



# XQ5200 Data Sheet

## Natural Gas

### SoLoNox, 60 Hz.

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**Table 1. XQ5200 Designation**

<i>Manufacturer</i>	Solar Turbines Inc.
<i>Turbine Model</i>	Taurus 60, T7300S
<i>Package Model Designation</i>	XQ5200
<i>Combustion System</i>	So Lo Nox™
<i>Fuel</i>	Natural Gas

**Table 2 . Natural Gas Performance Data ISO\*, XQ5200 Mobile Power Unit**

	<i>English</i>	<i>Metric</i>
<i>Power Output</i>	5,200 kWe	5,200 kWe
<i>Heat Rate</i>	11,263 Btu/kWe-hr	11,900 kJ/kWe-hr
<i>Fuel Flow (LHV)</i>	58.6 mmBTU/hr	61.8 mmBTU/hr
<i>Emissions** NOX</i>	25 PPMvd	25 PPMvd
	5.84 LBM/HR	2.65 kg/hr
	50 PPMvd	50 PPMvd
<i>CO</i>	7.1 LBM/HR	3.22 kg/hr
	12.47 to 13.8 KV	12.47 to 13.8 KV
<i>Gen. Voltage @ 60 hz.</i>		
<i>Voltage Steady State</i>	0.5%	0.5%
<i>Short Circuit</i>	300% for 10 sec.	300% for 10 sec.

\* ISO = Sea Level, 60% Relative Humidity, No inlet or exhaust losses.

\*\* Emissions valid if Load factor is > 50% on natural gas and > 80% on diesel fuel.

**Table 3. Natural Gas Site Performance data, METRIC**

<b>TAURUS 60-T7300S</b>	<u>Heat Rate Data Given is Lower Heating Value</u>					
<b>GSC STANDARD</b>						
<b>Std. Natural Gas Fuel</b>						
Rel Humid, %	60					
<b>SITE ELEVATION:</b>	0 metre					
<b>BAROMETRIC PRESSURE:</b>	760.0 mmHg					
<b>INLET DUCT LOSS:</b>	76.2 mmH2O					
<b>EXHAUST DUCT LOSS:</b>	76.2 mmH2O					
<u>Nominal Data Single Unit</u>						
AMBIENT AIR TEMPERATURE (T1):	-7	4	15	27	38	48 °C
PART POWER ( kWe), % LOAD, or 0 for MAX:	100%	100%	100%	100%	100%	100% kWe
Nominal OUTPUT POWER: (@terminals)	5,869	5,488	5,095	4,661	4,214	3,827 kWe
FUEL FLOW (LHV):	67,563	64,765	61,323	57,681	54,254	51,485 MJ/hr
Nominal HEAT RATE: (@terminals)	11,511	11,802	12,037	12,375	12,875	13,452 kJ/kWe-hr
EXHAUST GAS TEMPERATURE (T7):	484	485	488	495	504	516 °C
EXHAUST GAS FLOW:	83,982	81,689	78,819	74,939	70,718	66,866 kg/hr
Nominal THERMAL EFFICIENCY: (@terminals)	31.28	30.51	29.92	29.10	27.97	26.77 %
PCD PRESSURE:	1,202	1,159	1,110	1,061	1,002	946 kPaG
EXHAUST HEAT (from T7 to T9):	31,886	31,167	30,277	29,369	28,405	27,712 MJ/hr

