

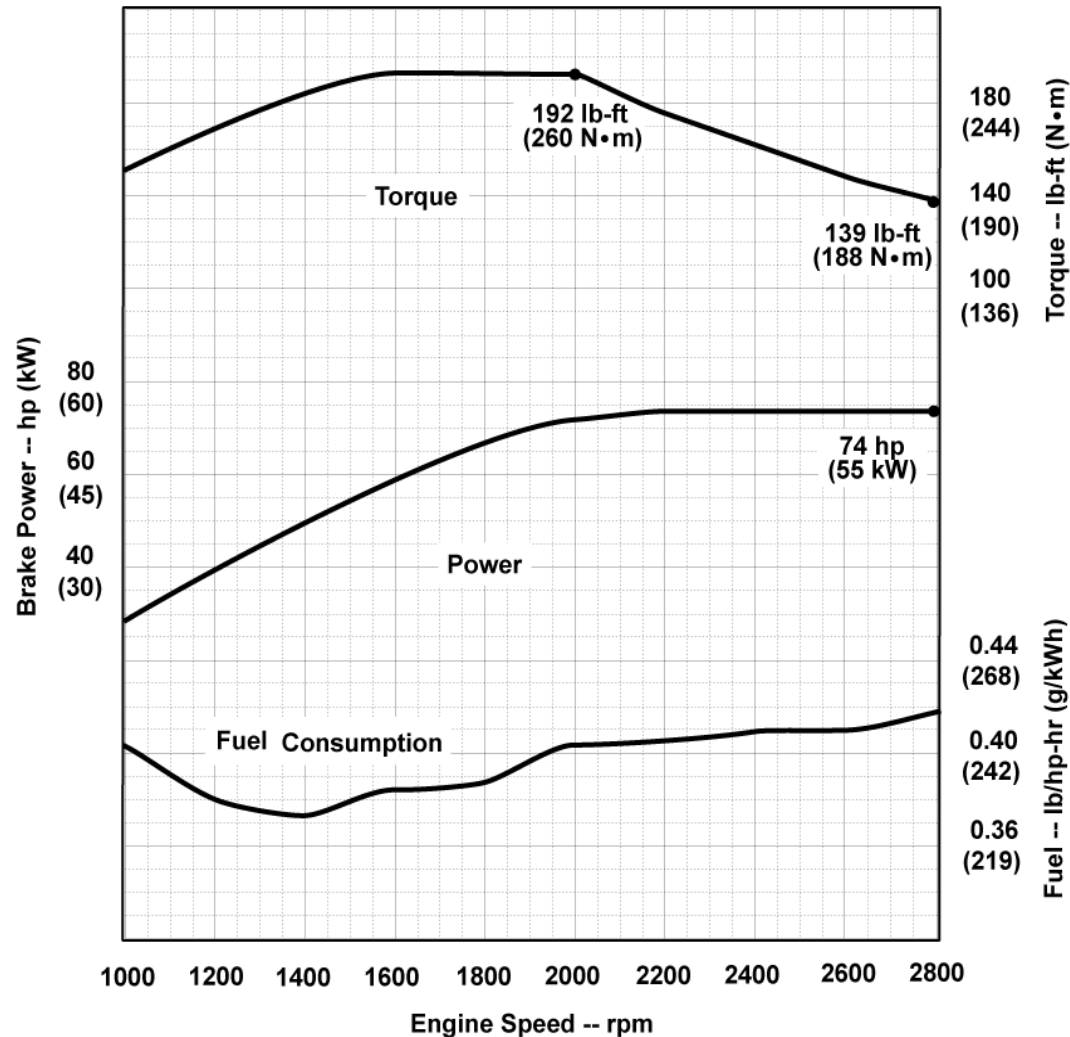


JOHN DEERE

ENGINE PERFORMANCE CURVE

Rating: Gross Power
Application: Intermittent
Power Bulge - 0%
Torque Rise - 38%

PowerTech™ E 2.4L Engine
Model: 4024HF295
JD Electronic Control
74 hp @ 2800 rpm
55 kW @ 2800 rpm
[See Option Code Table]



