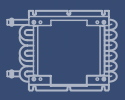
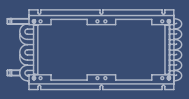
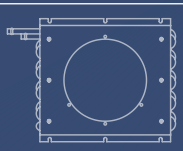


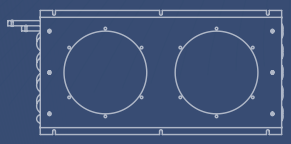
Model**720**



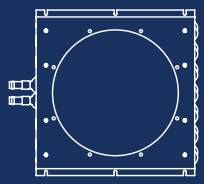
Model**721**



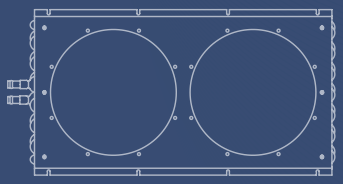
Model**722**



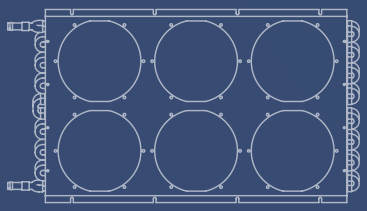
Model**723**



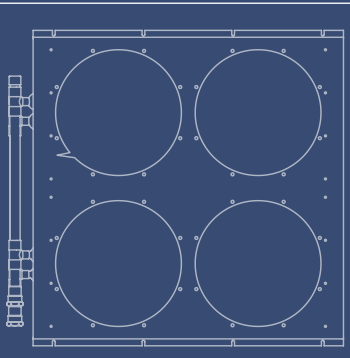
Model**724**



Model**725**

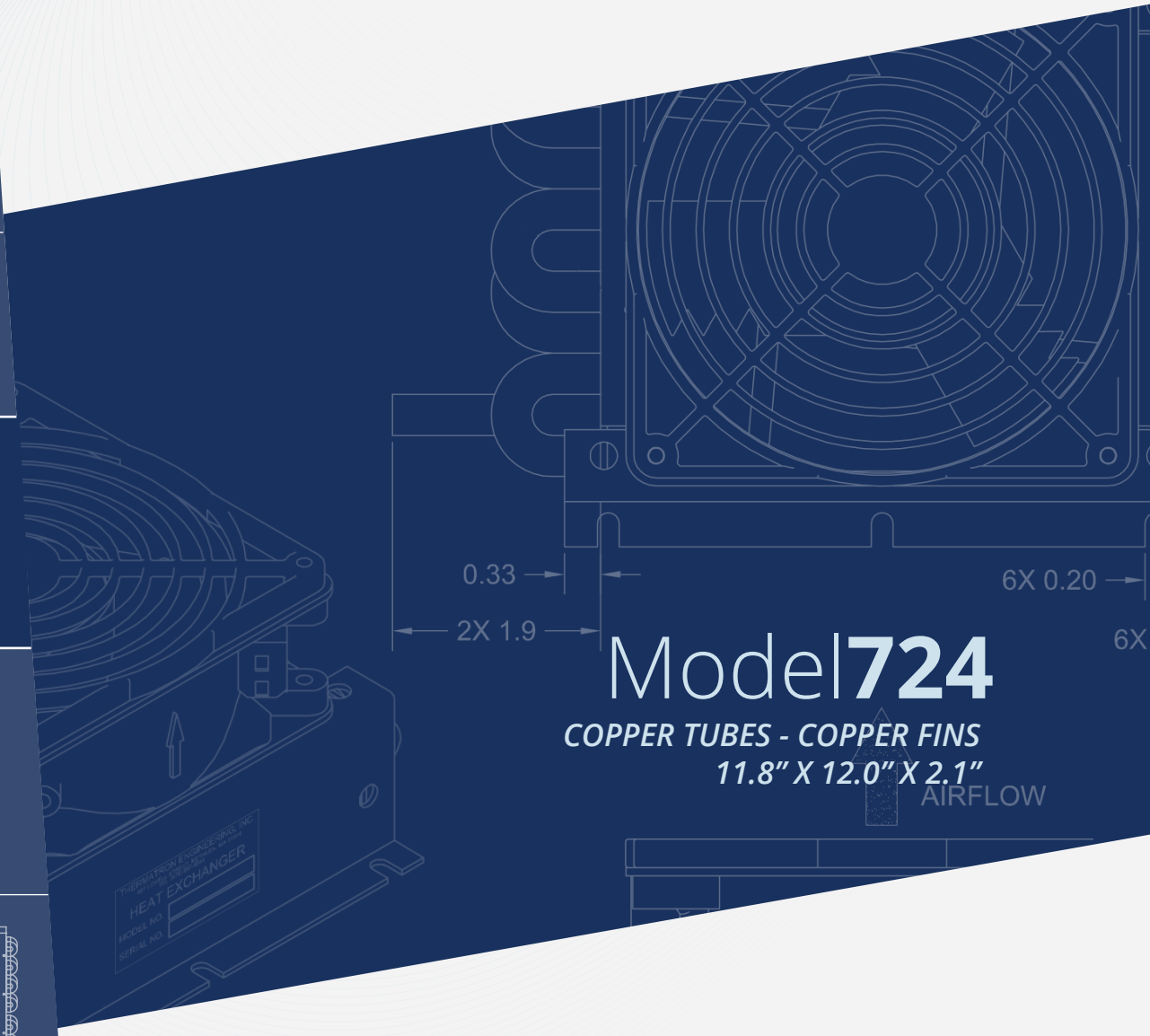


Model**726**



Model**727**

72series



Model**724**

COPPER TUBES - COPPER FINS

11.8" X 12.0" X 2.1"

THERMATRON ENGINEERING, INC.

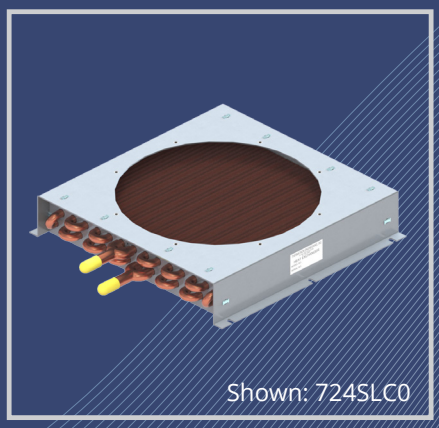
THERMAL MANAGEMENT FOR ELECTRONICS

687 Lowell Street Methuen, MA 01844 USA | phone: 978.687.8844
Fax: 978.687.2477 | info@thermatroneng.com

Model**724**

THERMATRON 72 SERIES HEAT EXCHANGERS

Model 724 is a mid-size model of the Thermatron Engineering 72 Series Heat Exchanger Family. Built to computer grade standards Model 724 provides maximum reliability heat transfer for closed-loop cooling in medical and industrial lasers, commercial computer systems, industrial power cabinets, semiconductor fabrication, instruments, and other demanding electronics applications. Thermatron also manufactures many custom configurations of Model 724 per specific dimensional and performance requirements. Please consult the factory for your application requirements.



