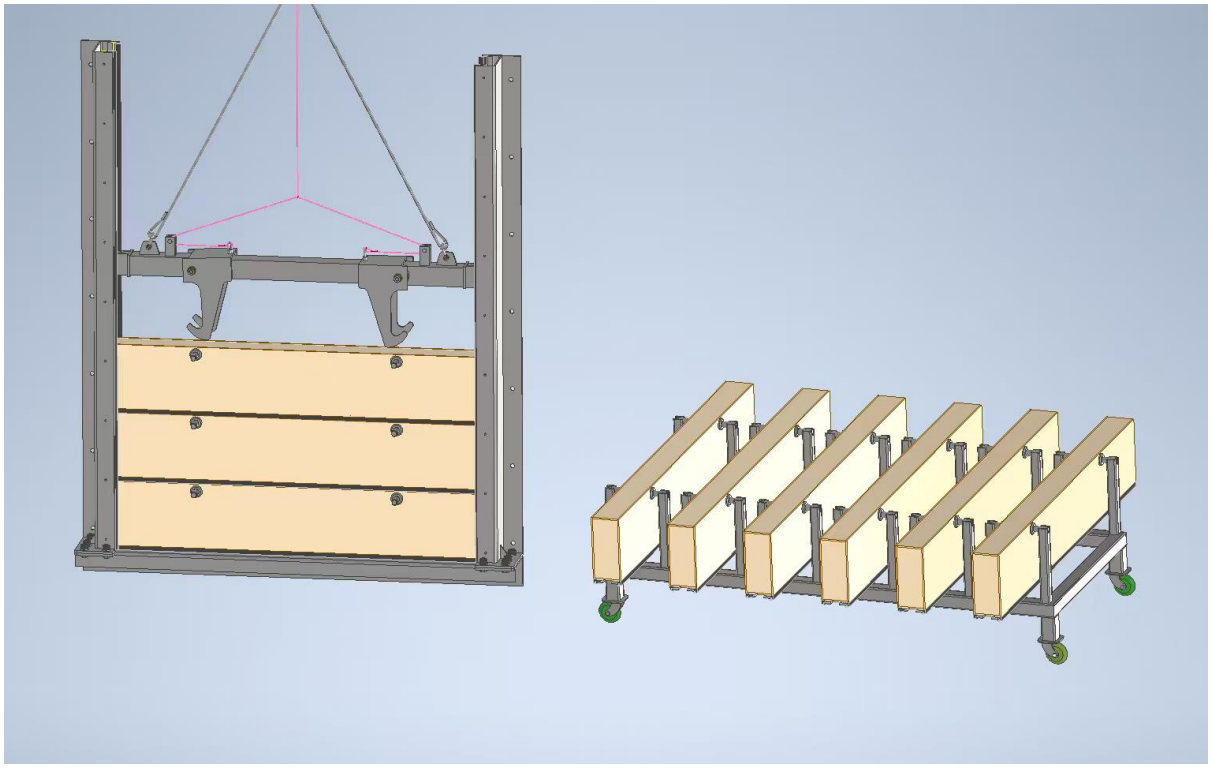

“Flatway” - Stoplog

Definition, Applications, and Key Considerations

Introduction

A stoplog is a hydraulic engineering device used to control water levels and flow in channels, rivers, reservoirs, and other water management systems. Stoplogs are typically removable beams, boards, or panels that are placed within slots in dam or channel structures to temporarily block or regulate the passage of water.

Definition and Purpose

Stoplogs are modular barriers that can be stacked or removed as needed to adjust the height of a water barrier. Their primary purpose is to allow operators to manage water flow for maintenance, emergency response, or operational requirements. Unlike permanent gates or valves, stoplogs offer flexibility and ease of installation or removal, making them ideal for temporary or seasonal water control.

Common Applications

- Flood Control: Stoplogs are used to temporarily block channels or overflow weirs during periods of high water to prevent flooding.

- Maintenance: Water can be diverted or contained by stoplogs, allowing for safe inspection and repair of hydraulic structures such as sluices, culverts, and spillways.
- Reservoir Management: By adjusting the number of stoplogs installed, operators can raise or lower water levels in reservoirs and storage basins as needed.
- Environmental Protection: Stoplogs help regulate water flow to maintain ecological balances in wetlands, fish passages, and protected habitats.

Design and Materials Specification

1. Frames: Embedded frames are mounted into prepared rebates in chamber walls and floor. The embedded frame is not in any way encroach on the clear dimensions of the concrete chambers. Frames and fixing bolts for the stoplogs are made of stainless steel. Frames shall be channel mounted with a flush invert. Height of frames are the same as that of the chamber.

2. Frame Seals: Frame seals are resilient Ethylene Propylene wiper type seals having an angled lip seal. Seals are fitted to the seating and unseating sides of the frame. The seals are fixed with corrosion resistant retaining strips and stainless steel Type 316 fasteners.

3. Logs: Logs are manufactured as a composite sandwich construction comprising a lightweight, rigid, cellular core with a fully welded steel box section matrix between two outer skins of rigid compressed composite plastic. The outer skin material is ultraviolet stabilized and non-toxic. All materials are internally chemically bonded and sealed. Each log has four face mounted stainless steel Type 316 lifting pins. Ethylene propylene inter-log seals are bonded to the base of each log along the outer edges. Depth of each log are generally 300mm or 400mm to withstand water pressure to full log depth. Leakage rate of the stoplogs shall be less than 20 litres per hour per meter or periphery. Each log is permitted to lift or lower by specially designed lifting beam.

4. Storage rack: Storage racks are made of stainless steel for storage of all stop logs.

Installation and Operation

1. Preparation: The slots or guides in the structure are cleaned and checked for debris or damage.
2. Placement: Stoplogs are lowered individually into the slots, stacked to the desired height. Mechanical lifting devices are often used for larger installations.
3. Sealing: Gaskets or seals may be used between stoplogs and the structure to improve water tightness.
4. Removal: Stoplogs are lifted out when water flow is to be restored or for seasonal changes in water management.

Advantages and Limitations

- Advantages: Flexible, cost-effective, easy to install and remove, suitable for temporary flow control.
- Limitations: Manual labor may be required, not suitable for rapid or automated flow adjustments, potential for leakage if not properly sealed.

Conclusion

Stoplogs are essential tools in water management and hydraulic engineering, offering a practical solution for temporary or adjustable flow control. Their versatility makes them a preferred choice in various applications, from flood protection to maintenance operations and environmental management.

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