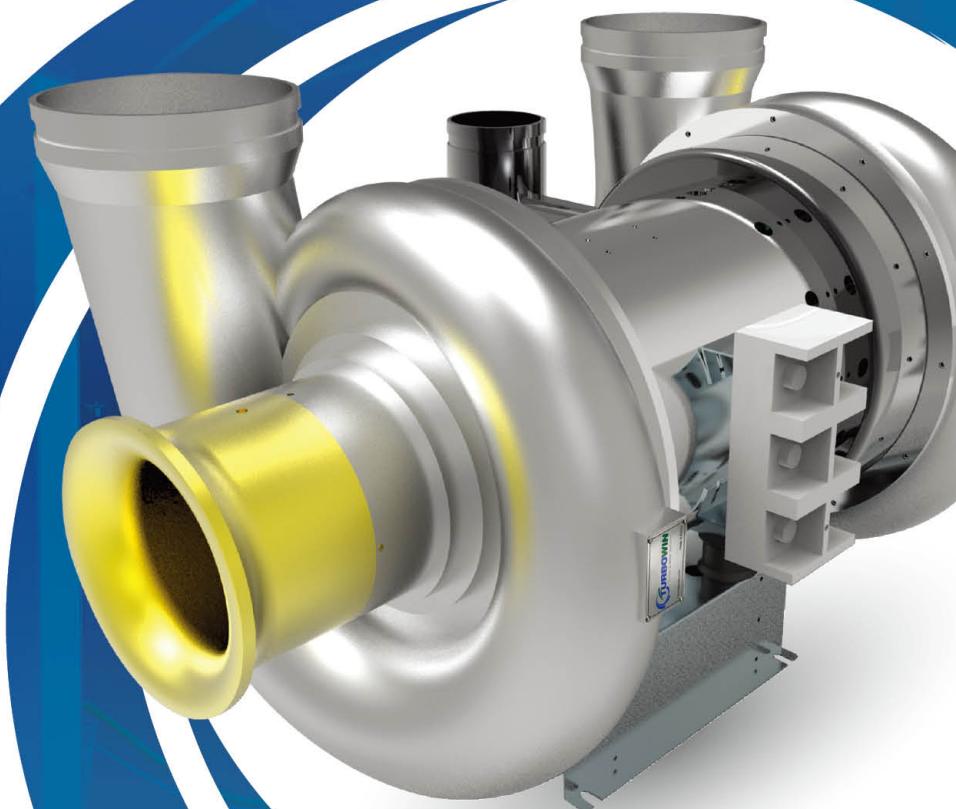




# WL-Series

The World Best High Speed PM Motor

Variable High Speed  
Oilless Air Bearing  
Direct Driving



The Highest Efficiency Turbo Blower



 **TURBOWIN**  
Blower & Motor Technology



Turbowin Co. is composed of the experts who have developed and supplied turbo blowers for 15years experience Also, we are the manufacture focused on oil-less, high speed high efficiency and eco-friendly energy machines.



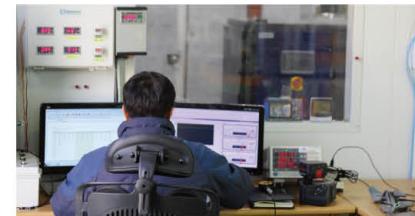
# WL-Series

## The Highest Efficiency Turbo Blower



We have developed Turbo blowers for 15 years. And Our final decision is the WL-Series.

- The world best efficiency machine
- High speed permanent magnet motor
- Air foil bearing
- 100% oil less system.
- Variable flow rate control in the working area
- Less vibration and less noise design
- Object-oriented product structure  
(Easy control, installation and maintenance)
- More than 30% Energy Saving
- Semi-permanent life



### Purpose of Turbo blower

**Wastewater treatment plant** | Oxygen supply and wastewater flitting / Grit tank cleaning, Backwash, etc.

**Pressed Transportation for raw materials** | the form of powder or bulk materials transport

**Cement production process** | cement / lime / coal powder transportation, combustion gas / DUST process of heat treatment processes

**Thermal power generation** | coal dust / Fly-ash, fuel gas desulfurization (Oxidation)

**Water Treatment Process** | Air supplying for Ozone & filter washing machine

**Food and chemical treatment processes** | dry bulk, and food and beverage, transportation, such as medicine / Manufacturing

**Chemical and petrochemical processes** | compressed gas transportation and processing

**Metal processing and mining** | ferrous / non-ferrous transport and oxidation treatment, sludge drying filter, casting wastewater treatment

