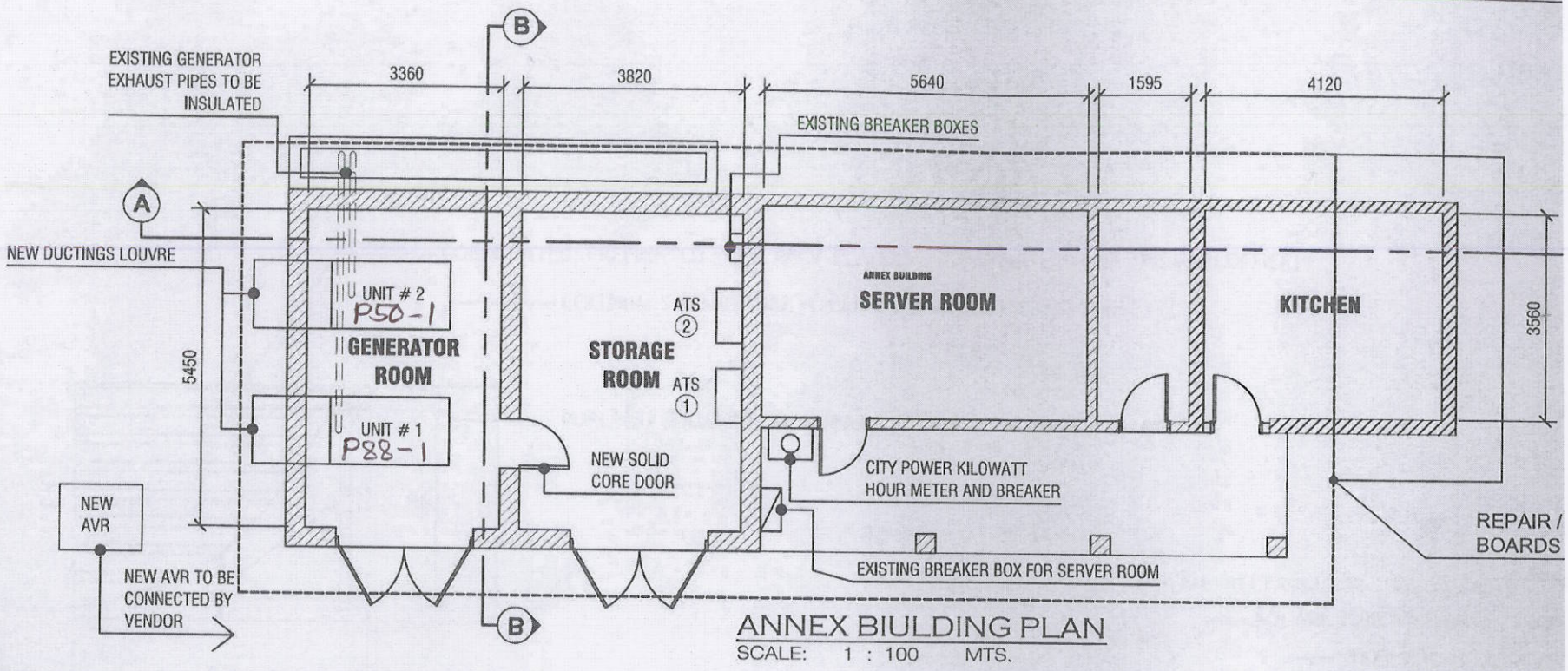
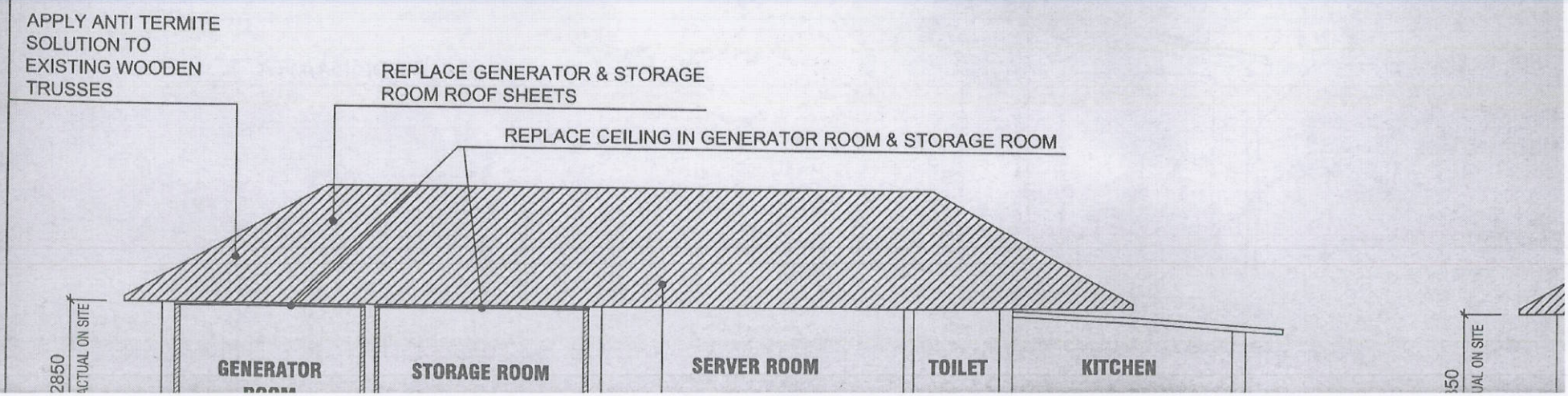
SIZING OF GENERATOR

