

## HPP Rheinfelden, D / CH

Hydro Steel Structures



# **Energiedienst AG relies on the trusted partner Kuenz for the replacement of Europe's oldest large hydropower plant.**



This project is one of the biggest hydropower plant developments in Europe with a cost of 277 million Euros. The more than 100 year old power plant was replaced by a new and high-capacity installation.

#### Kuenz provides technical expertise

Hans Kuenz GmbH delivered gates and stop logs for the weir, the trash rack, a trash rake cleaning machine, stop logs for upstream and downstream, and a power plant crane. One of the main reasons for choosing Kuenz as a supplier was the long lasting partnership of both companies. Experienced engineers from both companies complemented one another perfectly and developed impressive solutions due to their technical expertise.

The downstream stop logs with a super structure were a novel and innovative concept. Their unique engineering

Construction pit before flooding in 2010

enables a considerably weight reduction. The intake stop logs can even be placed under full water pressure in case of an emergency.

#### Implementation in multiple building stages

The powerhouse was equipped with four huge bulb turbines and different gates in several steps. Afterwards the equipment for the residual flow turbine was delivered and a new fish ladder was erected.

The first two building stages of the weir were already finished in 2007. With the rebuilding of the powerhouse, the third and final construction stage was completed. Commissioning occurred on schedule in 2011 due to the fast-pace of the project and the quick and efficient assembly

Weirs and stop logs

#### More power in every field

While the old power plant had a capacity of 26 MW, the new power plant has an installed capacity of 100 MW. The reconstruction increased the average generation per year from 185 GWh to more than 600 GWh. Logistics also presented a challenge. Kuenz's hydromechanical equipment weighs more than 1600 tons.

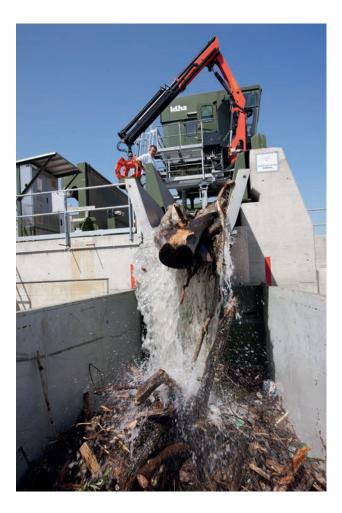
#### **Environmentally friendly**

Environmentally friendly operation arises from efficiency due to modern technology. The construction of the power plant occurred without serious effects on the environment. Furthermore, additional economic measures were implemented to set new standards for modern hydropower plant construction.

Technical data HPP Rheinf	felden project
Data power plant:	
Power generation	600 GWh
Nominal flow	1500 m³/s
Capacity	100 MW
Number of turbines	4
Number of weirs	7
Data weir gates	
Radial gate with flap	3
Radial gate without flap	4
Clear width	24.5 m
Clear height	7.5 m
Clear width of flap	19.5 m
Clear height of flap	2.7 m
Data weir – stop logs:	
Upstream stop logs	1 x 3
Downstream stop logs	1 x 3
Clear width	24.5 m
Clear height	9.6 m
Data intake rack:	
Type of rack	diagonally suported
Clear width	63.8 m
Clear height	24 m
Data intake stop logs:	
Gantry fixed wheel stop logs	2 x 4
Clear width	13.8 m
Clear height	14.6 m
Data outlet stop logs:	
Fixed wheel stop logs	2 x 3
Clear width	14.2 m
Clear height	10.5 m



### **Technical Information on the Hydropower Plant Rheinfelden project.**





#### Data Trash Rack Cleaning Machine

Туре	TRCM-G85
Width of rake	3.45 m
Cleaning depth	34 m
Rack inclination	17°
Cleaning force at the rack	2 x 42,5 kN
Hoisting speed	20 m/min
Length of rail track	86 m
Extras:	Hydraulic jib crane with rotator and gripper

Data Gantry Crane	
For setting of stop logs and maintenance	
Capacity	70 t
Track width	20 m
Cantilever fixed col	umn 13 m
Cantilever hinged o	olumn 8.5 m
Lifting height	32 m
Lifting height over	TOR 22.5 m
Length of crane wa	ay 136 m
Working speeds	
Hoist rated load	0 – 1.8 m/min
Gantry drive	0 - 40 m/min
Trolley drive	0 – 25 m/min
Power	
Main hoist	26 kW / 100%ED
Gantry drive	6 x 9,5 kW / 100%ED
Trolley drive	2 x 9,5 kW / 100%ED
Extras:	The crane can be operated in tandem which enables a capacity of 135 t.

Further Information: www.kuenz.com



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