

# *ZELLER ENGINEERING*

*Mechanical, electrical and hydrodynamic  
solutions*

Founded in 1992 as engineering  
company for the design of  
generators and special bearings

Solving of Reynolds- equation

1978

# Scope of Business

- Generators/Motors
- Hydrodynamic Slide Bearings
- Hydrostatic Bearings
- Cooling and Lubrication Systems
- Gland seals
- Special designs and technical calculations

# Generators

Generators and motors

Rated power from 10 to 300 MW

Speed from 50 to 1000 rpm

all types like vertical motor-generators (two directions of rotation), bulb type generators, single phase generators for railway power supply, etc.

# Generators

- Basic electro-magnetic design
- Mechanical design (any type)
- Design of ventilation system (axial, radial, external)
- Design of cooling system (eg. Bulb nose cooler)
- Design of bearings

# Hydrodynamic Slidebearings

Thrust and guide bearings with speed up to 100.000 rpm, load up to 1300 to.

Lubricants: silicone and conventional oil, water and air. Natural and forced cooling with external pumps or self-pumping equipment (patent for self pumping equipment on horizontal shafts).

# Hydrostatic Bearings

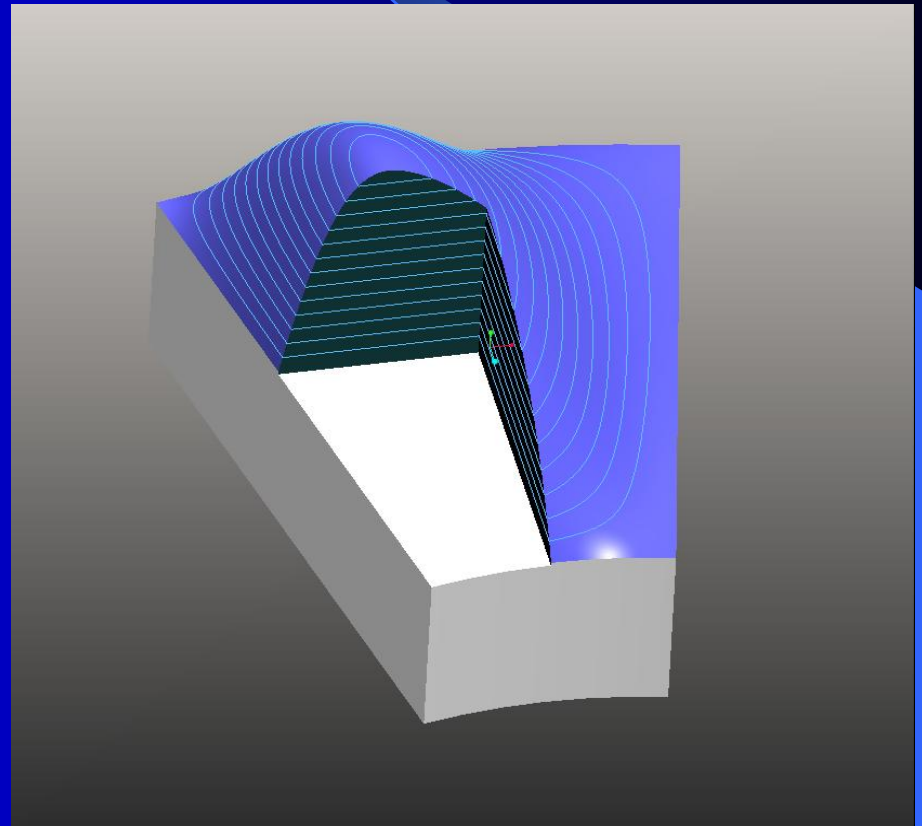
For low speed applications or in combination  
with hydrodynamic bearings as start up  
equipment

# Cooling and Lubrication Systems

For all kinds of applications including thermal and hydrodynamic design.

# Gland seals

- Hydrodynamic slide-ring seals for all kind of liquids.





