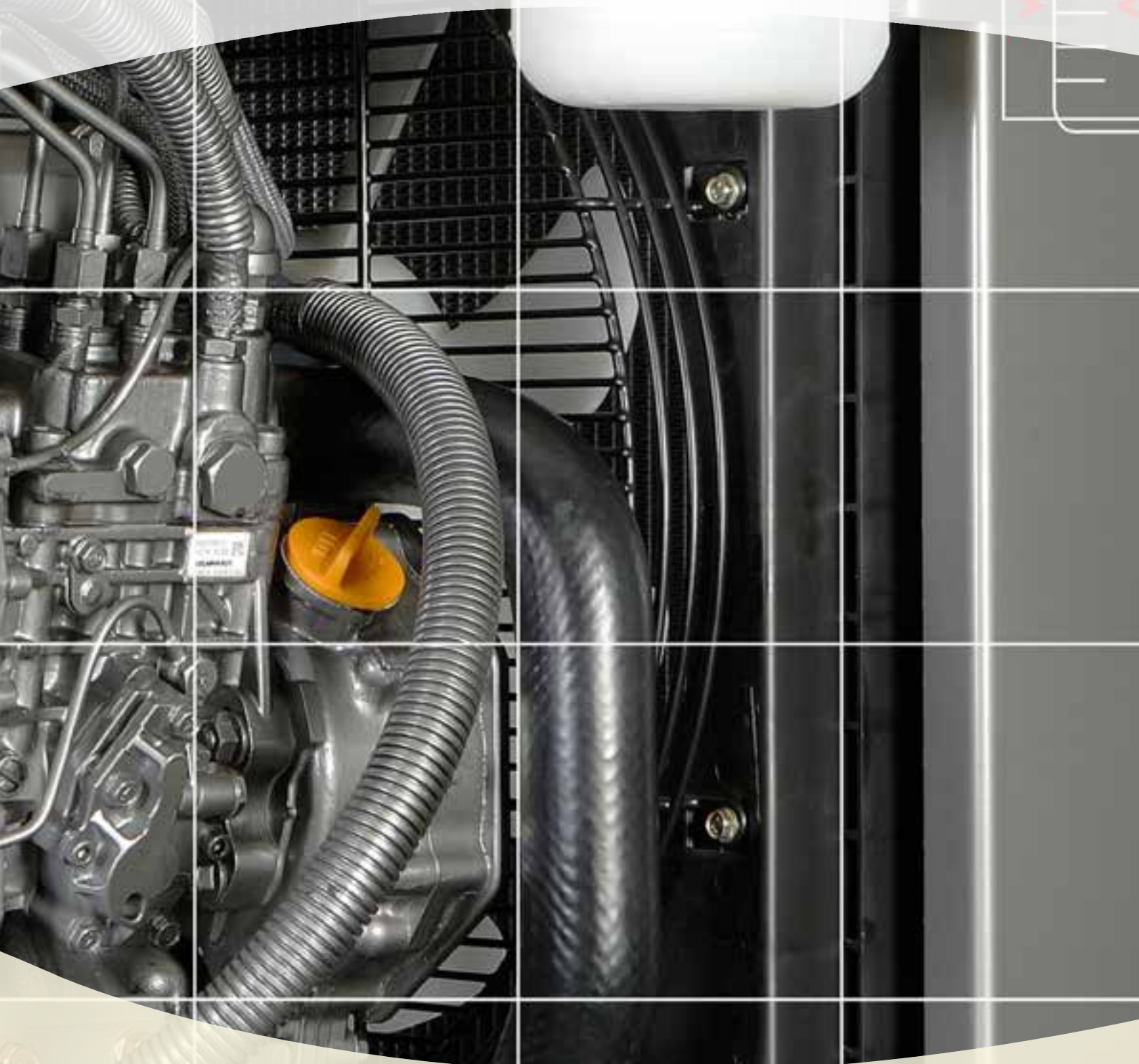


BARRUS



YANMAR



JOHN DEERE

Kawasaki
— ENGINES —

TOYOTA

YANMAR

- 2. LN Series
- 10. MM Series
- 13. TNV Series
- 22. TNV / TNM Power Packs
- 33. Final Tier 4 Series up to 19kW
- 36. Final Tier 4 19kW to 56kW
- 42. Spare Parts
- 43. Fast Moving Spare Parts
- 45. Yanmar 3 Year Warranty



JOHN DEERE

- 47. Stage 3A Generator Drives
- 54. Tier 3 / Stage 3A Engines
- 58. Interim Tier 4 Stage IIIB Emission Regulations
- 61. Final Tier 4 Stage IV Emission Regulations

- 66. Engines and Engine Components
- 74. Engine Accessories

Kawasaki

— ENGINES —

- 81. 4-Stroke Vertical
- 93. 4-Stroke Horizontal
- 103. 2-Stroke Horizontal
- 109. 2-Stroke Vertical
- 113. Engine Repower Chart
- 114. Small Block Mufflers
- 115. Spare Parts



- 116. 2.2 litre LPG Engine



- 120. Military Power



- 127. Detection, Prevention, Treatment products

DIESEL EMISSION DATA

- 131. Variable Speed
- 133. Constant Speed

YANMAR

L48N

Output : 3.5kW (4.7ps)

L70N

Output : 4.9kW (6.7ps)

LN Series

AIR-COOLED DIESEL ENGINES

L100N

Output : 7.4kW (10ps)





EXCEEDING POWER AND ENVIRONMENTAL EXPECTATIONS

Designed with Yanmar's proprietary direct injection technology, maximum combustion efficiency is realized through the ideal match between the combustion chamber and injection system. This means a powerful, but environmentally friendly engine.

COMPACT, DIRECT INJECTION ENGINE = EASY INSTALLATION & LOW FUEL CONSUMPTION

Keeping with the tradition of compact design, the new L-N series are simple to install. It fits in cramped spaces without sacrificing power and performance. Yanmar's proprietary direct injection technology allows the engine to sip rather than gorge on fuel. This means lower running cost in the world of rising fuel prices.

LOW VIBRATION AND LOW NOISE

Superior vibration and noise reduction is achieved through the use of precision balancers. This leads to operating comfort even under long working hours.

QUICK AND EASY START

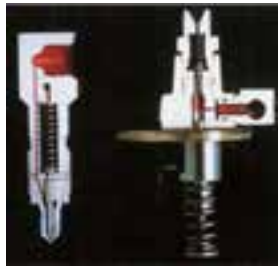
Starting is a breeze with the standard recoil starter. Starter motor and switch are also available as an option.

THE TOTAL FIE EXPERTISE ONLY A COMPLETE DIESEL MAKER CAN PROVIDE

Yanmar developed the miniaturized fuel injection system, one of the world's smallest. They have since raised it to a level of

LN Series

efficiency that ensures you maximum power from every drop of diesel. Its extraordinarily low fuel consumption is a result of this super-precise FIE and its direct injection system - the first ever to go in this type of engine.



A LITTLE ENGINE BUILT TO STAND UP TO HARD WORK

The design, structure and materials of the L-N combine to form a rugged, hard working machine. With tough but lightweight alloys used for main engine parts, an extra tough crankshaft and an overall simplified structure the L-N is a compact package of power.

FAST, EFFORTLESS STARTS FROM A ONE-PULL RECOIL STARTER

A short and smooth pull of the toggle kicks off the engine, as simple as a gasoline model. It is made easy by a special auto-return decompressor and Yanmar's own efficient combustion system. Electric starting is also a useful option.





SPECIFICATIONS

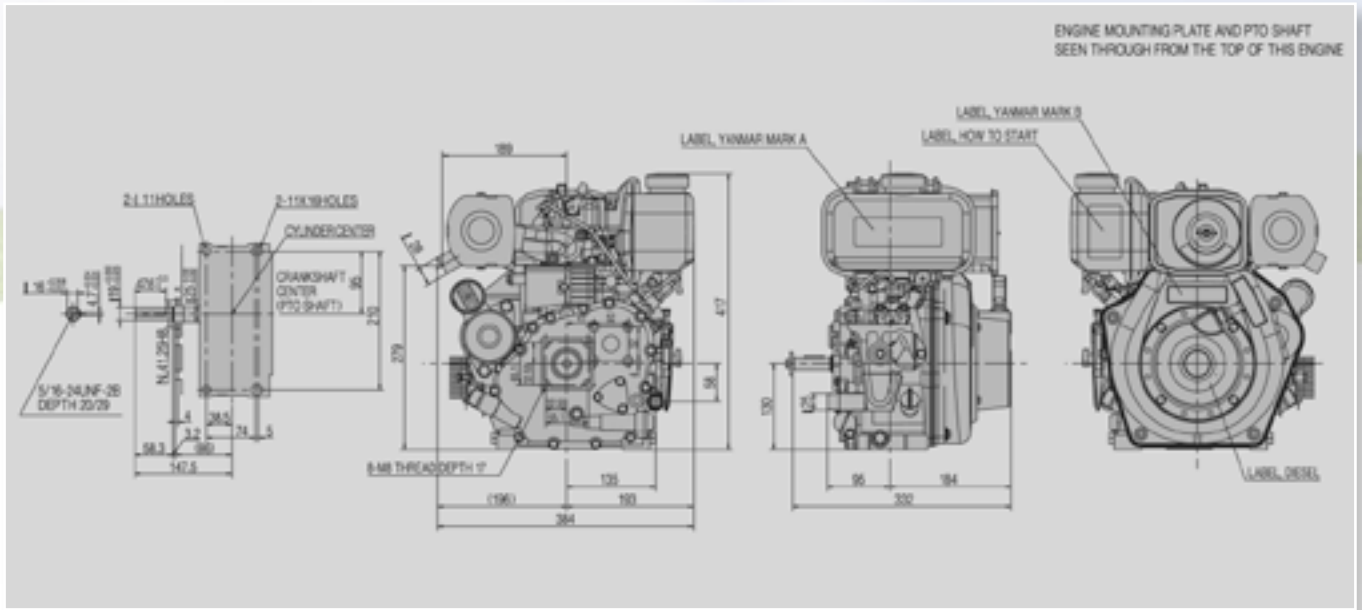
Engine Model			L48N		L70N		L100N	
Type			4 stroke, vertical cylinder, air cooled diesel engine					
No. of Cylinders			1					
Bore x Stroke		mm	70 x 57		78 x 67		86 x 75	
Displacement			219		320		435	
Continuous Rated Output	Engine Speed	r/min	3600	3000	3600	3000	3600	3000
	Output	hp / kW	4.15 / 3.1	3.75 / 2.8	5.9 / 4.4	5.5 / 4.1	8.85 / 6.6	7.7 / 5.7
Maximum Rated Output	Engine Speed	r/min	3600	3000	3600	3000	3600	3000
	Output / Eng. Speed	hp / kW	4.7 / 3.5	4.2 / 3.1	6.6 / 4.9	6.0 / 4.5	10.0 / 7.4	8.7 / 6.5
High Idling		r/min	3800 ± 30	3175 ± 30	3800 ± 30	3175 ± 30	3800 ± 30	3175 ± 30
Engine Weight (Dry)	Electric Starter	kg	32.0		41.0		53.5	
	Recoil Start	kg	27.0		36.0		48.5	
Cooling System			Forced air by flywheel fan					
Lubricating System			Forced lubrication with trochoid pump					
Starting System			Electric / recoil					
Dimension	Overall Length	mm	332		378		412	
	Overall Width	mm	384		422		471	
	Overall Height	mm	417		453		494	
Lubricating System	Dipstick Upper Limit	litre	0.80		1.1		1.6	
	Dipstick Lower Limit	litre	0.55		0.7		1.0	
Fuel Oil Tank Capacity		litre	2.4		3.3		5.4	

