



**JOHN DEERE**

## ENGINE PERFORMANCE CURVE

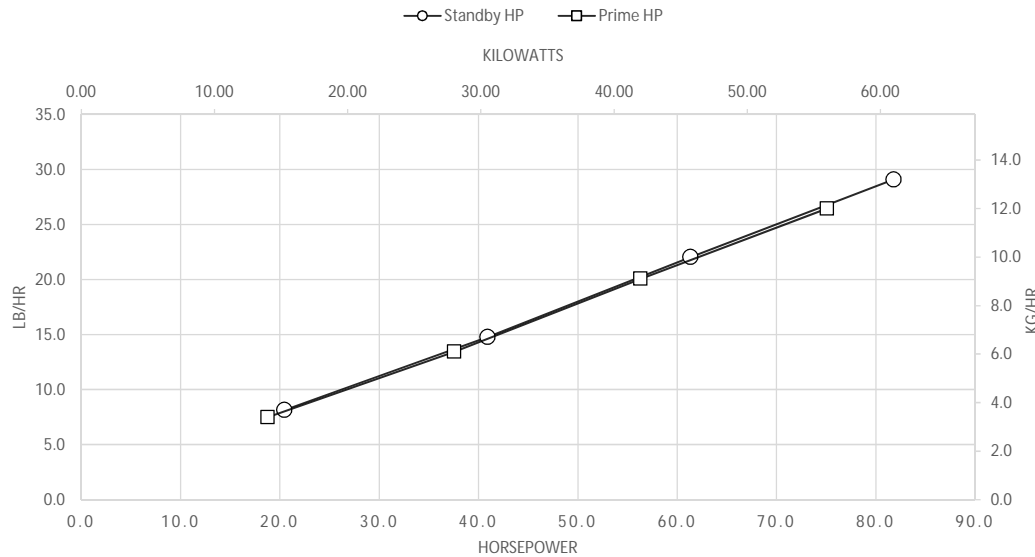
Rating: Gross power  
 Application: Generator  
 1500 RPM (50 Hz)

**PowerTech™ 2.9L Engine**  
**Model: 3029HFU20**  
 75 hp 56 kW Prime  
 82 hp 61 kW Standby

| Nominal Engine Power @ RPM |    |         |    |
|----------------------------|----|---------|----|
| Prime                      |    | Standby |    |
| HP                         | kW | HP      | kW |
| 75                         | 56 | 82      | 61 |

| Generator Efficiency % | Fan power (% of Standby) |      | Power Factor | Prime Rating |      | Standby Rating |      |
|------------------------|--------------------------|------|--------------|--------------|------|----------------|------|
|                        | hp                       | kW   |              | kWe          | kVA  | kWe            | kVA  |
| #N/A                   | #N/A                     | #N/A | #N/A         | #N/A         | #N/A | #N/A           | #N/A |

### STANDBY VS PRIME



### STANDARD CONDITIONS

Air Intake Restriction = 3 kPa  
 Exhaust Back Pressure = 7.5 kPa  
**Gross Power Guaranteed within + or - 5% at SAEJ1995 and ISO 3046 conditions:**  
 Air Inlet Temperature = 25 °C  
 Barometer = 29.31 kPa  
 Fuel Inlet Temperature = 40 °C  
 Fuel Specific Gravity @ 60 °F (15.5 °C) = 0.853

#### CONVERSION FACTORS:

Power: kW = HP x 0.746  
 Fuel: 1 Gal = 7.1 lb, 1 L = 0.85 kg  
 Torque: N-m = lb-ft x 1.356

All values are from currently available data and are subject to change without notice.

Notes: 1) This Performance Curve provides installation requirements necessary for the engine to emit at its certified emission levels. For additional information necessary to meet applicable regulatory requirements, refer to the John Deere Emissions-related Installation Instructions (AG01): <https://power.deere.com/wps/myportal/jdps/products/engines/apguidelines>.  
 2) A crankshaft Torsional Vibration Analysis is required on all Gen Set.

| Designed/Calibrated to meet: | Certified By: |
|------------------------------|---------------|
| None                         | Early         |
| Ref: Engine Emission Label   | 5-Sep-19      |

Performance Curve: 3029HFU20\_A

## Engine Installation Criteria

### General Data

|                                     |                  |                      |
|-------------------------------------|------------------|----------------------|
| Engine Model                        | 3029HFU20        |                      |
| Number of Cylinders                 | 3                |                      |
| Bore                                | 106 mm           | 4.2 in.              |
| Stroke                              | 110 mm           | 4.3 in.              |
| Displacement                        | 2.9 L            | 177 in. <sup>3</sup> |
| Compression Ratio                   | 16,3 : 1         |                      |
| Valves per Cylinder, Intake/Exhaust |                  |                      |
| Firing Order                        | 1-2-3            |                      |
| Combustion System                   | Direct Injection |                      |
| Engine Type                         | In-line, 4-Cycle |                      |
| Aspiration                          |                  |                      |
| Engine Crankcase Vent System        | Open             |                      |

