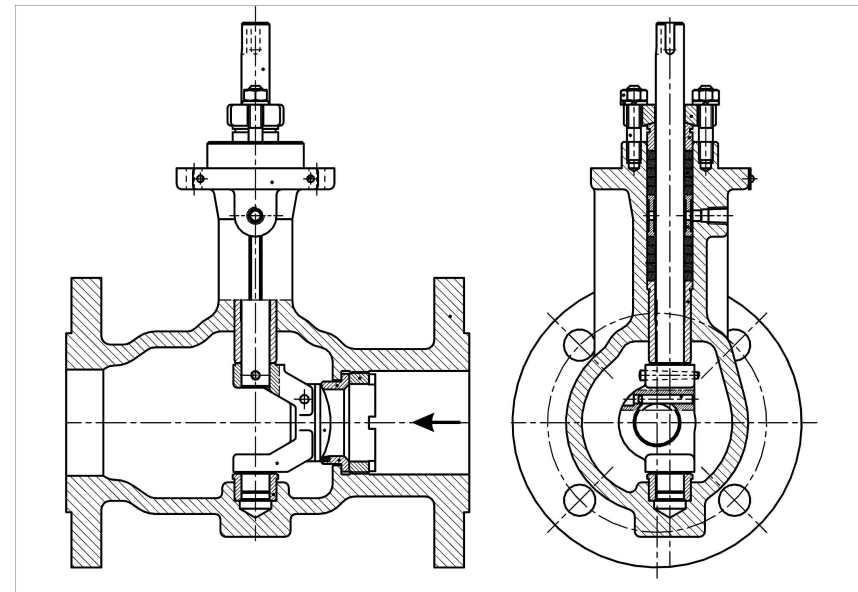
CARBON STEEL

STAINLESS STEEL

BONNET PACKING:

STANDARD

TA-LUFT



BUTTERFLY VALVES TYPE „PRS”

DN40 – 300 (NPS 1 1/2” – 12”)

PN10 – 25 (CL150)

KVS 2,6 – 6336

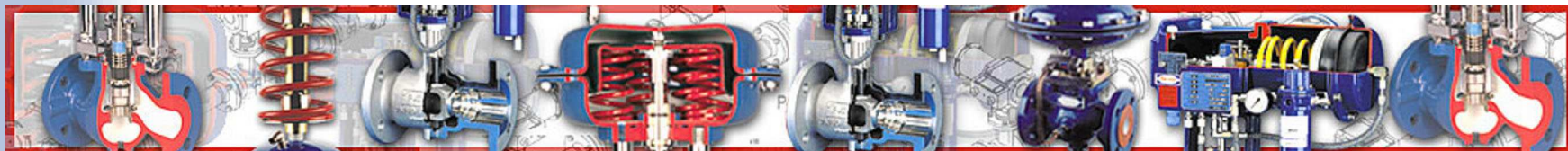
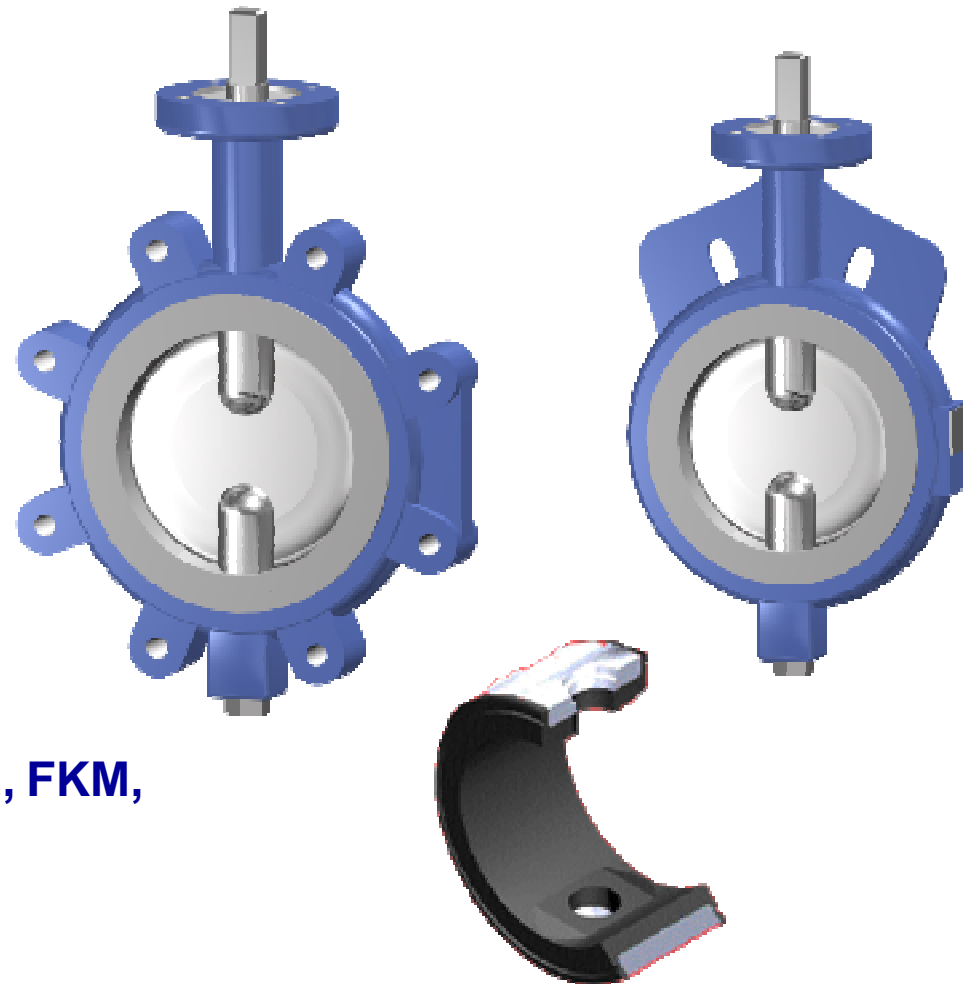
BODY MATERIAL OPTION :

CAST IRON

SPHEROIDAL IRON

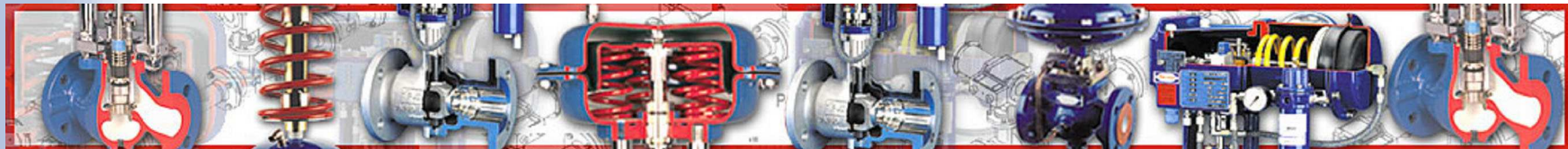
SEAL OPTIONS:

**EPDM, EPDM-HT, NBR, NR, VMQ, FKM,
CSM, CR,**



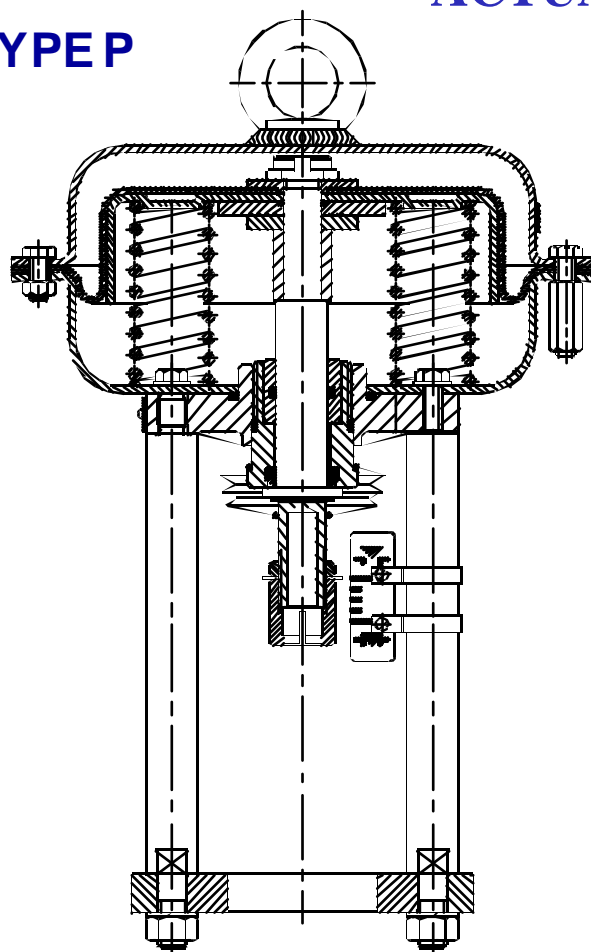
PNEUMATIC SPRING DIAPHRAGM ACTUATORS

- Wide range of operating force
- Various spring ranges
- Wide range of accessories (positioners, limit switches etc.)
- Possibility of reversing actuator action
- Adjusted to handwheel

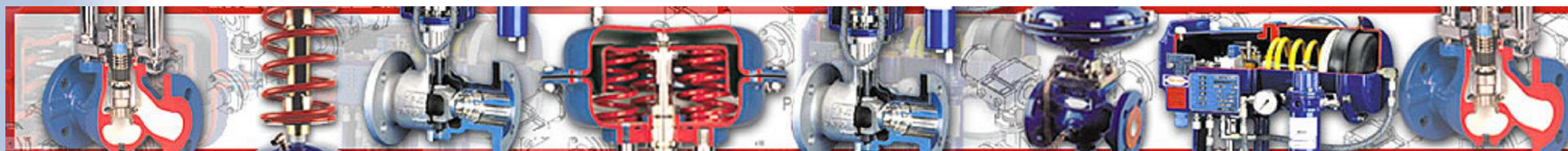
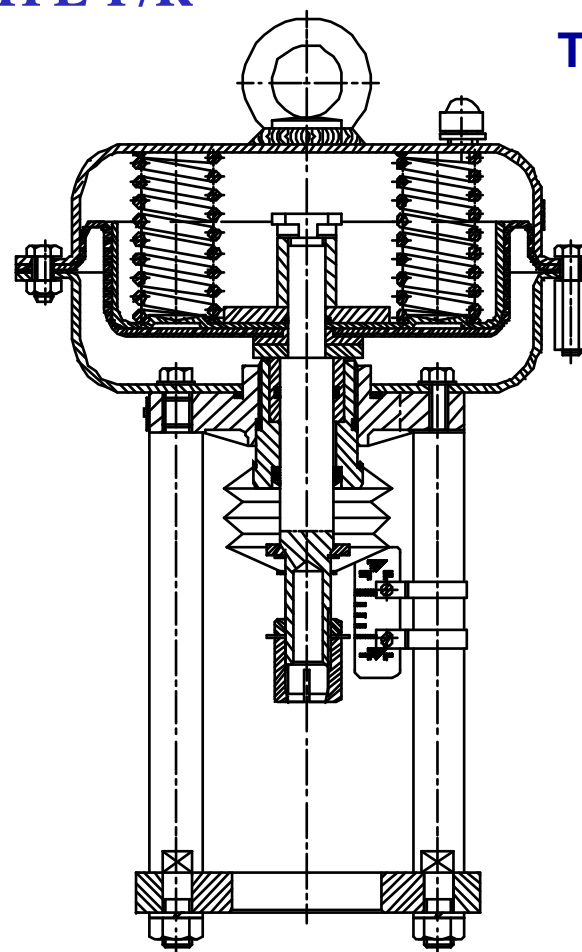


**PNEUMATIC MULTISPRING DIAPHRAGM
ACTUATORS TYPE P/R**

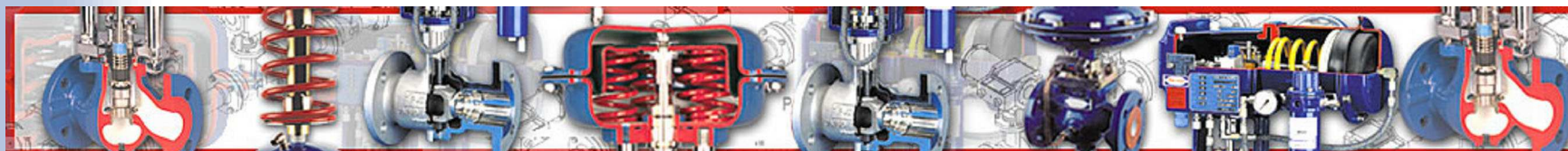
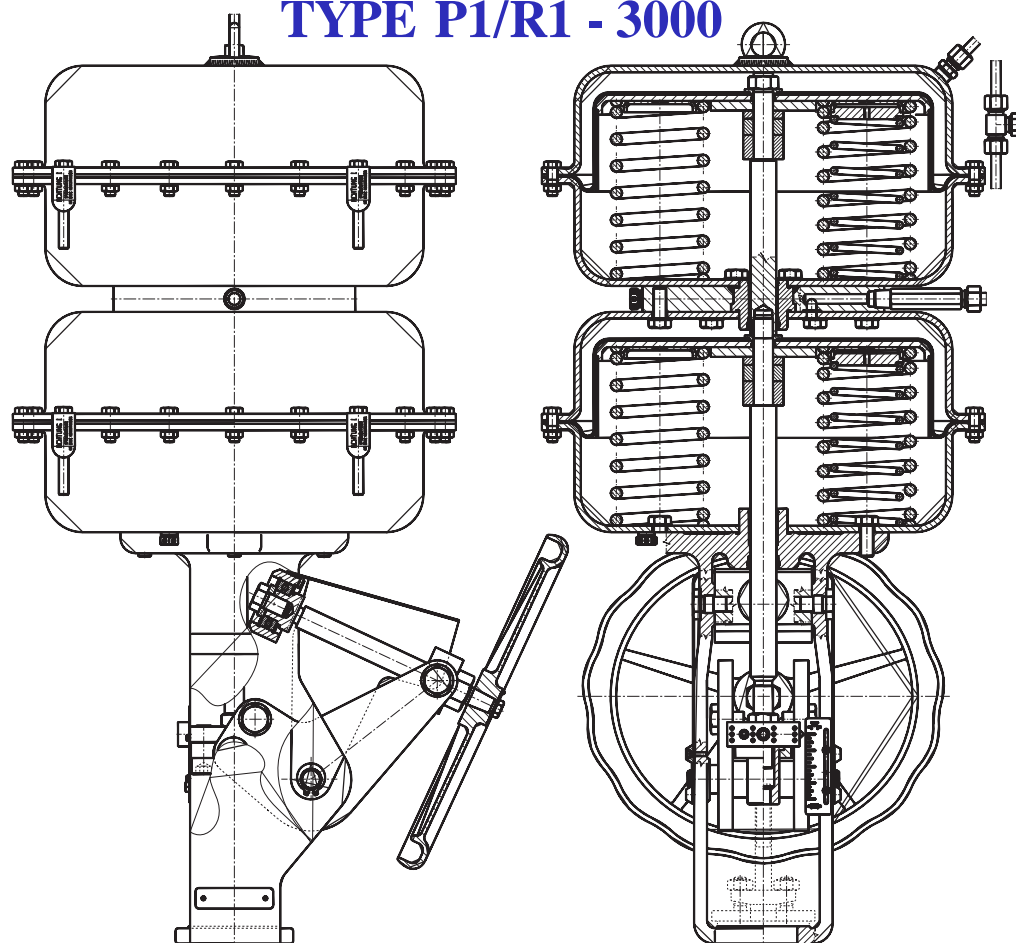
TYPE P



TYPE R



PNEUMATIC MULTISPRING DIAPHRAGM ACTUATORS TYPE P1/R1 - 3000



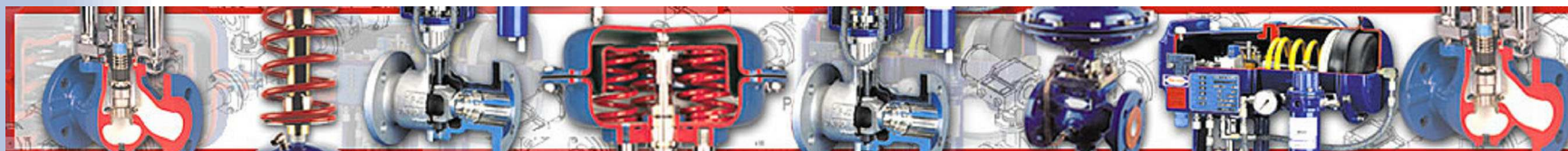
**PNEUMATIC MULTISPRING
ACTUATOR WITH INTEGRATED
SMART E/P POSITIONER
TYPE P5/R5**

