AIR-BEARING TURBO COMPRESSOR WH SERIES PRODUCT BROCHURE

BEYOND IMAGINATION INNOVATION OF TURBO TECHNOLOGY FOR ZERO OIL-INJECTED AIR-BEARING TURBO COMPRESSOR

THE WORLD'S HIGHEST ENERGY EFFICIENCY

THE WORLD'S STRONGEST STABILITY WITH USER CONVENIENCE

THE WORLD'S BEST PATENTS AND CERTIFICATES

THE WORLD'S WIDEST PRODUCT LINE-UP



COMPANY INTRODUCTION

Maximized Efficiency from Proven Technology

More than 80% of Turbowin's employees are professional engineers who have been researching and developing only turbo technology for over 20 years with complete dedication to participating in the new product development and registration of new technology patents and certificates every year. This indomitable passion for technology advancement has led the company to launch the 8th generation. New turbo technology addresses the world's growing demand for clean and affordable energy, which requires simultaneous advances in turbo science and technology to meet the performance demands of our global key end-users.

Major Certificates & Patents

2015 ISO 9001 / ISO 14001 / ISO 45001

- 2016 IATF 16949 / SPAN certificate / High-efficiency energy equipment certificate
 [Korea] Valve using differential pressure of air (Patent No. 10-1651589)
 [Korea] Airfoil bearing device for high speed and high load that can maintain precision (Patent No. 10-1632356)
- 2017
 EAC certificate

 [Korea] Cover for preventing ingress of foreign substances for turbomachinery (Patent No. 10-1791977)
- 2018
 NRTL certificate / Certification of designation of excellent product public procurement service, Korea (No. 2018057)
 [China] Single & Dual cooling system (Patent No. ZL 2016 8 0000612.8)
- 2019[China] Water and moisture proof (Patent No. ZL 2016 8 0027904.0)[Japan] Water and moisture proof (Patent No. 6524499)[Japan] Single & Dual cooling system (Patent No. 6617903)[Korea] Micro Turbo Compressor with water-cooled impeller (Patent No. 10-1969485)[Korea] Surge protection (Patent No. 10-1989588)[Korea] Cooling thermal equilibrium (Patent No. 10-2050810)
- 2020 [Germany] Water and moisture proof (Patent No. 11 2016 004 029) [Korea] Radial airfoil bearing with optimal cooling induction (Patent No. 10-2067286) [Korea] Air-cooled multi-stage Turbo Compressor (Patent No. 10-2133245) [USA] Water and moisture proof (Patent No. 10648476) [USA] Single & Dual cooling system (Patent No. 10753372) [USA] Valve using differential pressure of air (Patent No. 10760581)
- 2021Explosion proof (Ex / IECEx) certificate of conformity (No. KTL 21.0009X) / ABS certificate
Excellent production designation certificate / Innovative water company designation certificate
UL-US-2127364-0 & UL-CA-2122511-0 certificate / World-class product certificate (No. 2021-308)
[Korea] IoT Remote controlled turbo machine (Patent No. 10-2200680)

2022 ASME U certificate

CE

[China] Turbo Blower that can drive in the surge area (Patent No. ZL201980077782.X)
[China] High-speed turbo machine(twin impeller) capable of cooling thermal equilibrium (Patent No. ZL 202010528492.7)
[China] High-speed turbo machine capable of cooling thermal equilibrium (Patent No. ZL 202010533762.3)
[Germany] Direct drive type Dual Turbo Blower cooling structure (Patent No. 11 2016 004 014)
[Germany] BOV valve using differential pressure of air (Patent No. 11 2017 002 929)
[Germany]Turbo Blower for fuel cells with a cooling fan of impeller type (Patent No. 10 2019 110 737)
[Japan] Turbo Blower for fuel cells with a cooling fan of impeller type (Patent No. 7012371)
[Japan] Turbo Blower for remote control (Patent No. 7079533)
[Korea] Air compressor for hydrogen cars comprising scroll volute made of Al-Zn alloy materials (Patent No. 10-2475660)
[USA] High-speed turbo machine(twin impeller) capable of cooling thermal equilibrium (Patent No. 11339791)

