Triple offset design — Metal seal — Self-aligning sealing ring
New from ARI: up to DN 1200 — with butt-weld ends — fully lugged class 600

ZETRIX®
The ARI process valve

New from ARI: With butt-weld ends

ZETRIX®
- Manual
- Electric actuator
- Pneumatic actuator
- Hydraulic actuator
**Triple offset – for challenging applications!**

**What is “triple offset”?**
The rotating shaft of the disc is offset from the centre line of the disc seat and body seal (first offset) and the pipe’s centre line (second offset). With triple offset process valves, the seat’s axis of rotation is also asymmetrically apposed to the pipe axis (third offset).

**Benefits for you**
- Frictionless swivel movement.
- Permanently leak-proof due to the metal seal principle.
- Versatile applications with regard to media and temperature.
Reliably tight – even in harsh industrial environments

- Due to the triple offset disc design (maximum closing force with minimum effort).
- Due to the “smart” sealing ring (uniform closing force, the ring is self-aligning and free-floating on the sealing surface).
- Due to a wide range of additional safety options.

Design
- Body acc. to EN 12516, ASME B16.34 and API 660.
- Tight metal shut-off.
- Flexible, self-aligning, lamellar metal sealing ring (floating).
- Optimised characteristic permits shut-off and control function.
- Extended bonnet suitable for pipe insulation from -60°C to +427°C.
- Easy to automate due to the actuator interface incl. position indicator acc. to ISO 5211.

Safety
- Tightness conforms to leakage rate A in accordance with EN 12266, API 598 and API 6D (bidirectional).
- Tree protection.
- Blow-out protected stem.
- Retaining ring and thrust bearing bolts locked.
- Pressure-temperature profile acc. to EN 1092, ASME B16.34.

Durability
- Long and maintenance free service life due to the stellited seat.
- Rotary movement without wear or friction (seat and sealing ring).
- Hardened stainless steel bearings.

The outcome: the ARI process valve!

ZETRIX®

Results
- Maximum closing force with minimal effort reduces the contact angle and avoids additional production process optimization (optimisation).
- Self-aligning sealing ring facilitates thermal compensation and ensures tightness regardless of temperature variations.
- Lamellar structure made of Stainless steel and graphite lends additional elasticity to the sealing ring. Double sealing mechanism in the form of a spiral, spiral wound gasket made from a heat resistant elastic material.
- The “ZETRIX® process valve seals according to the area seating principle; the required contact pressure is applied via the actuator, which can be switched off in a function of the torque.
- Optimisation of the contact angles with our special geometry optimisation software.
- The ZETRIX® process valve is extremely versatile. It can be used on both sides (accident prevention regulations must be observed). The bracket for mounting the actuator interface acc. to ISO 5211.
- The ZETRIX® process valve seals according to the area seating principle, which is in accordance to the requirements of the current standard.
- Optimal durability because even the standard version has a stellited seat.

NEW from ARI: With Inconel ends!


NEW from ARI: With butt-weld ends!

Performance features at a glance:
- **Design**: EN 12516, ASME B16.34, API 609
- **Flange connection***: EN 1092, ASME 16.5, ASME 16.47
- **Butt-weld ends***: DIN EN 12627, ASME B16.25
- **Nominal diameter** *
  - Double flange: DN 80-1200 / 3” to 48”
  - Fully lugged: DN 80-600 / 3” to 24”
  - Butt-weld ends: DN 80-600 / 3” to 24”
- **Nominal pressure** *
  - PN 10-40, PN 63, PN 100 / Class 150, Class 300, Class 600
- **Face to face** *
  - Double flange: DIN EN 558-1 Series 13, ISO 5752, API 609
  - Fully lugged: DIN EN 558-1 Series16, ISO 5752
  - Butt-weld ends: DIN EN 558-1 Series14, ISO 5752
- **Material** *
  - Cast carbon steel (1.0619 +N; SA216WCB)
  - Cast stainless steel (1.4408; SA351CF8M)
- **Temperature** *: -60°C to +427°C
- **Flow media**: Liquids, gases, vapours
- **Actuators**: Manual gearbox, pneumatic, electric, hydraulic drives
- **Approvals**: Firesafe, TA-Luft / ISO 15848-1, SIL, ATEX
- **Typical applications**
  - Oil and gas processing, refineries, petrochemicals, chemicals, power plants, district heating, solar thermal power stations, pulp and paper, steelworks, sugar processing, industrial and plant manufacturing — reference list on request.
- * Other designs on request

Options:
- Flushing port for the shaft bearings and buffer port for protecting the stuffing box
- Flushing port for the bottom flange
- Welded bottom flange
- Double packing with drainage line (e.g. for thermal oil services)
- Test port
- “Clean air” bushing acc. to TA-Luft / ISO 15848
- Solid sealing ring for special applications
- Heating jacket
- Blow-out protection acc. to API 609
- RTJ / tongue-and-groove flange
Modern development methods, tested in our own experimental lab

Finite element analysis
The finite element analysis (FEA) is a numerical calculation technique that was used to simulate the stresses and their distribution occurring in the ZETRIX® process valve. The aim was to achieve the required strength at pressure load levels in combination with an optimal weight and a flow friendly shape.

