JASH

WATER CONTROL GATES

OVER 50 YEARS IN WATER CONTROL

Water - One of the nature's most vital & precious resource can no longer be taken as an un-ending free gift of nature. Increasing population & urbanization is resulting into severe pressure on this resource. Hence better preservation and efficient distribution of this vital resource is increasingly becoming an important consideration for all mankind.

We at Jash understand this very well and consider this as our obligation to the society. For us ***'Every drop of water counts'*** *and to achieve this we make products which give superior leakage performance, year after year.*

Jash is making gates for controlling the flow of water since five decades. Jash have designed and manufactured gates for varied applications, from treating water for human consumption to treating sewage and effluents for environmental protection, from regulating water for generating electricity and producing steel to isolation of water in reservoirs and water supply systems.

This long experience through every conceivable application coupled with state of art designing, manufacturing & testing techniques has resulted into our producing products which are technically superior, long lasting and virtually leakage and trouble free.

For these reasons Jash is the leading choice in installations in water and waste water treatment industry. Today Jash is the name which is most specified & trusted by leading consultants and clients for their requirement of water control gates and equipments, infact wherever water is required to be preserved or distributed.

JASH

When Every Drop Counts

Waste water treatment plant and Aerated lagoons, Versova, Mumbai.

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THE COMPANY

Established in the year 1948 by late Mr. Jashbhai Patel, Jash made its beginning with manufacture of machine tools, centrifugal pumps and water control gates. Over the next two decades, manufacture of precision surface equipment, inspection equipment and machine tool accessories were added up in the product range.

In early seventies separate companies were formed to focus and concentrate on specific product groups. Activities concerning Water Control Gates & T-Slottted Plates were then taken up in the newly formed Jash Engineering Pvt. Ltd. which was subsequently converted to a Limited company in the early nineties.

In the year 1996, the company entered into a technical collaboration with Schutte Schuttgutteckнick Anlagenbau GmbH, Iserlohn, Germany to produce their range of bulk solids handling valves in India. The Schutte group subsequently became a partner by taking 20% equity. With this association the company commenced production of Schutte range of valves for the international market. In the year 2000 Jash entered into technical collaboration with Hollung A/s, Norway to manufacture Fine and Coarse bar screens and with SDE, Turkey to manufacture Butterfly valves.

Since then the company has become a well diversified ISO 9001-2000 approved organization manufacturing products for varied clients in domestic and international markets.

MANUFACTURING PROGRAMME:

The present manufacturing programme encompasses a wide range of products for water & waste water industry, engineering industry, bulk solid handling industry and process industry as under.

- Sluice gates / Penstocks.
- Weir gates .
- Flap gates.
- Knife gate valves.
- Butterfly valves.
- Fine bar screens.
- Coarse bar screens.
- Slide gate valve.
- Swing valves.
- Double flap valves.
- T-slotted bed plates & floor plates.

MANUFACTURING FACILITIES:

The company has a modern plant with all the essential facilities in-house. The plant is situated on a plot of land admeasuring 2,30,000 Sq. Feet with a built up area of around 70,000 Sq. Feet.

The foundry shop is geared to make Grey Iron castings upto 10 tonnes single piece. The machine shop is equipped with conventional as well as CNC machines capable of machining jobs of size 7000 x 3450 x 1000mm (LxBxH) and 2600 x 1600 x 1000mm respectively. The testing shop is equipped to conduct leakage and hydrostatic tests of gates upto 3500 x 4500mm size.

In-house availability of these facilities ensure reliable quality, timely delivery and ability to meet individualized customer needs. This manufacturing strength backed by constant development and technological upgradation confirm quality of manufacture at par with best in the world.

MARKETS:

The company is supplying its products in domestic as well as international markets with exports being nearly 45% of the turnover. Jash is market leader in most of its product segment and is enjoying over 70% market share in India in its business of water control gates, fine bar screen and T-slotted plates business.

The company exports its products to USA, Australia, European countries like UK, Germany, Italy, Belgium, Netherlands, Sweden & Norway to Middle east countries like Turkey, Kuwait, Saudi Arabia, Oman, Bahrain, UAE, Jordan, Iraq and Iran, South East Asian countries like Singapore, Hongkong, Malaysia, Indonesia and Thailand.

With over five decades of experience in serving varied requirements and applications, Jash is today geared to satisfy the customized needs of its client and achieve new breakthroughs in the international markets.

JASH WATER CONTROL GATES

PRODUCT RANGE:

Jash manufactures water control gates ranging in opening sizes upto 3500mm circular or square and 3500x6000mm rectangular. Jash offers gates in varied design and material options as under:

1. CAST IRON GATES

- Flange / flat back frame sluice gates as per IS13349 / AWWA C560 / BS 7775.
- Spigot back frame sluice gates as per IS3042.
- Open channel sluice gates.
- Weir gates.
- Flap gates.

2. HDPE COMPOSITE GATES

- Sluice gates.
- Open channel gates
- Weir gates.

3. FABRICATED GATES (STAINLESS STEEL, ALUMINIUM)

- Sluice gates.
- Open channel gates as per AWWA C513.
- Weir gates as per AWWA C513.

4. STOP LOGS (STAINLESS STEEL, ALUMINIUM, HDPE)

Besides above Jash has capability and expertise to manufacture custom built water control gates for canal regulators, locks, flood control, irrigation, intake wells, water treatment, sewage treatment, effluent treatment, water and sewage pumping stations etc. based on client's specifications.

APPROVALS AND CLIENTELE IN INDIA:

Jash water control gates are approved by most of the municipal authorities in India such as:

- Municipal Corporation of Greater Mumbai
- Banglore Water Supply & Sewerage Board
- Calcutta Municipal Development Authority
- Chennai Water Supply & Sewerage Board
- Delhi Jal Board
- Pune Municipal Corporation
- Ahmedabad Municipal Corporation
- Surat Municipal Corporation
- Vadodara Municipal Corporation
- Punjab Water Supply & Sewerage Board
- U.P. Jal Nigam
- Rajasthan Urban Infrastructure Projects

Jash water control gates are approved by most of the consulting engineers in India such as:

- Tata Consulting Engineers
- M.N. Dastur & Company Ltd.
- Metallurgical & Consulting Engineers
- Dalal Consultants & Engineers Ltd.
- Development Consultants Ltd.
- Shah Technical Consultants Ltd.
- Stup Consultants Ltd.
- Desein Private Ltd.
- Engineers India Ltd.
- Binne Black and Veatch Ltd.
- Uhde India Ltd.
- Kvaerner Powergas
- Bechtel.
- Montgomery Watson Harza
- Jacobs H&G Ltd.,
- Mott MacDonald
- Pacific Consultants.
- GKW Babtie J.V

The leading project engineering companies engaged in the field of water, sewage and effluent treatment and water supply systems which rely on Jash for their requirements are :

- Ondeo Degremont Ltd.
- VA Tech Wabag Ltd.
- Enviro Control Associates Pvt. Ltd.
- GSJ Envo Ltd.
- Geo Miller & Co. Ltd.
- Hindustan Construction Co. Ltd.
- Driplex Water Engineering Ltd.
- Triveni Engineering Co. Ltd.
- Ion Exchange Ltd.
- Hindustan Dorr Oliver Ltd.
- National Thermal Power Corporation
- Paharpur Cooling Towers Ltd.
- Gammon India Ltd.
- Larsen & Toubro Ltd.
- Sriram Engineering Co. Ltd.
- Linde Process Technologies (I) Ltd.
- Balcke - Durr & Wabag Technologies
- Dyckerhoff & Widmann
- Subhash Projects & Marketing Ltd.
- Kirloskar Brothers Ltd.
- Batliboi Environmental Engg. Ltd.
- Voltas Ltd.

NO. 1 POSITION IN INDIA:

With the excellent track record of manufacturing over 10,000 gates of varied types and for varied applications in last 5 decades, Jash has become a name which is most trusted in India. On the basis of this Jash has become the largest manufacturer of sluice gates in India with a market share of over 75% in the water & waste water treatment plant and pumping industry in India.

APPROVALS AND CLIENTELE OUT OF INDIA:

Some of the international project engineering companies engaged in the field of water, sewage and effluent treatment and water supply systems which rely on Jash for their requirements are :-

- Metax Engineering Corpn. Pte. Ltd., Singapore.
- Sembawang Engineering Corporation, Singapore.
- Koh Brothers Building & Civil Engineering Contractor (Pte.) Ltd. Singapore.
- USF-CST Ltd., Hongkong.
- Yuksel Construction Co. Ltd., Turkey.
- STFA Construction Group, Turkey.
- Lidya Yapi BPR Ortak Grisimi, Turkey.
- Aydinar Constrution Co. Inc., Turkey.
- Mushrif Trading and Contracting Company, Bahrain.
- Habib Awachi Commercial & Industrial Services, Bahrain.
- Kharafi National, Kuwait.
- Wetico Berkefeld Filter Co. Ltd., Saudi Arabia.
- Italba Spa., Italy.
- AVM International A/S, Norway.

Jash water control gates have been approved by consultants like CH2M HILL in Singapore, Parsons Engineering Science in Oman, Watson Khonji in Bahrain, Dar Al-Handasah Harza Engineering- Gibbs Ltd. consortium in Jordan and IFB Consulting in Kuwait.

Jash exports more than 300 sluice gates per year worth over US 1 million dollar to various countries worldwide. Jash is already considered amongst the top ten sluice gates manufacturers in the world and now aims to be amongst first five manufacturers of sluice gates in the world by the year 2007.

OUTSTANDING PERFORMANCE RECORD:

- Largest order executed in India: Worth over Rs. 20 million for Bombay Municipal Corporation's World Bank aided Bombay II Sewage Project for 64 nos. gates with electric actuating systems.
- Largest order executed out of India: Worth over Rs. 60 million for supply to Changi Water Reclamation Plant, Singapore.


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2


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- Largest C.I. Gate made : 6 nos. of 3200x4500 mm size for Kadikoy Waste Water Project, Istanbul, Turkey. (Photograph 1)
- Largest Weir Gate made : 24 nos. of 3000x1250 mm size in stainless steel construction for Changi Water Reclamation Plant (Photograph 2) and 4 nos. of 2570x1720 mm size in cast iron construction for Bhandup WWTF at Bombay.
- Largest Flap Gate made : 1 no. of 2200x2200 mm size for Vasana Sewage Pumping Station at Ahmedabad. (Photograph 3)
- Large critical duty gates made : 2 nos. of 1500x3000 mm size for unseating water pressure of 35 meters, 2 nos. of 3000x3000 mm size for unseating water pressure of 21 meters and 2 nos. of 2500x2750 mm size for unseating water pressure of 30 meters, all gates supplied for waste water pumping station projects in Bombay.
- Largest quantity of gates supplied to a single project :
  - 165 nos. to Visakhapatnam Steel Project, Vizag.
  - 144 nos. to Changi Water Reclamation Project in Singapore.
  - 124 nos. to Ondeo Degremont for Sonia Vihar Water Treatment Plant in Delhi.
  - 106 nos. to Nirma Limited for their salt works and soda ash project at Bhavnagar.
  - 71nos. to Hindustan Dorr Oliver Ltd. for Redhills Water Treatment Plant at Madras out of which 48 nos. gates were with pneumatic actuating mechanisms.
  - 60 nos. to Hindustan Construction Co. Ltd. for Bhandup Water Treatment Plant, Bombay.
  - 58 nos. to Peterson Candy Ltd. U.K. through Driplex Water International Ltd. Delhi, for Panjarapore Water Treatment Project, Bombay of which 36 nos. gates were with pneumatic actuating mechanisms.
- Largest number of JASH gate installations in a single city - over 600 nos. in Bombay, over 450 nos. in Delhi, over 400 nos. in Bangalore, over 250 nos. in Surat, over 200 nos. in Singapore, over 175 nos. in Visakhapatnam , over 150 nos. in Madras.
- Supplied to seven different World Bank aided projects in India after winning contracts in global competition against manufacturers from Japan, U.K. USA etc.

Today Jash offers a single shop solution wherever sluice gates are required viz. water works, waste water and sewage treatment works, intake wells and pump houses, industrial installations, water circulating systems, process plants etc and especially when maximum practical water tightness is the main criterion i.e *"when every drop counts"*.

INSTALLATION & CONSTRUCTIONAL VARIATIONS GUIDING SELECTION OF SLUICE GATES

Detailed below are various factors guiding selection of a sluice gate.

1. TYPE OF APPLICATION

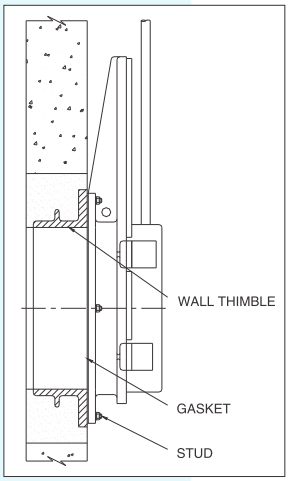
Various types of sluice gates are available to suit specific application. Various applications and the most suitable type of sluice gate that should be used for that application is given hereunder.

A) For isolation of flow in and out of a closed conduit.	:	Face wall mounting sluice gates as per IS13349/ AWWA C560 / BS7775 / IS3042.
B) For isolation of flow in and out of an open channel.	:	Channel side wall mounting gates as per AWWA C513.
C) For weir application for controlling level of liquid.	:	Downward opening weir gates.
D) For drainage from outfall structures and plants to river/sea.	:	Flap gates / tide gates / automatic drainage gates.
E) For modulation of flow in and out of a closed conduit.	:	Face wall mounting sluice gates as per IS13349/ AWWA C560 / BS7775 with modifications to suit modulating application.

The above stated applications covers most of the general applications for which gates are used. However there may be instances where a particular application and installation requirement needs a different type of gate than that mentioned above. For such specific application contact Jash with all details for a suitable solution.

2. TYPE OF MOUNTING

A. For mounting on face of wall (to isolate flow in and out of conduit)



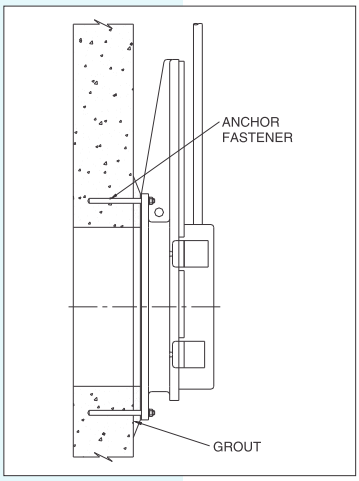
i. Mounted on face of wall through C.I. wall thimble.

These gates are mounted on to the flange of C.I. wall thimble with the help of studs. A wall thimble is a separate accessory which is first embedded in the wall with its flange flush with the face of wall.

Since no portion of the gate frame is embedded in the wall, the installed gate can be easily removed from its position for repairs, if necessary, without breaking concrete and can be remounted again with equal ease.

The thimble can be made and supplied earlier than the gate, and can be installed in position. The gate can be mounted on thimble later. This helps to advance construction schedule.

These gates are flange/flat back frame gates made generally as per AWWA C560/ BS 7775 / IS13349 and are suitable for seating as well as high unseating / off seating head applications.



