



SDEC POWER

# 16KT

## SERIES

POWER  
GENERATION ENGINES



## G-DRIVE POWERPACK

Power Generation Specification

### TECHNICAL DATA SHEET

**Power Output Range**  
2510kW – 2780kW

STAGE III EMISSION COMPLIANT  
FOR USE IN THE FOLLOWING TERRITORIES, ASIA, MIDDLE EAST AND AFRICA.

## 16KT SERIES DIESEL ENGINE

| MODELS                 | MAX ENGINE OUTPUT |            | RATED GENERATOR OUTPUT |             |
|------------------------|-------------------|------------|------------------------|-------------|
|                        | Prime kW          | Standby kW | Prime kVA              | Standby kVA |
| 16KTA76-G32 (1500 rpm) | 2510              | 2780       | 2750                   | 3000        |
| 16KTA76-G32 (1800 rpm) | -                 | -          | -                      | -           |

Generator outputs calculated using nett engine power at 0.8 power factor, at an altitude below 1000 m.a.s.l. and 40-degree Celsius ambient temperature.  
Refer to the outputs and ratings tables for exact site conditions.



**Build specification for export markets**

Manufactured in the People's Republic of China



## TECHNICAL ENGINE SUMMARY

| SPECIFICATIONS                                       |                                                 | 16KTA76-G32 |  |
|------------------------------------------------------|-------------------------------------------------|-------------|--|
| Fuel Type                                            | Diesel                                          |             |  |
| Method Of Cooling                                    | Water Cooled – Set Mounted Radiator             |             |  |
| Number Of Cylinders                                  | 16                                              |             |  |
| Engine Type                                          | Inline 4 Stroke 4 Valves                        |             |  |
| Bore x Stroke mm x mm                                | 170 x 210                                       |             |  |
| Cylinder Liner Type                                  | Wet Liner                                       |             |  |
| Total Displacement cc / L                            | 76300 / 76.3                                    |             |  |
| Combustion Type                                      | Direct Injection                                |             |  |
| Aspiration - Naturally or Turbo                      | Supercharged                                    |             |  |
| Make of Turbo Charger                                | SDEC                                            |             |  |
| Valves Per Cylinder                                  | 4 per cylinder                                  |             |  |
| Compression Ratio                                    | 18:1                                            |             |  |
| Firing Order                                         | A1:B5:A3:A5:B2:B8:A2:A8:B3:A7:B4:B6:A4:A6:B1:B7 |             |  |
| Swept Volume in cm³                                  | 76265 @ 1500rpm                                 |             |  |
| Mean Piston Speed in m/min                           | 630 @ 1500rpm                                   | -           |  |
| Cyclic Irregularity                                  | -                                               |             |  |
| Fuel System                                          | High-pressure common rail                       |             |  |
| Steady State Speed Stability at Constant Load        | G3 Class ≤ ± 1.5                                |             |  |
| Flywheel & Bellhousing SAE                           | SAE 00-21                                       |             |  |
| Direction of Rotation (Viewed from Flywheel)         | Counterclockwise                                |             |  |
| PROTECTIONS & SENSORS                                |                                                 |             |  |
| Method of Protection Against High Engine Temperature | D88A-005-800+A                                  |             |  |
| Method of Protection Against Low Oil Pressure        | KE21103(NPT1/8;0-10)                            |             |  |
| Method of Protection Against Low Water Level         | KE00105(3/8-18NPT)                              |             |  |
| Method of Protection Against High Water Temperature  | D88A-005-800+A                                  |             |  |
| WEIGHTS & DIMENSIONS                                 |                                                 |             |  |
| Weight (Dry) / Weight (Wet) (kg)                     | 9450 / 10041                                    |             |  |
| Length x Width x Height (Engine Only) mm             | 3598 × 1951 × 2279                              |             |  |
| Length x Width x Height (Engine Only + Radiator) mm  | 3598 × 1951 × 2279                              |             |  |
|                                                      |                                                 |             |  |

