



# Appleby Engineering Limited

For all Emergency Standby & Prime Diesel Power Generation Requirements

**APD90A**



**93 kVA / 74.4 kW  
POWERED by AKSA**

**DIESEL GENERATOR 400/230 V – 50 HZ**

| MODEL            |         |     | APD90A |
|------------------|---------|-----|--------|
| Power<br>Pf. 0.8 | Standby | kVA | 93     |
|                  |         | kW  | 74.4   |
|                  | Prime   | kVA | 85     |
|                  |         | kW  | 68     |

**Standby** : Continuous running at variable load for duration of an emergency. No overload is permitted on these ratings. In accordance with ISO 3046 .

**Prime** : Continuous running at variable load for unlimited periods with 10% overload available for 1 hour in any 12 hour period. In accordance with ISO 8528,ISO 3046.

- ✓ High quality, reliable and complete power unit
- ✓ Compact design
- ✓ Easy start and maintenance possibility
- ✓ Every generating set is subject to a comprehensive test program which includes full load testing, checking and provision of all control and safety shut down functions testing
- ✓ Fully engineered with a wide range of options and accessories: Canopy, sound proof canopy and on-road trailer



Manufacturer reserves the right to make changes in model, technical specifications, color, equipment and accessories without prior notice.

## ENGINE



| AKSA                             |                     |              |
|----------------------------------|---------------------|--------------|
| Model                            |                     | A4CRX46TI    |
| Engine Power Output at rated rpm | kWm                 | 72           |
|                                  | HP                  | 96.6         |
| Aspiration and Cooling           |                     | Turbocharged |
| Total Displacement               | Litre               | 4.58         |
| No. of Cylinders and Build       |                     | 4- Inline    |
| Engine Speed                     | rpm                 | 1500         |
| Bore and Stroke                  | mmxmm               | 110X125      |
| Compression Ratio                |                     | 17:01        |
| Governor                         |                     | Electronic   |
| Fuel Consumption at full load    | L/hr                | 18.5         |
| Fuel Tank Capacity               | Litre               | 195          |
| Oil Capacity                     | Litre               | 14           |
| Coolant Capacity                 | Litre               | 26           |
| Radiator Cooling Air             | m <sup>3</sup> /min | 132          |
| Air Intake – Engine              | m <sup>3</sup> /min | 6.842        |
| Exhaust Gas Flow                 | m <sup>3</sup> /min | 18.527       |

- ✓ Heavy duty Aksa diesel engine
- ✓ Four stroke, water cooled, Turbocharged
- ✓ Direct injection fuel system
- ✓ Electronic Governor system
- ✓ 12 /24 V D.C. starter and charge alternator
- ✓ Replaceable fuel filter, oil filter and dry element air filter
- ✓ Cooling radiator and fan
- ✓ Starter battery (with lead acid) including Rack and Cables
- ✓ Flexible fuel connection hoses and manual oil sump drain valve
- ✓ Industrial capacity exhaust silencer and steel bellows
- ✓ Jacket water heater(at automatic models)
- ✓ Operation manuals and circuit diagram documents

## ALTERNATOR

|                                       |   |
|---------------------------------------|---|
| Design                                | Brushless single bearing, revolving field               |
| Stator                                | 2/3 pitch   |
| Rotor                                 | Single bearing, flexible disc                           |
| Insulation System                     | Class H   |
| Standard Temperature Rise             | 125 - 163°C Continuous                                  |
| Exciter Type                          | Self Excited  |
| Phase Rotation                        | A (U), B (V), C (W)                                     |
| Alternator Cooling                    | Direct drive centrifugal blower fan                     |
| AC Waveform Total Harmonic Distortion | No load < 1.5%. Non distorting balanced inear load < 5% |
| Telephone Influence Factor (TIF)      | <50 per NEMA MG1-22.43                                  |
| Telephone Harmonic Factor (THF)       | <2%   |

