

TEMPERATURE CONTROL SYSTEM FOR PRESSURE EV TEST



Temperature Control System for Pressure EV Test - ToronChill™ TCSt

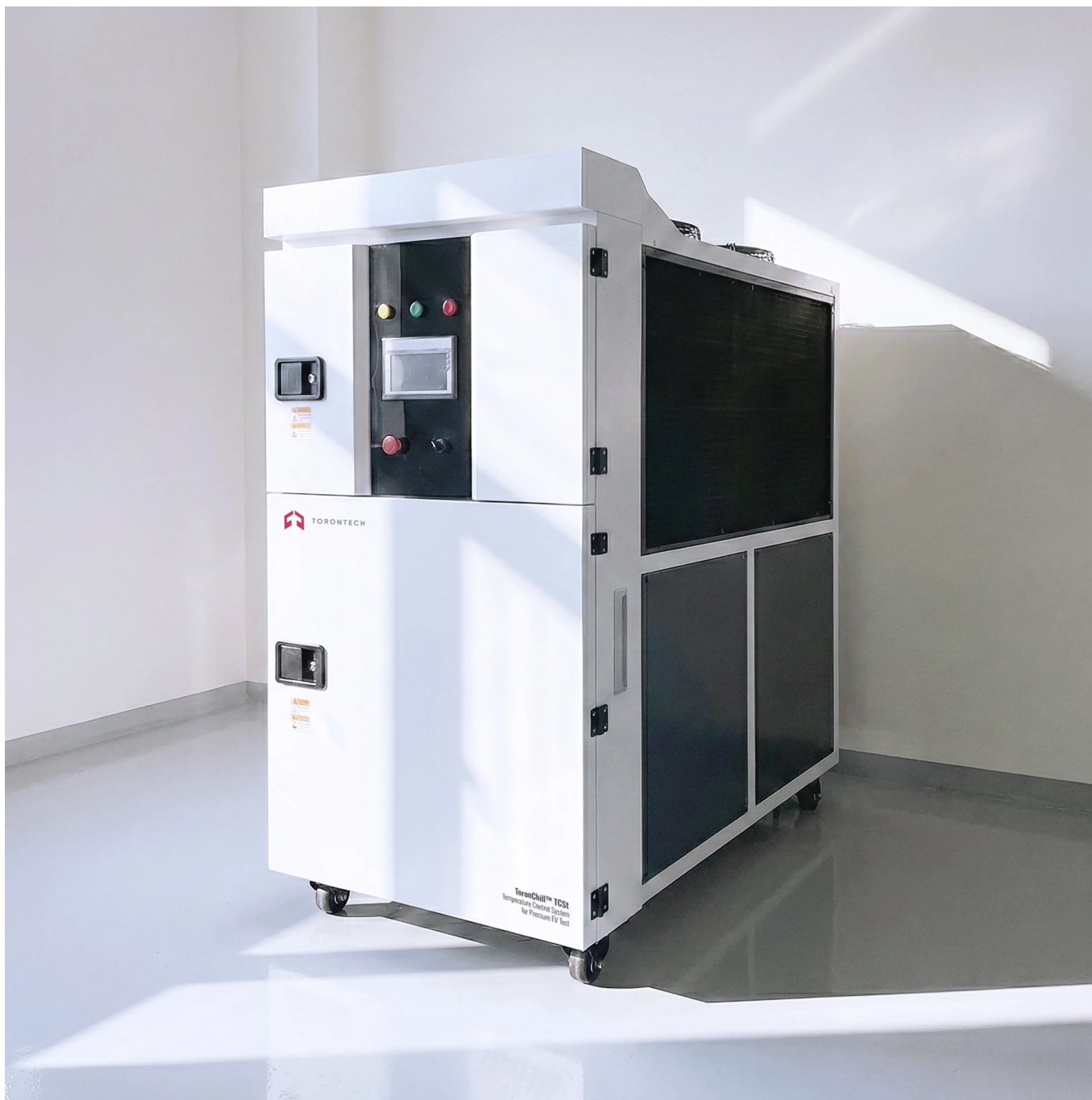
ToronChill™ TCSt is a Temperature Control System engineered for pressure EV test loops using a closed, pressurized cooling cycle. It helps run antifreeze-based circulation reliably at elevated temperatures while supporting both high- and low-temperature experiments in sealed (airtight) EV testing environments.

Built for long-duration validation, this Temperature Control System combines stable temperature control with controlled output flow and pressure. Smart fluid return management, leakage detection, and optional communications help maintain repeatable thermal conditions across motor, battery, and subsystem performance programs.

APPLICATIONS

Temperature Control System for Pressure EV Test - ToronChill™ TCSt Applications

- Motor and inverter thermal testing: Holds setpoint temperature while managing loop flow/pressure for repeatable EV performance data.
- Battery pack performance and durability testing: Supports pressurized coolant loops used in pack characterization and stress testing.
- Endurance and fatigue cycling: Maintains stable thermal conditions during long test runs to reduce drift and rework.
- New EV product development: Provides controlled temperature and circulation for prototype validation and optimization.



FEATURES

Temperature Control System for Pressure EV Test - ToronChill™ TCSt Key Features

- Wide temperature control range (-40°C to 135°C): Supports both cold-start and high-temperature EV validation in one system.
- Temperature stability $\pm 0.5^{\circ}\text{C}$: Helps improve repeatability when comparing test cycles and configurations.
- Multiple optional flow ranges: Available flow options include 0.5–10, 2–20, 4–40, 6–60, 9–90, and 10–150 L/min for different EV loops.
- Frequency-conversion flow and pressure control: Helps maintain stable output flow/pressure across changing thermal loads.
- Intelligent liquid return with automatic blowing: Supports efficient fluid handling and assists with loop management during operation.
- Load leakage detection technology: Helps protect line tightness by monitoring for leaks during production-line or bench testing.
- Optional communications: RS485, CAN, and Ethernet options support integration with EV test benches and control systems.
- Anti-leakage fume design with monitoring: Built-in leakage monitoring supports safer, cleaner operation in lab environments.

TECHNICAL SPECIFICATIONS

Temperature Control System for Pressure EV Test - ToronChill™ TCSt Technical Specifications

Specification	Details
Temperature Control Range	-40°C to 135°C
Temperature Control Stability	±0.5°C
Optional Flow Control Range	0.5-10 / 2-20 / 4-40 / 6-60 / 9-90 / 10-150 L/min
Minimum Flow Control Stability	Better than ±0.2 L/min
Control Method	Frequency-conversion control for stable output flow and pressure
Fluid Management	Intelligent liquid return technology; automatic blowing
Leak Management	Load leakage detection; pipeline tightness support
Communication Options	RS485 / CAN / Ethernet
Safety/Monitoring	Anti-leakage fume design; leakage monitoring

ToronChiller™ TCSt name rules

TCSt 12 U – C 2 D

○ **Outlet loop:**

"S" : Single output
"D" : Dual output
"T" : Three-way output

○ **Lower limit of control temp:**

"0" : Lower temp. control limit 5°C
"2" : Lower temp. control limit -20°C
"3" : Lower temp. control limit -30°C
"4" : Lower temp. control limit -40°C

○ **Heat discharge method:**

"U" : Air-cooled all-in-one machine
"W" : Water-cooled all-in-one machine

○ **Cooling capacity:**

"08" : Cooling capacity 20KW
"10" : Cooling capacity 25KW
"12" : Cooling capacity 35KW
"16" : Cooling capacity 50KW
"20" : Cooling capacity 60KW
"25" : Cooling capacity 80KW
"30" : Cooling capacity 100KW



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