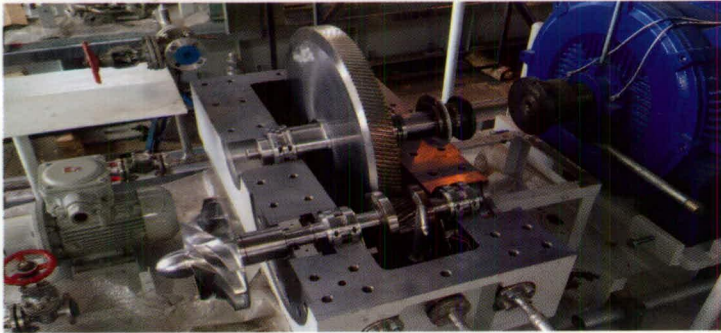




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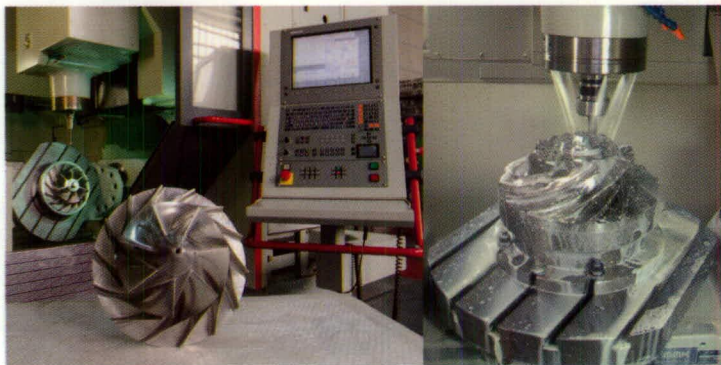
WATER AND WASTEWATER BLOWER



Control and safety monitoring

Controlling the operation of blowers is the first responsibility in the water and wastewater treatment plant, since protecting the mechanical equipment is important to avoid catastrophic failures and long period maintenance time. We, Mangan industrial group, design a variety of control and monitoring systems to provide the information and protections you need to operate the water and wastewater system at the peak efficiency. Our programmable logic control (PLC) system is the best solution to control a complex blower's configuration. Each blower is equipped with the below safety instruments:

- Anti-surge switch
- Temperature switch and temperature measuring transducers
- Pressure probe and differential pressure transmitter
- Oil level guard and Oil reservoir transmitters
- PLC local control panel
- PLC master control panel (optional)
- Electric motor PTC thermistor



Impeller

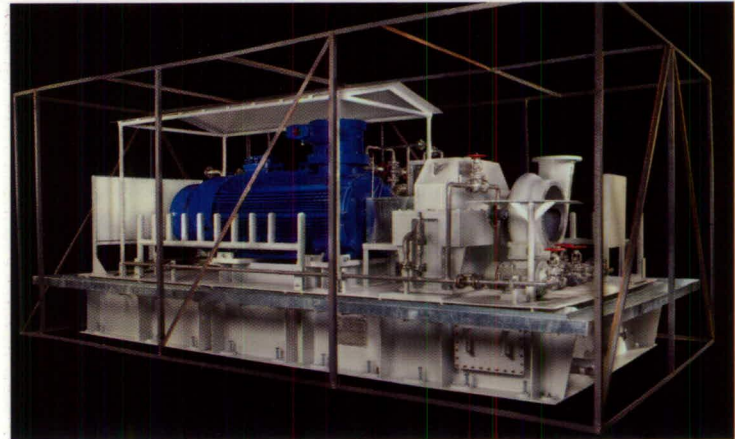
A three dimensional unique impeller is designed to assure the highest efficiency and aerodynamic performance, and the lowest structural vibration. The impeller provides maximum operating stability, since the operating performance levels are designed far from surge line. The

maximum efficiency across the full duty range is guaranteed by using this unique aerodynamic and state of art design impeller. Each impeller is custom designed with specific speed and aerodynamic geometry to maximize the efficiency with the lowest operating cost.

Auxiliaries and accessories

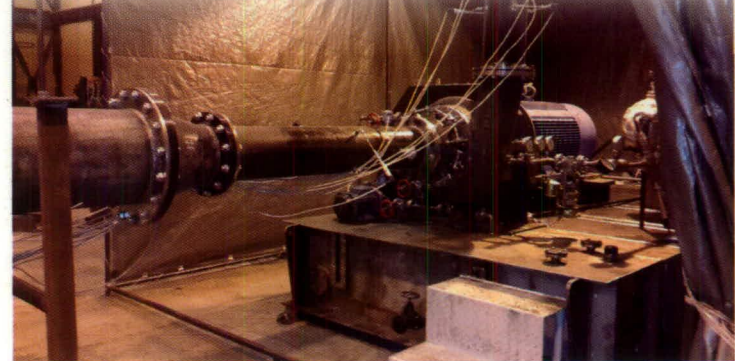
Each blower is equipped with blew items in accordance with the project requirement.

