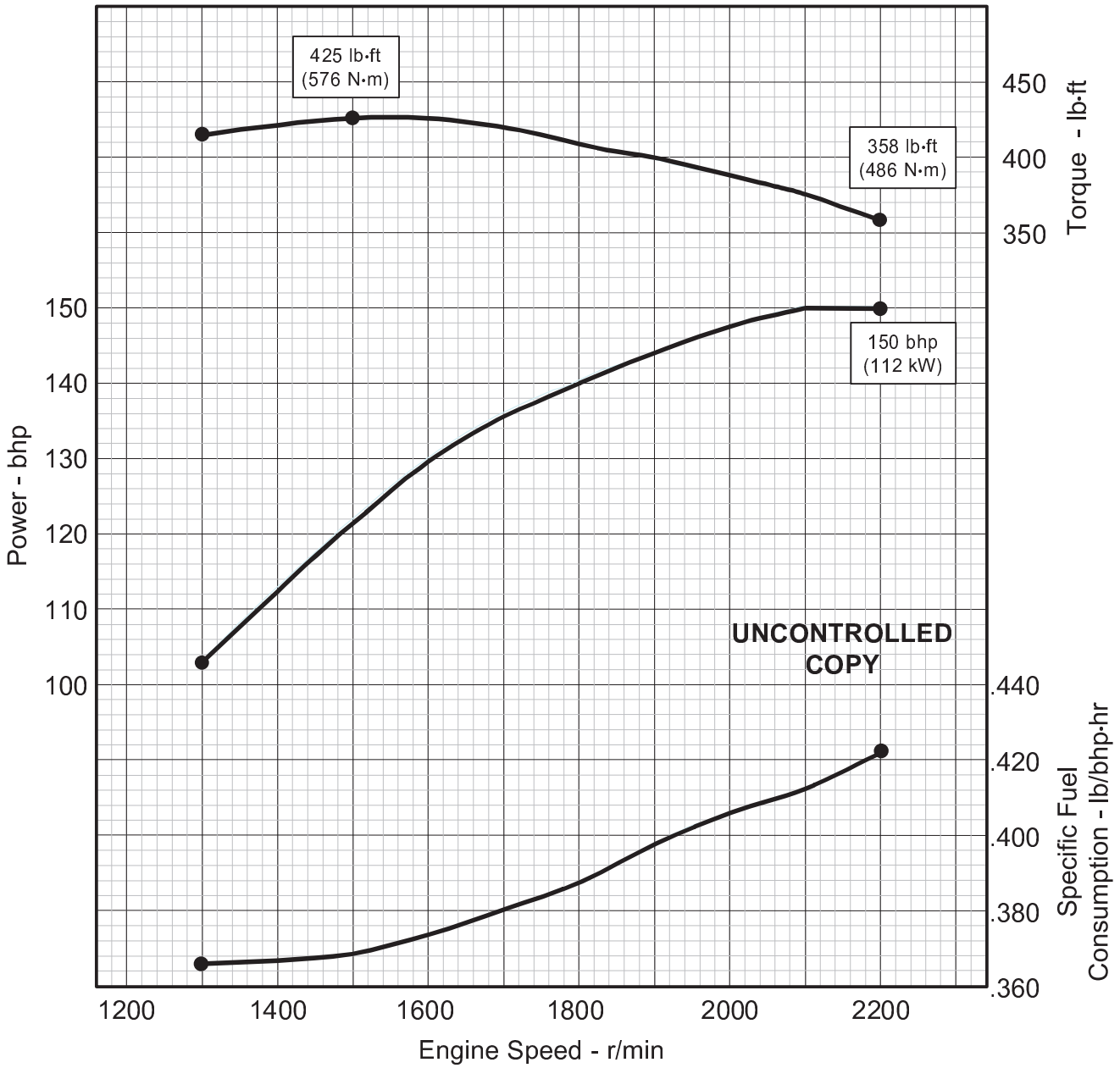
DETROIT DIESEL

Industrial Power

Model: 4-71TI DDEC®

Rating: 150 bhp @ 2200 r/min
425 lb·ft @ 1500 r/min

Certification: MSHA



Power output guaranteed within 5% SAE J1995 conditions: 77°F (25°C) air inlet temperature; 29.31 in. Hg (99kPa) dry barometer; 100°F (38°C) fuel inlet temperature; .853 specific gravity at 60°F. Air intake restriction: 10 in. H_2O (2.5 kPa) Exhaust Back Pressure: 15 in. H_2O (3.7 kPa)	*Conversion Factors:* Power: kW = bhp x 0.746 Fuel: kg/kW · hr = lb/bhp · hr x 0.608 Torque: N · m = lb · ft x 1.356	Turbo: TV6502 (0.84 A/R) Injector: 5234965

