

RAETTS®

BIG SAVING

GLOBAL INNOVATOR OF ENERGY-SAVING BLOWER SYSTEM SOLUTIONS

TURBO BLOWER

AIR BEARING TURBO BLOWER & MAGLEV TURBO BLOWER

Energy Saving Up to 45%



Eco-Friendly & High Efficiency Design

- ➔ German Technology
- ➔ Ultra-long Service Life
- ➔ Super High-efficiency
- ➔ Ultra Low Noise

ENCOTEC
Environmental | Energy | Innovation

Exclusive Distributor : ENCOTEC Co.,Ltd.

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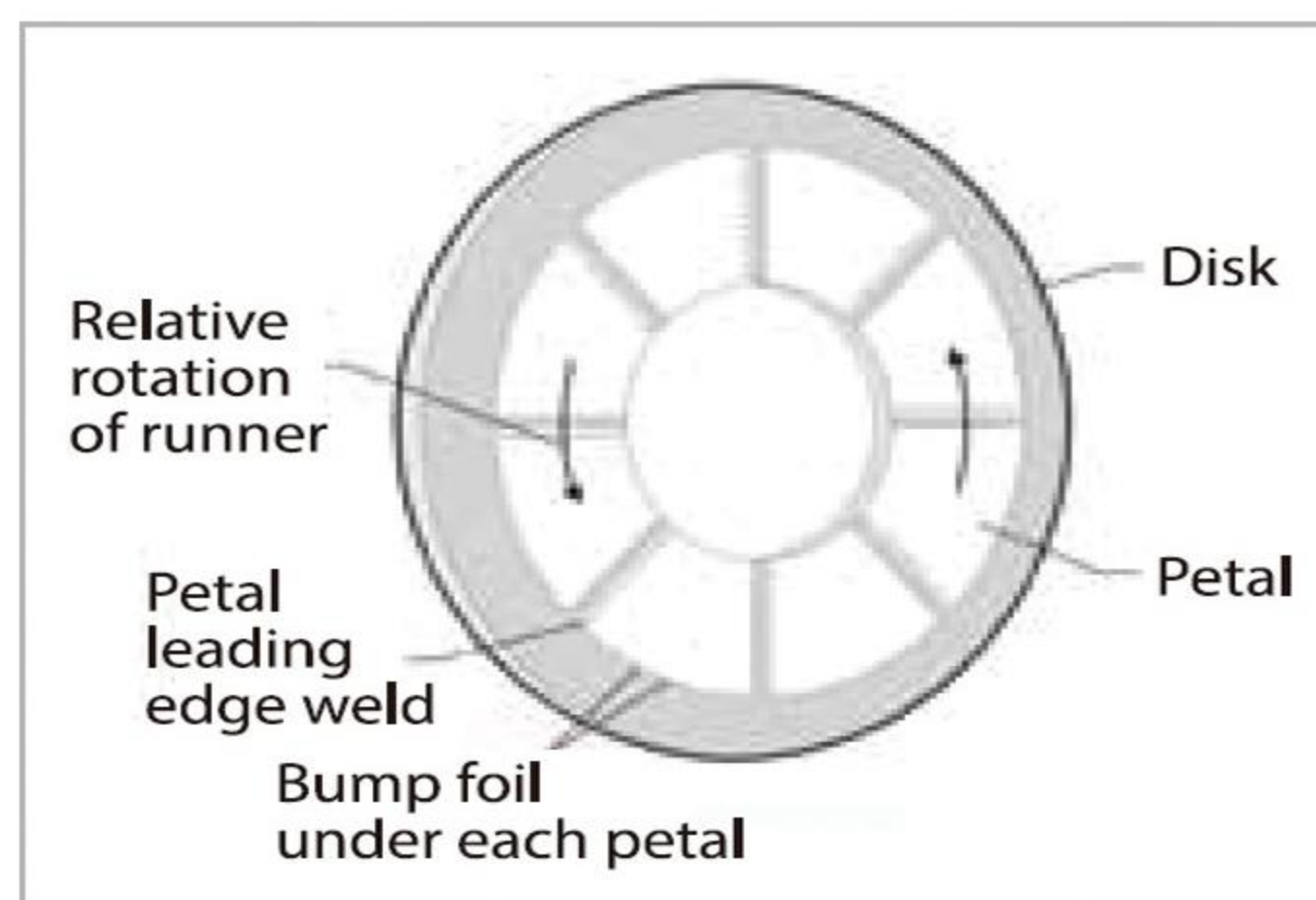
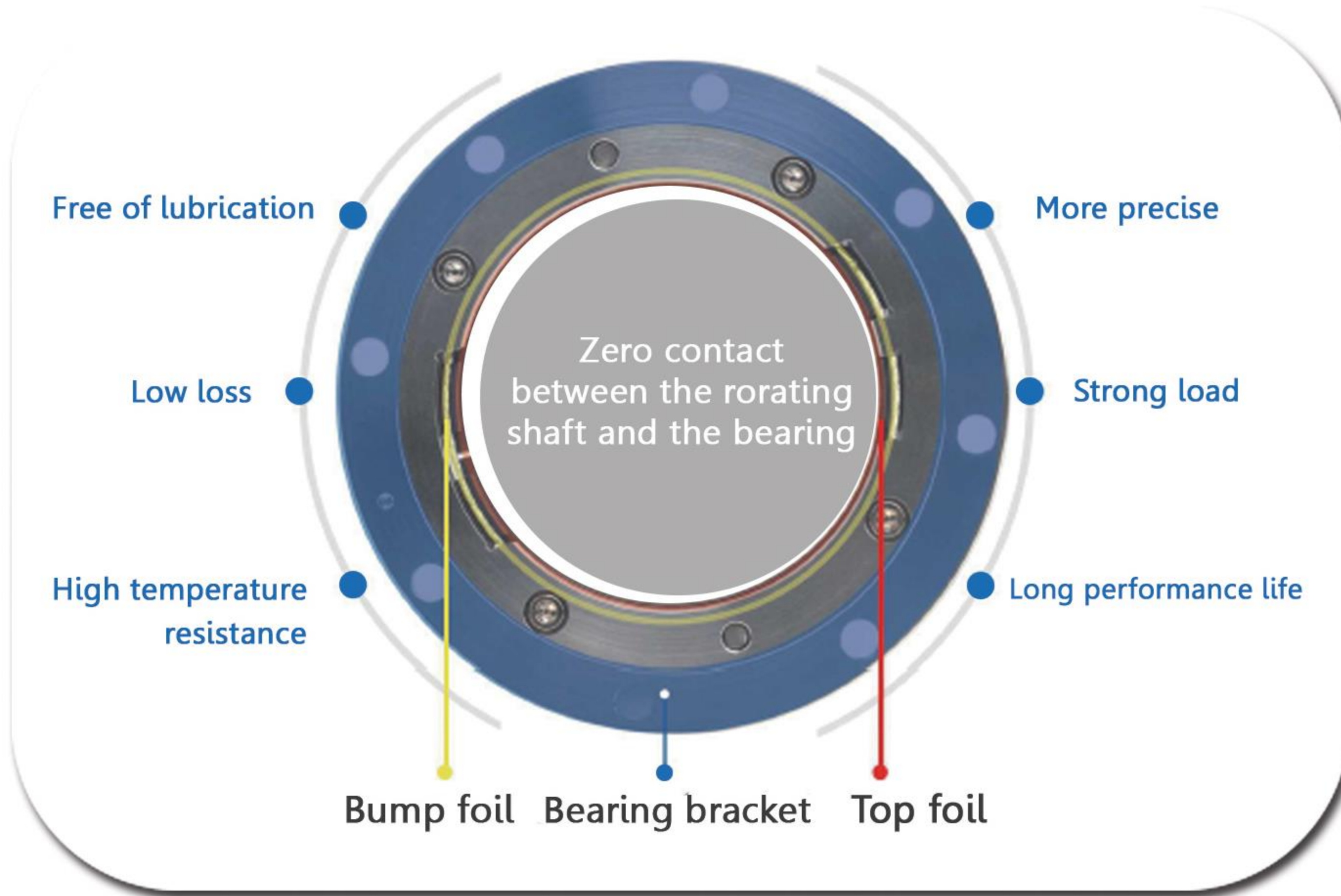
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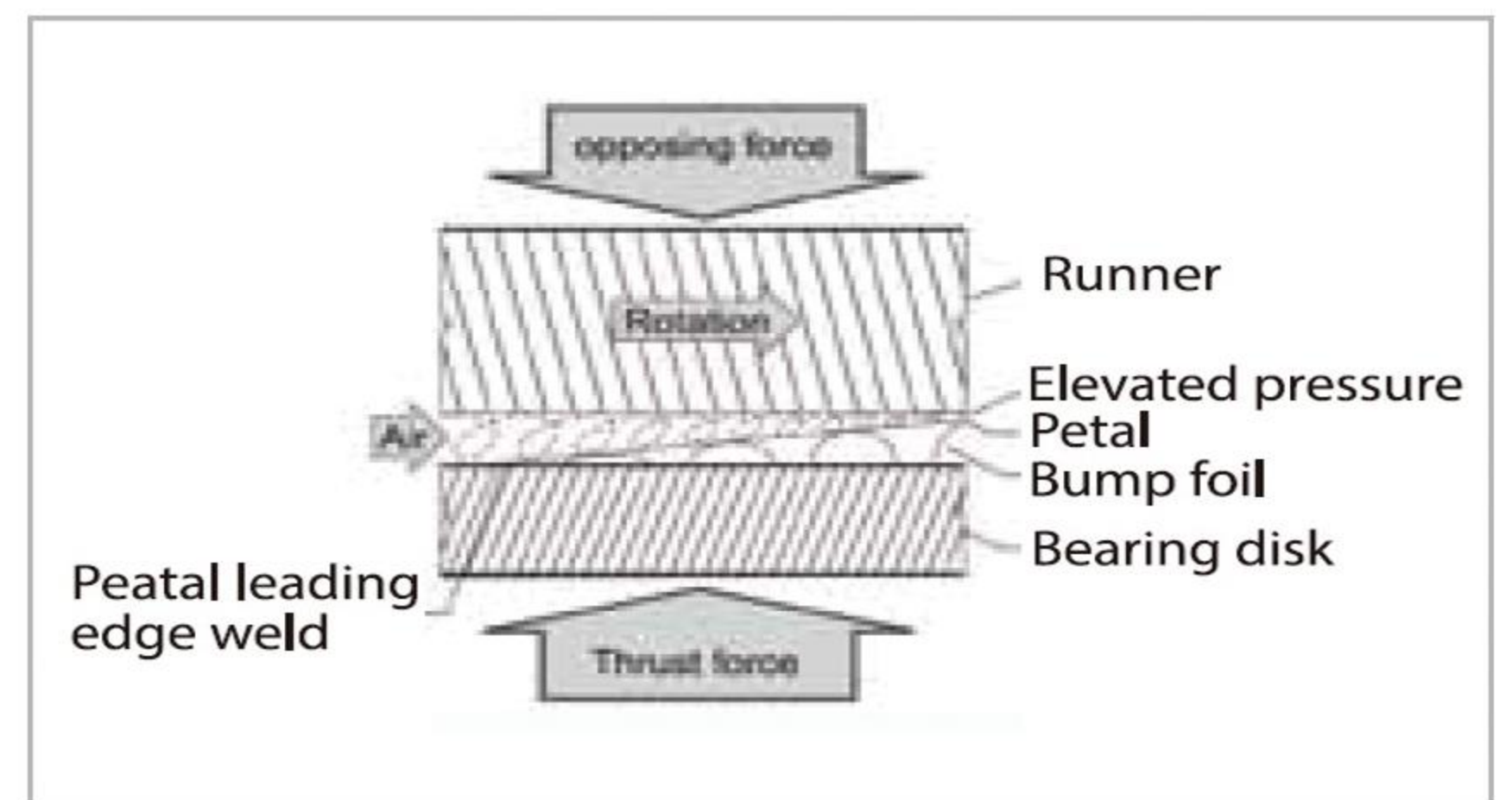
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Aerospace Air Foil Bearing Technology

