TORONTECH

TEMPERATURE CONTROL SYSTEM FOR DIRECT COOLING EV TEST

Temperature Control System for Direct Cooling EV Test – ToronChill™ TCSc

ToronChill™ TCSc is a Temperature Control System designed for direct-cooling EV test benches, using refrigerant-to-circulating-fluid heat exchange for fast, stable temperature response. It helps standardize thermal conditions during validation, durability, and performance testing.

Built as an air-cooled, all-in-one unit, this Temperature Control System supports precise setpoint control, flexible flow configurations, and test-lab connectivity. Integrated monitoring and leakage safeguards help protect rigs, reduce downtime, and keep long test runs consistent.

APPLICATIONS

Temperature Control System for Direct Cooling EV Test – ToronChill™ TCSc Applications

- Motor and drivetrain support testing: Maintains controlled coolant temperature to stabilize test conditions and repeatability.
- Endurance and fatigue testing: Supports long-duration cycles where temperature drift can impact results and component stress.
- High/low-temperature start-up testing: Enables controlled cold and warm start evaluations for EV components and subsystems.

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FEATURES

Temperature Control System for Direct Cooling EV Test – ToronChill™ TCSc Key Features

- Wide temperature control range: Covers -40 to 95°C for direct-cooling EV test scenarios.
- Stable temperature regulation: Temperature control stability of ±0.5°C helps improve repeatability.
- Flexible flow-control options: Multiple flow-control ranges are available to match different test loops and rigs.
- High-precision flow stability: Minimum control stability is better than ±0.2 L/min (as stated).
- Intelligent liquid return: Automatic liquid blow-down function supports faster loop management and handling.
- Leakage-focused safety design: Load leakage detection and pipeline tightness support help reduce risk during testing.
- Easy system integration: Optional communications include RS485, CAN, and Ethernet.
- Built-in leak containment and monitoring: Anti-leakage water tank design with leakage monitoring supports safer operation.

TECHNICAL SPECIFICATIONS

Temperature Control System for Direct Cooling EV Test – ToronChill™ TCSc Technical Specifications

Specification	Details
Product Name	Temperature Control System for Direct Cooling EV Test – ToronChill™ TCSc
Temperature Control Range	-40 to 95°C
Temperature Control Stability	±0.5°C

Specification	Details
Flow Control Options	0.5–10 L/min; 2–20 L/min; 4–40 L/min; 6–60 L/min; 9–90 L/min; 10–150 L/min
Minimum Flow Control Stability	Better than ±0.2 L/min
Heat Discharge Method (Code "U")	Air-cooled all-in-one machine
Cooling Capacity Code (08)	20 kW (code definition shown in brochure)
Optional Communication	RS485 / CAN / Ethernet
Leakage Protection	Load leakage detection; pipeline tightness support
Water Tank Design	Built-in anti-leakage tank + leakage monitoring

ToronChiller™ TCSc name rules

TCSc 08 U – C 2 S

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

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

Heat discharge method:
- "U" : Air-cooled all-in-one machine
- "W" : Water-cooled all-in-one machine
- "V" : Water-cooled energy-saving all-in-one machine

Cooling capacity:
- "04" : Cooling Capacity 10KW
- "06" : Cooling Capacity 15KW
- "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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