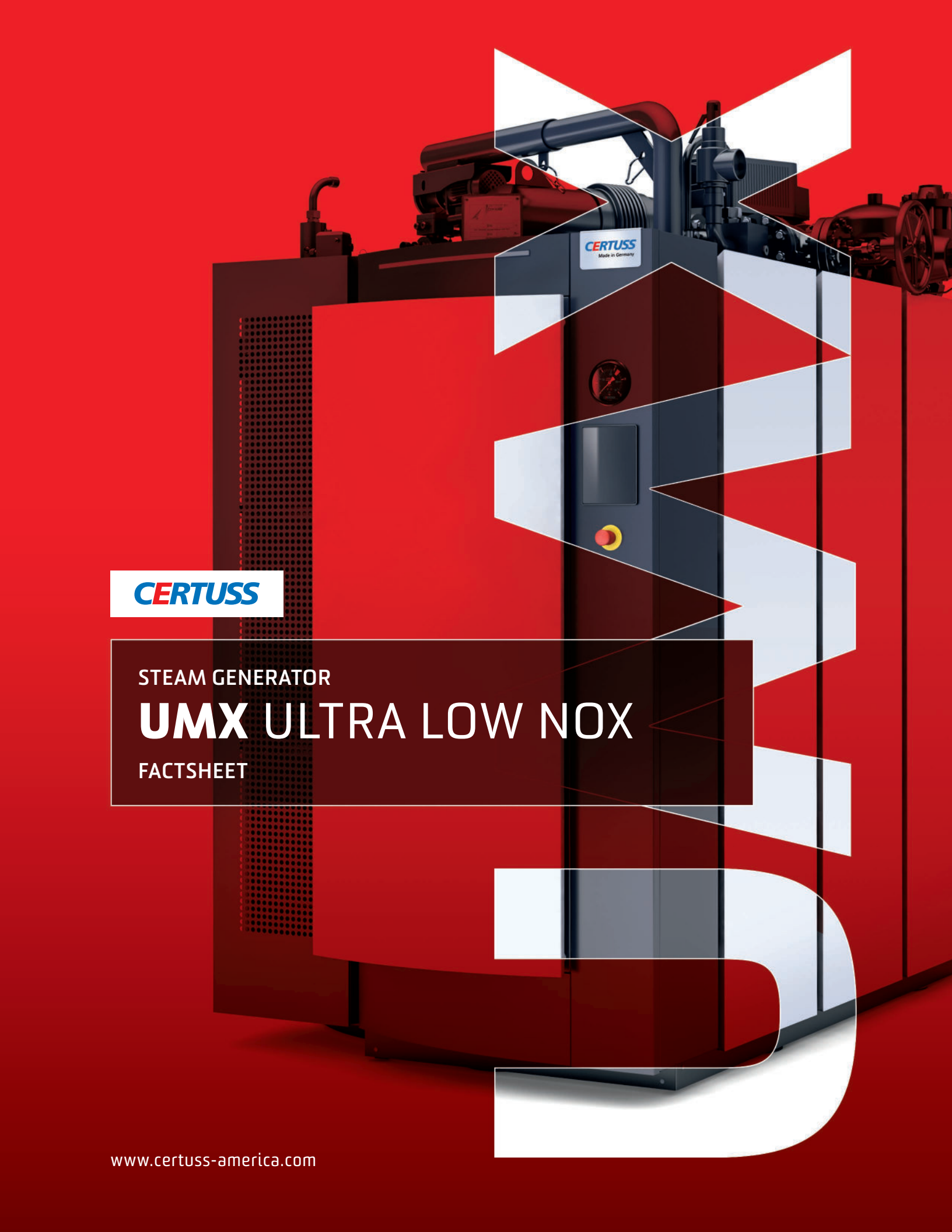




CERTUSS

STEAM GENERATOR

UMX ULTRA LOW NOX

FACTSHEET

UMX

> UMX PERFORMANCE

The UMX on-demand steam generator is completely newly developed and is designed for use with NG or LPG or dual gas (NG/LPG). Fastest start-up time in less than five minutes from cold-start and full instantaneous modulation between 20% and 100% output. NOx emissions are achievable below 9ppm. UMX sets new standards in efficiency, environmental friendliness and operational control.

> UMX FEATURES

In the new CERTUSS UMX model series, what was once optional is now standard. The high pressure piston water pump, sliding gate valve, hot water filter and steam separator are all integrated and pre-installed, which makes the CERTUSS UMX ready to go. A chain block hoist, access ladder and optimized service access make maintenance safer and even more efficient. The 7" display enables optimal operational control, including through the central building management system. The One-View-Control means the device status can be seen easily at any time, even from a distance.



