

## **C-EVO Temperature & Humidity Test Chambers**

Since 1932, Tenney has pioneered the design and manufacturing of environmental testing equipment. Designed for value, reliability and performance, C-EVO is a world class environmental cycling test chamber loaded with standard features and advanced technological upgrades:

- Smallest equipment footprint in the industry
- Superior heat capacity (kW), cooling capacity (HP/BTU) and air flow capacity (CFM) deliver the best temperature change rates and uniformity in the industry
- Redundant user and equipment safety features are standard

## Features

- Smart 1.2TM controller
- Ethernet & RS485 communications
- USB port
- · Heated viewing glass window
- Chamber light
- Two 3" cable ports
- Solid-state humidity sensor
- · Platinum RTD temperature sensor
- · Heavy-duty leveling casters
- · Nichrome wire air heater
- Semi-Hermetic reciprocating compressors
- Thermal expansion valves
- FM approved safety OTP
- · Backup safety thermal cutoff
- · Main electrical disconnect LOTO
- Chamber vent port
- · One shelf standard

## Options:

- RS 232 or RS485 communications
- 5-gallon water reservoir\*
- · Recirculating system for humidity water\*
- Water demineralizer\*
- External dryer for obtaining humidity levels as low as 5%\*
- Additional ports
- Shelving, adjustable and removable
- Automatic CO2 or LN2 cooling boost system
- Boost heating system
- · GN2 purge system
- Recording instruments
- NIST Calibration
- Tenney Environmental offers calibration services accredited to the ISO 17025 standard
- Additional engineered to order custom configurations available
- \* Humidity Model Only