STANDARD CONDITIONS

Air Intake Restriction.....12 in.H₂O (3 kPa)
Exhaust Back Pressure.....60 in.H₂O (15 kPa)

Gross power guaranteed within + or - 5% at SAE

J1995 and ISO 3046 conditions:

77 °F (25 °C) air inlet temperature
29.31 in.Hg (99 kPa) barometer
104 °F (40 °C) fuel inlet temperature
0.853 fuel specific gravity @ 60 °F (15.5 °C)

Conversion factors:

Power: kW = hp x 0.746

Fuel: 1 gal = 7.1 lb, 1 L = 0.85kg

Torque: N·m = lb-ft x 1.356

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

Notes: 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/appguidelines>.

Designed/Calibrated to meet:

- CARB
- EPA
- EU

Ref: Engine Emission Label

Certified by:

Performance Curve: 4024HF295_E

Engine Installation Criteria

General Data

Model	4024HF295	
Number of Cylinders	4	
Bore	86 mm	3.4 in.
Stroke	105 mm	4.1 in.
Displacement	2.4 L	146 in. ³
Compression Ratio	18.2 : 1	
Valves per Cylinder, Intake/Exhaust	1/1	
Firing Order	1-3-4-2	
Combustion System	Unit Injection	
Engine Type	In-line, 4-Cycle	
Aspiration	Turbocharged and air-to-air aftercooled	
Charge Air Cooling System	Air-to-Air	
Engine Crankcase Vent System	Open	

Physical Data

Length	662 mm	26.1 in.
Width	566 mm	22.3 in.
Height	772 mm	30.4 in.
Weight, with oil & no coolant (Includes engine, flywheel housing, flywheel & electrics)	251 kg	553 lb
Center of Gravity Location, X-axis From Rear Face of Block	194 mm	7.6 in.
Center of Gravity Location, Y-axis Right of Crankshaft	14 mm	0.6 in.
Center of Gravity Location, Z-axis Above Crankshaft	108 mm	4.3 in.
Max. Allowable Static Bending Moment At Rear Face of Flywheel Housing with 5-G Load	500 N·m	368 lb-ft
Thrust Bearing Load Limit Forward, Intermittent	5100 N	1147 lb
Thrust Bearing Load Limit Forward, Continuous	2800 N	629 lb
Thrust Bearing Load Limit Rearward, Intermittent	1500 N	337 lb
Thrust Bearing Load Limit Rearward, Continuous	800 N	180 lb
Max. Continuous Damper Temp	82 °C	180 °F
Max. Torsional Vibration, Front of Crank	0.25 DDA	

Electrical System

Recommended Battery Capacity, 12V @32 °F (0 °C)	750 amps	
Recommended Battery Capacity, 24V @32 °F (0 °C)	500 amps	
Starter Rolling Current, 12V @32 °F (0 °C)	290 amps	
Starter Rolling Current, 24V @32 °F (0 °C)	310 amps	
Starter Rolling Current, 12V @-22 °F (-30 °C)	370 amps	
Starter Rolling Current, 24V @-22 °F (-30 °C)	340 amps	
Max. Allowable Start Circuit Resistance, 24V	0.002 Ohm	
Max. Allowable Start Circuit Resistance, 12V	0.0012 Ohm	
Max. ECU Temperature	105 °C	221 °F
Max. Harness Temperature	125 °C	257 °F

Charge Air Cooling System

Air-to-Air Heat Rejection	11.5 kW	655 BTU/min
Intake Manifold Pressure	133 kPa	19.3 psi
Compressor Discharge Temperature @77°F(25°C) Ambient Air	166 °C	331 °F
Compressor Discharge Temperature @117°F(47°C) 80 kPa Barametric pressure	NA	
Intake Manifold Temperature at which Power De-rate Occurs	88 °C	190 °F
Max. Pressure Drop through CAC	13 kPa	52.0 in. H ₂ O
Min. Pressure Drop through CAC	7 kPa	28.0 in. H ₂ O
Max. Temperature Out of Charge Air Cooler @77°F (25°C) Ambient Air	60 °C	140 °F
Min. Temperature Out of Charge Air Cooler @77°F (25°C) Ambient Air	48 °C	118 °F

