

# MECAMIDI



Metin

## MECAMIDI - Overview

Paris -Istanbul Head Office

## Introduction

**Valentin Le Saint : Ceo**  
**Ali Sesli : Founding Partner**

Turkey  
Africa  
Middle East  
Russia  
China  
ABD  
Canadian  
Brasil

**Group**

**Products**

**Services**

*For over 50 years, MECAMIDI has been involved in the hydropower industry business. The group designs and manufactures hydropower plants.*

*The Group is present in over 50 countries with more than 2400 references worldwide. MECAMIDI also provides financing solutions to its clients through partnerships, positioning the group not only as a technical but also as a financial partner.*

## Group - Summary



**MECAMIDI Group, taken over 20 years ago, has structured its organization to meet the worldwide demand. Through a network of plants, subsidiaries and agents spread across the world, the group, provides a tailor-made service to its customers, from the studies to the good execution of hydroelectric power plants .**

**MECAMIDI Group, through its subsidiary Hydroneo, also invests in hydroelectric power plants as financial sponsor.**

Valentin Le Saint  
Ceo

## Group - History



*Over the last 20 years*

**Turnkey supply/development:** French industrial, takes over the company to focus on 3 development axes: international development, fully integrated equipments solution and R&D.

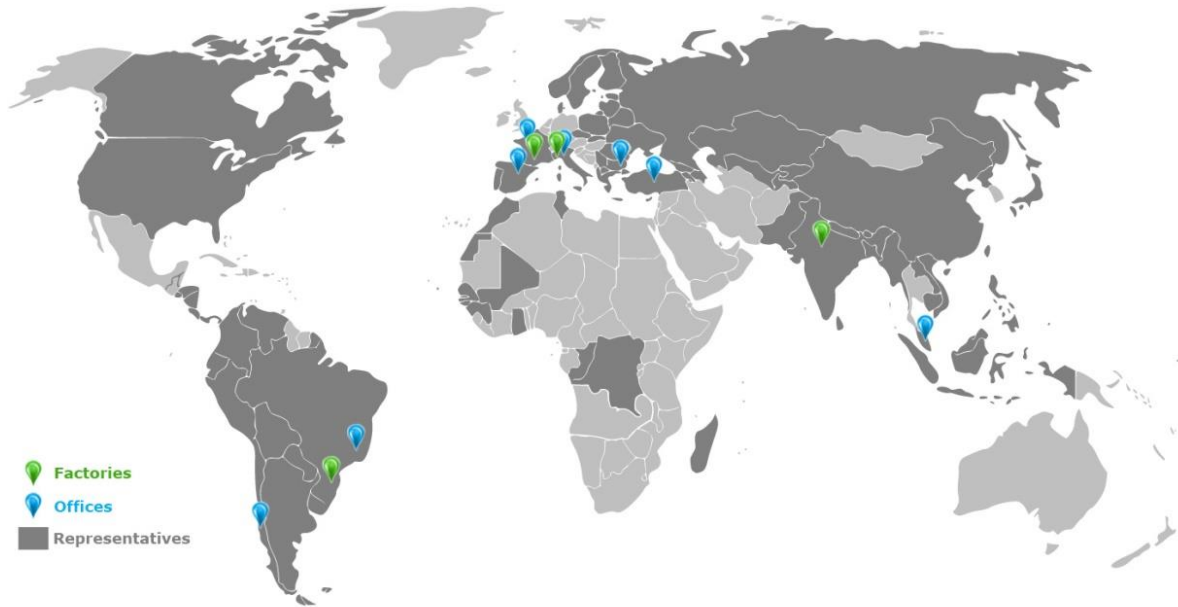
**Power plants ownership and management:** Mecamidi Group successfully builds and participates to the privatization process of hydropower plants (for example in Kazakhstan, Kirghizstan and Bulgaria).

**Presence on all continents:** Successful international expansion: factories on all continents, engineering and sales offices in 50 countries. Vertical integration: **MECAMIDI** now offers Water to Wire solutions and incorporates the civil engineering.