Shown: 724SLC0

Shown: 724SLC1

SUMMARY

MATERIALS: Copper tubes and Copper fins

SIZE: Air flow area 10" X 11", standard mounting receives (1) 254 mm fan

WEIGHT: 8.5 lbs (no fans), 12.3 lbs (with fan)

FIN GEOMETRY: Thermatron's unique riffled & corrugated wavy fin, stacked 16 fins per inch, full collared

TUBE GEOMETRY: 0.375" OD tubes arranged (2) rows of (14) tubes per row, total (28) tubes

TUBE CIRCUIT: Generally two parallel circuits, but also available with all-series circuit for low coolant flow applications.

MAX RECOMMENDED FLOW: 4 GPM with standard two parallel circuits

COMPATIBILITY: Benign coolants with benign gases---water, ethylene or propylene glycol mixtures, methanol or ethanol, mineral oils, synthetic coolants, common refrigerants, etc. exchanging with room air at moderate temperatures

MAX OPERATING PRESSURE: 150 PSIG continuous duty (higher pressure ratings available upon request)

MAX OPERATING TEMPERATURE: 316C

MAX FAN OPERATING TEMERATURE: 60C typical

FITTINGS: 3/8" or 1/2" OD tubes, 3/8" AN flare nuts, 3/8" or 1/2" hose beads, 1/4" or 3/8" NPTF or NPTM, metric, or any custom fitting specific to the application. All fittings also available with 90 degree bends.