**Table 4. Natural Gas Site Performance data, ENGLISH**

<b>TAURUS 60-T7300S</b>	<u>Heat Rate Data Given is Lower Heating Value</u>					
<b>GSC STANDARD</b>						
<b>Std. Natural Gas Fuel</b>						
Rel Humid, %	60					
<b>SITE ELEVATION:</b>	0 Feet					
<b>BAROMETRIC PRESSURE:</b>	29.9 "Hg					
<b>INLET DUCT LOSS:</b>	3 "H2O					
<b>EXHAUST DUCT LOSS:</b>	3 "H2O					
<u>Nominal Data Single Unit</u>						
AMBIENT AIR TEMPERATURE (T1):	20	40	59	80	100	118 °F
PART POWER ( kWe), % LOAD, or 0 for MAX:	100%	100%	100%	100%	100%	100% kWe
Nominal OUTPUT POWER: (@terminals)	5,869	5,488	5,095	4,661	4,214	3,827 kWe
FUEL FLOW (LHV):	64	61	58	55	51	49 mmBTU/hr
Nominal HEAT RATE: (@terminals)	10,911	11,186	11,409	11,729	12,203	12,750 BTU/kWe-hr
EXHAUST GAS TEMPERATURE (T7):	903	906	910	923	939	960 °F
EXHAUST GAS FLOW:	185,149	180,094	173,767	165,212	155,908	147,414 lb/hr
Nominal THERMAL EFFICIENCY: (@terminals)	31.28	30.51	29.92	29.10	27.97	26.77 %
PCD PRESSURE:	174	168	161	154	145	137 PsiG
EXHAUST HEAT (from T7 to T9):	30	30	29	28	27	26 mmBTU/hr

**Table 5 & 6 Not Applicable (Deleted)**

*Please request site and application specific data for formal proposals.*

**Table 7. Dimensional Data & Weights, Installed** XQ5200 Mobile Power Unit

	<i>English</i>	<i>Metric</i>
<i>Length</i>	48 ft.	14.6 meters
<i>Width</i>	21 ft.	6.4 meters
<i>Height</i>	26.6 ft.	8.1 meters
<i>Installed Weights</i>		
<i>Turbine Section</i>	118,000 lbs	54 M tons
<i>PCR Trailer</i>	55,000 lbs.	25 M tons

**Table 7A. Dimensional Data and Weights, Ocean Shipping.**

<i>Item #.</i>	<i>Lbs.</i> <i>(Metric tons)</i>	<i>Dimensions L X W X H</i> <i>English (Meters)</i>	<i>Description</i>
1	118,000 (53.6)	48'3" X 9' X 14'2" (14.7 x 2.75 x 4.32)	Turbine Enclosure w/ Integral Trailer. Air ride, 3 Axle, Mfg. by Solar Turbines Inc..
1A	6,900 (3.2)	14'1" X 8'6" X 3'6" (4.3 x 2.6 x 1.1)	Two Axle Air Ride Booster. Connects to Item 1 for highway transport but is removed for ocean transit and when assembled for operation.
2	55,000 (25)	46' X 8' 6" X 13'9.5" (14 X 2.6 X 4.2)	Power Control Room w/ Integral Trailer. Air ride, 2 Axle. Manufactured by Solar Turbines Inc.
3	35,000 (15.9)	40' X 8' X 8' 6" (12.2 x 2.5 x 2.6)	40 ft. shipping container packed with turbine auxiliary components.
3A	8,500 (3.9)	41' x 8' x 4' (12.5 x 2.5 x 1.2)	Chassis for Item 3. Optional 40 ft. fixed chassis for container.
4	35,000 (15.9)	40' X 8' X 8' 6" (12.2 x 2.5 x 2.6)	40 ft. shipping container packed with special tooling and spare parts
4A	8,500 (3.9)	41' x 8' x 4' (12.5 x 2.5 x 1.2)	Chassis for Item 4. Optional 40 ft. fixed chassis for container.

