Simple Cycle Performance Specs

Standard design performance ratings and adjustments for actual site and operating conditions

Conditions

GTW simple cycle performance specifications are based on OEM rated gas turbine performance at ISO standard conditions: 59°F ambient air (15°C) temperature, 14.7 psia (1.015 bar) sea level site elevation, 60% relative humidity.

Usually the ratings are specified for operation on natural gas fuel and gross base load output without deductions for inlet and exhaust losses, and power consumed for shaft-driven auxiliaries -- unless otherwise noted.

Some OEMs prefer quoting net output, which considers impacts of installed inlet loss (typically 3.5 in. H2O), exhaust loss (2.5 in. H2O) and auxiliary system losses -- with footnotes to that effect. The ratings always apply to a "factory new and clean" gas turbine having less than 200 hours of operation.

Performance degradation with operating time, and recovery with periodic maintenance, is not considered in OEM ratings. Actual performance over time depends on operating mode and environment, maintenance practices and fuel(s) burned.

Adjusting ISO ratings to match site and operating conditions

Some commonly used rule of thumb factors for adjusting ISO rated performance to estimate actual performance at non-standard site and operating conditions:

- **Ambient temperature**. Expect about a 0.4% reduction in power output plus 0.1% increase in heat rate for each 1°F (0.56°C) rise in ambient temperature above 59°F (15°C).The reverse holds true below 59°F ambient temperature.
- **Site elevation**. Altitude has a minimal effect on heat rate. But, for each 1,000-ft increase in site elevation above sea level, there is about a 3.5% loss in power output.
- **Inlet losses**. For each inch of added inlet pressure drop (water gauge), figure on about a 0.4% reduction in power output and 0.1% increase in heat rate.
- **Outlet losses**. For each inch of added outlet or exhaust pressure drop, you can expect a 0.1% reduction in power output and 0.1% increase in heat rate.
- **Fuel type**. Figure on around 2-3% less power and 1-2% higher heat rate when burning distillate fuel as compared to natural gas.
- **Exhaust energy**. Exhaust energy (enthalpy) at ISO conditions may be approximated from exhaust temperature and mass flow ratings. But these vary with site temperature and elevation, and are subject to compressor and turbine design characteristics. Contact OEMs for project-specific data at off-ISO conditions.

Ratings

Basic engineering design and performance parameters:

• **Model**. OEM gas turbine designation or name for units in production or scheduled for introduction in the near term.

• **Year**. First year the original gas turbine series was (or will be) introduced into the marketplace. A number or letter suffix at the end of the designation indicates an evolutionary upgrade of the original platform design series.

• **ISO base.** Gross power output without losses, at 59°F (15°C) sea level site conditions Rated for base load operation, i.e., over 6,000 hours per year, with normal gas turbine wear and maintenance intervals.

• **Heat rate**. Lower heating value (LHV) of natural gas fuel.

• **Efficiency**. Measure of 'energy-out" over "energy-in" (LHV) when operating at base load output (equals 3412 But/kwh divided by heat rate, expressed as percent).

• **Pressure ratio**. Gas turbine compressor outlet divided by inlet pressure. High pressure ratios (typical of jet derivative units) imply high efficiency gas turbine design.

• **Flow**. Gas turbine mass flow (air plus fuel) at ISO conditions, base load output, normally without water or steam injection unless otherwise noted.

• **Shaft speed**. Power output shaft coupling rotating speed, for direct drive at 3000/3600 rpm for 50/60 Hz power generation, or geared to match load.

• **Exhaust temperature**. Average temperature of the gas turbine exhaust flow at ISO conditions, base load output.

Adjustment factors

The editorial box contains some handy rule-of-thumb factors for adjusting ISO ratings to estimate installed performance at different site conditions:

• **Site temperature**. For each 1°F (0.56°C) increase in ambient temperature ***above*** 59°F (15°C), there is about a 0.4% reduction in power output and a roughly 0.1% ***increase*** in heat rate, (The opposite holds true as temperatures drop below 59°F(15°C).)

• **Site elevation**. Every 1,000-ft increase in site elevation above sea level will see a 3.5% reduction in rated gas turbine power output. Heat rate is minimally affected by site elevation.

• **Inlet losses**. For each inch of inlet pressure drop (water gauge), you can expect around 0.4% reduction in power and 0.1% increase in heat rate.

• **Outlet losses**. For each inch of outlet or exhaust pressure drop, you can expect a 0.1% reduction in power and 0.1% increase in heat rate.

• **Type fuel**. Figure on about 2-3% less power and 1-2% higher heat rate when operating on distillate fuel as compared to natural gas.

Factory verification

Design ratings are based on 'new and clean' performance, typically confirmed by full-load factory testing prior to shipment or field tests shortly after installation.

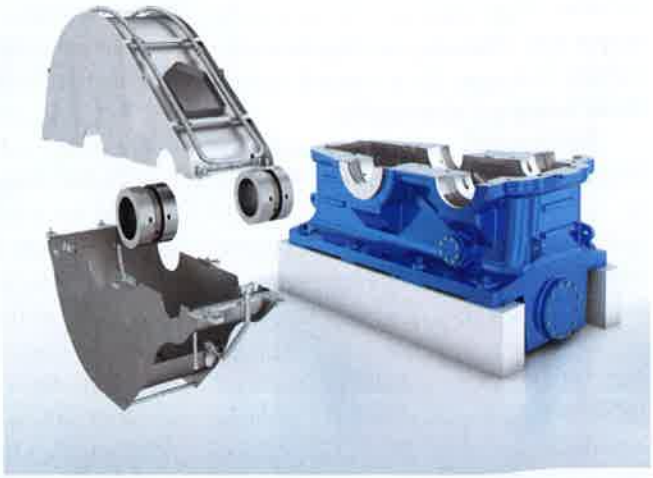
OEMs prefer factory testing because it is faster, more easily done and less expensive than field test verification. It is also much simpler to troubleshoot problems in the factory for correction prior to shipment.

Large gas turbines often cannot be full-load tested in the factory, in which case their performance is verified in the field as part of (or immediately following) commissioning.

Usually, OEMs place a contractual limit on how many hours the gas turbine can run once placed in service prior to verification testing. If not completed within the specified time window, performance testing will be deemed to have been done and requirements met.

Recoverable degradation

OEM performance ratings are for equipment in factory



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"new and clean" condition. All gas turbines experience a loss in power output and efficiency during their operating lifetimes. To a limited extent those losses are recoverable.

Performance degrades gradually as parts wear, critical surface finishes are lost, and clearances open. Power and efficiency typically will decline by several percentage points (compared to factory-new ratings) and then stabilize.

Lost performance due to compressor fouling can partially be restored by on-line water washing at regularly scheduled intervals. During shutdown periods when more extensive maintenance is possible, some operators supplement water washing with mechanical methods for cleaning fouled blades and vanes.

Non-recoverable degradation

Non-recoverable losses due to worn parts and widened clearances are usually taken care of during scheduled maintenance and overhauls. OEMs prescribe minor and major maintenance intervals, based on fleet history, as a function of the number of start-stop cycles, fired hours, and fuel type.

Typically, power and heat rate will degrade by 2-6% points during the first 24,000 hours of operation (routine interval for a hot gas path inspection) assuming parts are not replaced. Replacing worn parts normally will restore gas turbines to within 1 to 1.5% points of original factory-new performance levels.

Retrofitting gas turbines with improved technology components during a major overhaul is often done to increase power, efficiency and maintenance intervals, "beating the degradation curve".

OEM confirmation

GTW's Performance Specs based on latest OEM input are well suited for evaluating and comparing gas turbine design ratings and performance.

Note, however, that listed gas turbine model ratings are always subject to change. They can (and do) change unpredictably during the course of a year.

This is often done without OEM announcement, as the result of a design upgrade or modification.

For specific project applications, it is a good idea to follow up with gas turbine OEMs to confirm the reported data.

Communications a "must"

Under such circumstances, direct contact is a "must" for checking out specific model ratings and specific site performance.

It is also a good opportunity to learn about any near-term upgrade or new gas turbine design in the works that may better suit project requirements and still fit your timetable.

OEM project application engineers are also good at optimizing off-design performance of their machines to satisfy special environment and/or operating requirements. ■

