

Turbomachinery

Product range and centres of competence



Engineering the Future – since 1758.

MAN Diesel & Turbo



Engineering the Future – since 1758.

MAN Diesel & Turbo is the market leader in large diesel engines for marine and power station applications and is also one of the leading suppliers of turbomachinery. The company employs around 12,500 people and is represented in more than 150 countries. The company head office is located in Augsburg, Germany. MAN Diesel & Turbo is a corporate entity within the Power Engineering Business Area of MAN SE, and is one of the 30 leading German companies quoted on the DAX Share Index.

With our four Strategic Business Units – Engines & Marine Systems, Power Plants, Turbomachinery and After Sales care – we offer our customers a wide range of products in the fields of energy and transportation.

Today we can look back on more than 250 years of industrial history. The roots of the company, and indeed of the whole MAN Group, date back to 1758. In that year, the “St. Antony” Ironworks was founded, a major factor in the development of the coal and steel industries in the Ruhr Region of Germany. Between 1893 and 1897, Rudolf Diesel and a group of M.A.N. engineers developed the first diesel engine in Augsburg and in 1904 the company produced its first steam turbine in Oberhausen.

This innovative spirit continues today and still characterizes the company: MAN Diesel & Turbo is a technology leader and is consistently in pursuit of technological development in its market segments.

Products


The product range of the Strategic Business Unit Turbomachinery (formerly MAN Turbo Group) comprises a broad range of compressors, gas and steam turbines as well as expanders for most industrial applications. The company provides users with a wide selection of products ranging from single casing compressors to large, multi-casing trains, including various types of turbine and electric drives. Full train responsibility is a major corporate strength, together with high product efficiency and reliability over the complete life cycle.

Based on tradition, with focus on research and development of innovative products, MAN Diesel & Turbo continues to fulfil the most demanding needs of our customers. Following installation, our products are backed-up by comprehensive service support throughout the world.

Products and Applications




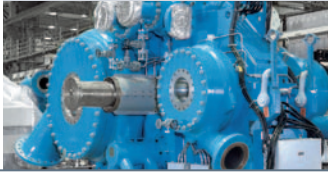
Products

Compressors


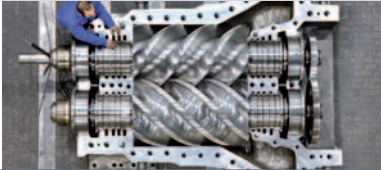
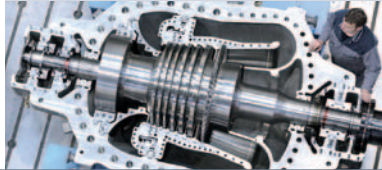
	Axial	Centrifugal
		

Markets

Upstream	Liquefied Natural Gas, Others	Gas Lift, -Injection, -Export, -Gathering, -Treatment, -Processing, Liquefied Natural Gas, CO ₂ -Injection, LPG, Boil Off, Tank Vapour, NGL, Flash Gas
Midstream	Fuel Gas, Others	Gas Transport, Gas Storage, Fuel Gas
Downstream	Gas-to-Liquids, Coal-to-Liquids, Desulfurization, Fluid Catalytic Cracking, Propane Dehydrogenation, Nitric Acid, Others	Hydrogen Production, Hydrogen Recovery, Hydrogen Cracking, Desulfurization, Fluid Catalytic Cracking, Propane Dehydrogenation Methanol, Olefine, Terephthalic Acid, Chlorine, Gas-to-Liquids, Coal-to-Liquids, IGCC, Ammonia, Urea, Nitric Acid
Industrial Gases	Gas-to-Liquids, Coal-to-Liquids, Air Separation, Blast Furnace, Others	Air Separation, Paper, Coke Oven, Gas-to-Liquids, Coal-to-Liquids
Power Generation	Fuel Gas, CCS, Others	Fuel Gas, CCS, IGCC
Performance Data and Features	<ul style="list-style-type: none"> ■ Suction flow rates up to 1.5 million m³/h ■ Max. discharge pressure up to 25 bar 	<ul style="list-style-type: none"> ■ Suction flow rates up to 660,000 m³/h ■ Max. discharge pressure up to 1,000 bar

