

# PENSTOCK VALVES

*Performance  
through  
Excellence*

***SLIDEGATES***

***PRECISION FACE  
SEALING VALVES***

***WEIR GATES***

***STOP LOGS***



# SLIDEGATES

**Actuation**

*Slide gate valves are designed for bulk fluid containment where on or off seat pressures occurs and drop tight closure is not essential.*

**Installation**

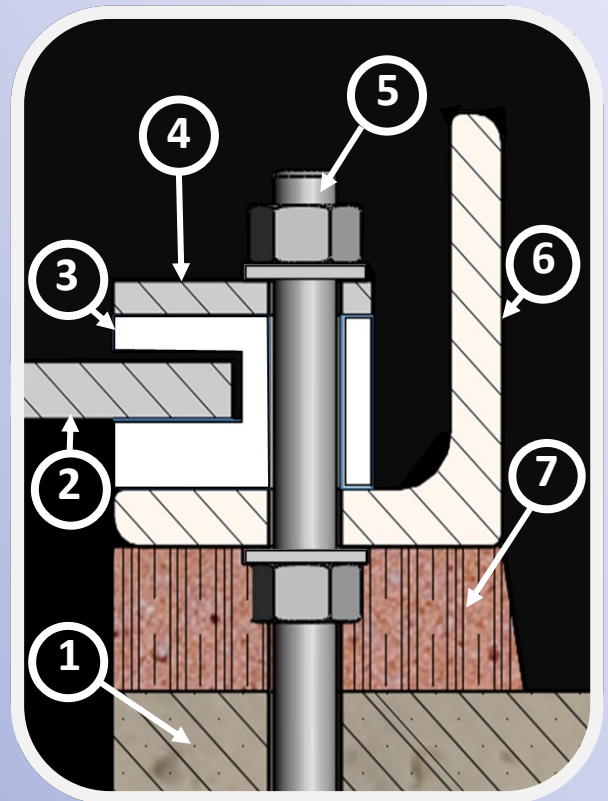
## Liquetec Slidegates Feature:

**Mounting**

- Water, sewage, effluent or pollution control.
- Purpose Designed to comply with project requirements
- Stainless Steel or Hot Dipped Galvanised Mild Steel
- Sized to fit an orifice from 150mm to 2500mm, round square or rectangular.
- Rising or Non-Rising Spindle

**Fastening**

Component	Material
1 Mounting Wall	Reinforced Concrete
2 Penstock Gate	316 or 304 Stainless Steel or other as specified
3 Gate Guide/Seal	U.H.M.W. Polyethylene
4 Gate Guide/Seal Cover Bar	316 or 304 Stainless Steel or other as specified
5 Frame anchor studs	316 Stainless Steel
6 Slidegate Frame	316 or 304 Stainless Steel or other as specified
7 Installation Masonry	Grout



**More info..**

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# LIQUETEC SLIDEGATES - GENERAL SPECIFICATIONS

## 1. Concept

Slide gate valves are designed for bulk fluid containment where on or off seat pressures occurs and drop tight closure is not essential.

Gate reinforcing, when required, is carried out in the horizontal direction only to allow the gate to conform to any vertical frame distortion created by headwall irregularities. These valves are supplied as a one piece integral unit for direct placement over pre installed wall anchors. Size range 150mm to 2500mm round, square or rectangular.

## 2. General

Gates, lifts, stems and accessories are of a design and material specification suitable for the application intended and are constructed of steel except for items specified separately.

## 3. Gate Seat and Angle Frame

The gate frame is of the flat back type. The gate, seat and angle frame is an integral part of structural shapes, assembled by welding to form the waterway opening. Slide angles, spacer bars and cover bars form guides for the slide, with holes provided for mounting the anchor bolts.

The gate frame cross section is designed to provide a slot width, giving a minor clearance over gate thickness.

The angle frame is self contained and furnished with an angle section head frame. The head frame is attached to the guide angles by two bolts per slide. All parts of the frame will withstand the thrust developed during gate operation under full head.

## 4. Gate slide

The gate slide is fabricated from steel plate, reinforced with horizontal stays of angle or channel section where required to limit deflection under full head to less than 1/360 of the span.

