GREEN POWER ENGINEERING CORPORATION

Turbomachinery Specialist

KAVAS TURBO

Turbo Blower Product Introduction

FORE CORES

- Efficient Equipment
- High Specification Analysis Software
- Professional Team
- Best Quality

Green Power Engineering Corporation

Green Power Engineering Corporation (GPE) has been engaged in the R&D, testing, and maintenance of turbine-related rotating machinery for more than 20 years.

We specialize in turbo blowers, turbines, centrifugal compressors, and other related components.

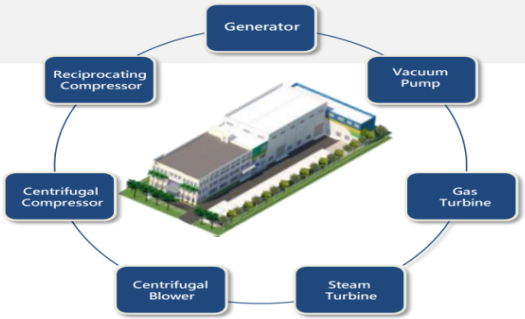
Company Scale

1. Factory Scale:

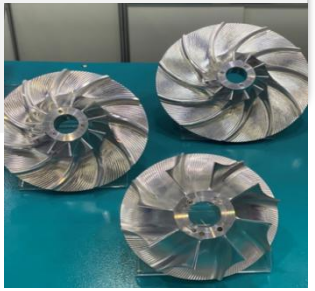
- Kaohsiung Factory-1: Design & Testing Center, Aerospace Five-Axis Processing.
- Kaohsiung Factory-2: Production Center, Repair Center, Testing Center(Balancing).
- Taoyuan Factory: Analysis Center.
- Taipei Office: Sales and Engineering Center.

2. Equipment: Five-axis machining equipment, 3D inspection software, wind tunnel lab, and precision testing instruments.

3. Advantages: In-house design, analysis, R&D, manufacturing, testing, and maintenance.



Company Achievement



- **Industries:** Power plants, petrochemical plants, electronics factories, and steel mills.
- **Applications:** Power generation, gas compression, air transport, air knife systems, vacuum processes, and dust collection.

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Technical Specifications of GPE Turbo Blowers

GPE uses "Forge Materials" and "Five-Axis Machining" to develop "Aerospace-Grade Turbine" for generating air flow. The product has the advantage of "long Service Life".

High Total Efficiency, Energy Saving

- CE Certificate.
- Compact and Stackable.
- Easy Installation, Maintenance and Repair.
- No need of Foundation.
- Oil-free, Low Temperature Rise
- Long Service Life.
- Adjustable Frequency by the Inventor for Flexible Operational Conditions.

Low Noise, Vibration, Starting Current

- Low Noise (70-75dB(A))
- Low Vibration (below 1.2 mm/sec)
- Low Starting Electric Current.

Stable and Reliable
Highly Energy Efficient
Intelligent Control
Easy to dismantle and install

Model	Power	Voltage	Rotating Speed	Absolute Pressure	Air Flow	Total Efficiency
	kW	V	RPM	bar(a)	SCMM	%
K005-110	3.7	3Φ220 / 3Φ380	21000	1.1 (Output)	14	73
K005-120	3.7	3Φ220 / 3Φ380	24000	1.2 (Output)	7.4	80
K005-130	3.7	3Φ220 / 3Φ380	24000	1.3 (Output)	5.2	76
K005-10H	3.7	3Φ220 / 3Φ380	21000	0.9 (Input)	10	57-61

Aerospace-Grade Impeller

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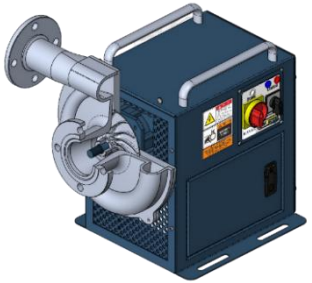
From Design to Applications

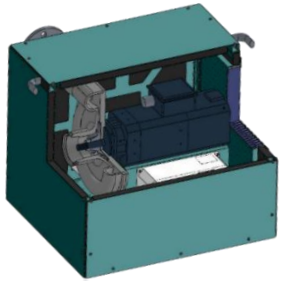
POSITIVE PRESSURE

Aeration, Oxygen Increasing, Gas Delivery, Powder Conveying, Air Knife.