Certified by: J R Hebringer

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Performance Curve

CONSTRUCTION AND INDUSTRIAL SPECIFICATION SHEET

General Data

Model	1043-8K32
Number of Cylinders	4
Bore and Stroke – in. x in. (mm x mm)	4.25 x 5.00 (108 x 127)
Displacement – $in.^3$ (L)	284 (4.65)
Compression Ratio	18.7:1
Piston Speed – ft/min (m/min)	1833 (559)
Exhaust Valves Per Cylinder	4
Combustion System	DIRECT INJECTION
Engine Type	INLINE 2 CYCLE
Aspiration	TURBOCHARGED

Configuration

Injection Device	EUI
Turbocharger	TV6502 (0.84 A/R)
Blower Type	Bypass
Blower Drive Ratio	2.05:1
Charge Air Cooling	JWIC
Low Idle Speed – r/min	600
High Idle Speed – r/min	2310
Engine Crankcase Vent System	OPEN

Physical Data

Size:	
Length – in. (mm)	50.0 (1270)
Width – in. (mm)	28.8 (732)
Height – in. (mm)	41.2 (1046)
Weight, dry – lb (kg)	1770 (803)
Weight, wet – lb (kg)	1841 (835)
Center of Gravity Distance:	
From R.F.O.B. (x axis) – in. (mm)	10.4 (264)
Above Crankshaft (y axis) – in. (mm)	6.59 (167)
Right of Crankshaft (z axis) – in. (mm)	-1.20 (-30.5)
Installation Drawing	SK10690

Mechanical Data

Thrust Bearing Load Limit, Continuous – lb (N)	400 (1779)
Thrust Bearing Load Limit, Intermittent – lb (N)	1200 (5338)
Maximum Static Blending Moment at Rear Face of Block – lb·ft (N·m)	500 (678)
Maximum Weight on Crankshaft – lb (kg)	600 (272)
Additional Mechanical Data	E4-1000-32-1

Fuel System

Fuel Injector	5234965
Injection Timing Height – in.	1.520
Fuel Consumption – lb/hr (kg/hr)	63.3 (28.7)
Fuel Consumption – gal/hr (L/hr)	9.1 (34.3)
Fuel Spill – lb/hr (kg/hr)	503.3 (228.3)
Fuel Spill – gal/hr (L/hr)	72.0 (272.6)
Total Fuel Flow – lb/hr (kg/hr)	566.6 (257.0)
Total Fuel Flow – gal/hr (L/hr)	81.1 (306.8)
Maximum Fuel Inlet Temperature – °F (°C)	140 (60)
Maximum Fuel Pump Suction:	
Clean System – in. Hg (kPa)	6 (20.3)
Dirty System – in. Hg (kPa)	12 (41)
Fuel Filter Size, Primary – microns	30
Fuel Filter Size, Secondary – microns	12
Smoke Control Device	Not Applicable

Lubrication System

Oil Pressure at Rated Speed – $lb/in.^2$ (kPa)	55 (379)
Oil Pressure at Low Idle – $lb/in.^2$ (kPa)	5 (34)
In Pan Oil Temperature – °F (°C)	200 – 235 (93 – 113)
Oil Flow – gal/min (L/min)	26 (98)
Oil Pan Capacity: > 24 Hour Operation	
High Limit – qt (L)	20 (18.9)
Low Limit – qt (L)	15 (14.2)
Total Engine Oil Capacity with Filters – qt (L)	22 (20.8)
Engine Angularity Limits, Front Up – degrees	17
Engine Angularity Limits, Front Down – degrees	27
Engine Angularity Limits, Side Tilt – degrees	5

