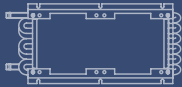
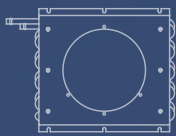


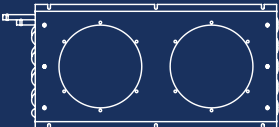
Model 720



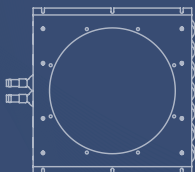
Model 721



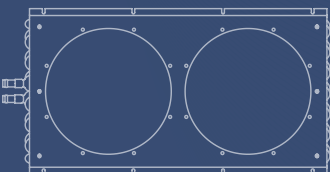
Model 722



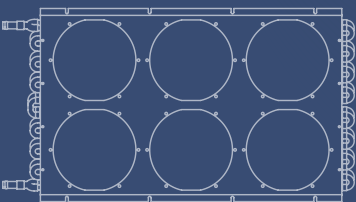
Model 723



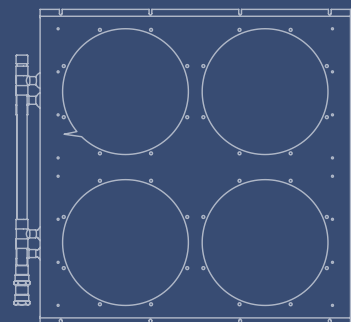
Model 724



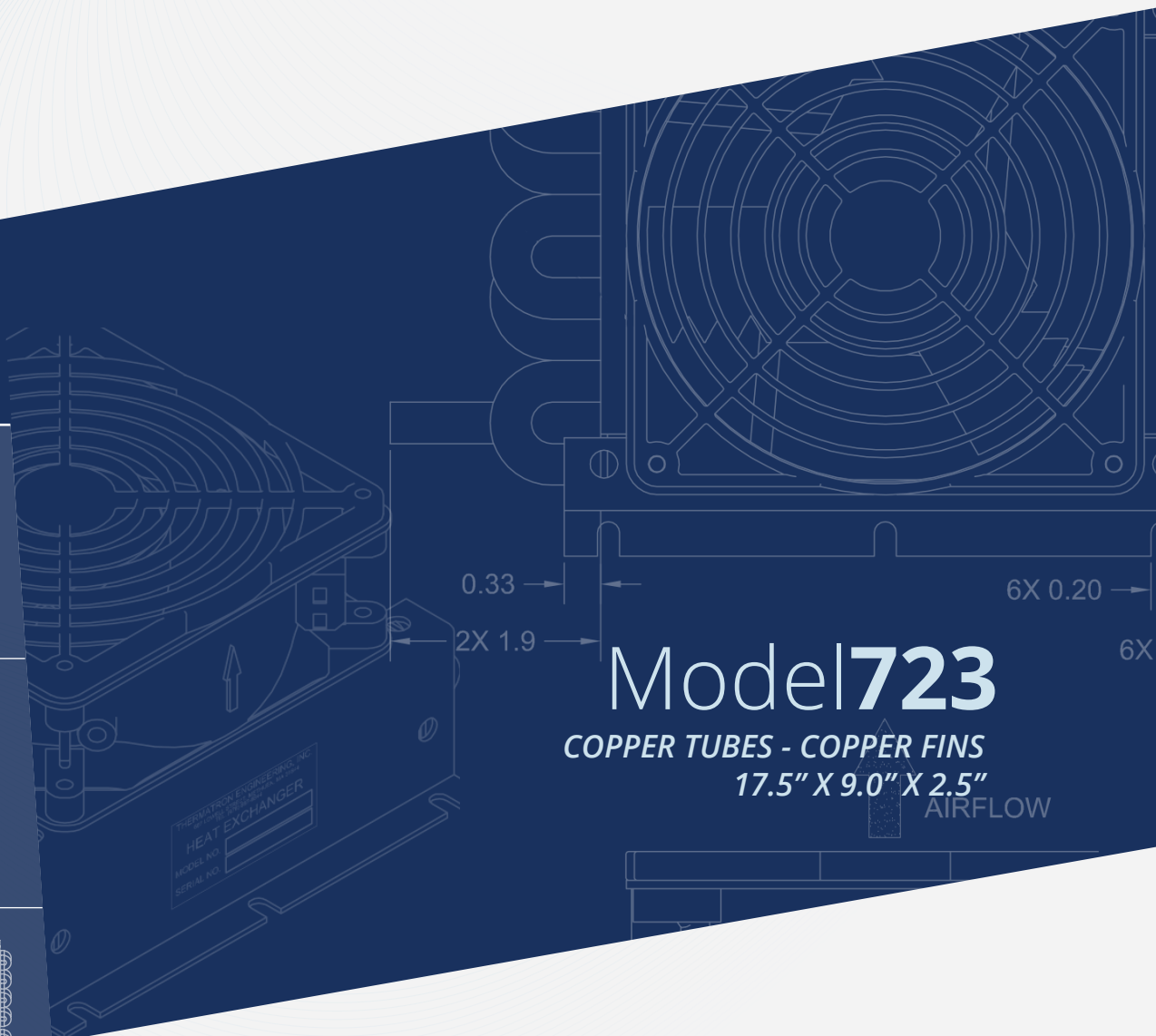
Model 725



Model 726



Model 727



## Model 723

COPPER TUBES - COPPER FINS

17.5" X 9.0" X 2.5"

AIRFLOW

**THERMATRON ENGINEERING, INC.**

////// THERMAL MANAGEMENT FOR ELECTRONICS

# 72series

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Fax: 978.687.2477 | info@thermatroneng.com

# Model 723

## THERMATRON 72 SERIES HEAT EXCHANGERS

Model 723 is a mid-size model of the Thermatron Engineering 72 Series Heat Exchanger Family. Built to computer grade standards Model 723 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 723 per specific dimensional and performance requirements. Please consult the factory for your application requirements.