The slide is provided with a pocket attached by welding, to receive the stem. The pocket is capable of taking the full thrust developed during gate operation.

The gate slide will make uniform contact with the surface of the seal when it is closed, without causing damage to the seal material.

## 5. Flush bottom seal

The valves all carry a flush bottom seal which is securely fastened to the bottom cross member of the frame by bolts and a retaining plate.

The seal is of Flat Section black Neoprene and is removable without disturbing the concrete in the invert of the opening.

6. The frame seal face/bearing and gate spacer bars consist of U.H.M.W. POLYETHYLENE gauged flat bars drilled to allow fixing to the frame by the specified wall studs and nuts. These seat seal bars form a resilient seat with a very low coefficient of friction which greatly enhances operation of the valve.

## 7. Stem/Spindle

The valve stem is of grade 303/316 stainless steel and will withstand twice the force created by a 20 kg pull on the hand wheel providing that the stem travel nut is correctly positioned to prevent an over travel tendency of the gate slide when closed.

The threaded portion of the stem has an acme form – machine cut thread of left hand pitch to give clockwise closure. The bottom end of the stem is drilled to accept stainless steel clevis bolts.

The stem is supported by a nylon guide bush at the head frame elevation, and is flanged to ac-



# LIQUETEC SLIDEGATES - GENERAL SPECIFICATIONS

## CONTINUED.

### 8. Stem/Spindle Nut

The stem nut is of Gunmetal Bronze threaded to class 2A clearance – left hand Acme form.

Stems should be specified as Rising or Non Rise type. Preference is for rising type where stem and nut are free from contamination from the medium being controlled and are readily available for maintenance inspection and servicing.

### 9. Lifts/Actuation

#### 1.1 Hand wheel Operator

Manual hand wheel via bevel gear drive to required ratio.

Double Acting Pneumatic Cylinder.

Double Acting Hydraulic Cylinder.

Electric.

Stem Cover may be specified.

Gate position indication may be specified.

### 10. Actuator or Pedestal Upstand – When required

The upstand is fabricated from mild steel stainless steel sections and flanged to suit application intended. Mild steel work is Hot Dip Galvanised or Epoxy coated as required.

### 11. Design life of Gates

The gates will be able to weather a 30 year plant life assuming minimum usage and minimum maintenance all things being equal...

### 12. Slide Gate Installation

Suitable for installation by other supported by the manufacturers.

### 13. Stem Support Guide Bracket

Wall mounted and adjustable, the spindle support bracket is fabricated from stainless steel sections flanged for mounting to the headwall where required. The bracket is adjustable to allow ease of positioning to suit stem alignment. The guide bearing is of nylon. All steel work and fasteners are Hot Dip Galvanised. Stem support is recommended every 2 metre span of stem.

### 14. Installation Kits

Consisting of :- Fully marked up and predrilled timber template complete with drilling guide bush.

A full set of masonry anchors as specified.

A full set of wall studs complete with nuts and washers as specified.

### 15. Material Options :-

Totally in 316 Stainless Steel

Totally in 304 Stainless Steel

Totally in Aluminium

Carbon Steel Galvanised

### 16. Design Options

Weir slide gates.

Open channel slide gates.

Special Purpose Slide gates.

