Power Module

MTU 16V4000 DS2560

50 Hz: 1,914 - 2,560 kVA/400V
60 Hz: 1,807 - 2,321 kWe/480V

Optional equipment shown. Standard equipment may vary.

Certifications and standards

Emissions
- Fuel optimized

Generator set is designed and manufactured in facilities certified to standards ISO 9001:2008 and ISO 14001:2004

Container
- Designed and manufactured as special purpose container for the use as generator set container, including CSC certification

Performance assurance certification (PAC)
- Generator set tested to ISO 8528-5 for transient response
- Verified product design, quality and performance integrity
- All container systems are prototype and factory tested G3

Power rating
- Permissible average power output during 24 hours of operation is approved up to 85% for standby rated unit
- Permissible average power output during 24 hours of operation is approved up to 75% for prime rated unit
- Permissible average power output during 24 hours of operation is approved up to 100% (110%) for continuous rated unit

A Rolls-Royce solution

Application data

Engine

Manufacturer	MTU
Model	16V4000 G63/83
Type	4-cycle
Arrangement	16V
Displacement/cylinder: l (cu inch)	76.3 (4656)
Bore: mm (inch)	170 (6.69)
Stroke: mm (inch)	210 (8.27)
Compression ratio	16.5:1
Rated speed: rpm/50 Hz	1500
Rated speed: rpm/60 Hz	1800
Engine governor	Electronic isochronous (ADEC)
Standby rated power/50 Hz: kWm (hp)	2,185 (2,930)
Standby rated power/60 Hz: kWm (hp)	2,500 (3,352)
Prime rated power/50 Hz: kWm (hp)	1,965 (2,635)
Prime rated power/60 Hz: kWm (hp)	2,280 (3,057)
Continuous rated power/50 Hz: kWm (hp)	1,635 (2,192)
Continuous rated power/60 Hz: kWm (hp)	1,950 (2,614)
Speed regulation	±0.25%
Air filter	Dry

Liquid capacity (lubrication)

Total oil system: l (gal)	300 (79.3)
Total oil change: l (gal)	240 (63.4)
Engine jacket water capacity: l (gal)	175 (46.2)
After cooler water capacity: l (gal)	50 (13.2)
System coolant capacity: l (gal)	852 (225)

Electrical

Electric volts DC	24
Cold cranking amps under -17.8 °C (0 °F)	2600

Fuel system

Maximum fuel lift: m (ft)	3 (10)
Recommended fuel	Diesel #2
Total fuel flow: l/hr (gal/hr)	1200 (317)

Generator

Manufacturer	Leroy Somer
Model	LSA 52,3 L12/4R
Insulation class	H
Voltage regulation (steady state)	±0.25%
Radio interference class	N

Fuel consumption [1)]

50 Hz	Standby	Prime	Continuous
At 100% of power rating:			
l/hr (gal/hr)	500 (132)	435 (115)	367 (97)
At 75% of power rating:			
l/hr (gal/hr)	371 (98)	329 (87)	284 (75)
At 50% of power rating:			
l/hr (gal/hr)	254 (67)	231 (61)	201 (53)

60 Hz	Standby	Prime	Continuous
At 100% of power rating:			
l/hr (gal/hr)	613 (162)	538 (142)	458 (121)
At 75% of power rating:			
l/hr (gal/hr)	435 (115)	397 (105)	352 (93)
At 50% of power rating:			
l/hr (gal/hr)	303 (80)	276 (73)	254 (67)

Cooling/Radiator System

Ambient capacity of radiator: °C (°F)	50 (122)
Max. restriction of cooling air, intake, and discharge side of rad.: kPa (in. H_2O)	0.125 (0.5)
Water pump capacity: l/min (gpm)	1,350 (357)
Heat rejection to coolant: kWe 3B/D – 50 Hz (3B/D – 60 Hz)	904 (1085)
Heat rejection to coolant: kWe 3A – 50 Hz (3A – 50 Hz)	802 (927)
Heat rejection to after cooler: kWe 3B/D – 50 Hz (3B/D – 60 Hz)	455 (733)
Heat rejection to after cooler: kWe 3A – 60 Hz (3A – 50 Hz)	288 (566)
Fan power: kWe 3B/D – 50 Hz (3B/D – 50 Hz)	41.3 (68.8)
Fan power: kWe 3A – 50 Hz (3A – 60 Hz)	30.8 (51.4)