FOR USAID OFFICE
DILI, TIMOR-LESTE



ANNEX BIULDING PLAN
SCALE: 1 : 100 MTS.



OBO | FAC | Log Out

U.S. DEPARTMENT OF STATE
BUREAU OF OVERSEAS BUILDINGS OPERATIONS

FAC Apps

Welcome
Hiram Lasquety ✓

About Modules
Modules listed at the top of this page are open to all users. However, there are modules that are restricted to persons who need approval to view the information and data within.

Access Your Settings
Click the "My Settings" button below to request changes to privileges or changes to your profile.

My Settings

Guides & Documents

How To Get Access

OBO / CFSM / FAC Application Modules

Version: 03.04.09

Open Modules: (No Account Required)

- **Building Automation System**
  - *Theory, operations, and maintenance of vitally important control systems*
- **Environmental Security Protection System**
  - *An overview of air handling systems with guidance on maintenance*
- **Mechanical Water Treatment**
  - *Operating and maintenance suggestions for the care of mechanical system water flows*
- **Wastewater Treatment**
  - *Operation and maintenance guidance for wastewater systems*
- **Water Treatment**
  - *Theory of operation, water quality testing and maintenance requirements*
- **Refrigerant Recovery Training**
  - *Refrigerant recovery training module.*

Modules Requiring An Account:

- **Residential Generator Management System (RGMS)** ✓
  - *Inventory, request, reports, and sizing of generators*
- **Water Quality Testing**
  - *Water testing data entry site*

05 Jun, 2014

Current Location: DILI OBO | FAC | Main Menu

U.S. DEPARTMENT OF STATE
BUREAU OF OVERSEAS BUILDING OPERATIONS

FAC Apps: Residential Generator Management System (RGMS)

Home | Inventory | Request | Reports | FAQs

Single Dwelling Generator | Multi Dwelling Generator

STEP 1: Select Property:

USAID Office - Currently Selected Select

STEP 2: Create OR Select the Service at Property USAID Office:

USAID Select

Service	Voltage	Current	Phases	Hz	Avg High Temp	Elevation	Building Net Area	Edit Service
USAID	380	200	3	50	86	40	200	Edit

STEP 3: Specify Loads (Add each load for this generator request):

---- Pre Defined Loads ---- Quantity: 1 (Add)

Load Description(s) For: USAID Office, Area = 200 (sq/m), Service = 132 KVA (380 Volts, 200 Amps, 3 Phases, 50 Hz)	Quantity	Watts	Total Load (watts)	Demand Factor	Calculated Load (watts)	Delete
Exterior/Security Lighting	5	200	1000	1	1,000	
Interior Lighting (10.8 watts/sm)	1	2160	2160	1	2,160	
Receptacle Loads (5.4 watt/sm)	1	1080	1080	1	1,080	
Electric Water Heater	4	2000	8000	.25	2,000	
HVAC 1 Ton	3	1580	4740	.65	3,081	
HVAC 1.5 Ton	17	2245	38165	.65	24,807	
HVAC .5 Ton	12	790	9480	.65	6,162	
HVAC 5 Ton	1	7650	7650	.65	4,973	
Other	1	23000	23000	.65	14,950	
				Sub Total	60,213	
HVAC load is greater than heaters, subtracting heaters load - 0						
				Final Total	60,213	

Recommended Generator Size = **80 KVA** Show Details

Details:

- Adjustments
  - Estimated diesel generator derating for a **Temperature** of 86 degrees at an **Altitude** of 40 feet (**factor = 1**)
    - 60.2K watts
  - Convertion from watts to KVA using a power factor of .80 (60.2K / .80)
    - 75.3 KVA
  - Round **UP** to the nearest 5KVA from 75.3 KVA
    - 80.0KVA

Hide Details

STEP 4: Submit as Final Request for Generator:

Generator - Aquire for Existing Property Submit Request

FG WILSON

www.FGWilson.com

P88-1

w/ MODULAR ACOUSTIC ENCLOSURE

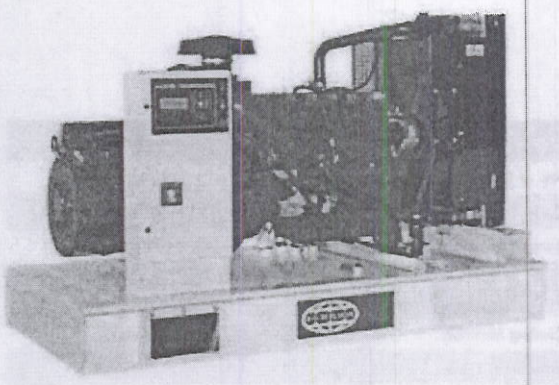


Image for illustration purposes only.

