Wholesale Diesel Generators

WHOLESALE DIESEL GENERATORS
A DIVISION OF NORTH STAR LOGISTICS LLC
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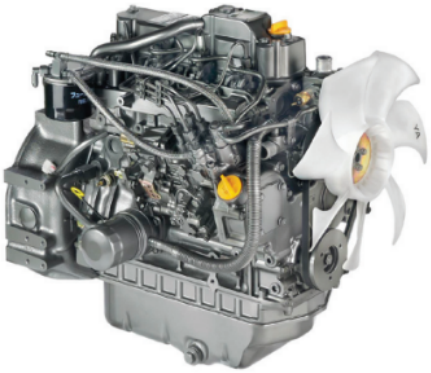
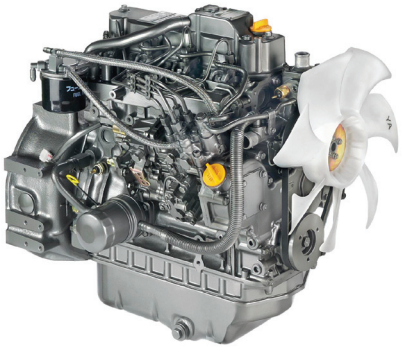
20KW
YANMAR
DIESEL GENERATOR



GENERAL INFORMATION & KEY FEATURES

- **Power:** 20KW at 60 Hz
- **Engine:** Yanmar 4TNV98-ZGGE
- **Cylinder:** 4-cylinder
- **Cooling:** Water-cooled
- **Displacement:** 3.32 Liter
- **Bore x Stroke:** 98x110 mm
- **Voltage:** Any voltage can be customized
- **Phase:** 3-Phase or Single Phase
- **Operating Speed:** 1800 rpm
- **Noise Level:** 69 db @ 7m
- **Enclosure Type:** Silent IP-65, soundproof and weatherproof customizable enclosure
- **Controller:** DSE GenSet 6110
- **Fuel Tank:** 38 or 105 gallons, extended fuel tank capacity options
- **Dimensions:** L*W*H - 71 x 41 x 50 (in.)
- **Weight:** 1700 lbs.
- **Certifications:** Certified ISO:9001, ISO:17025, ISO:8258, EPA Tier 4, UL2200

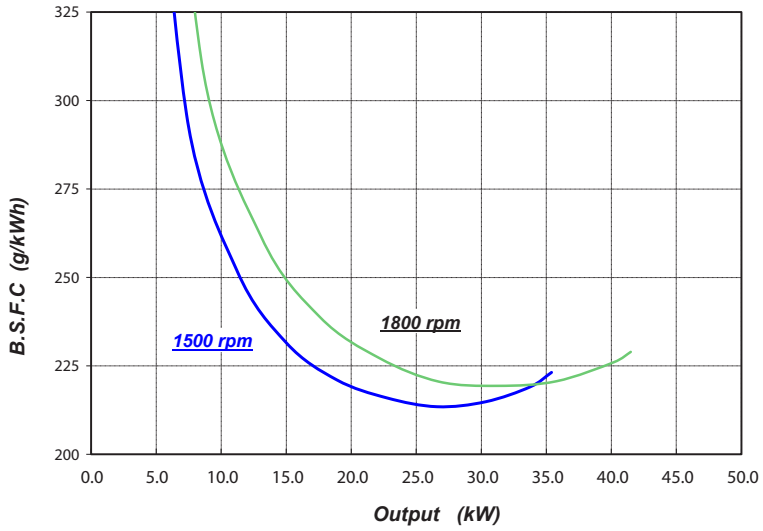


NET INTERMITTENT POWER Potencia Neta Intermitente	54.7 hp 40.8 kW
RATED SPEED Velocidad de Regimen	1800 RPM

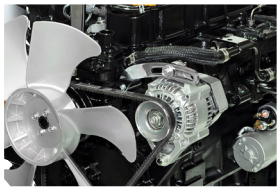
4TNV98-ZGGE

Dimensions & Performance Data & Quick Specs

Length / Longitud	**30.04 in (763 mm)**
Width / Ancho	**21.65 in (550 mm)**
Height / Altura	**29.21 in (742 mm)**
Dry Weight / Peso en seco	**540 lbs / 245 kg**