2017-18 GTW Simple Cycle Specs

Model	Intro Year	ISO Base Load (kW)	Heat Rate (Btu/kWh)	Efficiency	Press Ratio	Mass Flow (lb/sec)	Turbine Speed	Exhaust Temp	Approx Weight	Approx L x W x H	Comments
Ansaldo Energia											
AE-T100	2000	100 kW	11 374 Btu	30.0%	4.5	1.8 lb	70000 rpm	518 F	6 106 lb	13 x 3 x 6 ft	
AE64.3A	1996	78 000 kW	9 400 Btu	36.3%	18.3	474.0 lb	3000/3600	1063 F	134 000 lb	19 x 10 x 10 ft	includes gearbox
AE94.2	1981	185 000 kW	9 426 Btu	36.2%	12.0	1223.0 lb	3000 rpm	1006 F	524 000 lb	33 x 13 x 12 ft	
AE94.2K	1981	170 000 kW	9 348 Btu	36.5%	12.0	1190.0 lb	3000 rpm	1013 F	539 000 lb	33 x 13 x 12 ft	low LHV fuel
AE94.3A	1995	325 000 kW	8 509 Btu	40.1%	19.5	1653.0 lb	3000 rpm	1092 F	698 000 lb	35 x 17 x 16 ft	
GT26	2011	345 000 kW	8 322 Btu	41.0%	35.0	1576.0 lb	3000 rpm	1141 F	924 000 lb	41 x 15 x 17 ft	
GT36-S6	2016	340 000 kW	8 322 Btu	41.0%	24.0	1543.0 lb	3600 rpm	1166 F	791 000 lb	34 x 16 x 19 ft	
GT36-S5	2016	500 000 kW	8 222 Btu	41.5%	25.0	2227.0 lb	3000 rpm	1155 F	1 356 000 lb	45 x 23 x 21 ft	
Note: GT36-S weight without fuel distribution system and without cans											
Bharat Heavy Electricals											
PG5001PA	1988	26 500 kW	11 886 Btu	28.7%	10.5	273.7 lb	5094 rpm	905 F	185 220 lb	38 x 11 x 12 ft	with standard combustor
PG6001B(6B.03)	2000	43 000 kW	10 303 Btu	33.1%	12.4	312.0 lb	5163 rpm	1008 F	200 655 lb	49 x 11 x 12 ft	with standard combustor
MS6001FA(6F.03)	2003	77 400 kW	9 611 Btu	35.5%	16.0	454.1 lb	5231 rpm	1104 F	231 525 lb	32 x 16 x 15 ft	with DLN combustor
MS9001E(9E.03)	2012	130 400 kW	9 900 Btu	34.4%	12.9	912.0 lb	3000 rpm	1016 F	617 400 lb	46 x 41 x 28 ft	with standard combustor
V94.2	1997	157 000 kW	9 920 Btu	34.4%	11.1	1132.0 lb	3000 rpm	1004 F	650 475 lb	46 x 41 x 28 ft	
MS9001FB(9F.03)	1996	260 200 kW	9 099 Btu	37.5%	16.7	1430.4 lb	3000 rpm	1108 F	694 400 lb	74 x 16 x 18 ft	with DLN combustor
MS9001FB(9F.05)	2004	297 000 kW	8 782 Btu	38.9%	18.3	1419.5 lb	3000 rpm	1184 F	716 800 lb	74 x 16 x 18 ft	with DLN combustor
Note: all BHEL models on natural gas											
Capstone Turbine											
C30	1998	30 kW	13 100 Btu	26.0%	3.6	0.7 lb	96000 rpm	530 F	891 lb	5 x 3 x 6 ft	all grid parallel with other configs available
C65	2000	65 kW	11 800 Btu	29.0%	4.0	1.1 lb	96000 rpm	588 F	1 671 lb	6.4 x 3 x 7 ft	
C200	2008	200 kW	10 300 Btu	33.0%	4.0	2.9 lb	61000 rpm	535 F	6 120 lb	12.6 x 6 x 9 ft	
C600S	2015	600 kW	10 300 Btu	33.0%	4.0	8.8 lb	61000 rpm	535 F	29 300 lb	19.2 x 10 x 10 ft	
C800S	2015	800 kW	10 300 Btu	33.0%	4.0	11.7 lb	61000 rpm	535 F	33 500 lb	24.6 x 10 x 10 ft	
C1000S	2015	1 000 kW	10 300 Btu	33.0%	4.0	14.7 lb	61000 rpm	535 F	37 700 lb	30 x 10 x 10 ft	

C1000S	2015	1 000 kW	10 300 Btu	33.0%	4.0	14.7 lb	61000 rpm	535 F	37 700 lb	30 x 10 x 10 ft	

Model	Intro Year	ISO Base Load (kW)	Heat Rate (Btu/kWh)	Efficiency	Press Ratio	Mass Flow (lb/sec)	Turbine Speed	Exhaust Temp	Approx Weight	Approx L x W x H	Comments
Centrax Gas Turbine											
CX501-KB5	1992	3 947 kW	11 747 Btu	29.1%	10.3	34.8 lb	14571 rpm	1031 F	85 980 lb	30 x 9 x 10 ft	Siemens 501-KB5
CX501-KB7	1993	5 335 kW	10 631 Btu	32.1%	13.9	46.6 lb	14571 rpm	923 F	85 980 lb	30 x 9 x 10 ft	Siemens 501-KB7
CX300	2011	7 900 kW	11 158 Btu	31.0%	13.7	66.6 lb	14010 rpm	1008 F	126 000 lb	40 x 8 x 12 ft	Siemens SGT-300
CX300	2015	8 500 kW	9 855 Btu	34.6%	14.1	66.0 lb	11500 rpm	952 F	165 000 lb	61 x 9 x 13 ft	Siemens SGT-300
CX400	2011	12 900 kW	9 817 Btu	34.8%	16.9	87.0 lb	9500 rpm	1031 F	165 000 lb	61 x 9 x 13 ft	Siemens SGT-400
CX400	2012	14 400 kW	9 647 Btu	35.4%	18.9	98.0 lb	9500 rpm	1004 F	165 000 lb	61 x 9 x 13 ft	Siemens SGT-400
Trent 60 DLE	2011	53 049 kw	8 055 Btu	42.6%	33.0	342.0 lb	3000 rpm	811 F	420 000 lb	67 x 15 x 17 ft	Siemens Trent 60
Trent 60 WLE ISI	2011	66 000 kw	8 226 Btu	41.5%	36.0	396.0 lb	3000 rpm	780 F	420 000 lb	67 x 15 x 17 ft	Siemens Trent 60
Dresser-Rand business, a part of Siemens Energy											
KG2-3E	1989	1 919 kW	20 071 Btu	17.0%	4.7	33.0 lb	18800 rpm	1020 F	38 580 lb	22 x 7 x 9 ft	
KG2-3G	2014	2 000 kW	13 381 Btu	25.5%	7.0	20.9 lb	25500 rpm	1081 F	35 300 lb	22 x 7 x 9 ft	
KG2-3G / EF	2014	1 830 kW	13 927 Btu	24.5%	7.0	20.9 lb	25500 rpm	1016 F	35 300 lb	22 x 7 x 9 ft	
EthosEnergy											
TG20B7/8UG	2014	45 400 kW	10 843 Btu	31.5%	11.5	369.0 lb	4918 rpm	989 F	176 320 lb	22 x 10 x 10 ft	50/60 Hz
TG50D5U	2007	144 500 kW	9 850 Btu	34.6%	14.8	1063.0 lb	3000 rpm	951 F	433 429 lb	36 x 13 x 13 ft	50 Hz
GE Oil & Gas (50/60 Hz)											
NovaLT5-1	2015	5 600 Kw	11 127 Btu	30.7%	14.8	43.2 lb	16630 rpm	1065 F	63 900 lb	20 x 8 x 10 ft	DLE 25ppm Nox
GE10-1	2000	11 250 kW	10 867 Btu	31.4%	15.5	104.7 lb	11000 rpm	900 F	74 960 lb	30 x 8 x 20 ft	
NovaLT16	2014	16 240 kW	9 456 Btu	36.1%	19.3	119.8 lb	7800 rpm	899 F	110 230 lb	33 x 12 x 13 ft	DLN 25ppm No
PGT20	2002	17 464 kW	9 704 Btu	35.2%	15.7	137.9 lb	6500 rpm	887 F	83 005 lb	30 x 11 x 11 ft	
PGT25	1981	22 417 kW	9 401 Btu	36.3%	17.9	151.9 lb	6500 rpm	976 F	83 005 lb	30 x 11 x 11 ft	
PGT25+	1996	30 226 kW	8 610 Btu	39.6%	21.5	185.8 lb	6100 rpm	932 F	67 790 lb	21 x 12 x 13 ft	
PGT25+G4	2005	33 057 kW	8 530 Btu	40.0%	23.2	197.7 lb	6100 rpm	950 F	68 010 lb	21 x 12 x 13 ft	
LM6000PD	1997	43 069 kW	8 173 Btu	41.7%	28.0	275.0 lb	3600 rpm	851 F	68 345 lb	31 x 14 x 14 ft	DLE 25 ppm Nox
LM6000PF	2006	43 069 kW	8 173 Btu	41.7%	28.0	275.0 lb	3600 rpm	851 F	68 345 lb	31 x 14 x 14 ft	DLE 15 ppm Nox
LM6000PG	2008	51 204 kW	8 142 Btu	41.9%	30.0	317.3 lb	3911 rpm	878 F	65 645 lb	32 x 15 x 15 ft	standard combustor
LM6000PF+	2017	52 671 kW	8 173 Btu	41.7%	32.0	319.0 lb	3911 rpm	890 F	65 645 lb	32 x 15 x 15 ft	DLE 25 ppm Nox
LM9000 w/ .98 generator	2017	63 700 kW	8 100 Btu	42.1%	33.0	395.0 lb	3000/3600	850 F	81 079 lb	45 x 16 x 15 ft	DLE 15 ppm Nox
LMS100PB	2006	102 521 kW	5 864 Btu	43.4%	41.8	481.4 lb	3600 rpm	782 F	201 000 lb	59 x 15 x 15 ft	DLE 25 ppm Nox
LMS100PB+	2016	107 025 kW	5 844 Btu	43.5%	42.4	493.0 lb	3600 rpm	790 F	201 000 lb	59 x 15 x 15 ft	DLE 25 ppm Nox
GE Oil & Gas Frame											
MS5001	1987	26 830 kW	12 025 Btu	28.4%	10.5	276.1 lb	5094 rpm	901 F	192 750 lb	38 x 11 x 12 ft	MS heavy frame series
MS5002E	2003	33 310 kW	9 517 Btu	37.0%	17.4	226.0 lb	5714 rpm	954 F	257 940 lb	56 x 11 x 13 ft	DLN-2
MS6001B	1978	42 100 kW	10 644 Btu	32.1%	12.2	311.0 lb	5163 rpm	1016 F	211 645 lb	52 x 11 x 12 ft	

