



SINCE 1948

## WATER & SEWAGE CONTROL EQUIPMENT



### CAST IRON SLIDE GATES



## THE BIGGEST CAST IRON GATES MANUFACTURERS OF THE WORLD



2750 x 3800 mm Cast Iron Glydaseal™ Slide Gates for Paerdegat Basin Brooklyn, NY, USA



1800 x 3650 mm Cast Iron Slide Gates for Kensico Reservoir, Valhalla, NY, USA

### ENGINEERING EXCELLENCE AND EXPERIENCE

Since 1948, the engineering team at Jash has pioneered safe and reliable flow control systems in thousands of installations in India and around the world. In 2016, Jash acquired Rodney Hunt, a company with 177 years experience in manufacturing of flow control products and having a leadership position in North America. Together, we bring more than 250 years of experience in designing customized solutions to meet the needs of the most challenging applications worldwide.

### SUPERIOR QUALITY

We bring exceptional quality to every project using application based solutions, proven designs, manufacturing flexibility and rigorous testing procedures. We offer one of the most flexible and comprehensive cast, metal fabrication, machining, assembly and testing operations at our inhouse facilities in India (ISO 9001:2015, ISO 14001:2015 & BS OHSAS 18001:2007 Certified) and USA. This allows us to monitor and ensure quality in all aspects of production and to provide consistent reliable and superior products.

### COMPREHENSIVE PRODUCT OFFERING

Our product offering is unrivalled in the flow control marketplace. From all types and sizes of cast and fabricated gates, in a wide variety of material options encompassing metals and plastics, to custom valve and actuation options, we bring a total solution to every project. The breadth of our product offering enables us to bring an unequaled impressive range of expertise to your planning and decision making process.

### RESPONSIVE SERVICE

We pride ourselves on providing professional responsiveness to your needs throughout the design, manufacturing and installation processes. Our engineering team is available for consultation during all phases of your project. Dedicated project managers serve as a single point of contact once the order is in-house and our knowledgeable field service team is always ready to provide on-site support.

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3350 x 3960 mm Inverted Cast Iron Slide Gates  
at Vermont Yankee Vernon, VT, USA

# CAST IRON WATER CONTROL PRODUCTS



3000 x 3000 mm Cast Iron Slide Gates at Phoenix, AZ, USA



3000 x 3000 mm Cast Iron Slide Gates Drop Structure #2, Colorado River, CA, USA

## 01 SERIES: A - 101 CAST IRON FLAT BACK FRAME SLIDE GATES

- Size range: 100 x 100 mm to 1200 x 1200 mm
- Head range: Seating 6 m & Unseating 6/3 m
- Sealing: Metal to Metal sealing system
- Mounting: Face wall mounted / Thimble mounted

## 02 SERIES: A - 102 CAST IRON SECTIONAL FRAME SLIDE GATES

- Size range: 500 x 500 inch to 2000 x 2000 mm
- Head range: Seating 18 m & Unseating 9 m
- Sealing: Metal to Metal sealing system
- Mounting: Face wall mounted / Thimble mounted / Pipe flange mounted

## 03 SERIES: A - 103 CAST IRON INTEGRAL FRAME SLIDE GATES

- Size range: Up to 2000 x 2000 mm
- Head range: Seating 18 m & Unseating 30 m
- Sealing: Metal to Metal sealing system
- Mounting: Face wall mounted / Thimble mounted / Pipe flange mounted

## 04 SERIES: A - 104 CAST IRON UNIVERSAL FRAME SLIDE GATES

- Size range: 600 x 600 mm to 3600 x 3600 mm higher sizes on request
- Head range: As per customer requirement, Up to 30 m seating and unseating head possible
- Sealing: Metal to Metal sealing system
- Mounting: Face wall mounted / Wall thimble mounted / Pipe flange mounted

## 05 SERIES: A - 105 CAST IRON GLYDASEAL SLIDE GATES

- Size range: 600 x 600 mm to 3600 x 3600 mm
- Head range: As per customer requirement, Up to 25 feet seating and unseating head possible
- Sealing: GLYDASEAL™ Plastic to Resilient sealing system
- Mounting: Face wall mounted / Wall thimble mounted

## 06 SERIES: A - 201 / 202 / 203 CAST IRON OPEN CHANNEL SLIDE GATES

- Size range: 300 x 300 mm to 4500 x 4500 mm
- Head range: Open channel flow to height of slide
- Sealing: EASY-SLIDE™ Resilient sealing system
- Mounting: Side wall embedded / Side wall anchored / Face wall anchored

## 07 SERIES: A - 301 CAST IRON WEIR GATES

- Size range: 300 x 300 mm to 3000 x 5000 mm
- Head range: Unseating head equal to the height of slide due to 3 sides sealing arrangement
- Sealing: Metal to Metal sealing system / Metal to Resilient sealing system
- Mounting: Face wall mounted

*Jash has the capability to design and manufacture gates for heads and sizes larger than those stated above. Jash Hunt can also offer custom designed gates to suit any specific application of the client.*

## SYSTEM FOLLOWED TO ENSURE SUPERIOR PRODUCTS



In-house Pattern and Foundry Shop



In-house Machine Shop

### IN-HOUSE PATTERN AND FOUNDRY SHOP

In spite of all effort at standardization of sizes, special or non standard gate sizes are often required to best suit the project flow and geometry considerations. Over 40% of our cast iron gates are custom built with one off or few off requirement requiring investment in new patterns and mold boxes in foundry. Few foundries are equipped to handle low quantities of unique designs. Our in-house pattern and foundry shop are key to delivering gates casting in time and as per required quality. Jash sources almost all of its castings from the in-house foundry facility within the group where styrofoam / wooden / metal patterns can be produced and castings weighing up to 20T can be cast. Jash is the only major cast iron gate producer in India with recourse to such in-house facility.

### METALLURGICAL TEST FACILITY

Clients specify special alloying to suit their requirement & it's essential to establish & verify with surety that supplier has adhered to the required alloying requirement. We do not just rely on paper certificates for this but employ PMI equipment to physically verify the chemical composition to match with requirement.

### LEAKAGE & HYDROSTATIC TESTING

Jash utilizes an in-house facility to conduct hydrostatic testing and leakage testing for slide gates (Series A-101 to A-105) up to 3000 mm square size / 3000 x 4500 mm size for unseating heads up to 30 m. Such a facility is not available with any major manufacturer in world. Our testing program and facilities gives our clients confidence that after installation the product will meet the leakage requirements as detailed in the specifications. As a valve manufacturer we fully understand the advisability of hydrostatic testing. Although AWWA makes no mention of it, all our cast iron slide gates (Series A-101 to A-105) undergo a structural test at 1.5 times the application head.

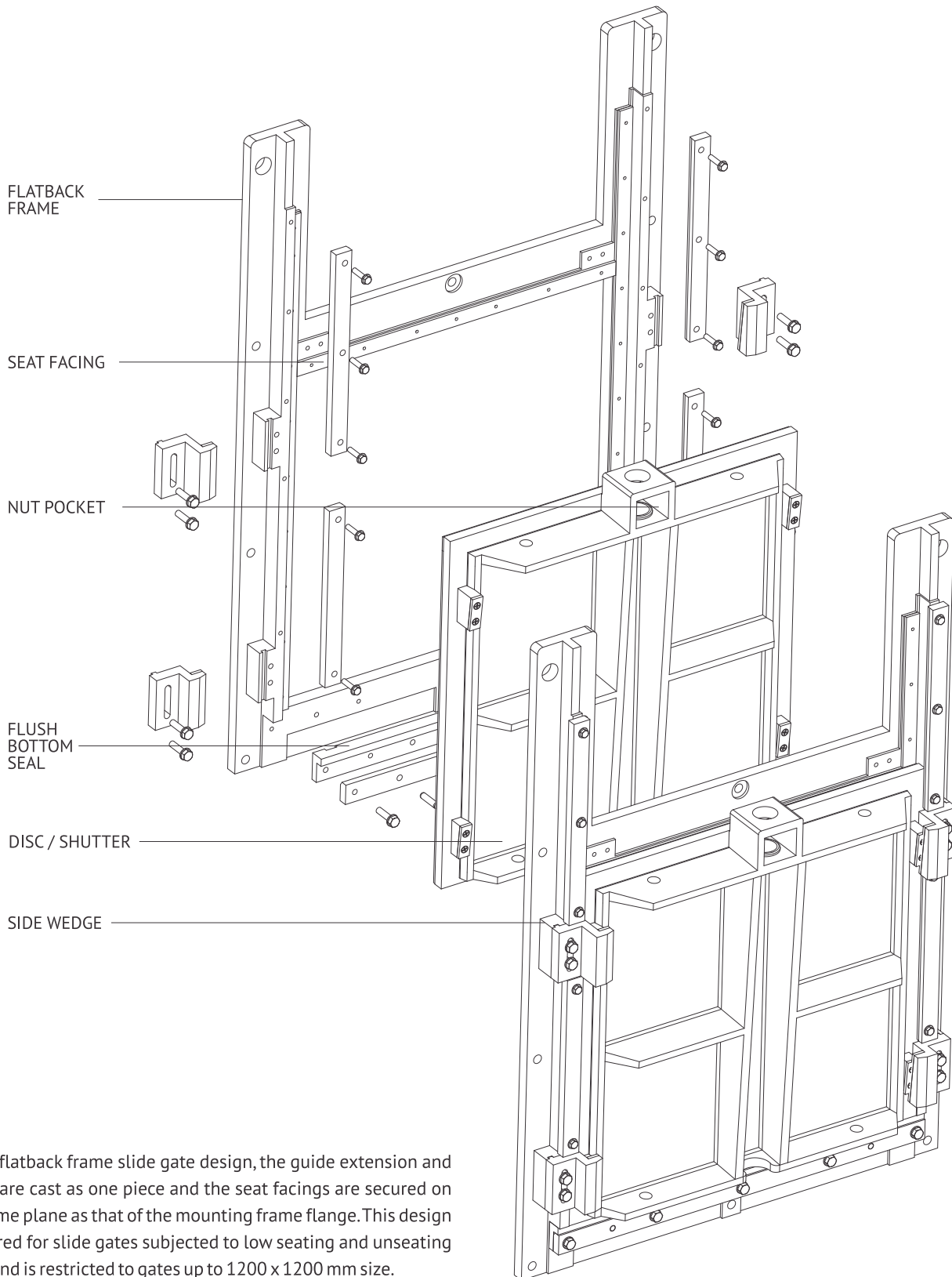
### IN-HOUSE MACHINE SHOP

All cast gates need extensive machining to process the raw castings into finished form. The wide variety in sizes and features and few off requirements all make it difficult to organize machining of gate castings in outside facility. In-house availability of large machining facility comprising of Floor boring, CNC Horizontal and Vertical milling, CNC lathes, turning and drilling machines enables Jash to meet any exigencies and complex machining requirement in the shortest time frames.



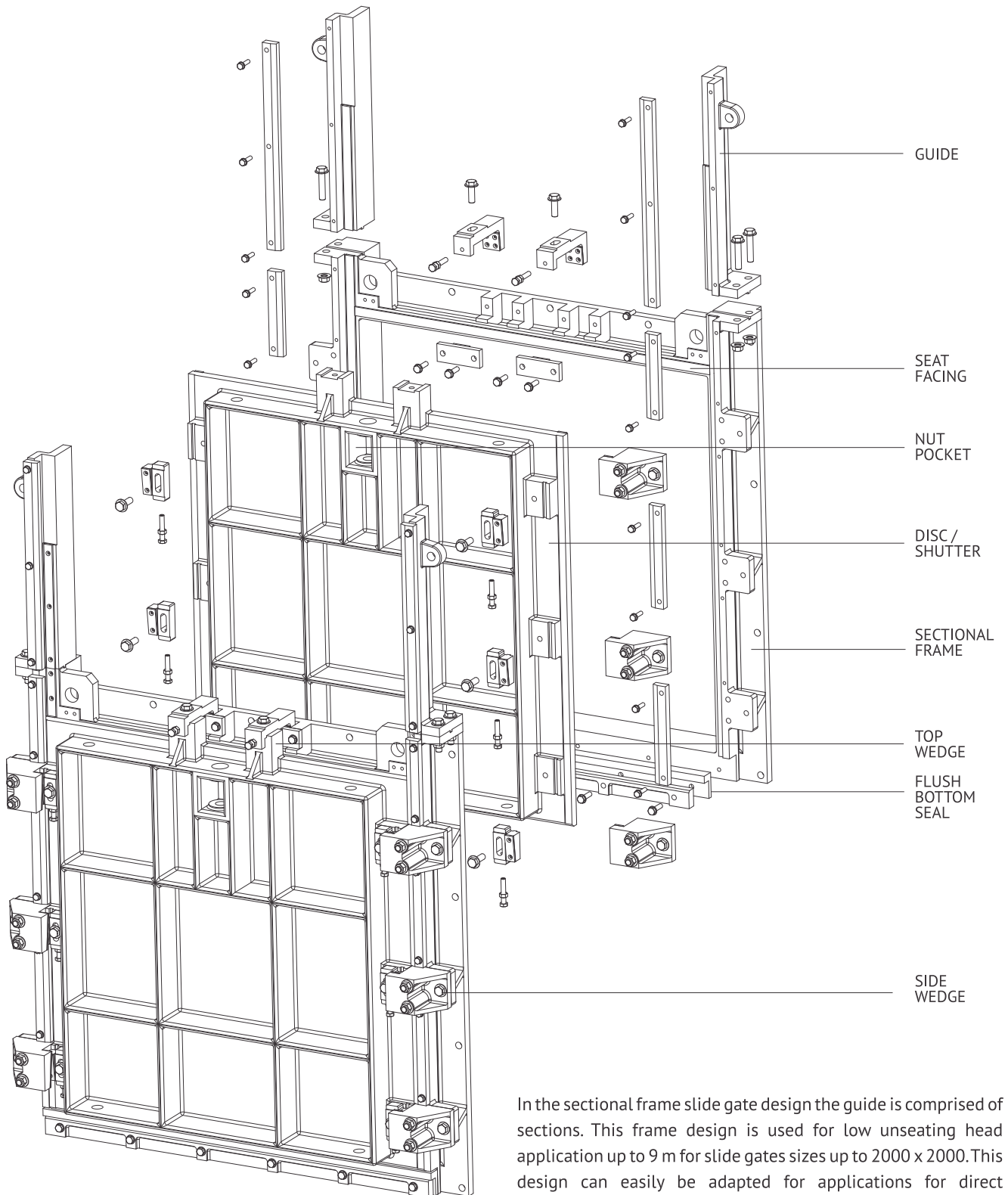
## TYPES OF SLIDE GATE DESIGN

## FLATBACK FRAME SLIDE GATE DESIGN



In the flatback frame slide gate design, the guide extension and frame are cast as one piece and the seat facings are secured on the same plane as that of the mounting frame flange. This design is offered for slide gates subjected to low seating and unseating head and is restricted to gates up to 1200 x 1200 mm size.

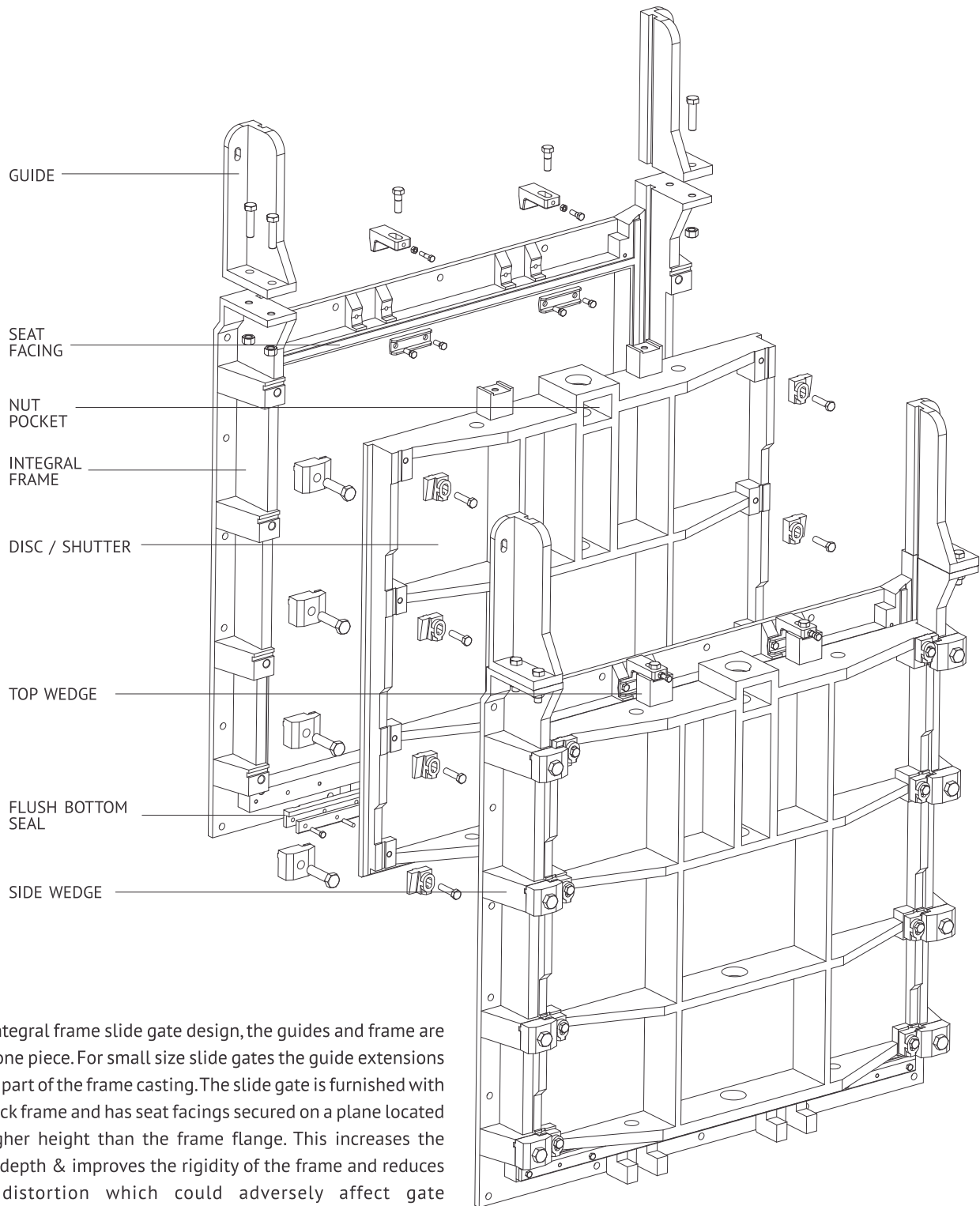
# SECTIONAL FRAME SLIDE GATE DESIGN



In the sectional frame slide gate design the guide is comprised of sections. This frame design is used for low unseating head application up to 9 m for slide gates sizes up to 2000 x 2000. This design can easily be adapted for applications for direct mounting on a circular flanged pipe or existing wall thimbles.

