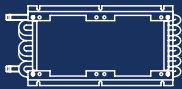
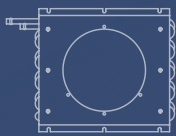


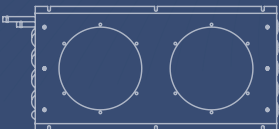
Model 720



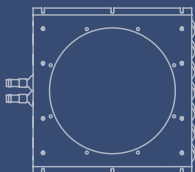
Model 721



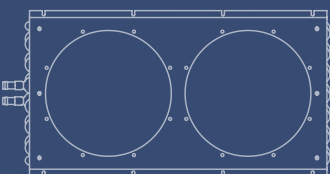
Model 722



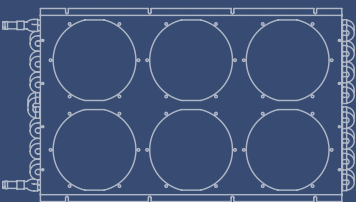
Model 723



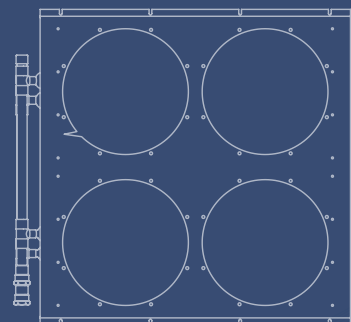
Model 724



Model 725

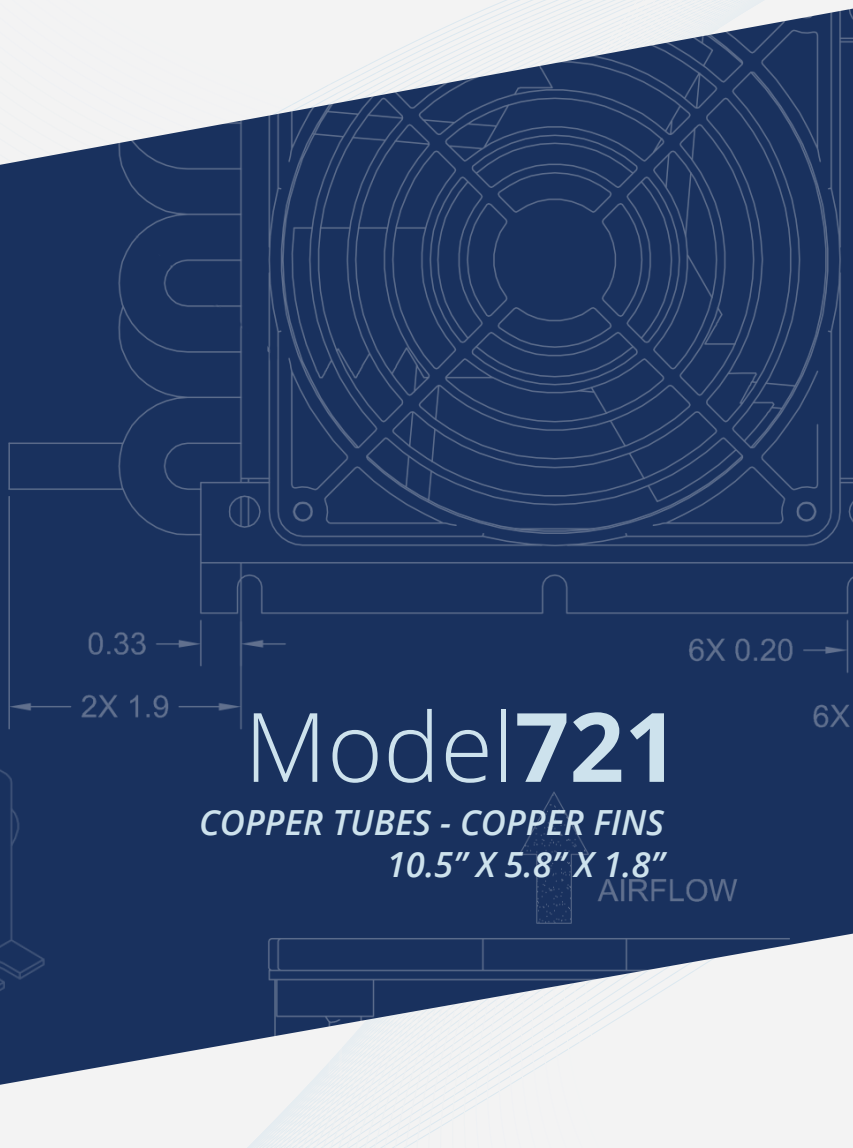


Model 726



Model 727

72series



Model 721

COPPER TUBES - COPPER FINS

10.5" X 5.8" X 1.8"

AIRFLOW

THERMATRON ENGINEERING, INC.

