

A safer, more reliable solution for the most corrosive applications



Neotecha NXR
PFA lined ball valve



The NXR PFA lined ball valve represents a significant step forward in providing a safe and reliable solution for highly demanding corrosive applications.





Lined ball valves have historically been prone to fugitive emissions and failure in corrosive conditions

When you operate in demanding environments involving high temperatures and high pressures, corrosion can have a dramatic effect on the performance and inherent safety of your valves. Lined ball valves, in particular, have traditionally been liable to leak and fail, resulting in the potential of expensive fines and unscheduled plant shutdowns. That was until Emerson developed the Neotecha NXR - the lined ball valve solution that redefines safety and reliability.

Consider your fugitive emission problems solved with the Neotecha NXR

Plant operators are liable to be fined if their valves don't meet the latest standards governing fugitive emissions.

Solution:

Neotecha NXR complies with international fugitive emissions standards.

No one understands how vital it is for valves to satisfy fugitive emissions regulations more than Emerson. We recognize how strictly these are enforced in the US, by the Environment Protection Agency (EPA), and how global operators potentially face large fines for valve leakages. Which is why the Neotecha NXR is engineered to meet every major standard, from TA Luft VDI 2440 to ISO 15848-1 BH C01.

Leaking valves require immediate maintenance to address potential hazards.

Solution:

A valve with no maintenance required.

At Emerson we recognize how destructive leaking valves can be on both your plant and the bottom line. Unscheduled maintenance, process inefficiencies and unplanned shut-downs can have a major impact on your production capability. To combat this, the Neotecha NXR has a one-piece ball stem eliminating any lining damage between the ball and stem. Compare this to a conventional floating ball valve with a two-piece ball stem, where torque transfer via the lining will invariably develop a lining weakness and result in premature valve failure.

Thermo cycling valves increases the fugitive emission rate due to stem leakage.

Solution:

A mechanically activated stem seal, which requires no maintenance or adjustment.

A spring set consisting of Belleville washers applies constant pressure to the stem seal, allowing the seal to expand at elevated temperatures and shrink at cold temperatures. For increased safety there is a secondary seal within the lined environment and a dirt excluder to make sure external debris can not affect valve performance.

Pipes and valves leak due to the stress caused by thermal expansion or misalignment.

Solution:

Deal with the stress that leaves other valves leaking.

An offset body split and metal-to-metal contact enables the Neotecha NXR to handle any pipe stress that may result from thermal expansion or piping misalignment. This prevents any leakage across the body split and stem seal reducing potential hazards due to fugitive emissions. In fact the patented body split design allows the PFA to expand at elevated temperatures and regain its shape when cooling down.



Take a detailed look at the next step in ball valve reliability

The Neotecha NXR is the latest addition to a portfolio of lined products that are trusted around the world for their performance, quality and fugitive emissions. Neotecha PTFE, TFM and PFA lined valves are designed specifically for highly corrosive media. And as extreme conditions and compliance requirements continue to place ever greater demands on operators, Emerson is now rising to the challenge with a host of innovative solutions to today's pressing ball valve issues.

Benefits of the Neotecha NXR

Maintenance free spindle seal.

The Neotecha NXR's patented spindle seal design is mechanically activated, so as well as being fugitive emission certified to TA Luft and ISO, it does not require any maintenance or adjustment.

Metal-to-metal body seal.

The patented body seal design has a metal-to-metal body split, which is balanced against expansion over the full temperature range.

One-piece ball-stem eliminates lining damage.

The NXR's one-piece ball-stem design eliminates any lining damage between shaft and ball during torque transfer. In combination with the increased maximum allowable shaft torque (MAST) this provides a much safer operation and improves valve life cycle.

Conductive liner for increased safety.

A conductive lining option is available creating a conductive connection between process media and the valve body. This avoids build up of any electrical potential caused by friction of the media against the valve surface.

Lower torque and higher MAST for increased safety.

The NXR is a much safer valve thanks to its combination of reduced operating torque and improved stem material. The strengthened stem improves the Maximum Allowable Shaft Torque ratio, providing a safer operation and allowing a wider range of actuator selection.

Preloaded ball seal.

The preloaded ball seal keeps the ball always in contact with the upstream and downstream seal. It prevents any particle penetration and therefore extends valve life cycle.

Anti-blowout spindle design.