APPLICATION CODE

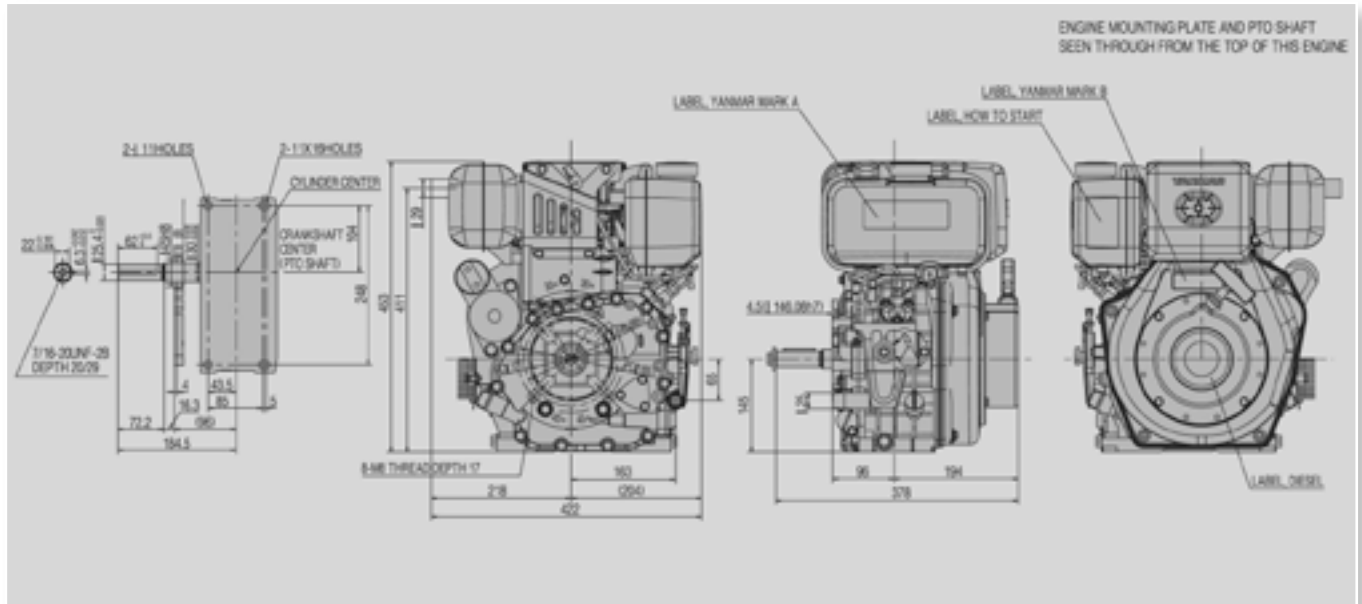
	EPA or NON-EPA	rpm	PTO + flange	Starting motor + recoil	Air cleaner	Speed control device	Muffler	FO Tank + FO-pump	Fan case	Remarks (big oilpan, special specifications etc...)	
L48 L70 L100	V	6	A	F	1	T	1	A	A	S	11 1

