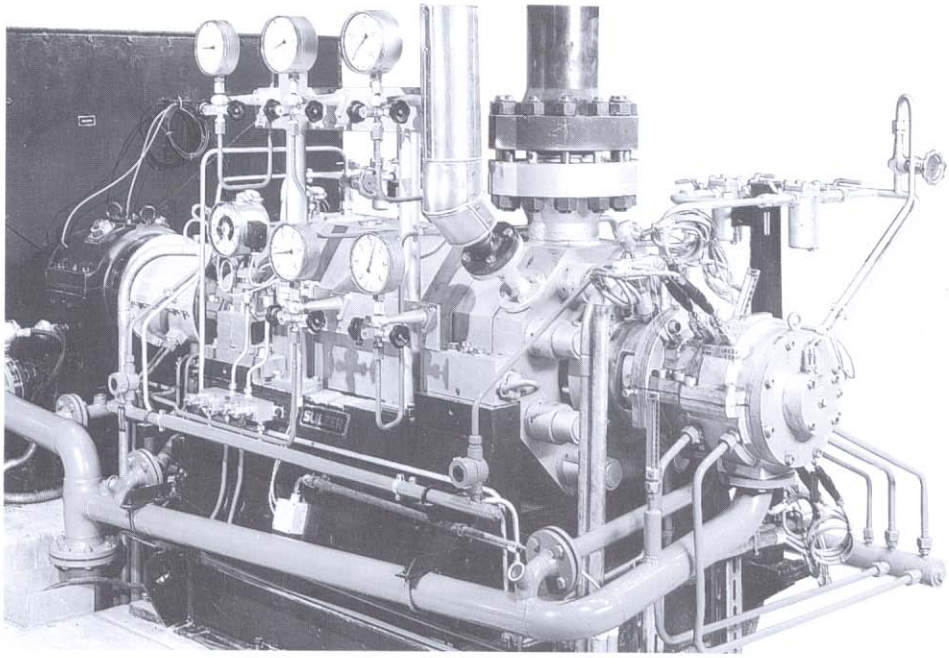
SULZER
PUMP DIVISION



High Pressure Stage Casing Pumps

ME

Applications

For pumping feedwater in energy generation plants. This design is ideal for applications in thermal power stations.

Operating data

6 Sizes	NB	3 to 8 in. (80 to 200)
Capacities	Q	up to 4400 Us.gpm (1000 m^3/h)
Heads	H	up to 11480 ft. (3500 m)
Pump suction pressures	p_s	up to 580 psi. (40 bar)
Pump discharge pres.	p_d	up to 5075 psi. (350 bar)
Liquid temperatures	t	up to 410 °F (210 °C)
Speeds	n	up to 7000 RPM

Design

Horizontal, radially split, multistage, high pressure stage casing pumps with radial single entry impellers. Casings held together by external tiebolts and sealed by metal seals.

Arrangement of pump feet

The pump feet on suction and discharge casing are mounted at shaft centreline.

Bearings

The shaft is supported in bearing housings flanged at each end of the pump.
The radial bearing is a force feed oil lubricated plain bearing. The thrust bearing is a tilting pad thrust bearing with spray oil lubrication.

Compensation of axial thrust

The axial thrust caused by the single entry impellers is compensated by a cylindrical balance piston.
The residual axial thrust is taken up by the thrust bearing.

Shaft seal

The shaft is sealed by mechanical seals of the Cartridge design.

Installation

Pump and driver on separate or on common baseplate. Steel baseframe of heavy duty welded construction. Pump is driven by steam turbine, electric motor or through variable speed gearbox.

Materials for standard design

Suction casing	Cr-steel
Stage casing	Cr-steel
Discharge casing	Cr-steel
Shaft seal housing	Cr-steel
Diffusers	Cr-steel
Impellers	Cr-steel
Wear ring stationary	Cr-steel
Interstage bushes	Cr-steel
Shaft	Cr-steel
Shaft sleeves	Cr-steel, Cr Ni Mo-steel
Bearing housing	Ductile iron, C-steel

High Pressure Stage Casing Pumps ME

Modern perfected feed pump technology – economic, reliable, efficient

Easy servicing
- Easy disassembly of thrust bearing and balance piston by means of a manual oil pump
- Mechanical seals of the Cartridge design
- Exchangeable wear rings and stage bushes of approved material combinations