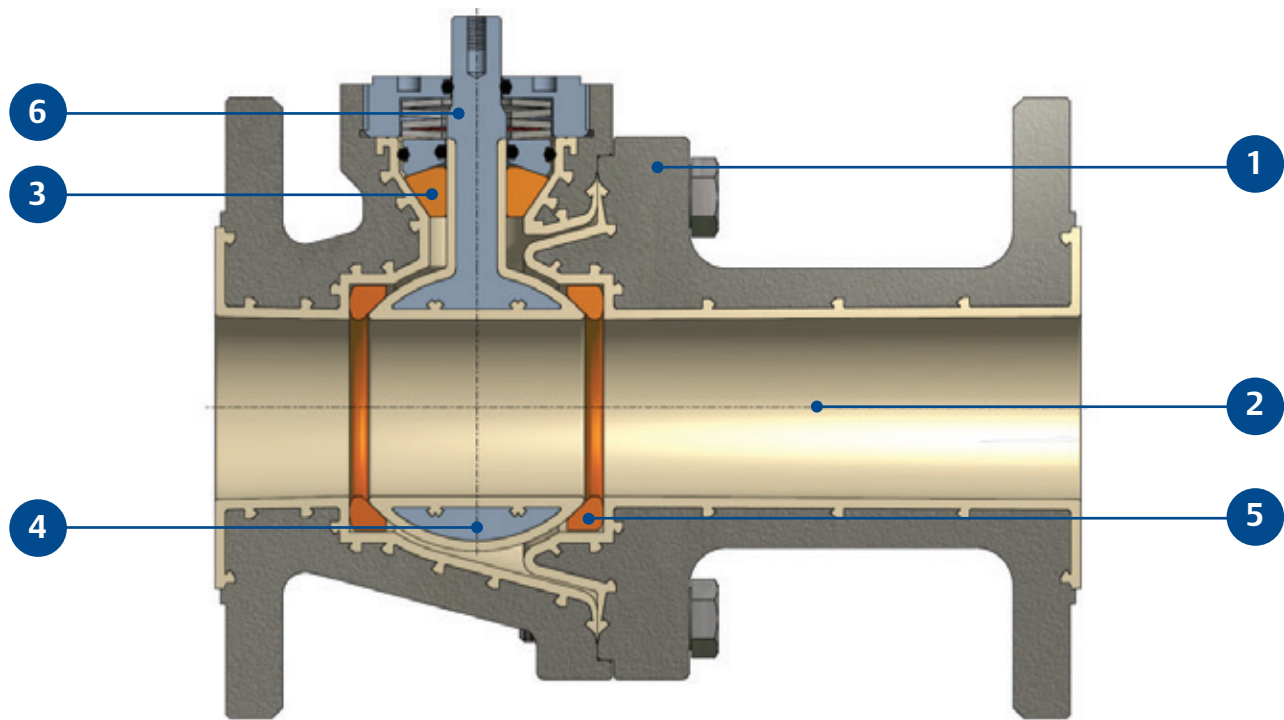
The one-piece ball stem is fully lined up to the second spindle seal, limiting any potential corrosion. The ball stem is designed to prevent the possibility it can eject from the valve. Should any corrosion occur, causing the spindle to separate from the ball, the design ensures that the spindle is kept within the valve body.

Offset body reduces potential leak paths.

To reduce the possibility of Fugitive Emissions further, the offset body split design ensures the body seal is separated from the stem seal area at all times, removing a potential leak point.

NEOTECHA™

Neotecha NXR Key Features



Key: 1. Body 2. Liner 3. Stem seal 4. One-piece ball-stem 5. Seats 6. Anti blow-out stem

Design Feature	Advantage	Benefit
Sophisticated and innovative spindle seal arrangement	Mechanically activated	Minimizes spindle seal emission Maintenance free
	Primary and secondary sealing	Increased safety Proven design in accordance to the latest industrial standards
	Dirt excluder	Keeps valve internals free from external environment
Innovative body split sealing	Metal to metal body connection	Transfers pipe stress without affecting valve performance
	Patented expansion compensation	Minimizes body seal emission at fluctuating temperatures
Blow out proof shaft design at dry side	Corrosive media has no effect on blow out proof provision	Fail safe blow out proof shaft design
One-piece ball-stem design	Torque transfer via metal core, eliminating lining damage between spindle and ball	Increased safety and extended cycle life
	Increased MAST values	Increased safety factor for automated service



Innovative Technology

The NXR ball valve incorporates several innovative and patented design features which deliver significant improvements in performance and safety for lined valve applications.

Body

The main body and adapter are made from ductile iron allowing the metal to metal body seal. The bodies have an exterior coating for robust corrosion protection.

