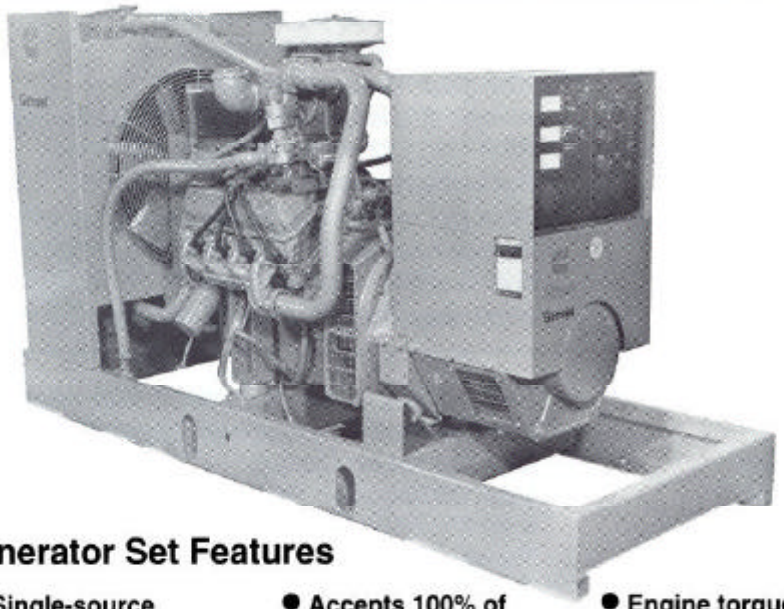
100 ENBA 60 Hz
75 ENBA 50 Hz
Spark-Ignited Generator Set

STANDBY	
60 Hz	100 kW 125 kVA
50 Hz	75 kW 94 kVA



Generator Set Features

- **Single-source design, manufacturing and testing of all set components and accessories by Onan Corporation.**
- **Accepts 100% of nameplate kW rating in one step, in compliance with NFPA 110, Paragraph 5-13.2.6.**
- **Engine torque-matched excitation system provides quick recovery from transient speed dips.**
- **Low reactance generator design offers low waveform distortion with non-linear loads and provides excellent motor starting capabilities.**

Standard Features

ENGINE
Natural gas fueled.

ALTERNATOR
Brushless Onan AC alternator provides broad range reconnectible output. Designed for service in severe environments.

VOLTAGE REGULATOR
Electronic voltage regulator provides precise regulation and under frequency compensation.

COOLING SYSTEM
High ambient 122°F (50°C) system.

CONTROL PANEL
Vibration isolated control with analog instrumentation.

SKID BASE
Supports the alternator and engine. Battery rack and cooling system mount to the skid base. Integral vibration isolation. Bulkhead single point fuel fittings.

Generator Set Testing

The Prototype Test Support (PTS) program is our commitment to verifying the integrity of our designs and products.

Before the generator sets are put into production, prototype models are subjected to demanding tests with typical/atypical loads and transients anticipated in service.

Production models earn the PTS seal only after meeting the performance criteria established by the program.

Single-Source Warranty

All generator set components and systems are covered by a limited one-year warranty. Optional two- and five-year extended programs are available.

Standard Models are CSA certified.

Generator Set Performance

Voltage Regulation
Under load from no load to 100% load will be within ± 2%.

Random Voltage Variation
For constant loads, from no load to 100% load will not exceed ±1% of its mean value.

Frequency Regulation
Under varying loads from no load to 100% load: Isochronous.

Random Frequency Variation
Will not exceed ± 0.5% (± 1.0% @ 50 Hz) of its mean value for constant loads from no load to full load.

Electromagnetic Interference Attenuation
Meets requirements of most industrial and commercial applications.

AC Waveform Total Harmonic Distortion
Less than 5% total no load to full linear load, and less than 3% for any single harmonic

Telephone Influence Factor (TIF)
Less than 50 per NEMA MG1-22.43.

Alternator Temperature Rise
At rated load is less than 105°C at standby rating, per NEMA MG1.22.40, IEEE115 and IEC 34–1

Radio Interference
Alternator and voltage regulator with optional PMG Excitation operate in compliance with BS800 and VDE level G and N. Addition of optional RFI Protection Kit allows operation per MIL-STD 461 and VDE level K.