STANDARD FANS: Orion OA254AP-11-1 (115 VAC), Orion OA254AP-22-1 (230 VAC), or Orion OD254AP-24H (24 VDC).Many other alternate fans are available or the heat exchanger can be provided without fans.

THERMAL PERFORMANCE: 70-to-140 W/C pending fan selection and coolant flow (See performance curves)

INTERNAL CLEANLINESS: Computer grade. High temperature / high flow water flush, followed by COBRATEC 99 flush for corrosion inhibition.

RoHS: All standard 72 Series heat exchangers are RoHS compliant. Any alternate fans, sensors or non-standard fittings may affect RoHS compliance.

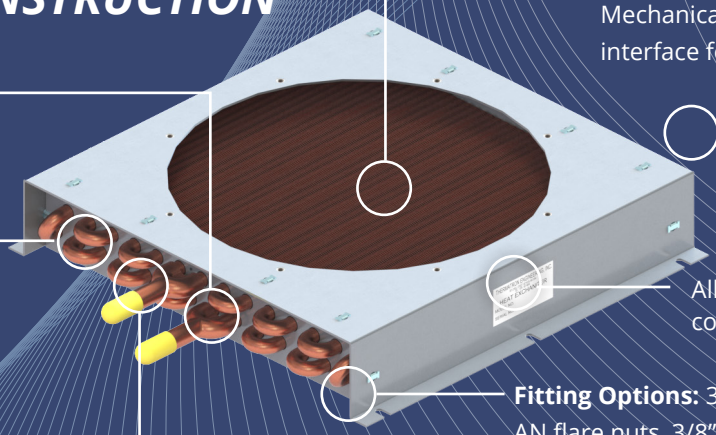
MATERIALS OF CONSTRUCTION

72 Series/Model 724

Metal joining: All joints fluxless silver brazed with internal Argon purge

100% pressure tested: 150 PSIG Nitrogen under water. Inspector scribes their unique ID code at this location confirming successful pressure test.

Wetted Interior: C12200 Copper



Fins: C11000 Copper Mechanically expanded full collar fin/tube interface for maximum heat transfer

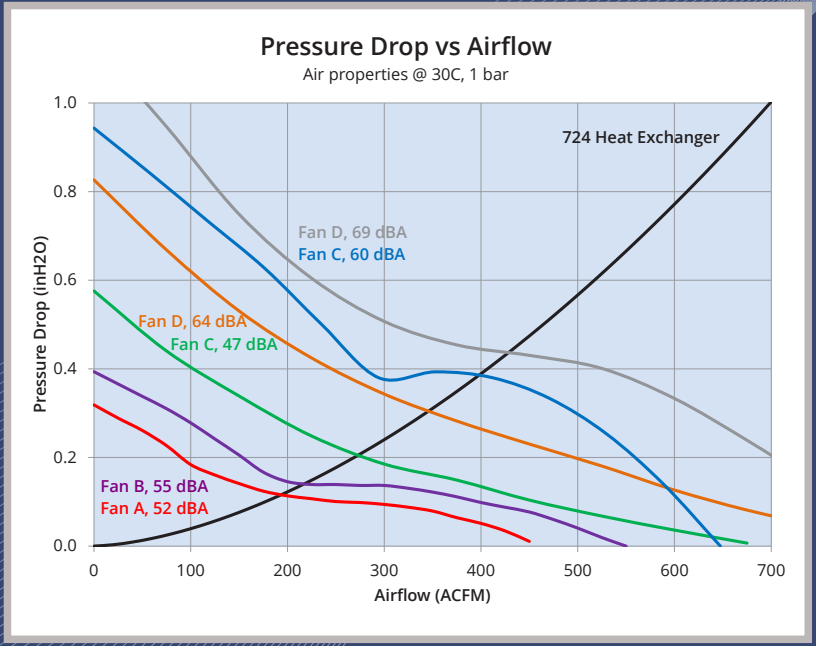
Shroud: Aluminum with catalyzed epoxy paint, color gray or black