# PRECISION FACE SEALING PENSTOCK VALVES

**Actuation**

**Installation**

**Mounting**

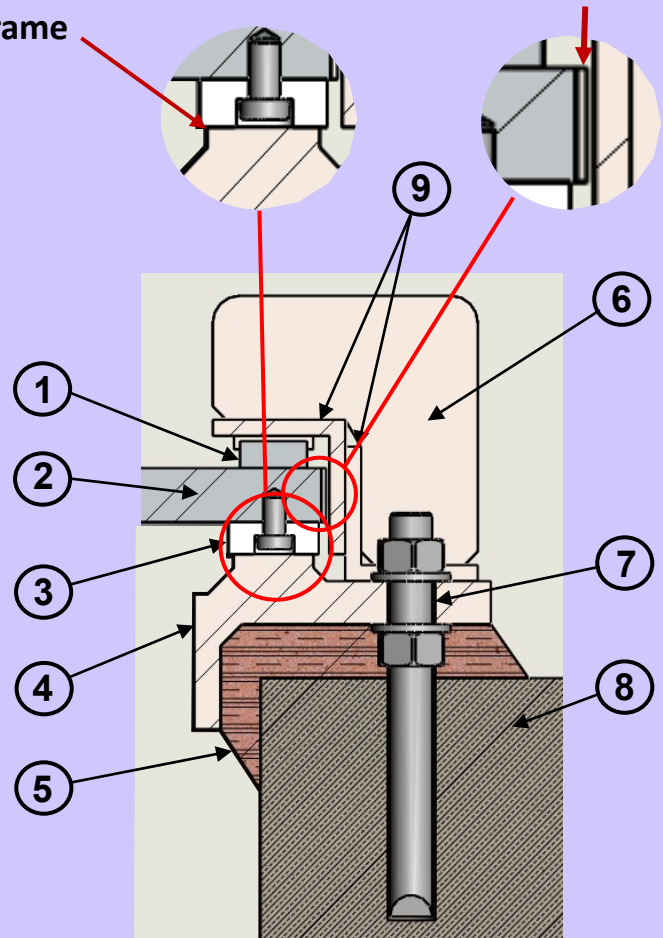
**Fastening**

## Liquetec PFSP Valves Feature:

- Purpose Designed
- Used for water, sewage, effluent or pollution control.
- Stainless Steel or Epoxy Coated Mild Steel.
- Sized to fit an orifice from 150mm to 2500mm, round square or rectangular.
- Rising or Non-Rising Spindle
- Gate closing wedge system

Sealing face between U.H.M.W. Polyethylene and Penstock Frame

Stainless Steel Gate Buffer. For Mild Steel Valves only.



### Component

### Material

1	Wedge system	316 Stainless Steel
2	Penstock Gate	316 or 304 Stainless Steel, Epoxy Coated Mild Steel.
3	Gate Seal	U.H.M.W. Polyethylene
4	Penstock Frame	316 or 304 Stainless Steel, Epoxy Coated Mild Steel.
5	Installation Masonry	Grout
6	Gate Guide Ribs	316 or 304 Stainless Steel, Epoxy Coated Mild Steel.
7	Frame anchor studs	316 S.S.
8	Mounting Wall	Reinforced Concrete
9	Gate Runner	316 or 304 Stainless Steel, Epoxy Coated Mild Steel.

**More info..**

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# LIQUETEC PRECISION FACE SEALING PENSTOCK VALVES

## - GENERAL SPECIFICATIONS

### Valve

The unit is designed to be flush mounted onto a headwall or flange mounted to piping in size ranges from 150mm to 2500mm, with square, rectangular or circular opening.

The purpose of the valve is to control the flow of liquid to the pressures set out in drawings relevant to the proposed project.

### Construction

Frame -	Carbon steel frame, 316 or 304 Stainless Steel.
Gate -	Carbon steel frame, 316 or 304 Stainless Steel.
Seat -	316 Stainless Steel raised, fully welded and machined
Slide Strips -	316 Stainless Steel , fully seal welded.
Gate runners-	316 or 304 Stainless Steel, bolted to the frame
Gate Wedges -	316 or 304 Stainless Steel blocks, adjustable.
Spindle -	303 Stainless Steel threaded acme, left hand for right hand closure.
Spindle Nut -	Bronze class 2A fit. Acme thread.
Fasteners -	316 Stainless Steel
Gate Buffer -	316 Stainless Steel
Gate Stop -	316 Stainless Steel
Gate Seal -	Resilient polyethylene material, raised face—fixed with Replaceable Stainless Steel fasteners.

### Actuation

Rising or non-rising spindle.

Direct 1:1 handwheel operation

Manual handwheel via worm gear/bevel gearbox.

Pneumatic on/off or positioning cylinder.

Hydraulic

Electric

### Penstock Mounting Kits

Fully marked up and pre-drilled timber templates for accurate positioning of masonry anchors.

Full set of mounting studs complete with hex nuts and washers, all in 316 Stainless Steel.

### Corrosion Prevention

All welds are fully sealed

Carbon steel surfaces are sand blasted to Swedish standard SA2.5, then treated with reinforced inorganic zinc or continuous immersion, as required. A special epoxy coatings is applied to withstand abrasions and moisture penetration.

