



ENERGY-EFFICIENT HOT WATER GENERATORS

RELIABLE. EFFICIENT. GERMAN-ENGINEERED



i-Kcal provides German-Manufactured hot water generators tailored for Indian industrial needs, ensuring reliable, energy-efficient solutions with significantly reduced operational costs. Choose from Direct Steam Water Mixing or Indirect Steam with Condensate Side Control for upto 200 DegC & 300 m³/Hr.

BENEFITS

- Upto 30% Energy & Fuel savings
- Consistent, Accurate Temperature Control $\pm 1^{\circ}\text{C}$
- Enhanced Reliability & equipment lifespan
- Compact Design Saves Space & Simplifies Integration
- Lower installation & Maintenance Costs

APPLICATIONS

- Industrial process heating (CIP, jacket heating, sterilization)
- HVAC & Central Heating
- Textile, Chemical, Pharmaceutical
- Automotive, Metal processing

KEY FEATURES

DIRECT SYSTEM:

- 100% Heat Transfer Efficiency
- Immediate Hot Water for Full Load
- High Turndown Ratio
- Compact Variable Nozzle Ejector Design
- Quiet, Vibration-free Operation

INDIRECT SYSTEM:

- High efficiency with Integrated Heat Recovery
- Closed loop — No flash Steam Losses
- Minimal components — Reduced Maintenance
- Precise Temperature Control $\pm 1^{\circ}\text{C}$
- Robust German Build Heat Exchanger



WORKING PRINCIPLE

DIRECT HEATING

Steam Water Mixing

Steam directly injects into water Via Variable Nozzle Ejector, instantly condensing & transferring 100% thermal energy without loss.

A Diffuser ensures smooth operation, eliminating vibration & steam hammer.

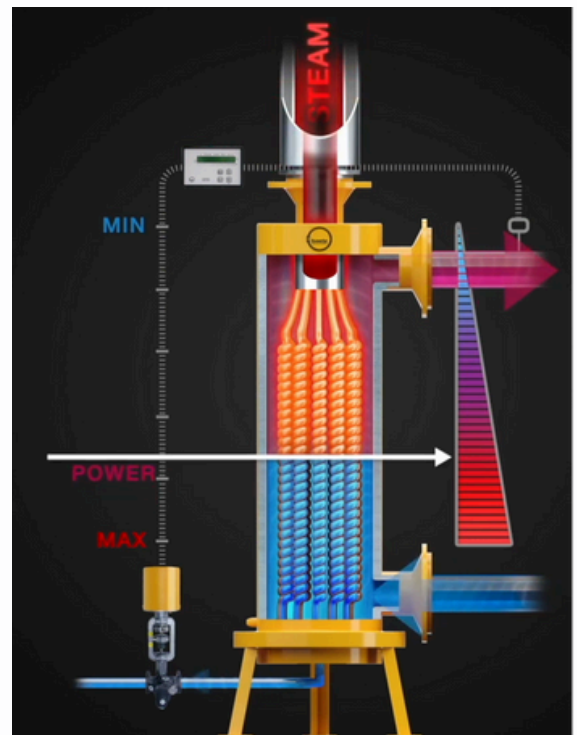


INDIRECT HEATING :

Condensate-Control System

Steam transfers heat through a flooded heat exchanger.

Unique condensate-side control retains Condensate, extracting sensible heat, Minimizing steam consumption.



HOW IT WORKS

DIRECT SYSTEM:

Steam is injected through Variable Nozzle Ejector at Critical High Speed upto 600-900 m/s, under controlled quantity into the incoming water stream.

The finely dispersed steam instantly condense upon mixing, transferring all thermal energy directly into the water.

