

Why should you care about providing “tepid water” to your emergency equipment?

1. Approximately 85% of emergency equipment in the US is out of compliance according to equipment manufacturers.
2. As of August 1, 2016, OSHA fines increased 50-80% resulting from worker injuries from non-compliant showers.
3. Emergency equipment is critical to safety and these items are meant to be highly visible for inspectors.

[Q&A] WHY DOES AN EEMAX TANKLESS HEATER MAKE SENSE?

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| <p>A. What is the tepid water criteria for the ANSI Z358.1 standard?</p> <p>B. Why not simply run piping from existing hot water sources?</p> <p>C. Can I utilize storage tank water heaters?</p> <p>D. Can I tap into existing steam lines with ASSE 1017 thermostatic mixing valves to get tepid water?</p> <p>E. Can I tap into existing hot water systems and use thermostatic mixing valves to get tepid water?</p> <p>F. What are the advantages of electric tankless?</p> <p>G. Do I need a T&P valve, drains, or any mixing valves if I use the Eemax heater?</p> <p>H. If my facility requires multiple showers, can I use an Eemax unit for more than one shower?</p> <p>I. Can the Eemax unit be used for more than a tepid water heater used only in emergencies?</p> <p>J. Is maintenance required with the heater?</p> <p>K. Can the heater be mounted in corrosive, explosion proof, or outdoor areas?</p> <p>L. Are there any Legionella growth concerns?</p> | <p>A. 23 GPM for at least 15 minutes at 60°-100°F which equals 345 gallons of available tepid water.</p> <p>B. Showers must be available within 10 seconds of the work place so large volumes of hot water must be nearby.</p> <p>C. Tank systems require 150 gallons at 160 degrees. They are 1300 lb and consume energy 24/7. An Eemax tankless heater is suitcase size and has a 0.99 efficiency factor.</p> <p>D. Steam systems may not always be accessible or powered on. Mixing valves are costly, create additional maintenance and extra piping is required.</p> <p>E. The installation of a hot water loop (pipe, pump, hangars, insulation, mixing valve) can be costly, may not have capacity, and create additional maintenance.</p> <p>F. No gas pipe, no vent, wall mountable, energy efficient, and typically lower installed cost vs. other hot water sources.</p> <p>G. Most inspectors recognize that the Eemax EFD model does not require any additional drains or valves.</p> <p>H. Depending on incoming water temperature and the distance between showers, one heater could serve multiple showers.</p> <p>I. Specifying the 140°F model and pairing it with an ASSE 1017 mixing valve will allow the heater to serve multiple needs.</p> <p>J. The heater is designed to be maintenance free.</p> <p>K. The heaters can be built with an array of options depending on exact needs with a 5-15 day lead time and are built in the US.</p> <p>L. Legionella grows between 90-115°F so only hot water storage and recirculating systems are problematic.</p> |
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STANDBY HEAT LOSSES ASSOCIATED WITH RECIRCULATION AND STORAGE TANKS

Recirculation Loop Heat Loss

	Year 1	Year 2	Year 3	Year 4	Year 5
Loop Length (ft) (includes supply out and loop return)	200	200	200	200	200
Pipe OD (in) (average supply and return pipe diameters)	1.375	1.375	1.375	1.375	1.375
Pipe ID (in) (average supply and return pipe diameters)	1.265	1.265	1.265	1.265	1.265
Insulation Thickness (in)	1	1	1	1	1
Temperature of Hot Water (°F)	140	140	140	140	140
Ambient Air Temperature (°F)	70	70	70	70	70
Thermal Conductivity of Copper Pipe (Btu-ft/hr*ft2*°F)	223	223	223	223	223
Thermal Conductivity of Polyurethane Insulation (W/(m*K))	70	70	70	70	70
Heat Loss Q (kW)	2.84	2.84	2.84	2.84	2.84
Electricity Cost Per kW-hr (\$)	\$0.090	\$0.090	\$0.090	\$0.090	\$0.090
Time (hr/yr)	8760	8760	8760	8760	8760
1/4 Hp Pump Electricity Cost (\$/5 years)	\$315	\$315	\$315	\$315	\$315
Cost to Hold Loop at Temperature for 1 Year	\$2,242	\$2,242	\$2,242	\$2,242	\$2,242
5 Year Heating Losses + Pump Electricity Cost	\$11,208				

