



SUBMITTAL FORM

All information contained in this document is preliminary and subject to change

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Eemax SpecAdvantage & SafeAdvantage ASSE 1085 Certification

Date: _____ Model: _____ Prepared By: _____

Job: _____ Engineer: _____ Notes: _____

Location: _____ Contractor: _____

CERTIFICATION OVERVIEW AND BACKGROUND

- **Designed to enable water heaters** to provide the same level of control and safety as ASSE 1071 mixing valves. The standards are aligned in such a way that both devices must pass the same performance criteria. In other words, ASSE 1085 is just as stringent as ASSE 1071.
- **Independent 3rd party certification**
 - Developed with input from Eemax directly.
 - 3rd party labs used Eemax units as basis for developing test stands and procedures.
- **The standard was first published in 2018**
Check with your Eemax Rep or Local Code Official for specifics on local and regional codes.
- **SafeAdvantage and SpecAdvantage products with EE or EFD options are certified to ASSE 1085.**

SpecAdvantage™



SafeAdvantage™



APPLICABLE EEMAX PRODUCTS

- Reference [Eemax specification guide](#) for applicable product details.
- **SafeAdvantage** All SafeAdvantage products are certified to ASSE 1085.

Suffix Definitions

EE Emergency Eyewash. Max. outlet temperature 90°F. Conforms to ANSI Z358.1.1 tepid water without additional mixing valve. Shipped with display “Locked.”

EFD Emergency Eye, Face & Drench. Max. outlet temperature 90°F. Conforms to ANSI Z358.1.1 tepid water without additional mixing valve. Shipped with display “Locked.”

Note: Models with an EE or EFD suffix have a 90°F maximum temperature. Temperature rise data is provided for reference, but temperature is electronically limited to factory preset not to exceed temperature.

Pressure Drop 63-150kW

Flow Rate (GPM)	Delta PSI
2	0
3	0
4	0
6	0
8	1
11	3
12	4
15	8
18	8
20	10
22	13
24	14
27	17
30	22
33	26
35	30
37	34
40	43

