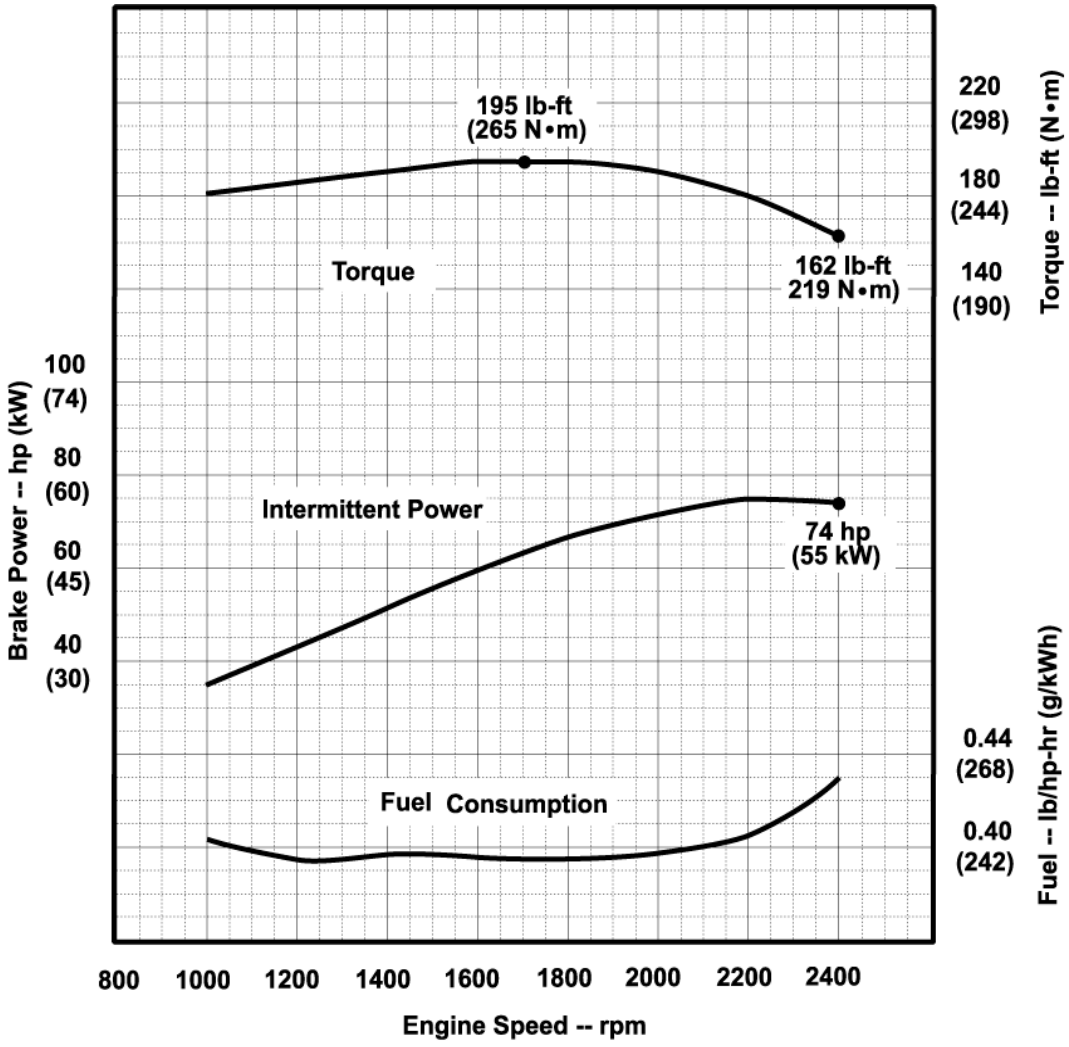
ENGINE PERFORMANCE CURVE

Rating: Gross Power
Application: Continuous
Industrial
Torque Rise - 21%

PowerTech™ M 4.5L Engine
Model: 4045TF290
74 hp @ 2400 rpm
55 kW @ 2400 rpm
[See Option Code Table]



STANDARD CONDITIONS

Air Intake Restriction.....12 in.H_2O (3 kPa)
Exhaust Back Pressure.....60 in.H_2O (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/apguidelines.

Designed/Calibrated to meet:	Certified by:
• CARB • EPA Interim Tier 4 • EU Stage III A Ref: Engine Emission Label	10 July 2012

Performance Curve: 4045TF290_A

Engine Installation Criteria

General Data

Model			4045TF290	
Number of Cylinders			4	
Bore	106	mm	4.2	in.
Stroke	127	mm	5.0	in.
Displacement	4.5	L	275	in.³
Compression Ratio			19.0:1	
Valves per Cylinder, Intake/Exhaust			1/1	
Firing Order			1-3-4-2	
Combustion System			Direct Injection	
Engine Type			In-line, 4-Cycle	
Aspiration			Turbocharged	
Engine Crankcase Vent System			Open	

Physical Data

Length	860	mm	33.9	in.
Width	612	mm	24.1	in.
Height	994	mm	39.1	in.
Weight, with oil &no coolant (Includes engine, flywheel housing, flywheel &electrics)	396	kg	873	lb
Center of Gravity Location, X-axis From Rear Face of Block	267	mm	10.5	in.
Center of Gravity Location, Y-axis Right of Crankshaft	13	mm	0.5	in.
Center of Gravity Location, Z-axis Above Crankshaft	109	mm	4.3	in.
Max. Allowable Static Bending Moment At Rear Face of Flywheel Housing with 5-G Load	814	N·m	600	lb-ft
Thrust Bearing Load Limit Forward, Intermittent	4003	N	900	lb
Thrust Bearing Load Limit Forward, Continuous	2224	N	500	lb
Thrust Bearing Load Limit Rearward, Intermittent	2000	N	450	lb
Thrust Bearing Load Limit Rearward, Continuous	1000	N	225	lb
Max. Torsional Vibration, Front of Crank			0.25	DDA

