

# FABTRON

## The FT22 Series , PVSA + TSA Type Hydrogen Purifier

The FABTRON FT22 Series is a high-performance hydrogen purifier combining Pressure Vacuum Swing Adsorption (PVSA) and Thermal Swing Adsorption (TSA) technologies to deliver ultra-high purity hydrogen for semiconductor and hi-tech industrial applications. The system features a comprehensive explosion-proof design, including Z-Purge for the electrical cabinet, argon cycle purge, and hydrogen leak detection, ensuring safe and reliable operation in hazardous hydrogen environments. By integrating granular adsorbent media with a hollow fiber structured module, the purifier maximizes mass transfer efficiency within a compact footprint.

During operation, the PVSA stage removes bulk impurities such as N<sub>2</sub> and 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>, CO, and CO<sub>2</sub> at ambient temperature. Regeneration is performed by back flushing with controlled heating (typically up to 180°C), 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 hydrogen supply while supporting scalable capacity, simplified maintenance, and safe operation in classified areas.

### 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.
- \* Lots Power Energy Saving.

### Designed Flow Rate

- \* 10 to 1,500 Nm<sup>3</sup>/Hr.



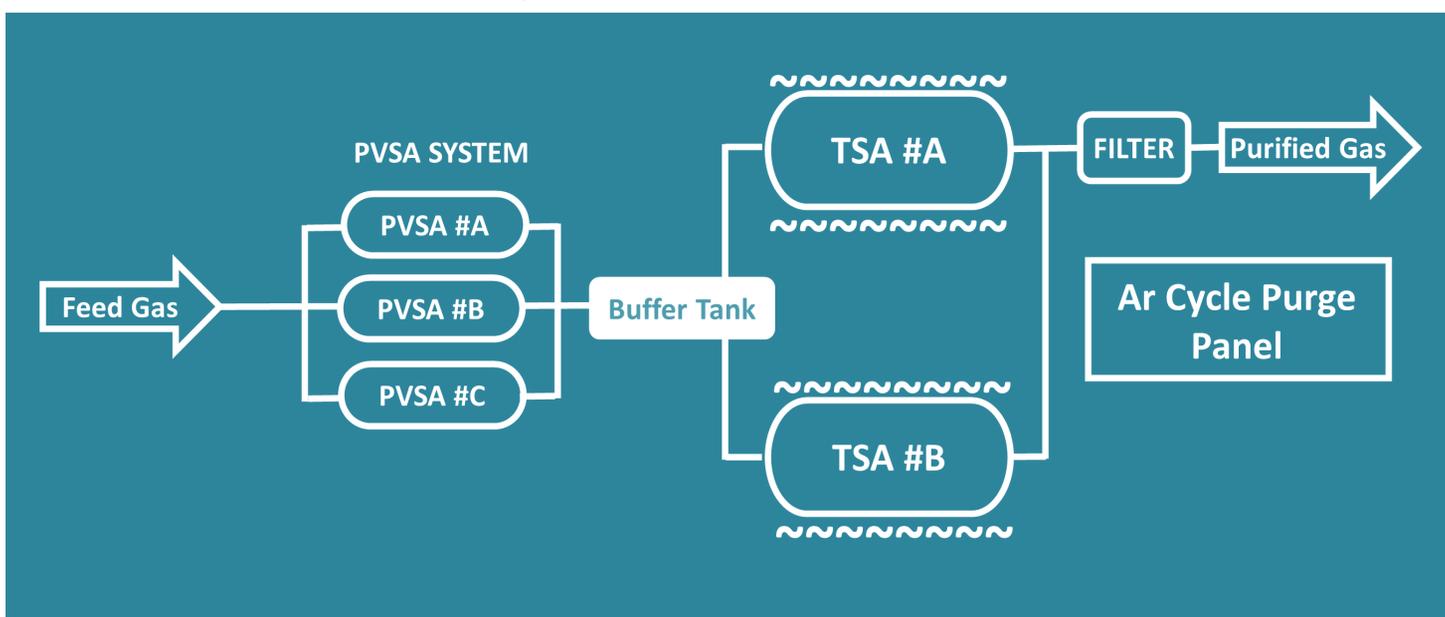


# H2 PVSA + TSA Technology gas purifier.

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

Platform No.	Flow Rate (Nm3/Hr)	Gas Purified :	Impurities Removed :
FT22	10 to 1,500	H2	H2O, O2, CO, CO2, CH4, N2 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 Pneumatic Auto Isolation Valve.	√	
12 inches Touchable Human Machine Interface.	√		Inlet Mass Flow Meter.		√
Separate Control Power. 100-240 VAC.		√	Inlet and Outlet Pressure Transmitters.	√	
UPS for Separate Control Power.		√	Inlet and Outlet Analytical Port.	√	
Emergency Off Button (EMO).	√		Instrument Air Management System with Reservoir.	√	
Emergency Remote Shutdown	√		Z-Purge for Electrical Cabinet & Argon Cycle Purge System.	√	
Purified Gas Moisture Transmitter.		√	Exhaust Duct with Hydrogen Leak Detector	√	
MODBUS or PROFINET Communication Port.	√		Over Pressure Relief Valves.	√	
Alarm Light Tower.	√		0.003µm Particle Filter, Metal or Teflon.		√
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.	√	