



# NEXT GENERATION TURBOMACHINERY



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"For Reference Only" and is subject to change without notice.  
Certified performance data and dimensions shall be available upon request.



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## Factory

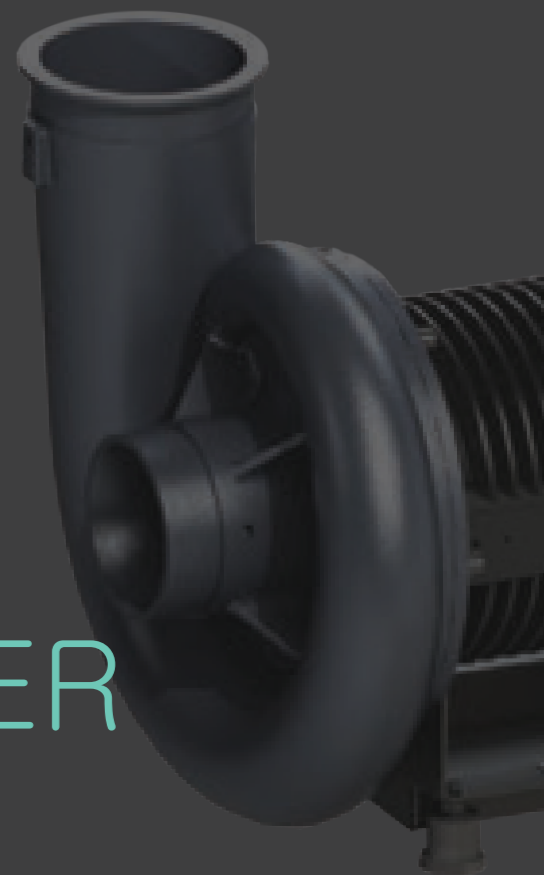
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Quality Management System  
ISO 9001  
ISO 14001

- Core Certificates : UL, CSA, CE
- Package Certificates : UL, CSA, CE
- Master Control Panel Certificates : UL, CSA, CE

# AIR-BEARING HIGH-SPEED TURBO BLOWER



# BE SMALL THINK BIG



TNE provides comprehensive energy savings and new renewable energy solutions using professional high-speed turbo technology derived from aerospace industry

TNE is committed to providing compact, affordable, robust, environmentally friendly, and energy efficient gear-less turbo blowers for energy savings in various industry. TNE is preparing for the future eco-friendly and renewable energy era through the development of various innovative products and technologies such as hydrogen fuel cell air compressors, refrigerant-free air cycle turbo heat-pump etc.

With the reliable innovative products and value engineering services, TNE is continually innovating and striving for the next generation of happiness and prosperity by conserving global resources and protecting the environment.



## Eco-friendly energy savings and recovery solutions:

Oil-free air bearing  
high-speed turbo technology



Business Area

Design, production, and distribution of turbo technology



New Energy  
(Hydrogen Economy)

Hydrogen fuel cell electric vehicle

Hydrogen power generation



Environment  
(Water and Wastewater)



