# GOLDEN MAJD Co.

27 - 30S

| Rating @ 0.8 PF | | Prime rating | Stand-by rating |
|---|---|---|---|
| Voltage *1 | Freq. *2 | Pt27 *3 | PT30S *4 |
| 400 V | 50 Hz | 27 KVA | 30 KVA |
| 480 V | 60 Hz | 34 KVA | 37 KVA |

The above ratings represent the generating set capability guarantied within ±3% at the references conditions equivalent to those specified in ISO 8528/1, ISO 3046/1 and BS 5514/1

**NOTES**

1 - The applicable voltage range is 380V to 415V for 50Hz applications and 380V to 480V for 60Hz applications.
2 - This generating set is of switchable speed of 1500rpm/1800rpm.
3 - **Pt27** is the prime power rating of the generating set, where a variable load and unlimited hours usage are applied on the generating set with an average load factor of 80% of the prime rating over each 24 hour period. Noting that a 10% overload is available for 1 hour in every 12 hours operation.
4 - **PT30S** is the standby power rating of the generating set, where a variable load limited to an annual usage up to 500 hours is applied, with 300 hours of which may be continuous running. Noting that no overload is permitted.

| Engine Technical Data | | |
|---|---|---|
| Model | Perkins 1103A-33G | |
| Cylinders | 3; vertical in-line | |
| Aspiration | Naturally aspirated | |
| Combustion | Direct injection | |
| Cooling System | Water cooled | |
| Displacement | 3.30 L | |
| Oil consumption | 0.15 % of fuel consumption | |
| Lube oil capacity | 8.30 L Max | |
| Coolant capacity | 10.20 L | |
| Governor | Mechanical | |
| Emissions regulations | TA-Luft (1986) | |
| Speed | 1500 rpm | 1800 rpm |
| Fuel Consumption PT27 | 7.1 L/H | 8.6 L/H |
| Fuel Consumption PT30S | 7.9 L/H | 9.5 L/H |
| Radiator Cooling Air Flow | 53.0 $m^3$/min | 70.0 $m^3$/min |
| Max Exhaust Gas Flow | 5.7 $m^3$/min | 6.4 $m^3$/min |

The above performance data are valid as per the following specs:
- Diesel Fuel is according to BS2869 Class A2 or equivalent.
- Lubricating oil is according to API CG4 (15W/40).
- The coolant should be 50% antifreeze and 50% fresh water.

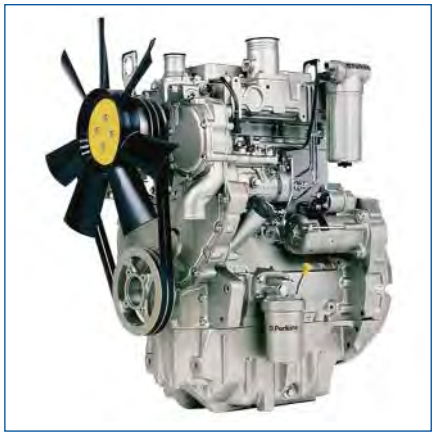
| Alternator Technical Data | | |
|---|---|---|
| Model | Leroy Somer LSA 42.2 M7 | |
| Regulation | ± 0.5 % | |
| International protection | IP23 | |
| Insulation class | H | |
| Terminals | 12 | |
| Frequency | 50 Hz | 60 Hz |
| Coolant Air Flow | 0.15 $m^3$/s | 0.18 $m^3$/s |

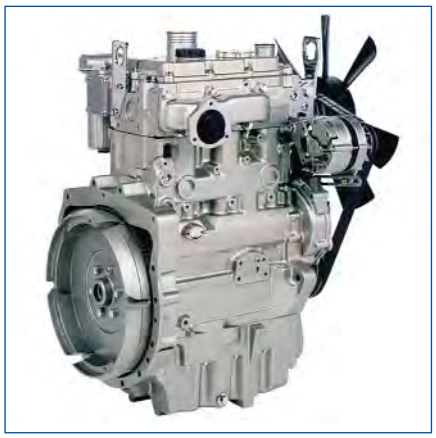
| Shipping Data | | | |
|---|---|---|---|
| Length | Width | Height | Weight |
| 1600 mm | 760 mm | 1160 mm | 772 kg |