Tenney, Lunaire, Blue M, Gruenberg Lindberg/MPH, Wisconsin Oven

						C-FVO	Temper	ature / Ηι	ımidity T	est Chan	nher Sne	cification	c							
Model	C10S	C10C	C10RS	C10RC	C20S	C20C	C20RS	C20RC	C30S	C30C	C30RS	C30RC	C40S	C40C	C40RS	C40RC	C64S	C64C	C64RS	C64RC
Cubic Feet	+ ***		10	020110	0200		20	020110			30	050110	0.00		40	0.0.00	55.5		54	00
Liters	+		83				66				50				132				312	
	24" x 26" x 28"				30" x 32" x 36"				36" x 40" x 36"				40" x 44" x 40"				48" x 48" x 48"			
Work Space (WxDxH)	609 mm x 660 mm x 711 mm				762 mm x 812 mm x 914 mm				914 mm x 1016 mm x 914 mm				1016 mm x 1117 mm x 1016 mm				1219 mm x 1219 mm x 1219 mm			
Exterior (WxDxH)	34" x 59" x 75" 863 mm x 1498 mm x 1905 mm				40" x 65" 78" 1016 mm x 1651 mm x 1981 mm				46" x 73" x 78" 1168 mm x 1854 mm x 1981 mm				50" x 77" x 82" 1270 mm x 1955 mm x 2082 mm				58" x 81" x 90" 1473 mm x 2057 cm x 2286 mm			
Approx Unit Weight (lbs)	1295	1429	1367	1531	1511	1664	1596	1754	1656	1864	1775	2100	1831	2184	1951	2296	2308	2653	2420	2765
							Cooling	Rates (en	npty cha	mber) M	in ( °C/m	in)								
180 C to -65°C		72(3.4)		72(3.4)		111(2.2)		111(2.2)		136(1.8)		136(1.8)		160(1.5)		160(1.5)		211(1.2)		211(1.2)
125 C to -35°C		37(4.5)		37(4.5)		53(3.1)		53(3.1)		63(2.6)		63(2.6)		76(2.2)		76(2.2)		96(1.7)		96(1.7)
85 C to -20°C	22(4.8)		22(4.8)		33(3.2)		33(3.2)		40(2.6)		40(2.6)		54(1.9)		54(1.9)		80(1.3)		80(1.3)	
85 C to -40°C		30(4.1)		30(4.1)		45(2.8)		45(2.8)		54(2.3)		54(2.3)		65(1.9)		65(1.9)		88(1.4)		88(1.4)
ambient to -40°C	+	15(4.3)		15(4.3)		23(2.8)		23(2.8)		28(2.3)		28(2.3)		35(1.9)		35(1.9)		45(1.4)		45(1.4)
ambient to -68°C	+ +	40(2.3)		40(2.3)		66(1.4)		66(1.4)		85(1.1)		85(1.1)		108(0.9)		108(0.9)		160(0.6)		160(0.6)
ambient to so s		10(2.0)		10(2.0)			Heating	Rates (en	nnty cha		in (°C/m			100(015)		100(015)		100(0,0)		100(010)
-65°C to 180°C		42(5.9)		42(5.9)		64(3.8)	Treating	64(3.8)	ipey cita	84(2.9)	( 6/11	84(2.9)		102(2.4)		102(2.4)		134(1.8)		134(1.8)
-20°C to 85°C	18(6)	12(3.3)	18(6)	12(3.5)	26(4.0)	01(3.0)	26(4.0)	01(3.0)	32(3.3)	01(2.5)	32(3.3)	01(2.5)	40(2.6)	102(2.1)	40(2.6)	102(2.1)	50(2.1)	13 ((1.3)	50(2.1)	131(1.0)
-40°C to 85°C	10(0)	21(6.0)	18(0)	21(6.0)	20(4.0)	31(4.0)	20(4.0)	31(4.0)	32(3.3)	38(3.3)	32(3.3)	38(3.3)	70(2.0)	46(2.7)	70(2.0)	46(2.7)	30(2.1)	58(2.2)	30(2.1)	58(2.2)
	10(6.2)	21(6.0)	10(6.2)	21(6.0)	14(4.2)	31(4.0)	14(4.2)	31(4.0)	17(2.5)	38(3.3)	17/2 5)	38(3.3)	21(2.0)	40(2.7)	21/2.0\	40(2.7)	27(2.2)	58(2.2)	27(2.2)	38(2.2)
-35°C to ambient	10(6.2)	45(6.2)	10(6.2)	45(5.2)	14(4.2)	22(4.2)	14(4.2)	22(4.2)	17(3.5)	35(3.5)	17(3.5)	35(3.5)	21(2.8)	22(2.0)	21(2.8)	22/2.0)	27(2.2)	44(2.2)	27(2.2)	44(2.2)
-68°C to ambient		15(6.2)		15(6.2)		22(4.2)		22(4.2)	1 1 0 -	25(3.5)		25(3.5)		33(2.8)		33(2.8)		41(2.2)		41(2.2)
	4			ı		l	1		Load Ca			ı	ı	ı	1	ı	1		ı	
Live Load Watts @ - 18°C	1200	1700	1200	1700	1160	1650	1160	1650	1120	1610	1120	1610	630	1260	630	1260	560	1210	560	1210
Live Load Watts @ - 40°C		1400	<b>└</b>	1400		1330		1330		1260		1260		1150		1150		1060		1060
Live Load Watts @ - 54°C		1100		1100		1010		1010		940		940		750		750		630		630
								Gene	ral Speci											
Temperature Uniformity									±2°C @ 65°	С										
Temperature Control									°C after stabi	lization										
Standard Temperature Range						Single stag	ge (S,RS mo	dels) -35°C to 1	.80°C	Cascade (C,R	C models) -6	8°C to 180°C								
Optional Temperature Range			Single sta	ige (S models	) -35°C to 20	Single stage (S models) -35°C to 200°C Single stage (RS models) -35°C to 180°C Cascade (C models) -73°C to 200°C Cascade (RC models) -73°C to 180°C														
Humidity Range	(RS,RC models only) 20% to 95% in the dry bulb range of 20°C to 85°C as limited by a 5°C dewpoint																			
Control Tolerances	Temperature: ± 1°C after stabilization Humidity: ± 5% RH after stabilization																			