Energy savings and eco-friendly

Air Bearing High Speed Turbo Blower

Aerospace and Renewable Energy



Turbine Generator

ACM/ECS

Air cycle turbo heat-pump



Core Technology

01 Patented air bearings /magnetic bearing



02 High Efficiency air end compressor/turbine



03 High-speed robust rotor design



04 High Speed PMSM/ VFD



05 Value Engineering

06 Innovative cooling and modular packaging



07 Turbomachinery Control and Electronics



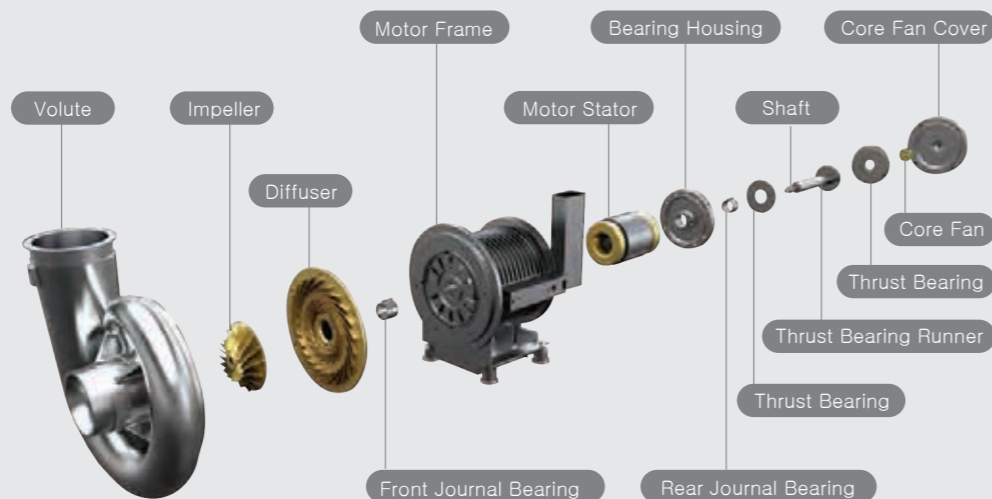
## Air Bearing High-Efficiency Airend

High Efficiency for Everywhere

- ☑ TNE air bearing high-speed turbo blowers are uniquely designed with a high-efficiency airend and innovative cooling system
- ☑ Patented non-welded air-bearing design provides consistent and reliable operation
- ☑ TNE test facilities satisfy domestic and overseas test standard such as PTC 13/ISO 5389 Annex G. Certified test report and factory witness test can be provided upon request.



### Turbo Blower Parts



### Key Features

#### Design for frequent start and stop applications

- Ideal for filter backwash and membrane application
- Enable for SBRs or Digestors application
- No more wasted energy from idle operation at no load

#### Patented improved and robust air bearing modules

- Weld-free air bearings for better reliability and consistency
- Quality inspection of independent bearing module for reliable and consistent service of mass production volume

#### Fully open discharge operation

- Vaned Diffuser option for a stable operation at zero pressure application while maintaining high efficiency

#### Operating Mode

- constant speed operation
- constant pressure operation
- DO/ Power Operation

#### Industry 4.0

- Remote monitoring and operation
- Programmable start/stop
- Automatic start/stop operation

#### High efficiency with a wide range of operations

- Single/dual or vane/vaneless diffuser combination according to operation conditions

#### Engineered outdoor enclosure near the application

- Comply with IP54 and IP56 standard ratings

#### Available for patented circulating system protecting electrical parts under H<sub>2</sub>S gas

- Closed circulation operation (Nitrogen circulation application)



## Robust and Reliable Air Foil Bearing

AIR-BEARING

- ☑ Improved reliability with patented designs for mass production and simple mechanical assembly
- ☑ Sturdy design for frequent start and stop operation
- ☑ Longer life spans with contactless, gearless, and vibration-free operation
- ☑ Operation at zero discharge pressure with improved load capacity and stability
- ☑ Bearing module inspection at the component level for high level of quality control

-  Simple Assembly
-  No Welding
-  No Burst

### Air Foil Journal Bearing



\* Innovative bearing designs are patented in the US.

### Air Foil Thrust Bearing



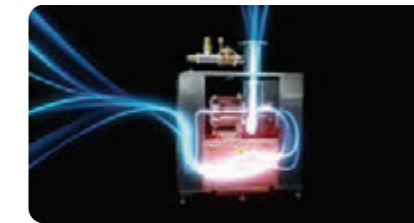
\* Innovative bearing designs are patented in the US.