## TYPES OF SLIDE GATE DESIGN

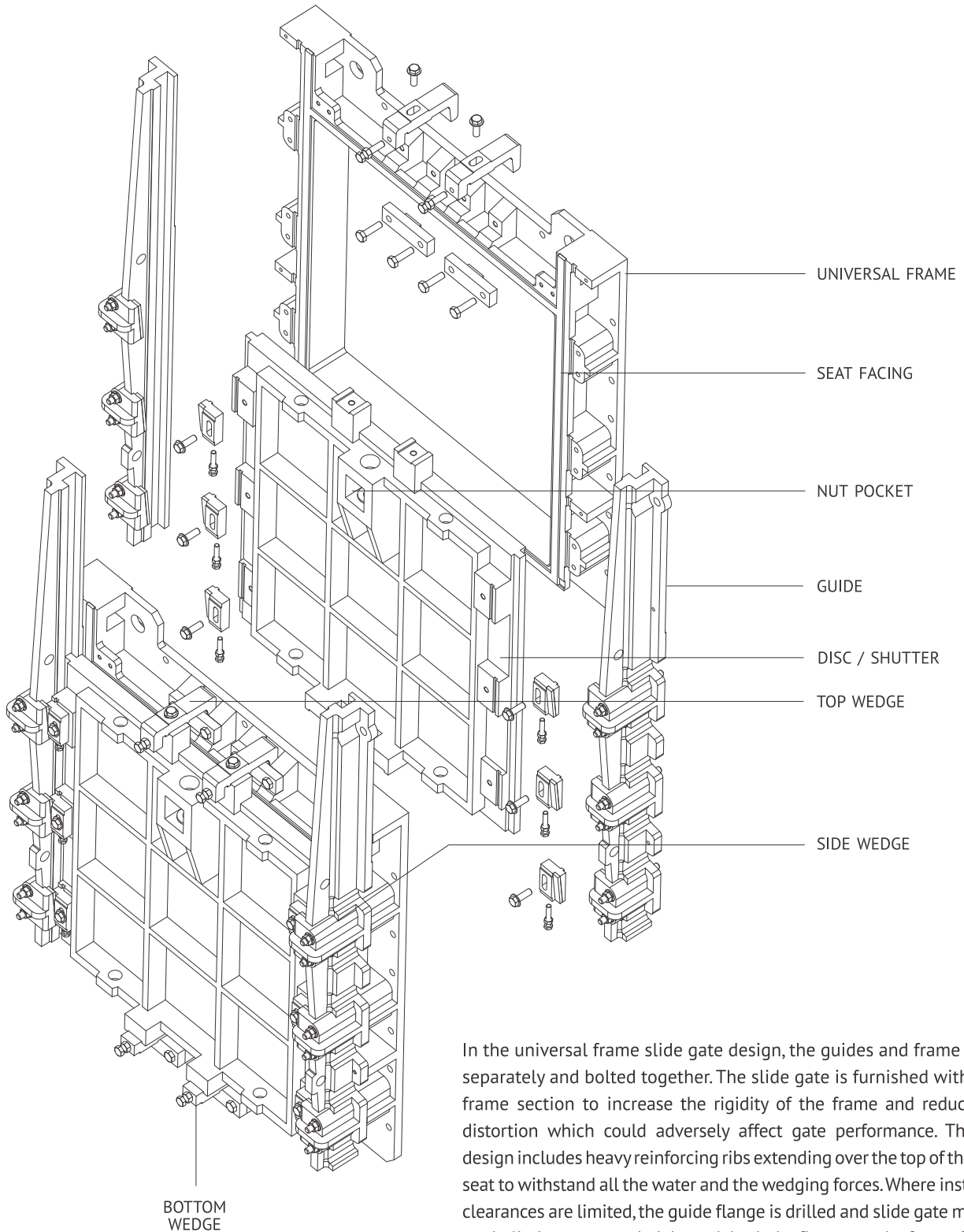
## INTEGRAL FRAME SLIDE GATE DESIGN



In the integral frame slide gate design, the guides and frame are cast as one piece. For small size slide gates the guide extensions are also part of the frame casting. The slide gate is furnished with a flat back frame and has seat facings secured on a plane located at a higher height than the frame flange. This increases the section depth & improves the rigidity of the frame and reduces frame distortion which could adversely affect gate performance. The integral frame slide gates are designed for heads which will satisfy most slide gate applications for gates up to 2000 x 2000 mm size.



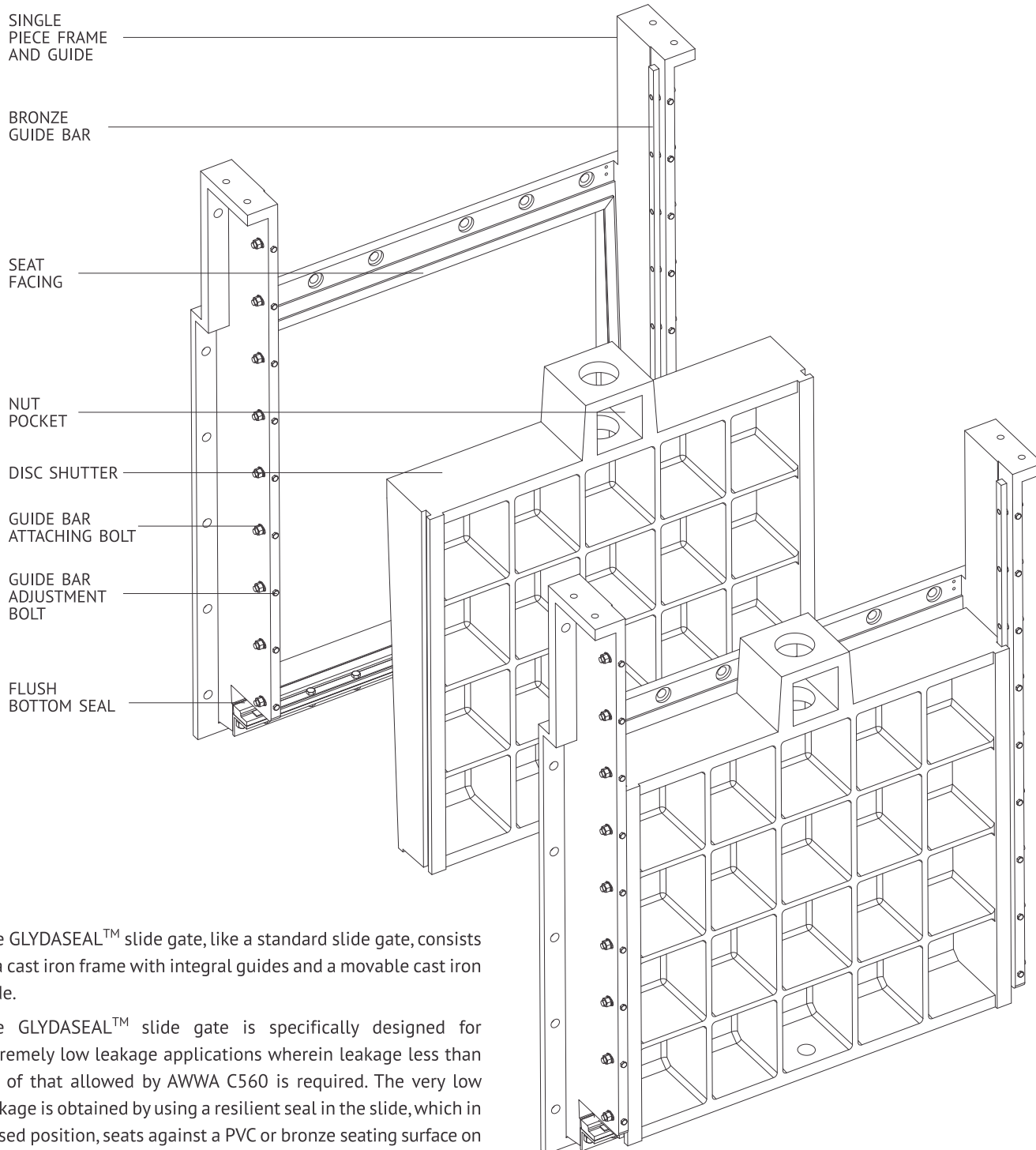
# UNIVERSAL FRAME SLIDE GATE DESIGN



In the universal frame slide gate design, the guides and frame are cast separately and bolted together. The slide gate is furnished with a deep frame section to increase the rigidity of the frame and reduce frame distortion which could adversely affect gate performance. The guide design includes heavy reinforcing ribs extending over the top of the wedge seat to withstand all the water and the wedging forces. Where installation clearances are limited, the guide flange is drilled and slide gate mounting studs / bolts are extended through both the flanges to the front of gate for easy front access without any degradation of gate performance. The universal frame slide gates are designed for heads which will satisfy most slide gate applications for gates up to 3600 x 3600 size.

## TYPES OF SLIDE GATE DESIGN

## GLYDASEAL™ SLIDE GATE DESIGN

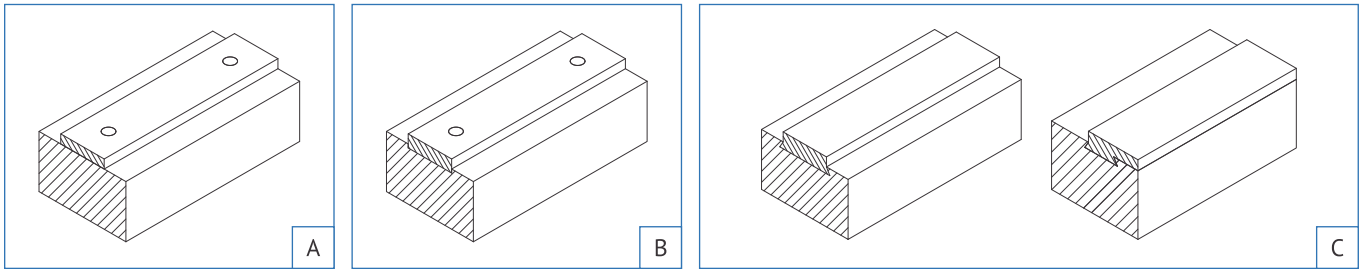


The GLYDASEAL™ slide gate, like a standard slide gate, consists of a cast iron frame with integral guides and a movable cast iron slide.

The GLYDASEAL™ slide gate is specifically designed for extremely low leakage applications wherein leakage less than 1% of that allowed by AWWA C560 is required. The very low leakage is obtained by using a resilient seal in the slide, which in closed position, seats against a PVC or bronze seating surface on the frame on top and two vertical sides. The seal across the invert is obtained with the machined surface of the slide closing against the resilient seal attached to the frame. All GLYDASEAL™ slide gates are flush bottom.

## TYPES OF SEAT FACING FITMENT:

Seating faces are mounted on frame and slide generally in a square / rectangular lay and upon closure of gate close to ensure that a 0.1 mm feeler gauge will not pass through. The various mounting arrangement for seating faces are shown below:



### A. FITTED ON FLAT FACE:

This type of seating faces mounting is offered for gates subjected to low seating and unseating head. In this arrangement the seating faces are mounted directly on the plain face of frame and slide and secured using tapered pegs provided at a pitch of 100 to 125 mm.

### B. FITTED INTO RECTANGULAR GROOVES:

This type of seating faces mounting is offered for gates subjected to medium seating and unseating head. In this arrangement the seating faces are mounted in rectangular machined grooves of frame and slide and additionally secured using tapered pegs provided at a pitch of 100 to 125 mm.

### C. FITTED INTO DOVETAILED GROOVES:

This type of seating faces mounting is offered for gates subjected to high seating and unseating head. In this arrangement the seating faces are impacted into dovetailed machined grooves of frame and slide so that these are permanently locked into the iron casting.

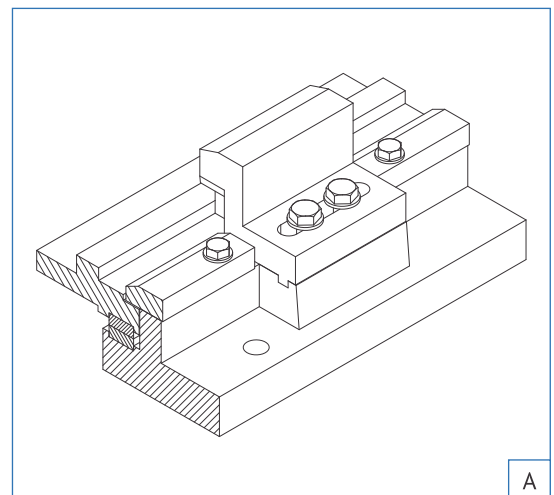
## TYPES OF WEDGING ARRANGEMENT

Gates designed for seating water head application are provided with side tapered wedges only. The side tapered wedges push the slide tightly and uniformly against the frame at the instant of final closure so that the matching seating faces comes into forced contact and meet the leakage criteria.

Gates meant for unseating water head application, depending upon size of gate and applicable water head are provided with top wedges at the top sill and either bottom wedges or flush bottom closing arrangement at the invert, in addition to the usual side wedges. The purpose of these top and/or bottom wedges is to minimize the outwards deflection of slide / door at the top and / or bottom sealing edge and reduce the leakage. Various types of wedging arrangement as described hereunder are offered depending upon application and requirement.

### A. ADJUSTABLE SIDE WEDGE MOUNTED ON FRAME:

Flat back frame design slide gates are provided with adjustable side wedges on the frame engaging with fixed wedge pads on the slide. This type of wedges are provided on low head gates. The adjustable side wedges are keyed to the frame to prevent rotation and engage with corresponding tapered wedge pads on the slide.



# FEATURES OF CAST IRON SLIDE GATE COMPONENTS

## B. ADJUSTABLE SIDE WEDGE MOUNTED ON SLIDE:

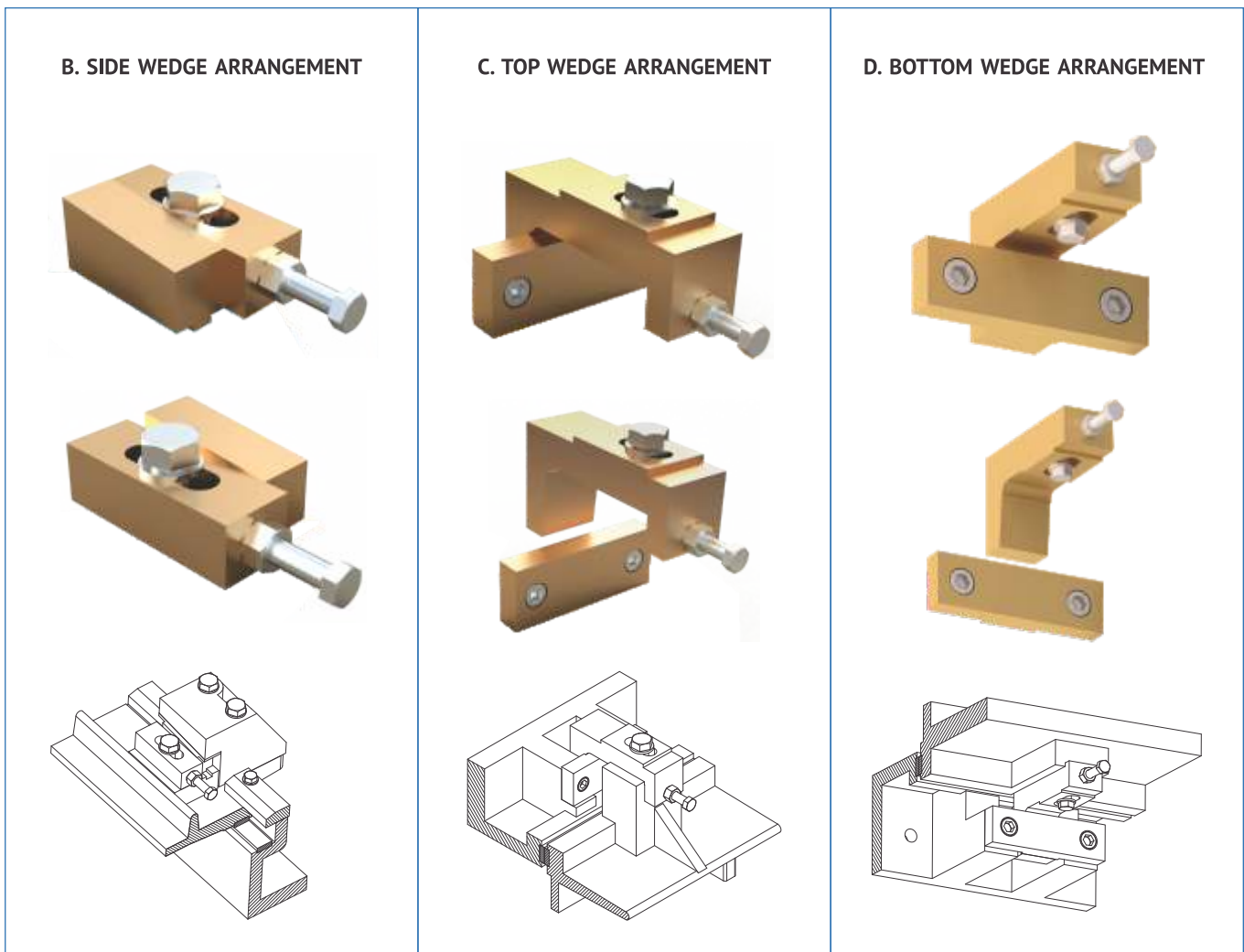
Integral, sectional and universal frame slide gates are provided with adjustable side wedge on the slide engaging with fixed wedge pads on the frame / guides. The side wedges are keyed to the slide to prevent rotation and have adjusting bolt and lock nut. They engage mating tapered wedge pads on frame / guide.

## C. ADJUSTABLE TOP WEDGE MOUNTED ON SLIDE:

Integral, sectional and universal frame slide gates are provided with adjustable top wedges on the slide engaging with fixed top wedge pads on frame. Top wedges mount along the top rib of the slide. They are keyed to prevent rotation and are provided with adjusting bolts and lock nuts.