All heat exchangers date coded by lot

Fitting Options: 3/8" or 1/2" OD tubes, 3/8" AN flare nuts, 3/8" or 1/2" hose beads, 1/4" or 3/8" FNPT, MNPT, metric, or any custom fitting specific to the application

Model724

THERMATRON 72 SERIES HEAT EXCHANGERS

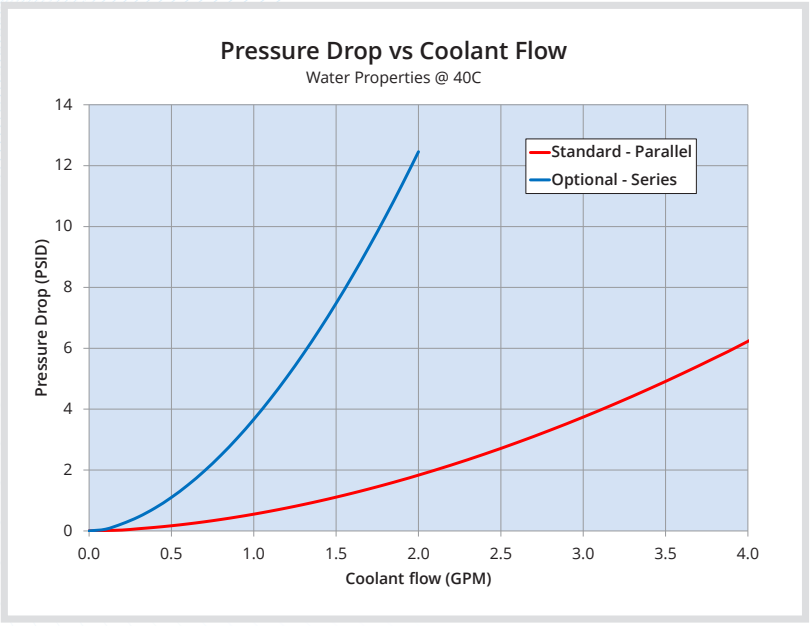


FAN SELECTION
PRESSURE DROP VS AIRFLOW

The intersection of the heat exchanger pressure curve (black curve) with the chosen fan performance curve is the expected air flow through the heat exchanger, assuming no other air flow restrictions. As a baseline, the red, green and purple curves represent the standard fans for 230VAC, 24VDC, and 115VAC. If higher thermal performance is required, one of the stronger (and louder) fan options can be selected to increase the airflow.

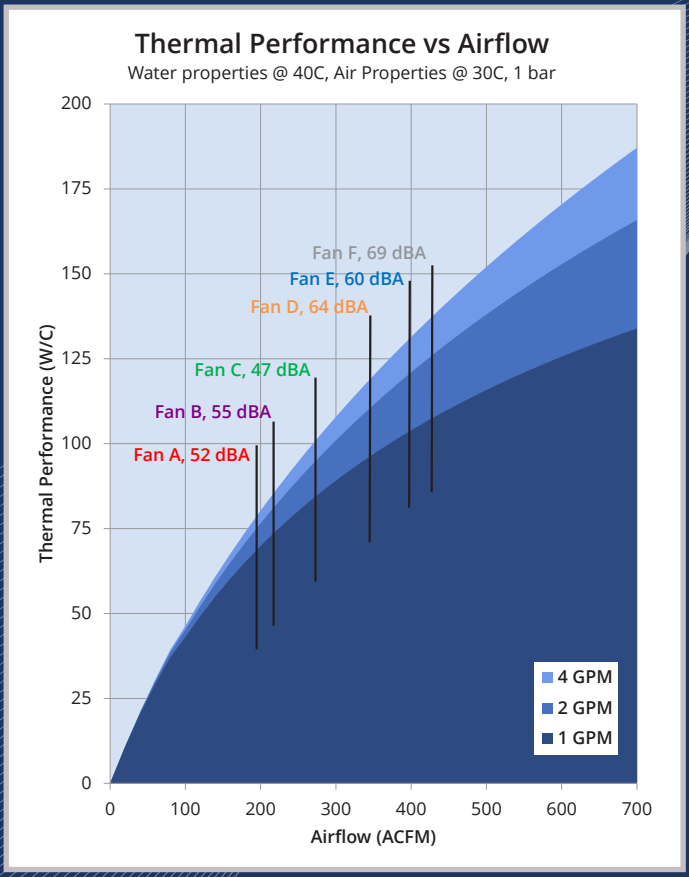
PUMP SELECTION
PRESSURE DROP VS COOLANT FLOW