ECEx

FHI



TURBOWIN PRODUCT LINE-UP



PRODUCT NAME	SERIES NAME	HP RANGE	BAR RANGE	DESCRIPTION				
TURBO COMPRESSOR	₩Н	50-800 HP	1.5-9.5 bar(g)	World-first 9.5 bar air-pressure air-bearing based Turbo Compressor				
SEPARATED TYPE TURBO COMPRESSOR	WH-s	50-800 HP	1.5-9.5 bar(g)	Control and motor room can be separately installed and operated				
OUTDOOR TYPE TURBO COMPRESSOR	WH-o	50-800 HP	1.5-9.5 bar(g)	Outdoor Type which doesn't need independent compressor room				
MICRO TURBO COMPRESSOR	WH-m	3-40 HP	0.6-1.2 bar(g)	World's smallest Turbo Compressor for hydrogen fuel cell & electric vehicle				
DUAL CORE TYPE TURBO COMPRESSOR	WH-d	600-1,000 HP	1.5-9.5 bar(g)	Dual Type Turbo Compressor with dual cores and four impellers				
SMART TURBO COMPRESSOR	WH-i	50-800 HP	1.5-9.5 bar(g)	World-first Smart IoT air-bearing based Turbo Compressor				
EXPLOSION PROOF TURBO COMPRESSOR	WH-ex	50-800 HP	1.5-9.5 bar(g)	World-first Explosion proof(Ex) air-bearing based Turbo Compressor				
GAS TURBO COMPRESSOR	WH-g	75 HP	8 bar(g)	World-first Gas Turbo Compressor with air-bearing technology				

ENERGY COST SAVING

Actual Energy Saving Case 1

Project	Motor (kW)	Quantity (set)	Power Consumption per Hour (kWh)	Annual Power Consumption (kWh)	_ ENERGY SAVING
BRAND A	250	1	317	2,776,920	RATIO
TURBOWIN	220	1	217	1,900,920	- 21 E
The second second	E	ND USER	C company		5L.3 %
	L	OCATION	Busan City, Republi	c of Korea	Low Vibration Under 1.0 mm/s
	M	ODEL	WH300-90		• Low Noise Under 80dB ± 5dB •

WH300-90 APPLICATION Multi-purposed Service Air for Shipbuilding Yard

Actual Energy Saving Case 2

Project	Motor (kW)	Quantity (set)	Power Consumption per Hour (kWh)	Annual Power Consumption (kWh)	•••• •••
BRAND B	1,500	1	1,180	10,336,800	
TURBOWIN	600	2	900	7,884,000	
					_



END USER D company LOCATION Gunsan City, Republic of Korea MODEL WH600-20 **APPLICATION** Fermentation Process



Maintenance Cost Saving

Criteria	Unit	Oil Injected Screw	Oil Free Screw	Turbowin WH Series	••• MAINTENANCE COST
POWER	kW	150	150	150	SAVING RATIO
ANNUAL CONSUMABLE PARTS	USD	9,500	7,500	800	70 3
10 YEARS OVERHAUL COST	USD	24,000	64,000	25,000	Up to 16.3%
10 YEARS TOTAL MAINTENANCE COST	USD	119,000	139,000	33,000	Comparison with Oil-Injected &
					••••••••••••••••••••••••••••••••••••••

03



MULTI-STAGE COMPRESSION

Ultra HEPM Motor Patent No. 6976001 / 6976000 / 10,753,372 / 6604494 / 6617903 / 3172706 / 3236947

While the typical old-fashioned induction motor has IE2 (89.5% maximum efficiency) or IE4 (92.4% maximum efficiency), Turbowin's Ultra HEPM motor is based on global patent and certification technology to ensure 97% of the world's highest energy efficiency and stability. Turbowin's ultra HEPM motor can meet harsh temperature conditions such as cold and hot weather, and the demanding specifications required by extreme work environments such as waterproofing, flameproofing, and explosion-proof.



2 Stages Compression upto 2 bar without Cooler

1.5/2 bar model is composed of a single motor and two impellers without any additional cooling systems at all, therefore lighter design and configuration simplify the product and enhance durability.



2 Stages Compression upto 4 bar with Cooler

4 bar model is composed of a single motor, two impellers and coolers (inter & after). The Plate-type heat exchanger is applied to obtain high cooling efficiency and minimized performance loss.



