ZERO LEAKAGE
TRIPLE OFFSET VALVES
THE KNOW HOW

TURNING AN IDEA INTO A NEW CATEGORY OF VALVES

VANESSA WAS THE FIRST COMPANY IN THE WORLD TO INTRODUCE A TRIPLE OFFSET VALVE WITH TRUE ZERO LEAKAGE* PERFORMANCE, CREATING A NEW INDUSTRY CATEGORY USING A TECHNOLOGY NOT PREVIOUSLY AVAILABLE WITH OTHER STANDARD QUARTER TURN VALVES.

Our triple offset design completely eliminates any rubbing action of the sealing elements during the 90 degrees of rotation, positioning Vanessa as the ultimate process valve. Based on these new and revolutionary concepts, we have achieved worldwide success across the Oil & Gas, Process and Power industries.

If you ask one of our customers the reasons why they choose us, you are likely to hear a recurring word: ‘reliability’. Our engineering expertise, state-of-the-art technology and manufacturing capabilities ensure we continue to provide the most reliable triple offset valves across a wide range of applications for our customers worldwide.

DESIGNED TO DELIVER BETTER PERFORMANCE.

Vanessa was a pioneer in the use of 3D Cad, Finite Element Analysis and Computational Fluid Dynamic calculations to design a valve capable of delivering better performance engineered in the most efficient way.

The complex geometry of Vanessa valves requires precision engineering and using advanced technology for fixture tooling and inspection equipment. 3D measuring machines are used to check body and discs with tolerances in the order of fractions of millimeters to be verified and validated during different stages of manufacturing.

These advanced tools have allowed us to continuously improve the product design, enhance robustness, ensure long term durability and adapt the valve to provide the best-fit solutions to our customers.

* Zero Leakage means no visible leakage when tested at high pressure with water and low pressure with air according to existing international standards.

’We have been using Vanessa Triple Offset valves in our Tank Farms & Offshore facilities for the past ten years for all of our five expansion phases and have found their performance to be extremely satisfactory.’

Terminal Manager
Major O&G End User
THE VANESSA TRIPLE OFFSET VALVE HAS BECOME A MARKET LEADER THANKS TO ITS UNIQUE SEALING ELEMENTS WHICH ALLOW TRUE ZERO LEAKAGE ACROSS A WIDE RANGE OF PRESSURE CONDITIONS.

THE TRIPLE OFFSET CONCEPT

THE VANESSA CONE-TO-CONE SEALING MECHANISM IS ACHIEVED BY QUARTER TURN ROTATION AND IS BASED ON THREE OFFSETS WHICH ELIMINATE ANY RUBBING THROUGHOUT THE 90° ROTATION:

OFFSET 1 The shaft is placed behind the plane of the sealing surface. The purpose of this offset is to have a continuous seat path.

OFFSET 2 The shaft is placed to one side of the pipe / valve centerline. The purpose of this offset is to allow the displacement of the seal from the seat during the 90° opening.

OFFSET 3 The seat and seal cone centerlines are inclined in respect to the pipe / valve centerline. This third offset completely eliminates rubbing.
THE VANESSA TRIPLE OFFSET VALVE HAS BECOME A MARKET LEADER THANKS TO ITS UNIQUE SEALING ELEMENTS WHICH ALLOW TRUE ZERO LEAKAGE ACROSS A WIDE RANGE OF PRESSURE CONDITIONS.

The standard Vanessa seal ring is manufactured from Duplex stainless steel while the body seat is a weld overlay of Stellite® grade 21, which ensures durability and protects the seat from potential damage caused by extended usage. Differently from ball and butterfly valves (position-seated), Vanessa is torque-seated. Due to the elasticity and the radial compression of the seal ring, the contact pressure is uniformly distributed around the seating surface guaranteeing true zero leakage.

Every Vanessa valve is tested for zero leakage on multiple test benches that allow ‘open face’ testing with controlled torque. The visual inspection of the valve sealing surfaces under pressure ensures there is no possible leakage, even during the relatively short duration of the test imposed by international standards.

‘We hereby certify that the performance of these valves is excellent and can be used for such critical applications [VCM, EDC, HCI, Coke particles] in any other chemical / petrochemical plant.’

Senior Manager  PVC/VCM
Major Petrochemical End User

* Stellite® is a registered trade name of Deloro
THE SOLUTIONS

A PREMIUM QUALITY VALVE THAT MINIMIZES YOUR COST OF OWNERSHIP

YOU WOULD NOT USUALLY ASSOCIATE A PREMIUM PRODUCT WITH COST SAVINGS. HOWEVER, THE REALITY IS QUITE DIFFERENT WITH VANESSA VALVES.