	+				(R	S,RC models o				of 20°C to 85	°C as limited	by a 5°C dew	point							
Air Flow Rate					(R	S,RC models o				of 20°C to 85	°C as limited	by a 5°C dew	point							
					(R	S,RC models o			tion H	of 20°C to 85	°C as limited	by a 5°C dew	point							
Air Flow Rate  Heat Capacity  Humidifier Capacity					(R	S,RC models o		C after stabiliza	tion H 500 CFM	of 20°C to 85 umidity: ± 5	°C as limited	by a 5°C dew	point							
Heat Capacity Humidifier Capacity					(R	S,RC models c	rature: ± 1°	C after stabiliza	500 CFM 3KW (RS,RC mode	of 20°C to 85 umidity: ± 5	°C as limited % RH after s	by a 5°C dew tabilization	point							
Heat Capacity Humidifier Capacity Refrigeration					(R	S,RC models c	rature: ± 1°	C after stabiliza 1.5KW S,RS models) 2	tion H 500 CFM 3KW (RS,RC mod	of 20°C to 85 umidity: ± 5 els only) ascade (C,RC	°C as limited % RH after s	by a 5°C dew tabilization	point							
Heat Capacity Humidifier Capacity Refrigeration Condenser					(R	S,RC models of Temper	rature: ± 1°	C after stabiliza 1.5KW S,RS models) 2 Air Co	tion H 500 CFM 3KW (RS,RC mode HP Cateloged or Water	of 20°C to 85 umidity: ± 5 els only) ascade (C,RC	°C as limited % RH after s models) (2)	by a 5°C dew tabilization	point							
Heat Capacity Humidifier Capacity Refrigeration Condenser Heat of Rejection						S,RC models of Temper S Single sta	rature: ± 1°  ingle stage (	1.5KW S,RS models) 2 Air Co	tion H 500 CFM 3KW (RS,RC model) HP Cateloged or Water BTUH	of 20°C to 85 umidity: ± 5 els only) ascade (C,RC Cooled Cascade (C,R	°C as limited % RH after s models) (2) 2	by a 5°C dew tabilization  2 HP  4,000 BTUH								
Heat Capacity Humidifier Capacity Refrigeration Condenser Heat of Rejection Load Per Shelf						S,RC models of Temper S Single sta	rature: ± 1°  ingle stage (	C after stabiliza 1.5KW S,RS models) 2 Air Co	tion H 500 CFM 3KW (RS,RC mode HP Ca oled or Water BTUH er load includi	of 20°C to 85 umidity: ± 5 els only) ascade (C,RC Cooled Cascade (C,R	°C as limited % RH after s models) (2) 2	by a 5°C dew tabilization  2 HP  4,000 BTUH								
Heat Capacity Humidifier Capacity Refrigeration Condenser Heat of Rejection Load Per Shelf Max Number of Shelves						S,RC models of Temper  S Single sta	rature: ± 1°  ingle stage ( age (S,RS mestributed (Ma	1.5KW S,RS models) 2 Air Co odels) 15,000 aximum chambe	tion H 500 CFM 3KW (RS,RC mode HP Ca oled or Water BTUH er load includi 6 shelves	of 20°C to 85 umidity: ± 5 umidity: ± 5 els only) ascade (C,RC Cooled Cascade (C,R ing shelf and	°C as limited % RH after s models) (2) 2 C models) 2 floor load not	by a 5°C dew tabilization  2 HP  4,000 BTUH  to exceed 400								
Heat Capacity Humidifier Capacity Refrigeration Condenser Heat of Rejection Load Per Shelf Max Number of Shelves Decibel Level						S,RC models of Temper  S Single sta	rature: ± 1°  ingle stage ( age (S,RS mestributed (Ma	1.5KW S,RS models) 2 Air Co odels) 15,000 aximum chambe	Tool of the chartest of the ch	of 20°C to 85 umidity: ± 5 umidity: ± 5 els only) ascade (C,RC Cooled Cascade (C,R ing shelf and	°C as limited % RH after s models) (2) 2 C models) 2 floor load not	by a 5°C dew tabilization  2 HP  4,000 BTUH  to exceed 400								
Heat Capacity Humidifier Capacity Refrigeration Condenser Heat of Rejection Load Per Shelf Max Number of Shelves Decibel Level Chamber Spacing Requirement						S,RC models of Temper  S Single sta	rature: ± 1°  ingle stage ( age (S,RS mestributed (Ma	1.5KW S,RS models) 2 Air Co odels) 15,000 eximum chambel sured 3 feet fro	tion H 500 CFM 3KW (RS,RC modeled or Water BTUH er load includi 6 shelves om the chamb	of 20°C to 85 umidity: ± 5 umidity: ± 5 els only) ascade (C,RC Cooled Cascade (C,R ing shelf and ber, 5 feet fro all sides	°C as limited % RH after s models) (2) : C models) 2: C models) 2: n the floor at	by a 5°C dew tabilization  2 HP  4,000 BTUH  to exceed 400								
