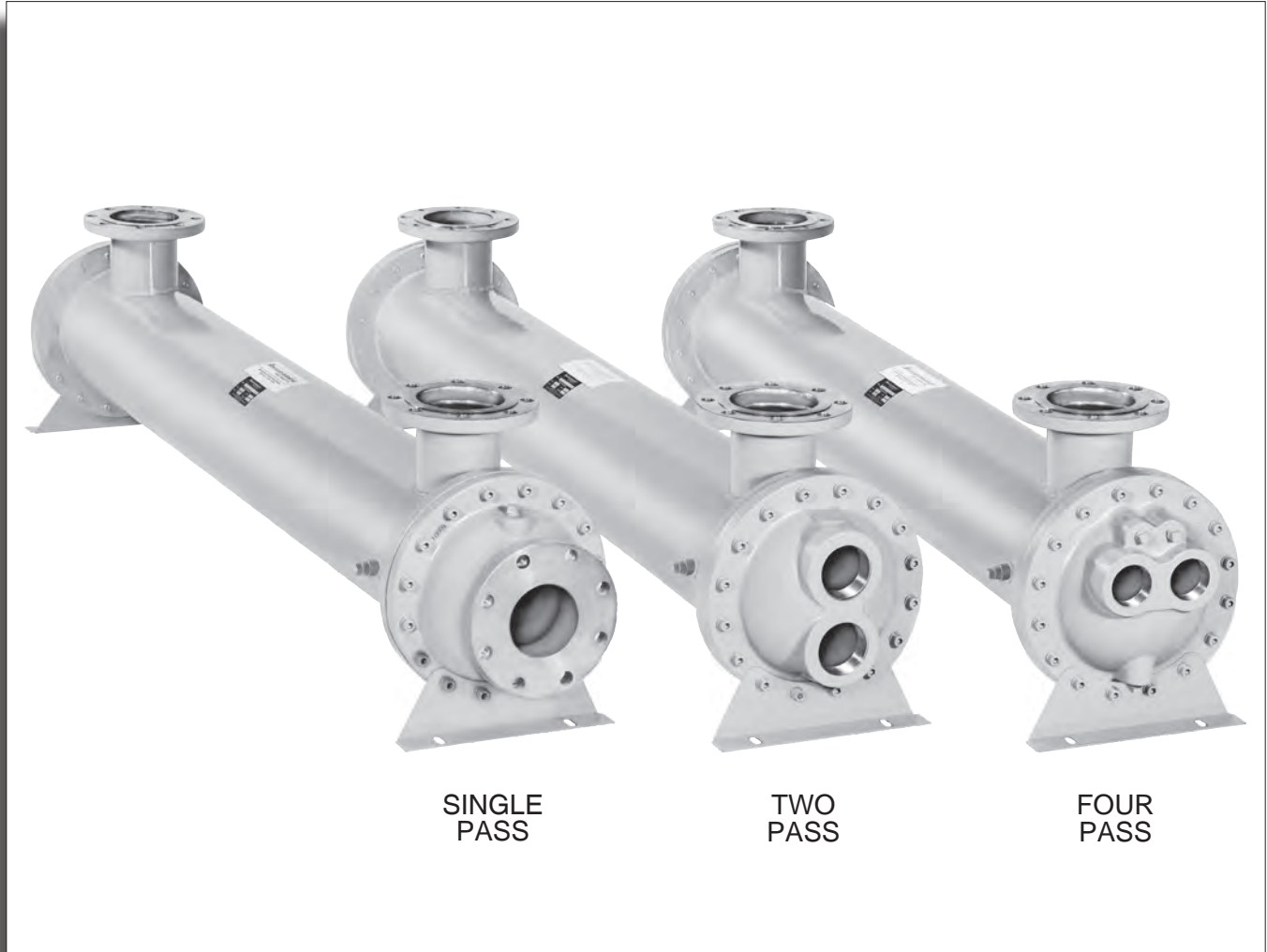


CS 2000 SERIES



Fixed Tube Bundle / Liquid Cooled

HEAT EXCHANGERS

- High thermal capacity.
- Large flow capacity.
- Operating pressure for tubes 150 PSI.
- Operating pressure for shell 300 PSI.
- Operating temperature 300 °F.
- Computer generated data sheet available for any application
- As an option, available in ASME code and certified
- Can be customized to fit any applications.