Air requirements [2)]

Engine room: *m^3/ min (SCFM)	708 (25,006)
Air flow required for rad. Cooled unit: *m^3/min (SCFM)	4,200 (148,344)

Exhaust system [3)]

Gas temp. (stack): °C (°F)	505 (941)
Gas volume at stack temp: m^3/min (CFM)	504 (17,799)
Maximum allowable back pressure: kPA (in. H_2O)	8.5 (34.1)

1 Fuel density = 0.84 Kg/L

2 Air density = 1.184 kg/m^3 (0.0739 lbm/ft^3)

3 For 60 Hz standby rated power

Standard features

- Global product support
- Consult factory for specific warranty terms
- 16V 4000 diesel engine
  - 76.3 liter displacement
  - Common rail fuel injection
  - 4-cycle
- Engine-generator resilient mounted
- Complete range of accessories
- Generator
  - Brushless, rotating field generator
  - 2/3 pitch windings
  - Leroy somer AREP, excitation with R449 AVR
  - 300% short circuit capability
- Digital control panel(s)
  - Complete metering and protection system
  - LCD display
  - TCP/IP connection for customers
- Cooling system
  - Separate room for cooling system/vertical split cores
  - Electrically driven fans/switched in 2 steps for higher efficiency

Standard and optional features

System ratings (kWe/kVA)

Voltage (L-L)	50 Hz			60 Hz		
	400V	400V	400V	480V	480V	480V
Application	Continuous	Prime	Standby	Continuous	Prime	Standby
Phase	3	3	3	3	3	3
Power factor (cos phi)	0,8	0,8	0,8	0,8	0,8	0,8
kVA	1,914	2,295	2,560	2,259	2,636	2,901
kWe	1,531	1,836	2,048	1,807	2,109	2,321
AMPS	2,763	3,313	3,695	2,717	3,171	3,490
Generator manufacturer	Leroy Somer	Leroy Somer	Leroy Somer	Leroy Somer	Leroy Somer	Leroy Somer
Generator model	LSA 52.3 L12/4p	LSA 52.3 L12/4p	LSA 52.3 L12/4p	LSA 52.3 L12/4p	LSA 52.3 L12/4p	LSA 52.3 L12/4p
skVA@30% voltage dip	4,530	4,530	4,530	5,750	5,750	5,750
Temp rise	105°C/40°C	125°C/40°C	150°C/40°C	105°C/40°C	125°C/40°C	150°C/40°C
Connection	4 BAR WYE	4 BAR WYE	4 BAR WYE	4 BAR WYE	4 BAR WYE	4 BAR WYE

Standard and optional features

Engine
- Air cleaners
- Oil pump
- Oil drain extension & S/O valve
- Lube oil sight glass
- (Oil reservoir 60 liter with automatic refilling)
- Return fuel cooler
- Fuel cleaner with water separator switchable
- Lube oil multi-stage filter
- Closed crankcase ventilation
- Air-filter (Heavy duty air-filter)
- Jacket water pump
- Thermostats
- Radiator - remote mounted
- Electric starting motor - 24V
- Governor – electronic isochronous
- Base - formed steel
- SAE flywheel & bell housing
- Battery rack & cables
- Fuel optimized (both 50 Hz and 60 Hz)

