



AERCO AM SERIES - BOILERS Primary Loop Design Guidelines

International, Inc.

MINIMUM AND MAXIMUM FLOW RATES

	AM 399	AM 500	AM 750	AM 1000
Minimum Water Flow at Min. Fire (GPM)	4	4	4	4
Minimum Water Flow at Full Fire (GPM)	7	9	14	18
Maximum Water Flow (GPM)	40	40	60	80

The following primary/secondary piping design guidelines should be used for AERCO AM Series 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 primary loop. 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.** The pump kits listed are for boiler applications only and are not approved for potable water (see document C400.4 for potable water applications).

	AM 399	AM 500	AM 750	AM 1000
100°F ΔT Loop Conditions				
Water Flow (GPM) @ Max. ΔT of 100°F	7	9	14	18
Water Press. Drop (Ft. of Hd.) across the Boiler, 100°F ΔT	3.0	4.0	5.0	3.0
Strainer ΔP (Ft. of Hd.) – ('Y' Strainer, 20 mesh)	0.14	0.24	0.31	0.52
ΔP (Ft. of Hd.) – (20' SCH.40, 4 x 90°, 2 x reducing couplings, 2 x Ball Valve)	0.87	1.36	1.01	1.68
Total Primary Loop ΔP (Ft. of Hd.) @ ΔT of 100°F	4.02	5.59	6.32	5.20
VARIABLE SPEED PUMP				
Recommended AERCO Pump Kit for piping configurations not exceeding the above example	99251-1	99251-1	99251-1	99251-1
Kit includes: Pump Flange Size:	1-1/2"	1-1/2"	1-1/2"	1-1/2"
Recommended AERCO AM Boiler Installation Kit (Installation Kit already includes above Pump, plus Strainer, Isolation Valve, and pipe fittings).	58145-1	58145-1	58145-2	58145-2
Installation Kit designed for supply/return piping diam: Strainer and Isolation valves sizes (NPT):	1-1/2"	1-1/2"	1-1/2"	1-1/2"
CONSTANT SPEED PUMP				
Recommended AERCO Pump+Circuit Setter Kit for piping configurations not exceeding the above example	99127-1	99127-1	99127-1	99127-1
Kit includes: Pump Flange Size:	1-1/2"	1-1/2"	1-1/2"	1-1/2"
Kit includes: Circuit Setter Size (NPT):	1-1/2"	1-1/2"	1-1/2"	1-1/2"
Recommended AERCO AM Boiler Installation Kit (Installation Kit already includes above Pump/Circuit setter kit, plus Strainer, Isolation Valve, and pipe fittings).	58134-1	58134-1	58134-2	58134-2
Installation Kit designed for supply/return piping diam: Strainer and Isolation valves sizes (NPT):	1-1/2"	1-1/2"	1-1/2"	1-1/2"

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70°F ΔT Loop Conditions				
Water Flow (GPM) @ 70°F ΔT	10	13	20	26
Water Press. Drop (Ft. of Hd.) across the Boiler, 70°F ΔT	3.0	7.0	7.0	5.5
Strainer ΔP (Ft. of Hd.) – ('Y' Strainer, 20 mesh)	0.29	0.27	0.64	1.08
ΔP (Ft. of Hd.) – (20' SCH.40, 4 x 90°, 2 x reducing couplings, 2 x Ball Valve)	1.75	0.92	2.08	3.40
Total Primary Loop ΔP (Ft. of Hd.) @ ΔT of 70°F	5.04	8.19	9.72	9.98
VARIABLE SPEED PUMP				
Recommended AERCO Pump Kit for piping configurations not exceeding the above example	99251-1	99251-1	99251-1	99251-1
Kit includes: Pump Flange Size:	1-1/2"	1-1/2"	1-1/2"	1-1/2"
Recommended AERCO AM Boiler Installation Kit (Installation Kit already includes above Pump, plus Strainer, Isolation Valve, and pipe fittings).	58145-1	58145-1	58145-2	58145-2
Installation Kit designed for supply/return piping diam: Strainer and Isolation valves sizes (NPT):	1-1/2"	1-1/2"	1-1/2"	1-1/2"
CONSTANT SPEED PUMP				
Recommended AERCO Pump+Circuit Setter Kit for piping configurations not exceeding the above example	99127-1	99127-1	99127-1	99127-1
Kit includes: Pump Flange Size:	1-1/2"	1-1/2"	1-1/2"	1-1/2"
Kit includes: Circuit Setter Size (NPT):	1-1/2"	1-1/2"	1-1/2"	1-1/2"
Recommended AERCO AM Boiler Installation Kit (Installation Kit already includes above Pump/Circuit setter kit, plus Strainer, Isolation Valve, and pipe fittings).	58134-1	58134-1	58134-2	58134-2
Installation Kit designed for supply/return piping diam: Strainer and Isolation valves sizes (NPT):	1-1/2"	1-1/2"	1-1/2"	1-1/2"