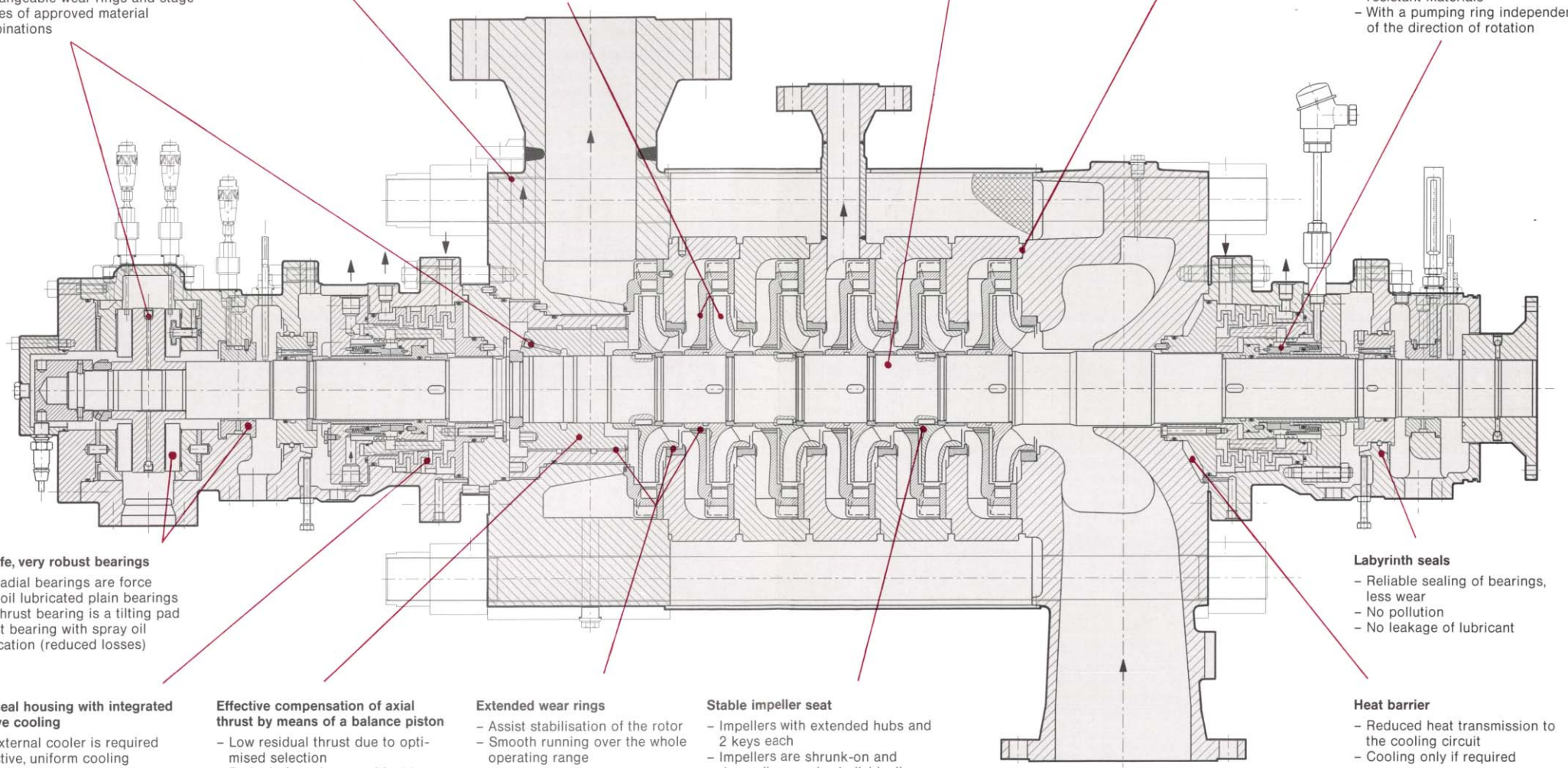
Heavy-duty discharge casing
- reliable design due to finite element calculation
- of solid, at least 12% chrome steel

Economic operating
- Optimum selection is possible due to a large performance range
- Suitable clearances guarantee constant high efficiencies, even after long running times

Robust rotor for speeds up to 7000 rev / min
- High stage pressures, reduced number of stages
- Permits advantageous specific speeds

Metal casing seal
- Safe sealing of casing even in case of very high pressures and temperatures

Mechanical seals of the Cartridge design
- For rapid and easy assembly and disassembly
- Mechanical seals requiring less maintenance, made of highly wear resistant materials
- With a pumping ring independent of the direction of rotation



Long-life, very robust bearings
- The radial bearings are force feed oil lubricated plain bearings
- The thrust bearing is a tilting pad thrust bearing with spray oil lubrication (reduced losses)

Labyrinth seals
- Reliable sealing of bearings, less wear
- No pollution
- No leakage of lubricant

Shaft seal housing with integrated effective cooling
- No external cooler is required
- Effective, uniform cooling
- Uncomplicated layout of lines, less space required

Effective compensation of axial thrust by means of a balance piston
- Low residual thrust due to optimised selection
- Both shaft seals are subject to suction pressure
- Reliable, even under extremely arduous operating conditions

Extended wear rings
- Assist stabilisation of the rotor
- Smooth running over the whole operating range

Stable impeller seat
- Impellers with extended hubs and 2 keys each
- Impellers are shrunk-on and depending on size individually supported by means of a split ring

Heat barrier
- Reduced heat transmission to the cooling circuit
- Cooling only if required

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