## Standard Package

Patented dust-tight air cooled sound enclosure

HIGH-SPEED TURBO BLOWER

- ☑ Patented air-cooling systems with the closed-air inlet to the blower core
- ☑ Total air-cooled system: oil-free and lubricant-free operation
- ☑ Single control of flow from air inlet filter → improved reliability and easy maintenance
- ☑ Options for IP54 or equivalent grade enclosure for dust protection and outdoor installation



 No VFD Cooling Fan

 No more dust inside of the flow path

Blower  
for outdoor  
installation

- ☑ Customized outdoor installation near the application
- ☑ Central control of distributed blowers for the optimization of power savings
- ☑ Double layered IP54 stainless steel outdoor enclosure

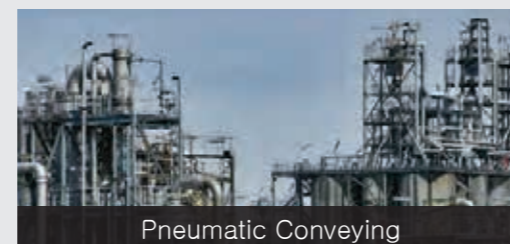


### Application

#### Various industry worldwide

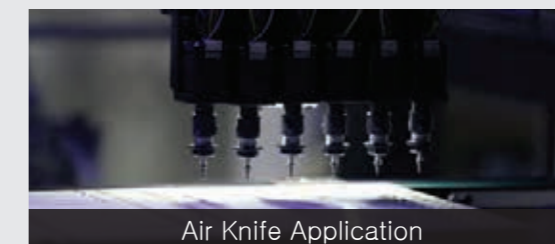


- Fine bubble or coarse bubble aeration
- Activated sludge, MBR/MBBR
- Deep Aeration
- Grit Chamber Aeration
- Filter Backwash



- Petrochemical pellet, cement powder
- Powder and tablet in pharmaceutical industry
- Sugar, flour, grain and molt in food industry
- Lime in mining industry
- Twine and dyeing process in textile industry


#### TNE Air-Bearing High Speed Turbo Blower



- Food and beverage wash and drying
- Metal mill process
- Green house heating and snow removal
- Nitrogen Circulation
- Semi-conductor and LED processing



- Gas Collector/ Booster
- Fish farm aeration
- Dust collection system

 versatile state-of-the-art technology is everywhere!