## D. ADJUSTABLE BOTTOM WEDGE MOUNTED ON SLIDE:

Integral, sectional and universal frame slide gates are provided with adjustable bottom wedge on the slide engaging with fixed bottom wedge pads on frame. Bottom wedges mount along the bottom rib of the slide. They are keyed to prevent rotation and are provided with adjusting bolts and lock nuts.



*Design and construction of wedges may vary from that shown above, based on application & gate size.*

## TYPES OF BOTTOM SEALING ARRANGEMENT

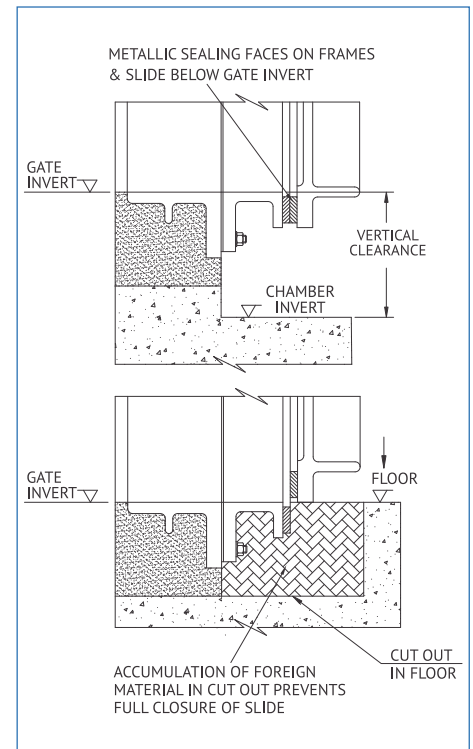
### A. CONVENTIONAL BOTTOM SEALING ARRANGEMENT:

With conventional bottom / rebate invert type closing gates, water sealing at the invert of the gate is achieved by providing metallic sealing strips / faces along the width of gate opening at the bottom of shutter as well as bottom of frame. These strips, provided at a position that is below the invert of gate opening, remain in close mating contact when the gate is fully closed.

When ample vertical clearance between the invert of gate and invert of chamber / channel is available then conventional bottom closure gates are provided. However this vertical clearance in form of a wall below the gate invert does not allow complete flushing of chamber, if needed. If this is acceptable then conventional bottom closing gates can be used.

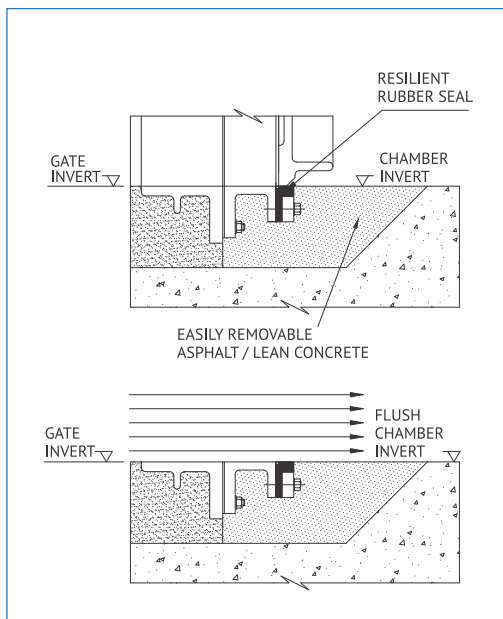
If gate with conventional bottom closing is installed at a situation, where the bottom of gate opening is to be at the same level as the invert of the chamber / channel or where ample vertical clearance between invert of gate & invert of chamber/ channel is not available, then a recess or a cut out is required to be provided in the invert of floor to enable mating between bottom sealing faces of frame and slide when the gate is fully closed.

Debris, silt and foreign material may then collect in the cut out / recess and this may prevent the gate from closing fully thereby giving rise to heavy leakage. In such locations only HY-Q™ Flush bottom closure gates should be used.



### B. HY-Q™ FLUSH BOTTOM SEALING ARRANGEMENT:

In locations where there is no scope of providing ample vertical clearance between the invert of the gate and the chamber floor or especially in case of channels where the invert of the gate and the channel floor are to be at the same level, or when complete drainage of the chamber is required, HY-Q™ gates with flush bottom / flush invert closing are adopted.



In case of HY-Q™ flush bottom closing gates, water sealing at the bottom of gate is achieved by providing a resilient rubber seal pressing against a machined cast iron face, the contacting faces between the two being at the same level as that of the gate invert and chamber / channel floor. This avoids the need to provide a permanent slot or cut out or box out in the channel floor. Since there is no slot or cut out at the gate invert there is no chance of accumulation of foreign material and of impediment to flow and interference with proper closing of gate. Whatever foreign materials like debris, gravel, silt etc. that might settle at the gate invert get flushed out with the flow as soon as the gate is opened. Thus the HY-Q™ gates offer a high co-efficient of discharge resulting in maximum flow for any head condition.

With HY-Q™ flush bottom closing gates, bottom wedges are not provided since such gates are free from problems inherent with deflection of bottom of slide.

After the gate is erected in position, the temporary recess or cut out required to be provided in the invert / floor to accommodate bottom portion of slide gate frame should be filled up with easily removable materials like asphalt surfacing material or concrete containing saw dust to ensure unobstructed invert surface.

# FEATURES OF CAST IRON SLIDE GATE COMPONENTS

## TYPES OF THIMBLES

A wall thimble is a separate accessory which is first embedded in the wall with its flange flush with the face of wall. The slide gate frame is provided with a flange / flat face which is then secured on to the flange of cast iron wall thimble with studs.

The thimble can be produced and supplied earlier than the slide gate facilitating construction schedules, especially concrete pours. The gate can be mounted on thimble later. The simplicity and ruggedness of wall thimbles make installation easy and provide an excellent foundation for the gates.

The machined wall thimble and slide gate frame flanges, with a gasket joint in-between, maintain alignment and proper contact between the mating sealing faces. This improves not only water sealing characteristic of the gate but ensures smooth operation as well with no binding.

In the very unlikely event it's ever required the slide gate can easily be removed for repairs without breaking concrete and can be remounted again with equal ease.

Machined back flange of slide gate makes it possible to mount the gate assembly on a test bench for shop leakage and structural hydrostatic testing at the manufacturer's works at full operating head. This helps ensure a quality product that will meet the requirements in every manner. All thimbles are provided with grout holes to avoid air entrapment.

Various types of thimbles as described hereunder are offered depending upon application and requirement:

### A. F-TYPE THIMBLE WITH SQUARE / RECTANGULAR OPENING:

This type of thimble is used for all seating head and low to moderate unseating head where connection to a pipe is not required. The thimble has a F cross section and square / rectangular shaped aperture with square / rectangular flange for mounting the slide gate. The slide gate frame will have a similar shaped opening aperture.



### B. F-TYPE THIMBLE WITH ROUND SPIGOT END:

This type of thimble is used only with square gates for all seating heads and low to moderate unseating head applications where termination to the edge of a round pipe is required. The thimble has a F cross section and circular shaped aperture with square flange for mounting the slide gate. The slide gate frame will also have a square opening aperture.

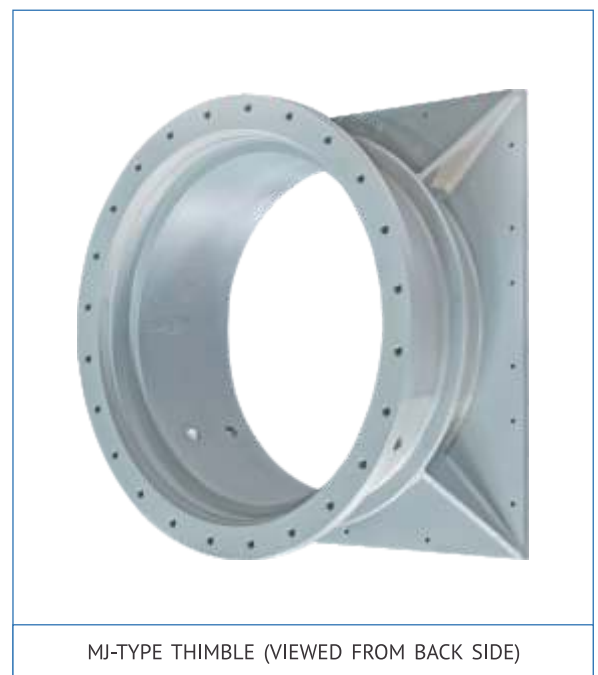
**C. E-TYPE THIMBLE WITH SQUARE / RECTANGULAR OPENING:**

E-type wall thimbles have a flange on the end away from the gate to provide greater structural capacity for high unseating heads. The rear flange can also be used to mount other equipment such as a bar screen or flap valve. The slide gate frame opening matches the wall thimble.



**D. E-TYPE THIMBLE WITH ROUND REAR FLANGE:**

Diameter E-type thimbles mate to flanged pipes on the end away from the gate. They can be drilled and tapped to mate with any pipe connection and are usually provided with the depth matching the wall thickness. The second flange provides a mechanical connection with the concrete and pipe suitable for any head application.



**E. MJ-TYPE THIMBLE WITH REAR END DESIGNED TO MATE WITH DUCTILE IRON PIPE:**

MJ-type thimbles are suitable for the same head conditions as MJ connected pipes. The geometry of the pipe end matches the AWWA standards for MJ connections allowing the use of industry standard glands and retaining rings. They are available up to 1300 mm diameter. The wall thimble depth should be equal or greater than the wall thickness.

# CAST IRON FLAT BACK FRAME SLIDE GATE

## SERIES: A-101

SELF CONTAINED SLIDE GATE



NON SELF CONTAINED SLIDE GATE



### SPECIFICATION

These slide gates are made in general compliance with IS 13349 / BS 7775 / AWWA C560.

### APPLICATION

These slide gates are directly mounted on the face of the wall and are used to isolate flow in and out of a conduit. They are suitable for 6 m seating and unseating head up to 600 x 600 mm size and 6 m seating and 3 m unseating head for higher sizes up to 1200 x 1200 mm.

### FEATURES:

- Flat back frame suitable for directly mounting on face of wall using anchor fasteners and secondary grout between wall and frame or on wall thimble.
- Frame provided with square aperture for square as well as round opening in wall.
- The guides are integral to the frame with adjustable wedges bolted to the machined pads on the guides.
- Short length / open top frame provided with short length extension guides sufficient to engage at least half the overall vertical height of slide / door when the gate is full open.
- Slide sufficiently ribbed to suit the applicable water head and designed to suit rising as well as non rising stem requirement.
- Slide provided with integral pocket to house threaded stem connecting block connecting the slide with the stem.
- Non corroding metal to metal seating faces / strips on all the four sides for conventional bottom closing and on three sides for flush bottom closing slide gates.
- Flush bottom closing slide gates provided with frame mounted flush bottom seal flush with bottom invert of opening.
- Seating faces secured by counter sunk head machine screws on plain machined faces of frame & slide.
- Frame mounted adjustable side wedges in contact with slide mounted fixed wedges to ensure that metal seating faces mounted on frame and slide comes in close mating contact only at the verge of final closure to achieve the desired leakage performance.
- Rising stem with pedestal / yoke mounted manual gate operating mechanism to operate the slide gate with less than 18 kgs effort on the crank or handwheel.
- Single piece or multi piece stem to suit the installation depth, coupling to connect stem sections with the lowest stem section connecting to the stem block mounted on slide.



- Stem guides and brackets to prevent buckling of stem.
- Anchor bolts with nuts and washers for frame, stem guide brackets and pedestal of lift mechanism.
- Offered with epoxy paint or as required by specifications.

#### OPTIONAL FEATURES:

- Square / Rectangular / Circular (Diameter) shaped wall thimble having section F, E or MJ as required.
- Slide gates suitable for higher water head.
- Oversized frame opening for slide gates to be mounted in front of a concrete pipe terminating at the face of the wall.
- Seating faces secured firmly in finished groove of frame & slide for full compliance to AWWA C560.
- Self-contained gate frame with lift mechanism mounted directly on yoke provided across the top of slide gate frame.
- Non-rising stem.
- Electric / Pneumatic / Hydraulic operating arrangement.
- Portable electric or hydraulic operator.
- Foot wall bracket for pedestal mounting.
- Stem cover made of galvanized steel or transparent plastic tube.
- Gate position indicating arrangement.

#### MATERIAL OF CONSTRUCTION:

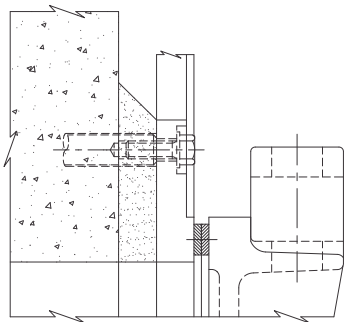
Depending upon application and requirement, client should select and specify the material of construction option for various components of slide gate from the alternatives stated on page no.39.

#### SHOP TESTING:

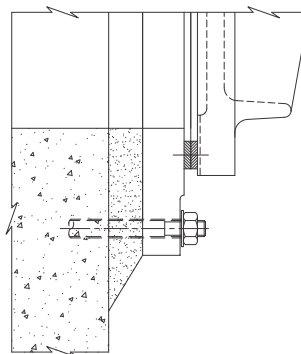
- Leakage testing of slide gate at plant at actual operating head to verify slide gate leakage performance meeting leakage requirement as specified or as given on page no.43.
- Hydrostatic body test at 1.5 times the maximum operating head for structural soundness.
- Seat clearance check of each slide gate for clearance between mating sealing faces.
- Movement test for checking interference free movement of complete assembly.
- Torque test to verify gate operating torque for manually operated slide gates.

*# For getting similar leakage result at site ensure that there is no frame distortion during the process of slide gate installation on wall.*

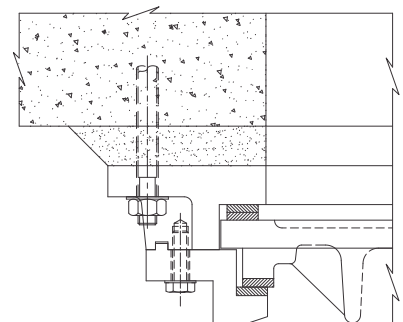
### SEALING ARRANGEMENT



TOP SEALING ARRANGEMENT



BOTTOM SEALING ARRANGEMENT

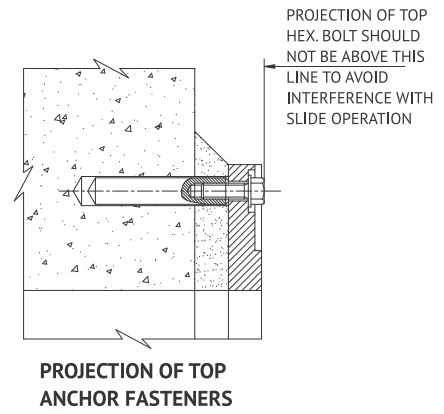
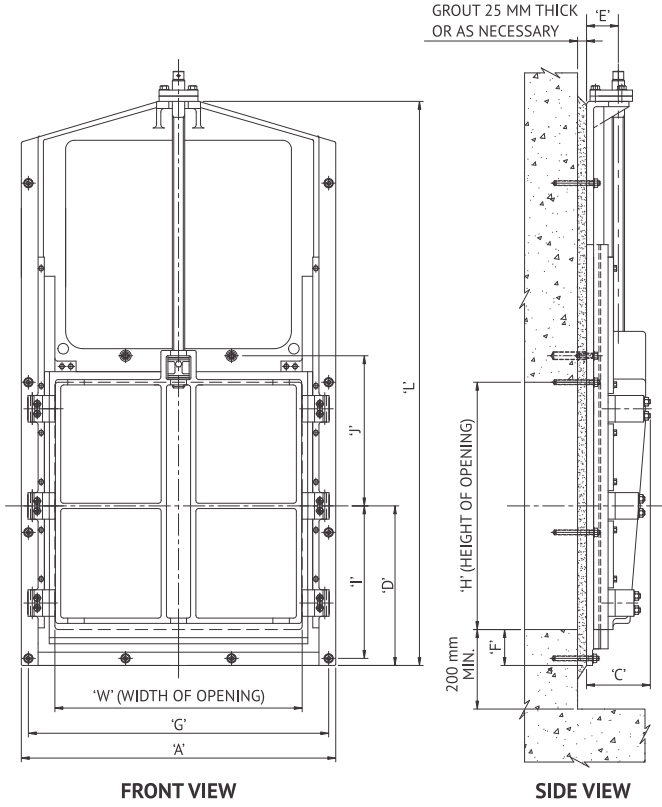


SIDE SEALING ARRANGEMENT

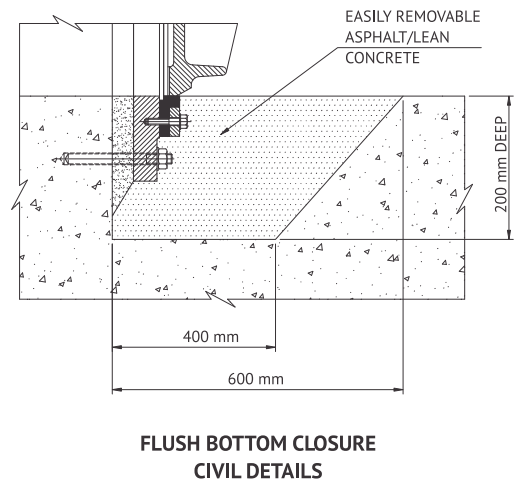
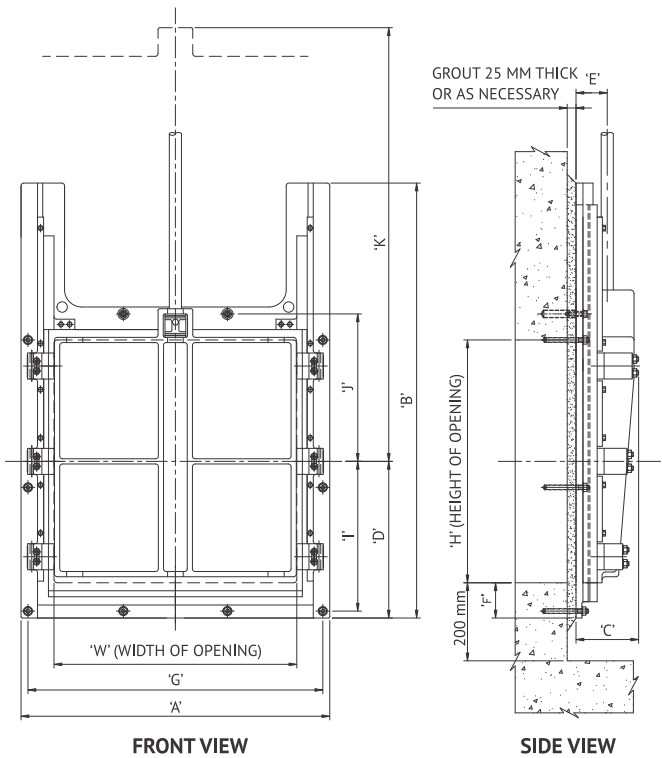
# CAST IRON FLAT BACK FRAME SLIDE GATES

## SERIES: A-101 - DRAWINGS

SELF CONTAINED - CONVENTIONAL CLOSURE



NON SELF CONTAINED - CONVENTIONAL CLOSURE



# SERIES: A-101 - DATASHEET



W	H	A	B	C	D	E	F	G	I	J	K	L
150	150	355	431	114	177	82	101	304	-	-	336	565
200	200	406	508	114	203	82	101	355	-	-	412	666
250	250	457	584	114	228	82	101	406	-	-	488	768
300	300	508	660	120	254	82	101	457	-	-	590	901
350	350	558	736	120	279	82	101	508	-	-	666	1003
400	400	609	812	120	304	82	101	558	-	-	742	1104
450	450	660	889	120	330	82	101	609	304	304	819	1206
500	500	711	965	120	355	82	101	660	330	330	895	1308
550	550	762	1041	120	381	82	101	711	355	355	971	1409
600	600	812	1168	120	406	82	101	762	381	381	1047	1511
700	700	914	1320	120	457	82	101	863	431	431	1200	1714
750	750	965	1397	152	482	101	101	914	457	457	1333	1885
800	800	1041	1485	152	520	101	114	990	495	495	1409	2000
900	900	1143	1638	152	571	101	114	1092	546	546	1562	2203
1050	1050	1295	1917	152	647	101	114	1244	622	622	1790	2508
1200	1200	1447	2146	152	723	101	114	1397	698	698	2019	2813

**NOTES:**

- All dimensions are in mm.
- Dimensions of rectangular & other sizes on request.

