Sealschur

The AVK Penstock Range
The AVK Sealschur Penstock range are designed to compliment our existing Water and Sewage offering.

The range, from 100mm to 3000mm, is suitable for wall or channel rebate fixing with either rising or non-rising stems and with operation by either manual or power actuation. Larger sizes are manufactured to suit customer requirements, whilst sizes 100mm to 600mm with cap tops and non-rising stems are available from stock.

The wall to frame joint is provided by an elastic seal which bonds to the frame for ease of installation and compensates for uneven walls between 3mm and 10mm of irregularity dependant on AVK Sealschur size.

Within the range of AVK Sealschur is the “Safox” range of Penstocks that offer a drop tight seal for critical installations, such as flood protection and pollution control.

High Quality Manufacture

Manufactured in Germany in an ISO 9001 production facility, the AVK Sealschur penstock range is designed using Finite Element Stress Analysis to ensure optimum rigidity and allowing for modelling that allows any undesirable deformation of the stem, frame or gate to be designed out pre-production.

Computer controlled laser cutting and the latest robotic welding machines ensures minimal waste material and correct welding processes - minimising deformation across the penstock. Using stainless steel grade 304 or 316Ti gives a strong robust product with ultimate surface protection, maximum corrosion resistance with low mass for ease of installation.

Quality & Testing

To ensure that the sealing of the penstock is within our manufacturing tolerance and within the British Standard BS7775 requirements, the penstocks are hydraulically batch tested for leak tightness and rigidity. The AVK Sealschur range achieves a sealing characteristic far superior to the British Standard requirements.

Finite Element Analysis (FEA)

All products are subject to FEA as part of their design. The pictures show typical information display during testing in a range of pressure conditions.
The AVK Sealschur AP3 penstock is a 3-sided sealing penstock perfectly suited to channel mounting applications.

Product Characteristics
The AP3 penstock comes in the size range 100mm to 3000mm and offers 3-sided sealing for use where operating heads are door depth maximum, making it the choice for channel mounting applications, either concreted into pre-cast rebates for new structures or sidewall fixed and concreted for existing structures. Conventional wall mounting at the end of channels with no fixings below the invert level are also available.

The AP3 is manufactured from stainless steel which is acid bath cleaned and passivated to ensure maximum corrosion resistance.

The sealing characteristics of the AP3 penstock are by far in advance of the requirements of BS7775, and wall fixing units come with an elastomer seal between the frame and wall ready bonded to the frame and will tolerate the following wall flatness tolerances:

- 300mm x 300mm aperture = 3mm
- 1000mm x 1000mm aperture = 5mm
- 3000mm x 3000mm aperture = 10mm

Where required, chemical anchor bolts can be supplied.

The AP3 penstock is also available with a rising or non-rising stem and a variety of actuation options.

Features:
- Leakage rate superior to BS7775 requirement.
- Stainless Steel construction.
- Standard size range 100mm to 3000mm.
- 3 sided sealing.
- EPDM seals.
- Elastic sealing between wall and frame.
- Bi-Directional sealing.
- Factory Set sealing wedges.
- Pressure tested.
- Stem Nut with integrated self-cleaning groove.

Options:
- Wall or Channel mounting.
- Upward and Downward opening.
- Non-rising or rising stem.
- Replaceable seals.
- Chemical Anchor bolts.
- Actuation packages (fixed or mobile, electric or pneumatic).
- Operating key.
- Stem cap.
- Hand wheel.
- Position indicator.
- Spindle extensions.
- Various pressure options.
- AP4 4-sided sealing option.
- High integrity version.
The AVK Sealschur AP4 Penstock

The AVK Sealschur AP4 penstock is a versatile 4-sided sealing penstock ideally suited for building in, but can also be used in wall fixing or channel mounting applications.

Product Characteristics
The AP4 penstock is available in size range 100mm to 3000mm and offers 4-sided sealing, with the invert and seal being suitable for building in and as bi-directional sealing against a 6 metre head with no fixings below the level of the invert.

When required, the AP4 can be supplied to withstand higher water heads. Sizes from 100mm to 600mm are available from stock with non-rising stems and to suit a duty of 6 metre on and 3 metre off-seating heads. For maximum corrosion resistance, the AP4 penstock is manufactured from Stainless Steel which is acid bath cleaned and passivated.

The sealing characteristics of the AP4 penstock are by far in advance of the requirements of BS7775, and are supplied with an elastomer seal between the frame and wall ready bonded to the frame and will tolerate the following wall flatness tolerances:
- 300mm x 300mm aperture = 3mm
- 1000mm x 1000mm aperture = 5mm
- 3000mm x 3000mm aperture = 10mm

Where required, chemical anchor bolts can be supplied.

The AP4 penstock is also available with a rising or non-rising stem and a variety of actuation options.

Features:
- Leakage rate superior to BS7775 requirement.
- Stainless Steel construction.
- Standard size range 100mm to 3000mm.
- 4 sided sealing.
- EPDM seals.
- Elastic sealing between Wall and Frame.
- Bi-Directional sealing.
- Factory Set sealing wedges.
- Pressure tested.
- Stem Nut with integrated self-cleaning groove.