- ✓ Brushless, single bearing system, flexible disc, 4 poles
- ✓ Impregnation with tropicalised epoxy varnish
- ✓ Insulation class H
- ✓ Solid state Automatic Voltage Regulator
- ✓ Standard degree of protection IP21 (\*IP22/IP23 is availab.)
- ✓ Stator winding with 2/3 pitch for improved harmonics
- ✓ Self-exciting and self-regulating

## CONTROL SYSTEM

Control supervision and protection panel is mounted on the genset base frame. The control panel is equipped as follows:



DSE 6020

### 1. Auto Mains Failure Control Panel

Panel equipments:

- ✓ Control with AMF module
- ✓ Static battery charger
- ✓ Emergency stop push button

#### a) Generating set control module DSE 6020 features:

- ✓ The module is used to monitor main supply and starts and stops of a standby generating set
- ✓ Micro-processor based design
- ✓ Automatic control of main and generator contactors
- ✓ Monitors engine performance and AC power output LED alarm indication
- ✓ Front panel configuration of timers and alarm trip points
- ✓ CAN and magnetic pick-up versions (specify on ordering)
- ✓ 4 digital inputs/3 analogue inputs
- ✓ 6 outputs (4 configurable on Magnetic Pick-up, 6 configurable on CANbus version)
- ✓ Easy push button control  
STOP/RESET - MANUAL - AUTO - TEST – START

#### b) Metering via LED display:

- ✓ Generator Volts (L-L / L-N)                      Generator kVA
- ✓ Engine oil pressure (PSI-Bar)                      Generator kW
- ✓ Generator Ampere (L1,L2,L3)                      Generator Cos ( $\sigma$ )
- ✓ Engine temperature ( $^{\circ}$  C &  $^{\circ}$  F)
- ✓ Generator Frequency (Hz)
- ✓ Plant battery volts
- ✓ Engine hours run
- ✓ Mains Volts (Ph-Ph/Ph-N)

#### c) Alarms:

- ✓ Over and Under Speed
- ✓ Low and High Battery Volt.
- ✓ Start and Stop Failure
- ✓ Charge fail
- ✓ Over Current
- ✓ Under / Over Generator Voltage
- ✓ Low Oil Pressure
- ✓ Emergency stop
- ✓ High engine temperature

#### d) LED Indications:

- ✓ Mains available
- ✓ Generator available
- ✓ Mains on load
- ✓ Generator on load

### 2. Power Outlet Terminal Board Mounted on the Genset Base frame

## OPTIONS

#### Diesel Engine

- ✓ Oil heater

#### Alternator

- ✓ 3/4 Pole Output Circuit Breaker
- ✓ Anti-condensation Heater

#### Panel

- ✓ Charge ammeter
- ✓ Transfer Switch 3Pole
- ✓ Transfer Switch 4 Pole
- ✓ Earth Fault ,single set

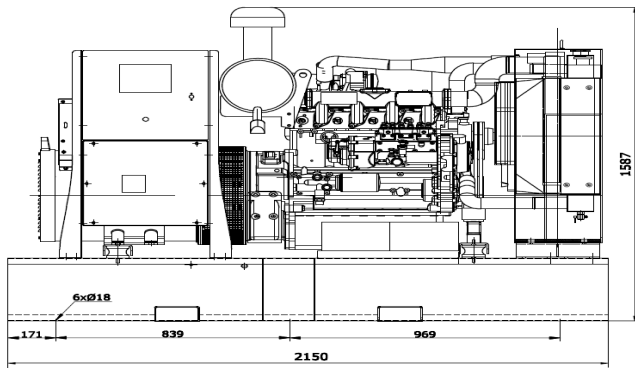
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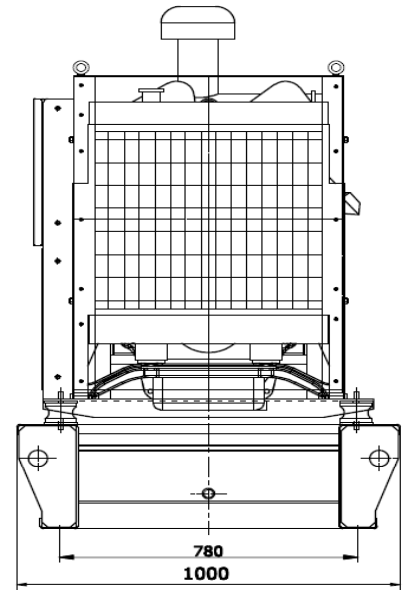
#### Accessories

