Siemens Steam Turbine
SST-3000 Series
for combined cycle applications

In our Siemens Steam Turbine (SST™) portfolio, we offer with the SST-3000 series steam turbine a compact arrangement, that features a two-cylinder design with an axial exhaust for application in combined cycle power plants with the latest gas turbine technology.

Turbine modules of different sizes provide a broad range of power ratings. To meet specific project requirements, Siemens selects the appropriate modules and custom engineers the individual blade path.

Proven pre-engineered modules reduce site assembly and commissioning times as well as technical risk. High reliability and availability is demonstrated in a forced outage rate that is less than half of the North American Electric Reliability Council (NERC) average.

SST5-3000 steam turbine in the combined cycle power plant (CCPP) Ribatejo, Portugal

Answers for energy.
Turbine series
Separate high-pressure (H) cylinder and combined intermediate-pressure/low-pressure (IL) cylinder with single flow axial exhaust for 50 Hz and 60 Hz

Plant type
Combined cycle power plant

Output range
90 MW to 250 MW

Main steam
(Typical parameters)
Temperature: up to 565 °C/1,049 °F
Pressure: up to 177 bar/2,567 psi

Reheat steam
(Typical parameters)
Temperature: up to 565 °C/1,049 °F

Exhaust areas
50 Hz: 5 m² to 16 m²
27.5 inches to 56 inches*
60 Hz: 4.4 m² to 11.1 m²
24 inches to 47 inches*

* Last blade profile length
Leading technology for efficient, flexible and reliable power generation

The SST-3000 series steam turbine

Customer benefits

- Compact two-cylinder design for low-level arrangement and axial exhaust
- Highest element efficiencies due to advanced blading technology 3DV™ profiles – variable reaction-type blading
- Designed for short start-up times and operational flexibility
- Standardized auxiliary modules for optimized plant layout and short installation times
- High availability and reduced maintenance costs with 10-year major inspection intervals
- Proven design for applications in single-shaft and multi-shaft combined cycle configurations
SST-3000 series steam turbine: References

With almost 1,000 large scale steam turbine units in operation, the Siemens fleet contributes about 380 GW of power generation capacity, representing 17% of the world’s operating fleet. The following references show examples of combined cycle power plant applications with SST-3000 series steam turbines.

Santa Rita/San Lorenzo, Philippines
Single-shaft Combined Cycle Power Plant

- **Performance:**
  - Net plant output: 4 x 238 MW/2 x 253 MW

- **Major components:**
  - Gas turbine: SGT6-4000F
  - Steam turbine: SST6-3000
  - 1 x 6.9 m² exhaust (32 inches)
  - Generator: Hydrogen-cooled series

- **Steam cycle parameters:**
  - Triple-pressure reheat
  - Main steam: 105 bar/1,523 psi
  - 538 °C/1,000 °F
  - Reheat steam: 538 °C/1,000 °F
  - Steam turbine power output: 92 MW

Santa Rita/San Lorenzo, Philippines
Single-shaft Combined Cycle Power Plant

- **Performance:**
  - Net plant output: 4 x 238 MW/2 x 253 MW

- **Major components:**
  - Gas turbine: SGT6-4000F
  - Steam turbine: SST6-3000
  - 1 x 6.9 m² exhaust (32 inches)
  - Generator: Hydrogen-cooled series

- **Steam cycle parameters:**
  - Triple-pressure reheat
  - Main steam: 105 bar/1,523 psi
  - 538 °C/1,000 °F
  - Reheat steam: 538 °C/1,000 °F
  - Steam turbine power output: 92 MW

Athens, USA
Multi-shaft Combined Cycle Power Plant

- **Performance:**
  - Net plant output: 3 x 383 MW
  - Commercial operation: 2004

- **Major components:**
  - Gas turbine: SGT6-6000G
  - Steam turbine: SST6-3000
  - 1 x 10.3 m² exhaust (42 inches)
  - Generator: Hydrogen- and air-cooled series

- **Steam cycle parameters:**
  - Triple-pressure reheat
  - Main steam: 125 bar/1,813 psi
  - 565 °C/1,049 °F
  - Reheat steam: 565 °C/1,049 °F
  - Steam turbine power output: 133 MW

Ribatejo, Portugal
Single-shaft Combined Cycle Power Plant

- **Performance:**
  - Net plant output: 397 MW
  - Commercial operation: 2006

- **Major components:**
  - Gas turbine: SGT5-4000F
  - Steam turbine: SSS5-3000
  - 1 x 12.5 m² exhaust (45.1 inches)
  - Generator: Hydrogen-/water-cooled series

- **Steam cycle parameters:**
  - Triple-pressure reheat
  - Main steam: 125 bar/1,813 psi
  - 565 °C/1,049 °F
  - Reheat steam: 555 °C/1,031 °F
  - Steam turbine power output: 142 MW