Model	Intro Year	ISO Base Load (kW)	Heat Rate (Btu/kWh)	Efficiency	Press Ratio	Mass Flow (lb/sec)	Turbine Speed	Exhaust Temp	Approx Weight	Approx L x W x H	Comments
GE Oil & Gas Frame (cont'd)											
MS7001EA	1984	85 400 kW	10 417 Btu	32.7%	12.7	652.5 lb	3600 rpm	995 F	266 760 lb	38 x 11 x 12 ft	60 Hz
MS9001E	1976	126 100 kW	10 094 Btu	33.8%	12.7	921.0 lb	3000 rpm	1004 F	479 505 lb	73 x 15 x 21 ft	50 Hz
Note: All GE Oil & Gas units with standard combustor; weights and sizes without enclosure											
GE Power (50/60 Hz) Aero											
LM6000 SAC (52)	1997	46 000 kW	8 458 Btu	40.3%	29.6	284.4 lb	3600 rpm	824 F	104 500 lb	30 x 14 x 15 ft	water injection
LM6000 SAC (52) Sprint	1998	52 000 kW	8 458 Btu	40.3%	29.6	284.4 lb	3600 rpm	824 F	104 500 lb	30 x 14 x 15 ft	water injection
LM6000 SAC (59)	2009	56 000 kW	8 524 Btu	40.0%	33.5	315.9 lb	3900 rpm	879 F	104 500 lb	30 x 14 x 15 ft	water injection, gearbox
LM6000 SAC (59) Sprint	2009	59 000 kW	8 524 Btu	40.0%	33.5	315.9 lb	3900 rpm	879 F	104 500 lb	30 x 14 x 15 ft	water injection, gearbox
LM6000 DLE (50)	1997	45 000 kW	8 097 Btu	42.1%	29.8	277.0 lb	3600 rpm	861 F	104 500 lb	30 x 14 x 15 ft	DLE
LM6000 DLE (50) Sprint	2006	50 000 kW	8 097 Btu	42.1%	29.8	277.0 lb	3600 rpm	861 F	104 500 lb	30 x 14 x 15 ft	DLE
LM6000 SAC (57)	2016	53 000 kW	8 175 Btu	41.7%	32.1	297.9 lb	3900 rpm	932 F	104 500 lb	30 x 14 x 15 ft	DLE, gearbox
LM6000 SAC (57) Sprint	2016	57 000 kW	8 175 Btu	41.7%	32.1	297.9 lb	3900 rpm	932 F	104 500 lb	30 x 14 x 15 ft	DLE, gearbox
GE Power (50/60 Hz) Frame											
6B.03	1978	44 000 kW	10 180 Btu	33.5%	12.7	320.0 lb	5163 rpm	1023 F	220 450 lb	41 x 13 x 13 ft	available in 50 & 60 Hz
6F.01	2003	57 000 kW	8 880 Btu	38.4%	21.4	290.0 lb	7266 rpm	1152 F	154 350 lb	21 x 14 x 14 ft	available in 50 & 60 Hz
6F.03	2003	87 000 kW	9 340 Btu	36.5%	16.4	490.0 lb	5231 rpm	1148 F	220 500 lb	33 x 12 x 15 ft	available in 50 & 60 Hz
GE Power (50 Hz) Aero											
TM2500	****	34 300 kW	9 665 Btu	35.3%	24.5	203.9 lb	3000 rpm	963 F	81 600 lb	54 x 11 x 13 ft	
LM2500	1981	23 800 kW	10 053 Btu	33.9%	19.0	157.2 lb	3000 rpm	986 F	88 000 lb	16 x 11 x 11 ft	water injection
LM2500 DLE	1981	22 400 kW	9 626 Btu	35.4%	18.1	150.9 lb	3000 rpm	1017 F	88 000 lb	16 x 11 x 11 ft	DLE
LM2500+	1995	30 000 kW	9 624 Btu	35.5%	23.1	197.3 lb	3000 rpm	920 F	88 000 lb	16 x 11 x 11 ft	water injection
LM2500+ DLE	1995	31 100 kW	9 169 Btu	37.2%	23.6	195.8 lb	3000 rpm	1003 F	88 000 lb	16 x 11 x 11 ft	DLE
LM2500+ G4	2005	34 500 kW	9 676 Btu	35.3%	24.6	212.9 lb	3000 rpm	966 F	88 000 lb	16 x 11 x 11 ft	water injection, gearbox
LM2500+ G4 DLE	2005	33 400 kW	9 166 Btu	37.2%	24.0	205.1 lb	3000 rpm	1026 F	88 000 lb	16 x 11 x 11 ft	DLE, gearbox
LMS100	2015	118 000 kW	7 833 Btu	43.6%	42.5	516.9 lb	3000 rpm	824 F	449 000 lb	60 x 51 x 22 ft	water injection
LM9000 (68)	2017	68 000 kW	8 107 Btu	42.1%	33.5	410.5 lb	3000 rpm	880 F	150 000 lb	52 x 14 x 15 ft	
LM9000 (76)	2017	76 000 kW	8 053 Btu	42.4%	34.0	446.3 lb	3000 rpm	880 F	150 000 lb	52 x 14 x 15 ft	Sprint
GE Power (50 Hz) Frame											
9E.03	1992	132 000 kW	9 860 Btu	34.6%	13.1	927.0 lb	3000 rpm	1012 F	471 800 lb	37 x 17 x 17 ft	
9E.04	2014	145 000 kW	9 210 Btu	37.0%	13.3	917.0 lb	3000 rpm	1007 F	482 896 lb	37 x 17 x 17 ft	

Model | Intro Year | ISO Base Load (kW) | Heat Rate (Btu/kWh) | Efficiency | Press Ratio | Mass Flow (lb/sec) | Turbine Speed | Exhaust Temp | Approx Weight | Approx L x W x H | Comments

9E.03	1992	132 000 kW	9 300 Btu								
9E.04	2014	145 000 kW	9 210 Btu	37.0%	13.3	917.0 lb	3000 rpm	1007 F	482 896 lb	37 x 17 x 17 ft	

Model	Intro Year	ISO Base Load (kW)	Heat Rate (Btu/kWh)	Efficiency	Press Ratio	Mass Flow (lb/sec)	Turbine Speed	Exhaust Temp	Approx Weight	Approx L x W x H	Comments
GE Power (50 Hz) Frame (cont'd)											
GT13E2	2005	185 000 kW	9 037 Btu	37.8%	16.9	1250.9 lb	3000 rpm	941 F	756 200 lb	37 x 18 x 17 ft	
GT13E2	2012	210 000 kW	8 980 Btu	38.0%	18.2	1420.0 lb	3000 rpm	959 F	772 000 lb	36 x 18 x 18 ft	
9F.03	1996	265 000 kW	9 020 Btu	37.8%	16.7	1466.9 lb	3000 rpm	1104 F	679 850 lb	35 x 15 x 16 ft	
9F.04	2015	288 000 kW	8 810 Btu	38.7%	16.9	1457.0 lb	3000 rpm	1150 F	679 850 lb	35 x 15 x 16 ft	
9F.05	2003	314 000 kW	8 930 Btu	38.2%	18.3	1574.0 lb	3000 rpm	1184 F	709 100 lb	35 x 16 x 16 ft	
9HA.01	2011	446 000 kW	7 910 Btu	43.1%	23.5	1891.0 lb	3000 rpm	1164 F	851 550 lb	35 x 16 x 16 ft	
9HA.02	2014	557 000 kW	7 760 Btu	44.0%	23.8	2250.0 lb	3000 rpm	1193 F	951 800 lb	35 x 16 x 16 ft	
GE Power (60 Hz) Aero											
TM2500	****	37 100 kW	9 171 Btu	37.2%	24.7	208.6 lb	3600 rpm	950 F	81 600 lb	54 x 11 x 13 ft	water injection
LM2500	1981	24 800 kW	9 729 Btu	35.1%	19.0	156.9 lb	3600 rpm	977 F	88 000 lb	16 x 11 x 11 ft	water injection
LM2500 DLE	1981	23 200 kW	9 317 Btu	36.6%	18.0	150.3 lb	3600 rpm	1002 F	88 000 lb	16 x 11 x 11 ft	DLE
LM2500+	1995	31 800 kW	9 252 Btu	36.9%	23.1	196.9 lb	3600 rpm	914 F	88 000 lb	16 x 11 x 11 ft	water injection
LM2500+ DLE	1995	31 900 kW	8 785 Btu	38.8%	23.1	191.7 lb	3600 rpm	978 F	88 000 lb	16 x 11 x 11 ft	DLE
LM2500+ G4	2005	37 100 kW	9 171 Btu	37.2%	24.7	212.8 lb	3600 rpm	950 F	88 000 lb	16 x 11 x 11 ft	water injection
LM2500+ G4 DLE	2005	34 500 kW	8 709 Btu	39.2%	23.6	201.7 lb	3600 rpm	995 F	88 000 lb	16 x 11 x 11 ft	DLE
LMS100	2015	118 000 kW	7 628 Btu	44.7%	42.5	516.9 lb	3600 rpm	810 F	449 000 lb	60 x 51 x 22 ft	water injection
LM9000 (68)	2017	68 000 kW	8 107 Btu	42.1%	33.5	410.5 lb	3600 rpm	880 F	150 000 lb	52 x 14 x 15 ft	
LM9000 (76)	2017	76 000 kW	8 053 Btu	42.4%	34.0	446.3 lb	3600 rpm	880 F	150 000 lb	52 x 14 x 15 ft	Sprint
GE Power (60 Hz) Frame											
7E.03	1984	91 000 kW	10 060 Btu	33.9%	13.0	650.0 lb	3600 rpm	1026 F	293 000 lb	38 x 12 x 12 ft	
7F.04	2009	198 000 kW	8 840 Btu	38.6%	16.7	1013.0 lb	3600 rpm	1151 F	392 000 lb	28 x 13 x 13 ft	
7F.05	2009	243 000 kW	8 570 Btu	39.8%	18.6	1188.0 lb	3600 rpm	1189 F	443 400 lb	28 x 13 x 13 ft	
7HA.01	2012	290 000 kW	8 120 Btu	42.0%	21.6	1292.0 lb	3600 rpm	1158 F	547 000 lb	30 x 13 x 14 ft	
7HA.02	2014	384 000 kW	8 030 Btu	42.5%	23.1	1640.0 lb	3600 rpm	1202 F	602 000 lb	32 x 13 x 14 ft	
Note: All GE Frame models with inlet loss, exhaust loss and shaft driven auxiliaries losses											
Hitachi Zosen											
GT10	2006	4 130 kW	11 582 Btu	29.5%	10.4	34.3 lb	14200 rpm	1050 F	1 270 lb	7 x 3 x 3 ft	501-KB5S, steam injection
GT13	2006	5 600 kW	10 646 Btu	32.1%	14.3	47.0 lb	14600 rpm	940 F	1 691 lb	9 x 4 x 3 ft	501-KB7S, steam injection
VHP6	2006	6 260 kW	8 847 Btu	38.6%	12.5	40.0 lb	14600 rpm	991 F	1 270 lb	8 x 3 x 3 ft	501-KH5, gas fuel