### SUMMARY

**MATERIALS:** Copper tubes and Copper fins

**SIZE:** Air flow area 16" X 8", standard mounting receives (2) 172 mm fans

**WEIGHT:** 9.6 lbs (no fans), 13.3 lbs (with fans)

**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 (10) tubes per row, total (20) 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 TEMPERATURE:** 60C typical

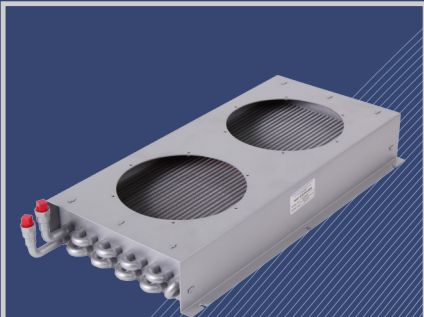
**FITTINGS:** 3/8" or 1/2" OD tubes, 3/8" AN flare nuts, 3/8" or 1/2" hose beads, 1/4" or 3/8" NPTF or NPTM, metric, or any custom fitting specific to the application. All fittings also available with 90 degree bends.

**STANDARD FANS:** EBM W2E143-AB15-01 (115 VAC), EBM W2E143-AB09-01 (230 VAC), or EBM 6224N (24 VDC). Many other alternate fans are available or the heat exchanger can be provided without fans.