TECHNICAL DRAWINGS

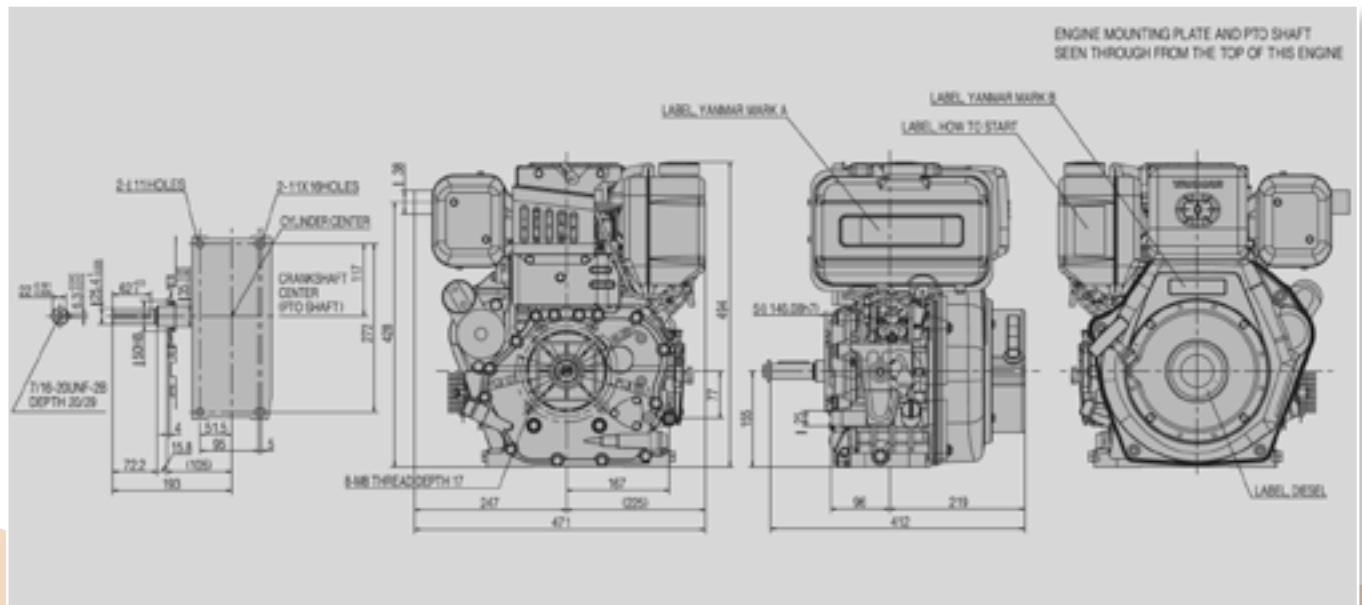
L48N



L70N



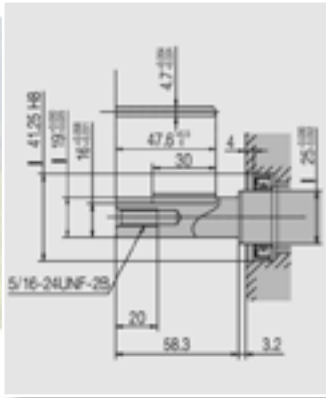
L100N



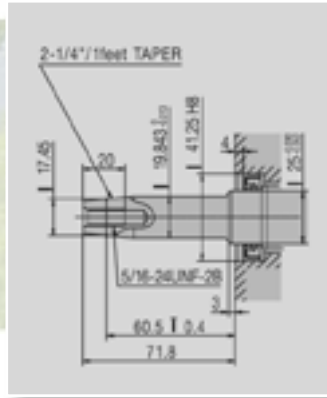
PTO DIMENSIONS

L48N

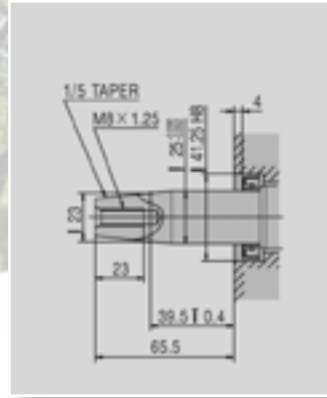
Keyway Shaft E-D



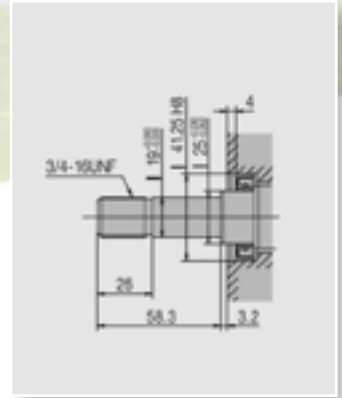
Taper Shaft E-DG



Taper Shaft E-DI

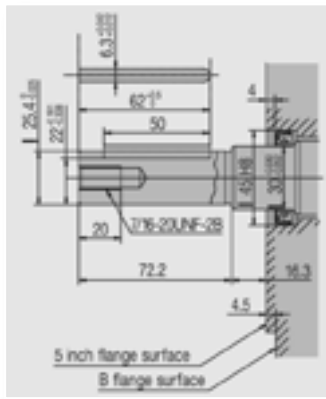


Thread Shaft E-DP

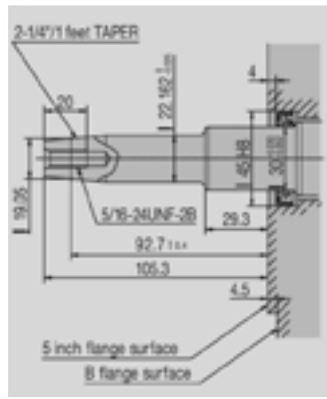


L70N

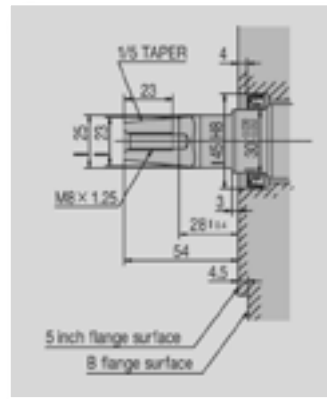
Keyway Shaft E-D



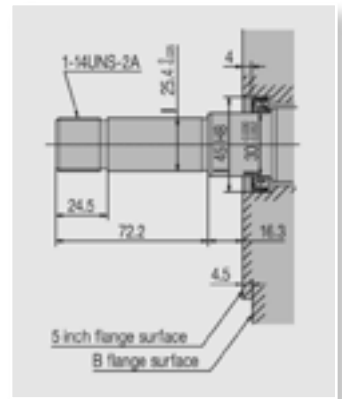
Taper Shaft E-DG



Taper Shaft E-DI

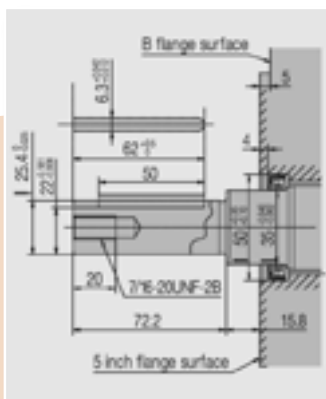


Thread Shaft E-DP

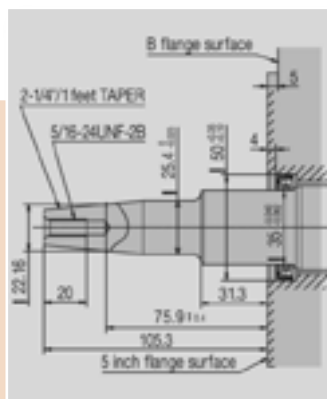


L100N

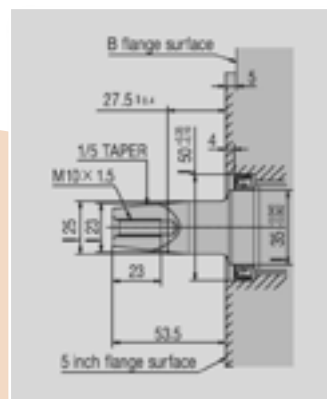
Keyway Shaft E-D



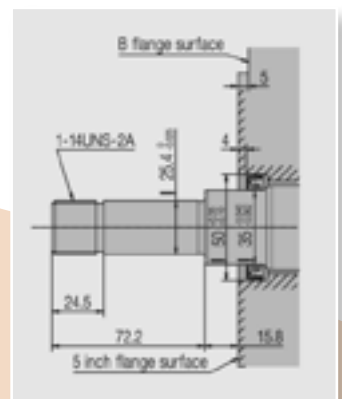
Taper Shaft E-DG



Taper Shaft DG

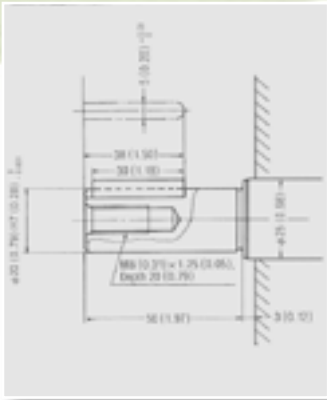


Thread Shaft E-DP



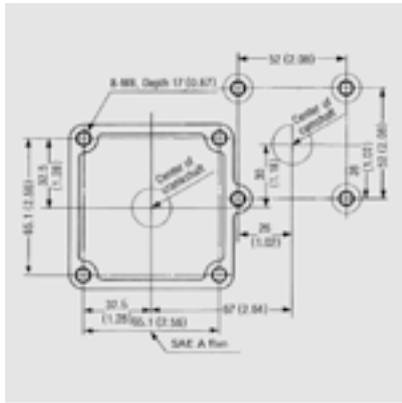


L48N S Camshaft

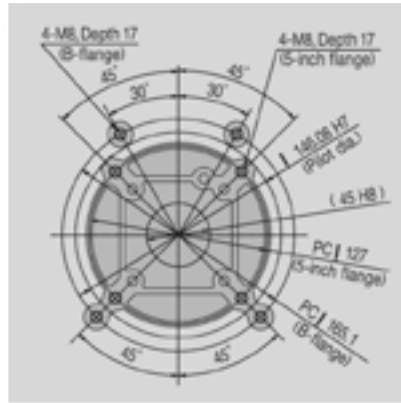


PTO Flanges

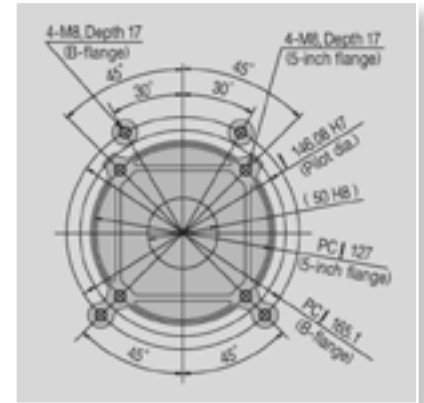
L48N



L70N

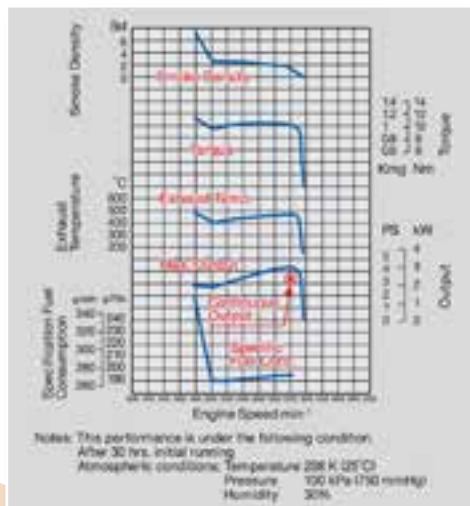


L100N

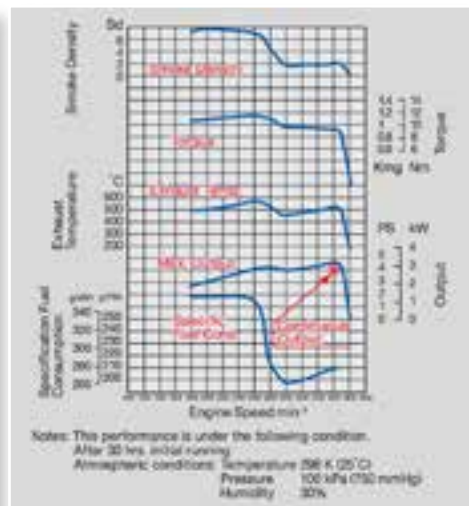


PERFORMANCE CURVES

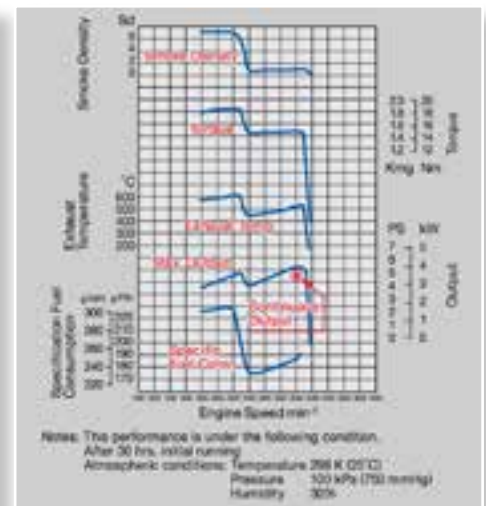
L48N5



L48N6



L70N5

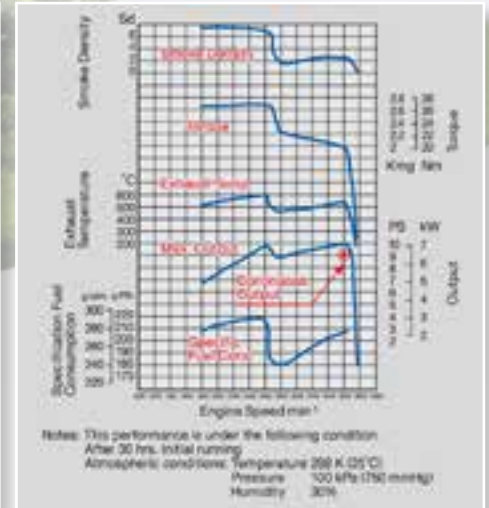
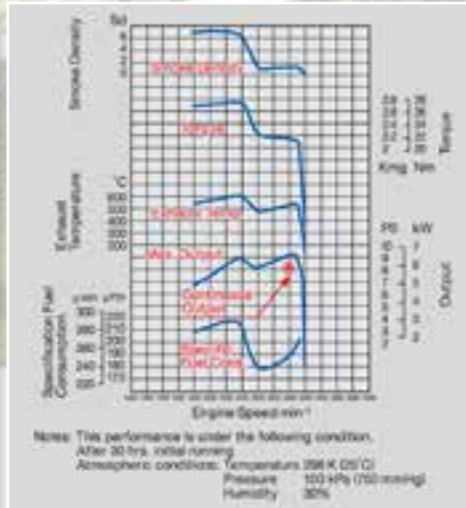
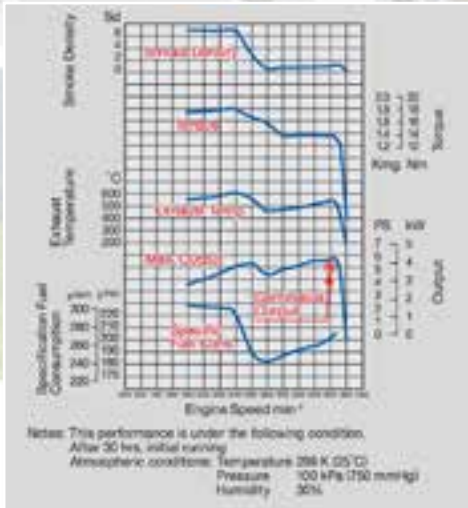


PERFORMANCE CURVES

L70N6

L100N5

L100N6



ACCESSORIES

Engine Model		L48N			L70N			L100N		
		General	Generator	Pump	General	Generator	Pump	General	Generator	Pump
Fuel System	Fuel Tank (2.4 litre)	●	●	●						
	Fuel Tank (3.3 litre)				●	●	●			
	Fuel Tank (5.4 litre)							●	●	●
	Without Fuel Tank	▲	▲	▲	▲	▲	▲	▲	▲	▲
Starting System	Starting Motor (with recoil starter)	●	●	●	●	●	▲	●	●	●
	Recoil Starter	▲	▲	▲	▲	▲	●	▲	▲	▲
