

## ISO FE Series

The New Valve Technology for maximum leak tightness demands



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**Rising energy consumption, dwindling natural resources and the increasingly stringent legal requirements force the industry to rethink and employ emission-reducing equipment. This also applies to the instrumentation valves and manifolds range.**

As response to the current and especially the future market demands, AS-Schneider, in the framework of the new ISO FE Series, has developed an innovative valve technology meeting the highest tightness class "A" of ISO 15848-1. With a maximum permissible leak rate of  $1.3 \cdot 10^{-7}$  mbar • l/s (for a stem diameter of 7.5 mm), this class even exceeds the requirements of TA-Luft.

### Differences between ISO 15848 and TA-Luft

#### ISO 15848

In the framework of ISO 15848 "Industrial valves – Measurement, test and qualification procedures for fugitive emissions" the entire industrial valve, including the body seals, will be subjected to type testing.

The ISO type test classifies the complete industrial valve into a pressure, temperature, endurance and tightness class.

The requirements of the ISO type test are very specific and detailed and as a result, the test duration for a complete ISO 15848 type test takes 1 to 2 weeks.

ISO 15848 "Industrial valves – Measurement, test and qualification procedures for fugitive emissions" consists of 2 parts:

##### Part 1:

Classification system and qualification procedures for type testing of industrial valves: A distinction is made here between 3 tightness classes: A, B and C. Class A having the smallest environmental leakage.

##### Part 2:

Production acceptance testing of industrial valves: Only the products that have successfully completed the first part of the test may be subjected to this test. Leakage is tested at room temperature without mechanical effects utilising a helium leak detection test.

#### TA-Luft

TA-Luft only deals with the sealing system of the stem passage. The manufacturer declaration is sufficient for verification.

The TA-Luft test qualifies only a "high-quality sealing system". TA-Luft is considered to be complied with if metal bellows with a safety packing or similar sealing systems are used; whereby the equivalence in the verification system must be confirmed in accordance with VDI 2440.

The requirements of TA-Luft are very general. The test duration for a TA-Luft test therefore normally does not take longer than 1-2 days. There is neither a requirement as to the number of mechanical cycles nor the number of thermal cycles.

Many seal manufacturers like to advertise with "TA-Luft packings". Simply using "TA-Luft packings" of this type does not guarantee long-term leak tightness. Too many other factors play a significant role in a sealing system. These include, for example, the stem surface finish and the gap dimensions between the gland and the stem.

# Classification according to ISO 15848

Industrial valves inspected according to ISO 15848 are identified with the categories achieved. The following table provides you with an overview of the possible classification using the ball valve data of the AS-Schneider ISO FE Series:

Example: Ball Valve AS-Schneider ISO FE Series	ISO FE	A H	CO3	SSA 2	t (-29°C, 200°C)	PN 420	ISO 15848-1
<b>Tightness class</b>							
A $\leq 10^{-6} \text{ mg} \cdot \text{s}^{-1} \cdot \text{m}^{-1} = 1,4 \cdot 10^{-7} \text{ mbar} \cdot \text{l/s}$ (Spindel- $\varnothing$ 8mm)							
B $\leq 10^{-4} \text{ mg} \cdot \text{s}^{-1} \cdot \text{m}^{-1} = 1,4 \cdot 10^{-5} \text{ mbar} \cdot \text{l/s}$ (Spindel- $\varnothing$ 8mm)							
C $\leq 10^{-2} \text{ mg} \cdot \text{s}^{-1} \cdot \text{m}^{-1} = 1,4 \cdot 10^{-3} \text{ mbar} \cdot \text{l/s}$ (Spindel- $\varnothing$ 8mm)							
<b>Test fluid</b>							
H Helium gas – Tightness class AH, BH, CH							
M Methane gas – Tightness class AM, BM, CM							
<b>Endurance classes (mechanical and thermal cycles)</b>							
Isolation valves							
CO1 = 500 mechanical / 2 thermal cycles							
CO2 = 1,500 mechanical / 3 thermal cycles							
CO3 = 2,500 mechanical / 4 thermal cycles							
Control valves							
CC1 = 20,000 mechanical / 2 thermal cycles							
CC2 = 60,000 mechanical / 3 thermal cycles							
CC3 = 100,000 mechanical / 4 thermal cycles							
<b>Number of stem seal adjustments (Packing)</b>							
SSA 0 = None, SSA 1 = One adjustment, SSA 2 = Two adjustments							
A maximum of one adjustment is accepted for CO1, two for CO2 and three for CO3							
<b>Temperature class</b>							
Qualified temperature range							
<b>Test pressure</b>							
According to PN or ASME Class rating							

# Features of AS-Schneider ISO FE Series



## Key Benefits of AS-Schneider ISO FE Series 'Screwed Bonnet'

- High wear resistant, hard coated stem thread.
- Non-rotating stem for low actuating forces and minimum wear of the sealing elements.
- Special thrust bearing of the stem/valve tip connection to absorb highest stem forces.
- Non-wetted parts in 316 stainless steel for operation in corrosive environments.
- Economic alternative to bellows sealed valves.
- Colour coded dust cap for operating thread protection.