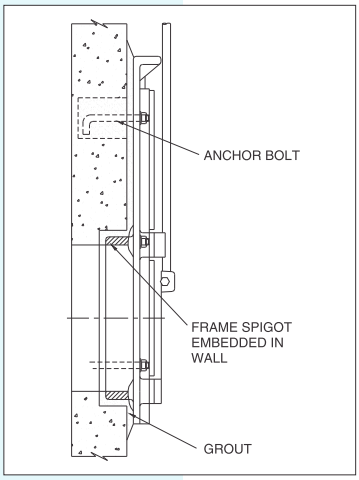
ii. Directly mounted on face of Wall.

a. Flat back frame gates:

These gates have a flat back frame which is anchored directly on the face of wall and the gap between the wall face and the flat face of the frame is sealed with secondary stage grout.

Once installed these gates can be removed for repairs but the possibility of breaking of the second stage concrete remains.

These gates are generally made similar to gates as per AWWA C560 & BS7775. These gates are suitable for seating as well as low unseating head applications.

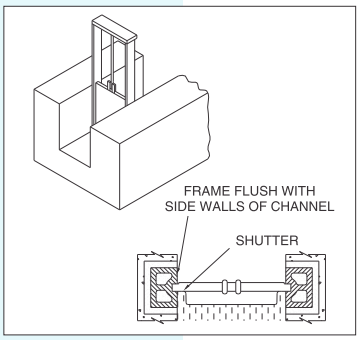


b. Spigot back frame gates:

These gates have a spigot which gets embedded in the wall and the frame face is anchored directly on the face of wall.

Once installed these gates cannot be removed for repairs without substantially breaking the concrete.

These gates are made generally as per IS3042. These gates are suitable only for seating head application and are not suitable for unseating head application.



B. For mounting between two parallel side walls (to isolate flow within an open channel)

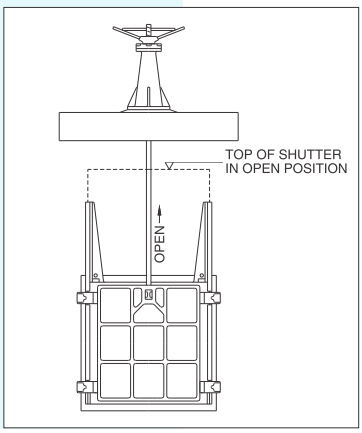
These gates are embedded and anchored in grooves provided in the side walls of the channel and are installed where there is no breast wall and where head of water is always less than the height of shutter.

These gates are suitable for seating as well as unseating head applications.

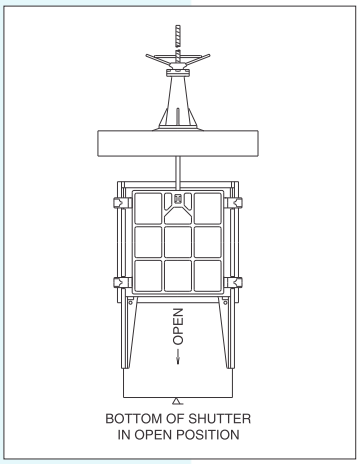
3. DIRECTION OF GATE OPENING:

A. Upward opening gate:

The sluice gates in which the shutter travels upwards to open in the side guides of frame extending above the gate frame opening are called upward opening gates.



These gates are used where there is adequate clearance between the top of gate opening / aperture and the floor above the gate to enable the shutter to raise to open.



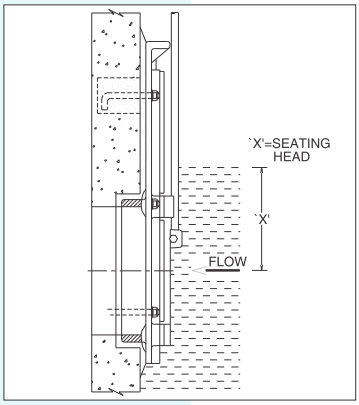
B. Downward opening gate:

The sluice gates in which the shutter travels downwards to open in the side guides of frame extending below the gate frame opening are called downward opening gates.

These gates are used where there is inadequate space between the top of gate opening / aperture and the floor above the gate to enable the shutter to open.

These type of gates can be used for decanting from a reservoir but not for precise level control. Hence these gates cannot be considered as being same as downward opening weir gates.

4. TYPE OF WATER HEAD:

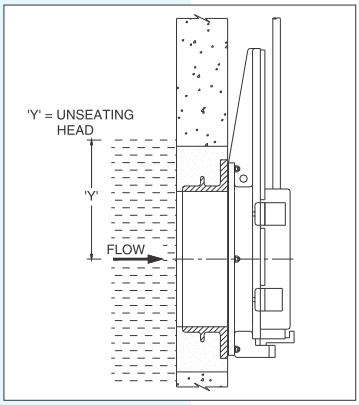


A. Seating / on-seating water head:

When the water pressure tends to press the door/shutter on to the gate frame then the type of water head is called seating /on-seating water head.

Sluice gates as per AWWA C560 / BS 7775 / IS13349 / IS3042 are suitable for seating water head application.

Gates suitable for seating water head application are provided with side wedges only.

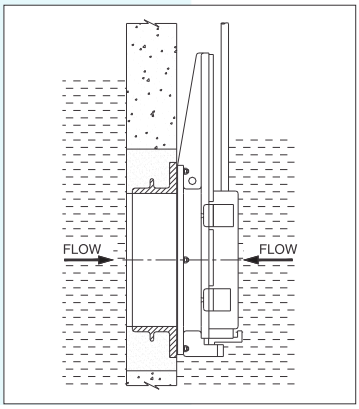


B. Unseating / off-seating water head:

When the water pressure tends to push the door/shutter away i.e. unseat from the gate frame then the type of water head is called unseating /off-seating water head.

Only the sluice gates as per AWWA C560 / BS 7775 / IS13349 are suitable for unseating head applications. Sluice gates as per IS:3042 are not suitable for unseating water head applications.

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



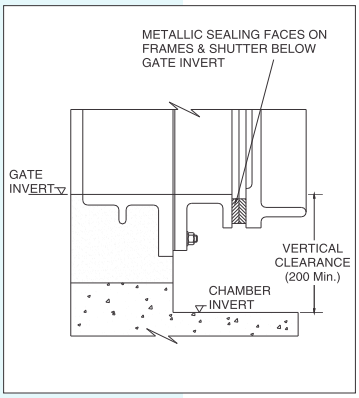
C. Seating as well as unseating water head:

There may be situations in a particular gate installation, where the water pressure condition may be either seating or unseating at different points of time depending upon the net difference between the water levels on either side. Such applications will necessitate a gate to be suitable for seating as well as unseating water head conditions.

Only the sluice gates as per AWWA C560 / BS 7775 / IS13349 are suitable for such applications. Sluice gates as per IS:3042 are not suitable for such applications.

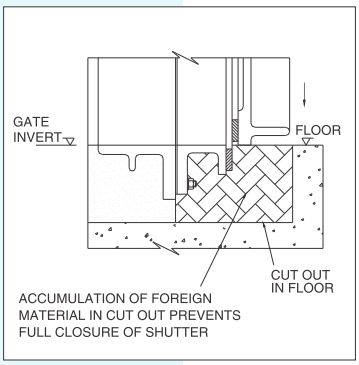
5. TYPE OF BOTTOM CLOSURE:

A. Conventional bottom / rebate invert type closure:



In case of 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.

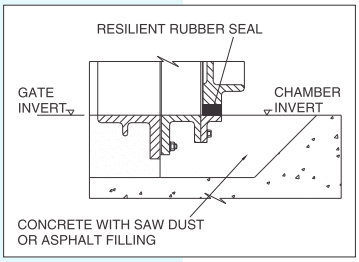
To enable mounting of such gates ample vertical clearance between the invert of gate and invert of chamber/channel is required. This vertical clearance in form of a wall below the gate invert does not allow complete flushing of chamber, if needed. If this is acceptable then conventional bottom closing 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 and 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 shutter when the gate is fully closed.

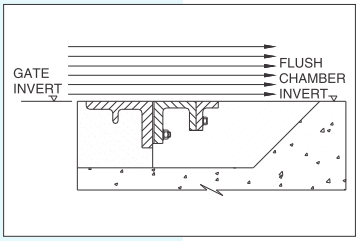
Debris, silt and foreign material may then collect in the cut out/recess and this may prevent the gate from closing fully thereby giving rise to heavy leakage. In such locations only Flush bottom closure gates should be used.

B. Flush bottom / Flush invert closure:



In the 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, gates with flush bottom / flush invert closing are adopted.

In case of 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 cutout 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.

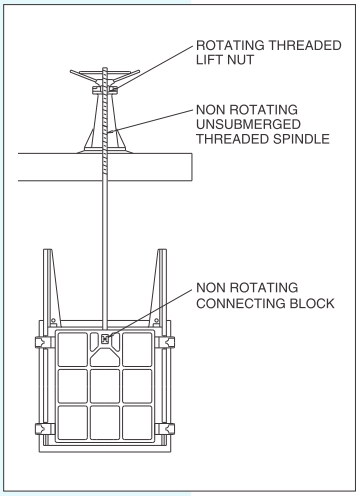


With flush bottom closing gates, bottom wedges are not provided since such gates are free from problems inherent with deflection of bottom of shutter.

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 sluice gate frame should be filled up with easily removable materials like asphalt surfacing material or concrete containing saw dust to ensure unobstructed invert surface.

6. TYPE OF SPINDLE MOVEMENT:

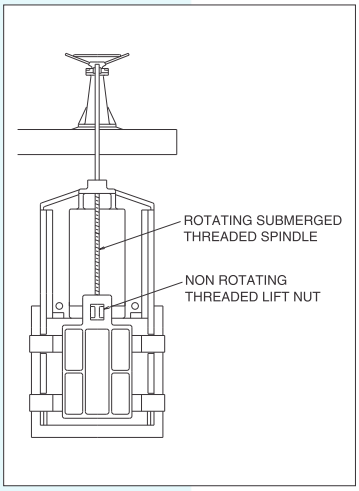
A. Rising Spindle Gates:



The sluice gates in which the spindle rises and lowers during upward and downward movement of shutter while opening and closing of sluice gate are called rising spindle gates.

These gates have non-rotating spindle and rotating lift nut housed in lift mechanism which remains well above water level. Since the rotating lift nut and engaging threaded stem are above platform these can be regularly cleaned and lubricated. Moreover, the spindle extending above the lift mechanism also gives an indication of the extent of closure/opening of gate.

B. Non-rising spindle gates:



The sluice gates in which the spindle remain at the same position during upward and downward movement of shutter while opening and closing of sluice gate are called non- rising spindle gates.

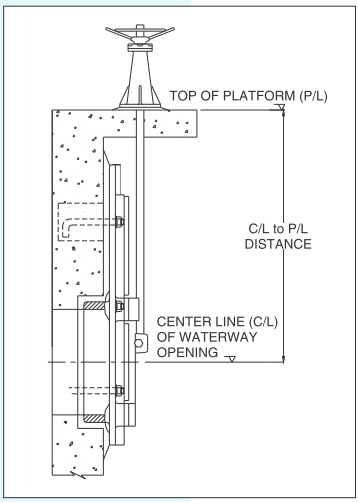
These gates have rotating stem and non-rotating lift nut housed in a pocket at the top of shutter which remains submerged.

Since the threaded portion of stem and lift nut remain submerged, they remain exposed to damage and corrosion. Regular cleaning and lubrication of such submerged parts is impossible. Moreover, debris or rubbish jamming in the spindle threads may create difficulty in gate operation.

Use of non-rising spindle gates should be avoided wherever possible. Such gates should be used only in those locations where there is a limited head room or where the rising stem is likely to interfere with some other part of the installation over the top of lift mechanism or where the rising stem should not project above road level.

7. MOUNTING POSITION OF LIFT MECHANISM & THRUST REACTION:

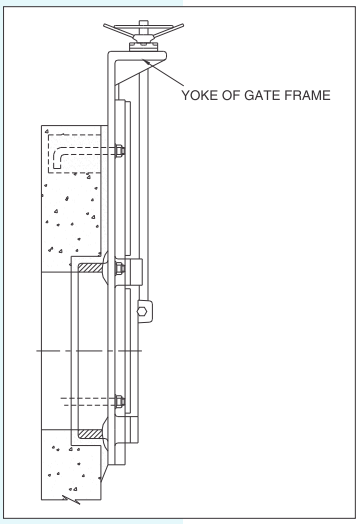
A. Mounted separately on platform away from gate frame / Thrust platform:



When the distance between center line of gate opening to top of operating platform is more than 2 times the height of gate opening then the operating headstock is generally mounted on a civil platform or a fabricated platform located above the gate frame. In this case the thrust reaction comes on the platform and not on the gate frame.

For such cases the gate frame can have short length extension guides to retain atleast one half the vertical height of the shutter when the shutter is in the open position. **Such gate frames having short length extension guides are also called "Open Top" frames.**

When the lift mechanism is mounted on a platform away from gate frame it is essential to specify sill and platform levels or distance from centre line of waterway opening to the top of platform for every gate required. This helps determine the length of spindle to be supplied as also the number of stem couplings and stem guides necessary for the installation.



B. Mounted directly on the frame of sluice gate / Thrust on gate frame:

When the distance between the center line of water way opening and top of operating platform is not sufficient to accommodate a platform, or when there is no suitable concrete structure available for mounting the headstock above the gate, or when making a platform to take the operating load is impractical or unnecessarily costly, then the operating headstock is mounted on the top of gate frame. In this case the thrust reaction comes on the gate frame and not on the platform.

For such cases the gate frame is provided with full length extension guides to retain the vertical height of the shutter when the shutter is in the open position. The extension guides are then connected through a bridge / yoke which transfers the thrust coming from operating headstock on to the gate frame.

Such gate frames having full length extension guides with yoke are also called "Closed Top" frames and these types of sluice gates with the operating headstock mounted on the yoke of gate frame are called "Self Contained" sluice gates.

8. METHOD OF GATE OPERATION:

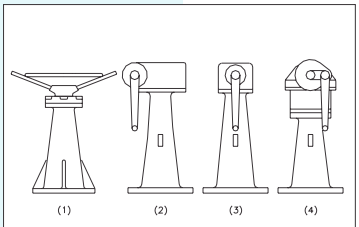
A. Manual operation:

Manual operation of sluice gates is recommended when frequency of gate operation is low and when there is no constrain in time required for opening and closing of a gate.

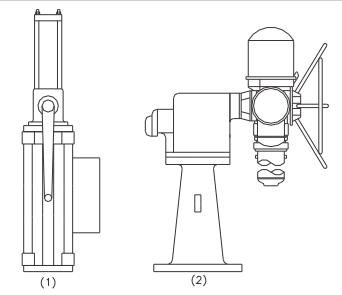
Manual operation can be effected by means of either ungeared or geared type lift-mechanism. Selection of the type of lift mechanism depends on the hoisting capacity required for each gate. It should enable gate operation by a single person with an effort not more than 20 Kgs.

Lift mechanism with high gear ratios is recommended with two speed operation to enable faster opening of gate after it is crack opened.

Manually operated gates can be provided with electric / hydraulic portable operator for faster operation of gates.