### Colour

Top coat colours of metallic grey, green or white, may be specified.

### Inquires

Every situation for penstock Valves will vary, thus: Pressure rating, seal requirements and actuation must be matched to suit the application.

Marked up general assembly drawings only can be provided against any inquiry.

Fully detailed drawings are produced to suit each penstock requirement at the time of the placement of order.

Required by Liquetec is:	Application
	Head direction (on seat/off seat)
	Orifice shape and size
	Spindle (rising or non-rising)
	Actuation method required

### Sealing

From specified permissible leakage rates to near drip tight. Gate sealing is achieved by a positive Liquetec wedge system with final adjustments being made during installation.

### Installation

The fixing of the masonry anchors and any grouting is normally carried out by the civil contractors, while the installation and testing is of a mechanical nature and can be carried out by the manufacturer.



# WEIR GATES

## Weir:

- A form of dam, placed across a waterway to raise or divert water to regulate or control upstream and downstream levels.

## Liquetec Weir Gates:

- Downward Opening Gate
- Control downstream flow
- Control upstream liquid levels
- Sized 150mm to 2500 mm Square or Rectangular Gate.
- Three or four sided sealing
- Single or multi leaf

Actuation

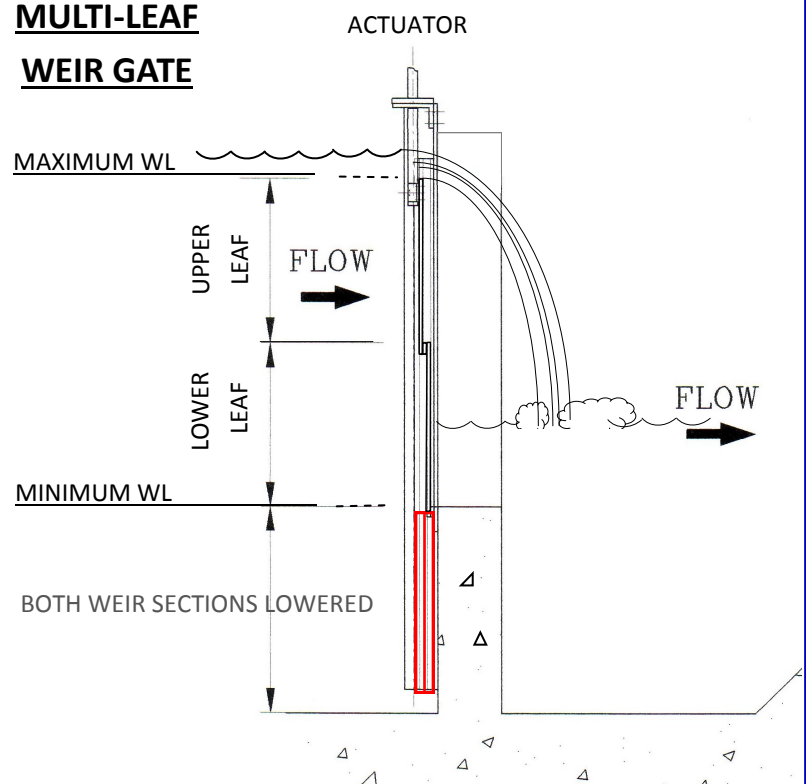
Installation

Mounting

Fastening



## MULTI-LEAF WEIR GATE



Contact Us

Get a Quote

# STOP LOGS

## Purpose Designed for Bulk Fluid Containment

*Stoplogs are inter-fitting building blocks, sealing together and forming a removable dam.*

*Stoplogs are a economic method of containing fluid and can isolate an area of considerable size.*

### Liquetec Stoplogs Feature:

- Purpose Designed
- Used for water, sewage, effluent or pollution containment.
- Strengthening ribs
- Inter log seals
- Low friction Slides
- Purpose Designed Lifting Beams for installation and removal of individual logs. Automatic latching for retrieval from submerged situations

**Contact Us**



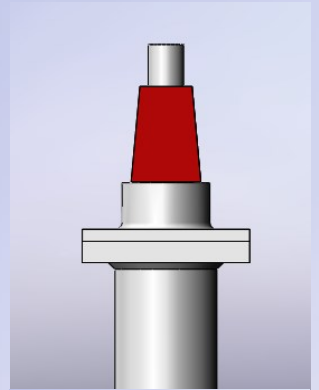


# ACTUATION

- **Key Actuation:**

Using a Square Drive or a Cap Dolly Drive, the spindle is turned with a corresponding removable tool.