In fact, our customers regularly replace existing gate, ball and globe valves achieving substantial reduction of space and weight, while benefitting immediately from lower installation costs.

Vanessa triple offset valves provide the ideal solution for all applications where positive isolation is required. The quarter turn design and very low running torque also allow for accurate flow and pressure control, with the Vanessa valve providing true isolation and control capabilities in a single product against the usual need for two distinct valves. Low torque also means low cost of actuation.

So what happens when you install and start operating the valve? Vanessa is designed to be virtually maintenance free and does not require planned maintenance in most applications, providing extra cost savings across its lifecycle.

SAFELY REPLACE YOUR EXISTING VALVES WITH VANESSA.

Replacing an existing valve can be a necessity but also a strategic choice. Vanessa valve’s bi-directional zero leakage and inherently fire safe design allows our customers to easily replace gate, ball and globe valves and, with our long face-to-face valves (designed in accordance to ASME B16.10), this operation can be carried out without the need of any piping modification.

Using Vanessa can also contribute to reducing systemic failures thereby improving the overall Safety Integrity Level (SIL); in fact using triple offset valves with an appropriate actuator selection it is possible to configure the product to assist the required protective function.

'We have several hundred Vanessa Triple Offset Valves operating in molecular sieve service and these have been working very effectively since initial installation four years ago [...] Triple Offsets are now our standard for valve type for this difficult duty and we are more than happy to recommend them to other users'.

Engineering Manager
Major Process Licensor
'Your team demonstrated a great capability to adjust and deal in a very professional way with very tough constraints.'

Senior Instrumentation Engineer
Major Chemical & Petrochemical End User
WE CAN DELIVER: LARGE SCALE MANUFACTURING IN ACTION

WITH OUR HISTORY OF CONSISTENT GROWTH OVER THE YEARS, WE HAVE EXPANDED OUR MANUFACTURING FACILITIES SEVERAL TIMES AND NOW VANESSA OCCUPIES A 50,000 SQUARE METER SITE AND IS CAPABLE OF PRODUCING OVER 30,000 VALVES PER YEAR.

There is also a separate production facility based on Advanced Flow Manufacturing technology producing up to 1,000 valves per month (sizes 3” to 24”) to delivery times as short as four weeks.

Besides a proven track record of delivering outstanding products for decades to hundreds of satisfied customers, our high quality standards are acknowledged by certifications including ISO 9001, ISO 14001 and OHSAS 18001.

Furthermore, through the introduction of rigorous manufacturing methodologies such as ‘Lean’ and ‘Six Sigma’, we are committed to operational excellence and high integrity processes throughout our business.

Valves of all sizes and ratings can be tested with helium in one of our cryogenic testing facilities. The largest of these fully computerized testing facilities is equipped with a 20 ton crane, a 30,000 liter liquid nitrogen tank and cameras to ensure operation and control in total safety.

A WORLDWIDE IN-HOUSE SUPPORT FOR OUR CUSTOMERS.

Our goal is to ensure that our customers receive services matching the same outstanding level of quality we deliver through our products.

As part of an international group Vanessa has a truly global presence through a network of sales offices, service centers, valve automation centers and local inventory.

This is extended to training and service operations in all the major industrial markets allowing us to look after our customers throughout a valve’s lifecycle.
ONE PRODUCT, HUNDREDS OF APPLICATIONS

OVER 300,000 VANESSA VALVES ARE SUCCESSFULLY INSTALLED WORLDWIDE ON A WIDE RANGE OF APPLICATIONS INCLUDING OIL & GAS, POWER, PROCESS AND MANY OTHER DEMANDING INDUSTRIES.

From cryogenic up to extremely high temperatures, we offer solutions to critical and non-critical applications ensuring the highest reliability and, more importantly, total safety of your facilities.

Suitable from full vacuum to 250 bars, Vanessa valves are available in sizes between 3” and 140” and can be configured in wafer, lug, double flanged and butt weld body styles across virtually all bills of materials. Our valves handle fluids ranging from H2 gas to high viscosity liquids, from food grade to toxic and corrosive. The most common process functions are:

- Isolation
- Flow & pressure control
- ON-OFF
- Switching
- Emergency / safety operations
- HIPPS
- Major equipment protective function, including:
  - Turbine backflow
  - Turbine supply & bypass
  - Compressor blow-off & anti-surge

For detailed technical information about our products, visit our online catalog at: www.vanessavalves.it/catalog