

WATER COOLED FIXED BUNDLE/C & SSC SERIES

C/SSC

water cooled

C-SERIES

RUGGED STEEL CONSTRUCTION

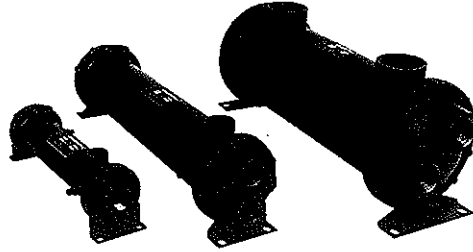
LOW COST

SSC-SERIES

TYPE 316 STAINLESS STEEL CONSTRUCTION

CUSTOM DESIGNS AVAILABLE

COMPETITIVELY PRICED



- Optional Material Construction on C-Series: Tubes, Tubesheets, End Bonnets
- NPT, SAE O-Ring, SAE Flange, or BSPP Shell Side Connections Available
- End Bonnets Removable for Servicing
- Mounting Feet Included (May be rotated in 90° increments)

MATERIALS

C SERIES

Tubes - Copper
Headers - Steel
Shell - Steel
Shell Connections - Steel
Baffles - Brass
End Bonnets - Cast Iron
Mounting Brackets - Steel
Gaskets - Nitrate Rubber/Cellulose Fiber
Nameplate - Aluminum Foil

SSC SERIES

Tubes - 316 Stainless Steel
Tubesheets - 316 L Stainless Steel
Shell - 316 L Stainless Steel
Shell Connections - 316 L Stainless Steel
Baffles - 316 Stainless Steel
End Bonnets - 316 Stainless Steel
Mounting Brackets - Mild Steel
Gaskets - Nitrate Rubber/Cellulose Fiber
Nameplate - Aluminum Foil

RATINGS

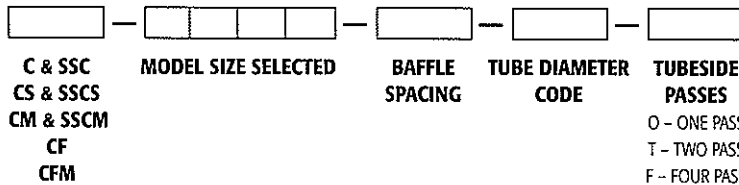
STANDARD

Maximum shell pressure - 300 psi
Maximum tube side pressure - 150 psi
Maximum temperature - 300°F

ASME CODE

Maximum shell pressure - 300 psi
Maximum tube side pressure - 150 psi
ASME CODE SSC-1700 - 200 psi
Maximum temperature - 300°F

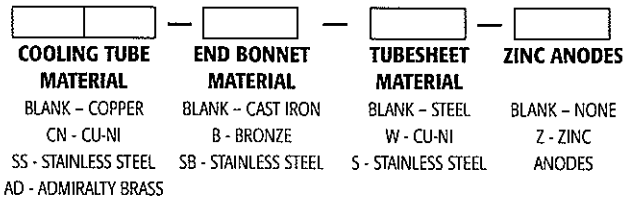
HOW TO ORDER



C = NPT Shell side connections; NPT Tube side connections
CS = SAE O-Ring Shell side connections; NPT Tube side connections
CM = BSPP Shell side connections; BSPP Tube side connections
CF = SAE Flange (with UNC threads) Shell side connections; NPT Tube side connections
CFM = SAE Flange (with Metric threads) Shell side connections; BSPP Tube side connections
SSC = NPT Shell side connections; NPT Tube side connections
SSCS = SAE O-Ring Shell side connections; NPT Tube side connections
SSCM = BSPP Shell side connections; BSPP Tube side connections

ADD FOR C MODELS ONLY:

Cooling tube material, end bonnet material, tubesheet material & zinc anodes



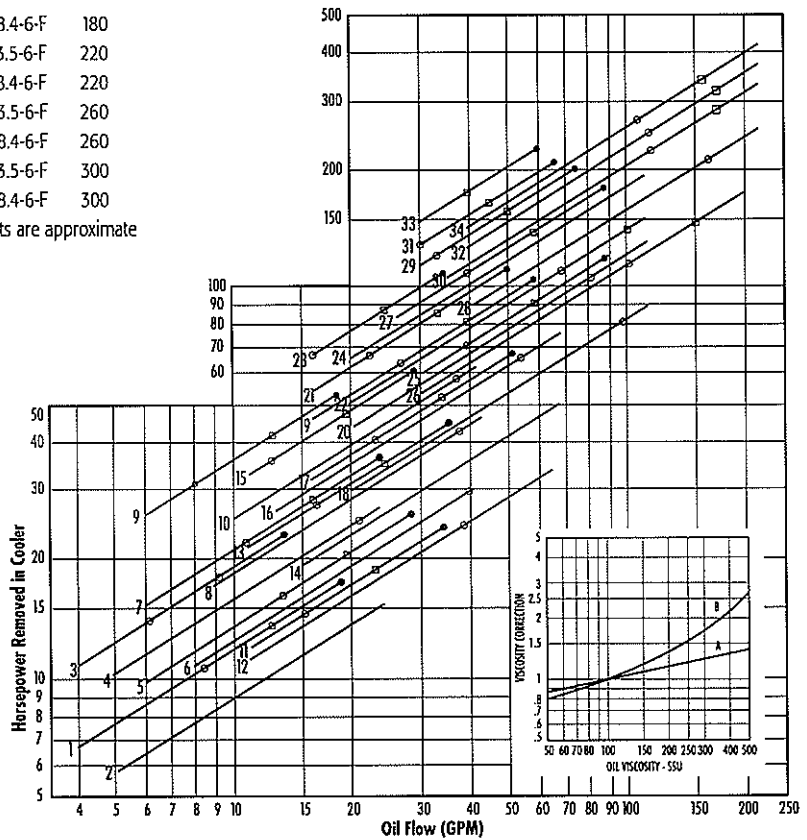
*Consult factory for ASME code

PERFORMANCE CURVES & WEIGHTS

MODEL CODE	SHP. WT. (LBS.)		
1: C/SSC-614-1.3-4-F	17	28: C/SSC-1736-8.4-6-F	180
2: C/SSC-614-3-4-F	17	29: C/SSC-1748-3.5-6-F	220
3: C/SSC-624-1.3-4-F	24	30: C/SSC-1748-8.4-6-F	220
4: C/SSC-624-3-4-F	24	31: C/SSC-1760-3.5-6-F	260
5: C/SSC-814-1.7-4-F	32	32: C/SSC-1760-8.4-6-F	260
6: C/SSC-814-4-4-F	32	33: C/SSC-1772-3.5-6-F	300
7: C/SSC-824-1.7-4-F	41	34: C/SSC-1772-8.4-6-F	300
8: C/SSC-824-4-4-F	41		
9: C/SSC-836-1.7-4-F	53		
10: C/SSC-836-4-4-F	53		
11: C/SSC-1014-2-6-F	43		
12: C/SSC-1014-5-6-F	43		
13: C/SSC-1024-2-6-F	57		
14: C/SSC-1024-5-6-F	57		
15: C/SSC-1036-2-6-F	72		
16: C/SSC-1036-5-6-F	72		
17: C/SSC-1224-2.5-6-F	85		
18: C/SSC-1224-6-6-F	85		
19: C/SSC-1236-2.5-6-F	110		
20: C/SSC-1236-6-6-F	110		
21: C/SSC-1248-2.5-6-F	135		
22: C/SSC-1248-6-6-F	135		
23: C/SSC-1260-2.5-6-F	160		
24: C/SSC-1260-6-6-F	160		
25: C/SSC-1724-3.5-6-F	140		
26: C/SSC-1724-8.4-6-F	140		
27: C/SSC-1736-3.5-6-F	180		

*Shipping Weights are approximate

OIL Δ P
 ○ = 5 PSI
 □ = 10 PSI
 ● = 20 PSI



water cooled
C/SSC

SELECTION PROCEDURE

Performance Curves are based on 100SSU oil leaving the cooler 40°F higher than the ambient air temperature used for cooling. This is also referred to as a 40°F approach temperature.

Step 1. Determine the Heat Load.

This will vary with different systems, but typically coolers are sized to remove 25 to 50% of the input nameplate horsepower. (Example: 100 HP Power Unit x .33 = 33 HP Heat load.)

If BTU/Hr. is known: $HP = \frac{BTU/Hr}{2545}$

Step 2. Determine Approach Temperature.

