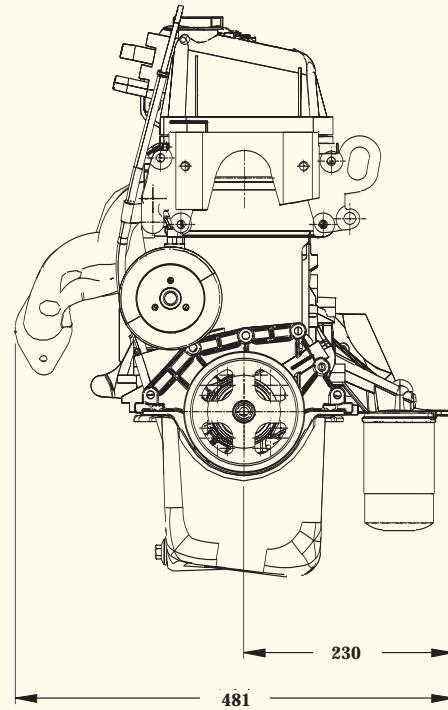
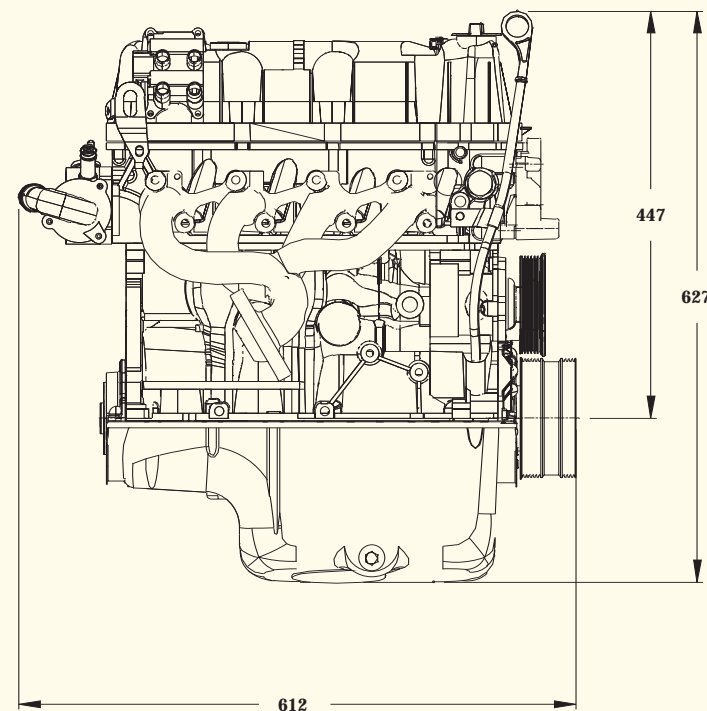


Front End View



Right Side View



Measurements    mm

## **TSG-416** **Base Industrial** **Engine EFI** **1.6-Litre** **4-Cylinder**



**Powerful**  
**Performance**  
**from one**  
**source.**





# TSG-416

## Base Industrial Engine EFI

### 1.6-Litre 4-Cylinder



#### Options

- Flywheel Housing**
  - SAE #5M with feet and side pads
- Flywheels**
  - Flat face
  - SAE 7.5" O/C
- Aluminum Intake Manifold**
- Engine-Mounted Cooling Fans**
  - 14.9" (380 mm) diameter suction
  - 14.9" (380 mm) diameter pusher
- Front Engine Supports (without Radiator)**
  - Single Foot
  - Dual Foot
- 90 Amp Generator**
- LH and RH Mounted Starters**
  - Parts conform to SAE J1171 (marine) specifications
- Electronic Control Modules (refer to FPP-192-583)**
  - Ignition Control Module (ICM)
  - Engine Performance Module (EPM)
- Wiring Harnesses**
  - ICM application
  - EPM application
- Electronic Throttle Control**
- Discrete Speed Switch**
- Variable Speed Foot Pedal**
- Variable Speed Hand Control**
- Gaseous (LPG, NG, LPG/NG) Fuel Delivery System**
- Gasoline Fuel Injection (EFI/Sequential Port) System**
- Exhaust Pipe with Rain Cap**
- Three-Way Catalyst (available 2003)**

#### Emissions Information

EPA and ARB emission-certified packages available. Contact FPP or local distributor for specific details.

#### Warranty

Contact FPP or local distributor for warranty terms.