STANDARD

L592 X W455 X H560 MM · 57.5KG



ADVANCED

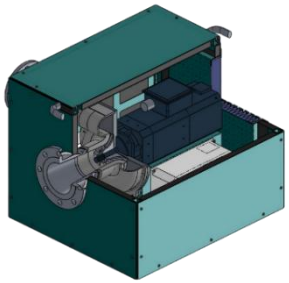
L820 X W700 X H570 MM · 127KG

NEGATIVE PRESSURE

Dust Collection, Oil Mist Recovery, Air Filtration and Sterilization.

STANDARD

L592 X W455 X H560 MM · 57.5KG



ADVANCED

L820 X W700 X H570 MM · 127KG

Application Settings

- Semiconductor & Electronics Industry
- Printed Circuit Board Industry
- Electroplated Metal Industry
- Petrochemical Industry
- Food Manufacturing Industry
- Breeding plants Industry

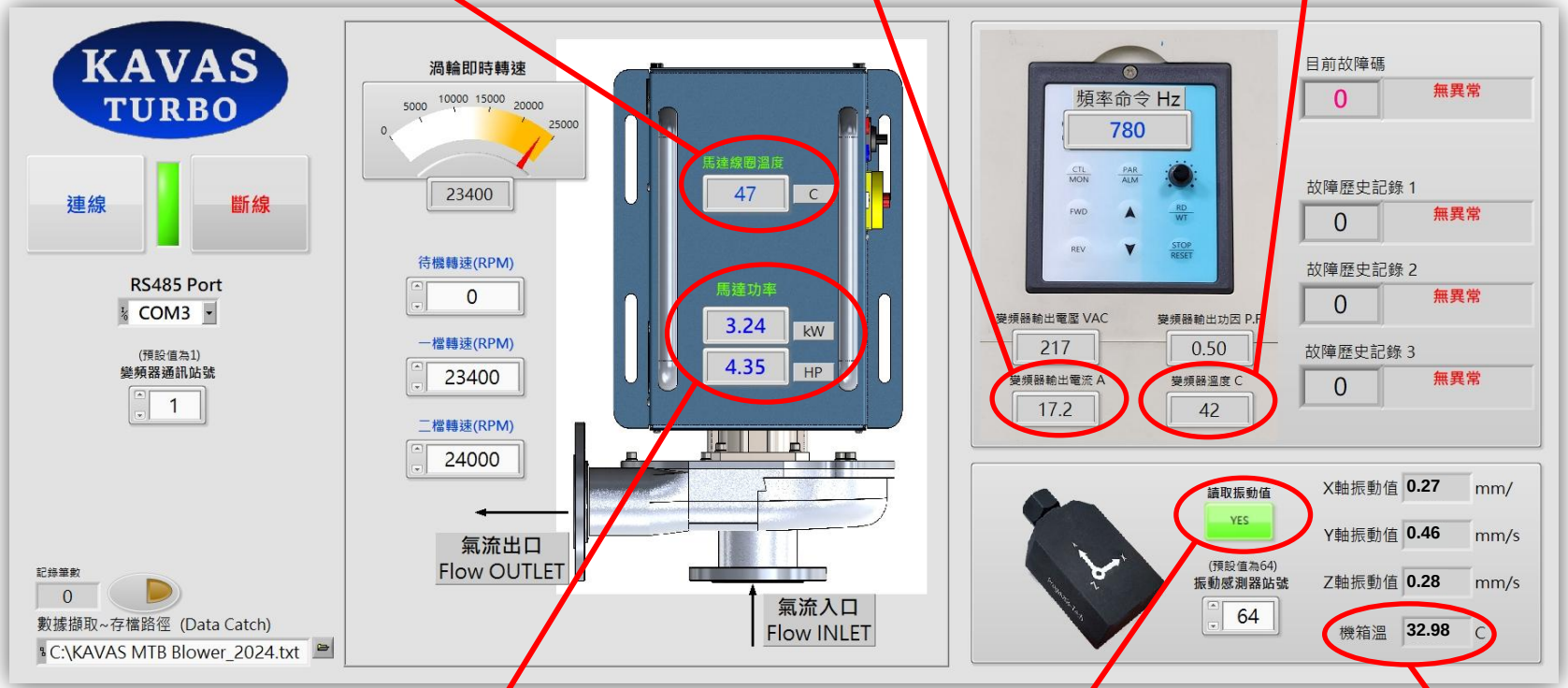
Special Edition

5HP Turbo Blower Structure

+

- ✓Human-Machine Interface
- ✓Semiconductor Industry Certification

User Interface for Software Control



GPE Turbo Blower Reference Projects

Annual Savings of Approximately € 7,000 to €8,400
(under 7000 hours of operating condition per year)

The Semiconductor and PCB industries require high power consumption.

In response to global energy policies and challenges of rising electricity prices, GPE reduce the energy using & carbon emission while improving the production capacity.

Solution

"1 Kavas Turbo Blower"
Replace
"3 Traditional Ring Blowers"

KAVAS Turbo Blower

Ring Blower

1 set K.O. 3 set

Benefits

- Low Vibration. → Around 0.7-1.2 mm/s.
- Low Noise. → Around 70-75dB(A).
- No Need for Sound-Proof Shield.
- The Working Environment will be Clean, Quiet, Safe.
- Small Size and Stackable (3 machines in 1m²).