(1) UNGEARED HEADSTOCK
(2) WORM GEARED HEADSTOCK
(3) BEVEL GEARED HEADSTOCK
(4) SPIRAL BEVEL GEARED HEADSTOCK (TWO SPEED)



(1) PNEUMATIC ACTUATING MECHANISM WITH MANUAL OVERRIDE FACILITY

(2) ELECTRIC ACTUATING MECHANISM WITH MANUAL OVERRIDE FACILITY

B. Mechanized operation:

Mechanized operation of sluice gate is recommended when frequency of operation of gate is high and where faster gate operation is required.

Mechanized operation can be effected by means of electric / pneumatic / hydraulic actuation. Manual override facility is recommended for operation of electric operated gate in case of electric failure and for operation of pneumatic operated gate in case of electric / pneumatic failure.

CLASSIFICATION OF MODELS OF JASH WATER CONTROL GATES

No.	Construction	Type of Gate	Type of Mounting	Model No.	Page No.
1.	Cast Iron	Flat / Flange back frame Sluice Gate	Thimble Mounted	C-FSG-TM	14
2.	Cast Iron	Flat / Flange back frame Sluice Gate	Face Wall Mounted	C-FSG-WM	19
3.	Cast Iron	Spigot Back Frame Sluice Gate	Face Wall Mounted	C-SSG-WM	22
4.	Cast Iron	Open Channel Sluice Gate	Channel Mounted	C-OCG-CM	25
5.	Cast Iron	Downward Opening Weir Gate	Face Wall Mounted	C-DWG-WM	27
6.	Cast Iron	Downward Opening Weir Gate	Thimble Mounted	C-DWG-TM	27
7.	Cast Iron	Flap Gate / Valve	Thimble Mounted	C-FG-TM	29
8.	Cast Iron	Flap Gate / Valve	Face Wall Mounted	C-FG-WM	29
9.	Composite	Flat back frame Slide Gate	Face Wall Mounted	CP-FSG-WM	32
10.	Composite	Open Channel Slide Gate	Channel Mounted	CP-OCG-CM	33
11.	Composite	Open Channel Slide Gate	Face Wall Mounted	CP-OCG-WM	33
12.	Composite	Downward Opening Weir Gate	Face Wall Mounted	CP-DWG-WM	34
13.	Fabricated	Flat / Flange back Slide Gate	Face Wall Mounted	F-FSG-WM	36
14.	Fabricated	Open Channel Slide Gate	Channel Mounted	F-OCG-CM	37
15.	Fabricated	Open Channel Slide Gate	Face Wall Mounted	F-OCG-WM	37
16.	Fabricated	Downward Opening Weir Gate	Face Wall Mounted	F-DWG-WM	38
17.	Fabricated	Stop Logs	Channel Mounted	F-SL-CM	40
18.	Fabricated	Stop Logs	Face Wall Mounted	F-SL-WM	40
19.	Composite	Stop Logs	Channel Mounted	CP-SL-CM	40
20.	Composite	Stop Logs	Face Wall Mounted	CP-SL-WM	40

These models covers products which are popular and routinely required by the industry. In addition to above Jash also offers varied other designs to suit specific requirements of the client based on their requests.

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

1. Type of application
   (a) Isolate flow in & out of a conduit, or
   (b) Isolate flow in an open channel, or
   (c) Drainage from outfall structure to river/sea, or
   (d) Weir application.
   (e) Modulating application.
2. Type of mounting
   (a) Mounted directly on face of wall (for 1a, 1c, 1d & 1e above), or
   (b) Mounted on C.I wall thimble (for 1a, 1c, 1d & 1e above), or
   (c) Mounted on flanged end of a pipe (Please furnish pipe flange and drilling details)
3. Size and shape of gate opening i.e. whether circular, square or rectangular. If rectangular, size shall be specified as Width x Height of opening since the first of the two dimensions is always conventionally reckoned as the width of opening.
4. Design head i.e distance from surface of water to centerline of gate in meters for which gate is to be designed.
5. Type of head
   (a) Seating, or
   (b) Unseating, or
   (c) Seating as well as unseating head.
6. Operating head i.e. maximum head against which the gate is to be opened or closed.
7. Distance from centerline of gate opening to top of operating platform in meters.
8. Type of bottom closure
   (a) Conventional bottom closure, or
   (b) Flush bottom closure.
9. Type of spindle i.e. whether
   (a) Rising spindle, or
   (b) Non rising spindle.
10. Type of actuation
    (a) Manual, or
    (b) Electrically actuated with manual override, or
    (c) Pneumatically actuated with manual override.
    (d) Hydraulic
11. Painting requirement.
12. Stem cover or pipe hood for stem, whether required.
13. Gate opening indicating arrangement whether required.
14. Materials of construction required for various components of gates. (Refer table of materials of construction for various options)

Additional information required to be furnished:

(a) Type of fluid to be handled.
(b) Quantity required for each similar size and type of gate.
(c) Required direction of gate opening i.e. whether upwards, downwards or sideways .
(d) Whether the gate is to be self-contained type with lift mechanism mounted on yoke of gate frame.
(e) Depth and shape of wall thimble.
(f) Wall thickness where the gate is to be installed.
(g) Distance from gate invert to sump invert in meters.
(h) Type of fitment of seat facings i.e. whether (i) Fitted on plain machined faces, or (ii) Fitted in rectangular machined grooves, or (iii) Fitted in dovetailed machined grooves.
(i) Any special design and / or construction feature required to meet specific operational requirement.
(j) Civil drawing showing the location where the gate is to be fixed.

JASH FLANGE / FLAT BACK FRAME THIMBLE MOUNTED CAST IRON SLUICE GATES (MODEL : C-FSG-TM)

SPECIFICATION:

These are wall thimble mounting flange / flat back frame sluice gates made generally as per AWWA C560 / BS 7775 / IS13349.

APPLICATION:

These sluice gates are mounted on the face of a wall via wall thimble and are used to isolate flow in and out of a conduit. Such gates can be manufactured for seating as well as unseating head applications upto 40 meters.

Flange back frame sluice gates can also be mounted on puddle pipe flange provided dimensions and hole drilling on the flange of gate frame are specifically provided to match pipe flange or vise versa.

Flange back frame sluice gates are highly recommended where maximum practical water tightness is an important criterion for the gate and hence for which a gate shop tested at the manufacturer's works for its actual leakage performance is a must.

ADVANTAGES:

- Civil construction schedules can be advanced as thimbles can be made and supplied earlier for prior embedment in concrete. The sluice gate can then be mounted later when received.
- The installed gate can be dismounted without breaking concrete and remounted with equal ease. This helps removal for repairs and future replacement. If required, opening can be kept sealed with a blind flange when the gate is not there.
- Erection and installation procedure becomes simple and economical.
- Mounting the gate through machined flanges of wall thimble and gate frame, with a gasket joint in-between, helps maintain alignment and proper contact between the mating sealing faces. This improves water sealing characteristic of the gate.
- Machined back flange of gate makes it possible to mount the gate on a test bench for shop leakage testing at the manufacturer's works for verifying actual leakage and soundness of casting at operating head. This helps ensuring and verifying the specified leakage limits and ensuring required quality standards.

SALIENT FEATURES:

- Wall thimble of F-shaped or E-shaped section as required.
- Rigid flange / flat back gate frame designed for mounting on face of wall thimble using studs and with a rubber gasket between gate frame and wall thimble.
- Open top frame provided with short length extension guides to retain at least one half the vertical height of the shutter when the shutter is in the open position.
- Adjustable type cast iron wedging devices lined with non-corroding metal strips / wedges. Adjustable wedges on shutter allow future on site adjustment of wedges to enable increased edging action and compensate possible wear of sealing faces.

- Offered for seating as well as unseating head applications, as required. Gates offered for seating head application provided only with adjustable side wedges whereas gates offered for unseating head application provided with adjustable side as well as top & bottom wedges.
- Non corroding metal to metal sealing faces/strips on the periphery of gate aperture for conventional bottom closure gates. Sealing faces fitted by counter sunk head machine screws on plain machined faces of frame & shutter.
- Offered with conventional bottom closing or flush bottom closing as required. Flush bottom closing gates upto 600mm height of opening providedwith resilient seal fitted at the invert of gate frame and gates with height of opening higher than 600mm provided with resilient seal fitted at the bottom of shutter/slide.

- Provided with threaded stem connecting block housed in shutter to connect the shutter with the spindle. A set screw is provided to lock the stem block on the threaded bottom end of the spindle and prevent stem from unscrewing.
- Rising spindle gate with lift mechanism mounted on separate platform above gate frame to transfer thrust reaction on platform.
- Single piece or multi-piece spindle as required to connect the stem block mounted on shutter to the gate operating arrangement.
- Couplings as required to connect the multi-piece spindles.
- Adjustable type stem guide brackets as required to guide the spindle.
- Manual lift mechanism to enable a single person to operate gate with effort < 20 Kgs.
- Anchor bolts with nuts and washers as required for frame extension guides, stem guide brackets and pillar of lift mechanism.
- Offered with painting as required by the client or as stated on page no. 41.

MATERIALS OF CONSTRUCTION:

Depending on application and requirement, the client may select and specify the material of construction for various components from the alternatives stated on page no. 31.

SHOP TESTING PARAMETERS:

- Leakage test at operating pressure for gate leakage performance.
- Hydrostatic body test at 1.5 times the maximum operating pressure for soundness of castings.
- Movement test for checking interference free movement of complete gate assembly.
- Seat clearance check for checking clearance between mating sealing faces.

Photograph shows flange back frame 1000 mm square sluice gate along with F-section wall thimble, both gate as well as thimble having square mating flange and square water way opening

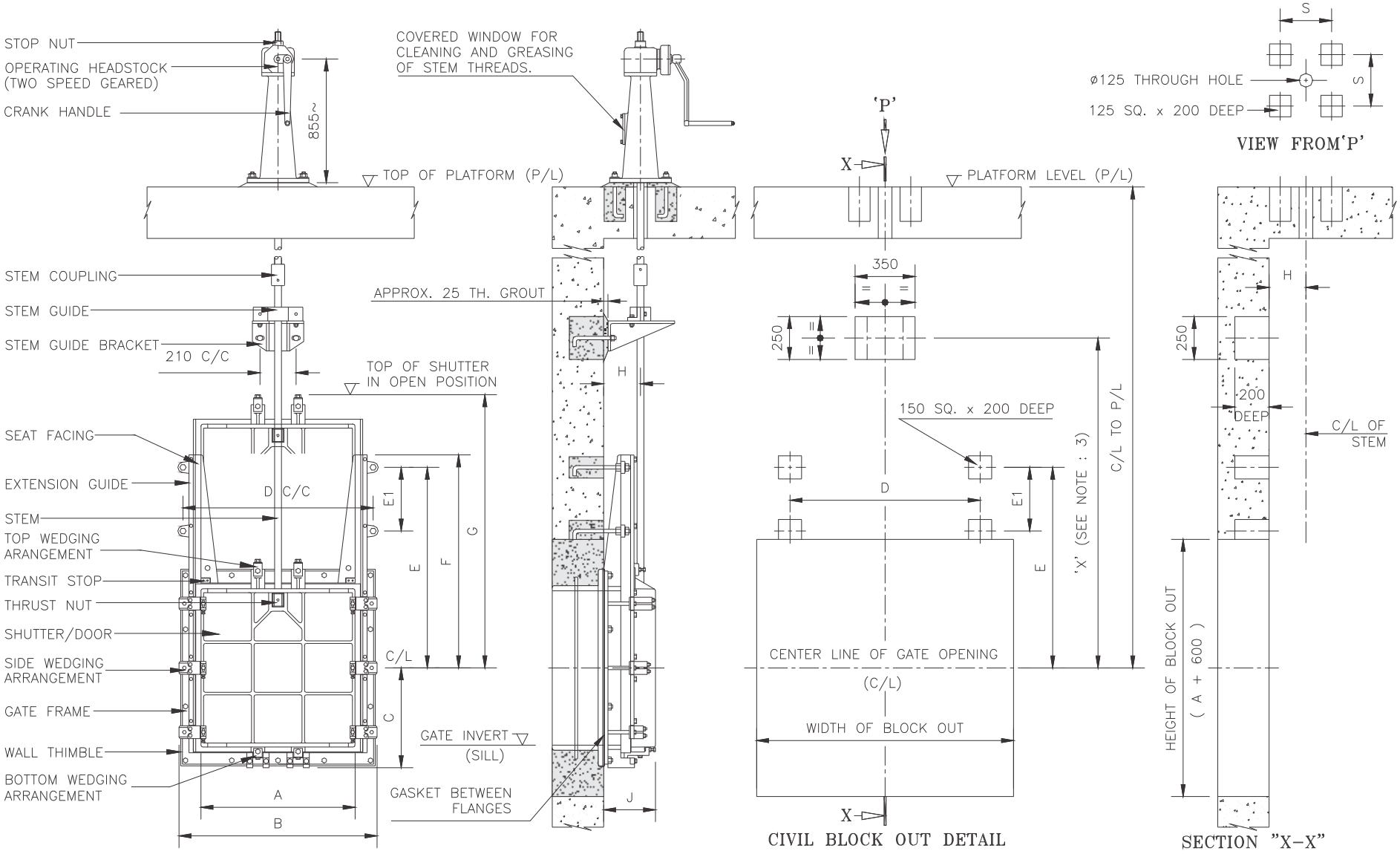
OPTIONAL FEATURES :

- Metal sealing faces fitted in rectangular grooves or in dovetailed grooves.
- Self contained gate with lift mechanism mounted directly on gate frame.
- Stem cover either made of galvanized steel or transparent tube.
- Gate opening indicating arrangement.
- Non rising spindle.
- Electrically operated lift mechanism with manual override facility.
- Pneumatically operated lift mechanism with manual override facility.
- Portable electric / hydraulic operator for manually operated gates.