SIZES:

250; 400; 630 cm²

AVAILABLE FORCE:

0,5 ... 25 kN



ACTUATOR TYPE P5/R5 (PRINCIPI F OF OPERATION)

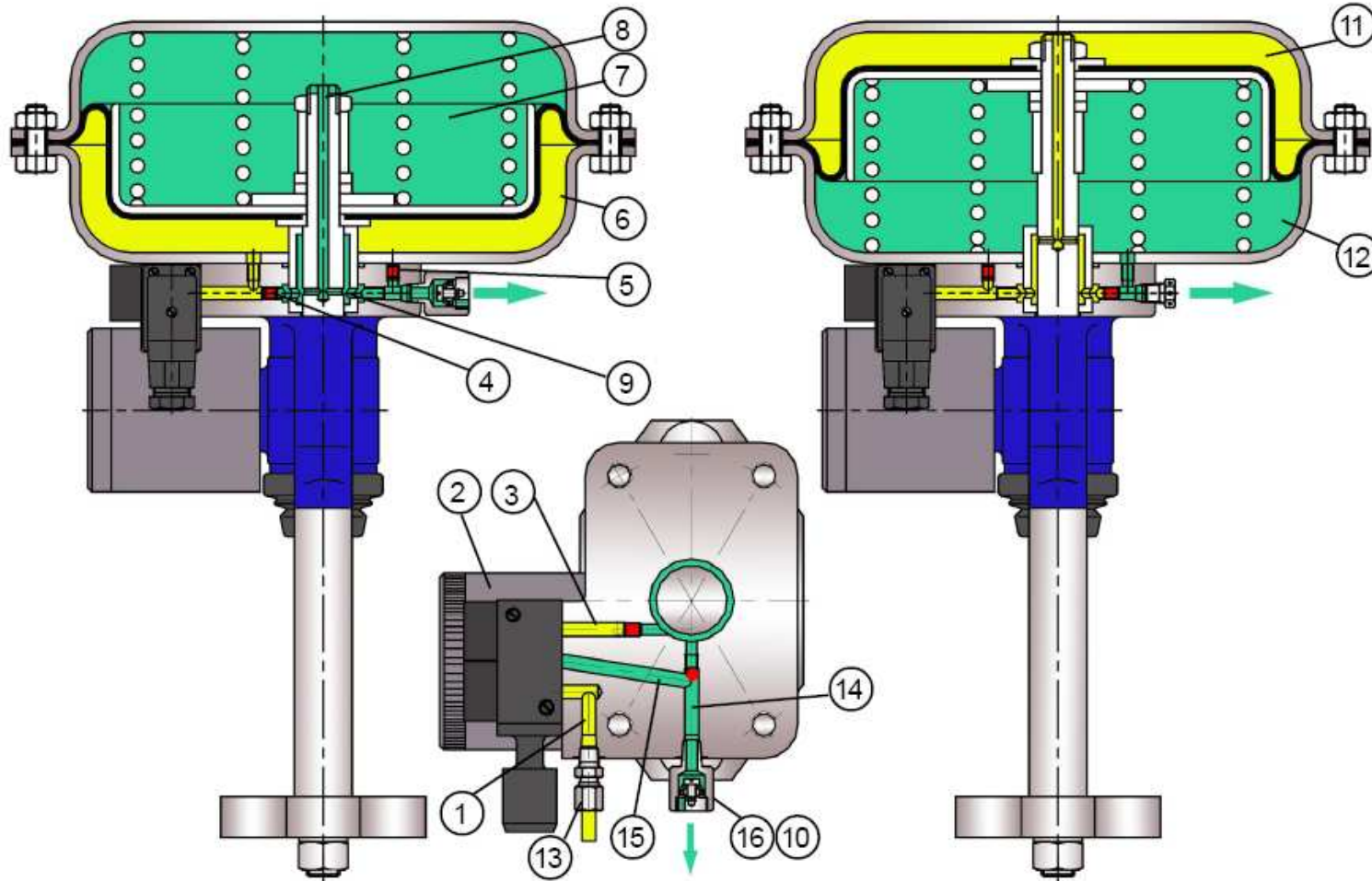
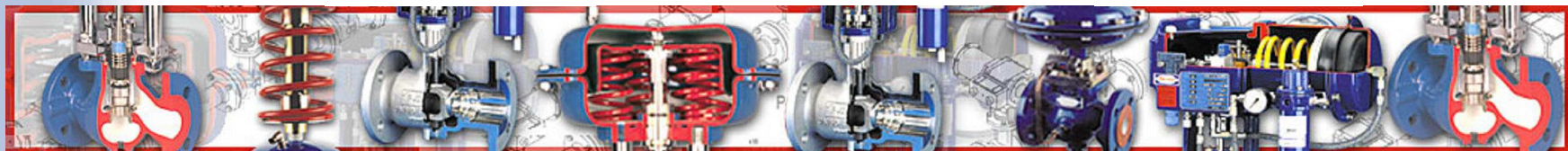


Fig.1 Reversed actuator type R5

Fig.3 Air distribution inside of reversed actuator type R5

Fig.2 Direct actuator type R5



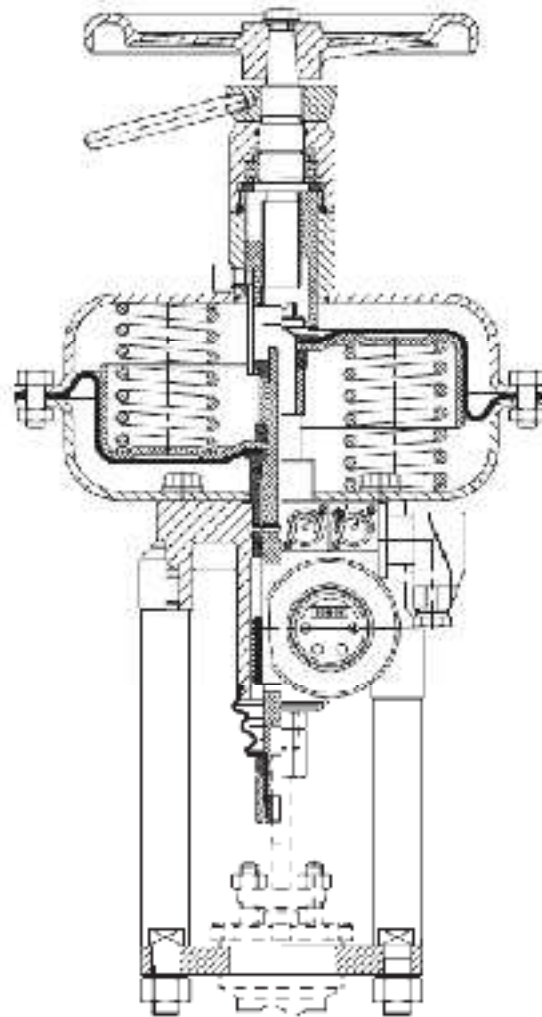
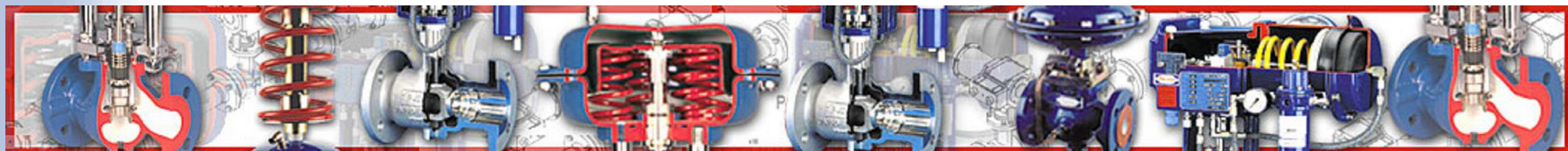
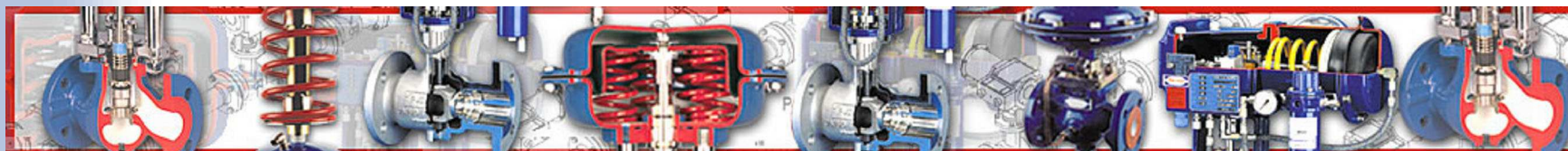
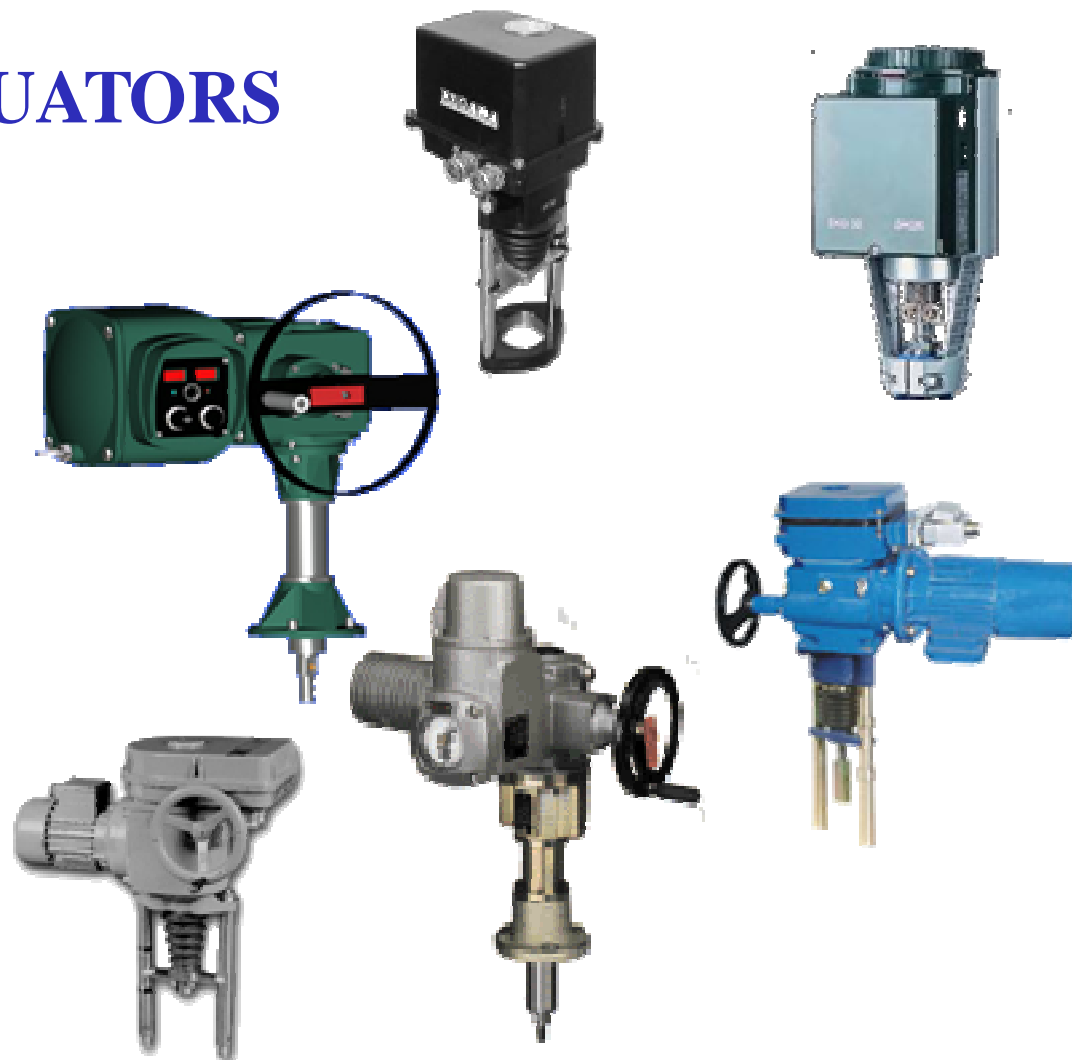


Fig.5 Pneumatic actuator type P5/R5 with handwheel

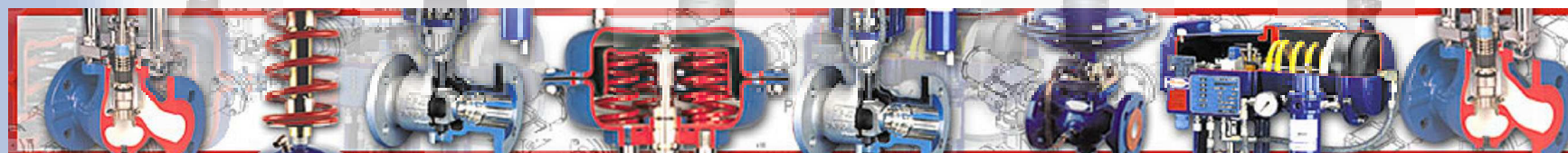
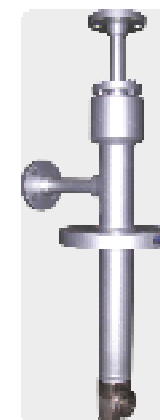


ELECTRIC ACTUATORS

- Linear and rotary for process industry, heating and air-conditioning
- Nominal forces 0,6 - 40kN
- 1-phase and 3-phase motors
- **MANUFACTURERS:**
 - INTEC Poland
 - CONTROLMATICA Poland
 - REGULA Slovakia
 - AUMA
 - HONEYWELL
 - SIEMENS
- - BELIMO
- - others

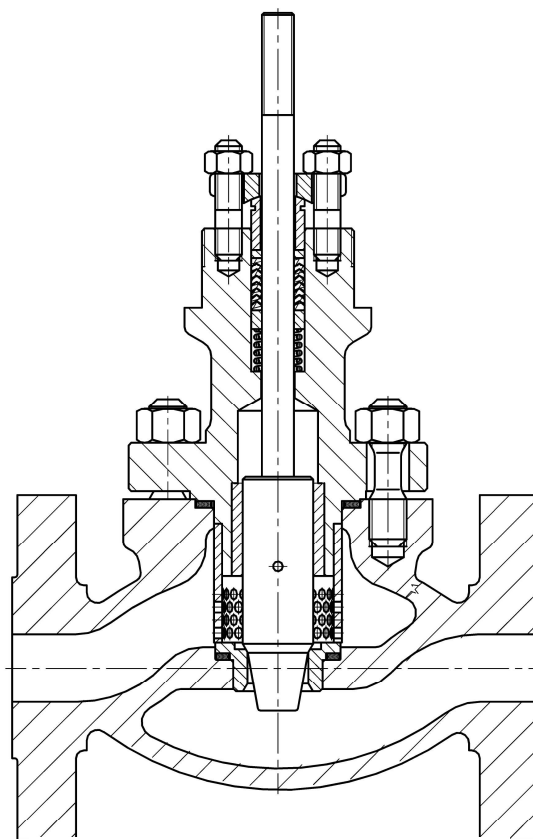


VALVES FOR EXTREME CONDITIONS OF WORK DESIGN SOLUTIONS

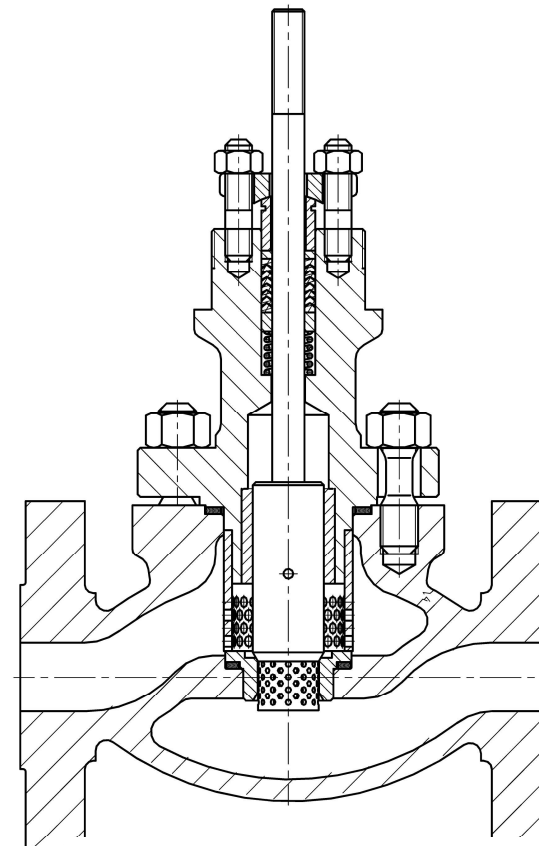


CONTROL VALVES TYPE „Z1A” WITH THROTTLING CAGE

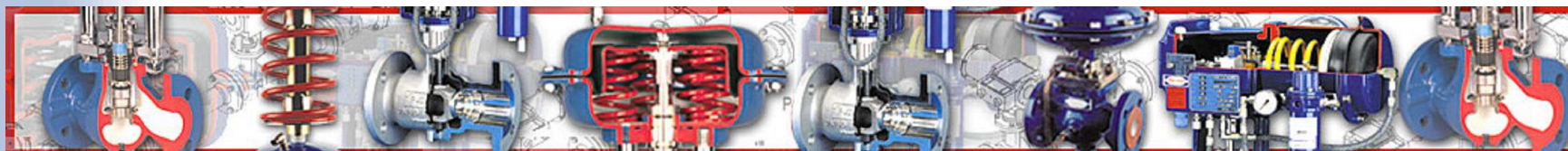
- 2-step pressure reduction inside the valve
- low noise emission