**Table 7B. Dimensional Data and Weights, Highway Shipping.**

<i>Item #.</i>	<i>Lbs.</i> <i>(Metric tons)</i>	<i>Dimensions L X W X H</i> <i>English (Meters)</i>	<i>Description</i>
1 & 1A	124,900 (56.7)	62'1" x 9' X 14"2" (19 x 2.75 x 4.32)	Turbine Enclosure w/ Integral Trailer & Booster. Item 1 & 1A configured for highway transport by Truck. 5 axles.
2	55,000 (25)	46' X 8' 6" X 13'9.5" (14 X 2.6 X 4.2)	Power Control Room w/ Integral Trailer. Air ride, 2 Axle. Manufactured by Solar Turbines Inc.
3 & 3A	43,500 (15.9)	41' X 8' X 12' 6" (12.5 x 2.5 x 3.8)	40 ft. container w/ Chassis packed with turbine auxiliary components.
4 & 4A	43,500 (15.9)	41' X 8' X 12' 6" (12.5 x 2.5 x 3.8)	40 ft. container w/ Chassis packed with special tooling & spares.

*Please request site and application specific data for formal proposals.*

**Table 8. Installation Requirements**

XQ5200 Mobile Power Unit

	<i>English</i>	<i>Metric</i>
<b><u>Natural Gas</u></b>		
<i>Gas Pres.</i>	250 PSIG	1,723 KPAG
<i>Max. Gas Demand</i>	1,400 SCFM	39.6 M <sup>3</sup> /MIN.
<b><u>Foundation</u></b>		
<i>Gravel Compacted to</i>	2,500 lbs./ft.2	120 kPA
<b><u>Fuel Quality</u></b>		
<i>Clean dry fuel Per Solar Spec. ES 9-98.</i>		

**Table 9. Infrastructure Requirements, XQ5200 Mobile Power Unit**

<b><u>Connections</u></b> <b>Black Start, if needed (480V, 60 hz., 200kW)</b> <b>Telephone Line, ether net, broadband connection for Remote Communication &amp; Control</b>
<b><u>Set Up &amp; Commissioning</u></b> <b>Three – Five days</b> <b>Small crane to lift components on roof, &amp; fork Lift.</b>

**Table 10. Solar Turbotronic Controller, XQ5200 Mobile Power Unit**

<b><i>Allen Bradley, PLC-5</i></b>
Provides sequencing to the package’s operating systems during starting, running & shutdown, and provides package monitoring and protection during all phases of operation. Key features include...
*Local operator interface and monitoring.
*Interface and monitoring in power control trailer
*Remote interface and monitoring.
*Operational summary displays of alarms, shutdowns, temperatures, pressures, vibration, engine performance, generator kW, voltage, p.f., hz., amps, current.
*Relay backup in event of PLC failure
*Flexibility to change logic or add features

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**Table 11. Switchgear, XQ5200 Mobile Power Unit**

***Operating Features, (One Line Available upon request)***

Parallel operation with the utility.  
 Island operation single or multiple units.  
 Protective Relays, (See Table 8)  
 Vacuum Circuit Breakers, 1,200A, 500MVA @ 15 KV  
     Breaker #1 customer load connection  
     Breaker #2 feeds Aux. Transformer & MCC to power turbine Accessories.  
 C.T.'s, Draw Out P.T.'s.  
 Lightning Arrestors, & Surge Capacitor