Engine: V8, Natural Gas

Model: Ford LSG-875
Design: 4-cycle, water-cooled, turbocharged.
Bore: 4.36" (111 mm) **Stroke:** 3.85" (98 mm).
Piston Displacement: 460 cubic inches (7.5 liters).
Compression Ratio: 8.6:1.
Starting System: 12-volt, negative ground.
Cranking Current: 300 amps at ambient temperature of 32°F (0°C).
65-amp Battery Charging Alternator
Cast Iron Cylinder Block
Valves: Overhead.
Governor: Electronic.

Fuel System: Natural gas. IMPCO carburetion.
Fuel Solenoid: U.L. Approved Flexible Fuel Lines.
Dry-Element Air Cleaner
Lube Oil Capacity: 10 U.S. quarts (9 liters)
Lube Oil Filter: Single Spin-On, Full Flow
Typical Lube Oil Consumption:
5 U.S. quarts (5 liters) per 100 hours.
Cooling System:
High Ambient 122°F (50°C) Radiator.

Alternator: Onan

Design:
Revolving field, single bearing, 4-pole, brushless, drip-proof construction. Standard 125° C temperature rise at standby power rating. Class H insulation system per NEMA MG1–1.65 and BS2757. The main alternator and exciter insulation systems are impregnated for operation in severe environments where sand, salt sea spray and chemical corrosion are installation factors.

Stator:
Skewed stator and 2/3 pitch windings minimize field heating and voltage harmonics.

Rotor:
Dynamically balanced assembly. Direct coupled to engine by a flexible drive disc. Complete amortisseur (damper) windings help minimize voltage deviations and heating effects under unbalanced loads. The rotor is supported by a pre-lubricated, maintenance-free ball bearing.

Torque-Matched Voltage Regulation:
The voltage regulator provides torque-matched underfrequency compensation to optimize motor starting performance and assist the engine during transient load conditions.The brushless exciter armature powers the main alternator field winding through shaft-mounted,three-phase, full wave silicon diode rectifiers. Semiconductor surge suppressers protect the diodes from transient overvoltages induced by load surges.

Shunt Excitation:
The excitation system derives its power from the main output of the generator, eliminating the need for a separate excitation power source. This excitation system, combined with the Onan low reactance generator, comprises a system that provides sufficient short circuit current for selective clearing of instantaneous overcurrent devices.
Phase Rotation: A (U), B (V), C (W)
Alternator Cooling: Direct drive centrifugal blower.

