TECH MASTER SERIES 2026.09

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Service hotline

www.cn-tanabe.com

喷油螺杆空压机
Oil-Injected Screw Compressor



TA系列螺杆式空压机
TA Series Screw Air Compressor
7.5~850kW



至美系列螺杆式空压机
Tech Master Series Screw Air Compressor
7.5~75kW



激光切割机专用空压机
Laser Cutting Air Compressor
11~37kW

无油空压机
Oil-Free Compressor



TN系列干式无油螺杆空压机
TN Series Dry Oil-Free Screw Air Compressor
37~630kW



TH系列离心式空压机
TH Series Centrifugal Air Compressor
100~15000kW



TW系列水润滑无油空压机
TW Series Water-Lubricated Air Compressor
11~470kW



TC系列磁悬浮空压机
TC Series Maglev Air Compressor
75~400kW

真空泵
Vacuum Pump



TB系列微油螺杆真空泵
TB Series Oil-Injected Screw Vacuum Pump
5.5~110kW



TBV系列旋片真空泵
TBV Series Rotary Vane Vacuum Pump
0.75~7.5kW



TBD系列无油真空泵
TBD Series Oil-Free Vacuum Pump
1.5~75kW

定制产品
Customized Products



二氧化碳专用压缩机
CO_2 Compressor



无油氮气增压机
Dry Oil-free N_2 Booster



干式无油空气增压机
Dry Oil-free Air Booster



TS系列中高压螺杆增压机
TS Series Medium/High Pressure Booster

运营中心
Operations Center

深圳田边精机有限公司
SHENZHEN TECBELL PRECISION MACHINERY CO.,LTD

地址：深圳市宝安区新桥街道中心路 102 号时代中心 A 座 12 层
Address: 12th Floor, Tower A, Times Center Building, No.102 Central Road, Xinqiao Street, Bao'an District, Shenzhen

制造中心
Manufacturing Center

田边（福建）智能装备有限公司
TECBELL (FUJIAN) INTELLIGENT EQUIPMENT CO.,LTD

地址：福建省武平县武平工业园区环城南路98号
Address: No.98, Huancheng South Road, Wuping Industrial Park, Wuping County, Fujian Province

田边精機 TECBELL



至美系列
TECH MASTER SERIES
螺杆式空气压缩机
Screw Air Compressors

关于我们 ABOUT US

田边精机于2006年3月在深圳前海创立，并于2007年相继注册运营“田边”“TECBELL”品牌。公司立足国际化视野，是集空气压缩机系统及真空负压系统产品研发、制造、销售、服务为一体的大型国际化公司。

Tecbell Precision Machinery was founded in March 2006 in Qianhai, Shenzhen. In 2007, the company officially registered and launched the “TECBELL” brands. With a global perspective, Tecbell has developed into a large-scale international enterprise integrating R&D, manufacturing, sales, and service of compressed air systems and vacuum systems.

企业产品 Enterprise Products

田边精机产品线涵盖永磁变频单双级螺杆式空压机、干式无油螺杆空压机、离心式空压机、水润滑无油空压机、螺杆真空泵、旋片真空泵、无油真空泵、磁悬浮空压机、磁悬浮鼓风机、激光切割机专用空压机、中高压螺杆增压机等系列节能产品。

Tecbell offers a comprehensive portfolio of energy-efficient solutions, covering permanent magnet variable frequency screw air compressors (single-stage and two-stage), oil-free and centrifugal compressors, advanced vacuum systems, and magnetic levitation (maglev) compressors and blowers. Our products also include specialized solutions for laser cutting applications, as well as medium- and high-pressure screw booster compressors.

生产基地 Production Base

田边精机在福建武平县兴建生产基地，成立田边(福建)智能装备有限公司，集自主研发、制造、销售、服务为一体;为进一步满足市场需求，田边再次投资建造一座占地面积40000㎡的现代化压缩机制造中心。

Tecbell is establishing a production base in Wuping County, Fujian Province, through the newly founded Tanabe (Fujian) Intelligent Equipment Co., Ltd. This integrated facility encompasses independent R&D, manufacturing, sales, and after-sale service. To further meet market demands, Tecbell is investing in construction of a modern compressor manufacturing center covering over 40,000 square meters.