# CAST IRON SECTIONAL FRAME SLIDE GATES

## SERIES: A-102

NON SELF-CONTAINED SLIDE GATE



### SPECIFICATION

These slide gates are made in full compliance with IS 13349 / BS 7775 / AWWA C560.

### APPLICATION

These slide gates are directly mounted on the face of a wall and are used to isolate flow in and out of a conduit. These design can be used for 18 m seating and 9 m unseating head application for gate size up to 2000 x 2000 mm or as required.

### FEATURES:

- Flange back frame suitable for directly mounting on face of wall using anchor fasteners and secondary grout between wall and frame or on wall thimble.
- Frame provided with square aperture for square as well as round opening in wall.
- The sectional guides comprise of cover ribs and fixed wedges bolted to the top machined pads of the guide portion that is integral to frame.

- Short length / open top frame provided with short length extension guides sufficient to engage at least half the overall vertical height of slide / door when the gate is full open.
- Slide sufficiently ribbed to suit the applicable water head and designed to suit rising stem requirement.
- Slide provided with integral pocket to house threaded stem connecting block connecting the slide with the stem.
- Non corroding metal to metal seating faces / strips on all the four sides for conventional bottom closing and on three sides for flush bottom closing slide gates.
- Flush bottom closing slide gates provided with frame mounted flush bottom seal flush with bottom invert of opening.
- Seating faces secured firmly in finished grooves of frame & slide.
- Slide mounted adjustable wedges in contact with frame mounted fixed wedges seats to ensure that metal seating faces mounted on frame and slide comes in close mating contact only at the verge of final closure to achieve the desired leakage performance.
- Adjustable wedges on slide to allow future on site adjustment of wedges to enable increased wedging action and compensate possible wear of seating faces.
- Slide gates subjected to seating head application are provided only with adjustable side wedges whereas gates subjected to unseating head application are provided with adjustable side as well as adjustable top & bottom wedges. Gates provided with flush bottom closure are not provided with bottom wedges.
- Rising stem with pedestal / yoke mounted manual gate operating mechanism to operate the slide gate with less than 18 kgs effort on the crank or handwheel.
- Single piece or multi piece stem to suit the installation depth, coupling to connect stem sections with the lowest stem section connecting to the stem block mounted on slide.
- Dual or tandem stem for all gates 1200 mm and wider, and having widths greater than twice their height.
- Stem guides brackets to prevent buckling of stem.
- Anchor bolts with nuts and washers for frame, stem guide brackets and pedestal of lift mechanism.
- Offered with epoxy paint or as required by specifications.

### OPTIONAL FEATURES :

- Square / Rectangular / Circular (Diameter) shaped wall thimble having section F, E or MJ as required.
- Oversized frame opening for slide gates to be mounted in front of a concrete pipe terminating at the face of the wall.

- Self-contained / closed top gate frame with lift mechanism mounted directly on yoke provided across the top of slide gate frame.
- Non-rising stem.
- Electric/Pneumatic/Hydraulic operating arrangement.
- Portable gate operator for manual / electric / hydraulic operating arrangement.
- Foot wall bracket for pedestal mounting.
- Stem cover made of galvanized steel or transparent plastic tube.
- Gate position indicating arrangement.
- Low leakage, 25% of that permissible as per AWWA C560.
- Seat clearance check of each slide gate for checking clearance between mating sealing faces.
- Movement test for checking interference free movement of complete assembly.
- Torque test to verify gate operating torque for manually operated slide gates.

*# For getting similar leakage result at site ensure that there is no frame distortion during the process of slide gate installation on wall.*

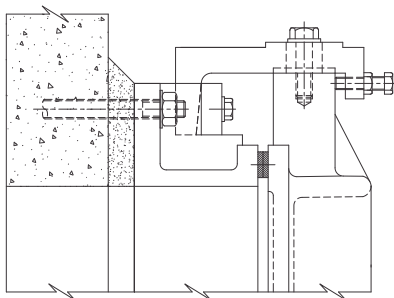
**MATERIAL OF CONSTRUCTION:**

Depending upon application and requirement, client should select and specify the material of construction option for various components of slide gate from the alternatives stated on page no.39.

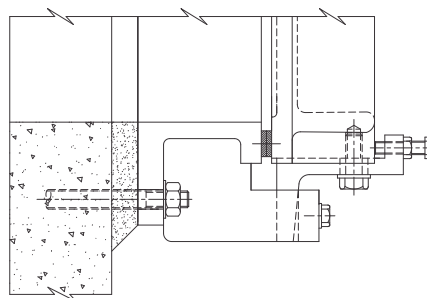
**SHOPTESTING:**

- Leakage testing of slide gate at plant at actual operating head to verify slide gate leakage performance meeting leakage requirement as specified or as given on page no.43.
- Hydrostatic body test at 1.5 times the maximum operating head for structural soundness.

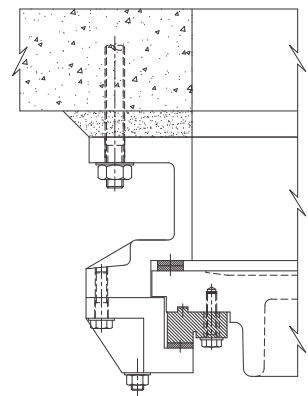
**SEALING ARRANGEMENT**



TOP SEALING ARRANGEMENT



BOTTOM SEALING ARRANGEMENT

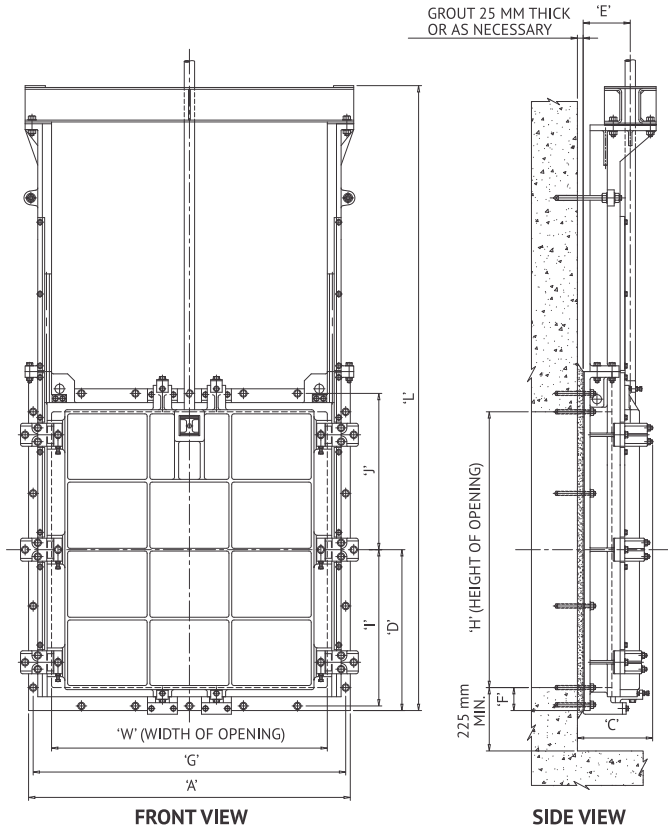


SIDE SEALING ARRANGEMENT

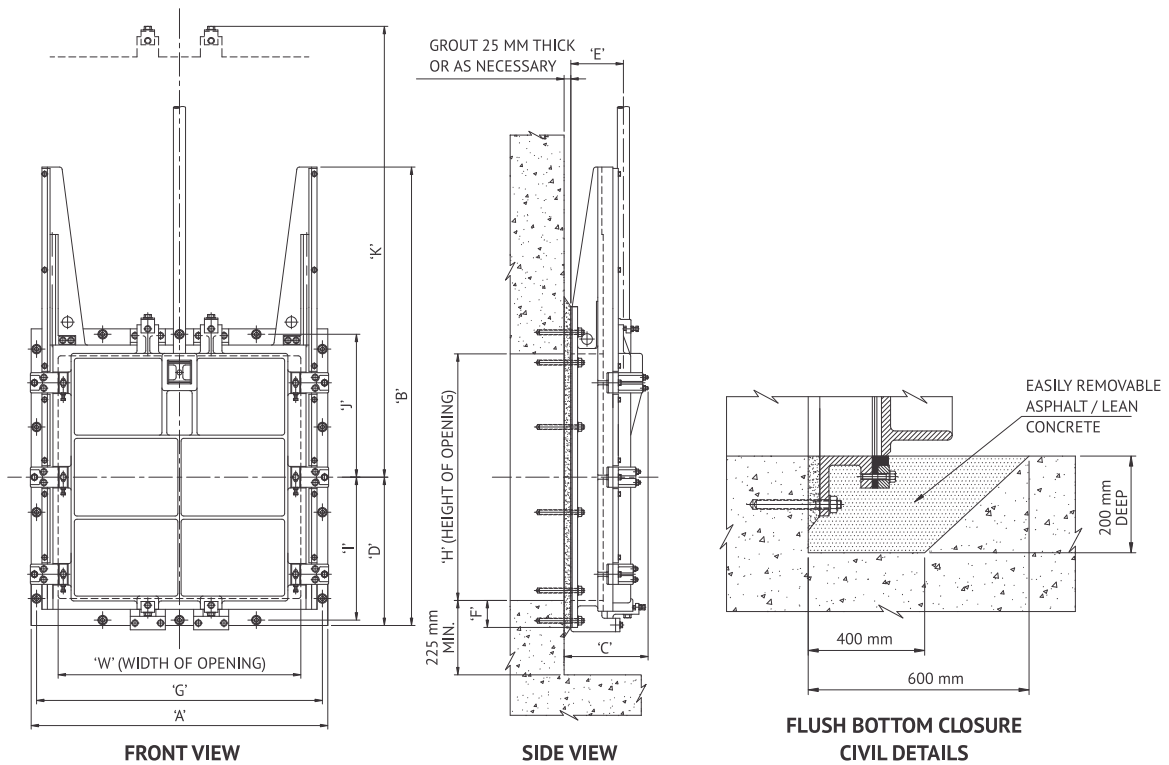
# CAST IRON SECTIONAL FRAME SLIDE GATES

## SERIES: A-102 - DRAWINGS

SELF CONTAINED - CONVENTIONAL CLOSURE



NON SELF CONTAINED - CONVENTIONAL CLOSURE



# SERIES: A-102 - DATASHEET



W	H	A	B	C	D	E	F	G	I	J	K	L
500	500	711	1117	254	355	165	101	660	330	330	1041	1600
600	600	812	1270	254	406	165	101	762	381	381	1193	1803
700	700	914	1422	279	457	196	101	863	431	431	1346	2006
750	750	965	1498	279	482	196	101	914	457	457	1422	2108
800	800	1016	1574	279	508	196	101	965	482	482	1498	2209
900	900	1117	1727	279	558	196	101	1066	533	533	1651	2413
1000	1000	1219	1879	292	609	203	101	1168	584	584	1803	2667
1050	1050	1270	1955	292	635	203	101	1219	609	609	1879	2768
1200	1200	1422	2184	292	711	203	101	1371	685	685	2108	3073
1350	1350	1625	2438	342	812	222	127	1574	787	787	2381	3473
1500	1500	1778	2667	342	889	222	127	1727	863	863	2609	3778
1650	1650	1930	2895	342	965	222	127	1879	939	939	2838	4083
1800	1800	2082	3124	342	1041	228	127	2032	1016	1016	3067	4387
1950	1950	2235	3352	342	1117	241	127	2184	1092	1092	3295	4692
2000	2000	2286	3429	355	1143	254	127	2235	1117	1117	3371	4794
2100	2100	2387	3581	355	1193	254	127	2336	1168	1168	3524	4997

**NOTES:**

- All dimensions are in mm.
- Dimensions of rectangular & other sizes on request.

# CAST IRON INTEGRAL FRAME SLIDE GATES

## SERIES: A-103

NON SELF-CONTAINED SLIDE GATE



### SPECIFICATION

These slide gates are made in full compliance with IS 13349 / BS 7775 / AWWA C560.

### APPLICATION

These slide gates are directly mounted on the face of the wall and are used to isolate flow in and out of a conduit. This design can be used for 18 m seating and 9 m unseating head application for gates sizes up to 2000 x 2000 mm .

### FEATURES:

- Flange back frame suitable for directly mounting on face of wall using anchor fasteners and secondary grout between wall and frame or on wall thimble.
- Frame provided with square aperture for square as well as round opening in wall.
- The guides are integral to the frame with fixed wedges bolted to the machined pads on the guides.

- Short length / open top frame provided with short length extension guides sufficient to engage at least half the overall vertical height of slide / door when the gate is full open.
- Slide sufficiently ribbed to suit the applicable water head and designed to suit rising as well as non rising stem requirement.
- Slide provided with integral pocket to house threaded stem connecting block connecting the slide with the stem.
- Non corroding metal to metal seating faces / strips on all the four sides for conventional bottom closing and on three sides for flush bottom closing slide gates.
- Flush bottom closing slide gates provided with frame mounted flush bottom seal flush with bottom invert of opening.
- Seating faces secured firmly in finished grooves of frame & slide.
- Slide mounted adjustable wedges in contact with frame mounted fixed wedges seats to ensure that metal seating faces mounted on frame and slide comes in close mating contact only at the verge of final closure to achieve the desired leakage performance.
- Adjustable wedges on slide to allow future on site adjustment of wedges to enable increased wedging action and compensate possible wear of seating faces.
- Slide gates subjected to seating head application are provided only with adjustable side wedges whereas gates subjected to unseating head application are provided with adjustable side as well as top & bottom wedges. Gates provided with flush bottom closure are not provided with bottom wedges.
- Rising stem with pedestal / yoke mounted manual gate operating mechanism to operate the slide gate with less than 18 kgs effort on the crank or handwheel.
- Single piece or multi piece stem to suit the installation depth, coupling to connect stem sections with the lowest stem section connecting to the stem block mounted on slide.
- Dual or tandem stem for all gates 1200 mm and wider, and having widths greater than twice their height.
- Stem guides and brackets to prevent buckling of stem.
- Anchor bolts with nuts and washers for frame, stem guide brackets and pedestal of lift mechanism.
- Offered with epoxy paint or as required by specifications.

### OPTIONAL FEATURES:

- Square / Rectangular / Circular (Diameter) shaped wall thimble having section F, E or MJ as required.



- Oversized frame opening for slide gates to be mounted in front of a concrete pipe terminating at the face of the wall.
- Seizure free slide gate design by provision of liner in the guide groove and on tongue / jib of slide so that all contact surface are of non-corroding material.
- Self-contained / closed top gate frame with lift mechanism mounted directly on yoke provided across the top of gate frame.
- Non-rising stem.
- Electric / Pneumatic / Hydraulic operating arrangement.
- Portable electric or hydraulic operator.
- Foot wall bracket for pedestal mounting.
- Stem cover made of galvanized steel or transparent plastic tube.
- Gate position indicating arrangement.
- Low leakage, 25% of that permissible as per AWWA C560.
- Hydrostatic body test at 1.5 times the maximum operating head for structural soundness.
- Seat clearance check of each slide gate for clearance between mating sealing faces.
- Movement test for checking interference free movement of complete assembly.
- Torque test to verify gate operating torque for manually operated slide gates.

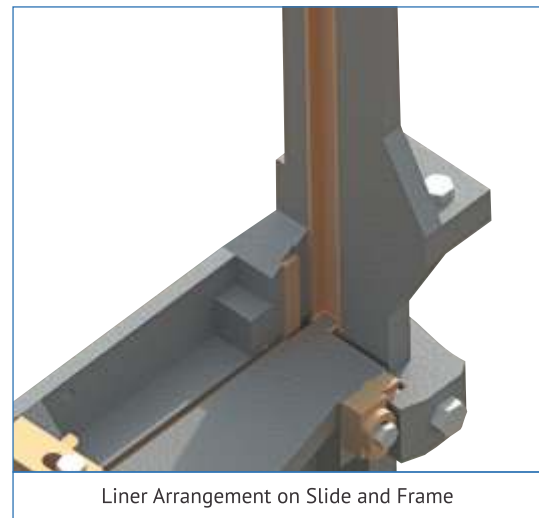
*#For getting similar leakage result at site ensure that there is no frame distortion during the process of slide gate installation on wall.*

#### MATERIAL OF CONSTRUCTION:

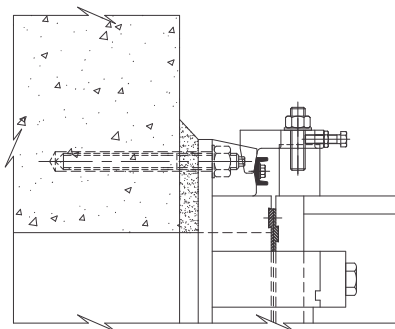
Depending upon application and requirement, client should select and specify the material of construction option for various components of slide gate from the alternatives stated on page no.39.