Model	Intro Year	ISO Base Load (kW)	Heat Rate (Btu/kWh)	Efficiency	Press Ratio	Mass Flow (lb/sec)	Turbine Speed	Exhaust Temp	Approx Weight	Approx L x W x H	Comments
IHI Power Systems (50/60 Hz)											
IM270	1996	2 000 kW	13 880 Btu	24.6%	12.2	21.3 lb	20300 rpm	1013 F	4 409 lb	8 x 3 x 3 ft	dry low NOx
LM2500RB	2006	31 970 kW	8 720 Btu	39.2%	23.0	193.9 lb	6100 rpm	958 F	31 228 lb	19 x 8 x 9 ft	
LM6000PG	2009	54 621 kW	8 365 Btu	40.8%	35.0	315.9 lb	3930 rpm	871 F	16 240 lb	16 x 7 x 7 ft	
LM6000PG Sprint	2009	55 985 kW	8 490 Btu	40.2%	35.0	321.8 lb	3930 rpm	876 F	16 240 lb	16 x 7 x 7 ft	
LM6000PF+	2016	51 430 kW	8 182 Btu	41.7%	32.9	300.0 lb	3930 rpm	917 F	****	****	
LM6000PF+ Sprint	2016	55 240 kW	8 241 Btu	41.4%	32.9	318.7 lb	3930 rpm	892 F	****	****	
IHI Power Systems (50 Hz)											
LM2500PE	1976	21 900 kW	10 290 Btu	33.2%	20.0	154.3 lb	3000 rpm	986 F	7 815 lb	15 x 6 x 6 ft	
LM2500PR	1981	29 642 kW	9 281 Btu	36.8%	23.0	195.1 lb	3000 rpm	982 F	****	****	
LM2500RD	2005	32 612 kW	8 916 Btu	38.3%	23.0	203.7 lb	3000 rpm	1009 F	****	****	
LM2500RC	2005	35 788 kW	9 203 Btu	37.1%	23.0	212.2 lb	3000 rpm	981 F	****	****	
LM6000PC	1997	43 367 kW	8 516 Btu	40.1%	30.0	282.0 lb	3000 rpm	821 F	15 498 lb	16 x 7 x 7 ft	
LM6000PC Sprint	1997	48 718 kW	8 477 Btu	40.3%	30.0	293.4 lb	3000 rpm	839 F	15 498 lb	16 x 7 x 7 ft	
LM6000PF	2006	42 547 kW	8 273 Btu	41.2%	31.0	274.8 lb	3000 rpm	851 F	19 158 lb	16 x 7 x 7 ft	DLE
LM6000PF Sprint	2006	47 482 kW	8 256 Btu	41.3%	31.0	290.8 lb	3000 rpm	846 F	19 158 lb	16 x 7 x 7 ft	DLE
IHI Power Systems (60 Hz)											
LM2500PE	1976	22 800 kW	9 960 Btu	34.3%	20.0	154.3 lb	3600 rpm	968 F	7 815 lb	15 x 6 x 6 ft	
LM2500RD	2005	32 941 kW	8 826 Btu	38.7%	23.0	200.9 lb	3600 rpm	981 F	****	****	
LM6000RC	2005	36 150 kW	9 111 Btu	37.4%	23.0	211.8 lb	3600 rpm	966 F	****	****	
LM6000PC	1997	43 805 kW	8 431 Btu	40.5%	30.0	282.0 lb	3600 rpm	821 F	15 498 lb	16 x 7 x 7 ft	
LM6000PC Sprint	1997	49 210 kW	8 392 Btu	40.7%	30.0	293.4 lb	3600 rpm	839 F	15 498 lb	16 x 7 x 7 ft	
LM6000PF	2006	42 977 kW	8 190 Btu	41.7%	31.0	274.8 lb	3600 rpm	851 F	19 158 lb	16 x 7 x 7 ft	DLE
LM6000PF Sprint	2006	47 961 kW	8 174 Btu	41.7%	31.0	290.8 lb	3600 rpm	846 F	19 158 lb	16 x 7 x 7 ft	DLE
Kawasaki Heavy Industries											
M1A-13A	1989	1 490 kW	14 104 Btu	24.2%	9.4	17.8 lb	1500/1800	970 F	7 209 lb	8 x 5 x 7 ft	
M1A-13D	1995	1 490 kW	14 246 Btu	24.0%	9.6	17.6 lb	1500/1800	988 F	7 518 lb	8 x 4 x 7 ft	DLE
M1A-17D	2010	1 700 kW	12 701 Btu	26.9%	10.5	17.8 lb	1500/1800	970 F	7 826 lb	10 x 5 x 7 ft	DLE
M1T-13A	1989	2 930 kW	14 312 Btu	23.8%	9.4	35.6 lb	1500/1800	970 F	13 668 lb	8 x 7 x 6 ft	
M1T-13D	1995	2 930 kW	14 445 Btu	23.6%	9.6	35.3 lb	1500/1800	988 F	13 801 lb	8 x 7 x 7 ft	DLE
M7A-01	1993	5 530 kW	11 510 Btu	29.6%	13.1	47.9 lb	1500/1800	1013 F	9 921 lb	12 x 5 x 6 ft	
M7A-02	1997	6 800 kW	11 250 Btu	30.3%	15.9	59.5 lb	1500/1800	960 F	11 023 lb	12 x 5 x 6 ft	

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Model	Intro Year	ISO Base Load (kW)	Heat Rate (Btu/kWh)	Efficiency	Press Ratio	Mass Flow (lb/sec)	Turbine Speed	Exhaust Temp	Approx Weight	Approx L x W x H	Comments

M7A-01	1993	5 330 kW	11 040 Btu	30.3%	15.9	59.5 lb	1500/1800	960 F	11 023 lb	12 x 5 x 6 ft	
M7A-02	1997	6 800 kW	11 250 Btu								

Model	Intro Year	ISO Base Load (kW)	Heat Rate (Btu/kWh)	Efficiency	Press Ratio	Mass Flow (lb/sec)	Turbine Speed	Exhaust Temp	Approx Weight	Approx L x W x H	Comments
Kawasaki Heavy Industries (cont'd)											
M7A-01D	1993	5 470 kW	11 550 Btu	29.5%	13.1	47.8 lb	1500/1800	1007 F	10 340 lb	12 x 5 x 6 ft	DLE
M7A-02D	1997	6 740 kW	11 270 Btu	30.3%	15.9	59.5 lb	1500/1800	955 F	11 470 lb	12 x 5 x 6 ft	DLE
M7A-03D	2006	7 800 kW	10 190 Btu	33.6%	15.6	59.9 lb	1500/1800	973 F	12 700 lb	14 x 5 x 6 ft	DLE
L20A	2001	18 522 kW	9 948 Btu	34.3%	18.6	131.8 lb	1500/1800	1006 F	36 377 lb	22 x 7 x 9 ft	DLE
L30A	2012	30 120 kW	8 502 Btu	40.1%	24.9	195.6 lb	1500/1800	878 F	68 343 lb	24 x 11 x 12 ft	DLE
Magellan Aerospace											
OGT2500	1994	2 670 kW	12 780 Btu	26.7%	12.0	33.1 lb	1500/1800	860 F	5 512 lb	10 x 4 x 7 ft	
OGT6000	1993	6 200 kW	11 299 Btu	30.2%	14.0	68.3 lb	3000/3600	797 F	9 921 lb	15 x 6 x 6 ft	
OGT8000	2002	8 300 kW	10 597 Btu	32.2%	17.0	74.3 lb	3000/3600	891 F	11 023 lb	15 x 6 x 6 ft	
OGT16000	1991	15 500 kW	11 115 Btu	30.7%	13.0	211.6 lb	3000/3600	662 F	35 274 lb	19 x 9 x 10 ft	
OGT15000	1996	16 500 kW	9 977 Btu	34.2%	20.0	156.5 lb	3000/3600	788 F	28 219 lb	20 x 7 x 8 ft	
OGT25000	1996	25 600 kW	9 612 Btu	35.5%	21.0	194.0 lb	3000/3600	905 F	35 274 lb	21 x 8 x 9 ft	
Note: all Magellan models weights and size, engine only											
MAN Diesel & Turbo											
MGT6100	2012	6 630 kW	10 610 Btu	32.2%	15.0	57.5 lb	1500/1800	941 F	****	****	
THM1304-10N	1980	10 080 kW	11 690 Btu	29.2%	10.0	102.5 lb	1500/1800	914 F	169 785 lb	52 x 9 x 17 ft	
THM1304-12N	2004	11 520 kW	11 460 Btu	29.8%	11.0	106.0 lb	1500/1800	977 F	169 785 lb	52 x 12 x 21 ft	
Mapna Group											
MGT-30	2014	25 600 kW	9 505 Btu	35.9%	22.0	198.4 lb	3000 rpm	892 F	33 290 lb	21 x 8 x 8 ft	
MGT-40	2017	42 200 kW	10 596 Btu	32.2%	12.3	325.2 lb	5160 rpm	1018 F	94 799 lb	21 x 11 x 11 ft	
MGT-70(2)	2013	172 000 kW	9 862 Btu	34.6%	11.9	1180.1 lb	3000 rpm	1034 F	410 060 lb	33 x 13 x 12 ft	GT body
MGT-70(3)	2016	183 000 kW	9 479 Btu	36.0%	12.0	1120.5 lb	3000 rpm	1012 F	410 060 lb	33 x 13 x 12 ft	GT body
Mitsubishi Hitachi Power Systems (50/60 Hz)											
H-25	2008	41 030 kW	9 432 Btu	36.2%	17.9	253.0 lb	7280 rpm	1056 F	121 000 lb	26 x 13 x 13 ft	without inlet and exhaust losses
Mitsubishi Hitachi Power Systems (50 Hz)											
H-100	2013	118 080 kW	8 919 Btu	38.3%	20.1	695.0 lb	3000 rpm	1025 F	476 000 lb	46 x 16 x 20 ft	without inlet and exhaust losses
M701DA	1981	144 090 kW	9 810 Btu	34.8%	14	999.0 lb	3000 rpm	1008 F	440 917 lb	41 x 17 x 17 ft	
M701G	1997	334 000 kW	8 630 Btu	39.5%	21	1664.0 lb	3000 rpm	1089 F	925 926 lb	60 x 20 x 20 ft	
M701F	1992	385 000 kW	8 144 Btu	41.9%	21	1650.0 lb	3000 rpm	1167 F	1 058 220 lb	57 x 19 x 19 ft	
M701J	2014	478 000 kW	8 067 Btu	42.3%	23	1977.0 lb	3000 rpm	1166 F	1 234 590 lb	60 x 23 x 23 ft	
M701JAC	2015	493 000 kW	7 954 Btu	42.9%	23	1977.0 lb	3000 rpm	1187 F	1 234 590 lb	60 x 23 x 23 ft	
Mitsubishi Hitachi Power Systems (60 Hz)											
H-100	2010	105 780 kW	8 930 Btu	38.2%	18.4	646.0 lb	3600 rpm	993 F	386 000 lb	40 x 15 x 18 ft	without inlet and exhaust losses
M501DA	1980	113 950 kW	9 780 Btu	34.9%	14	780.0 lb	3600 rpm	1009 F	319 665 lb	38 x 19 x 14 ft	
M501F	1989	185 400 kW	9 230 Btu	37.0%	16	1032.0 lb	3600 rpm	1136 F	429 894 lb	46 x 15 x 15 ft	