Pipeline 	HOFIM™ Technology 	Isotherm 	Gear Type 
Gas Export	Gas Export, Flash Gas, Subsea Compression		CO ₂ -Injection
Gas Transport	Gas Storage		Gas Transport, Fuel Gas
			Methanol, Chlorine, Hydrogen Processing, Propane Dehydrogenation, Ammonia, Urea, Nitric Acid, Gas-to-Liquids, Coal-to-Liquids
		Air Separation, Blast Furnace	Air Separation, Paper, Blast Furnace, Gas-to-Liquids, Coal-to-Liquids
		CCS, Air Storage (CAES)	Fuel Gas, CCS, Air Storage (CAES), IGCC
<ul style="list-style-type: none"> ■ Gas transmission up to 30 MW ■ Outlet pressure up to 225 bar ■ Gas turbine drive or electrical motor drive ■ MOPICO® – hermetically sealed compact compressor with integrated high-speed electrical motor and active magnetic bearings 	<ul style="list-style-type: none"> ■ Gas transmission up to 20 MW ■ Outlet pressure up to 225 bar ■ HOFIM™ – hermetically sealed compact compressors with integrated high-speed electrical motor and active magnetic bearings 	<ul style="list-style-type: none"> ■ Flow rates up to 660,000 m³/h ■ Max. discharge pressure 22 bar 	<ul style="list-style-type: none"> ■ Suction flow rates up to 500,000 m³/h ■ Max. discharge pressure 250 bar

Expanders

 <p>TURBAIR® Vacuum Blowers</p>	 <p>Process-Gas Screw</p>	 <p>Expanders</p>
	<p>Gas Export, -Gathering, -Treatment, -Processing, Liquefied Natural Gas, Flash Gas</p>	
	<p>Fuel Gas</p>	
	<p>Chlorine, Gas-to-Liquids, Coal-to-Liquids, Hydrogen Pro- duction, Hydrogen Cracking</p>	<p>Fluid Catalytic Cracking, Terephthalic Acid, Nitric Acid</p>
<p>Paper</p>	<p>Various, Coke Oven</p>	<p>Coke Oven, Blast Furnace</p>
	<p>Fuel Gas</p>	<p>CCS</p>
<ul style="list-style-type: none"> ■ Suction flow rates up to 200,000 m³/h ■ Vacuum 	<ul style="list-style-type: none"> ■ Suction flow rates up to 100,000 m³/h ■ Max. discharge pressure 50 bar 	<ul style="list-style-type: none"> ■ Single and Multistage Design ■ Power Output up to 30 MW ■ Inlet Temperature up to 760°C ■ Inlet Pressure up to 16 bar

Industrial Gas and Steam Turbines

Reactors & Energy Engineering



Gas Turbines	Steam Turbines		Reactors
Gas Lift, -Injection, -Export, -Gathering, -Treatment, -Processing, Liquefied Natural Gas,	Liquefied Natural Gas, Others		
Gas Transport, Gas Storage	Gas Transport		
Gas-to-Liquids, Coal-to-Liquids	Gas-to-Liquids, Coal-to-Liquids, Hydrogen Processing, Hydrogen Production, Hydrogen Recovery, Hydrogen Cracking, Desulfurization, Fluid Catalytic Cracking, Propane Dehydrogenation, Methanol, Olefine, Terephtalic Acid, Chlorine, Ammonia, Urea, Nitric Acid, Others		Gas-to-Liquids, Coal-to-Liquids, Butandiol, Ethylene Oxide, Methanol, Vinyl Chloride Monomer, Acrylic Acid, Fluidized-Bed Catalytic Cracking, Hydrotreater, Hydro-cracker Vacuum Columns, Reformer Ovens, Desulphurization Reactors, Others
	Air Separation, Coke Oven, Paper, Others		
Simple Cycle Power Generation, CHP, Auxillar Power, Black Start Units, Mobile Power, Combined Cycle Plants, Offshore and FPSO/FPU Power Plants, Peaking, Others	Ind. Power Generation, Waste Combustion, Biomass, CCS, Others		Nuclear Power Engineering and Vessels
<ul style="list-style-type: none"> ■ Generator and Mechanical Drive ■ Power Output 5-26 MW ■ Variety of liquid and gaseous fuels ■ Low emissions 	<ul style="list-style-type: none"> ■ Generator and Mechanical Drive ■ Live steam up to 130 bar and 570°C ■ Power Output up to 160 MW 		<ul style="list-style-type: none"> ■ Apparatures of up to 1,500 tons, 80 m length and a diameter of 10 m

Centres of Competence

Turbomachinery



Oberhausen, Germany

Centre of Competence for:

- Basic Industries
- Chemical Industries
- Gas Transport
- Petrochemical
- Power Generation – gas
- Power Generation – steam > 40 MW



Berlin, Germany

Centre of Competence for:

- Refinery and Hydrocarbon Processing



Hamburg, Germany

Centre of Competence for:

- Power Generation – steam < 40 MW



Deggendorf, Germany

Centre of Competence for:

- Reactors and special equipment for chemical and petrochemical processes
- Energy Related Engineering



Zurich, Switzerland

Centre of Competence for:

- Oil & Gas Production
- Industrial Gases
- Paper Industry
- Gas Storage, Sealed Technology



Schio, Italy

Centre of Competence for:

- Welded casings
- Packaging
- Components



Changzhou, China

Centre of Competence for:

- Welded and casted casings
- Assembly and Packaging
- PrimeServ Workshop

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