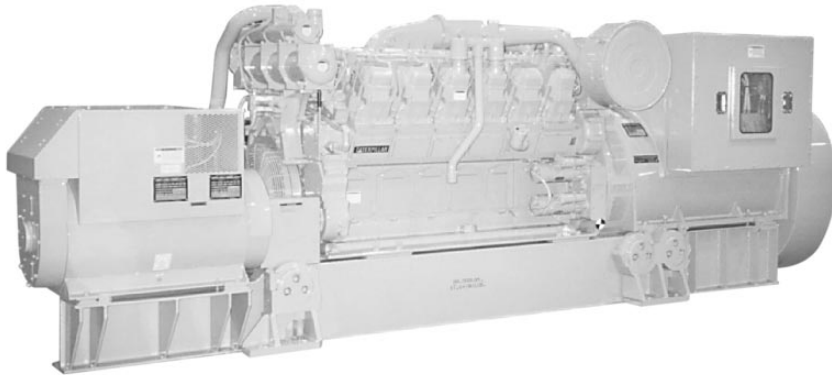




# Locomotive Engine/Generator Package **3512** 1500 hp



## SPECIFICATIONS

12 Cylinder, 4-Stroke-Cycle Diesel  
 Bore — in (mm) ..... 6.7 (170)  
 Stroke — in (mm)..... 7.5 (190)  
 Displacement — cu in (L) ..... 3158 (51.8)  
 Aspiration ..... Turbocharged-Aftercooled  
 Capacity for Liquids — U.S. gal (L)  
 Cooling System (engine only) ..... 39 (148)  
 Lube Oil System (refill) ..... 165 (625)  
 Weight, Net Dry (approximate) — lb (kg)  
 Package ..... 38 000 (17 235)

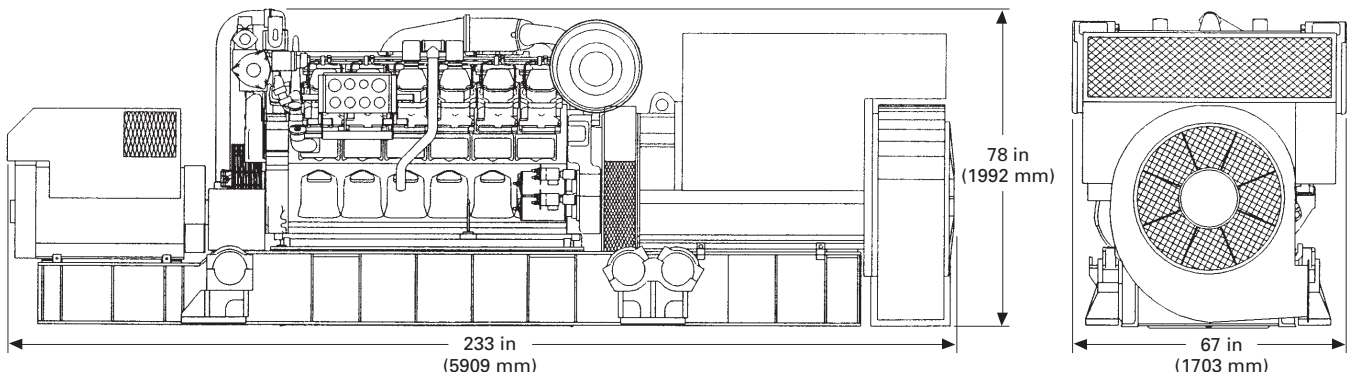
## PERFORMANCE DATA

Branchline/Switcher Service  
 Rated hp — kW (flywheel)..... 1500 (1119)  
 Full Load rpm ..... 1800  
 Low Idle rpm ..... 600  
 Operating Range (rpm)..... 1200  
 Altitude Capability — ft (m)  
 (without derate) ..... 5000 (1525)  
 Derate hp/1000 ft (kW/1000 m)  
 [above 5000 ft (1525 m)]..... 45 (110)  
 Fuel Consumption  
 Idle (600 rpm) — gal/hr (L/hr) ..... 1.5 (5.7)  
 Full Load (1800 rpm) — gal/hr (L/hr) .. 75.7 (286.9)

## EQUIPPED WITH:

- KATO 8P6.5-3000 TRACTION ALTERNATOR
- 1250 VDC, 6000ADC INTERMITTENT, 4000ADC CONTINUOUS
- KATO 6P2-1450/6P2-0500 AUXILIARY ALTERNATOR (DUAL)
- BASE ASSEMBLY WITH DEEP SECTION (18 IN) BEAMS AND RESILIENT MOUNTING FOR NOISE AND VIBRATION IN A LOCOMOTIVE

## DIMENSIONS



**STANDARD EQUIPMENT**

---

**Air Inlet System**

Aftercooler core, material: copper core  
Dual turbochargers  
Air cleaners with dual elements and service indicators

**Control System**

Electronic control module with NULOCO software with installed fuel rack actuator, rack and speed sensor  
Electronic control module (shipped loose)  
Interface relay (shipped loose)  
Wheel slip control module for four axle loco features motor current measurement, motor cut out and 750 amp dynamic brake alarm (shipped loose)  
Traction alternator transformer signal conversion module (shipped loose)  
Current and voltage transformers mounted in traction alternator  
Diagnostic decal (shipped loose)

**Cooling System**

Thermostats and housing, full open temperature 198° F (92° C)  
Jacket water pump, gear driven centrifugal  
Low water level switch (shipped loose)