- Non-contact air bearing that utilizes the dynamic pressure of air fluid. It is composed of two parts : a corrugated top foil and high temperature alloy inner bump foil. As the rotor speeds up, a thin film of air creates a cushion between the shaft and the bearing surface.
 - 100% Oil-Free no lubricating oil in a rotating machine, it very simple system and can be conveniently to maintenance required.
 - Highest efficiency to minimize power loss and realizes stability and long life based on environmentally friendly air bearing vibration and low noise.
- Air suspension technology has been steadily applied to Airbus aircraft for nearly 20 years



Thrust bearing



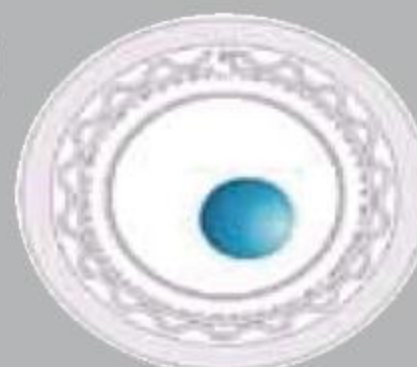
Thrust bearing assembly cross-section

1) Stopping



A shaft (a pivot) starts moving the inner surface of bearing.

2) Starting



As the speed is increased, the shaft is gradually moving toward the center.

3) Running



Just before it reaches the normal speed, the shaft is placed at the center of a circle.

GLOBAL INNOVATOR OF ENERGY-SAVING BLOWER SYSTEM SOLUTIONS

Air Bearing Turbo Blower

BLOWER FEATURE

RAETTS TECHNOLOGY

Super efficient permanent magnet synchronous motor (PMSM)

The motor efficiency is above 95%



Two-stage compression technology

The two-stage impeller is efficiency matched, and the pressure can reach 200kPa



Air suspension bearing

Direct drive, transmission efficiency is 100%



Ternary flow impeller design

It is made of aviation aluminum alloy and five axis machining



Original motor air cooling technology

Good cooling effect and simple structure



Intelligent PLC control system

Support three communication methods such as RS485/Dry contact/Ethernet



Key Features & Characteristics

➤ Energy Efficiency

- Energy saving up to 45% to comparable root blower.
- High Efficiency and long life more 10 years

➤ Oil free operation & supply of pure air & no-vibration

- Application of non-contact air bearing
- A centrifugal air blower where suction and discharge are conducted on a continual basis
- Zero-vibration products

➤ Low Maintenance Cost

- 100% free-oil, Non-lubricating
- Replacing the suction filter only

➤ Vibration-Free

- Turbo Blower allows a vibration-free operating
- 75-85 dB equipment Turbo Blower allows a vibration-free operating no need of sound proof auxiliaries

