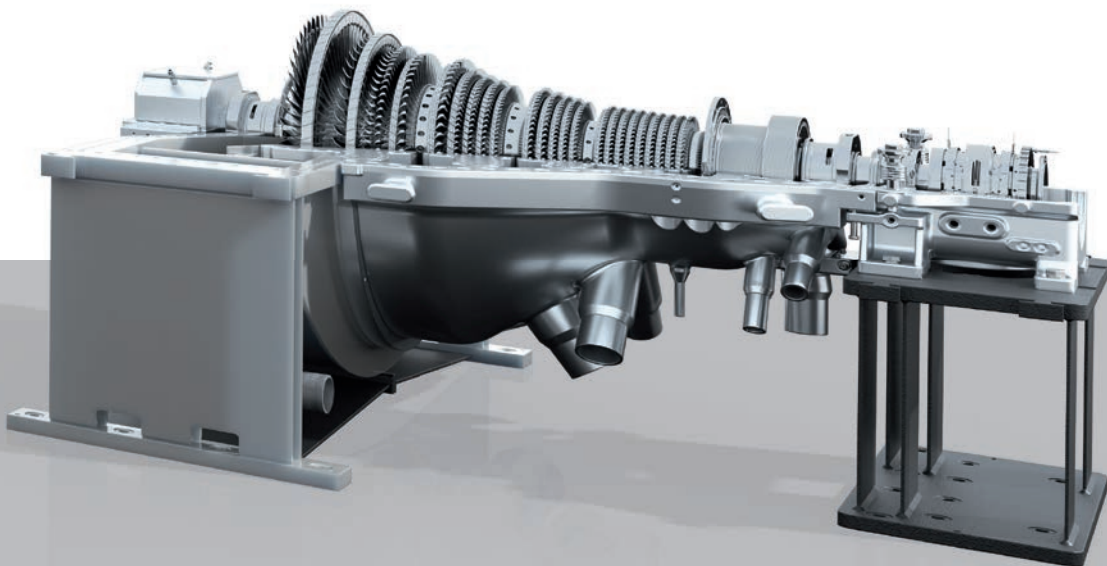


# Steam turbines

**Your direct benefits**

- Highest efficiency based on optimized turbine design
- Highest availability
- Customized for specific customer requirements
- Long overhaul intervals



# Experience, reliability and innovation

MAN Energy Solutions is among one of the leading turbomachinery suppliers and service providers worldwide. The comprehensive range of services and products including various types of compressors and turbines is based upon experience in more than a century, state-of-the-art manufacturing facilities, extensive R&D efforts as well as experienced professionals all around the world.

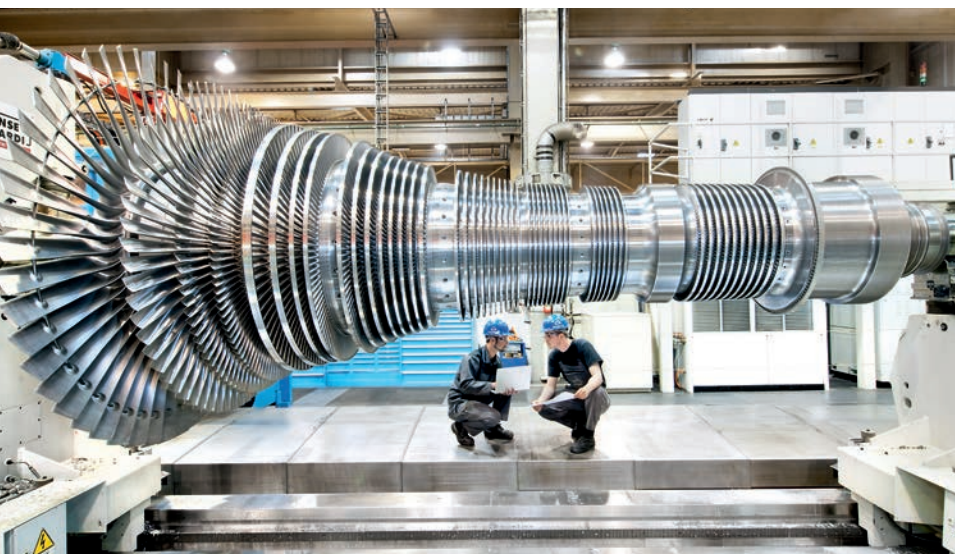
The wide range of multi-stage steam turbines offered by MAN Energy Solutions is applicable for both power generation as well as mechanical drive applications up to 180 MW.

The steam turbine is characterized by a variety of design features for an optimized turbine configuration to meet the challenging process conditions and/or specific customer requirements. The modular design concept keeps delivery and cost at competitive levels.

Turbine solutions supplied by MAN Energy Solutions combine proven technology with convincing operating reliability.

MAN Energy Solutions steam turbines cover the full spectrum of mechanical drive and power generation applications including:

- Combined cycle
- Combined heat and power
- Waste heat recovery
- Concentrated solar power
- Pulp and paper
- Biomass
- Waste-to-energy
- Diesel combined cycle
- Refining
- Chemicals/petrochemicals,
- Fertilizer,
- Air separation,
- PTA,
- Iron and steel
- Mining



# Modular steam turbine series

The modular arrangement concept of the MAN Energy Solutions steam turbine series covers the complete turbine generator sets until 180 MW.

The equipment is highly suitable for a broad range of power generation applications including combined heat and power, waste-to-energy, concentrated solar power, biomass as well as waste-heat-recovery and can be selected from four distinguished turbine platforms.