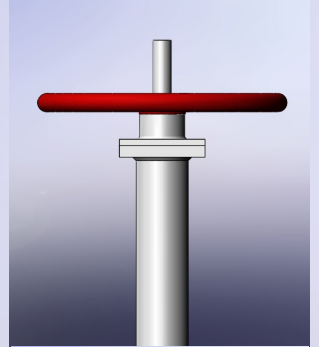
Rising or Non-Rising Spindle.



- **Handwheel Actuation:**

Standard Liqueotec Handwheels are cast iron, complete with Gunmetal Bronze spindle nut when rising spindle is required

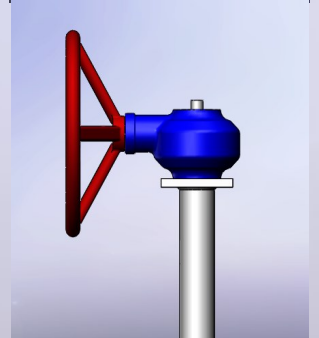
Rising or Non-Rising Spindle



- **Bevel Gear Drive Actuation:**

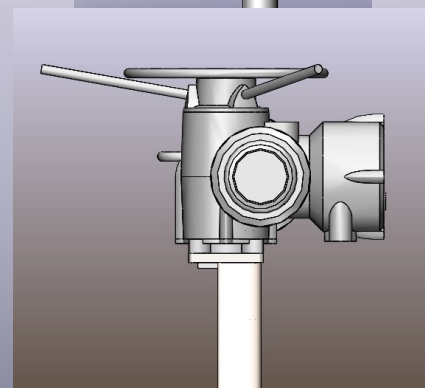
Available in 2:1, 3:1 and 4:1 reduction ratio. Vertically mounted hand wheel.

Rising and Non-Rising Spindle.



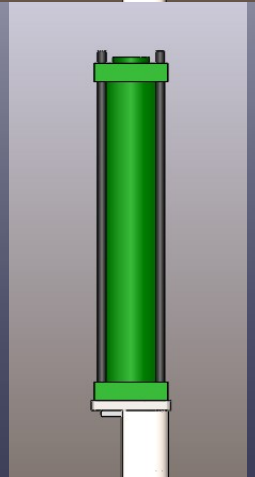
- **Electrical Actuation:**

High torque capabilities  
Torque overload switches  
Limit the number of turns of the spindle  
Replaceable bronze drive nut  
Manual override  
Positional controlled  
Rising and Non-Rising Spindle

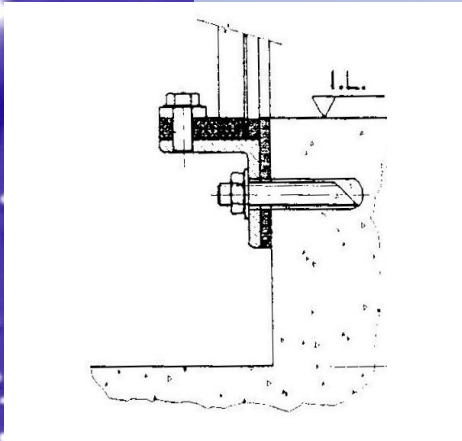


- **Pneumatic or Hydraulic Actuation**

Uses air or fluid to lift or lower the penstock or slidegate.