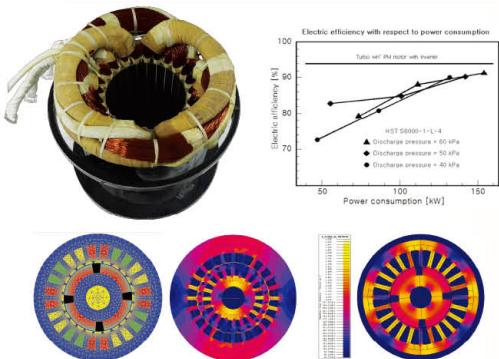
### Certification



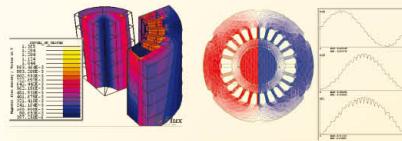
# WL-Series are made by the world best high speed PM Motor experts.

## High Efficiency Permanent Magnet Motor

The efficiency of PM Motors is 95% higher than General Motors and the cooling performance is way better as well. Our company technicians have worked on high-speed motor design and production experience for 15years to develop the world's highest efficiency PM Motors.

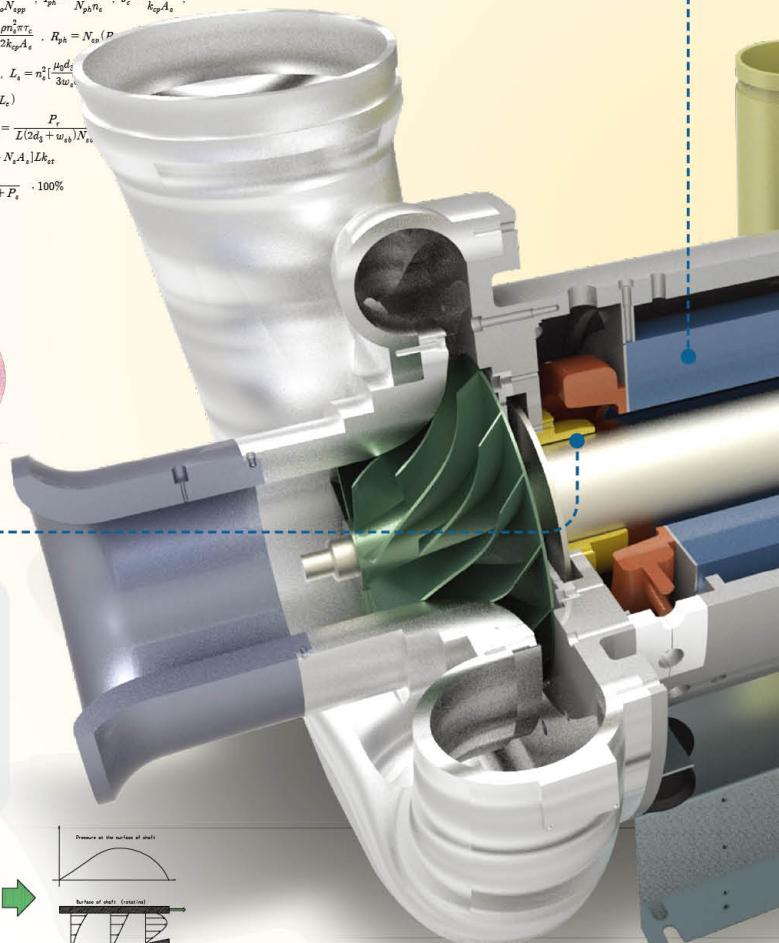
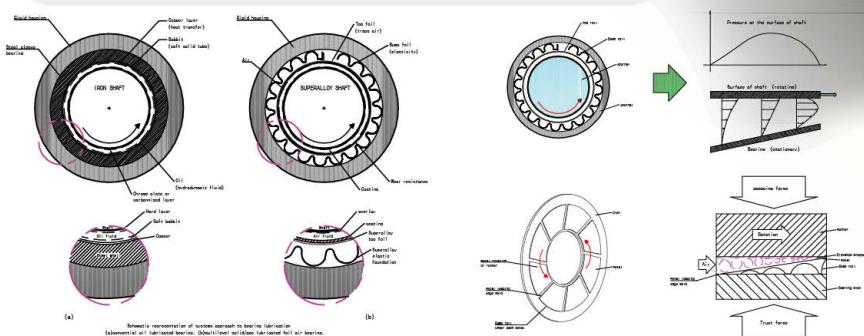


