

# DWS4 ENGINE

## DWS4

*Power ranges: 25.0—48.5 kW; 33.5—65.0 bhp  
Variable or fixed speed; full load speed range: 1200—2500 r/min*

### HEAVY DUTY, INDIRECT INJECTION DIESEL ENGINE

#### SPECIAL ATTRIBUTES

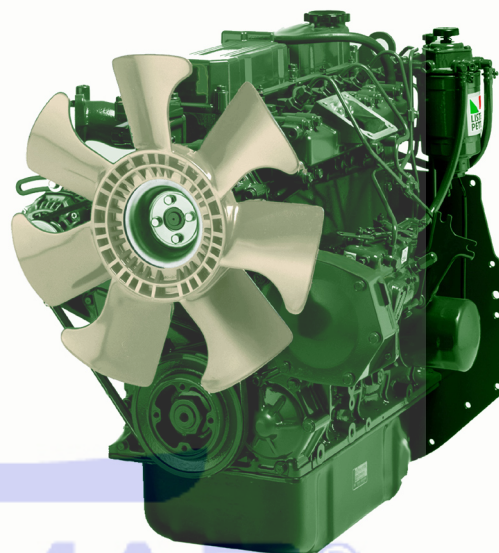
- designed for continuous operation in ambient temperatures up to 52°C (122°F)
- tropical radiator with pusher fan and full guarding

#### ENGINE CHARACTERISTICS

- four cylinders
- diesel fuelled
- liquid cooled
- indirect injection
- naturally aspirated

#### DESIGN FEATURES AND EQUIPMENT

- self vent fuel system with rotary fuel injection pump and integrated fuel control solenoid
- gear driven positive displacement type lubricating oil pump
- standard oil and fuel filters
- heavy duty air cleaner
- 12V electric starting with a 55 Amp alternator
- flywheel with ring gear
- SAE 3 flywheel housing
- inlet and exhaust manifolds
- combustion chamber glow plugs
- engine temperature switch



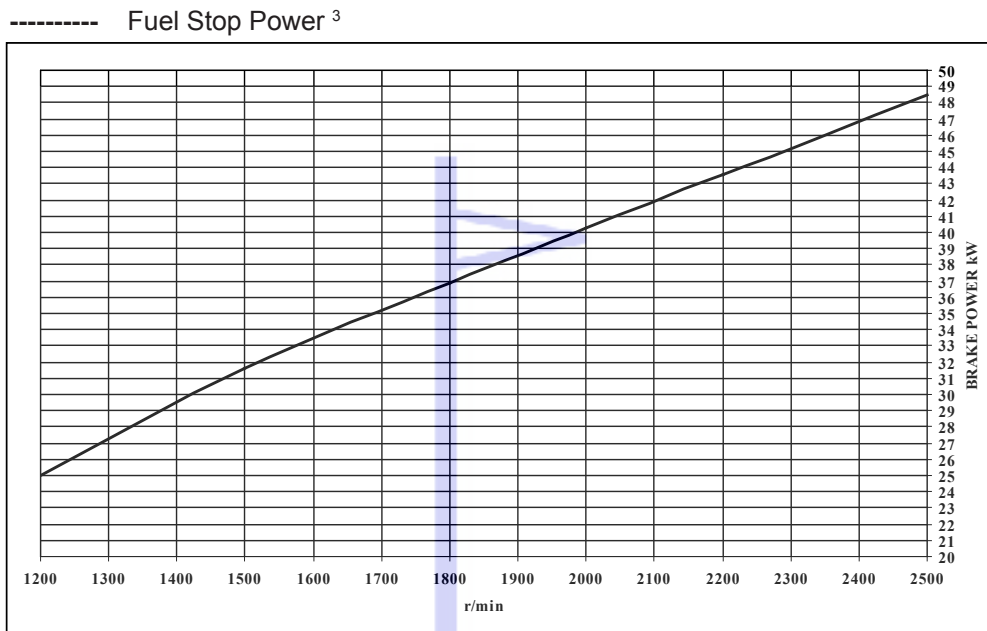
**DWS4 ENGINE**

- low oil pressure switch
- 250-hour service intervals
- operators' handbook

#### OPTIONAL ITEMS

- optional 5-year extended warranty
- A range of options enables you to select a specification that matches your requirements. Please consult your Lister Petter distributor.