#### SHOPTESTING:

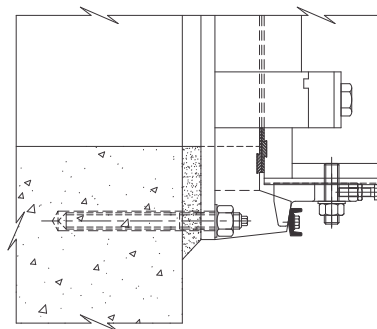
- Leakage testing of slide gate at plant at actual operating head to verify slide gate leakage performance meeting leakage requirement as specified or as given on page no.43.



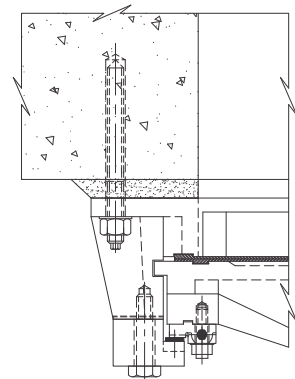
### SEALING ARRANGEMENT



TOP SEALING ARRANGEMENT



BOTTOM SEALING ARRANGEMENT

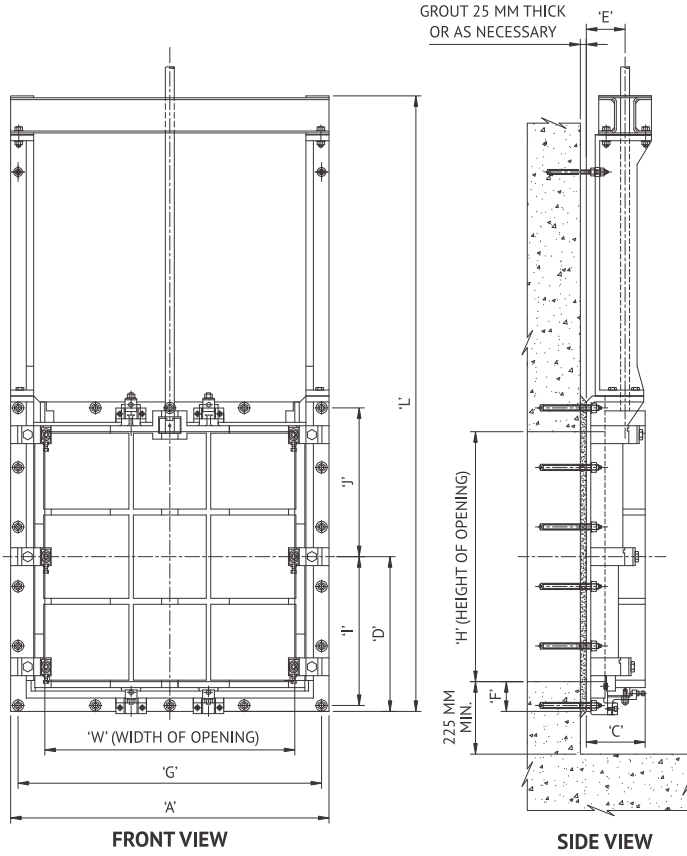


SIDE SEALING ARRANGEMENT

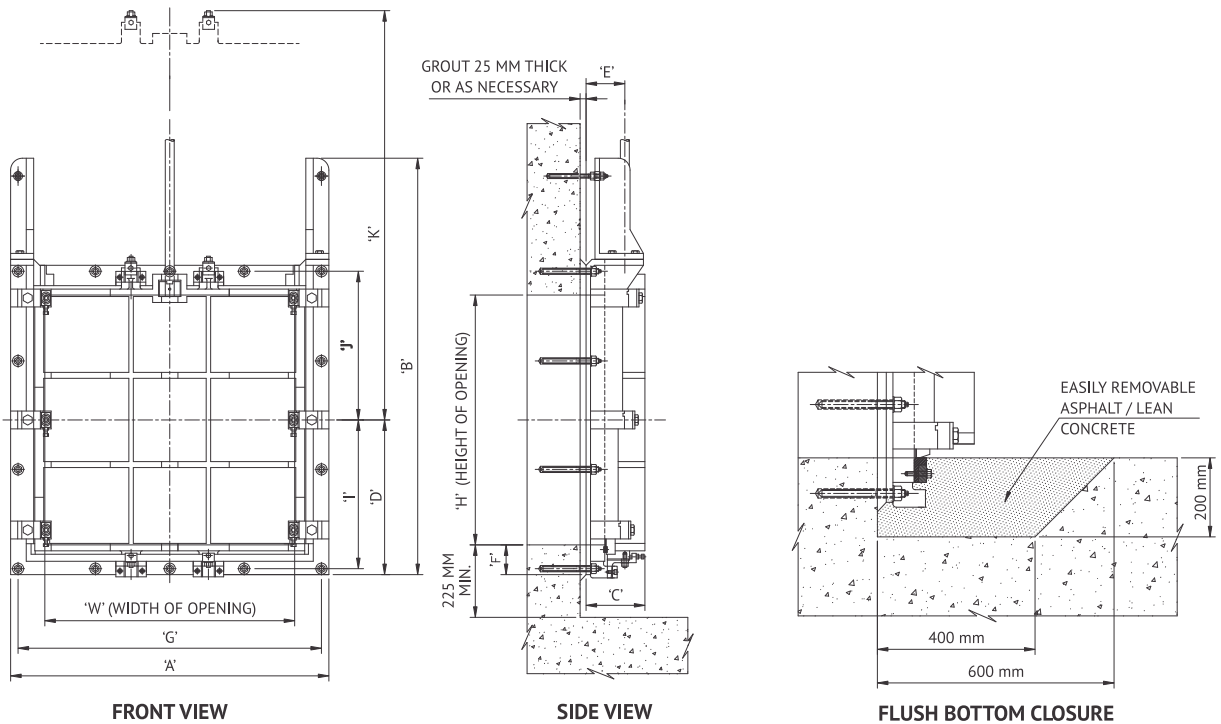
# CAST IRON INTEGRAL FRAME SLIDE GATES

## SERIES: A-103 - DRAWINGS

### SELF CONTAINED - CONVENTIONAL CLOSURE



### NON SELF CONTAINED - CONVENTIONAL CLOSURE



# SERIES: A-103 - DATASHEET



W	H	A	B	C	D	E	F	G	I	J	K	L
304	304	508	584	234	228	76	76	457			736	1,168
406	406	609	1,092	234	279	95	76	558			889	1,371
457	457	711	863	238	355	146	127	660	330	330	965	1,524
508	508	762	914	247	381	152	127	711	355	355	1,041	1,625
609	609	863	1,092	212	431	158	127	812	400	400	1,193	1,828
762	762	1,016	1,320	230	508	158	127	965	476	476	1,422	2,133
914	914	1,168	1,549	228	584	158	127	1,117	552	552	1,651	2,438
1,066	1,066	1,358	1,778	241	660	158	127	1,295	635	635	1,879	2,794
1,219	1,219	1,511	2,006	255	736	158	127	1,447	711	711	2,108	3,098
1,371	1,371	1,663	2,317	289	831	241	146	1,574	787	787	2,381	3,492
1,524	1,524	1,816	2,514	306	908	222	146	1,727	863	863	2,609	3,797
1,676	1,676	1,968	2,806	306	984	222	146	1,879	939	939	2,838	4,102

**NOTES:**

- All dimensions are in mm.
- Dimensions of rectangular & other sizes on request.

# CAST IRON UNIVERSAL FRAME SLIDE GATES

## SERIES: A-104

NON SELF-CONTAINED SLIDE GATE



### SPECIFICATION

These slide gates are made in full compliance with IS 13349 / BS 7775 / AWWA C560.

### APPLICATION

These slide gates are directly mounted on the face of the wall and are used to isolate flow in and out of a conduit. This design can be used for 30 m seating and unseating head application for gates sizes up to 3500 x 3500 mm

### FEATURES:

- Flange back frame suitable for directly mounting on face of wall using anchor fasteners and secondary grout between wall and frame or on wall thimble.

- Frame provided with square aperture for square as well as round opening in wall.
- The guides are separate from the frame and are bolted on to the frame. The guides are designed rigidly to withstand the water & wedging forces generated due to high head application.
- Short length / open top frame provided with short length extension guides sufficient to engage at least half the overall vertical height of slide / door when the gate is full open.
- Slide heavily ribbed to suit the applicable water head and designed to suit rising stem requirement.
- Slide provided with integral pocket to house threaded stem connecting block connecting the slide with the stem.
- Non corroding extra wide metal to metal seating faces/strips on all the four sides for conventional bottom closing and on three sides for flush bottom closing slide gates.
- Flush bottom closing slide gates provided with frame mounted flush bottom seal flush with bottom invert of opening.
- Seating faces secured firmly in finished dovetail grooves of frame & slide .
- Slide mounted heavy duty adjustable wedges in contact with frame mounted fixed wedges seats to ensure that metal seating faces mounted on frame and slide comes in close mating contact only at the verge of final closure to achieve the desired leakage performance.
- Adjustable wedges on slide to allow future on site adjustment of wedges to enable increased wedging action and compensate possible wear of seating faces.
- Slide gates subjected to seating head application are provided only with adjustable side wedges whereas gates subjected to unseating head application are provided with adjustable side as well as heavy duty top & bottom wedges. Gates provided with flush bottom closure are not provided with bottom wedges.
- Rising stem with pedestal / yoke mounted manual gate operating mechanism to operate the slide gate with less than 18 kgs effort on the crank or handwheel.
- Single piece or multi piece stem to suit the installation depth, coupling to connect stem sections with the lowest stem section connecting to the stem block mounted on slide.
- Dual or tandem stem for all gates 1200 mm and wider, and having widths greater than twice their height.
- Stem guides and brackets to prevent buckling of stem.
- Anchor bolts with nuts and washers for frame, stem guide brackets and pedestal of lift mechanism.
- Offered with epoxy paint or as required by specifications.

### OPTIONAL FEATURES:

- Square / Rectangular / Circular (Diameter) shaped wall thimble having section F, E or MJ as required.
- Oversized frame opening for slide gates to be mounted in front of a concrete pipe terminating at the face of the wall.
- Seizure free slide gate design by provision of liner in the guide groove and on tongue / jib of slide so that all contact surfaces are of non-corroding material.
- Self-contained / closed top gate frame with lift mechanism mounted directly on yoke provided across the top of gate frame.
- Non-rising stem.
- Electric / Pneumatic / Hydraulic operating arrangement.
- Portable electric or hydraulic operator.
- Foot wall bracket for pedestal mounting.
- Stem cover made of galvanized steel or transparent plastic tube.
- Gate position indicating arrangement.
- Low leakage, 25% of that permissible as per AWWA C560.

### MATERIAL OF CONSTRUCTION:

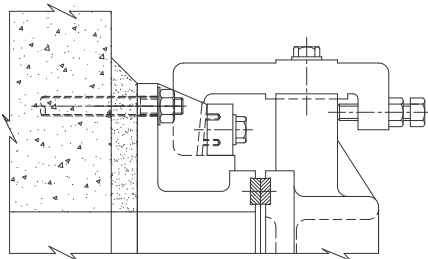
Depending upon application and requirement, client should select and specify the material of construction option for various components of slide gate from the alternatives stated on page no. 39.

### SHOP TESTING:

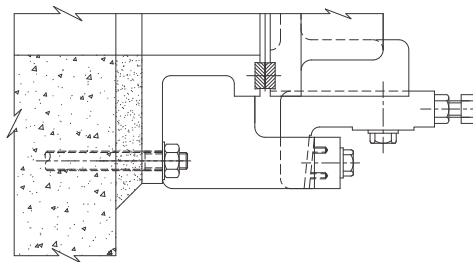
- Leakage testing of slide gate at plant at actual operating head to verify slide gate leakage performance meeting leakage requirement as specified or as given on page no.43.
- Hydrostatic body test at 1.5 times the maximum operating head for structural soundness.
- Seat clearance check of each slide gate for clearance between mating sealing faces.
- Movement test for checking interference free movement of complete assembly.
- Torque test to verify gate operating torque for manually operated slide gates.

*# For getting similar leakage result at site ensure that there is no frame distortion during the process of slide gate installation on wall.*

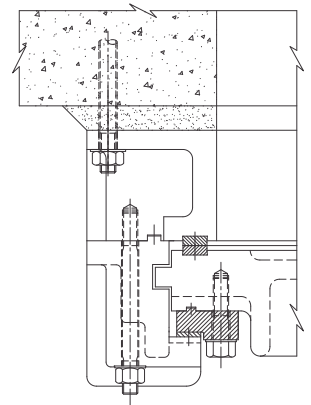
### SEALING ARRANGEMENT



TOP SEALING ARRANGEMENT



BOTTOM SEALING ARRANGEMENT

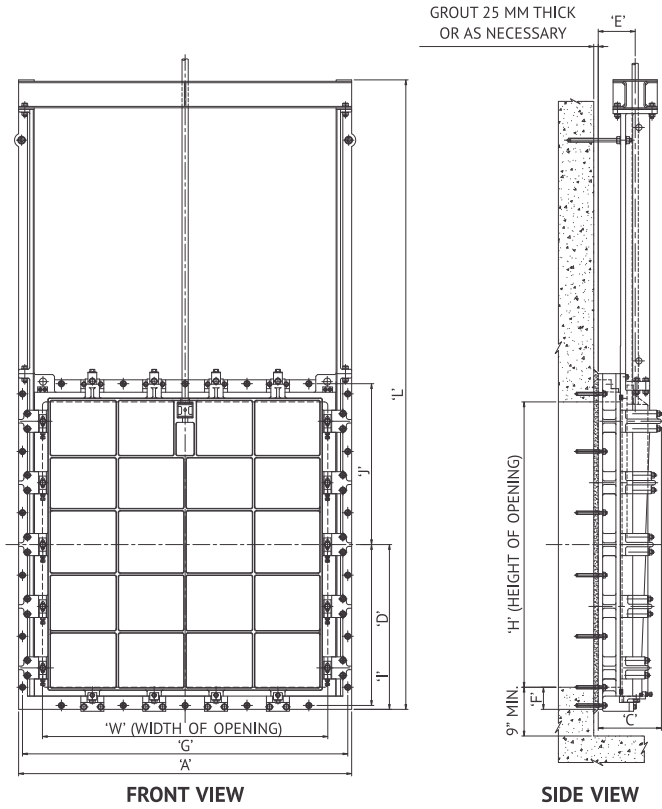


SIDE SEALING ARRANGEMENT

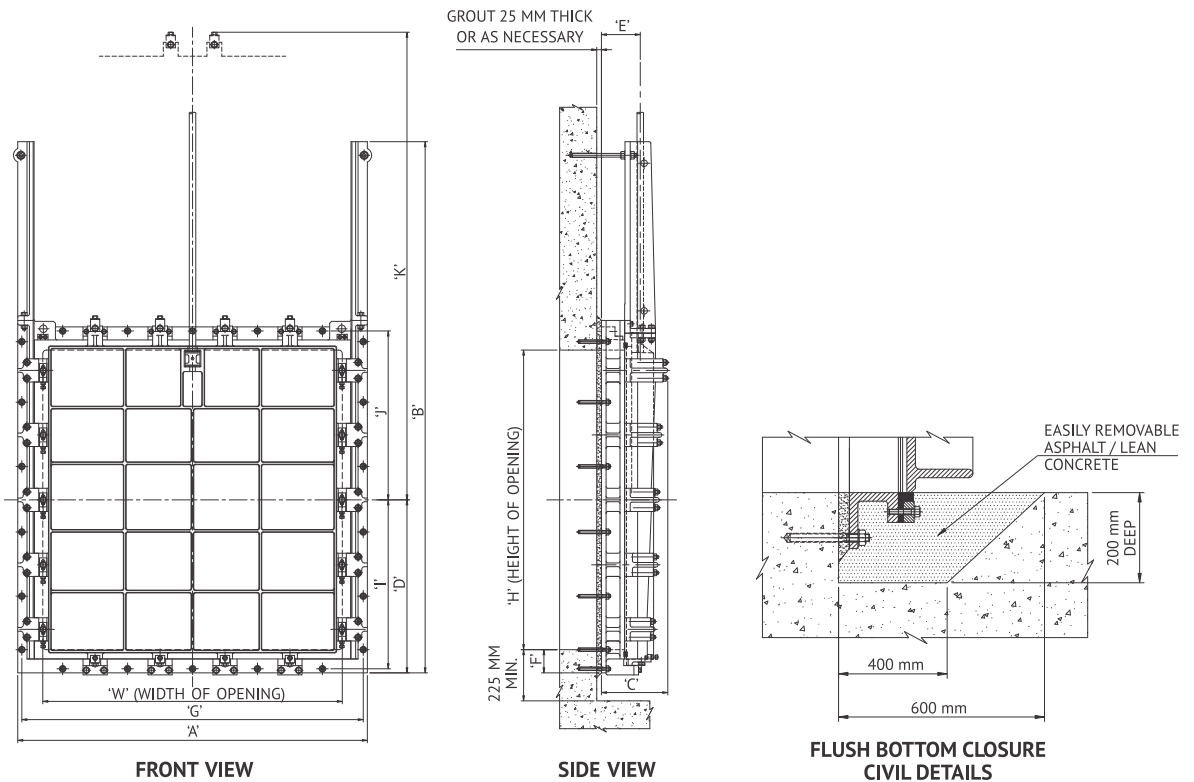
# CAST IRON UNIVERSAL FRAME SLIDE GATES

# SERIES: A-104 - DRAWINGS

SELF CONTAINED - CONVENTIONAL CLOSURE



NON SELF CONTAINED - CONVENTIONAL CLOSURE



# SERIES: A-104 - DATASHEET



W	H	A	B	C	D	E	F	G	I	J	K	L
600	600	812	1270	279	406	177	101	762	381	381	1193	1803
750	750	965	1498	330	482	215	101	914	457	457	1422	2108
900	900	1117	1727	330	558	215	101	1066	533	533	1651	2413
1050	1050	1320	1981	330	660	215	127	1270	635	635	1905	2819
1200	1200	1473	2209	330	736	228	127	1422	711	711	2133	3124
1350	1350	1625	2438	368	812	228	127	1574	787	787	2362	3429
1500	1500	1778	2667	368	889	228	127	1727	863	863	2590	3733
1650	1650	1981	2971	381	990	241	152	1930	965	965	2819	4114
1800	1800	2133	3200	381	1066	241	152	2082	1041	1041	3048	4419
1950	1950	2286	3429	457	1143	254	152	2235	1117	1117	3276	4724
2000	2000	2336	3505	457	1168	254	152	2286	1143	1143	3352	4826
2100	2100	2463	3657	457	1219	254	152	2400	1187	1187	3505	5080
2400	2400	2768	4114	457	1371	266	152	2705	1339	1339	3962	5689
2700	2700	3124	4572	508	1524	342	152	3060	1492	1492	4419	6299
3000	3000	3429	5029	508	1676	342	152	3365	1644	1644	4876	6908

**NOTES:**

- All dimensions are in mm.
- Dimensions of rectangular & other sizes on request.