4 Stages Compression upto 9.5 bar with Cooler

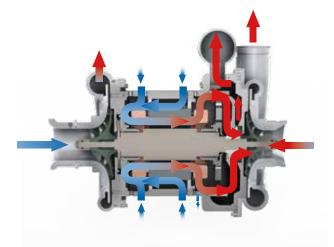
7/8/9.5 bar model uses its additional compression step to perform more efficiently. A higher volume output can be achieved with dual motors, four impellers and coolers (inter & after). For applications that require a larger volume of high-pressure air, this 4 stage difference can be key to selecting the right solution.

From 4 bar to 9.5 bar WH Series can apply for both air-cooling and water-cooling together with discharge temperatures more than 10 degrees Celsius lower than air-cooled screw compressors, eliminating the need for additional after-coolers at all. In addition, compared to shell & tube-type heat exchangers, the plate-type heat exchangers applied to the WH Series are small in size, efficient in heat conduction and simple in maintenance.



CORE OF EXCELLENCE

MAXIMIZED EFFICIENCY FROM PROVEN TECHNOLOGY



Dual Air Cooling System

Patent No. 10,533,560 / 10,753,372 / 11 2016 002 508 / 11 2016 004 014

Turbowin can lower motor temperature by at least 10°C compared to other brands thanks to its patented dual cooling system. The air from outside of the motor cools down the stator, air foil bearing, winding and rotor by special internal structure. This technology keeps the motor free from a separate cooling device such as an external cooling fan.

NBW* Air Foil Bearing *No-Bending & No-Welding Patent No. 10-2067286 / 10-1632356 / 30-0858674

Traditional compressors such as piston, lobe, or screw should have obvious limitations and disadvantages in energy efficiency, maintenance, and durability even though they are advertised as "oil-free" which still use lubricating oil in their main operating part. Turbowin's air foil bearing is manufactured without any bending or welding process which can cause structural weakness, therefore guarantees at least 150,000 cycles of on & off operation. This feature is one of the core technological differences making Turbowin's WH Series extremely durable and reliable.

Supersonic Impeller

Certificate No. NDMM8.E519212 / OBJY2.E520241 / QDGS.E519211

Turbowin's supersonic impeller is designed and manufactured with 100% of its own technology. With its quality proven by patents and certifications, we can meet any type of request from end-users. Aluminum, stainless steel or titanium can be used as base material and hard anodizing or nano-coating will be applied to achieve excellent resistance against corrosion and chemical substances. Also, machining and processing tolerance is less than 0.001mm, this difference in sophistication to the fine parts is an important reason for global big players to choose Turbowin.



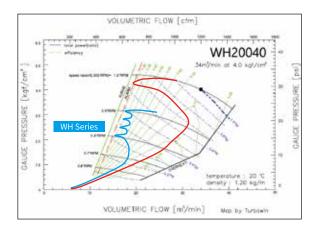


ALUMINUM



STAINLESS







Auto Surge Protection System

Patent No. 10-1989588

Compressor surge can damage the system and has been a major obstacle to the adoption of centrifugal-type compressors. However, Turbowin's patented surge protection system can minimize such concerns. In the event of entering into a surge area, a sub-solenoid valve is activated 3~4 times to minimize the mechanical impact and protects the product safely from sudden stops.

Dual Effective Discharge Air Cooling System Patent No. 10-1607492

Based on Turbowin's patented dual cooling system, no additional cooling device is required and the inverter is also cooled by internal circulation air. 1.5 bar and 2 bar models are equipped with an air cooling system, while models from 4 bar and above cooled by water cooling system, which keeps the temperature of the discharge air only +5°C higher than the ambient air temperature.

Smart Applications of Various Air/Gas Compression Means

Patent No. 10 2021 122 314.8 / 202110980488.9 / 2021-138349 / 17/459,709 / 10 2021 122 315.6 / 17/459,399 / 2021-139643 / 202110993337.7 / 10 2021 121 817.9 / 17/412,981 / 2021-138342 / 202110967360.9

The traditional technology caused noise and condensate by emitting air into the atmosphere as well as vulnerable durability instilled in people for decades air bearing is not applicable for turbo compressors. But Turbowin was able to launch the world's 1st air-bearing based turbo compressor up to 9.5 bar by allowing air vents to be made inside the compression system as well as by reducing thrust inside the compressor with the recompressing used gas and utilizing pressure difference. Based on these Turbowin's globally patented brand-new technologies, WH-g Series has robust durability and reliable operation through more efficient and effective non-flammable gas compression.