Desired oil leaving cooler °F - Water Inlet temp. °F = Actual Approach (Max. reservoir temp.)

Step 3. Determine Curve Horsepower Heat Load.

Enter the information from above:

Horsepower heat load x $\frac{40}{\text{Actual Approach}}$ x Viscosity Correction A = Curve Horsepower

Step 4. Enter curves at oil flow through cooler and curve horsepower.

Any curve above the intersecting point will work.

Step 5. Determine Oil Pressure Drop from Curves:

○ = 5 PSI; □ = 10 PSI; ● = 20 PSI. Multiply pressure drop from curve by correction factor B found on oil viscosity correction curve.

Oil Temperature: Oil coolers can be selected using *entering* or *leaving* oil temperatures.

Typical operating temperature ranges are:

Hydraulic Oil: 110°F - 130°F, Hydrostatic Drive Oil: 130°F - 180°F,

Bearing Lube Oil: 120°F - 160°F, Lube Oil Circuits: 110°F - 130°F.

Desired Reservoir Temperature

Return Line Cooling: Desired temperature is the oil temperature leaving the cooler. This will be the same temperature that will be found in the reservoir.

Off-Line Recirculation Cooling Loop: Desired temperature is the oil

temperature *entering* the cooler. In this case, the oil temperature change

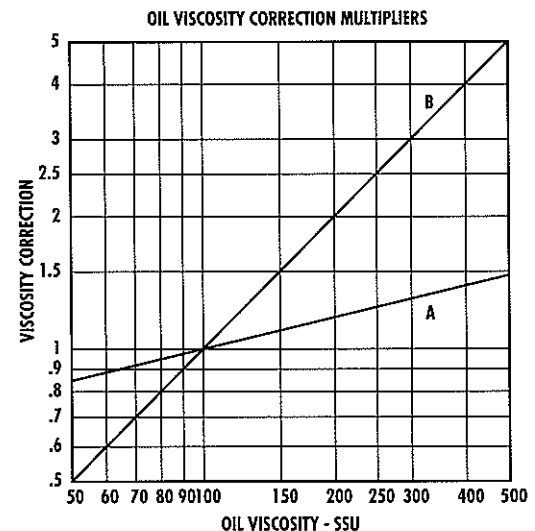
must be determined so that the actual oil leaving temperature can be found. Calculate the oil temperature change (oil ΔT) with this formula:
 Oil ΔT = (BTU's/Hr.) / (GPM Oil Flow x 210).

To calculate the oil leaving temperature from the cooler, use this formula:

Oil Leaving Temp. = Oil Entering Temp - Oil ΔT.

This formula may also be used in any application where the only temperature available is the entering oil temperature.

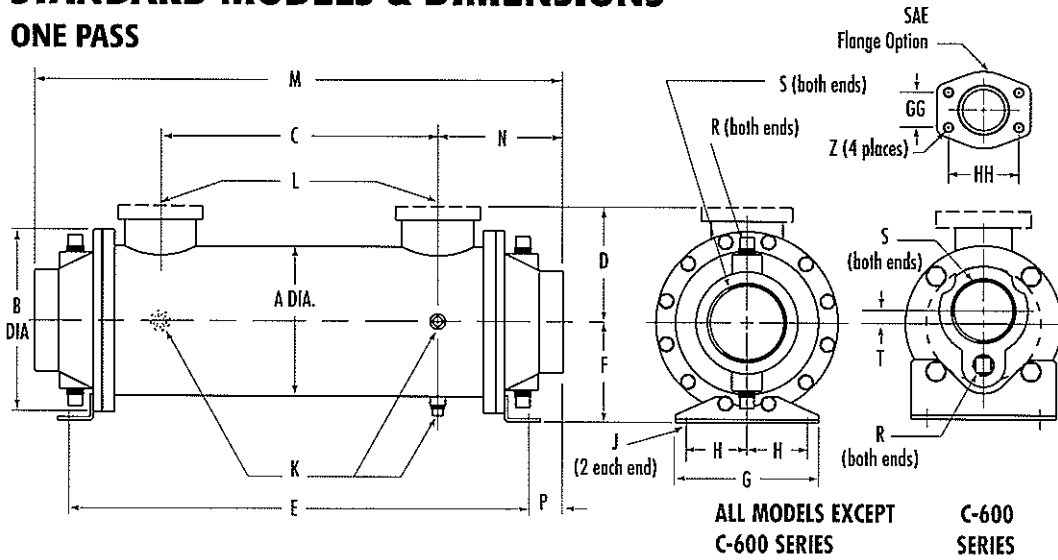
Oil Pressure Drop: Most systems can tolerate a pressure drop through the heat exchanger of 20 to 30 PSI. Excessive pressure drop should be avoided. Care should be taken to limit pressure drop to 5 PSI or less for case drain applications where high back pressure may damage the pump shaft seals.



