



PUMP GATE

Moveable Pump Gate



Pump Column



Flap Gate (discharge pipe)



Electrical Cable Tray (HDPE casing)



Pump Cable Tray (HDPE casing)



PUMP GATE

INTRODUCTION

At present, the occurrence of floods in Malaysia is inevitable and alarming. If not properly controlled, floods will paralyze the economy of the affected area, damage property, destroy crops, kill livestock, cause health deterioration and hospitalization due to water-borne diseases, and loss of human life. Nonetheless, such consequences of flooding can be mitigated by taking precautionary measures such as preparing pumps to drain flood water from low to high areas and using flood barriers such as water control gates to prevent water from entering low-lying areas. More often than not, a flood mitigation system involves a dual function that prevents the entry of water and drains excess water. This dual function system results in the implementation of both pumps and water control gates to systematically control flood. Furthermore, there are cases whereby the original system

utilizes only water control gates and pumps are added on later to accommodate increased drainage needs due to rapid development.

However, not all conditions or localities allow pump installation due to lack of surrounding ground area for pump placement and retention ponds. Therefore, our company took the initiative to design and build pumpgates. Our advantage over competitors is, while being able to manufacture pumpgates completely from the ground up, we are capable to modify existing gate structures by integrating them with correctly sized pumps resulting in complete and fully functioning units. This transformation of regular gates to pumpgates enable clients to benefit from savings in terms of land acquisition costs as well as eliminating the need to fabricate a brand new pumpgate.

PUMP GATE CONSTRUCTION

The design of our pumpgate consists of three main components, namely column/discharge pipe, column-type electrical submersible axial-flow pump, and roller gate. The pipe guides the flow of water, the pump provides means to pump water, and the gate controls water flow. Our company will custom design and build the pumpgate according to site suitability and depending on the clients' request. The column/discharge pipe is custom-made-pump and site-specific.

Its design takes into account the minimum submergence level of the pump and the clearance between the pump bell mouth and the channel bed level. The design of the column pipe also facilitates maintenance, allowing the column top cover to be opened so that the pump can be taken out. The column pipe is made of mild steel that is galvanized to inhibit rust and corrosion. Its thickness is sized to withstand the pressure produced by the pump.



The selected pump is column-type electrical submersible axial-flow pump with capacity of 152 litres/second at 3-meter head. Each pump is tested prior to installation. The performance of the supplied pump complies

with acceptance grade 2B of International Standard BS EN ISO 9906. Nevertheless, our company will also supply pumps with client-specified capacities depending on the suitability of design and site.



The type of water control gate used for the pumpgate is the roller gate of size 12 feet (width) x 14 feet (height) made of stainless steel with the strength to resist total water pressure head up to 15 feet. The gate is equipped with a wire rope gate hoist, which consists of an electric actuator, gearbox, transmission shaft, wire rope drum, wire rope, and other related accessories.

The column pipe is fitted on either via a whole new pumpgate fabrication from scratch or by adding it on to an existing, strengthened gate structure. Moreover, our company supply water control gates in a wide range of sizes and materials that can be suited to the needs of different clients, specific designs, and a variety of site conditions.

The Advantage of Our Pumpgate

1. Our pumpgate is designed by local professional engineers under our employment. This enable discussions to produce custom-made designs to be done quickly and efficiently. On top of that, any changes in accordance with the requirements of the client can be executed in a timely manner.
2. Our pumpgate saves space and land use because it eliminates the need to build a new pump sump which is expensive and involves land acquisition costs.
3. Our pumpgate is easy to maintain thanks to the presence of the removable column top cover that enables the pump to be taken out.
4. Our pumpgate can be made in various sizes of water control gates and pump capacities as per clients' requests depending on the design and feasibility.
5. Our pumpgate is cost saving because there is no need for new gate fabrication where existing gates can be used with the original structure reinforced.
6. The performance of our pumps meets acceptance grade 2B of International Standard BS EN ISO 9906.
7. The design of our gate meets the Japanese standard.
8. Our pumpgate is built by the local workforce. Any problems that arise can be directly referred to our company located in Penang.

9. The subject is in patent application under the application no. UI 2021000485



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