Photograph shows flange back frame 900 mm diameter sluice gate along with F-section wall thimble, both gate as well as thimble having round mating flange and round water way opening

Photograph shows flange back frame 3000 mm diameter sluice gate along with F-section wall thimble, both gate as well as thimble having square mating flange and round water way opening

TYPICAL INSTALLATION DETAILS FOR THIMBLE MOUNTED RISING SPINDLE, CONVENTIONAL BOTTOM CLOSING FLANGE BACK FRAME 'JASH' C.I. SLUICE GATE



FOR DIMENSIONS REFER TABLE ON PAGE NO. 18

SIZES & DIMENSION OF SQUARE OPENING THIMBLE MOUNTED FLANGE BACK FRAME 'JASH' C.I. SLUICE GATES

A	B	C	D	E	E1	F	G	H	J	ANCHOR BOLTS	
										NO.	DIA.
200	415	200	-	-	-	450	450	100	150	-	-
250	465	225	-	-	-	500	525	100	150	-	-
300	515	250	-	-	-	550	600	100	150	-	-
350	565	275	-	-	-	600	675	100	160	-	-
400	615	300	-	-	-	650	750	165	160	-	-
450	665	350	-	-	-	700	950	165	295	-	-
500	715	375	-	-	-	750	1025	165	295	-	-
600	815	425	-	-	-	850	1175	165	295	-	-
650	865	450	-	-	-	900	1255	190	320	-	-
700	915	475	-	-	-	950	1330	190	320	-	-
750	965	500		-	-	1000	1405	190	320	-	-
800	1015	525	-	-	-	1050	1480	190	320	-	-
900	1115	575	-	-	-	1150	1630	190	320	-	-
1000	1280	625	-		-	1250	1780	190	320	-	-
1050	1330	650	-	-	-	1300	1855	210	320	-	-
1100	1380	675	-	-	-	1350	1930	210	320	-	-
1200	1480	725	1390	1350	-	1450	2080	210	320	2	20
1300	1590	780	1510	1450	-	1550	2265	230	380	2	20
1400	1700	830	1610	1550	-	1650	2415	230	400	2	20
1500	1800	880	1710	1650	-	1750	2565	225	400	2	20
1600	1900	930	1810	1750	600	1850	2715	235	430	4	20
1700	2000	980	1910	1850	600	1950	2865	235	435	4	20
1800	2100	1030	2010	1950	600	2050	3015	250	450	4	20
1900	2200	1080	2110	2050	600	2150	3165	250	485	4	20
2000	2300	1130	2210	2150	600	2250	3315	250	495	4	20

NOTES

1. All dimensions are in millimeters.
2. A = Size of gate opening, square opening with square flange or circular opening with circular flange or circular opening with square flange.
3. Distance 'X' depends on number of stem guide brackets required which may be nil, one or more depending on C/L to P/L distance.
4. Operating headstock may be either ungeared or geared depending on the size of gate and water head acting on it. Dimension S=250 / 300 depending upon type of headstock.
5. Dimensions for rectangular sizes and sizes larger than 2000 mm can be furnished on request.
6. Sluice gates listed in tables can be installed where installation clearance along each side and along the bottom is even 25 mm, although higher clearance to the extent possible may be recommended for ease in handling and erection.
7. In case of circular opening gates with circular flange to be mounted on circular pipe flange, recommended installation clearance is 200 mm along each side and beneath the bottom of gate.
8. Figure on page 17 shows conventional bottom closure gate. In case of flush bottom closure gate a recess of 250 mm depth and 750 mm width shall be required to be provided in the floor at the front of the gate.

JASH FLANGE / FLAT BACK FRAME WALL MOUNTED CAST IRON SLUICE GATES (MODEL:C-FSG-WM)

SPECIFICATION:

These gates are made generally as per BS-7775.

APPLICATION:

These are wall mounted sluice gates used for isolation application in water and waste water drains, sumps and small pumping stations.

SALIENT FEATURES:

- Rigid flange / flat back gate frame designed for wall mounting using anchor fasteners. Frame provided with square opening for square as well as round opening in wall. Closed top frame for gates upto 600 mm size and open top frame for gates above 600 mm size.
- Suitable only for 6 meters seating and 3 meters unseating head requirement.
- Adjustable side taper wedges for gates upto 600 mm size and adjustable taper wedges on sides and top for gates above 600 mm size.
- Non corroding metal to metal sealing faces/strips on all the four sides in a square lay for conventional bottom closing and on three sides for flush bottom closing. Sealing faces fitted by counter sunk head machine screws on plain machined faces of frame & shutter.
- Offered with conventional bottom arrangement as standard for gates upto 600 mm size and flush bottom closing as standard for gates above 600 mm size.
- Provided with threaded stem connecting block housed in shutter to connect the shutter with the spindle.
- Rising spindle gate with lift mechanism mounted on separate platform above gate frame to transfer thrust reaction on platform.
- Single piece or multi-piece spindle as required to connect the stem block mounted on shutter to the gate operating arrangement.
- Couplings as required to connect the multi-piece spindles.
- Adjustable type stem guide brackets as required to guide the spindle.
- Manual lift mechanism to enable operate gate with effort < 20 Kgs.
- Anchor fasteners with nuts and washers as required for frame extension guides, stem guide brackets and pillar of lift mechanism.
- Offered with painting as required by the client or as stated on page no. 41.

MATERIALS OF CONSTRUCTION:

Depending on application and requirement, the client may select and specify the material of construction for various components from the alternatives stated on page no. 31.

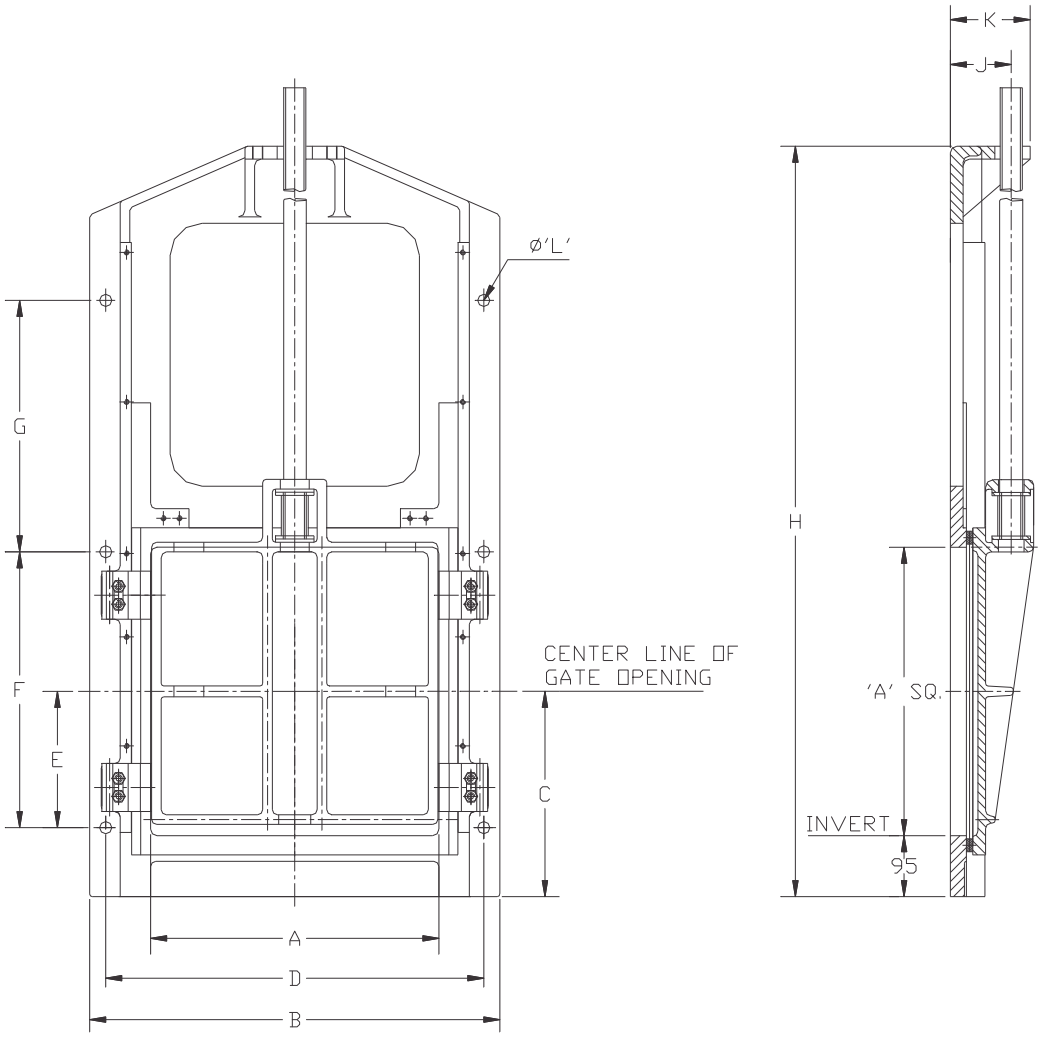
SHOP TESTING PARAMETERS:

- Leakage test at operating pressure for gate leakage performance.
- Movement test for checking interference free movement of complete gate assembly.
- Seat clearance check for checking clearance between mating sealing faces.

OPTIONAL FEATURES:

- Self contained gate with lift mechanism mounted directly on gate frame.
- Stem cover either made of galvanized steel or transparent tube.
- Gate opening indicating arrangement.
- Non rising spindle.
- Electrically operated lift mechanism with manual override facility.
- Pneumatically operated lift mechanism with manual override facility.

DIMENSIONS FOR SQUARE OPENING FLAT BACK FRAME 'JASH' WALL MOUNTED C.I. SLUICE GATES UPTO 600MM SIZE

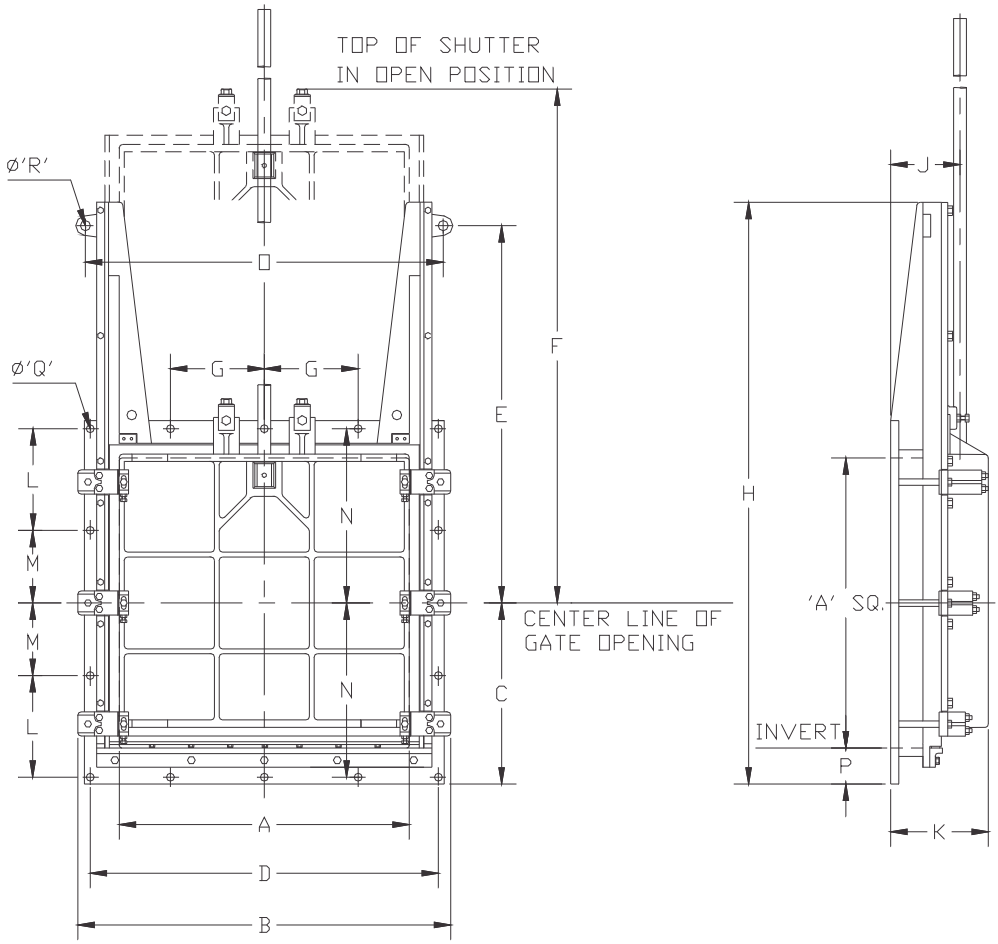


A	B	C	D	E	F	G	H	J	K	Ø'L'	ANCHOR BOLTS	
											NO.	DIA.
200	390	195	340	125	400	-	670	95	125	15	4	12
250	440	220	390	125	450	-	770	95	125	15	4	12
300	490	245	440	125	475	-	870	95	125	15	4	12
350	540	270	490	175	650	-	970	95	125	19	4	16
400	590	295	540	200	700	-	1070	95	125	19	4	16
450	640	320	590	225	450	450	1170	95	125	19	6	16
500	690	345	640	250	500	500	1270	95	125	19	6	16
600	790	395	740	300	600	550	1470	95	125	19	6	16

NOTES

1. All dimensions arc in millimeters.
2. A = Size of gate opening.
3. Gate opening shall remain square even for round aperture in wall.

DIMENSIONS FOR SQUARE OPENING FLANGE BACK FRAME 'JASH' WALL MOUNTED C.I SLUICE GATES FROM 700 UPTO 1500 MM SIZE.



A	B	C	D	B	F	G	H	J	K	L	M	N	O	P	Ø'Q'	A. BOLTS		Ø'R'	A.BOLTS	
																DIA.	QTY.		DIA	QTY.
700	906	450	860	-	1330	430	1400	220	345	280	150*	430	-	100	19	16	10	-	-	-
750	956	475	910	-	1405	455	1475	220	345	305	150*	455	-	100	19	16	10	-	-	-
800	1006	500	960	-	1480	480	1550	220	345	330	150	480	-	100	19	16	10	-	-	-
900	1106	550	1060	-	1630	235*	1700	220	345	300	150*	530	-	100	19	16	12	-	-	-
1000	1270	600	1160	-	1780	235*	1850	220	345	300	200*	580	-	100	19	16	12	-	-	-
1100	1370	650	1260	1250	1855	300	2000	220	345	350	200*	630	1280	100	19	16	14	24	20	2
1200	1470	700	1360	1350	2080	470	2150	220	345	400	200*	680	1380	100	19	16	14	24	20	2
1300	1580	775	1500	1450	2265	470	2325	235	425	315	366	750	1510	125	19	16	16	24	20	2
1400	1680	825	1600	1550	2415	470	2475	235	425	300	400	800	1610	125	19	16	16	24	20	2
1500	1780	875	1700	1650	2565	470	2625	235	425	345	434	850	1710	125	19	16	16	24	20	2

NOTES

1. All dimensions are in millimeters.
2. A = Size of gate opening.
3. Gate opening shall remain square even for round aperture in wall.
4. No holes on centre line where marked ' * '.

JASH SPIGOT BACK FRAME WALL MOUNTED CAST IRON SLUICE GATES (MODEL:C-SSG-WM)

SPECIFICATION:

These gates are made generally as per IS:3042.

APPLICATION:

These gates are mounted on the face of a wall and are used to isolate flow in and out of a conduit and are manufactured for seating heads upto 15 meters. These gates are not suitable for unseating head application.

SALIENT FEATURES:

- Spigot back frame designed for mounting on wall through grouting of spigot in wall opening and anchoring of frame face on face of wall using anchor bolts.
- Closed top frame upto gates size 1000x1000 and open top frame for gates bigger than this size.
- Suitable for seating head application only.
- Fixed taper wedges on shutter to match with adjustable taper wedges provided on frame.
- Non corroding metal to metal sealing faces/strips on the periphery of gate aperture for conventional bottom closure gates. Sealing faces fitted by counter sunk head machine screws on plain machined faces of frame & shutter.
- Offered with conventional bottom closing.
- Provided with pin and knuckle type stem connecting arrangement to connect the shutter with the spindle.
- Rising spindle gate with lift mechanism mounted on separate platform above gate frame to transfer thrust reaction on platform.
- Single piece or multi-piece spindle as required to connect the shutter to the gate operating arrangement.
- Couplings as required to connect the multi-piece spindles.
- Fixed type stem guide brackets as required to guide the spindle.
- Manual lift mechanism to enable a single person to operate gate with effort < 20 Kgs.
- Anchor bolts with nuts and washers as required for frame, stem guide brackets and pillar of lift mechanism.
- Offered with painting as required by the client or as stated on page no. 41.