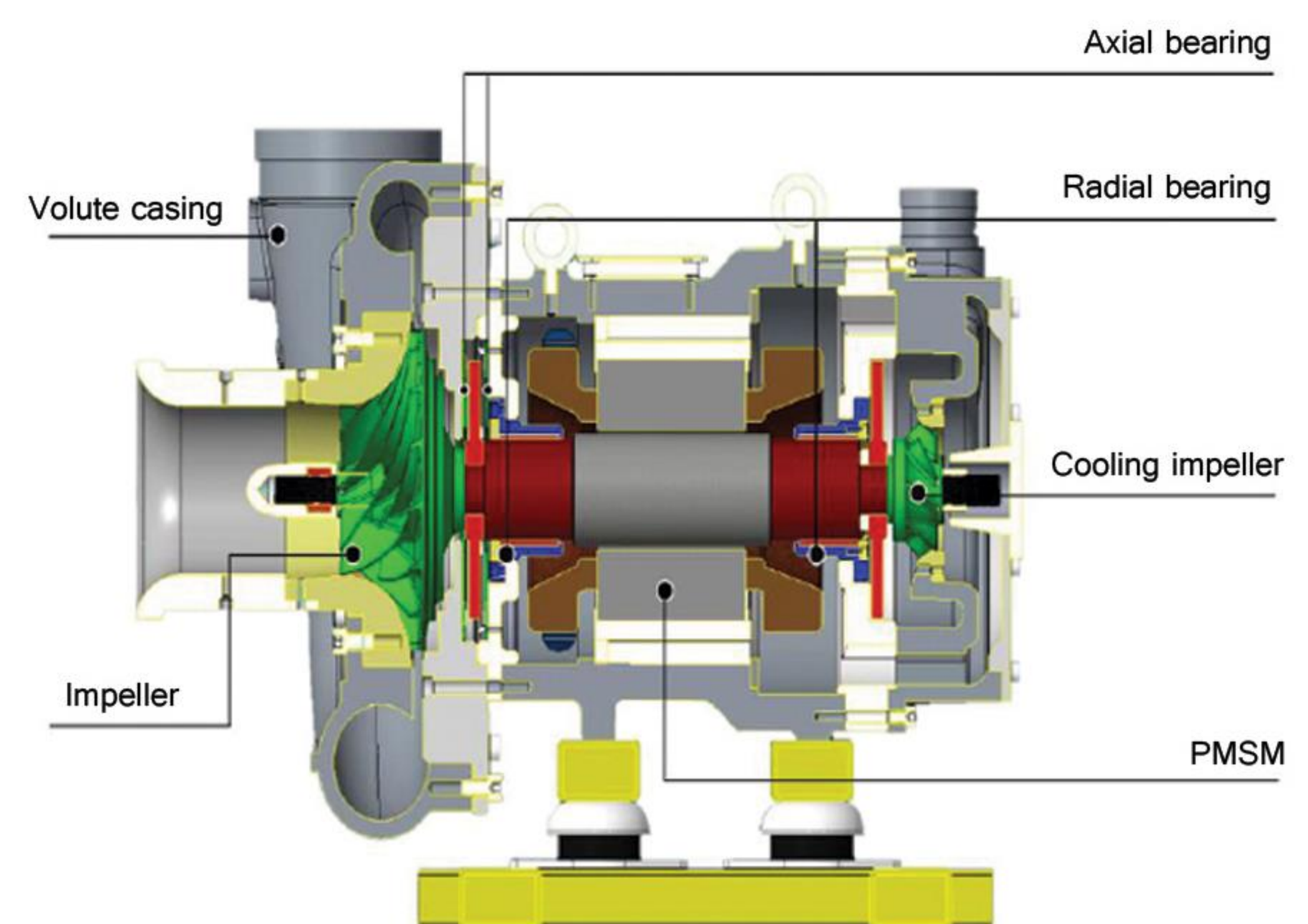
➤ Compact size

- The size of Turbo Blower machine is one replace two or three of Root blowers

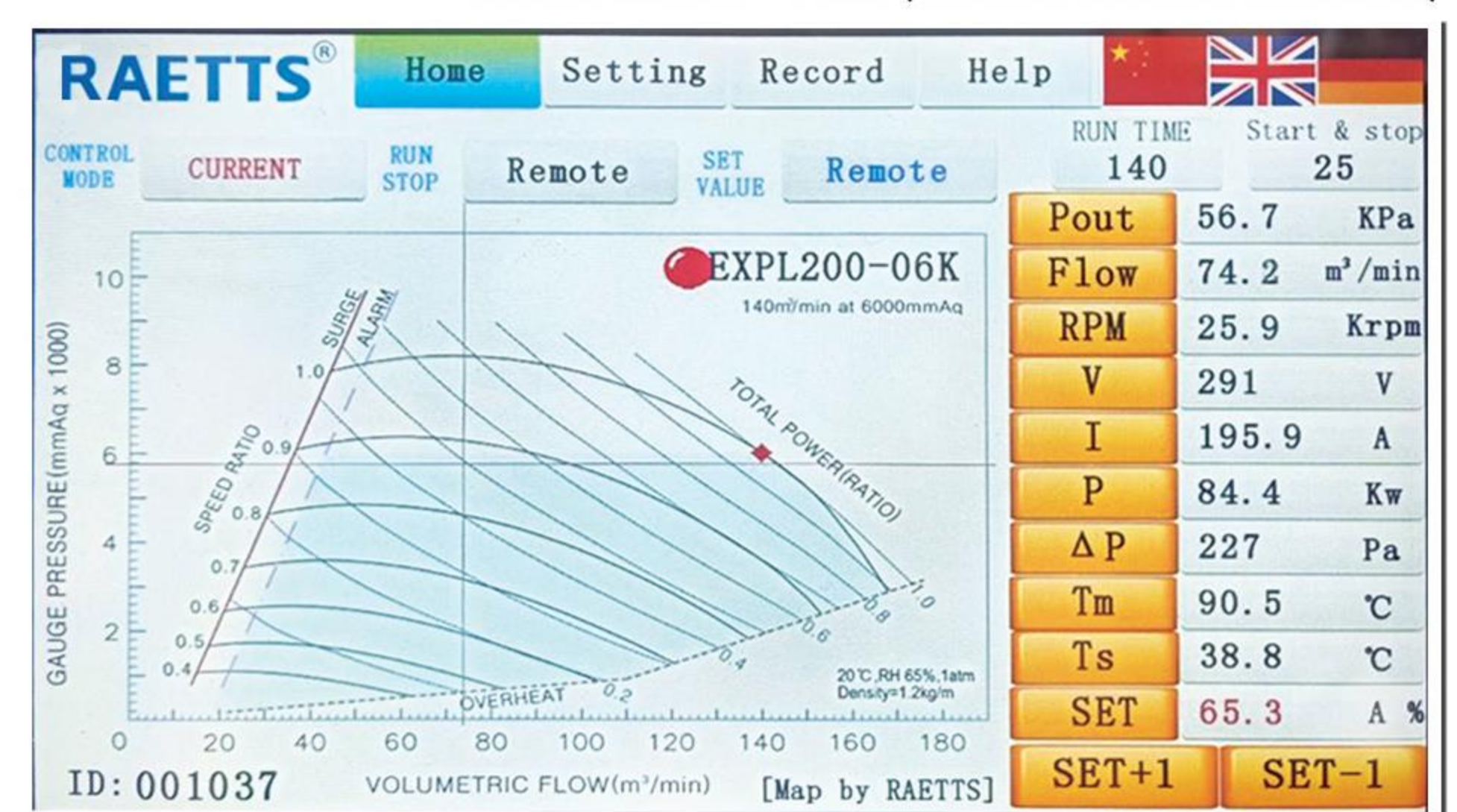
➤ Convenient remote control

- Real remote control can be achieved at any time and anywhere through a variety of network facilities such as Internet, mobile network, telephone and so on.

AIR BEARING TURBO BLOWER Main blower construction



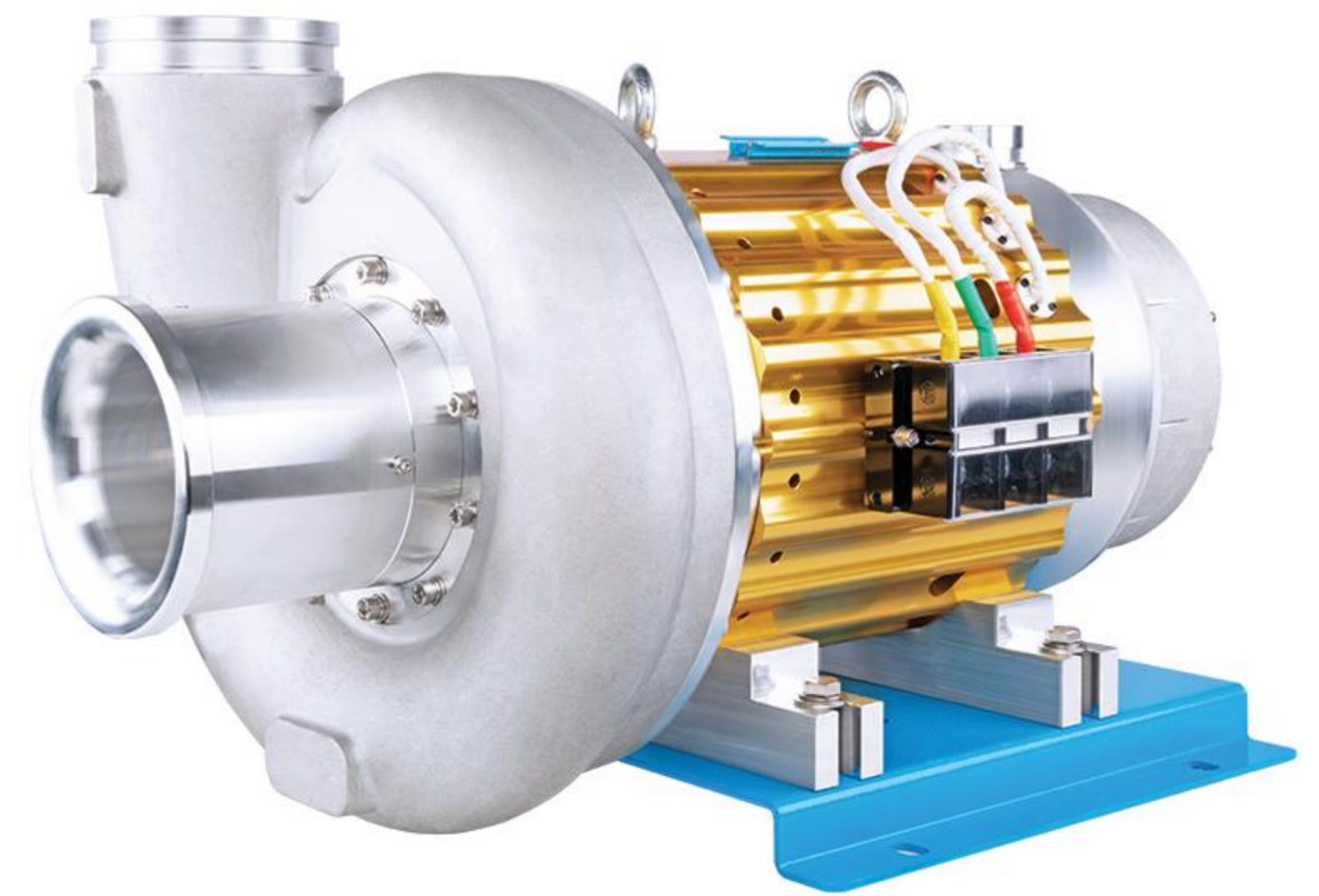
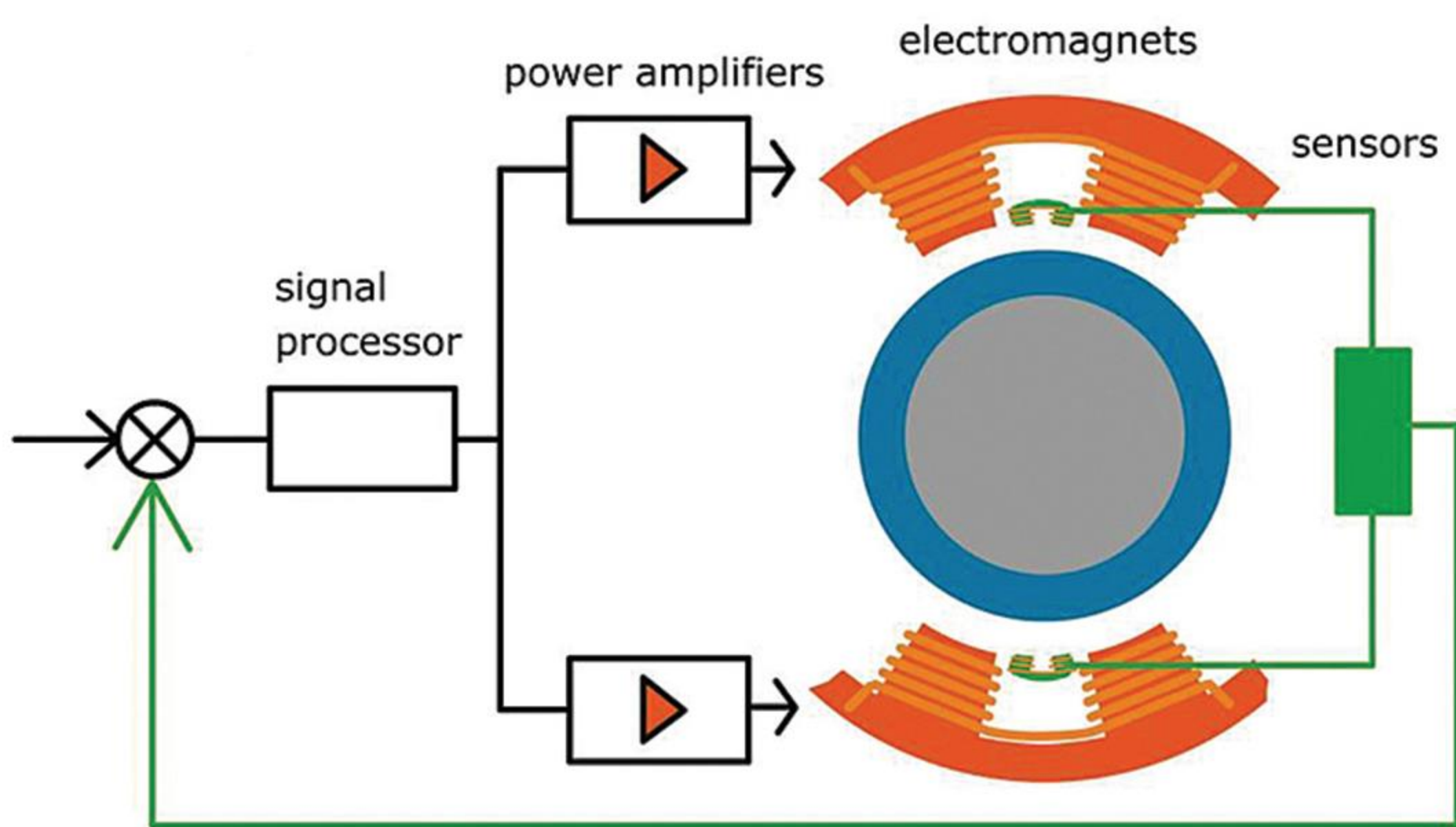
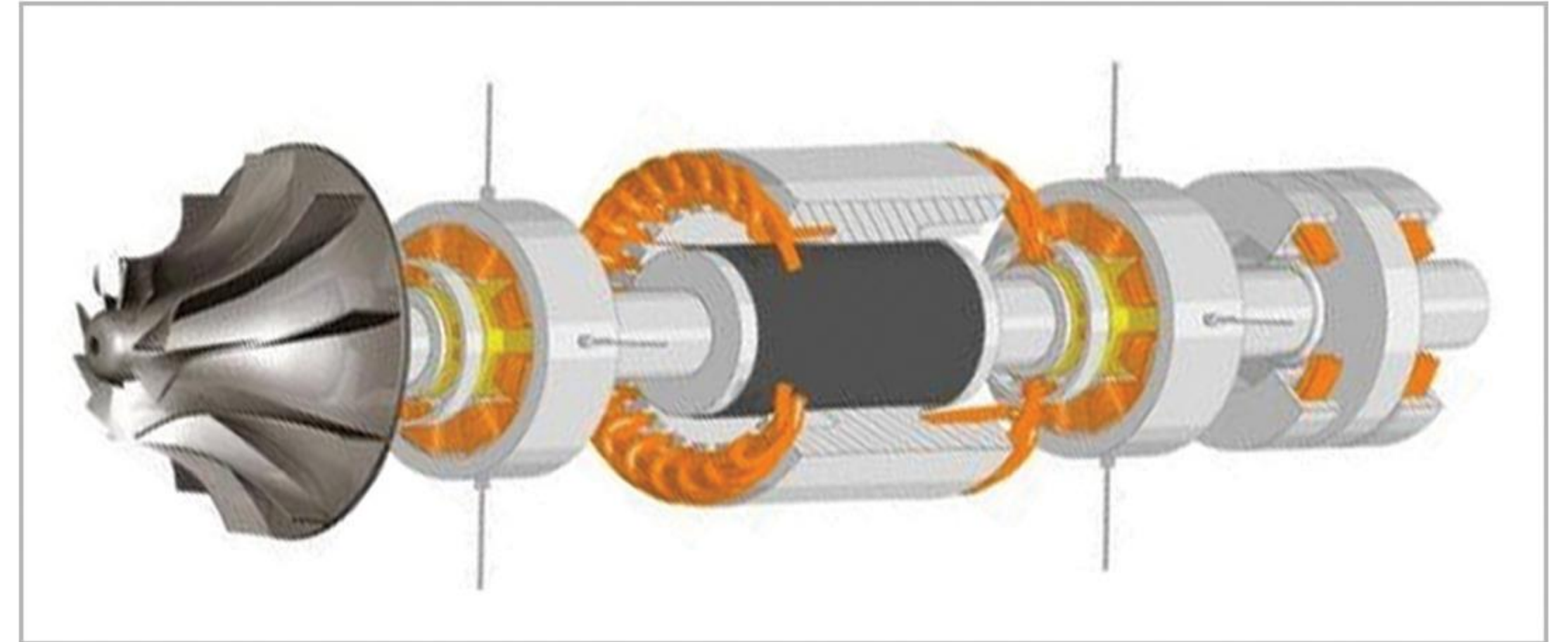
Touch screen - HMI (Human Monitor Interface)