100 ENBA 60 Hz Operating Data

Ratings	Natural Gas						Propane					
Set Rating	100 kW						80 kW					
Maximum Surge kW	114 kW						90 kW					
	80ºC Alternator				105ºC Alternator				125ºC Alternator			
Voltage Ranges	120/208 Thru 139/240 240/416 Thru 277/480 120/240**	120/208 Thru 139/240 240/416 Thru 277/480 120/240*	220/380	347/600	120/208 Thru 139/240 240/416 Thru 277/480 120/240**	120/208 Thru 139/240 240/416 Thru 277/480 120/240*	220/380	347/600	120/208 Thru 139/240 240-416 Thru 277/480 120/240**	120/208 Thru 139/240 240-416 Thru 277/480 120/240*	220/380	347/600
* The broad range alternator can supply single phase output to 2/3 of the set rated 3-phase kW at 1.0 power factor.												
** The optional extended stack alternator can supply single phase output at full set rated 3-phase kW at 1.0 power factor.												
Motor Starting												
Maximum kVA (SHUNT)		516	422	422	516	360	360	360	516	360	313	313
(90% Sustained Voltage) (PMG)		607	497	497	607	423	423	423	607	423	368	368
Feature Code		B257	B386	B305	B268	B256	B385	B304	B267	B255	B384	B303
Alternator Data Sheet Number		209	208	208	209	207	207	207	209	207	206	206
Full Load Current		120/208	127/220	139/240	220/380	240/416		120/208	127/220	139/240	220/380	240/416
(Amps @ Standby Rating)		347	328	301	190	173		278	262	241	152	139
		254/440	277/480	347/600	120/240*	120/240**		254/440	277/480	347/600	120/240*	120/240**
		164	150	120	270	417		101	120	90	222	333
Fuel Load		1/4	1/2	3/4	Full			1/4	1/2	3/4	Full	
kW		25	50	75	100			20	40	60	80	
Fuel Consumption cfh		748	1016	1200	1482			262	369	406	432	
cu m/hr		21.2	28.8	34.0	42.0			7.4	10.5	11.5	12.2	
Fuel Supply Pressure		7 - 20	in H2O	1.7 - 5.0	kPa			7 - 20	in H2O	1.7 - 5.0	kPa	
Cooling Radiator Fan Load		9	HP	6.7	kW			9	HP	6.7	kW	
Heat Rejection to Coolant		7500	Btu/Min	7.9	MJ/Min			5300	Btu/Min	5.6	MJ/Min	
Heat Radiated to Room		3300	Btu/Min	3.5	MJ/Min			3060	Btu/Min	3.2	MJ/Min	
Coolant Capacity (with Radiator)		7.7	US Gal	29	L			7.7	US Gal	29	L	
Coolant Flow Rate		49	Gal/Min	185	L/Min			49	Gal/Min	185	L/Min	
Maximum Coolant Friction Head		2	psi	14	kPa			2	psi	14	kPa	
Maximum Coolant Static Head		10	ft	3.0	m			10	ft	3.0	m	
Heat EX. Max Raw Water Flow		25	gal/min	94.6	L/min			25	gal/min	94.6	L/min	
Heat EX. Max Raw Water Pressure		20	psi	137.9	kPa			20	psi	137.9	kPa	
Air												
Combustion Air		225	cfm	6.4	cu m/min			181	cfm	5.1	cu m/min	
Maximum Air Cleaner Restriction		15	in. H2O	3.7	kPa			15	in. H2O	3.7	kPa	
Alternator Cooling Air		985	cfm	27.9	cu m/min			985	cfm	27.9	cu m/min	
Radiator Cooling Air		10900	scfm	309	cu m/min			10900	scfm	309	cu m/min	
Minimum Air Opening to Room		10	sq ft	0.9	sq m			10	sq ft	0.9	sq m	
Minimum Discharge Opening		8	sq ft	0.7	sq m			8	sq ft	0.7	sq m	
Max. Allowable Static Restriction		0.25	in. H2O	62	Pa			0.25	in. H2O	62	Pa	
Exhaust												
Gas Flow (Full Load)		760	cfm	21.5	cu m/min			650	cfm	18.4	cu m/min	
Gas Temperature		1115	ºF	602	ºC			1089	ºF	587	ºC	
Maximum Back Pressure		20	in. H2O	5.0	kPa			20	in. H2O	5.0	kPa	
Engine												
Gross Engine Power Output		173	bhp	129	kWm			144	bhp	107	kWm	
BMEP		150	psi	1034	kPa			122	psi	841	kPa	
Piston Speed		1155	ft/min	5.87	m/s			1155	ft/min	5.87	m/s	
Overspeed Limit				2100	±50 rpm					2100	±50 rpm	
Regenerative Power				11	kW					11	kW	
Derating Factors	Derate at 3% per 1000 ft (305 m) for altitude above 4300 ft (1309 m). Derate 1% per 10ºF (2% per 11ºC) for ambient temp above 85ºF (29ºC).						Derate at 3% per 1000 ft (305 m) for altitude above 4300 ft (1309 m). Derate 1% per 10ºF (2% per 11ºC) for ambient temp above 85ºF (29ºC).					

