



DELTA Series

DWS4 Engine

DWS4

Power ranges: 23.7–48.5 kW; 31.8–65.0 bhp
Variable or fixed speed; full load speed range: 1200–2500 r/min

Heavy-duty, indirect-injection emission compliant 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
- low oil-pressure switch
- 250-hour service intervals
- operators' handbook



Emissions Compliance

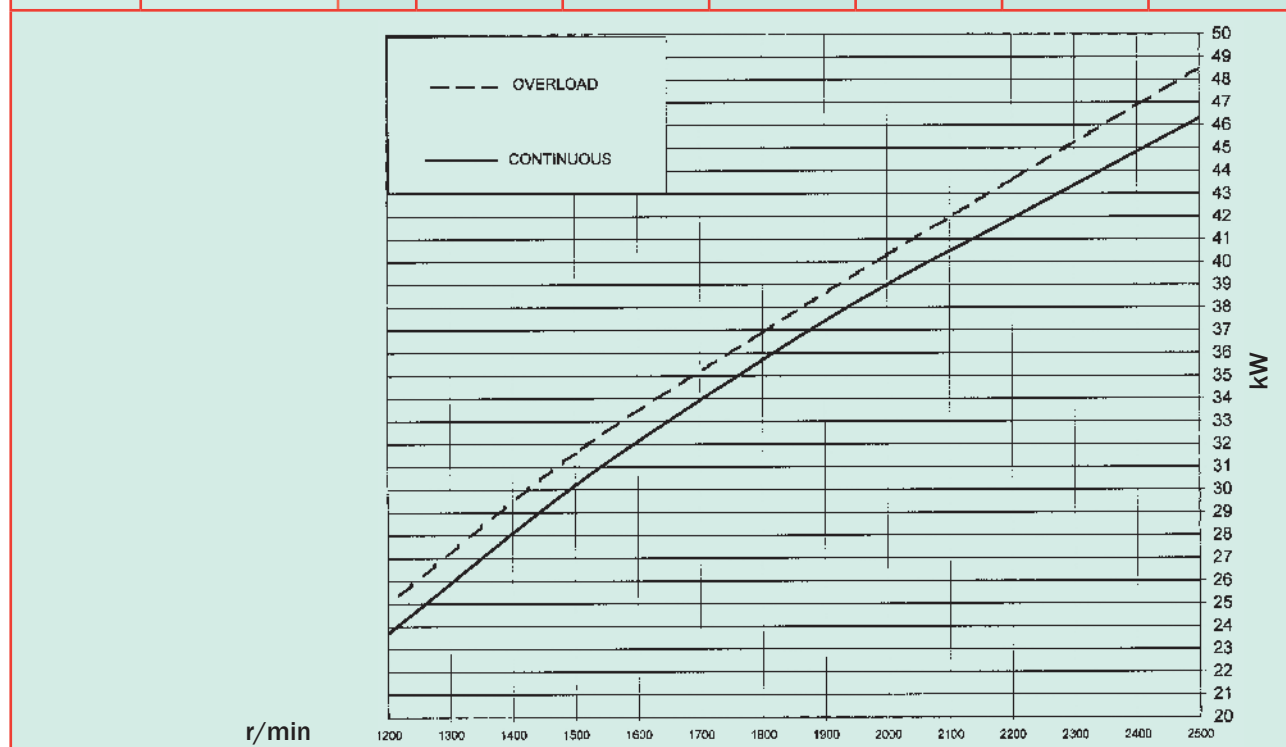
- compliant to EU Stage 2 at 1500 r/min

Optional Items

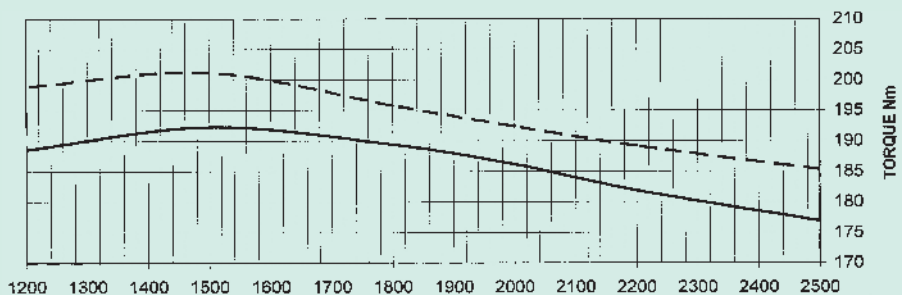
- optional 5-year extended warranty

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 Power	kW		28.7	33.2			
		bhp		38.5	44.5			
	Overload Power ¹	kW		31.6	36.5			
		bhp		42.3	48.9			
Variable Speed	Continuous Power	kW	23.7	30.2	35.7	39.0	41.9	46.3
		bhp	31.4	40.5	47.9	52.3	56.2	62.1
	Overload Power ¹	kW	25.0	31.6	36.9	40.3	43.6	48.5
		bhp	33.5	42.4	49.5	54.0	58.4	65.0



Torque to ISO 3046 ²							
Variable Speed, Continuous Power	r/min	1200	1500	1800	2000	2200	2500
	Nm	188.6	192.3	189.4	186.2	181.9	176.9
	lbf ft	139.1	141.8	139.7	137.4	134.2	130.5



Rating Definitions, to ISO 3046

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 conditions of 100 kPa barometric pressure, 30% relative humidity and 25 °C air inlet temperature, 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 the conditions specified in (1) 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. Variable speed: fuel-stop power, intermittent power (IOFN)

The maximum power in kW which an engine is capable of delivering intermittently at the stated crankshaft speed, for a period not exceeding 1 hour in any period of 12 hours continuous running immediately after running at the Continuous Fuel Stop Power rating.

5. De-rating

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

The overload capability applies to a fully run-in engine. This is normally attained after a running period of about 50 hours.

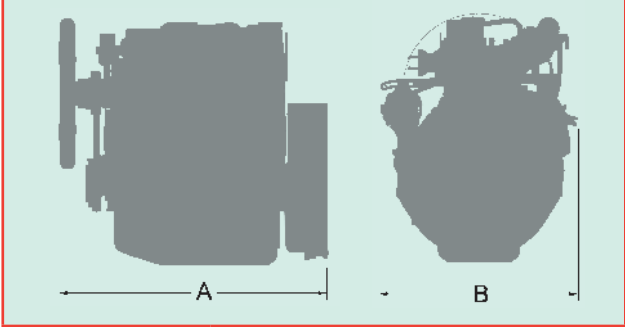
1. The overload capability applies to a fully run-in engine. This is normally attained after a running period of about 50 hours .