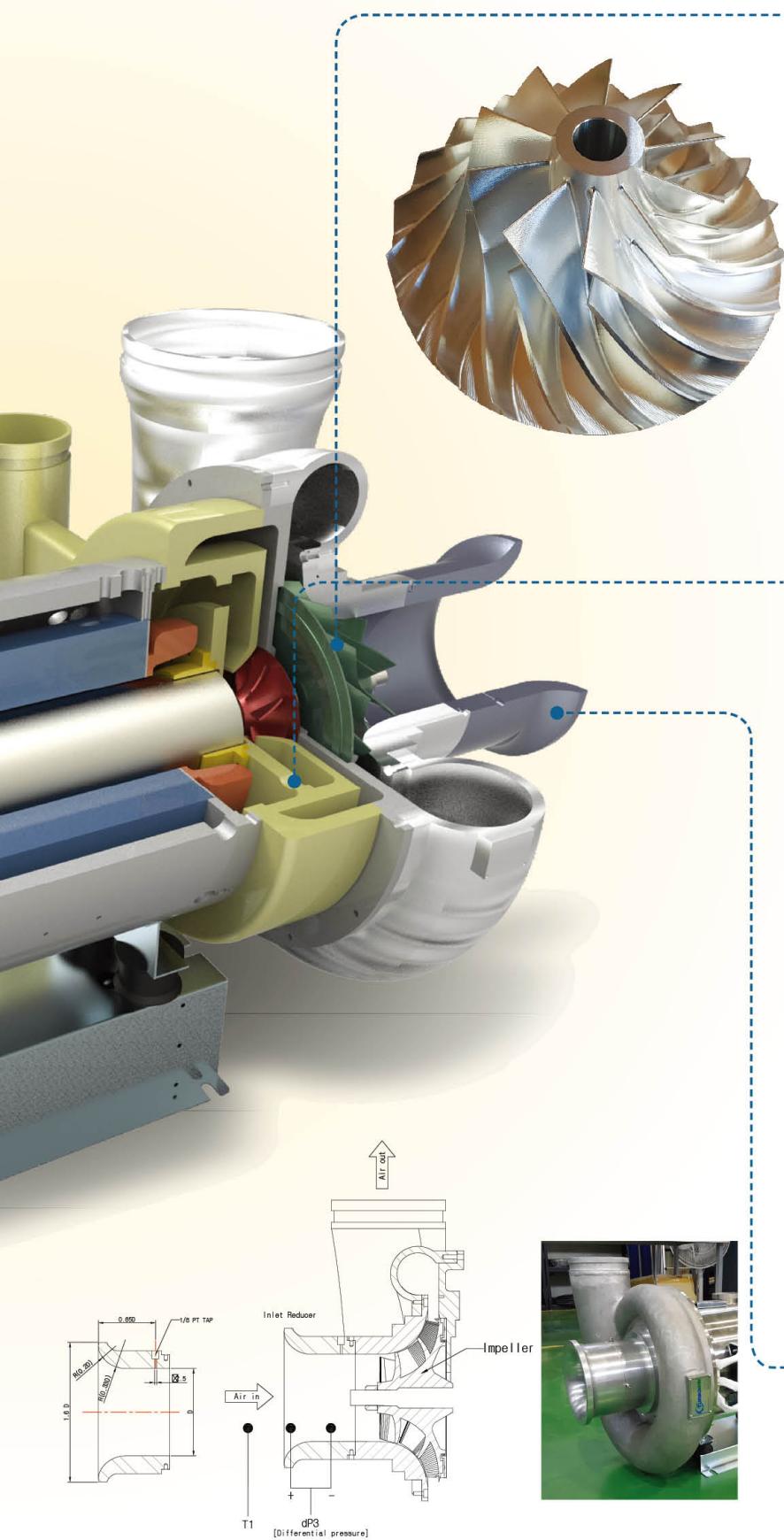
$$\begin{aligned}
 w_{12} &= \frac{\phi_2}{N_{em}B_{max}k_{12}L} = \frac{2}{N_{em}}w_{11} \\
 T &= \frac{P}{w_m} \\
 &= N_{em}k_2k_3k_4B_2LR_{r2}N_{pp}n_4 \\
 n_4 &= \text{int}\left(\frac{E_{max}}{N_{em}k_2k_3k_4B_2LR_{r2}N_{pp}\omega_m}\right) \\
 I_1 &= \frac{T}{N_{em}k_2k_3k_4B_2LR_{r2}N_{pp}}, \quad I_{ph} = \frac{I_1}{N_{ph}n_2}, \quad J_c = \frac{I_1}{k_{12}A_2}, \\
 R_s &= \frac{\rho n_4^2 L}{k_{12}A_2}, \quad R_c = \frac{\rho n_4 \pi r_c}{2k_{12}A_2}, \quad R_{ph} = N_{ph}(P_r \\
 L_g &= \frac{n_4^2 \mu_{R2} k_2 L r_c k_2}{4(l_0 + \mu_R k_2)}, \quad L_d = n_4^2 \frac{\mu_0 d_2}{3\omega_4}, \\
 L_{ph} &= N_{ph}(L_g + L_d + L_c) \\
 P_r &= N_{ph}I_{ph}^2 R_{ph}, \quad q_s = \frac{P_r}{L(2d_2 + w_{12})N_{ph}} \\
 V_{st} &= (\pi(R_{12}^2 - R_d^2) - N_{ph}A_2)Lk_{12} \\
 \eta &= \frac{T w_m}{T w_m + P_r + P_d + P_s} \cdot 100\%
 \end{aligned}$$



