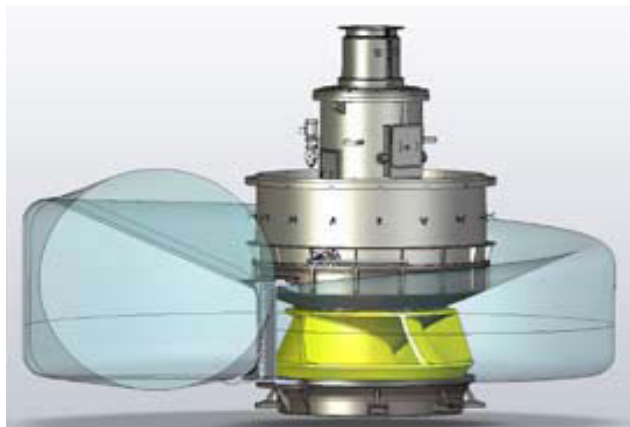
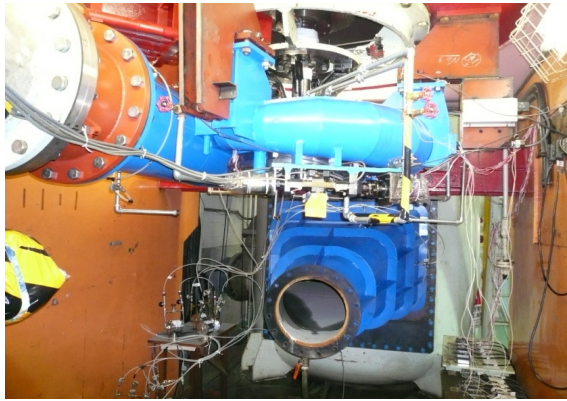


# Vertical Volute Pumps



Gruppo Aturia



**From extensive R&D, to design and manufacture, erection / installation expertise to after-sales-service, the entire value added chain under one roof.**

## **Fields of Application**

Irrigation water supply system - low head and high head.

Drainage water pumping.

Storm water pumping

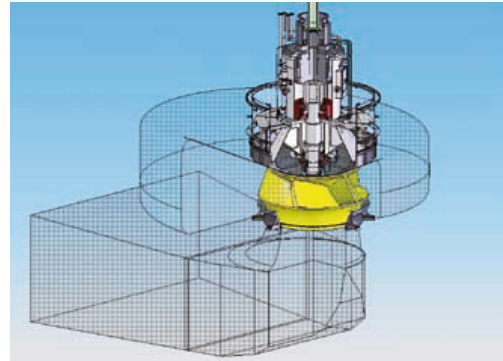
Municipal Water supply

Industrial water supplies

Power plant Cooling Water system.

Nuclear power plant applications.

Sea Water intake pumping.



## **Various Design Options available**

Volute casing & Suction Draft Tube : Concrete embedment on metal lining or Concrete.

Impeller : Radial, Mixed Flow, Axial to suit to variable head conditions.

Flow : 2 M<sup>3</sup>/Sec to 40 M<sup>3</sup>/Sec.

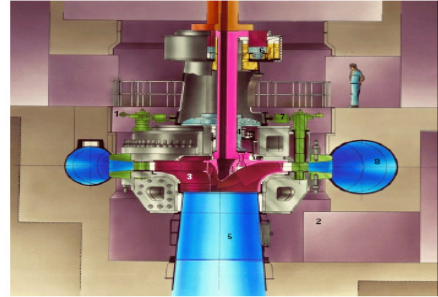
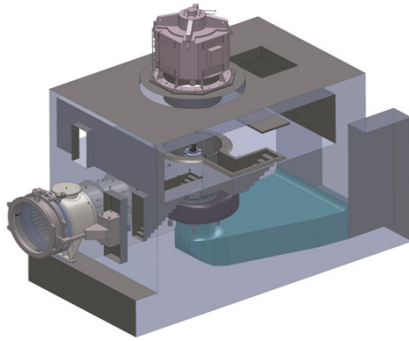
Head : Upto 250 M.

Power output : Upto 40 MW.

## Volute Casing

### Volute casing options :

- Concrete Volute : Volute formed at site by concreting on wooden formwork. Formwork removed after concreting.



### Metal Volute / Concreting on Steel Liner :

Volute manufactured at shop by formed metal plates in segments, assembly-checked and then transported to site in segments. At site all segments welded and then concreting done around the metal casing.



