

## High Pressure Pump / Energy Recovery Unit / Feed & Intake Pump for RO Desalination Plant



Model:RHT



Model:RTC



Model:RH

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# RH /RHT High Pressure Pump

The most reliable ERD unit based on our

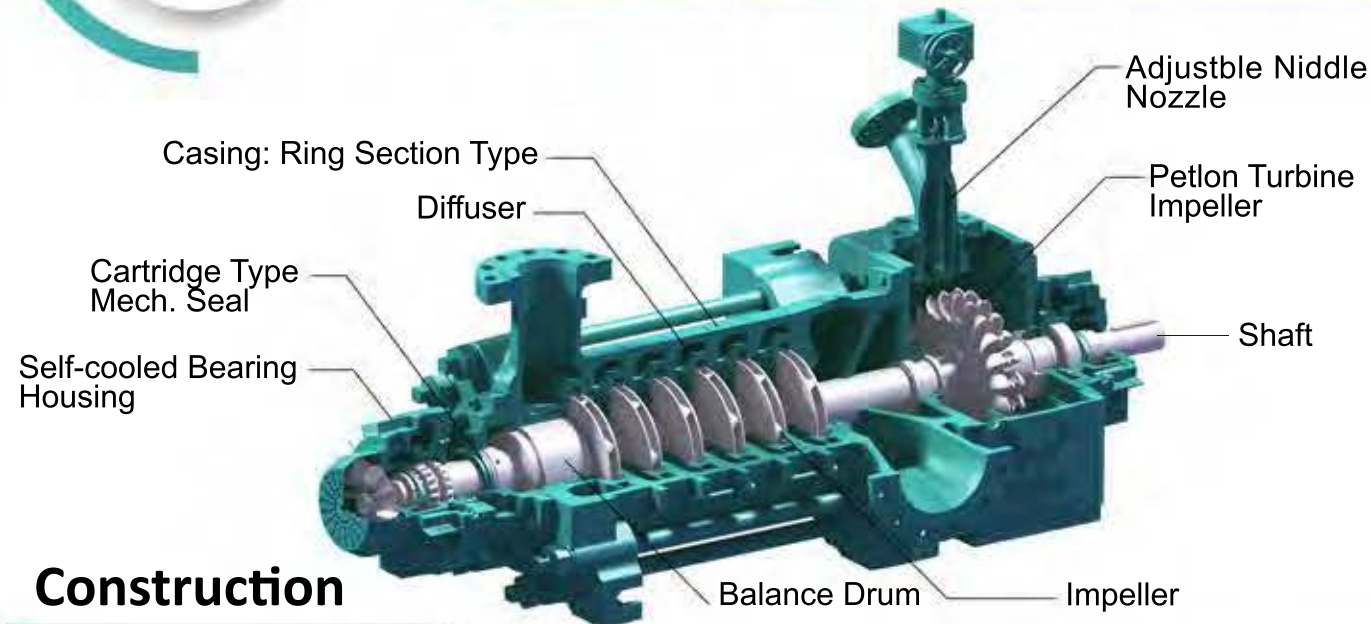
# for RO Sea Water Desalination Plant

experience of process pump applied to RO high pressure pump.