SPECIFICATION Especificacion	ZGGE
CYLINDERS Cilindros	4
BORE X STROKE Diametro x Carrera	3.9 X 4.3 (in) 98 X 110 (mm)
DISPLACEMENT Cilindrada	202.5 (ci) 3319 (cc)
COMBUSTION TYPE Tipo de Combustion	Direct Injection Inyeccion Directa
ASPIRATION Aspiracion	Naturally Aspirated Aspiracion Natural
GOVERNOR TYPE Tipo de Gobernador	Electric Electrico

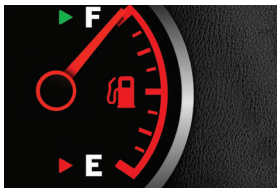


Reliable & Durable

The TNV engines now proudly take up the running as Yanmar's premium small industrial diesel. They offer even more enhanced durability due to better block cooling, a stiffer crank and pistons, finer tolerance in the journal and more. CAE analysis has brought lower vibrations and higher strength to the mounting structure for even better reliability in heavy-duty jobs.

Clean Emissions

Building off the proven TNE design, Yanmar has achieved superior exhaust emissions by improving the combustion chamber and fuel injection equipment design. Engines are compliant with Interim Tier 4 and EU stage III A exhaust emissions regulations.



Fuel Delivery and Economy

A newly designed, Distributor-Type MP4 Fuel Injection Pump is utilized to assure more precise fuel delivery and control. The result is reduced emissions, improved performance over a wide range of applications and increased fuel economy which assures that Yanmar's reputation for superior starting characteristics continues.

Lubrication System
10.5L Capacity Deep Oil Pan

Electrical System
12V, 40 Amp Alternator

Fuel System
Distributor-Type MP4 Fuel Injection Pump

Cooling System
Water Pump, Belt Driven

Power Take Off
FWH-SAE #3 t=125
FW-SAE 11.5" CMP

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Engine photo may not reflect actual specifications.
IE-4TNV98-ZGGE-SS0214

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S0L2-M1 Winding 14

S0L2-M1 - Technical Data Sheet

Standards

Stamford industrial alternators meet the requirements of IEC EN 60034 and the relevant section of other international standards such as BS5000, VDE 0530, NEMA MG1-32, IEC34, CSA C22.2-100 and AS1359. Other standards and certifications can be considered on request.

Quality Assurance

Alternators are manufactured using production procedures having a quality assurance level to BS EN ISO 9001.

Excitation and Voltage Regulators

Excitation System	
AVR Type	**AVR Power**
AS540	Self-Excited
Voltage Regulation	± 1%
No Load Excitation Voltage (V)	7.7 V
Full Load Excitation Voltage (V)	37.4 V