All information given in this leaflet is correct at the time of printing but it may be changed subsequently by the Company


ISO 9001 : 2000
Certificate Number: CC1680-009512,009912

62 St. - Baghdad - Iraq
Tel. : 8150445
8850942
8852140
Mobile : 07901150364
07901109589
07901305088
07901680139
www.goldenmajd.com
E-mail:goldenmajd@yahoo.com
majidobaidi@yahoo.com





Building upon Perkins proven reputation within the power generation industry, the 1100 Series range of ElectropaK engines now fit even closer to customer's needs.

In the world of power generation success is only gained by providing more for less. With the 1103A-33G Perkins has engineered even higher levels of reliability, yet lowered the cost of ownership.

1100A units are designed for territories that do not require compliance to EPA or EU emissions legislation. These units are able to meet TA luft legislation.

# 1100 Series

## 1103A-33G

### Diesel Engine - ElectropaK

28 kWm 1500 rev/min
33 kWm 1800 rev/min

## Compact, Efficient Power

- 1100 Series is the result of an intensive period of customer research that has guided the development of the range.
- The new 3.3 litre cylinder block ensures bore roundness is maintained under the pressures of operation. It also ensures combustion and mechanical noise is lowered.
- A new cylinder head has re-established Perkins mastery of air control.

## Quality by Design

- Product design and Class A manufacturing improvements enhance product reliability while maintaining Perkins legendary reputation for durability.

## Cost Effective Power

- Compact size and low noise.
- Lower fuel consumption and oil use.
- 500 hour service intervals.
- Two year warranty.

## Product Support

- Total worldwide service is provided through a network of 4,000 distributors and dealers.
- TIPSS - The Integrated Parts and Support System enables customers to specify and order parts electronically as well as service engines with on-line guides and service tools.

| Engine speed rev/min | Operation Type | Typical Generator Output (Net) | | Engine Power | | | |
|---|---|---|---|---|---|---|---|
| | | | | Gross | | Net | |
| | | kVA | kWe | kW | bhp | kW | bhp |
| 1500 | Prime Power | 30.0 | 24.0 | 28.2 | 37.8 | 27.7 | 37.1 |
| | Standby (maximum) | 33.0 | 26.4 | 31.0 | 41.6 | 30.4 | 40.8 |
| 1800 | Prime Power | 34.9 | 27.9 | 33.2 | 44.5 | 32.2 | 43.2 |
| | Standby (maximum) | 38.2 | 30.6 | 36.5 | 48.9 | 35.4 | 62.5 |

The above ratings represent the engine performance capabilities to conditions specified in ISO 8528/1, ISO 3046/1:1986, BS5514/1
Derating may be required for conditions outside these; consult Perkins Engines Company Limited

Generator powers are typical and are based on an average alternator efficiency and a power factor (cos. q) of 0.8
**Fuel specification:** BS 2869: Part 2 1998 Class A2 or DIN EN 590
**Lubricating oil:** 15W40 to API CG4

Rating Definitions
**Prime power:** Variable load. Unlimited hours usage with an average load factor of 80% of the published prime power over each 24 hour period. A 10% overload is available for 1 hour in every 12 hours of operation.
**Standby power:** Variable load. Limited to 500 hours annual usage, up to 300 hours of which may be continuous running. No overload is permitted.

