

Operation in extreme climate

During winter the water inside the rubber dam is protected from freezing by pump assisted circulation. The effectiveness of this method has been evidenced in many installations in cold climate areas in Central and Northern Europe. Similarly a cooling effect is produced in cases of high ambient temperature in tropical areas.

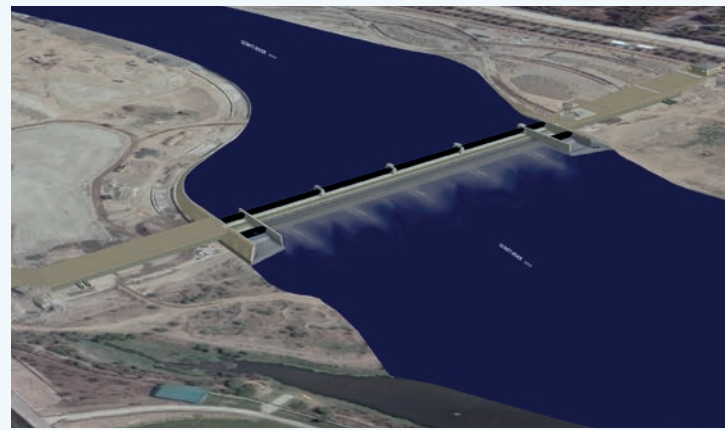


Rubber dam Steinach/Sill river Tyrol in winter time

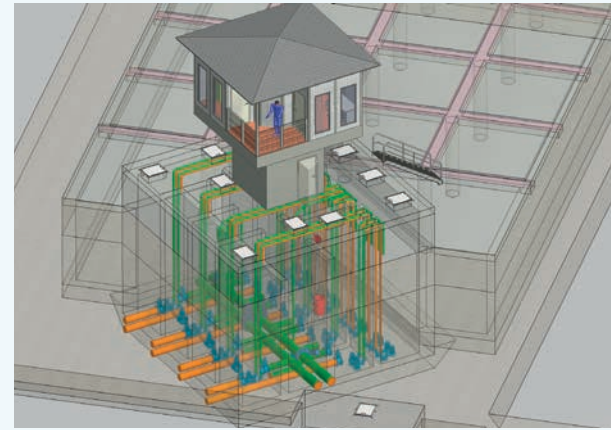
Delivering a HYDROCONSTRUCT Rubber Dam

- Project development in collaboration with partner companies AQUATIS a.s. und TRELLEBORG Bohemia a.s.
- Layout, Detail Design and Technical Drawings.
- Supply and installation of the rubber membrane, the anchoring and clamping system and the pipework.
- Supply and installation of the mechanical and electrical control equipment.
- Commissioning and instruction of operational personnel.
- Supply of Stop log arrangement - System HYDROCONSTRUCT.

HYDROCONSTRUCT is an experienced international company with hydro engineering experts delivering all design services from concept to execution phase.



Weir with 4 spans and side gated boat navigation locks



Project example shaft system with water reservoir

Installation of a HYDROCONSTRUCT Rubber Dam

- Installation of embedded anchor and pipe system.
- Installation of membrane.
- Testing and commissioning of the rubber dam by HYDROCONSTRUCT experts.



Anchor rails and pipe system



Installation of membrane



Commissioning of rubber dam



Au Weir / Iller / Kempten Germany



Hausen Weir / Main Germany



Bad Gaisern Weir / Traun Austria

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Rubber Dams

Irrigation
Hydro Power
River Management

HYDROCONSTRUCT

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HYDROCONSTRUCT Rubber Dam Technology

HYDROCONSTRUCT's specially developed rubber dam system, which can be either air inflated or water filled for optimum stability, has numerous applications, including reservoir control, irrigation, hydroelectric power generation and river and flood management. The HYDROCONSTRUCT rubber dam can achieve damming heights from 30 cm up to 4.5 m. Depending on your preferred application, our rubber dams are supplied in either straight or curved versions. The membrane used for the rubber dams is highly elastic, resistant to abrasion and corrosion, and withstands aging. The technical life expectancy of the rubber material is approximately 30 years. Our supplier TRELLEBORG Bohemia a.s. is one of the largest rubber products manufacturers in Europe and has been awarded a certificate of excellence in the production of membranes to quality standard ISO 9001 / EN 29001.