Electrical System

Recommended Battery Capacity, 12V @32 °F (0 °C)			640	amps
Recommended Battery Capacity, 24V @32 °F (0 °C)			570	amps
Starter Rolling Current, 12V @32 °F (0 °C)			780	amps
Starter Rolling Current, 24V @32 °F (0 °C)			600	amps
Starter Rolling Current, 12V @-22 °F (-30 °C)			1000	amps
Starter Rolling Current, 24V @-22 °F (-30 °C)			700	amps
Max. Allowable Start Circuit Resistance, 24V			0.002	Ohm
Max. Allowable Start Circuit Resistance, 12V			0.0012	Ohm

Cooling System

Engine Heat Rejection	38	kW	2163	BTU/min
Coolant Flow	196	L/min	52	gal/min
Thermostat Start to Open	82	°C	180	°F
Thermostat Fully Open	94	°C	201	°F
Engine Coolant Capacity	8.5	Liter	9.0	quart
Min. Pressure Cap	100	kPa	15	psi
Max. Water Pump Inlet Pressure		kPaa		
Min. Pump Inlet Pressure @194°F (90°C) Coolant		kPaa		
Min. Pump Inlet Pressure @203°F (95°C) Coolant		kPaa		
Min. Pump Inlet Pressure @Max. Top Tank Temperature		kPaa		
Min. External Coolant Restriction		kPa		
Max. Top Tank Temperature	105	°C	221	°F
Max. Top Tank Temperature 95% of Operating Hours		°C		
Min. Limiting Ambient Temperature	47	°C	117	°F
Min. Coolant Fill Rate	11	L/min	2.9	gal/min

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Engine Installation Criteria

Exhaust System

Exhaust Flow	15.7	m³/min	554	ft.³/min
Exhaust Temperature	496	°C	925	°F
Max. Allowable Exhaust Restriction	7.5	kPa	30	in. H_2O
Min. Allowable Exhaust Restriction	0	kPa	0	in. H_2O
Max. Shear on Turbine Outlet		kg		
Exhaust Filter Size				
Min. Mixing Length, Outlet to Exhaust Filter		mm		
Max. Bending Moment on Exhaust Filter Inlet		N·m		
Max. Bending Moment on Exhaust Filter Outlet		N·m		
Max. Exhaust Leakage Rate, Engine to Exhaust Filter @30kPa		L/min		
Max. Temperature Drop, Engine to Exhaust Filter		°C		

Fuel System

Fuel Injection Pump		Stanadyne DB4		
Governor Type		Mechanical		
Governor Regulation		7-10%		
Total Fuel Flow	70	kg/hr	154	lb/hr
Fuel Consumption	14.4	kg/hr	31.7	lb/hr
Min. Fuel Inlet Pressure		kPa		
Max. Fuel Inlet Pressure		kPa		
Max. Fuel Return Pressure	20	kPa	80	in. H_2O
Min. Fuel Return Pressure		kPa		
Max. Fuel Inlet Temperature	100	°C	212	°F
Fuel Filter @98% Efficiency			2	mic

Lubrication System

Oil Pressure at Rated Speed	345	kPa	50	psi
Oil Pressure at Low Idle	105	kPa	15	psi
Max. In-Pan Oil Temperature	115	°C	239	°F
In-Pan Oil Temperature	115	°C	239	°F
Max. Oil Carryover in Blow-By	1.0	g/hr	0.002	lb/hr
Max. Airflow in Blow-By	100	L/min	26.4	gal/min
Max. Crankcase Pressure	0.5	kPa	2	in. H_2O

Air Intake System

Engine Air Flow	6.5	m³/min	230	ft.³/min
Intake Manifold Pressure	70	kPa	10.2	psi
Maximum Allowable Temperature Rise, Ambient Air to Engine Inlet	8	Δ°C	15	Δ°F
Max. Air Intake Restriction, Clean Air Cleaner	3	kPa	12.0	in. H_2O
Max. Air Intake Restriction, Dirty Air Cleaner	6.25	kPa	25.0	in. H_2O
Recommended Intake Pipe Diameter	76.2	mm	3.00	in.

Performance Data

Rated Power	55	kW	74	HP
Rated Speed			2400	rpm
Peak Torque Speed			1700	rpm
Low Idle Speed			850	rpm
Rated Torque	219	N·m	162	lb-ft
Peak Torque	265	N·m	195	lb-ft
Torque Rise			21	%
BMEP, Rated	608	kPa	88	psi
BMEP, Peak Torque	733	kPa	106	psi
Altitude Capability	3048	m	10000	ft
Friction Power @Rated Speed	23	kW	31	HP
Air:Fuel Ratio			31.3 : 1	
Smoke @Rated Speed			1.1	Bosch No.
Noise @1 m			92.5	dB(A)

AVERAGE dBA @ 7 meters=77.82dBA
Engine installed on a Thompson Pump's unit model 8RW-DJDS-45T-M
(without a sound attenuated canopy)

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Engine Installation Criteria

Engine Speed	Power		Torque		BSFC	
rpm	kW	hp	N·M	lb-ft	g/kWh	lb/hp-hr
2400	55	74	219	162	262	0.430
2200	56	75	244	180	247	0.405
2000	54	72	258	190	242	0.397
1800	50	67	264	195	241	0.395
1700	47	63	265	195	241	0.395
1600	44	59	264	195	242	0.397
1400	38	51	258	190	243	0.399
1200	32	43	252	186	244	0.400
1000	26	35	245	181	246	0.403

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