SIMPLIFIED STRUCTURE

Innovative Structure with Patents and Certificates

Steve Jobs once mentioned, "Simple can be harder than complex". Turbowin's turbo compressor products were invented by the grandmaster of turbo industry who launched the world's first air-bearing based turbo-blower and turbo-compressor. Based on the accumulated global patents and technology certifications, Turbowin's turbo compressor could be more simplified with an optimized structure and design.



COOLING JET SILENCER Patent No. 10-2200680

A cooling jet silencer is an aircraft jet engine-shaped unique cooling air silencer developed by Turbowin's accumulated fluid mechanic's technology and know-how. This silencer can decrease noise level by more than 5 dB, also it is made in an ultra-small size that does not affect the installation field site, providing smart control of airflow



INTELLIGENT BOV Patent No. 10-1651589

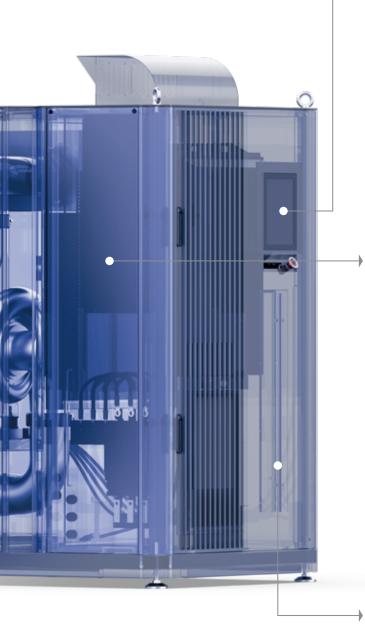
Turbowin's patented Intelligent BOV (Blow-Off Valve) has a unique design that is operated by internally generated differential pressure. With its simple structure, it works very quickly to prevent compressor surge.

EXPLOSION PROOF / WATER PROOF / MOISTURE PROOF Certificate of Conformity, No. IECEx KTL 21.0009X

Turbowin is the only company with anti-explosive certification in the air foil bearing applied turbo machinery field. Our turbo compressor can be operated safely even in the explosive gas surrounding. Also, our patented water & moisture proof design will be a good solution to provide user friendliness and durability, along with explosion proof feature.



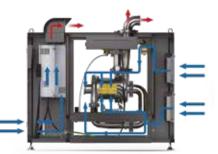
TURBOWIN





SMART HMI (Human Machine Interface) Certificate No. E082015 / Q165915 / OHK000221 / C-2016-014346

Applying WEB and APP with IoT and AI, Turbowin's smart turbo system, which is easy to connect with our own server system, has raised user convenience, operation and maintenance efficiency, and system durability to the world's highest level.



VFD COOLING SYSTEM

Patent No. 16/888,201 / 202010528492.7 / 10 2020 115 650.2 / 16/888,162 / 10 2020 115 249.3 / 202010533762.3

Our patented dual cooling system enables effective cooling for both motor and inverter without any additional cooling devices. Inner circulating air cools the VFD which is very sensitive to overheating. So, even in a very hot place, Turbowin's VFD cooling system strongly supports both energy-saving and user convenience.



AMBIENT LIGHTING Certificate No. 30-0914031

Visibility of system status is important factor of product design. Turbowin applied ambient lighting on the front cover for the visibility of product operation status for users to check the status more easily.

