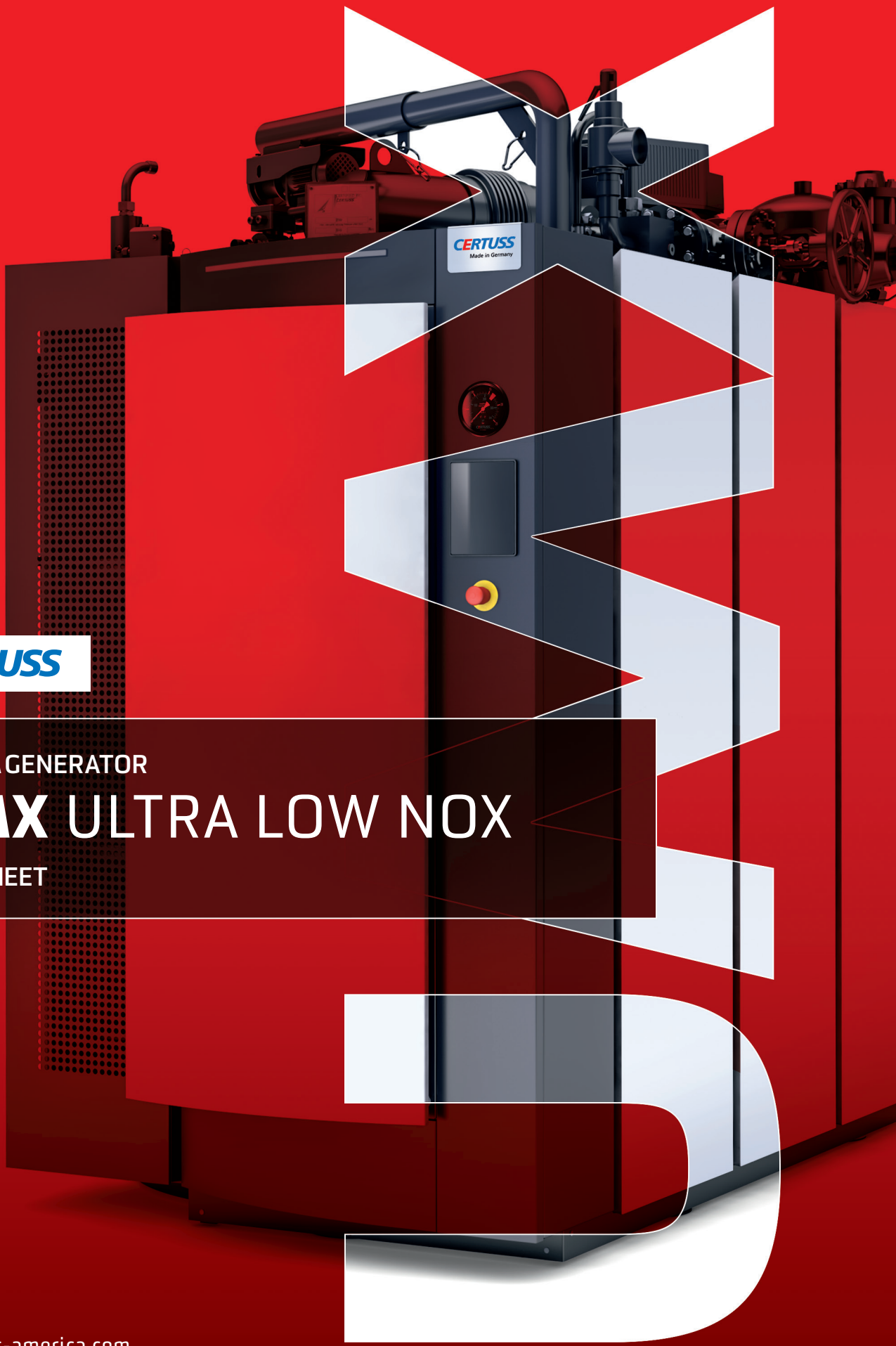


CERTUSS

STEAM GENERATOR

UMX ULTRA LOW NOX

FACTSHEET

www.certuss-america.com

CERTUSS

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**	**MBtu**	**3,210**	**3,852**	**4,280**
(US Calculation Method)	BHP	95.9	115.1	127.8
	kW	941	1129	1254
Rated Output**	**MBtu**	**3,361**	**4,033**	**4,482**
(EU Calculation Method)	BHP	100.4	120.5	133.9
	kW	984	1181	1312
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