## Air Foil Bearing

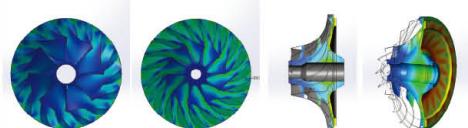
100% Oilless air foil bearing system can supply pure air without Mechanical friction, Noise&vibration and it's semi-permanent life span. It has been used for heavy and large industrial machines since the beginning of 2000. This is the best solution because air foil bearing system is much simpler and also, you can drive the motors on a higher temperature compare to oil bearing system.





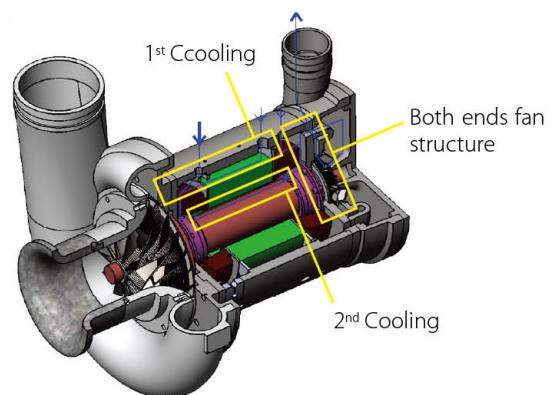
### Aluminum Alloy , AL7075-T651

WL-Series are applied a high-strength aluminum alloy impeller (0.001mm precision machining). The produced impellers are always same quality and high efficiency. Excellent surface finish and Hard Anodizing Coating are applied to perform the strong outstanding resistance for humidity and chemical harsh environments. Also, it makes the best air foil bearing durability because the material is the most lightweight compare to other impeller materials.



### Motor cooling system

WL-Series Motors are double cooling structure to maximize cooling efficiency. After first cooling for the outside of stator, secondly it cools Air foil bearing, Winding and Rotor. This powerful cooling mechanism is applied to our all products without any extra cooling system (External Fan & inverter, sine filter and etc.). In addition, both ends of the cooling suctioning structure increased the bearing life and durability longer.



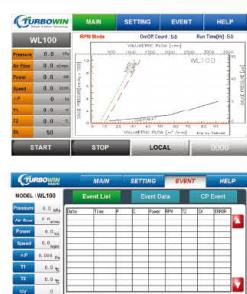
### Instantaneous flow measurement system (JIS B 8340)

The bell mouth flowmeters help to measure the flow rate in  $\pm 0.5\%$  error

# WL-Series are the best solution chosen by the best Turbo Blower experts.

## USER INTERFACE UNIT

WL-series includes the most common 7inch touch screen which displays real-time flow rate, power, rotation, the discharge pressure and temperature. Over WL250 models includes 10inch touch screen to be operated more conveniently. In addition, the four S/W of START, LOAD, STOP and EMERGENCY are added to operate rapidly especially in an emergency situation.



## DRIVING SYSTEM

WL-Series are made up of the vivified latest YASKAWA A-1000 Series and VACON NXP Series to drive the high speed PM motors. WL-Series Configure the simplest wiring structure. Turbowin's unique double cooling mechanism of the motor doesn't need the inverter SINE FILTER sufficient because sufficient cooling is possible. Furthermore, the suction filters for inverter are installed. The cooling air through the invertors is not emitted to the outside. The air is passed to the Motor room.



