New Standard of Turbo Blower

**TurboMAX** Turbo Blower
Single Stage, Direct Drive, Centrifugal

The TurboMAX Turbo Blower is a product that provides the best efficiency through the use of a high-speed motor, air bearings, and a powerful centrifugal compressor design. The TurboMax blower will reduce your electricity costs by more than 30% compared to traditional blower designs and provide you with a clean and quiet working environment, along with many other benefits.
TurboMax

is the best product of Turbo Blower available in the world.

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Young enterprise! TurboMax

TURBOMAX Introduction

Max Value Creation

Good Reliability
Good Price
Good Performance
Good Service

The Turbo Blower, a system used to produce compressed air, is directly connected to a permanent magnet, synchronous motor which is operated by an inverter. The product is a single stage, centrifugal type Turbo Blower which consists of air bearings, an impeller, a high speed motor, an inverter, a controller, and a cooling system.

Product Outline

Product Characteristics

Energy Saving
- Reduces energy consumption by 20~40% compared to existing products
- Recoup initial investment in a short period of time : 2~3 years
- Designed to operate at high speed with high efficiency

User Friendly
- Convenient user interface is used
- Provides automatic operation mode that is required on-site
- Reduced noise (less than 85dB), no-vibration
- Oil free lubricating system

Single Maintenance & Easy installation
- Only regular inlet filter replacement is required
- Automatically detects errors and takes necessary action
- Special foundation and anchor work are not necessary because turbo blower makes no vibration
- Time required to install the product is minimized

VISION

Factor Needs Mission

Energy Cost increases/ Greenhouse Gases Need To Be Reduced
Save Energy/Create An Environmentally Friendly Product
To provide a highly efficient, environmentally friendly Turbo Machine.

Low Carbon / High Efficiency / Environmentally Friendly
Provide Clean Energy

New Standard of Turbo Blower

New Standard of Choice
TurboMAX creates Happy Future

Turbo Blower Introduction

1. Air Bearing
   - Simple design with no need for oil
   - Non-contact type, almost no mechanical maintenance required
   - No vibration caused by bearings, very low noise
   - Guaranteed durability, on-off mechanism tested 20,000 times
   - Bump-type application: high load capacity and superior durability

2. Impeller
   - High compression efficiency
   - High surge stability with enough pressure margin and wide flow range
   - Manufactured with 5-axis machine, high efficiency impeller
   - Sleek, clean surface – high efficiency compared to cast impellers
   - Impeller and shaft are directly connected, power transmission efficiency is 100%

3. Inverter
   - Maximized product stability and reliability using verified high-speed inverter
   - Uses electrical filter, AC Reactor and LC Filter (100 HP or above)
   - Optimized algorithm for high speed rotation
   - Reacts well to abrupt load variation

4. High Speed Motor
   - Permanent Magnet Synchronous Motor: PMSM
   - Small frame size even for large HP units
   - Accurate speed control
   - Direct connection with impeller means no loss of power transmission
   - Optimal design for high-speed rotation

5. Motor Cooling
   - High-speed motors for Turbo-Machines are small in size but produce great power. Therefore, it is necessary to apply the cooling method best suited for your machine capacity and usage. Keeping the motor cool will greatly affect the motor output and longevity.
     - Air cooling: 150 HP or lower
     - Integrated Water Cooling: 200 HP or higher
   - #10-0757821 "Cooling Structure for Turbo Machines With High-Speed Motors"
   - #10-0782398 "Air Blower"
### Controller

- 16 bit color touch screen
- Convenient user interface
- Maximized product safety using surge protection function
- Supports various operation modes

#### Operation Modes

- **Auto Flow Mode**
- **Auto Power Mode**
- **Auto RPM Mode**
- **Auto Pressure Mode**

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### Cooling System

**[Air-cooling: Less than 150HP]**

- Cools the motor in an effective way by using a fan connected to the motor shaft, which pushes a high volume of air through the cooling fan and into the motor (Patent No. 10-0075821)
- Heated air, after cooling the motor, is discharged through the impeller or blow-off air discharge hole

**[Self Water Cooling Type: More than 200 HP]**

- No separate cooling line is required because of the self-circulating cooling system (Patent No. 10-0781238 'Air blower')
- No separate cooling fan is required as water cooling is done by suction air through the radiator
- The water cooling method is more efficient than the air cooling method and provides for a longer life of the motor and inverter

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![Diagram of TurboMAX blower](TurboMAX.png)

New Standard of Turbo Blower
Installation and Maintenance

1. Installation
   - Anchor work and normal construction are not necessary
   - Simple leveling work

2. Simple Maintenance
   - Regular replacement of filter required (Replacement period might differ depending on the on-site environment)
   - Simple and easy filter replacement
   - Low maintenance cost

Piping Wiring
- Power Cable
- Ground Wire
- Communication Wire
- Control Wire

Control and Operation

- [CASE 1] Local Operation
- [CASE 2] Remote Control
- [CASE 3] Automatic Operation

Diagram:
- Main Controller
- Inverter
- CPU: Atmega128
- I/O: Signal conditioning
- LCD Display
- TCP/IP Converter
- RS232/485 Converter
- Ethernet (LAN)
- RS485 / 232

Communication with SCADA (HMI)
- Protocol: MODBUS
- Program: Exconfig (firmware)

MCP (Main Control Panel)
HUB
Human-friendly Turbo Blower

Turbo Blower Structure

Structure

1. Controller
2. Touch Screen
3. Electrical panel
4. Inverter filter
5. MCCB
6. Name plate
7. BOV (Blow-off Valve)
8. Sound absorbing material
9. Reducer
10. Suction Filter
11. Main part of machine

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Environmetally-friendly Turbo Blower

Turbo Blower Application

Applications

1. To provide air for foul water/waste water treatment center
2. Livestock farming night soil treatment plant
3. To deliver chemical/cement chomatid
4. Supply Oxygen for desulfurization process in powerplants

Expected Benefits

1. Economical Effect
   - Saves energy by more than 30~50% compared to existing Roots Blower
   - Designed as module type to provide quick and perfect A/S
   - Minimize operation & maintenance cost by applying air bearing – no oil required
   - 30~50% lower price compared to existing gear box type or magnetic bearing type Turbo Blower

2. Environmental Effect
   - Environmentally-friendly facility with no vibration and low noise
   - Minimum space is required to install as the Blower package is compact and requires little space
   - No environmental pollution as oil or grease is not used

3. Technological Effect
   - Airflow range can be widely controlled by variation of motor speed
   - Improve aeration effect with discharged air at low temperature due to the high-efficiency