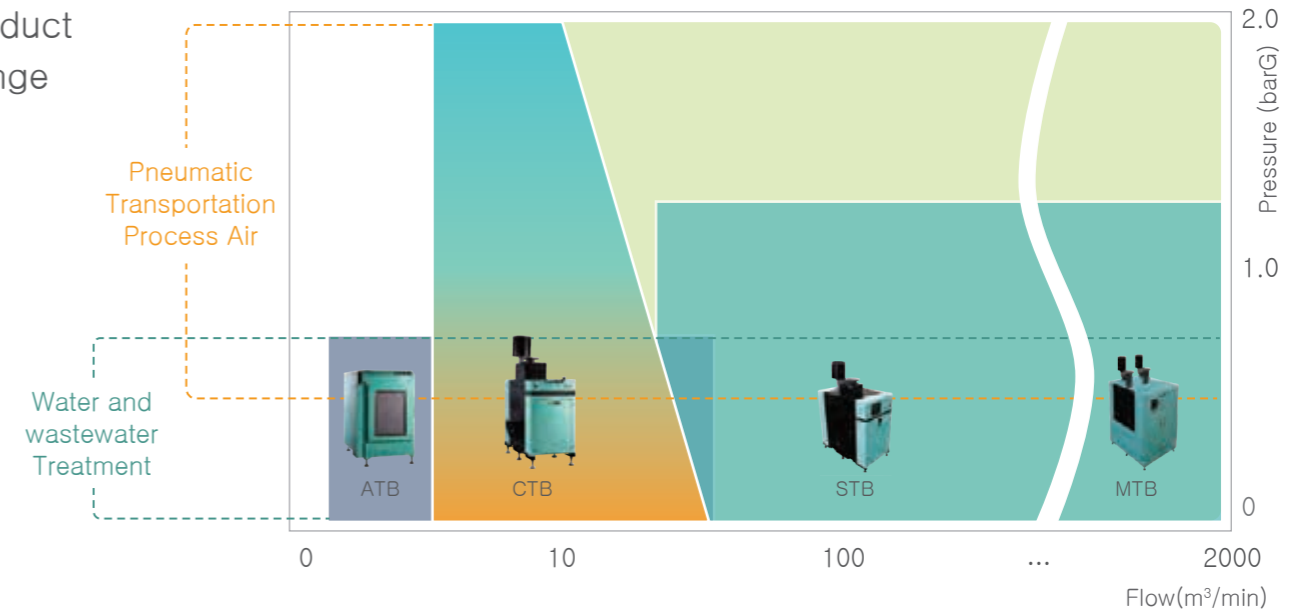
# NEXT GENERATION OF TURBOMACHINERY

- No oil
- No water (air-cooled system)
- No gear
- No belt

●●●  
TNE  
Product  
Lineup

## HIGH SPEED TURBO BLOWER

●●●  
Product  
Range



**ATB** ALL-AROUND  
TURBO BLOWER

Born to be versatile

Rated Power: 6~37 kW (10 ~50 HP)

- ✓ Oil-free high-efficiency operation
- ✓ Easy operation like PD blowers.
- ✓ Ultra compact size and light weight
- ✓ Quick and easy troubleshooting
- ✓ No more complicated control electronics



**CTB** COMPACT  
TURBO BLOWER

The innovation

Rated Power: 6~37 kW (10~50HP)

- ✓ Compact size and light weight compared to conventional small capacity blowers
- ✓ High efficiency with small capacity
- ✓ Patented dust-tight enclosed cooling design (no H2 gas corrosion)
- ✓ Quick and easy troubleshooting with "Swap and Fix" modular components
- ✓ High pressure capability to meet various applications (up to 20 PSIG)



**STB** STANDARD  
TURBO BLOWER

The improvement

Rated Power: 45~300 kW (60~400HP)

- ✓ Stable and improved operation with an optimal air foil bearing load capacity
- ✓ Improved operation quality with patented air foil bearings and dust-tight air-cooled sound enclosure
- ✓ Optimized selection between wide flow turndown and high efficiency
- ✓ Easy HMI design with local monitoring option



**MTB** MULTI-CORE  
TURBO BLOWER

The expansion and exibility for the future

Rated Power: 75k~690kW above (100~900 HP above)

- ✓ Multiple cores operating at best efficiency point (BEP) with highly improved flow turndown ratio
- ✓ Operating at the optimal capacity based on real-time demand
- ✓ Enable to operate the system continuously despite the single core failure. No interference of inlet air flow and minimal downtime for maintenance
- ✓ Built-in backup system with an independent operation mode of each core



AIR-BEARING  
HIGH-SPEED  
TURBO BLOWER

TNE  
PRODUCTS

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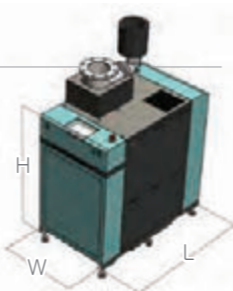
## Product specifications

### ATB



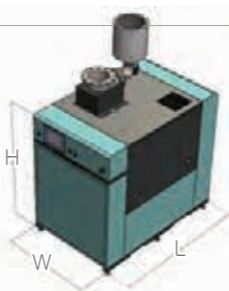
	S2	S4
W (mm)	460	699
L (mm)	971	1170
H (mm)	845	1095

### CTB



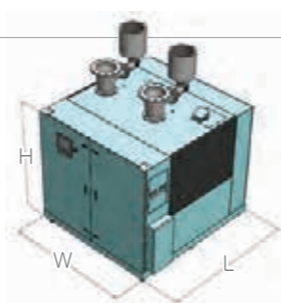
	S2	S4
W (mm)	482	647
L (mm)	975	1155
H (mm)	890	1155