Aerospace Magnetic Bearing Technology

What are Magnetic Bearings?

Magnetic bearings are a type of bearing that uses magnetic levitation to support a rotating shaft. Unlike traditional bearings that rely on physical contact between the shaft and the bearing, magnetic bearings use magnetic fields to levitate the shaft, eliminating the need for physical contact.



How do Magnetic Bearings Work?

Magnetic bearings work by using a combination of permanent magnets and electromagnets to create a magnetic field that levitates the rotating shaft. The magnetic field generated by the bearings is controlled by a feedback system that constantly monitors the position of the shaft and adjusts the magnetic field accordingly to keep the shaft in the desired position.

One of the key advantages of magnetic bearings is that they eliminate the need for lubrication, which can be a significant source of maintenance and downtime in traditional bearings. Additionally, magnetic bearings can operate at much higher speeds than traditional bearings, making them ideal for applications where high speed is critical.

There are two main types of magnetic bearings: active and passive. Active magnetic bearings use electromagnets to actively control the position of the shaft, while passive magnetic bearings rely on the magnetic fields generated by permanent magnets to support the shaft.

Active Magnetic Bearings

Active magnetic bearings (AMBs) use an electromagnetic field to suspend and control the position of the rotor. They require an external power supply and control system to maintain the magnetic field. AMBs are ideal for high-speed applications and can provide very precise control over the rotor position and speed. They are commonly used in compressors, blowers, pumps, turbines, and other rotating machinery.

Passive Magnetic Bearings

Passive magnetic bearings (PMBs) use permanent magnets to create a magnetic field that suspends the rotor. Unlike AMBs, PMBs do not require an external power supply or control system. They are simpler and less expensive than AMBs, but they are not as precise and cannot support as much weight. PMBs are commonly used in low-speed applications and can be found in fans, motors, and other machinery.

Maglev Turbo Blower

BLOWER FEATURE

RAETTS TECHNOLOGY

Ultra-efficient permanent magnet synchronous motor (PMSM)

The Maglev Turbo Blower with permanent magnet synchronous motors have a high efficiency of over 95% and have good cooling effects unlike other general motors

Magnetic suspension bearing

Independent research and development, aviation-grade materials, meet full speed drop more than 50 times

Ternary flow impeller design

Use ternary flow theory to avoid blade flow separation, reduce flow loss, ensure the smooth flow of air, uniform transmission, and ensure the best flow and efficiency

Maglev controller

Intelligent control - can effectively reduce the whirl of the rotor caused by the unbalanced mass of the rotor, and reduce the vibration caused by the rotor at the critical speed state

PLC communication system

Built-in remote control communication function, Communication support RS485/RS232/THERNET, Clear system wiring, easy maintenance

Unique motor air-cooling technology

Air cooling and heat dissipation system of high-efficiency

Key Features & Characteristics

➤ Energy Efficiency

- Energy saving up to 45% to comparable root blower.
- High Efficiency and long life more 20 years

➤ Oil free operation & supply of pure air & no-vibration

- Application of non-contact air bearing
- A centrifugal air blower where suction and discharge are conducted on a continual basis
- Zero-vibration products

➤ Low Maintenance Cost

- 100% free-oil, Non-lubricating
- Replacing the suction filter only

➤ Vibration-Free

- Turbo Blower allows a vibration-free operating
- 75-85 dB equipment Turbo Blower allows a vibration-free operating no need of sound proof auxiliaries

➤ Compact size

- The size of Turbo Blower machine is one replace two or three of Root blowers

➤ Convenient remote control

- Real remote control can be achieved at any time and anywhere through a variety of network facilities such as Internet, mobile network, telephone and so on.

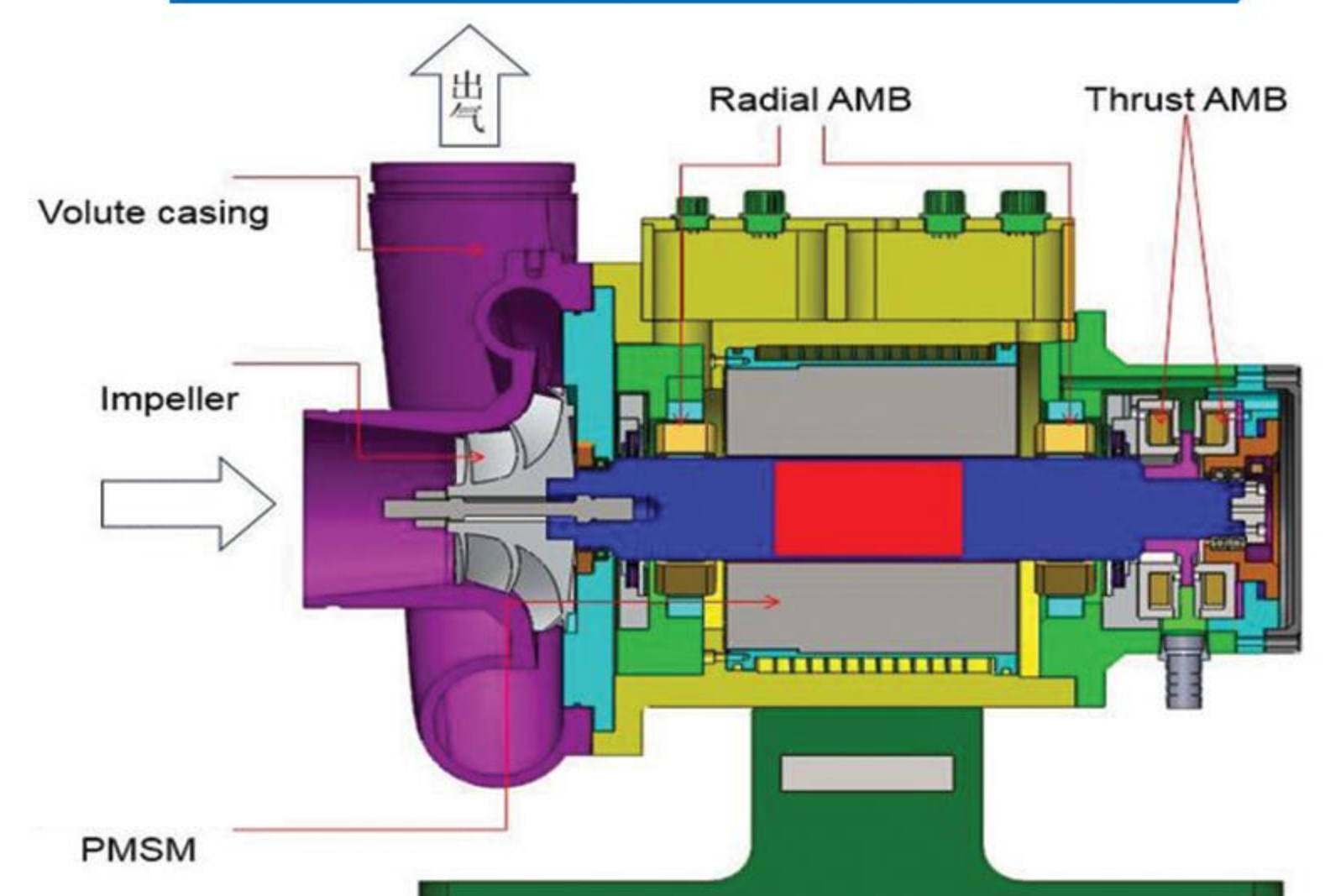
Active Magnetic Bearing Technology (AMB) & Permanent Magnetic Synchronous Motor (PMSM)



1 Ternary flow impeller 2 Precision sensors 3 Active Magnetic bearing

4 Ultra-efficient permanent magnet synchronous motor 5 Unique motor air-cooling technology

RAETTS MAGLEV TURBO BLOWER Main blower construction



ECONOMIC BENEFITS



No Need For Lubrication Oil
Pure and fresh air to the output.