Model	Intro Year	ISO Base Load (kW)	Heat Rate (Btu/kWh)	Efficiency	Press Ratio	Mass Flow (lb/sec)	Turbine Speed	Exhaust Temp	Approx Weight	Approx L x W x H	Comments
Mitsubishi Hitachi Power Systems (60 Hz) (cont'd)											
M501G	1997	267 500 kW	8 730 Btu	39.1%	20	1349.0 lb	3600 rpm	1113 F	734 140 lb	50 x 18 x 18 ft	
M501GAC	2011	283 000 kW	8 531 Btu	40.0%	20	1364.0 lb	3600 rpm	1143 F	595 250 lb	50 x 18 x 18 ft	
M501J	2011	330 000 kW	8 105 Btu	42.1%	23	1367.0 lb	3600 rpm	1176 F	698 870 lb	50 x 18 x 18 ft	
M501JAC	2015	400 000 kW	7 775 Btu	44.0%	25	1532.0 lb	3600 rpm	1207 F	765 000 lb	50 x 19 x 19 ft	
Note: All MHPS ratings on natural gas, LHV at generator terminals with inlet and exhaust losses											
OPRA Turbine											
OP16-3A	2004	1 876 kW	13 585 Btu	25.1%	6.7	19.8 lb	26000 rpm	1063 F	3 594 lb	8 x 4 x 5 ft	
OP16-3B DLE	2004	1 876 kW	13 585 Btu	25.1%	6.7	19.8 lb	26000 rpm	1063 F	3 594 lb	8 x 4 x 5 ft	DLE
OP16-3C	2014	1 876 kW	13 585 Btu	25.1%	6.7	19.8 lb	26000 rpm	1063 F	4 325 lb	8 x 4 x 5 ft	for low Btu fuels
PW Power Systems (50 Hz)											
FT8 MOBILEPAC	2005	28 528 kW	9 834 Btu	34.7%	21.3	203.0 lb	3000 rpm	924 F	****	****	combustor water injection transportable
FT8 SWIFTPAC 30	1990	30 748 kW	9 383 Btu	36.4%	21.3	202.0 lb	3000 rpm	922 F	****	****	combustor water injection
FT8 SWIFTPAC 60	1990	61 607 kW	9 366 Btu	36.4%	21.3	405.0 lb	3000 rpm	922 F	****	****	combustor water injection
FT8 SWIFTPAC 25 DLN	2003	25 323 kW	9 016 Btu	37.9%	19.5	186.0 lb	3000 rpm	863 F	****	****	
FT8 SWIFTPAC 50 DLN	2003	50 904 kW	8 970 Btu	38.0%	19.5	373.0 lb	3000 rpm	863 F	****	****	
FT4000 SWIFTPAC 60	2012	70 154 kW	8 352 Btu	40.9%	37.6	401.0 lb	3000 rpm	793 F	****	****	combustor water injection, wet compression, inlet fogging
FT4000 SWIFTPAC 120	2012	140 376 kW	8 348 Btu	40.9%	37.6	803.0 lb	3000 rpm	793 F	****	****	combustor water injection, wet compression, inlet fogging
PW Power Systems (60 Hz)											
FT8 MOBILEPAC	2005	30 941 kW	9 312 Btu	36.7%	21.3	202.0 lb	3600 rpm	916 F	****	****	combustor water injection transportable
FT8 SWIFTPAC 30	1990	30 892 kW	9 327 Btu	36.6%	21.3	202.0 lb	3600 rpm	916 F	****	****	combustor water injection
FT8 SWIFTPAC 60	1990	62 086 kW	9 281 Btu	36.8%	21.3	404.0 lb	3600 rpm	916 F	****	****	combustor water injection
FT8 SWIFTPAC 25 DLN	2003	25 371 kW	8 993 Btu	38.0%	19.5	186.0 lb	3600 rpm	861 F	****	****	
FT8 SWIFTPAC 50 DLN	2003	51 058 kW	8 938 Btu	38.2%	19.5	372.0 lb	3600 rpm	861 F	****	****	
FT4000 SWIFTPAC 60	2012	70 836 kW	8 269 Btu	41.3%	37.6	401.0 lb	3600 rpm	785 F	****	****	combustor water injection, wet compression, inlet fogging
FT4000 SWIFTPAC 120	2012	141 567 kW	8 248 Btu	41.4%	37.6	802.0 lb	3600 rpm	784 F	****	****	combustor water injection, wet compression, inlet fogging
Note: Natural gas fuel, zero installation losses											
Siemens Energy (50/60 Hz)											
SGT-A05 AE (Ind 501-KB5S)	1993	3 980 kW	11 504 Btu	29.7%	10.3	33.9 lb	14200 rpm	1040 F	1 270 lb	8 x 3 x 3 ft	
SGT-A05 AE (Ind 501-KB7S)	1999	5 380 kW	10 570 Btu	32.3%	13.9	47.0 lb	14600 rpm	921 F	1 690 lb	9 x 4 x 4 ft	
SGT-A05 AE (Ind 501-KB7HE)	2017	5 820 kW	10 282 Btu	33.2%	14.4	47.1 lb	14600 rpm	972 F	1 690 lb	9 x 4 x 4 ft	
SGT-A05 AE (Ind 501-KH5)	1985	6 620 kW	8 285 Btu	41.2%	10.3	40.6 lb	14600 rpm	986 F	1 270 lb	8 x 3 x 3 ft	
SGT-100	1997	5 050 kW	11 292 Btu	30.2%	14.0	43.1 lb	17384 rpm	1013 F	77 000 lb	36 x 9 x 13 ft	
SGT-100	2010	5 400 kW	11 007 Btu	31.0%	15.6	45.4 lb	17384 rpm	988 F	77 000 lb	36 x 9 x 13 ft	
SGT-300	1995	7 901 kW	11 158 Btu	30.6%	13.7	66.6 lb	14010 rpm	1008 F	129 800 lb	39 x 9 x 13 ft	

Model | Intro Year | ISO Base Load (kW) | Heat Rate (Btu/kWh) | Efficiency | Press Ratio | Mass Flow (lb/sec) | Turbine Speed | Exhaust Temp | Approx Weight | Approx L x W x H | Comments

SGT-100	2010	5 400 kW	11 007 Btu	31.0%	15.6	45.4 lb	17384 rpm	988 F	77 000 lb	36 x 9 x 13 ft
SGT-300	1995	7 901 kW	11 158 Btu	30.6%	13.7	66.6 lb	14010 rpm	1008 F	129 800 lb	39 x 9 x 13 ft