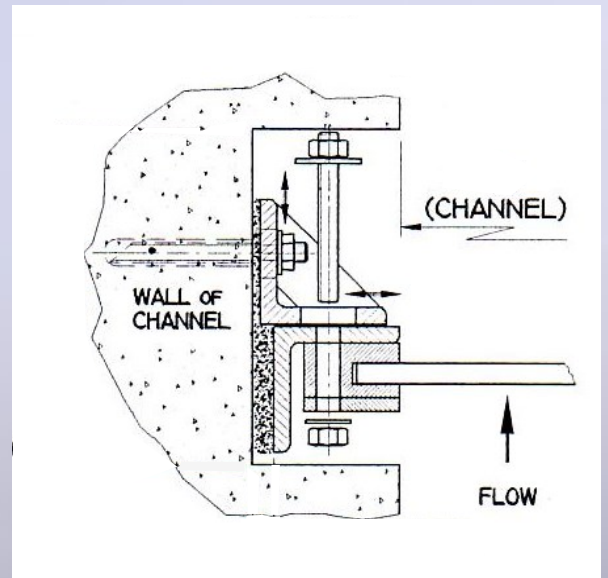
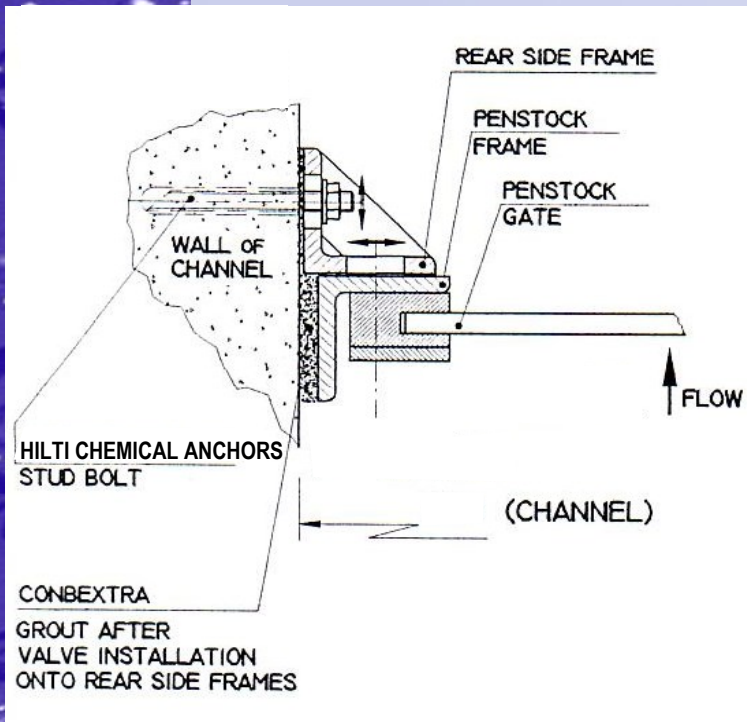
# MOUNTING



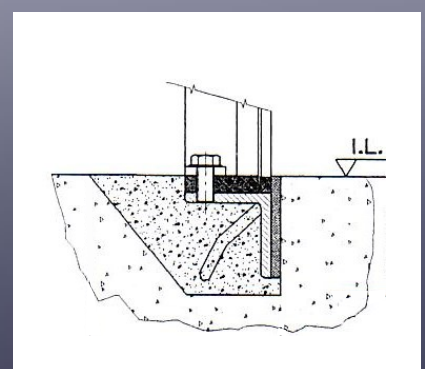
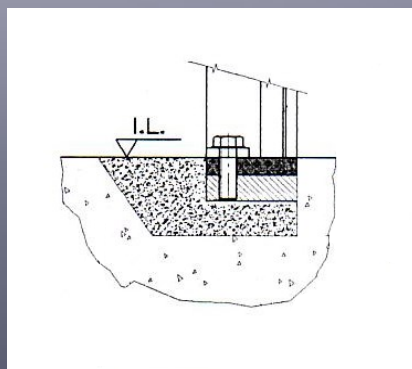
The following illustrates the different configurations in which a penstock valve can be mounted to a wall, pipe or channel.

WALL MOUNTED

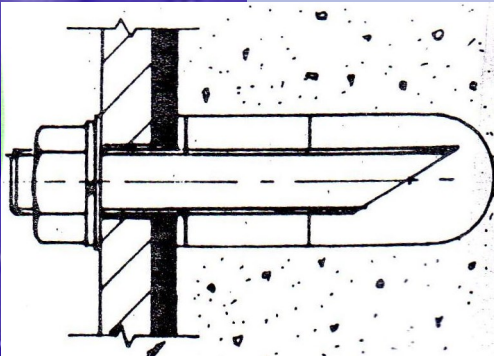
## CHANNEL MOUNTED AND RECESS CHANNEL MOUNTED