## Group – Key figures



**10 subsidiaries**  
**2 400 references**  
**50 countries**





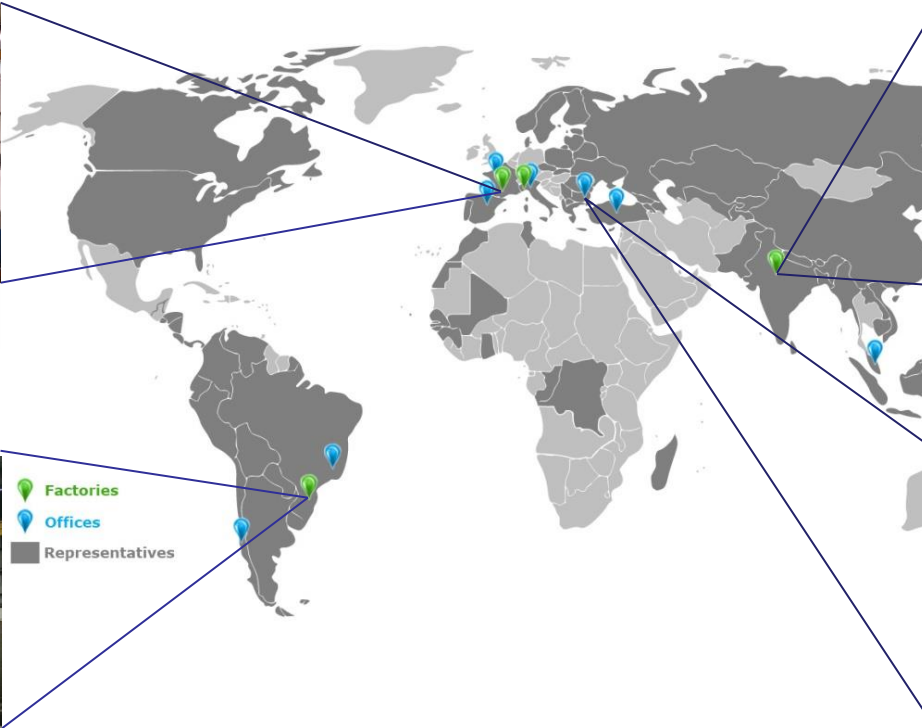
## Facilities

### A powerful production tool:

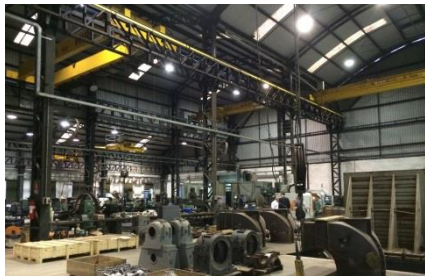
Having an industrial presence in 3 continents allow the group to adapt the technology and the cost to each project with the sole and unique objective: Optimizing the efficiency and the economic return of project.



**France** (Toulouse)



**India** (Delhi)



**Brazil** (Porto Alegre)



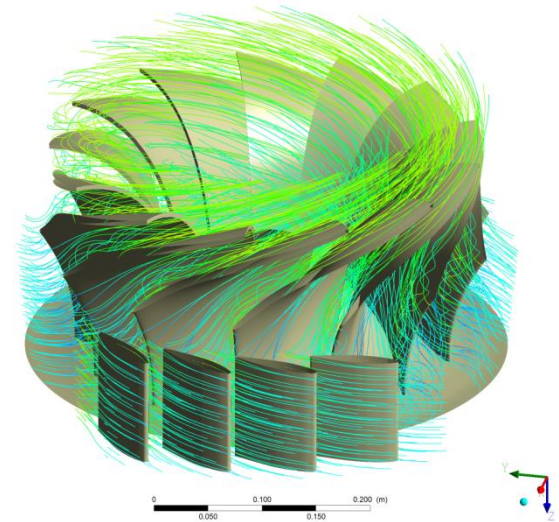
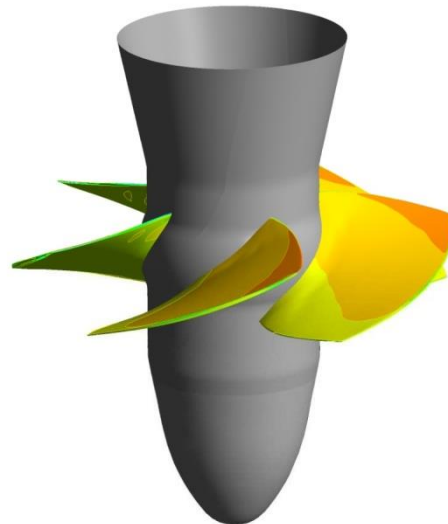
**Bulgaria** (Sofia)

## Group – R&D



**MECAMIDI** has been investing for many years in Research & Development, working closely with prestigious universities in Grenoble, Lausanne and Toulouse.