Main advantages of HYDROCONSTRUCT Rubber Dams

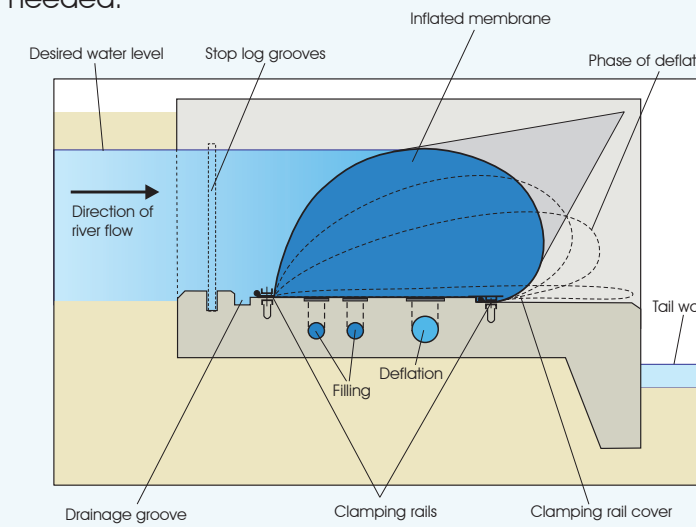
- Flexible weir structure, allowing discharge of sediments, debris and ice.
- Fully automatic reservoir level control.
- Self-acting flood release; the automatic bucket drive lowers the weir without the need for external energy to power mechanical valve drives.
- Ideal for creating reservoirs in wide rivers; single weir spans of up to 100 m are feasible.
- Renovation and reconstruction of existing weir structures, regardless of shape and geometric configuration.
- HYDROCONSTRUCT rubber dams are custom made according to the weir configuration, factory made as a single unit. On site this ready-made membrane just has to be secured in place by the clamping system.
- Absence of mechanical components eliminates corrosion risk.
- No lubricants needed – protects the environment.
- Low maintenance costs and low operating costs due to minimal energy requirements.

The operating principle of a HYDROCONSTRUCT Rubber Dam

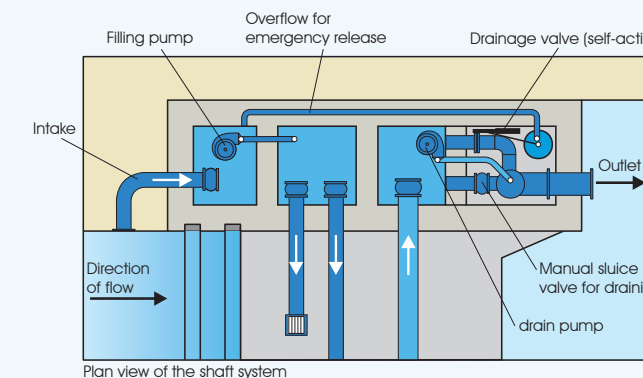
A choice of two systems:

- Water filled rubber dams providing continuous reservoir level control.
- Air inflated rubber dams where speedy regulation is needed.

For the **Air inflated** system an air blower discharges pressurised air into the rubber dam through a pipe system linked to the control shaft. The control shaft houses the blower, the control equipment and the motorized air flaps and pressure relief valves for regulation and control. Air pressure can be released through the valves allowing the rubber body to drop downwards to the weir sill.



For the **Water filled** system a pump discharges water into a filling shaft linked by pipework to the body of the dam. The shafts are equipped with a device regulating the reservoir level. Using a drainage pump or outlet valve the rubber dam can be lowered downwards continuously until its body drops completely to the weir sill.