2. Power ratings measured at the flywheel, performance curves and fuel consumptions, apply to a fully run-in, non derated engine without a radiator and fan fitted, and without power absorbing accessories or transmission equipment.

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 ³	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 ₂ O	25.0
Exhaust back pressure (maximum permissible)		mbar	68.0
		in H ₂ O	27.2

Fuel Consumption							
Full Load Continuous Power	r/min	1200	1500	1800	2000	2200	2500
	g/kWh	230	235	242	242	240	245

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



Emissions

- EPA Tier 2 compliant (1800 r/min fixed speed)

Rating Definitions (ISO 3046)

1. Fixed Speed Power - continuous speed (ICN)

The power in kW which the engine is capable of delivering continuously at the stated crankshaft speed, under conditions of 100 kPa barometric pressure, 30% relative humidity and 25 °C air inlet temperature, 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 Powers - 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 the conditions specified in (1) 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. Variable Speed - fuel stop power, intermittent (IOFN)

The maximum power in kW which an engine is capable of delivering intermittently at the stated crankshaft speed, for a period not exceeding 1 hour in any period of 12 hours continuous running immediately after running at the Continuous Fuel Stop Power rating.

5. De-rating

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

Distributor's Address

Lister Petter have made efforts to ensure that the information in this data sheet is accurate but reserve the right to amend specifications and information without notice and without obligation or liability.



UK

Lister Petter Limited, Dursley, Gloucestershire
GL11 4HS England

Tel: +44 (0)1453 544141; fax: +44 (0)1453 546732

E-mail: sales@lister-petter.co.uk <http://www.lister-petter.co.uk>