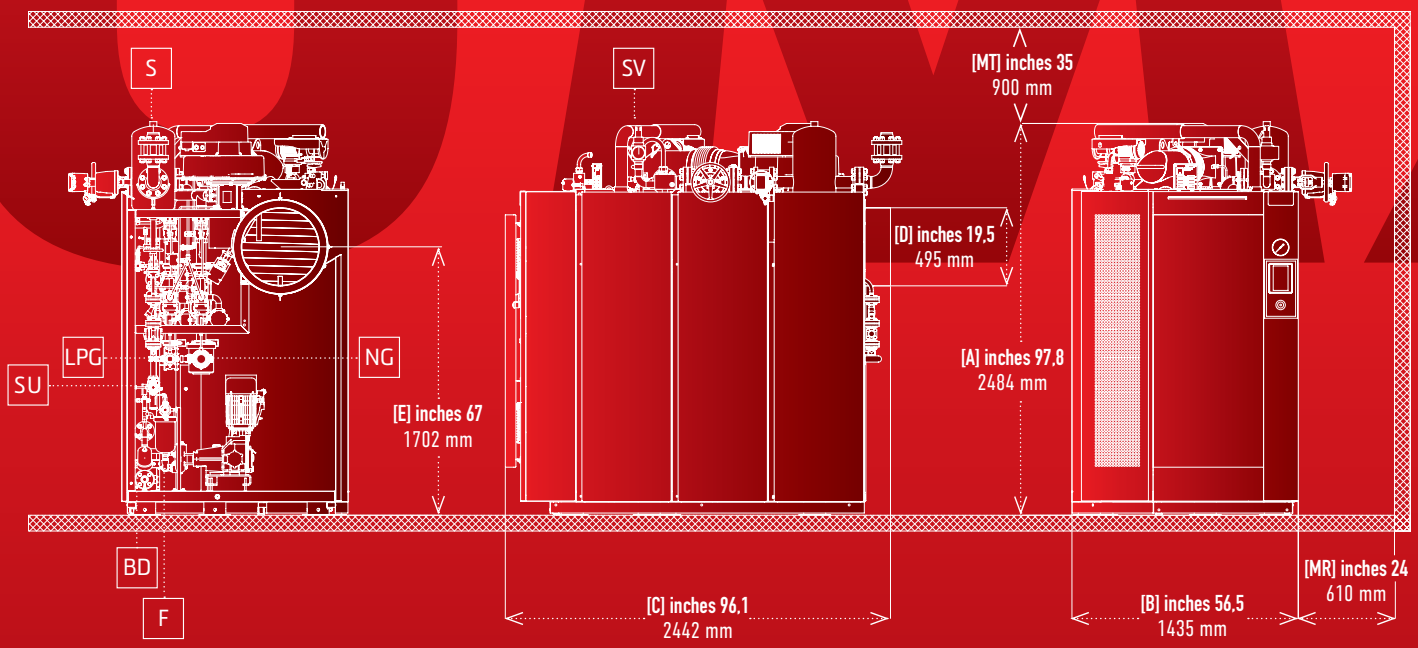
EFFICIENCIES

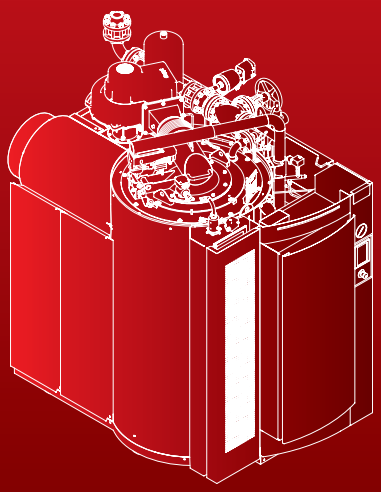
Size | Model		1500 | 1800 | 2000
Fuel-to-Steam-Efficiency*	%	86 %