MATERIALS OF CONSTRUCTION:

Depending on application and requirement, the client may select and specify the material of construction for various components from the alternatives stated on page no. 31.

Front view *Back view*

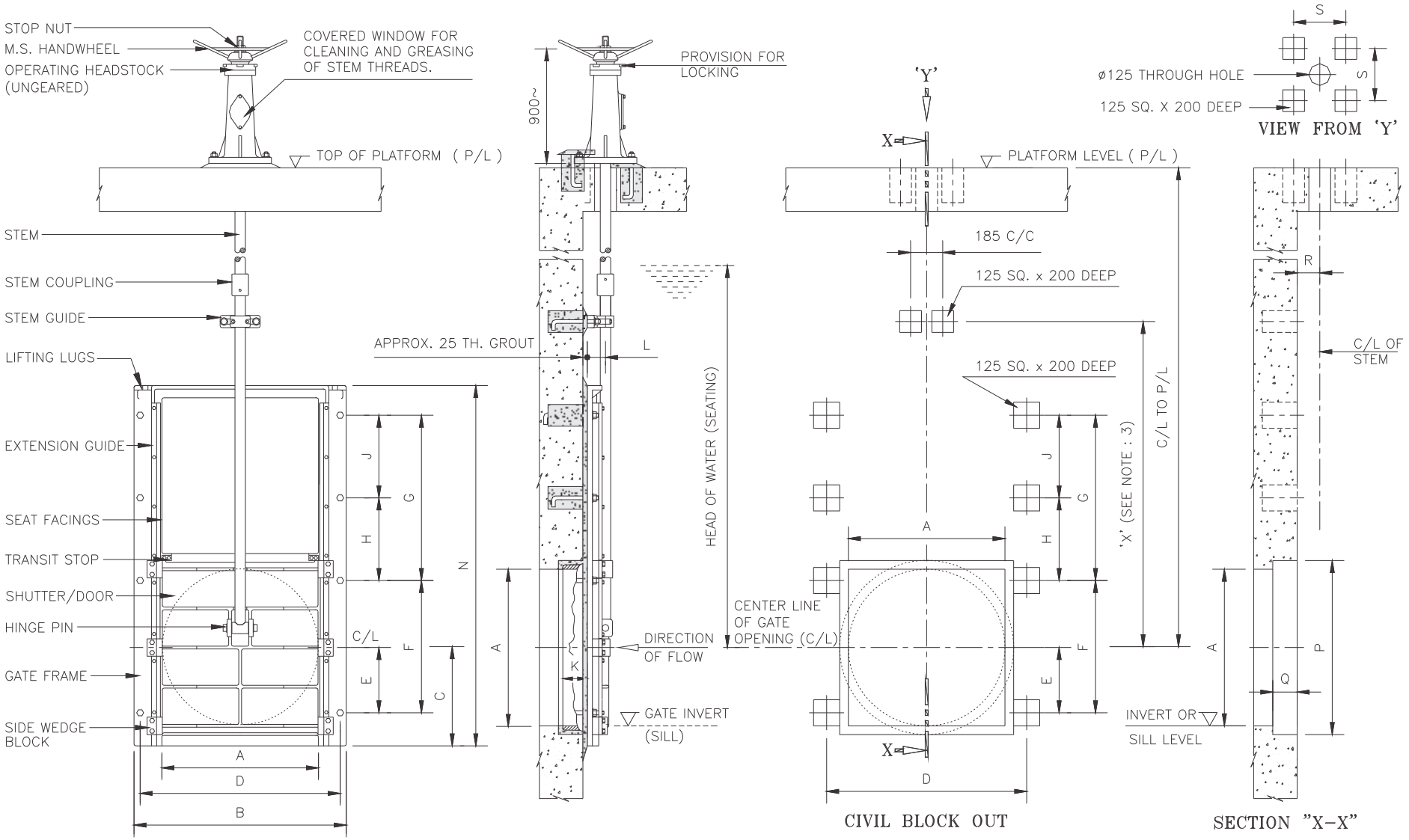
SHOP TESTING:

- Leakage test at atmospheric pressure.
- Movement test for checking interference free movement of complete gate assembly.
- Seat clearance check for checking clearance between mating sealing faces.

OPTIONAL FEATURES:

- Flush bottom closure arrangement
- Self contained gate with lift mechanism mounted directly on gate frame.
- Stem cover either made of galvanized steel or transparent tube.
- Gate opening indicating arrangement.
- Non rising spindle.
- Electrically operated lift mechanism with manual override facility.
- Pneumatically operated lift mechanism with manual override facility.
- Portable electric / hydraulic operator for manually operated gates.

TYPICAL INSTALLATION DETAILS FOR RISING SPINDLE SPIGOT BACK FRAME 'JASH' C.I. SLUICE GATE GENERALLY AS PER : 3042-1965 WITH INTEGRAL EXTENTION GUIDES FOR OPENING SIZES UPTO 1000 mm.



FOR DIMENSIONS REFER TABLE ON PAGE NO. 24

SIZES & DIMENSIONS FOR SQUARE OR CIRCULAR OPENING SPIGOT BACK FRAME 'JASH' C.I. SLUICE GATES GENERALLY AS PER IS 3042 : 1965

A	B	C	D	E	F	G	H	J	K	L	N	ANCHOR BOLTS		P	Q	R
												NO.	DIA.			
200	465	215	415	70	420	-	-	-	85	95	700	4	20	280	85	120
250	465	215	415	70	420	-	-	-	85	95	700	4	20	330	85	120
300	515	240	465	85	475	-	-	-	85	95	800	4	20	380	85	120
350	600	265	555	165	700	-	-	-	85	95	900	4	20	430	85	120
400	660	290	610	120	330	330	-	-	85	95	1020	6	20	480	85	120
450	710	325	660	145	380	380	-	-	85	95	1130	6	22	530	85	120
500	770	350	714	200	470	470	-	-	85	95	1240	6	22	580	85	120
550	840	375	785	235	495	495	-	-	85	95	1340	6	22	630	85	120
600	890	405	825	240	535	535	-	-	85	95	1445	6	24	680	85	120
650	940	430	875	250	500	700	-	-	90	95	1555	6	24	750	90	120
700	990	466	925	300	680	680	-	-	115	100	1665	6	24	800	115	125
750	1065	490	990	305	710	710	-	-	115	100	1765	6	24	850	115	125
800	1120	515	1040	350	770	770	-	-	115	105	1865	6	24	900	115	130
825	1145	530	1065	345	710	890	-	-	115	105	1920	6	24	925	115	130
900	1220	565	1150	375	760	950	-	-	140	113	2070	6	24	1000	140	130
1000	1320	640	1246	430	690	1280	520	760	150		2315	8	30	1100	150	138

NOTES

1. All dimensions are in millimeters.
2. A = Size of gate opening, square or circular. Dotted lines in drawing refer to alternative circular opening.
3. Distance 'X' depends on number of stem guide brackets required, which may be nil, one or more, depending on C/L to P/L distance.
4. Operating headstock may be either ungeared or geared, depending on the size of gate and water head acting on it. Dimension S = 250 / 300 depending upon type of headstock.
5. Dimensions for larger sizes and rectangular sizes can be furnished upon request.
6. Details given are for general guidance only. Specific detail and dimensions can be furnished upon request.
7. These gates are suitable for seating water head only.

JASH OPEN CHANNEL CAST IRON SLUICE GATES
(MODEL:C-OCG-CM)

SPECIFICATION:

These gates are generally made as per Jash design

APPLICATION :

These gates are mounted / fixed in between two parallel side walls of an open channel and are used to isolate flow within as well as in and out of an open channel. These are suitable for seating as well as unseating water head but the height of water in both cases should be less than height of shutter.

SALIENT FEATURES :

- Designed for channel application, breast wall not required.
- Self contained frame suitable for grouting within the side walls of the channel on two sides and grouting within the floor of channel on bottom. Frame to remain flush with channel walls as well as channel floor after grouting.
- Suitable for flow from either direction.
- Metal sealing faces secured in grooves on frame sides to offer non-corroding sealing faces remaining in forced contact with rubber sealing arrangement.
- Flush bottom closure arrangement.
- Provided with pin and knuckle type stem connecting arrangement to connect the shutter with the spindle.
- Single piece rising spindle to connect the shutter to the gate operating arrangement mounted directly on gate frame.
- Manual lift mechanism to enable a single person to operate gate with effort < 20Kgs.
- Offered with painting as required by the client or as stated on page no. 41.
- Economical and faster erection of fully assembled gate in a single set-up.

MATERIALS OF CONSTRUCTION:

Depending on application and requirement, the client may select and specify the material of construction for various components from the alternatives stated on page no. 31.

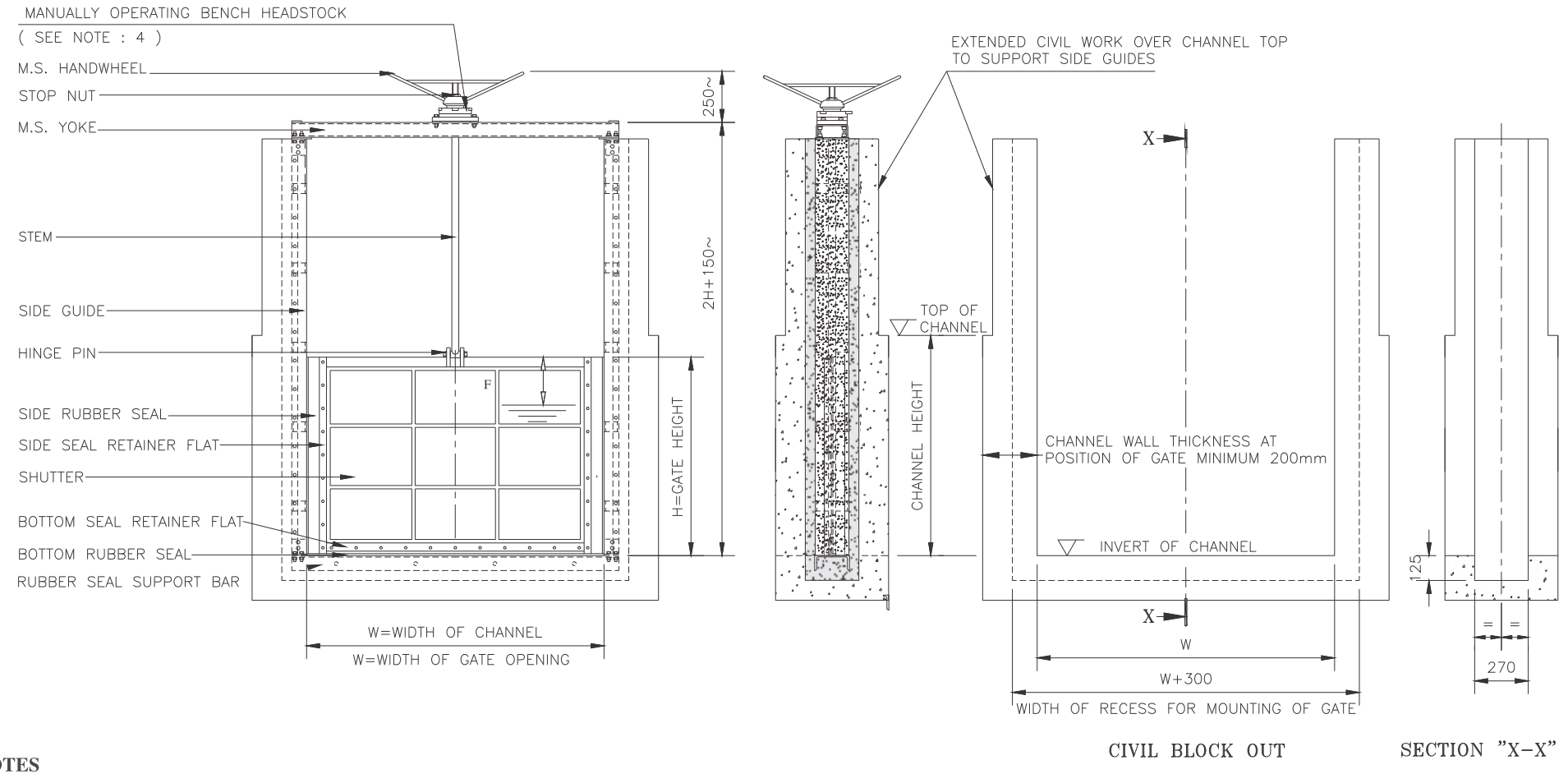
SHOP TESTING PARAMETERS:

- Movement test for checking interference free movement of complete gate assembly.
- Seat clearance check for checking clearance between mating sealing faces.

OPTIONAL FEATURES:

- Self contained gate with lift mechanism mounted directly on gate frame.
- Stem cover either made of galvanized steel or transparent tube.
- Gate opening indicating arrangement.
- Non rising spindle.
- Electrically operated lift mechanism with manual override facility.
- Pneumatically operated lift mechanism with manual override facility.
- Portable electric / hydraulic operator for manually operated gates.

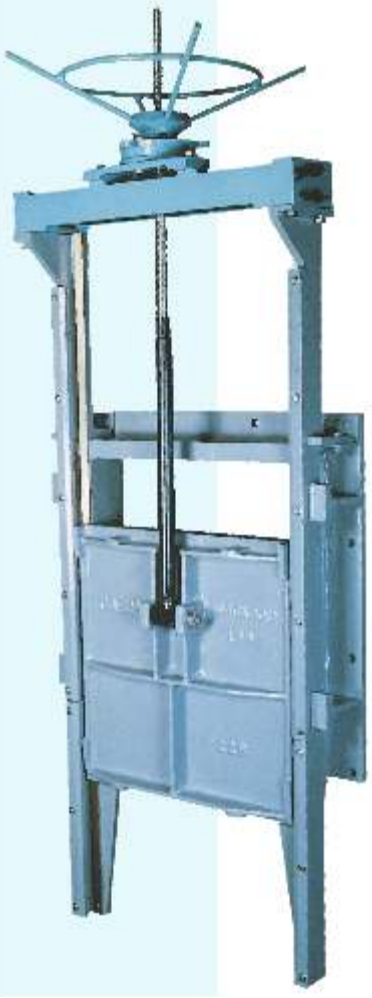
TYPICAL INSTALLATION DETAILS FOR SELF CONTAINED SPINDLE 'JASH' C.I. OPEN CHANNEL SLUICE GATE



NOTES

1. All dimensions are in millimeters.
2. A civil / fabricated platform is required to be provided across the channel for gate operation. For gates having height of opening greater than 800mm this platform may be required to be raised so that distance between handwheel and platform is restricted to 1000mm.
3. F = Freeboard between water lavel and gate top.
4. Manually operating headstock may be either bench headstock as shown or a headstock with floor stand, either ungeared or geared depending on the size of gate, water head and height of platform for convenience in operating the gate.
5. Details shown above are for general guidance only, specific details and dimensions furnished upon request.

JASH FACE WALL MOUNTING CAST IRON WEIR GATES
(MODEL:C-DWG-WM)



SPECIFICATION:

These gates are made as per Jash design.

APPLICATION:

These gates are downward opening type gates and can be used either for

(i) Decanting of a reservoir or a tank, or

(ii) For maintaining precise level control in a reservoir or a tank.