- High Efficiency (20-50% higher than ring blower).
- No Need for Foundation and Cooling System.
- Low Output Temperature (10-20℃ higher than the inlet temperature).

- ☑ Provide Preliminary Benefit Analysis.
- ☑ Provide Perfect After-sales Service.
- ☑ Realizing Energy Saving and Carbon Reduction.

Ventilation Applications in Tunnel Boring Machines

Conventional Issues of Shield Tunnel Ventilation:

1. **Large Equipment Size:** Bulky and space-consuming.
2. **Low Static Pressure:** Short air delivery distance.
3. **High Construction Cost:** Large ducts require costly overhead work.
4. **High Temperature:** Hot tunnel environment with poor ventilation.
5. **High Noise Levels:** Difficult to reduce noise in large ducts.
6. **High Power Consumption:** 60-person operation requires 150 HP.

Large Low-Pressure Blower

Large Air Duct

- Poor Air Quality
- High Temperature
- High Noise

Blower Installation

Ventilation Applications in Tunnel Boring Machines

Advantages of Turbo Blower Improvement:

1. **Compact Size:** Space-saving and stackable for tunnel entrance.
2. **High Static Pressure:** Long-distance air delivery with small ducts.
3. **Low Construction Cost:** No overhead work, easy installation.
4. **Low Temperature Rise:** Effectively reduces tunnel temperature.
   (5~10°C cooler than traditional blowers)
5. **Low Noise:** Tunnel noise during air delivery is 70~75 dB(A).
6. **Low Power Consumption:** 5~10 HP for 60-person operation.