The research and development of **MECAMIDI** in predictive turbine modeling by CFD (Computational Fluid Dynamics) has been crucial to offer to our clients a performance security equivalent to the one provided by the models run in laboratories.



## Products - Summary



**MECAMIDI manufactures and installs turn-key equipments, including turbine, generator, gates and valves, command control, as well as the electrical part.**



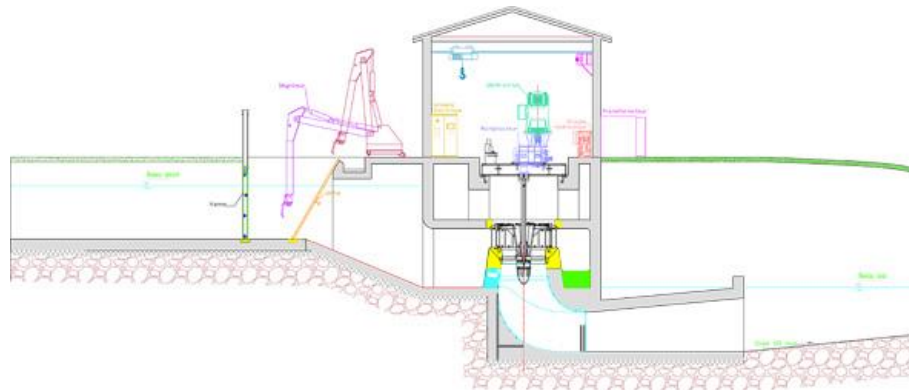
## Products – Turnkey Equipment



With experience of over 50 years in the turbine manufacturing field, **MECAMIDI** has established partnerships with major actors in the industry for the supply of electromechanical equipment complementary to its turbines (« E&M equipment »), in order to offer to its customers turnkey plants.

**MECAMIDI** and its subsidiaries provide turnkey projects thanks to its teams of engineers and technicians with the required appropriate skills. Thanks to a large number of projects worldwide, **MECAMIDI** has become a key player in this market.

**MECAMIDI** provides to investors solutions going from the design to the turnkey projects delivery.



## Products – Kaplan Turbines



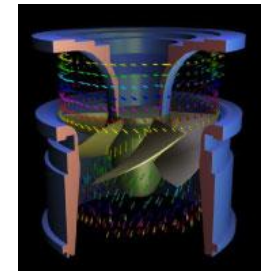
**MECAMIDI** manufactures KAPLAN turbines, also called jet turbines, which allow an electricity production optimization according to the operation conditions for low head from 1.5 to 30m with high discharge.

**MECAMIDI** offers various Kaplan turbine types to better adapt to different projects:

- > Horizontal or Vertical KAPLAN
- > Simple or double regulation KAPLAN
- > Saxo KAPLAN (called S)
- > Priming KAPLAN
- > Water chamber KAPLAN

For capacity below 500 kW, **MECAMIDI** developed a range of "micro" turbines economically competitive.

For capacity between 500 kW and 10 MW, **MECAMIDI** developed "Mini" turbines, totally dedicated.



## Products – Francis Turbines



Francis turbines allow the widest possible scope, both in terms of heads (covering a range from 20 to 200m) and powers.

**MECAMIDI** manufactures Francis turbines, known as jet turbines, either horizontal or vertical, adapted to medium heads and flows. Sites equipped with Francis turbines show small discharge range variations and thus allow to get high production efficiencies.



## Products – Pelton Turbines

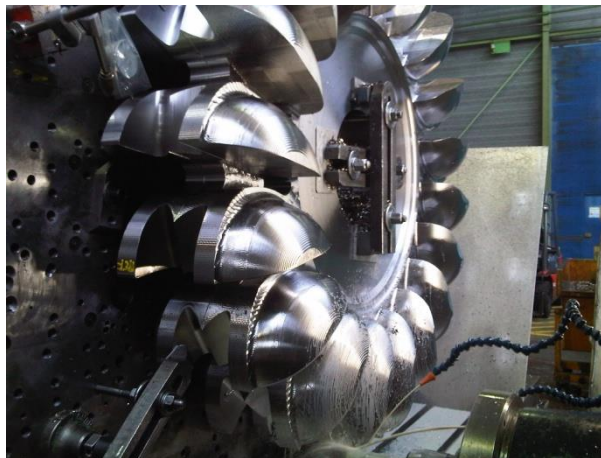


Pelton turbines, also called action turbines, are designed for high heads (from 80 to 1000m).