2006
成立
Established

40000㎡
现代化压缩机制造中心
Modern Compressor Manufacturing Center

20+
国内办事处
Domestic Offices Across China

100+国家
countries
核心业务遍布全球
Core Business Presence in Worldwide

整机性能：能效突破再升级

Overall Unit Performance: Further Breakthrough in Energy Efficiency

更节能高效： 串联水平式双级螺杆主机，IE5油冷永磁一体式电机，能效突破再升级。
Higher Energy Efficiency: Tandem horizontal two-stage screw compressor main unit, IE5 oil-cooled permanent magnet integrated motor, with further upgraded energy efficiency breakthrough.

更稳定： 高可靠性的防护等级和冷却效果显著，冗余设计，高温性能试验，经久可靠，能克服各种恶劣工况。
More Stable: Highly reliable protection rating with excellent cooling performance; redundant design and high-temperature performance testing ensure long-term reliability and the ability to withstand harsh operating conditions.

更节省空间： 永磁一体结构，高度集成，空间紧凑，释放更多生产空间。
Less Footprint: Integrated permanent magnet structure with high level of integration and compact footprint frees up more production space.

更低噪音： 采用油冷却，电机无需独立冷却风扇，电机散热均匀，有效的保护电机磁钢不易失磁，电机噪音小。
Lower Noise: Oil-cooled design eliminates the need for an independent cooling fan for the motor, ensuring uniform heat dissipation, effectively protecting the motor’s permanent magnets from demagnetization, and resulting in lower motor noise.



节能高效主机

High-efficiency Airend

双级压缩机主机 TWO-STAGE

- 串联水平式双级螺杆压缩机主机，同轴直联传动，无电机轴承，相对于常规双级压缩机主机，轴承更少，效率更高。
  Tandem horizontal 2-stage screw compressor airend with coaxial direct drive and no motor bearings. Compared with conventional 2-stage airends, it features fewer bearings and higher efficiency.
- 永磁一体式设计，级间传动损失更小，传动效率更高，主机振动更小、噪声低。
  Integrated permanent magnet design reduces inter-stage transmission loss, improves transmission efficiency, and ensures lower vibration and noise of the airend.
- 电机采用油冷却，高散热效率、良好的绝缘性能、广泛的适用范围、紧凑的结构以及提高电机的工作效率和延长使用寿命，可适用于不同用气工况，效率更高。
  Oil-cooled design is marked by high heat dissipation efficiency, excellent insulation performance, wide application range, and compact structure. It enhances motor operating efficiency and extends service life, making it suitable for various air demand conditions with higher overall efficiency.



单级压缩机主机 ONE-STAGE

- 采用新一代型线和排气口结构，优化了内部间隙，带来更低的压降和更高的能效，以及更高的稳定性和耐久特性，同时在能效层面可以获得2%～3% 的提升。
  Tecbell adopts a new-generation rotor profile and discharge port structure, optimizing internal clearances to achieve lower pressure drop, better stability and durability. Meanwhile, it has a higher energy-efficiency with 2% - 3% improvement.
- 采用大主机低转速设计，超低转速，超低噪音，高容积效率，主机排气量达到业内领先水平。
  The air compressors features a large airend with low-speed design, delivering ultra-low rotational speed, low noise, and high volumetric efficiency. The air delivery reaches a leading level in the industry.
- 采用高强度的壳体材质，壳体加厚、加强设计，从而降低了主机的振动，提高了主机整体的使用寿命。
  Tecbell utilizes high-strength housing material with reinforced and thickened design, effectively reducing vibration and extending the overall service life of the airend.
- 采用超高耐磨性材质的油封，以及特殊的加工工艺，提升了防渗漏等级，主机使用寿命更长。
  The air compressors are equipped with highly wear-resistant oil seals and advanced machining processes, enhancing sealing performance and leakage resistance and resulting in a longer service life of the airend.