AS-Schneider E Series **Needle Valves and Manifolds with Screwed Bonnet** are available in 2 tried-and-tested designs. Pressure rating 420 bar / Class 2,500 applies to all types:

AS-Schneider Type	Sealing system	Performance data
ISO FE Type 1	FPM O-ring + graphite packing	Class A: 500 cycles / -29°C to 200°C Class A: 1.500 cycles / -29°C to 40°C Class B: 1.500 cycles / -29°C to 200°C
ISO FE Type 3	PTFE / carbon-filled PTFE	Class A: 1.500 cycles / -29°C to 40°C Class B: 1.500 cycles / -29°C to 200°C



AS-Schneider **Needle Valves, Monoflanges etc. with OS&Y Bolted Bonnet** are available in 2 tried-and-tested designs. Pressure rating 420 bar / Class 2,500 applies to all types

AS-Schneider Type	Sealing system	Performance data
ISO FE Type 1	FPM O-ring + graphite packing	Class A: 2.500 cycles / -29°C to 40°C Class A: 500 cycles / -29°C to 200°C Class B: 2.500 cycles / -29°C to 200°C
ISO FE Type 3	PTFE / carbon-filled PTFE	Class A: 2.500 cycles / -29°C to 40°C Class B: 2.500 cycles / -29°C to 200°C

### Key Benefits of AS-Schneider ISO FE Series 'Bolted Valve Head Units for Needle Valves and Ball Valves'

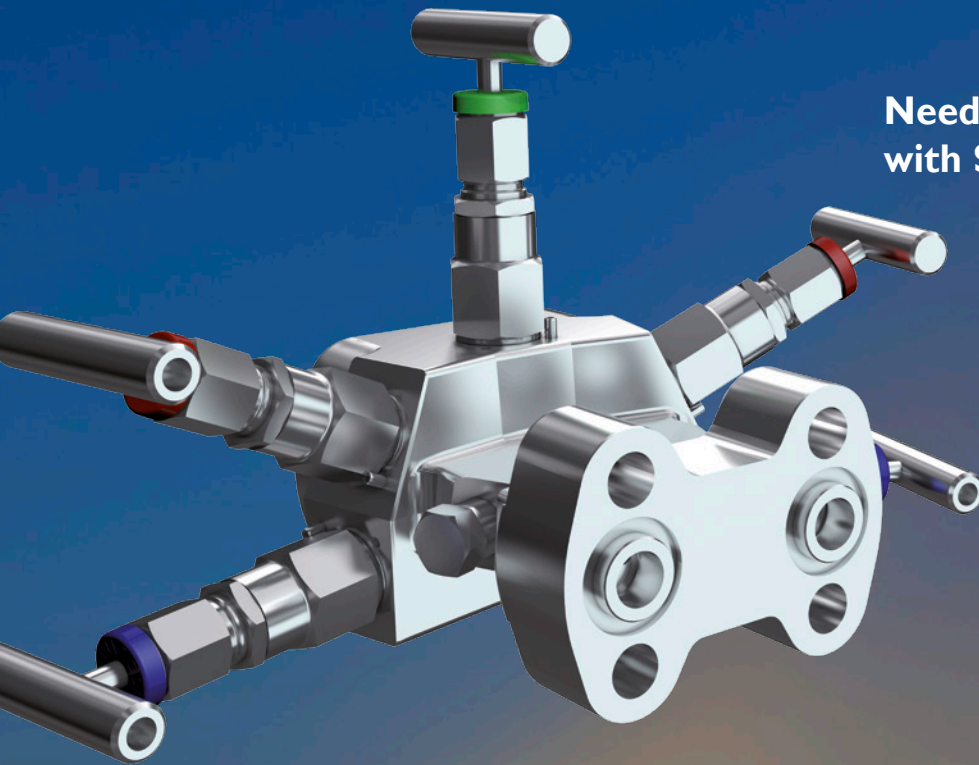
In principal same design as Screwed Valve Head Unit, but the OS&Y Needle Valve is additionally equipped with spring washers for compensation of thermal expansion.



AS-Schneider **Ball Valves** are available for a pressure rating of 420 bar / Class 2,500.