Output Ratings

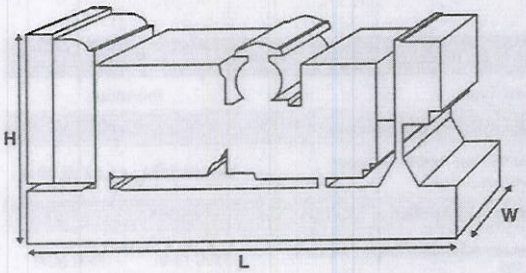
Generating Set Model	Prime*	Standby*
380-415V,50Hz	80.0 kVA / 64.0 kW	88.0 kVA / 70.4 kW
480V, 60 Hz	90.0 kVA / 72.0 kW	100.0 kVA / 80.0 kW

Ratings at 0.8 power factor.

Prime Rating
These ratings are applicable for supplying continuous electrical power (at variable load) in lieu of commercially purchased power. There is no limitation to the annual hours of operation and this model can supply 10% overload power for 1 hour in 12 hours.

Standby Rating
These ratings are applicable for supplying continuous electrical power (at variable load) in the event of a utility power failure. No overload is permitted on these ratings. The alternator on this model is peak continuous rated (as defined in ISO 8528-3).

Standard Reference Conditions
Note: Standard reference conditions 25°C (77°F) Air Inlet Temp, 100m (328 ft) A.S.L. 30% relative humidity.
Fuel consumption data at full load with diesel fuel with specific gravity of 0.85 and conforming to BS2869: 1998, Class A2.



Ratings and Performance Data

Engine Make & Model:		Perkins 1104A-44TG2	
Alternator manufactured for FG Wilson by:		Leroy Somer	
Alternator Model:		LL2014L	
Control Panel:		1002T	
Base Frame:		Fbc2 - (08Hr)	
Circuit Breaker Type:		3 Pole MCCB	
Frequency:		50 Hz	60 Hz
Engine Speed: RPM		1500	1800
Fuel Tank Capacity: litres (US gal)		219 (57.9)	
Fuel Consumption: l/hr (US gal/hr)			
(100% Load)	- Prime	18.0 (4.8)	21.2 (5.6)
	- Standby	19.9 (5.3)	23.6 (6.2)

Available Options

FG Wilson offer a range of optional features to tailor our generating sets to meet your power needs. Options include:

- Upgrade to CE Certification
- A wide range of Sound Attenuated Enclosures
- A variety of generating set control and synchronising panels
- Additional alarms and shutdowns
- A selection of exhaust silencer noise levels

For further information on all of the standard and optional features accompanying this product please contact your local Dealer or visit: www.FGWilson.com

Dimensions and Weights

Length (L) mm (in)	Width (W) mm (in)	Height (H) mm (in)	Dry kg (lb)	Wet kg (lb)
1925 (75.8)	1120 (44.1)	1361 (53.6)	1107 (2440)	1120 (2469)

Dry = With Lube Oil Wet = With Lube Oil and Coolant

Ratings in accordance with ISO 8528, ISO 3046, IEC 60034, BS5000 and NEMA MG-1/22.
Generating set pictured may include optional accessories.

FG Wilson has manufacturing facilities in the following locations:
Northern Ireland • Brazil • China • India • USA
With headquarters in Northern Ireland, FG Wilson operates through a Global Dealer Network.
To contact your local Sales Office please visit the FG Wilson website at www.FGWilson.com

Alternator Physical Data	
Manufactured for FG Wilson by:	Leroy Somer
Model:	LL2014L
No. of Bearings:	1
Insulation Class:	H
Winding Pitch Code:	2/3 - 6
Wires:	12
Ingress Protection Rating:	IP23
Excitation System:	SHUNT
AVR Model:	R250

Alternator Operating Data	
Overspeed: rpm	2250
Voltage Reguation: (Steady state)	+/- 0.5
Wave Form NEMA = TIF:	50
Wave Form IEC = THF:	2.0%
Total Harmonic content LL/LN:	4.0%
Radio Interference:	Suppression is in line with European Standard EN61000-6
Radiant Heat: kW (Btu/min)	
- 50 Hz	6.8 (387)
- 60 Hz	8.0 (455)

