



AERCO MODULEX EXT Primary Loop Design Guidelines

International, Inc.

MINIMUM AND MAXIMUM FLOW RATES

	EXT 450 2S	EXT 600 2S	EXT 800 2S	EXT 1100 2S
Minimum Water Flow at Min. Fire (GPM)	7	9	11	16
Minimum Water Flow at Full Fire (GPM)	18	24	30	42
Maximum Water Flow (GPM)	42	56	71	99

The following primary/secondary piping design guidelines should be used for AERCO ModulEx Boiler installations. The following data was calculated based upon systems with Return Water Temperatures above 80°F. A 20 mesh strainer (or finer) is required at each boiler inlet. Water flow rates and pressure drops shown below are for the boiler loop. Boiler water flow rates vary with system design parameters. **The boiler loop fittings and strainer pressure drops shown below are examples only – actual pressure drops will vary depending on actual piping layout and strainer size/type used.**

	EXT 450 2S	EXT 600 2S	EXT 800 2S	EXT 1100 2S
50°F ΔT Loop Conditions				
Water Flow (GPM) @ Max. ΔT of 50°F	18	24	30	41
Water Pressure Drop (Ft. of Hd.) across the Boiler @ 50°F ΔT Flow	2.1	1.7	1.6	1.8
Strainer ΔP (Ft. of Hd.) – (‘Y’ Strainer, 20 mesh)	0.50	0.89	0.41	0.80
ΔP (Ft. of Hd.) – (20’ SCH.40, 4 x 90°, 2 x reducing couplings, 2 x Ball Valve)	0.81	1.47	0.65	1.23
Total Primary Loop ΔP (Ft. of Hd.) @ ΔT of 50°F	3.44	4.09	2.67	3.82
Strainer, Pipes, Valves and Fittings Sizes used to estimate ΔP for above piping configurations	1-1/2"	1-1/2"	2"	2"
Recommended AERCO Pump+Circuit Setter Kit for piping configurations not exceeding the above example	99127-1	99127-1	99127-2	99127-3
Kit includes: Pump Flange Size	1-1/2"	1-1/2"	1-1/2"	2"
Kit includes: Circuit Setter Size (NPT)	1-1/2"	1-1/2"	2"	2"
40°F ΔT Loop Conditions				
Water Flow (GPM) @ 40°F ΔT	22	30	37	52
Water Pressure Drop (Ft. of Hd.) across the Boiler @ 40°F ΔT Flow	3.3	2.6	2.6	2.7
Strainer ΔP (Ft. of Hd.) – (‘Y’ Strainer, 20 mesh)	0.78	0.41	0.64	1.26
ΔP (Ft. of Hd.) – (20’ SCH.40, 4 x 90°, 2 x reducing couplings, 2 x Ball Valve)	1.30	0.65	1.01	1.89
Total Primary Loop ΔP (Ft. of Hd.) @ ΔT of 40°F	5.35	3.69	4.22	5.89
Strainer, Pipes, Valves and Fittings Sizes used to estimate ΔP for above piping configurations	1-1/2"	2"	2"	2"
Recommended AERCO Pump+Circuit Setter Kit for piping configurations not exceeding the above example	99127-1	99127-2	99127-2	99127-3
Kit includes: Pump Flange Size	1-1/2"	1-1/2"	1-1/2"	2"
Kit includes: Circuit Setter Size (NPT)	1-1/2"	2"	2"	2"



AERCO MODULEX EXT Primary Loop Design Guidelines

International, Inc.

	EXT 450 2S	EXT 600 2S	EXT 800 2S	EXT 1100 2S
30°F ΔT Loop Conditions				
Water Flow (GPM) @ 30°F ΔT	30	39	49	69
Water Pressure Drop (Ft. of Hd.) across the Boiler @ 30°F ΔT Flow	5.7	4.6	4.6	4.8
Strainer ΔP (Ft. of Hd.) – (‘Y’ Strainer, 20 mesh)	0.41	0.73	1.14	1.09
ΔP (Ft. of Hd.) – (20’ SCH.40, 4 x 90°, 2 x reducing couplings, 2 x Ball Valve)	0.65	1.12	1.70	1.24
Total Primary Loop ΔP (Ft. of Hd.) @ ΔT of 30°F	6.80	6.43	7.47	7.10
Strainer, Pipes, Valves and Fittings Sizes used to estimate ΔP for above piping configurations	2"	2"	2"	2-1/2"
Recommended AERCO Pump+Circuit Setter Kit for piping configurations not exceeding the above example	99127-2	99127-3	99127-3	99127-4
Kit includes: Pump Flange Size	1-1/2"	2"	2"	2"
Kit includes: Circuit Setter Size (NPT)	2"	2"	2"	2-1/2"
20°F ΔT Loop Conditions				
Water Flow (GPM) @ Min. ΔT of 20°F	42	56	71	99
Water Pressure Drop (Ft. of Hd.) across the Boiler @ 20°F ΔT Flow	11.8	9.2	9.7	9.5
Strainer ΔP (Ft. of Hd.) – (‘Y’ Strainer, 20 mesh)	0.92	0.80	1.26	2.46
ΔP (Ft. of Hd.) – (20’ SCH.40, 4 x 90°, 2 x reducing couplings, 2 x Ball Valve)	1.49	0.91	1.49	2.71
Total Primary Loop ΔP (Ft. of Hd.) @ ΔT of 20°F	14.19	10.91	12.41	14.71
Strainer, Pipes, Valves and Fittings Sizes used to estimate ΔP for above piping configurations	2"	2-1/2"	2-1/2"	2-1/2"
Recommended AERCO Pump+Circuit Setter Kit for piping configurations not exceeding the above example	99127-3	99127-4	99127-4	99127-9
Kit includes: Pump Flange Size	2"	2"	2"	2"
Kit includes: Circuit Setter Size (NPT)	2"	2-1/2"	2-1/2"	2-1/2"



AERCO MODULEX EXT Primary Loop Design Guidelines

International, Inc.