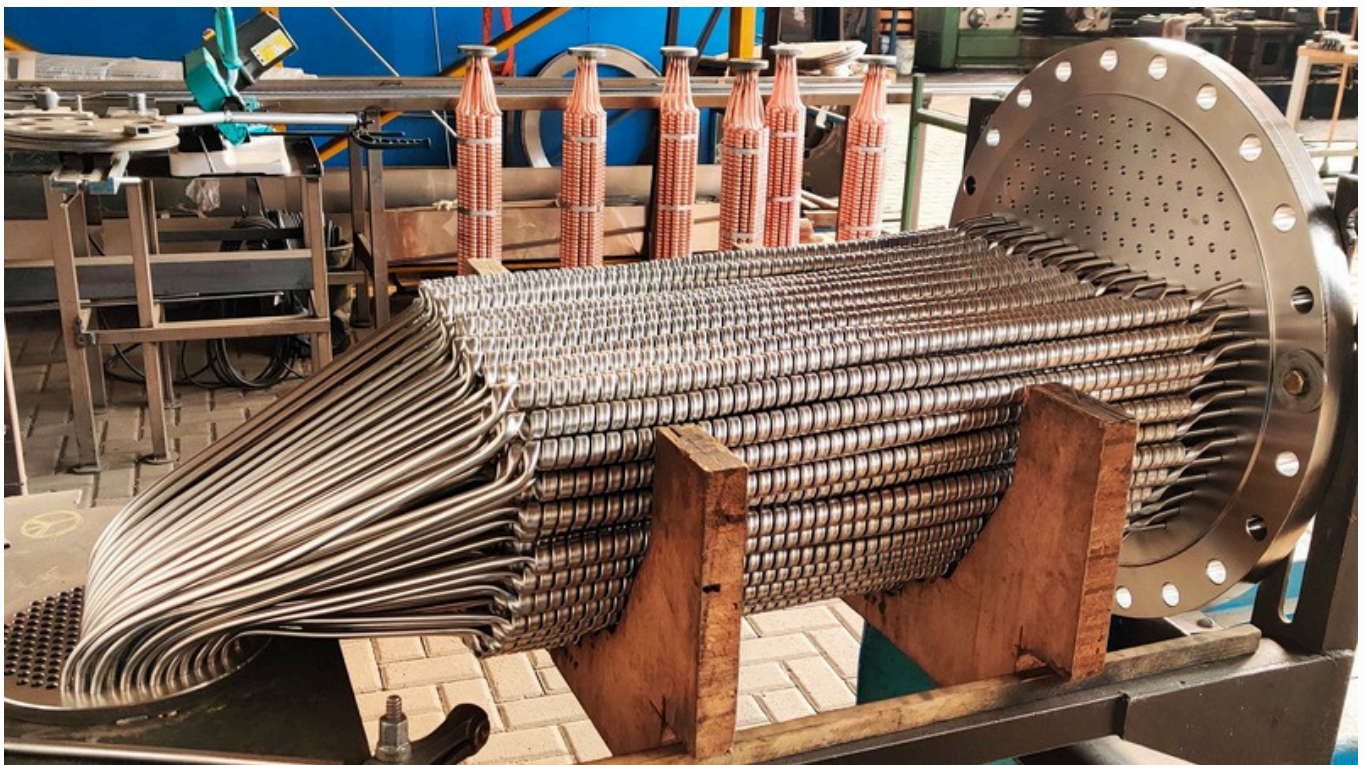
An Actuator dynamically adjusts nozzle size in turn steam flow, ensuring accurate temperature control & eliminating operational issues like steam hammer & Instantly Heating Water from Cold to desired Temperature.

INDIRECT SYSTEM:

Steam circulates inside a flooded heat exchanger, transferring heat indirectly to the water without direct mixing.

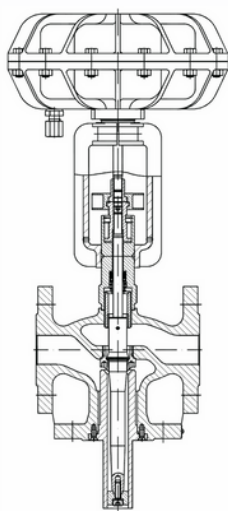
Condensate discharge is precisely regulated to maintain a partial flooding, allowing additional extraction of sensible heat from the condensate.

This controlled method significantly enhances thermal efficiency & reduces steam consumption.



SAVINGS EXAMPLE

FEATURE	DIRECT HEATING	INDIRECT HEATING
EFFICIENCY	~100%	85-90%
STEAM SAVING	20 - 30%	10 - 15%
TEMP. CONTROL	$\pm 1^{\circ}\text{C}$	$\pm 1^{\circ}\text{C}$
OPERATING RANGE	High Turndown	Very high turndown
FOOTPRINT	Inline compact	Compact Vertical Skid Package
MAINTENANCE	Single Moving Part	Low (few valves, fittings)
WATER QUALITY	Direct steam-water contact	No direct contact



SAVINGS EXAMPLE

ASSUMING:

- Water Flow : 10 m³/hr (from 30°C to 70°C)
- Steam Cost : Rs. 2.5/kg
- Operation : 330 days/year, 24 hrs/day
- Steam Pressure : 3.5 Kg/cm² g

SYSTEM TYPE	STEAM CONSUMPTION	ANNUAL STEAM COST	ANNUAL SAVINGS Lacs	ANNUAL SAVINGS
CONVENTIONAL	790 kg/hr	156.3	-	
DIRECT HEATING	640 kg/hr	126.7	29.6	19%
INDIRECT HEATING	672 kg/hr	133.1	23.2	15%

RAPID ROI ACHIEVED WITHIN 1-2 YEARS DUE TO LOWER STEAM DEM&



IMPLEMENTATION & SELECTION CONSIDERATIONS

- Choose Direct System for maximum efficiency where steam-water contact is acceptable.
- Opt for Indirect System where purity is critical, or flash steam recovery is desired.
- Assess steam availability, water quality, & space constraints.
- Evaluate based on operational preferences, maintenance ease & future scalability.



INDUSTRIES WE SERVE



BREWERY



CHEMICAL



CORRUGATOR



DAIRY



F & B



OIL & GAS



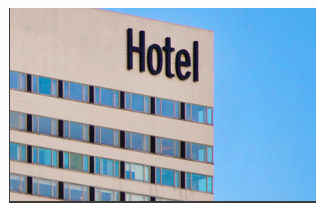
PAPER



PHARMA



PLYWOOD



HOTEL



TEXTILE



TYRE





Baelz is a **family-owned enterprise** with a long tradition. Based in Heilbronn in south-west Germany, its products, made in Germany, are known for their quality. For **over 125 years** Baelz inventiveness has produced new patents & new developments. Baelz technologies are inspired by the laws of nature & harness the power of innovation to **achieve economical use of energy & resources**.

Due to Baelz's policy of continuous development, the company's **components & products for control, heat & cold engineering** have been installed all over the world.



MORE RESOURCES



CONTACT US

i-Kcal Systems Engineering LLP

Plot No 17, Tiny Indst. Estate,
Punyadham Ashram Road, Kondhwa Budruk,
Pune - 411 048. Maharashtra, INDIA