STAMFORD

S0L2-M1 Winding 14

Electrical Data				
Insulation System	Class H			
Stator Winding	Double Layer Concentric			
Winding Pitch	Two Thirds			
Winding Leads	12			
Winding Number	14			
Number of Poles	4			
IP Rating	IP23			
RFI Suppression	EN 61000-6-2 & EN 61000-6-4, refer to factory for others			
Waveform Distortion	NO LOAD < 2.5% NON-DISTORTING BALANCED LINEAR LOAD < 5.0%			
Short Circuit Ratio	1/Xd			
Steady State X/R Ratio	N/A			
	60 Hz			
Telephone Interference	TIF<75			
Voltage Series Star	380	400	416	-
Voltage Parallel Star	190	200	208	-
Voltage Series Delta	220	230	240	-
kVA Base Rating (Class H)	30	30	30	-
Saturated Values in Per Unit at Base Ratings and Voltages				
Xd Dir. Axis Synchronous	2.236	2.018	1.866	-
X'd Dir. Axis Transient	0.163	0.147	0.136	-
X"d Dir. Axis Subtransient	0.137	0.123	0.114	-
Xq Quad. Axis Reactance	1.582	1.428	1.320	-
X"q Quad. Axis Subtransient	0.170	0.154	0.142	-
XL Stator Leakage Reactance	0.089	0.080	0.074	-
X2 Negative Sequence Reactance	0.259	0.234	0.216	-
X0 Zero Sequence Reactance	0.054	0.049	0.045	-
Unsaturated Values in Per Unit at Base Ratings and Voltages				
Xd Dir. Axis Synchronous	2.684	2.422	2.239	-
X'd Dir. Axis Transient	0.187	0.169	0.156	-
X"d Dir. Axis Subtransient	0.160	0.144	0.133	-
Xq Quad. Axis Reactance	1.629	1.471	1.360	-
X"q Quad. Axis Subtransient	0.204	0.184	0.170	-
XL Stator Leakage Reactance	0.100	0.090	0.084	-
X2 Negative Sequence Reactance	0.311	0.280	0.259	-
X0 Zero Sequence Reactance	0.063	0.057	0.053	-
Time Constants (Seconds)				
T'd TRANSIENT TIME CONST.	0.02			
T''d SUB-TRANSTIME CONST.	0.002			
T'do O.C. FIELD TIME CONST.	0.559			
Ta ARMATURE TIME CONST.	0.005			

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Resistances in Ohms (Ω) at 22°C	
Stator Winding Resistance (Ra)	0.175 Ω per phase series star connected
Rotor Winding Resistance (Rf)	0.747 Ω
Exciter Stator Winding Resistance	15.42 Ω
Exciter Rotor Winding Resistance	0.106 Ω per phase
Positive Sequence Resistance (R1)	0.219 Ω
Negative Sequence Resistance (R2	0.252 Ω
Zero Sequence Resistance (R0)	0.219 Ω
Aux Winding Resistance	N/A

Mechanical data	
Cooling Air	0.126 m³/sec
Shaft and Keys	All alternator rotors are dynamically balanced to better than BS6861: Part 1 Grade 2.5 for minimum vibration in operation.
Bearing	Single Bearing
Weight Complete Alternator	121.1 kg
Weight Wound Stator	49.0 kg
Weight Wound Rotor	43.4 kg
Moment of Inertia	0.159 kgm^2
Shipping weight in a Crate	159 kg
Packing Crate Size	930X590X760 mm
Maximum Over Speed	2250 RPM for two minutes
Bearing Drive End	N/A
Bearing Non-Drive End	Ball Bearing, 6305-2RS1

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S0L2-M1 Winding 14

RATINGS AT 0.8 POWER FACTOR

	Class - Temp Rise	Standby - 163/27°C	Standby - 150/40°C	Cont. H - 125/40°C	Cont. F - 105/40°C
50 Hz	Series Star (V)	N/A	N/A	N/A	N/A
	Parallel Star (V)				
	Series Delta (V)				
	kVA	N/A	N/A	N/A	N/A
	kW				
	Efficiency (%)				
	kW Input				

60 Hz	Series Star (V)	380	400	416	-	380	400	416	-	380	400	416	-	380	400	416	-
	Parallel Star (V)	190	200	208	-	190	200	208	-	190	200	208	-	190	200	208	-
	Series Delta (V)	220	230	240	-	220	230	240	-	220	230	240	-	220	230	240	-
	kVA	32.7	32.7	32.7	-	31.5	31.5	31.5	-	30.0	30.0	30.0	-	27.0	27.0	27.0	-
	kW	26.2	26.2	26.2	-	25.2	25.2	25.2	-	24.0	24.0	24.0	-	21.6	21.6	21.6	-
	Efficiency (%)	85.9	86.1	86.2	-	86.3	86.5	86.6	-	86.8	87.0	87.1	-	87.7	87.8	87.8	-
	kW Input	30.5	30.4	30.3	-	29.2	29.1	29.1	-	27.6	27.6	27.6	-	24.6	24.6	24.6	-

De-Rates

All values tabulated above are subject to the following reductions:

- 3% for every 500 meters by which the operating altitude exceeds 1000 meters above mean sea level
- 3% for every 5°C by which the operational ambient temperature exceeds 40°C
- For any other operating conditions impacting the cooling circuit please refer to applications

Note: Requirement for operating in an ambient exceeding 60°C and altitude exceeding 4000 meters must be referred to applications.