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50°F ΔT Loop Conditions				
Water Flow (GPM) @ Max. ΔT of 50°F	14.7	18.4	27.6	36.8
Water Press. Drop (Ft. of Hd.) across the Boiler, 50°F ΔT	5	8	13	10
Strainer ΔP (Ft. of Hd.) – (‘Y’ Strainer, 20 mesh)	0.63	0.54	1.22	0.64
ΔP (Ft. of Hd.) – (20’ SCH.40, 4 x 90°, 2 x reducing couplings, 2 x Ball Valve)	1.28	1.03	2.37	1.22
Total Primary Loop ΔP (Ft. of Hd.) @ ΔT of 50°F	6.91	9.57	16.59	11.86
VARIABLE SPEED PUMP				
Recommended AERCO Pump Kit for piping configurations not exceeding the above example	99251-1	99251-1	99251-1	99251-2
Kit includes: Pump Flange Size:	1-1/2"	1-1/2"	1-1/2"	1-1/2"
Recommended AERCO AM Boiler Installation Kit (Installation Kit already includes above Pump, plus Strainer, Isolation Valve, and pipe fittings).	58145-1	58145-1	58145-2	58145-3
Installation Kit designed for supply/return piping diam: Strainer and Isolation valves sizes (NPT):	1-1/2"	1-1/2"	1-1/2"	2"
CONSTANT SPEED PUMP				
Recommended AERCO Pump+Circuit Setter Kit for piping configurations not exceeding the above example	99127-1	99127-1	99127-1	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"	1-1/2"	2"
Recommended AERCO AM Boiler Installation Kit (Installation Kit already includes above Pump/Circuit setter kit, plus Strainer, Isolation Valve, and pipe fittings).	58134-1	58134-1	58134-2	58134-3
Installation Kit designed for supply/return piping diam: Strainer and Isolation valves sizes (NPT):	1-1/2"	1-1/2"	1-1/2"	2"

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40°F ΔT Loop Conditions				
Water Flow (GPM) @ 40°F ΔT	18.4	23.0	34.5	46.0
Water Press. Drop (Ft. of Hd.) across the Boiler, 40°F ΔT	7.5	13	18.5	15
Strainer ΔP (Ft. of Hd.) – ('Y' Strainer, 20 mesh)	0.99	0.85	0.56	1.00
ΔP (Ft. of Hd.) – (20' SCH.40, 4 x 90°, 2 x reducing couplings, 2 x Ball Valve)	2.89	1.64	1.11	1.74
Total Primary Loop ΔP (Ft. of Hd.) @ ΔT of 40°F	11.38	15.48	20.17	17.73
VARIABLE SPEED PUMP				
Recommended AERCO Pump Kit for piping configurations not exceeding the above example	99251-1	99251-1	99251-2	99251-2
Kit includes: Pump Flange Size:	1-1/2"	1-1/2"	1-1/2"	1-1/2"
Recommended AERCO AM Boiler Installation Kit (Installation Kit already includes above Pump, plus Strainer, Isolation Valve, and pipe fittings).	58145-1	58145-1	58145-3	58145-4
Installation Kit designed for supply/return piping diam: Strainer and Isolation valves sizes (NPT):	1-1/2"	1-1/2"	2"	2-1/2"
CONSTANT SPEED PUMP				
Recommended AERCO Pump+Circuit Setter Kit for piping configurations not exceeding the above example	99127-1	99127-1	99127-8	99127-5
Kit includes: Pump Flange Size:	1-1/2"	1-1/2"	1-1/2"	1-1/2"
Kit includes: Circuit Setter Size (NPT):	1-1/2"	1-1/2"	2"	2-1/2"
Recommended AERCO AM Boiler Installation Kit (Installation Kit already includes above Pump/Circuit setter kit, plus Strainer, Isolation Valve, and pipe fittings).	58134-1	58134-1	58134-4	58134-5
Installation Kit designed for supply/return piping diam: Strainer and Isolation valves sizes (NPT):	1-1/2"	1-1/2"	2"	2-1/2"