CAPACITIES

Size Model		1500	1800	2000
Steam Capacity	lb/h	3.307	3.968	4.409
	kg/h	1500	1800	2000
Rated Output** (US Calculation Method)	MBtu	3.210	3.852	4.280
	BHP	95.9	115.1	127.8
	kW	94.1	112.9	125.4
Rated Output** (EU Calculation Method)	MBtu	3.361	4.033	4.482
	BHP	100.4	120.5	133.9
	kW	98.4	118.1	131.2
Maximum Firing Rate	MBTU	3.721	4.465	4.961
	kW	1091	1309	1454
Minimum Firing Rate	MBTU	744	893	992
	kW	218	262	291

* At 0 psig operating pressure and 212 °F feedwater temperature

**At 150 psig operating pressure and 212 °F feedwater temperature



UMX WILL FEATURE AND INCLUDE:

- _ Fastest start-up < 5 minutes
- _ Full modulation 20% – 100%
- _ 1st stage burner
- _ NG or LPG or dual gas (NG/LPG)
- _ Sub 9ppm NOx
- _ 7" touch display (HMI)
- _ Sliding gate valve
- _ Steam separator
- _ High pressure water pump
- _ Chain block hoist and ladder for maintenance

STEAM PRESSURE RATING

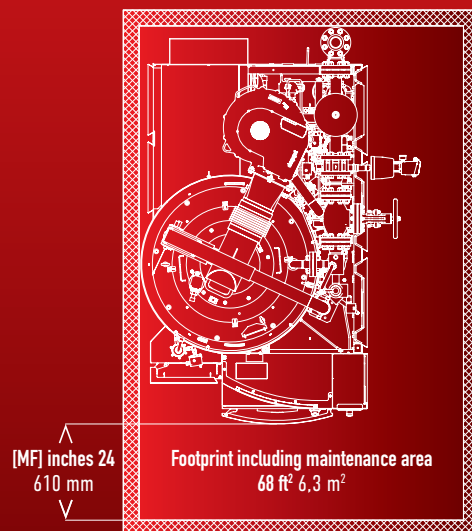
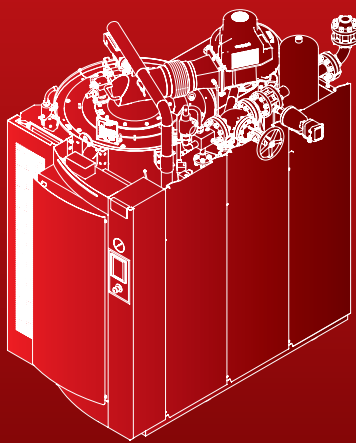
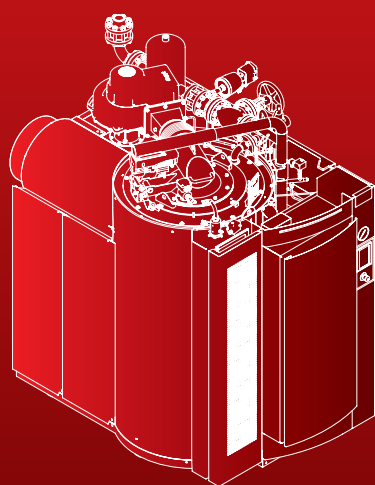
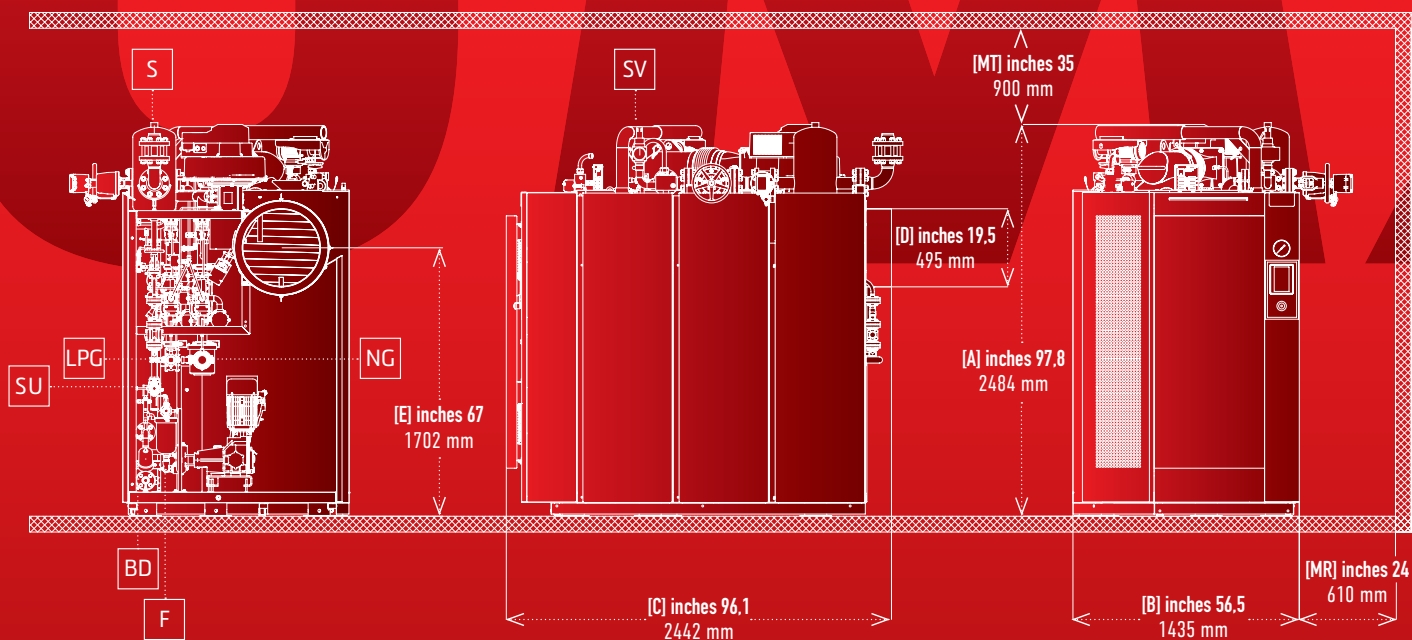
Size Model		1500	1800	2000
Max. allowable working pressure (MAWP)	psig	150 / 200 / 250 / 300 / 460		
	MPa	1.0 / 1.6 / 2.0 / 2.5 / 3.2		
Max. operating pressure	psig	121 / 171 / 221 / 271 / 416		
	MPa	0.8 / 1.4 / 1.8 / 2.2 / 2.9		
Min. operating pressure	psig	87		
	MPa	0.6		