Dimensional and Torsional Drawing

For dimensional and torsional information please refer to the alternator General Arrangement and rotor drawings available on our website (http://stamford-avk.com/)

Note: Continuous development of our products means that the information contained in our data sheets can change without notice, and specifications should always be confirmed with Cummins Generator Technologies prior to purchase.

DSEGenset®

DSE6110/20 MKIII

AUTO START & AUTO MAINS (UTILITY) FAILURE CONTROL MODULES

DSE**6110 MKIII**

DSE**6120 MKIII**

KEY FEATURES

- 4-line back-lit LCD text display
- Multiple display languages
- Five-key menu navigation
- LCD alarm indication
- Customisable power-up text and screen images.
- DSENet® expansion compatibility
- Data logging facility
- Internal PLC editor
- Protections disable feature
- Fully configurable via PC using USB communications
- Front panel configuration with PIN protection
- Power save mode
- 3-phase generator sensing and protection
- 3-phase mains (utility) sensing and protection (DSE6120 MKIII only)
- Automatic load transfer control (DSE6120 MKIII only)
- Generator current and power monitoring (kW, kvar, kVA, pf)
- Mains (utility) current and power monitoring (kW, kvar, kVA, pf) (DSE6120 MKIII only)
- kW overload alarm
- Over current protection
- Breaker control via fascia buttons
- Fuel and start outputs configurable when using CAN
- 6 configurable DC outputs
- 4 configurable analogue/digital inputs
- Support for 0 V to 10 V & 4 mA to 20 mA sensors
- 8 configurable digital inputs
- CAN, MPU and alternator frequency speed sensing in one variant
- Real time clock
- Manual and automatic fuel pump control
- Engine pre-heat and post-heat functions
- Engine run-time scheduler
- Engine idle control for starting & stopping
- Fuel level alarms
- 3 configurable maintenance alarms
- Compatible with a wide range of CAN engines, including Tier 4 engine support
- Uses DSE Configuration Suite PC Software for simplified configuration
- Licence-free PC software
- IP65 rating (with optional gasket) offers increased resistance to water ingress
- Configurable CAN read & transmitted information.
- 1 alternative configuration.

KEY BENEFITS

- Automatically transfers between mains (utility) and generator (DSE6120 MKIII only) for convenience.
- Hours counter provides accurate information for monitoring and maintenance periods
- User-friendly set-up and button layout for ease of use
- Multiple parameters are monitored & displayed simultaneously for full visibility
- The module can be configured to suit a wide range of applications for user flexibility
- PLC editor allows user configurable functions to meet user specific application requirements.

RELATED MATERIALS

TITLE	PART NO.
DSE6110 MKIII & DSE6120 MKIII Installation Instructions	053-240
DSE6110 MKIII & DSE6120 MKIII Operator Manual	057-289
DSE6110 MKIII & DSE6120 MKIII Configuration Suite PC Manual	057-290

SPECIFICATIONS

DC SUPPLY

CONTINUOUS VOLTAGE RATING
8 V to 35 V Continuous
5 V for up to 1 minute

CRANKING DROPOUTS
Able to survive 0 V for 100 mS, providing supply was at least 10 V before dropout and supply recovers to 5 V. This is achieved without the need for internal batteries. LEDs and backlight will not be maintained during cranking.