	Key Switch	●	▲	▲	●	▲	▲	●	▲	▲
	Without Key Switch	▲	●	●	▲	●	●	▲	●	●
Electrical System	Charging Dynamo (12V-15A)	●	●	●	●	●	●	●	●	●
	Charging Dynamo (12V-1A)	▲	▲	▲	▲	▲	▲	▲	▲	▲
	Without Charging Dynamo	▲	▲	▲	▲	▲	▲	▲	▲	▲
PTO System	Straight (E-D)	●			●			●		
	Straight (D)	▲			▲			▲		
	Taper (E-DG)		●			●			●	
	Taper (DG)		▲						▲	
	Taper (E-D)		▲			▲			▲	
	Thread (E-DP)			●			●			●
Speed Control Device	General Use (By Remote & Hand)	●	▲	▲	●	▲	▲	●	▲	▲
	Constant Speed Type (By Hand)	▲	●	▲	▲	●	▲	▲	●	▲
	Friction Plate Type (By Hand)	▲	▲	●	▲	▲	●	▲	▲	●
Maintenance Tools	●	●	●	●	●	●	●	●	●	

YANMAR

MM Series

WATER-COOLED DIESEL ENGINES

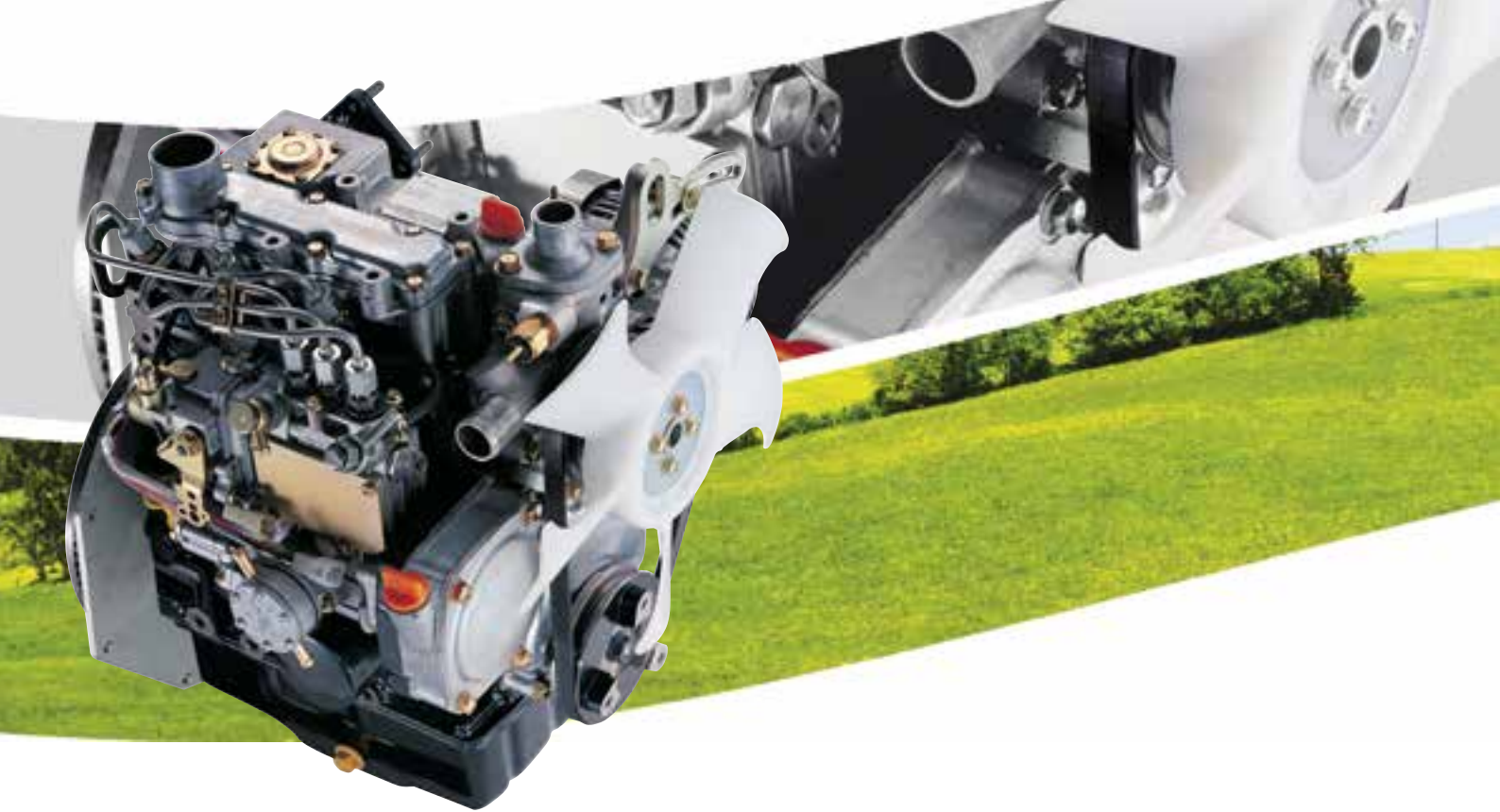
3TNM68

Output : 14.1kW (18.9hp)

3TNM72

Output : 17.0kW (22.8hp)





ULTRA-COMPACT & HIGH PERFORMANCE (BEST IN CLASS POWER DENSITY*)

The secret to that power density lies in the new cylinder body. In addition to its extremely high output for the size, the engine also has a smaller base for flexible installation on a wider range of work machines. *Power density is the ratio of engine output relative to the engine's external dimensions. The MM series is ahead even of the present 3TNV70.

LOW NOISE & VIBRATION (THE LADDER FRAME STRUCTURE)

The ladder frame structure of the cylinder block achieves drastic reductions of noise and vibration from the engine body.



ENVIRONMENTALLY FRIENDLY (COMPLIANT WITH EPA TIER 4 IN THE U.S AND EXTRA LOW FUEL CONSUMPTION)

The high combustion performance is achieved together with low emissions that satisfy EPA Tier 4. Yanmar's original combustion technologies and MC fuel injection pump and nozzle are the key to this achievement.



EASY INSTALLATION

With its compact size and universal base attachment design, the MM series is an easy replacement for almost all major applications.