# 1100 Series
## 1103A-33G

### Standard ElectropaK Specification

Air inlet
- Mounted air filter

Fuel system
- Rotary type pump
- Ecoplus fuel filter

Lubrication system
- Wet sump with filler and dipstick
- Spin-on oil filter

Cooling system
- Thermostatically-controlled system with gear-driven circulation pump and belt-driven pusher fan
- Mounted radiator and piping

Electrical equipment
- 12 volt starter motor and 12 volt 65 amp alternator with DC output
- 12 volt shutdown solenoid energised to run

Flywheel and housing
- High inertia flywheel to SAE J620 size 10/11½
- SAE 3 flywheel housing

Mountings
- Front engine mounting bracket

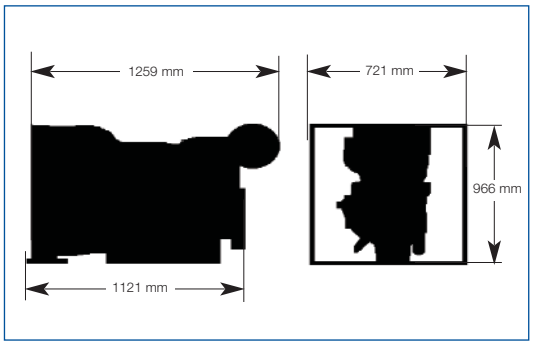
Literature
- User's Handbook

Optional equipment
- Woodward electronic governor (LCG2)
- Workshop manual
- Parts book

### General Data

| | |
|---|---|
| Number of cylinders | 3 vertical in-line |
| Bore and stroke | 105 x 127 mm |
| Displacement | 3.3 litres |
| Aspiration | Naturally aspirated |
| Cycle | 4 stroke |
| Combustion system | Direct injection |
| Compression ratio | 19.25:1 |
| Rotation | Anti Clockwise (viewed from flywheel) |
| Cooling system | Water-cooled |
| Total lubrication system capacity | 7.9 litres |
| Total coolant capacity | 10.2 litres |
| Dimensions | Length 1029 mm |
| | Width 629 mm |
| | Height 951 mm |
| Dry Weight (approximately) | 412 kg |

Final weight and dimensions will depend on completed specification.




| Fuel Consumption g/kWh Temperate/Tropical | | | | |
|---|---|---|---|---|
| Engine speed | 1500 rev/min | | 1800 rev/min | |
| | g/kWh | l/hr | g/kWh | l/hr |
| At standby power | 214 | 7.9 | 222 | 9.5 |
| At prime power | 211 | 7.1 | 221 | 8.6 |
| At 75% of prime power | 214 | 5.4 | 227 | 6.6 |
| At 50% of prime power | 232 | 3.9 | 251 | 4.9 |

### Option Groups

A selection of optional items is available to enable the customer to prepare a specification precisely matched to the needs.