Low Maintenance Cost
Replace air filter every 3-6 months.



Low Noise
Keep noise below 85dB to offer a pleasant working environment.



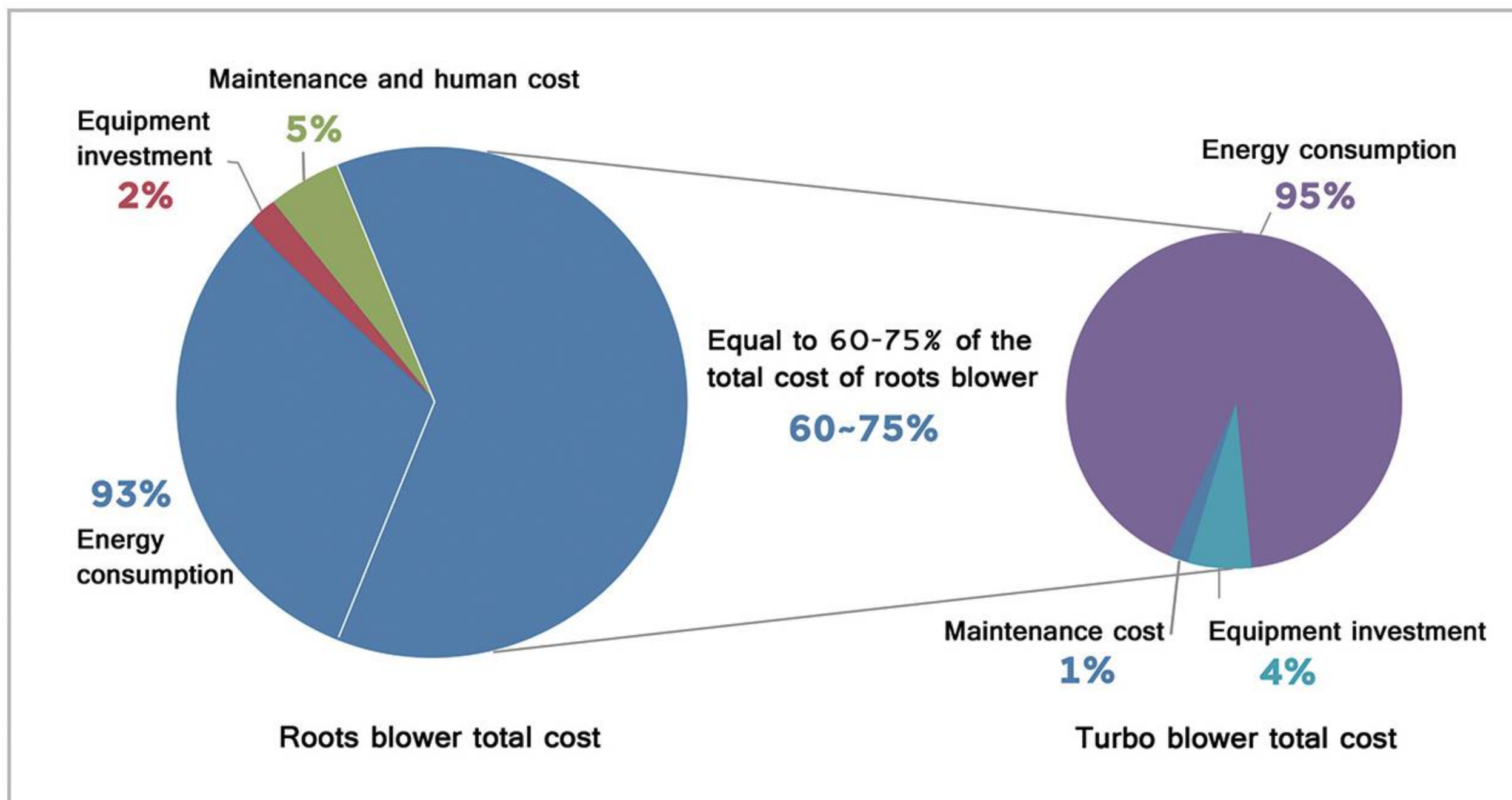
Energy-Saving
The energy saving rate is more than 30% comparing with roots blower.

Motor efficiency > 95%

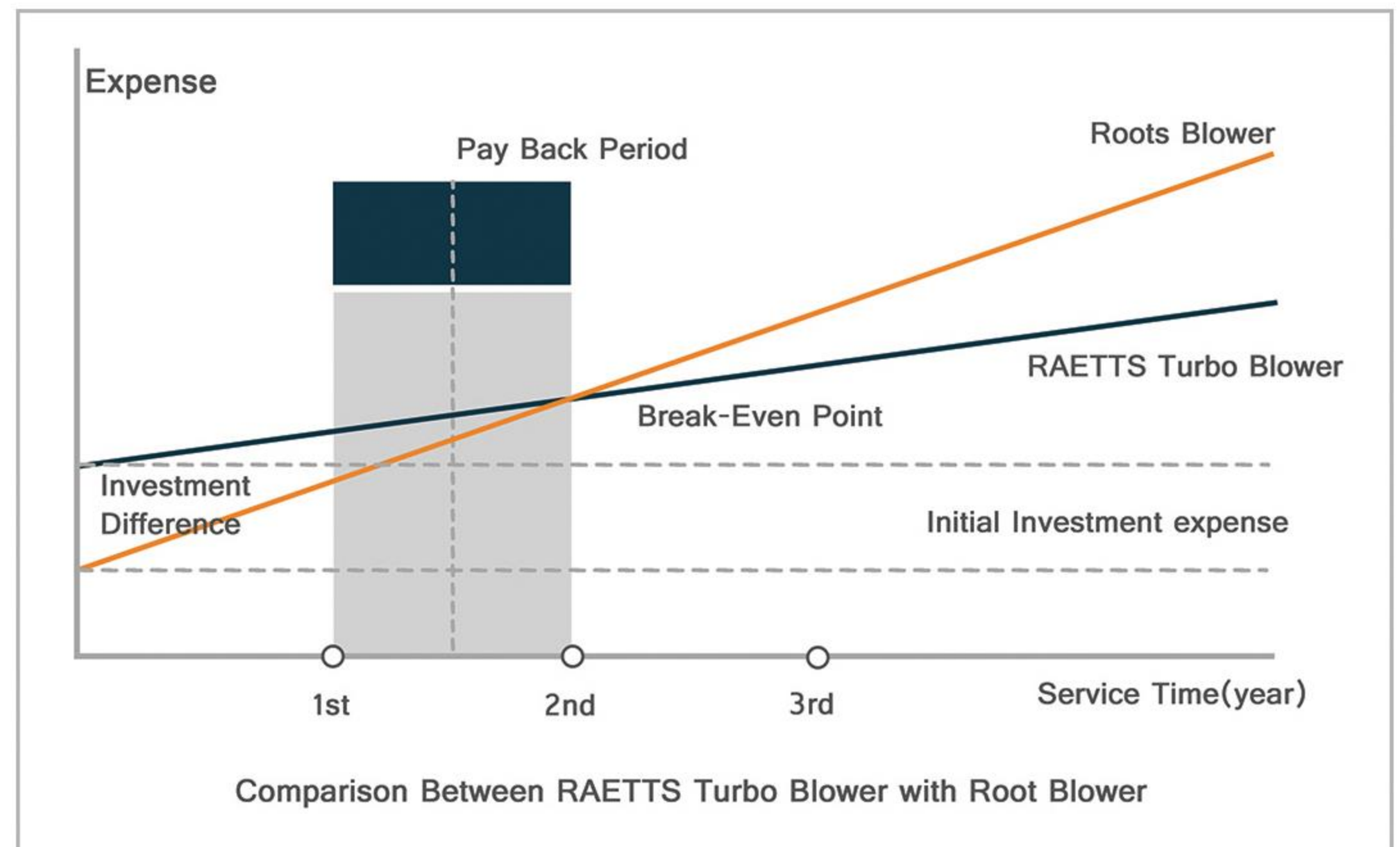
Ultra low noise < 85dB

Energy saving > 30%




Cost Comparison



Return Of Investment (ROI)



PERFORMANCE COMPARISON

Type	Roots blower	Air bearing turbo blower	Maglev turbo blower
			
Bearing Technology	Conventional Bearing	Passive Suspension/ Air Suspension Bearing	Active Magnetic Suspension/ Magnetic levitation Bearing
Flow adjustment	Adjustable, need add inverter	45-100%	30-100%
Noise	Above 100db	75-85db	75-85db
Vibration	Large	Very small	Very small
Bearing Controller	No	Mechanic	Electronic
Lubrication	Required	No need	No need
Maintenance	Complex	Repalce filter regularly	Repalce filter regularly
Service life	1-5 years	10 years	Above 20 years
Impact load	Strong	The rotor cannot be kept levitating when the external load changes suddenly	The rotor is under magnetic control when energized. It can work under high-impact lond.
Size	Big	Small	Small
Installation	Fixed on the ground, soundproofing measure required	No fixed and noise-proof measure required	No fixed and noise-proof measure required
UPS	No need	No need	Needed, Protect the blower in case of sudden power failure.