MODEL NUMBER	KW	BTU/H	AMPS PER PHASE	TURN ON (GPM)	RECOMMENDED WIRE SIZE (75° C/CL)	TEMPERATURE RISE °F							
						3.0 GPM	4.0 GPM	5.0 GPM	6.0 GPM	20.0 GPM	23.0 GPM	26.0 GPM	30.0 GPM
VOLTS 208 Three Phase Delta													
AP032208 EE N4	32	109,189	89	1.0	3AWG	73°	55°	44°	36°	11°	10°	8°	7°
AP032208 EE N4X	32	109,189	89	1.0	3AWG	73°	55°	44°	36°	11°	10°	8°	7°
AP036208 EE N4	36	122,832	100	1.0	3AWG	82°	61°	49°	41°	12°	11°	9°	8°
AP036208 EE N4X	36	122,832	100	1.0	3AWG	82°	61°	49°	41°	12°	11°	9°	8°
AP041208 EFD N4	41	139,189	113	1.0	2AWG	†	70°	56°	47°	14°	12°	11°	9°
AP041208 EFD N4X	41	139,189	113	1.0	2AWG	†	70°	56°	47°	14°	12°	11°	9°
AP054208 EFD N4	54	184,256	150	1.5	1/0 AWG	†	†	74°	61°	18°	16°	14°	12°
AP054208 EFD N4X	54	184,256	150	1.5	1/0 AWG	†	†	74°	61°	18°	16°	14°	12°
AP064208 EFD N4	64	218,377	178	2.5	3/0 AWG	†	†	87°	73°	22°	19°	17°	15°
AP064208 EFD N4X	64	218,377	178	2.5	3/0 AWG	†	†	87°	73°	22°	19°	17°	15°
VOLTS 480 Three Phase Delta													
AP036480 EE N4	36	122,837	43	1.0	8AWG	82°	61°	49°	41°	12°	11°	9°	8°
AP036480 EE N4X	36	122,837	43	1.0	8AWG	82°	61°	49°	41°	12°	11°	9°	8°
AP039480 EE N4	39	133,074	47	1.0	8AWG	89°	67°	53°	44°	13°	12°	10°	9°
AP039480 EE N4X	39	133,074	47	1.0	8AWG	89°	67°	53°	44°	13°	12°	10°	9°
AP048480 EFD N4	48	163,783	58	1.0	6AWG	†	82°	66°	55°	16°	14°	13°	11°
AP048480 EFD N4X	48	163,783	58	1.0	6AWG	†	82°	66°	55°	16°	14°	13°	11°
AP054480 EFD N4	54	184,256	65	1.5	6AWG	†	†	74°	61°	18°	16°	14°	12°
AP054480 EFD N4X	54	184,256	65	1.5	6AWG	†	†	74°	61°	18°	16°	14°	12°
AP063480 EFD N4	63	214,965	76	2.5	4AWG	†	†	86°	72°	22°	19°	17°	14°
AP063480 EFD N4X	63	214,965	76	2.5	4AWG	†	†	86°	72°	22°	19°	17°	14°
AP072480 EFD N4	72	245,674	87	2.5	3AWG	†	†	†	82°	25°	21°	19°	16°
AP072480 EFD N4X	72	245,674	87	2.5	3AWG	†	†	†	82°	25°	21°	19°	16°
AP096480 EFD N4	96	327,552	116	2.5	1AWG	†	†	†	†	33°	29°	25°	22°
AP096480 EFD N4X	96	327,552	116	2.5	1AWG	†	†	†	†	33°	29°	25°	22°
AP108480 EFD N4	108	368,511	130	2.5	1AWG	†	†	†	†	37°	32°	28°	25°
AP108480 EFD N4X	108	368,511	130	2.5	1AWG	†	†	†	†	37°	32°	28°	25°
AP126480 EFD N4	126	429,930	151	2.5	2/0 AWG	†	†	†	†	43°	37°	33°	29°
AP126480 EFD N4X	126	429,930	151	2.5	2/0 AWG	†	†	†	†	43°	37°	33°	29°
AP144480 EFD N4	144	491,348	173	2.5	2/0 AWG	†	†	†	†	49°	43°	38°	33°
AP144480 EFD N4X	144	491,348	173	2.5	2/0 AWG	†	†	†	†	49°	43°	38°	33°
VOLTS 600 Three Phase Delta													
AP061600 EFD N4	61	208,141	59	2.5	6AWG	†	†	83°	69°	21°	18°	16°	14°
AP061600 EFD N4X	61	208,141	59	2.5	6AWG	†	†	83°	69°	21°	18°	16°	14°
AP071600 EFD N4	71	242,262	68	2.5	4AWG	†	†	†	81°	24°	21°	19°	16°
AP071600 EFD N4X	71	242,262	68	2.5	4AWG	†	†	†	81°	24°	21°	19°	16°
AP102600 EFD N4	102	348,038	98	2.5	3AWG	†	†	†	†	35°	30°	27°	23°
AP102600 EFD N4X	102	348,038	98	2.5	3AWG	†	†	†	†	35°	30°	27°	23°
AP130600 EFD N4	130	443,578	125	2.5	1AWG	†	†	†	†	44°	39°	34°	34°
AP130600 EFD N4X	130	443,578	125	2.5	1AWG	†	†	†	†	44°	39°	34°	34°
AP150600 EFD N4	150	511,821	144	2.5	1/0 AWG	†	†	†	†	51°	45°	39°	34°
AP150600 EFD N4X	150	511,821	144	2.5	1/0 AWG	†	†	†	†	51°	45°	39°	34°

† Temperature electronically limited to factory preset temperature.

“C” indicates evaluation and compliance to either Underwriters Laboratories (UL) or Intertek (ETL) under CAN/CSA-C22.2 No. 64/No. 88.

- SpecAdvantage products with EE/EFD options are certified to ASSE 1085.

Suffix Definitions

- S** Sanitation. Shipped at 180°F with temp range of 100°F-180°F max.
- EE** Emergency Eyewash. Max. outlet temperature 90°F. Conforms to ANSI Z3581.1 tepid water without additional mixing valve. Shipped with display "Locked."
- EFD** Emergency Eye, Face & Drench. Max. outlet temperature 90°F. Conforms to ANSI Z3581.1 tepid water without additional mixing valve. Shipped with display "Locked."

Note: Models with an EE or EFD suffix have a 90°F maximum temperature. Temperature rise data is provided for reference, but temperature is electronically limited to factory preset not to exceed temperature.