Alternator Performance Data:	50 Hz				60 Hz				
Data Item	415/240V	400/230V 230/115V 200/115V	380/220V 220/110V	220/127V	480/277V 240/139V	380/220V 220/110V	240/120V 208/120V	230/115V	440/254V 220/127V
Motor Starting Capability* kVA	218	206	189	240	239	161	188	176	207
Short Circuit Capacity** %	300	300	300	300	300	300	300	300	300
Reactances: Per Unit									
Xd	2.400	2.590	2.860	2.140	2.420	3.870	3.230	3.490	2.880
X'd	0.080	0.090	0.100	0.070	0.080	0.130	0.110	0.120	0.100
X"d	0.040	0.043	0.048	0.036	0.040	0.064	0.054	0.058	0.048

Reactances shown are applicable to prime ratings.
*Based on 30% voltage dip at 0.6 power factor.
**With optional permanent magnet generator or SHUNT excitation.

Voltage Technical Data 50 Hz				
Voltage	Prime:		Standby:	
	kVA	kW	kVA	kW
415/240V	80.0	64.0	88.0	70.4
400/230V	80.0	64.0	88.0	70.4
380/220V	80.0	64.0	88.0	70.4
230/115V	80.0	64.0	88.0	70.4
220/127V	80.0	64.0	88.0	70.4
220/110V	80.0	64.0	88.0	70.4
200/115V	80.0	64.0	88.0	70.4

Voltage Technical Data 60 Hz				
Voltage	Prime:		Standby:	
	kVA	kW	kVA	kW
480/277V	90.0	72.0	100.0	80.0
220/127V	90.0	72.0	100.0	80.0
380/220V	88.0	70.4	97.0	77.6
240/120V	90.0	72.0	100.0	80.0
230/115V	90.0	72.0	100.0	80.0
440/254V	90.0	72.0	100.0	80.0
220/110V	88.0	70.4	97.0	77.6
208/120V	90.0	72.0	100.0	80.0
240/139V	90.0	72.0	100.0	80.0

www.FGWilson.com

Modular Acoustic Enclosure

P26-1S – P200-2 Range

The intelligent and striking design of the 26 – 200 kVA enclosure range meets the demands of diverse applications. Extremely durable, the enclosures are designed to resist corrosion and handling damage.

All FG Wilson weatherproof sound attenuated enclosures are the result of continuing research and development by our specialist acoustic engineers. **These enclosures reduce sound levels to comply with the Stage 2 levels of the European Community Directive 2000/14/EC which became effective 3 January 2006.**

Durable and Robust Construction

- Manufactured from galvanised steel
- Advanced powder coating paint finish
- Single piece main roof
- Baseframe extends beyond enclosure protecting against handling damage
- Minimal external fixings exposed to environment
- Zinc plated fasteners
- Corner posts and air handling units manufactured from high grade composite material

Excellent Service and Maintenance Access

- Side hinged doors on both sides of the enclosure incorporating lift-off hinges at 45 degrees
- Radiator fill via removable, flush mounted rain cap fitted with compression seal
- Lube oil cooling and water drains piped to baseframe side rail, on exterior
- Removable end panels allow access to radiator, exhaust outlet and alternator rear
- Doors positioned for optimum access to frequently serviced items

Security and Safety

- Secure, lockable doors prevent unauthorised access to control panel, fuel fill and battery
- Emergency stop button mounted on exterior, convenient to control panel
- Cooling fan and battery charging alternator fully guarded

Transportability

- Tested and certified single point lifting facility
- Lifting and drag points on baseframe facilitating handling from both sides

FG Wilson has manufacturing facilities in the following locations:

Northern Ireland • Brazil • China • India • USA

With headquarters in Northern Ireland, FG Wilson operates through a Global Dealer Network.
To contact your local Sales Office please visit the FG Wilson website at www.FGWilson.com

Sound Attenuated (SA) Sound Pressure Levels (dBA)