75 ENBA 50 Hz Operating Data

Natural Gas					Propane				
75 kW 80 kW					60 kW 60 kW				
80ºC Alternator			**105ºC Alternator**			**125ºC Alternator**			
110/190 Thru 127/220 220/380 Thru 254/440 110/220**			110/190 Thru 127/220 220/380 Thru 254/440 110/220**	110/190 Thru 127/220 220/380 Thru 254/440 110/220**		110/190 Thru 127/220 220/380 Thru 254/440 110/220**	110/190 Thru 127/220 220/380 Thru 254/440 110/220**		
311 389			311 389	244 306		311 389	211 264		
B329			B340	B328		B339	B327		
208			208	207		208	206		
110/190	115/200	120/208	127/220	220/380	110/190	115/200	120/208	127/220	220/380
285	271	260	246	142	228	217	208	197	114
230/400	240/415	254/440	110/220*	110/220**	230/400	240/415	254/440	110/220*	110/220**
135	130	123	227	341	108	104	98	182	273
1/4	1/2	3/4	Full		1/4	1/2	3/4	Full	
19	38	56	75		15	30	45	60	
			1260					338	
			35.7					9.6	
7 - 20	in H2O	1.7 - 5.0	kPa		7 - 20	in H2O	1.7 - 5.0	kPa	
5.2	HP	3.9	kW		5.2	HP	3.9	kW	
6700	Btu/Min	7.1	MJ/Min		4350	Btu/Min	4.6	MJ/Min	
2950	Btu/Min	3.1	MJ/Min		2750	Btu/Min	2.9	MJ/Min	
7.7	US Gal	29	L		7.7	US Gal	29	L	
41	Gal/Min	155	L/Min		41	Gal/Min	155	L/Min	
2	psi	14	kPa		2	psi	14	kPa	
10	ft	3.0	m		10	ft	3.0	m	
25	gal/min	94.6	L/min		25	gal/min	94.6	L/min	
20	psi	137.9	kPa		20	psi	137.9	kPa	
181	cfm	5.1	cu m/min		133	cfm	3.8	cu m/min	
15	in. H2O	3.7	kPa		15	in. H2O	3.7	kPa	
820	cfm	23.2	cu m/min		820	cfm	23.2	cu m/min	
9000	scfm	255	cu m/min		9000	scfm	255	cu m/min	
10	sq ft	0.9	sq m		10	sq ft	0.9	sq m	
8	sq ft	0.7	sq m		8	sq ft	0.7	sq m	
0.25	in. H2O	62	Pa		0.25	in. H2O	62	Pa	
650	cfm	18.4	cu m/min		535	cfm	15.1	cu m/min	
1025	ºF	552	ºC		1060	ºF	571	ºC	
20	in. H2O	5.0	kPa		20	in. H2O	5.0	kPa	
121	bhp	90	kWm		100	bhp	75	kWm	
133	psi	917	kPa		107	psi	738	kPa	
963	ft/min	4.89	m/s		963	ft/min	4.89	m/s	
1850	±50 rpm				1850	±50 rpm			
9	kW				9	kW			
Derate at 3% per 1000 ft (305 m) for altitude above 2600 ft (792 m). Derate 1% per 10ºF (2% per 11ºC) for ambient temp above 85ºF (29ºC).					Derate at 3% per 1000 ft (305 m) for altitude above 2600 ft (792 m). Derate 1% per 10ºF (2% per 11ºC) for ambient temp above 85ºF (29ºC).				

Voltage Selections

60 Hz, 1800 rpm, 3-phase, Reconnectible Broad Range

☐ 120/208V ☐ 240/416V
☐ 127/220V ☐ 255/440V
☐ 139/240V ☐ 277/480V
☐ 120/240V

60 Hz, 1800 rpm, 1-phase* Reconnectible, Broad Range

☐ 120/240V

60 Hz, 1800 rpm 3-phase, Specific Voltage

☐ 220/380 ☐ 347/600

50 Hz, 1500 rpm, 3-phase, Reconnectible, Broad Range

☐ 110/190V ☐ 220/380V
☐ 115/200V ☐ 230/400V
☐ 120/208V ☐ 240/416V
☐ 127/220V ☐ 254/440V
☐ 100/200V ☐ 115/230V
☐ 110/220V ☐ 120/240V

50 Hz, 1500 rpm, 1-phase* Reconnectible, Broad Range

☐ 100/200V ☐ 115/230V
☐ 110/220V ☐ 120/240V

* Single-phase power can be taken in capacities up to 2/3 of the rated 3-phase kW with the standard broad range alternator.
** The extended stack alternator option allows full single phase output at 1.0 power factor.

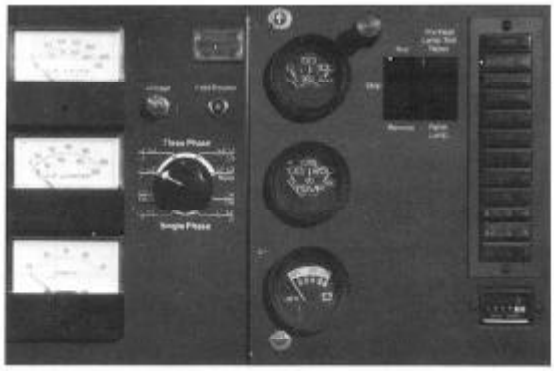
Rating Definitions

Standby:

Applicable for supplying emergency power for the duration of normal power interruption. No sustained overload capability is available for this rating. (Equivalent to Fuel Stop Power in accordance with ISO3046, AS2789, DIN6271, and BS5514.)

Detector™ Control System

- **Monitors engine performance and AC power output.**
- **Controls generator set start and shutdown.**
- **Automatic remote start.**
- **DC panel lighting.**
- **Vibration isolators protect control panel electronics and circuitry from generator set vibration.**
- **Analog Instrumentation displays performance trends. Rugged. Non-fluctuating, easy to read.**



Control panel shown includes optional AC Meters and 12-Light Monitoring System.