- Lawn & Garden Equipment
- Small Agricultural Machinery
- Utility Vehicles
- Compact Generators

MM Series

SPECIFICATION

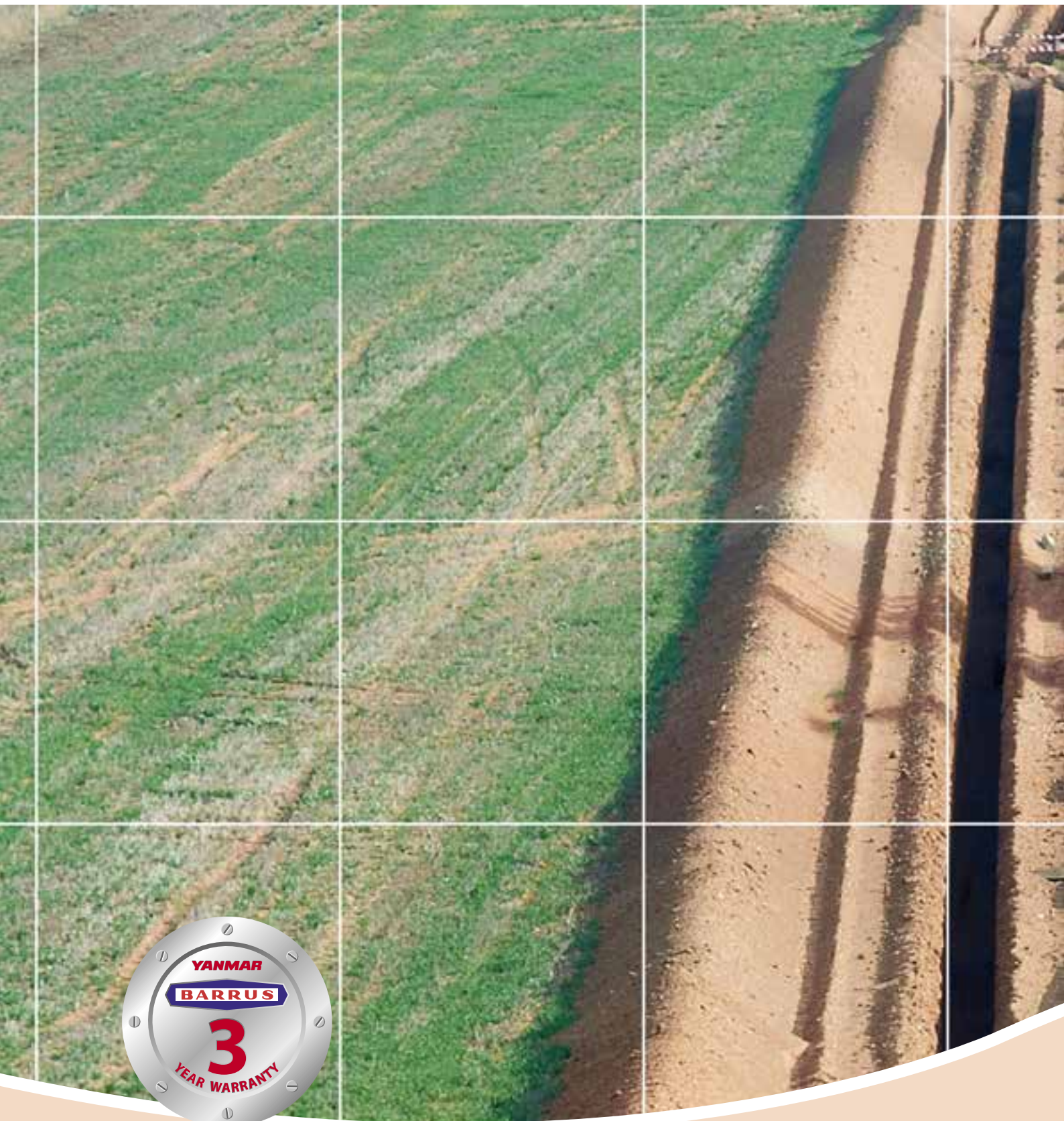
Model		3TNM68				3TNM72			
Type		Vertical cylinder, 4-cycle water-cooled diesel							
Combustion		Indirect injection (IDI)							
Aspiration		Naturally aspirated							
No. of Cylinders		3							
Bore x Stroke (mm)		68 x 72				72 x 74			
Displacement (cc)		784				903			
Rated Output		Speed	NET		Gross	NET		Gross	
		min ⁻¹	kW	hp	kW	kW	HP	Kw	
Industrial Use	Intermittent	3600	14.1	18.9	14.7	17.0	22.8	18.2	
		3400	13.5	18.1	14.1	16.5	22.1	17.3	
		3200	12.8	17.2	13.3	15.6	20.9	16.3	
		3000	12.6	16.9	13.0	14.7	19.7	15.3	
Generator Use	Stand-by	3600	14.6	19.6	15.2	17.0	22.8	18.2	
		3000	12.2	16.4	12.6	14.5	19.4	15.2	
		1800	7.3	9.8	7.4	8.6	11.5	8.8	
		1500	6.1	8.2	6.2	7.3	9.8	7.4	
	Continuous	3600	13.3	17.8	13.9	15.5	20.8	16.7	
		3000	11.1	14.9	11.5	13.2	17.7	13.9	
		1800	6.6	8.8	6.7	7.8	10.5	8.0	
		1500	5.5	7.4	5.6	6.6	8.9	6.7	
Cooling System		Radiator							
Starting System		Electric starting							
Dimensions (Back Plate)	Length (mm)	431				450			
	Width (mm)	416				416			
	Height (mm)	500				506			
Dry Mass (Back Plate) kg		77				83			
Dry Mass (Semi SAE # 6 Bell Housing) kg		86				92			
Dry Mass (SAE # 5 Bell Housing) kg		99				105			

Note: When specification varies, the above engine speed and rated output will vary accordingly.

YANMAR

TNV Series

WATER-COOLED DIESEL ENGINES



2TNV

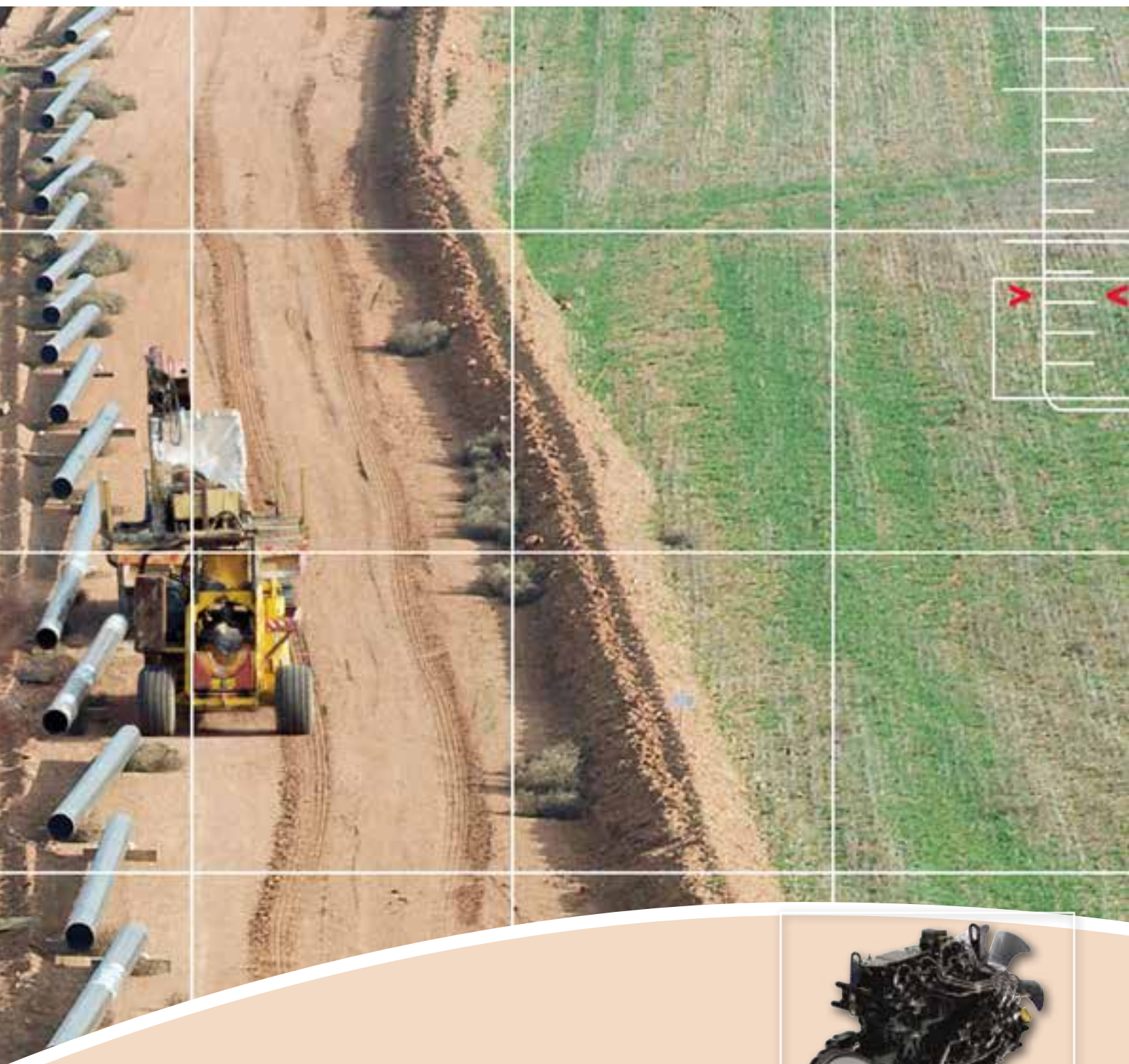
Output : 9.9 kW (13.3 hp)

3TNV

Output : 15.5 kW (20.8 hp) - 27.1 kW (36.5 hp)

4TNV

Output : 35.7 kW (47.9 hp) - 62.5 kW (83.8 hp)





THE TNV ADDS A WHOLE RANGE OF “GOODIES” THAT MAKE THIS ENGINE A MECHANICAL “WORK OF ART”

IDI ENGINES

1. COMBUSTION CHAMBER

By investigating flow characteristics using experimental and numerical analysis methods, Yanmar research has achieved improved flow mixing in both the main chamber and the special mouth surrounding the injector. More efficient use of the incoming air charge results in cleaner burn and lower exhaust emissions.

2. FUEL INJECTION EQUIPMENT MECHANICAL PUMP

Instead of a PFR pump, a newly developed in-line pump has been used for the smaller TNV engines. Adjustments are made solely in Yanmar’s FIE factory ensuring precise compliance with regulations. Also the following features are incorporated:

- Increased force is applied by the governor to quicken the fuel controlling rack response time. Engine revs are more constant. Matching to a wide range of machinery is simplified.
- Emissions have been reduced by controlling fuel injection timing according to engine load.
- Cam profiles are matched to nozzle throttle needs, which give a better controlled injection rate. Emissions are reduced.