## Construction

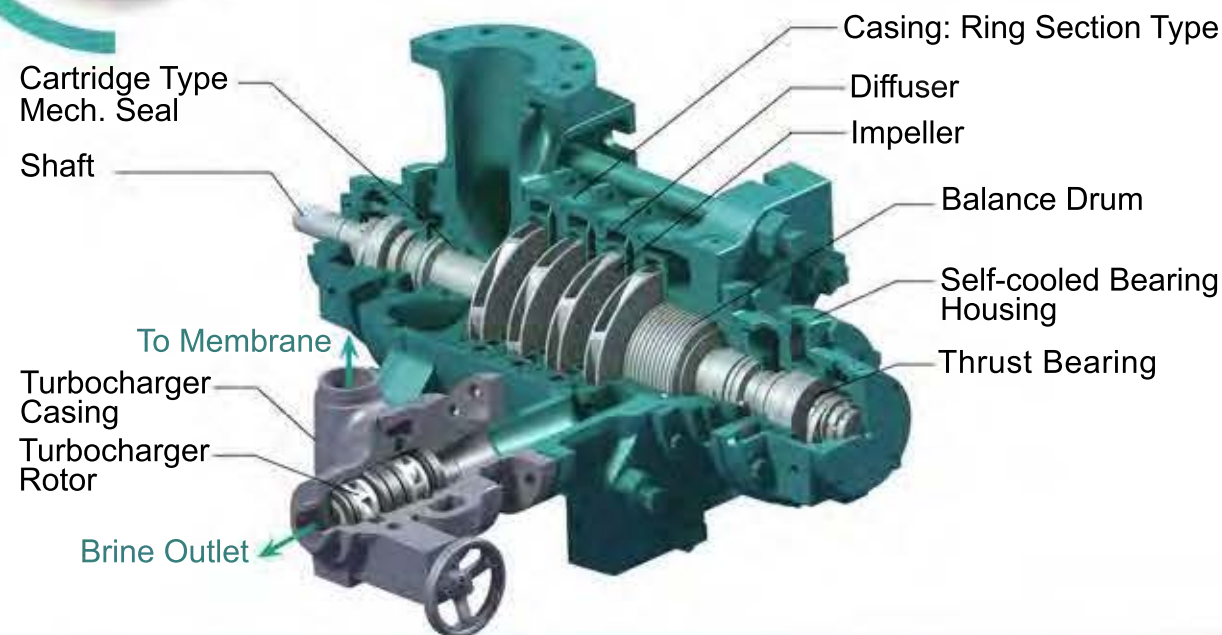
### RHT

**Material (Super) Duplex Stainless Steel**



## Construction

### RH



An investment which pays for itself fast

## Application

High pressure RO feed

Water transmission

## Specification

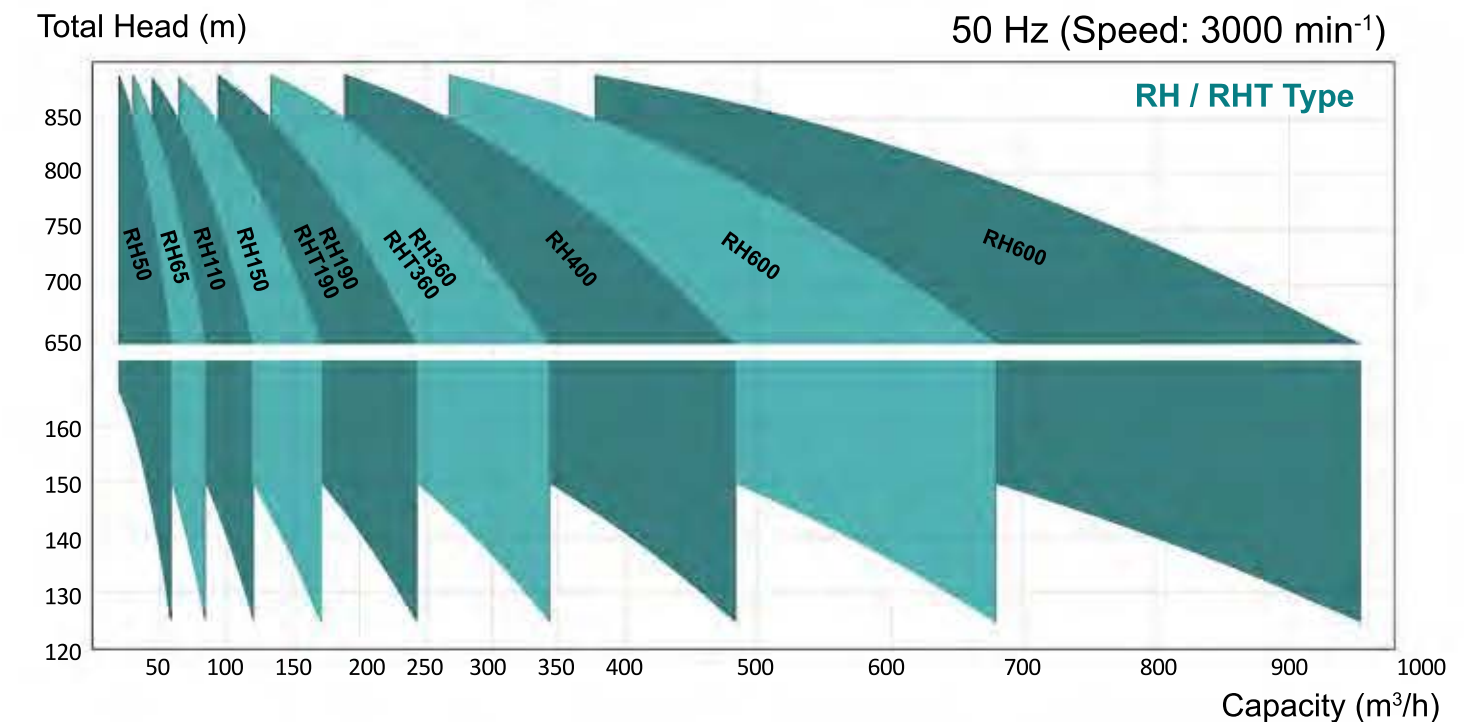
### Materials

MAJOR PART	MATERIAL STANDARD
Casing	Super Duplex / Duplex / 316L
Impeller /Diffuser	Super Duplex / Duplex / 316L
Turbine Impeller	Super Duplex / Duplex
Shaft	Super Duplex / Duplex / ASTM A420