### STB



	S6	S8	S10	S12	S14
W (mm)	830	1000	1000	1100	1300
L (mm)	1480	1580	1750	1900	2000
H (mm)	1440	1480	1750	1800	2000

### MTB



	D2	D3	D4
W (mm)	1300	1600	1800
L (mm)	1515	1990	1970
H (mm)	1330	1610	1640

\*Inquire separately for D6 and D8

## ATB/CTB

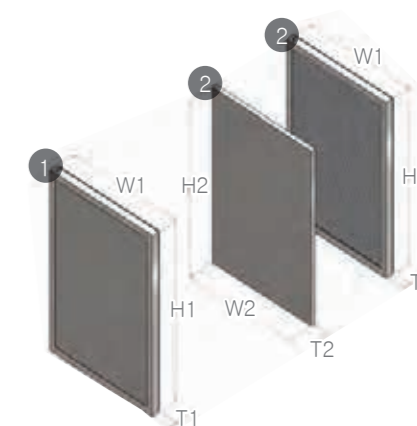
Pressure Ratio	Prs. Rise ΔP kPa	MODEL & VOLUME FLOW RATE (M <sup>3</sup> /MIN)											
		0.76	1.68	2.47	3.47	4.6	5.7	6.8	8.2	10	11	14	18
2.28	130.0	0.76	1.68	2.47	3.47	4.6	5.7	6.8	8.2	10	11	14	18
2.18	120.0	0.81	1.80	2.65	3.72	5.0	6.2	7.3	8.8	11	12	14	19
2.09	110.0	0.88	1.95	2.86	4.02	5.3	6.6	7.8	9.5	12	13	16	20
1.99	100.0	0.95	2.12	3.11	4.37	5.8	7.2	8.5	10.3	13	14	17	22
1.89	90.0	1.04	2.32	3.41	4.79	6.4	7.9	9.3	11.3	14	16	19	24
1.79	80.0	1.16	2.58	3.79	5.32	7.1	8.8	10.4	12.5	15	18	21	27
1.69	70.0	1.30	2.90	4.26	5.98	8.0	9.9	11.7	14.1	17	20	23	30
1.59	60.0	1.49	3.32	4.88	6.85	9.2	11.3	13.3	16.2	20	23	27	35
1.49	50.0	1.75	3.89	5.72	8.04	10.8	13.3	15.7	19.0	23	27	31	41
1.39	40.0	2.13	4.74	6.96	9.78	13.2	16.2	19.1	23.1	28	32	38	49
1.30	30.0	2.74	6.10	8.97	12.59	17.0	20.8	24.5	29.7	36	42	49	64
1.20	20.0	3.92	8.71	12.81	17.98	24.4	29.7	35.0	42.4	51	59	70	91
RATED POWER	kW	2	4	6	8	11	13	15	18	22	25	29	37
	HP	2.6	5.3	8.0	11	15	17	20	24	30	34	39	50
PACKAGE		S0		S1		S2				S4			
INPUT VOLTAGE	V	220 ~ 480										380 ~ 480	
FREQUENCY	Hz	50 ~ 60											
COOLING		AIR COOLED											
BEARING		AIR BEARING											

## STB

MODEL & VOLUME FLOW RATE (M <sup>3</sup> /MIN)															
21	26	36	45	56	66	74	92	114	134	155					
23	28	39	49	60	70	80	99	123	144	166					
24	30	42	53	65	76	86	107	132	155	179					
26	33	45	57	71	83	93	116	144	168	195					
29	36	50	63	78	91	102	127	158	185	213					
32	40	55	70	86	100	114	141	175	205	237					
36	45	62	78	97	113	128	159	197	230	266					
41	51	71	90	111	129	146	182	226	264	305					
49	60	84	105	130	152	172	213	265	310	358					
59	73	102	128	158	185	209	260	322	377	435					
76	94	131	165	204	238	269	334	415	485	561					
109	134	187	235	291	340	384	477	592	693	801					
45	55	75	95	115	135	150	185	225	265	300					
60	74	101	127	154	181	201	248	302	355	402					
		S6		S8		S10			S14						
		380 ~ 480													
		50 ~ 60													
		AIR COOLED													
		AIR BEARING													