MAXIMUM OPERATING CURRENT
260 mA at 12 V, 150 mA at 24 V

MAXIMUM STANDBY CURRENT
145 mA at 12 V, 85 mA at 24 V

CHARGE FAIL/EXCITATION RANGE
0 V to 35 V

GENERATOR & MAINS (UTILITY)

VOLTAGE RANGE
15 V to 415 V AC (Ph to N)
26 V to 719 V AC (Ph to Ph)

FREQUENCY RANGE
3.5 Hz to 75 Hz

MAGNETIC PICKUP

VOLTAGE RANGE
+/- 0.5 V to 70 V

FREQUENCY RANGE
10,000 Hz (max)

INPUTS

DIGITAL INPUTS A TO H
Negative switching

ANALOGUE INPUTS A & D
Configurable as:
Negative switching digital input
0 V to 10 V sensor
4 mA to 20 mA sensor
Resistive sensor

ANALOGUE INPUTS B & C
Configurable as:
Negative switching digital input
Resistive sensor

OUTPUTS

OUTPUT A & B (FUEL & START)
10 A DC at supply voltage

AUXILIARY OUTPUTS C, D, E, F, G & H
2 A DC at supply voltage

DIMENSIONS

OVERALL
216 mm x 158 mm x 43 mm
8.5” x 6.2” x 1.5”

PANEL CUT-OUT
184 mm x 137 mm
7.2” x 5.3”

MAXIMUM PANEL THICKNESS
8 mm
0.3”

STORAGE TEMPERATURE RANGE
-40°C to +85°C
-40 °F to +185 °F

OPERATING TEMPERATURE RANGE

NON-HEATED DISPLAY VARIANT
-30°C to +70°C
-22 °F to +158 °F

HEATED DISPLAY VARIANT
-40 °C to +70 °C
-40 °F to +158 °F

OPTIONAL PARTS

PART	PART NUMBER
IP65 Gasket	020-521

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Registered in England & Wales No.01319649
VAT No.316923457

DSEGenset®

DSE6110/20 MKIII

AUTO START & AUTO MAINS (UTILITY) FAILURE CONTROL MODULES

The DSE6110 MKIII is an Auto Start Control Module and the DSE6120 MKIII is an Auto Mains (Utility) Failure Control Module suitable for a wide variety of single, diesel or gas, gen-set applications.

Monitoring an extensive number of engine parameters, the modules will display warnings, shutdown and engine status information on the back-lit LCD screen, illuminated LEDs and remote PC.

The DSE6120 MKIII will also monitor the mains (utility) supply. The modules include USB connection and dedicated DSENet® terminals for system expansion.

Both modules are compatible with electronic (CAN) and non-electronic (magnetic pick-up/alternator sensing) engines and offer an extensive number of flexible inputs, outputs and extensive engine protections so the system can be easily adapted to meet the most demanding industry requirements.

The extensive list of features includes enhanced event and performance monitoring, remote communications & PLC functionality.

The modules can be easily configured using the DSE Configuration Suite PC software. Selected front panel editing is also available.

ENVIRONMENTAL TESTING STANDARDS

ELECTRO-MAGNETIC COMPATIBILITY
BS EN 61000-6-2
EMC Generic Immunity Standard for the Industrial Environment
BS EN 61000-6-4
EMC Generic Emission Standard for the Industrial Environment

ELECTRICAL SAFETY
BS EN 60950
Safety of Information Technology Equipment, including Electrical Business Equipment

TEMPERATURE
BS EN 60068-2-1
Ab/Ae Cold Test -30 °C
BS EN 60068-2-2
Bb/Be Dry Heat +70 °C