Electrical System

Recommended Battery Capacity (CCA @ 0°F):	
12 Volt System, Above 32°	950
12 Volt System, Below 32°	1250
24 Volt System, Above 32°	475
24 Volt System, Below 32°	625
Maximum Resistance of Starting Circuit:	
12 Volt System – ohms	0.0012
24 Volt System – ohms	0.002

Cooling System

Engine Heat Rejection – Btu/min (kW):	7450 (131.0)
Engine Radiated Heat – Btu/min (kW)	600 (10.6)
Coolant Flow – gal/min (L/min)	75 (284)
Minimum Coolant Flow – gal/min	68 (256)
Thermostat:	Partial Blocking
Start to Open	170 (77)
Fully Open	186 (86)
Minimum Water Pump Inlet Pressure:	
Rapid Warmup Radiator – in. Hg (kPa)	POSITIVE
Conventional Radiator – in. Hg (kPa)	-3 (-21)
Engine Coolant Capacity – qt (L)	14 (27)
Minimum Pressure Cap – $lb/in.^2$ (kPa)	9 (62)
Maximum Coolant Pressure (Exclusive of Pressure Cap – $lb/in.^2$ (kPa)	17 (117.2)
Maximum Top Tank Temperature – °F (°C)	210 (99)
Minimum Top Tank Temperature – °F (°C)	160 (71)
Minimum Coolant Fill Rate – gal/min (L/min)	3 (11.4)
Air Handling Capacity – ft^3/min (m^3/min)	0.4 (0.011)
Minimum Drawdown Requirement – qt (L)	4 (3.8)
Deaeration Time – minutes	30

Air System

Maximum Temperature Rise (Ambient Air to Engine Inlet) – °F (°C)	30 (16.7)
Maximum Air Intake Restriction:	
Clean Air Cleaner – in. H_2O (kPa)	12 (3.0)
Dirty Air Cleaner – in. H_2O (kPa)	20 (5.0)
Engine Air Flow – ft^3/min (m^3/min)	770 (21.8)
Engine Air Box/Manifold Pressure – in. Hg (kPa)	50.0 (168.9)
Recommended Intake Pipe Outer Diameter:	
Single – in. (mm)	5.5 (140)
Dual – in. (mm)	Not Applicable
Maximum Crankcase Pressure – in. H_2O (kPa)	1.9 (0.47)

Exhaust System

Exhaust Flow – ft^3/min (m^3/min)	1520 (43.0)
Exhaust Temperature – °F (°C)	590 (308)
Maximum Back Pressure – in. Hg (kPa)	3.0 (10.1)
Recommended Exhaust Pipe Diameter:	
Single – in. (mm)	4.0 (102)
Dual – in. (mm)	Not Applicable

Performance Data

BMEP – $lb/in.^2$ (kPa)	95.2 (656)
Friction Power:	
Rated Speed – fhp (kW)	42.5 (32)
Peak Torque Speed – fhp (kW)	15.5 (12)
Altitude Capability – ft (m)	15000 (4570)
Torque Available at 800 r/min – lb·ft (N·m)	290 (393)

Engine Speed r/min	Rated Power bhp (kW)	Rated Torque lb·ft (N·m)	Rated BSFC lb/bhp·hr (g/kW·hr)
2200	150 (112)	358 (486)	0.422 (257)
2100	150 (112)	375 (509)	0.413 (251)
1950	146 (109)	392 (531)	0.403 (245)
1800	140 (104)	408 (554)	0.388 (236)
1650	133 (99)	423 (574)	0.377 (229)
1500	121 (90)	425 (576)	0.369 (224)
1300	103 (77)	415 (563)	0.366 (223)

Emissions Data

Smoke, Rated Speed – Bosch Number	0.2
Smoke, Peak Torque Speed – Bosch Number	1.5
Noise – dB(A) @ 1	93
Additional Noise Data	N1-1043-32-1
NO_x – g/hr	840
CO – g/hr	90
HC – g/hr	60
SO_2 – g/hr	287
Certification Approval	MSHA *
MSHA Certificate Number	24/D144-0

* MSHA certified ventilation requirement under Part 32, Title 30 of the CFR for use in non-gassy, non-coal mines - 23,000ft^3/min (cfm)

All values are at rated speed and power at SAE J1995 with standard engine hardware, unless otherwise noted.

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