| <b>kW (Gross kWm)</b>                    | <b>1500</b> | <b>1800</b> |
|------------------------------------------|-------------|-------------|
| Max kw                                   | 2780        | -           |
| <b>kW (Nett kWm) Rated</b>               | <b>1500</b> | <b>1800</b> |
| Continuous kW                            | 2008        | -           |
| Prime kW                                 | 2510        | -           |
| Standby kW                               | 2780        | -           |
| <b>kWe (Nett kWe)</b>                    | <b>1500</b> | <b>1800</b> |
| Continuous kWe                           | 1908        | -           |
| Prime kWe                                | 2385        | -           |
| Standby kWe                              | 2641        | -           |
| Based on an alternator efficiency of 95% |             |             |
| <b>kVA</b>                               | <b>1500</b> | <b>1800</b> |
| Continuous kVA @ 0,8pf                   | 2200        | -           |
| Prime kVA @ 0,8pf                        | 2750        | -           |
| Standby kVA @ 0,8pf                      | 3000        | -           |

These guidelines have been formulated to ensure proper application of generator drive engines in A.C. generator set installations.

#### STANDBY POWER RATING

Applicable for supplying emergency power for the duration of the utility power outage. No overload capability is available for this rating. Under no condition is an engine allowed to operate in parallel with the public utility at the Standby Power rating. This rating should be applied where reliable utility power is available. A Standby rated engine should be sized for a maximum of an 80% average load factor and 200 hours of operation per year. This includes less than 25 hours per year at the Standby Power rating. Standby ratings should never be applied except in true emergency power outages. Negotiated power outages contracted with a utility company are not considered an emergency.

#### PRIME POWER RATING

Applicable for supplying electric power in lieu of commercially purchased power. Prime Power applications must be in the form of one of the following two categories:

##### UNLIMITED TIME RUNNING PRIME POWER

Prime Power is available for an unlimited number of hours per year in a variable load application. Variable load should not exceed a 70% average of the Prime Power rating during any operating period of 250 hours. The total operating time at 100% Prime Power shall not exceed 500 hours per year. A 10% overload capability is available for a period of 1 hour within a 12-hour period of operation. Total operating time at the 10% overload power shall not exceed 25 hours per year.

##### LIMITED TIME RUNNING PRIME POWER

Limited Time Prime Power is available for a limited number of hours in a non-variable load application. It is intended for use in situations where power outages are contracted, such as in utility power curtailment. Engines may be operated in parallel to the public utility up to 750 hours per year at power levels never to exceed the Prime Power rating. The customer should be aware, however, that the life of any engine will be reduced by this constant high load operation. Any operation exceeding 750 hours per year at the Prime Power rating should use the Continuous Power rating.

#### CONTINUOUS POWER RATING

Applicable for supplying utility power at a constant 100% load for an unlimited number of hours per year. No overload capability is available for this rating.