Liner

The homogeneous PFA liner is 3mm thick, void of any pinholes and is spark tested at 30,000 volts. It provides dependable protection against diffusion and corrosion.

The liner is locked to the casting using machined dovetails in the casting which allows the valve to be used on high vacuum and elevated temperatures without the risk of liner collapse.

Stem seal

A set of Belleville disc springs exert uniform loading on the packing, resulting in a maintenance free operation. The flexible and corrosion resistant TFM packing ensures a leak free stem seal which is ISO 15848-1 approved.

One-piece ball-stem

The one-piece ball-stem allows direct torque transfer and no hysteresis. The energized spindle seal is kept in constant contact with the ball under all operating conditions reducing wear and tear on the seats and increasing operating life.

Seats

The energized valve seats ensure both up stream and down stream sealing with constant and low operating torque.

Anti blow-out stem

The blow-out proof stem is in compliance with API 609 and is located on the dry side of the stem packing providing optimum safety even in highly corrosive applications.

Specifications

Size Range

DN 15, 20, 25, 40, 50, 80, 100, 150

NPS ½, ¾, 1, 1 ½, 2R, 3R, 4R, 6R

Note: NPS 2R, 3R, 4R and 6R are all reduced bore.

Flange Connection

DIN PN16

ASME 150

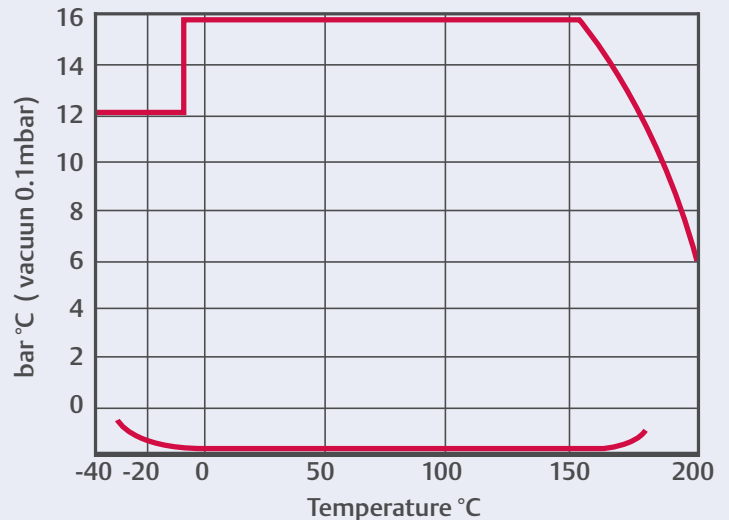
Face-to-face

DIN EN558, row 1

ASME B 16.10

DIN and ASME face to face dimensions allow easy replacement of plug and diaphragm valves.

Pressure / Temperature Range



Complete automated valve solutions from a single source

There is no need to juggle with multiple vendors or the complexities of valve integration. Emerson can supply you with the fully engineered, integrated and configured automated NXR valves you demand, from a single source.

Consider the advantages of a single supplier:

- Emerson will manage, administer and produce your automated NXR valves as 'products' and not packaged components
- Emerson manufactures all its components. This makes us totally responsible and accountable for the solutions we supply, irrespective of the parts we integrate into each product
- Having one supplier minimizes risk and commissioning complexities, while also ensuring on-time delivery and project certainty

Established brands

As part of our unrivalled automated valve solutions offering, Neotecha valves are supplied with products from leading brands such as Keystone pneumatic actuators, Fisher positioners, TopWorx switchboxes and ASCO solenoid valves.

**Global Isolation Valve
Headquarters**

Neuhofstrasse 19a
P.O. Box 1046 CH 6340 Baar,
Switzerland
T +41 41 768 6111

**North American Isolation
Valve Headquarters**

19200 Northwest Freeway
Houston, Texas, 77065
United States
T +1 281 477 4100

**Emerson Automation Solutions
World Area Headquarters**

Asia Pacific
1 Pandan Crescent
Singapore 128461
T +65 6777 8211

Europe
Neuhofstrasse 19a P.O. Box
1046 CH 6340 Baar,
Switzerland
T +41 41 768 6111

Latin America

1300 Concord Terrace Suite 400
Sunrise, Florida 33323,
United States
T +1 954 846 5030

Middle East & Africa

Emerson FZE P.O. Box 17033,
Jebel Ali Free Zone - South 2,
Dubai, United Arab Emirates
T +971 4 8118100

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