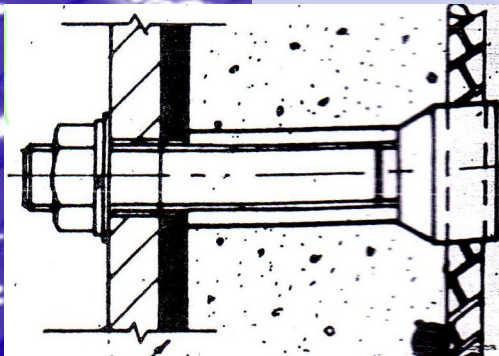
## FLUSH FLOOR MOUNTED AND REINFORCED FLUSH FLOOR MOUNTED



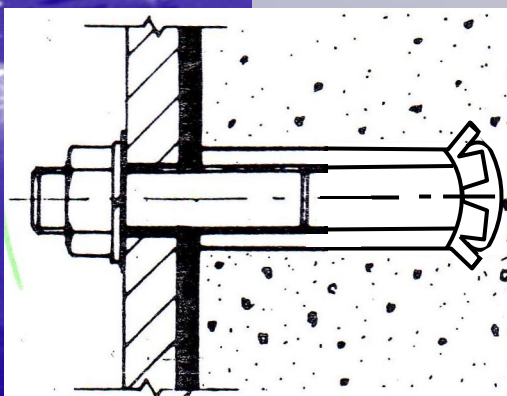
# FASTENING



Hilti HVU adhesive anchors for concrete. Available in common sizes. Mechanical fracture of the capsule allows the resin to harden for high strength retaining of wall studs



Concrete Inserts for casting into new head-works and incorporating reinforcing steel rod. Available in common sizes



Hilti HAD Mechanical Anchor. Available in all common sizes.

Another solution for heavy duty fastening



# INSTALLATION

Installing Penstock Valves is a very precise procedure, it is important to carefully follow Liquetec's installation instructions.

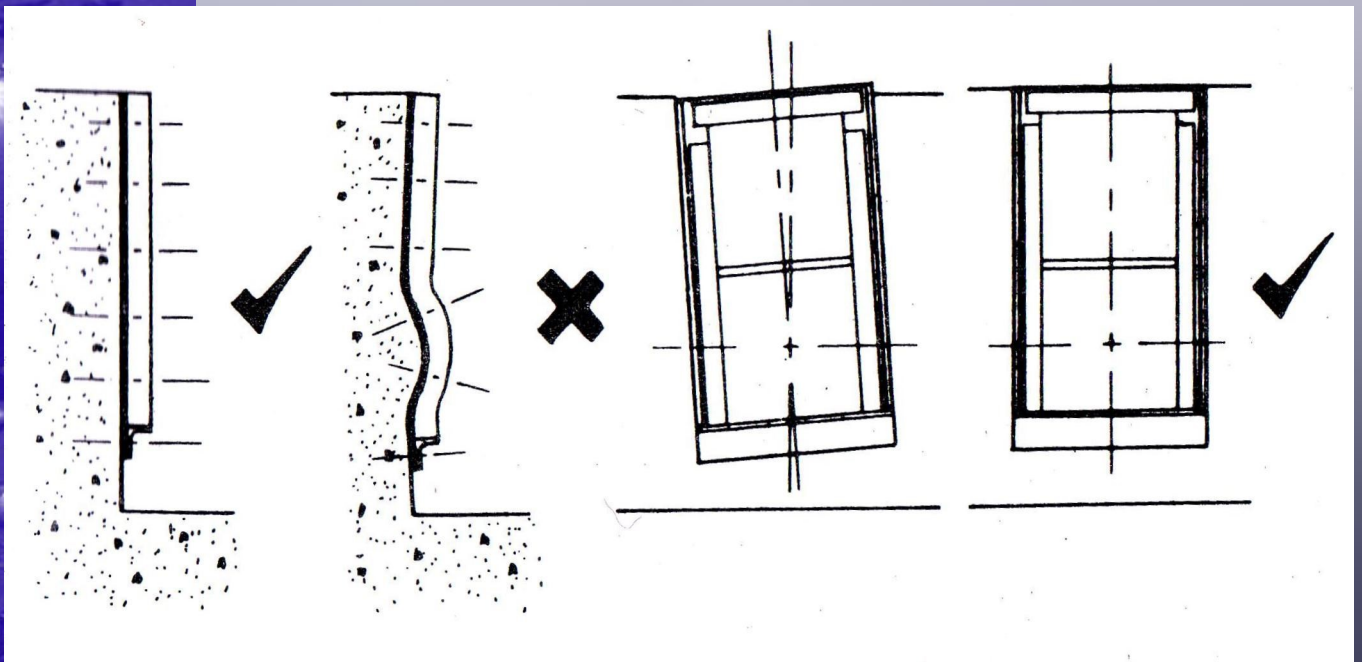
Doing so ensures the valve operates to design requirements.