BLUE > READY | GREEN > RUN | ORANGE > WARNING | RED > STOP

WH-i SERIES

Smart Turbo Compressor

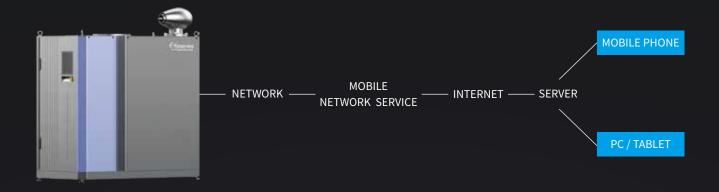
Patent No. 202011277468.7 / 10 2021 112 755.6 / 17/326,094 / 2021-087306 / 10-2315945





World's First Air Bearing Turbo Compressor with IoT based Remote Control System

Turbowin has been researching to develop a better industrial solution providing safety, user friendliness and optimized energy efficiency for industry 4.0 era. As a result of the efforts, we launched the world's first IoT-applied turbo compressor. Users can control and monitor the products on smartphones, tablets or other devices connected to wireless communication. Customers can establish wireless automation control systems with our products, especially in industries like semi-conductor, display, fuel cell, bio chemical, F&B where accurate compressed air is needed and can have benefited from our products. With our certifications (CE, UL, IATF, EAC, ASME, API, ABS, etc.) and patents combined with these special features, our global customers are satisfied with the performance and reliability.





WH-m SERIES

Micro Turbo Compressor

Patent No. 10 2019 110 737.7 / 16/400,345 / 2021-523455 / 17/290,252 / 11 2019 004 941.0 / 201980072527.6





WH-m5











WH-m15



WH-m20

WH-m3

WH-m9

WH-m11



WH-m7



WH-m25

Turbowin micro turbo compressor has achieved a power range of 3kW~25kW, maximum 220,000RPM and pressure ratio of 1.0 ~ 2.2 with its air foil bearing technology basis. Also CE, UL and IP65 certifications prove energy efficiency and durability even under harsh conditions.

CATEGORY	SPECIFICATION
PRODUCT NAME	WH-m Series
MOTOR	PM Motor / Air Bearing / AL Impeller
FLOW CONTROL	Speed variation (VFD)
VOLTAGE RANGE	250~450 / 450~750 VDC
VOLTAGE SCHEMATIC	Inverter input VDC \rightarrow Inverter output & motor input VAC \rightarrow motor output
COOLING	Water-cooled by distilled water (inverter & motor)
TEMPERATURE	-20°C ~ +70°C
HUMIDITY	~95%
CONTROL MODE	Local (Keypad) / Remote (CAN 2.0B Communication)

The Performance Map of WH-m Series



WH-ex SERIES

Explosion Proof Turbo Compressor

Certificate of Conformity, No. IECEx KTL 21.0009X, Patent No. 10-1616274

An explosion at an industrial site can determine whether a company can exist or not as well as whether the person in charge is legally bound. Especially, an explosion in the field or factory may very risky factor in specialized industries such as petrochemical, biochemical, F&B, mining, and cement transfer, to prevent any kind of explosion which can harm a company's reputation or sustainable development. Therefore, a certified air-bearing-based Ultra HEPM Motor is ideal for hazardous environments, where sparks or high outer temperatures might otherwise be explosive gases, vapor, or dust. Turbowin's WH-ex Series guarantees user safety and convenience with IECEx international certification, in compliance with the European Union's ATEX Directive on equipment for potentially explosive environments.



WH-g SERIES

Gas Turbo Compressor

Patent No. 10 2021 122 314.8 / 202110980488.9 / 2021-138349 / 17/459,709

A gas compressor is essential industrial equipment for the extraction or treatment of oil and gas. Before the Turbowin's WH-g Series appearance, most of the existing gas compressors were positive displacement type old-fashioned compressors which have a lot of disadvantages such as low efficiency, high maintenance cost, big noise, and frequent part breakage. Turbowin's WH-g Series is in the spotlight as a new alternative to overcoming these shortcomings, especially the insulators and heaters with Turbowin's proprietary technology, offering a range of compression ratios from 2.0 to 8.0 even in harsh environments below minus one hundred degrees Celsius. Another benefit of pure oil-free with an air-bearing solution is that it also prevents any contamination within the system and limits the risk of any compressed pipeline fires caused by oil carryover. Turbowin ensures superior components and quality with no exception and is globally backed due to our years of expertise and knowledge.