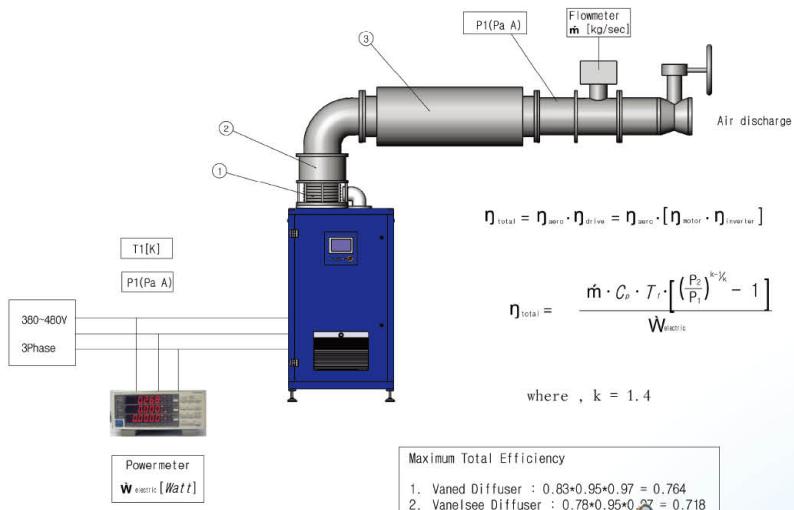
## CONTROL PANNEL

WL-Series configure the controller with PLC or MICOM. They can be connected to RS485 / RS232 / Ethernet 3 different communication ports for the all top communication Protocol. Also. Maintenance is easy because the compact control wiring schemes.



### BOV (Blow off valve)

The SOL Valves to be operated by differential pressure without external compressed air supply are used for WL-series. They are used for the start-up, the protection operation in the surge line and emergency situation as well.



### Performance test system

WL-Series product performance is accurate by comparing the inhalation and discharging flow rate at the same time. Turbowin operates by qualified performance test system based on ISO standards (ISO5167-2).

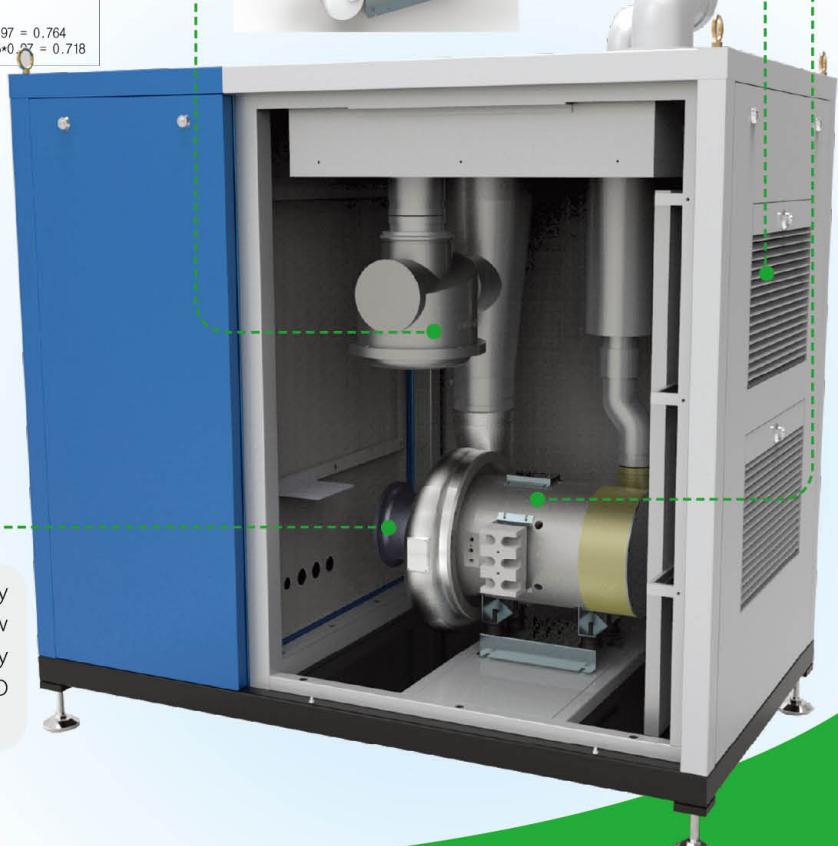
### Suction filter system

- Double filtration system
- Medium Filter used (85% efficiency)
- Easy to replace the filters