////// THERMAL MANAGEMENT FOR ELECTRONICS

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Fax: 978.687.2477 | info@thermatroneng.com

Model 721

THERMATRON 72 SERIES HEAT EXCHANGERS

Model 721 is the second smallest standard size of the Thermatron Engineering 72 Series Heat Exchanger Family. Built to computer grade standards Model 721 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 721 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 10" X 5", standard mounting receives (2) 119 mm fans

WEIGHT: 3.8 lbs (no fans), 6.3 lbs (with fans)

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

TUBE GEOMETRY: 0.375" OD tubes arranged (2) rows of (6) tubes per row, total (12) tubes

TUBE CIRCUIT: Generally one all-series circuit, but also available with parallel circuits for lower coolant pressure drop applications.

MAX RECOMMENDED FLOW: 2 GPM with standard all-series circuit

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

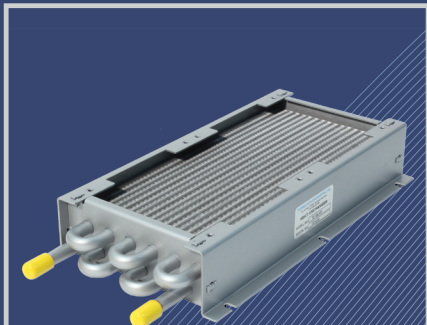
FITTINGS: 3/8" or 1/2" OD tubes, 3/8" AN flare nuts, 3/8" or 1/2" hose beads, 1/4" or 3/8" NPTF or NPTM, metric, or any custom fitting specific to the application. All fittings also available with 90 degree bends.

STANDARD FANS: EBM 4500N (115 VAC), EBM 4650N (230 VAC), or EBM 4184NX (24 VDC). Many other alternate fans are available or the heat exchanger can be provided without fans.

THERMAL PERFORMANCE: 30-to-80 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: 721SLM0