MINIMUM AND MAXIMUM FLOW RATES

	EXT 1530/1500	EXT 2295/2300	EXT 2677/2600	EXT 3060/3000
Minimum Water Flow at Min. Fire (GPM)	4.4	4.4	8.8	8.8
Minimum Water Flow at Full Fire (GPM)	56	84	99	113
Maximum Water Flow (GPM)	113	169	197	225

	EXT 1530/1500	EXT 2295/2300	EXT 2677/2600	EXT 3060/3000
50°F ΔT Loop Conditions				
Water Flow (GPM) @ Max. ΔT of 50°F	56	84	99	113
Water Pressure Drop (Ft. of Hd.) across the Boiler @ 50°F ΔT Flow	2.6	3.3	3.6	3.0
Strainer ΔP (Ft. of Hd.) – (‘Y’ Strainer, 20 mesh)	0.29	0.64	0.29	0.37
ΔP (Ft. of Hd.) – (20’ SCH.40, 4 x 90°, 2 x reducing couplings, 2 x Ball Valve)	0.41	0.91	0.33	0.43
Total Primary Loop ΔP (Ft. of Hd.) @ ΔT of 50°F	3.32	4.83	4.22	3.75
Strainer, Pipes, Valves and Fittings Sizes used to estimate ΔP for above piping configurations	3"	3"	4"	4"
Recommended AERCO Pump+Circuit Setter Kit for piping configurations not exceeding the above example	99127-6	99127-7	99127-7	99127-7
Kit includes: Pump Flange Size	2"	3"	3"	3"
Kit includes: Circuit Setter Size (NPT)	2 ½"	3"	3"	3"
40°F ΔT Loop Conditions				
Water Flow (GPM) @ 40°F ΔT	70	106	123	141
Water Pressure Drop (Ft. of Hd.) across the Boiler @ 40°F ΔT Flow	3.6	4.9	5.2	4.6
Strainer ΔP (Ft. of Hd.) – (‘Y’ Strainer, 20 mesh)	0.45	1.00	0.45	0.58
ΔP (Ft. of Hd.) – (20’ SCH.40, 4 x 90°, 2 x reducing couplings, 2 x Ball Valve)	0.63	1.42	0.50	0.66
Total Primary Loop ΔP (Ft. of Hd.) @ ΔT of 40°F	4.69	7.35	6.20	5.83
Strainer, Pipes, Valves and Fittings Sizes used to estimate ΔP for above piping configurations	3"	3"	4"	4"
Recommended AERCO Pump+Circuit Setter Kit for piping configurations not exceeding the above example	99127-7	99127-7	99208-3	99208-3
Kit includes: Pump Flange Size	3"	3"	3"	3"
Kit includes: Circuit Setter Size (NPT)	3"	3"	3"	3"



AERCO MODULEX EXT Primary Loop Design Guidelines

International, Inc.

	EXT 1530/1500	EXT 2295/2300	EXT 2677/2600	EXT 3060/3000
30°F ΔT Loop Conditions				
Water Flow (GPM) @ 30°F ΔT	94	141	164	188
Water Pressure Drop (Ft. of Hd.) across the Boiler @ 30°F ΔT Flow	5.2	9.5	9.8	8.5
Strainer ΔP (Ft. of Hd.) – ('Y' Strainer, 20 mesh)	0.79	1.79	0.79	1.04
ΔP (Ft. of Hd.) – (20' SCH.40, 4 x 90°, 2 x reducing couplings, 2 x Ball Valve)	1.12	3.81	0.88	1.15
Total Primary Loop ΔP (Ft. of Hd.) @ ΔT of 30°F	7.17	15.11	11.52	10.72
Strainer, Pipes, Valves and Fittings Sizes used to estimate ΔP for above piping configurations	3"	3"	4"	4"
Recommended AERCO Pump+Circuit Setter Kit for piping configurations not exceeding the above example	99127-7	99208-5	99208-5	99208-6
Kit includes: Pump Flange Size	3"	3"	3"	3"
Kit includes: Circuit Setter Size (NPT)	3"	3"	3"	3"
25°F ΔT Loop Conditions				
Water Flow (GPM) @ Min. ΔT of 25°F	113	169	197	225
Water Pressure Drop (Ft. of Hd.) across the Boiler @ 25°F ΔT Flow	7.9	16.4	17.7	13.1
Strainer ΔP (Ft. of Hd.) – ('Y' Strainer, 20 mesh)	1.14	2.57	1.14	1.49
ΔP (Ft. of Hd.) – (20' SCH.40, 4 x 90°, 2 x reducing couplings, 2 x Ball Valve)	2.27	4.97	1.79	2.31
Total Primary Loop ΔP (Ft. of Hd.) @ ΔT of 25°F	11.28	23.95	20.65	16.92
Strainer, Pipes, Valves and Fittings Sizes used to estimate ΔP for above piping configurations	3"	3"	4"	4"
Recommended AERCO Pump+Circuit Setter Kit for piping configurations not exceeding the above example	99208-4	99208-7	99208-7	99208-7
Kit includes: Pump Flange Size	3"	3"	3"	3"
Kit includes: Circuit Setter Size (NPT)	3"	3"	3"	3"