#### Specifications

Engine Type..... 2V, SOHC, I-4  
 Bore and Stroke..... 3.23 in x 2.97 in (82.1 mm x 75.5 mm)  
 Displacement..... 1.6 Litre (97.4 CID)  
 Compression Ratio..... 9.5:1  
 Oil Capacity..... 4.4 Qts (4.2 litres)  
 Net Weight ..... 200 Lbs (90.7 Kgs)  
 Dimensions..... L 24.1" x W 18.9" x H 24.7"  
 (612 mm x 481 mm x 627 mm)

#### Gasoline (corrected per SAE J1995)

Fuel Specification..... 87 A.K.I.  
 Rated Power @ 3600 RPM ..... Intermittent: 63 HP (47 kW)  
 Continuous: 53 HP (40 kW)  
 Peak Torque @ 3200 RPM..... Intermittent: 93 Ft. Lbs. (126 Nm)  
 Continuous: 79 Ft. Lbs. (107 Nm)  
 Power @ 1800 RPM..... Intermittent: 29 HP (22 kW)  
 Continuous: 24 HP (18 kW)

#### Natural Gas (corrected per SAE J1995)

Fuel Specification..... 1050 BTU/FT3  
 Rated Power @ 3600 RPM..... Intermittent: 52 HP (39 kW)  
 Continuous: 44 HP (33 kW)  
 Peak Torque @ 3200 RPM..... Intermittent: 78 Ft. Lbs. (106 Nm)  
 Continuous: 66 Ft. Lbs. (89 Nm)  
 Power @ 1800 RPM..... Intermittent: 26 HP (19 kW)  
 Continuous: 22 HP (16 kW)

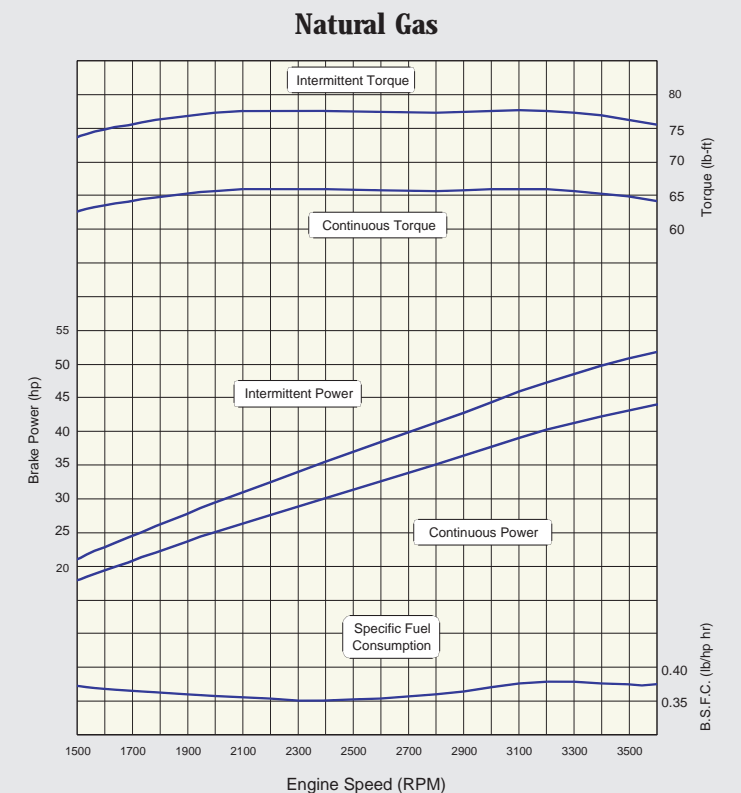
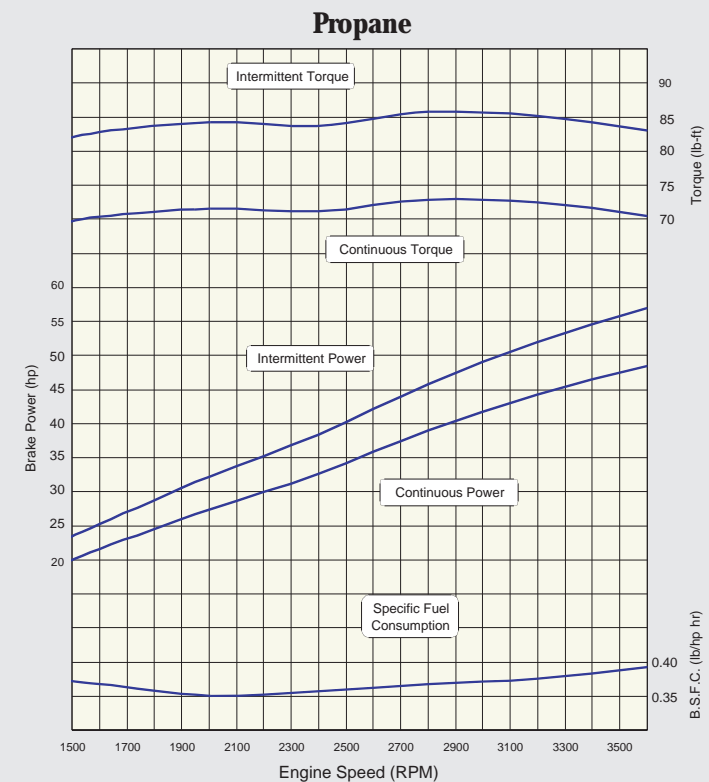
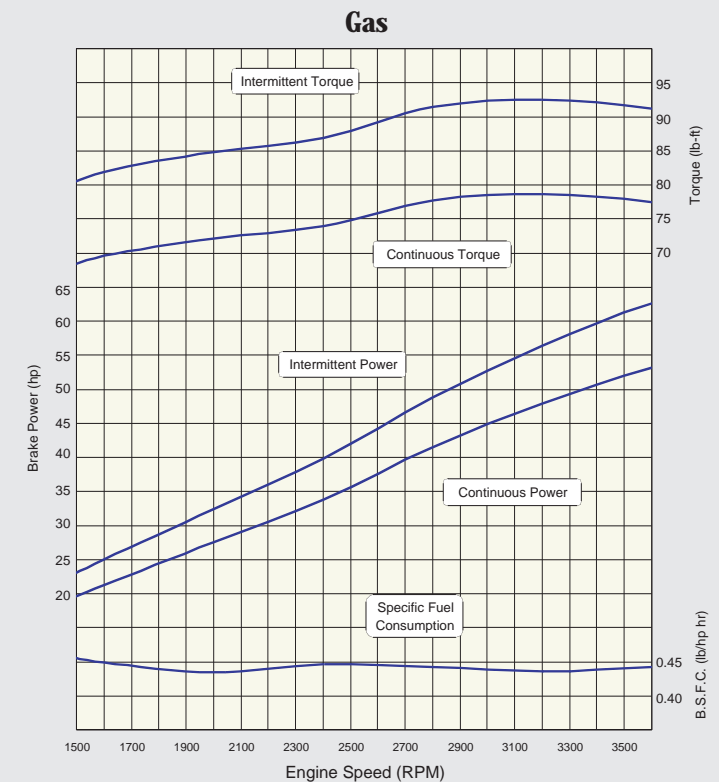
#### Liquefied Petroleum Gas (corrected per SAE J1995)

