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Engineering Company Ltd.

Khartoum North, Industrial Area Phone: +249 185 314810 Fax: +249 185 311234 E-mail: monawir_eng@yahoo.com

www.monawir-eng.com



Introduction:-

Irrigation canals are artificial systems developed to transport water from main water reservoirs to several water-demanding agricultural farms during irrigational seasons. Generally, they cover very long distances: their length can range from hundreds of meters to hundred of kilometers. Along these canals, farms are located close to them and distributed all over the way.

Survey about the different types of controllable variables in canal systems, in order to assure the availability of water for the final users. These are:

- Supplied water discharges.
- Water depth levels where water is diverted for irrigation.
- Stored water volumes.

A gate is a hydraulic structure widely used for controlling discharge and water depth in irrigation and drainage canals. However, it can also be used as a convenient discharge measuring device.

Depending on the intended purpose and the particular mechanical design, there are different types of gates, many of them widely used in irrigation canal applications: vertical lift gates, radial (tainter) gates, flap gates and Roller Sluice Gates.



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General Description Of Sluice Gate

The Roller Sluice Gates are to close against a steel frame consisting of left and right side and bottom rest.

The roller sluice gates are formed of Standard U-Section 200 as and equal iron angles 100 x10 mm and gusset plates to stiffen the gate structure in one rigid structural unit covered in the front by a skin plate 8 mm thick according to your requirements, whoever in compliance with the international standards for under water structures this is in the minimum 10 mm. The gusset plates shall also have a minimum thickness of 8 mm.



At the bottom of the gate bed and joining structurally with the Side Frames for Guides, is the bottom rest (sill) upon which the Roller Sluice Gates are to rest. As described above this bottom rest is adjusted to correct level and position through embedded parts mounted as shown in the enclosed drawings.

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Construction Parts

1.Side Guides and Rails:-

The guide rails, which to be embedded in concrete, are to serve Roller Sluice Gates in their movement of opening and closing in the vertical.





3.Top Frame for Supporting the Actuating Gear

Like the two Side Guide Grooves the upper most cross structure carrying the actuating mechanism of the roller sluice gates are formed by 2x DIN German Standard U-Section 200 having a web thickness of 8.5 mm.

4. Roller Wheels:-

The Roller Wheels are out of special cast iron quality GG 50 of 250 mm diameter having an out flange 280 mm running on a precision shaft 73 mm. The shaft is fixed in position at the vertical side stiffener by the kept plate and bolts.



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The design of the Wheel and number of Wheels are subject to experience and the following formula:-



P = (k + k')L/d

P= Total frictional force K and k'= coefficient of the two surfaces.

L= The load to be moved on the rollers.

d= Diameter of the roller

Skin Plate with Rollers Wheel

Table of Gate sizes and wheels

Nominal Size	Width	Height	No of
	in mm	in mm	wheels.
2000	2000	2207	4
2500	2500	3007	4
3000	3000	3707	6
4000	4000	3207	6

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6. Rubber seals:-

The gate sealing is made by means of means of rubber joints assembled in the structure of the gate and, it acts against the stainless steel embedded parts.

The embedded parts incorporated in the piers consist of curved lateral seal beams and a sill beam.

The rubber seal for producing tightness is made out of a material, which will not be affected with friction. It has a basic material component Chloroprene. It has very good elastic properties, very resistant to abrasive wear and very good aging properties.



For bottom sealing



For side sealing

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