SALIENT FEATURES:

- Designed for decanting application and hence breast wall not required.
- Suitable for seating / unseating head application.
- Flange / flat back frame designed for mounting on face of wall using anchor bolts.
- Complete continuous water sealing on sides and bottom of gate aperture at any position of shutter opening ensured by providing non-corroding nonferrous sealing face on entire face of shutter. This ensures long lasting sealing. Where economy is a consideration, the entire face of shutter may be provided just finish machined without nonferrous sealing face.
- Metal to metal sealing arrangement on three sides.
- Non ferrous metal facings on full face of shutter for effecting long lasting water sealing.
- Provided with pin and knuckle type stem connecting arrangement to connect the shutter with the spindle.
- Single piece rising spindle to connect the shutter to the gate operating arrangement.
- Manual lift mechanism to enable a single person to operate gate with effort < 20Kgs.
- Offered with painting as required by the client or as stated on page no. 41.

MATERIALS OF CONSTRUCTION:

Depending on application and requirement, the client may select and specify the material of construction for various components from the alternatives stated on page no. 31.

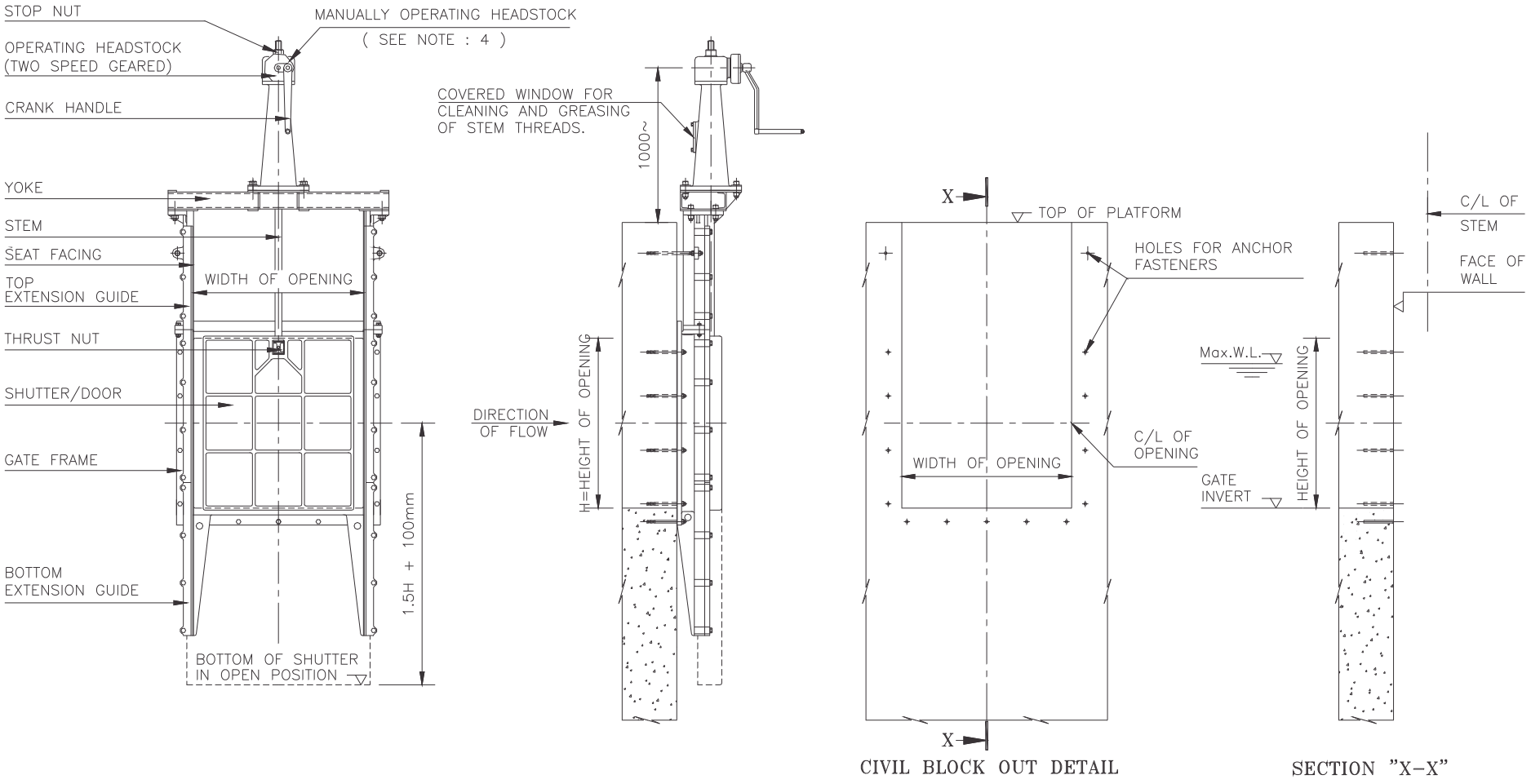
SHOP TESTING PARAMETERS:

- Seat clearance check for checking clearance between mating sealing faces.
- Movement test for checking interference free movement of complete gate assembly.

OPTIONAL FEATURES:

- Mechanical or chemical anchor fasteners.
- Wall thimble mounting design (Model:C-DWG-TM).
- Self contained gate with lift mechanism mounted directly on gate frame.
- Stem cover either made of galvanized steel or transparent tube.
- Gate opening indicating arrangement.
- Non rising spindle.
- Electrically operated lift mechanism with manual override facility.
- Pneumatically operated lift mechanism with manual override facility.
- Portable electric / hydraulic operator for manually operated gates.

TYPICAL INSTALLATION DETAILS FOR WALL MOUNTED RISING SPINDLE FLANGE BACK FRAME 'JASH' C.I. WEIR GATE.



NOTES

1. All dimensions are in millimeters.
2. The shutter travels downwards to open the gate, the invert level of the chamber should be minimum 150 mm lower than the lowest position of the shutter in full open condition.
3. Details shown above are for general guidance only, specific details and dimensions furnished upon request.
4. Manually operating headstock may be either ungeared or geared and mounted either on platform as shown or on the yoke of a self contained gate as required
5. The installation shown above is for weir gate mounted on wall using anchor fasteners. For mounting weir gate using anchor bolts suitable pockets will have to be provided on the wall.

JASH WALL THIMBLE MOUNTED CAST IRON FLAP GATES / VALVES (MODEL:C-FG-TM)

SPECIFICATION:

These are made as per Jash design.

APPLICATION:

These are used for automatic drainage from outfall structure to rivers, estuaries and sea and for preventing reverse flow during flood/tide from river, estuaries and sea to the plant.

SALIENT FEATURES:

- Opening against nominal differential pressure.
- Sturdy construction to account for pulsating motion.
- Flange back frame designed for mounting on cast iron wall thimble.
- Metal to metal sealing on the periphery of gate aperture.
- Adjustable hinge bolt of toughened steel to reduce/increase sensitivity of flap operation in installed condition.
- Rigidly designed cast iron hinge bracket.
- Replaceable hinge bushes of bronze.
- Replaceable hinge pins of stainless steel.
- Offered with painting as required by the client or as stated on page no. 41.

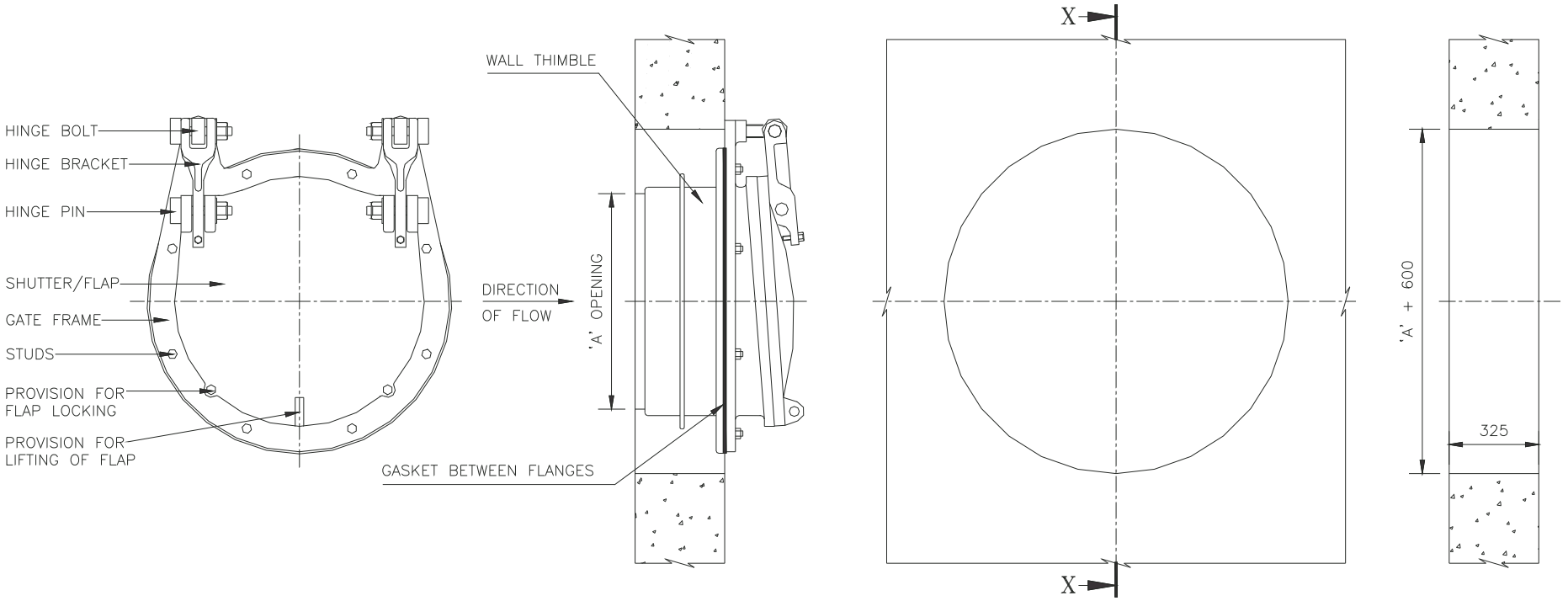
MATERIALS OF CONSTRUCTION:

Depending on application and requirement, the client may select and specify the material of construction for various components from the alternatives stated on page no. 31.

OPTIONAL FEATURES:

- Face wall mounting design for mounting on face of wall using mechanical or chemical anchor fasteners (Model: C-FG-WM).

TYPICAL INSTALLATION DETAILS FOR WALL THIMBLE MOUNTED 'JASH' FLAP GATE (OPENING : SQUIRE / CIRCULAR)



CIVIL BLOCK OUT

SECTION "X - X"

NOTES

1. All dimensions are in millimeters.
2. A = Circular or square gate opening / water way opening.
3. Details shown above are for general guidance only. Specific details furnished upon request.

MATERIALS OF CONSTRUCTION OPTIONS FOR CAST IRON SLUICE GATES COVERED ON PAGES 14 TO 30:

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.

NO.	COMPONENTS	MATERIALS	SPECIFICATION	GRADES /TYPES
1.	Gate frame, Shutter, Wall thimble, Headstock, Stem guide bracket, Flush bottom seal support bar, Wedging devices.	Cast Iron	IS:210 BSEN 1561 ASTM A126	FG:200 , 220, 260 EN-GJL 200 Class B
2.	Wedges, Wedge facings, Sealing faces / Seat facings	Naval Brass Phosphor Bronze Leaded Tin Bronze Bronze Leaded Gunmetal Stainless Steel	IS:291 IS:7814 IS:318 ASTM B21 BS:1400 ASTM A 240 / 276	Grade 1, Grade 2 Grade 1, Grade 2 LTB 1, LTB 2 CA-C46200, C48200 LG2 304, 316, 410
3.	Resilient rubber seal	Natural Rubber EPDM Rubber Neoprene Rubber	 ASTM D2000 ASTM D2000	
4.	Rubber seal retainer bar	Mild Steel Stainless Steel	IS:2062 ASTM A 240 / 276	Grade A 304, 316, 410
5.	Connecting Block / Stem Block / Thurst Nut	Cast Iron Leaded Tin Bronze Leaded Gunmetal Bronze	IS:210 IS:318 BS:1400 ASTM B584	FG 200 LTB 1, LTB 2 LG2 CA 865, CA 863
6.	Stem / Spindle	Mild Steel Stainless Steel Stainless Steel	IS:2062 ASTM A276 BS:970 Part 1	Grade A 304, 316, 316L, 410 304S31, 316S31, 410S31
7.	Coupling	Cast Iron Mild Steel Stainless Steel Stainless Steel	IS:210 IS:2062 ASTM A276 ASTM A351	FG 200 Grade A 304, 316, 316L, 410 CF8, CF8M
8.	Operating Nut / Stem Nut	Leaded Tin Bronze Leaded Gunmetal Bronze Bronze	IS:318 BS:1400 BS:2874 ASTM B584	LTB 1, LTB 2 LG2 Grade PB102 CA 865, CA 863
9.	Fasteners & Studs	Mild Steel Stainless Steel	IS:2062 AISI	Grade A 304, 316, 410
10.	Anchor Bolts	Mild Steel Stainless Steel	IS:2062 AISI	Grade A 304, 316,316L, 410
11.	Yoke	Mild Steel Cast Iron Stainless Steel	IS:2062 IS:210 ASTM A 240 / 276	Grade A FG:200 304,316,316L,410

JASH FACE WALL MOUNTED HDPE COMPOSITE SLUICE GATES
(MODEL : CP-FSG-WM)

SPECIFICATION:
These gates are made as per Jash design.

APPLICATION:
These gates are mounted on the face of a wall and are used to isolate flow in or out of a conduit and are suitable only for low seating as well as unseating heads.

SALIENT FEATURES:
- Flat back frame design for direct mounting on face of wall using anchor bolts with a rubber gasket in between frame and wall.
- Open top composite frame comprising of HDPE back up plate and stainless steel side guides.
- Composite shutter comprising of HDPE shutter plate reinforced by stainless steel stiffeners.
- Water sealing on two sides and top achieved by forced contact between non corroding face of shutter with replaceable type rubber sealing mounted in dovetailed grooves on the periphery of gate frame aperture.
- Flush bottom sealing arrangement.
- Frame mounted adjustable type HDPE wedges on sides and top as required. Provision of adjustable wedges reduces constant seal wear while opening and closing of gates and thereby enhances seal life.
- Offered for seating as well as unseating head applications, as required. Gates offered for seating head application provided only with adjustable side wedges whereas gates offered for unseating head application provided with adjustable side and top wedges.
- Provided with threaded stem connecting block housed in shutter to connect the shutter with the spindle.
- Rising spindle gate with lift mechanism mounted on separate platform above gate frame to transfer thrust reaction on platform.
- Single piece or multi-piece spindle, as required , to connect the stem block mounted on shutter to the gate operating arrangement.
- Couplings, as required, to connect the multi-piece spindles.
  Fixed type stem guide brackets, as required , to guide the spindle.
- Manual lift mechanism to enable a single person to operate gate with effort < 20 Kgs.
- Anchor bolts with nuts and washers, as required, for frame extension guides, stem guide brackets and pillar of lift mechanism.
- Gate assembly made of corrosion resistant material for longer life. Use of light weight material provides for ease in installation.