IDI ENGINES

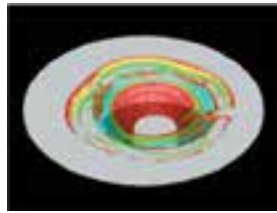
1. NOZZLE INSTALLATION ANGLE

The installation angle of the fuel injection nozzle is greater than that in conventional engines, so that uneven atomization of fuel between injections can be reduced. Excellent matching between intake swirl ration and the shape of the combustion chamber has resulted in uniform mixing of fuel in the combustion chamber. Therefore, performance including combustion efficiency, startability, noise and exhaust emission has been improved. On the 4TN94L, -98 and 98T by using 2 inlet and 2 exhaust valves, air intake and expulsion is markedly improved. Vertically mounted injector nozzle minimizes imbalance spray pattern.

TNV Series

2. COMBUSTION CHAMBER

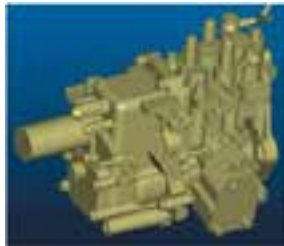
It increases the fluid energy of air and fuel charge. The swirl effect produced in the chamber continues while combustion occurs, aiding mixing and results in lower exhaust emissions compared to conventional chambers.



3. FUEL INJECTION EQUIPMENT MP Pump

A new pump has been developed especially for the TNV engine series. Our aim was to make improvements over a wide range of areas to even further reduce emissions. Features are:

- High injection pressure.
- Use of a mono plunger reduces uneven injection between the cylinders.
- Timing Control Device system optimizes injection to take into account speeds, loads and the startup phase.
- New mechanical governor helps to maintain cleaner exhausts.
- Minimum variation from chosen revs at low speed using constant pressure valve.

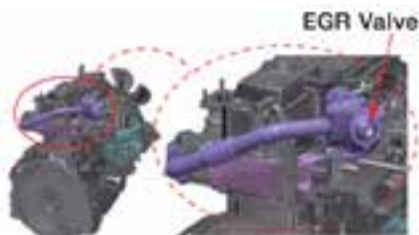


Fuel Injection Pump

- Multiple numbers of very small holes are used to achieve uniform atomization.
- Holes are not simply drilled, their inside edges are carefully rounded to promote even flow and direction of spray, also to reduce resistance.
- Low sack nozzle profile improves combustion. Double corn shape protects from cavitation.

4. EGR VALVE (≥37kW)

Modulation of the EGR valve by the engine control unit provides for the needs of all kind of equipment.



5. ELECTRONIC CONTROL (≥37kW)

The electronic control system brings the world the highly evolved electronic governing technologies of many years' experience. It's a standard fitting on the 37kW+ engine series, superbly matched to all kinds of equipment, and also available as an option on sub-37kW units.

This is the system that expands work flexibility.

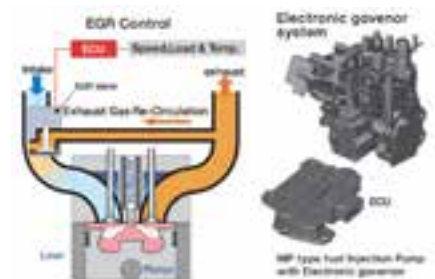


The EGR valve is modulated according to the RPM, load etc. to reduce NOx emissions and treat the environment well. Fuel injection is regulated to the optimum level on starting and acceleration and black diesel smoke is much reduced. All is controlled by external switches. Integrated operation of the equipment ECU by CAN-bus communication enables RPM adjustment and the switching of governor features to suit the needs of the job. ECU troubleshooting and service tools have been enhanced for finding the answers on a PC.

NOISE LEVEL REDUCTION

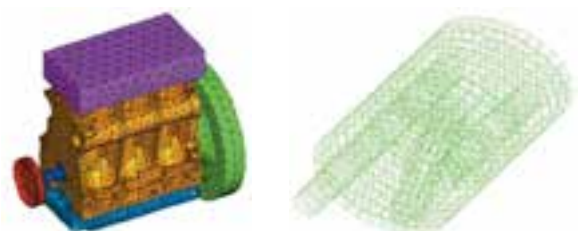
1. CYLINDER BLOCK NOISE REDUCTION

Yanmar's original CAE techniques have optimized the stiffness, minimized transformation, and reduced radiant noise.



2. MUFFLER NOISE REDUCTION

Original CAE technique is used to design a muffler with optimized volumes and sound isolation material.



SPECIFICATIONS

Engine Model	2TNV70	3TNV70	3TNV76	3TNV82A (-B)	3TNV84T-B	3TNV88-B	
Type	Vertical cylinder, 4-cycle water-cooled diesel engine						
Combustion	Indirect injection (IDI)						
Aspiration	Natural aspiration				Turbocharged	Natural aspiration	
No. of Cylinders	2	3					
Cyl. Bore x Stroke (mm)	70 x 74		76 x 82	82 x 84	84 x 90	88 x 90	
Displacement (cc)	570	854	1116	1331	1496	1642	
Direction of Rotation	Anti-clockwise (viewed from flywheel)						
Governor System	Mechanical						
EGR System	-	-	-	-	-	-	
Cooling System	Radiator						
Lubrication System	Forced lubrication by trochoid pump						
Starting System	Electric starting						
Dry Mass (Back Plate) kg	73	87	94	111	150	138	
Dry Mass (Bell Housing) kg	84	98	112	128	159	148	
Applicable Engine Regulation	EPA Tier 3 Compliance	-	-	-	-	-	
	EPA IT4 Compliance	-	-	● (≥ 19kW)	● (≥ 19kW)	● (≥ 19kW)	● (≥ 19kW)
	EPA Tier 4 Compliance	●	●	● (≥ 19kW)	● (≥ 19kW)	● (≥ 19kW)	● (≥ 19kW)
	EC Stage IIIA (Generator Use)	-	-	● (≥ 19kW)	-	-	-
	EC Stage IIIA (Industrial Use)	-	-	● (≥ 19kW)	● (≥ 19kW)	● (≥ 19kW)	●

Engine Model	4TNV84T-B	4TNV84T-Z	4TNV88-B	4TNV94L (-B)	4TNV98-Z	4TNV98T-Z	
Type	Vertical cylinder, 4-cycle water-cooled diesel engine						
Combustion	Indirect injection (IDI)						
Aspiration	Turbocharged		Natural aspiration			Turbocharged	
No. of Cylinders	4						
Cyl. Bore x Stroke mm	84 x 90		88 x 90	94 x 110	98 x 110		
Displacement cc	1995		2190	3053	3319		
Direction of Rotation	Counterclockwise (viewed from flywheel)						
Governor System	Mechanical	Electric	Mechanical		Electric		
EGR System	-	Cooled EGR	-	-	Hot EGR	Cooled EGR	
Cooling System	Radiator						
Lubrication System	Forced lubrication by trochoid pump						
Starting System	Electric starting						
Dry Mass (Back Plate) kg	165	165	155	-	-	-	
Dry Mass (Bell Housing) kg	174	174	165	235	240	280	
Applicable Engine Regulation	EPA Tier 3 Compliance	-	-	-	-	● (≥ 56kW)	
	EPA IT4 Compliance	●	●	●	●	● (≥ 56kW)	
	EPA Tier 4 Compliance	-	-	-	-	-	
	EC Stage IIIA (Generator Use)	●	-	●	-	●	●
	EC Stage IIIA (Industrial Use)	●	●	●	●	●	●