Fuel Specification..... ASI Grade HD-5  
 Rated Power @ 3600 RPM..... Intermittent: 57 HP (43 kW)  
 Continuous: 48 HP (36 kW)  
 Peak Torque @ 2800 RPM..... Intermittent: 86 Ft. Lbs. (117 Nm)  
 Continuous: 73 Ft. Lbs. (99 Nm)  
 Power @ 1800 RPM..... Intermittent: 26 HP (20 kW)  
 Continuous: 22 HP (17 kW)

#### Standard Features/Benefits

- Single Overhead Camshaft (SOHC) Featuring Single Sleeve Type, Chain Driven Camshaft with Hydraulic Tensioning System** for reduced engine noise and friction, increased performance, durability and service-free chain tensioning
- Low Friction Roller Finger Follower Valve Train** for minimal friction, improved reliability and increased torque
- Low Pressure Die Cast Aluminum Cylinder Head** for improved durability and decreased weight
- Alternate-Fuel-Ready Valve Train Components** for alternate fuel operation
- Cast Iron High Compression Swirl (HCS) Cylinder Block** for reduced emissions and improved combustion efficiency
- Piston Cooling Jets** for increased performance and durability
- Integrated Knock Sensor** for improved engine protection and increased engine durability
- Nodular, Graphite Cast Iron Crankshaft with Five Main Bearings** for increased strength and durability
- Cast Iron Exhaust Manifolds for Off-Highway Market** for increased engine performance and durability
- Polyamid Plastic Camshaft Cover** for corrosion resistance and reduced noise
- Coil Assembly Electronic Ignition System with Cam and Crank Shaft Position Sensors** for reliable and effective spark delivery
- Gasoline Sequential Port Fuel Injection** ensures controlled fuel delivery throughout the various engine speeds, providing increased performance and reducing emissions
- Closed-Loop Fuel Control** for improved emissions control
- Next Generation Governing Using the Latest DC, Stepper-Motor Technology** for accurate, dependable and reliable speed control

#### Power Curves (corrected per SAE J1995)



Specifications are subject to change without notice.

Above power curves utilized the Ford Power Products EPM and emissions certified package.