The Model 724 Heat Exchanger standard plumbing configuration has 28 tubes connected in two parallel circuits of 14 tubes per circuit. This allows twice the coolant flow of an all-series circuit, and also gives a lower coolant pressure drop as shown by the red line. The maximum recommended flow is 4 GPM for this parallel circuit in order to avoid long-term erosion corrosion. If the coolant flow will be less than 2 GPM, and a higher pressure drop is acceptable, then the plumbing configuration can be changed to an all-series circuit as shown by the blue line. Altering the plumbing in this way will increase the thermal performance by approximately 5%. Please contact Thermatron Engineering directly to discuss specific application requirements.



Model724

THERMATRON 72 SERIES HEAT EXCHANGERS



PERFORMANCE

THERMAL PERFORMANCE VS AIRFLOW

Heat exchangers require some temperature difference between the liquid and air entering the heat exchanger in order to dissipate heat, the larger this temperature difference, the more heat a given heat exchanger can dissipate. The thermal performance of all Thermatron Engineering heat exchangers is rated as follows:

COOLING THE WATER:

$$\text{PERFORMANCE (W/C)} = \frac{\text{HEAT LOAD (W)}}{\text{WATER TEMP ENTER HX (C) - AIR TEMP ENTER HX (C)}}$$

COOLING THE AIR:

$$\text{PERFORMANCE (W/C)} = \frac{\text{HEAT LOAD (W)}}{\text{AIR TEMP ENTER HX (C) - WATER TEMP ENTER HX (C)}}$$

TABULATED PERFORMANCE

FAN	FAN PART NUMBER	FAN VOLTAGE	FAN NOISE	AIR-FLOW	PRESSURE DROP	WATER FLOW	PRESSURE DROP	HEAT LOAD (W) WHEN: (WATER TEMP IN) - (AIR TEMP IN) =				
			dB(A) per fan	ACFM	inH2O	GPM	PSID	1C	10C	30C	50C	W/C
A	Orion	230VAC, 50Hz	52	194	0.12	1.0	0.6	66.1	661.0	1982.9	3304.8	66.09542745
						2.0	1.8	73.4	734.4	2203.1	3671.9	73.43756867
						4.0	6.2	77.6	776.1	2328.3	3880.4	77.60849308
B	Orion	115VAC, 60Hz	55	218	0.14	1.0	0.6	70.9	709.3	2127.9	3546.5	70.92943892
						2.0	1.8	79.6	796.0	2387.9	3979.8	79.59536521
						4.0	6.2	84.6	846.0	2537.9	4229.8	84.59625103
C	Orion OD254AP-24M	24VDC	47	273	0.21	1.0	0.6	80.7	806.8	2420.3	4033.9	80.67732161
						2.0	1.8	92.4	924.2	2772.5	4620.9	92.4170663
						4.0	6.2	99.4	994.2	2982.5	4970.8	99.41518452
D	Orion OD254AP-24H	24VDC	64	346	0.30	1.0	0.6	91.4	914.3	2742.8	4571.3	91.42600219
						2.0	1.8	107.2	1072.3	3216.9	5361.5	107.22923835
						4.0	6.2	117.0	1170.1	3510.2	5850.3	117.0065167
E	EBM W1G200H	24VDC	60	398	0.38	1.0	0.6	97.9	979.4	2938.2	4897.0	97.93945366
						2.0	1.8	116.6	1165.8	3497.3	5828.9	116.5778629
						4.0	6.2	128.4	1283.8	3851.5	6419.1	128.3819664
F	Orion OA254AN-11-1XC	115VAC, 60Hz	69	429	0.44	1.0	0.6	101.5	1014.6	3043.8	5073.1	101.46108069
						2.0	1.8	121.8	1217.6	3652.7	6087.9	121.75731616
						4.0	6.2	134.8	1347.8	4043.4	6738.9	134.77871308