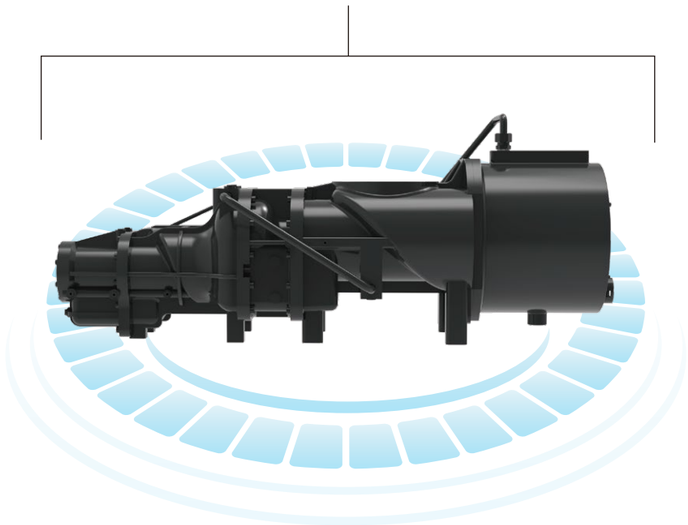


双级压缩：油冷永磁一体高效电机

Two-Stage Compression: Oil-Cooled Integrated High-Efficiency Permanent Magnet Motor

油冷永磁一体驱动系统

Oil-cooled Integrated Permanent Magnet Drive System



- **电机由油冷系统高效冷却，无论何种环境工况，皆可保持稳定冷却，工作温度更低，同时摒弃传统冷却风扇，更安静也更节能。**
  The motor is efficiently cooled by an oil-cooling system, ensuring stable cooling under all operating conditions and maintaining a lower operating temperature. The elimination of traditional cooling fans results in quieter operation and improved energy efficiency.

- **外壳内壁油槽与定子外壁油槽形成的螺旋油道，将两者的空间形成螺旋油路。当冷却油进入螺旋油路循环时，将电机进行冷却，直接避免环境粉尘和湿气。有效提高防护等级和可靠性，冷却效果显著。**
  Spiral oil channels formed by grooves on the inner wall of the housing and the outer wall of the stator create a circulating oil path. When cooling oil flows through this spiral circuit, it directly cools the motor while isolating it from ambient dust and moisture, significantly enhancing the protection rating, reliability, and cooling performance.

- **高效永磁电机与螺杆阳转子采用内嵌式一体轴直联结构，传动效率接近100%。无齿轮箱、无皮带，无传动效率损失，节能性能卓越。尤其在低频低速时，仍能保持很高的电机效率。**
  The high-efficiency permanent magnet motor adopts an integrated shaft direct-drive structure with the screw male rotor, achieving nearly 100% transmission efficiency. With no gearbox or belt, there is no transmission loss, delivering excellent energy-saving performance. Even at low frequency and low speed, the motor maintains high efficiency.

高性能变频器

High Performance Inverter

变频控制，能耗下降更显著

Variable frequency control, greater energy savings.

田边定制的高性能变频器与创新设计的永磁电机技术相结合的变频控制系统，机组节能效果显著，这使得压缩机的生命周期总成本大幅降低。

Tecbell's dual-frequency control system integrates a customized high-performance inverter with an innovatively designed permanent magnet motor, delivering outstanding energy savings and significantly reducing the compressor's total life cycle cost.

更稳定
More Stable Operation

高性能重载型变频器，电流等级高，变频器容量大，相比轻载变频器温升小。采用矢量控制技术，保证电机温升小，在较宽的转速范围内可获得合适的转矩，驱动空压机稳定运行。

A high - performance heavy - duty inverter features a high current rating and large inverter capacity, resulting in a lower temperature rise compared to light - duty inverters. Vector control technology is adopted to ensure a minimal motor temperature rise and obtain the appropriate torque within a wide speed range, enabling stable operation of the air compressor.



更节能
Higher Energy Efficiency

无频繁启动和停机，无频繁加载和卸载，排气压力恒定，压力波动可稳定在±0.01MPa以内，有效提高气源质量，减少气量消耗，优化能效，降低能耗约30%～50%。

No frequent start - stops or load variations,constant exhaust pressure, with pressure fluctuations maintained within ±0.01 MPa. Effectively improves the gas source quality, reduces gas consumption, optimizes energy efficiency, and cuts energy consumption by approximately 30% - 50%.