# CAST IRON GLYDASEAL SLIDE GATES

## SERIES: A-105

NON SELF-CONTAINED SLIDE GATE



- Slide sufficiently ribbed to suit the applicable water head and designed to suit rising as well as non rising stem requirement.
- Slide provided with integral pocket to house threaded stem connecting block connecting the slide with the stem.
- Frame mounted non corroding plastic seat facing in forced wedging contact with corresponding slide mounted resilient seal to achieve the required extremely low leakage.
- Plastic to rubber sealing arrangement provided on two vertical slide and top side. Flush bottom closing arrangement provided on bottom side with frame mounted HY-Q™ flush bottom seal flush with bottom invert of opening in forced contact with bottom edge of slide.
- Rising stem with pedestal mounted manual gate operating mechanism to operate the slide gate with less than 18 kgs effort on the crank or handwheel.
- Single piece or multi piece stem to suit the installation depth, coupling to connect stem sections with the lowest stem section connecting to the stem block mounted on slide.
- Dual or tandem stem for all gates 1200 mm and wider, and having widths greater than twice their height.
- Stem guides and brackets to prevent buckling of stem.
- Anchor bolts with nuts and washers for frame, stem guide brackets and pedestal of lift mechanism.
- Offered with epoxy paint or as required by specifications.

### SPECIFICATION

These slide gates are made as per Rodney Hunt design.

### APPLICATION

These slide gates are directly mounted on the face of the wall and are used to isolate flow in and out of a conduit. This design can be used for 7.5 m seating and unseating head application for gates sizes up to 3500 x 3500 mm requiring extremely low leakage up to 1% of that permissible as per AWWA C560.

### FEATURES:

- Flat back frame suitable for directly mounting on face of wall using anchor fasteners and secondary grout between wall and frame or on wall thimble.
- Frame provided with square aperture for square as well as round opening in wall.
- Short length / open top frame provided with short length extension guides sufficient to engage at least half the overall vertical height of slide / door when the gate is full open.

### OPTIONAL FEATURES:

- Square / Rectangular / Circular (Diameter) shaped wall thimble having section F, E or MJ as required.
- Oversized frame opening for slide gates to be mounted in front of a concrete pipe terminating at the face of the wall.
- Seizure free slide gate design by provision of liner in the guide groove and on tongue / jib of slide so that all contact surfaces are of non-corroding material.
- Self-contained / closed top gate frame with lift mechanism mounted directly on yoke provided across the top of gate frame.
- Non-rising stem.
- Electric/Pneumatic/Hydraulic operating arrangement.
- Portable electric or hydraulic operator.
- Foot wall bracket for pedestal mounting.
- Stem cover made of galvanized steel or transparent plastic tube.
- Gate position indicating arrangement.



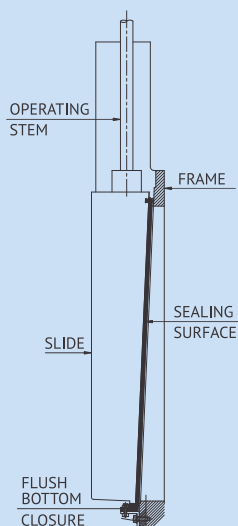
### MATERIAL OF CONSTRUCTION:

Depending upon application and requirement, client should select and specify the material of construction option for various components of slide gate from the alternatives stated on page no.39.

### SHOPTESTING:

- Leakage testing of slide gate at plant at actual operating head to verify slide gate leakage performance meeting leakage requirement as specified.#
- Hydrostatic body test at 1.5 times the maximum operating head for structural soundness.
- Seat clearance check of each slide gate for clearance between mating sealing faces.
- Movement test for checking interference free movement of complete assembly.
- Torque test to verify gate operating torque for manually operated slide gates.

# For getting similar leakage result at site ensure that there is no frame distortion during the process of slide gate installation on wall.



### WHY GLYDASEAL™ GATE DESIGN?

In the GLYDASEAL™ slide gate design, the seat facings are secured on an inclined plane on the frame. As the slide moves downward to the closed position, the seating surfaces come into initial contact for their full length, approximately 50 mm from the fully closed position. As the gate continues to close the resilient seal on the slide is compressed to form a very tight seal.

The amount of compression of the seal is precisely set in the factory. This pressure can be adjusted in the field if necessary by adjusting the bronze guide bar which is mounted on the guide and engages a slot in the sides of the disc.





### SPECIFICATION

These open channel slide gates are made as per Jash design and complies to IS 13349 / BS 7775 / AWWA C560 for leakage and other general requirements.

### APPLICATION

These open channel slide gates are used to isolate flow within as well as in and out of an open channel. These are suitable for seating water head and are provided with sealing arrangement on 3 sides only and not on top side and so the height of water should always be less than the height of slide.

### FEATURES:

- Frame design suitable for (i) embedment on two sides and bottom, or (ii) anchoring on two sides and bottom, or (iii) face wall mounting at the end of channel.
- Gate frame provided with full length extension guides sufficient to engage full height of slide / door over the water height when the gate is open.
- Self-contained gate frame with lift mechanism mounted directly on yoke provided across the top of gate frame.
- Slide sufficiently ribbed to suit the applicable water head and designed to suit rising stem requirement.
- Provided with pin and knuckle type stem connecting arrangement to connect the slide with the stem.
- Provided with EASY-GLIDE™ resilient sealing system to offer leakage limits substantially lesser than AWWA C560 and low operating torque.
- EASY-GLIDE™ resilient sealing system comprise of replaceable resilient seal in forced contact with non corroding metal seating faces to ensure reduced seal wear.
- Flush bottom slide gates with EASY-GLIDE™ resilient sealing system provided with bottom sealing comprising of flexible rubber seal flush with the opening.
- Seal fitment ensures that no dismantling of gate from its location is to be done for future replacement.
- Economical and faster erection of fully assembled gate in a single set-up.
- Rising stem with yoke mounted manual gate operating mechanism to operate the slide gate with less than 18 kgs effort on the crank or handwheel.
- Dual or tandem stem for all gates 1200 mm and wider and having widths greater than twice their height.
- Anchor bolts with nuts and washers for frame suitable for side anchoring or wall mounting.
- Offered with epoxy paint or as required by specifications.

### OPTIONAL FEATURES:

- Bi-directional sealing for seating as well as un-seating water head.
- Extended side guides in case operating thrust is to be taken on frame for gates where operating arrangement is located at more than 2.5 times the height of slide.
- Non-rising stem.

- Chain and sprocket arrangement to lower the handwheel / crank centerline to an elevation of 900 mm from the top of operating floor in case where manual operating arrangement is located more than 1500 mm distance from the operating floor. (Refer sketch below)
- Electric/Pneumatic/Hydraulic operating arrangement.
- Portable electric or hydraulic operator.
- Stem cover made of galvanized steel or transparent plastic tube.
- Gate position indicating arrangement.

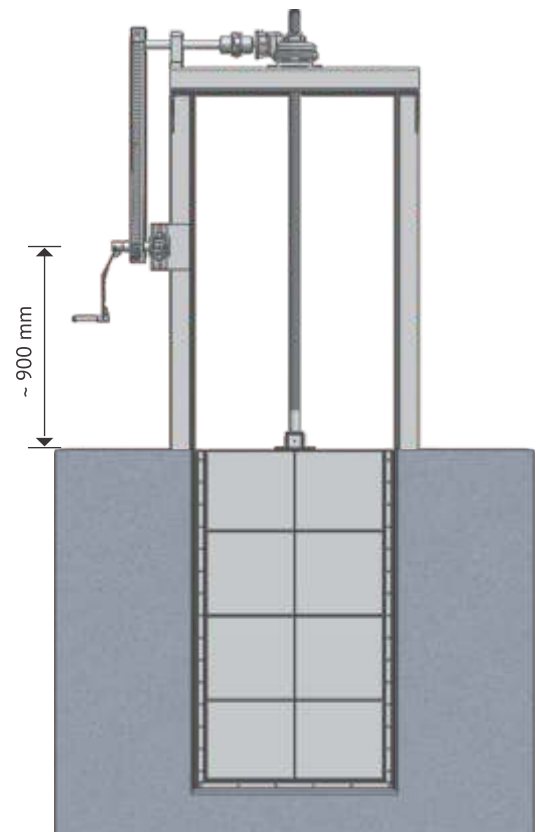
#### MATERIAL OF CONSTRUCTION:

Depending upon application and requirement, client should select and specify the material of construction option for various components of gate from the alternatives stated on page no. 39.

#### SHOP TESTING:

- Leakage testing of slide gate at plant with water filled till top of slide to verify slide gate leakage performance. #
- Seat clearance check of each slide gate for clearance between mating sealing faces.
- Movement test for checking interference free movement of complete assembly.
- Torque test to verify gate operating torque for manually operated slide gates.

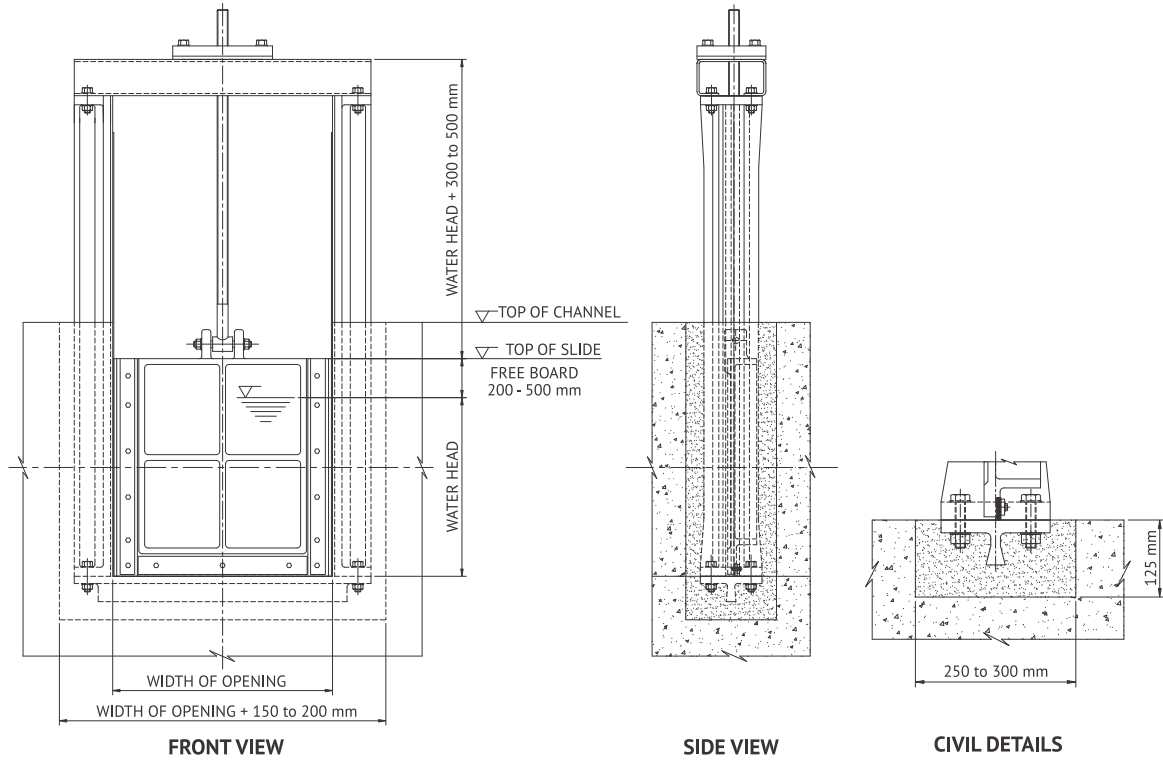
# Shop leakage test will be carried out only when a test has been specifically agreed to or when a test is specifically stated in specifications.



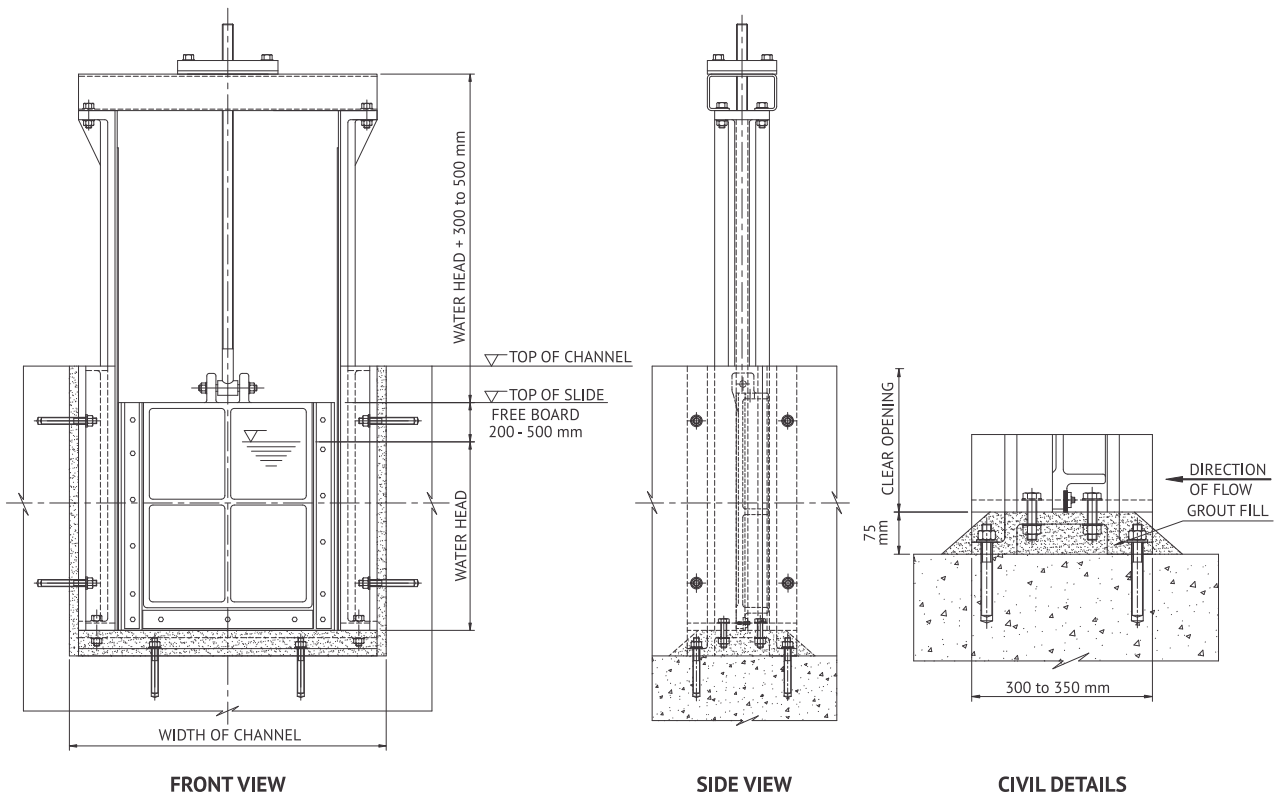
# CAST IRON OPEN CHANNEL SLIDE GATES

## SERIES: A-201 / 202 - DRAWINGS

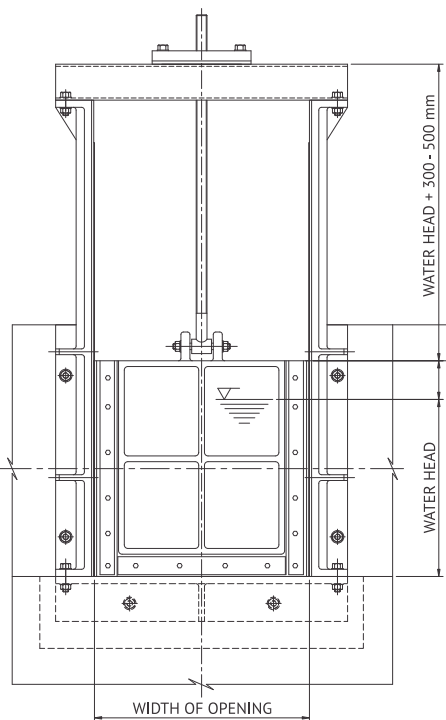
SERIES : A - 201 - SIDE WALL EMBEDDED



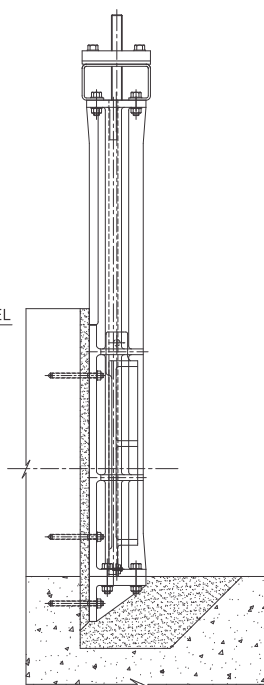
SERIES : A - 202 - SIDE WALL ANCHORED



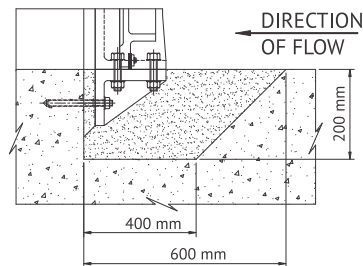
SERIES : A - 203 - FACE WALL ANCHORED



FRONT VIEW

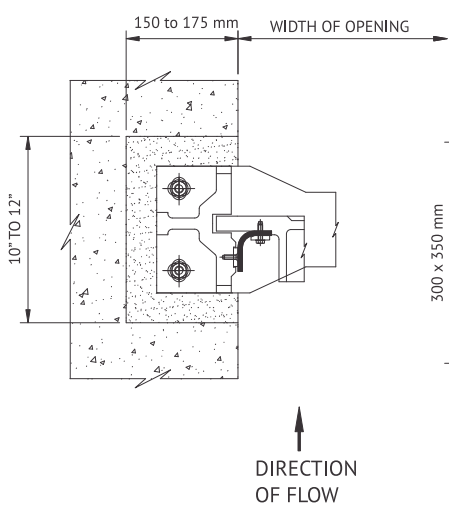


SIDE VIEW

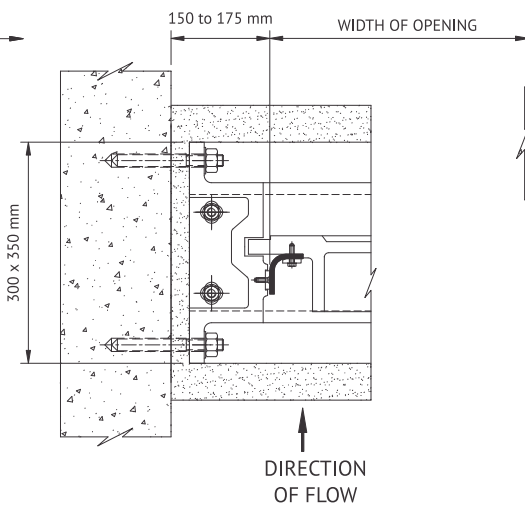


CIVIL DETAILS

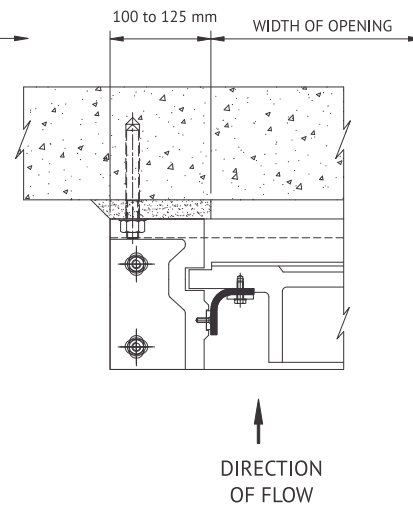
SEALING ARRANGEMENT



SERIES: A-201



SERIES: A-202



SERIES: A-203



### SPECIFICATION

These weir gates are made as per JASH design and complies to IS 13349 / BS 7775 / AWWA C560 for leakage & other general requirements.