Model	Intro Year	ISO Base Load (kW)	Heat Rate (Btu/kWh)	Efficiency	Press Ratio	Mass Flow (lb/sec)	Turbine Speed	Exhaust Temp	Approx Weight	Approx L x W x H	Comments
Siemens Energy (50/60 Hz) (cont'd)											
SGT-400	1997	12 900 kW	9 815 Btu	34.8%	16.8	86.8 lb	9500 rpm	1031 F	184 800 lb	46 x 10 x 14 ft	
SGT-400	2010	14 326 kW	9 647 Btu	35.4%	18.9	97.7 lb	9500 rpm	1004 F	184 800 lb	46 x 10 x 14 ft	
SGT-600	1981	24 480 kW	10 161 Btu	33.6%	14.0	179.2 lb	7700 rpm	1009 F	330 000 lb	62 x 15 x 13 ft	
SGT-700	1999	32 820 kW	9 170 Btu	37.2%	18.7	209.0 lb	6500 rpm	991 F	373 000 lb	62 x 15 x 13 ft	
SGT-750	2012	39 810 kW	8 456 Btu	40.3%	24.3	253.5 lb	6100 rpm	875 F	385 809 lb	67 x 16 x 14 ft	
SGT-800	1998	47 500 kW	9 048 Btu	37.7%	20.1	292.8 lb	6608 rpm	1007 F	639 300 lb	91 x 24 x 22 ft	
SGT-800	2010	50 500 kW	8 899 Btu	38.3%	21.0	295.8 lb	6608 rpm	1027 F	639 300 lb	91 x 24 x 22 ft	
SGT-800	2010	54 000 kW	8 725 Btu	39.1%	21.4	298.7 lb	6608 rpm	1045 F	639 300 lb	91 x 24 x 22 ft	
SGT-800	2010	57 000 kW	8 502 Btu	40.1%	21.8	301.2 lb	6608 rpm	1049 F	628 300 lb	68 x 24 x 22 ft	
SGT-A30 RB DLE	1993	27 216 kW	9 387 Btu	36.4%	20.6	201.0 lb	4800 rpm	934 F	****	****	Ind RB211-G62 DLE
SGT-A30 RB DLE	1999	29 845 kW	9 089 Btu	37.6%	21.7	209.0 lb	4800 rpm	938 F	****	****	Ind RB211-GT62 DLE
SGT-A30 RB DLE	2000	32 130 kW	8 681 Btu	39.3%	21.6	207.0 lb	4850 rpm	949 F	****	****	Ind RB211-GT61 DLE
SGT-A30 RB	1999	30 160 kW	9 071 Btu	37.6%	22.0	212.0 lb	4800 rpm	938 F	****	****	Industrial RB211-GT62
SGT-A30 RB	2000	32 920 kW	8 677 Btu	39.3%	22.1	209.0 lb	4850 rpm	949 F	****	****	Industrial RB211-GT61
SGT-A30 RB	1991	28 390 kW	9 282 Btu	36.8%	21.3	206.0 lb	4800 rpm	934 F	****	****	Industrial RB211-G62
Siemens Energy (50 Hz)											
SGT-A35 RB DLE	2015	31 917 kW	9 141 Btu	37.3%	22.6	218.7 lb	3000 rpm	939 F	****	****	Ind RB211-GT30 DLE
SGT-A35 RB	2015	32 172 kW	9 110 Btu	37.5%	22.9	220.0 lb	3000 rpm	937 F	****	****	Ind RB211-GT30 non-DLE
SGT-A35 RB	2017	36 600 kW	8 813 Btu	38.7%	25.4	244.7 lb	3000 rpm	912 F	****	****	Ind RB211-GT30 non-DLE
SGT-A65 TR DLE	1996	52 970 kW	7 983 Btu	42.7%	34.5	342.1 lb	3000 rpm	801 F	420 000 lb	87 x 15 x 17 ft	Industrial Trent 60 DLE
SGT-A65 TR DLE ISI	1996	64 400 kW	7 772 Btu	43.9%	37.9	393.1 lb	3000 rpm	765 F	420 000 lb	97 x 15 x 17 ft	Industrial Trent 60 DLE ISI
SGT-A65 TR WLE	2004	66 000 kW	8 240 Btu	41.4%	39.1	392.5 lb	3000 rpm	797 F	420 000 lb	87 x 15 x 17 ft	Ind Trent 60 WLE, water inj
SGT-A65 TR WLE ISI	2011	66 000 kW	8 217 Btu	41.5%	39.0	393.5 lb	3000 rpm	781 F	420 000 lb	97 x 15 x 17 ft	Ind Trent 60 WLE ISI, water inj
SGT-A45 TR	2017	41 000 kW	8 749 Btu	39.0%	27.7	280.0 lb	3000 rpm	891 F	****	****	
SGT5-2000E	1981	187 000 kW	9 426 Btu	36.2%	12.8	1230.0 lb	3000 rpm	997 F	417 000 lb	34 x 13 x 13 ft	
SGT5-4000F	1995	329 000 kW	8 322 Btu	41.0%	20.1	1596.0 lb	3000 rpm	1110 F	701 000 lb	35 x 17 x 16 ft	
SGT5-8000H	2008	450 000 kW	<8322 Btu	>41%	20.0	2061.0 lb	3000 rpm	1166 F	981 000 lb	41 x 18 x 18 ft	
SGT5-8000HL	2017	465 000 kW	8 123 Btu	42.0%	24.0	1874.0 lb	3000 rpm	1256 F	1 095 700 lb	43 x 18 x 17 ft	
SGT5-9000HL	2017	564 000 kW	<8123 Btu	>42%	24.0	2205.0 lb	3000 rpm	1256 F	1 095 700 lb	43 x 18 x 17 ft	
Siemens Energy (60 Hz)											
SGT-A35 RB DLE	2015	32 537 kW	8 907 Btu	38.3%	22.3	215.8 lb	3600 rpm	932 F	****	****	Industrial RB211-GT30 DLE
SGT-A35 RB	2015	33 158 kW	8 873 Btu	38.5%	22.7	218.0 lb	3600 rpm	933 F	****	****	Ind RB211-GT30 non-DLE
SGT-A35 RB	2017	37 400 kW	8 600 Btu	39.7%	25.0	240.5 lb	3600 rpm	909 F	****	****	Ind RB211-GT30 non-DLE

Model	Intro Year	ISO Base Load (kW)	Heat Rate (Btu/kWh)	Efficiency	Press Ratio	Mass Flow (lb/sec)	Turbine Speed	Exhaust Temp	Approx Weight	Approx L x W x H	Comments
Siemens Energy (60 Hz) (cont'd)											
SGT-A65 TR DLE	1996	54 020 kW	8 023 Btu	42.5%	33.6	347.4 lb	3600 rpm	808 F	420 000	87 x 15 x 17 ft	Industrial Trent 60 DLE
SGT-A65 TR DLE ISI	1997	61 842 kW	7 867 Btu	43.4%	36.2	370.6 lb	3600 rpm	789 F	420 000	97 x 15 x 17 ft	Industrial Trent 60 DLE ISI
SGT-A65 TR WLE	2004	62 920 kW	8 268 Btu	41.3%	37.4	373.6 lb	3600 rpm	804 F	420 000	87 x 15 x 17 ft	Ind Trent 60 WLE, water inj
SGT-A65 TR WLE ISI	2011	65 660 kW	8 303 Btu	41.1%	38.0	379.3 lb	3600 rpm	799 F	420 000	97 x 15 x 17 ft	Ind Trent 60 WLE ISI, water inj
SGT-A45 TR	2017	44 000 kW	8 455 Btu	40.4%	27.9	277.8 lb	3000 rpm	901 F	****	****	
SGT6-2000E	1989	117 000 kW	9 705 Btu	35.2%	12.0	811.0 lb	3600 rpm	990 F	238 000 lb	30 x 11 x 11 ft	
SGT6-5000F	1989	250 000 kW	8 682 Btu	39.3%	18.9	1296.0 lb	3600 rpm	1108 F	483 000 lb	33 x 13 x 15 ft	9 ppm NOx
SGT6-8000H	2010	310 000 kW	<8530 Btu	>40%	20.0	1433.0 lb	3600 rpm	1193 F	637 000 lb	34 x 14 x 14 ft	
SGT6-9000HL	2017	386 000 kW	8 123 Btu	42.0%	24.0	1543.0 lb	3600 rpm	1256 F	672 400 lb	35 x 14 x 16 ft	
Solar Turbines											
Saturn 20	1960	1 210 kW	10 405 Btu	24.3%	6.7	14.4 lb	22300 rpm	945 F	22 500 lb	22 x 8 x 9 ft	
Centaur 40	1969	3 515 kW	12 240 Btu	27.9%	10.1	41.9 lb	15000 rpm	830 F	73 820 lb	32 x 9 x 11 ft	
Centaur 50	1985	4 600 kW	11 630 Btu	29.3%	10.6	42.1 lb	16500 rpm	950 F	83 300 lb	32 x 9 x 10 ft	
Mercury 50	1999	4 600 kW	8 865 Btu	38.5%	9.9	39.3 lb	15000 rpm	690 F	100 700 lb	37 x 10 x 12 ft	recuperated gas turbine
Taurus 60	1990	5 670 kW	10 830 Btu	31.2%	12.2	48.1 lb	14300 rpm	950 F	83 600 lb	32 x 9 x 10 ft	
Taurus 65	2006	6 300 kW	10 375 Btu	32.9%	15.0	46.5 lb	15000 rpm	1020 F	87 300 lb	32 x 9 x 11 ft	
Taurus 70	1995	7 965 kW	9 955 Btu	34.3%	17.6	59.3 lb	11000 rpm	945 F	136 215 lb	36 x 9 x 12 ft	
Mars 100	1978	11 350 kW	10 365 Btu	32.9%	17.7	93.8 lb	9500 rpm	905 F	181 000 lb	47 x 9 x 13 ft	
Titan 130	1998	16 450 kW	9 605 Btu	35.2%	17.1	109.8 lb	8500 rpm	915 F	208 100 lb	47 x 11 x 11 ft	
Titan 250	2009	21 745 kW	8 775 Btu	38.9%	24.1	150.4 lb	7000 rpm	865 F	311 100 lb	60 x 11 x 13 ft	
UEC-Aviadvigatel											
GTU-2.5P	1994	2 560 kW	16 160 Btu	21.1%	5.9	56.4 lb	5500 rpm	682 F	100 530 lb	43 x 10 x 9 ft	w/ gearbox and gen losses
GTU-4P	2000	4 130 kW	14 220 Btu	24.0%	7.3	65.7 lb	5500 rpm	777 F	150 930 lb	45 x 10 x 9 ft	w/ gearbox and gen losses
GTU-6P	2004	6 140 kW	13 032 Btu	26.2%	8.7	74.7 lb	6925 rpm	885 F	161 820 lb	45 x 10 x 9 ft	w/ gearbox and gen losses
GTU-12PG-2	2004	12 300 kW	10 469 Btu	32.6%	15.9	101.2 lb	6500 rpm	925 F	296 970 lb	59 x 10 x 14 ft	w/ gearbox and gen losses
GTE-16PA	2007	16 300 kW	9 614 Btu	35.5%	19.9	124.0 lb	3000 rpm	898 F	389 400 lb	61 x 10 x 9 ft	w/ gen losses
GTE-25P	2008	23 000 kW	9 312 Btu	36.7%	27.3	169.1 lb	5000 rpm	883 F	467 710 lb	79 x 10 x 9 ft	w/ gearbox and gen losses
GTE-25PA	2013	25 500 kW	9 174 Btu	37.2%	28.5	172.6 lb	5000 rpm	935 F	369 495 lb	74 x 25 x 14 ft	w/ gearbox and gen losses
UEC-Gas Turbines											
GTES-2.5	1990	2 500 kW	12 544 Btu	27.2%	12.0	33.0 lb	14000 rpm	797 F	78 265 lb	45 x 10 x 9 ft	dual fuel burner available
GTA-6RM	2001	6 000 kW	13 648 Btu	25.0%	8.6	102.0 lb	3000 rpm	781 F	99 209 lb	38 x 12 x 12 ft	dual fuel burner available
GTA-8RM	2003	8 000 kW	13 225 Btu	25.8%	9.8	112.0 lb	3000 rpm	932 F	112 436 lb	38 x 12 x 12 ft	dual fuel burner available
GTA-10GT	2014	9 650 kW	10 012 Btu	34.1%	17.7	72.0 lb	4500 rpm	968 F	94 799 lb	49 x 12 x 12 ft	
GTA-16	2014	16 300 kW	9 611 Btu	35.5%	19.5	123.0 lb	5300 rpm	936 F	132 278 lb	49 x 15 x 13 ft	
GTA-25	2017	25 530 kW	9 162 Btu	37.4%	28.2	171.0 lb	5000 rpm	941 F	141 097 lb	49 x 15 x 13 ft	