### WL Motor Series

- : 22.5kW~300kW
- : 20,000RPM~50,000RPM
- : 4000mmAq~10000mmAq
- : H

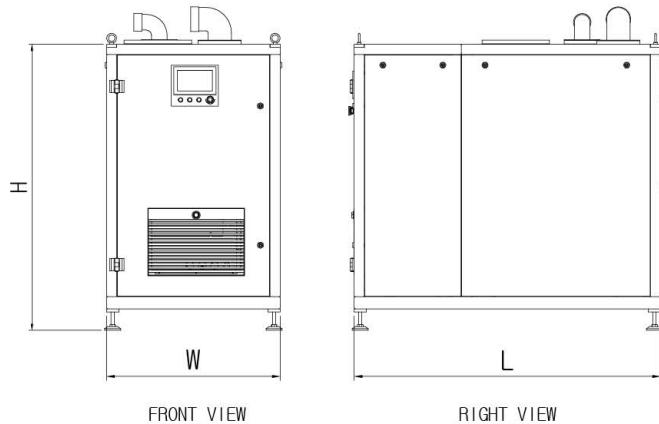


# WL-Series

The Highest Efficiency Turbo Blower



## Specification & Dimension



SPECIFICATION	WL30	WL50	WL75	WL100	WL120	WL150	WL200	WL250	WL2000T	WL300T	WL400T
TYPE	SINGLE TYPE								TWIN TYPE		
DISCHARGE PRESSURE (mmAq)	Air Flow (m³/min) : 1atm, 20°C, 65%RH, density =1.2kg/m³, Tolerance=±5%										
4,000	-	-	-	-	-	-	-	-	200	-	-
6,000	20	34	51	69	85	105	140	160	-	210	272
7,000	18	30	45	60	73	90	120	148	-	180	240
8,000	17	28	42	55	70	84	109	135	-	164	215
9,000	-	-	37	50	-	71	92	109	-	140	-
10,000	-	-	34	45	-	65	87	104	-	133	-
SHAFT POWER(HP)	30	50	75	100	120	150	210	250	220	300	420
EXHAUST PIPE	150A	150A	200A	200A	200A	300A	300A	300A	400A	400A	500A
DIMENSION (mm)	W	700	700	850	850	850	900	900	1200	1200	1200
	L	130	1300	1500	1500	1500	1800	1800	2200	2200	2200
	H	1100	1100	1400	1400	1400	1650	1650	2000	2000	2000
Weight(kg)	600	600	720	750	800	950	1000	1050	1200	1300	1500

- Standard : Intake Filter & BOV(Blow-Off Valve)
- Option : Discharge Silencer, Check Valve, Expansion Joint

# Performance Curve

30HP

50HP

75HP

4000

mmAq

6000

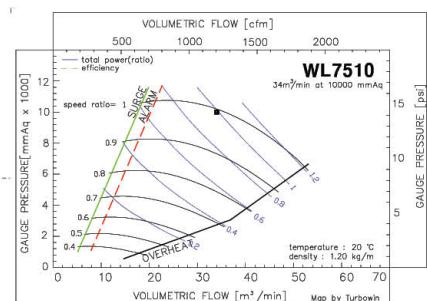
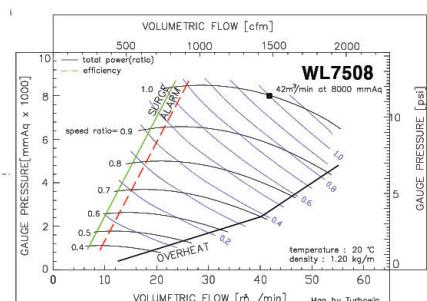
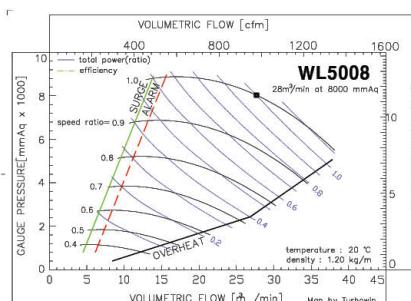
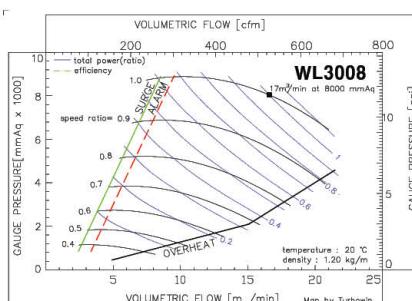
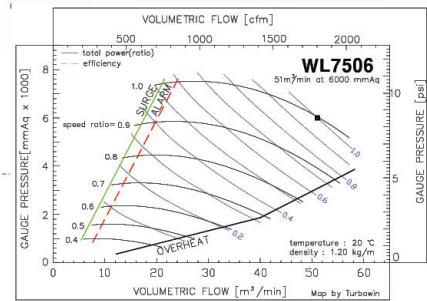
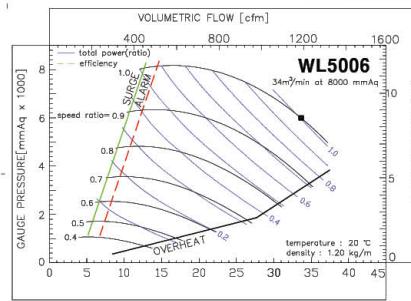
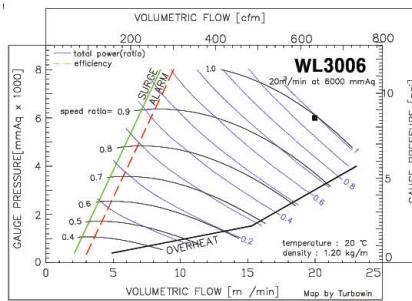
mmAq

