

SUPERIOR SGTD ENGINES

Hit the Sweet Spot for Medium-speed Gas Drivers

Superior® SGTD 12- and 16-cylinder gas engines reach peak power and efficiency when packaged with Superior MH, WH or WG separable compressors operating at 900 RPM.

Superior engines since 1889

The Superior brand name has a longstanding reputation for high-quality engine and compressor products, dating back to 1889. Since 1976 alone, more than 10,000 Superior engines and compressor frames have been manufactured and installed worldwide in a variety of high- and medium-speed applications.

Superior turbocharged gas engines are medium-speed and built for continuous, heavy-duty service. Optimal fuel/air mixing in the cylinder, timed fuel injection, and air-charged intercooling result in reduced fuel consumption and lowered emissions. The low-compression pistons (8.75:1) keep dynamic stresses at a conservative level, provide for more stable operation and enhance engine tolerance to variations in quality of fuel.

The conservative horsepower rating of Superior engines provides ample reserve for emergency situations. Intercooling with optimal valve overlap results in cooler combustion chamber parts while assuring lower fuel consumption, greater efficiency, longer service life and trouble-free operation.



Designed specifically for natural gas compression applications

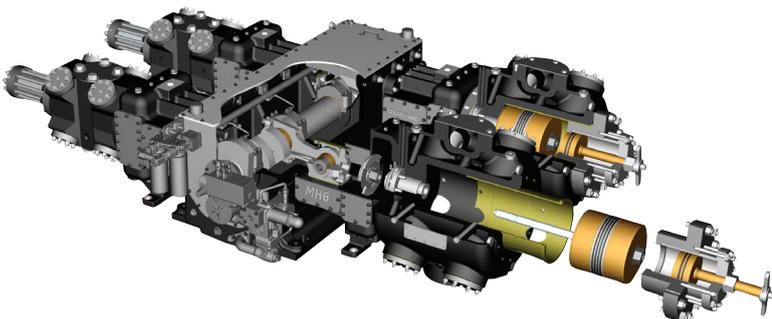
- › Built for continuous, heavy-duty service
- › Medium-speed, four-cycle, spark-ignited natural gas engine
- › Turbocharged and intercooled
- › ATEX compliant to Group II, Category 3, Zone 2 (G)
- › CE mark

Designed for reduced fuel consumption and lower emissions

- › Optimal fuel/air mixing in cylinder
- › Timed fuel injection
- › Charge air intercooling

Designed for variation in fuel quality and long life

- › Low-compression pistons and low BMEP to maintain a conservative level of dynamic stresses
- › Based on original 825 Series (147 BMEP)
- › Simple design for ease of maintenance without special tools or specialized training



LEGENDS DON'T STOP. WE MAKE SURE OF IT.™

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24/7 TECH SUPPORT: SUPPORT@COOPERSERVICES.COM
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Engine Specifications	12SGTD	16SGTD
No. of Cylinders	12	16
Bhp (kW)	2,000 (1,490)	2,650 (1,975)
Rated Speed [rpm*]	900	900
Bore / Stroke [in (cm)]	10 x 10.5 (25.4 26.7)	10 x 10.5 (25.4 26.7)
Displacement [in ³ (liter)]	9,896 (162)	13,195 (216)
BMEP [psi (bar)]	177.8 (12.4)	177.8 (12.4)
Piston Speed [fpm (m/s)]	1,575 (8)	1,575 (8)
Bearing Diameters		
Main [in (cm)]	8 (20.3)	8 (20.3)
Crankpin [in (cm)]	6.375 (16.2)	6.375 (16.2)
Piston Pin [in (cm)]	3.5 (8.9)	3.5 (8.9)
Camshaft [in (cm)]	2.75 (7.0)	2.75 (7.0)
Starting Air System		
System Pressure [psi (kg/cm ²)]	150 (10.5)	150 (10.5)
Consumption Rate (Air) [scfm (liters/sec)]	1500 (708)	1500 (708)
Consumption Rate (Gas) [scfm (liters/sec)]	1781 (841)	1781 (841)
Air Intake System		
Air Intake Flow Rate [scfm (m ³ /min)]	4,895 (139)	6,526 (185)
Air Intake Pressure Drop (Max.) [in H ₂ O (cm H ₂ O)]	10 (25.4)	10 (25.4)
Fuel Gas System		
Fuel Gas Pressure [psi (bar)]	50 - 55 (3.4 - 3.8)	50 - 55 (3.4 - 3.8)
Exhaust System		
Exhaust Temperature [°F (°C)]	760 (404)	760 (404)
Exhaust Flow [lbs./min. (kg/min)]	385 (175)	514 (233)
Exhaust Back Pressure (Max.) [in H ₂ O (cm H ₂ O)]	10 (25.4)	10 (25.4)
Cooling Water System		
Jacket Water System Capacity [Gal (liters)]	146 (553)	186 (704)
Jacket Water Outlet Temperature [°F (°C)]	165 - 180 (74 - 82)	165 - 180 (74 - 82)
Design Flow Rate at Rated Speed [gpm (liters/min)]	750 (2,838)	775 (2,933)
Intercooler Water Pump Flow [gpm (liters/min)]	200 (757)	340 (1,287)
Lube Oil System		
Lube Oil System Capacity [gallons (liters)]	165 (625)	220 (835)
Lube Oil System Flow [gpm (liters/min)]	70 (265)	90 (341)
Lube Oil Consumption [gal/day (liters/day)]	3.30 (12.5)	5.28 (20)
Lube Oil Outlet Temperature [°F (°C)]	165 - 175 (74 - 79)	165 - 175 (74 - 79)
Lube Oil Filters (microns)	15	15
Brake Specific Fuel Consumption		
100% Load [btu/Bhp-hr (kcal/kW-hr)]	7100 (2400)	7100 (2400)
75% Load [btu/Bhp-hr (kcal/kW-hr)]	7400 (2500)	7400 (2500)
50% Load [btu/Bhp-hr (kcal/kW-hr)]	7900 (2670)	7900 (2670)
Engine Emissions†		
NOx [grams/Bhp-hr]	0.7	0.7
CO [grams/Bhp-hr]	2.5	2.5
NMHC [grams/Bhp-hr]	0.75	0.75
Dry Weight [lbs (kg)]	42,500 (19,280)	54,000 (24,494)
Heaviest Lift (Cylinder Block) [lbs (kg)]	10,400 (4,717)	11,000 (4,990)
Exhaust Manifold [lbs (kg)]	1,210 (549)	1,530 (694)
Turbocharger Assembly [lbs (kg)]	1,170 (531)	1,170 (531)
Cylinder Head [lbs (kg)]	250 (113)	250 (113)
Piston and Connecting Rod [lbs (kg)]	198 (90)	198 (90)
Overhead Clearance to Remove Piston and Connecting Rod [in (cm)]	89 (226)	89 (226)
Dimensions‡		
Length [ft - in (cm)]	15 - 4 (467)	18 - 5 (560)
Width (without platforms) [ft - in (cm)]	7 - 4 (224)	7 - 9 (235)
Height [ft - in (cm)]	8 - 10 (269)	9 - 2 (279)

* Minimum permissible operating speed is 600rpm. Corresponding Bhp and kW values are available within these speed ranges.

† Qualifying conditions:

Pipeline quality gas with a methane content > 90% with an LHV of 900 btu/scf ± 15% 130°F manifold temperature, intercooler water temperature < 120°F, ambient temperature = 100°F, altitude < 4,000 ft. Refer to factory for all other conditions.

‡ Dimensions are approximate and not to be used for construction.

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