Performance Curve: 4024HF295_E

Engine Installation Criteria

Cooling System

Max. Water Pump Inlet Restriction	-30 kPa	-4.4 psi
Engine Heat Rejection	33.4 kW	1901 BTU/min
Coolant Flow	120 L/min	32 gal/min
Thermostat Start to Open	89 °C	192 °F
Thermostat Fully Open	100 °C	212 °F
Engine Coolant Capacity	2.6 Liter	2.7 quart
Min. Pressure Cap	103 kPa	15 psi
Min. Pump Inlet Pressure	30 kPa	4.4 psi
Max. Top Tank Temperature	110 °C	230 °F
Min. Limiting Ambient Temperature	47 °C	117 °F
Min. Coolant Fill Rate	9.5 L/min	2.5 gal/min

Exhaust System

Exhaust Flow	14.7 m³/min	519 ft.³/min
Exhaust Temperature	510 °C	950 °F
Max. Allowable Exhaust Restriction	7.5 kPa	30 in. H ₂ O
Min. Allowable Exhaust Restriction	4.0 kPa	16 in. H ₂ O
Max. Bending Moment on Turbo Outlet	7 N·m	5.2 lb-ft
Max. Shear on Turbine Outlet	11 kg	24 lb

Fuel System

ECU Description	L18 Controller	
Fuel Injection Pump	Delphi EUP	
Governor Type	Electronic	
Total Fuel Flow	70.0 kg/hr	154 lb/hr
Fuel Consumption	14.1 kg/hr	31.1 lb/hr
Fuel Temperature Rise, Inlet to Return	25 °C	77 °F
Max. Fuel Inlet Restriction	30 kPa	120 in. H ₂ O
Max. Fuel Inlet Pressure	24 kPa	96 in. H ₂ O
Max. Fuel Return Pressure	35 kPa	140 in. H ₂ O
Max. Fuel Inlet Temperature	85 °C	185 °F

Lubrication System

Oil Pressure at Rated Speed	300 kPa	44 psi
Max. Oil Carryover in Blow-By	1.0 g/hr	0.002 lb/hr
Max. Airflow in Blow-By	45 L/min	11.9 gal/min
Max. Crankcase Pressure	0.5 kPa	2 in. H ₂ O

Air Intake System

Engine Air Flow	5.74 m³/min	203 ft.³/min
Maximum Allowable Temperature Rise, Ambient Air to Engine Inlet	8 Δ°C	15 Δ°F
Max. Air Intake Restriction, Clean Air Cleaner	3.0 kPa	12.0 in. H ₂ O
Max. Air Intake Restriction, Dirty Air Cleaner	6.25 kPa	25.0 in. H ₂ O
Air Cleaner Efficiency		99.9 %

Performance Data

Rated Power	55 kW	74 HP
Rated Speed		2800 rpm
Max. Fast Idle Speed		3000 rpm
Breakaway Speed		2870 rpm
Power Bulge Speed		NA
Peak Torque Speed		2000 rpm
Low Idle Speed		900 rpm
Rated Torque	188 N·m	139 lb-ft
Peak Torque	260 N·m	192 lb-ft
Torque Rise		38 %
BMEP, Rated	973 kPa	141 psi
BMEP, Peak Torque	1338 kPa	194 psi
Altitude Capability	3048 m	10000 ft
Friction Power @Rated Speed	21 kW	28 HP
Air:Fuel Ratio		27.4 : 1
Smoke @Rated Speed		1.1 Bosch No.
Noise @1 m		90.6 dB(A)
Power Bulge		0 %

Performance Curve: 4024HF295_E

Engine Installation Criteria

Engine Speed	Power		Torque		BSFC	
rpm	kW	hp	N·M	lb-ft	g/kWh	lb/hp-hr
2800	55	74	188	139	255	0.418
2600	55	74	202	149	250	0.410
2400	55	74	219	162	250	0.410
2200	55	74	239	176	247	0.405
2000	54	72	260	192	246	0.403
1800	49	66	260	192	237	0.389
1600	44	59	260	192	234	0.384
1400	37	50	253	187	227	0.372
1200	29	39	230	170	232	0.380
1000	21	28	205	151	245	0.402

Performance Curve: 4024HF295_E