			50 Hz						60 Hz					
			15m (50ft)		7m (23ft)		1m (3ft)		15m (50ft)		7m (23ft)		1m (3ft)	
Generating Set Model		LWA	75% Load	100% Load	75% Load	100% Load	75% Load	100% Load	75% Load	100% Load	75% Load	100% Load	75% Load	100% Load
3 Phase Models														
P33-1	Prime	92	59.7	61.7	65.7	67.7	75.7	78.1	59.8	61.9	65.8	67.9	76.8	79.0
	Standby	92	60.3	62.5	66.3	68.5	76.4	79.1	60.4	62.9	66.4	68.9	77.5	80.1
P33-4	Prime	96	59.9	62.6	65.9	68.6	76.1	79.5	–	–	–	–	–	–
	Standby	96	60.7	63.7	66.7	69.7	77.1	81.0	–	–	–	–	–	–
P44-1*	Prime	–	61.6	62.2	67.6	68.2	79.2	79.7	63.6	64.3	69.6	70.3	80.9	81.4
	Standby	–	61.8	62.4	67.8	68.4	79.4	80.0	63.9	64.6	69.9	70.6	81.1	81.6
P50-1	Prime	91	57.6	58.3	63.6	64.3	76.2	76.8	60.8	61.6	66.8	67.6	78.6	79.5
	Standby	91	57.8	58.7	63.8	64.7	76.4	77.0	61.1	62.1	67.1	68.1	78.9	80.0
P50-2	Prime	90	56.4	56.9	62.4	62.9	74.8	75.1	–	–	–	–	–	–
	Standby	90	56.6	57.1	62.6	63.1	74.9	75.1	–	–	–	–	–	–
P55-1	Prime	91	57.8	58.7	63.8	64.7	76.4	77.0	61.1	62.1	67.1	68.1	78.9	80.0
	Standby	91	58.1	59.0	64.1	65.0	76.6	77.3	61.4	62.5	67.4	68.5	79.3	80.5
P55-2	Prime	91	58.9	58.8	64.9	64.8	76.8	76.6	–	–	–	–	–	–
	Standby	91	58.9	58.8	64.9	64.8	76.8	76.6	–	–	–	–	–	–
P65-1	Prime	91	58.3	59.4	64.3	65.4	76.8	77.5	61.7	63.0	67.7	69.0	79.6	81.1
	Standby	91	58.6	59.7	64.6	65.7	77.0	77.7	62.1	63.5	68.1	69.5	80.0	81.6
P65-2	Prime	91	58.8	58.8	64.8	64.8	76.7	76.5	–	–	–	–	–	–
	Standby	91	58.8	58.7	64.8	64.7	76.7	76.4	–	–	–	–	–	–
P65-3	Prime	92	57.0	57.7	63.0	63.7	75.4	76.0	60.1	60.6	66.1	66.6	78.7	79.1
	Standby	92	57.2	58.0	63.2	64.0	75.5	76.2	60.3	60.8	66.3	66.8	78.8	79.2
P88-1	Prime	92	57.7	59.1	63.7	65.1	76.0	77.0	60.6	61.2	66.6	67.2	79.0	79.5
	Standby	92	58.1	59.8	64.1	65.8	76.2	77.4	60.8	61.5	66.8	67.5	79.2	79.6
P88-2	Prime	95	62.0	62.5	68.0	68.5	80.0	80.5	–	–	–	–	–	–
	Standby	95	62.1	62.8	68.1	68.8	80.2	80.7	–	–	–	–	–	–
P110-2	Prime	96	62.4	63.1	68.4	69.1	80.4	81.0	65.2	65.4	71.2	71.4	84.4	84.6
	Standby	96	62.6	63.5	68.6	69.5	80.6	81.3	65.2	65.5	71.2	71.5	84.5	84.7
P150-1	Prime	96	61.2	61.7	67.2	67.7	79.2	79.4	64.3	64.5	70.3	70.5	82.8	83.0
	Standby	96	61.4	61.8	67.4	67.8	79.3	79.4	64.4	64.6	70.4	70.6	82.9	83.1
P150-2	Prime	95	58.5	58.9	64.5	64.9	77.0	77.3	–	–	–	–	–	–
	Standby	95	58.6	59.1	64.6	65.1	77.1	77.5	–	–	–	–	–	–
P165-1	Prime	96	62.7	63.4	68.7	69.4	79.3	79.9	–	–	–	–	–	–
	Standby	96	62.9	63.7	68.9	69.7	79.5	80.2	–	–	–	–	–	–
P165-2	Prime	95	58.6	59.1	64.6	65.1	77.1	77.5	–	–	–	–	–	–
	Standby	95	58.8	59.4	64.8	65.4	77.2	77.7	–	–	–	–	–	–
P200-2	Prime	94	59.4	60.2	65.4	66.2	77.7	78.1	63.2	63.6	69.2	69.6	82.9	83.1
	Standby	94	59.6	60.5	65.6	66.5	77.8	78.3	63.3	63.8	69.3	69.8	83.0	83.2

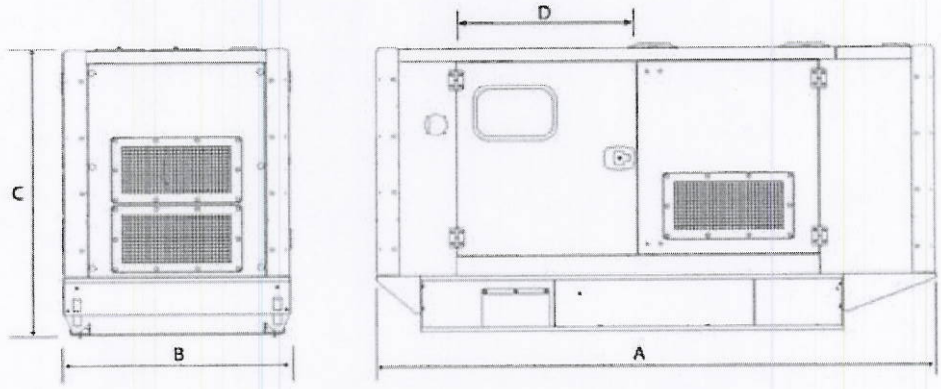
Levels in accordance with European Noise Directive (2000/14/EC).
*Uncertified