EFFICIENCIES

Size Model	1500	1800	2000
Fuel-to-Steam-Efficiency*	%	86 %	
*At 0 psig operating pressure and 212 °F feedwater temperature			



UMX (Ultra-Low NOx)



DIMENSIONS

Size Model		1500	1800	2000
Height (A)	inches	97.8		
	mm	2484		
Width (B)	inches	56.5		
	mm	1435		
Depth (C)	inches	96.1		
	mm	2442		
Flue Gas Pipe Ø (D)	inches	19.5		
	mm	495		
Flue Gas Center (E)	inches	67		
	mm	1702		
Footprint	ft²	37.7		
	m²	3.5		
Dry Weight	lbs	~6,600		
	kg	~3000		
Operating Weight	lbs	~7,100		
	kg	~3225		

CONNECTIONS

Size Model		1500	1800	2000
Steam (S)	inches	2-1/2		
Feedwater (F)	inches	1		
Start Up (SU)	inches	1		
Blowdown (BD)	inches	1		
Safety Valve (Inlet x Outlet)	inches	1-1/2 x 2-1/2		
Natural Gas Train (NG)	inches	2-1/2		
LP Gas Train (LPG)	inches	1-1/2		
Compressed Air	inches	1/4		

MAINTENANCE AREA

Size Model		1500	1800	2000
Right* (MR)	inches	24		
	mm	610		
Front* (MF)	inches	24		
	mm	610		
Left**	inches	0		
	mm	0		
Back**	inches	0		
	mm	0		
Top (MT)	inches	35		
	mm	900		
Footprint including maintenance area	ft²	68		
	m²	6.3		

* Local requirements can vary and need to be considered

**Steam generator can be placed on the left side and the back directly to the wall

- A Height
- B Width
- C Depth
- D Flue Gas Pipe Ø
- E Flue Gas Center
- S Steam
- F Feedwater
- SU Start Up
- BD Blowdown
- NG Natural Gas Train
- LPG LP Gas Train
- MR Maintenance Right
- MF Maintenance Front
- MT Maintenance Top

FUEL REQUIREMENTS

Size Model		1500	1800	2000
Fuel Consumption at Rated Input (Natural Gas)*	SCFH m ³ /h	3,721 109.1	4,465 130.9	4,961 145.4
Minimum Gas Pressure (Natural Gas)	in W.C. kPa		12 3	
Maximum Gas Pressure (Natural Gas)	in W.C. kPa		28 7	
Fuel Consumption at Rated Input (LPG)**	SCFH m ³ /h	1,488 42.3	1,786 50.7	1,985 56.4
Minimum Gas Pressure (LPG)***	in W.C. kPa		20 5	
Maximum Gas Pressure (LPG)***	in W.C. kPa		20 5	

* SCFH based on 1,000 BTU/ft³
 ** SCFH based on 2,500 BTU/ft³
 ***A liquid gas vaporizer is required for extraction from the liquid phase.