**Exhaust System**

Exhaust manifold – dry, gas tight. 8 in (203 mm) diameter flanged, single outlet  
Port thermocouples  
Weld flange for 8 in (203 mm) diameter pipe (shipped loose)

**Flywheels and Flywheel Housings**

Flywheel, SAE No. 00, 183 teeth  
Flywheel housing, SAE No. 00  
SAE standard rotation

**Fuel System**

Fuel filter, LH with service indicator  
Fuel transfer pump  
Mechanical unit injectors  
Primary fuel filter (shipped loose)

**Instrumentation**

Instrument panel, LH  
Engine oil pressure gauge  
Fuel pressure gauge  
Oil filter differential gauge  
Jacket water temperature gauge  
Electric service meter (customer wired)  
Tachometer

**Lube System**

Crankcase breather, top mounted 2 in (51 mm) diameter outlet  
Oil cooler  
Oil filler LH with chained stopper  
Oil filter, LH  
Oil pump, gear type  
Deep oil pan with 2 in NPT drain  
Dipstick, LH and RH, marked for engine running

**Mounting System**

Base assembly with deep section beams (18 in) and resilient rubber mounting for noise and vibration isolation in locomotive

**Power Take-Offs**

Accessory drive, lower LH front of front gear housing, 1.3:1 gear drive ratio, driving KATO dual service alternator with flexible coupling and shaft/coupling guard

**Protection System**

Manual shutoff, LH  
Safety shutoff protection  
Air inlet shutoff, energized to shutoff overspeed  
emergency stop (customer supplied)  
speed switch/magnetic pick-up failure  
Fuel shutoff, energized to run overspeed  
emergency stop (customer supplied)  
speed switch/magnetic pick-up failure  
low oil pressure (low and high speed)  
low coolant level  
Safety alarm protection  
high coolant temperature  
Overcrank protection  
crank terminate feature  
Junction box for loco start, shutdown, and emergency shutdown system (shipped loose)  
Electronic controlled horsepower derate  
linear derate for altitudes above 5000 ft (1525 m)  
linear derate for elevated ambient temperatures  
step derate for high coolant temperature

**Starting System**

Dual electric starting motors (64 volt system) for above 55° F (13° C) (without starting aids)

**Wiring**

Customer/loco interface junction box – engine mounted  
Watertight, flexible conduit with heavy duty locomotive grade wire

**STANDARD EQUIPMENT/continued****Traction Alternator**

KATO 8P6.5-3000, 1250VDC, 6000ADC  
intermittent, 4400ADC continuous  
2 bearing  
Close coupled to engine and common base  
mounted  
Viscous coupling to engine flywheel  
Single stage internal cooling fan  
3 Phase AC power rectification components  
mounted within enclosure  
Rear driven single stage blower for traction  
motor cooling

**Auxiliary Alternator (Dual)**

KATO 6P2-1450 / 6P2-0500  
A: 3 Phase 220VAC with boost circuit for  
cooling fan, air compressor drive, etc.  
B: 74VDC battery charging with internal  
rectification

**General**

Paint, Caterpillar yellow  
Vibration damper and guard  
Lifting eyes, engine only

**OPTIONAL EQUIPMENT****Air Intake & Exhaust System**

Flexible exhaust fitting (shipped loose), for  
muffler connection – 8 in (203 mm) diameter  
Exhaust pyrometer and thermocouples –  
includes installed T/Cs for each cylinder, with  
shipped loose leads, selector switch and  
pyrometer  
Air intake adapter group (shipped loose)  
Rectangular rubber connector (2) to air  
cleaners  
Air intake adapter group (shipped loose)  
Provides radial connection to air cleaner 12 in  
(305 mm) diameter  
Air intake adapter group (shipped loose)  
Provides 90° connection to air cleaner 10 in  
(254 mm) diameter. Two required per engine  
Air intake pre-cleaner group (shipped loose)  
Provides heavy duty cleaner (inertial) for  
remote mounting. Two required per engine

**Control System**

Control and mounting group (shipped loose)  
adds input modules for 6 axle control  
Control and mounting group (shipped loose)  
adds input module for dynamic brake cooling  
fan protection

**Cooling System**

Connection group (shipped loose). Flexible  
hump hose connections to water pump inlet  
and regulator housing outlets (2)

**Fuel System**

Flexible fuel lines (shipped loose). Hose  
connections to engine supply and return  
connection points  
Priming pump – manual, left-hand side  
Separator group – water and fuel (shipped  
loose). Heavy duty dual unit each with clear  
collection bowl and replaceable filter element

**Lube System**

Oil filler – right hand with chained stopper

**Starting System**

Switch group with enclosure – magnetic, dual  
64VDC switches for starting motors (customer  
wired)  
Ether starting aid group – 64VDC system,  
resilient mounted on engine (customer wired)  
Cover group – electric starting motors – metallic

## **RATING DEFINITIONS AND CONDITIONS**

---

Performance obtained and corrected in accordance with ISO3046/1 standard atmospheric conditions of 29.61 in Hg (100 kPa), 30% relative humidity, 77° F (25° C) at stated aftercooler temperature. Performance also in accordance with SAE J1349, BS5514/1, and DIN 6271/1 standard reference conditions.

Performance and fuel consumption are based on 35 API 60° F (15° C) gravity fuel having an LHV of 18 390 Btu/lb (42 780 kJ/kg) when used at 85° F (29° C) where the density is 7.001 lb/U.S. gal (839.9 g/liter).

Engine equipped with fuel, lube oil, and jacket water pumps.