Sound Attenuated (SA) Sound Pressure Levels (dBA)

			50 Hz						60 Hz					
			15m (50ft)		7m (23ft)		1m (3ft)		15m (50ft)		7m (23ft)		1m (3ft)	
Generating Set Model		LWA	**75% Load**	**100% Load**	**75% Load**	**100% Load**	**75% Load**	**100% Load**	**75% Load**	**100% Load**	**75% Load**	**100% Load**	**75% Load**	**100% Load**
Single Phase Models														
P26-1S	Prime	92	59.7	61.7	65.7	67.7	75.7	78.1	–	–	–	–	–	–
	Standby	92	60.2	62.3	66.2	68.3	76.3	78.9	–	–	–	–	–	–
P26-4S	Prime	96	59.9	62.6	65.9	68.6	76.1	79.5	–	–	–	–	–	–
	Standby	96	60.7	63.7	66.7	69.7	77.1	81.0	–	–	–	–	–	–
P35-1S	Prime	91	57.4	58.0	63.4	64.0	75.9	76.5	60.5	61.3	66.5	67.3	78.4	79.1
	Standby	91	57.5	58.2	63.5	64.2	76.1	76.7	60.8	61.6	66.8	67.6	78.6	79.5
P35-2S	Prime	90	56.3	56.7	62.3	62.7	74.6	74.9	–	–	–	–	–	–
	Standby	90	56.4	56.9	62.4	62.9	74.7	75.0	–	–	–	–	–	–
P35-3S*	Prime	–	61.6	62.2	67.6	68.2	79.2	79.7	63.6	64.3	69.6	70.3	80.9	81.4
	Standby	–	61.8	62.4	67.8	68.4	79.3	79.9	63.9	64.6	69.9	70.6	81.1	81.6
P50-1S	Prime	91	58.1	59.1	64.1	65.1	76.6	77.3	61.1	62.1	67.1	68.1	78.9	80.0
	Standby	91	58.5	59.5	64.5	65.5	76.9	77.6	61.4	62.5	67.4	68.5	79.3	80.5
P50-2S	Prime	91	58.9	58.8	64.9	64.8	76.8	76.5	–	–	–	–	–	–
	Standby	91	58.8	58.8	64.8	64.8	76.7	76.4	–	–	–	–	–	–
P50-3S	Prime	92	56.9	57.5	62.9	63.5	75.3	75.8	60.0	60.5	66.0	66.5	78.6	78.9
	Standby	92	57.1	57.9	63.1	63.9	75.5	76.1	60.1	60.6	66.1	66.6	78.7	79.1
P80-2S	Prime	96	62.2	62.8	68.2	68.8	80.2	80.8	65.1	65.3	71.1	71.3	84.4	84.6
	Standby	96	62.4	63.1	68.4	69.1	80.4	81.0	65.2	65.4	71.2	71.4	84.4	84.6