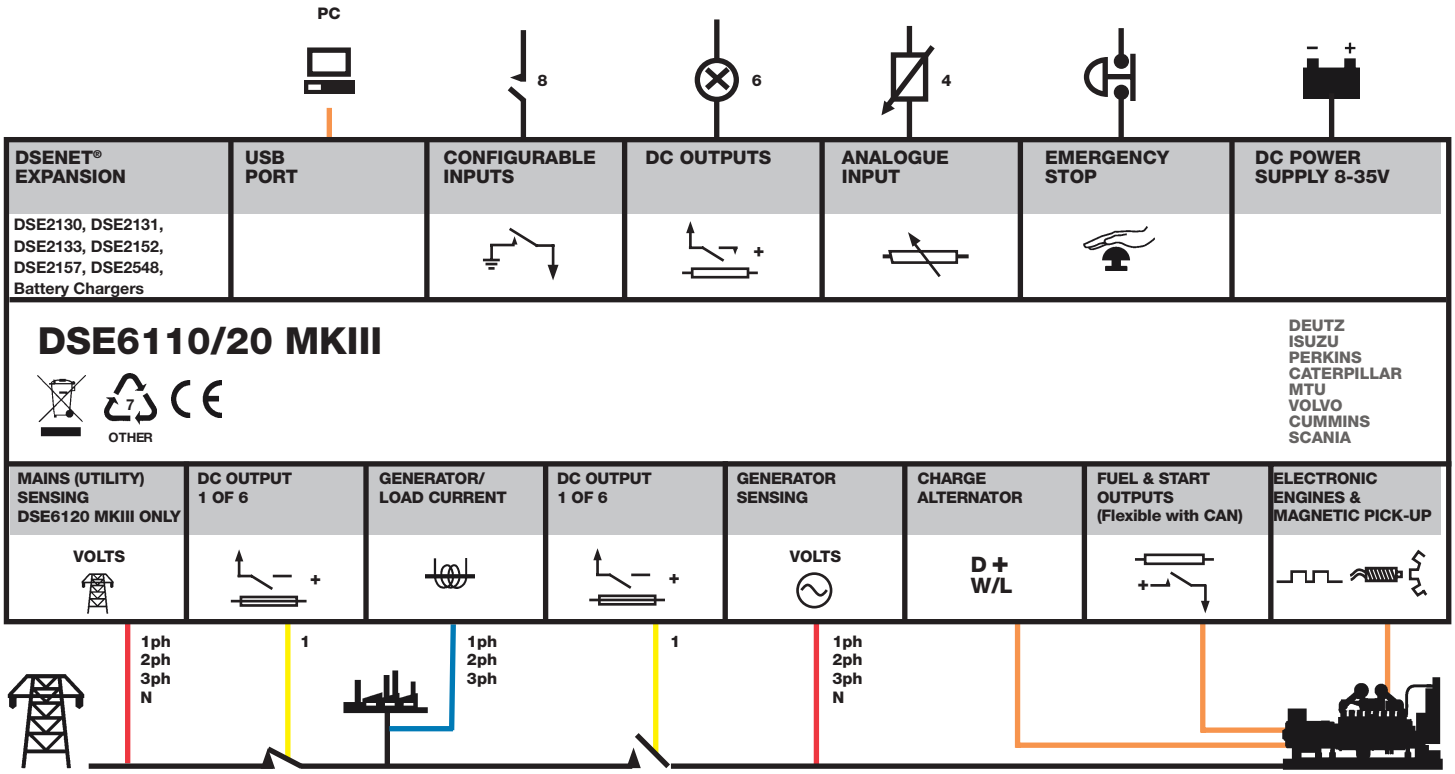
VIBRATION
BS EN 60068-2-6
Ten sweeps in each of three major axes
5 Hz to 8 Hz at +/-7.5 mm,
8 Hz to 500 Hz at 2 gn

HUMIDITY
BS EN 60068-2-30
Db Damp Heat Cyclic 20/55 °C
at 95% RH 48 Hours
BS EN 60068-2-78
Cab Damp Heat Static 40 °C
at 93% RH 48 Hours

SHOCK
BS EN 60068-2-27
Three shocks in each of three major axes
15 gn in 11 ms

DEGREES OF PROTECTION PROVIDED BY ENCLOSURES
BS EN 60529
IP65 - Front of module when installed into the control panel with the optional sealing gasket.

