Magnetic Wafer Non-Return Valve
MWNRV

FINE CHEMICAL
PHARMACEUTICAL
BIOTECHNOLOGY
FOOD
VACCUM SYSTEMS
GENERAL PURPOSE

COMPRESSED AIR
OIL AND GAS
COSMETICS
SPECIAL APPLICATION
WATER TREATMENTS

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Wafer non-return valve

This MWNRV wafer non-return check valve is based on the latest technology available, this results introducing innovation and simplicity to the world of non-return/unidirectional valves. The MWNRV wafer non-return check valve design is based on the principle of an external magnetic field to interrupt the backflow inside a tube by means of a shutter. This innovative idea guarantees a level of sterility and cleanability which no other classic spring check valve can offer. As a matter of fact, using a check valve which excludes and completely substitutes the use of the classic spring and as a result any contact with the process fluids, so total cleanability is guaranteed by design.

Working principle

The MWNRV wafer non-return check valve opens when the inflow pressure exceeds the outflow and the magnetic field pressure combined. The valve closes when the difference in pressure ceases, and a higher backpressure pushes the check valve shutter against the seal.

The major difference between a traditional spring check valve and the innovative MWNRV wafer non-return check valve is in the very low resistance and delta pressure generated by the shutter into the line. While a traditional spring valve when open, offers the maximum resistance to the fluid, because the spring is at maximum compression, the MWNRV wafer non-return check valve shutter offers a minimum resistance to the fluid, because it is far from the magnetic field and therefore has a minimal closing force.

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Technical features

The differential pressure required to open the check valve in a horizontal position is 0.05 bar; this differential pressure tends to zero when the check valve is open and therefore operational losses of energy are almost zero

Advantages

Absence of vibrations

This innovative idea is especially advantageous in plants where the fluid is compressible (such as GAS) or when the fluid is at a low pressure: as a matter of fact the Wafer valve stays open with a minimal differential pressure, thus avoiding the vibrations (shattering) typically to spring valve where the differential pressure to keep the valve open is at a maximum

Energy saving

The MWNRV wafer non-return check valve allows a very smooth fluid flow with consequent minimal energy/pressure loss.

Laminar Flow

The designed features of the shutter and the valve body are aimed at optimizing the flow and reducing turbulence to a minimum.

Cleanability

Only the shutter is in contact with the fluid while the valve is in operation, so there are no zones of stagnation.

No moving parts

The MWNRV wafer non-return check valve has no piston, no spring or seat guidance, therefore no friction on metal internal parts which can result to process contamination.

Installation Position

The wafer non-return check valve can be installed in any position

Characteristics

Valve materials

The MWNRV wafer non-return check valve components which are in contact with the process fluid are made of stainless steel AISI 304 or AISI 316L, while the shutter is made in DUPLEX: a special material with ferromagnetic characteristics. Other materials of construction are available on request

Size

DN 15 up to DN 300 Mounted on Flange UNI DIN PN 6, 10, 16 ANSLB 16, 1 class 125, 150.

Working pressure

Max working pressure up to 40bar

Surface Finish

- Standard Internal surfaces finish Ra≤0.8µm, Ra≤0.4µm and other surface finishes are available on request
- Standard External surface finish Ra≤1.2µm, Ra≤0.8µm, and other surface finishes are available on request

Seal

Seal O-Ring is available in the following materials

- EPDM
- NBR
- FPM (Viton)
- Silicone
- FEP

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