They allow a high output for a wide range of discharge.

**MECAMIDI** manufactures vertical and horizontal turbines which can be equipped with 1 to 6 injectors.

The Pelton turbine wheels are made of stainless steel mono-fusion and guarantee a safe and reliable operation over the time.





## Products – Generators



Generators, either synchronous or asynchronous, are one of the main elements making up a hydroelectric power plant as they convert the turbines mechanical energy into an electrical energy. The coupling between generators and turbines must be perfectly secured, in order to make the operation of these two elements compatible and optimum.

Numerous technical options are available, depending on the site constraints with the possible integration of the sleeve bearing, the air or water cooling system, the sound regulations requirements...

Thanks to its experience, **MECAMIDI** has acquired a recognized know-how in the technical and economic choice of generators.



## Products – Command Control



The electromechanical part (the turbine and the generator), as well as the hydro mechanical part allowing the water intake and all the electrical equipment (required to secure and connect the plant to the national network) are managed electronically, helped by a controller (provided by companies such as Schneider, Siemens, ABB,...).

**MECAMIDI** developed its own control and management software for all the power plant components. The human-machine interface is provided by a SCADA also developed by MECAMIDI with a touch screen panel and all the possibilities of monitoring and remote control from a computer or PDA.



## Products – Electrical Equipments



The electrical equipment is divided into 5 lots:

- > Cabling
- > Protections
- > Transformer
- > Medium voltage
- > Additional equipments (lighting, ventilation and/or air conditioning, pumping, anti-intrusion...)

All the technical sizings relative to protections, transformers and medium voltage stations are assured by our engineers.

When submitting the technical offer, a preliminary single line diagram is delivered, allowing the client to check the content and the quality of the proposed electrical equipments.

For the medium power plants, **MECAMIDI** also offers high voltage solutions with the construction of an outdoor switchyard.



## Products – Hydro-Mechanics



Through its specialized subsidiaries and its key partners, **MECAMIDI** designs and manufactures hydro-mechanical equipments, such as cofferdam valves, wagon valves, sector valves, butterfly valves, trash racks, screen rakes...

The water flow, which drives turbines, is derived from various sources (penstocks, channels...), fitted out with gates and valves equipments. These equipments have the following functions:

- > Protection: the proposed valves act as a safety device for the turbine and equipments and also facilitate the maintenance.
- > Upstream management: the water intake quality plays an important role in the production performance of the power plant. This is why the trash racks and screen rakes designed by **MECAMIDI** are key to optimize the site capabilities while respecting the environmental constraints.





## Services



**MAINTENANCE**



**REHABILITATION**



**CENTRAL  
GESTION**



**PILOT  
STUDY**

**Beyond its equipment supply business, MECAMIDI offers services to its customers such as maintenance, rehabilitation along with preliminary studies and plant management.**

## Services – Maintenance



The combined expertise of **MECAMIDI** group and its worldwide locations allow us to carry out maintenance services in more than 50 countries.

The hydroelectric plants have a lifespan exceeding 50 years and require occasional maintenance. **MECAMIDI** intervenes on facilities (whether or not they are equipped with MECAMIDI turbines) to realize preventive or corrective maintenances. Our technical design offices ensure the support and the additional expertise for our field technicians.



## Services – Rehabilitation



Rehabilitation comes down to four areas of intervention:

- > Rehabilitation to give back their original performance to the plants,
- > Modernization to improve their performance thanks to technological improvement or a better integration into their environment,
- > Automation to replace obsolete or inadequate operating and monitoring systems,
- > Reconstruction for the very old or abandoned sites. This intervention requires a comprehensive approach with the best use of existing civil engineering.



## Services – Operations and control



**MECAMIDI** also proposes to be in charge of the complete management of hydro power plants including maintenance, monitoring, administration and optimization of all the operations.

The goal is to get the optimal production for our customers.

As part of this service, a real time remote control system is used to monitor the power plant operation.