Commercial 120 Gallon Electric Tank Storage Loss

	Year 1	Year 2	Year 3	Year 4	Year 5
Tank Energy Factor (EF) Rating	0.86	0.85	0.83	0.82	0.80
Temperature of Hot Water (°F)	140	140	140	140	140
Ambient Air Temperature (°F)	70	70	70	70	70
Heat Loss Through Tank (kW)	0.58	0.59	0.60	0.61	0.62
Electricity Cost Per kW-hr (\$)	\$0.140	\$0.140	\$0.140	\$0.140	\$0.140
Storage Cost of Hot Water (\$/year)	\$717	\$726	\$736	\$745	\$755
5 Year Storage Losses	\$3,679				

SITE SURVEYS AND DESIGN ASSISTANCE FROM EEMAX AVAILABLE AT NO CHARGE



Tepid Water Solutions

Tankless Heaters for ANSI Z358.1 Safety Shower and Emergency Eyewash

For detailed specification information on SafeAdvantage products, consult the Eemax Specification Guide.

Eyewash and Eye / Face Wash							Temperature Rise (°F)				
Volts	Model	Product Family	kW	Amps	Turn-On (GPM)	Recommended Wire Size (CU)	0.3 GPM	0.75 GPM	1.8 GPM	3.0 GPM	4.0 GPM
120 Single Phase	EX2412T EE	Series One - Thermostatic	2.4	20	0.3	12 AWG	55	22	9	-	-
	EX3012T EE	Series One - Thermostatic	3.0	25	0.3	10 AWG	68	27	11	-	-
	EX3512T EE	Series One - Thermostatic	3.5	29	0.3	10 AWG	80	32	13	-	-
240 Single Phase	EX35T EE	Series One - Thermostatic	3.5	15	0.3	14 AWG	80	32	13	-	-
	EX48T EE	Series One - Thermostatic	4.8	20	0.3	12 AWG	90†	44	18	-	-
	EX55T EE	Series One - Thermostatic	5.5	23	0.3	10 AWG	90†	50	21	-	-
	EX65T EE	Series One - Thermostatic	6.5	27	0.7	10 AWG	-	59	25	-	-
	EX75T EE	Series One - Thermostatic	7.5	32	0.7	8 AWG	-	68	28	-	-
	EX95T EE	Series One - Thermostatic	9.5	40	0.7	8 AWG	-	87	36	-	-
	EX012240T EE	Series One - Thermostatic	11.5	48	0.7	6 AWG	-	90†	44	-	-
	EX144T2 EE	Series Two	15.0	64	1.5	2x8 AWG	-	-	57	34	-
	EX190T2 EE	Series Two	19.0	80	1.5	2x8 AWG	-	-	72	43	-
EX023240T2 EE	Series Two	23.0	96	1.5	2x6 AWG	-	-	87	52	-	
208 Single Phase	EX4208T EE	Series One - Thermostatic	4.1	20	0.3	12 AWG	90†	37	16	-	-
	EX8208T EE	Series One - Thermostatic	8.3	40	0.7	8 AWG	-	76	31	-	-
	EX1608T2 EE	Series Two	16.6	80	1.5	2x8 AWG	-	-	63	38	-
277 Single Phase	EX3277T EE	Series One - Thermostatic	3.0	11	0.3	14 AWG	68	27	11	-	-
	EX4277T EE	Series One - Thermostatic	4.1	14.8	0.3	14 AWG	90†	37	16	-	-
	EX60T EE	Series One - Thermostatic	6.0	22	0.7	10 AWG	-	55	23	-	-
	EX80T EE	Series One - Thermostatic	8.0	29	0.7	10 AWG	-	73	30	-	-
	EX90T EE	Series One - Thermostatic	9.0	33	0.7	8 AWG	-	82	34	-	-
	EX100T EE	Series One - Thermostatic	10.0	36	0.7	8 AWG	-	90†	38	-	-
	EX160T2 EE	Series Two	16.0	58	1.5	2x10 AWG	-	-	61	36	-
208 Three Phase	EX200T2 EE	Series Two	20.0	72	1.5	2x8 AWG	-	-	76	46	-
	EX180T2T EE	Three Phase	18.0	50/phase	0.7	6 AWG	-	90†	68	41	31
	EX180T3 EE	Three Phase	18.0	50/phase	1.8	6 AWG	-	-	68	41	31
	EX240T2T EE	Three Phase	24.0	67/phase	0.7	6 AWG	-	90†	90†	55	41
480 Three Phase	EX240T3 EE	Three Phase	24.0	67/phase	1.8	6 AWG	-	-	90†	55	41
	ED020480T3 EE	Three Phase	20.0	24/phase	1.8	10 AWG	-	-	76	46	34
	ED024480T3 EE	Three Phase	24.0	29/phase	1.8	10 AWG	-	-	90†	55	41
	ED032480T3 EE	Three Phase	32.0	38/phase	1.8	8 AWG	-	-	90†	73	55

†Temperature electronically limited to factory preset not to exceed temperature. "-" indicates not operable.