CONTROL VALVE TYPE Z1A
WITH THROTTLING CAGE

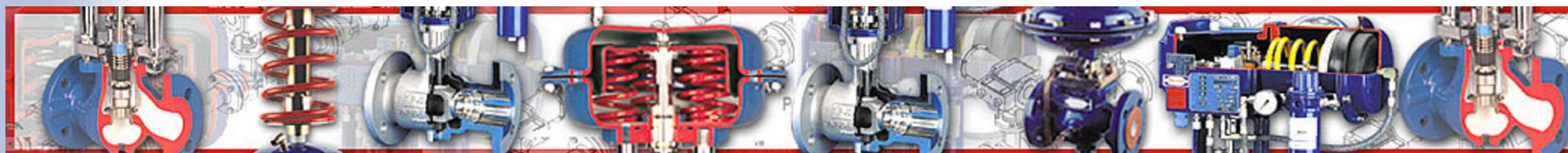
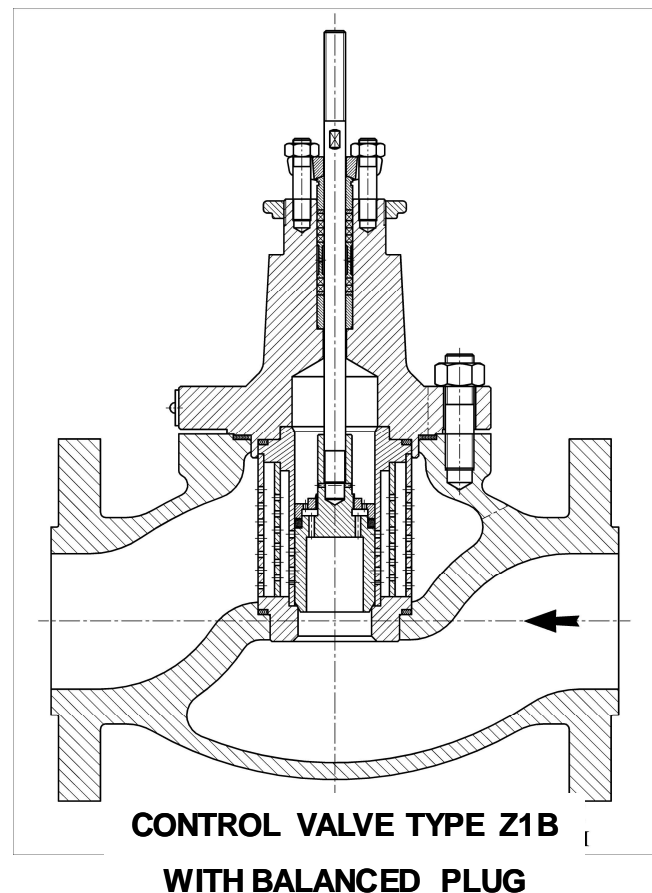
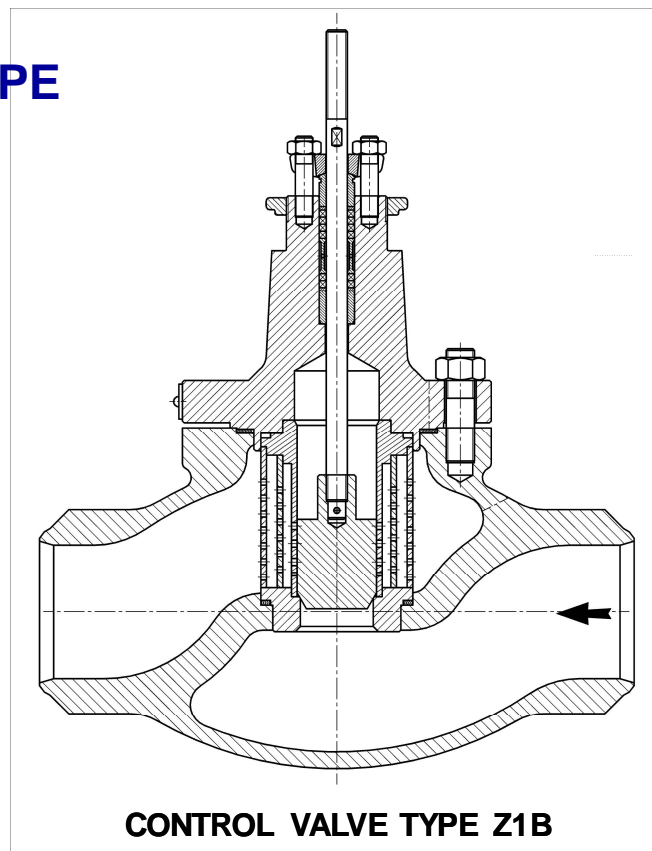


CONTROL VALVE TYPE Z1A
WITH THROTTLING CAGE
AND PERFORATED PLUG



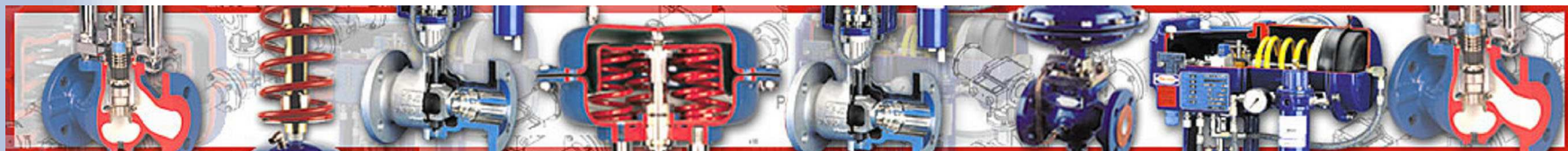
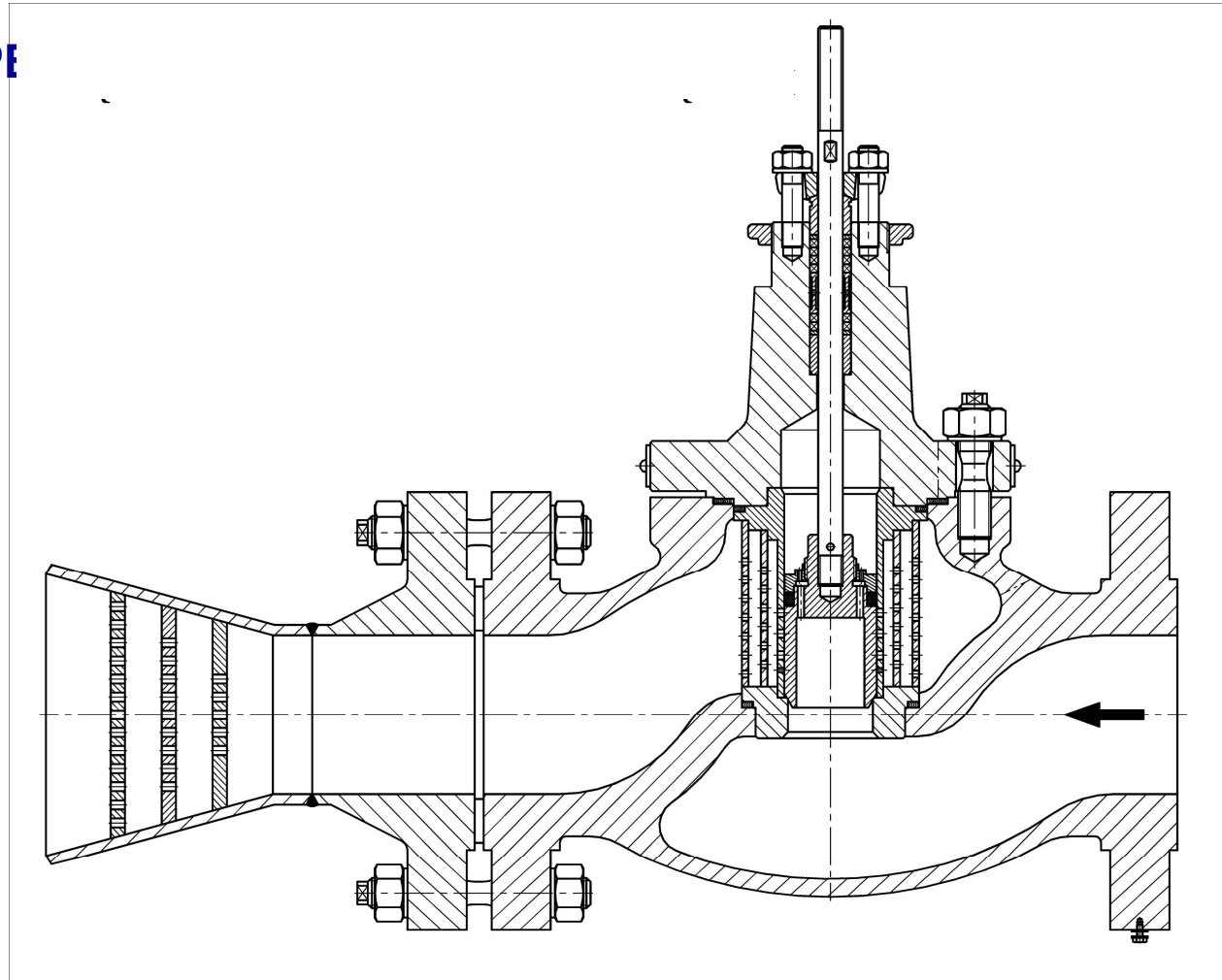
CONTROL VALVES TYPE „Z1B” WITH THROTTLING CAGES

- 3-step pressure reduction inside the valve
- low noise emission
- option with balanced plug



CONTROL VALVES TYPE „Z1B” WITH THROTTLING CAGES AND DIFUSSER

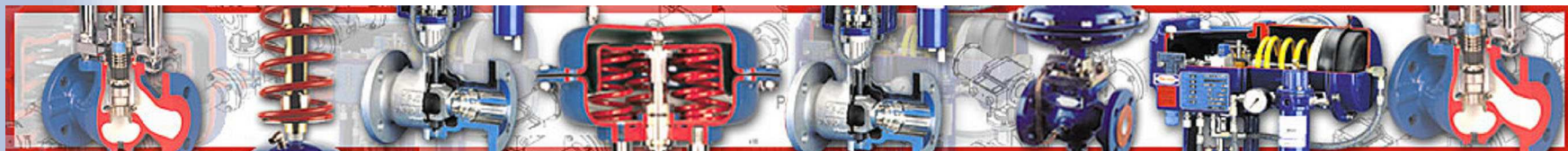
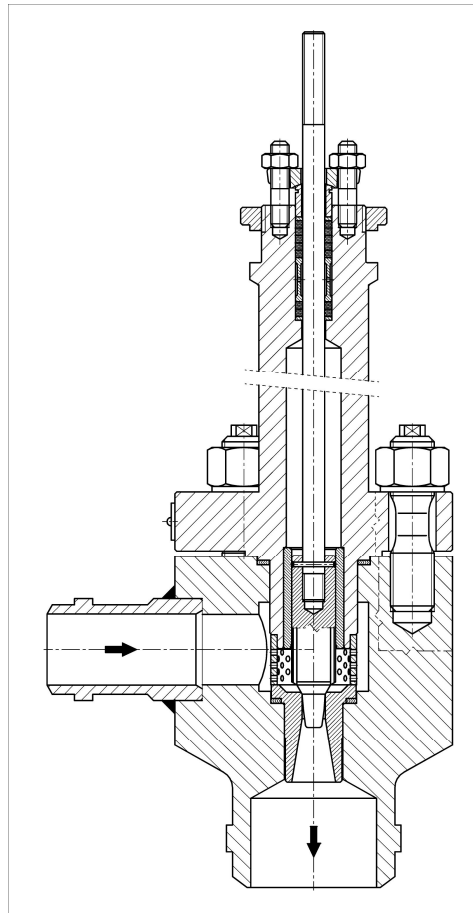
- 6-step pressure reduction inside the valve and difusser
- low noise emission
- option with balanced plug
- lower flow velocity downstream the difusser



CONTROL VALVES FOR FLASHING:

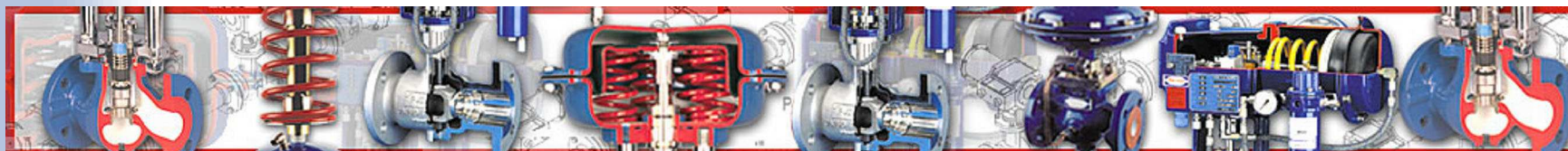
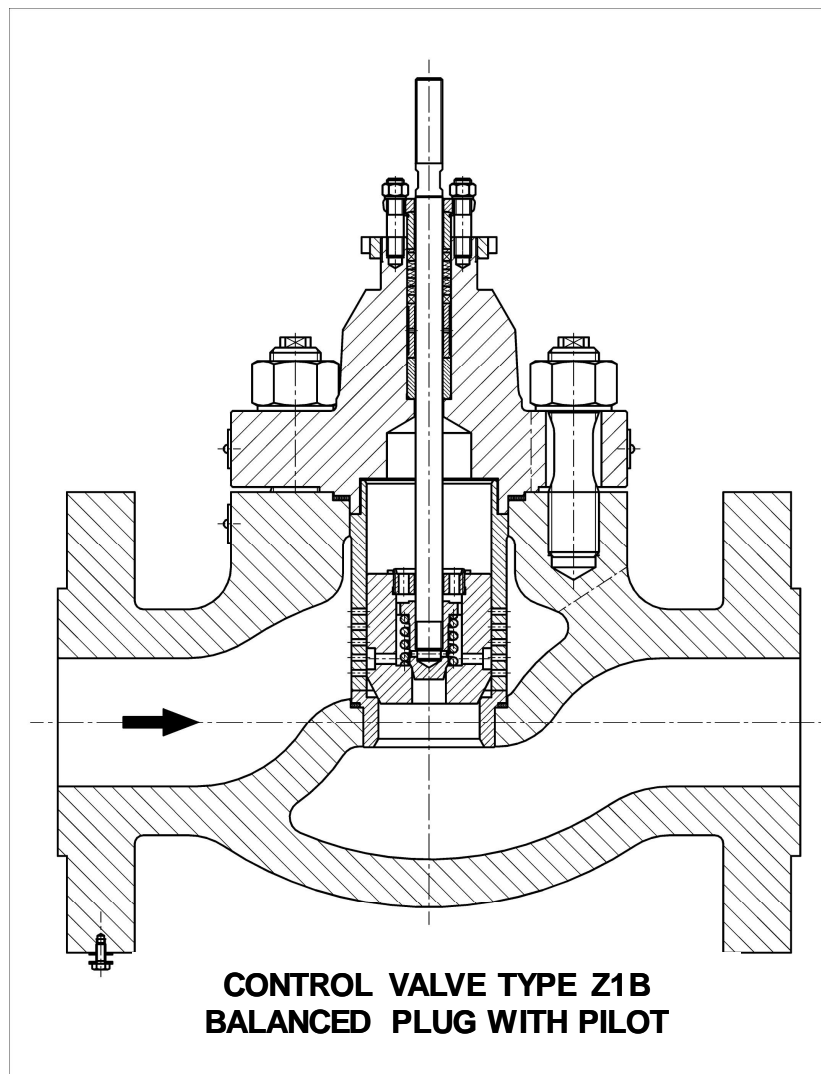
- ANGLE-PATTERN VALVES
MADE OF FORGED STEEL