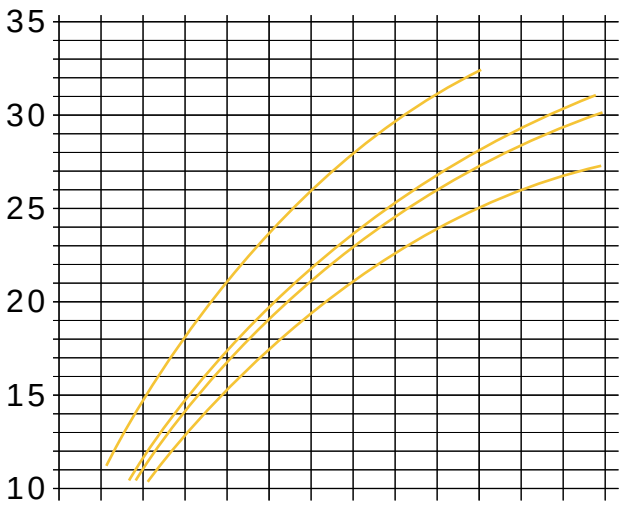
Perkins®

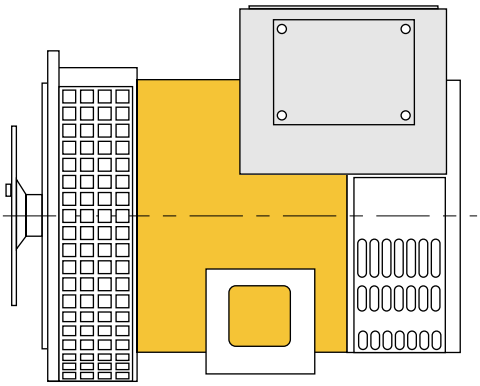
**Perkins Engines Company Limited**
Peterborough PE1 5NA
United Kingdom
Telephone +44 (0)1733 583000
Fax +44 (0)1733 582240
**www.perkins.com**

Distributed by


Publication No.1780/01/06 Produced in England 

2640 en - 06.2007 / e



# ALTERNATORS

## LSA 42.2 - 4 Pole - Three phase

### Electrical and mechanical data

PARTNER®

# ALTERNATORS

## LSA 42.2 - 4P

50 Hz - 1500 r.p.m.

## TYPICAL DATA

| | | | | |
|---|---|---|---|---|
| Insulation class | **H** | Excitation system | **Shunt** | **A R E P** |
| Winding pitch - Code | **2/3 - (N° 6)** | A.V.R. model | **R 250** | **R 438** |
| Wires | **12** | Voltage regulation (steady state) | **± 0,5 %** | **± 0,5 %** |
| Drip proof | **IP 23** | Sustained short-circuit current | **-** | **300% (3 IN) : 10s** |
| Altitude | **≤ 1000 m** | Total harmonic (*) TGH / THC | **< 4 %** | **< 4 %** |
| Overspeed | **2250 min $^{-1}$** | Wave form : NEMA = TIF - (*) | **< 50** | **< 50** |
| Air flow | **0,15 m$^3$/s** | Wave form : I.E.C. = THF - (*) | **< 2 %** | **< 2 %** |

(*) Total harmonic content line to line, at no load or full rated linear and balanced load

## RATINGS : kVA / *kW* - **Power factor = 0,8**

| Duty/Ambiant T° | | Continuous / 40°C | | | | | | | | Stand-by / 40°C | | | | Stand-by / 27°C | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Class/T° rise | | H / 125° K | | | | F / 105° K | | | | H / 150° K | | | | H / 163° K | | | |
| Phase | | **3 ph.** | | | 1 ph. | **3 ph.** | | | 1 ph. | **3 ph.** | | | 1 ph. | **3 ph.** | | | 1 ph. |
| Y | | 380V | 400V | 415V | Δ Δ | 380V | 400V | 415V | Δ Δ | 380V | 400V | 415V | Δ Δ | 380V | 400V | 415V | Δ Δ |
| Δ | | 220V | 230V | 240V | 230V | 220V | 230V | 240V | 230V | 220V | 230V | 240V | 230V | 220V | 230V | 240V | 230V |
| **42.2 S4** | kVA | **17,5** | | | **11** | 17 | | | 10 | 20 | | | 12 | **21** | | | 12,5 |
| | kW | *14* | | | *8,8* | *13,6* | | | *8* | *16* | | | *9,6* | *16,8* | | | *10* |
| **42.2 S5** | kVA | **20** | | | **12,5** | 19,5 | | | 11,6 | 24 | | | 13,5 | **25** | | | 14,1 |
| | kW | *16* | | | *10* | *15,6* | | | *9,3* | *19* | | | *10,8* | *19,8* | | | *11,3* |
| **42.2 M6** | kVA | **23** | | | **14** | 21 | | | 13 | 27 | | | 15 | **28** | | | 15,5 |
| | kW | *18,4* | | | *11,2* | *16,8* | | | *10,4* | *21,4* | | | *12* | *22,4* | | | *12,4* |
| **42.2 M7** | kVA | **27** | | | **16** | 25 | | | 15 | 30 | | | 17,4 | **31** | | | 18,2 |
| | kW | *21,6* | | | *12,8* | *20* | | | *11,9* | *23,8* | | | *13,9* | *24,8* | | | *14,6* |
| **42.2 L9** | kVA | **31,5** | | | **18,5** | 28,5 | | | 17,1 | 33,4 | | | 20 | **35** | | | 20,6 |
| | kW | *25,2* | | | *14,8* | *23* | | | *13,7* | *26,7* | | | *15,9* | *27,8* | | | *16,5* |