☐ Standard Control Features

- •Run-stop-remote switch
- •Remote starting, 12-volt, 2 wire
- •Coolant temperature gauge
- •Field circuit breaker
- •DC voltmeter
- •Oil pressure gauge
- •Running time meter
- •Fault reset switch
- •Lamp test switch
- •Cycle cranking
- •7-light engine monitor with individual 1/2 amp relay signals and a common alarm contact for each of the following conditions:

RUN (green light)
PRE-WARNING FOR LOW OIL PRESSURE (yellow light)
PRE-WARNING FOR HIGH COOLANT TEMP (yellow light)
LOW OIL PRESSURE SHUTDOWN (red light)
HIGH COOLANT TEMPERATURE SHUTDOWN (red light)
OVERCRANK SHUTDOWN (red light)
OVERSPEED SHUTDOWN (red light)

☐ Optional NFPA 110 12-Light Monitor

Engine monitor with individual 1/2 amp relay signals and common external alarm contact for each of the following conditions:

RUN (green light)
PRE-WARNING FOR LOW OIL PRESSURE (yellow light)
PRE-WARNING FOR HIGH COOLANT TEMP (yellow light)
LOW OIL PRESSURE SHUTDOWN (red light)
HIGH COOLANT TEMPERATURE SHUTDOWN (red light)
OVERCRANK SHUTDOWN (red light)
OVERSPEED SHUTDOWN (red light)
SWITCH OFF (flashing red light – indicates generator set not in automatic start mode)
LOW COOLANT TEMPERATURE (yellow light)
LOW FUEL (yellow light)
TWO CUSTOMER SELECTED FAULTS (red light)

☐ Optional AC Meter Package

Order with NFPA 110 monitor to meet code requirements.

- •AC voltmeter (dual range)
- •AC ammeter (dual range)
- •Voltmeter/ammeter phase selector switch with an off position
- •Dual scale frequency meter/tachometer
- •AC Rheostat (panel mounted) for ±5% voltage adjust

Generator Set Options

Engine

- ☐ Single phase, 2000 watt coolant heater
  - ☐ 115 ☐ 208 ☐ 230 ☐ 480 (VAC)

Generator Set

- ☐ Mainline circuit breaker
- ☐ Auxiliary contacts
- ☐ Shunt trip
- ☐ AC entrance box
- ☐ Vacuum safety switch
- ☐ Weather-protective enclosure with mounted silencer
- ☐ 2-year standby power warranty
- ☐ 5-year basic warranty
- ☐ 5-year comprehensive warranty
- ☐ Extended tests
- ☐ Export box packaging

Accessories

- ☐ Batteries
- ☐ Remote annunciator panel

Control Panel

- ☐ Annunciator relays
- ☐ Run relay package
- ☐ Low coolant level shutdown
- ☐ Time delay start/stop
- ☐ Anti-condensation space heater
- ☐ Oil temperature gauge
- ☐ Tachometer
- ☐ Wattmeter
- ☐ Emergency stop
- ☐ Over/under voltage relay
- ☐ Over/under frequency relay
- ☐ Shut down alarm relay
- ☐ Audible alarm - engine shutdown

Fuel Systems

- ☐ Natural Gas/LP vapor, automatic changeover
- ☐ Natural Gas/LP liquid, automatic changeover
- ☐ LPG
- ☐ LPL

Cooling Systems

- ☐ Remote radiator cooling
- ☐ Heat exchanger
- ☐ Regulator - raw water flow (requires heat exchanger)