WH-o SERIES

Outdoor Type Turbo Compressor

Patent No. 10-1616274

Considering installing your compressor outside? Think again. The temptation to save space may sound enticing, but in the long haul, it will cost you. Here are the 3 "W's" to consider before moving or installing your air compressor outdoors : Water, Weather and Wear. Turbowin's WH-o Series is an outdoor-type turbo compressor that can perfectly withstand rainwater, snow, salt, and various other hazards in a working environment where an independent compressor room cannot be installed. Especially, WH-o Series has international certifications of IEC motor protection grade IP55 and IP65 in all parts including structure, material, and painting in both enclosure and package, therefore it can be completely protected from any fine dust (dust-tight) and water jets pouring in all directions. In addition, Turbowin's dual cooling system plays a decisive role in stably operating the outdoor turbo compressor without a separate cooling device even at high external temperatures.



WH-d SERIES

Dual Core Turbo Compressor

Patent No. 16/888,162 / 10 2020 115 249.3 / 202010533762.3 / 16/888,201 / 202010528492.7 / 10 2020 115 650.2

WH-d Series is an air-bearing based high-efficiency turbo compressor with the world's largest capable of outputting up to 1,200 horsepower with dual motors and dual impellers. With the installment of only one Turbowin WH-d Series, end users can eliminate the burden of installing multiple old-fashioned compressors and achieve extremely high energy efficiency, ease of management, and product durability at the same time.



WH-s SERIES

Separated Type Turbo Compressor

Certificate No. E082015 / Q165915 / OHK000221 / K11441/M18

If you need to transport explosive power or work in a hazardous chemical environment, WH-s Series could be a very good alternative to protect your precious worker from these risk factors. WH-s Series has an independent motor room and control room which can be separated from each other. In particular, if WH-s Series is combined with Turbowin's IoT smart and explosion-proof technology, this can have a more powerful performance.



SPECIFICATION

COMPONENT MATERIAL

CASING	Aluminum Alloy
IMPELLER	A7075-T6
CASING SEAL - AIR	Labyrinth Seal
SHAFT	Titanium Alloy
BEARING TYPE	Hydro Dynamic Air Foil
BEARING LUBRICATION	Air (Zero-Oil)



*1.5 ~ 4.0 kgf/cm²G

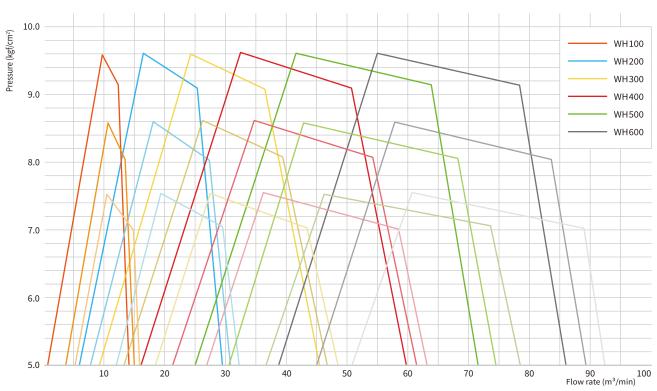
MODEL	MAX. WORKING	G PRESSURE	CAP	ACITY	MOTOR	POWER	DISCHARGE AIR OUTLET	COOLING WATER INLET / OUTLET	NOISE (FREE FIELD)	DIMENSION (LxWxH)	WEIGHT
MODLL	kgf/cm ² G	psig	m³/min	cfm	kW	HP	A(B)	A(B)/A(B)	dB(A)	mm	kg
W1150	1.5	24.3	9.6~16	339~565	27	50	100(4)	0 in an all all	00+5	750.1 700.1 250	600
WH50	2.0	28.4	7.2~12	254~423	37	50	100(4)	Air cooled	80±5	750x1,700x1,250	600
	1.5	24.3	14.4~24	509~847			125(5)				
WH75	2.0	28.4	10.8~18	381~635	55	75	100(4)	Air cooled	80±5	850x1,800x1,450	750
	1.5	24.3	19.2~32	678~1,130			150(6)			850x1,800x1,450	800
WH100	2.0	28.4	15~25	530~883	75	100	125(5)	Air cooled	80±5	850x1,800x1,450	800
	4.0	56.9	10.8~18	381~636			100(4)	80(3)/80(3)		1,100x2,200x1,800	1,400
	1.5	24.3	28.8~48	1,017~1,695			150(6)				
WH150	2.0	28.4	22.2~37	784~1,306	112	150	150(6)	Air cooled	80±5	1,050x2,100x1,700	1,100
	1.5	24.3	39~65	1,377~2,295			200(8)			1,050x2,100x1,700	1,200
WH200	2.0	28.4	30~50	1,059~1,766	150	200	150(6)	Air cooled	80±5	1,050x2,100x1,700	1,200
	4.0	56.9	21.6~36	763~1,271			125(5)	80(3)/80(3)		1,100x2,500x1,800	1,600
	1.5	24.3	57.6~96	2,034~3,390			250(10)			1,150x2,350x1,900	1,500
WH300	2.0	28.4	45~75	1,589~2,649	225	300	200(8)	Air cooled	80±5	1,150x2,350x1,900	1,500
	4.0	56.9	33~55	1,165~1,942			150(6)	80(3)/80(3)		1,400x2,700x2,200	2,200
	1.5	24.3	76.2~127	2,691~4,485			300(12)	Air an alad		1,500x2,600x2,000	2,000
WH400	2.0	28.4	60~100	2,119~3,532	300	400	250(10)	Air cooled	80±5	1,500x2,600x2,000	2,000
	4.0	56.9	43.2~72	1,526~2,543			200(8)	100(4)/100(4)		1,500x3,200x2,200	2,800
	1.5	24.3	96.6~161	3,411~5,686			300(12)	Air cooled		1,600x2,800x2,000	2,500
WH500	2.0	28.4	75~125	2,649~4,414	375	500	300(12)	All cooled	80±5	1,600x2,800x2,000	2,500
	4.0	56.9	54~90	1,907~3,178			200(8)	100(4)/100(4)		1,600x3,200x2,200	3,000
WH600	1.5	24.3	117.6~195	4,153~6,922	450	600	350(14)	Air cooled	80±5	1,950x2,700x2,000	3,000
	2.0	28.4	90~150	3,178~5,297			300(12)			,,,.,	.,
WH800	1.5	24.3	152.4~254	5,382~8,970	600	800	400(16)	Air cooled	80±5	2,500x3,200x2,000	4,000
	2.0	28.4	120~200	4,238~7,063	000	500	350(14)	, iii cooled		_,,	1,000