### APPLICATION

These are downward opening overflow weir gates (not downward opening slide gates) mounted on the face of a wall and are provided with sealing arrangement which ensures continuous sealing on 3 sides (side and bottom) at any extent of gate opening and allows water to overflow only from the top side. These are used either for (i) decanting of a reservoir or a tank, or (ii) maintaining precise level control in a reservoir or a tank, or (iii) to isolate the flow as well as maintain precise level control by providing optional 4th side (top side) sealing arrangement.

### FEATURES:

- Flange back frame suitable for directly mounting on face of wall using anchor fasteners and secondary grout between wall and frame or on wall thimble
- Short length frame provided with short length extension guides sufficient to engage at least half the overall vertical height of door when the gate is full open / fully lowered.
- Slide sufficiently ribbed to suit the applicable water head and designed to suit rising stem requirement.
- Slide provided with integral pocket to house threaded stem connecting block connecting the slide with the stem.
- Offered with either metal to metal sealing system or PRESS-ON™ resilient sealing system. Type of sealing system offered depends upon client requirement and application.
- Metal to metal sealing system on 3 sides comprising of non-corroding non-ferrous metal seat facing mounted on frame and slide. Complete continuous water sealing on sides and bottom of gate aperture at any position of slide opening ensured by providing non-corroding nonferrous sealing face on entire face of slide.
- Gates offered with metal to metal sealing system provided with GRIT-DEFLECT™ arrangement to prevent embedment of grit in bottom sealing area and thereby avoid scouring of nonferrous sealing on slide face.
- Bigger size weir gates provided with PRESS-ON™ resilient sealing system to offer leakage limits substantially lesser than AWWA C560.
- PRESS-ON™ resilient sealing system comprise of replaceable resilient seal fitted on inner perimeter of frame in forced contact with seat facing mounted on slide. Complete continuous water sealing on sides and bottom of gate aperture at any position of slide opening ensured by providing non-corroding sealing face on entire face of slide.

- Seal fitment ensures that no dismantling of gate from its location is to be done for future seal replacement.
- Rising stem with pedestal mounted manual gate operating mechanism to operate the slide gate with less than 18 kgs effort on the crank or handwheel.
- Single piece or multi piece stem to suit the installation depth, coupling to connect stem sections with the lowest stem section connecting to the stem block mounted on slide.
- Stem guide and brackets to prevent buckling of stem.
- Dual or tandem stem for all gates 1200 mm and wider, and having widths greater than twice their height or where decanting requires a precise level weir elevation.
- Anchor bolts with nuts and washer for frame, stem guide brackets and pedestal of lift mechanism.
- Offered with epoxy paint or as required by specifications.

#### OPTIONAL FEATURES:

- Square / Rectangular shaped wall thimble having section F or E as required.
- Top sealing arrangement for isolation requirement.
- Self contained gate frame with lift mechanism mounted directly on yoke provided across the top of the gate frame
- Non rising stem.
- Electric /Pneumatic /Hydraulic operating arrangement.
- Portable electric or hydraulic operator.
- Foot wall bracket for pedestal mounting.
- Stem cover made of galvanized steel or transparent plastic tube.
- Gate position indicating arrangement.

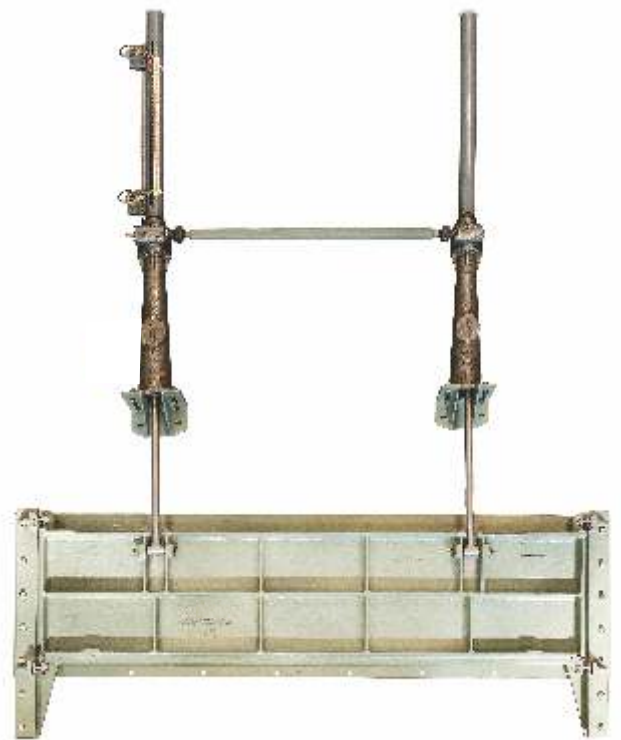
#### MATERIAL OF CONSTRUCTION:

Depending upon application and requirement, client should select and specify the material of construction option for various components of weir gate from the alternatives stated on page no. 39.

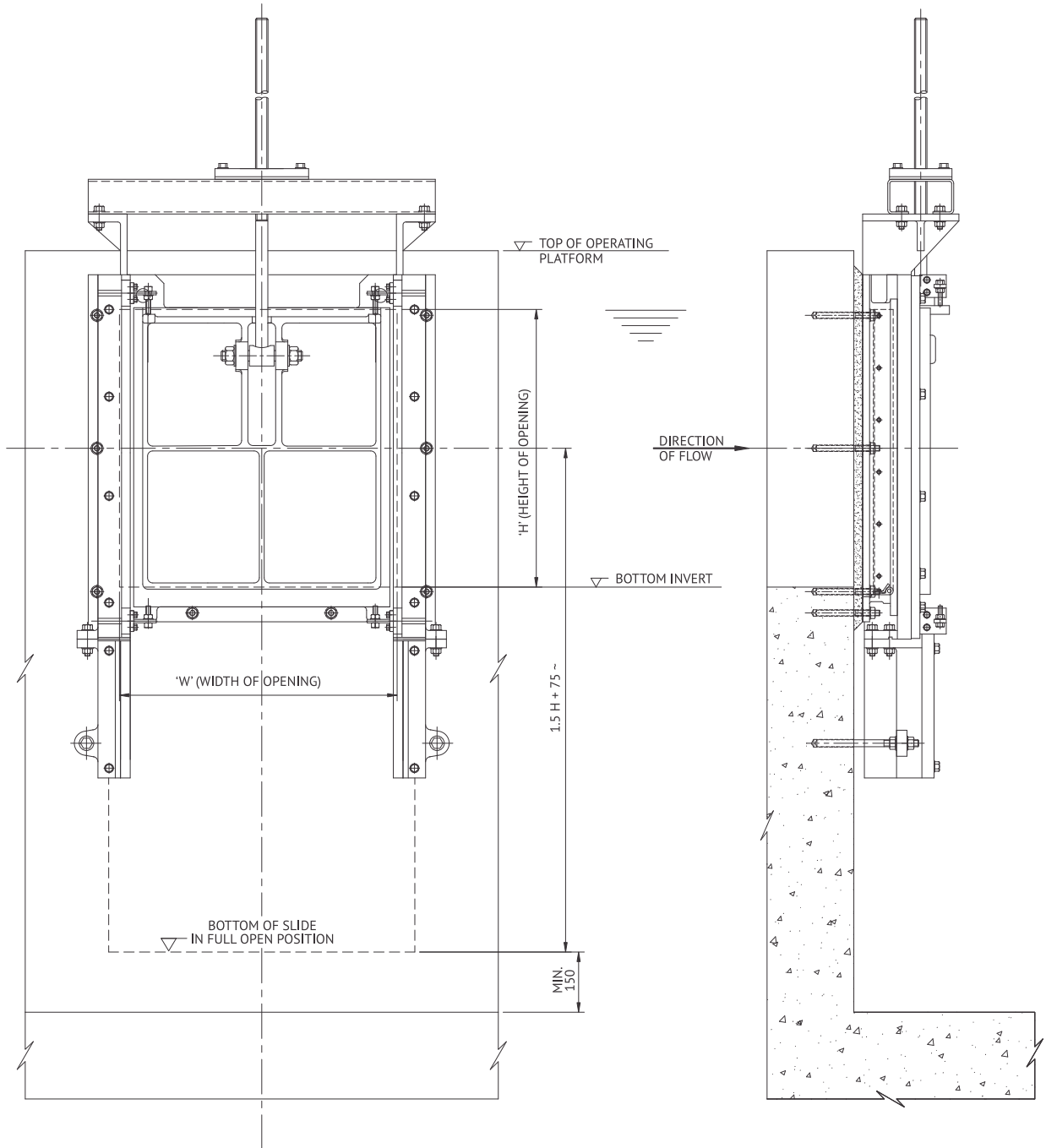
#### SHOP TESTING:

- Leakage testing of weir gate at plant with water filled till top of slide to verify gate leakage performance.#
- Seat clearance check of each weir gate for clearance between mating sealing faces.
- Movement test for checking interference free movement of complete assembly.
- Torque test to verify gate operating torque for manually operated weir gates.

*# Shop leakage test will be carried out only when a test has been specifically agreed to or when a test is specifically stated in specifications.*

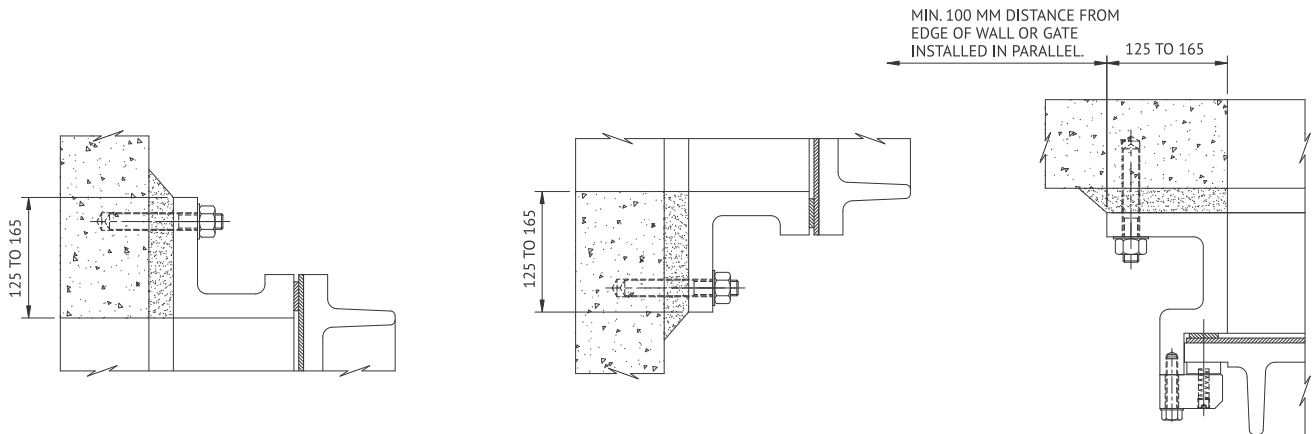


DUAL OR TANDEM STEM OPERATING ARRANGEMENT





**METAL TO METAL SEALING ARRANGEMENT**

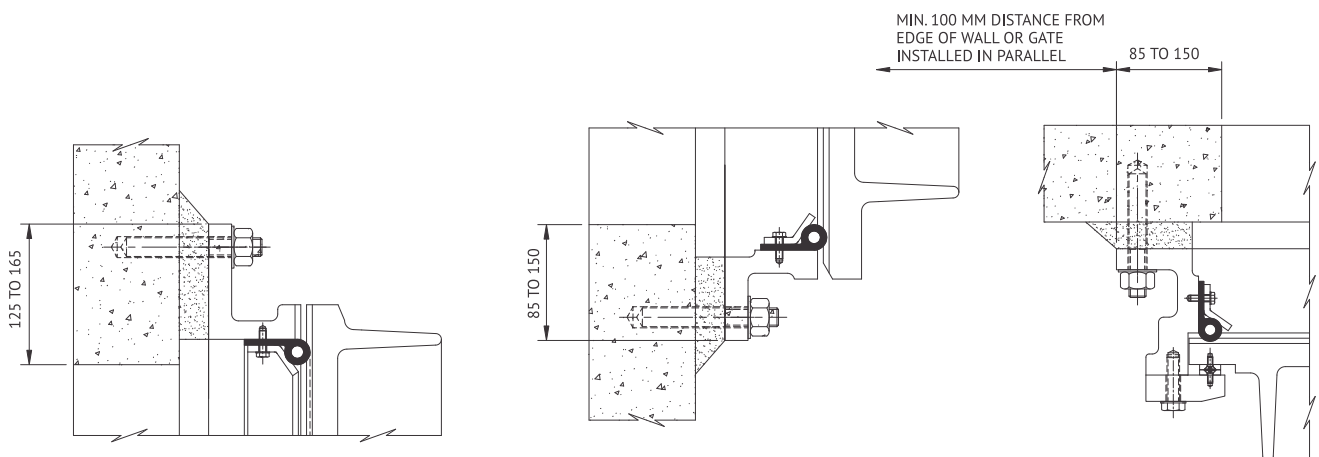


TOP SEALING ARRANGEMENT (OPTIONAL)

BOTTOM SEALING ARRANGEMENT

SIDE SEALING ARRANGEMENT

**PRESS-ON™ RESILIENT SEALING SYSTEM**



TOP SEALING ARRANGEMENT (OPTIONAL)

BOTTOM SEALING ARRANGEMENT

SIDE SEALING ARRANGEMENT

## CAST IRON WATER CONTROL PRODUCTS

## STANDARD AND OPTIONAL MATERIALS

The client to select and specify materials of construction of various components from the following alternatives based on the application and requirement. If required, materials of construction other than those specified below may also be adopted upon specific request.

S. NO.	SLIDE GATE COMPONENTS	MATERIALS	SPECIFICATIONS	GRADES / TYPES
1.	Gate Frame, Guide, Slide, Thimble, Stem Guides, Wedging Devices	Cast Iron  Ductile Iron Ni-Resist	IS 210 BS 1561 ASTM A126 ASTM A48 ASTM A536 ASTM A436	FG:200, 220, 260 Grade 200, 250 Class B or C Class 30 65-45-12, 80-55-06 Type 1, Type 2
2.	Wedges	Bronze Stainless Steel	ASTM B584 ASTM A 351	CA 836, CA 863, 865, CA 873 CF8, CF8M
3.	Sealing faces / Seat facings	Phosphor Bronze Bronze  Leaded Tin Bronze Leaded Gunmetal Stainless Steel	IS: 7814 ASTM B21 ASTM B98 ASTM B584 IS: 318 BS 1982 ASTM A240 / A 276	Grade 1, Grade 2 CA 464 or CA 482 CA 651 or CA 655 CA 836, CA 863, 865, CA 873 LTB 1, LTB 2 LG 2 304, 304L, 316, 316L
4.	Resilient Rubber Seal	EPDM Rubber Neoprene Rubber	ASTM D 2000 ASTM D 2000	
5.	Rubber Seal Retainer Bar	Mild Steel Stainless Steel Cast Iron	IS: 2062 ASTM A240 ASTM A126	Grade A 303, 304, 304L, 316, 316L Class B or C
6.	Connecting Block / Stem Block / Thrust Nut	Stainless Steel Leaded Gunmetal Bronze	ASTM A 276 BS 1982 ASTM B584	303, 304, 316, CF8, CF8M LG2 CA 863, 865, CA 873
7.	Stem & Coupling	Mild Steel Stainless Steel Bronze	IS: 2062 ASTM A 276 ASTM B584	Grade A 303, 304, 316, 17-4 PH CA 863, 865, CA 873
8.	Operating Nut / Stem Nut	Leaded Tin Bronze Leaded Gunmetal Bronze	IS: 318 BS 1982 ASTM B584	FB 200 LG2 CA 863, 865, CA 873
9.	Fasteners, Nuts and Bolts	Stainless Steel	ASTM A 276	304, 316,
10.	Pedestal, Stem Guide Bracket, Wall Bracket	Cast Iron Ductile Iron Stainless Steel	ASTM A126 /ASTM A48 ASTM A536 ASTM A 240/ 276	Class B / Class 30 65-45-12, 80-55-06 304, 304L, 316, 316L
11.	Stem Cover	Polycarbonate Galvanized Iron		

## STANDARD ACCESSORIES

All Jash water control gates are supplied with following standard accessories, where required.