**THERMAL PERFORMANCE:** 75-to-175 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.



Shown: : 723TPP0



Shown: 723SLP1

### MATERIALS OF CONSTRUCTION

72 Series/Model 723

**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

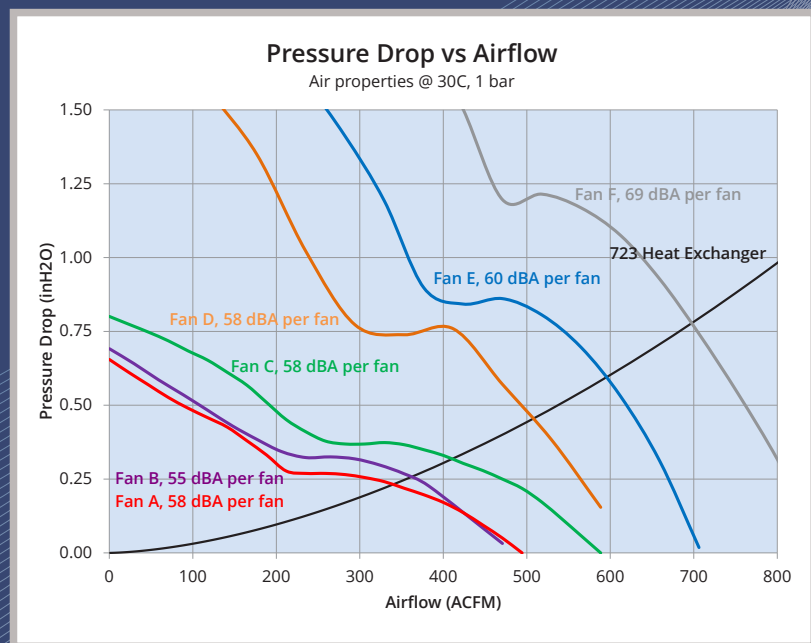
All heat exchangers date coded by lot

**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



# Model 723

## THERMATRON 72 SERIES HEAT EXCHANGERS



## FAN SELECTION

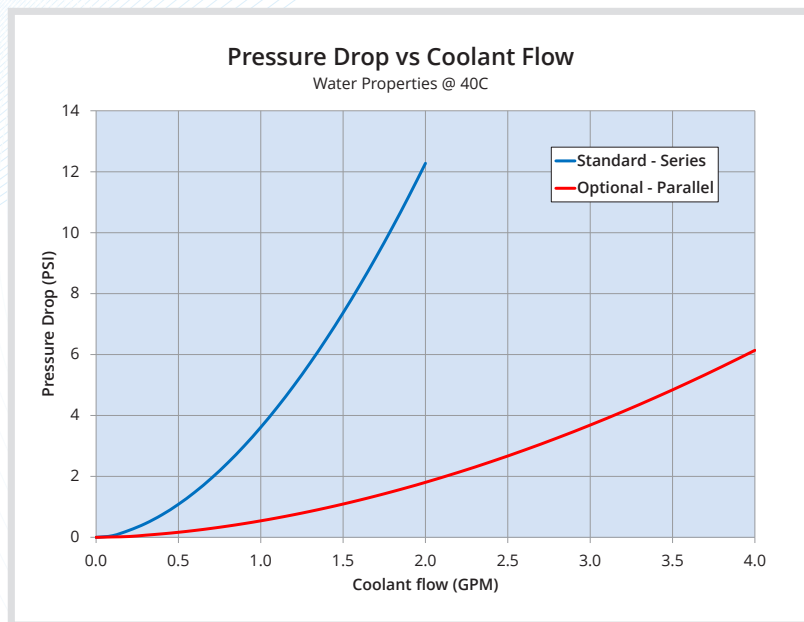
### PRESSURE DROP VS AIRFLOW

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, purple, and green 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

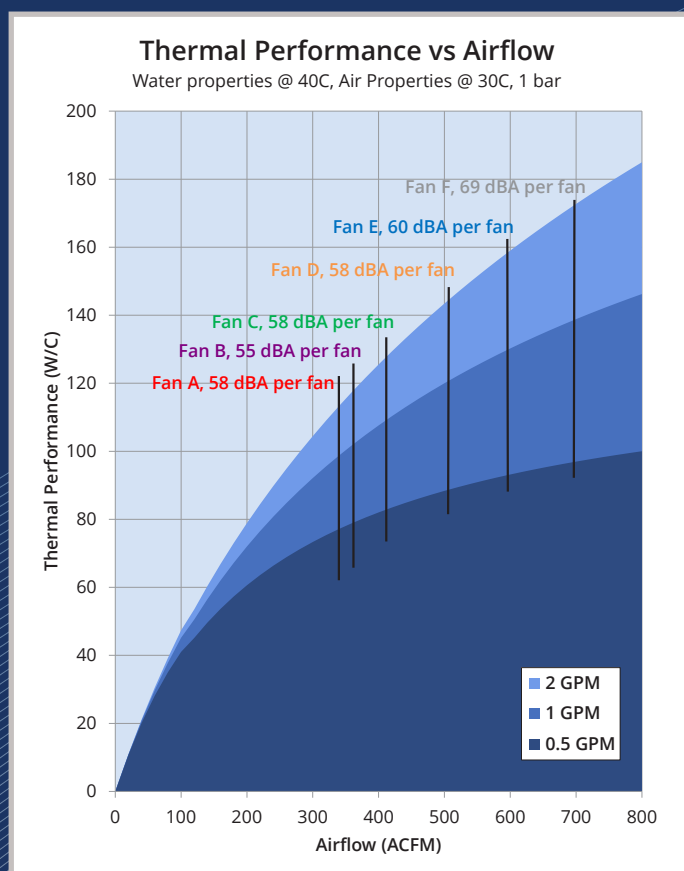
### PRESSURE DROP VS COOLANT FLOW

The Model 723 Heat Exchanger standard plumbing configuration has all 20 tubes connected in one series circuit. This maximizes coolant velocity and thermal performance but also increases coolant pressure drop as shown by the blue line. Maximum recommended flow is 2 GPM for the series circuit in order to avoid long-term erosion corrosion. For higher coolant flow or lower desired pressure drop, the plumbing configuration can be split into two (or more) parallel circuits as shown by the red line. Splitting the flow in this way results in a small decrease in thermal performance of approximately 5%. Please contact Thermatron Engineering directly to discuss specific application requirements.



