



HPP Rheinfelden, D / CH

Hydro Steel Structures

künz

Kuenz installed the complete hydromechanical equipment for the Rheinfelden hydropower plant.

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



Construction pit before flooding in 2010



Weirs and stop logs

Helmut Reif, Energiedienst AG

„The long lasting business relationship between Energiedienst AG and Kuenz, as in former projects, was always successful and effected by a cooperating partnership. Therefore Energiedienst AG was pleased to award Kuenz with this important project.“

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

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

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 hydro-mechanical 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 Rheinfelden project

Data power plant:

| | |
|--------------------|------------------------|
| Power generation | 600 GWh |
| Nominal flow | 1500 m ³ /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 supported |
| 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

| | |
|----------------------------|--|
| Type | 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 column | 13 m |
| Cantilever hinged column | 8.5 m |
| Lifting height | 32 m |
| Lifting height over TOR | 22.5 m |
| Length of crane way | 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

Künz GmbH
6971 Hard
Österreich / Austria
sales@kuenz.com
www.kuenz.com