- ✓ Bulk fuel tank
- ✓ Automatic filling system
- ✓ Fuel-water separator filter
- ✓ Low fuel level alarm
- ✓ Residential silencer
- ✓ Enclosure or sound proof canopy
- ✓ Trailer
- ✓ Manual oil drain pump
- ✓ Tool kit for maintenance

## CHASSIS



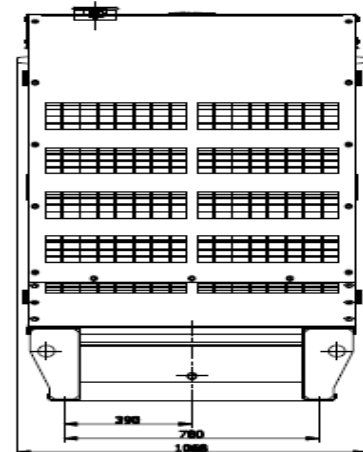
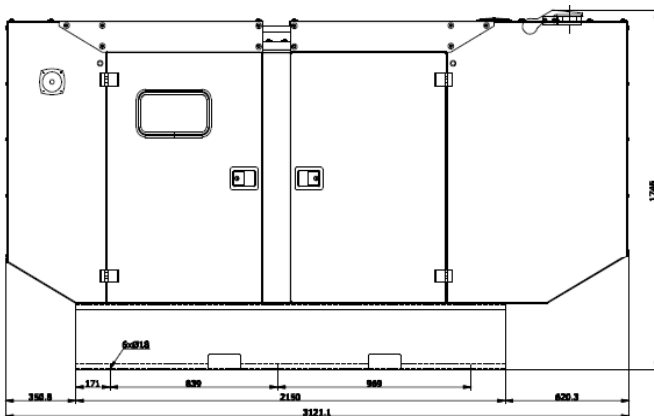
- ✓ The complete gen-set is mounted as whole on a heavy-duty fabricated, steel base frame
- ✓ Antivibration pads are fixed between the engine/ alternator feet and the base frame
- ✓ Base frame design incorporates an integral fuel tank (Up to 750 kVA)
- ✓ The generating set can be lifted or carefully pushed/ pulled by the base frame
- ✓ Dial type fuel gauge and drain plug on the fuel tank
- ✓ Forklift pockets within base frame (up to 500kVA)



## DIMENSIONS

| OPEN TYPE             |    |                    |
|-----------------------|----|--------------------|
| DIMENSIONS (LxWxH)    | mm | 2150x1000x1587     |
| DRY WEIGHT            | kg | 1285               |
| SOUND ATTENUATED TYPE |    |                    |
| DIMENSIONS (LxWxH)    | mm | 3121 x 1068 x 1746 |
| DRY WEIGHT            | kg | 1620               |

## CANOPY



- ✓ All canopy parts are designed with modular principles
- ✓ Without welding assembly
- ✓ Doors on each side
- ✓ All metal canopy parts are painted by electrostatic polyester powder paint

- ✓ Exhaust silencer is protected against environment influences
- ✓ Thermally insulated engine exhaust system
- ✓ Emergency stop push button is installed outside of the canopy
- ✓ Easy lifting and moving
- ✓ Easy maintenance and operation

## Appleby Engineering Limited

PO Box 71 011, Rosebank, Auckland  
 ☎ 09 820 2261. ☎ 09 820 2455  
 Unit D, 193 Waterloo Road, Christchurch  
 ☎ 03 349 2030. ☎ 03 349 2026  
 E-mail: [sales@genset.co.nz](mailto:sales@genset.co.nz)  
[www.genset.co.nz](http://www.genset.co.nz)