VENTING REQUIREMENTS

Size Model		1500	1800	2000
Combustion Air Intake Flow Rate (Natural Gas)*	SCFH m ³ /h	51,100 1,500	61,300 1,800	68,500 2,000
Combustion Air Intake Flow Rate (LPG)*	SCFH m ³ /h	52,600 1,500	63,100 1,790	70,400 2,000
Flue Gas Exhaust Flow Rate - dry (Natural Gas)*	SCFH m ³ /h	48,900 1,430	58,700 1,720	65,200 1,910
Flue Gas Exhaust Flow Rate - dry (LPG)*	SCFH m ³ /h	48,700 1,390	58,500 1,660	65,000 1,850
Minimum Allowable Draft Pressure**	in W.C. kPa		0.02 0.005	
Maximum Allowable Draft Pressure**	in W.C. kPa		0.10 0.025	

* At 6.5 % O₂
 **Required ventline category I venting appliance required (nonpositive static pressure with vent gas temperature avoiding excessive condensate production) as defined in ANSI Z223.1/NFPA 54/CSA-B.149 latest edition.

ELECTRICAL REQUIREMENTS

Size Model		1500	1800	2000
Electrical Supply	V Hz	380 - 400 - 415 - 440 - 460 - 480 50 - 60		
Total Load	hp kVA	22.05 20.92		
Load of Largest Motor	hp kVA	11.0 10.56		
Total Full Load Amps*	A	26.52		
Full Load Amps of Largest Motor*	A	13.23		
Short-Circuit Current Rating (SCCR)	kA	5		
NEMA Rating**(Standard)		NEMA3 (IP54)		
NEMA Rating** (Cabinet cooling unit / AC)		NEMA2 (IP34)		

* UL508A, table 50.1; December 25, 2013
 **only requirements fulfilled, not certified

EMISSIONS

Size Model		1500	1800	2000
NOx			13 (at 5.5% O ₂)	
Natural Gas*	ppm		6 (at 6.5% O ₂)	
			2 (at 7.5% O ₂)	
NOx			40 (at 5.5% O ₂)	
LPG*	ppm		13 (at 6.5% O ₂)	
			8 (at 7.5% O ₂)	
*corrected to 3 % O ₂ , CO to be < 10 ppm				

SOUND DATA

Size Model	1500	1800	2000
Sound Level	dBa 78		
*Measurements taken from the front of the boiler			

PRESSURE VESSEL

Size Model		1500	1800	2000
Material		ASME SA-178M Grade A		
Water Volume	gal		59.4	
(Heating Coil)	ltr.		225.0	
Heating Surface	ft²		330.5	
(Heating Coil)	m²		30.7	



STANDARD

- _Integrated PLC with touch display (HMI)
- _Short heat-up time (fastest start-up < 5 minutes)
- _Thermotimat PLUS (extended automatic mode)¹⁾
- _High pressure water pump²⁾
- _Energy-saving variable speed combustion air fan
- _Pre-Heating of combustion air (no insulation needed)
- _Fully modulating 5:1 turndown burner
- _Proof of closure (POC) and vent valve³⁾
- _Operating pressure switch
- _High pressure limiter
- _Steam- and exhaust temperature limiter
- _Low water cut off
- _Combustion air intake filter
- _Gas intake filter
- _Water filter
- _Steam separator
- _Chain block hoist and ladder for maintenance
- _PPE anchor point
- _One-View-Control

OPTIONS

- _Dual Gas (NG or LPG)
- _Equipment for external combustion air inlet
- _¹⁾Thermotimat Plus with control valve for longer downtimes
- _²⁾High pressure centrifugal pump (up to 200 psi) for less maintenance
- _³⁾Valve Proving System (VPS)
- _Second water pump
- _Second safety valve
- _Cabinet cooling unit
- _Remote service and online report and maintenance options
- _Customer gateways-protocols: Modbus TCP, Modbus RTU, Profibus DP, Profinet IO, Ethernet IP, EtherCat, BACnetIP, BACnetMSTP, OPC UA, MQTT
- _Signal interface: digital/analog

APPROVALS*

- | | |
|---|-----------------|
| _ASME Boiler & Vessel Code S-Stamp | _PED 2014/68/EU |
| _UL795 | _EN 676 |
| _CSD-1 Controls and Fuel Train | _EN 12952 |
| _Electrical cabinet wired according to UL 508 | _EN 50156-1 |

*in preparation



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