HIGH HARDENED INTERNAL
ELEMENTS (55 HRC)

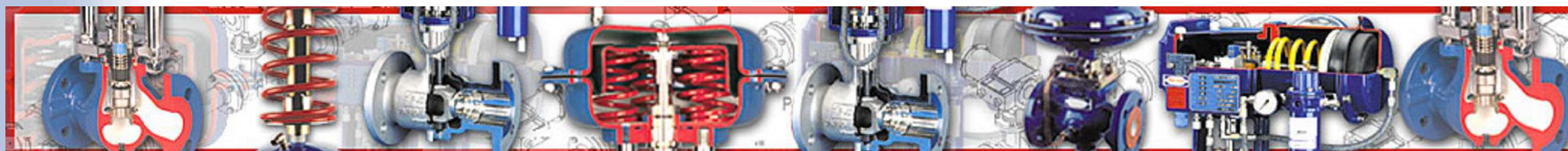
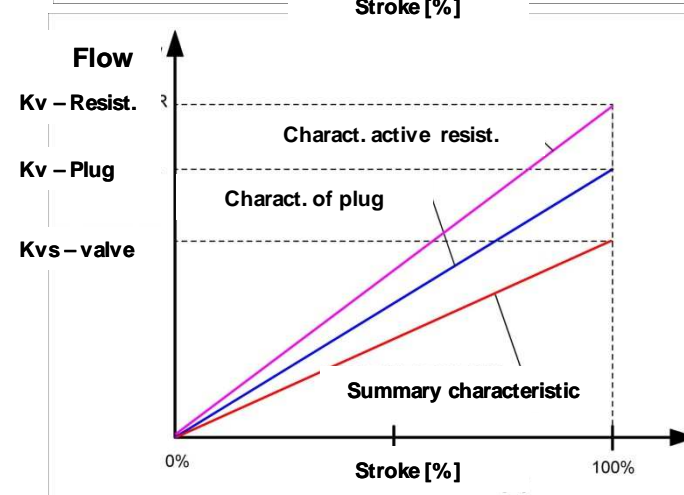
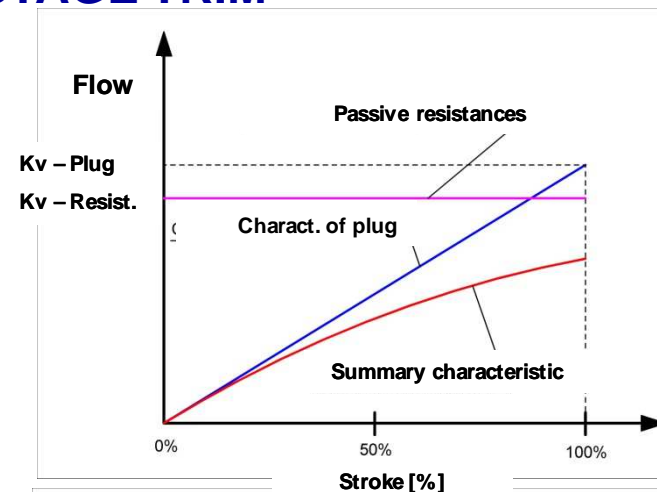
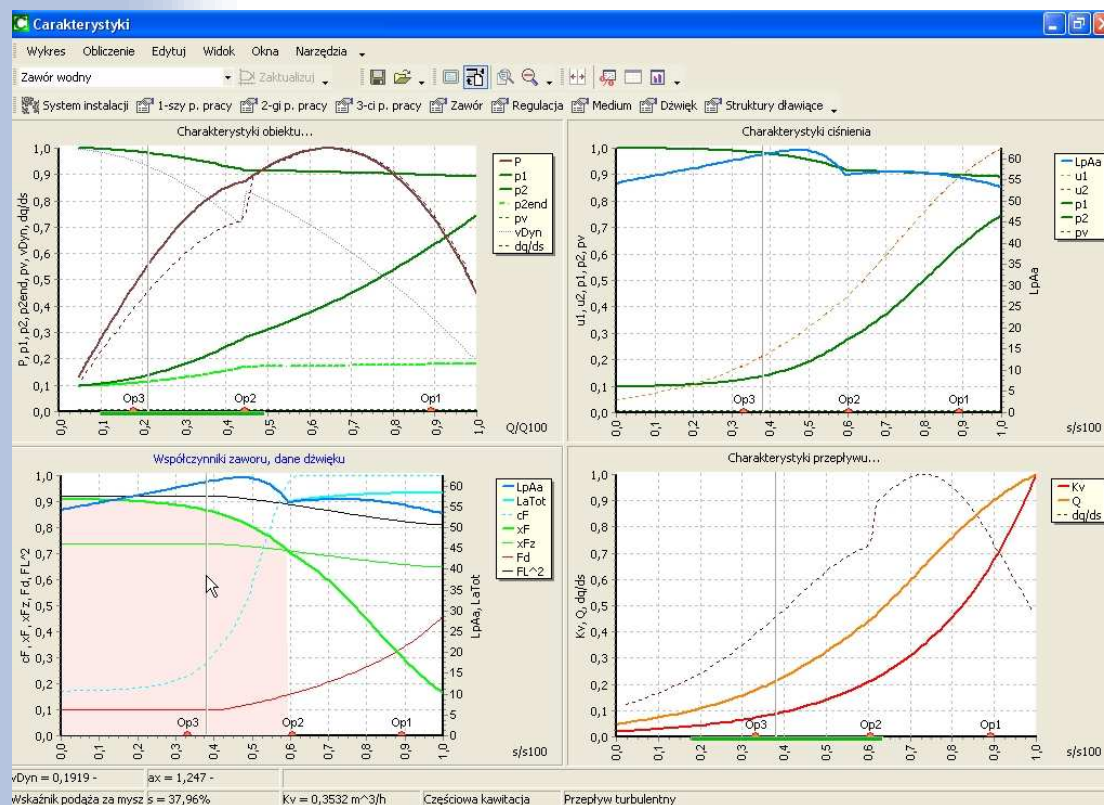


CONTROL VALVE TYPE Z1B BALANCED PLUG WITH PILOT

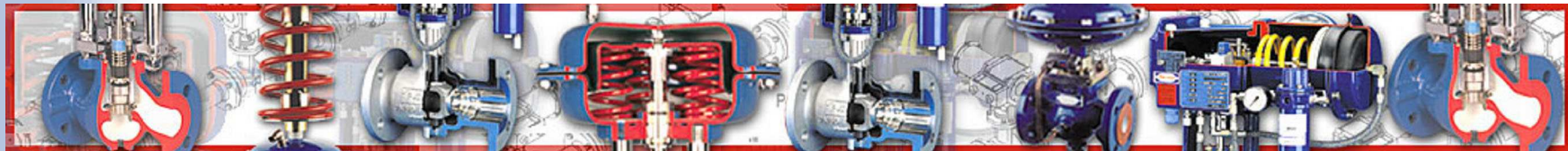
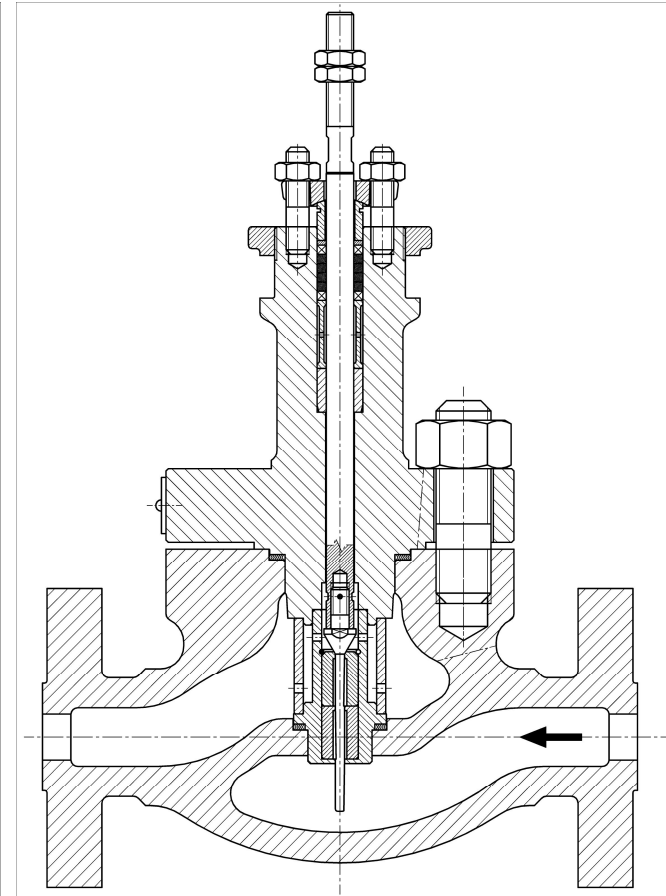
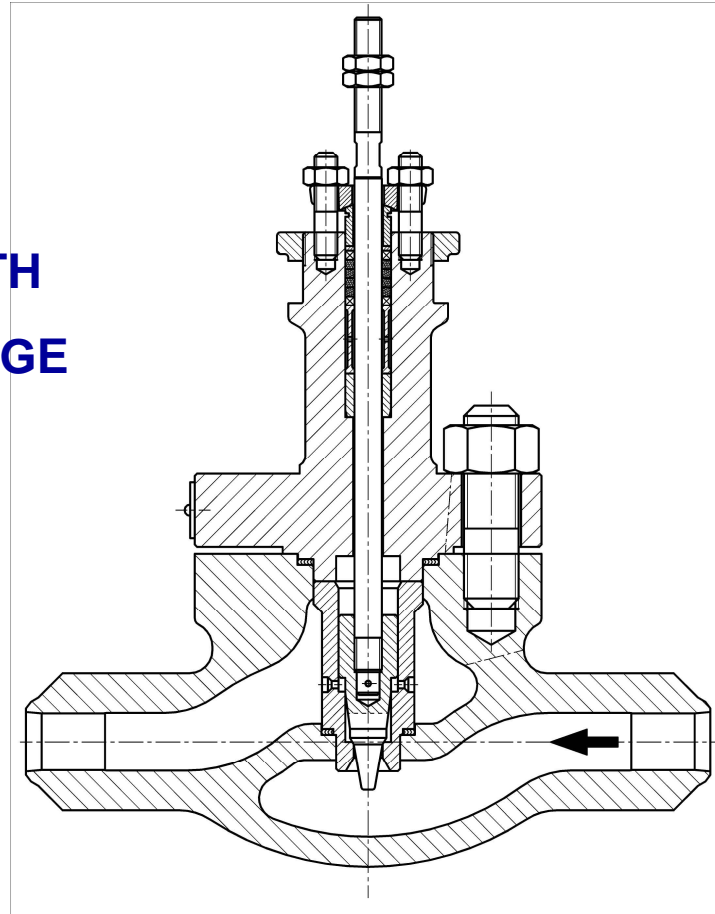
- High permissible differences of pressure
- High shut-off tightness (V class)
- Permissible theoretical rangeability 200:1



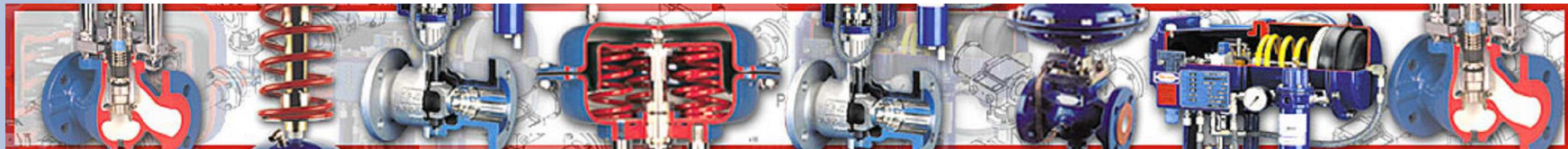
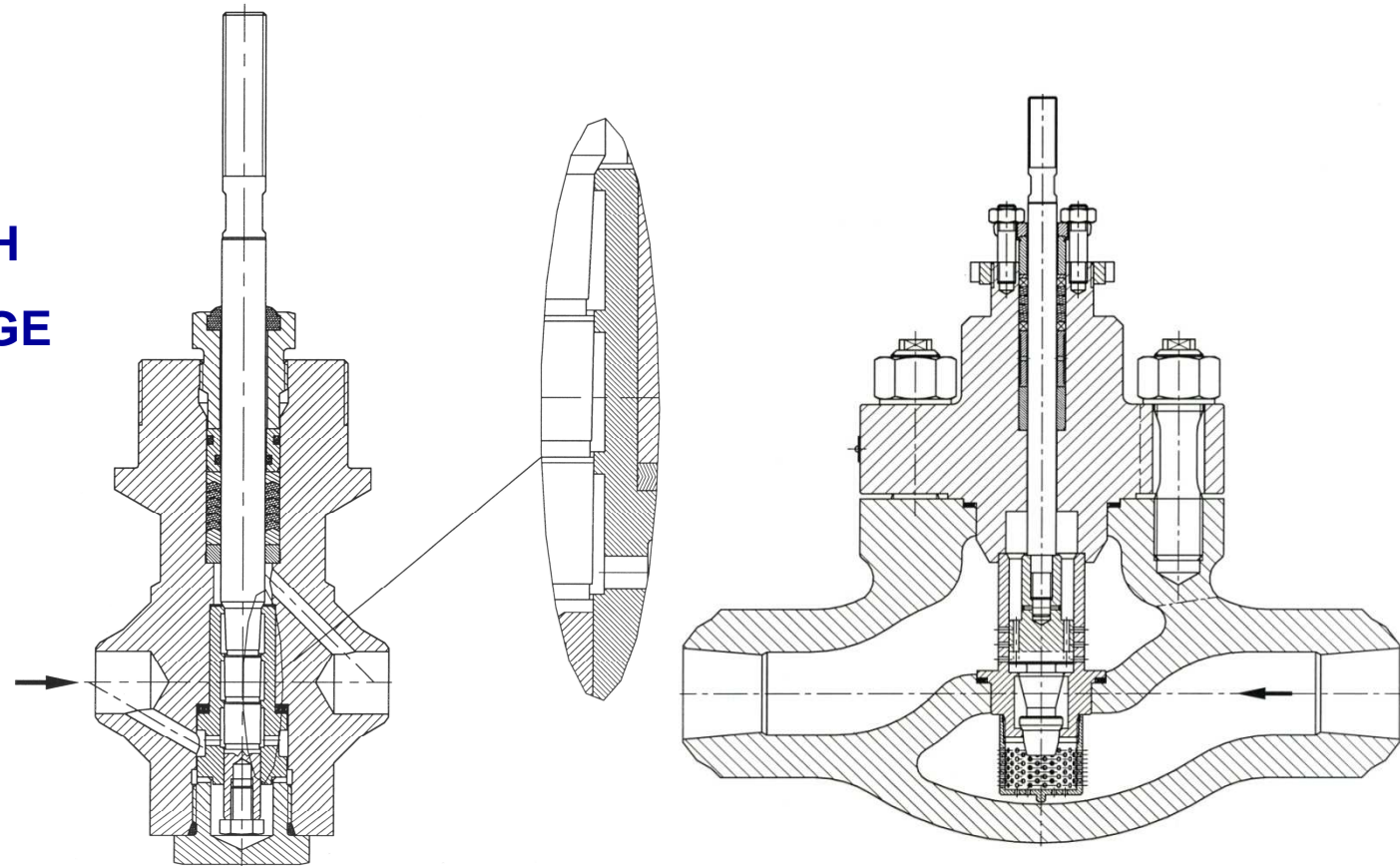
CONTROL VALVES WITH MULTI-STAGE TRIM