MODEL NUMBER	KW	BTU/H	AMPS PER PHASE	TURN ON (GPM)	RECOMMENDED WIRE SIZE (75° C/CU)	TEMPERATURE RISE °F							
						3.0 GPM	4.0 GPM	5.0 GPM	6.0 GPM	20.0 GPM	23.0 GPM	26.0 GPM	30.0 GPM
VOLTS 208 Three Phase Delta													
AP032208	32	109,189	89	1.0*	3AWG	73°	55°	44°	36°	11°	10°	8°	7°
AP032208 EE	32	109,189	89	1.0	3AWG	†	55°	44°	36°	11°	10°	8°	7°
AP032208 S	32	109,189	89	2.5**	3AWG	73°	55°	44°	36°	11°	10°	8°	7°
AP036208	36	122,832	100	1.0*	3AWG	82°	61°	49°	41°	12°	11°	9°	8°
AP036208 EE	36	122,832	100	1.0	3AWG	†	†	49°	41°	12°	11°	9°	8°
AP036208 S	36	122,832	110	2.5**	3AWG	82°	61°	49°	41°	12°	11°	9°	8°
AP041208	41	143,310	113	1.0*	2AWG	93°	70°	56°	47°	14°	12°	11°	9°
AP041208 EFD	41	143,310	113	1.0	2AWG	†	†	56°	47°	14°	12°	11°	9°
AP041208 S	41	143,310	113	2.5**	2AWG	93°	70°	56°	47°	14°	12°	11°	9°
AP054208	54	184,256	150	1.5*	1/0 AWG	†	92°	74°	61°	18°	16°	14°	12°
AP054208 EFD	54	184,256	150	1.5	1/0 AWG	†	†	†	†	18°	16°	14°	12°
AP054208 S	54	184,256	150	6.0**	1/0 AWG	123°	92°	74°	61°	18°	16°	14°	12°
AP064208	64	218,377	178	2.5	3/0 AWG	†	109°	87°	73°	22°	19°	17°	15°
AP064208 EFD	64	218,377	178	2.5	3/0 AWG	†	†	†	†	22°	19°	17°	15°
AP064208 S	64	218,377	178	6.0**	3/0 AWG	146°	109°	87°	73°	22°	19°	17°	15°
VOLTS 480 Three Phase Delta													
AP036480	36	122,837	43	1.0*	8 AWG	82°	61°	49°	41°	12°	11°	9°	8°
AP036480 EE	36	122,837	43	1.0	8 AWG	†	†	49°	41°	12°	11°	9°	8°
AP036480 S	36	122,837	43	2.5**	8 AWG	82°	61°	49°	41°	12°	11°	9°	8°
AP039480	39	133,074	47	1.0*	8 AWG	89°	67°	53°	44°	13°	12°	10°	9°
AP039480 EE	39	133,074	47	1.0	8 AWG	†	†	53°	44°	13°	12°	10°	9°
AP039480 S	39	133,074	47	2.5**	8 AWG	89°	67°	53°	44°	13°	12°	10°	9°
AP048480	48	163,783	58	1.0*	6 AWG	109°	82°	66°	55°	16°	14°	13°	11°
AP048480 EFD	48	163,783	58	1.0	6 AWG	†	†	†	55°	16°	14°	13°	11°
AP048480 S	48	163,783	58	2.5**	6 AWG	109°	82°	66°	55°	16°	14°	13°	11°
AP054480	54	184,256	65	1.5*	6 AWG	†	92°	74°	61°	18°	16°	14°	12°
AP054480 EFD	54	184,256	65	1.5	6 AWG	†	†	†	†	18°	16°	14°	12°
AP054480 S	54	184,256	65	2.5**	6 AWG	123°	92°	74°	61°	18°	16°	14°	12°
AP063480	63	214,965	76	2.5	4AWG	†	108°	86°	72°	22°	19°	17°	14°
AP063480 EFD	63	214,965	76	2.5	4AWG	†	†	†	†	22°	19°	17°	14°
AP063480 S	63	214,965	76	6.0**	4 AWG	143°	108°	86°	72°	22°	19°	17°	14°
AP072480	72	245,674	87	2.5	3AWG	†	†	98°	82°	25°	21°	19°	16°
AP072480 EFD	72	245,674	87	2.5	3AWG	†	†	†	†	25°	21°	19°	16°
AP072480 S	72	245,674	87	6.0**	3AWG	†	123°	98°	82°	25°	21°	19°	16°
AP096480	96	327,552	116	2.5	1AWG	†	†	†	109°	33°	29°	25°	22°
AP096480 EFD	96	327,552	116	2.5	1AWG	†	†	†	†	33°	29°	25°	22°
AP096480 S	96	327,552	116	6.0**	1AWG	†	†	131°	109°	33°	29°	25°	22°
AP108480	108	368,511	130	2.5	1AWG	†	†	†	†	37°	32°	28°	25°
AP108480 EFD	108	368,511	130	2.5	1AWG	†	†	†	†	37°	32°	28°	25°
AP108480 S	108	368,511	130	6.0**	1AWG	†	†	148°	123°	37°	32°	28°	25°
AP126480	126	429,930	151	2.5	2/0 AWG	†	†	†	†	43°	37°	33°	29°
AP126480 EFD	126	429,930	151	2.5	2/0 AWG	†	†	†	†	43°	37°	33°	29°
AP126480 S	126	429,930	151	6.0**	2/0 AWG	†	†	†	143°	43°	37°	33°	29°
AP144480	144	491,348	173	2.5	2/0 AWG	†	†	†	†	49°	43°	38°	33°
AP144480 EFD	144	491,348	173	2.5	2/0 AWG	†	†	†	†	49°	43°	38°	33°
AP144480 S	144	491,348	173	6.0**	2/0 AWG	†	†	†	†	49°	43°	38°	33°
VOLTS 600 Three Phase Delta													
AP061600 EFD	61	208,141	59	2.5	6 AWG	†	†	†	†	21°	18°	16°	14°
AP071600 EFD	71	242,262	68	2.5	4AWG	†	†	†	†	24°	21°	19°	16°
AP102600 EFD	102	348,038	98	2.5	3AWG	†	†	†	†	35°	30°	27°	23°
AP130600 EFD	130	443,578	125	2.5	1AWG	†	†	†	†	44°	39°	34°	30°
AP150600 EFD	150	511,821	144	2.5	1/0 AWG	†	†	†	†	51°	45°	39°	34°