The installation Instructions are part of Liquetec Installation kit.

An Installation Kit includes:

- Installation Instruction Booklet
- Predrilled stud installation template
- Drilling guide bushes
- Studs and Anchors

All of the above are supplied to aid the installation of the valve, in a way that will achieve optimum performance.

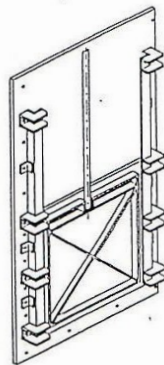


# GET A QUOTE

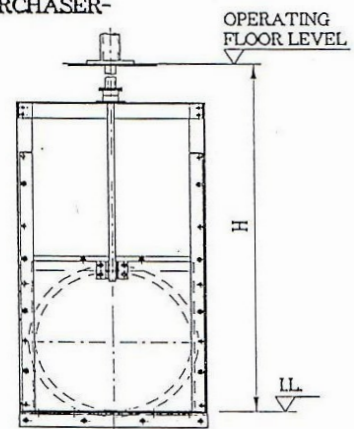


## INFORMATION REQUIRED -TO BE SUPPLIED BY THE PURCHASER-

Please copy this page, complete and submit by facsimile or email to your nearest LIQUETEC representative merchant.



LIQUETEC  
PRECISION FACE SEALING  
PENSTOCK VALVE



LIQUETEC  
PENSTOCK SLIDEGATE  
VALVE

- PENSTOCK TYPE: LVM-SG- LIQUETEC PENSTOCK SLIDEGATE VALVE   
 LVM-PFS- LIQUETEC PRECISION FACE SEALING PENSTOCK   
 LVM-WG- LIQUETEC PENSTOCK WEIRGATE VALVE

ORIFACE SIZE	Width _____ x Height _____	Or	Diameter _____	
MAX. STATIC HEAD	On seat _____	NOTE: Head of liquid from invert level to top level		
	Off seat _____			
MAX. OPERATING HEIGHT -H-	_____	NOTE: From invert level to operating floor level		
FLUID TYPE	_____			
MATERIAL TYPE	316 SS	304 SS	M/S HDGV	OTHER
	Frame <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Gate <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
SPINDLE TYPE	Rising Spindle <input type="checkbox"/>	Non Rising Spindle <input type="checkbox"/>		
POSITIONAL INDICATION	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
SPINDLE SUPPORT	Yes <input type="checkbox"/>	No <input type="checkbox"/> NOTE: Recommended every 2m		
TYPE OF OPERATION	Handwheel <input type="checkbox"/>	Handwheel/Gearbox <input type="checkbox"/>		
	Tee Bar Key <input type="checkbox"/>	Tee Bar Fixed <input type="checkbox"/>		
	Pneumatic Cylinder <input type="checkbox"/>	Hydraulic Cylinder <input type="checkbox"/>		
	Electric Actuator <input type="checkbox"/>	Other _____		
METHOD OF FIXING	Wall Fixing <input type="checkbox"/>	Channel Fixing <input type="checkbox"/>		
	Wall Thimble Fixing <input type="checkbox"/>	Pipe Flange Fixing <input type="checkbox"/>		
OPERATING FREQUENCY	Isolating Penstock <input type="checkbox"/>	Modulating Penstock <input type="checkbox"/>		
		Regulating Penstock <input type="checkbox"/>		
NUMBER OF UNITS	_____			
DRAWING IF AVAILABLE	_____			