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30°F ΔT Loop Conditions				
Water Flow (GPM) @ 30°F ΔT	24.5	30.7	46.0	61.3
Water Press. Drop (Ft. of Hd.) across the Boiler, 30°F ΔT	13	25	30	27
Strainer ΔP (Ft. of Hd.) – ('Y' Strainer, 20 mesh)	0.96	0.44	1.00	1.77
ΔP (Ft. of Hd.) – (20' SCH.40, 4 x 90°, 2 x reducing couplings, 2 x Ball Valve)	1.76	0.75	1.74	3.11
Total Primary Loop ΔP (Ft. of Hd.) @ ΔT of 30°F	15.72	26.19	32.73	31.88
VARIABLE SPEED PUMP				
Recommended AERCO Pump Kit for piping configurations not exceeding the above example	99251-1	99251-2	99251-2	99251-3
Kit includes: Pump Flange Size:	1-1/2"	1-1/2"	1-1/2"	2"
Recommended AERCO AM Boiler Installation Kit (Installation Kit already includes above Pump, plus Strainer, Isolation Valve, and pipe fittings).	58145-1	58145-6	58145-4	58145-5
Installation Kit designed for supply/return piping diam: Strainer and Isolation valves sizes (NPT):	1-1/2"	2"	2-1/2"	2-1/2"
CONSTANT SPEED PUMP				
Recommended AERCO Pump+Circuit Setter Kit for piping configurations not exceeding the above example	99127-1	99127-8	99127-5	99127-5
Kit includes: Pump Flange Size:	1-1/2"	1-1/2"	1-1/2"	1-1/2"
Kit includes: Circuit Setter Size (NPT):	1-1/2"	2"	2-1/2"	2-1/2"
Recommended AERCO AM Boiler Installation Kit (Installation Kit already includes above Pump/Circuit setter kit, plus Strainer, Isolation Valve, and pipe fittings).	58134-1	58134-6	58134-5	58134-5
Installation Kit designed for supply/return piping diam: Strainer and Isolation valves sizes (NPT):	1-1/2"	2"	2-1/2"	2-1/2"

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25°F ΔT Loop Conditions				
Water Flow (GPM) @ ΔT of 25°F	29.4	36.8	55.2	73.6
Water Press. Drop (Ft. of Hd.) across the Boiler, 25°F ΔT	19	35	41.5	39
Strainer ΔP (Ft. of Hd.) – ('Y' Strainer, 20 mesh)	0.41	0.64	0.70	1.25
ΔP (Ft. of Hd.) – (20' SCH.40, 4 x 90°, 2 x reducing couplings, 2 x Ball Valve)	0.71	1.21	0.92	1.76
Total Primary Loop ΔP (Ft. of Hd.) @ ΔT of 25°F	20.12	36.85	43.13	42.01
VARIABLE SPEED PUMP				
Recommended AERCO Pump Kit for piping configurations not exceeding the above example	99251-2	99251-2	99251-4	99251-4
Kit includes: Pump Flange Size:	1-1/2"	1-1/2"	2-1/2"	2-1/2"
Recommended AERCO AM Boiler Installation Kit (Installation Kit already includes above Pump, plus Strainer, Isolation Valve, and pipe fittings).	58145-6	58145-6	58145-7	58145-7
Installation Kit designed for supply/return piping diam: Strainer and Isolation valves sizes (NPT):	2"	2"	2-1/2"	2-1/2"
CONSTANT SPEED PUMP				
Recommended AERCO Pump+Circuit Setter Kit for piping configurations not exceeding the above example	99127-8	99127-8	99208-2	99208-2
Kit includes: Pump Flange Size:	1-1/2"	1-1/2"	2"	2"
Kit includes: Circuit Setter Size (NPT):	2"	2"	2-1/2"	2-1/2"
Recommended AERCO AM Boiler Installation Kit (Installation Kit already includes above Pump/Circuit setter kit, plus Strainer, Isolation Valve, and pipe fittings).	58134-6	58134-6	58134-7	58134-7
Installation Kit designed for supply/return piping diam: Strainer and Isolation valves sizes (NPT):	2"	2"	2-1/2"	2-1/2"