* Units with a 1.0 or 1.5 GPM turn-on are limited to 120°F only. Contact Eemax support for applications above 120°F.

† Temperature electronically limited to factory preset temperature.

"C" indicates evaluation and compliance to either Underwriters Laboratories (UL) or Intertek (ETL) under CAN/CSA-C22.2 No. 64/No. 88.

** Contact Eemax for applications requiring lower turn on.

RECOMMENDED SPECIFICATIONS AND APPLICATIONS

- **Wherever ANSI Z358.1 emergency equipment is required**

- ANSI Z358.1 is required in various settings where there is a risk of exposure to injurious or corrosive materials.
- It is commonly referenced by the Occupational Safety and Health Administration (OSHA) in its regulations.
- The standard is also used by the Joint Commission 2009 EC Standard for Hospitals, which requires hospitals to minimize or eliminate identified safety and security risks in the physical environment.
- It is a reference point for selecting emergency equipment and is part of the building code in locations that have adopted the International Plumbing Code.

- **Key Benefits**

- Eliminates the need for a 1071 mixing valve which reduces equipment, installation, and maintenance costs.

- **The standard was first published in 2018**

- Adopted into International Plumbing Code in 2021.
- Latest 2024 releases of IPC, UPC & NSPC all include ASSE 1085.
- This prompted adoption into local and regional codes which we have seen accelerating use on specifications in 2024/25.

UPC

Section 416.0 Emergency Eyewash and Shower Equipment

416.1 Application.

Emergency eyewash and shower equipment shall comply with ISEA Z358.1.

416.2 Water Supply.

Emergency eyewash and shower equipment shall not be limited in the water supply flow rates. Where hot and cold water is supplied to an emergency shower or eyewash station, the temperature of the water supply shall be controlled by a temperature actuated mixing valve complying with ASSE 1071. Where water is supplied directly to an emergency shower or eyewash station from a water heater, the water heater shall comply with ASSE 1085. The flow rate, discharge pattern, and temperature of flushing fluids shall be provided in accordance with ISEA Z358.1.

IPC

Section 411 Emergency Showers and Eyewash Stations

411.1 Approval.

Emergency showers and eyewash stations shall conform to ISEA Z358.1.

411.2 Waste connection.

Waste connections shall not be required for emergency showers and eyewash stations.

411.3 Water supply.

Where hot and cold water is supplied to an emergency shower or eyewash station, the temperature of the water supply shall only be controlled by a temperature actuated mixing valve complying with ASSE 1071. Where water is supplied directly to an emergency shower or eyewash station from a water heater, the water heater shall comply with ASSE 1085.

Section 607.1.1 Temperature Limiting Means

A thermostat control for a water heater shall only serve as the temperature limiting means for the purposes of complying with the requirements of this code for maximum allowable hot or tempered water delivery temperature at fixtures where the water heater complies with ASSE 1082 or ASSE 1085.