# Special designs and technical calculations

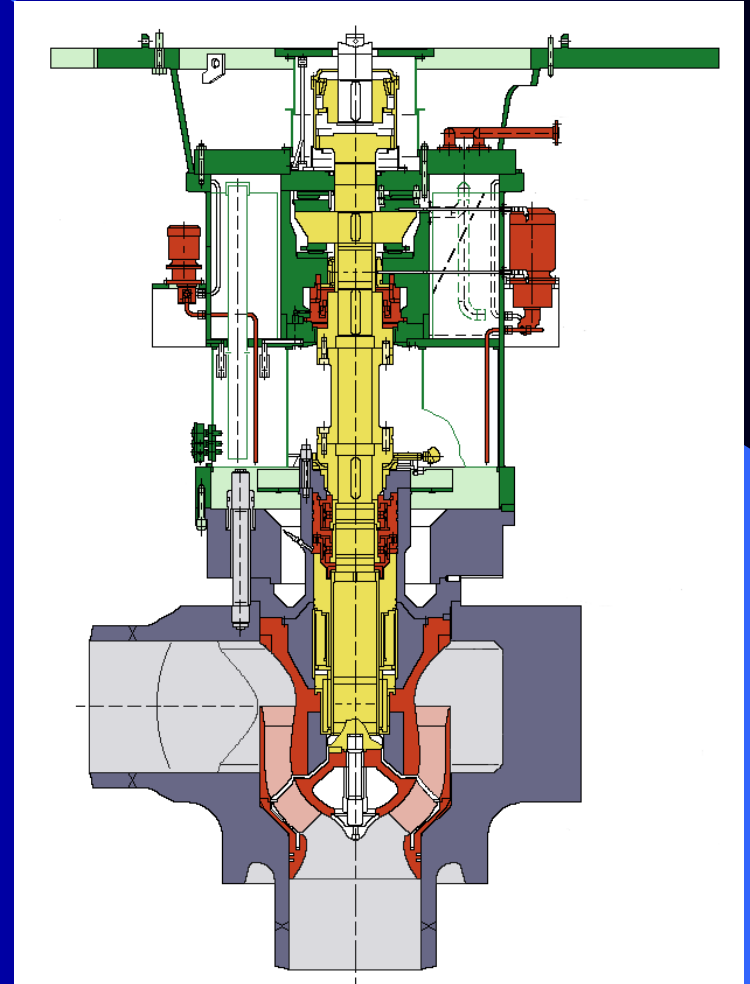
- We design and give support for all kinds of generators or bearings including critical speed calculation, damping and bearing stiffness, calculation of losses, life time calculation, etc.

# Main Customers

- ABB, ANDRITZ, AVL LIST
- ELIN EBG, Kvaerner Hangfa
- MIBA, SIEMENS, Sund
- VA Tech Hydro, ZheFu
- Power Supply Companies
- Insurance Companies

# First Order

Double axial – radial  
bearing for main coolant  
pump (RCP) for a  
nuclear power station