Sealing system	Performance data
FPM O-ring + graphite packing	Class A: 2.500 cycles / -29°C to 200°C

# The ISO FE Series at a glance



**Needle Valves and Manifolds  
with Screwed Valve Head Unit**

**Ball Valves and VariAS-Blocks  
with Bolted Valve Head Unit**



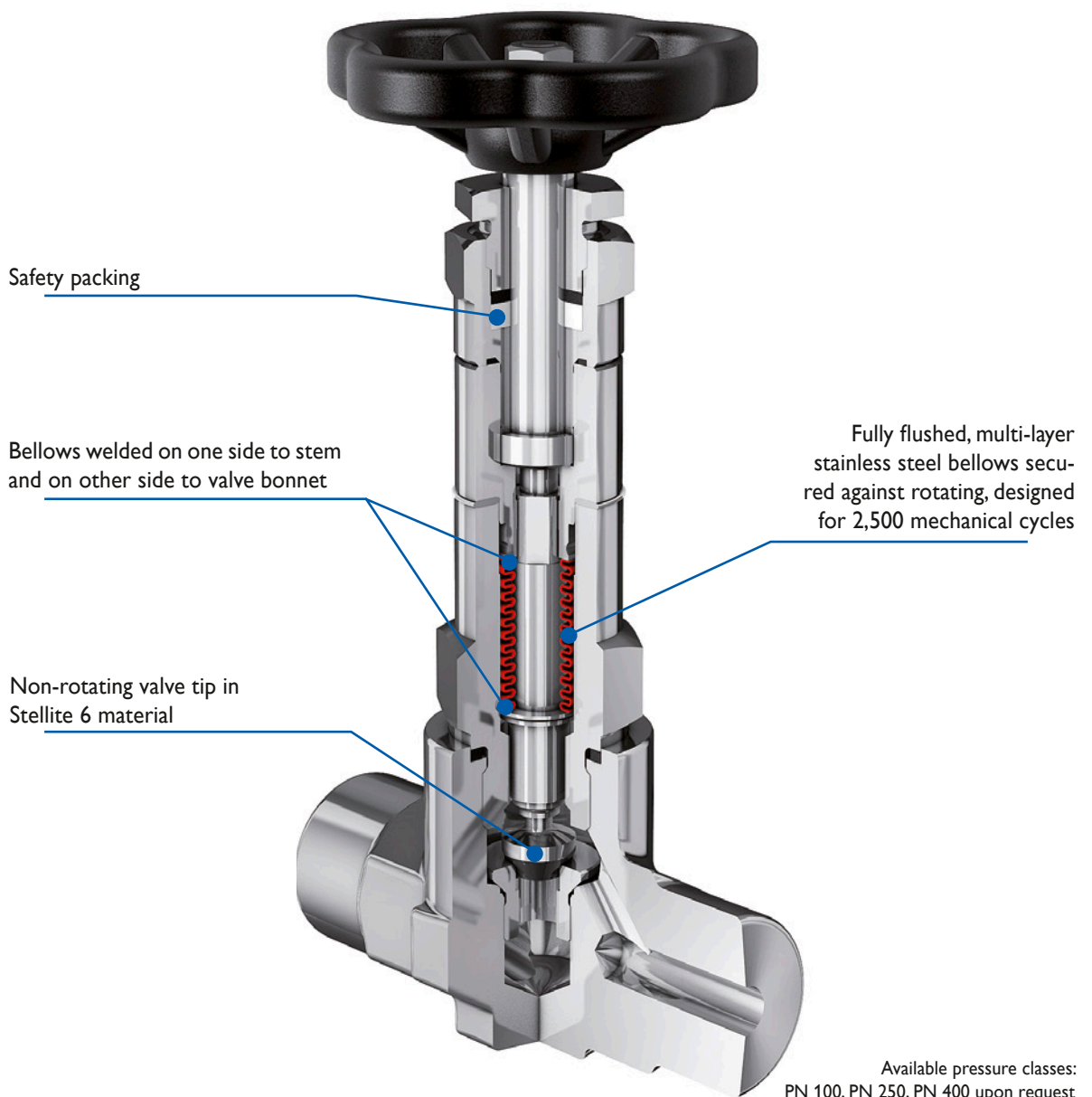
**Needle Valves, Monoflanges  
etc. with OS&Y Bolted Bonnet**



# Bellows Sealed Valves – "technically leakproof" solution

With very hazardous media even a minimal leak rate can be too great. In cases like these, you can use tried and tested AS-Schneider Bellows Sealed Valves.

To move the valve stem upwards and downwards without leaks, a multi-layer, metal bellow is used that is welded on the one side to the stem and on the other side to the valve bonnet. Therefore a leakage along the valve stem is not possible.



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