Heat Capacity Humidifier Capacity Refrigeration Condenser Heat of Rejection Load Per Shelf Max Number of Shelves Decibel Level						S,RC models of Temper  S Single sta	rature: ± 1°  ingle stage ( age (S,RS mestributed (Ma	1.5KW S,RS models) 2 Air Co odels) 15,000 eximum chambe sured 3 feet fro 18" / 200 lbs even	tition H 500 CFM 3KW (RS,RC model) HP Cate of the Collection of th	of 20°C to 85 umidity: ± 5 umidity: ± 5 els only) ascade (C,RC Cooled Cascade (C,R ing shelf and oper, 5 feet fro all sides , no point loa	°C as limited % RH after s models) (2) : C models) 2: floor load not m the floor ai	by a 5°C dew tabilization  2 HP  4,000 BTUH  to exceed 400								
Heat Capacity Humidifier Capacity Refrigeration Condenser Heat of Rejection Load Per Shelf Max Number of Shelves Decibel Level Chamber Spacing Requirement Floor Load Rating						S,RC models of Temper  S Single sta	rature: ± 1°  ingle stage ( age (S,RS mestributed (Ma	1.5KW S,RS models) 2 Air Co odels) 15,000 eximum chambe sured 3 feet fro 18" / 200 lbs even	tition H 500 CFM 3KW 4 (RS,RC model HP Carel coled or Water BTUH er load includi 6 shelves but the chamb 458mm on a ly distributed cal Requirement	of 20°C to 85 umidity: ± 5 umidity: ± 5 umidity: ± 5 els only) ascade (C,RC Cooled Cascade (C,RC ing shelf and oper, 5 feet fro ill sides in opoint loa irements	°C as limited % RH after s models) (2) : C models) 2: floor load not m the floor ai	by a 5°C dew tabilization  2 HP  4,000 BTUH  to exceed 400								
Heat Capacity Humidifier Capacity Refrigeration Condenser Heat of Rejection Load Per Shelf Max Number of Shelves Decibel Level Chamber Spacing Requirement Floor Load Rating					10	S,RC models of Temper  Temper  S  Single sta Olbs evenly dis  Less than	rature: ± 1° ingle stage ( age (S,RS m stributed (Ma 78 dBa mea	C after stabiliza  1.5KW S,RS models) 2 Air Co odels) 15,000 aximum chambe sured 3 feet frc 18" / 200 lbs even Electri 208'	tition H 500 CFM 3KW (RS,RC model HP C: oled or Water BTUH 6 shelves om the chamt 458mm on a ly distributed cal Requ V - 230V 1PH	of 20°C to 85 umidity: ± 5 umidity: ± 5 umidity: ± 5 els only) ascade (C,RC Cooled Cascade (C,RC ing shelf and oper, 5 feet fro ill sides in opoint loa irements 60HZ	°C as limited % RH after s models) (2) : C models) 2: floor load not m the floor al	by a 5°C dew tabilization  2 HP  4,000 BTUH  t to exceed 400  t right angles	0 lbs)							
Heat Capacity Humidifier Capacity Refrigeration Condenser Heat of Rejection Load Per Shelf Max Number of Shelves Decibel Level Chamber Spacing Requirement Floor Load Rating Power Amp - Fuse	40	60	50	60	10	S,RC models of Temper  S  Single sta Olbs evenly dis  Less than	rature: ± 1°  single stage ( age (S,RS meatributed (Ma 78 dBa mea	1.5KW S,RS models) 2 Air Co odels) 15,000 aximum chambe sured 3 feet frc 18" / 200 lbs even Electri 208' 60	tition H 500 CFM 3KW (RS,RC model HP C: oled or Water BTUH er load include 6 shelves m the chamt 458mm on a ly distributed cal Requ V - 230V 1PH 40	of 20°C to 85 umidity: ± 5 umidity: ± 5 umidity: ± 5 els only) scade (C,RC Cooled Cascade (C,RC ing shelf and oper, 5 feet fro all sides no point loa irements 60HZ 60	°C as limited % RH after s models) (2); C models) 2: floor load not m the floor al	by a 5°C dew tabilization  2 HP  4,000 BTUH t to exceed 400 t right angles	0 lbs)	60	50	60	40	60	50	60