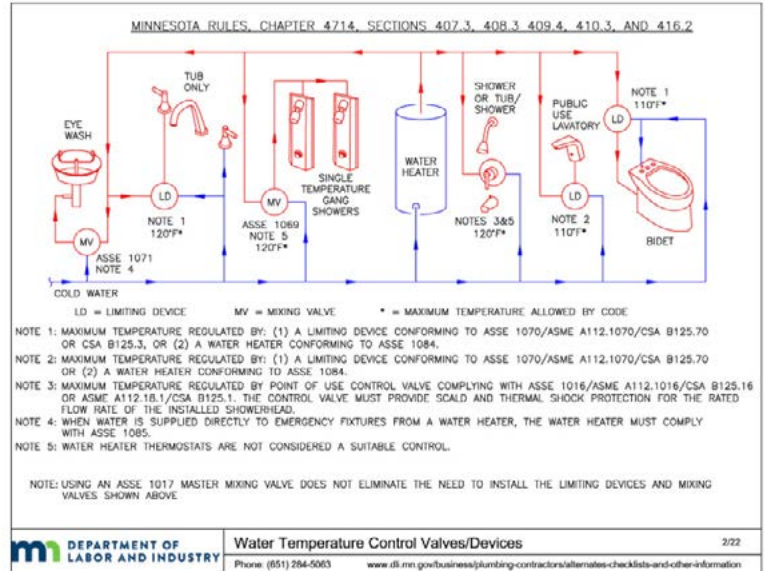
RECOMMENDED SPECIFICATIONS AND APPLICATIONS

STATE ADOPTION EXAMPLE: MINNESOTA

Water Temperature Control Valves/Devices
Governing Authority
Minnesota Rules, Chapter 4714
Sections 407.3, 408.3, 409.4, 410.3, AND 416.2

This illustration is used to explain code-required hot water temperature control methods for fixtures such as:

- Lavatories
- Showers (single & gang)
- Bathtubs
- Emergency eyewash/shower stations
- Bidets



PRODUCT SPECIFICATION

SafeAdvantage

Tankless water heater shall be an Eemax SafeAdvantage model number AP_____.

Factory installation in a _____(N4/N4X/N4X6) enclosure.

Enclosure to be fitted with the following features:

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

Tankless water heater must have water connections on the bottom, and be constructed with NSF372 listed materials. Direct heating element to be non-ferrous, cartridge style, designed for field replacement. Tankless water heater to utilize a dual PID algorithm, actively managing power application to real-time system demand. Integrated flow meter capable of volumes in excess of 30 GPM drives predictive control algorithm. Water heater must be protected by redundant safeties. Redundant safeties to include thermo mechanical safety switches, infrared element monitoring via thermo optical sensors, and dual temperature monitoring via master control board. Tankless water heater user interface must have the following capabilities:

- Selectable display including Celsius/Fahrenheit, inlet temperature, outlet temperature, flow rate, and setpoint temperature.
- Capable of displaying flow rate in gallons per minute or liters per minute.
- Diagnostic features to include error and fault code display.
- Control board must maintain error/fault history of 9 events.
- Capable of factory coded temperature setting (max. and min.)
- Capable of firmware upgrades via USB port.
- ASSE 1085 Certified and conforms to ANSI Z358.1 tepid water without additional mixing or purge features (inlet temperatures must not exceed 100°F).



PRODUCT SPECIFICATION

SpecAdvantage

Tankless water heater shall be an Eemax SpecAdvantage model number AP_____.

Optional factory installation in a ____ (N4/N4X/N4X6) enclosure.

Enclosure to be fitted with the following features:

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

Tankless water heater must have water connections on the bottom, and be constructed with NSF372 listed materials. Direct heating element to be non-ferrous, cartridge style, designed for field replacement. Tankless water heater to utilize a dual PID algorithm, actively managing power application to real-time system demand. Integrated flow meter capable of volumes in excess of 30 GPM drives predictive control algorithm. Water heater must be protected by redundant safeties. Redundant safeties to include thermo mechanical safety switches, infrared element monitoring via thermo optical sensors, and dual temperature monitoring via master control board. Tankless water heater user interface must have the following capabilities:

- Selectable display including Celsius/Fahrenheit, inlet temperature, outlet temperature, flow rate, and setpoint temperature.
- Capable of displaying flow rate in gallons per minute or liters per minute.
- Diagnostic features to include error and fault code display.
- Control board must maintain error/fault history of 9 events.
- Capable of factory coded temperature setting (max. and min.).
- Capable of firmware upgrades via USB port.
- EE and EFD options are ASSE 1085 Certified and conform to ANSI Z358.1 tepid water without additional mixing or purge features (inlet temperatures must not exceed 100°F when selecting an EE or EFD option).

NOTE: For recirculation applications, follow the installation schematics in the installation manual.