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## Air inlet filter specifications



### 1. Standard air inlet filter (Non-woven type)

	S2	S4	S6	S8	S10	S12	S14	D2	D3	D4
W1 (mm)	330	400	400	460	780	860	1000	400	400	460
H1 (mm)	400	550	550	780	1220	1350	1450	550	550	780
T1 (mm)	30	30	30	30	30	30	30	30	30	30
Qty(ea)	1	1	2	2	1	1	1	2	4	4

\*Inquire separately for D6 and D8

### 2. Optional Premium air inlet filter (HEPA type main filter+ pre-filter)

	S2	S4	S6	S8	S10	S12	S14	D2	D3	D4
W1 (mm)	325	395	405	470	790	870	1000	395	405	470
H1 (mm)	410	560	550	780	1220	1350	1450	560	550	780
T1 (mm)	30	30	30	30	30	30	30	30	30	30
T2 (mm)	5	5	5	5	5	5	5	5	5	5
Qty(ea)	1	1	2	2	1	1	1	2	4	4

\*Inquire separately for D6 and D8

## MTB

Pressure Ratio	Prs. Rise ΔP kPa	MODEL & VOLUME FLOW RATE (M <sup>3</sup> /MIN)																						
		NUMBER OF CORES																						
		2					4					6					8							
		20	27	35	42	52	72	91	112	84	104	144	182	224	126	156	217	273	337	168	207	289	363	449
2.28	130.0	20	27	35	42	52	72	91	112	84	104	144	182	224	126	156	217	273	337	168	207	289	363	449
2.18	120.0	21	29	38	45	56	77	97	120	90	111	155	195	241	135	167	232	292	361	180	223	310	390	482
2.09	110.0	23	31	41	49	60	84	105	130	97	120	167	210	260	146	180	251	316	390	195	240	334	421	520
1.99	100.0	25	34	44	53	65	91	114	141	106	131	182	229	283	159	196	273	343	424	212	261	364	458	565
1.89	90.0	27	37	48	58	72	100	126	155	116	143	199	251	310	174	215	299	377	465	232	287	399	502	620
1.79	80.0	30	41	54	64	79	111	139	172	129	159	221	278	344	193	238	332	418	516	257	318	442	557	688
1.69	70.0	34	47	60	72	89	124	157	193	145	179	249	313	387	217	268	373	470	580	290	357	497	626	773
1.59	60.0	39	53	69	83	102	142	179	221	166	205	285	359	443	249	307	427	538	664	332	409	570	717	886
1.49	50.0	46	63	81	97	120	167	210	260	195	240	334	421	520	292	360	501	631	780	389	480	669	842	1040
1.39	40.0	56	76	99	118	146	203	256	316	237	292	407	512	632	355	438	610	768	949	473	585	813	1024	1265
1.30	30.0	72	98	127	152	188	262	330	407	305	376	524	659	814	457	565	786	989	1221	610	753	1047	1318	1629
1.20	20.0	103	140	182	218	269	374	471	581	435	537	748	941	1163	653	806	1122	1412	1744	870	1075	1496	1883	2326
RATED POWER	kW	44	58	74	90	110	150	190	230	180	220	300	380	460	270	330	450	570	690	360	440	600	760	920
	HP	59	78	99	121	148	201	255	308	241	295	402	510	617	362	443	603	764	925	483	590	805	1019	1234
PACKAGE		D2		D3		D4		Q3		Q4		H3		H4		X3		X4						
INPUT VOLTAGE	V	380 ~ 480																						
FREQUENCY	Hz	50 ~ 60																						
COOLING		AIR COOLED																						
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