

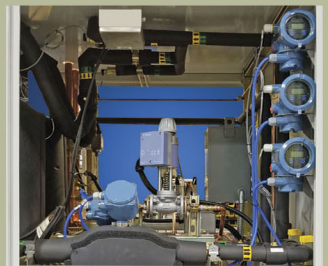
**CTS**

**Climatic Testing Systems**

*Bringing the Desired Climate to Your Doorstep*



# 6 TON COMPRESSOR CALORIMETER



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Test Compressor Specifications Capacity	
Compressor Type	Single and Variable speed Electric Compressors
Compressor nominal Capacity	1 Ton to 6 Ton
Test Compressor Power Supply	
Compressor Power/Phase	1Ø and 3 Ø
Compressor Current Range	30 A max.
Compressor Voltage Range	100 to 230/1Ø 200 to 480/3Ø
Compressor Voltage Control	AC Power Supply 7000 Watts max.
Test Refrigerants	
Refrigerant Type	R-134a, R-407C, R-410a, R-404a, R-1234YF/ze, R-441A and R-32.  OPTIONAL: R-209, R-600a, Care 30 and other R-290 and R-600a mixtures,
Refrigerant Flow Meter Specifications	
Sensor Type	Coriolis (Micro-Motion)
Measurement Accuracy	±0.10% Reading
Sensor Location	Liquid line
Refrigerant Oil Specifications	
Oil Type	PAG
Oil Flow rate	0.5% to 5.0% of Refrigerant mass flow
Oil Flow Meter Specifications	
Sensor Type	Anton Par
Measurement Accuracy	0.1%
Sensor Location	Liquid Line
Compressor Chamber	
Chamber Temperature Range	25°C to 50°C
Chamber Clear Dimensions	1.0m(L) x 2.0m(W) x 1.5m(H)
Access Door	One (1)
Window (door)	300mm x 300mm
Interior Finish	Painted Galvanized Steel
Discharge Pressure Control Specifications (Condensing Temperature)	
Condensing Temperature Range	35°C to 100°C
Control Method	PID
Control Variable	Condenser water regulation valve.
Control Stability	±0.07 kg/cm <sup>2</sup>
Sensor Type	Electronic Pressure Transmitter
Measurement Accuracy	±0.15% full scale
Sensor location	Compressor Discharge
Liquid Line Temperature (Sub-Cool) Control Specifications	
Liquid Sub-Cool Range <sup>1</sup>	3.0 to 20°C Sub-Cool
Control Method	PID
Control Stability	±0.2°C
Sensor Type (Liquid Temperature)	100- Ω, 4-Wire Platinum RTD
Measurement Accuracy (Liquid Temperature)	±0.1°C
Sensor location	Expansion device Inlet
Suction Pressure Control Specifications (Evaporating Temperature)	
Evaporating Temperature Range	5 to 40 °C
Control Method	PID
Control Variable	Electronic Expansion Valve
Control Stability	±0.02 kg/cm <sup>2</sup>
Sensor Type	Electronic Pressure Transmitter
Measurement Accuracy	±0.15% full scale
Sensor location	Compressor Suction
Suction Temperature Control Specifications (Super Heat)	
Super-Heat Range <sup>2</sup>	30.0°C to 50°C
Control Method	PID
Control Variable	Electric Heater
Control Stability	±0.2°C
Sensor Type (Temperature)	100- Ω, 4-Wire Platinum RTD
Measurement Accuracy (Temperature)	±0.1°C
Sensor location	Compressor Suction
Control System and Data Acquisition Specifications	
Machine & Process Control	PLC
DAQ System	NI Compact DAQ
Operator Interface & Test Control	CTS Test Software using NI LabView
Flammable Gas Detection and Safety System (OPTIONAL)	
Gas Detection	R-290, R-600a
Fresh air Fan capacity	20 m <sup>3</sup> /h with flow detection
Annunciators	Visual and Audible
Alarms System	
High Pressure	Primary Side Discharge, Secondary Refrigerant Vessel
High Temperature	Primary Side Discharge, Secondary Refrigerant Vessel
Heaters	Heater Sheath High Temperature
Pressure Relief	Secondary Refrigerant Vessel
Liquid Level	Secondary Refrigerant Vessel
E-Stop	Qty. 3
Equipment Dimensions	
Overall Outside Dimensions	5.0m (L) x 1.7m (w) x 2.3m (H)

<sup>1</sup> Control of liquid sub-cool temperature indirectly by controlling liquid pressure and temperature. Also, requires correct amount of refrigerant charge.

<sup>2</sup> Control of super-heat temperature indirectly by controlling return gas pressure and temperature. Also, requires correct amount of refrigerant charge.



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