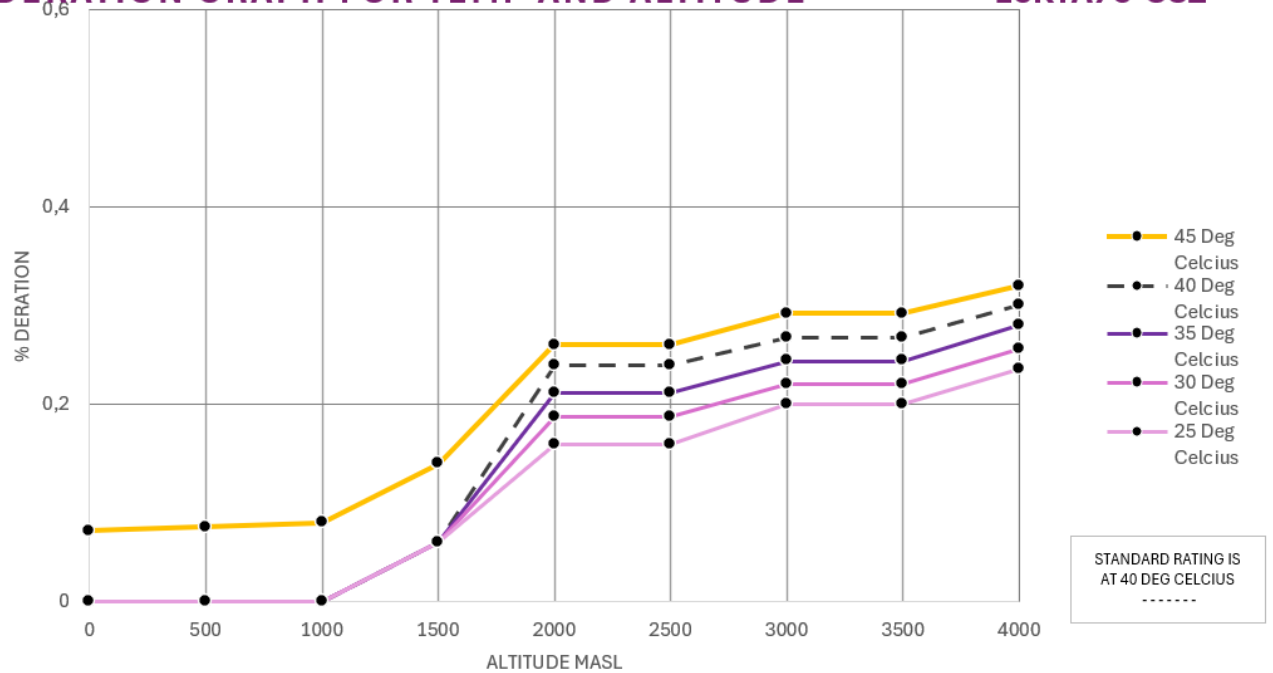
#### NB: DC VARIABLE SPEED POWER RATING

Please consult with engineering for applications where variable speed engines are required for D.C. generator set applications.

## RATINGS – DERATION CURVES

### DERATION GRAPH FOR TEMP AND ALTITUDE

16KTA76-G32



| Alt.     | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 3500 | 4000 |
|----------|-----|------|------|------|------|------|------|------|
| Temp     |     |      |      |      |      |      |      |      |
| 50 Deg C | -   | -    | -    | -    | -    | -    | -    | -    |
| 45       | 8%  | 8%   | 14%  | 26%  | 26%  | 29%  | 29%  | 32%  |
| 40       | 0%  | 0%   | 6%   | 24%  | 24%  | 27%  | 27%  | 30%  |
| 35       | 0%  | 0%   | 6%   | 21%  | 21%  | 24%  | 24%  | 28%  |
| 30       | 0%  | 0%   | 6%   | 19%  | 19%  | 22%  | 22%  | 26%  |
| 25       | 0%  | 0%   | 6%   | 16%  | 16%  | 20%  | 20%  | 24%  |

#### TEST CONDITIONS

Air temperature. .... 27 °C  
 Barometric pressure. .... 100 kPa  
 Relative humidity .... 30%  
 Air inlet restriction at maximum power (nominal) .... 2.5 kPa  
 Intercooler Pressure at maximum power (nominal) .... 2.5 kPa  
 Exhaust back pressure at maximum pressure (nominal) ... 3.0 kPa  
 Fuel temperature (inlet pump) .... 55 °C maximum

#### Notes:

All data is based on the engine operating without alternator, optional equipment and driven components. Data shown above represents gross engine performance capabilities obtained and corrected in accordance with GB/T1147.1-2017 and Equivalent ISO 3046-1:2002

Standards for ratings (continuous, prime, standby) in accordance with GB/T2820 and Equivalent ISO 8528-1:2018