VALVES WITH 2- AND 3-STAGE PLUG

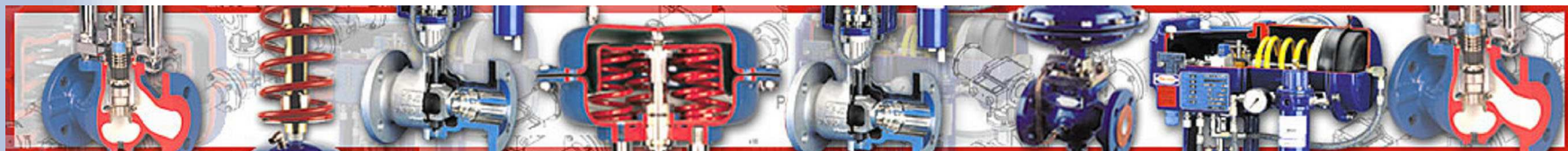


VALVES WITH 2- AND 3- STAGE PLUG



PRESSURE REDUCING CONTROL VALVE Z1B FOR STEAM

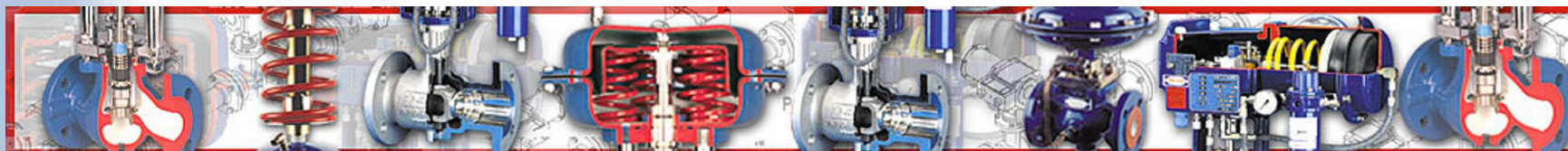
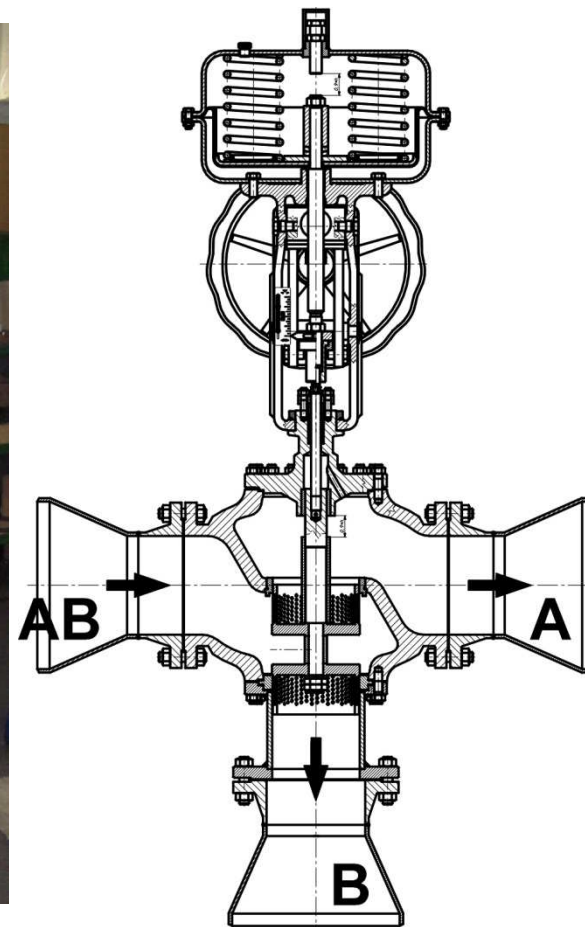
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APPLICATIONS FOR POWER INDUSTRY

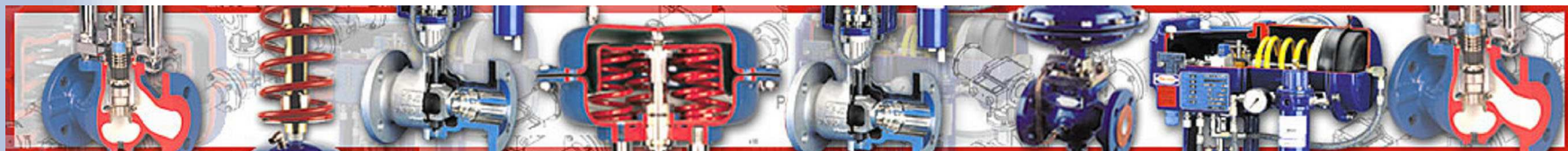
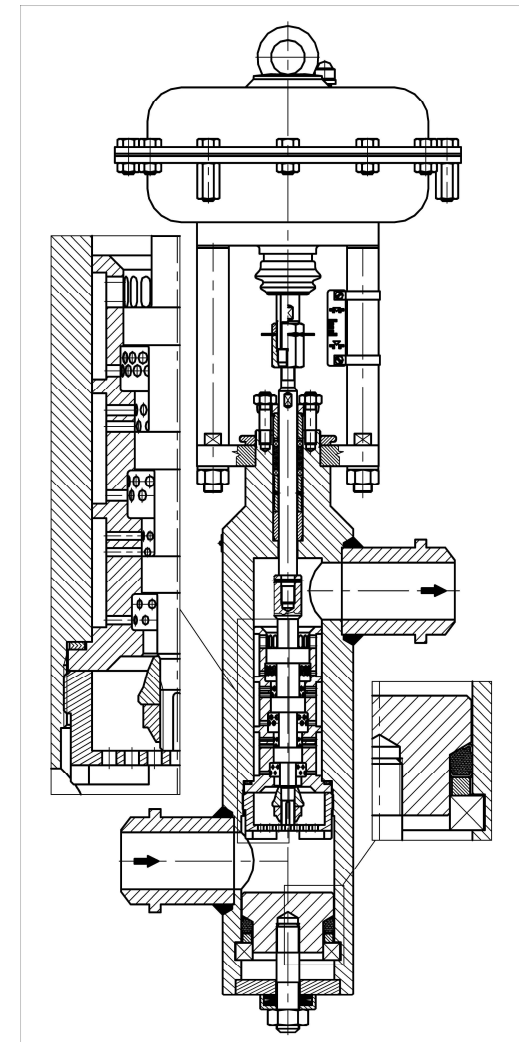
Three-way valves:

- valve size DN250
- connections DN300
- perforated plug
- limit stop



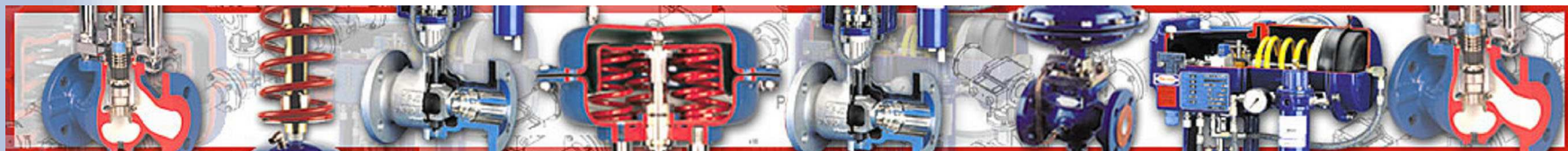
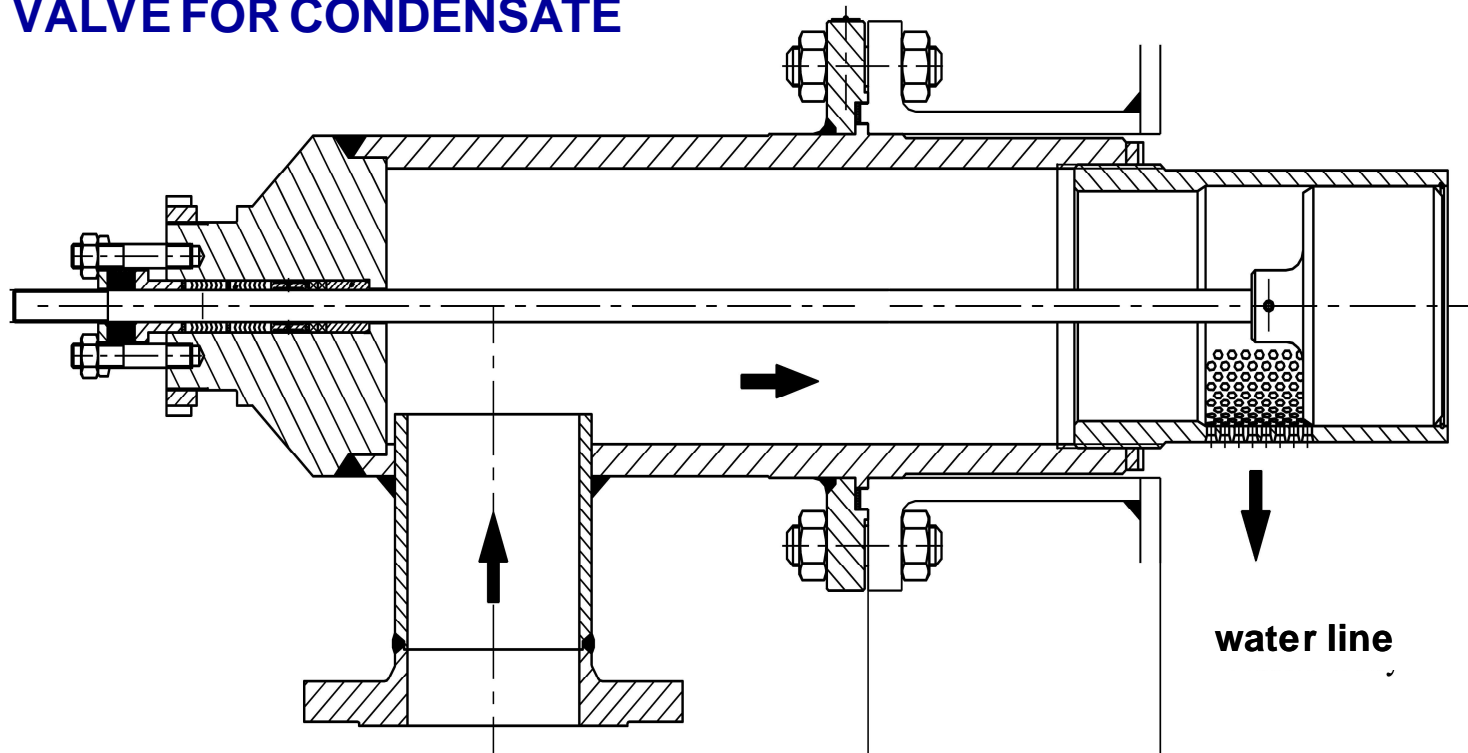
APPLICATIONS FOR POWER INDUSTRY

MULTISTAGE MINIMUM- FLOW VALVE

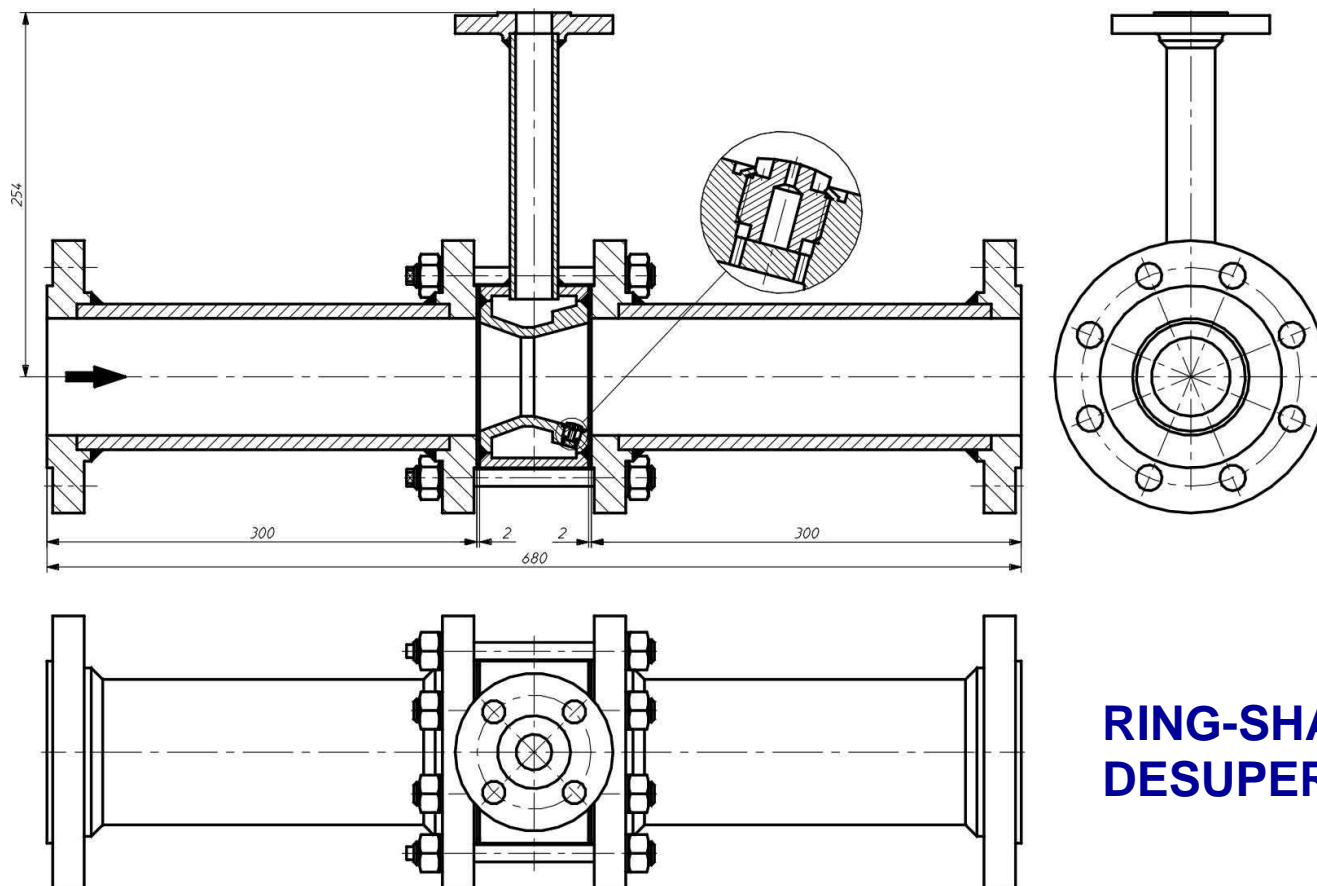


APPLICATIONS FOR POWER INDUSTRY

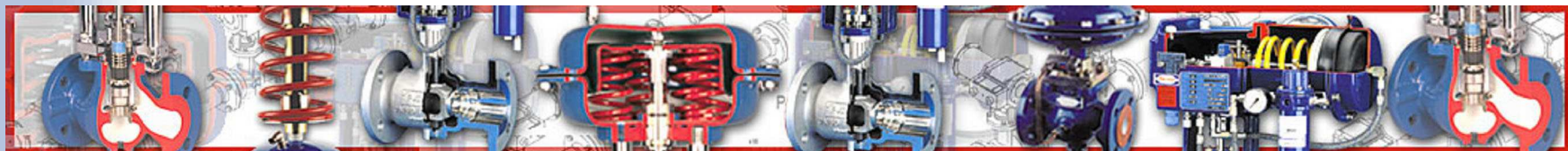
VALVE FOR CONDENSATE



APPLICATIONS FOR POWER INDUSTRY – DEVICES FOR STEAM CONDITIONING

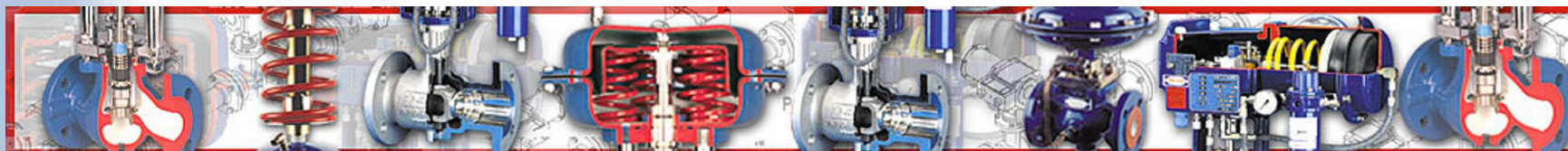
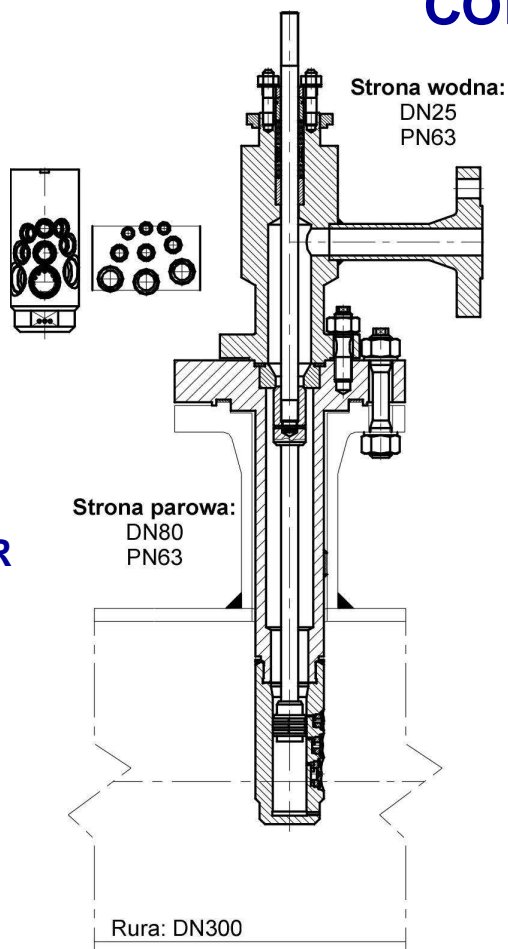