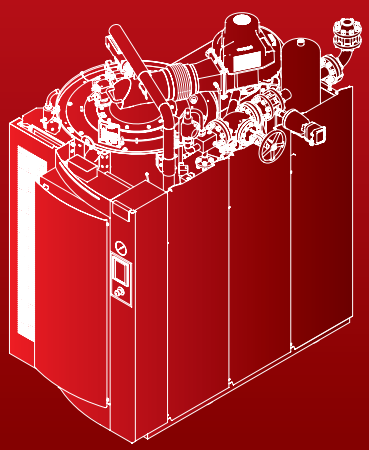
*At 0 psig operating pressure and 212 °F feedwater temperature

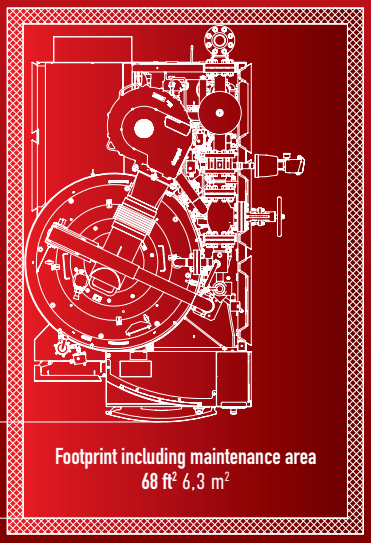
CERTUSS

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**		**1-1/4**	
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**	
Vent Line	**inches**		**1**	
Draining	**inches**		**1/2**	

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

CERTUSS

FUEL REQUIREMENTS

Size | Model		1500	1800	2000
Fuel Consumption at Rated Input	**SCFH**	**3,721**	**4,465**	**4,961**
(Natural Gas)*	m^3/h	109.1	130.9	145.4
Minimum Gas Pressure	**in W.C.**		**12**	
(Natural Gas)	kPa		3	
Maximum Gas Pressure	**in W.C.**		**40**	
(Natural Gas)	kPa		10	
Fuel Consumption at Rated Input	**SCFH**	**1,488**	**1,786**	**1,985**
(LPG)**	m^3/h	42.3	50.7	56.4
Minimum Gas Pressure	**in W.C.**		**12**	
(LPG)***	kPa		3	
Maximum Gas Pressure	**in W.C.**		**28**	
(LPG)***	kPa		7	

* SCFH based on 1,000 BTU/ft^3
** SCFH based on 2,500 BTU/ft^3
***A liquid gas vaporizer is required for extraction from the liquid phase.

VENTING REQUIREMENTS

Size | Model		1500	1800	2000
Combustion Air Intake Flow Rate	**SCFH**	**51,100**	**61,300**	**68,500**
(Natural Gas)*	m^3/h	1,500	1,800	2,000
Combustion Air Intake Flow Rate	**SCFH**	**52,600**	**63,100**	**70,400**
(LPG)*	m^3/h	1,500	1,790	2,000
Flue Gas Exhaust Flow Rate - dry	**SCFH**	**48,900**	**58,700**	**65,200**
(Natural Gas)*	m^3/h	1,430	1,720	1,910
Flue Gas Exhaust Flow Rate -dry	**SCFH**	**48,700**	**58,500**	**65,000**
(LPG)*	m^3/h	1,390	1,660	1,850
Minimum Allowable	**in W.C.**		**0.02**	
Draft Pressure**	kPa		0.005	
Maximum Allowable	**in W.C.**		**0.10**	
Draft Pressure**	kPa		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**		**380 - 400 - 415 - 440 - 460 -480**	
	Hz		50 - 60	
Total Load	**hp**		**26.89**	
Load of Largest Motor	**hp**		**10.73**	
Total Full Load Amps*	**A**		**32.35**	
Full Load Amps of Largest Motor*	**A**		**15.00**	
Short-Circuit Current Rating (SCCR)	**kA**		**50**	
NEMA Rating**(Standard)			**NEMA3 (IP54)**	
NEMA Rating** (Cabinet cooling unit / AC)			**NEMA2 (IP34)**	

* UL508A, table 50.1; December 25, 2013
**only requirements fullfiled, 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 % 02, CO to be < 10 ppm				

SOUND DATA

Size | Model		1500	1800	2000
Sound Pressure Level	**dBa**		**74**	
*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 pump[2)]
_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 valve[3)]
_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
_[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, Modubus 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



CERTUSS

CERTUSS AMERICA
800 Marshall Phelps Road
Building 5 – Unit E
Windsor, CT 06095

info@certuss-america.com

www.certuss-america.com