# Model 723

## 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 Thermantron Engineering heat exchangers is rated as follows:

#### COOLING THE WATER:

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

#### COOLING THE AIR:

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

## TABULATED PERFORMANCE

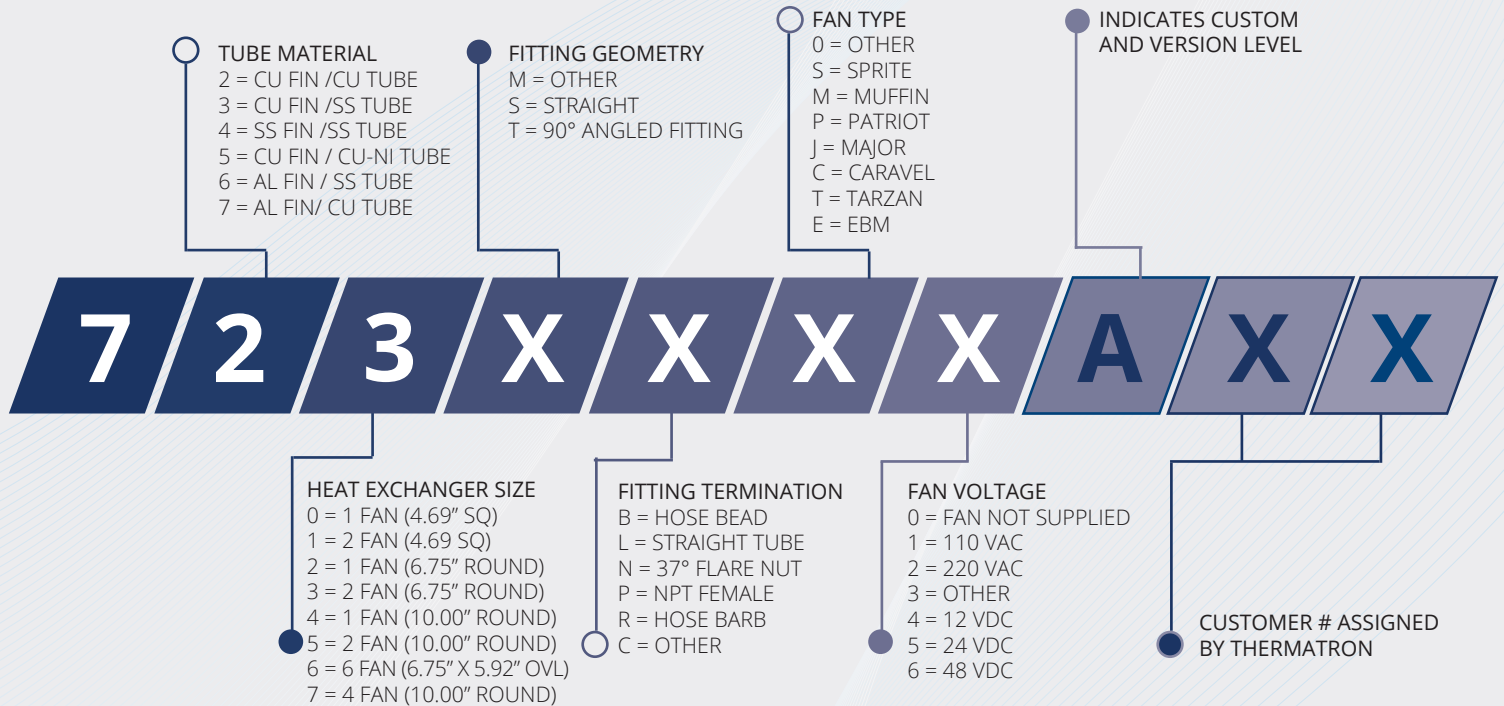
FAN	FAN PART NUMBER	FAN VOLTAGE	FAN NOISE	AIR-FLOW	PRESSURE DROP	WATER FLOW	PRESSURE DROP	HEAT LOAD (W) WHEN: (WATER TEMP IN) - (AIR TEMP IN) =				W/C
								1C	10C	30C	50C	
A	(2) EBM W2E143-AB09-01	230VAC, 50Hz	58/61	340	0.23	0.5	1.1	77.2	771.7	2315.1	3858.6	77.17124781
						1.0	3.6	98.8	987.6	2962.9	4938.2	98.76395542
						2.0	12.2	113.3	1133.3	3399.8	5666.4	113.3278195
B	(2) EBM 6224 N	24VDC	55/58	362	0.26	0.5	1.1	79.1	790.6	2371.9	3953.2	79.06497033
						1.0	3.6	102.1	1021.5	3064.4	5107.3	102.1469663
						2.0	12.2	117.9	1179.5	3538.4	5897.3	117.9452403
C	(2) EBM W2E143-AB15-01	115VAC, 60Hz	58/61	411	0.32	0.5	1.1	82.8	828.2	2484.6	4141.0	82.81980598
						1.0	3.6	109.1	1090.9	3272.8	5454.7	109.0944231
						2.0	12.2	127.6	1276.3	3829.0	6381.7	127.6332871
D	(2) EBM 6314-2HP	24VDC	58/61	508	0.45	0.5	1.1	88.8	887.9	2663.8	4439.7	88.79465474
						1.0	3.6	120.9	1208.9	3626.8	6044.6	120.89221033
						2.0	12.2	144.8	1447.7	4343.0	7238.4	144.7670094
E	(2) EBM	24VDC	60/63	596	0.60	0.5	1.1	93.0	930.1	2790.3	4650.5	93.0092367
						1.0	3.6	129.9	1298.6	3895.7	6492.9	129.8574364
						2.0	12.2	158.4	1584.2	4752.6	7921.0	158.4196191
F	(2) EBM	24VDC	69/72	698	0.78	0.5	1.1	96.9	969.0	2906.9	4844.9	96.89746128
						1.0	3.6	138.7	1386.9	4160.8	6934.6	138.69175809
						2.0	12.2	172.5	1724.7	5174.1	8623.5	172.4694731



