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|---|--|---------------------------------|----------------------------------|
|  | <b>Googol Power-Tech Co., Ltd.</b>                             | Engine Model:<br>PTAA780-G1     | Engine Application:<br>Generator |
|   | Phoenix Lake Industrial Park, Yongchuan, Chongqing City, China |                                 |                                  |
|   | Tel: 86-23-49682222, Fax: 86-23-49683222                       | Engine Prime Power:<br>366 KW   | RPM:<br>1500                     |
|   | 5820 Central Ave, Unit 230, Riverside CA92504, U.S.A           |                                 |                                  |
|   | Tel: 1-909-7436092 Fax: 1-909-9392093                          | Engine Standby Power:<br>408 KW | Publication Date:<br>03-01-2015  |

## Specifications:

| Engine Model   |     | PTAA780-G1                        |
|--|-----|-----------------------------------|
| Speed  | rpm | 1500                              |
| <b>Rating Output</b>                                 |     |                                   |
| Engine Standby Output (LTP)                          | kW  | 408                               |
| Engine Prime Output (PRP)                            | kW  | 366                               |
| Engine Continuous Power (COP)                        | kW  | 303                               |
| Fan Reduction  | kW  | 16                                |
| Engine Net Standby Output (LTP)                      | kW  | 392                               |
| Engine Net Prime Output (PRP)                        | kW  | 350                               |
| Engine Net Continuous Output (COP)                   | kW  | 287                               |
| BMEP for Standby Output                              | bar | 25.04                             |
| BMEP for Prime Output                                | bar | 22.40                             |
| BMEP for Continuous Output                           | bar | 18.40                             |
| Typical Generation Standby Output                    | kW  | 360                               |
| Typical Generation Prime Output                      | kW  | 320                               |
| Typical Generation Continuous Output                 | kW  | 260                               |
| Max. step load acceptance, 1st step (% Prime Output) |     | 59%                               |
| <b>Basic Performance Datasheet</b>                   |     |                                   |
| Aspiration Type                                      |     | Turbocharger, air-air aftercooler |
| Injection Type                                       |     | Direct Injection                  |
| Configuration  |     | In line                           |
| No. of Cylinders                                     |     | 6                                 |
| Displacement   | l   | 12.8                              |
| Bore   | mm  | 128                               |
| Stroke   | mm  | 166                               |
| Compression Ratio                                    |     | 15.5:1                            |
| Piston Speed   | m/s | 8.3                               |
| Rotation Direction (from flywheel)                   |     | Counter Clockwise                 |
| Number of Flywheel Teeth                             |     | 160                               |
| Flywheel House Size                                  |     | SAE1-14                           |

|  |                     |            |
|--|---------------------|------------|
| <b>Lubrication System</b>                                  |                     |            |
| Lube Oil Specification                                     |                     | API-CF4    |
| Oil Capacity   | l                   | 40         |
| Max. Permissible Oil Temperature                           | °C                  | 110        |
| Oil Pressure Warning                                       | kPa                 | 200        |
| Oil Pressure Shutdown                                      | kPa                 | 160        |
| <b>Cooling System</b>                                      |                     |            |
| Coolant Capacity for Engine                                | l                   | 18         |
| Max. Permissible Temperature                               | °C                  | 90         |
| Max. Coolant Warning Temperature                           | °C                  | 95         |
| Max. Coolant Shutdown Temperature                          | °C                  | 105        |
| Thermostat Open Temperature                                | °C                  | 79         |
| Radiator Cooling Flow                                      | m <sup>3</sup> /min | 410        |
| Flow of Coolant pump                                       | m <sup>3</sup> /h   | 19.7       |
| Heat dissipation (engine radiator)                         | kW                  | 194        |
| Heat dissipation (convection)                              | kW                  | 30         |
| Mode of Radiator(Aluminium core, 40°C environment's temp)  |                     | 6400001    |
| Mode of Radiator( Aluminium core, 50°C environment's temp) |                     | 6500001    |
| <b>Fuel System</b>   |                     |            |
| Governor Type  |                     | Electrical |
| Engine Output at genset prime output                       | kW                  | 366        |
| Fuel Consumption at 25% of genset prime output             | l/h                 | 28.00      |
| Fuel Consumption at 50% of genset prime output             | l/h                 | 46.66      |
| Fuel Consumption at 75% of genset prime output             | l/h                 | 66.69      |
| Fuel Consumption at 100% of genset prime output            | l/h                 | 88.04      |
| Lowest Fuel Consumption Ratio                              | g/kW.hr             | 200.86     |
| <b>Intake &amp; Exhaust System (on standby power)</b>      |                     |            |
| Combustion Air Consumption                                 | m <sup>3</sup> /min | 30.60      |
| Max. Intake Restriction                                    | KPa                 | 5          |
| Exhaust Temperature (Before Turbo)                         | °C                  | 653        |
| Exhaust Temperature (After Turbo)                          | °C                  | 520        |
| Max. Exhaust Back Pressure                                 | Kpa                 | 5          |
| Exhaust Gas Flow   | m <sup>3</sup> /min | 37.40      |
| Turbo Bellows Diameter                                     | mm                  | DN100-150  |
| Exhaust Flange Diameter                                    | mm                  | DN150      |
| <b>Electrical System</b>                                   |                     |            |
| Charging Alternator Voltage                                | V                   | 28         |
| Charging Alternator Capacity                               | A                   | 35         |
| Starting Voltage   | V                   | 24         |
| Starting Motor Capacity                                    | kW                  | 6.6        |
| Minimum Battery Capacity                                   | Ah                  | 2*150      |
| <b>Engine Dimension</b>                                    |                     |            |
| Length   | mm                  | 1745       |
| Width  | mm                  | 970        |
| Height   | mm                  | 1250       |
| Engine Dry Weight w/o Cooling System                       | kg                  | 1000       |

- 1: All engine parameters are in accordance with ISO3046, ISO8528.
- 2: All engine parameters are based on 25°C / 100kPa environment condition.
- 3: No power decrease with below 40°C environment temperature and 1500 meter altitude.
- 4: More than 40°C and 1500m above sea level , decrease 2% per 10°C , and 4% per 300m.
- 5: At calorific value 42700 kJ/kg + 5%, density 0,835 kg/dm<sup>3</sup> , temperature 280 K.
- 6: Above data is only the testing data in our laboratory, it can't used to be the data on all contract.

## Picture of Googol PTAA780-G1 Diesel Engine.

