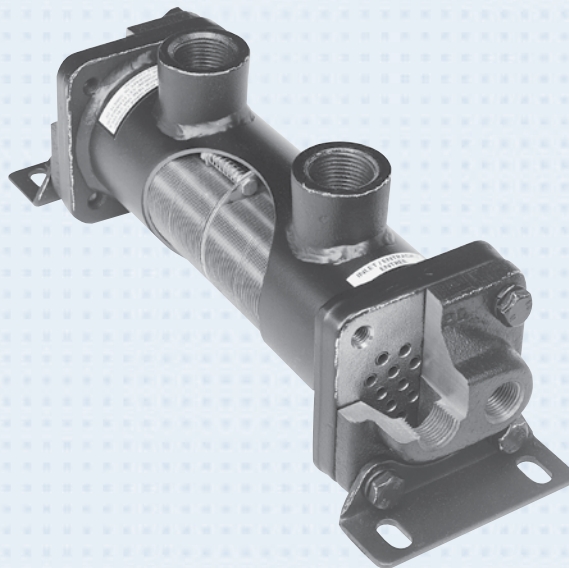


FLUID COOLING | Shell & Tube EK Series

COPPER & STEEL CONSTRUCTION

Features

- Compact Size
- High Efficiency Finned Bundle Design
- Low Cost
- Optional Patented Built-in Surge-Cushion® Relief Bypass
- 3/16" Tube Size
- Heat Removal up to 400 Horsepower (300 kW)
- Oil Flow rates up to 80 U.S. GPM (300 Liters/min.)
- Large Oil Connections for Minimum Entering and Exiting Flow Restriction
- Removable End Bonnets for easy tube cleaning
- Mounting Brackets Designed so that Cooler can be Rotated in 90° Increments
- High Pressure Ratings
- Complete Line of Accessories Available



WATER COOLED EK

Ratings

- Operating Pressure/Shell side** 500 psi
- Operating Pressure/Tubeshell side** 150 psi
- Operating Temperature** 250° F

Materials

- Shell** Steel
- Tube Sheets** Steel
- Baffles** Steel
- Mounting Brackets** Steel
- Gaskets** Nitrile Rubber/Cellulose Fiber
- Nameplate** Aluminum Foil
- Tubes** Copper
- Fins** Aluminum
- End Caps** Grey Iron

Surge-Cushion (Option)

The SURGE-CUSHION® is a protective device (patented) designed to internally bypass a portion of the oil flow during cold start conditions, or when sudden flow surges temporarily exceed the maximum flow allowed for a given cooler. This device may replace an external bypass valve, but it is not intended to bypass the total oil flow.

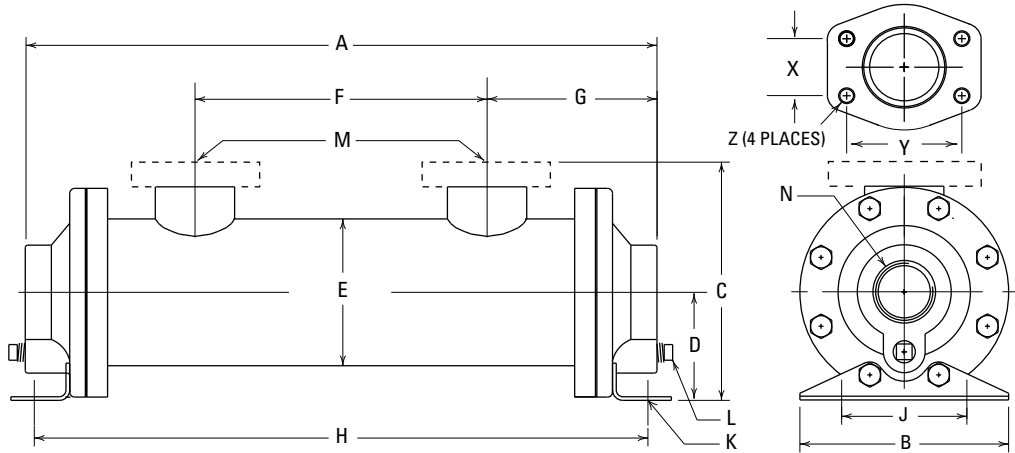
Maximum Flow Rates

Unit Size	Shell Side GPM	Tube Side GPM		
		One Pass	Two Pass	Four Pass
500	20	13	6	N/A
700	60	24	12	6
1000	80	56	28	14

Incorrect installation can cause premature failure.