MATERIALS OF CONSTRUCTION:
Depending on application and requirement, the client may select and specify the material of construction for various components from the alternatives stated on page no. 35.

SHOP TESTING:
- Leakage test at atmospheric pressure.
- Movement test for checking interference free movement of complete gate assembly.
- Seat clearance check for checking clearance between mating sealing faces.

OPTIONAL FEATURES:
- Self contained gate with lift mechanism mounted directly on gate frame.
- Stem cover either made of galvanized steel or transparent tube.
- Gate opening indicating arrangement.
- Non rising spindle.
- Electrically operated lift mechanism with manual override facility.
- Pneumatically operated lift mechanism with manual override facility.
- Portable electric / hydraulic operator for manually operated gates.

JASH OPEN CHANNEL HDPE COMPOSITE SLUICE GATES
(MODEL : CP-OCG-CM)

SPECIFICATION:

These gates are made as per Jash design.

APPLICATION:

These gates are mounted / fixed in between two parallel side walls of an open channel and are used to isolate flow within as well as in and out of an open channel. These are suitable for seating as well as unseating water head but the height of water in both cases should be less than height of shutter.

SALIENT FEATURES:

- Designed for channel application, breast wall not required.
- Suitable for flow from either direction.
- Self contained frame suitable for grouting within the side walls of the channel on two sides and grouting within the floor of channel on bottom. Frame to remain flush with channel walls as well as channel floor after grouting.
- Frame comprising of HDPE shutter side guides encased in stainless steel.
- Composite shutter comprising of HDPE shutter plate reinforced by stainless steel stiffeners.
- HDPE sealing faces on frame sides to offer non-corroding sealing faces remaining in forced contact with rubber sealing arrangement.
- Flush bottom closure arrangement.
- Provided with pin and knuckle type stem connecting arrangement to connect the shutter with the spindle.
- Single piece rising spindle to connect the shutter to the gate operating arrangement mounted directly on gate frame.
- Manual lift mechanism to enable a single person to operate gate with effort < 20Kgs.
- Corrosion resistant and light weight material used for increased life and ease in erection.
- Economical and faster erection of fully assembled gate in a single set-up.

MATERIALS OF CONSTRUCTION:

Depending on application and requirement, the client may select and specify the material of construction for various components from the alternatives stated on page no. 35.

SHOP TESTING PARAMETERS:

- Movement test for checking interference free movement of complete gate assembly.
- Seat clearance check for checking clearance between mating sealing faces.

OPTIONAL FEATURES:

- Face wall mounting using anchor fasteners (Model: CP-OCG-WM).
- Stem cover either made of galvanized steel or transparent tube.
- Gate opening indicating arrangement.
- Non rising spindle.
- Electrically operated lift mechanism with manual override facility.
- Pneumatically operated lift mechanism with manual override facility.
- Portable electric / hydraulic operator for manually operated gates.

JASH FACE WALL MOUNTED HDPE COMPOSITE WEIR GATES
(MODEL : CP-DWG-WM)

SPECIFICATION:

These gates are made as per Jash design.

APPLICATION:

These gates are downward opening type gates and can be used either for

(i) Decanting of a reservoir or a tank, or

(ii) For maintaining precise level control in a reservoir or a tank.

SALIENT FEATURES:

- Designed for decanting application and hence breast wall not required.
- Suitable for seating / unseating head application.
- Flange / flat back frame designed for mounting on face of wall using anchor bolts.
- Frame comprising of HDPE shutter side guides encased in stainless steel.
- Composite shutter comprising of HDPE shutter plate reinforced by stainless steel stiffeners.
- Complete continuous water sealing on sides and bottom of gate aperture at any position of shutter opening ensured by forced contact between rubber sealing mounted on frame with the entire face of shutter.
- Provided with pin and knuckle type stem connecting arrangement to connect the shutter with the spindle.
- Single piece rising spindle to connect the shutter to the gate operating arrangement.
- Manual lift mechanism to enable a single person to operate gate with effort < 20Kgs.

MATERIALS OF CONSTRUCTION:

Depending on application and requirement, the client may select and specify the material of construction for various components from the alternatives stated on page no. 35.

SHOP TESTING PARAMETERS:

- Seat clearance check for checking clearance between mating sealing faces.
- Movement test for checking interference free movement of complete gate assembly.

OPTIONAL FEATURES:

- Mechanical or chemical anchor fasteners.
- Self contained gate with lift mechanism mounted directly on gate frame.
- Stem cover either made of galvanized steel or transparent tube.
- Gate opening indicating arrangement.
- Non rising spindle.
- Electrically operated lift mechanism with manual override facility.
- Pneumatically operated lift mechanism with manual override facility.
- Portable electric / hydraulic operator for manually operated gates.

MATERIALS OF CONSTRUCTION OPTIONS FOR HDPE COMPOSITE GATES COVERED ON PAGES 32 TO 34:

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.

NO.	COMPONENTS	MATERIALS	SPECIFICATION	GRADES / TYPES
1.	Gate Frame, Shutter Reinforcement	Stainless Steel, HDPE backed	ASTM A 240 / 276	304, 316, 316L
2.	Shutter	HDPE		
3.	Resilient rubber seal	Natural Rubber EPDM Rubber Neoprene Rubber	 ASTM D2000 ASTM D2000	
4.	Rubber seal retainer bar	Stainless Steel	ASTM A 240 / 276	304, 316, 316L,410
5.	Connecting Block / Stem Block / Thurst Nut	Leaded Tin Bronze Leaded Gunmetal Bronze	IS:318 BS:1400 ASTM B584	LTB 1, LTB 2 LG2 CA 865, CA 863
6.	Stem / Spindle	Stainless Steel	ASTM A276 BS:970Part 1	304, 316, 316L, 410 304S31, 316S31, 410S31
7.	Coupling	Stainless Steel	ASTM A276 ASTM A351	304, 316, 316L, 410 CF8, CF8M
8.	Operating Nut / Stem Nut	Leaded Tin Bronze Leaded Gunmetal Bronze	IS:318 BS:1400 BS:2874 ASTM B584	LTB 1, LTB 2 LG2 Grade PB102 CA 865, CA 863
9.	Fasteners & Studs	Mild Steel Stainless Steel	IS:2062 AISI	Grade A 304, 316, 410
10.	Anchor Bolts	Mild Steel Stainless Steel	IS:2062 AISI	Grade A 304, 316,316L, 410
11.	Headstock, Stem guide bracket	Cast Iron	IS:210 BSEN 1561 ASTM A126	FG:200 , 220, 260 EN-GJL 200 Class B
12.	Yoke	Mild Steel Stainless Steel	IS:2062 ASTM A 240 / 276	Grade A 304, 316, 316L

JASH FACE WALL MOUNTED STAINLESS STEEL / ALUMINUM SLUICE GATES (MODEL: F-FSG-WM)

SPECIFICATION:

These gates are made as per Jash design, AWWA C561, AWWA C562.

APPLICATION:

These gates are mounted on the face of a wall and are used to isolate flow in and out of a conduit.

SALIENT FEATURES:

- Flange / flat back frame design for direct mounting on face of wall using anchor bolts with a rubber gasket in between frame and wall.
- Open top frame comprising of HDPE guides to prevent galling between shutter and frame during gate operation.
- Shutter comprising of plate reinforced by stiffeners of same material to withstand the applicable head.
- Water sealing on two sides, top and bottom achieved by forced contact between non corroding face of shutter with replaceable type rubber sealing mounted on the periphery of gate frame aperture.
- Frame mounted adjustable type HDPE wedges on sides and top as required.
- Provision of adjustable wedges reduces constant seal wear while opening and closing of gates and thereby enhances seal life.
- Offered for seating as well as unseating head applications, as required. Gates offered for seating head application provided only with adjustable side wedges whereas gates offered for unseating head application provided with adjustable side and top wedges.
- Provided with threaded stem connecting block housed in shutter to connect the shutter with the spindle.
- Rising spindle gate with lift mechanism mounted on separate platform above gate frame to transfer thrust reaction on platform.
- Single piece or multi-piece spindle, as required , to connect the stem block mounted on shutter to the gate operating arrangement.
- Couplings, as required, to connect the multi-piece spindles.
- Fixed type stem guide brackets, as required , to guide the spindle.
- Manual lift mechanism to enable a single person to operate gate with effort < 20 Kgs.
- Anchor bolts with nuts and washers, as required, for frame extension guides, stem guide brackets and pillar of lift mechanism.
- Gate assembly made of corrosion resistant material for longer life.

MATERIALS OF CONSTRUCTION:

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

SHOP TESTING:

- Leakage test at atmospheric pressure.
- Movement test for checking interference free movement of complete gate assembly.
- Seat clearance check for checking clearance between mating sealing faces.

OPTIONAL FEATURES:

- Flush bottom closing arrangement.
- Self contained gate with lift mechanism mounted directly on gate frame.
- Stem cover either made of galvanized steel or transparent tube.
- Gate opening indicating arrangement.
- Non rising spindle.
- Electrically operated lift mechanism with manual override facility.
- Pneumatically operated lift mechanism with manual override facility.
- Portable electric / hydraulic operator for manually operated gates.

JASH OPEN CHANNEL STAINLESS STEEL / ALUMINUM SLUICE GATES (MODEL : F -OCG-CM)

SPECIFICATION:

These gates are made as per AWWA C561, AWWA C562.

APPLICATION:

These gates are mounted / fixed in between two parallel side walls of an open channel and are used to isolate flow within as well as in and out of an open channel. These are suitable for seating as well as unseating water head but the height of water in both cases should be less than height of shutter.

SALIENT FEATURES:

- Designed for channel application, breast wall not required.
- Suitable for flow from either direction.
- Self contained frame suitable for grouting within the side walls of the channel on two sides and grouting within the floor of channel on bottom.
- Frame to remain flush with channel walls as well as channel floor after grouting.
- Frame comprising of HDPE shutter side guides encased in stainless steel / aluminum sections.
- Shutter Comprising of stainless steel / aluminum shutter plate reinforced stiffeners of same material.
- Metal to rubber sealing arrangement on three sides.
- Flush bottom closure arrangement.
- Provided with pin and knuckle type stem connecting arrangement to connect the shutter with the spindle.
- Single piece rising spindle to connect the shutter to the gate operating arrangement mounted directly on gate frame.
- Manual lift mechanism to enable a single person to operate gate with effort < 20Kgs.
- Corrosion resistant and light weight material used for increased life and ease in erection.
- Economical and faster erection of fully assembled gate in a single set-up.

MATERIALS OF CONSTRUCTION:

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

SHOP TESTING PARAMETERS:

- Movement test for checking interference free movement of complete gate assembly.
- Seat clearance check for checking clearance between mating sealing faces.

OPTIONAL FEATURES:

- Face wall mounting using anchor fasteners (Model: F -OCG-WM).
- Stem cover either made of galvanized steel or transparent tube.
- Gate opening indicating arrangement.
- Non rising spindle.
- Electrically operated lift mechanism with manual override facility.
- Pneumatically operated lift mechanism with manual override facility.
- Portable electric / hydraulic operator for manually operated gates.

JASH FACE WALL MOUNTED STAINLESS STEEL / ALUMINUM WEIR GATES (MODEL: F-DWG-WM)

SPECIFICATION:

These gates are made as per AWWA C561/ AWWA C562.

APPLICATION:

These gates are downward opening type gates and can be used either for

(i) Decanting of a reservoir or a tank, or

(ii) Maintaining precise level control in a reservoir or a tank.

SALIENT FEATURES:

- Designed for decanting application and hence breast wall not required.
- Suitable for seating / unseating head application.
- Flange / flat back frame designed for mounting on face of wall using anchor bolts.
- Frame comprising of HDPE shutter side guides encased in stainless steel / aluminum sections.
- Shutter comprising of stainless steel / aluminum shutter plate reinforced by stiffeners of same material.
- Complete continuous water sealing on sides and bottom of gate aperture at any position of shutter opening ensured by forced contact between rubber sealing mounted on frame with the entire face of shutter.
- Provided with pin and knuckle type stem connecting arrangement to connect the shutter with the spindle.
- Single piece rising spindle to connect the shutter to the gate operating arrangement.
- Manual lift mechanism to enable a single person to operate gate with effort < 20Kgs.

MATERIALS OF CONSTRUCTION:

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

SHOP TESTING PARAMETERS:

- Seat clearance check for checking clearance between mating sealing faces.
- Movement test for checking interference free movement of complete gate assembly.

OPTIONAL FEATURES:

- Mechanical or chemical anchor fasteners.
- Self Contained gate with lift mechanism mounted directly on gate frame.
- Stem cover either made of galvanized steel or transparent tube.
- Gate opening indicating arrangement.
- Non rising spindle.
- Electrically operated lift mechanism with manual override facility.
- Pneumatically operated lift mechanism with manual override facility.
- Portable electric / hydraulic operator for manually operated gates.

MATERIALS OF CONSTRUCTION OPTIONS FOR STAINLESS STEEL / ALUMINUM SLUICE GATES COVERED ON PAGES 36 TO 38:

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.

NO.	COMPONENTS	MATERIALS	SPECIFICATION	GRADES / TYPES
1.	Gate Frame, Shutter plate, Shutter reinforcement	Stainless Steel Aluminum Alloy	ASTM A 240 / 276	304, 316, 316L 6061-T6
2.	Shutter guides , Seats	UHMWPE		
3.	Resilient rubber seal	Natural Rubber EPDM Rubber Neoprene Rubber	 ASTM D2000 ASTM D2000	
4.	Rubber seal retainer bar	Stainless Steel	ASTM A 240 / 276	304, 316, 316L,410
5.	Connecting Block / Stem Block / Thurst Nut	Leaded Tin Bronze Leaded Gunmetal Bronze	IS:318 BS:1400 ASTM B584	LTB 1, LTB 2 LG2 CA 865, CA 863
6.	Stem / Spindle	Stainless Steel	ASTM A276 BS:970 Part 1	304, 316, 316L, 410 304S31, 316S31, 401S31
7.	Coupling	Stainless Steel	ASTM A276 ASTM A351	304, 316, 316L, 410 CF8, CF8M
8.	Operating Nut / Stem Nut	Leaded Tin Bronze Leaded Gunmetal Bronze	IS:318 BS:1400 BS:2874 ASTM B584	LTB 1, LTB 2 LG2 Grade PB102 CA 865, CA 863
9.	Fasteners & Studs	Mild Steel Stainless Steel	IS:2062 AISI	Grade A 304, 316, 410
10.	Anchor Bolts	Mild Steel Stainless Steel	IS:2062 AISI	Grade A 304, 316,316L, 410
11.	Headstock, Stem guide bracket	Cast Iron	IS:210 BSEN 156 ASTM A126	FG:200 , 220, 260 EN-GJL 200 Class B
12.	Yoke	Mild Steel Stainless Steel	IS:2062 ASTM A 240 / 276	Grade A 304, 316, 316L

JASH STOP LOGS

SPECIFICATION:

These are made as per Jash design.

APPLICATION:

Single/Multi piece stop logs are used for isolation duties in open channels. These are suitable for applications where height of water is less than the height of the stop logs.

SALIENT FEATURES:

- Designed for mounting / fixing between two parallel side walls of open channel (Model: F-SL-CM and CP-SL-CM).
- Single / Multi piece construction suitable for manual / mechanized lifting arrangement.
- Replaceable type seals on sides and bottom.
- Flush bottom closure arrangement.
- Corrosion resistant material.
- Economical & faster erection.