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Turbo Blower

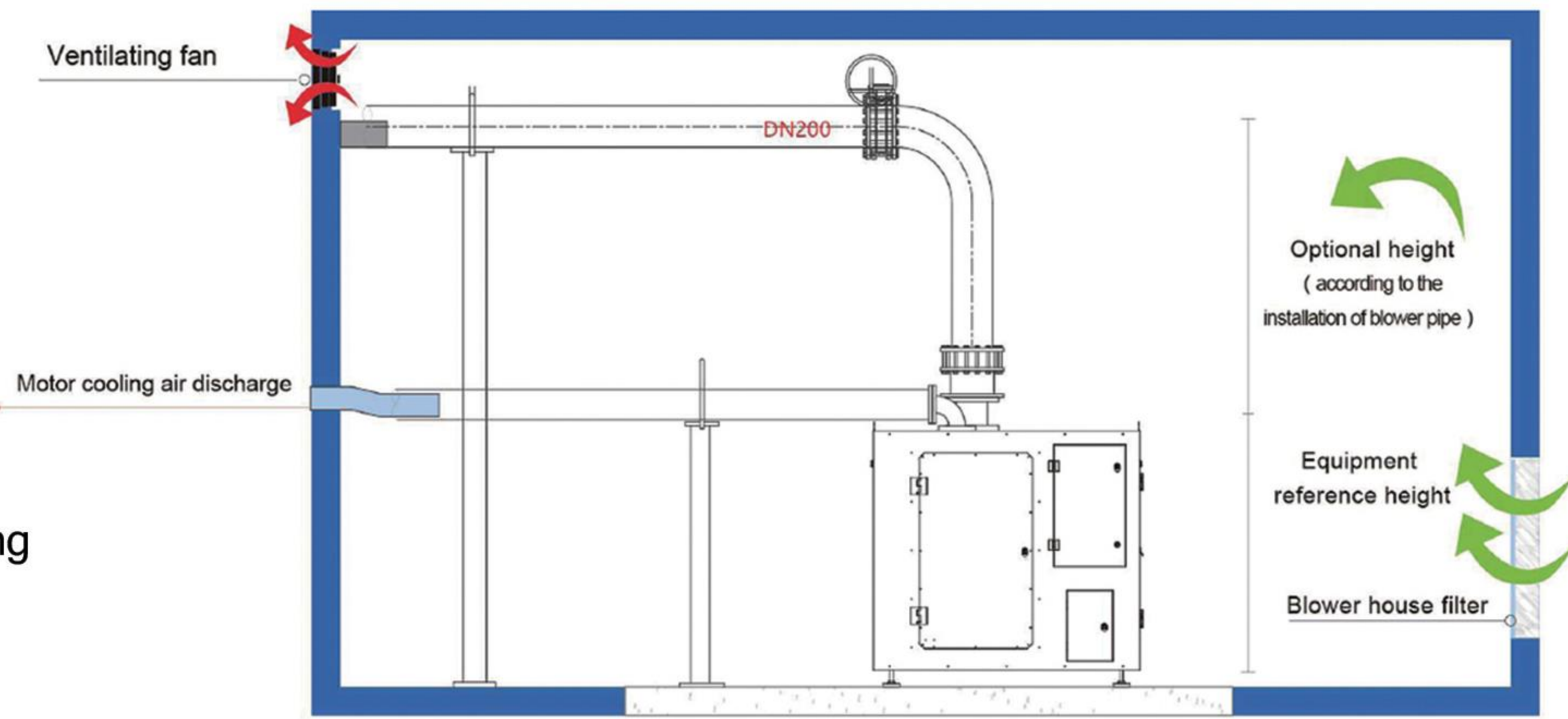
APPLICATION & MAINTANACE

APPLICATION



INSTALLATION

When the blower is running, there is almost no vibration, so no need to use the ground anchor, and no need for other additional operations. The installation is completed by placing the equipment in the required place, connecting the power supply and pipes. And the horizontal feet can be adjusted under the blower, which is convenient for leveling when install



Simple maintenance



The high efficiency filter system (filter element + filter cotton) filters the air and only needs to replace the filter regularly.

Low noise and low vibration



Air bearing direct connection technology, no mechanical wear, about 80db@1m Low noise, no need sound insulation device.

Convenient remote control

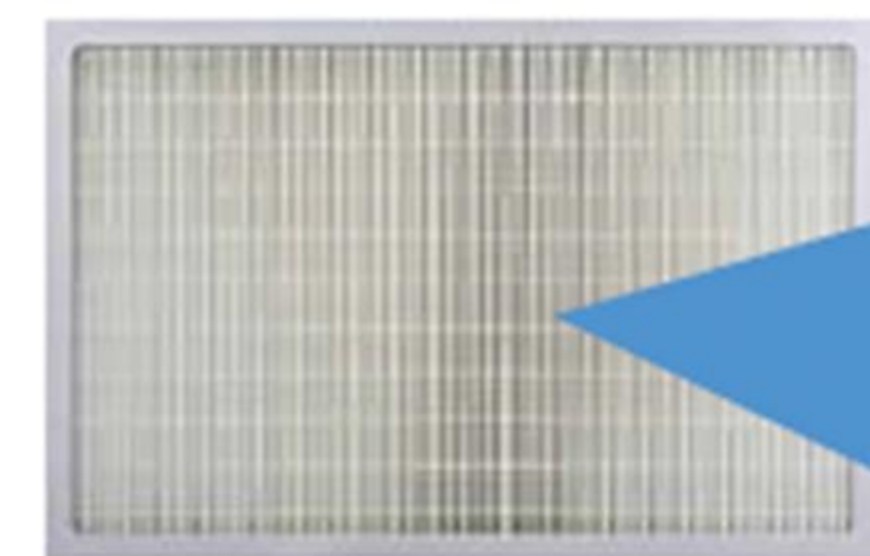


Through mobile network communication equipment, real remote control can be realized anytime and anywhere.

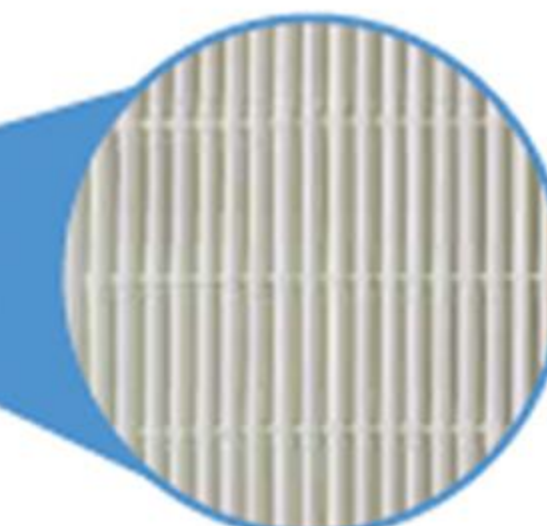
	New Filtration System		Remarks
	Pre Filter	Main Filter	
Filtration Efficiency	80% @ 100 μm	99% @ 2 μm	
Type	Coarse	Fine	
Material	Non-woven Fabric	Synthetic Fiber	
Stage	2 Stages (Pre Filter + Main Filter)		
Maintenance	<ul style="list-style-type: none"> Air Wash once a week Replacement every 1-3 months 	Replacement every 3-6 months	<ul style="list-style-type: none"> Warning & Fault Alarms Depending on Circumstances