CS 2000 Series selection

STEP 4: Calculate the area required

$$\text{Required Area sq.ft.} = \frac{Q \text{ (BTU / HR)}}{\text{LMTD}_c \times U \text{ (FROM TABLE C)}} = \frac{190,875}{10.13 \times 100} = 188.4 \text{ sq.ft.}$$

STEP 5: Selection

a) From TABLE E choose the correct series size, baffle spacing, and number of passes that best fits the flow rates for both shell and tube side. Note that the tables suggest minimum and maximum information. Try to stay within the 20-80 percent range of the indicated numbers.

Example

Oil Flow Rate = 200 GPM = Series Required from Table E = **2000 Series**
 Baffle Spacing from Table E = **6"**

Water Flow Rate = 100 GPM = Passes required in 2000 series = **4 (FP)**

b) From TABLE D choose the heat exchanger model size based upon the sq.ft. or surface area in the series size that will accommodate your flow rate.

Example

Required Area = 188.4 sq.ft. Closest model required based upon sq.ft. & series = **CS-2072-6-6-FP**

If you require a computer generated data sheet for the application, or if the information that you are trying to apply does not match the corresponding information, please contact our engineering services department for further assistance.

TABLE A- FACTOR M/LMTD = L x M

S/L	M	S/L	M	S/L	M	S/L	M
.01	.215	.25	.541	.50	.721	.75	.870
.02	.251	.26	.549	.51	.728	.76	.874
.03	.277	.27	.558	.52	.734	.77	.879
.04	.298	.28	.566	.53	.740	.78	.886
		.29	.574	.54	.746	.79	.890
.05	.317	.30	.582	.55	.753	.80	.896
.06	.334	.31	.589	.56	.759	.81	.902
.07	.350	.32	.597	.57	.765	.82	.907
.08	.364	.33	.604	.58	.771	.83	.913
.09	.378	.34	.612	.59	.777	.84	.918
.10	.391	.35	.619	.60	.783	.85	.923
.11	.403	.36	.626	.61	.789	.86	.928
.12	.415	.37	.634	.62	.795	.87	.934
.13	.427	.38	.641	.63	.801	.88	.939
.14	.438	.39	.648	.64	.806	.89	.944
.15	.448	.40	.655	.65	.813	.90	.949
.16	.458	.41	.662	.66	.818	.91	.955
.17	.469	.42	.669	.67	.823	.92	.959
.18	.478	.43	.675	.68	.829	.93	.964
.19	.488	.44	.682	.69	.836	.94	.970
.20	.497	.45	.689	.70	.840	.95	.975
.21	.506	.46	.695	.71	.848	.96	.979
.22	.515	.47	.702	.72	.852	.97	.986
.23	.524	.48	.709	.73	.858	.98	.991
.24	.533	.49	.715	.74	.864	.99	.995

TABLE B- LMTD correction factor for Multipass Exchangers

	.05	.1	.15	.2	.25	.3	.35	.4	.45	.5	.6	.7	.8	.9	1.0
.2	1	1	1	1	1	1	1	.999	.993	.984	.972	.942	.908	.845	.71
.4	1	1	1	1	1	1	.994	.983	.971	.959	.922	.855	.70		
.6	1	1	1	1	1	.992	.980	.965	.948	.923	.840				
.8	1	1	1	1	.995	.981	.965	.945	.916	.872					
1.0	1	1	1	1	.988	.970	.949	.918	.867	.770					
2.0	1	1	.977	.973	.940	.845	.740								
3.0	1	1	.997	.933	.835										
4.0	1	.993	.950	.850											
5.0	1	.982	.917												
6.0	1	.968	.885												
8.0	1	.930													
10.0	.996	.880													
12.0	.985	.720													
14.0	.972														
16.0	.958														
18.0	.940														
20.0	.915														

