

TR ENGINES

TR1, TR2, TR3

Power ranges: 5.5-28.5 kW; 7.4-38.0 bhp

Variable or fixed speed; full load speed range: 1500-2500 r/min

RELIABLE, DURABLE HEAVY DUTY AIR COOLED DIESEL ENGINES

SPECIAL ATTRIBUTES

- variable and fixed-speed builds available
- designed for continuous operation in ambient temperatures up to 52°C (122°F)
- oil cooling by means of air flow over deep crankcase finning

BASIC ENGINE CHARACTERISTICS

- diesel fuelled
- direct injection
- 1, 2 or 3 cylinders
- air cooled
- naturally aspirated
- handstart (electric optional)

DESIGN FEATURES AND EQUIPMENT

- air cleaner
- inlet and exhaust manifolds
- self vent fuel system with individual fuel injection pumps
- fuel filter
- self regulating plunger type lubricating oil pump
- spin-on lubricating oil filter
- decompressor levers
- flywheel
- flywheel housing with SAE4 flange
- 250 hour service intervals
- mechanical governing:
 - variable speed 900-2500 r/min
 - fixed speed 1500 and 1800 r/min
- operators' handbook



TR ENGINE

EMISSIONS

- models under 19kW comply with EU Stage 3A exhaust emissions regulations

OPTIONAL ITEMS

- 12V electric start
- gear case power take-off (see over)

| POWER OUTPUTS ¹ TO ISO 3046 | | | | | | |
|--|------------------|-------|-------|-------|------|------|
| Variable Speed | | r/min | 1500* | 1800* | 2000 | 2500 |
| TR1 | Continuous Power | kW | 5.5 | 6.7 | 7.3 | 8.6 |
| | | bhp | 7.4 | 9.0 | 9.8 | 11.5 |
| | Fuel Stop | kW | 6.1 | 7.4 | 8.0 | 9.5 |
| | | bhp | 8.2 | 9.9 | 10.7 | 12.7 |
| TR2 | Continuous Power | kW | 11.0 | 13.1 | 14.5 | 17.3 |
| | | bhp | 14.8 | 17.6 | 19.4 | 23.2 |
| | Fuel Stop | kW | 12.1 | 14.4 | 16.0 | 19.0 |
| | | bhp | 16.2 | 19.3 | 21.5 | 25.5 |
| TR3 | Continuous Power | kW | 16.8 | 20.2 | 22.2 | 25.9 |
| | | bhp | 22.5 | 27.1 | 29.8 | 34.7 |
| | Fuel Stop | kW | 18.5 | 22.2 | 24.4 | 28.5 |
| | | bhp | 24.8 | 29.8 | 32.7 | 38.2 |

* For fixed speed engines the powers at these speeds are the same.

Notes:

1. Power ratings (measured at the flywheel) and fuel consumptions, apply to a fully run-in, non-derated engine without power absorbing accessories or transmission equipment.
2. The overload capability applies to a fully run-in engine. This is normally attained after a running period of about 50 hours.

| TORQUE TO ISO 3046 | | | | | | |
|--------------------|-----------|--------|-------|-------|-------|-------|
| Variable Speed | | r/min | 1500 | 1800 | 2000 | 2500 |
| TR1 | Fuel Stop | Nm | 38.8 | 39.2 | 38.2 | 36.3 |
| | | lbf ft | 28.6 | 28.9 | 28.2 | 26.8 |
| TR2 | | Nm | 77.0 | 76.4 | 76.4 | 72.6 |
| | | lbf ft | 56.8 | 56.3 | 56.3 | 53.5 |
| TR3 | | Nm | 117.8 | 117.8 | 116.5 | 108.9 |
| | | lbf ft | 86.9 | 86.9 | 85.9 | 80.3 |

RATING DEFINITIONS, TO ISO 3046

ISO Standard Conditions

| | |
|---|---------|
| Barometric pressure | 100 kPa |
| Relative humidity | 30% |
| Ambient temperature at air inlet manifold | 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 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 standard conditions and with the provisions 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 ISO standard conditions and with the provisions specified in (1) above, 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 one hour in any period of twelve hours' continuous running, with the fuel limited so that the fuel stop power cannot be exceeded, immediately after running at the rating in (3) above, under ISO standard conditions and with the provisions specified in (1) above.

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.