Model | Intro Year | ISO Base Load (kW) | Heat Rate (Btu/kWh) | Efficiency | Press Ratio | Mass Flow (lb/sec) | Turbine Speed | Exhaust Temp | Approx Weight | Approx L x W x H | Comments

GTA-25	2017	25 530 kW	9 162 Btu	37.4%	28.2	171.0 lb	5000 rpm	941 F	141 097 lb	49 x 15 x 13 ft	

Model	Intro Year	ISO Base Load (kW)	Heat Rate (Btu/kWh)	Efficiency	Press Ratio	Mass Flow (lb/sec)	Turbine Speed	Exhaust Temp	Approx Weight	Approx L x W x H	Comments
Vericor											
VPS3	1978	3 152 kW	12 560 Btu	27.2%	8.8	28.3 lb	16000 rpm	1110 F	70 000 lb	27 x 8 x 23 ft	
VPS4	1999	3 522 kW	11 906 Btu	28.7%	10.1	30.4 lb	16000 rpm	1076 F	70 000 lb	27 x 8 x 23 ft	
Zorya-Mashproekt											
UGT 5000	2011	5 100 kW	11 010 Btu	31.0%	14.0	47.4 lb	1800/3000	896 F	22 400 lb	26 x 8 x 8 ft	with gearbox
UGT 6000	1978	6 200 kW	11 300 Btu	30.2%	13.8	68.0 lb	3000/1500	802 F	121 600 lb	62 x 23 x 18 ft	with gearbox
UGT 16000	1980	15 520 kW	11 150 Btu	30.6%	12.5	211.6 lb	3000 rpm	662 F	295 000 lb	80 x 24 x 19 ft	
UGT 15000	1988	16 500 kW	9 980 Btu	34.2%	19.5	156.5 lb	3000 rpm	788 F	300 700 lb	80 x 24 x 19 ft	
UGT 25000	1993	25 680 kW	9 590 Btu	35.6%	21.5	192.9 lb	3000 rpm	905 F	332 600 lb	80 x 24 x 19 ft	

2018 Simple Cycle Genset Prices

Scope of supply and engineering factors that enter into simple cycle genset equipment pricing

How much does a packaged simple cycle gas turbine plant cost? All depends on unit size, design technology and scope of equipment supply.

GTW's database covers a wide range of unit size and technology which shows that price ($) and unit price ($ per kW) depend strongly on unit size and type of gas turbine (aero vs frame).

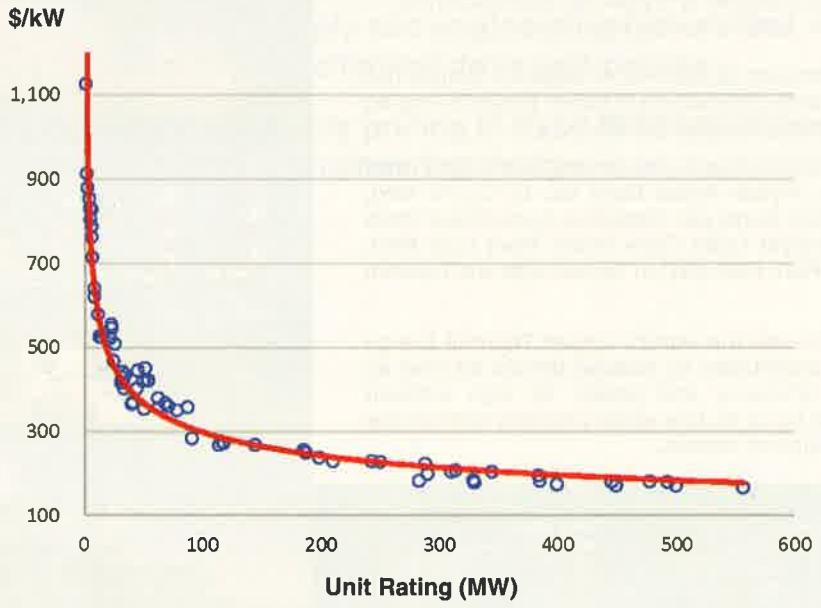
GTW's simple cycle plant prices are based on standard bare bones single-fuel (gas only) packaged units. A myriad of add-on options and customized design features are provided by OEMs at additional cost.

The prices are quoted in US dollars, FOB factory, for single-unit purchases. They are for equipment only, and do not cover transportation, plant engineering, construction, project-specific options or owner's project costs.

Price update. Except for some individual cases where new information from the marketplace has indicated otherwise, this year's estimated gas turbine prices reflect a slight upward trend (~3%) compared to last year's data.

Despite a softening market for large utility units in North America, this follows the observed movement of the cost indexes for industrial and power generation equipment (see https://www.ihs.com/info/cera/ihsindexes/).

2018 Simple Cycle Gensets
Pricing data for simple cycle gensets.
"Best Fit" curve plotted as: $/kW = 9650 x (kW)^-0.3



However, considering the significant over-capacity of manufacturing space for larger gas turbine units, the trend in pricing may very well turn downward.

A relatively flat US dollar relative to major international currencies during the current period has also meant little influence of currency exchange rates on price levels (in US$) for equipment manufactured in Europe and Asia.

Equipment scope. Limited to minimum scope of supply for a simple cycle power generating plant package built around a gas turbine, generator, associated mechanical and electrical auxiliary systems, including controls. Scope includes:

- Gas turbine. Skid-mounted gas turbine engine, starting motor, reduction gearbox (if any), lube oil and hydraulic fluid systems, compressor water wash, fuel forwarding and control, external turbine cooling (if any), interconnecting piping.
- Generator. Standard air-cooled generator package; hydrogen or enclosed water-air cooling (TEWAC) usually offered as options for larger units. Generator exciter is typically included in the standard package.
- Balance of plant. Standard auxiliaries such as air intake filter, inlet ducting and silencer, exhaust ducting and stack (short) with silencer, vibration monitoring, digital control system.

Packaged gensets typically include standard acoustic enclosures with ventilation and fire protection systems.

Mechanical and electrical auxiliaries for gas turbine operation are often

pre-packaged and supplied as separate enclosed auxiliary skids. Electrical auxiliaries include batteries, motor control center, voltage regulator and surge protection.

Auxiliary transformers needed to condition power supply for plant motors (starting, lube oil pump and cooling fans) are usually optional, as is main power step-up transformer.

Other OEM options include liquid or dual-fuel (gas and liquid) combustion, inlet air chilling (or deicing), isolated phase bus, fuel gas compression, etc.

Price and performance. Gas turbine model power output and efficiency ratings in GTW's simple cycle pricing tables are OEM specified design ratings for base load operation at ISO standard (59°F ambient and sea level) conditions on natural gas fuel.

Estimated unit price ($ per kW), based on base load ratings, makes it possible to review and evaluate differences in unit pricing of equipment cost of similarly sized units.

A best-fit relationship between $-per-kW and kW rating for listed models is provided and plotted to assist in calculating the cost of comparably sized models not listed.

Besides unit size, other factors that enter GT package price are gas turbine type (i.e., frame vs. aero) and engineering design factors such as firing temperature, pressure ratio, and mass flow.

Actual real-world OEM bid prices are quoted for customer-specified scope and with guarantees on net power and heat rate (efficiency) at site-specific conditions (i.e. ambient temperature, elevation and relative humidity) and specified fuel composition.

Bid quotes. OEMs strategically hedge project bidding with some performance margin, i.e. slightly lower power output and higher heat rate, to allow for normal variations in manufacturing tolerances and test uncertainties.

Quotes are always bid on the basis of "factory new and clean" performance without allowance for degradation in performance with usage. Contract language usually specifies a limit in operating time before performance testing must be conducted.

Typically, there is a margin of 0.5 to 1% on power and heat rate ratings. This explains why slightly better performance than expected may initially be realized.

Other factors that usually enter a project price quote include number of units ordered (i.e., quantity discounts), scope of equipment supply, site-specific requirements, duty cycle, geographic location and OEM's local market share position.

Variation in currency valuations can also play a significant role depending on which countries (i.e., currencies) are involved in the gas turbine's manufacture, purchase, and installation.