*7.0 ~ 9.0 kgf/cm²G

MODEL	MAX. WORKIN	G PRESSURE	CAP	ACITY	MOTOR POWER		DISCHARGE AIR OUTLET	COOLING WATER INLET / OUTLET	NOISE (FREE FIELD)	DIMENSION (LxWxH)	WEIGHT
MODEL	kgf/cm ² G	psig	m³/min	cfm	kW	HP	A(B)	A(B)/A(B)	dB(A)	mm	kg
	7.0	100	8.2~13.7	290~484							
WH100	8.0	114	7.5~12.5	265~441	75	100	65(2 ½)	65(2 1/2)/65(2 1/2)	80±5	1,300x2,200x2,000	1,800
	9.0	128	6.78~11.3	239~399							
	7.0	100	17.1~28.5	604~1,006							
WH200	8.0	114	15.9~26.5	561~936	160	200	80(3)	80(3)/80(3)	80±5	1,700x2,400x2,000	2,500
	9.0	128	14.7~24.5	519~865							
	7.0		05 5 40 5								
	7.0	100	25.5~42.5	900~1,501							
WH300	8.0	114	23.4~39	826~1,377	225	300	80(3)	80(3)/80(3)	80±5	1,700x2,400x2,000	2,500
	9.0	128	21.3~35.5	752~1,254							
	7.0	100	34.8~58	1,229~2,048							
WH400	8.0	114	32.4~54	1,144~1,907	300	400	100(4)	80(3)/80(3)	80±5	1,900x3,500x2,000	3,000
	9.0	128	30~50	1,059~1,766							
	7.0	100	43.8~73	1,547~2,578							
WH500	8.0	114	40.8~68	1,441~2,401	375	500	125(5)	100(4)/100(4)	80±5	2,100x3,500x2,000	3,300
	9.0	128	37.8~63	1,335~2,225							
	7.0	100	52.8~88	1,864~3,108							
WH600	8.0	114	49.8~83	1,758~2,931	450	600	150(6)	100(4)/100(4)	80±5	2,700x3,800x2,300	5,000
	9.0	128	46.8~78	1,653~2,755							

***PERFORMANCE MAP**





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