内置电机节能算法，在运行中实时调节以尽可能降低输出电流，助力设备低碳增效。

Equipped with a built - in motor energy - saving algorithm, it adjusts in real - time during operation to minimize the output current, facilitating low - carbon and high - efficiency operation of the equipment.

更长寿
Longer Service Life

变频启动，无需星三角配置，对电网的电流冲击小，也不需要额外配置其他软启动器，运行更可靠，寿命更长。

Variable - frequency start - up eliminates the need for star - delta configuration, causes minimal current impact on the power grid, and negates the requirement for additional soft starters. Offers more reliable operation and an extended service life.

更多产品特点和指标

More Product Features and Specifications

01 冷却系统 Cooling system

● 采用传热效率高的铝板翅式换热器，优越的流体对流放热系数，换热效率高。
Equipped with high-efficiency aluminum plate-fin heat exchangers, featuring superior convective heat transfer coefficients and exceptional thermal efficiency.
● 优化翅片矩形排列设计，快速冷却，减少压降。换热系统设计余量 20%~50%，保证了压缩机在极端环境下稳定运行。
Optimize the rectangular arrangement design of fins for rapid cooling and reduced pressure drop.The heat exchange system is designed with a 20% to 50% performance margin, ensuring stable compressor operation even under extreme conditions.
● 田边定制设计的离心叶轮，较传统轴流风机，具有噪音低，风压平稳均匀，散热面积得到充分利用的优点。
The custom-designed centrifugal impeller of TECBELL offers advantages over traditional axial fans, including low noise, stable and uniform air pressure, and fully utilized heat dissipation area.
● 运用流体动力学仿真软件优化设计计算的离心风机，在运行和启动过程中的状态都较为平稳，它所带来的平稳性以及给予相同风量及风压下的轴流风机的耗功低，实现最佳风机效率，较相同状态下的轴流风机降低能耗值30% 以上。
Centrifugal fans are optimized via computational fluid dynamics (CFD) simulations, delivering stable operation during startup and runtime. Compared to axial fans under identical air volume/pressure conditions, they achieve 30%+ energy savings due to superior efficiency.
● 采用独立封闭的吸、排风结构冷却系统，吸（冷风）、排（热风）风由不同方向进出，冷却效果极佳，机组内部温度接近环境温度，机组能耗降低。
Features an independent closed-loop suction/exhaust system with cross-directional airflow (cool air in, hot air out), minimizing internal temperatures and energy consumption.

02 高效微粒子空气过滤系统 High efficiency particulate air filtration system

● 高品质、重载空气过滤系统，较高的容尘能力和较低的进气阻力设计。
Heavy-duty air filtration system with high dust-holding capacity and low inlet resistance, designed for demanding environments.
● 可滤除空气中的微小固体颗粒，3μm以上的颗粒过滤精度可达99.9%，适用于重粉尘环境，压缩机主机名副其实的“安全卫士”。
Captures airborne particles ⩾3μm with 99.9% efficiency, serving as a critical "safety guard" for compressors in dusty conditions.