Key to Emissions Compliance

| | |
|------------------|--|
| EU Stage 3A only | |
|------------------|--|

| TECHNICAL DATA | | | | |
|--|---------------------|----------------|--------|--------|
| | | TR1 | TR2 | TR3 |
| Type of fuel injection | | Direct | Direct | Direct |
| Number of cylinders | | 1 | 2 | 3 |
| Aspiration | | Natural | | |
| Direction of rotation looking on flywheel end | | Anti clockwise | | |
| Nominal cylinder bore | mm | 98.42 | 98.42 | 98.42 |
| | in | 3.875 | 3.875 | 3.875 |
| Stroke | mm | 101.6 | 101.6 | 101.6 |
| | in | 4.0 | 4.0 | 4.0 |
| Total cylinder capacity | litre | 0.773 | 1.55 | 2.32 |
| | in ³ | 47.17 | 94.35 | 141.52 |
| Compression ratio | | 15.5:1 | 15.5:1 | 15.5:1 |
| Minimum idling speed | r/min | 850 | 850 | 850 |
| Number of flywheel ring gear teeth | | 110 | 110 | 110 |
| Crankshaft end thrust (maximum continuous) | kgf | 132 | 132 | 132 |
| | lbf | 290 | 290 | 290 |
| Crankcase vacuum (minimum) | mbar | 2.0 | 2.5 | 3.0 |
| | in H ₂ O | 0.8 | 1.0 | 1.2 |
| Crankcase vacuum (average) | mbar | 3.5 | 4.6 | 7.5 |
| | in H ₂ O | 1.4 | 1.8 | 2.9 |
| Lubricating oil pressure (mean) with the oil at 110°C (230°F) | bar | 2.0 | 2.0 | 2.0 |
| | lbf ft ² | 29 | 29 | 29 |
| Lubricating oil pressure at idle | bar | 1.0 | 1.0 | 1.0 |
| | lbf ft ² | 14.5 | 14.5 | 14.5 |

| FUEL CONSUMPTION | | | | | | | | | |
|---|-----------|-----------------------------|------|------|------|----------------------------|------|------|------|
| The 100% load figures are subject to 5% tolerance but all other figures are approximate and not guaranteed. | | | | | | | | | |
| Variable Speed | | 100% Load, Continuous Power | | | | 75% Load, Continuous Power | | | |
| r/min | | 1500 | 1800 | 2000 | 2500 | 1500 | 1800 | 2000 | 2500 |
| TR1 | litre/hr | 1.5 | 1.9 | 2.1 | 2.5 | 1.2 | 1.5 | 1.6 | 2.0 |
| | US gal/hr | 0.4 | 0.49 | 0.55 | 0.67 | 0.31 | 0.39 | 0.43 | 0.53 |
| TR2 | litre/hr | 3.1 | 3.7 | 4.1 | 4.9 | 2.4 | 2.9 | 3.2 | 3.8 |
| | US gal/hr | 0.81 | 0.97 | 1.07 | 1.3 | 0.64 | 0.76 | 0.85 | 1.03 |
| TR3 | litre/hr | 4.6 | 5.5 | 6.1 | 7.3 | 3.6 | 4.3 | 4.7 | 5.7 |
| | US gal/hr | 1.21 | 1.46 | 1.60 | 1.91 | 0.96 | 1.15 | 1.26 | 1.51 |

APPROXIMATE DIMENSIONS AND WEIGHT

| | | TR1 | TR2 | TR3 | |
|---|---------------------------------|-----|------|------|------|
|  | Dry weight | kg | 153 | 185 | 230 |
| | | lb | 337 | 408 | 507 |
| | Length (A) without fuel tank | mm | 444 | 571 | 698 |
| | | in | 17.5 | 22.5 | 27.5 |
| | Width (B) | mm | 521 | 521 | 521 |
| | | in | 20.5 | 20.5 | 20.5 |
| | Height (C) | mm | 683 | 683 | 683 |
| | | in | 26.9 | 26.9 | 26.9 |

A range of options allows you to select a specification that matches your requirements, please consult your Lister Petter Power Systems distributor.



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Skontaktuj się z nami w celu uzyskania profesjonalnej wyceny wdrożenia projektu, instalacji silnika, lub wymiany podzespołów. Nasz profesjonalny zespół szybko i sprawnie przygotowuje kompleksową ofertę usługi którą zrealizujemy w przystępnym odstępie czasowym. Posiadamy pełną dokumentację techniczną i szybki dostęp do części oraz materiałów eksploatacyjnych.

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