The essential components

- Weir body with foundation plate and side walls of reinforced concrete.
- Anchoring and Clamping system zinc coated or stainless steel.
- Pipes for filling or emptying the rubber dam are embedded in concrete structures.
- Rubber membrane: EPDM/SBR rubber with fabric layers and submerged stabilising fins vulcanised to the membrane.
- Reinforced concrete shaft building for control and regulation.
- Control cabinet with electric supply and electronic control equipment.
- Stop-log system for maintenance purposes.

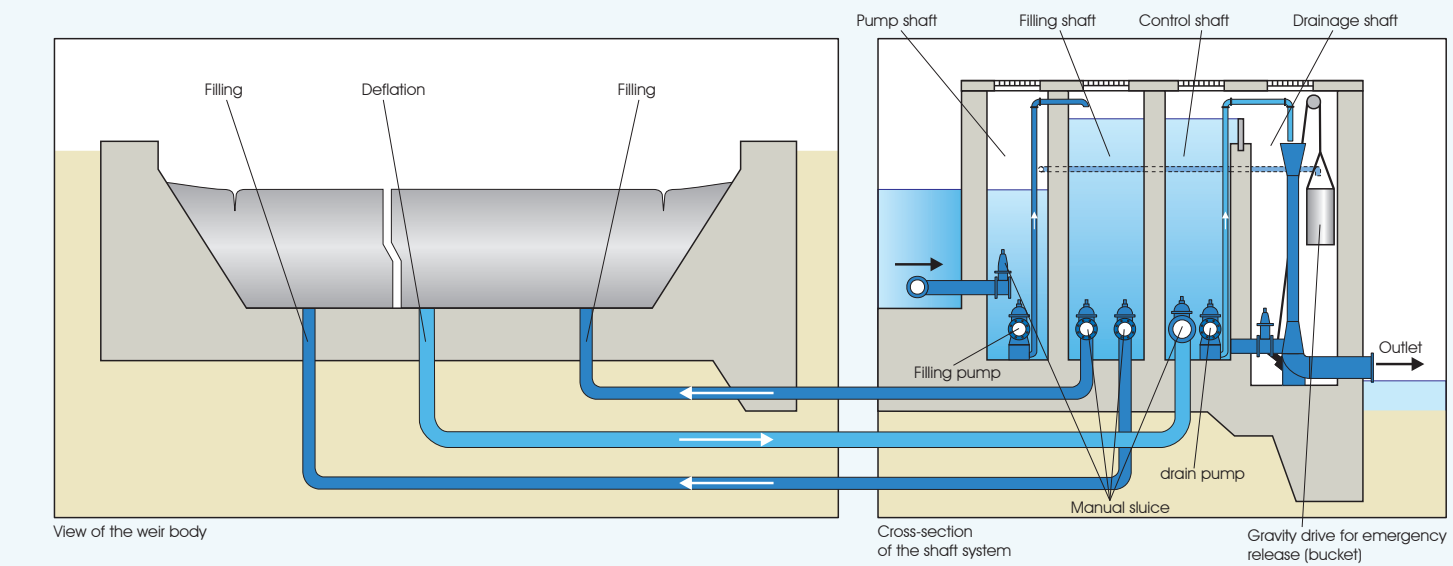
Shaft system equipment

- Filling pump or air blower for raising the dam crown.
- Drainage pump or relief valve for lowering the dam crown.
- Manual valves or flaps for manual operation.
- Safety device with self-acting opening mechanism in case of emergency.
- Probes for measuring the water level or air pressure.

The HYDROCONSTRUCT Safety System

The HYDROCONSTRUCT Rubber Dam system features a threefold safety system

- First, for water filled rubber dams there is an overflow section in the regulation shaft, whilst air inflated systems have a sensor activated pressure relief valve.
- Second, there is a manually operated outlet valve or pressure relief valve.
- Third, the inside pressure fill in the dam is limited by an emergency discharge device with a mechanical driven bucket drive for the release valve, activated by a maximum allowable water level in reservoir.



Application on curved weir structures

Many pre-existing weirs have a curved weir axis. The rubber dam can be manufactured to exact specifications and fitted straight to the existing weir body



Diga Michelotti Turin



Rubber Dam Gera / Construction Phase 2016