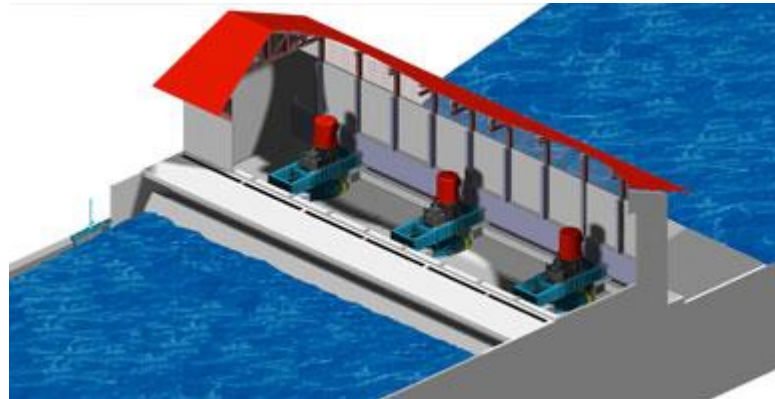
## Services – Pilot Studies



To maximize its customers and partners' IRR, MECAMIDI is regularly consulted to bring its knowledge in terms of study.

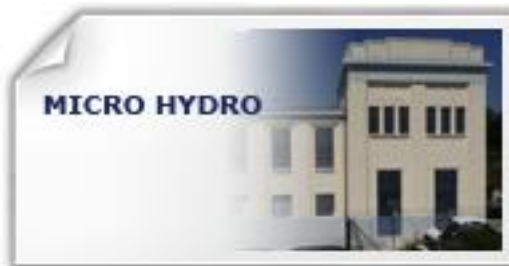
Our offices consists of experts in the various necessary fields for a proper technical and economical dimensioning of the power plants (hydrology, geology, topology, civil engineering...).

**Often enquired during the design phase, MECAMIDI offers to its customers the possibility to partially or completely realize the studies, taking in account not only the equipments design but also the civil engineering, from the water intake to the restitution channel.**