03 温控系统 Temperature control system

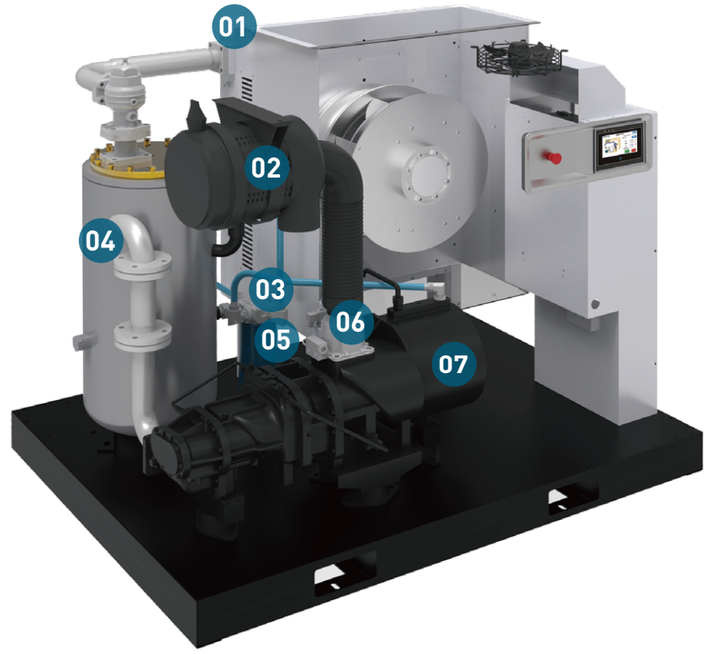
● 田边定制设计的温控阀，内部感温，自适应调节，精准控制油温。
Custom temperature control valves with built-in sensors for adaptive oil temperature regulation.
● 无外部运动件和运动密封件，低摩擦，损耗小，“零”泄漏设计。
Seal-less design minimizes friction and ensures zero leakage.
● 铸件设计结构，良好的超温和超压保护性能，恒温控制，性能可靠，寿命长。
Cast housing provides reliable over-temperature/over-pressure protection, stable performance, and long service life.

04 油气分离系统 Oil-gas separation system

● 优化设计的油气分离罐，进口可形成螺旋切向流动，便于油气离心分离。
Coalescing separator tank with tangential inlet for efficient oil-gas separation.
● 优化设计的油气分离切向线速度以及沉降时间，油气分离效果最佳，确保机器排气含油量≤2ppm。
Optimized tangential velocity and settling time ensure ⩽2ppm oil carryover.

05 油过滤系统 Oil filtration system

● 采用美国H&V公司的超细玻纤复合滤材，优质洁净过滤，有效保护压缩机主机轴承的安全运行，延长主机使用寿命。
The company in the United States, H&V, Its ultra-fine fiberglass composite filter media for superior contamination control and extended bearing life.
● 阻力小、耐高温、耐腐蚀性，性能更稳定，提高压缩机主机的使用寿命。
Low resistance, high-temperature resistance, and corrosion resistance ensure stable performance and longevity.



06 单向进气系统 Non-return air intake system

● 田边定制设计的进气阀，特殊的结构设计，无一般常开式进气阀启动负荷大的情况。
“TECBELL” custom - designed air intake valve, with a unique structural design, eliminates the high starting load problem of conventional normally - open air intake valves.
● 具有止回功能，在紧急停机的工况下，也不会喷油。
It features a check - back function and will not spray oil even under emergency shutdown conditions.
● 具有卸载补气功能，可以有效消除主机产生的气蚀噪音。
It has the unloading and air - supplement function, which can effectively eliminate the cavitation noise generated by the main unit.
● 0～100%比例调节气量功能，容调阀调节，压力损失小，动作稳定，寿命长。
0 - 100% stepless capacity regulation, controlled by a modulation valve with low pressure loss, stable operation, and long service life.

07 主机电机传动系统 Main motor drive system

● 田边自主研发设计的“TECBELL”高效节能主机。
“TECBELL” high - efficiency and energy - saving main unit independently developed and designed by Tecbell.
● 田边定制高效稀土永磁同步电动机，180°C不失磁。
“TECBELL” customized high - efficiency rare - earth permanent magnet synchronous motor does not lose magnetism at 180° C.
● 主机和电机采用1:1直联驱动，传动精度、效率高。
The main unit and the motor adopt a 1:1 direct - drive mode, with high transmission accuracy and efficiency.