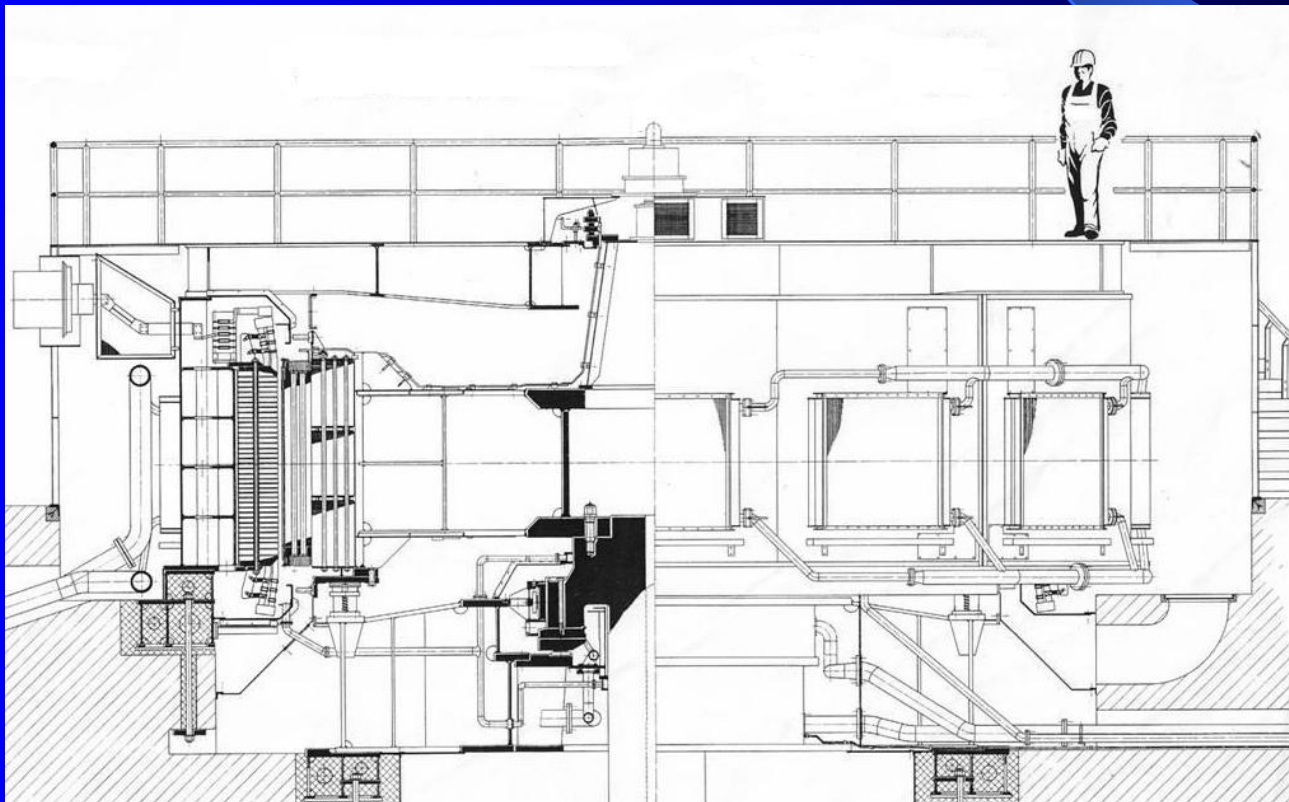


# Hydro Power Projects

- Fischen, Remsach, Koralpe, Greifenstein, Freudenau(Austria)
- Kotapanjang, Renun, Besai, Cirata II (Indonesien)
- Yang Zhuo Yong, Tian Tang, Bao Zhi Shi (China)
- Xe Pian (Laos)