Levels in accordance with European Noise Directive (2000/14/EC).
*Uncertified

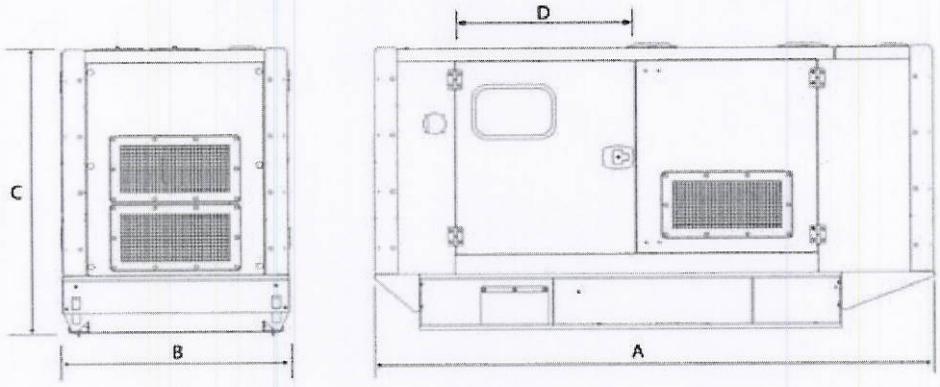
Dimensions, Weights and Fuel Capacities



Generating Set Model	A: mm (in)	B: mm (in)	C: mm (in)	D*: mm (in)	Weight: kg (lb)	Fuel Capacity l (US gal)
3 Phase Models						
P33-1	2120 (83.5)	970 (38.2)	1525 (60.0)	718 (28.3)	991 (2185)	161 (43.0)
P33-4	2120 (83.5)	970 (38.2)	1525 (60.0)	718 (28.3)	991 (2185)	161 (43.0)
P44-1	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	1293 (2851)	219 (58.0)
P50-1	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	1250 (2756)	219 (58.0)
P50-2	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	1242 (2738)	219 (58.0)
P55-1	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	1250 (2756)	219 (58.0)
P55-2	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	1290 (2844)	219 (58.0)
P65-1	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	1300 (2866)	219 (58.0)
P65-2	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	1340 (2954)	219 (58.0)
P65-3	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	1378 (3038)	219 (58.0)
P88-1	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	1440 (3175)	219 (58.0)
P88-2	2770 (109.1)	1120 (44.1)	1525 (60.0)	896 (35.3)	1540 (3395)	250 (66.0)
P110-2	2770 (109.1)	1120 (44.1)	1525 (60.0)	896 (35.3)	1600 (3527)	250 (66.0)
P150-1	3520 (138.6)	1120 (44.1)	1815 (71.5)	1145 (45.1)	2025 (4464)	349 (92.0)
P150-2	3520 (138.6)	1120 (44.1)	1815 (71.5)	1145 (45.1)	2065 (4553)	349 (92.0)
P165-1	3520 (138.6)	1120 (44.1)	1815 (71.5)	1145 (45.1)	2080 (4586)	349 (92.0)
P165-2	3520 (138.6)	1120 (44.1)	1815 (71.5)	1145 (45.1)	2120 (4674)	349 (92.0)
P200-2	3520 (138.6)	1320 (52.0)	1815 (71.5)	1080 (42.5)	2238 (4935)	418 (110)