R

K

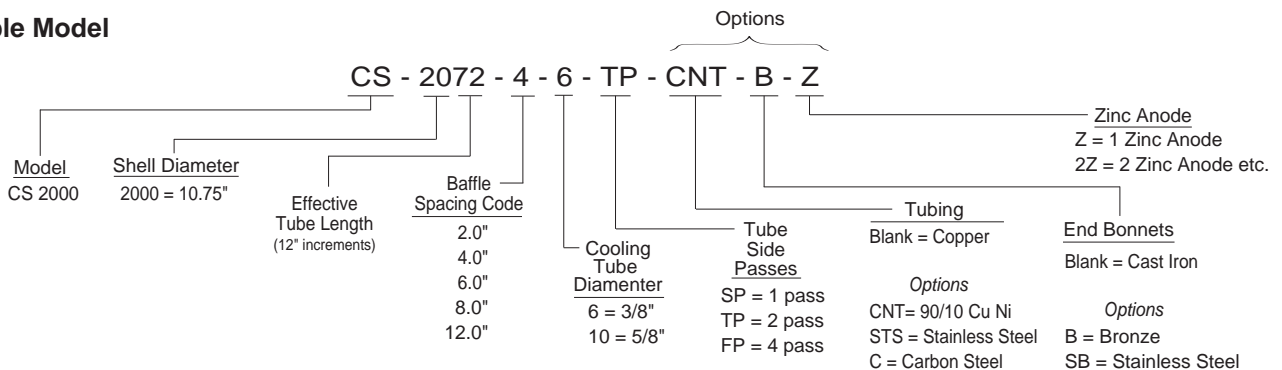
TABLE D- Surface Area

Model Number	Surface Area in Sq.ft.		
	1/4" O.D Tubing	3/8" O.D Tubing	5/8 O.D Tubing
CS-2036	155.43	110.69	60.84
CS-2048	207.24	147.58	81.12
CS-2060	259.05	184.48	101.40
CS-2072	310.86	221.37	121.68
CS-2084	362.67	258.27	141.95
CS-2096	414.48	295.16	162.23
CS-20108	466.29	332.06	182.51
CS-20120	518.10	368.95	202.79
CS-20132	569.91	405.85	223.07
CS-20144	621.72	442.74	243.35

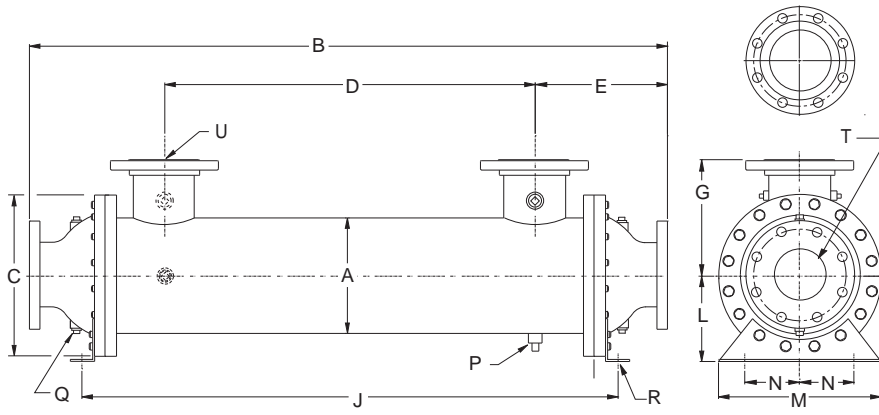
STANDARD CONSTRUCTION MATERIALS & RATINGS

	AB-2000 Series	Standard Unit Ratings
Shell	Steel	Operating Pressure Tubes 150 psig
Tubes	Copper	
Baffle	Steel	
Tube Sheet	Steel	Operating Pressure Shell 225 psig
End Bonnets	Cast Iron	
Mounting Brackets	Steel	Operating Temperature 250 °F
Gasket	Hypalon Composite	