8000

mmAq

10000

mmAq



1atm, 20°C, 65%RH, density = 1.2kg/m³, Tolerance = ±5%

# Performance Curve

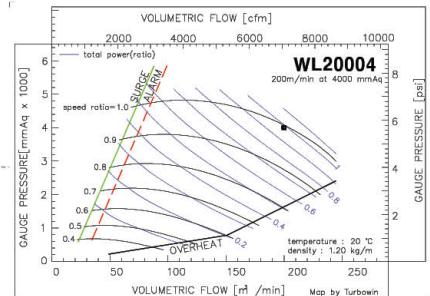
**100HP**

**150HP**

**200HP**

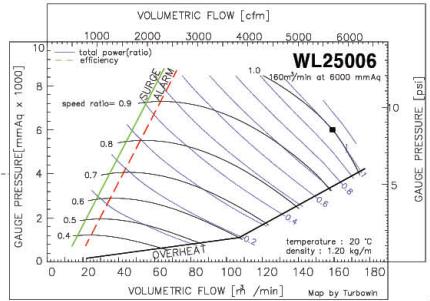
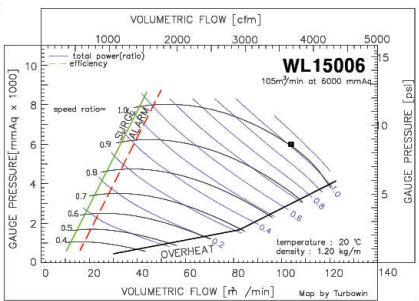
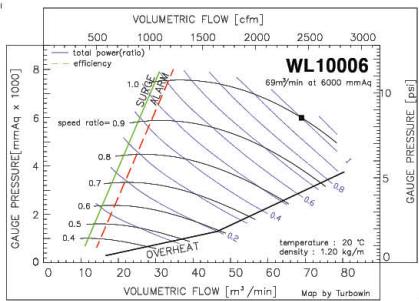
**4000**

mmAq



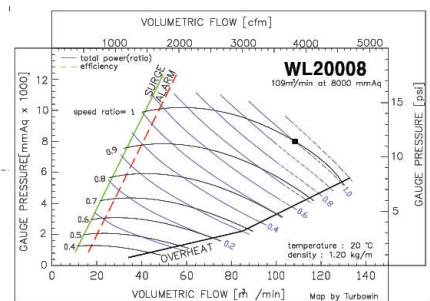
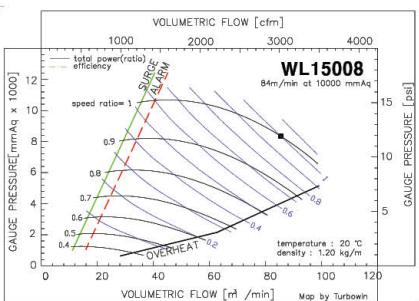
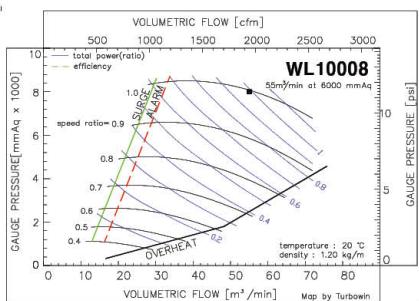
**6000**

mmAq



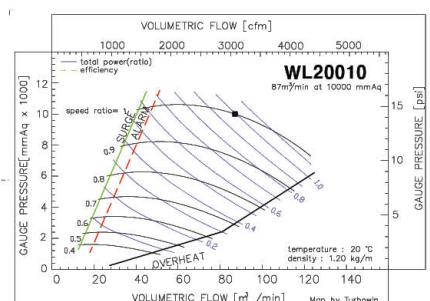
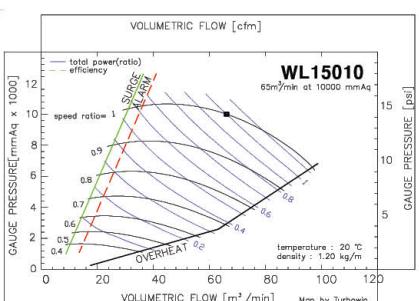
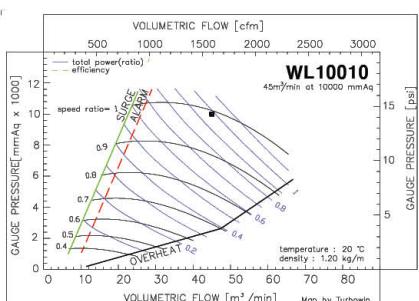
**8000**