Eye / Face Wash and Drench Shower							Temperature Rise (°F)				
Volts	Model	NEMA Cabinet Suffix	kW	Amps	Turn-On (GPM)	Recommended Wire Size (CU)	4.0 GPM	20.0 GPM	23.0 GPM	30.0 GPM	40.0 GPM
208 Three Phase	AP032208 EE	N4, N4X	32.0	89/phase	1.0	1 AWG	55	11	10	7	5
	AP036208 EE	N4, N4X	36.0	100/phase	1.0	1 AWG	61	12	11	8	6
	AP041208 EFD	N4, N4X	41.0	112/phase	1.0	1 AWG	70	14	12	9	7
	AP054208 EFD	N4, N4X	54.0	150/phase	1.5	2/0 AWG	90†	18	16	12	9
	AP064208 EFD	N4, N4X	64.0	178/phase	2.5	3/0 AWG	90†	22	19	15	11
480 Three Phase	AP036480 EE	N4, N4X	36.0	43/phase	1.0	8 AWG	61	12	11	8	6
	AP039480 EE	N4, N4X	39.0	47/phase	1.0	6 AWG	67	13	12	9	7
	AP048480 EFD	N4, N4X	48.0	58/phase	1.0	6 AWG	82	16	14	11	8
	AP054480 EFD	N4, N4X	54.0	65/phase	1.5	4 AWG	90†	18	16	12	9
	AP063480 EFD	N4, N4X	63.0	76/phase	2.5	3 AWG	90†	22	19	14	11
	AP072480 EFD	N4, N4X	72.0	87/phase	2.5	3 AWG	90†	25	21	16	12
	AP096480 EFD	N4, N4X	96.0	116/phase	2.5	1/0 AWG	90†	33	29	22	16
	AP108480 EFD	N4, N4X	108.0	130/phase	2.5	1/0 AWG	90†	37	32	25	18
	AP126480 EFD	N4, N4X	126.0	151/phase	2.5	2/0 AWG	90†	43	37	29	22
	AP144480 EFD	N4, N4X	144.0	173/phase	2.5	3/0 AWG	90†	49	43	33	25
600 Three Phase	AP061600 EE	N4, N4X	61.0	59/phase	2.5	6 AWG	90†	21	18	14	10
	AP071600 EE	N4, N4X	71.0	68/phase	2.5	4 AWG	90†	24	21	16	12
	AP102600 EE	N4, N4X	102.0	98/phase	2.5	1 AWG	90†	35	30	23	17
	AP130600 EFD	N4, N4X	130.0	125/phase	2.5	1 AWG	90†	44	39	30	22
	AP150600 EFD	N4, N4X	150.0	144/phase	2.5	1/0 AWG	90†	51	45	34	26

†Temperature electronically limited to factory preset not to exceed temperature.

Suffix Definitions

- EE** Emergency Eyewash. Shipped with maximum outlet temperature 90°F. Conforms to ANSI Z358.1 tepid water without additional mixing valve.
- EFD** Emergency Eye, Face & Drench. Shipped with maximum outlet temperature 90°F. Conforms to ANSI Z358.1 tepid water without additional mixing valve.

NEMA Cabinet Options

- N4** Waterproof powder coated steel
- N4X** Waterproof corrosion resistant 304 stainless steel
- N4X6** Waterproof corrosion resistant 316 stainless steel

NEMA Cabinet Option Accessories

- FP** Freeze protection (-30°F)
- EDS** Non-fused disconnect
- FDS** Fused disconnect
- EP** Explosion proof (C1D2 compliant)
- GFCL** True RMS GFCL with digital display and reset
- SK** 24" legs for free standing applications
- RD** Remote display
- SB** Siren and beacon
- DC** Dry contact

Eemax recommends the use of a NEMA Cabinet for safety applications. For additional SafeAdvantage specifications, view the Eemax specification guide.