Dimensions

One Pass



Flange Size	1-1/2	2
X	1.41	1.69
Y	2.75	3.06
EKF Z	1/2 - 13 UNC-28	
EKFM Z	M-12	

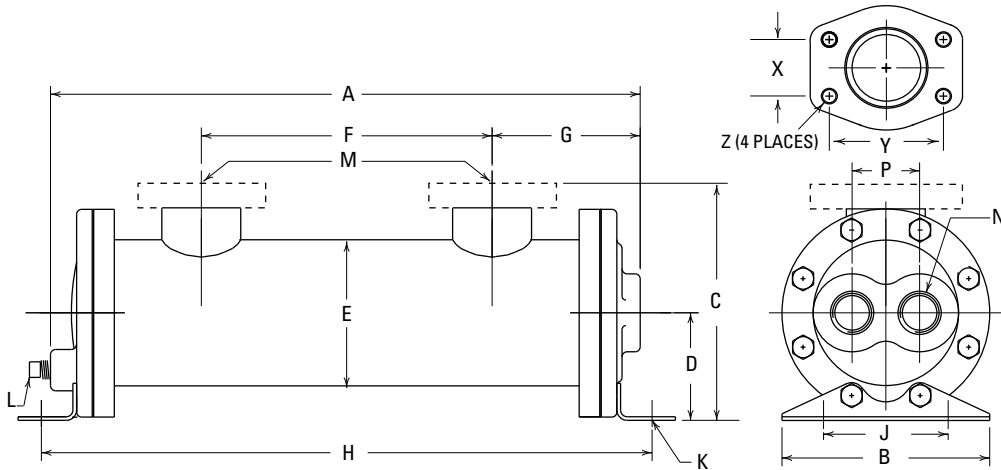
MODEL	A	B	C		D	E	F	G	H	J	K	L	M				N
			NPT / BSPP SAE O-RING	SAE FLANGE									NPT	SAE O-RING	SAE FLANGE	BSPP	
EK-505	7.38	3.5 MAX. WIDTH	3.90	N/A	1.62	2.55 DIA.	2.19	2.59	7.44	2.50	.34 x .62 SLOT	N/A	3/4	#8 3/4-16 UNF-2B	N/A	3/4	3/4
EK-508	10.38						3.85		10.44								
EK-510	12.38						5.85		12.44								
EK-512	14.38						7.85		14.44								
EK-514	16.38						9.85		16.44								
EK-518	20.38						13.85		20.44								
EK-524	26.38						19.85		26.44								
EK-536	38.38						31.85		38.44								
EK-708	11.12	5.0 MAX. WIDTH	5.47	5.71	2.59	3.52 DIA.	3.00	4.07	10.71	3.00	.44 x .75 SLOT	1 1/2	#24 1 7/8-12 UN-2B	1 1/2	1 1/2	1 1/4	
EK-712	15.12						7.00		14.71								
EK-714	17.12						9.00		16.71								
EK-718	21.12						13.00		20.71								
EK-724	27.12						19.00		26.71								
EK-736	39.12						31.00		38.71								
EK-1012	15.33	6.5 MAX. WIDTH	7.64	8.28	4.00	5.05 DIA.	6.18	4.57	15.45	4.00	.44 x 1.00 SLOT	2	2	2	1 1/2		
EK-1014	17.33						8.18		17.45								
EK-1018	21.33						12.18		21.45								
EK-1024	27.33						18.18		27.45								
EK-1036	39.33						30.18		39.45								
EK-1048	51.33						42.18		51.45								