POWER OUTPUTS TO ISO 3046								
r/min			1200	1500	1800	2000	2200	2500
Fixed Speed	Continuous <sup>1</sup> Power	kW		28.7	33.2			
		bhp		38.5	44.5			
	Fuel Stop Power <sup>2</sup>	kW		31.6	36.5			
		bhp		42.3	48.9			
Variable Speed	Fuel Stop Power <sup>3</sup>	kW	25.0	31.6	36.9	40.3	43.6	48.5
		bhp	33.5	42.3	49.5	54.0	58.4	65.0



VARIABLE SPEED TORQUE TO ISO 3046 <sup>3</sup>							
Variable Speed, Fuel Stop Torque	r/min	1200	1500	1800	2000	2200	2500
	Nm	198.9	201.2	195.8	192.4	189.2	185.3
	lbf ft	146.7	148.4	144.4	141.9	139.5	136.7

r/min	Torque Nm
1200	198.9
1500	201.2
1800	195.8
2000	192.4
2200	189.2
2500	185.3

**Variable Speed Engines - Continuous Rating**

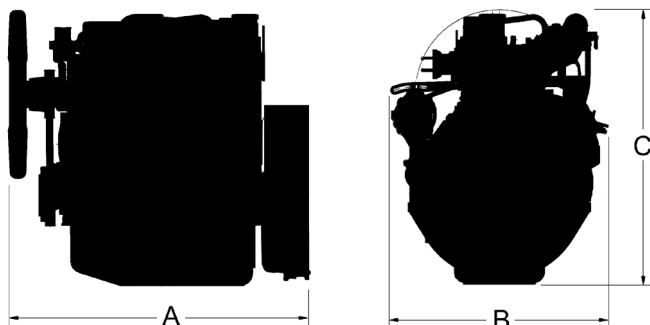
Some applications using variable speed engines can run continuously at full load, rated speed, e.g. centrifugal water pumps. It is recommended that these applications be matched to 90% of Fuel Stop Power to allow for equipment and engine production variation. If in doubt regarding power and application matching, please refer to our Applications Department.

VARIABLE SPEED MAXIMUM FUEL CONSUMPTION <sup>3</sup>							
Fuel Stop Power	r/min	1200	1500	1800	2000	2200	2500
	g/kWh	236	245	240	237	238	244
	litre/h	6.9	9.0	10.3	11.1	12.1	13.8

TECHNICAL DATA			
Number of cylinders			4
Type of fuel injection			Indirect
Aspiration			Natural
Direction of rotation (flywheel end)			Anticlockwise
Nominal cylinder bore	mm	94.00	
	in	3.7	
Stroke	mm	120.00	
	in	4.7	
Total cylinder capacity	litre	3.33	
	in <sup>3</sup>	203.3	
Compression ratio			22:1
Firing order (number 1 cylinder is at the gear end)			1 - 3 - 4 - 2
Idling speed (minimum)	r/min	700	
Full-load speed (minimum)	r/min	1200	
Number of flywheel ring gear teeth			122
Number of starter motor pinion gear teeth			10
Intermittent end thrust (maximum)	Forwards towards the flywheel	N	2160
		lbf	485.0
	Rearwards away from the flywheel	N	1080
		lbf	242.5
Continuous end thrust (maximum)	Forwards towards the flywheel	N	1080
		lbf	242.5
	Rearwards away from the flywheel	N	540
		lbf	121.3
Axial PTO from crankshaft pulley (maximum)		Nm	20.0
		lbf ft	44.1
Auxiliary hydraulic PTP drive ratio			1:1
Auxiliary hydraulic PTO maximum permissible torque		Nm	125
		lbf ft	276
Intake restriction at full rated speed and load (maximum permissible)		mbar	63.5
		in H <sub>2</sub> O	25.0
Exhaust back pressure (maximum permissible)		mbar	68.0
		in H <sub>2</sub> O	27.2

**Notes:** a. The overload capability applies to a fully run-in engine. This is normally attained after a running period of about 50 hours.  
 b. Power ratings measured at the flywheel, apply to a fully run-in, non derated engine without a radiator and fan fitted, and without power absorbing accessories or transmission equipment.

APPROXIMATE DIMENSIONS AND WEIGHT



Dry weight	kg	245
	lb	539
Length (A)	mm	781
	in	30.7
Width (B)	mm	570
	in	22.4
Height (C)	mm	712
	in	28.0

**RATING DEFINITIONS, TO ISO 3046**

ISO Standard Conditions

Barometric pressure 100 kPa

Relative humidity 30%

Ambient air temperature at air inlet 25°C

**1. Fixed speed power: continuous power (ICN)**

The power in kW which the engine is capable of delivering continuously at the stated crankshaft speed, under ISO 3046 standard conditions, measured at the flywheel without power-absorbing accessories, provided that the engine is overhauled and maintained in good operating condition and that fuel to BS EN 590 Class A1 or A2, and lubricating oils to the correct performance specification and viscosity classification as recommended by Lister Petter Limited, are used.

**2. Fixed speed power: overload power (ICXN)**

The maximum power in kW which the engine is capable of delivering intermittently at the stated crankshaft speed for a period not exceeding one hour in any period of twelve hours continuous running, immediately after working at the continuous power, under ISO 3046 standard conditions and with the provisions specified for continuous power above.

**3. Variable speed: fuel-stop power, continuous power (IFN)**

The maximum power in kW which an engine is capable of delivering continuously at stated crankshaft speed, under the conditions as specified in item 1, with the fuel limited so that the fuel stop power cannot be exceeded.

**4. De-rating**

For non-standard site conditions, reference should be made to relevant BS, ISO and DIN standards.



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