STANDARD MODELS & DIMENSIONS

ONE PASS

C/SSC
water cooled



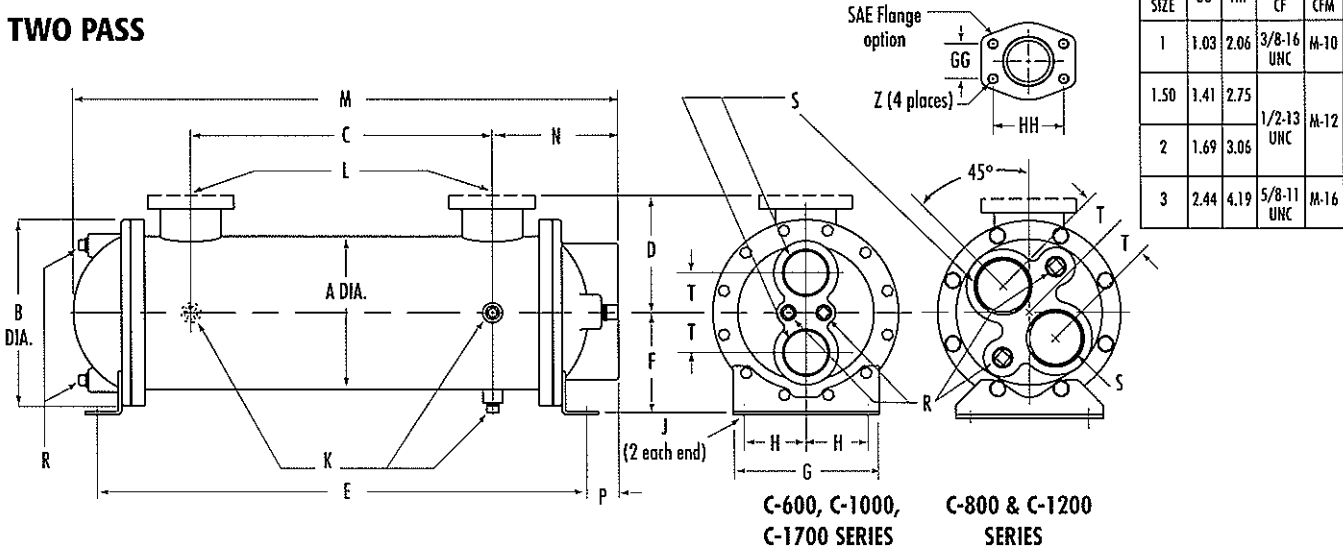
FLANGE SIZE	GG	HH	Z CF	Z CFM
1	1.03	2.06	3/8-16 UNC	M-10
1.50	1.41	2.75	1/2-13 UNC	M-12
2	1.69	3.06		
3	2.44	4.19	5/8-11 UNC	M-16