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



Dimensions

Two Pass



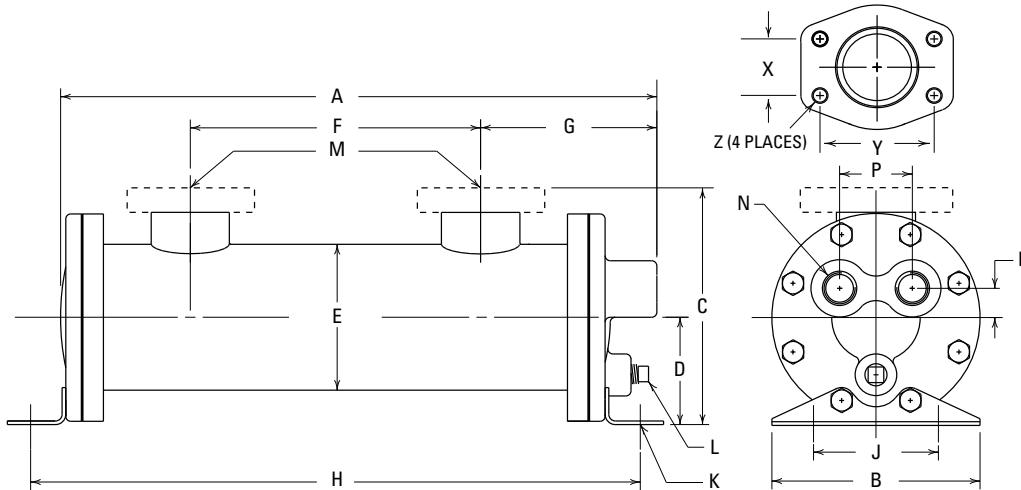
Flange Size	1-1/2	2
X	1.41	1.69
Y	2.75	3.06
EKF Z	1/2 - 13 UNC-28	
EKFM Z	M-12	

MODEL	A	B	C		D	E	F	G	H	J	K	L	M				N	P
			NPT / BSPP SAE O-RING	SAE FLANGE									NPT	SAE O-RING	SAE FLANGE	BSPP		
EK-505	7.38	3.5 MAX. WIDTH	3.90	N/A	1.62	2.55 DIA.	2.19	3.26	7.44	2.50	.34 x .62 SLOT	N/A	3/4	#8 3/4-16 UNF-2B	N/A	3/4	3/8	1.12
EK-508	10.38						3.85		10.44									
EK-510	12.38						5.85		12.44									
EK-512	14.38						7.85		14.44									
EK-514	16.38						9.85		16.44									
EK-518	20.38						13.85		20.44									
EK-524	26.38						19.85		26.44									
EK-536	38.38						31.85		38.44									
EK-708	10.19	5.0 MAX. WIDTH	5.47	5.71	2.59	3.52 DIA.	3.00	3.57	10.71	3.00	.44 x .75 SLOT	1/4	1 1/2	#24 17/8-12 UN-2B	1 1/2	3/4	1.62	
EK-712	14.19						7.00		14.71									
EK-714	16.19						9.00		16.71									
EK-718	20.19						13.00		20.71									
EK-724	26.19						19.00		26.71									
EK-736	39.19						31.00		38.71									
EK-1012	14.58	6.5 MAX. WIDTH	7.64	8.28	4.00	5.05 DIA.	6.18	4.45	15.45	4.00	.44 x 1.00 SLOT	2	2	2	1.0	2.38		
EK-1014	16.58						8.18		17.45									
EK-1018	20.58						12.18		21.45									
EK-1024	26.58						18.18		27.45									
EK-1036	38.58						30.18		39.45									
EK-1048	50.58						42.18		51.45									

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

Dimensions

Four Pass



Flange Size	1-1/2	2
X	1.41	1.69
Y	2.75	3.06
EKF Z	1/2 - 13 UNC-28	
EKFM Z	M-12	

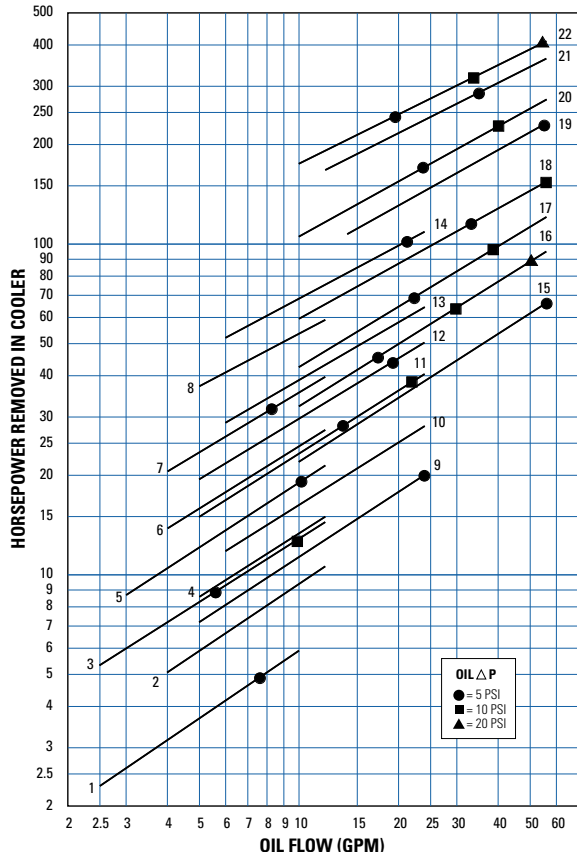
MODEL	A	B	C		D	E	F	G	H	J	K	L	M				N	P	R
			NPT / BSPP SAE O-RING	SAE FLANGE									NPT	SAE O-RING	SAE FLANGE	BSPP			
EK-708	10.37	MAX. WIDTH	5.47	5.71	2.59	3.52 DIA.	3.00	4.25	10.71	3.00	.44 x .75 SLOT	1/4	1 1/2	#24 17/8-12 UN-2B	1 1/2	1/2	1.75	.70	
EK-712	14.37						7.00		14.71										
EK-714	16.37						9.00		16.71										
EK-718	20.37						13.00		20.71										
EK-724	26.37						19.00		26.71										
EK-736	38.37						31.00		38.71										
EK-1012	14.33	MAX. WIDTH	7.64	8.28	4.00	5.05 DIA.	6.18	4.45	15.45	4.00	.44 x 1.00 SLOT	1/4	2	#24 17/8-12 UN-2B	1 1/2	3/4	2.50	.89	
EK-1014	16.33						8.18		17.45										
EK-1018	20.33						12.18		21.45										
EK-1024	26.33						18.18		27.45										
EK-1036	38.33						30.18		39.45										
EK-1048	50.33						42.18		51.45										