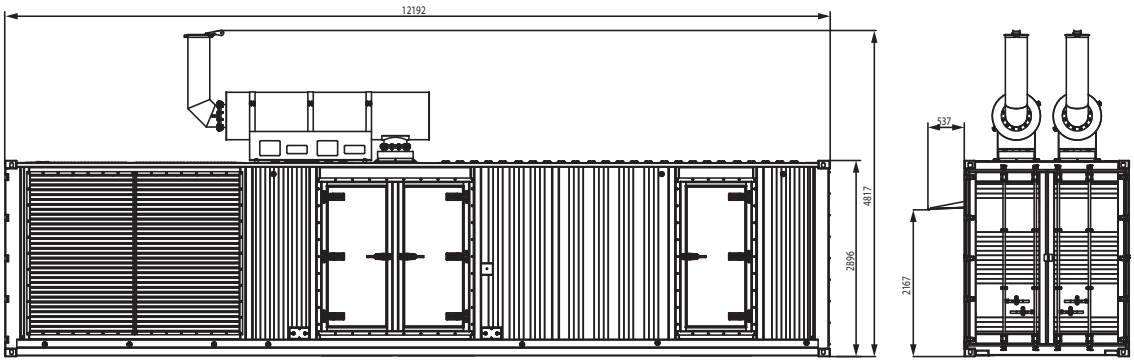
Digital control panel(s)
- Digital metering
- Engine/generator protection functions
- CANBus ECU communications
- Multilingual capability
- Programmable contact outputs
- TCP/IP connection for customers

Generator *
- Leroy Somer LSA 52,3 L12/4R
- NEMA MG1-32, IEC 60034.1-60034.2 and standards compliance for temperature rise and motor starting
- Sustained short circuit current of up to 300% of the rated current for up to 10 seconds
- Self-ventilated IP 22
- Superior voltage waveform
- Analog AVR R449 (Digital AVR D510)
- No load to full load regulation
- Brushless alternator with brushless pilot exciter
- 4 pole, rotating field
- 2 bearing, regreasable
- Close coupling
- Full amortisseur windings
- 125% rotor balancing
- ±0.25% voltage accuracy regulation
- 100% of rated load - one step
- 5% maximum THD total harmonic distortion

Container
- 40’ high cube ISO container with CSC certification
- Rear container double doors
- Three lockable personnel access doors
- 1,500 liters diesel fuel tank
- Externally roof mounted critical grade exhaust silencer (stored during transport between the split core radiator)
- Generator circuit breaker wall mounted with access from outside
- Generator circuit breaker rated 3A 3,200A 3B/D 4,000A 100kA
- 24 VDC LED lights with battery backup

* Note: Air filter will cause 5% derate in power output (kWe) and may also affect fuel consumption.

Weights and dimensions



Drawing above for illustration purposes only. Do not use for installation design.

System	Dimensions (L x W x H)	Weight (dry/less tank)
Power module	12,203 x 2,438 x 2,896 mm (480 x 96 x 114 inch)	32,246 kg (71090 lbs)

Weights and dimensions are based on open power units and are estimates only. Consult the factory for accurate weights and dimensions for your specific engine-generator set.

Sound data

Unit type	Full load - standby	Full load - prime	Full load - continuous
Power module	C/F	C/F	C/F

Sound data is provided at 7 m (23 ft). Generator set tested in accordance with ISO 8528-10 and with infinite exhaust.

Rating definitions and conditions

- Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. No overload capability for this rating. Ratings are in accordance with ISO 8528-1, ISO-3046-1, BS 5514, and AS 2789. Average load factor: ≤ 85%. Standby 50 Hz operating hours per year: Max. 500.
- Prime power and continuous ratings apply to installations where utility power is unavailable or unreliable. At varying load for prime power ratings or non-varying load for continuous ratings, the number of generator set operating hours is unlimited.
  A 10% overload capacity is available for one hour in twelve for both ratings. Ratings are in accordance with ISO 8528-1, ISO 3046-1, BS 5514 and AS 2789.
  Average load factor: ≤ 75% (prime) ≤ 100% (continuous).
- Continuous power ratings apply to installations where the generator set serves as utility. At constant load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO 8528-1, ISO 3046-1, BS 5514 and AS 2789. Average load factor: ≤ 100%. Operating hours/year: unlimited.
- Consult your local MTU distributor for derating information.

Product intended for use outside of the United States.
C/F = Consult Factory/MTU distributor
N/A = Not Available

Subject to change. | 32310361 | Edition 01/19 | ESM 2019-09.