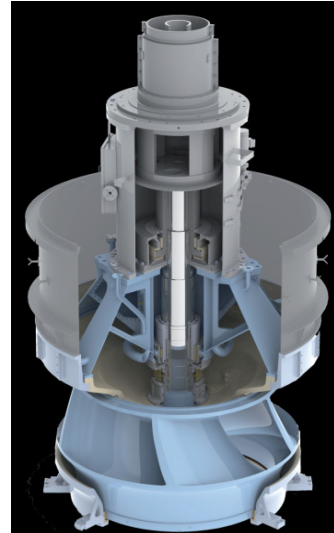
## Competency in offering wide choice of metallurgy

**Manufacturing expertise to make components of various metallurgy to cater to :**

- a) To transport various media with minimum erosion / corrosion.
- b) To protect against cavitation damage.
- c) To perform functional requirements of various components.
- d) Provide stability of pump.
- e) Minimise head losses in fluid passage.

**Choice of materials available :**

- Cast Iron
- Cast Steel
- Low alloyed steel grades
- Standard Stainless Steel grades
- Duplex Stainless Steel Grades
- Super Duplex Stainless Steel Grades



## Pump Model Test facility

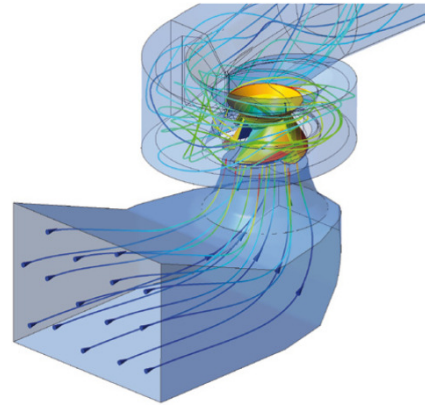
**As shop test of prototype pump is not feasible, Pump model test conducted to ensure validation of hydraulic design of the pump :**

- a) Model test as per Japanese standard JIS B 8327, or IEC 60193.
- c) Performance & Cavitation test.
- d) Stringent profile control of model pump impeller hydraulic profile



## R&D of pump hydraulics

- Pump hydraulic design developed by a team of highly experienced hydraulic designers.
- During development, reference database of numerous developed pump models used.
- State-of-the-art Computational Fluid Dynamic software ANSYS-CFX used to simulate the pump performance and ensure achieving the required performance.



## Pump-turbine technology with metallic volute

### Pump-turbine technology offered with following features :

For Pumped storage project : balancing power supply - consumption cycle.

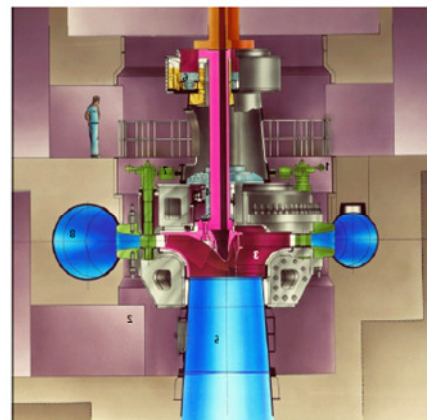
For preserving excess power generated during non-peak consumption hours by pumping water to a reservoir at higher altitude and by generating power during peak-consumption hour by releasing the stored water and running the same pump in turbine mode.

Hydraulic design of runner as per application system characteristics

Provided with Adjustable guide vane cum wicket gates for efficiency optimisation.

Guide vanes controlled by servomotors operated by Oil Pressure Unit system and Distributor Valve.

Model test done as per IEC 60193.



## Gruppo Aturia



### GRUPPO ATURIA S.p.A.

Gessate (Milan): 20.000 sq m  
(Covered surface)  
GRUPPO ATURIA's head office  
Tel. +39-0295423200  
E-mail ITALY: vendite@gruppoaturia.it  
E-mail EXPORT: export@gruppoaturia.com



TURIN: 3.000 sq m  
(Covered surface)  
Production site for Fire-fighting units.



Taglio di Po (Rovigo): 3.000 sq m  
(Covered surface)  
Production site for Magnetic drive pumps.



In order to acquire greater expertise and experience for particularly demanding applications (chemical, petrochemical and nuclear sector), Gruppo Rüttschi was acquired by Gruppo Aturia in 2006.

### RÜTSCHI FLUID AG



Brugg (Switzerland): 5.000 sq m  
(Covered surface)  
RÜTSCHI FLUID AG's head office  
production site for RÜTSCHI process pumps and  
Sealless/Canned pumps.  
Retailer for GRUPPO ATURIA's pumps.

### POMPES RÜTSCHI SAS



Mulhouse (France): 2.000 sq m  
(Covered surface)  
POMPES RÜTSCHI SAS' head office  
production site for RÜTSCHI process pumps and  
vertical pumps for lubrication systems.  
Retailer for GRUPPO ATURIA's pumps.

Gruppo Aturia and Gruppe Rüttschi operate all over the world  
with a network of agents, retailers and service centres.

## Gruppo Aturia



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