Depending on the customer demands, the robust and highly efficient steam turbines are supplied both as back-pressure and condensing turbines. Optional controlled extractions allow a sophisticated steam supply at multiple pressures.

With significant references in numerous facilities, MAN Energy Solutions steam turbines demonstrates constant and reliable performance.

MAN Energy Solutions is able to supply the complete package for easy and rapid installation at site, reducing manpower, time and costs.



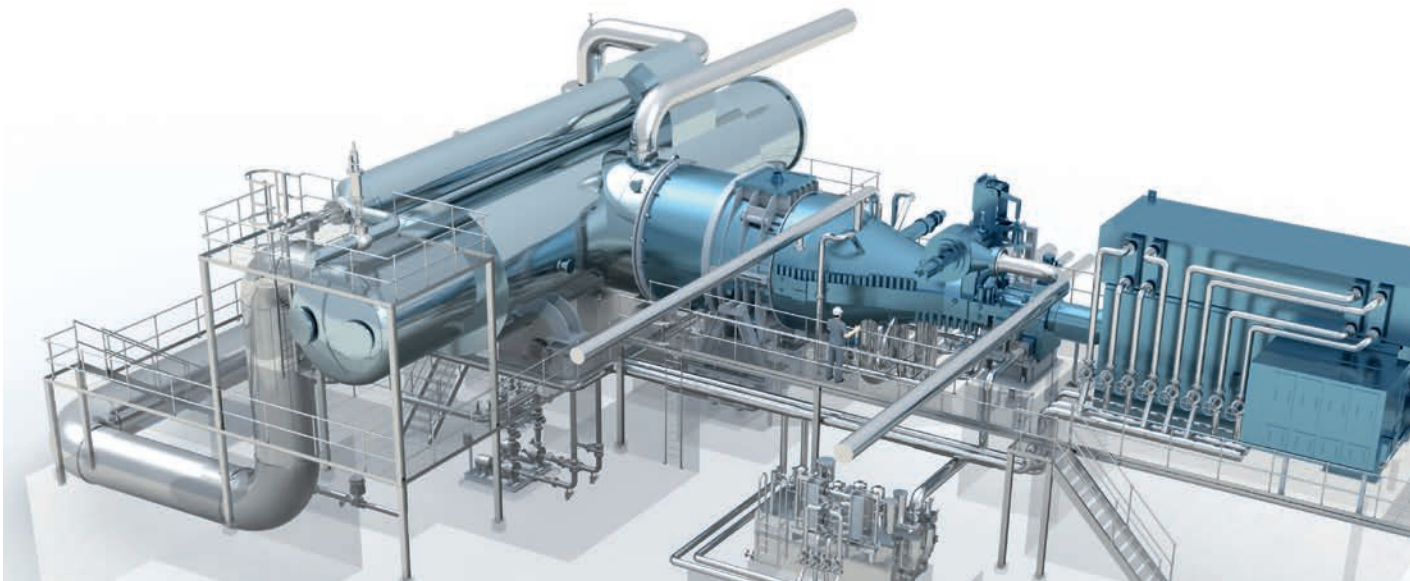
# Special purpose steam turbines

Special purpose steam turbines include an array of sizes and design features for both mechanical drives and power generation applications up to 180 MW. If required, the package will be designed according to API 612 standards and/or customer specifications.

The modular design concept encompasses standardized bleed extraction and/or admission sections, reheating housings and inlet/exhaust casings.

Turbines for the power generation market, including environmentally responsible applications such as concentrated solar power plants, or combined heat and power, require reliable equipment and the highest availability.

Additionally, mechanical drive steam turbines, either with single or double end drives, are part of MAN Energy Solutions's product portfolio. With proven high quality and design flexibility, MAN Energy Solutions provides state-of-the-art mechanical drives for nearly all industrial applications.





# Steam turbines 1-180 MW

## Technical data

### Typical Performance Data:

Type	Power Range	Max. steam inlet
MST010	0.5-1.5 MW	45 bar (652 psi)   450 °C (842 °F)
MST020	1-5 MW	130 bar (1,885 psi)   530 °C (986 °F)
MST040	3-15 MW	140 bar (2,031 psi)   540 °C (1004 °F)
MST050	5-30 MW	140 bar (2,031 psi)   540 °C (1004 °F)
MST060	15-55 MW	140 bar (2,031 psi)   540 °C (1004 °F)
MST080	25-75 MW	140 bar (2,031 psi)   540 °C (1004 °F)
MST100	40-140 MW	140 bar (2,031 psi)   540 °C (1004 °F)
MST120	70-180 MW	140 bar (2,031 psi)   540 °C (1004 °F)



**MAN Energy Solutions**

86224 Augsburg, Germany

P + 49 821 322-0

F + 49 821 322-3382

info@man-es.com

www.man-es.com

**MAN Energy Solutions**

Steinbrinkstr. 1

46145 Oberhausen, Germany

P + 49 208 692-01

F + 49 208 692-021

info@man-es.com

www.man-es.com

All data provided in this document is non-binding. This data serves informational purposes only and is not guaranteed in any way. Depending on the subsequent specific individual projects, the relevant data may be subject to changes and will be assessed and determined individually for each project. This will depend on the particular characteristics of each individual project, especially specific site and operational conditions.

Copyright © MAN Energy Solutions.

D02085024EN Printed in Germany 07191.0