**MANUAL LIFT MECHANISM / SCREW HOIST:** Civil floor mounted manually operated ungeared or geared lift mechanism with pedestal to enable a person to operate the gate in standing position with an effort of not more than 40-lb. Lift mechanism on self contained gate is generally provided without floor stand / pedestal and is of bench type so that it can be directly mounted on yoke of frame.

Ungeared lift mechanism offers fastest operation and is provided when lifting load is low. Ungeared lift mechanism is provided with a thrust bearing mounted non ferrous threaded stem nut engaging with stem threads. An easily removable type stainless steel handwheel is then mounted on the stem nut and rotation of the handwheel results in gate operation. This arrangement can have provision for locking of the handwheel to prevent unauthorized operation. It is not compatible with portable operators.

Geared lift mechanism is provided when lifting load is higher thereby requiring gearing to reduce the effort to within 18 kgs or when portable operators are going to be used. It has thrust bearing mounted non ferrous threaded stem nut engaging with stem threads and this stem nut is connected to a bevel or spiral bevel gear arrangement which when operated through a crank handle, operates the gate. Geared lift mechanism is provided with machined gears completely encased in housing to protect it from dirt, dust, rain and other atmospheric effects and have arrangement for lubrication as well as for locking of removable stainless steel crank handle with the stainless steel floor stand / pedestal after it is removed from the driving shaft.

When the gear ratio required to operate the gate is higher than 1:5 a two speed geared lift mechanism is routinely furnished. This is done with a view to reduce the time required to manually operate the gate. The slower speed with high gear ratio is provided for initial crack opening of gate needing maximum torque. The faster speed with low gear ratio is provided for further opening after the gate is initially crack opened.

Dual or Tandem lift mechanism is provided for gates 1200 mm and wider and having width of opening greater than twice the height of opening. Twin lifting arrangements are connected by tandem shaft with flexible coupling for simultaneous operation. Refer photo on page no. 36 for tandem lift mechanism

**STEM:** Single piece or multi-piece, as required, to connect the slide with the lift mechanism. The stems are provided with right hand square or acme threads. Maximum length of single piece stem is generally restricted to 5.5 m.

**COUPLINGS:** Internally threaded couplings to couple / connect small lengths of stem when stems are to be longer than 3.5 to 4.5 m. The couplings are provided with pins passing through engaging stems for locking.

**STEM GUIDES:** Adequate number of stem guides to limit unsupported length of stem within fifty times its diameter.

Adjustable type stem guides are adjustable and comprise of a cast iron right angled bracket to be secured on the face of wall with anchor bolts and an adjustable HDPE guide which can be secured on the horizontal face of the right angled bracket.



Ungeared  
Lift Mechanism



Geared Lift Mechanism



Two Speed Geared  
Lift Mechanism



Stem Guide for  
Flat Back Frame Gates



Stem Guide for  
Flange Back Frame Gates



Coupling

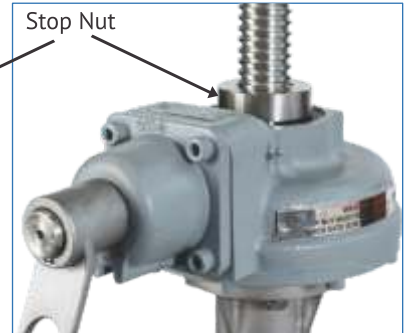
## STANDARD AND OPTIONAL ACCESSORIES

**STOP NUT:** Stainless steel stop nut is provided for rising stem gates to prevent over-closing the gate and thus avoid damage to gate assembly, stem and operating platform. Stop nut has threads to engage with threads of stem and is furnished with a set screw to set it in a fixed position 1 to 2 mm above the lift nut after the gate is installed.

**ANCHOR BOLTS / ANCHOR FASTENERS:** Either L-shaped anchor bolts or chemical anchor fasteners for gate frame, stem guide brackets and floor stand / pedestal of lift mechanism, as necessary.



Stop Nut for Ungeared Lift Mechanism



Stop Nut for Geared Lift Mechanism

## OPTIONAL ACCESSORIES



Stem Cover and Indicating Arrangement for Ungeared Lift Mechanism



Stem Cover and Indicating Arrangement for Geared Lift Mechanism



Foot Wall Bracket



Offset Center Floor Stand

*Wherever necessary, following optional accessories and variations in construction of accessories are offered upon specific request.*

**STEM COVER:** Polycarbonate / acrylic stem cover is provided on lift mechanism of rising stem gates to protect stem threads from dirt, dust and weather. In case of bigger diameter of stems, galvanized steel stem covers are provided.

**GATE OPENING INDICATING ARRANGEMENT:** Stem cover type gate opening indication arrangement is provided on rising stem gates to indicate "OPEN" or "CLOSE" position of gate and if required the extent of gate opening by providing a scale with 10 mm graduation.

**FOOT WALL BRACKET:** Foot wall bracket can be provided to support floor stand / pedestal of lift mechanism in cases where civil platform is not available for mounting of floor stand / pedestal. The bracket is secured to the vertical face of the wall using anchor bolts and the floor stand / pedestal is then secured on the horizontal face of bracket using bolts and nuts.

**OFFSET CENTER FLOOR STAND / PEDESTAL:** Offset center floor stand / pedestal can be used in lieu of foot wall bracket in cases where civil platform is not available. The foot of the floor stand / pedestal is secured to the horizontal face of the vertical wall using anchor bolts. The top portion of floor stand / pedestal / has an offset bracket which enables mounting of bench type lift mechanism on it for gate operation.

**ELECTRICALLY OPERATED LIFT MECHANISM WITH MANUAL OVERRIDE FACILITY:**

Electrically operated lift mechanism comprises of standard electric actuators manufactured by Rotork / Auma / Flowserve / Emerson / Equivalent and mounted on floor stand / pedestal. These actuators enable gate operation between 250 - 300 mm / minute and are rated for opening or closing of a gate within 15 minute as per the requirement. The actuators are provided with manual override ability to manually operate the gate in event of electric failure or malfunction. Actuators to suit modulating application can also be given.

**PNEUMATICALLY OPERATED LIFT MECHANISM WITH MANUAL OVERRIDE FACILITY:**

Pneumatically operated lift mechanism comprises of double acting pneumatic (air) cylinder which pulls the slide to open and pushes to close. The pneumatic actuating mechanism is designed for operating at air supply pressure of 5 bar. In event of failure in air supply an easily engageable override arrangement is provided to manually operate the gate.

**HYDRAULICALLY OPERATED LIFT MECHANISM FOR FAIL SAFE OPERATION:**

Hydraulic operated lift mechanisms are generally used for fail safe operation and are comprised of a hydraulic power pack and a double acting hydraulic cylinder which pulls the slide to open and pushes to close. It is generally designed for lifting at hydraulic pressure of 140 bar or less. Depending upon client's requirement provision can be given to operate the slide by manual hand pump during emergency in event of pump failure or the slide can be operated once using accumulators during failure of power supply.

**PORTABLE OPERATOR FOR MANUALLY OPERATED GATES:**

Portable operators are used for faster opening of manually operated gates having geared lift mechanism. A common portable operator can be used for intermittent operation of a number of gates of different sizes located near each other.

Tripod type electric portable operator, hydraulic portable operator, gasoline engine driven portable operator or battery operated electric portable operator are options available for portable operator.



Electrically Operated Lift Mechanism



Pneumatically Operated Lift Mechanism



Tripod Type Portable Operator



Hydraulic Portable Operator



Battery Operated Portable Operator



Hydraulically Operated Lift Mechanism

# SHOP INSPECTION TESTS CARRIED OUT FOR CAST IRON SLIDE GATES

## SEAT CLEARANCE CHECK (Applicable for all type of gates):

Clearance, if any, between the mating sealing faces of the gate frame and slide, in gate fully closed position is checked to ensure that 0.1 mm thick feeler gauge does not pass through the mating sealing faces. This check is carried out for each gate.

## MOVEMENT TEST (Applicable for all type of gates):

The gate is mounted horizontally on a test plate or vertically mounted on a test plate along with its stem, coupling, stem guides and lift mechanism i.e. complete gate assembly as shown on approved general arrangement drawing and following checks are made by fully opening / closing the gate once.

- Checking the distance from center line of gate opening to base of lift arrangement to verify that the stem length provided is correct.
- Confirming interference free movement of stem by checking that couplings do not foul with stem guides while opening / closing of gate.
- Checking that adequate threaded length is provided on stem for full opening & closing of gate in case of manual / electric operated gates.

In a lot of gates having same gate size, stem length, same number of couplings & stem guides and lift mechanism, this test is carried out on one gate assembly selected at random.



Movement Test

## SHOP LEAKAGE TEST UNDER MAXIMUM OPERATING HEAD (Applicable only wherever specifically so agreed):

The gate is mounted on a test bench either vertically or horizontally. A hydraulic pressure equal to the maximum operating head above gate center line is applied from the back using pumps i.e. unseating side of the gate in closed position. Water leaked through the gate under maximum unseating pressure is collected and its volume is measured.

Leakage shall not exceed the allowable leakage as shown in table on page 44 against respective standard such as IS 13349 / BS 7775 / AWWA C560.

After carrying out the test satisfactorily as above the gate is opened slightly and then closed. Leakage test as above is carried out once again. Thus each gate is shop tested for leakage two times and each time leakage, if any, has to be within the respective permissible limits stated above or as agreed with the client.



Shop Leakage Test

S.No.	Water Head	Type of head	IS-13349	BS7775	AWWA C-560
1	Up to 6 M	Seating Head	1.25	1.25	1.24
		Unseating Head	1.25	2.50	2.48
2	Above 6 M	Seating Head	2.50	1.25	1.24
		Unseating Head	2.50 (Class I)# 3.50 (Class II) 4.50 (Class III)	1.25 + 0.21* head	1.242 + 0.204* head

Allowable leakage given in Liter / minute / meter of sealing perimeter. # Class I- Up to 5 m, Class II- up to 10 m, Class III- up to 15 m.

**SHOP HYDROSTATIC PRESSURE BODY TEST UNDER 1.5 TIMES MAXIMUM OPERATING HEAD** (Applicable only for series A-101 to A-105 wherever specifically so agreed):

After satisfactorily carrying out the leakage test, with the gate mounted in closed position on test bench, water pressure equal to 1.5 times the maximum operating head is applied from the unseating side for a period of five minutes. Acceptance norm requires that under this test there shall be no leakage through the metal nor shall any part be permanently deformed. This test is carried out for each gate.

**OPERATING TORQUE TEST AT MAXIMUM OPERATING HEAD** (Applicable only for manually operated gates wherever specifically so agreed):

The gate is mounted on a test bench either vertically or horizontally and hydraulic pressure equal to the specified maximum head above gate center line is applied from the back i.e. unseating side of the gate in closed position. The gate is then opened and torque required to operate the gate under above maximum unseating pressure is measured. The acceptance norm requires that the torque should not exceed 70 Nm.

**DIMENSIONAL VERIFICATION CHECK** (Applicable for all types of gates):

Actual dimensions are verified with reference to the important dimensions given in our general arrangement drawings furnished against each order. Variation in dimensions, if any, shall be within the permissible limits as per ISO / TS - 8062-2 for castings and extra coarse limits as per ISO-2768 for dimensions without specified tolerances.

**REVIEW OF MATERIAL TEST CERTIFICATES** (Applicable for all types of gates):

Material test certificates as agreed for major components like gate frame, slide, wall thimble, guides, seals, stems etc are furnished for review at the time of shop inspection.

Also positive material identification check is carried out at the time of shop inspection to verify that materials used in manufacturing of gate are as per the requirement.

**NOTES:**

1. Shop leakage test cannot be carried out for all types and sizes of gates. Further this test involve extra costs. Purchasers, therefore, should consult the manufacturer before specifying this test especially if gates are bigger than 3000 mm.
2. While testing of gates for the maximum operating seating head, suitable clamps are used to restrict the deflection of the top and bottom edges of the slide under unseating test head. Such clamps are removed after carrying out the hydraulic pressure tests.
3. A gate can be designed, manufactured and shop tested to produce a very low leakage rate, but installation factors beyond the control of the manufacturer, especially the flatness of the wall where the gates are to be mounted, can seriously affect leakage characteristics. Therefore, Field Leakage Test after installation of the gate is not agreed until gates are erected under manufacturer's supervision.
4. No tests or checks other than those stated above are carried out unless specifically so agreed prior to order placement.

# IMPORTANT PARTICULARS TO BE FURNISHED BY THE PURCHASERS WITH THEIR ENQUIRY OF GATES

A gate is a customized product with many design and constructional variations offered to suit the application. Non availability of full information about your requirement may lead us to make assumptions resulting in increased cost estimate or offering wrong features. Hence clients should furnish following details to enable us arrive at the most cost economical and technically suitable product for intended use.

## 1. Type of Application

- Isolate flow in & out of a conduit (4 sides sealing), or
- Modulating flow in & out of a conduit (4 sides sealing), or
- Isolate flow in an open channel (3 sides sealing), or
- Downward opening Weir application (3 sides continuous sealing), or
- Downward opening Weir application with isolation (4th top side sealing + 3 sides continuous sealing).

## 2 Type of Mounting

- Mounted directly on face of wall, or
- Mounted on front of a concrete pipe terminating on face of wall (requires wider mounting flange of frame), or
- Mounted on flanged end of a pipe (furnish pipe flange and drilling details to allow provide suitable mounting flange of frame), or
- Mounted on wall thimble or
- Embedded between parallel walls of channel, or
- Anchored on parallel walls of channel, or
- Any other special mounting (clarify by sketch).

## 3 Shape of Gate Opening and Size in Inch / Feet

- Square (Width x Height, in inch / feet), or
- Rectangular (Width x Height, the first of the two dimensions is always conventionally reckoned as the Width of opening, in inch / feet), or
- Circular (Diameter, in inch / feet).

## 4 Type of Head in Feet

- Seating, or
- Unseating (may involve additional costs and so specify this only if actually required) or
- Seating as well as Unseating head. (may involve additional costs & so specify this only if actually required)

## 5. Operating Head i.e. maximum head against which the gate is to be opened or closed in feet.

## 6. Distance from Centerline of Gate Opening to top of operating floor in feet.

## 7. Distance from Gate Invert to Sump Invert in Inch / Feet.

## 8. Required Direction of Opening

- Upward opening, or
- Downward opening, or

## 9. Type of Bottom Closure

- Conventional bottom closure, or
- Flush bottom closure.

## 10. Type of Stem

- Rising stem, or
- Non rising stem.

## 11. Thrust Reaction to be Taken on

- Civil floor via floor stand / pedestal mounted directly on top of floor, or
- Civil floor via floor stand / pedestal mounted on steel channels across a gap on top of floor, or
- Civil wall and floor via fabricated right angled foot plate wall bracket, or
- Gate frame by mounting lift mechanism on yoke placed across a standard length frame, or
- Gate frame by mounting lift mechanism on thrust tube resting on yoke placed across a standard length frame, or
- Gate frame by mounting lift mechanism on yoke placed across an extended length frame

## 12. Type of Actuation of Lifting Mechanism

- Manual operated using T-key, or
- Manual operated using floor box, or
- Manual ungeared or geared operated, or
- Manual with portable actuator, or
- Electrically actuated with manual override, or
- Pneumatically actuated, or
- Pneumatically actuated with manual override, or
- Hydraulic actuated with standby hand pump, or
- Hydraulic actuated with accumulators.

## 13. Stem Cover or Pipe Hood for Stem, whether required.



14. **Gate Opening Indicating Arrangement**, whether required.
15. **Materials of Construction required for various components of gates.** (Refer table of materials of construction for various options).
16. **Painting Requirement**
  - Type of shot blasting finish required.
  - Type of primer paint required.
  - Maximum coating thickness of primer.
  - Type of finish paint required.
  - Maximum coating thickness of finish paint.
  - Preferred makes of primer & finish paint.
17. **Additional Information** required to be furnished:
  - Type of fluid to be handled.
  - Quantity required for each similar size & type of gate.
  - Depth and shape of Wall thimble.
  - Wall thickness where the gate is to be installed.
18. **Any Special** design and /or construction feature required to meet specific operational requirement.
19. **Civil Drawing** showing the location where the gate is to be fixed.
20. **Detailed Tender Specifications.**



Shop leakage & movement testing facility

- *Manufacturer reserves the right to depart from the catalogue specifications and illustrations at any time, with or without notice.*
- *Pictures shown are general, unless specific job names are listed.*



3200 x 4500 mm Cast Iron Slide Gates  
for Kadikoy Waste Water Project, Istanbul, Turkey



3600 x 3600 mm Cast Iron Slide Gate for Hinze Dam, Australia



3100 x 2200 mm Cast Iron Slide Gate at  
Metropolitan Waterworks Authority, Thailand



3000 x 3000 mm Cast Iron Slide Gates at Langat-2  
WTP & WRS, Kuala Lumpur, Malaysia



2500 x 2500 mm Cast Iron Slide Gate  
at HATS2A Project, Hong Kong



3600 x 2700 mm Cast Iron Slide Gate  
Stormwater Pumping Station, LA, USA



2750 x 2750 mm Cast Iron Slide Gate with Hydraulic  
Actuation Waste Water Pumping Station,  
Alexandria, Egypt



2700 x 2700 mm Cast Iron Slide Gates at  
Woodward Dam, Oakdale, CA, USA



1800 x 3000 mm Cast Iron Slide Gates at NYC DEP's West Branch Res. Carmel, NY, USA



Jash also brings to you a wide range of products in cast iron, composite and steel construction so as to meet most of the flow control applications.

For more information about our products or to contact sales representative, visit the Jash website [www.jashindia.com](http://www.jashindia.com) or call at our office.



STAINLESS STEEL SLIDE GATE



CAST IRON FLAP GATE



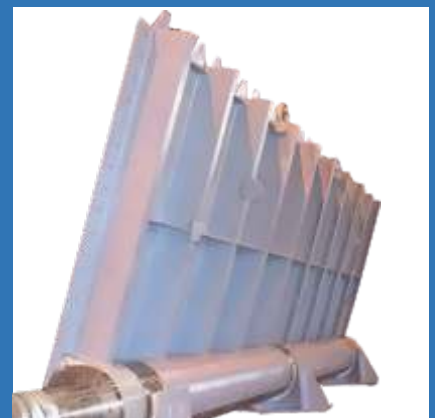
ROLLER GATE



COMPOSITE SLIDE GATE



BUTTERFLY GATE



CREST GATE



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