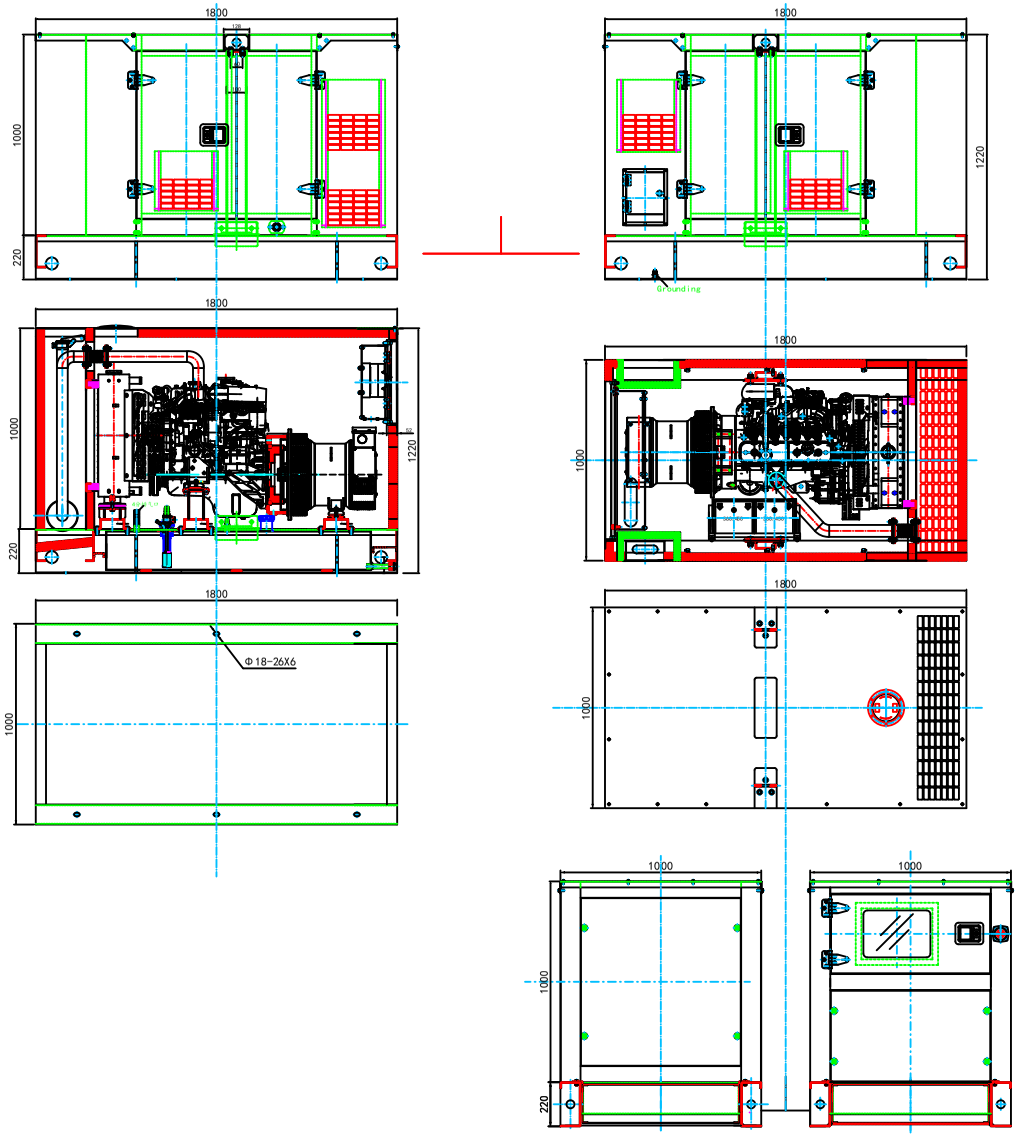
COMPREHENSIVE FEATURE LIST TO SUIT A WIDE VARIETY OF GEN-SET APPLICATIONS



ISSUE 1

NO.: 2024-005262312

Modification	2024-104281948
Modification	2024-205162028
Modification	2024-305292122



Remark	Diesel engine	Alternator	Date
A	JE493DB	PI114D	2024.05.27

Design	Wu Jun	Draw	Wu Jun		
Proofread	Li Wei	Cheking	Tang Yu Xiang		
Platemaking	Zhang Jian	Aprova	Wu Sunjian	Weichuang	
tank capacity	180L	Confirmation	A		

20KW Silent enclosure

Radiator	Remark	Quantity	Ratio
	B	1	1:1

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