Engines, Motors, Turbines, Variable Frequency Drives, Butterfly Valves, Check Valves, Filters, Silencers, Expansion Joints, Gauges, Smartmeter, Blower local control panels, Blower master control panel, Profibus, Vibration monitoring, Indirect flow measurement.



Performance test laboratory

Mangan blowers are tested in the Mangan factory located in Tehran, Iran. We, mechanically and aerodynamically, test units in accordance with the ASME PTC-10, ISO 5389, and all other applicable international standards with our NI LabVIEW computerized data acquisition system. Each unit is connected to our power unit and monitoring system to evaluate performance characteristics, noise level, and vibration. Finally, performance curves are figured out by capturing all data in real time. Customers and inspectors are frequently hosted during performance test.



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WATER AND WASTEWATER BLOWER

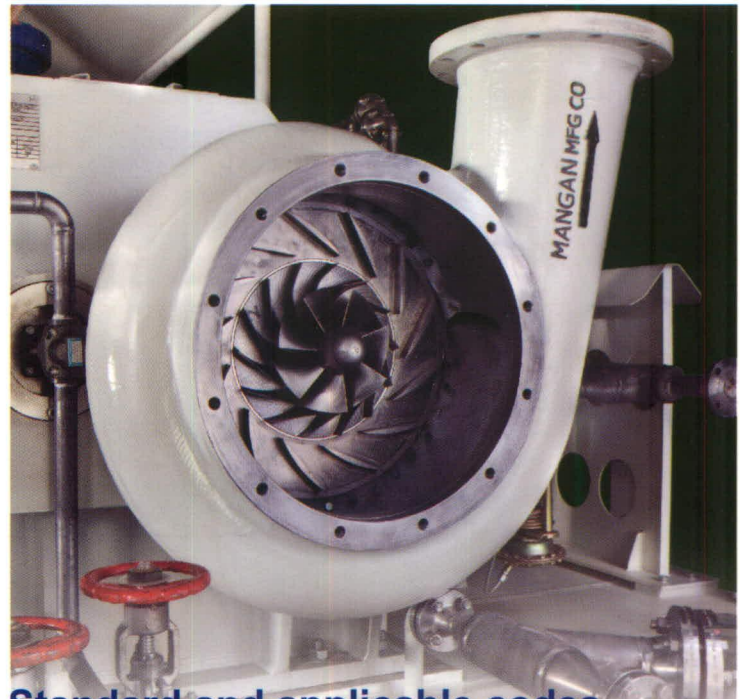
General

Mangan water and wastewater blowers provide continuous air with low noise condition, pulse-free, and minimal maintenance requirement based on the proven water and wastewater treatment application standards.

Mangan blowers primarily are used for aeration and aerobic digestion to control dissolved oxygen concentration in wastewater treatment by throttling via inlet butterfly valve. This unit can also be used in channel aeration or filter backwash application to exhaust the digester gases.

Mangan offers a wide range of water and wastewater blowers to match your requirement with a unique performance and design features. Each blower is durable, reliable and efficient to show the highest quality in the industry by using the best material, state of art design tools, and the latest technology. We are dedicated to our design and quality to assure you that Mangan blowers are the best in the industry. With thousands of units were installed and operated in various industries, Mangan blower offers a proven, reliable, and long term operation.

Each blower consists of a long life and trouble free service electric motor with cost effective starter as a standard package, which may be switched with steam or gas turbine. Standard components, easy to operate, quiet, clean running, and low maintenance are the other unique characters of Mangan water and waste water blowers.



Standard and applicable codes

Mangan blowers are designed in accordance with the specified standards or any other applicable international standards:

- Test Procedure: ISO 5389 & ASME PTC-10
- Flow Measurement: ISO 5167-1 & ASME PTC-19.5
- Sound & Acoustic Levels: ISO 3746 & ASME PTC-36
- Mechanical Vibration: ISO 10816-1
- Mechanical Vibration- Balance Quality: ISO 1940
- Asynchronous Machines: EN60034
- Quality Management System - ISO 9001:2008
- Environmental Management System - ISO 14001:2004
- Health & Safety Management System - OHSAS 18001:2007



Application

Mangan water and wastewater treatment blowers provide continuous airflow to 2400 Nm³/min (85,000 cfm) and pressure to 290 kpa(42psig). Therefore, these blowers are used in different area such as:

- Aeration
- Aerobic Digestion
- Biogas
- Digester Gas Boosters
- Filter Backwashing
- Air Scouring
- Grit chambers

GC 1 – Blower Air Map