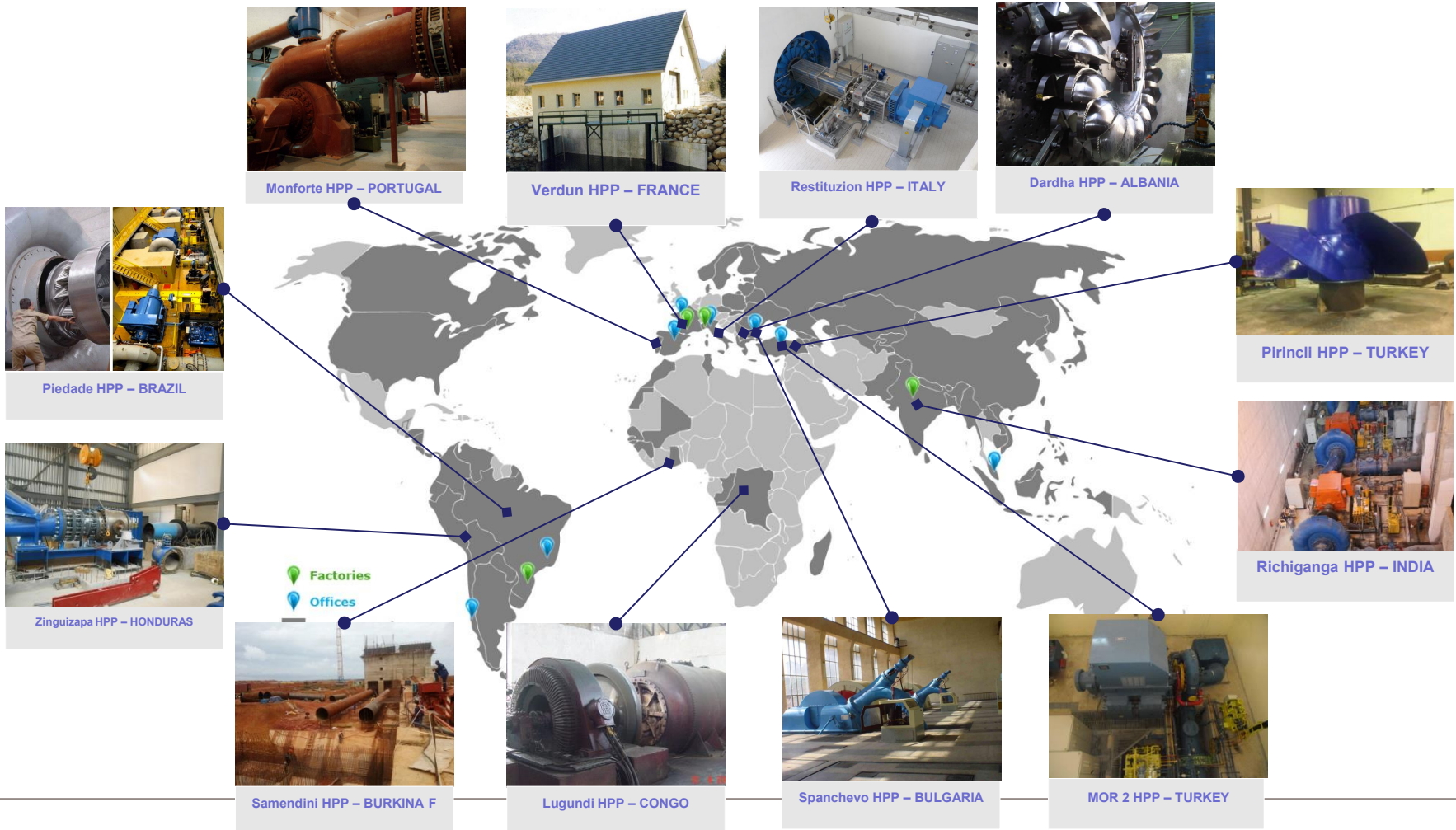
## References

**With 50 years experience in hydroelectricity, Mecamidi group has completed over 2400 installations worldwide, giving it knowledge and technical expertise to study and optimize any new site. The references presented here were chosen to show an overview of MECAMIDI capabilities**



## Mapping

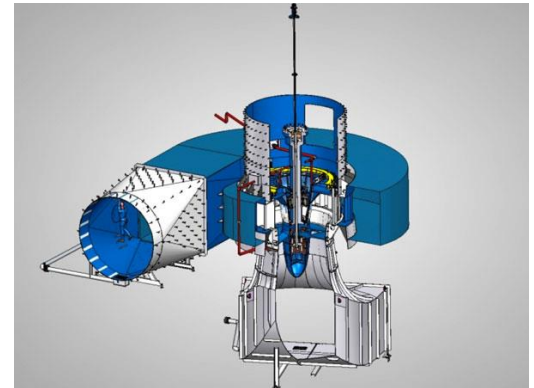
Our references (2400 worldwide):





## References – Hydro

Turbine type: **Kaplan (2)**  
Country: **Turkey**  
HPP: **Pirincli**





## References – Hydro

Turbine type: **Francis (3)**

Country: **Brazil**

HPP: **Piedade**



## References – Medium Hydro

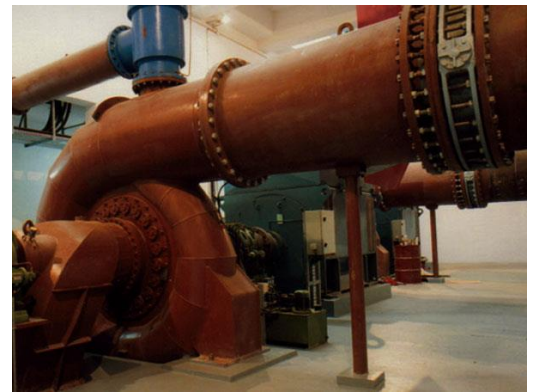
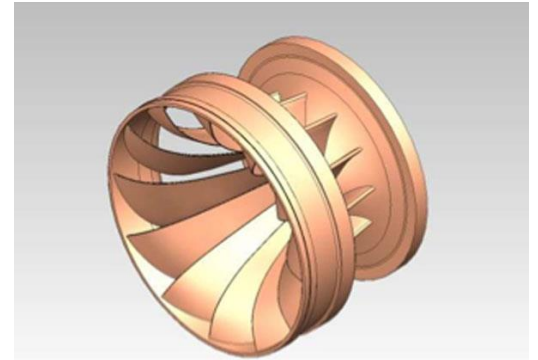
Turbine type: **Pelton (2)**  
Country: **Bulgaria**  
HPP: **Spanchevo**