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



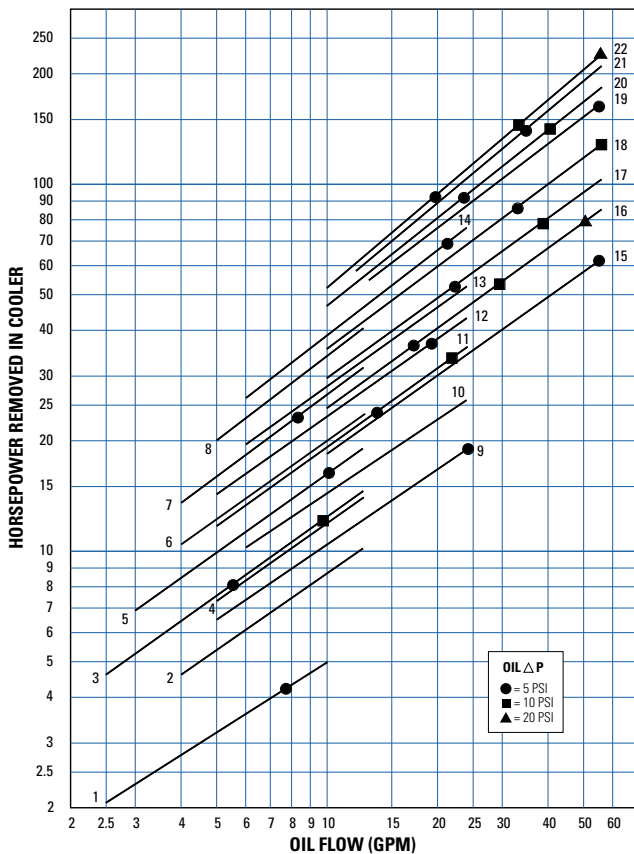
Performance Curves

1:1 Oil to Water Ratio – High Water Usage



Models	Net	Weights (lbs) Approx. Shipping
1. EK-505-0	6	7
2. EK-508-0	7	8
3. EK-510-0	8	9
4. EK-512-0	9	10
5. EK-514-0	10	11
6. EK-518-0	11	12
7. EK-524-0	13	14
8. EK-536-0	17	18
9. EK-708-0	15	16
10. EK-712-0	18	19
11. EK-714-0	19	20
12. EK-718-0	22	23
13. EK-724-0	26	28
14. EK-736-0	34	36
15. EK-1012-0	35	37
16. EK-1014-0	38	40
17. EK-1018-0	42	45
18. EK-1024-0	50	55
19. EK-1036-9-0	67	85
20. EK-1036-6-0	67	85
21. EK-1048-8-0	78	95
22. EK-1048-6-0	78	95