- Improved Air Quality
- Lower Temperature
- Lower Noise

Installation Diagram

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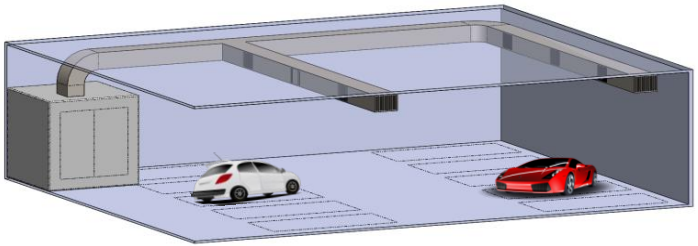
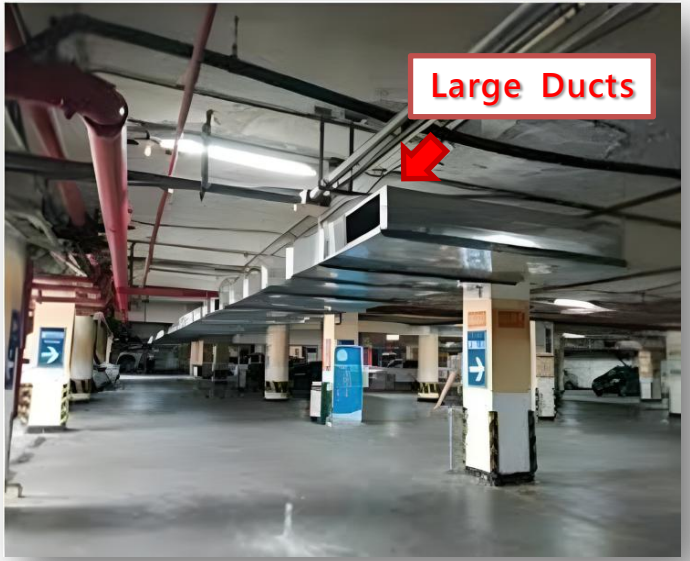
Basement Ventilation Solutions

Challenges in Basement Ventilation:

1. **Large Equipment Size:** Bulky fans occupy extra basement space.
2. **High Construction Cost:** Large ducts increase overhead installation costs.
3. **Poor Ventilation:** Dust and odors are hard to remove.
4. **Low Static Pressure:** Limited air delivery distance.
5. **High Temperature Rise:** Heat builds up easily.
6. **High Noise Levels:** Noise disturbs residents.



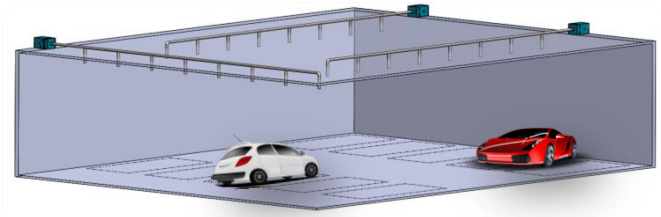


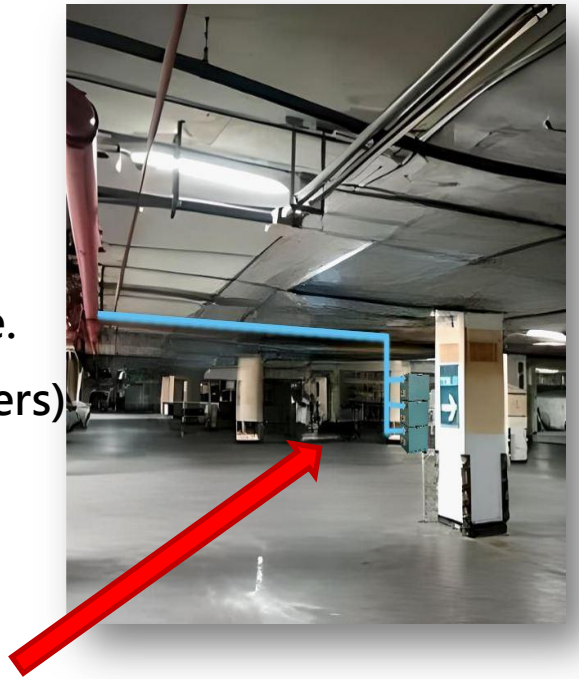
Installation Diagram

Basement Ventilation Solutions

Advantages of Turbo Blower Improvement:

1. **Compact Size:** Small, stackable, fits in corners.
2. **Low Construction Cost:** Simple piping to vent air outdoors.
3. **High Efficiency:** Enhances air circulation.
4. **High Static Pressure:** Long-distance delivery with small ducts.
5. **Low Temperature Rise:** Effectively reduces tunnel temperature.
   (10~20°C cooler than traditional blowers)
6. **Low Noise:** External noise during air delivery is 70–75 dB(A).
   With a silencer, noise is below 60 dB(A).