Shown: 721SLM1

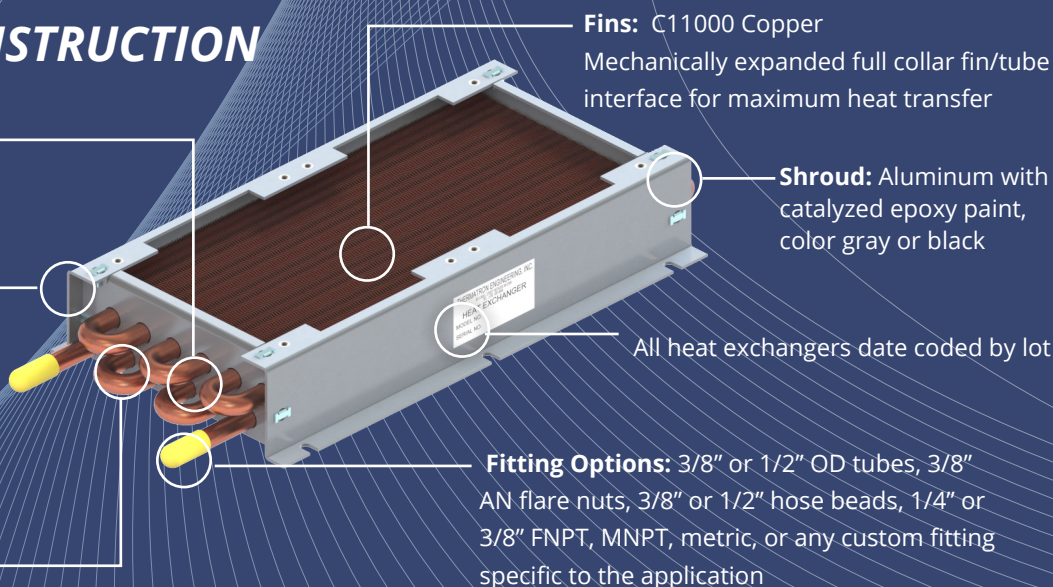
MATERIALS OF CONSTRUCTION

72 Series/Model 721

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

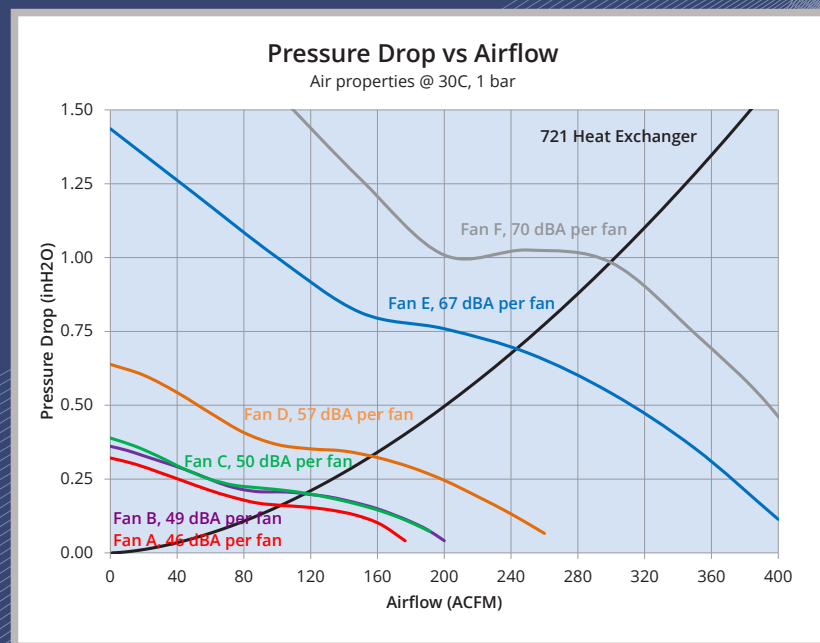
100% pressure tested: 150 PSIG Nitrogen under water. Inspector scribes their unique ID code at this location confirming successful pressure test.

Wetted Interior: C12200 Copper



Model 721

THERMATRON 72 SERIES HEAT EXCHANGERS

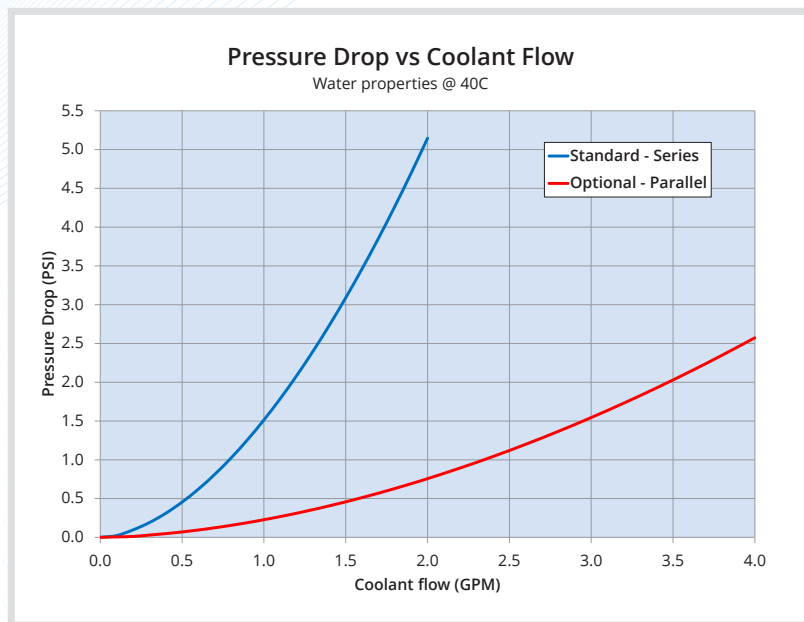


FAN SELECTION PRESSURE DROP VS AIRFLOW

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.