Gas turbine gensets designed for onshore oil and gas pipeline operation typically are priced around 10% higher than industrial or utility power plants. That is due to the cost of compliance with special packaging and safety requirements such as found in API specifications.

Offshore platform gas turbine packages command an additional price premium to cover costs such as specialized mountings and housing, marine-resistant coatings or ultra-efficient intake filter systems designed to handle salt-water laden air.

Benchmark. This reference section of the GTW Handbook serves as a benchmarking tool for assessing the equipment cost of different size and type plants.

To allow for uncertainties, the estimated budget prices should be treated as having a plus or minus 10% range of accuracy.

The data plot and best-fit curve show the strong relationship of cost to unit size, especially with smaller units where the effect of size is most pronounced. 2MW plant may be priced at around $800 per kW compared to $500 per kW for a 10MW plant.

From around 20MW to 100MW cost per kW falls less steeply, from around $500/kW to $300/kW. This is displays the economies of scale which allow OEMs to reduce manufacturing costs (per kW) as unit physical size and power ratings increase.

Beyond 100MW, the $ per kW trend flattens, but still continues to decrease down to around $200/kW, or lower, for the largest G, H and J class units. Substantially lower $/kW prices (10%-20%) may be observed for these units, compared to earlier F-class technology.

This is despite the higher cost of more exotic materials, coatings and cooling techniques needed for machines operating in the 2700°F to 2900°F firing temperatures range, and is the apparent result of the significant gains in power output achieved with these large 400-500MW-class units.

Data spread. Note that the spread in the data of comparably rated units is due partly to effect of 50Hz vs. 60Hz direct drive machines, where the latter are more compact (increased power density) due to higher engine operating speed, and to differences in design technology (aero vs frame machines).

Aeroderivative units cost considerably more than heavy duty units. Also, note that the data plot excludes the LMS100 series since their inclusion of an intercooler puts them in their own price class (see table) where a premium is paid for even higher efficiency than the typical aeroderivative genset.

Regardless of gas turbine design and rating, however, remember that the cost of engineering, construction services and other project costs can add from 60% to 100%, and more, to the cost of the equipment alone.

For rough estimates, a useful rule of thumb is to double the equipment price for estimating total installed costs. ■

2018 Simple Cycle Genset Prices

Equipment-only budget pricing, in fixed 2018 US dollars, for standard bare bones design

OEM Model	Freq Hz	Base Load Rating	Heat Rate Btu/kWh	Efficiency	Budget Price	$/kW
C200	50/60	200 kW	10,300 Btu	33.1 %	$225,000	$1,125
M1A-17D	50/60	1,700 kW	12,701 Btu	26.9 %	$1,550,000	$912
OP16-3C	50/60	1,876 kW	13,585 Btu	24.7 %	$1,650,000	$880
Centaur 40	50/60	3,515 kW	12,240 Btu	27.9 %	$3,000,000	$853
501-KB5S	50/60	3,980 kW	11,504 Btu	29.7 %	$3,300,000	$829
Centaur 50	50/60	4,600 kW	11,630 Btu	29.3 %	$3,700,000	$804
501-KB7S	50/60	5,380 kW	10,570 Btu	32.3 %	$4,450,000	$827
SGT-100	50/60	5,400 kW	11,007 Btu	31.0 %	$4,250,000	$787
Taurus 60	50/60	5,670 kW	10,830 Btu	31.5 %	$4,320,000	$762
Taurus 65	50/60	6,300 kW	10,375 Btu	32.9 %	$4,500,000	$714
SGT-300	50/60	7,901 kW	11,158 Btu	30.6 %	$4,900,000	$620
Taurus 70	50/60	7,965 kW	9,955 Btu	34.3 %	$5,100,000	$640
Mars 100	50/60	11,350 kW	10,365 Btu	32.9 %	$6,550,000	$577
GTU-12PG-2	50/60	12,300 kW	10,469 Btu	32.6 %	$6,460,000	$525
SGT-400	50/60	14,326 kW	9,647 Btu	35.4 %	$7,500,000	$524
Titan 130	50/60	16,450 kW	9,605 Btu	35.5 %	$8,750,000	$532
Titan 250	50/60	21,745 kW	8,775 Btu	38.9 %	$11,350,000	$522
LM2500DLE 50Hz	50	22,400 kW	9,626 Btu	35.4 %	$12,400,000	$554
LM2500DLE 60Hz	60	23,200 kW	9,317 Btu	36.6 %	$12,650,000	$545
SGT-600	50/60	24,480 kW	10,161 Btu	33.6 %	$11,450,000	$468
1x FT8 SP25 DLN	60	25,371 kW	8,993 Btu	38.1 %	$12,900,000	$508
1 x FT8 SP30	60	30,892 kW	9,327 Btu	36.6 %	$12,875,000	$417
LM2500+ DLE 60Hz	60	31,900 kW	8,785 Btu	38.8 %	$13,650,000	$428
RB211-GT61 DLE	50/60	32,130 kW	8,681 Btu	39.3 %	$14,170,000	$441
SGT-700	50/60	32,820 kW	9,170 Btu	37.2 %	$13,650,000	$416
MS5002E	50/60	33,310 kW	9,517 Btu	35.9 %	$13,400,000	$402
LM2500+ G4 DLE	60	34,500 kW	8,709 Btu	39.2 %	$14,950,000	$433
SGT-750	50/60	39,810 kW	8,456 Btu	40.4 %	$14,525,000	$365
H-25	50/60	41,030 kW	9,432 Btu	36.2 %	$15,100,000	$368
6B.03	50/60	44,000 kW	10,180 Btu	33.5 %	$17,650,000	$401
LM6000 DLE	60	45,000 kW	8,097 Btu	42.1 %	$20,000,000	$444
LM6000 DLE Sprint	60	50,000 kW	8,097 Btu	42.1 %	$21,000,000	$420
SGT-800	50/60	50,500 kW	8,899 Btu	38.3 %	$17,800,000	$352

OEM Model	Freq Hz	Base Load Rating	Heat Rate Btu/kWh	Efficiency	Budget Price	$/kW
2xFT8 SP50 DLN	60	51,058 kW	8,938 Btu	38.2 %	$23,000,000	$450
LM6000 SAC	60	53,000 kW	8,175 Btu	41.7 %	$22,250,000	$420
SGT-A65 TR DLE	60	54,020 kW	8,023 Btu	42.5 %	$22,750,000	$421
2xFT8 SP60	60	62,086 kW	9,281 Btu	36.8 %	$22,100,000	$356
SGT-A65 DLE ISI	60	61,842 kW	7,867 Btu	43.4 %	$23,450,000	$379
LM9000	50/60	68,000 kW	8,107 Btu	42.1 %	$25,000,000	$368
1xFT4000 SP60	60	70,836 kW	8,269 Btu	41.3 %	$25,500,000	$360
AE64.3A	50/60	78,000 kW	9,400 Btu	36.3 %	$27,500,000	$353
6F.03	50/60	87,000 kW	9,340 Btu	36.5 %	$31,100,000	$357
7E.03	60	91,000 kW	10,060 Btu	33.9 %	$25,750,000	$283
M501DA	60	113,950 kW	9,780 Btu	34.9 %	$30,500,000	$268
SGT6-2000E	60	117,000 kW	9,705 Btu	35.2 %	$31,900,000	$273
LMS100 Wet	60	118,000 kW	7,628 Btu	44.7 %	$40,000,000	$339
H-100	50	118,080 kW	8,919 Btu	38.3 %	$32,000,000	$271
M701DA	50	144,090 kW	9,810 Btu	34.8 %	$38,600,000	$268
AE94.2	50	185,000 kW	9,426 Btu	36.2 %	$47,400,000	$256
M501F	60	185,400 kW	9,230 Btu	37.0 %	$47,000,000	$254
SGT5-2000E	50	187,000 kW	9,426 Btu	36.2 %	$46,500,000	$249
7F.04	60	198,000 kW	8,840 Btu	38.6 %	$47,000,000	$237
GT13E2	50	210,000 kW	8,980 Btu	38.0 %	$48,000,000	$229
7F.05	60	243,000 kW	8,570 Btu	39.8 %	$55,500,000	$228
SGT6-5000F	60	250,000 kW	8,682 Btu	39.3 %	$56,750,000	$227
9F.04	50	288,000 kW	8,810 Btu	38.7 %	$64,000,000	$222
M501GAC	60	283,000 kW	8,531 Btu	40.0 %	$51,250,000	$181
7HA.01	60	290,000 kW	8,120 Btu	42.0 %	$57,500,000	$198
SGT6-8000H	60	310,000 kW	8,530 Btu	40.0 %	$63,000,000	$203
9F.05	50	314,000 kW	8,930 Btu	38.2 %	$65,000,000	$207
SGT5-4000F	50	329,000 kW	8,322 Btu	41.0 %	$60,000,000	$182
M501J	60	330,000 kW	8,105 Btu	42.1 %	$58,500,000	$177
GT26	50	345,000 kW	8,322 Btu	41.0 %	$70,000,000	$203
7HA.02	60	384,000 kW	8,030 Btu	42.5 %	$75,000,000	$195
M701F	50	385,000 kW	8,144 Btu	41.9 %	$70,000,000	$182
M501JAC	60	400,000 kW	7,755 Btu	44.0 %	$69,250,000	$173
SGT5-8000H	50	450,000 kW	<8,322 Btu	>41 %	$76,500,000	$170
9HA.01	50	446,000 kW	7,910 Btu	43.1 %	$80,000,000	$179
M701J	50	478,000 kW	8,067 Btu	42.3 %	$86,000,000	$180
M701JAC	50	493,000 kW	7,954 Btu	42.9 %	$88,000,000	$178
GT36	50	500,000 kW	8,222 Btu	41.5 %	$85,000,000	$170
9HA.02	50	557,000 kW	7,760 Btu	44.0 %	$92,000,000	$165