Kops II, Austria

Hydro Steel Structures

Vorarlberger Illwerke relies on well-established local partner for their steel structure work.

Kuenz succeeds with highly demanding projects.

Setting of gates (photo: VIW)

Surge chamber

Powerhouse crane (photo: VIW)

Since its completion in September 2008, Vorarlberger Illwerke´s largest hydropower plant has generated environmentally-friendly power to cover mainly consumption peaks. Kopswerk II is designed as a pumped storage power plant that utilizes the head from Lake Kops to the Partenen Rifa reservoir. With Kops II, Illwerke AG increases the capacity of their pumped storage operations by approximately 85 % and turbine operations by 42 %. The water from Kops Lake flows through the pressure tunnel and pressure shaft to the cavern power station plant, which is situated near the Rifa reservoir. The turbine´s draft tube gate, the rake, surge chamber and the power house cranes, all by Kuenz, are integrated into the power house. The gate and rake are integrated into Rifa´s intake structure.

Kuenz fulfilled the highest demands

The turbine´s draft tube gates are designed as air-tight revision-gates. The gates are designed to withstand pressure from both sides, and therefore protect the plant during revisions. Air tightness and high plant safety are very important. This requires the highest precision in manufacturing and assembling.

An advanced design for the cover, which is under pressure and designed for dynamic load conditions, and a hydraulic oil supply for the draft tube gates´ cylinders complete Kuenz´s innovative concept. The gates were functioning trouble-free from the beginning.

Klaus Hirtenlehner,
Project Manager, Vorarlberger Illwerke AG

„Because of the joint efforts between VIW and Kuenz for developing innovative technical solutions, equipment of the highest quality was applied in the environment of a surge chamber like never before.“

Technical data Kops II project	
Data Kopswerk II:	
Fallhöhe	818 m
Maximum capacity	525 MW
Maximum power input	480 MW
Data turbines´s draft tube gate:	
Sluice weirs per intake	2
Clear width	3 m
Clear heigth	6.7 m
Hoisting capacity	550 kN
Water head	40 mWs
Data Racks:	
Number of racks	3
Clear width	7.3 m
Clear heigth	6.6 m
Rack inclination	90°
Bar distance	225 mm
Support rods	500 x 24 mm
Data intake/outlet rack reservoir Rifa:	
Number of intakes	1
Clear width	12 m
Rack inclination	90°
Discharge in turbines´s direction of flow:	stationary 80 m^3/s max. 160 m^3/s
Discharge in pump´s direction of flow:	stationary 60 m^3/s max. 160 m^3/s
Bar distance	100 mm
Data intake/outlet gate reservoir Rifa:	
Sluice weir	1
Clear width	5.8 m
Clear heigth	8.8 m
Max. water level	26.9 m
Lifting capacity	615 kN
Data powerhouse crane:	
Capacity	130 t
Tandem processing	250 t
Track width	24.9 m
Lifting height	48 m

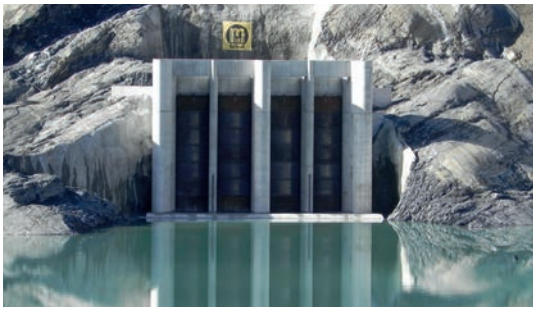
The best references are successful projects.

Limberg II, Austria

The Austrian Verbund Hydro Power AG assigned Kuenz for the assembling of the hydromechanical equipment at Limberg II pumped storage power plant in Kaprun, near Salzburg. The scope of supply for Limberg II was two draft tube gates which function as closure devices for the pump turbine, as well as a sliding gate for the chamber that serves as emergency shutdown.

Linth-Limmern, Switzerland

Swiss utility Axpo AG selected Kuenz to supply intake and outlet trash racks, stop logs and maintenance stop logs for pumped storage plant Linth-Limmern. The installation was a high alpine challenge and required divers as well as a helicopter for delivery of the intake components.



Obervermuntwerk II, Austria

Vorarlbeger Illwerke AG trusted Kuenz´s expertise for the hydro-mechanical package of the state of the art pumped-storage plant Obervermuntwerk II. The scope included intake trash racks, stop logs, operating gate and maintenance gate for the intake structure at Lake Silvretta. The scope also included the powerhouse components of two draft tube gates, two pump intake gates as well as outlet trash racks and tail race gate at Lake Vermunt.

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