Example Model

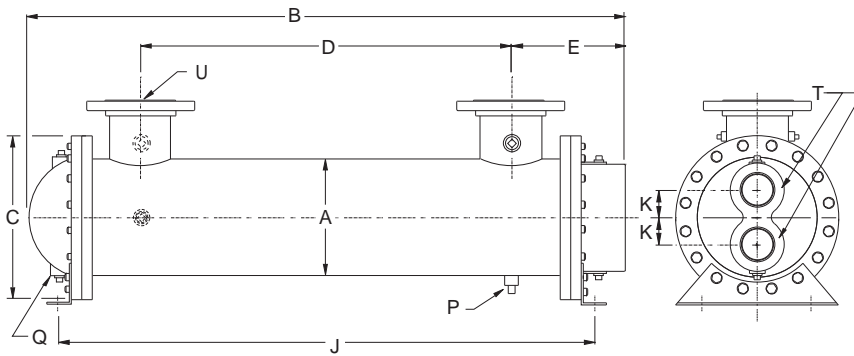


CS 2000 Series *dimensions*



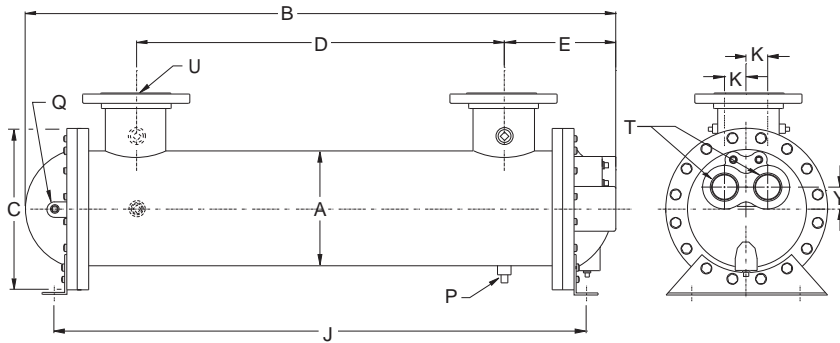
Model	B	E	Q NPT	T NPT
CS-2036	50.13	12.06	.50 (4x)	5.00" 150# ASME / ANSI Flat Face Flange 8 holes .88 dia. on 8.5 DBC both ends
CS-2048	62.13			
CS-2060	74.13			
CS-2072	86.13			
CS-2084	98.13			
CS-2096	110.13			
CS-20108	122.13			
CS-20120	134.13			
CS-20132	146.13			
CS-20144	158.13			

Single Pass (SP)



Model	B	E	K	Q NPT	T NPT
CS-2036	45.50	9.83	2.50	.50 (4x)	3.00
CS-2048	57.50				
CS-2060	69.50				
CS-2072	81.50				
CS-2084	93.50				
CS-2096	105.50				
CS-20108	117.50				
CS-20120	129.50				
CS-20132	141.50				
CS-20144	153.50				

Two Pass (TP)



Model	B	E	K	Q NPT	Y	T NPT
CS-2036	45.80	9.93	2.00	.50 (5x)	1.75	2.50
CS-2048	57.80					
CS-2060	69.80					
CS-2072	81.80					
CS-2084	93.80					
CS-2096	105.80					
CS-20108	117.80					
CS-20120	129.80					
CS-20132	141.80					
CS-20144	153.80					

Four Pass (FP)

COMMON DIMENSIONS & WEIGHTS

Model	A	C	D	G	J	L	M	N	P NPT	R	U	Weight	Model
CS-2036	10.75	15.00	26.00	10.38	42.00	8.00	12.00	5.00	.50 (2x)	.75"Ø x 1.25" Thru Slot	4.00" ANSI Flange 150# RF	690	CS-2036
CS-2048			38.00		54.00							750	CS-2048
CS-2060			50.00		66.00							810	CS-2060
CS-2072			62.00		78.00							870	CS-2072
CS-2084			74.00		90.00							930	CS-2084
CS-2096			86.00		102.00							990	CS-2096
CS-20108			98.00		114.00							1050	CS-20108
CS-20120			110.00		126.00							1110	CS-20120
CS-20132			122.00		138.00							1170	CS-20132
CS-20144			134.00		150.00							1230	CS-20144