### Specification

	SPECIFICATION
Liquid	Sea Water / Brackish / Utility Water
Pressure	Up to 80 bar
Frequency	50 / 60 Hz
Flange	Adjustable from UP to SIDE/ ISO, ANSI

## Selection Chart



### Preferred Range for RH and RHT High Pressure Pumps

Pump Type	RH50	RH65	RH110	RH150	RH190 RHT190-	RH360, RHT360	RH400	RH600	RH800
Head (bar)	15-75	15-75	15-75	15-75	15-75	15-70	15-70	15-65	15-60
Flow (m³h)	35-55	55-95	90-120	120-190	180-250	240-360	350-490	500-690	680-960



# RFC /RIV Booster Pump

Feed and intake pump suitable for salty water

# for RO Sea Water Desalination Plant

transmission and CIP application.

## Construction RFC-RIV



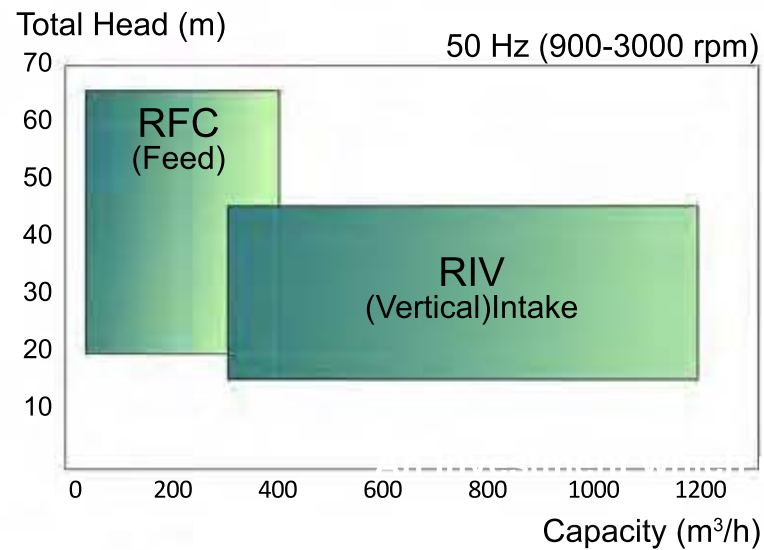
Size	2" - 10"
Capacity	30 - 400 m <sup>3</sup> /h
Total Head	20 - 65 m
Efficiency	70 - 80%
Speed	1500 - 3000 rpm
Material	GG25-316L-Duplex

## Features

## HIGH PRESSURE PUMP (RH, RHT)

- High Efficiency** ▶ Saving operation cost
  - New hydro design by CFD
  - repeated performance test
  - Integrated Pelton Turbine ERD unit and pump (RHT) Operating with or without ERD (Turbocharger) (RH)
- Simple / Compact** ▶ Saving capital cost
  - Ring section type; compact design
  - Reduced casing diameter using CFD based optimization while improving pump efficiency
- High-reliability** ▶ Achieving long time stable operation
  - (Super) Duplex stainless steel with high corrosion resistance is adopted
  - Vibration analysis by FEM
  - Self-cooled bearing housing and hydraulically balanced thrust
- Easy to maintenance** ▶ Saving maintenance cost
  - Dismantle of balancing device and mechanical seals without piping dismantling
  - Adjustable Turbine valve to regulate pump operation with site variable condition