**RING-SHAPED
DESUPERHEATER**

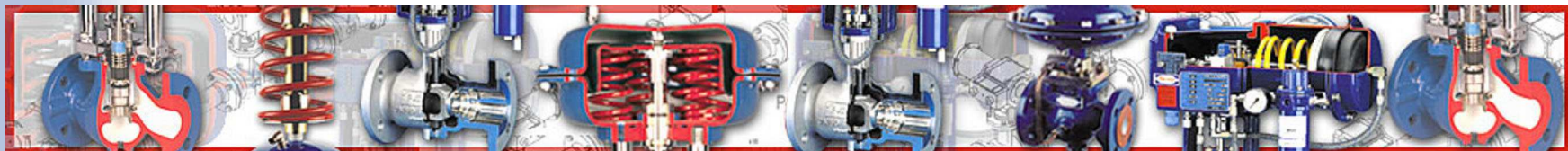
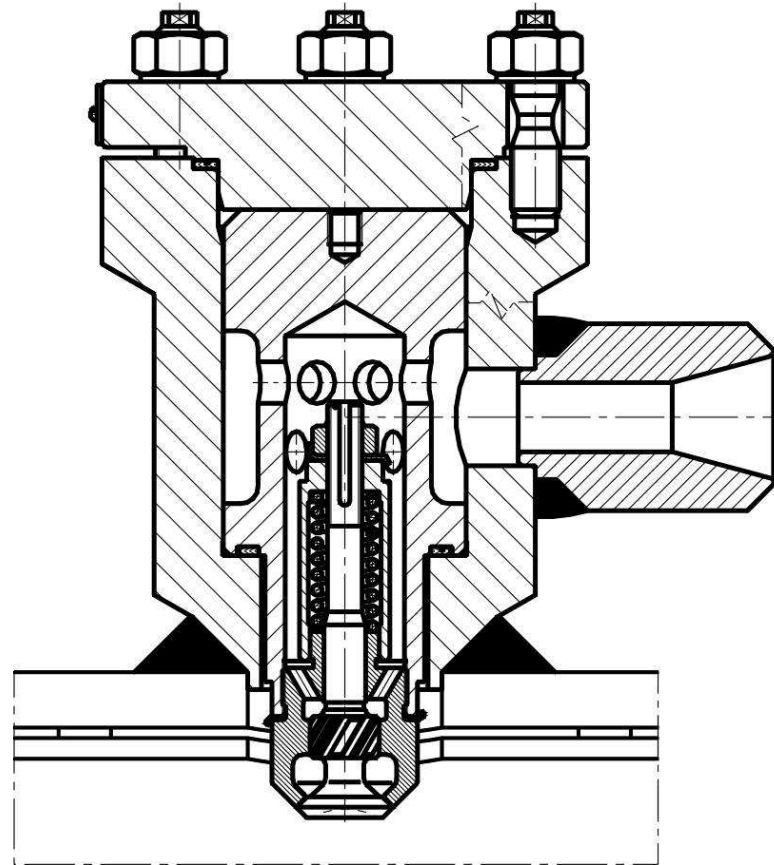


APPLICATIONS FOR POWER INDUSTRY– DEVICES FOR STEAM CONDITIONING

PISTON-SHAPED DESUPERHEATER

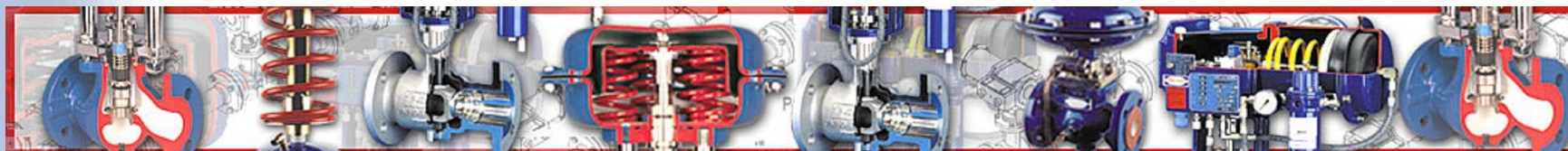
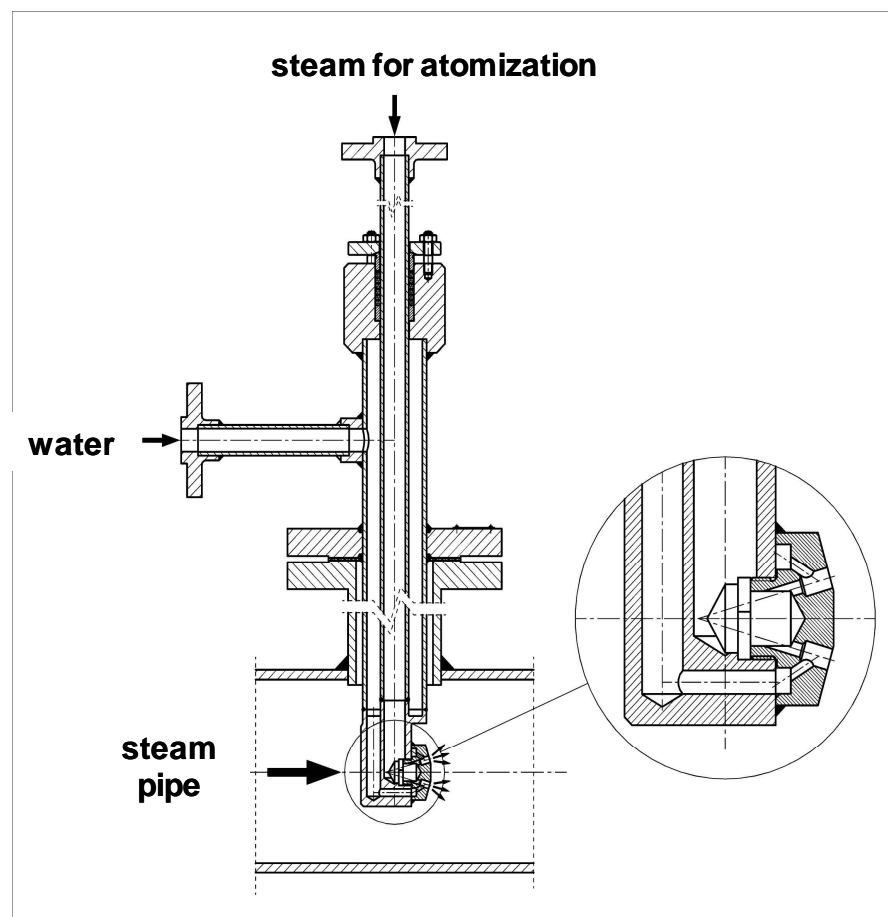


PLUG-SHAPED DESUPERHEATER



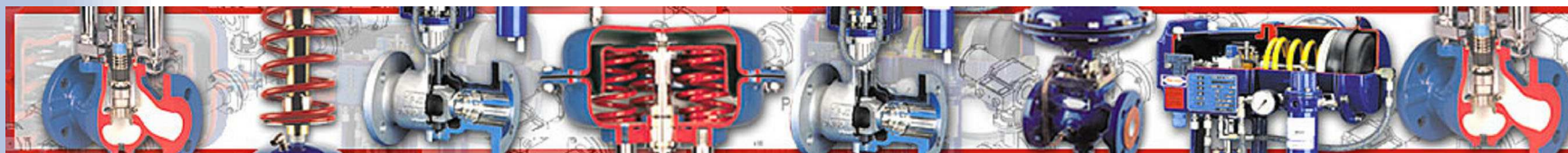
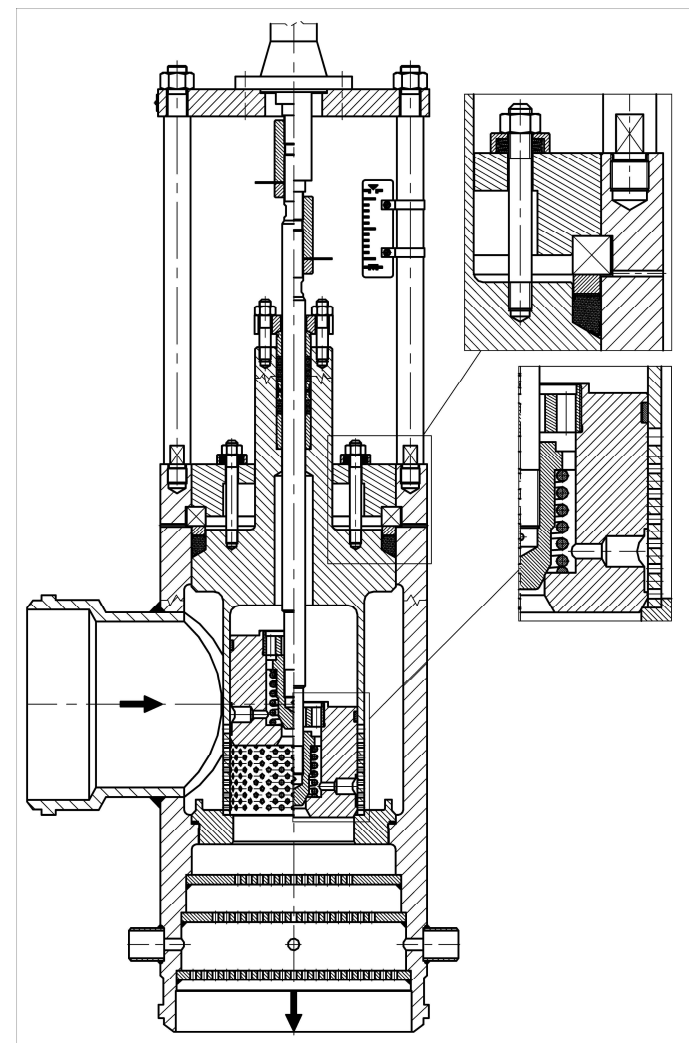
APPLICATIONS FOR POWER INDUSTRY – DEVICES FOR STEAM CONDITIONING

DESUPERHEATER WITH STEAM ATOMIZATION



**APPLICATIONS FOR POWER INDUSTRY.
DEVICES FOR STEAM CONDITIONING**

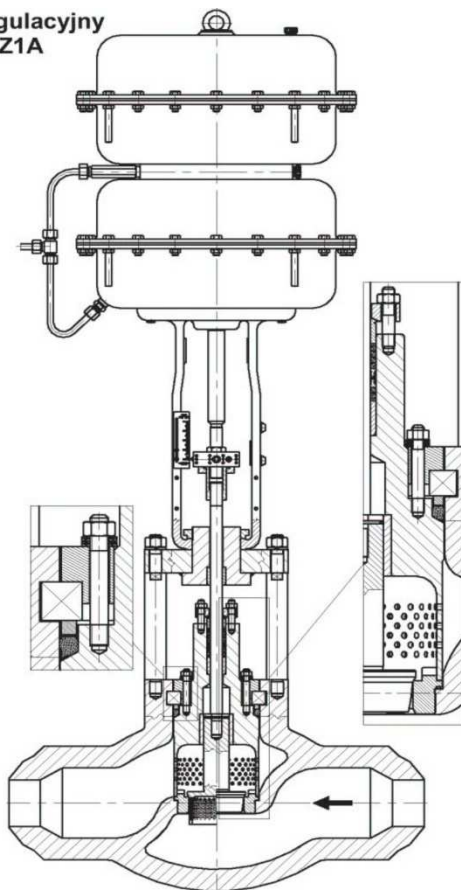
**ANGULAR-PATTERN VALVES FOR STEAM
INTEGRATED WITH DIFUSSER**



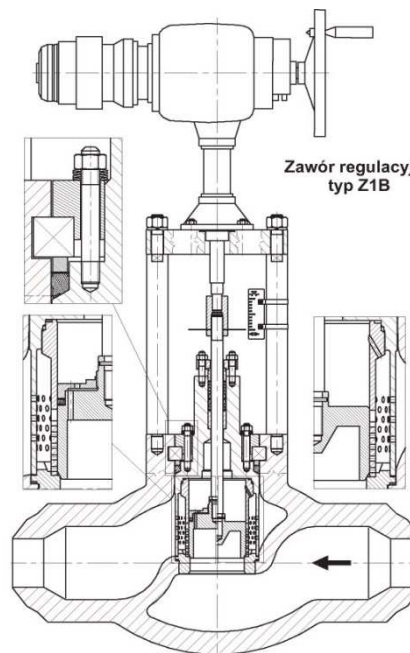
HIGH DN/PN VALVES

CONTROL VALVES DN150...250 PN160...420

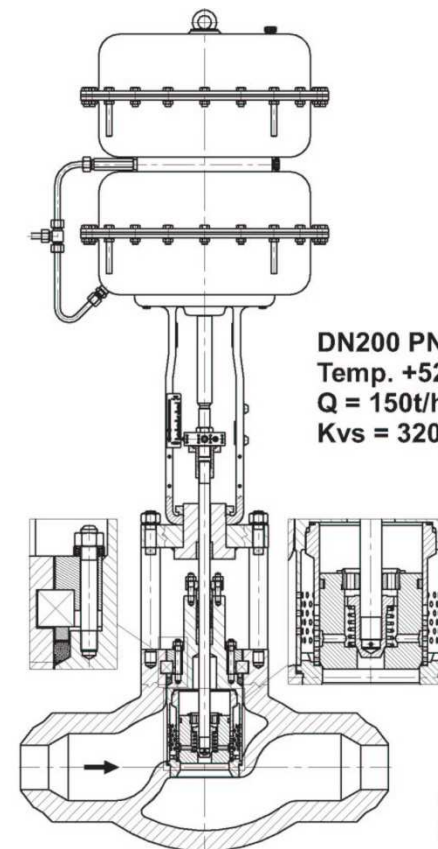
Zawór regulacyjny
typ Z1A



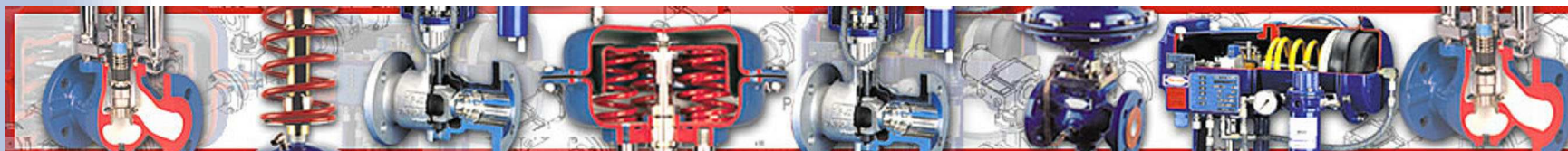
Zawór regulacyjny
typ Z1B



DN200 PN260
Temp. +520°C
Q = 150t/h
Kvs = 320P

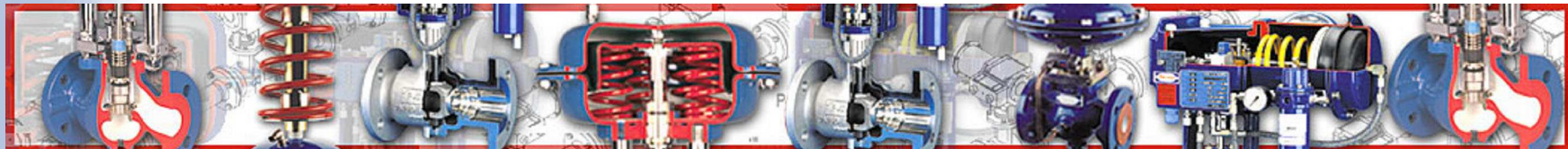


Opracował:
J.Mazur
23.11.2004



Advantages:

- **chemical resistance**
- **environment protection**
- **industrial safety**
- **resistance to high pressure and flow velocity**
- **resistance to high temperature changes**



CONTROL VALVES COMPLETE WITH PNEUMATIC ACTUATORS AND QUICK SHUT-OFF SYSTEMS FOR GAS APPLICATION, TYPE "Z"; "Z-1A"

Designed for flow control of gas fuel (e.g. in burners); in case of emergency they allow for a quick flow shut off (less than 1 second).

Valves manufactured in accordance with PN-EN 161 standard.

