



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		

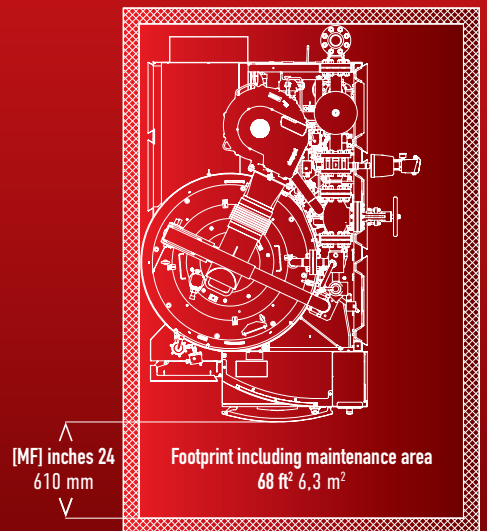
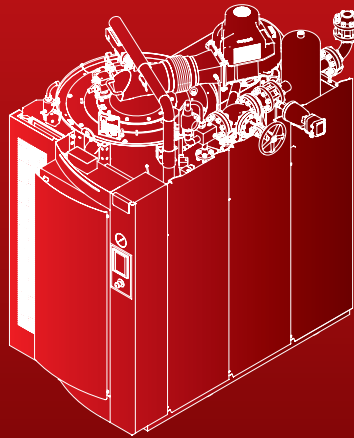
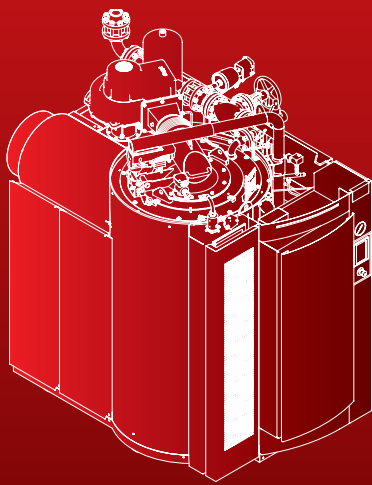
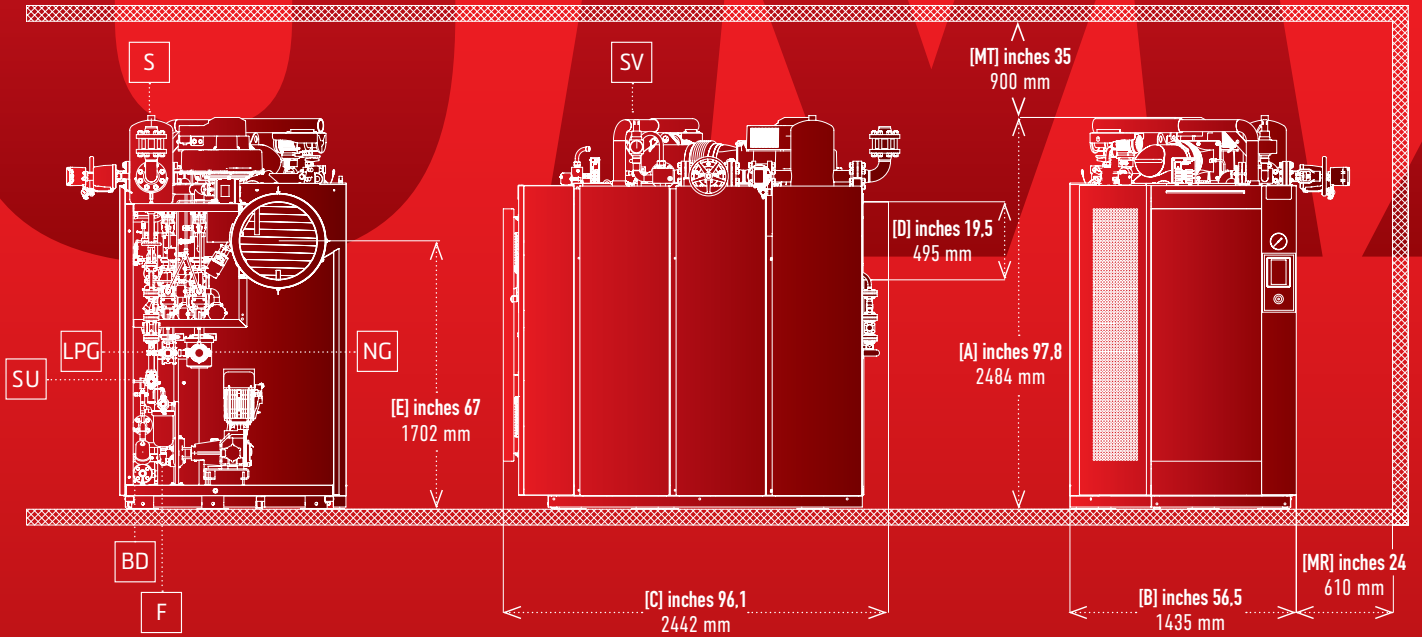
EFFICIENCIES

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	
	m ²		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	
	m ²		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 % O₂, 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)	m ²	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
- _UL795
- _CSD-1 Controls and Fuel Train
- _Electrical cabinet wired according to UL 508
- _PED 2014/68/EU
- _EN 676
- _EN 12952
- _EN 50156-1

*in preparation



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