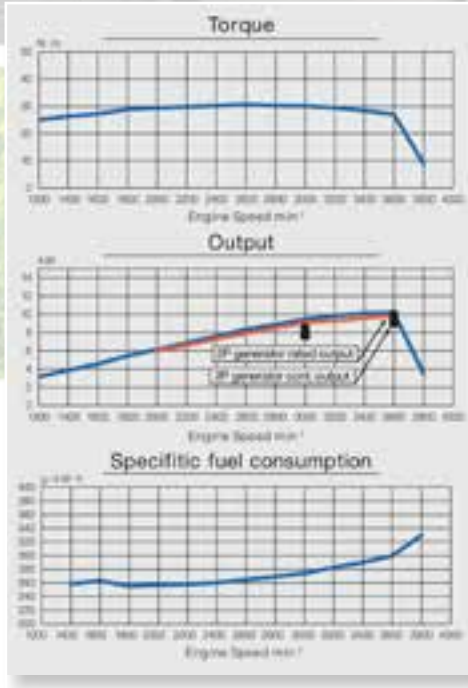
OUTPUT

Model		2TNV70	3TNV70	3TNV76	3TNV82A (-B)	3TNV84T-B	3TNV88-B	
Industrial use	NET kW/ NET hp/ Gross kW	3600	9.9 / 13.3 / 10.5	15.5 / 20.8 / 17.0	-	-	-	
		3400	9.6 / 12.9 / 10.1	14.7 / 19.7 / 16.1	-	-	-	
		3200	9.3 / 12.5 / 9.8	14.0 / 18.8 / 15.1	18.2 / 24.4 / 19.9	-	-	
		3000	9.1 / 12.2 / 9.5	13.7 / 18.4 / 14.6	17.9 / 24.0 / 19.2	21.9 / 29.4 / 23.0	-	27.1 / 36.3 / 28.2
		2800	8.5 / 11.4 / 8.8	12.8 / 17.2 / 13.6	16.7 / 22.4 / 17.8	20.4 / 27.4 / 21.3	29.1 / 39.0 / 30.2	25.2 / 33.8 / 26.1
		2700	8.2 / 11.0 / 8.4	12.4 / 16.6 / 13.1	16.1 / 21.6 / 17.1	19.7 / 26.4 / 20.5	-	24.3 / 32.6 / 25.1
		2600	7.9 / 10.6 / 8.1	11.8 / 15.8 / 12.5	15.5 / 20.8 / 16.5	19.0 / 25.5 / 19.7	26.8 / 35.9 / 27.7	23.5 / 31.5 / 24.2
		2500	7.6 / 10.2 / 7.8	11.4 / 15.3 / 12.0	14.9 / 20.0 / 15.8	18.2 / 24.4 / 18.9	-	22.6 / 30.3 / 23.3
		2400	7.3 / 9.8 / 7.5	11.0 / 14.8 / 11.5	14.3 / 19.2 / 15.1	17.5 / 23.5 / 18.1	-	21.6 / 29.0 / 22.2
		2300	7.0 / 9.4 / 7.2	10.5 / 14.1 / 11.0	13.8 / 18.5 / 14.4	16.8 / 22.5 / 17.3	-	20.7 / 27.8 / 21.2
		2200	6.6 / 8.9 / 6.8	9.9 / 13.3 / 10.3	13.2 / 17.7 / 13.8	16.0 / 21.5 / 16.5	-	19.9 / 26.7 / 20.4
		2100	6.3 / 8.4 / 6.5	9.5 / 12.7 / 9.9	12.5 / 16.8 / 13.0	-	-	-
		2000	6.0 / 8.0 / 6.1	9.0 / 12.1 / 9.3	11.8 / 15.8 / 12.3	-	-	18.0 / 24.1 / 18.4
Generator use	Stand-by	3600	10.0 / 13.4 / 10.6	16.0 / 21.5 / 17.6	19.5 / 26.1 / 21.7	-	-	
		3000	8.5 / 11.4 / 8.8	13.3 / 17.8 / 14.3	16.6 / 22.3 / 17.9	-	-	
		1800	-	8.0 / 10.7 / 8.3	10.7 / 14.3 / 11.1	13.2 / 17.7 / 13.8	18.3 / 24.5 / 18.6	16.3 / 21.9 / 16.9
	Continuous	1500	-	6.7 / 9.0 / 6.8	9.0 / 12.1 / 9.2	11.0 / 14.8 / 11.3	15.3 / 20.5 / 15.5	13.5 / 18.1 / 13.9
		3600	9.1 / 12.2 / 9.7	14.5 / 19.4 / 16.1	17.7 / 23.7 / 19.9	-	-	-
		3000	7.7 / 10.3 / 8.1	12.1 / 16.2 / 13.1	15.1 / 20.2 / 16.5	-	-	-
		1800	-	7.3 / 9.8 / 7.5	9.8 / 13.1 / 10.1	12.0 / 16.1 / 12.6	16.6 / 22.5 / 17.2	14.8 / 19.8 / 15.4
		1500	-	6.1 / 8.2 / 6.3	8.2 / 11.0 / 8.4	9.9 / 13.3 / 10.3	14.1 / 19.1 / 14.4	12.3 / 16.5 / 12.7

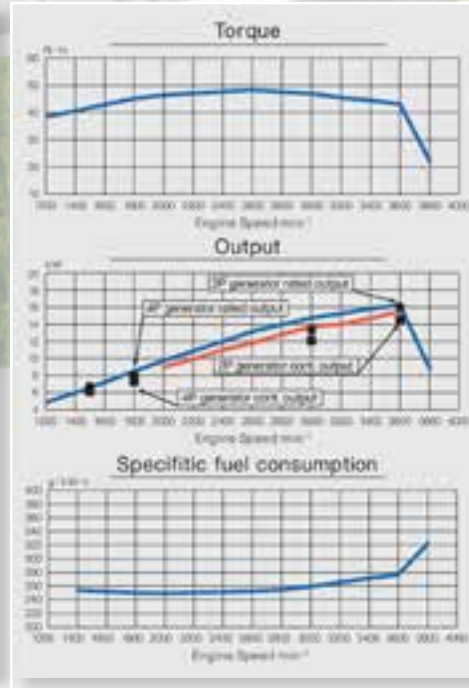
Model		4TNV84T-B	4TNV84T-Z	4TNV88-B	4TNV94L (-B)	4TNV98-Z	4TNV98T-Z	
Industrial use	NET kW/ NET hp/ Gross kW	3600	-	-	-	-	-	
		3400	-	-	-	-	-	
		3200	-	-	-	-	-	
		3000	-	41.2 / 55.2 / 42.7	35.0 / 46.9 / 36.5	-	-	-
		2800	-	38.6 / 51.8 / 39.9	33.7 / 45.2 / 35.0	-	-	-
		2700	-	37.1 / 49.8 / 38.3	32.5 / 43.6 / 33.7	-	-	-
		2600	35.7 / 47.9 / 36.7	-	31.3 / 42.0 / 32.3	-	-	-
		2500	34.5 / 46.3 / 35.5	-	30.1 / 40.4 / 31.0	-	51.1 / 68.5 / 52.1	62.5 / 83.8 / 63.9
		2400	33.5 / 44.9 / 34.3	-	28.8 / 38.6 / 29.6	-	49.3 / 66.1 / 50.2	-
		2300	-	-	27.7 / 37.1 / 28.5	-	47.4 / 63.6 / 48.2	-
		2200	-	-	26.5 / 35.5 / 27.2	-	45.6 / 61.1 / 46.3	55.5 / 74.4 / 56.5
		2100	-	-	-	35.6 / 47.7 / 36.2	43.8 / 58.7 / 44.4	-
		2000	-	-	24.1 / 32.3 / 24.6	35.3 / 47.3 / 35.9	41.9 / 56.2 / 42.5	-
Generator use	Stand-by	3600	-	-	-	-	-	
		3000	-	-	-	-	-	
		1800	26.9 / 36.1 / 27.7	-	21.6 / 29.0 / 22.4	-	40.8 / 54.7 / 41.6	50.1 / 67.2 / 50.9
	Continuous	1500	21.3 / 28.6 / 21.8	-	18.0 / 24.1 / 18.5	-	34.4 / 46.1 / 34.9	41.7 / 55.9 / 42.2
		3600	-	-	-	-	-	-
		3000	-	-	-	-	-	-
		1800	24.3 / 32.6 / 25.1	-	19.6 / 26.3 / 20.5	-	36.4 / 48.8 / 37.2	45.3 / 60.7 / 46.1
1500	19.1 / 25.6 / 19.6	-	16.4 / 22.0 / 16.9	-	30.7 / 41.2 / 31.2	37.7 / 50.6 / 38.2		

PERFORMANCE CURVES

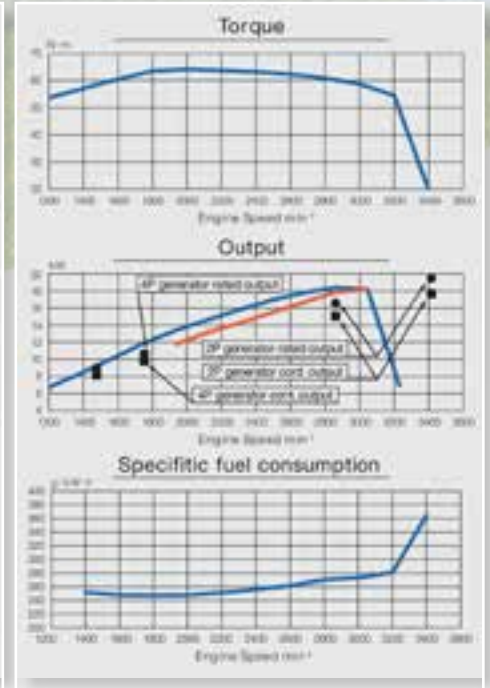
2TNV70



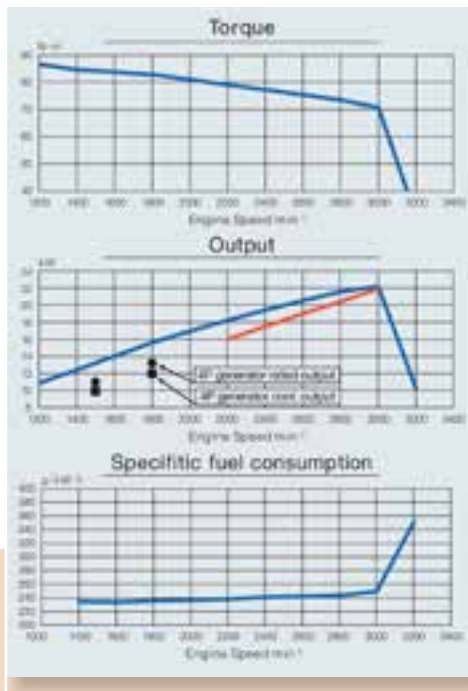
3TNV70



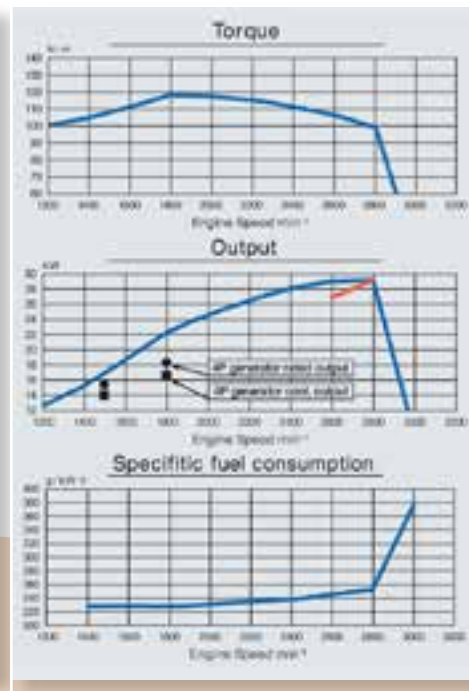
3TNV76



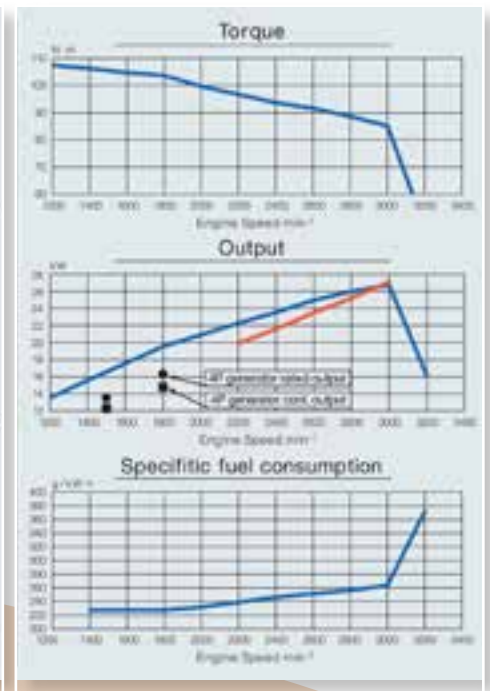
3TNV82A(-B)