## EFFICIENCIES (%) : Class H . 40° C

| | **Three phase : 400 V** | | | | | | | | | | **Single phase : 230 V** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P.F. = 0,8 | | | | | P.F. = 1 | | | | | P.F. = 0,8 | | | | | P.F. = 1 | | | | |
| | 1/4 | 2/4 | 3/4 | 4/4 | St.by | 1/4 | 2/4 | 3/4 | 4/4 | St.by | 1/4 | 2/4 | 3/4 | 4/4 | St.by | 1/4 | 2/4 | 3/4 | 4/4 | St.by |
| **42.2 S4** | 82,9 | 87,4 | 88 | 87,6 | 87,2 | 84,9 | 90,2 | 91,5 | 91,6 | 91,5 | 75,7 | 81,6 | 82,2 | 81,3 | 80,6 | 78 | 85,2 | 86,9 | 87,1 | 86,9 |
| **42.2 S5** | 84,2 | 87,8 | 87,9 | 87 | 86,6 | 86,2 | 90,8 | 91,6 | 91,5 | 91,2 | 77,2 | 82 | 81,9 | 80,4 | 79,6 | 79,8 | 86 | 87,1 | 86,8 | 86,5 |
| **42.2 M6** | 85 | 89,2 | 89,8 | 89,4 | 89,1 | 86,6 | 91,5 | 92,6 | 92,8 | 92,7 | 78 | 83,9 | 84,7 | 84,1 | 83,7 | 79,9 | 86,8 | 88,5 | 88,7 | 88,6 |
| **42.2 M7** | 86,4 | 89,6 | 89,7 | 88,9 | 88,5 | 88,1 | 92,1 | 92,8 | 92,6 | 92,4 | 79,6 | 84,3 | 84,5 | 83,5 | 82,9 | 81,6 | 87,5 | 88,7 | 88,5 | 88,3 |
| **42.2 L9** | 87,9 | 90,3 | 90 | 89 | 88,6 | 89,6 | 92,8 | 93,1 | 92,7 | 92,5 | 81,7 | 85,4 | 85,1 | 83,7 | 83,1 | 83,7 | 88,6 | 89,2 | 88,7 | 88,4 |