### Physical Data

|   |          |             |
|---|----------|-------------|
|   | GSPU     |             |
| Length  | 1146 mm  | 45.1 in.    |
| Width   | 629 mm   | 24.8 in.    |
| Height  | 982 mm   | 38.7 in.    |
| Weight, with oil&no coolant (Includes engine, flywheel housing, flywheel&electrics) | 457 kg   | 1007.5 lb   |
| Center of Gravity Location, X-axis From Rear Face of Block                          | mm       | 0.0 in.     |
| Center of Gravity Location, Y-axis Right of Crankshaft                              | mm       | 0.0 in.     |
| Center of Gravity Location, Z-axis Above Crankshaft                                 | mm       | 0.0 in.     |
| Max. Allowable Static Bending Moment at Rear Face of Flywheel Housing with 5-G Load | 814 N-m  | 602.4 lb-ft |
| Thrust Bearing Load Limit Forward, Intermittent                                     | 4003 lb  |             |
| Thrust Bearing Load Limit Forward, Continuous                                       | 2224 lb  |             |
| Thrust Bearing Load Limit Rearward, Intermittent                                    | 2000 lb  |             |
| Thrust Bearing Load Limit Rearward, Continuous                                      | 1000 lb  |             |
| Max. Continuous Damper Temp   | #N/A °F  |             |
| Max. Torisonal Vibration, Front of Crank  | #N/A DDA |             |

### Electrical System

|  |             |  |
|--|-------------|--|
| Starter Rolling Current, 12V @32 °F (0 °C)   | 640 amps    |  |
| Starter Rolling Current, 24V @32 °F (0 °C)   | 570 amps    |  |
| Starter Rolling Current, 12V @-22 °F (-30°C) | 1000 amps   |  |
| Starter Rolling Current, 24V @-22 °F (-30°C) | 700 amps    |  |
| Min. Voltage at ECU during Cranking, 12V     | 6 volts     |  |
| Min. Voltage at ECU during Cranking, 24V     | 10 volts    |  |
| Max. Allowable Start Circuit Resistance, 12V | 0.00120 Ohm |  |
| Max. Allowable Start Circuit Resistance, 24V | 0.00200 Ohm |  |
| Max. Voltage From Engine to Crankshaft, 12V  | volts       |  |
| Max. Voltage From Engine to Crankshaft, 24V  | volts       |  |
| Max. ECU Temperature                         | 105 °F      |  |
| Max. Alternator Temperature                  | °F          |  |
| Max. Starter Temperature                     | °F          |  |
| Max. Temperature, All Other Electronics      | 125 °F      |  |

### Charge Air Cooling System

|  |          |                         |
|--|----------|-------------------------|
| Air-to-Air Heat Rejection  | 7.3 kW   | 415 BTU/min             |
| Compressor Discharge Temperature @ 77°F(25°C) Ambient Air          | 146 °C   | 295 °F                  |
| Intake Manifold Pressure   | 120 kPa  | 17.4 psi                |
| Max. Temperature Out of Charge Air Cooler @ All Ambient Conditions | °C       | 32 °F                   |
| Max. Pressure Drop through CAC                                     | 16.0 kPa | 64 in. H <sub>2</sub> O |
| Max. Temperature Out of Charge Air Cooler 77°F (25°C) Ambient Air  | 52 °C    | 126 °F                  |

### Cooling System

|  |          |                |
|--|----------|----------------|
| Engine Heat Rejection                            | 25 kW    | 1416.1 BTU/min |
| Coolant Flow @ 10 kPa External Restriction       | L/min    | 0.0 gal/min    |
| Thermostat Start to Open                         | 82 °C    | 179.6 °F       |
| Thermostat Fully Open                            | 94 °C    | 201.2 °F       |
| Engine Coolant Capacity                          | 6 Liter  | 6.0 quart      |
| Min. Coolant Fill Rate                           | 11 L/min | 2.9 gal/min    |
| Min. Pump Inlet Pressure @ 203°F (95°C) Coolant  | 30 kPaa  | 4.4 psia       |
| Max. External Coolant Restriction                | kPa      | 0.0 psi        |
| Max. Top Tank Temperature                        | 105 °C   | 221.0 °F       |
| Max. Top Tank temperature 95% of Operating Hours | °C       | 32.0 °F        |