- DN 15...250;
- PN 10...40;
- Fluid temp.: max +350°C
- Leakage Class:
 - V as per IEC 534/4
 - VI as per IEC 534/4
- Body material:
 - carbon steel (1.0619)
 - stainless steel (1.4408)



IGNiG	APROBATA TECHNICZNA	
INSTYTUT GÓRNICWA NAFTOWEGO I GAZOWNICTWA PL 31-503 Kraków, ul. Lubicz 25A Tel.: (012) 421 00 33 Fax: (012) 421 00 50	Nazwa wyrobu:	AT IGNiG
	ZAWORY REGULACYJNE I ODCINAJĄCE TYPU Z i Z1	Nr 05 - 003/ 96 Wydanie III/2001
	Wnioskodawca:	Zakłady Automatyki "POLNA" S.A. ul. Obózowa 23 37-700 Przemysł
	Producent:	Zakłady Automatyki "POLNA" S.A. ul. Obózowa 23 37-700 Przemysł

W wyniku postępowania aprobowego w trybie określonym w rozporządzeniu Ministra Gospodarki Przestrzennej i Budownictwa z dnia 19 grudnia 1994 roku w sprawie aprobat i kryteriów technicznych dotyczących wyrobów budowlanych (Dz.U. z 1995 r. Nr 10, poz. 48) oraz rozp. Ministra Spraw Wewnętrznych i Administracji z dn. 5 sierpnia 1998r. w sprawie aprobat i kryteriów technicznych oraz jednostkowego stosowania wyrobów budowlanych (Dz.U. z 1998r. Nr 107, poz. 679), Instytut Górnictwa Naftowego i Gazownictwa na podstawie pozytywnej opinii Komisji Aprobata Technicznych udziela Aprobata Technicznej na:

„Zawory regulujące typu Z z silownikami pneumatycznymi membranowymi typ P/R oraz zawory odcinające typu Z wyposażone w układ szybkiego zamykania do palników urządzeń gazowych i instalacji paleniskowych na paliwa ciekłe

Typoszereg: DN 15 do DN 250 dla ciśnień PN 10 do PN 40

oraz

„Zawory regulujące typu Z1 z silownikami pneumatycznymi typ P1/R1 lub P/R - dla ciśnień PN 10 do PN 400 oraz zawory odcinające typu Z1 wyposażone w układ szybkiego zamykania do palników urządzeń gazowych i instalacji paleniskowych na paliwa ciekłe

- dla ciśnień PN 10 do PN 40

Typoszereg: DN 15 do DN 250

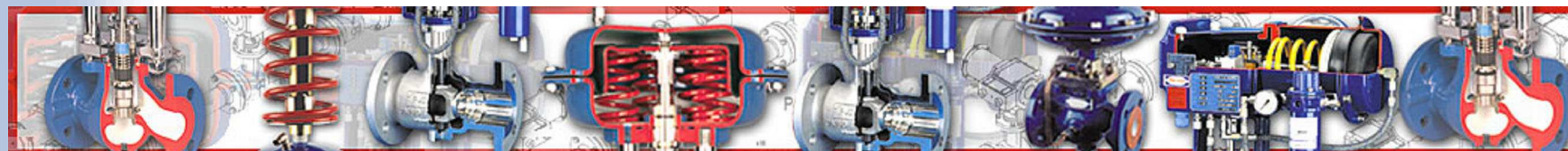
Zgodnie z art. 10 ustawy z dnia 7 lipca 1994 r. Prawo Budowlane (Dz.U. z 1994 r. Nr 89, poz. 414), wyroby na które wydano aprobatę techniczną zostaną uznane za dopuszczone do obrotu i stosowania na podstawie deklaracji lub certyfikatu zgodności z tą aprobatą.



Kierownik
Jednostki Aprobującej
Maciej
Prof.dr.hab.inż. Józef Raczkowski

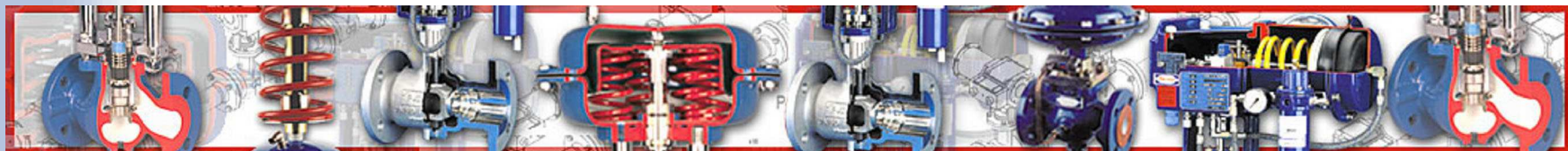
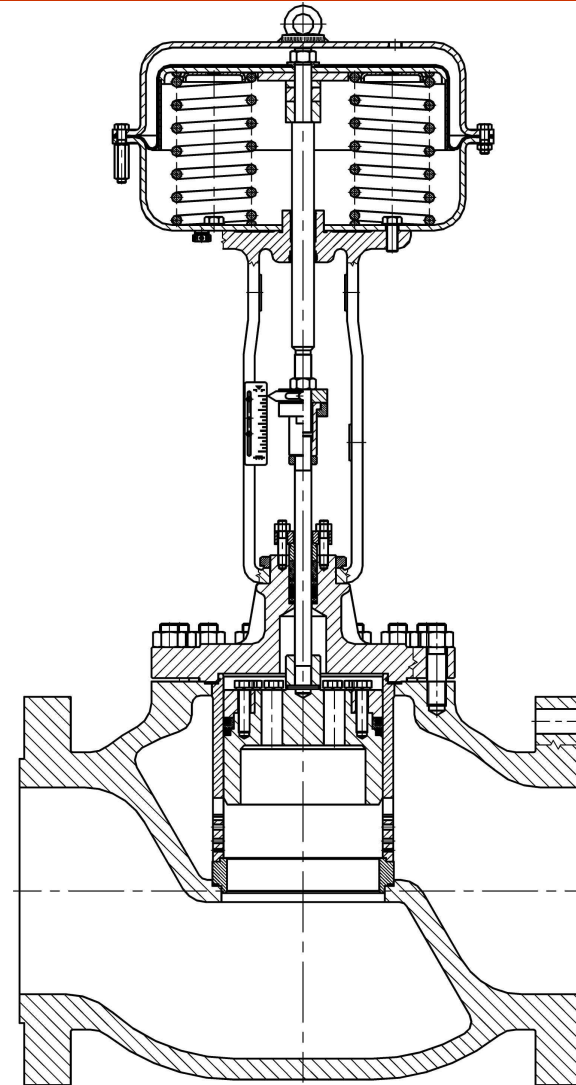
Kraków, październik 2001 r.

Exemplarz nr. 2 z 4



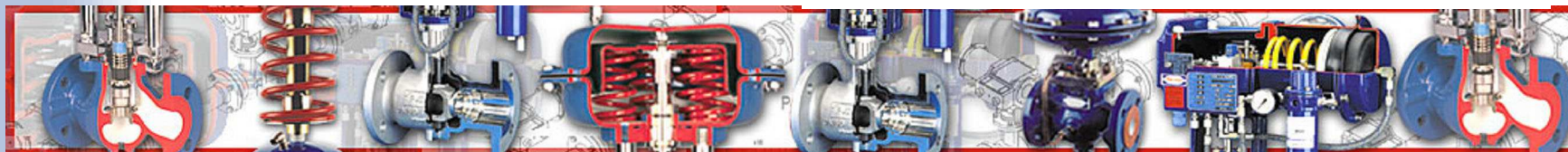
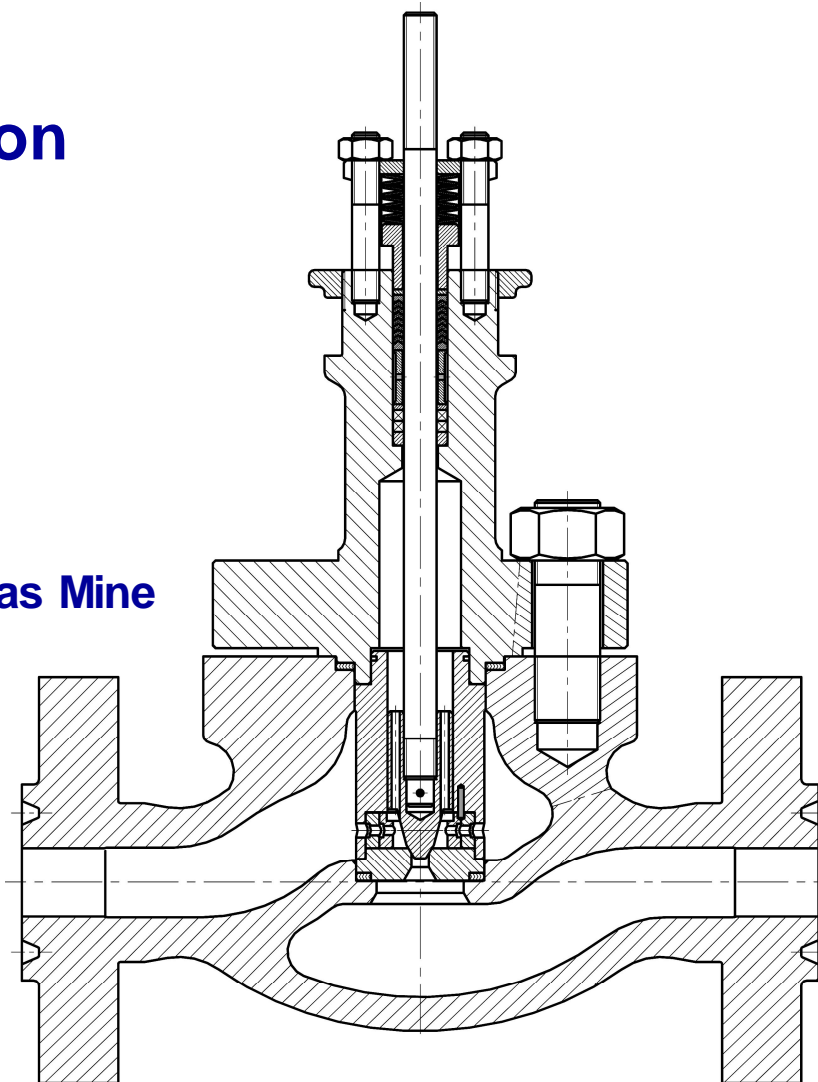
Valve for natural gas application

- nominal size DN300 CL600
- balanced plug
- actuator elastic elements made from silicone
- valve and actuator cast parts made from ASTM A352 LC2 – designed for low-temperature service
- place of installation: Siberia - Russia



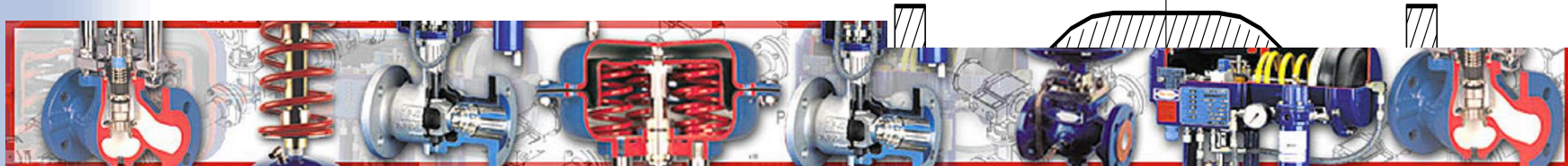
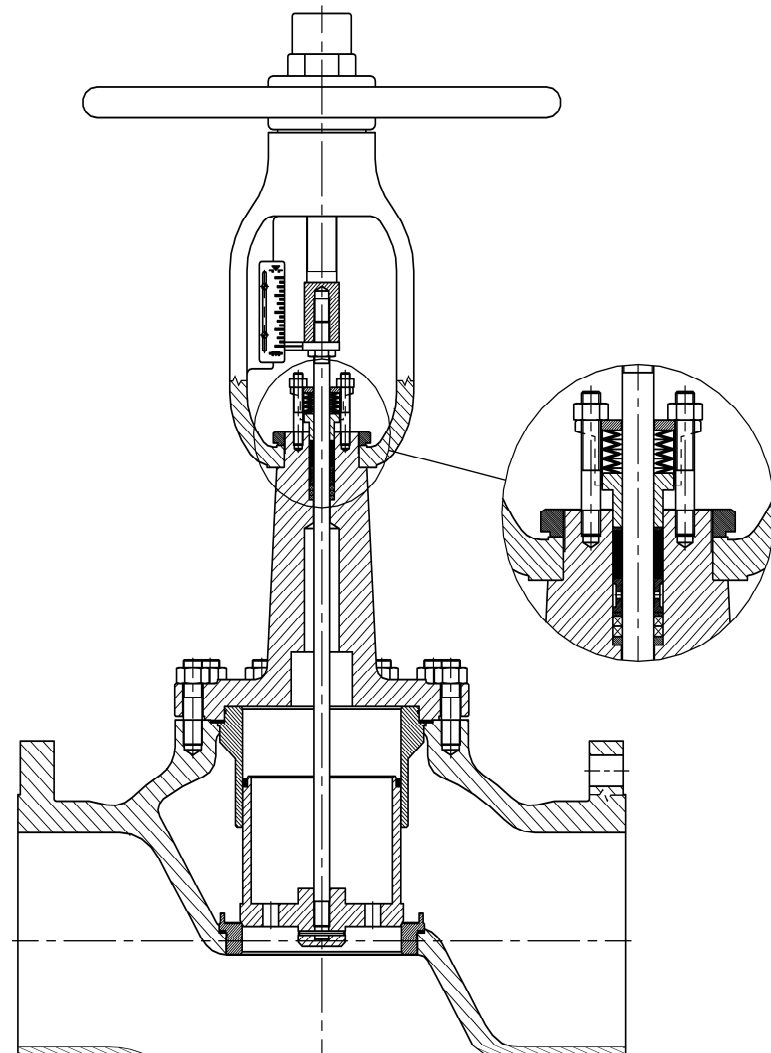
Valve for mine water application

- high pressure drop $\Delta p = 200$ bar
- anti-cavitation solution
- 3-stage throttling at outlet
- place of installation: Jodłówka Natural Gas Mine



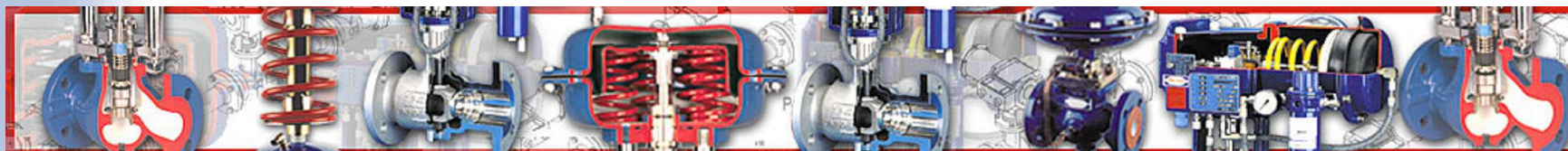
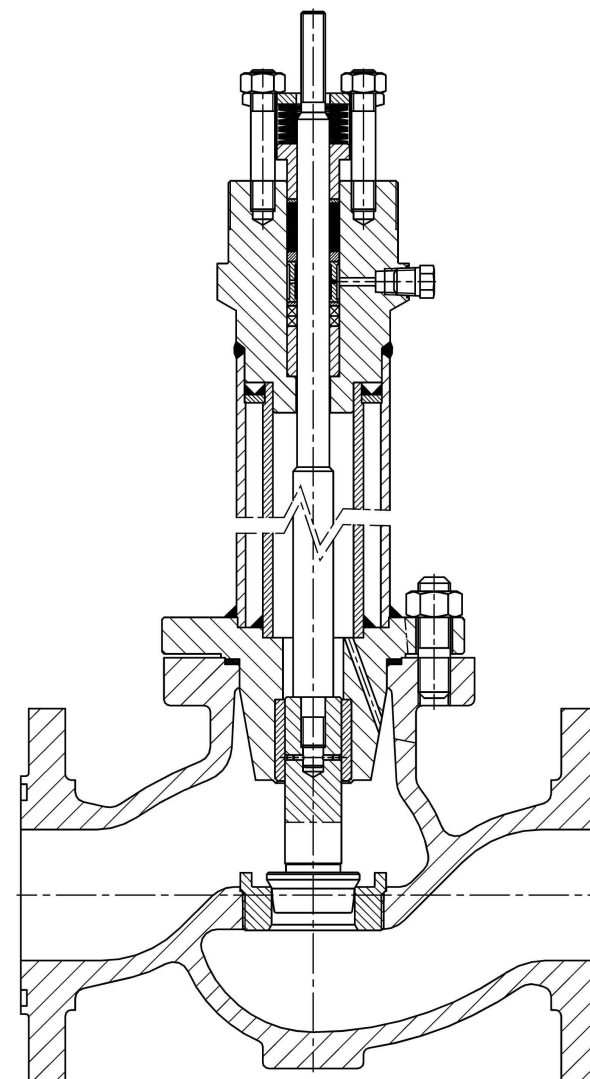
Valve for sour gas applications