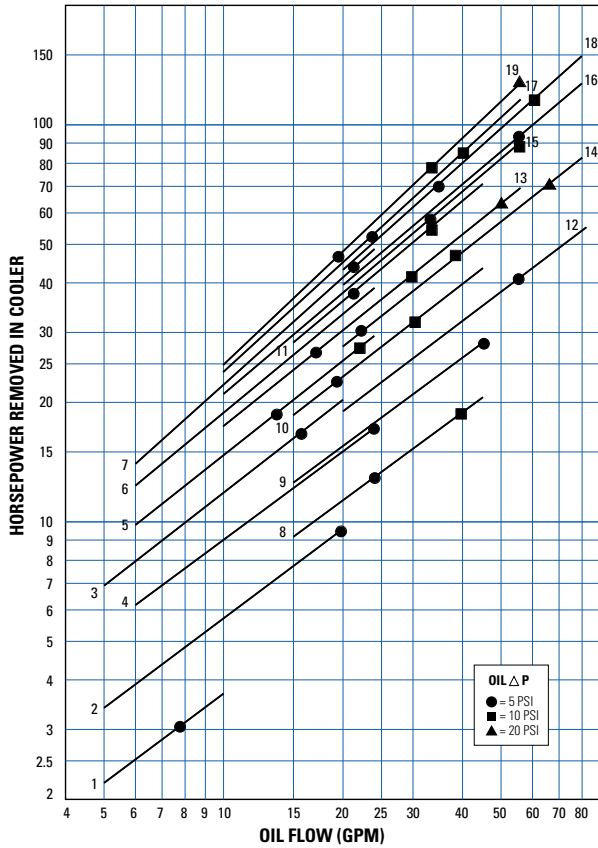
2:1 Oil to Water Ratio – Medium Water Usage



Models	Net	Weights (lbs) Approx. Shipping
1. EK-505-T	6	7
2. EK-508-T	7	8
3. EK-510-T	8	9
4. EK-512-T	9	10
5. EK-514-T	10	11
6. EK-518-T	11	12
7. EK-524-T	13	14
8. EK-536-T	17	18
9. EK-708-T	15	16
10. EK-712-T	18	19
11. EK-714-T	19	20
12. EK-718-T	22	23
13. EK-724-T	26	28
14. EK-736-T	34	36
15. EK-1012-T	35	37
16. EK-1014-T	38	40
17. EK-1018-T	42	45
18. EK-1024-T	50	55
19. EK-1036-9-T	67	85
20. EK-1036-6-T	67	85
21. EK-1048-8-T	78	95
22. EK-1048-6-T	78	95

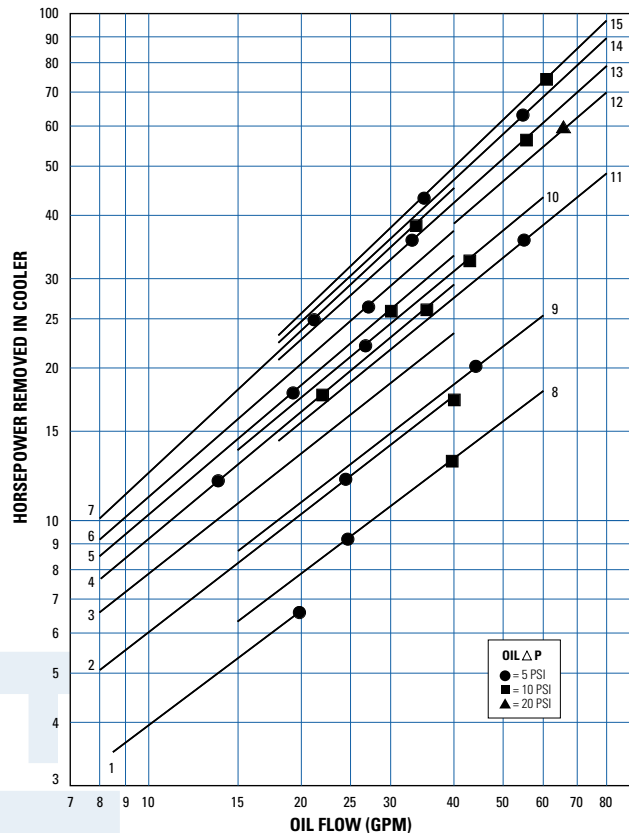
Performance Curves

4:1 Oil to Water Ratio – Low Water Usage



Models	Net	Weights (lbs) Approx. Shipping
1. EK-505-T	6	7
2. EK-508-T	7	8
3. EK-518-T	11	12
4. EK-708-F	15	16
5. EK-714-F	19	20
6. EK-724-F	26	28
7. EK-736-F	34	36
8. EK-708-T	15	16
9. EK-712-T	18	19
10. EK-718-T	22	23
11. EK-736-T	34	36
12. EK-1012-T	35	37
13. EK-1014-T	38	40
14. EK-1018-T	42	45
15. EK-1024-T	50	55
16. EK-1036-9-T	67	85
17. EK-1036-6-T	67	85
18. EK-1048-8-T	78	95
19. EK-1048-6-T	78	95