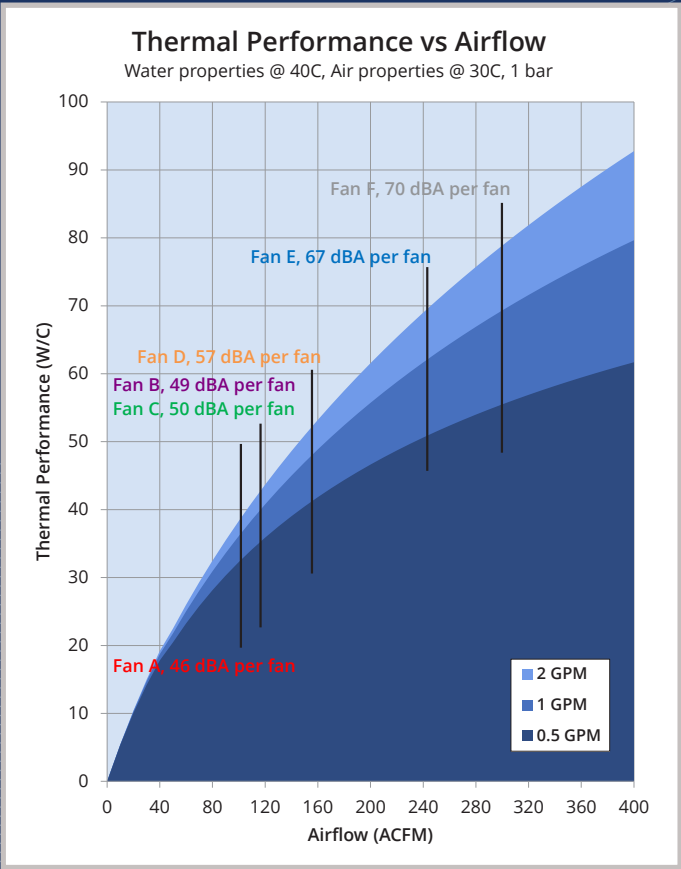
PUMP SELECTION PRESSURE DROP VS COOLANT FLOW

The Model 721 Heat Exchanger standard plumbing configuration has all 12 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.



Model721

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 Thermo-tron 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:

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

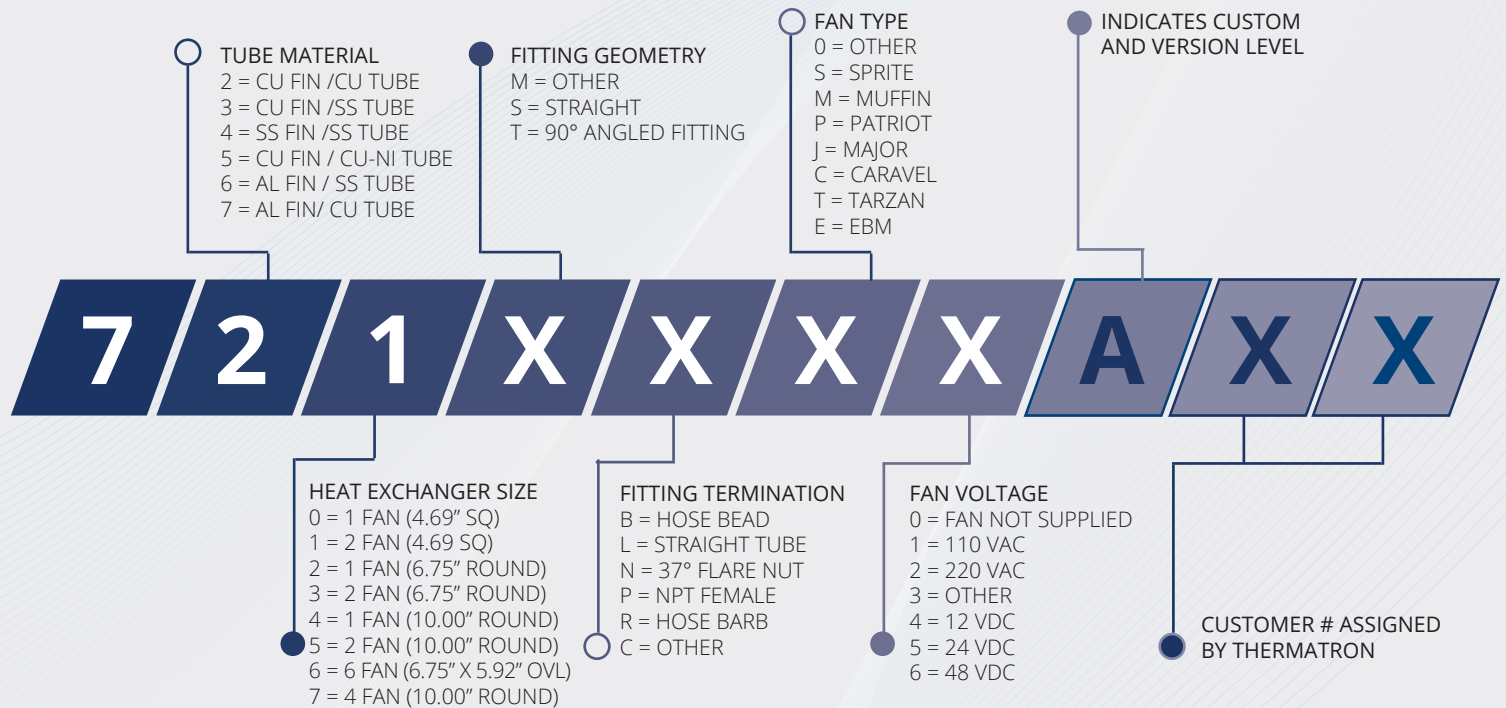
TABULATED PERFORMANCE

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) =				
			dB(A) per fan/total	ACFM	inH2O	GPM	PSID	1C	10C	30C	50C	w/c
A	(2) EBM 4650 N	230VAC, 50Hz	46/49	102	0.16	0.5	0.5	32.7	326.7	980.2	1633.6	32.67198
						1.0	1.5	36.6	366.1	1098.2	1830.3	36.60699
						2.0	5.1	38.9	388.9	1166.6	1944.4	38.88767
B	(2) EBM 4184 NX	24VDC	49/52	117	0.20	0.5	0.5	35.4	353.7	1061.2	1768.6	35.37173
						1.0	1.5	40.1	401.1	1203.2	2005.4	40.10764
						2.0	5.1	42.9	429.1	1287.2	2145.3	42.90543
C	(2) EBM 4600 N	115VAC, 60Hz	50/53	117	0.20	0.5	0.5	35.4	353.7	1061.2	1768.6	35.37173
						1.0	1.5	40.1	401.1	1203.2	2005.4	40.10764
						2.0	5.1	42.9	429.1	1287.2	2145.3	42.90543
D	(2) EBM 4184 NXH	24VDC	57/60	156	0.33	0.5	0.5	41.3	413.0	1239.1	2065.1	41.30218
						1.0	1.5	48.1	481.2	1443.5	2405.8	48.11571
						2.0	5.1	52.3	523.2	1569.6	2615.9	52.31881
E	(2) EBM 4114 NH4	24VDC	67/70	243	0.69	0.5	0.5	50.9	508.8	1526.5	2544.2	50.88401
						1.0	1.5	62.1	620.9	1862.6	3104.3	62.08556
						2.0	5.1	69.5	695.3	2085.9	3476.6	69.53105
F	(2) EBM 4114 N/2H5	24VDC	70/73	300	0.99	0.5	0.5	55.5	554.9	1664.8	2774.6	55.49224
						1.0	1.5	69.3	693.2	2079.6	3466.0	69.31901
						2.0	5.1	78.9	788.7	2366.1	3943.5	78.87031

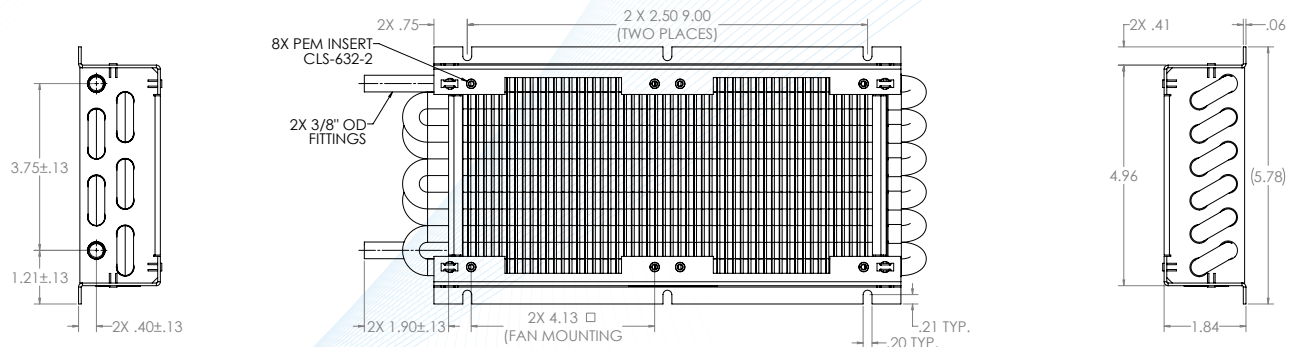
Model **721**

THERMATRON 72 SERIES HEAT EXCHANGERS

STANDARD PART NUMBERING SYSTEM



DRAWING 721SLM0



MORE MODEL 721 DRAWINGS

[7721SBM0](#)

[721SLM0](#)

[721SNM0](#)

[721SPM1](#)

[721SBM1](#)

[721SLM1](#)

[721SNM1](#)

[721SBM2](#)

[721SLM2](#)

[721SNM2](#)

[721SBM4](#)

[721SLM5](#)

[721SPM0](#)

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