**Table 12. Grounding, XQ5200 Mobile Power Unit**

Option 1	Low Resistance grounding
Option 2	Ungrounded generator

**Table 13. Protective Relays, XQ5200 Mobile Power Unit**

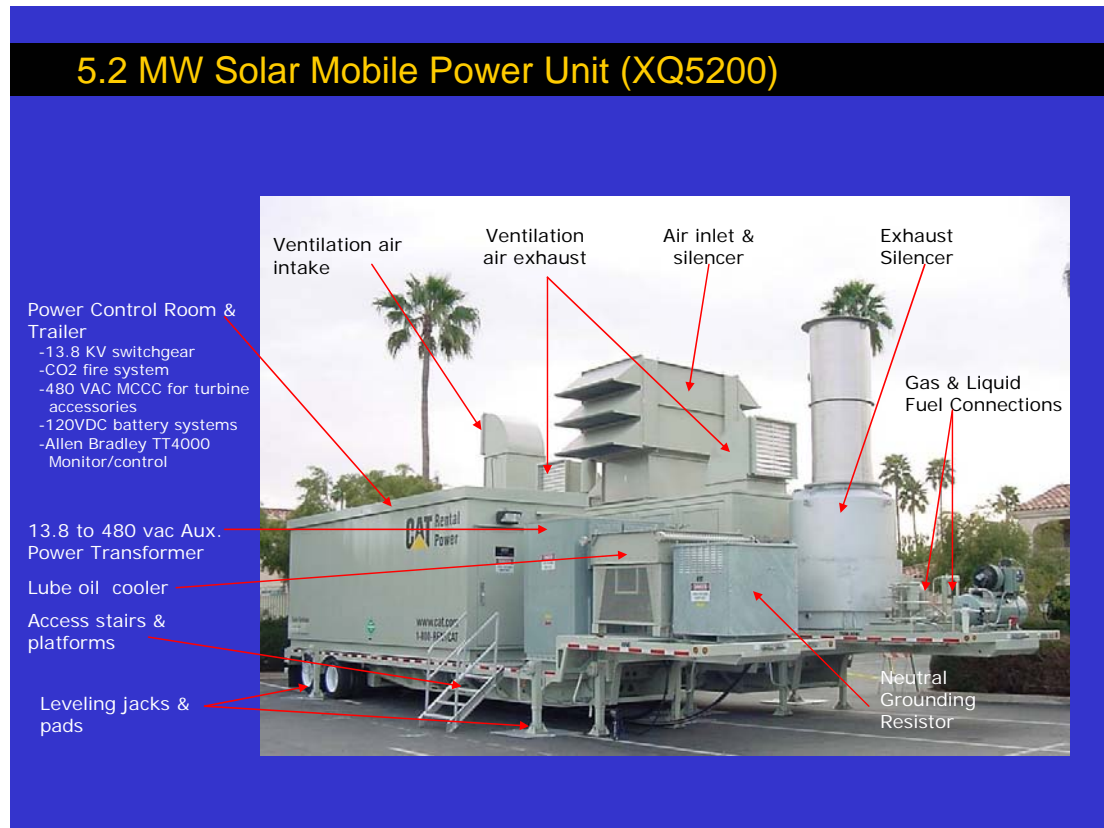
<b><i>Beckwith M-3425</i></b>	<b><i>Designation</i></b>
Impedance	21
Undervoltage	27
RPR	32
Loss of Field Protection	40
Negative Phase Sequence	46
PT Blown Fuse	60FL
Phase overcurrent	51V
Inadvertent energization	50/27
Ground Overcurrent	50N, 51N
Overvoltage	59
Bus Ground Fault Detection	59N
Over/Under Frequency	81
Phase Differential	87
overcurrent	
Ground differential	87GD
Settings Programmable for resistance grounding or ungrounded operation.	
Basler BE-1, Overcurrent	50/51B

*Please request site and application specific data for formal proposals.*

**Table 14. XQ5200 Rental Power Benefits**

<i>Flexible Rental Solution</i>	<i>Easy to Install &amp; Relocate</i>
Short & Long Term Rental Options Rental/Purchase Options 50 or 60 hz. Units available	Highway transportable 3 to 5 day setup No concrete foundation required
<i>Environmentally Friendly</i>	<i>Complete Systems Solution</i>
Low Emissions, 25 ppmv Nox Quiet Operation, 87 dba @ 3 ft. (1M) No Visible Emissions Low Profile Design Easy to Permit	Set-up & Commissioning Maintenance Included Operators available Site Preparation (if needed) Transformers (if needed)
<i>Worldwide Support</i>	<i>Operational Features</i>
Caterpillar's Worldwide Rental Network Solar Turbines Worldwide Service Network	On line in six minutes Range of Control System Options KVAR Control & KW Control

**Table 15. XQ5200 Photo Overview**



*Please request site and application specific data for formal proposals.*