

# FABTRON

## The FT21 Series , PVSA + TSA Type Nitrogen Purifier

The FABTRON FT21 Series is a high-performance nitrogen purifier combining Pressure Vacuum Swing Adsorption (PVSA) and Thermal Swing Adsorption (TSA) technologies to deliver ultra-high purity nitrogen for semiconductor and hi-tech industrial applications. By integrating granular adsorbent media with a hollow fiber structured module, the system maximizes mass transfer efficiency within a compact footprint.

During operation, the PVSA stage removes bulk impurity such as CH<sub>4</sub> at ambient temperature through pressure cycling and deep vacuum regeneration, ensuring energy-efficient and continuous purification. The TSA stage adsorbs strongly retained contaminants such as H<sub>2</sub>O, O<sub>2</sub>, H<sub>2</sub>, CO, and CO<sub>2</sub> at ambient temperature. Regeneration is performed by controlled heating (typically up to 180°C) combined with a small hydrogen purge, enabling thorough desorption and long-term adsorbent stability.

The high-surface-area granular hollow fiber enhances gas distribution uniformity, reduces channeling, and improves overall adsorption efficiency. The dual-train PVSA + TSA alternating design ensures uninterrupted high-purity nitrogen supply while supporting scalable capacity and simplified maintenance.

### Advantages

- \* High Purification Efficiency.
- \* Efficient ambient-temperature PVSA and high-temperature TSA regeneration.
- \* No Consumable Parts.
- \* Continuous Operation.
- \* Low Pressure Drop Design.
- \* Modular & Scalable Configuration.

### Designed Flow Rate

- \* 10 to 3,000 Nm<sup>3</sup>/Hr.



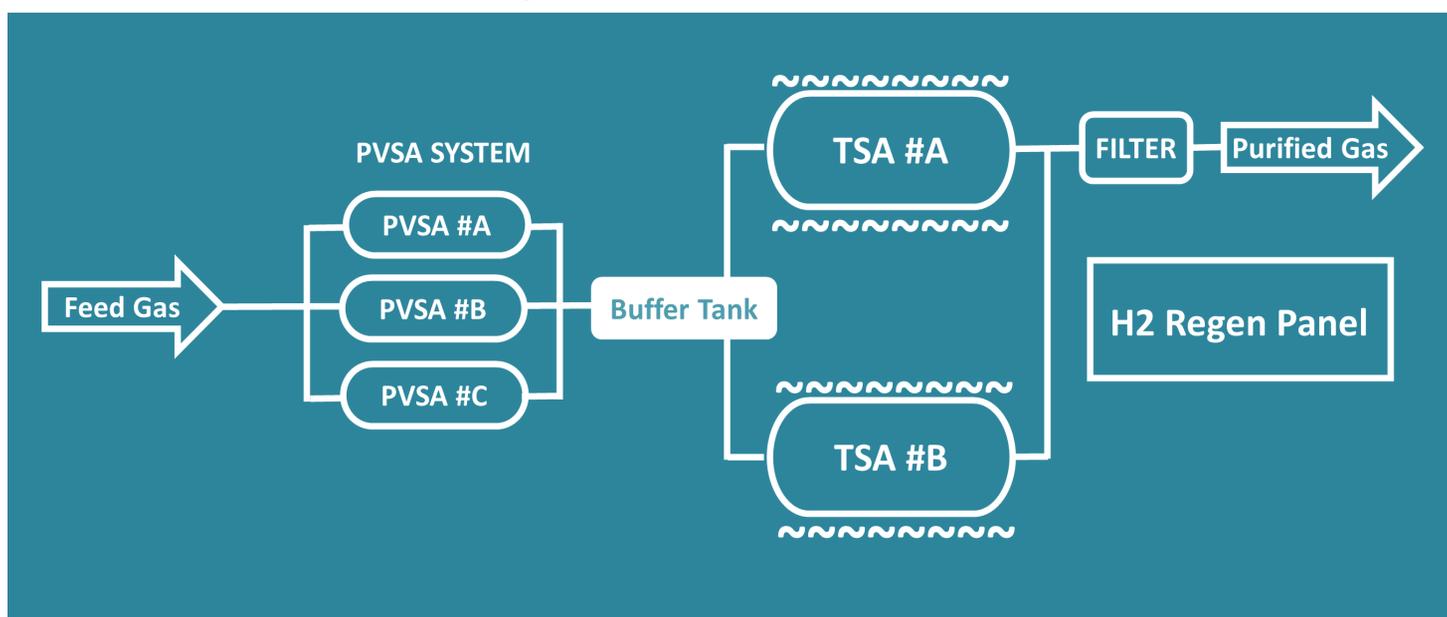


# N2 PVSA + TSA Technology gas purifier.

## 3-nines to 9-nines grade purity.

Platform No.	Flow Rate (Nm3/Hr)	Gas Purified :	Impurities Removed :
FT21	10 to 3,000	N2	H2O, O2, H2, CO, CO2, CH4 to <1 ppb

### Platform and Flow Diagram



### Features Table

Instrumentation	Standard	Optional	Instrumentation	Standard	Optional
Fully Automated Controller by Programmable Logic Controller.	√		Inlet and Outlet Manual Isolation Valve.		√
12 inches Touchable Human Machine Interface.	√		Auto / Manual Bypass Valve.		√
Separate Control Power. 100-240 VAC.		√	Inlet Mass Flow Meter.		√
UPS for Separate Control Power.		√	Inlet and Outlet Pressure Transmitters.		√
Emergency Off Button (EMO).		√	Inlet and Outlet Analytical Port.		√
Emergency Remote Shutdown	√		Instrument Air Management System with Reservoir.		√
Purified Gas Moisture Transmitter.		√	Over Pressure Relief Valves.	√	
MODBUS or PROFINET Communication Port.	√		0.003µm Particle Filter, Metal or Teflon.		√
Alarm Light Tower.		√	Exhaust Box for H <sub>2</sub> Blending System with H <sub>2</sub> leak detector.		√
Analog Signal Output Interface. * Mass Flow Meter 4-20 mA Signal Output. * Pressure Transmitters 4-20 mA Signal Output. * Common Alarm Relay, N.C. * Gas Relay Indicating Purifier Status, N.C.		√	Purifier fixed bolster brackets.		√
			Backup Column with Auto/ Manual regeneration		√
			Outdoor Enclosure.		√