## LOAD ACCEPTANCE AND GOVERNING CLASS

| Initial load acceptance                           |                      |                           |                                |                                 |                     |
|---------------------------------------------------|----------------------|---------------------------|--------------------------------|---------------------------------|---------------------|
| When engine reaches rated speed                   |                      |                           |                                |                                 |                     |
| (Withing 15 seconds after engine starts to crank) |                      |                           |                                |                                 |                     |
| Step Load                                         | Prime Power Load kWm | Load kW <sub>e</sub> nett | Expected frequency deviation % | Frequency recovery time seconds | Frequency stability |
| 25% - 75%                                         | 628 – 1883           | 596 – 1789                | 2.5-3% dip                     | ≤ 4-6                           | ± 0.5%              |
| 0% - 100%                                         | 0 – 2510             | 0 – 2385                  | 4.5-5.5% dip                   | ≤ 6-9                           | ± 0.5%              |
| 100 – 0% load drop                                | 2510 – 0             | 2385 – 0                  | 4.5-5.5% overshoot             | ≤ 3-5                           | ± 0.5%              |

## VALVES AND MECHANICS

### VALVE MECHANISM

| Type                   | Overhead Valves                   |           |
|------------------------|-----------------------------------|-----------|
| Number of Valves       | 2 inlet and 2 outlet per Cylinder |           |
| Valve Lashes when Cold | Intake 0.45mm                     |           |
|                        | Exhaust 0.80mm                    |           |
| VALVE TIMING           | OPENING                           | CLOSE     |
| Intake Valve           | 33 ° BTDC                         | 48 ° ABDC |
| Exhaust Valve          | 68 ° BBDC                         | 34 ° ATDC |
|                        |                                   |           |

## ELECTRICAL SYSTEM

### CHARGING ALTERNATOR

| Charging Alternator Manufacturer       | SDEC                  |
|----------------------------------------|-----------------------|
| Charging Alternator                    | 55 A x 27V            |
| Voltage Regulator                      | Built-In IC Regulator |
| STARTER MOTOR                          |                       |
| Starter Motor Manufacturer             | SDEC                  |
| Number of Starter Motors               | 2                     |
| Starter Motor Power                    | 9.5 Kw x2             |
| Starter Motor Voltage                  | 24 V                  |
| BATTERIES (NOT SUPPLIED / RECOMMENDED) |                       |
| Battery Capacity                       | 200 Amp Hour          |
| Number of Battery & Type               | 6 x 12V Lead Acid     |

## FUEL SYSTEM

### Injection System

|                  |                           |
|------------------|---------------------------|
| Type             | Electronic                |
| Injection Pump   | High-pressure common rail |
| Injection Nozzle | Porous                    |
| Opening Pressure | Electronic control        |
| Injection Timing | Electronic control        |
| Feed Pump        | Electronic control        |
| Governor         | Electronic regulator      |
| Governing Class  | G3                        |
| Speed Controller | -                         |

### Fuel Filtration

|                   |                     |
|-------------------|---------------------|
| Fuel Filter       | Spin On Type        |
| Fuel Filters Type | Full Flow Cartridge |

### Fuel

|                         |                                               |
|-------------------------|-----------------------------------------------|
| Fuel Type               | Diesel                                        |
| Suggested Grade / Class | 50 ppm or better                              |
| Bio Diesel Compatible   | Confirm the ratio with the factory before use |

## LUBRICATION SYSTEM

### Oil Lubrication System

|                    |                                |
|--------------------|--------------------------------|
| Lubrication Method | Pressure splash                |
| Oil Pump Type      | Gear type driven by crankshaft |

### Oil Pan Capacity

|                                 |           |
|---------------------------------|-----------|
| High Level / Low Level (Litres) | 350 / 250 |
|---------------------------------|-----------|

### Angularity limit

|              |      |
|--------------|------|
| Front Down   | 10 ° |
| Front Up     | 10 ° |
| Side to Side | 10 ° |

### Oil Filtration

|                  |                     |
|------------------|---------------------|
| Oil Filter       | Spin On Type        |
| Oil Filters Type | Full Flow Cartridge |