Pre-filter



main-filter



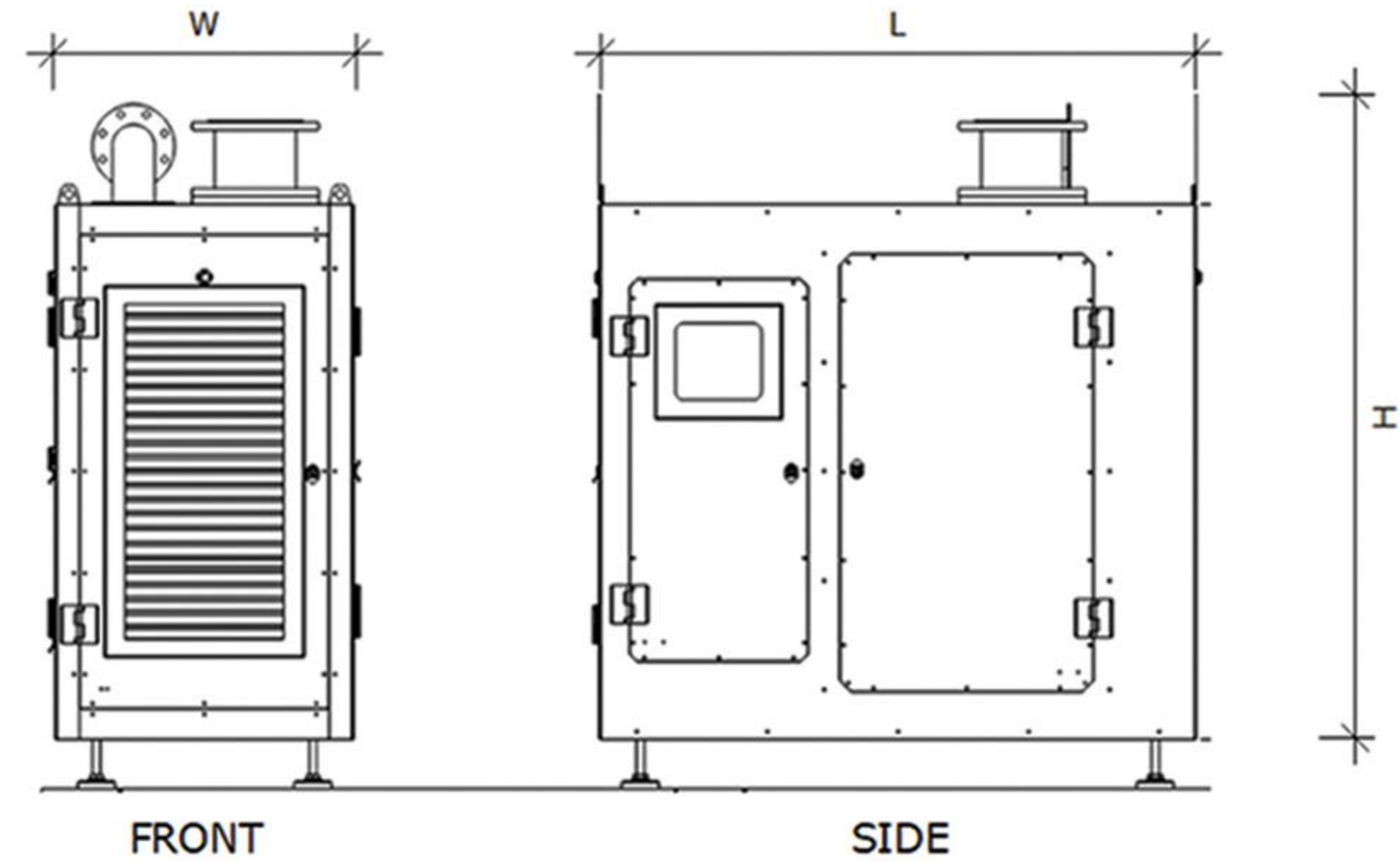
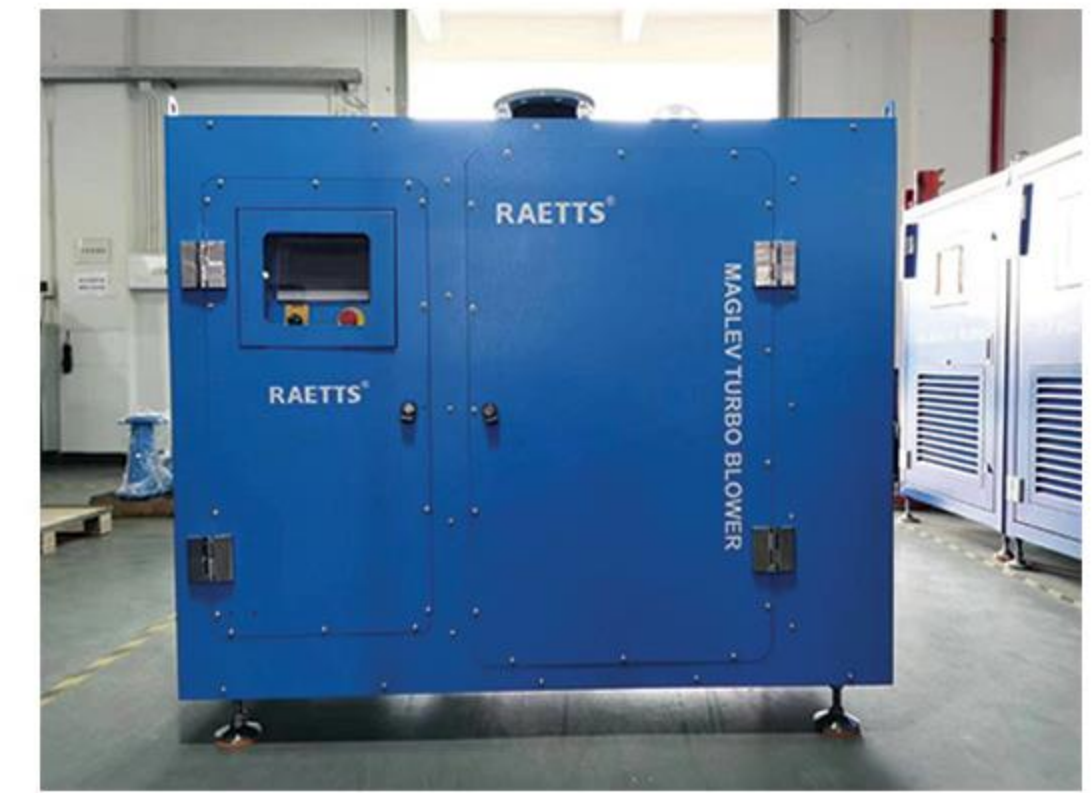
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Maglev Turbo Blower

A two-year warranty

BLOWER SELECTION

Model	Type	Motor power		Flow (m ³ /min)	Pressure (bar)	Outlet diameter DN	Dimension (mm)			Weight (kg)
		(HP)	(KW)				W	L	H	
CXPL30-04	Single impeller	30	22	28	0.4	150	850	1750	1640	735
CXPL30-06				20	0.6					
CXPL30-08				17	0.8					
CXPL50-04		50	37	48	0.4	150	850	1750	1640	735
CXPL50-06				34	0.6					
CXPL50-08				28	0.8					
CXPL50-10				22	1					
CXPL50-12				19	1.2					
CXPL75-04				75	55					
CXPL75-06		51	0.6							
CXPL75-08		42	0.8							
CXPL75-10		33	1							
CXPL75-12		29	1.2							
CXPL100-04		100	75			100	0.4	200	950	1830
CXPL100-06				70	0.6					
CXPL100-08				55	0.8					
CXPL100-10				45	1					
CXPL100-12				40	1.2					
CXPL125-04				125	95	120	0.4			
CXPL125-06		82	0.6							
CXPL125-08		70	0.8							
CXPL125-10		58	1							
CXPL125-12		50	1.2							
CXPL150-04		150	110			130	0.4	250	1100	1950
CXPL150-06	105			0.6						
CXPL150-08	84			0.8						
CXPL150-10	70			1						
CXPL150-12	53			1.2						



Model	Type	Motor power		Flow (m ³ /min)	Pressure (bar)	Outlet diameter DN	Dimension (mm)			Weight (kg)
		(HP)	(KW)				W	L	H	
CXPL200-04	Single impeller	200	150	200	0.4	300	1100	2050	1870	1400
CXPL200-06				140	0.6					
CXPL200-08				110	0.8					
CXPL200-10				95	1					
CXPL200-12				80	1.2					
CXPL200-20				60	2					
CXPL250-04		250	185	245	0.4	500	1305	2380	2580	1450
CXPL250-06				160	0.6					
CXPL250-08				135	0.8					
CXPL250-10				105	1					
CXPL250-12				98	1.2					
CXPL300-04				300	220	290	0.4	400	1305	2380
CXPL300-06	210	0.6								
CXPL300-08	164	0.8								
CXPL300-10	133	1								
CXPL300-12	112	1.2								
CXPL400-04	400	300	400			0.4	400	1305	2480	2670
CXPL400-06			280	0.6						
CXPL400-08			216	0.8						
CXPL400-10			176	1						
CXPL400-12			156	1.2						
CXPL450-04			450	350	450	0.4	500	2000	2630	3110
CXPL450-06	303	0.6								
CXPL450-08	233	0.8								
CXPL450-10	198	1								
CXPL450-12	175	1.2								
CXPL500-04	500	375			470	0.4				
CXPL500-06			328	0.6						
CXPL500-08			254	0.8						
CXPL500-10			212	1						
CXPL500-12			183	1.2						
CXPL600-04			600	450	566	0.4	500	2000	2630	3110
CXPL600-06	397	0.6								
CXPL600-08	311	0.8								
CXPL600-10	260	1								
CXPL600-12	225	1.2								

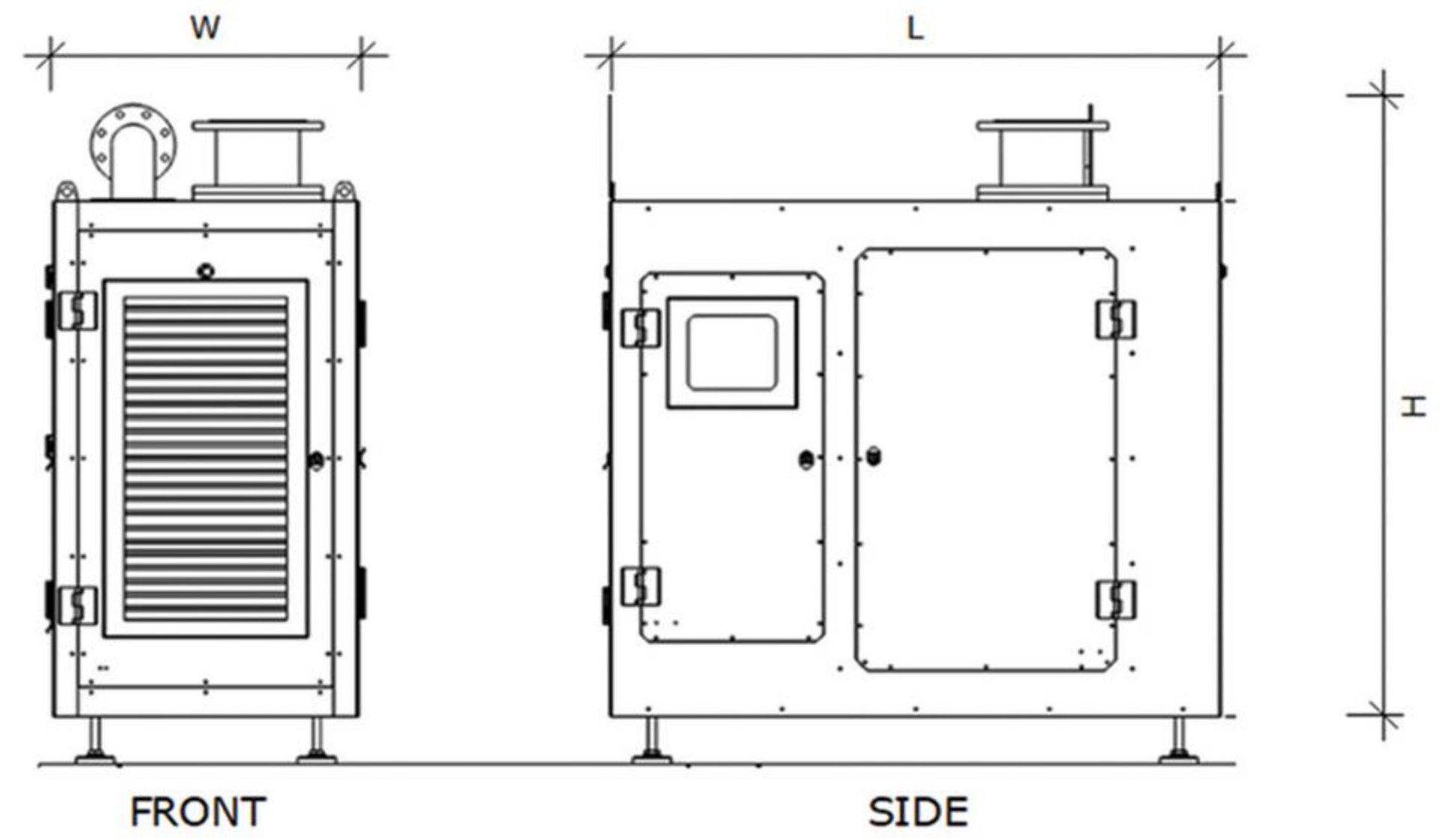
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Air Bearing Turbo Blower