## Selection Chart



Model: RIV

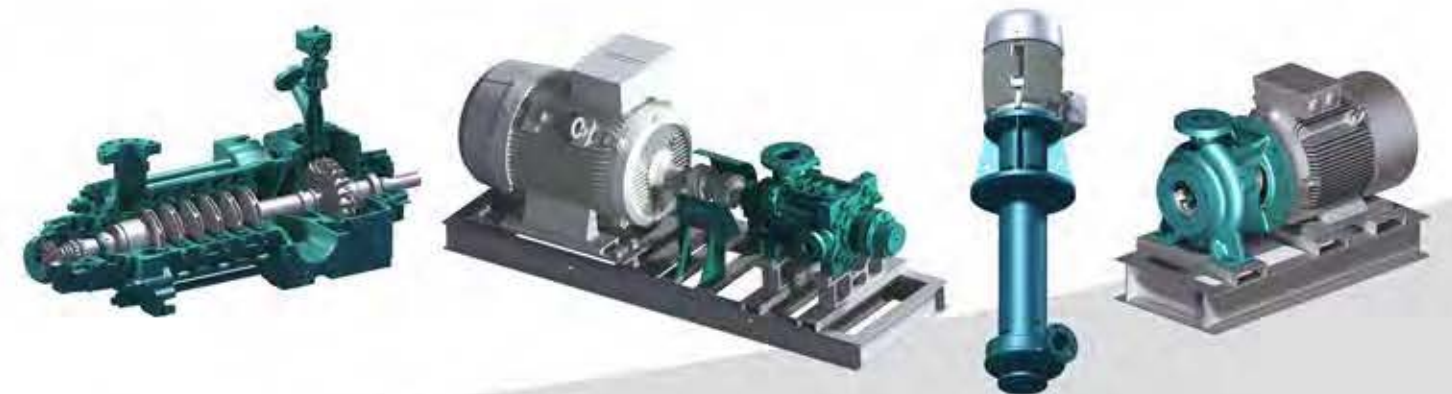


## Features

## BOOSTER PUMP (RFC, RIV)

- Closed Coupled** ▶ Reduce Pump Cost
  - Shafts and casings do not need to be aligned
  - Variable speed design
  - Reduced pump components and cost
- Without bearing housing** ▶ Easy to maintenance
  - (Super) Duplex stainless steel, Carbon steel and cast Iron Material is available for variable condition
  - Enables straightforward installation
  - No need to bearing lubrication for pump side

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## Application

RO Desalination Plant

Liquid Transmission



# RTC Hydraulic Turbocharger

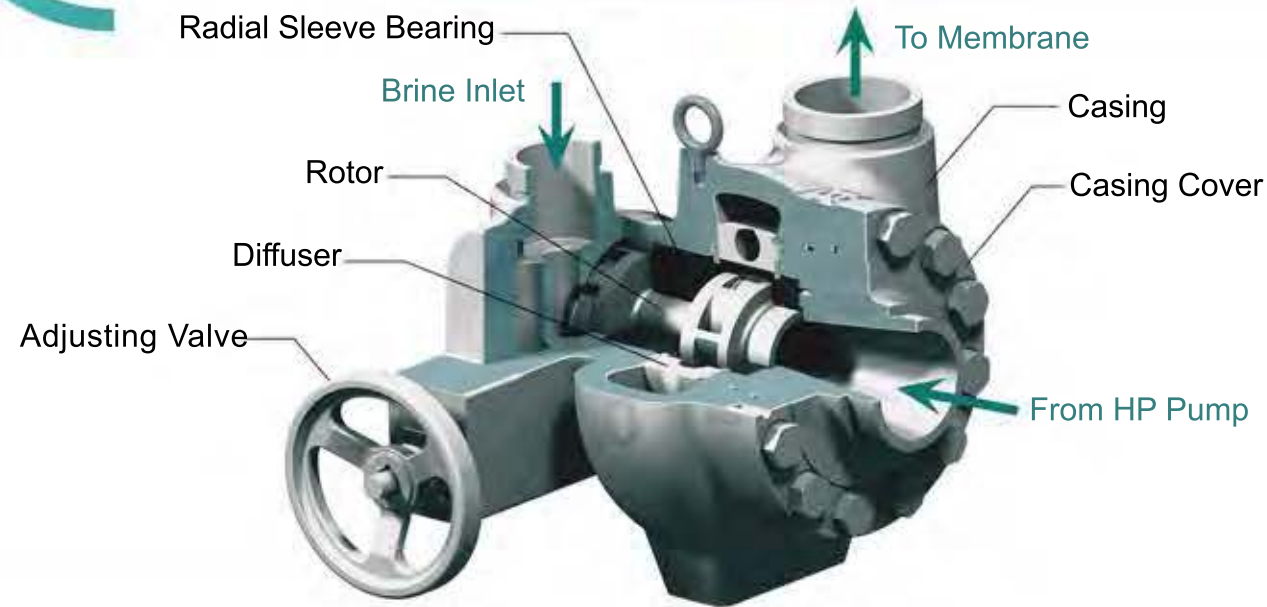
The most reliable ERD unit based on our

for RO Sea Water Desalination Plant  
experience of process pump applied to RO high pressure pump.