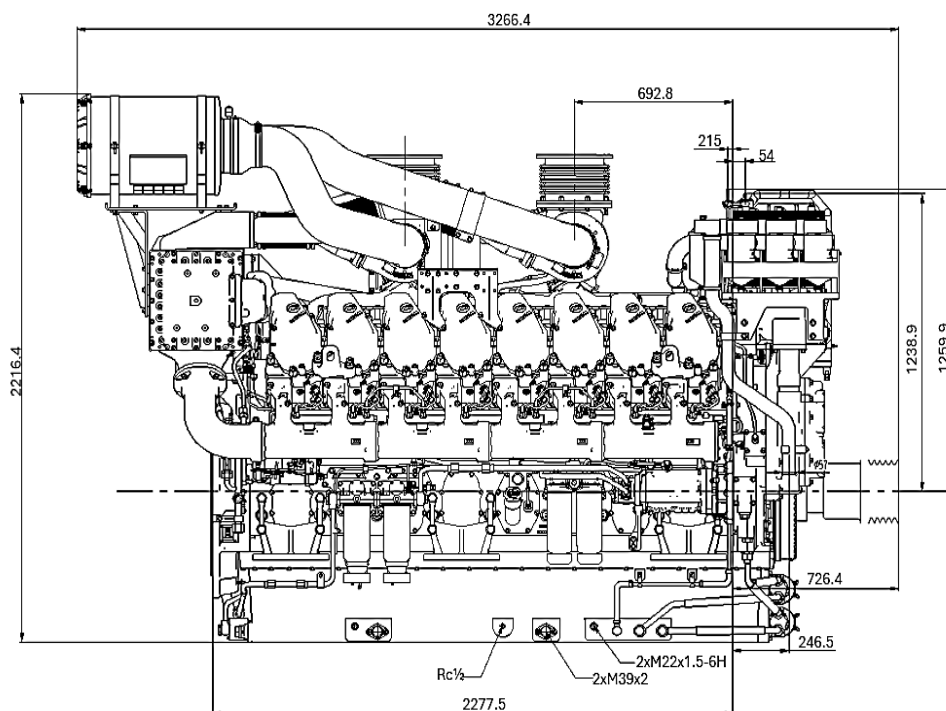
### Oil

|                         |                |
|-------------------------|----------------|
| Oil Type                | Multigrade Oil |
| Suggested Grade / Class | API CH4 15W/40 |

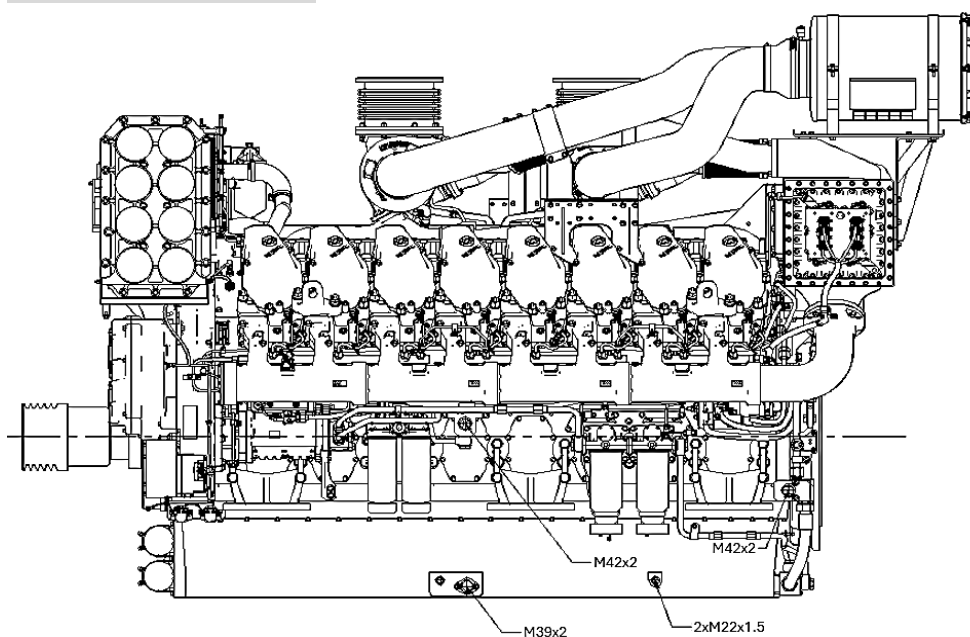
## ENGINE COOLING DATA AND THERMODYNAMICS