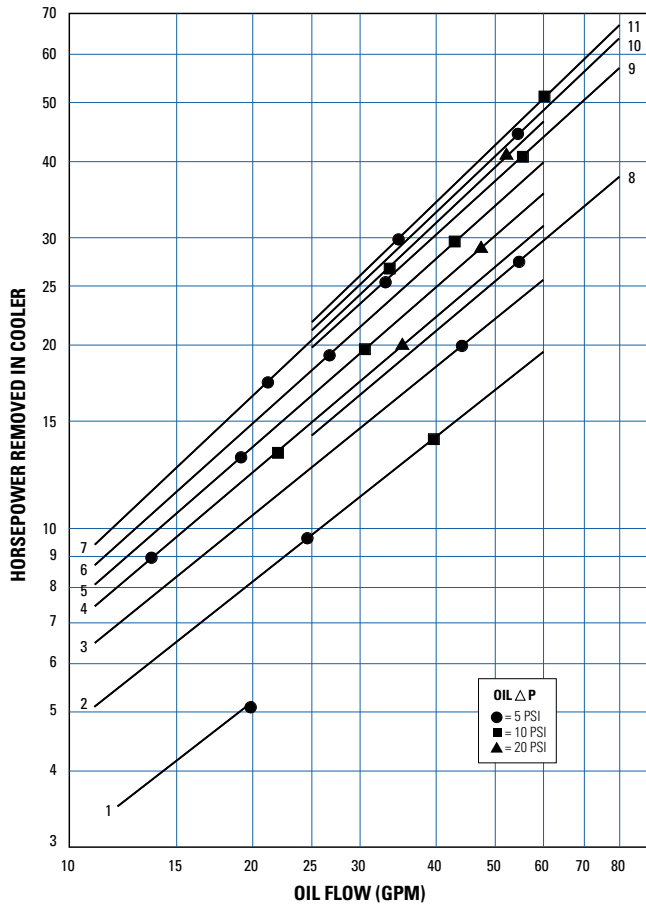
7:1 Oil to Water Ratio – Lower Water Usage



Models	Net	Weights (lbs) Approx. Shipping
1. EK-508-T	7	8
2. EK-708-F	15	16
3. EK-712-F	18	19
4. EK-714-F	19	20
5. EK-718-F	22	23
6. EK-124-F	26	28
7. EK-736-F	34	36
8. EK-708-T	15	16
9. EK-712-T	18	19
10. EK-724-T	26	28
11. EK-1012-T	35	37
12. EK-1018-T	42	45
13. EK-1024-T	50	55
14. EK-1036-9-T	67	85
15. EK-1048-8-T	78	95

Performance Curves

10:1 Oil to Water Ratio – Lowest Water Usage



Models	Net	Weights (lbs) Approx. Shipping
1. EK-508-T	7	8
2. EK-708-F	15	16
3. EK-712-F	18	19
4. EK-714-F	19	20
5. EK-718-F	22	23
6. EK-724-F	26	28
7. EK-736-F	34	36
8. EK-1012-F	35	37
9. EK-1014-F	50	55
10. EK-1036-9-F	67	85
11. EK-1048-8-F	78	95

Recirculation Loop

Water Cooled Hydraulic Oil Coolers

BASIS:

- 40°F Entering temperature difference (Maintain reservoir 40°F above the incoming water temperature)
- Heat removal 30% of input horsepower
- Hydraulic system flow (GPM) x 3 = Gallons; reservoir size
- 1 GPM cooler flow per HP heat to be removed
- Turn-over reservoir 3-4 times per hour
- Maximum flows

System Horsepower	HP Heat Load	Minimum Required GPM Oil Flow	Minimum Required GPM Water Flow	Heat Exchanger Model Number
3	.9	1	1	EK-505-T
5	1.5	2		
7.5	2.25	3	1.5	EK-512-T
10	3			
15	4.5			
20	6	7.5	4	EK-712-T
25	7.5			
30	9	15	7.5	EK-1012-T
40	12			
50	15			
60	18	23	12	
75	22.5			
100	30	30	15	