mmAq

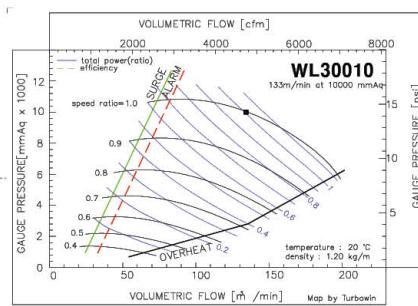
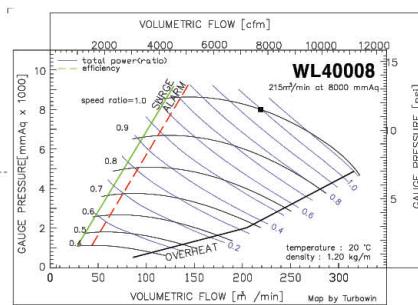
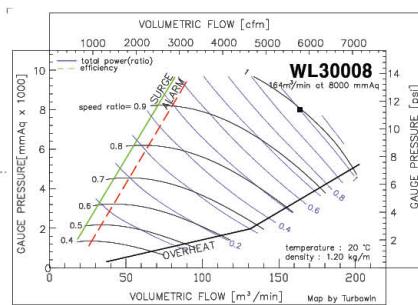
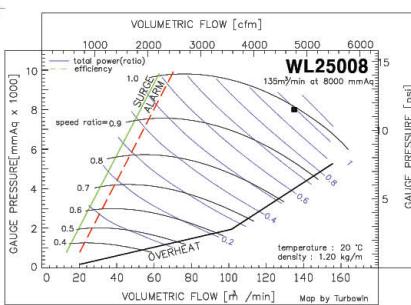
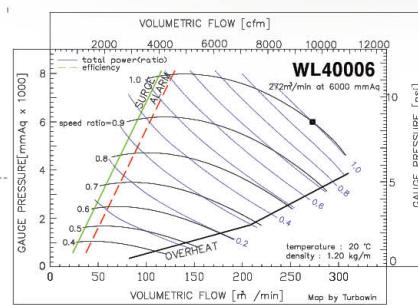
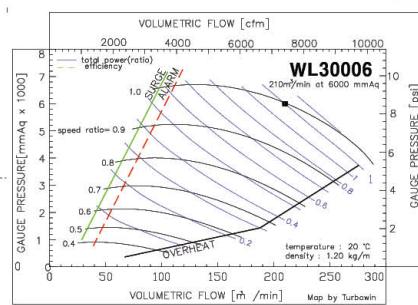
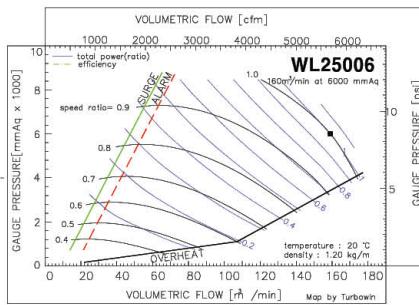


**10000**

mmAq



1atm, 20°C, 65%RH, density = 1.2kg/m<sup>3</sup>, Tolerance = ±5%

**250HP****300HP****400HP**

## Information

Official Distributor in Thailand ;

Siam Industrial Machinery Co.,Ltd.

5/15 Moo 6, Km 15 Bangna-Trad Highway, Bangchalong , Bangplee, Samutprakarn 10540.

Contact Sales : (+66) 02-312-5300#226

Mr.Kirachai Lengudomlap / Sales Department

M : 061-269-9269

Email : kirachaijob@gmail.com and kirachai@siamind.co.th



## The Highest Efficiency Turbo Blower

### WL-Series

- ▶ The world best efficiency machine
- ▶ High speed permanent magnet motor
- ▶ Air foil bearing
- ▶ 100% oil less system.
- ▶ Variable flow rate control in the working area  
Less vibration and less noise design
- ▶ Object-oriented product structure  
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[www.turbowin.co.kr](http://www.turbowin.co.kr)