MODEL SIZE	A	B	C	D		E	F	G	H	J	K NPT	L		M	N	P	R NPT	S NPT/BSPP	T
				NPT/BSPP SAE O-RING	SAE FLANGE							NPT/BSPP FLANGE	SAE O-RING						
614	3.25	4.50	10.00	2.62	2.88	16.38	2.75	4.18	1.62	.44 DIA.	(3)	1.00	#16	17.18	3.59	.40	(2)	1.50	.38
624			20.00			#15/16-12 UNF-2B							27.18						
814	4.25	6.00	9.00	3.25	3.50	16.62	3.50	4.25	1.75	.25	(3)	1.50	#24 1 7/8-12 UN-2B	17.88	4.44	.63	(4)	2.00	—
824			19.00			26.62								27.88					
836			31.00			38.62								39.88					
1014	5.25	6.75	9.00	3.75	4.00	17.12	4.00	5.25	2.00	.50 x .75	(3)	2.00	#32 2 1/2-12 UN-2B	19.09	5.05	.92	(4)	3.00	—
1024			19.00			27.12								29.09					
1036			31.00			39.12								41.09					
1224			18.25			27.13								30.00					
1236	6.25	7.75	30.25	4.25	4.88	39.13	4.50	6.25	2.50	.75	(3)	2.00	#32 2 1/2-12 UN-2B	42.00	5.87	1.43	(4)	3.00	—
1248			42.25			51.13								54.00					
1260			54.25			63.13								66.00					
1724	8.62	10.50	17.00	5.84	6.81	27.50	5.75	8.25	3.50	.62 x .88	(3)	3.00	—	31.47	7.23	1.99	(4)	4.00	—
1736			29.00			39.50								43.47					
1748			41.00			51.50								55.47					
1760			53.00			63.50								67.47					
1772			65.00			75.50								79.47					

All dimensions are in inches. NOTE: We reserve the right to make reasonable design changes without notice. * - Consult Factory

STANDARD MODELS & DIMENSIONS

TWO PASS



water cooled
C/SSC

MODEL SIZE	A	B	C	D		E	F	G	H	J	K NPT	L		M	N	P	R NPT	S NPT/BSPP	T
				NPT/BSPP SAE O-RING	SAE FLANGE							NPT/BSPP FLANGE	SAE O-RING						
614	3.25	4.50	10.00	2.62	2.88	16.38	2.75	4.18	1.62	.44	(3)	1.00	#16 15/16-12 UNF-2B	17.12	3.56	.38	(2)	1.00	1.00
624			20.00			26.38								27.12					
814	4.25	6.00	9.00	3.25	3.50	16.62	3.50	4.25	1.75	.44	(3)	1.50	#24 17/8-12 UN-2B	17.88	4.44	.63	.38	1.25	1.06
824			19.00			26.62								27.88					
836			31.00			38.62								39.88					
1014			9.00			17.12								18.62					
1024	5.25	6.75	19.00	3.75	4.00	27.12	4.00	5.25	2.00	.50	(3)	2.00	#32 2 1/2-12 UN-2B	28.62	5.00	.94	(4)	1.50	1.50
1036			31.00			39.12								40.62					
1224			18.25			27.13								29.02					
1236	6.25	7.75	30.25	4.25	4.88	39.13	4.50	6.25	2.50	.75	(3)	2.00	#32 2 1/2-12 UN-2B	41.03	5.43	1.00	.38	2.00	1.56
1248			42.25			51.13								53.03					
1260			54.25			63.13								65.03					
1724			17.00			27.50								30.62					
1736	8.62	10.50	29.00	5.84	6.81	39.50	5.75	8.25	3.50	.62	(3)	3.00	-	42.62	7.06	1.81	.50	2.50	2.25
1748			41.00			51.50								54.62					
1760			53.00			63.50								66.62					
1772			65.00			75.50								78.62					

All dimensions are in inches. NOTE: We reserve the right to make reasonable design changes without notice. * - Consult Factory

For more information or to purchase these products, please contact:

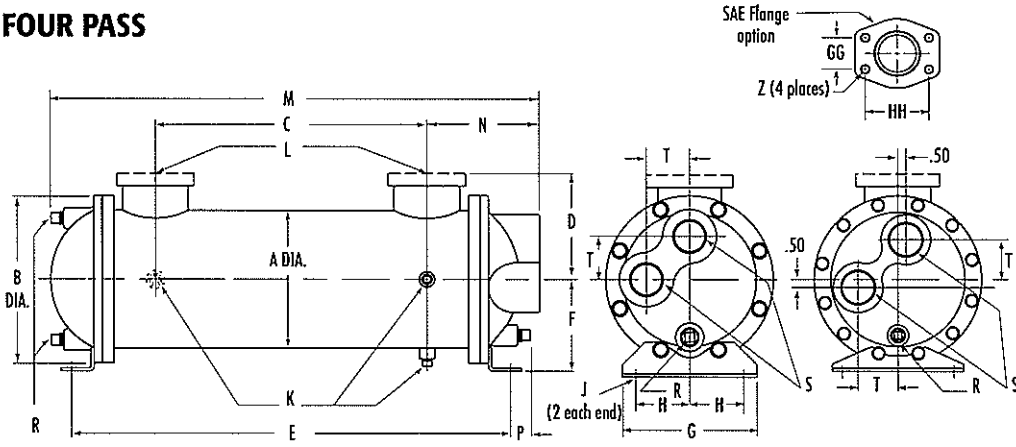
HYDROTHRIFT CORPORATION
(800) 772-0493

www.hydrothrift.com
sales@hydrothrift.com

STANDARD MODELS & DIMENSIONS

FOUR PASS

C/SSC
water cooled



ALL MODELS EXCEPT C-1700 SERIES C-1700 SERIES

FLANGE SIZE	GG	HH	Z CF	Z CFM
1	1.03	2.06	3/8-16 UNC	M-10
1.50	1.41	2.75	1/2-13 UNC	M-12
2	1.69	3.06		
3	2.44	4.19	5/8-11 UNC	M-16

MODEL SIZE	A	B	C	D		E	F	G	H	J	K NPT	L		M	N	P	R NPT	S NPT/BSPP	T	
				NPT/BSPP SAE O-RING	SAE FLANGE							NPT/BSPP FLANGE	SAE O-RING							
614	3.25	4.50	10.00	2.62	2.88	16.38	2.75	4.18	1.62	.44 DIA.	(3)	1.00	#16	17.12	3.56	.38	(2)		1.00	
624			20.00			26.38							15/16-12 UNF-28	27.12						
814	4.25	6.00	9.00	3.25	3.50	16.62	3.50	4.25	1.75	.50 DIA.	(3)	1.50	#24	17.88	4.44	.63	(3)		.75	
824			19.00			26.62								17/8-12 UN-28						27.88
836			31.00			38.62														39.88
1014			9.00			17.12														18.81
1024	5.25	6.75	19.00	3.75	4.00	27.12	4.00	5.25	2.00	.75	(3)	2.00	#32	29.13	5.44	1.00	(3)		1.00	
1036			31.00			39.12								2 1/2-12 UN-28						41.13
1224	6.25	7.75	18.25	4.25	4.88	27.13	4.50	6.25	2.50	.50 x .75	(3)	2.00	#32	29.13	5.44	1.00	(3)		1.50	
1236			30.25			39.13								41.13						
1248			42.25			51.13								53.13						
1260			54.25			63.13								65.13						
1724	8.62	10.50	17.00	5.84	6.81	27.50	5.75	8.25	3.50	.62 x .88	(3)	3.00	-	29.86	7.06	1.81	(3)		2.00	
1736			29.00			39.50								41.86						
1748			41.00			51.50								53.86						
1760			53.00			63.50								65.86						
1772			65.00			75.50								77.86						

All dimensions are in inches. NOTE: We reserve the right to make reasonable design changes without notice. * - Consult Factory

MAXIMUM FLOW RATES

Model No. Example: C/SSC - 1024 - 2 - 6 - F

Unit Size	Baffle Spacing	Shell Side (GPM)	Tube Side (GPM)		
			O	T	F
600	1.3, 3	19, 29	48	24	12
800	1.7, 4	32, 69	84	42	21
1000	2, 5	41, 69	146	73	37
1200	2.5, 6	60, 115	224	112	56
1700	3.5, 8.4	125, 253	465	232	116

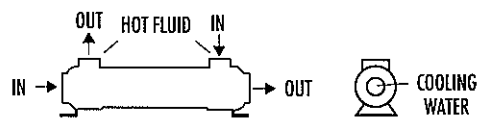
Exceptions to Maximum Shell Side Flows:

- C/SSC-814-4-4-* 63 GPM Max.
- C/SSC-1014-2-6-* 33 GPM Max.
- C/SSC-1014-5-6-* 66 GPM Max.
- C/SSC-1724-3-5-6-* 105 GPM Max.
- C/SSC-1724-8-4-6-* 200 GPM Max.

Caution: Incorrect installation can cause this product to fail prematurely, causing the shell side and tube side fluids to intermix.

PIPING HOOK-UP

ONE PASS



TWO AND FOUR PASS



Specific applications may have different piping arrangements. Contact factory for assistance.