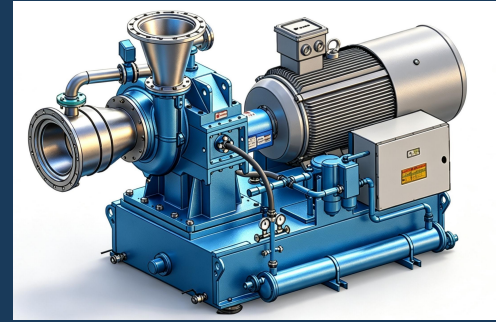


Industrial Saturated-Steam Turbines

Customized axial turbine-generator systems for saturated, ultra-low-pressure, negative-pressure and wet process steam.



Each turbine is selected around inlet steam, exhaust requirement, downstream process and site conditions.

Capability Overview

Parameter	Capability / experience	Notes
Unit output	Up to 20 MW per unit	Final output determined by steam conditions and exhaust target
Steam flow	Up to 150 t/h	Representative project experience from 25 to 120 t/h
Representative inlet pressure	80 kPa(A) negative-pressure steam to 3.6 MPa(A)	Higher-pressure configurations subject to technical selection
Representative inlet temperature	91-244 °C	Includes saturated and process steam references
Wet-steam experience	Up to approximately 17% moisture	Variable-reaction and water-erosion mitigation experience

Configuration Families

Configuration	Typical duty	Key engineering features
Negative / ultra-low-pressure condensing	Flash steam, coal-chemical vacuum flash steam, low-pressure header steam	Variable-reaction axial design; wet-steam control; vacuum and condensing system
Low / medium-pressure saturated steam	Process steam, PTA, methanol, DMO and plant utility steam	Customized flow path; erosion control; process-compatible exhaust
Back-pressure turbine	Steam letdown replacement before downstream steam use	Outlet pressure selected around downstream process requirement
Condensing turbine	Maximum power recovery where exhaust steam can be condensed	Exhaust and vacuum conditions selected around cooling system

Core Technical Features

Turbine Engineering	System Engineering
<ul style="list-style-type: none"> - Application-specific multi-stage axial flow path - Variable-reaction blade design for wet steam - Water-erosion mitigation and moisture management - Special treatment for dusty, corrosive or contaminated steam 	<ul style="list-style-type: none"> - Condensing or back-pressure arrangement - Axial, upper or lower exhaust configuration - Vacuum, condenser and condensate system integration - Plant control, protection and DCS interface

Optional Configurations

System area	Available / project-selectable options
Turbine arrangement	Condensing; back-pressure; axial exhaust; upper exhaust; lower exhaust
Steam protection	Variable-reaction blade design; water-erosion protection; special sealing and source pretreatment
Vacuum system	Water-ring vacuum pump or ejector arrangement, subject to project conditions

Balance-of-Plant Options

System area	Available / project-selectable options
Condenser / heat rejection	Water cooling; air cooling; evaporative condensing
Plant arrangement	Indoor or outdoor arrangement; structural platform; customized piping and valve integration
Electrical and controls	Generator and excitation system; local PLC/HMI; protection; DCS and remote-monitoring interface

Typical Supply Scope

Base Technical Scope	Project-Selectable Scope
<ul style="list-style-type: none"> - Steam turbine and generator - Lubrication / sealing systems as applicable - Control and protection system - Commissioning and performance test support 	<ul style="list-style-type: none"> - Condenser and vacuum package - Condensate pumps, valves and piping - Structural platform and plant integration - Remote monitoring and recommended spares

Minimum Data Required for Proposal

Required input	Customer information
Steam source	Composition, impurities, saturation / superheat, inlet pressure and temperature, normal/min/max flow
Exhaust requirement	Required outlet pressure, downstream use, condenser conditions and allowable pressure variation
Operation	Annual hours, load profile, steam variability, startup / shutdown and availability target
Site conditions	Cooling utilities, grid data, hazardous-area classification, applicable codes and plot constraints

Representative References

Application	Inlet / exhaust conditions	Installed output
Negative-pressure coal-chemical flash steam	Temperature: 91 °C; inlet pressure: 80 kPa(A); flow: 36 t/h	2,200 kW
Low-pressure saturated steam	Temperature: 100.5-102 °C; inlet pressure: 0.15 MPa(A); flow: 120 t/h; exhaust pressure: 7 kPa(A)	2 x 12,000 kW
Medium-pressure saturated steam	Temperature: 244.18 °C; inlet pressure: 3.6 MPa(A); flow: 60 t/h	12,000 kW maximum condition

Project-specific technical proposal will define guaranteed efficiency, design and maximum allowable conditions, materials, speed, generator data, vibration/noise limits, applicable standards, utilities, dimensions and warranty terms.