## REACTANCES (%) - TIME CONSTANTS (ms) : CLASS : H / 400 V

| | | **42.2 S4** | **42.2 S5** | **42.2 M6** | **42.2 M7** | **42.2 L9** |
|---|---|---|---|---|---|---|
| **Kcc** | Short-circuit ratio | 0,76 | 0,66 | 0,71 | 0,6 | 0,51 |
| **Xd** | Direct axis synchronous reactance unsaturated | 160 | 190 | 170 | 200 | 220 |
| **Xq** | Quadrature axis synchronous reactance unsaturated | 80 | 90 | 80 | 100 | 110 |
| **T'do** | Open circuit time constant | 410 | 410 | 450 | 450 | 470 |
| **X'd** | Direct axis transient reactance saturated | 10,1 | 11,5 | 9,3 | 10,9 | 11,8 |
| **T'd** | Short circuit transient time constant | 30 | 30 | 30 | 30 | 30 |
| **X"d** | Direct axis subtransient reactance saturated | 5,0 | 5,8 | 4,6 | 5,5 | 5,9 |
| **T"d** | Subtransient time constant | 3 | 3 | 3 | 3 | 3 |
| **X"q** | Quadrature axis subtransient reactance saturated | 7,1 | 8,1 | 6,5 | 7,7 | 8,4 |
| **Xo** | Zero sequence reactance unsaturated | 0,8 | 0,1 | 0,6 | 0,2 | 0,3 |
| **X2** | Negative sequence reactance saturated | 6,0 | 6,9 | 5,6 | 6,6 | 7,1 |
| **Ta** | Armature time constant | 4 | 4 | 4 | 4 | 4 |
| **OTHER DATA - CLASS : H / 400 V -** | | | | | | |
| **io** | No load excitation current (A) (SHUNT/AREP) | 0,6/0,9 | 0,6/0,9 | 0,5/0,8 | 0,5/0,8 | 0,5/0,7 |
| **ic** | Full load excitation current (A) (SHUNT/AREP) | 1,4/2,1 | 1,6/2,3 | 1,3/2 | 1,5/2,3 | 1,5/2,3 |
| **uc** | Full load excitation voltage (V) (SHUNT/AREP) | 36/13 | 40/14 | 34/12 | 39/14 | 39/14 |
| **ms** | Recovery time(ΔU =20 % trans.) | 500 | 500 | 500 | 500 | 500 |
| **kVA** (Shunt) | Motor start. (ΔU = 20% sust.) or (ΔU = 50% Transient) | 44 | 50 | 54 | 64 | 69 |
| **kVA** (AREP) | Motor start. (ΔU = 20% sust.) or (ΔU = 50% Transient) | 51 | 59 | 64 | 75 | 80 |
| **%** | Transient dip (rated step load) - PF : 0,8 LAG | 13,6 | 14,7 | 13,1 | 14,5 | 15,6 |
| **W** | No load losses | 590 | 590 | 690 | 690 | 680 |
| **W** | Heat rejection | 2000 | 2400 | 2200 | 2700 | 3100 |

According to : I.E.C. 34.1/34.2 - U.T.E. : NF C 51.111 - V.D.E. 0530 - B.S. 4999 & 5000 - NEMA : MG 1.22 - ISO 8528 . 3 - CSA (upon request) ....

# COMPACT

This type is specially designed for the most tight spaces where other types fail to be installed. With its modern design that uses the latest technologies in fabrication and paint, this enclosure is considered to be GHADDAR MACHINERY Co.'s best selling type ever.

## Charasteristics:

> Body and components made of steel with heat-treated highly corrosive powder coating.
> Stainless steel locks and black zinc die-cast hinges.
> One large door on each side to allow easy access for maintenance purposes.
> Lube oil pipe can be reached externally to allow easy drainage.
> Radiator fill access through a special rubber cap on the top of the enclosure.
> Special viewing window for the control panel in a lockable door.
> Lifting points on the base frame.
> Exhaust silencing system in the interior of the enclosure.
> Fuel fill and battery are secured through lockable doors.
> Emergency stop push button mounted on the exterior of the enclosure (optional).

GHADDAR
MACHINERY Co. S.A.L.