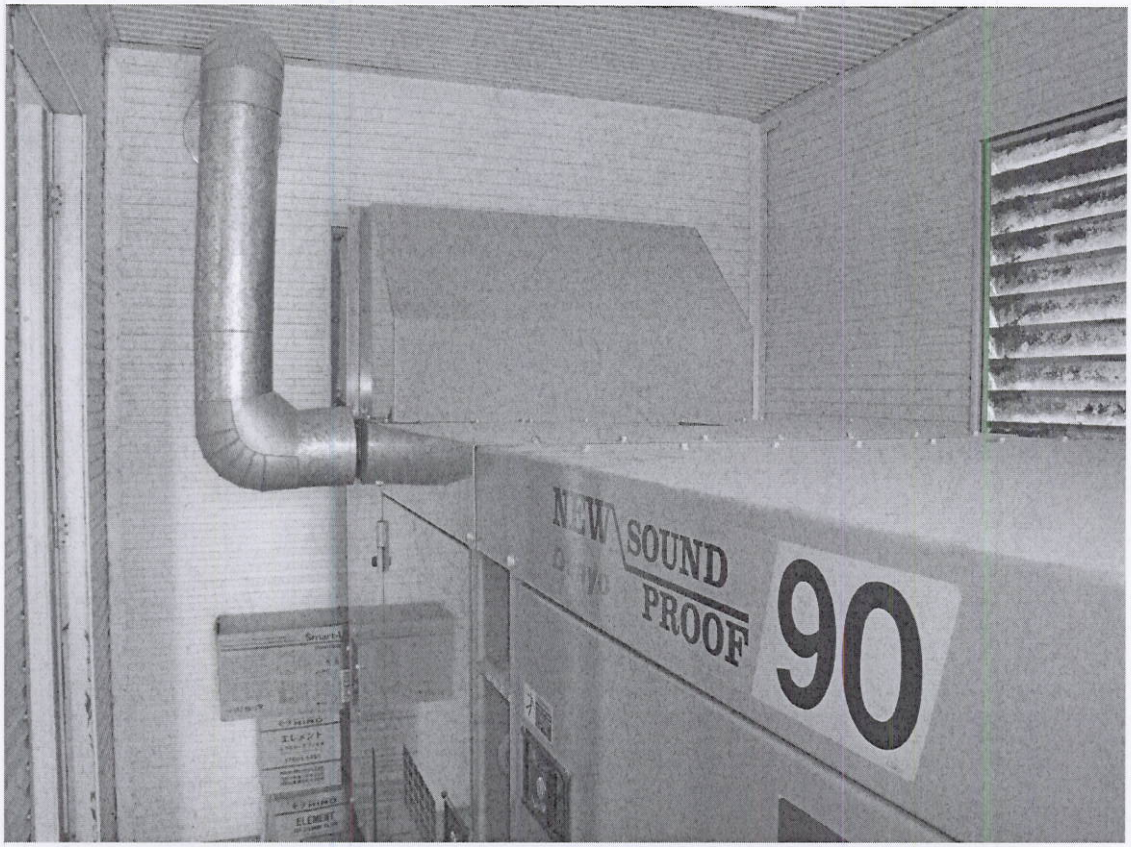
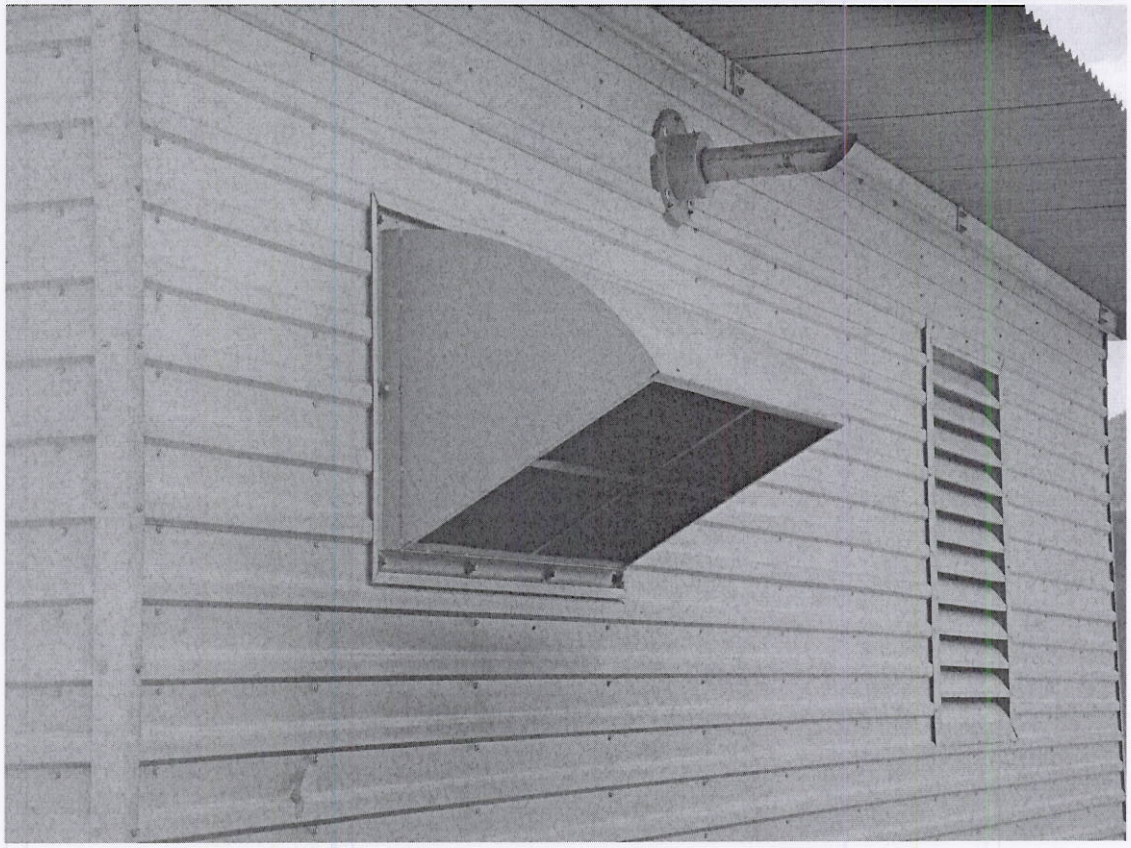
*Clearance required on both sides of set. Weight with lube oil and coolant, no fuel.

Dimensions, Weights and Fuel Capacities



Generating Set Model	A: mm (in)	B: mm (in)	C: mm (in)	D*: mm (in)	Weight: kg (lb)	Fuel Capacity l (US gal)
Single Phase Models						
P26-1S	2120 (83.5)	970 (38.2)	1525 (60.0)	718 (28.3)	991 (2185)	161 (43.0)
P26-4S	2120 (83.5)	970 (38.2)	1525 (60.0)	718 (28.3)	991 (2185)	161 (43.0)
P35-1S	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	1340 (2954)	219 (58.0)
P35-2S	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	1292 (2848)	219 (58.0)
P35-3S	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	1343 (2961)	219 (58.0)
P50-1S	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	1340 (2954)	219 (58.0)
P50-2S	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	1380 (3042)	219 (58.0)
P50-3S	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	1418 (3126)	219 (58.0)
P80-2S	2770 (109.1)	1120 (44.1)	1525 (60.0)	896 (35.3)	1710 (3770)	250 (66.0)

*Clearance required on both sides of set. Weight with lube oil and coolant, no fuel.


NEW SOUND PROOF
90