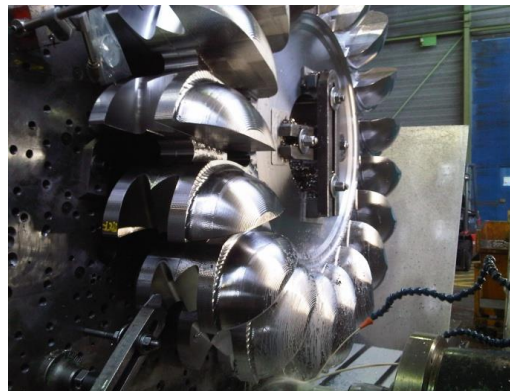
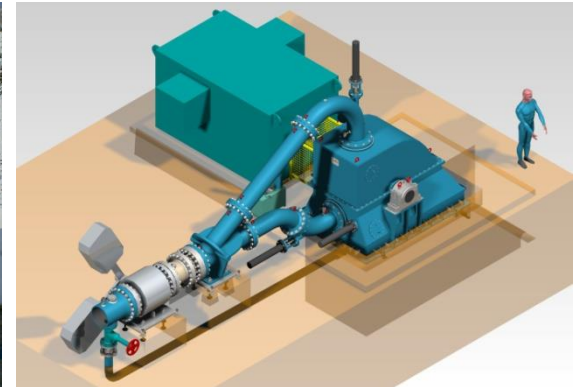
## References – Hydro

Turbine type: **Francis (2)**  
Country: **Portugal**  
HPP: **Monforte**



## References – Hydro

Turbine type: **Pelton (1)**  
Country: **Albania**  
HPP: **Dardha**

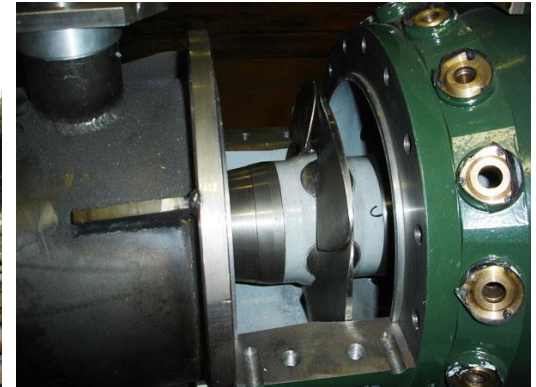




## References – Mini Hydro



Turbine type: **Kaplan (2)**  
Country: **France**  
HPP: **Château Verdun**



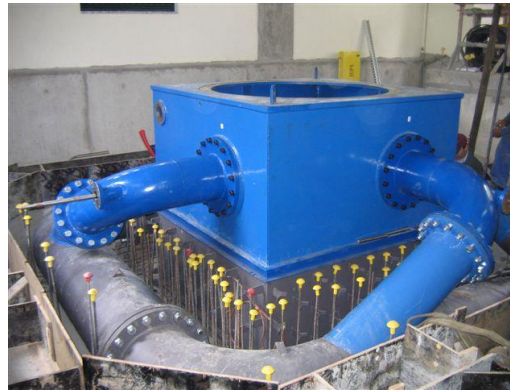
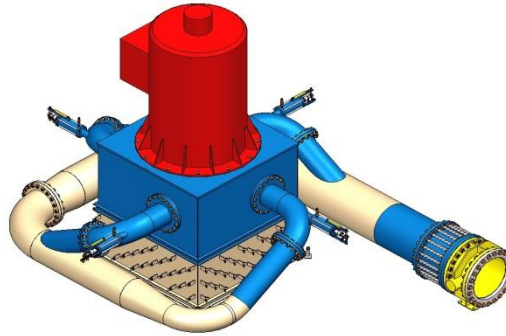
## References – Mini Hydro



Turbine type: **Pelton (1)**

Country: **Portugal**

HPP: **Granja Do Tedo**





## References – Mini Hydro

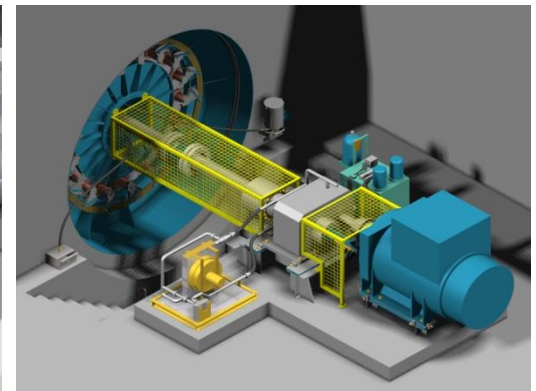
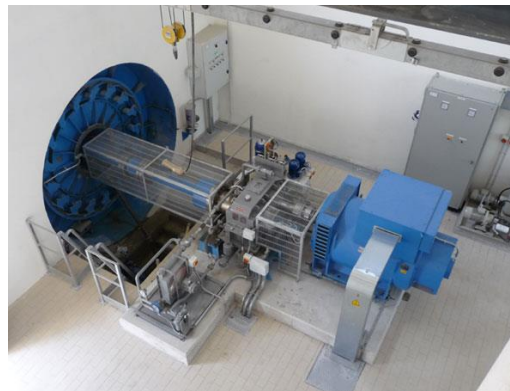
MINI HYDRO