Wooden stop log

OPTIONAL FEATURES:

- Multi piece construction for weir application.
- Separate guide frames suitable for use with same stop log.
- Face wall mounted frame design (Model: F-SL-WM and CP-SL-WM).
- Lifting beam for mechanized lifting arrangement.

MATERIALS OF CONSTRUCTION:

Depending on application and requirement, the client may select and specify the material of construction for various components from the alternatives stated below.

NO.	COMPONENTS	MATERIALS	SPECIFICATION	GRADES
1.	Frame	Stainless Steel Aluminium	ASTM A240/276	304, 316, 316L 6061-T6
2.	Stoplogs	HDPE Aluminium Stainless Steel Wood	 ASTM A240/276	 6061-T6 304, 316, 316L
3.	Resilient Rubber Seal	EPDM Rubber Neoprene Rubber Polyurethane	ASTM D2000 ASTM D2000	
4.	Seal Retainer Bar	Stainless Steel HDPE	ASTM A240/276	304, 316, 316L, 410
5.	Lifting Pins	Stainless Steel Aluminium	ASTM A276	304, 316, 316L, 410 6061-T6
6.	Fasteners	Stainless Steel	AISI	304, 316, 410

PAINTING SPECIFICATIONS

Painting of sluice gates is carried out generally as per the requirements of the clients. However when clients do not provide specific painting specification then following painting procedure may be adopted.

Cast Iron gates used in clear water application:

- Surface preparation : Blast clean or ground to near white metal finish.
- Priming : 1 coat of red oxide primer before and after shop testing. Total priming thickness 75 microns.
- Finish painting for gate assembly: 2 coats of black bitumin paint for gate assembly. Total paint thickness inclusive of priming 200 microns.
- Finish painting for headstock : Grey enamel paint. Total paint thickness 150 microns.

Cast Iron gates used in sewage water application:

- Surface preparation : Blast clean or ground to near white metal finish.
- Priming : 1 coat of epoxy red oxide or epoxy zinc rich primer before and after shop testing. Total priming thickness 100 microns.
- Finish painting for gate assembly: 2 coats of black epoxy coal tar paint for gate assembly. Total paint thickness inclusive of priming 250 microns.
- Finish painting for headstock : grey epoxy paint. Total paint thickness 150 microns.

Stainless steel gates used in clear as well as sewage water application:

- Surface preparation : Cleaning of weld joints by acid pickling and then blast clean to remove surface contamination.
- Acid pickling and passivation after blast cleaning.
- Painting for headstock : Epoxy primer and Grey epoxy paint. Total paint thickness 150 microns.

Aluminum gates used in clear as well as sewage water application:

- Surface preparation : Cleaning of weld by grinding and surfaces by soap water.
- Priming : 1 coat of Etch primer. Total priming thickness 25 microns.
- Finish painting for gate assembly: 2 coats of epoxy paint for gate assembly. Total paint thickness inclusive of priming 150 microns.
- Painting for headstock : Epoxy primer and grey epoxy paint. Total paint
- thickness 150 microns.

STANDARD ACCESSORIES

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

Ungeared head stock

Single speed geared head stocks

Two speed geared head stocks

Fixed centre stem guide

1. Lift mechanism / Screw hoist:

Manually operating floor mounting cast iron ungeared or geared headstock with floor stand / pillar capable of operating the gate with an effort not more than 20Kgs. The pillars are provided with elliptical window opening with removable cover to enable cleaning and greasing of spindle threads.

The ungeared headstocks are provided when the lifting loads are low and enable easy gate operation without need of gearing. These are easier to operate and offer fastest operation. These are provided with a thrust bearing mounted non ferrous threaded stem nut engaging with spindle threads. A easily removable type handwheel is then mounted on the stem nut and rotation of the handwheel results in gate operation. The headstock can be provided with arrangement for locking of the handwheel to prevent unauthorized operation.

The geared headstocks are provided with thrust bearing mounted non ferrous threaded stem nut engaging with spindle threads. The stem nut is connected to a bevel or spiral bevel gear arrangement which when operated through a crank handle, operates the gate. Geared headstocks are provided with machined gears completely encased in housing to protect from dirt, dust, rain and other atmospheric effects. Geared headstocks are provided with arrangement for lubrication as well as for locking of removable crank handle with the pillar after it is removed from the driving shaft.

When the gear ratio required to operate the gate is higher than 1:7 a two speed geared headstock is essentially furnished. 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.

Bench type lift mechanism are pillarless and are generally provided for mounting on yoke of self contained frame gate. These can be ungeared or geared depending upon requirement. (Refer to photograph on page 25 for bench type ungeared lift mechanism)

Twin lifting headstocks or tandem operating mechanism is provided for gates having width of opening greater then twice the height of opening. Twin lifting headstocks are connected by tandem shaft for simultaneous operation of gates. (Refer to photograph 2 on page no. 5 for tandem operating mechanism).

2. Stem / Spindle:

Single piece or multi-piece, as required, to connect the shutter with the lift mechanism. The spindles are generally provided with square threads.

3. Stem guides:

Adequate number of stem guides with machine bored split journals, to limit unsupported length of stem within fifty times its diameter.

Fixed center stem guides are provided when the distance of the centerline of spindle from the face of wall is less than 175 mm. These are directly mounted on face of wall using anchor bolts. The stem guides have machined bore split journal to facilitate erection.

Adjustable stem guide

Adjustable type Stem guides are provided when the distance of the centerline of spindle from the face of wall is more than 200 mm. These comprise of a right angled bracket to be secured on the face of wall with anchor bolts and an adjustable guide which can be secured on the horizontal face of the right angles bracket. The stem guide is adjustable in a direction perpendicular to face of wall and have machine bored split journal to facilitate erection.

4. Couplings:

Internally threaded couplings to couple / connect small lengths of stem when stems are to be longer than four to five meters. The couplings are provided with pins passing through engaging spindles for locking. For mild steel stems, couplings are of cast iron and have hexagonal shape. For stainless steel stems, couplings are of stainless steel and have round shape.

5. Stop nut:

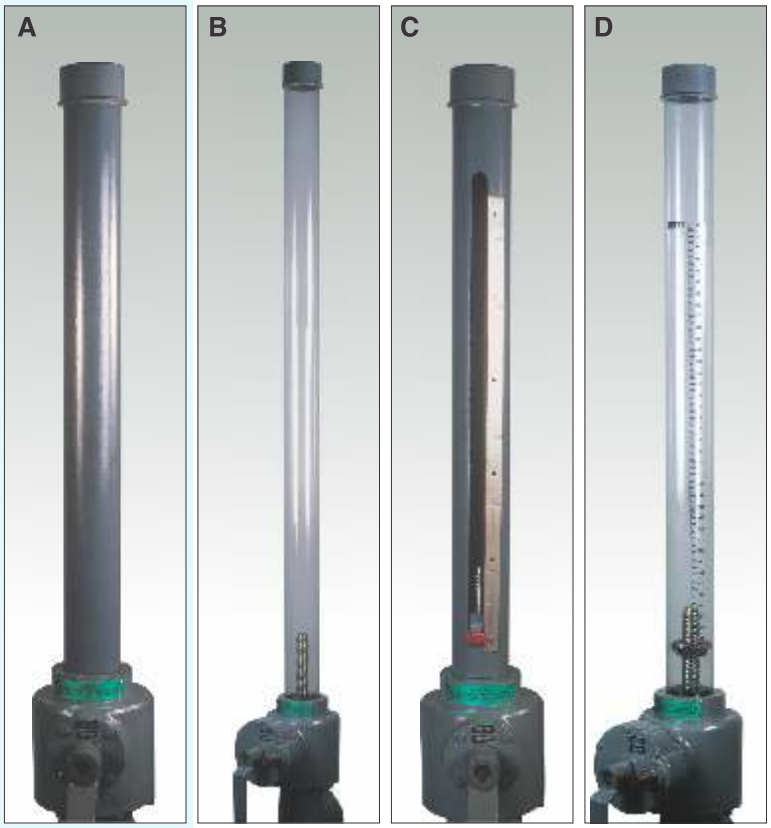
Cast iron stop nut with set screw on threaded rising stems of manually operated gates to prevent chances of over closing of gate and thus to avoid chances of damage to wedge blocks, stem and the operating platform. The safety stop nut is furnished with a set screw for setting it in a fixed position after the gate is installed.

6. Anchor bolts:

L-shaped anchor bolts for gate frame, stem guide brackets and operating headstock, as necessary.

OPTIONAL ACCESSORIES

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



1. Pipe hood / Stem cover:

Steel or transparent plastic (polycarbonate /acrylic) pipe hood / stem cover is provided on headstock of rising spindle gates to protect spindle threads from dirt, dust and weather.

Photograph -A shows steel stem cover

Photograph -B shows transparent stem cover..

2. Gate opening indicating arrangement:

Pipe hood type gate opening indication arrangement is provided on rising spindle gates to indicate “OPEN” or “CLOSE” position of gate and if required the extent of gate opening by providing a scale with 1 cm graduation.

Photograph -C shows gate opening indicating arrangement with steel stem cover

Photograph -D shows gate opening indicating arrangement with transparent stem cover.

3. Foot plate wall bracket:

Foot plate wall bracket is provided to support headstock pillar in cases where civil platform is not available for mounting of headstock. The bracket is secured to the vertical face of the wall using anchor bolts and the pillar is then secured on the horizontal face of bracket using bolts and nuts.

4. Offset centre pillar:

Offset centre pillar can be used in lieu of foot wall bracket in cases where civil platform is not available. The foot of the pillar is secured to the horizontal face of the vertical wall using anchor bolts. The top portion of pillar has an offset bracket which enables mounting of bench type operating mechanism on it for gate operation.

5. Electrically operated lift mechanism with manual override facility:

Electrically operated lift mechanism comprise of electric actuators manufactured Rotork / Auma mounted on floor stand / pillar. These actuators enable gate operation between 250-300 mm /minute and are rated for opening or closing of a gate within 15 minute. The actuators are provided with manual override facility to manually operate the gate in event of electric failure or malfunction.

6. Pneumatically operated lift mechanism with manual override facility:

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

7. Portable electric / hydraulic operator for manually operated gates:

Portable electric / hydraulic operator is provided for faster opening of manually operated gates. A common portable operator can be used for operation of a number of gates of different sizes located near each other. The operator is trolley mounted for ease in transportation from one location to another and for local movement at a particular location.

SHOP INSPECTION TESTS CARRIED OUT FOR JASH GATES

1. SEAT CLEARANCE CHECK: (applicable to all types of gates)

Clearance, if any, between the mating sealing faces of the gate frame and shutter, in gate fully closed position is checked to ensure that 0.10mm thick feeler gauge does not pass through the mating sealing faces. This check is carried out for each gate.

2. MOVEMENT TEST: (applicable to all types of gates)

The gate is mounted horizontally on a bed plate along with it's stem, coupling, stem guides and headstock i.e. complete gate assembly as shown on 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 headstock to verify that the spindle length provided is of correct length.
- Confirming interference free movement of spindle by checking that couplings do not foul with stem guides while opening / closing of gate.
- Checking that adequate threaded length is provided for full opening & closing of gate.

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

3. SHOP LEAKAGE TEST UNDER ATMOSPHERIC PRESSURE:

(applicable only for spigot back frame gates)

The gate, after applying one coat of primer, is put horizontally on the floor in upside down position and water is filled in the spigot portion of gate frame. Fall in water level is measured over a specific period of time. Company acceptance norms require that leakage, if any, when tested as above shall not exceed 1.25 litres per minute per meter length of sealing perimeter. This test is carried out for each gate but only in respect of those gates which involve water sealing arrangement all along the complete periphery of gate aperture/opening.

4. SHOP LEAKAGE TESTS UNDER MAXIMUM OPERATING HEAD:

(applicable only for flange back frame gates wherever specifically so agreed)

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

Leakage acceptance norms as per IS:13349 requires that the test shall not show leakage in excess of 2.5, 3.5, and 4.5 litres per minute per meter length of sealing perimeter for Class 1 (head upto 5 Meters), Class 2 (head above 5 and upto 10 meters) and Class 3 (head above 10 and upto15 meters) Sluice Gates respectively.

Leakage acceptance norms as per AWWA C560 requires that :

- under the design seating head, the allowable leakage shall not exceed :

  (2.07×10^{-5} m^3/s per metre of seating perimeter).
- under the design unseating head of 6 m or less, the allowable leakage shall not exceed :

  (4.14×10^{-5} m^3/s per metre of seating perimeter).
- under the design unseating heads greater than 6 m, the allowable leakage shall not exceed :

  ($2.07 \times 10^{-5} + 3.40 \times 10^{-6} \times$ unseating head in metres) m^3/s per metre of seating perimeter.

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.

5. SHOP HYDROSTATIC PRESSURE BODY TEST UNDER 1.5 TIMES MAXIMUM OPERATING HEAD:

(applicable only for flange back frame gates wherever specifically so agreed)

After satisfactorily carrying out the leakage test, with the gate mounted in closed position on test bench, water pressure equal to1.5 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.

6. OPERATING TORQUE TEST AT MAXIMUM OPERATING HEAD: (applicable only for thimble mounting flange back frame 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 centre 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 Newtons / meter.

7. DIMENSIONAL VERIFICATION CHECK: (applicable to all types of gates)

Actual dimensions of gates 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 class III of IS-5519 for castings and extra coarse limits as per IS-2102 for dimensions without specified tolerances.

8. REVIEW OF MATERIAL TEST CERTIFICATES: (applicable to all types of gates)

Material test certificates as agreed for important components like Cast iron castings of gate frame, shutter & wall thimble, Ferrous and non ferrous seat facings and spindles etc are furnished for review at the time of shop inspection.

NOTES :

a) 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 shutter under unseating test head. Such clamps are removed after carrying out the hydraulic pressure tests.

b) In case of circular gates having circular openings the seat facings are provided in square lay in a manner similar as in the case of square gates having square openings. Hence the length of sealing perimeter is the same as that in case of square gates. The permissible leakage rate for circular gates, therefore, shall be the same as in the case of square gates.

c) Shop leakage, hydrostatic body test and operating torque test cannot be carried out for all types and sizes of gates. Further, these tests involve extra costs. Purchasers, therefore, should consult the manufacturer before specifying such tests.

d) 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 can seriously affect leakage characteristics. Therefore, Field Leakage Test after installation of the gate is not agreed until gates are erected under our supervision.

e) No tests or checks other than those stated above are carried out unless specifically so agreed prior to order placement.

INSTALLATIONS

Manually operated gates installed at Versova aerated lagoons project, Mumbai

Electrically operated Flange back frame cast iron sluice gates at Ghatkopar waste water treatment facility, Mumbai.

Two nos. electrically operated Flange back frame cast iron sluice gates of 1400 X 3500 mm size installed at effluent pumping station of Worli marine outfalls project, Mumbai.

Manually operated gates installed at Bhandup aerated lagoons project, Mumbai

Cast Iron Open channel gates installed at Katargam water treatment plant, Surat

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Manufacturer reserve the right to depart from the catalogue specifications and illustrations

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UKAS QUALITY MANAGEMENT 008

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