- TA-LUFT packing
- balanced plug
- handwheel; indication of plug limit positions
- material selection and manufacturing technology provides for safe operation in H₂S environment, as per NACE MR-0175 requirements



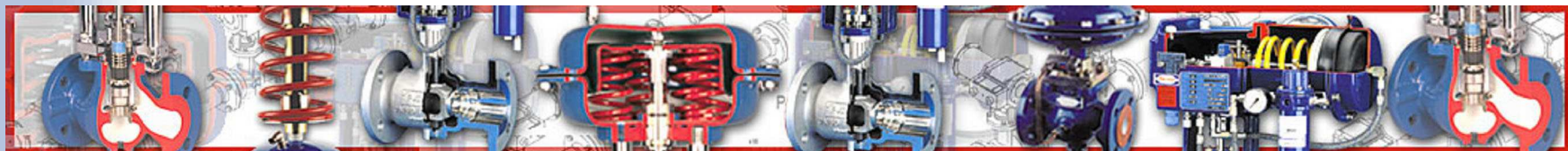
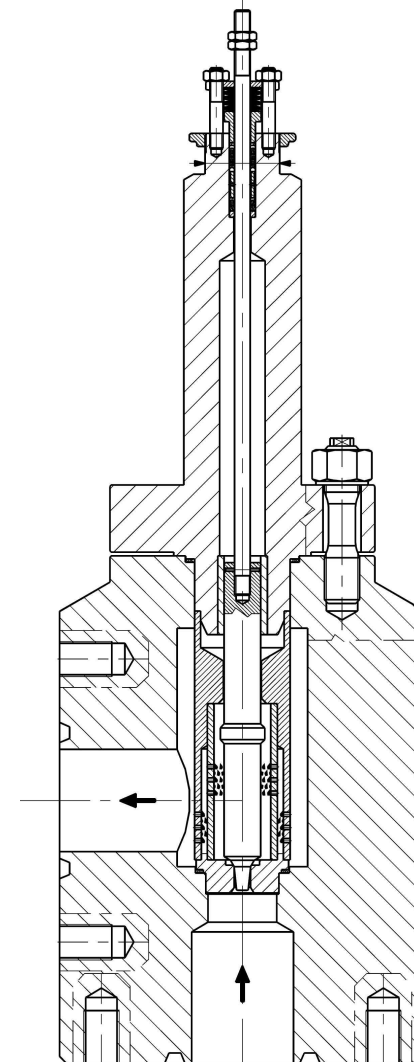
Valve for oxygen application

- TA-LUFT packing
- bonnet with the thermal isolation
- valve design, material, surface preparation, internal tightness are suited for liquid oxygen application



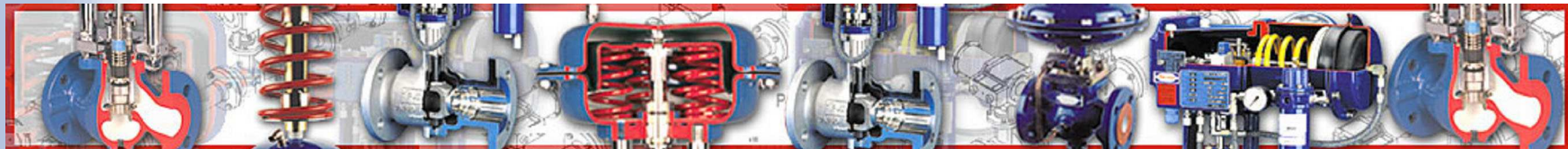
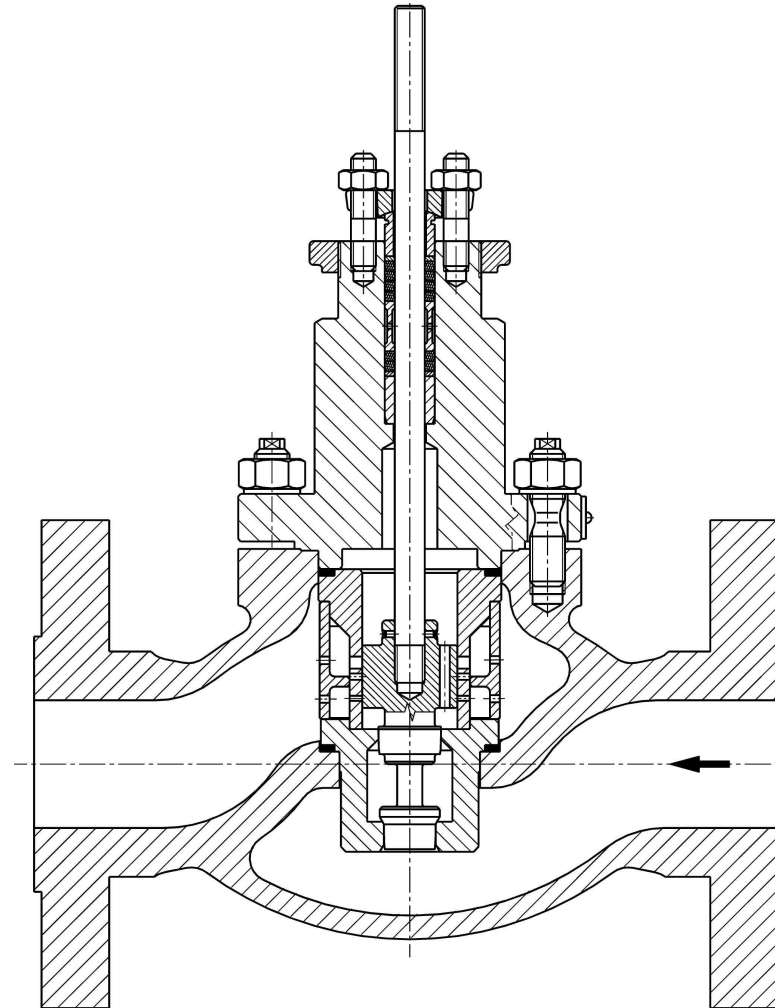
Valve for natural gas application

- angle design
- working pressure 450 bar
- adjusted to PN700 flanged connection
- TA-LUFT packing
- stem packing shut-off from fluid at valve in open position



Anti – cavitation valve with double functionality

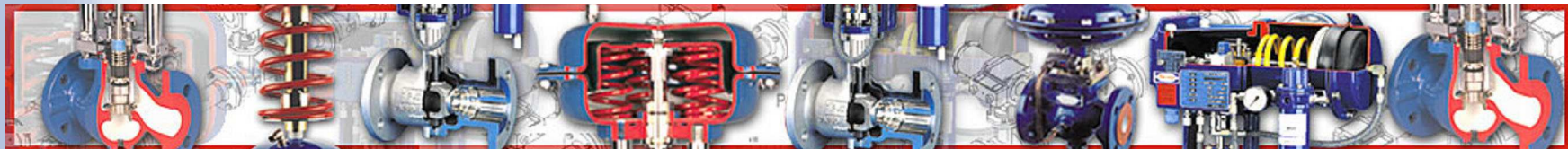
- designed for operation at high pressure drop in the initial opening stage and large flow at full opening
- multi – stage resistance structures to eliminate cavitation in booth operation stages



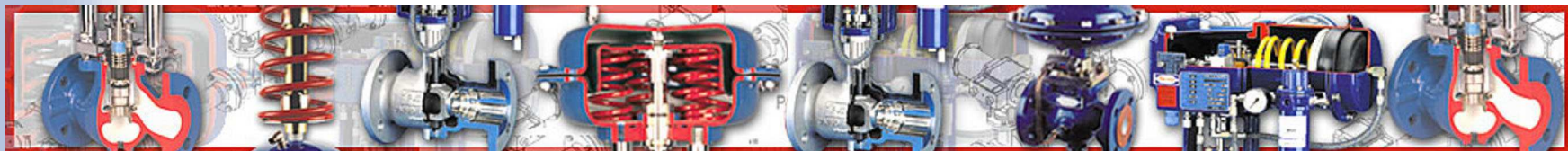
Other design solutions for gas engineering and petrochemistry include:



- materials connection as ASTM/ANSI standards
- applications for sour gas as per NACE MR-0175 standard
- packing as per TA-LUFT regulations
- ATEX and Ex executions
- valves for low-temperature and cryogenic service
- valves for oxygen and hydrogen applications
- valves for liquid fuel and fuel gas



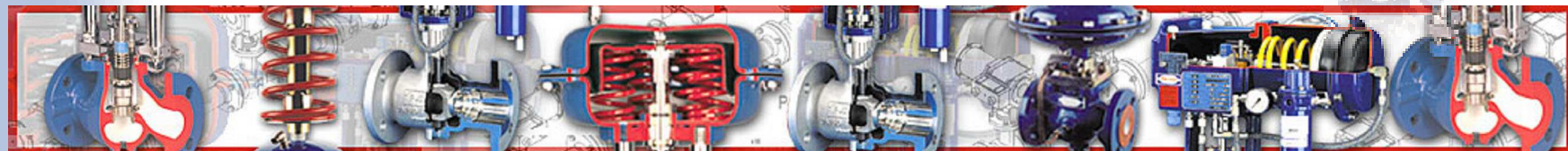
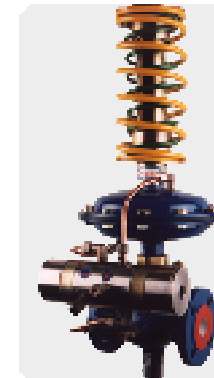
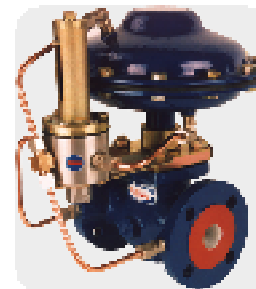
OFFER FOR HEAT ENGINEERING



Self-operated regulators type ZSN

Regulators of:

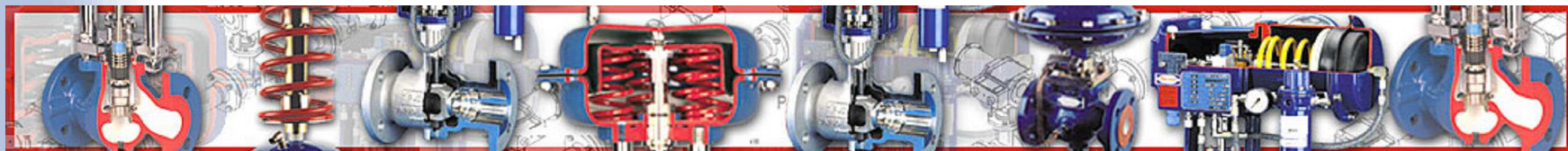
- pressure,
 - difference of pressure,
 - difference of pressure with flow limiting,
 - flow.
-
- DN15...100
 - PN16; 25; 40
 - Connections: flanged
 - Materials: cast iron
spheroidal iron
carbon steel
stainless steel



Self-operated regulators type ZSG

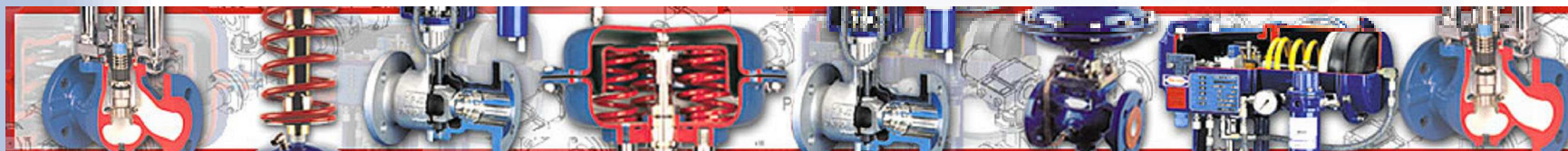
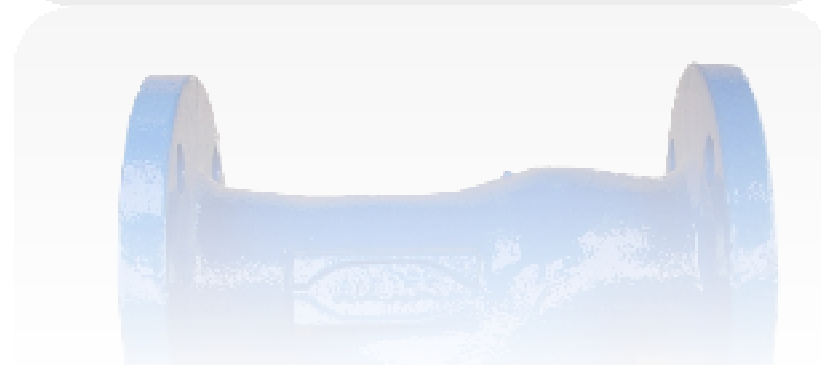
Regulators of:

- pressure,
 - difference of pressure,
 - difference of pressure with flow limiting,
 - flow.
-
- DN15...32
 - PN16; 25
 - Connections: threaded, flanged, welded
 - Materials: spheroidal iron



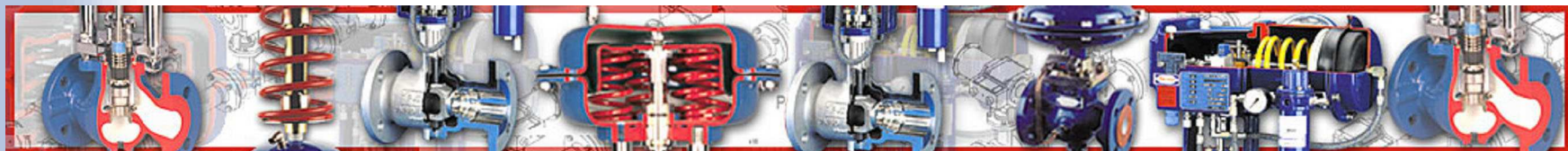
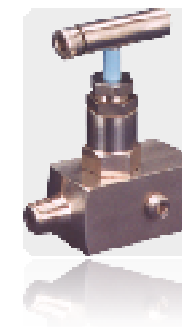
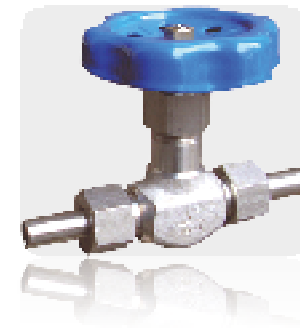
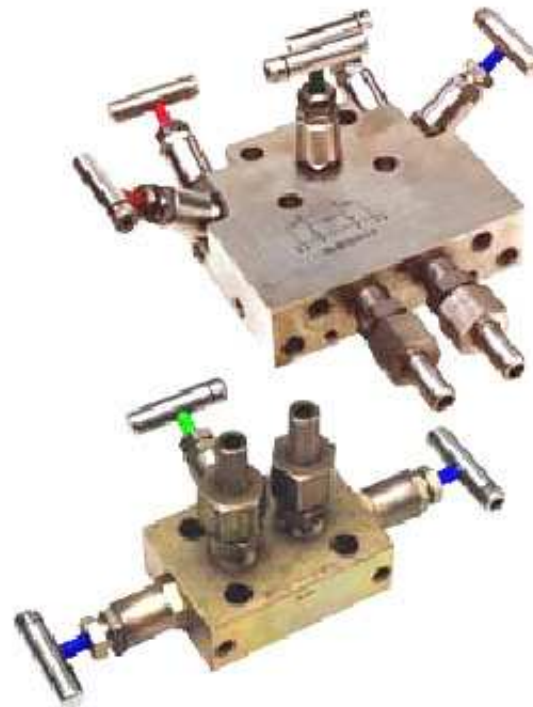
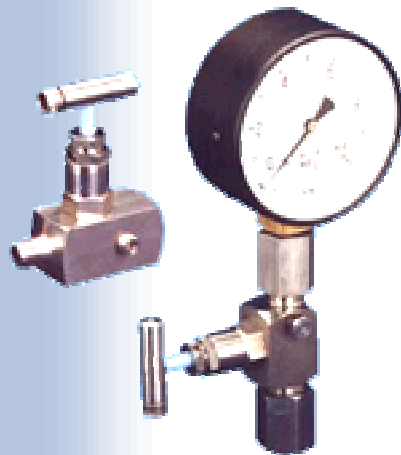
STRAINERS

- DN15...200
- PN16; 25
- Connections: flanged
- Materials: cast iron
spheroidal iron



MANIFOLDS AND NEEDLE VALVES

- Pressure max.: 40 MPa;
- Temp. max.: 500°C
- Materials: carbon steel
stainless steel





WIĘCEJ NIŻ AUTOMATYKA

MORE THAN AUTOMATION

THANK YOU FOR YOUR ATTENTION