| Cooling System               |                                        | Heat Rejection                       |                                      |
|------------------------------|----------------------------------------|--------------------------------------|--------------------------------------|
| Water Lid Min. Pressure      | 90 kPa                                 | Max. Permissible Restrictions        | 2.5kPa                               |
|                              | Gear Driven                            | Intake System kPa                    | 4kPa                                 |
| Water Pump Capacity 1500 rpm | 1600 L/min                             | Max. Permissible Altitude m.a.s.l.   | 2000m                                |
| Water Pump Capacity 1800 rpm | -                                      | Exhaust System                       |                                      |
|                              | Opening Temp. 77°C                     | Exhaust Gas Temperature Max °C       | 700°C                                |
|                              | Full Open Temp. 90°C                   | Exhaust Outlet Size (Internal) mm    | Ø255                                 |
| Cooling Fan Type             | Blower Type-Plastic                    | Exhaust Outlet Flange Size mm        | Ø330                                 |
|                              |                                        | Boost pressure ratio                 | 18:1                                 |
| Radiator                     |                                        | Water Jacket Cooling Data (Optional) |                                      |
| Type                         | Set Mounted                            | Coolant Flow - litres/min            | 26-33 L/min                          |
| Manufacturer                 | LK                                     | Coolant Exit Temperature (max) °C    | 90 °C                                |
| Construction                 | Copper Core                            | Coolant Inlet Temperature (min) °C   | -40 °C                               |
| Treatment                    | Tropicalised                           | Coolant Inlet Temperature (max) °C   | +70 °                                |
| Temperature                  | 50 Degree                              | Suggested Pump Rating kW             | 4 KW                                 |
| Intercooled                  | Yes                                    |                                      |                                      |
| Antifreeze                   |                                        | Colour of the engine                 |                                      |
| Fuel Type                    | Premix (50/50)                         | RAL(Colour)                          | RAL 9006<br>(White/Silver Aluminium) |
| Compliant Grade / Class      | ASTM D-3306<br>ASTM D-6210<br>SAE J814 |                                      |                                      |
| Main Ingredient              | 50% Glycol or More                     |                                      |                                      |