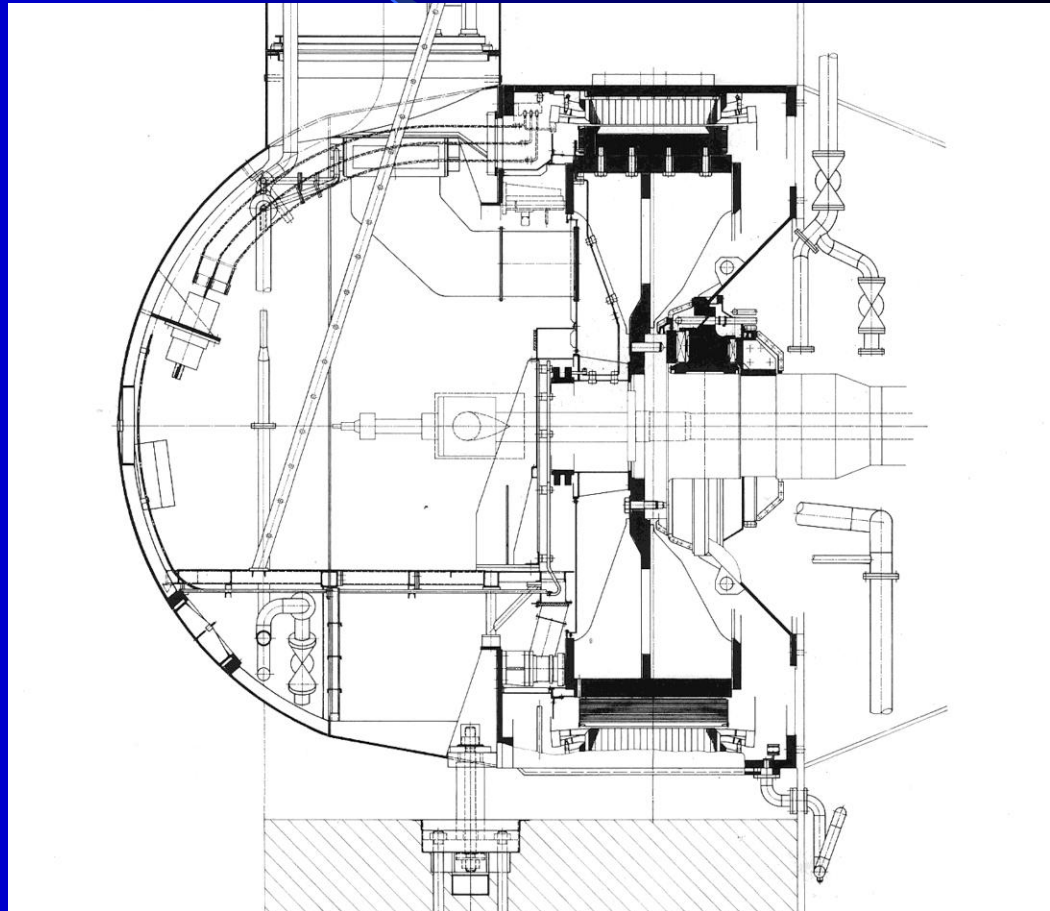
# Generator/ Motor Design

- Mechanical design, ventilation system, basic electrical and magnetic design, cooling system, bearing design



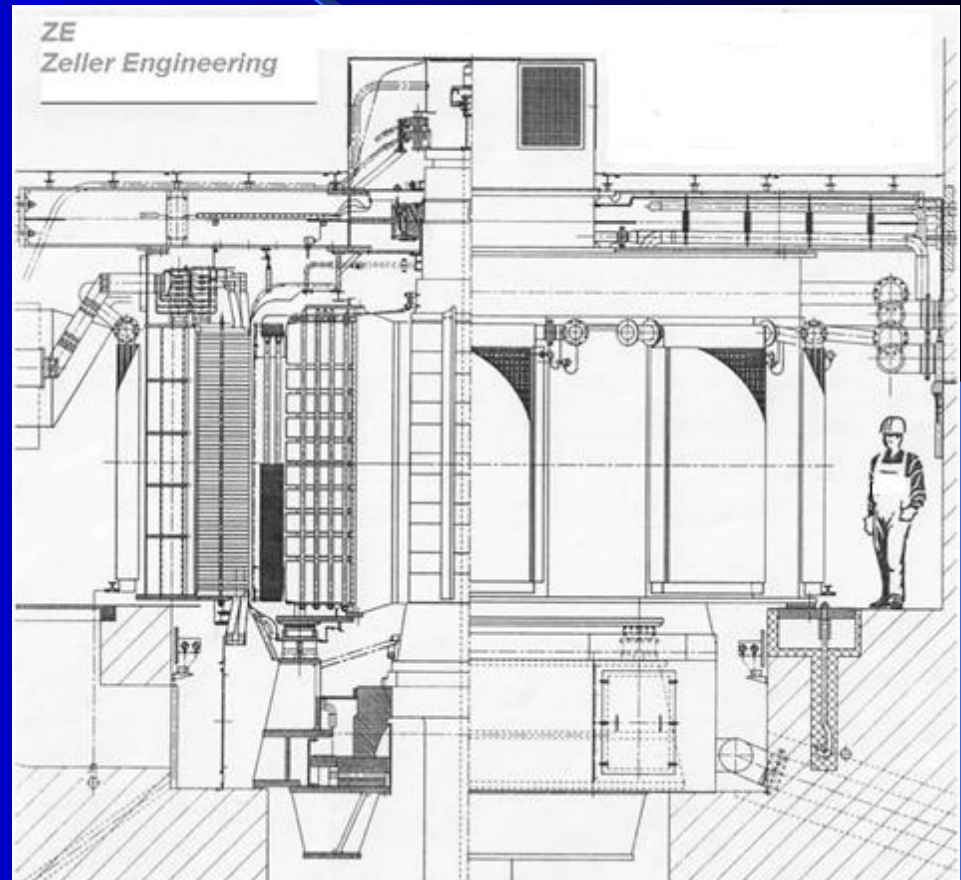
# Others

- Balancing of rigid and non-rigid rotors
- Familiar with all major QM systems like TQM, Six Sigma, etc.



# Others

Know how in  
fabrication and  
manufacturing of  
all parts of  
generators





# Spare Parts

- We supply spare parts for all bearings which we have designed.
- All materials from original supplier, if necessary.
- E.g.: spring plates from BÖHLER,
- White metal from Ecka Granules, etc.



# Thank you!