Options:
- Wall or Channel mounting.
- Upward and Downward opening.
- Non-rising or rising stem.
- Replaceable seals.
- Chemical Anchor bolts.
- Actuation packages (fixed or mobile, electric or pneumatic).
- Operating key.
- Stem cap.
- Hand wheel.
- Position indicator.
- Spindle extensions.
- Various pressure options.
- AP3 3-sided sealing option.
- High integrity version.
The Safox© Penstock Range

Sealschur

The Safox range of penstocks from AVK is the premium penstock offering, giving full sealing characteristics in a number of installation options.

**Product Characteristics**

The Safox penstock is available in size range 150mm to 2200mm and offers full sealing for wall fixing for bi-directional duty up to 6 metre head with no fixings below the invert.

The Safox penstock offers superior sealing. Whilst leakage on penstocks is usually caused by insufficient frame stability and frame distortion, the patented Safox system is not affected by such instability due to the independence of the sealing from the frame. Due to this independence, the Safox perfectly seals to the mounting wall and sliding plate and can accommodate certain structural variations.

The freely suspended sealing ring is self adjusting and requires no adjustment after mounting.

Safox penstocks are non-drip leak proof on under seating and off seating heads up to 6 metre head. If required, the Safox can be supplied to withstand higher pressure.

The Safox F can be supplied with flange connection, and the Safox Q for quadrangular openings is also available.

When required, chemical anchor bolts can be supplied.

**Features:**
- Drip tight.
- Leakage rate superior to BS7775 requirement.
- Stainless Steel construction.
- Standard size range DN150mm to DN3000mm.
- Full circumferential sealing.
- EPDM seals.
- Elastic sealing between Wall and Frame.
- Bi-Directional sealing.
- Factory Set sealing wedges.
- Pressure tested.
- Replaceable seals.
- Stem Nut with integrated self-cleaning groove.

**Options:**
- Wall or Channel mounting.
- Upward and Downward opening.
- Non-rising or rising stem.
- Chemical Anchor bolts.
- Actuation packages (fixed or mobile, electric or pneumatic).
- Operating key.
- Hand wheel.
- Position indicator.
- Spindle extensions.
- Various pressure options.
- NBR Sealing.
- Rectangular opening available.

**Safox Installation:**

Images show the Safox penstocks installed in the Bayer sewage treatment plant in Germany. Nominal size is 1600mm in 1.4539 stainless steel.
Accessories
All the AVK Sealschur penstocks in the range can be supplied with operating and equipment and accessories to meet all the operating requirements.

Wireless Power Master
The latest development in valve monitoring technology is provided by the Wireless Power Master (WPM). WPM is an autonomous valve drive system that operates independently of public power and information networks that can offer remote monitoring and activation significantly reducing operating costs. The WPM offers:

- **Power Generation:** Fully autonomous, available with photovoltaic and/or wind generator.
- **Control:** Manual on-site or remote control at your facility.
- **Data-communication:** In GSM networks via SMS or email.
- **Data-backup:** All events are automatically saved.
- **Sensor specification:** Depending on specification sensors 4-20 mA or switches.
- **Alert messages:** To predetermined numbers e.g. control room, emergency call, police etc.

A full range of actuators also available including electrical, hydraulic and pneumatic.
The AVK Product Range - Complimentary Products

Series 41
AVK Resilient Seat
Metal Seat
Swing Check Valve
DN50-600mm, PN16
Ductile Iron
BS 5153:1974

Series 21/00
AVK Resilient
Seat Gate Valve
DN50-400mm, PN10/16/25
Grey Cast Iron
BS EN 1074-1 & 2,
BS 5163-1 & 2

Series 21/50
AVK Resilient
Seat Gate Valve
DN50-300
PN10/16
Ductile Iron
BS EN 1074-1 & 2
BS 5163-1 & 2

Series 21/01
AVK Resilient
Seat Gate Valve with
ISO mounting
DN50-400mm, PN10/16
Grey Cast Iron
BS EN 1074-1 & 2,
BS 5163-1 & 2

Series 641
AVK Recoil Swing
Check Valve
DN100-1600mm, PN16
Ductile Iron

Series 37/40
AVK Metal Seat
Gate Valve
DN50-300mm, PN10/16
Ductile Iron
BS 5163:1986 type B

Series 54
AVK Metal Faced Large
Diameter Gate Valve
DN50-2000mm, PN10/16/25
Ductile Iron
BS 5163

Series 701/73
AVK Automatic
Air Relief Valve
DN80mm, PN16
Cast Aluminium

Series 55/30
AVK Resilient Seated
Large Diameter
Gate Valve
DN450-600mm, PN10/16
Ductile Iron
BS 5163 type B

Series 701/70
AVK Combination Air
Relief Valve
DN80mm, PN16
Cast Aluminium

Series 702
AVK Knife Gate Valve
DN50-1000mm
Drilled to PN16
UT1 PN40
Grey Cast Iron
A full range of AVK products and other supporting documentation can be found at www.avkuk.co.uk