BLOWER SELECTION

Model [EXPL(K)/EXPL]	Type	Motor power		Flow (m³/min)	Pressure (kPa)	Outlet diameter DN(mm)	Dimension [EXPL(K)/EXPL]			Weight [EXPL(K)/EXPL] (kg)	
		(HP)	(kW)				W(mm)	L(mm)	H(mm)		
EXPL10-04K	Single Impeller	10	7.5	10	40	150	700	1600	1600	532	
EXPL10-06K				7	60						
EXPL10-08K				5	80						
EXPL20-04k		20	15	20	40						532
EXPL20-06K				14	60						
EXPL20-08K				11	80						
EXPL30-04K		30	22	28	40					532	
EXPL30-06K				20	60						
EXPL30-08K				17	80						
EXPL50-04K		50	37	48	40						532
EXPL50-06K				34	60						
EXPL50-08K				28	80						
EXPL50-10K	22			100							
EXPL50-12K	19			120							
EXPL75-04K	75			55	75	40	654				
EXPL75-06K		51	60								
EXPL75-08K		42	80								
EXPL75-10K		33	100								
EXPL75-12K		29	120								
EXPL100-04K	100	75	100	40	654						
EXPL100-06K			70	60							
EXPL100-08K			55	80							
EXPL100-10K			45	100							
EXPL100-12K			40	120							
EXPL125-04K	125	95	120	40		850					
EXPL125-06K			82	60							
EXPL125-08K			70	80							
EXPL125-10K			58	100							
EXPL125-12K			50	120							
EXPL150-04K	150	110	130	40			925				
EXPL150-06K			105	60							
EXPL150-08K			84	80							
EXPL150-10K			70	100							
EXPL150-12K			58	120							



Model [EXPL(K)/EXPL]	Type	Motor power		Flow (m³/min)	Pressure (kPa)	Outlet diameter DN(mm)	Dimension [EXPL(K)/EXPL]			Weight [EXPL(K)/EXPL] (kg)
		(HP)	(kW)				W(mm)	L(mm)	H(mm)	
EXPL200-04K	Single Impeller	200	150	200	40	300	1100	1800	1950	1060
EXPL200-06K				140	60					
EXPL200-08K				110	80					
EXPL200-10K				95	100					
EXPL200-12K				80	120					
EXPL250-04K				Single Impeller	250					
EXPL250-06K	160	60								
EXPL250-08K	135	80								
EXPL250-10K	115	100								
EXPL250-12K	98	120								
EXPL300T-04K	Double Impeller	300	220			290	40	400	1205	2555
EXPL300T-06K				210	60					
EXPL300T-08K				164	80					
EXPL300T-10K				138	100					
EXPL300T-12K				112	120					
EXPL400T-04K				Double Impeller	400	300	400			
EXPL400T-06K	280	60								
EXPL400T-08K	216	80								
EXPL400T-10K	176	100								
EXPL400T-12K	156	120								



Model [EXPL(K)/EXPL]	Type	Motor power		Flow (m³/min)	Pressure (kPa)	Outlet diameter DN(mm)	Dimension [EXPL(K)/EXPL]			Weight [EXPL(K)/EXPL] (kg)
		(HP)	(kW)				W(mm)	L(mm)	H(mm)	
EXPLC50-15K	Two-stage compression	50	37	15	150	125	700	1600	1600	532
EXPLC50-20K				12	200					
EXPLC75-15K				75	55					
EXPLC75-20K		18	200							
EXPLC100-15K		100	75			32	150	250	1100	2100
EXPLC100-20K				28.5	200					
EXPLC150-15K				150	110	51	150			
EXPLC150-20K		42	200							
EXPLC200-15K		200	150			69	150	1040	2210	1990
EXPLC200-20K				58	200					
EXPLC250-15K				250	185	82	150			
EXPLC250-20K		72.5	200							
EXPLC250-35K	50	350								
EXPLC300-15	300	220	96	150	1305	2505	2385	2200	2200	
EXPLC300-20			88	200						
EXPLC400-15K			400	300						140
EXPLC400-20K	121	200								

KONRAD

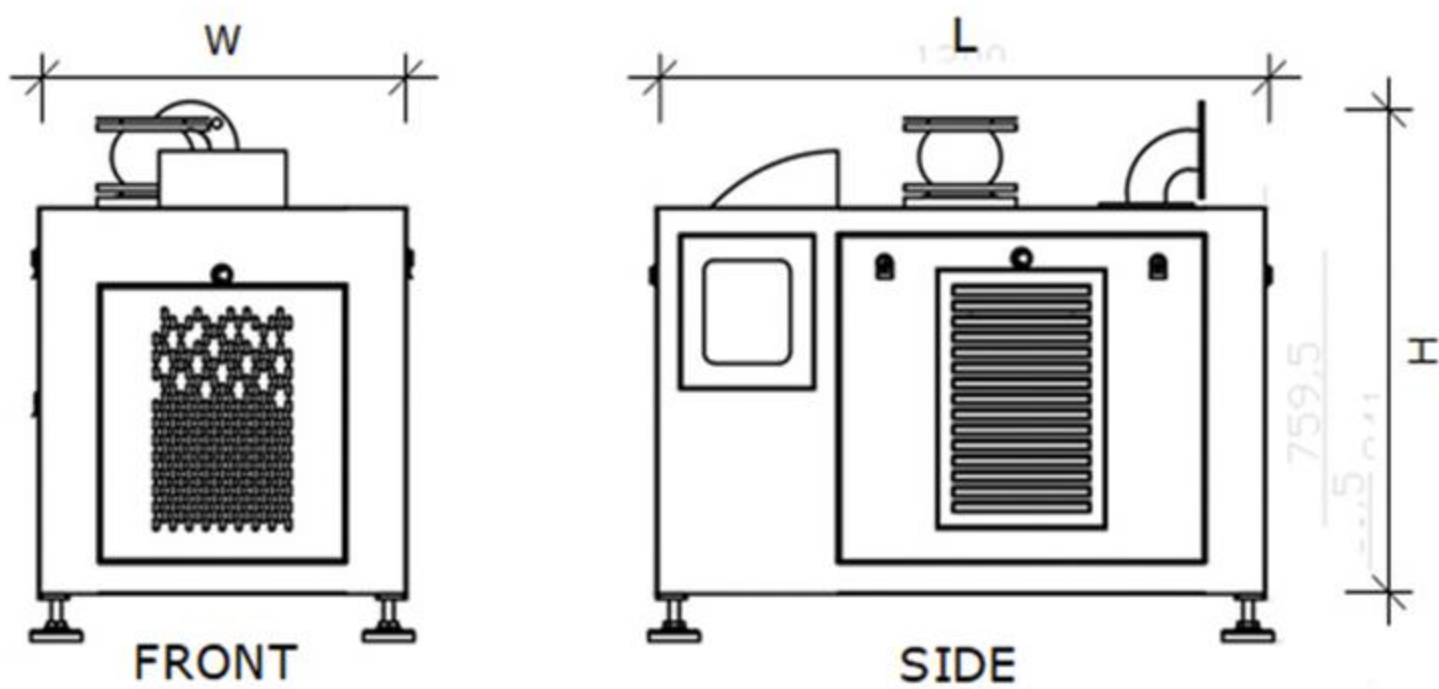
BIG SAVING

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Portable Air Bearing Turbo Blower

A two-year warranty

BLOWER SELECTION



Model	Type	Motor power		Flow (m ³ /min)	Pressure (bar)	Outlet diameter (mm)	Dimension (mm)		
		(HP)	(kW)				W	L	H
EXPL10-04B	Single impeller	10	7.5	10	0.4	100	725	1200	1045
EXPL10-06B				7	0.6				
EXPL20-04B		20	15	20	0.4				
EXPL20-06B				14	0.6				
EXPL20-08B				11	0.8				
EXPL30-04B		30	22	28	0.4				
EXPL30-06B	20			0.6					
EXPL30-08B	17			0.8					

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Turbo Blower

SUCCESSFUL CASE

Industry-Thailand



Aerator-Foods & Beverage



Aerator-Pulp & Paper



Aerator-Pulp & Paper



Aerator-Funituer



Aerator-Foods & Berkery



Aerator-Metal



Aerator-Foods & Beverage



Aerator-Automotive

Industry-Global



Sewage Treatment Station
In Xuzhou Tongshan District



coal industry Sewage
treatment factory



Sewage Treatment Station
In Xuzhou Tongshan District



Landfill Leachate Treatment
Project in Guiyang



Sewage treatment factory
in Guangxi



Sewage treatment factory
in Yicheng County, Linfen



Sewage treatment
factory in Dongguan



Shiziling sewage treatment
factory in Hainan



Sewage treatment factory in
Changxing Hongqiao



50,000 tons of sewage
treatment in Anhui



Sewage treatment factory
at Guodian Galaxy



No.1 Sewage factory in Longyang
District, Baoshan, Yunnan.



Sewage treatment factory in
Huayin City, Shaanxi Province



Dyeing, Weaving and Washing
Sewage Treatment Project in
Zhongshan Huaxing



Sewage treatment factory in
Lincang County, Yunnan



Landfill Leachate Treatment in
Mayong, Dongguan