## SIDE VIEW - RHS

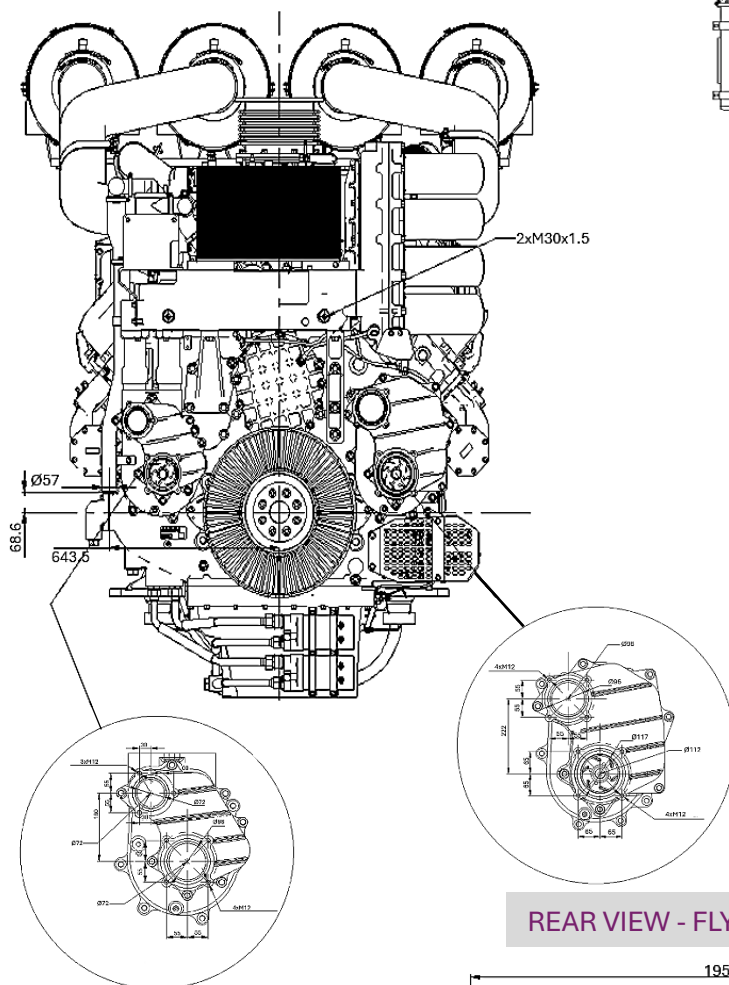


## SIDE VIEW - LHS

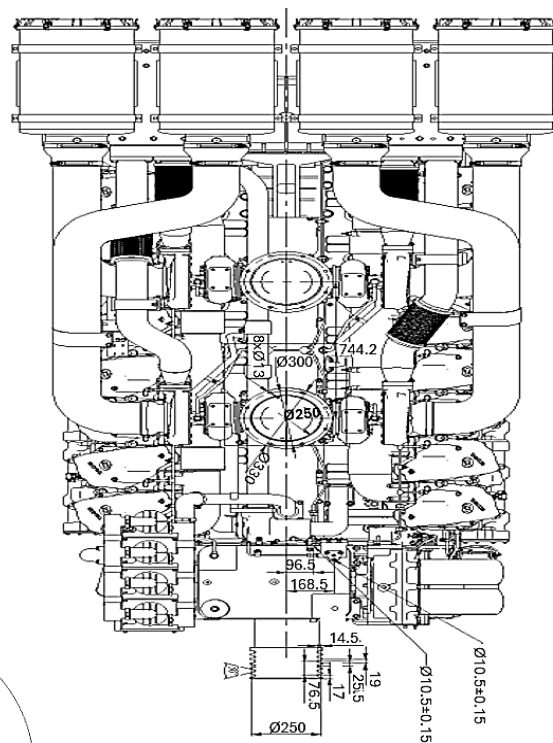




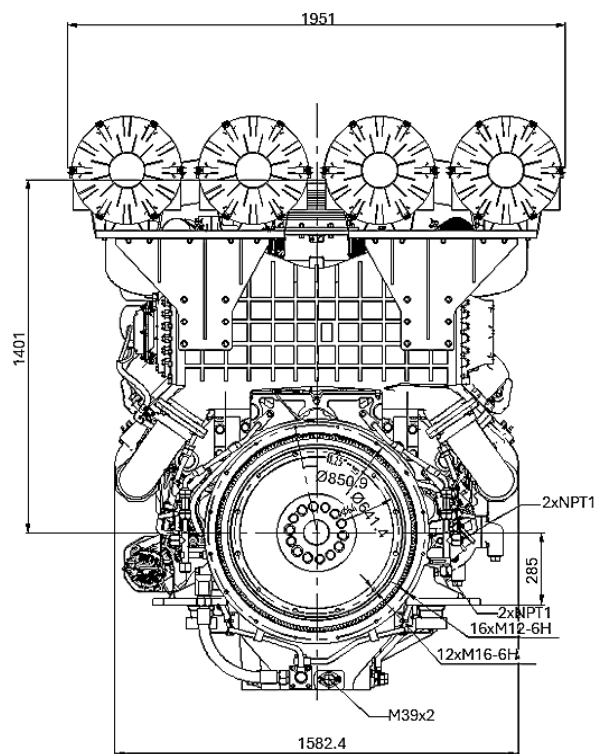
## FRONT VIEW- FAN



## TOP VIEW - AERIAL



## REAR VIEW - FLYWHEEL



NOTES

NOTES

MANUFACTURER DETAILS

HEADQUARTERS & FACTORY



SDEC POWER

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DEALER INFORMATION

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