## Construction

### RTC

**Material (Super) Duplex Stainless Steel**



## Selection Range

Model	Pump Side Flow (m <sup>3</sup> /h)	Turbine Side Flow (m <sup>3</sup> /h)	Efficiency (%)
RTC 40	30-50	20-40	65
RTC 60	45-75	25-60	70
RTC 80	60-100	35-80	71
RTC 120	90-150	50-120	72
RTC 160	120-200	65-160	73
RTC 250	190-320	100-250	74
RTC 350	260-440	145-350	75

An Investment which pays for itself fast

## Application

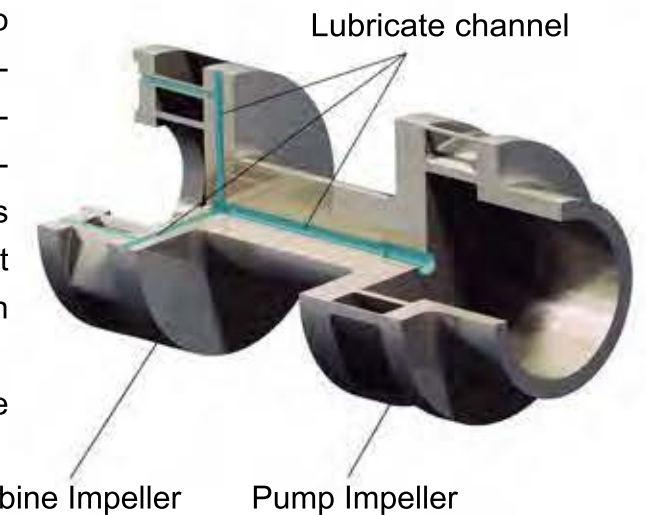
RO High Pressure Pump

Water Transmission

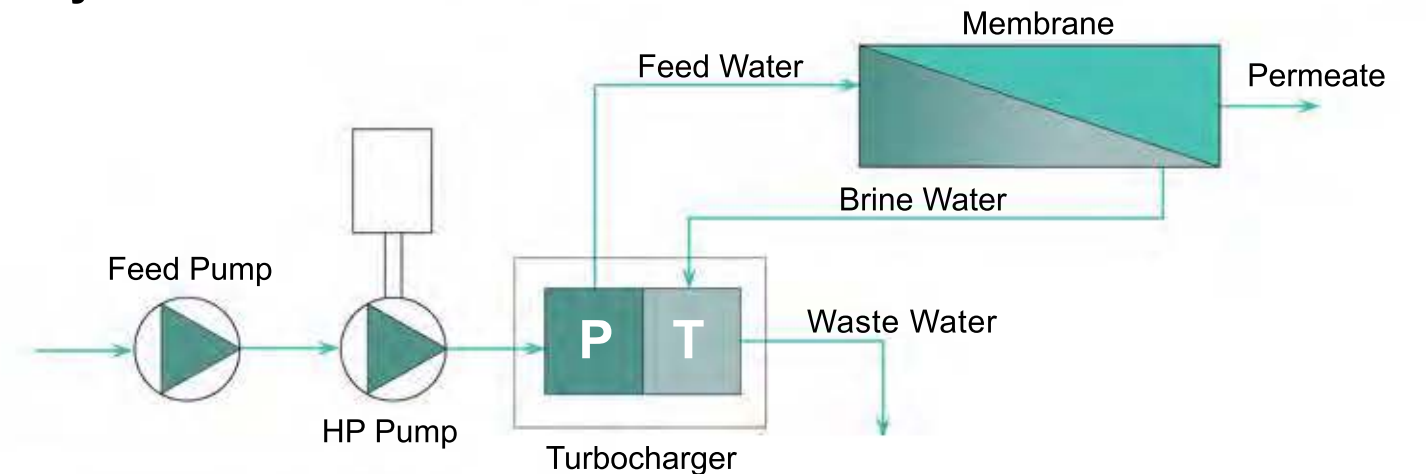
## ROTOR Design

Self lubricating design provides optimal lubrication to the rotor thrust bearing using feed water as the lubricant. The design was developed to meet system start-up procedures where membranes, headers and associated piping partially drain during shutdown. This could result in momentary operation with a dry thrust bearing during start-up. This ensures full lubrication

channels, automatically increases bearing pressure as rotor speed (and thrust load) increases.



## RO Desalination System



## CFD Analysis



Computational Fluid Dynamics (CFD) has become a standard tool in advanced pump and turbine design. Comprehensive CFD analysis guides the custom design of all hydraulic passages for every type of RTC turbocharger. This analysis calibrates our proprietary hydraulic design software used for optimization or modification.