Installation Diagram

Biotechnology & Food Processing Applications

Challenges in the Biotech and Food Industries:

1. **Space Occupation:** Limited on-site space.
2. **Low Efficiency:** Unstable air leads to dust/oil mist/heat, which greatly affect quality.
3. **High Power Consumption:** Inefficient air supply consumes excessive energy.
4. **High Noise Levels:** Air supply generates high noise during operation.

Low Efficiency (Multiple Units Needed)

High Noise

High Oil Temperature

High Power Consumption

Traditional Fan Performance

Biotechnology & Food Processing Applications

Advantages of Turbo Blower Improvement:

1. **Compact Size:** Saves space, replaces multiple blowers, installs on production lines.
2. **High Efficiency:** Stable air supply reduces dust/oil mist/heat, protecting raw materials.
3. **Low Power Consumption:** One turbo blower replaces multiple blowers, saves energy.
4. **Low Noise:** Turbo blowers runs in production areas at 70–75 dB(A).

Air Knife (Drying)

Application Photos

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Ventilation & Cooling for Transformer Substations

Advantages of Turbo Blower Improvement:

1. **High-Efficiency Airflow:** Efficiently removes equipment heat and reduces accumulation.
2. **Reduced Cooling System Load:** Decreases air conditioning use and lowers PUE.
3. **Extended Equipment Lifespan:** Lowers equipment temperature, reducing aging and costs.
4. **Heat Recovery and Reuse:** Recovers waste heat to improve efficiency and meet ESG goals.

Video Playback

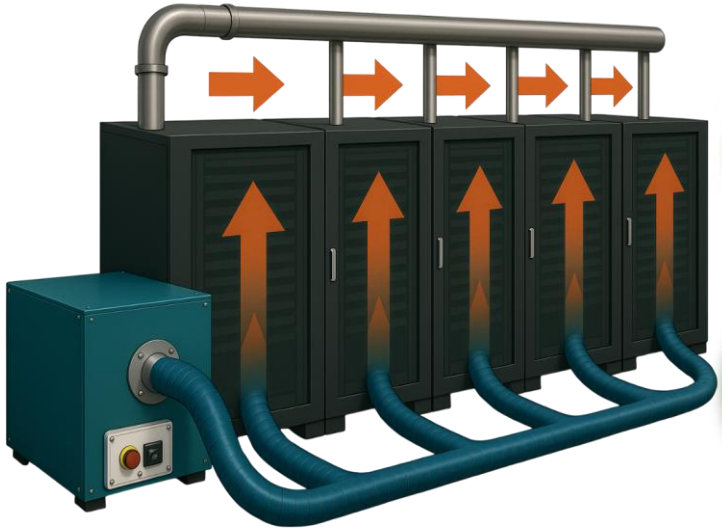
- Turbo Blower Cooling Solutions for Substations & ESG Goals

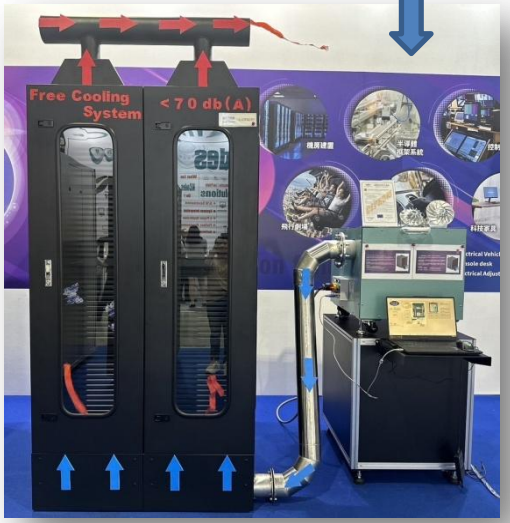
Exhaust Heat Reuse in Internet Data Centers

Advantages of Turbo Blower Improvement:

1. **Improved Airflow Efficiency:** Actively directs airflow and exhausts heat outdoors.
2. **Reduced Cooling Load:** Less reliance on AC; reduces energy use.
3. **High-Temperature Airflow Collection:** Collects rack heat for heat exchangers.
4. **Heat Recovery and Reuse:** Reuses heat for heating, hot water, or greenhouses.

Video Playback





GPE dedicates in green technology to make the world better.

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