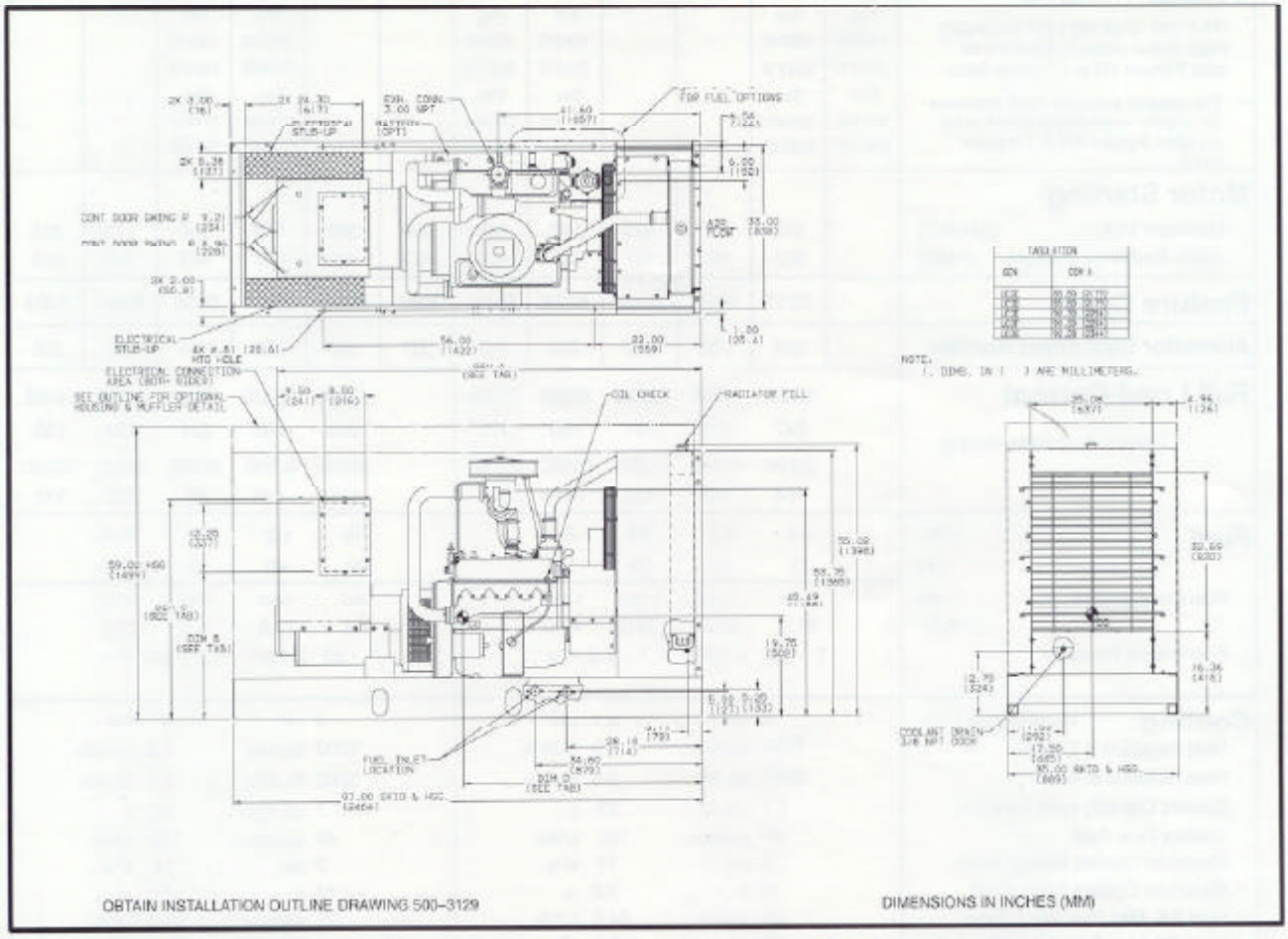
Alternator

- ☐ Anti-condensation heater
- ☐ PMG Excitation
- ☐ Extended stack (full output, single phase)
- ☐ 80°C rise alternator
- ☐ 125°C rise alternator

Exhaust System

- ☐ Industrial-grade exhaust silencer
- ☐ Residential-grade exhaust silencer
- ☐ Critical-grade exhaust silencer
- ☐ Spark arrest silencer
- ☐ Exhaust pipe packages

Outline Drawing
60 Hz: 100 ENBA
50 Hz: 75 ENBA



OBTAIN INSTALLATION OUTLINE DRAWING 500-3129

DIMENSIONS IN INCHES (MM)

This drawing is for informational purposes only. For specific construction details, obtain installation outline drawing from your distributor.

Dry Weight
Unhoused: 2325 lbs. / 1056 kg.
Housed: 2690 lbs. / 1221 kg.

Wet Weight*
Unhoused: 2410 lbs. / 1094 kg.
Housed: 2770 lbs. / 1258 kg.

***Note: Wet weight includes oil and coolant.**

See your distributor for more information.

Onan Corporation
1400 73rd Avenue N. E.
Minneapolis, MN 55432
612-574-5000
Telex: 275477
Fax: 612-574-8087

6/96 Bulletin S-1029a