单级压缩螺杆空压机参数表
Single-stage screw air compressor specification sheet

型号 Model	额定功率 Rated power (kW)	冷却方式 Cooling	工作压力 Pressure (bar)	容积流量 Volumetric flow rate (m³/min)	外形尺寸 Overall size (L×W×H mm)	出口尺寸 Outlet size	重量 Weight (kg)
TM-7A/8EPM	7.5	风冷	7 8 10	1.20 1.05 0.98	800*690*970	G3/4	160
TM-11A/8EPM	11	风冷	7 8 10	2.00 1.85 1.53	950*840*1070	G3/4	260
TM-15A/7EPM	15	风冷	7 8 10	2.58 2.40 2.10	950*840*1070	G3/4	260
TM-22A/8EPM	22	风冷	7 8 10	3.80 3.60 3.30	1100*940*1320	G1	350
TM-30A/8EPM	30	风冷	7 8 10	5.40 5.00 4.53	1300*850*1400	G1 1/2	500
TM-37A/8EPM	37	风冷	7 8 10	6.70 6.50 5.45	1300*900*1400	G1 1/2	520
TM-45A/8EPM	45	风冷	7 8 10	7.92 7.50 6.80	1300*1000*1400	G1 1/2	600
TM-55A/8EPM	55	风冷	7 8 10	11.13 10.62 9.44	1550*1200*1650	G2	810
TM-55A/8EPM+	55	风冷	7 8 10	11.13 10.62 9.44	2000*1300*1550	G2	1174
TM-75A/8EPM	75	风冷	7 8 10	14.00 13.00 11.97	1550*1200*1650	G2	950
TM-75A/8EPM+	75	风冷	7 8 10	14.00 13.00 11.97	2000*1300*1550	G2	1252

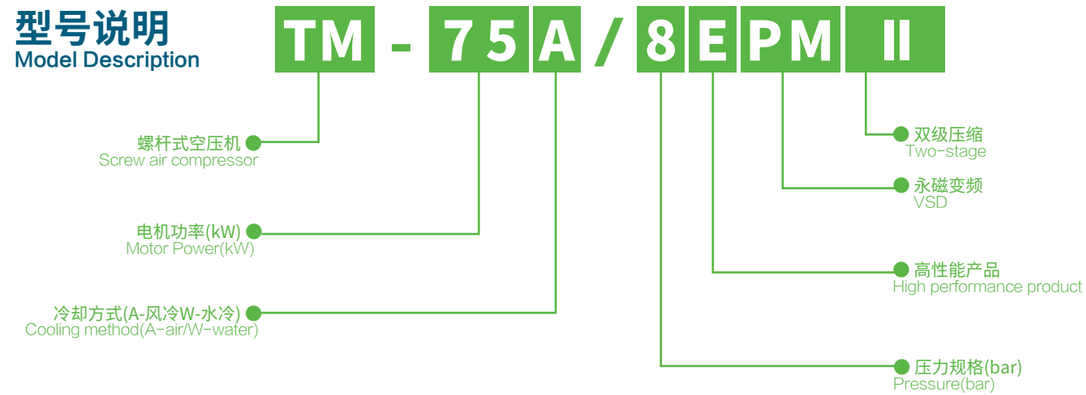
*备注：带+号的为离心风机款。
*Note: Models marked with + are centrifugal fan versions.

双级压缩螺杆空压机参数表
Two-stage screw air compressor specification sheet

型号 Model	额定功率 Rated power (kW)	冷却方式 Cooling	工作压力 Pressure (bar)	容积流量 Volumetric flow rate (m³/min)	外形尺寸 Overall size (L×W×H mm)	出口尺寸 Outlet size	重量 Weight (kg)
TM-22A/8EPMII	22	风冷	7 8 10	4.30 4.20 3.50	1300*850*1400	G1 1/2	480
TM-37A/8EPMII	37	风冷	7 8 10	7.20 7.05 6.08	1550*1200*1650	G2	780
TM-45A/8EPMII	45	风冷	7 8 10	10.00 9.75 6.96	1550*1200*1650	G2	800
TM-55A/8EPMII	55	风冷	7 8 10	13.00 12.50 10.20	2000*1500*1710	G2 1/2	1350
TM-75A/8EPMII	75	风冷	7 8 10	15.73 15.00 13.20	2000*1500*1710	G2 1/2	1500

*备注：55kW、75kW机型标配离心风机。
*Note: The 55kW and 75kW models come standard with centrifugal fans.

型号说明
Model Description



*有更多机型需求详情咨询销售人员。
*For more information about additional models, please consult our sales staff.