Turbine type: **Kaplan (2)**

Country: **Italy**

HPP: **Restituzione**

**Rehabilitation**



## References – Mini Hydro



Turbine type: **Pelton**  
Country: **France**  
HPP: **Olivese**

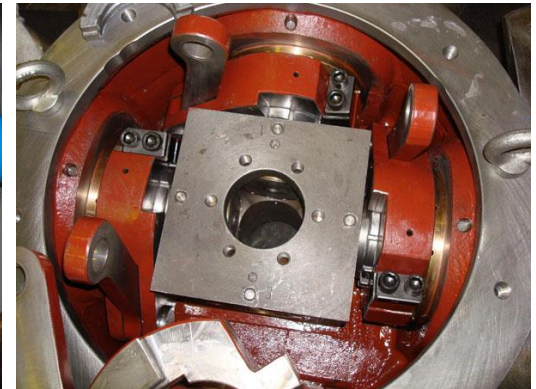
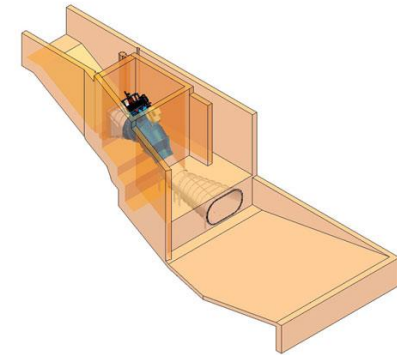




## References – Micro Hydro



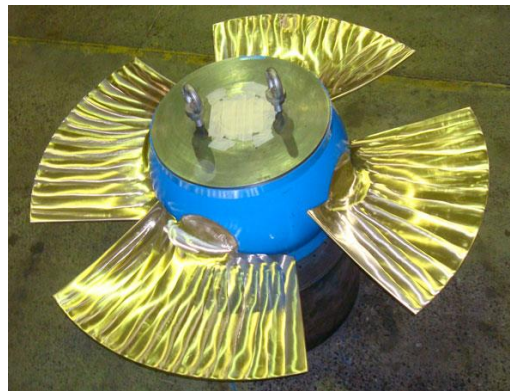
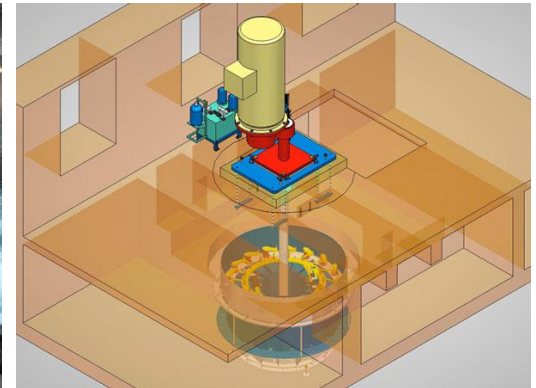
Turbine type: **Kaplan (1)**  
Country: **Italy**  
HPP: **Tkastz**



## References – Micro Hydro



Turbine type: **Kaplan (1)**  
Country: **France**  
HPP: **Oloron**

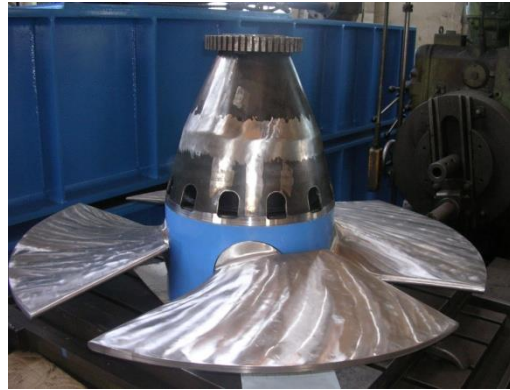




## References – Micro Hydro



Turbine type: **Kaplan (2)**  
Country: **France**  
HPP: **Gamsheim**



## References – Micro Hydro



Turbine type: **Francis (1)**  
Country: **Italy**  
HPP: **Pentima 3**





## References – Micro Hydro



Turbine type: **Kaplan (1)**  
Country: **France**  
HPP: **Moulin d'Aragon**



## References – Micro Hydro



Turbine type: **Kaplan (1)**  
Country: **Italy**  
HPP: **Guiglia**