Model**724**

THERMATRON 72 SERIES HEAT EXCHANGERS

STANDARD PART NUMBERING SYSTEM

7	2	4	X	X	X	X	A	X	X

TUBE MATERIAL
2 = CU FIN /CU TUBE
3 = CU FIN /SS TUBE
4 = SS FIN /SS TUBE
5 = CU FIN / CU-NI TUBE
6 = AL FIN / SS TUBE
7 = AL FIN/ CU TUBE

FITTING GEOMETRY
M = OTHER
S = STRAIGHT
T = 90° ANGLED FITTING

FAN TYPE
0 = OTHER
S = SPRITE
M = MUFFIN
P = PATRIOT
J = MAJOR
C = CARAVEL
T = TARZAN
E = EBM

INDICATES CUSTOM AND VERSION LEVEL

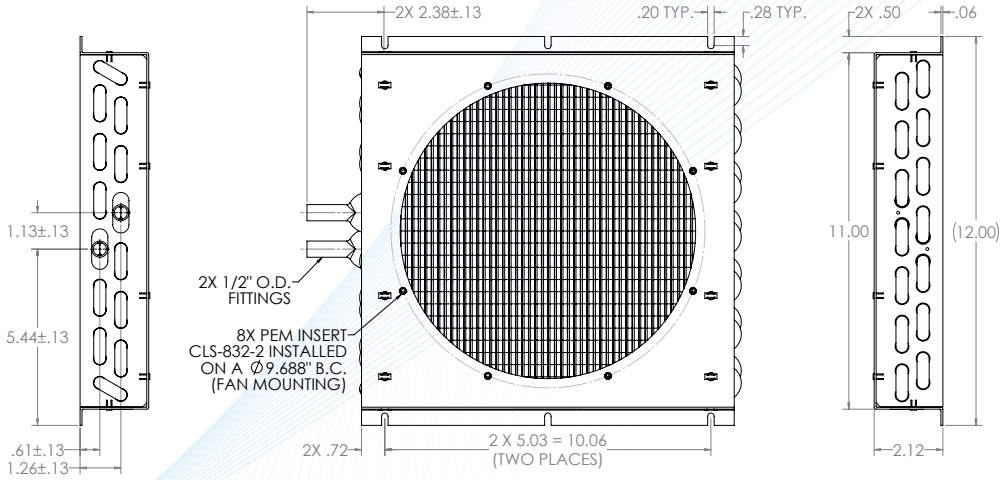
HEAT EXCHANGER SIZE
0 = 1 FAN (4.69" SQ)
1 = 2 FAN (4.69 SQ)
2 = 1 FAN (6.75" ROUND)
3 = 2 FAN (6.75" ROUND)
4 = 1 FAN (10.00" ROUND)
5 = 2 FAN (10.00" ROUND)
6 = 6 FAN (6.75" X 5.92" OVL)
7 = 4 FAN (10.00" ROUND)

FITTING TERMINATION
B = HOSE BEAD
L = STRAIGHT TUBE
N = 37° FLARE NUT
P = NPT FEMALE
R = HOSE BARB
C = OTHER

FAN VOLTAGE
0 = FAN NOT SUPPLIED
1 = 110 VAC
2 = 220 VAC
3 = OTHER
4 = 12 VDC
5 = 24 VDC
6 = 48 VDC

CUSTOMER # ASSIGNED BY THERMATRON

DRAWING 724SLC0



MORE MODEL 724 DRAWINGS

724SBC0	724SLC1	724SNC1	724SPC2	724TRC0
724SBC1	724SLC2	724SNC2	724TBC0	
724SBC5	724SLE0	724SPC0	724TLC0	
724SLC0	724SNC0	724SPC1	724TPC1	

THERMATRON ENGINEERING, INC.

THERMAL MANAGEMENT FOR ELECTRONICS

687 Lowell Street Methuen, MA 01844 USA | Phone: 978.687.8844 Fax: 978.687.2477 | info@thermatroneng.com