State-of-the-art flow simulations
The twofold objective of uniform flow and high flow capacity was realised with the aid of special flow software. The software simulations enable the flow velocity, flow direction and pressure distribution to be visualised. Due to the optimised ZETRIX® geometry, turbulences and pressure loss are reduced to a minimum.

Rigorous tests (here: firesafe)
“Firesafe” is a basic stipulation in many of the environments where the ZETRIX® process valve is used. As a triple offset process valve with a tight metal seal, ZETRIX® meets all requirements before, during and after the fire. The test was performed according to ISO 10497 / API 607 6th edition.

Characteristic measurements
The flow values at different opening angles were measured in an accredited testing laboratory. The resulting curves were used to determine the control characteristic of the ZETRIX® process valve.

Contact angle calculation
The peripheral closing angle was optimised to ensure that the valve opens and closes without sticking and without friction. Our sizing software allows the contact angle at the perimeter of the ZETRIX® process valve to be visualised.
High-precision manufacturing

Modern technologies
are the key to optimal safety and reliability.
Our products are manufactured at three different
locations – all of them in Germany – promptly and
according to rigorous quality criteria.
High performance machining centres, automated
assembly cells, programmable assembly robots and a
highly qualified team of staff are vital pre-requisites of
top-quality product solutions specially tailored to your
individual requirements.
The benefit for you: Optimal reliability and
efficiency.

The valve bodies are manufactured on fully automated, CNC
controlled machining centres. Our CNC programs are written
on the basis of CAD data and transferred to the control online.
The workpieces are clamped in specially designed fixtures that
guarantee maximum machining stability and short set-up times.

The sealing surface is coated with stellite by a fully automatic
welding robot with an integrated measuring system. All CNC
programs are developed by our expert in-house programmers.
Synchronising the eight axes of the welding system represents
a particular challenge.

The three-dimensional measuring system allows the process valves
to be compared with 3D data, which is subsequently evaluated and
saved on a PC. The measurements are carried out directly in the
machine to ensure reliable production processes.

Every ZETRIX® process valve is leak-tested according to
DIN EN 12266. The test pressures and times are stored on
our computer aided test bench. Special tests can also be
performed at the customer’s request.
Your strong partner – in more than 60 countries worldwide

For control – isolation – safety – steam trapping – application technology.

Technology is our life
Highly qualified ARI engineers develop products for tomorrow’s world using the very latest techniques. Our suppliers are selected according to the strictest possible criteria, to ensure that only premium quality materials are used. Our state-of-the-art production technologies leave no room for mistakes.

Thanks to our dense sales network, expert advice is available from a sales partner close to you in more than 60 countries worldwide as well as from ARI branches in Austria, Denmark, the UK, France, Spain, Italy, Russia, the USA, Brasil, India, China, Malaysia, Singapore and Dubai.

Are you a professional user of high-quality, heavy-duty valves? Would you like to reap the benefits of a strong partner? Our mission is to help you maximise your profit.

Tailor-made solutions
20,000 products in more than 200,000 variants mean almost unlimited possibilities depending on your application, with solutions specially tailored to your individual requirements.

Control valves, pressure reducing valves, pressure regulators, temperature controllers without auxiliary power, butterfly valves, globe valves, safety valves, steam traps, measuring technologies and accessories such as pressure reducing stations, heat exchangers, condensate return systems and condensate pumps – your key to maximum flexibility and efficiency.

Quality that pays off
Our continuous quality monitoring throughout all phases of the production process is documented in some twenty system approvals from acceptance bodies and classification societies like Det Norske Veritas, Lloyd’s Register Quality Assurance, German Lloyd, SELO (China), CCS (China), the Korean Register, the Russian Maritime Register of Shipping, TR CU (EAC), Rostechnadzor (Russia) and many more.

Quality made by ARI – your key to reliability, durability and guaranteed safety.
Profit from diversity made by ARI. Please don’t hesitate to ask for more information!

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