Heat Capacity Humidifier Capacity Refrigeration Condenser Heat of Rejection Load Per Shelf Max Number of Shelves Decibel Level Chamber Spacing Requirement Floor Load Rating Power Amp - Fuse Amp - Under Load	40 32	60 45	50 40	60 45	10	S,RC models of Temper  Temper  S  Single sta Olbs evenly dis  Less than	rature: ± 1° ingle stage ( age (S,RS m stributed (Ma 78 dBa mea	1.5KW S,RS models) 2 Air Co odels) 15,000 aximum chambe sured 3 feet frc 18" / 200 lbs even Electri 208' 60 45	tition H  500 CFM 3KW  (RS,RC model HP Capped of Water BTUH er load includi 6 shelves with the chamble 458mm on a ly distributed cal Requivious PM  40 32	of 20°C to 85 umidity: ± 5 umidity: ± 5 umidity: ± 5 els only) els only) escade (C,RC cooled Cascade (C,RC ing shelf and only) er, 5 feet fro all sides n no point loa irements 60HZ 60 45	°C as limited % RH after s models) (2) : C models) 2: floor load not m the floor al	by a 5°C dew tabilization  2 HP  4,000 BTUH  t to exceed 400  t right angles	0 lbs)	60 45	50 40	60 45	40 32	60 45	50 40	60 45
Heat Capacity Humidifier Capacity Refrigeration Condenser Heat of Rejection Load Per Shelf Max Number of Shelves Decibel Level Chamber Spacing Requirement Floor Load Rating Power Amp - Fuse	_				10	S,RC models of Temper  S  Single sta Olbs evenly dis  Less than	rature: ± 1°  single stage ( age (S,RS meatributed (Ma 78 dBa mea	1.5KW S,RS models) 2 Air Co odels) 15,000 aximum chambe sured 3 feet frc 18" / 200 lbs even Electri 208' 60 45	tition H 500 CFM 3KW (RS,RC model HP C: oled or Water BTUH er load include 6 shelves m the chamt 458mm on a ly distributed cal Requ V - 230V 1PH 40	of 20°C to 85 umidity: ± 5 umidity: ± 5 umidity: ± 5 els only) els only) escade (C,RC cooled Cascade (C,RC ing shelf and only) er, 5 feet fro all sides n no point loa irements 60HZ 60 45	°C as limited % RH after s models) (2); C models) 2: floor load not m the floor al	by a 5°C dew tabilization  2 HP  4,000 BTUH t to exceed 400 t right angles	0 lbs)							
Heat Capacity Humidifier Capacity Refrigeration Condenser Heat of Rejection Load Per Shelf Max Number of Shelves Decibel Level Chamber Spacing Requirement Floor Load Rating Power Amp - Fuse Amp - Under Load	_				10	S,RC models of Temper  S  Single sta Olbs evenly dis  Less than	rature: ± 1°  single stage ( age (S,RS meatributed (Ma 78 dBa mea	1.5KW S,RS models) 2 Air Co odels) 15,000 aximum chambe sured 3 feet frc 18" / 200 lbs even Electri 208' 60 45	tition H  500 CFM 3KW  (RS,RC model HP Capped of Water BTUH er load includi 6 shelves with the chamble 458mm on a ly distributed cal Requivious PM  40 32	of 20°C to 85 umidity: ± 5 umidity: ± 5 umidity: ± 5 els only) els only) escade (C,RC cooled Cascade (C,RC ing shelf and only) er, 5 feet fro all sides n no point loa irements 60HZ 60 45	°C as limited % RH after s models) (2); C models) 2: floor load not m the floor al	by a 5°C dew tabilization  2 HP  4,000 BTUH t to exceed 400 t right angles	0 lbs)							
Heat Capacity Humidifier Capacity Refrigeration Condenser Heat of Rejection Load Per Shelf Max Number of Shelves Decibel Level Chamber Spacing Requirement Floor Load Rating Power Amp - Fuse Amp - Under Load Power	32	45	40	45	10 40 32	S,RC models of Temper  S Single sta Olbs evenly dis Less than  60 45	rature: ± 1°  single stage ( age (S,RS mestributed (Ma 78 dBa mea	1.5KW S,RS models) 2 Air Co odels) 15,000 aximum chambe sured 3 feet frc 18" / 200 lbs even Electri 208' 60 45	tition H 500 CFM 3KW (RS,RC mod- HP C: oled or Water BTUH er load includi 6 shelves m the chamb 458mm on a ly distributed cal Requ V - 230V IPH 40 32 660V - IPH 60	of 20°C to 85 umidity: ± 5 umidity: ± 5 umidity: ± 5 els only) els only) els only) escade (C,RC Cooled Cascade (C,RC mig shelf and oper, 5 feet fro all sides no point loa irements 60HZ 60 45 HZ	°C as limited % RH after s models) (2); C models) 2: floor load not m the floor al d 50 40	by a 5°C dew tabilization  2 HP  4,000 BTUH  t right angles  60 45	0 lbs) 40 32	45	40	45	32	45	40	45

- Performance is based upon an empty chamber operating at 24°C (75°F) ambient air.
  On 50Hz or higher than 24°C ambient, performance may be reduced. Consult factory regarding any special cooling requirements.
  Listed cooling rates may be affected if the optional temperature range is purchased. Consult factory for more information.