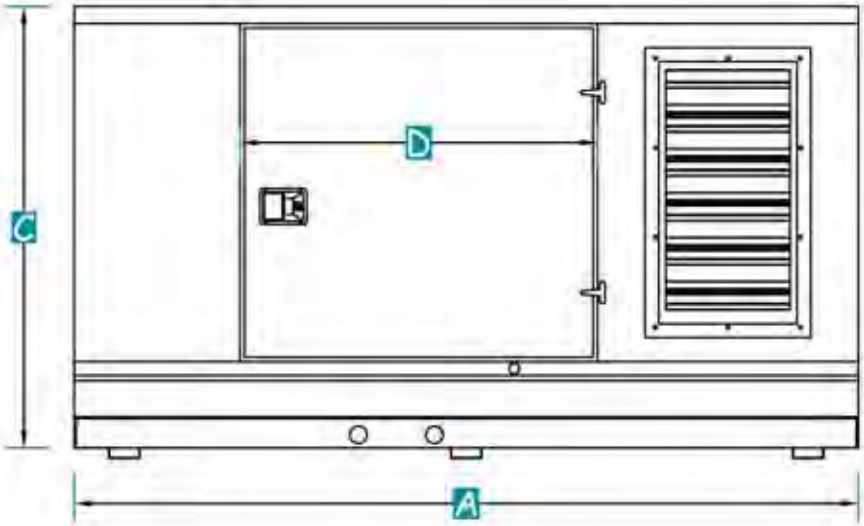
YOUR POWER PARTNER

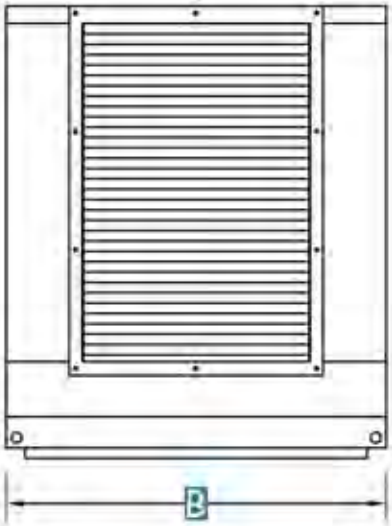
## Range
## 9 - 60 KVA

ISO 9001 :2000
QMI REGISTERED
IQNet CERTIFIED MANAGEMENT SYSTEM
Certificate Numbers: CC1680-009512, 009912

## Sound Pressure Levels (dBA)

| | | 50 Hz | | | | | | 60 Hz | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 m | | 3 m | | 7 m | | 1 m | | 3 m | | 7 m | |
| Generating Set | Powertech | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 100% |
| Engine model | KVA | Load | Load | Load | Load | Load | Load | Load | Load | Load | Load | Load | Load |
| 403C-11G | 9 | 72.5 | 73.8 | 69.5 | 70.8 | 64.5 | 65.8 | 74.2 | 75.5 | 71.2 | 72.5 | 66.2 | 67.5 |
| 403C-15G | 13 | 72.5 | 73.8 | 69.5 | 70.8 | 64.5 | 65.8 | 74.2 | 75.5 | 71.2 | 72.5 | 66.2 | 67.5 |
| 404C-22G | 20 | 72.5 | 73.8 | 69.5 | 70.8 | 64.5 | 65.8 | 74.2 | 75.5 | 71.2 | 72.5 | 66.2 | 67.5 |
| 1103A-33G | 30 | 74.7 | 76.2 | 71.2 | 72.7 | 66.2 | 67.7 | 76.6 | 78.1 | 73.1 | 74.6 | 68.1 | 69.6 |
| 1103A-33TG1 | 45 | 73.3 | 74.8 | 69.8 | 71.3 | 64.8 | 66.3 | 75.2 | 76.7 | 71.7 | 73.2 | 66.7 | 68.2 |
| 1103A-33TG2 | 60 | 73.3 | 74.8 | 69.8 | 71.3 | 64.8 | 66.3 | 75.2 | 76.7 | 71.7 | 73.2 | 66.7 | 68.2 |




## Dimensions

| Generating Set | Powertech | A: mm | B: mm | C: mm | D: mm |
|---|---|---|---|---|---|
| Engine model | KVA | | | | |
| 403C-11G | 9 | 2000 | 900 | 1260 | 876 |
| 403C-15G | 13 | 2000 | 900 | 1260 | 876 |
| 404C-22G | 20 | 2000 | 900 | 1260 | 876 |
| 1103A-33G | 30 | 2270 | 1100 | 1310 | 1020 |
| 1103A-33TG1 | 45 | 2270 | 1100 | 1310 | 1020 |
| 1103A-33TG2 | 60 | 2270 | 1100 | 1310 | 1020 |