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## Engine Installation Criteria

### Exhaust System

|                                     |                          |                          |
|-------------------------------------|--------------------------|--------------------------|
| Exhaust Flow                        | 10.9 m <sup>3</sup> /min | 385 ft <sup>3</sup> /min |
| Exhaust Temperature                 | 545 °C                   | 1013 °F                  |
| Max. Allowable Exhaust Restriction  | kPa                      | 0 in. H <sub>2</sub> O   |
| Max. Bending Moment on Turbo Outlet | 7.0 N·m                  | 5.2 lb-ft                |
| Max. Shear on Turbine Outlet        | 11.0 kg                  | 24.3 lb                  |

### Fuel System

|  |               |                           |
|--|---------------|---------------------------|
| ECU Description                        | #N/A          |                           |
| Fuel Injection Pump                    | Delphi DP100G |                           |
| Governor Type                          |               |                           |
| Total Fuel Flow                        | 53 kg/hr      | 116 lb/hr                 |
| Fuel Consumption, Prime                | 12 kg/hr      | 26 lb/hr                  |
| Fuel Temperature Rise, Inlet to Return | 8 Δ°C         | 14 Δ°F                    |
| Min. Fuel Inlet Pressure               | -30 kPa       | -121 in. H <sub>2</sub> O |
| Max. Fuel Inlet Pressure               | 69 kPa        | 277 in. H <sub>2</sub> O  |
| Max. Fuel Return Pressure              | 10 kPa        | 40 in. H <sub>2</sub> O   |
| Min. Fuel Return Pressure              | kPa           | 0 in. H <sub>2</sub> O    |
| Max. Fuel Inlet Temperature            | 85 °C         | 185 °F                    |
| Fuel Filter @98% Efficiency            | mic           |                           |

### Lubrication System

|                             |         |                        |
|-----------------------------|---------|------------------------|
| Oil Pressure at Rated Speed | 245 kPa | 36 psi                 |
| Max. Crankcase Pressure     | 1 kPa   | 2 in. H <sub>2</sub> O |

### Air Intake System

|   |                         |                           |
|---|-------------------------|---------------------------|
| Engine Air Flow   | 4.0 m <sup>3</sup> /min | 141 ft. <sup>3</sup> /min |
| Air Mass Flow   | 280 kg/hr               | 617 lb/hr                 |
| Maximum Allowable Temperature Rise, Ambient Air to Engine Inlet | 8 Δ°C                   | 15 Δ°F                    |
| Max. Air Intake Restriction, Clean Air Clearer                  | 3.75 kPa                | 15 in. H <sub>2</sub> O   |
| Max. Air Intake Restriction, Dirty Air Clearer                  | 6.25 kPa                | 25 in. H <sub>2</sub> O   |
| Air Cleaner Efficiency  | 99.9 %                  |                           |

### Performance Data

|                                |            |           |
|--------------------------------|------------|-----------|
| Rated Power, Prime             | 56 kW      | 75 HP     |
| Rated Power, Standby           | 61 kW      | 82 HP     |
| Rated Speed                    | 1500 rpm   |           |
| Low Idle Speed                 | rpm        |           |
| Rated Torque, Prime            | 355 N·m    | 263 lb-ft |
| Rated Torque, Standby          | N·m        | 0 lb-ft   |
| BMEP, Prime                    | 1530 kPa   | 222 psi   |
| BMEP, Standby                  | kPa        | 0 psi     |
| Altitude Capability, Prime     | 2134 m     | 7000 ft   |
| Altitude Capability, Standby   | 1524 m     | 5000 ft   |
| Friction Power @Rated Speed    | 13.0 kW    | 17 HP     |
| Air: Fuel Ratio, Prime         | : 1        |           |
| Air: Fuel Ratio, Standby       | 21 : 1     |           |
| Noise @1 m Prime               | #N/A dB(A) |           |
| Noise @1 m Standby             | #N/A dB(A) |           |
| 0-100% Standby Load Acceptance | #N/A sec   |           |
| Load Acceptance, ISO 8528-5    | G2         |           |

| Fuel Consumption | Prime |       | Standby |       |
|------------------|-------|-------|---------|-------|
|                  | kg/h  | lb/hr | kg/h    | lb/hr |
| 25 % Power       | 3.4   | 7.5   | 3.7     | 8.2   |
| 50 % Power       | 6.1   | 13.4  | 6.7     | 14.8  |
| 75 % Power       | 9.1   | 20.1  | 10.0    | 22.0  |
| 100 % Power      | 12.0  | 26.5  | 13.2    | 29.1  |

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