AERCO International, Inc.

AERCO MODULEX
Primary Loop Design Guidelines

MININUM AND MAXIMUM FLOW RATES

	MLX 303	MLX 454	MLX 606	MLX 757	MLX 909	MLX 1060
Minimum Water Flow (GPM)	11	17	22	28	34	39
Maximum Water Flow (GPM)	28	42	55	70	84	98

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.**

	MLX 303	MLX 454	MLX 606	MLX 757	MLX 909	MLX 1060
Water Flow (GPM) @ **Max. ΔT of 50°F**	11	17	22	28	34	39
Water Pressure Drop (Ft. of Hd.) across the Boiler @ 50°F ΔT Flow	1.2	1.5	1.4	1.6	1.7	1.7
Strainer ΔP (Ft. of Hd.) – ('Y' Strainer, 20 mesh)	0.36	0.46	0.77	0.37	0.54	0.72
ΔP (Ft. of Hd.) – (20' SCH.40, 4 x 90°, 2 x reducing couplings, 2 x Ball Valve)	1.09	0.81	1.47	0.65	0.96	1.23
Total Primary Loop ΔP (Ft. of Hd.) @ ΔT of 50°F	**2.64**	**2.77**	**3.65**	**2.62**	**3.21**	**3.64**
Strainer, Pipes, Valves and Fittings Sizes used to estimate ΔP for above piping configurations	1-1/4"	1-1/2"	1-1/2"	2"	2"	2"
Recommended AERCO Pump+Circuit Setter Kit for piping configurations not exceeding the above example	**99127-1**	**99127-1**	**99127-1**	**99127-2**	**99127-2**	**99127-3**
Kit includes: Pump Flange Size	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	2"
Kit includes: Circuit Setter Size (NPT)	1-1/2"	1-1/2"	1-1/2"	2"	2"	2"

Water Flow (GPM) @ **40°F ΔT**	14	21	28	35	42	49
Water Pressure Drop (Ft. of Hd.) across the Boiler @ 40°F ΔT Flow	2.0	2.4	2.4	2.5	2.5	2.6
Strainer ΔP (Ft. of Hd.) – ('Y' Strainer, 20 mesh)	0.58	0.70	0.37	0.58	0.83	1.13
ΔP (Ft. of Hd.) – (20' SCH.40, 4 x 90°, 2 x reducing couplings, 2 x Ball Valve)	1.63	1.30	0.65	1.01	1.49	1.89
Total Primary Loop ΔP (Ft. of Hd.) @ ΔT of 40°F	**4.21**	**4.41**	**3.42**	**4.09**	**4.82**	**5.62**
Strainer, Pipes, Valves and Fittings Sizes used to estimate ΔP for above piping configurations	1-1/4"	1-1/2"	2"	2"	2"	2"
Recommended AERCO Pump+Circuit Setter Kit for piping configurations not exceeding the above example	**99127-1**	**99127-1**	**99127-2**	**99127-2**	**99127-3**	**99127-3**
Kit includes: Pump Flange Size	1-1/2"	1-1/2"	1-1/2"	1-1/2"	2"	2"
Kit includes: Circuit Setter Size (NPT)	1-1/2"	1-1/2"	2"	2"	2"	2"

	MLX 303	MLX 454	MLX 606	MLX 757	MLX 909	MLX 1060
Water Flow (GPM) @ **30°F ΔT**	19	28	37	46	56	65
Water Pressure Drop (Ft. of Hd.) across the Boiler @ 30°F ΔT Flow	3.8	4.2	4.2	4.3	4.5	4.5
Strainer ΔP (Ft. of Hd.) – ('Y' Strainer, 20 mesh)	0.58	0.37	0.64	1.00	0.72	0.97
ΔP (Ft. of Hd.) – (20' SCH.40, 4 x 90°, 2 x reducing couplings, 2 x Ball Valve) NOTE: Reducing coupling not applied to MLX-909 and MLX-1060 because boiler line size is already 2-1/2"	1.08	0.65	1.12	1.70	0.92	1.24
Total Primary Loop ΔP (Ft. of Hd.) @ ΔT of 30°F	**5.46**	**5.22**	**5.97**	**7.00**	**6.14**	**6.72**
Strainer, Pipes, Valves and Fittings Sizes used to estimate ΔP for above piping configurations	1-1/2"	2"	2"	2"	2-1/2"	2-1/2"
Recommended AERCO Pump+Circuit Setter Kit for piping configurations not exceeding the above example	**99127-1**	**99127-2**	**99127-3**	**99127-3**	**99127-4**	**99127-4**
Kit includes: Pump Flange Size	1-1/2"	1-1/2"	2"	2"	2"	2"
Kit includes: Circuit Setter Size (NPT)	1-1/2"	2"	2"	2"	2-1/2"	2-1/2"

Water Flow (GPM) @ **Min. ΔT of 20°F**	28	42	55	70	84	98
Water Pressure Drop (Ft. of Hd.) across the Boiler @ 20°F ΔT Flow	7.8	9.3	9.4	10	10.1	10.2
Strainer ΔP (Ft. of Hd.) – ('Y' Strainer, 20 mesh)	0.37	0.83	0.70	1.13	1.63	2.22
ΔP (Ft. of Hd.) – (20' SCH.40, 4 x 90°, 2 x reducing couplings, 2 x Ball Valve) NOTE: Reducing coupling not applied to MLX-606, 757, 909, and 1060 because boiler line size is already 2-1/2"	0.65	1.49	0.91	1.49	2.14	2.71
Total Primary Loop ΔP (Ft. of Hd.) @ ΔT of 20°F	**8.82**	**11.62**	**11.00**	**12.62**	**13.87**	**15.13**
Strainer, Pipes, Valves and Fittings Sizes used to estimate ΔP for above piping configurations	2"	2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"
Recommended AERCO Pump+Circuit Setter Kit for piping configurations not exceeding the above example	**99127-2**	**99127-3**	**99127-4**	**99127-4**	**99127-5**	**99127-5**
Kit includes: Pump Flange Size	1-1/2"	2"	2"	2"	1-1/2"	1-1/2"
Kit includes: Circuit Setter Size (NPT)	2"	2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"