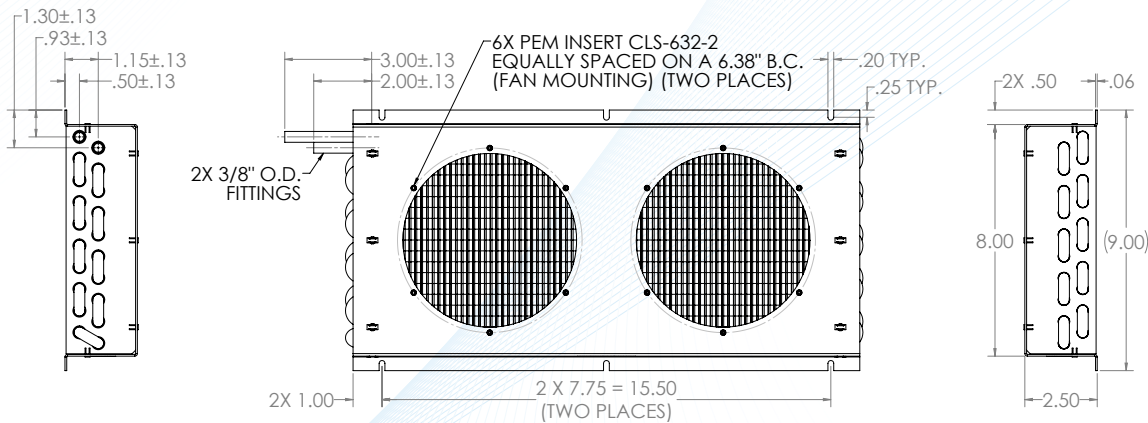
# Model **723**

## THERMATRON 72 SERIES HEAT EXCHANGERS

### STANDARD PART NUMBERING SYSTEM



### DRAWING 723SLP0



### MORE MODEL 725 DRAWINGS

<a href="#">723SBP0</a>	<a href="#">723SLP0</a>	<a href="#">723SPP1</a>	<a href="#">723TNP2</a>
<a href="#">723SBP1</a>	<a href="#">723SLP2</a>	<a href="#">723SPP2</a>	<a href="#">723TPP0</a>
<a href="#">723SBP2</a>	<a href="#">723SNP0</a>	<a href="#">723TBP0</a>	
<a href="#">723SBP5</a>	<a href="#">723SPP0</a>	<a href="#">723TNP0</a>	

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