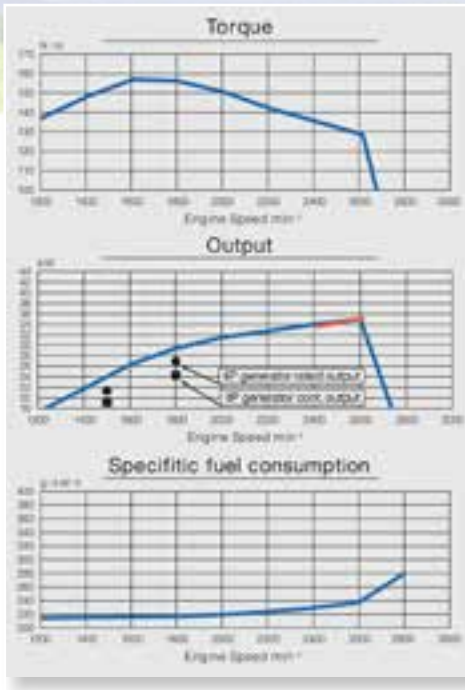
3TNV84T-B



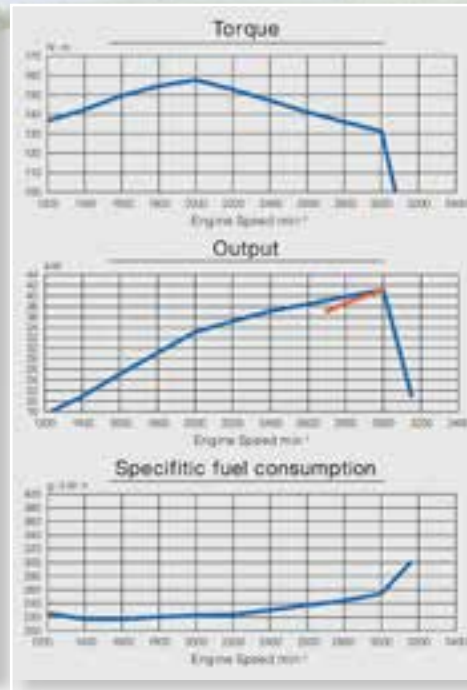
3TNV88-B



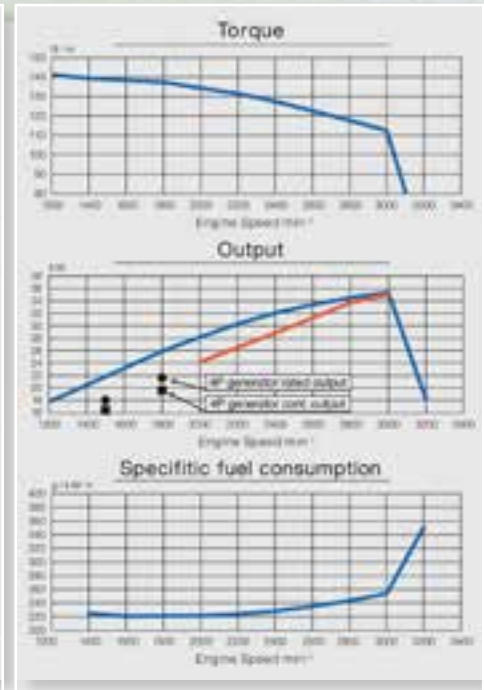
4TNV84T-B



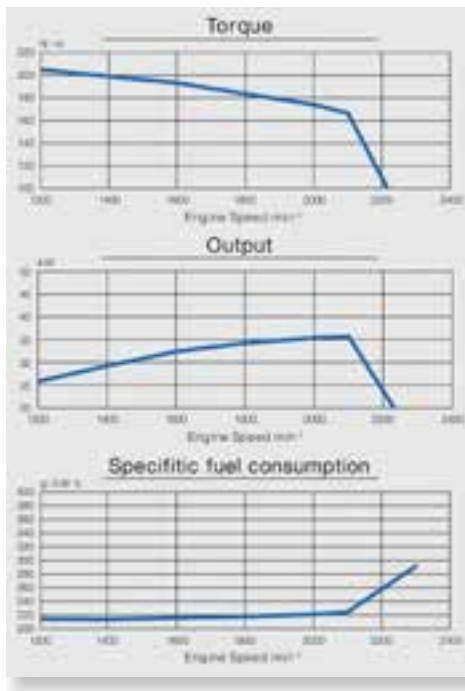
4TNV84T-Z



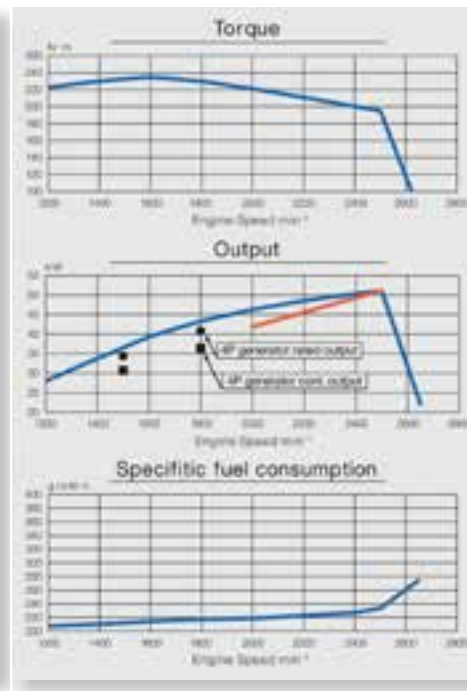
4TNV88-B



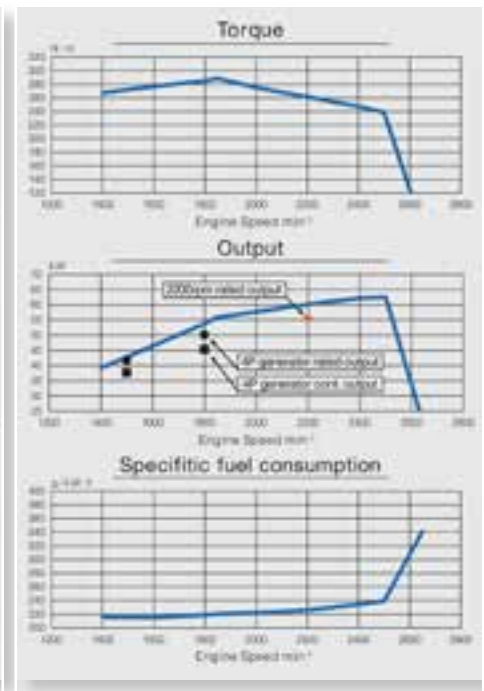
4TNV94L(-B)



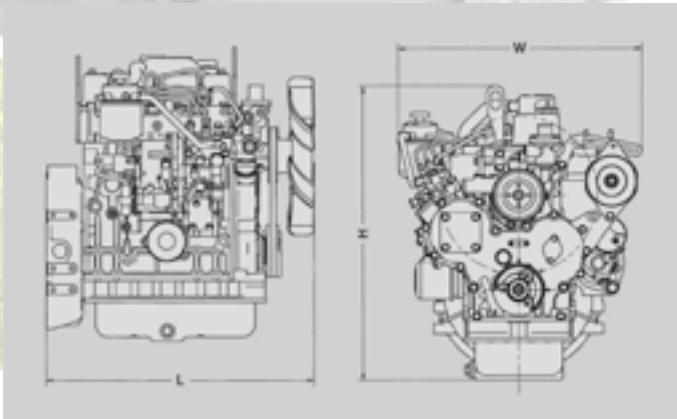
4TNV98-Z



4TNV98T-Z



ENGINE DIMENSIONS



Model	2TNV70	3TNV70	3TNV76
L	415	504	524
W	427	427	427
H	521	549	572

Model	3TNV82A(-B)	3TNV84T-B	3TNV88-B	4TNV84T-B	4TNV84T-Z	4TNV88-B
L	528.5	615.7	564.5	655	675	655
W	498.5	517.5	517.5	517.5	517.5	517.5
H	561	652	622	685	685	622

Model	4TNV94L(-B)	4TNV98-Z	4TNV98T-Z
L	719	719	719
W	496	496	574
H	717	717	784

All measurements in (mm)



YANMAR

3TNM68/72

3TNV70/76/88

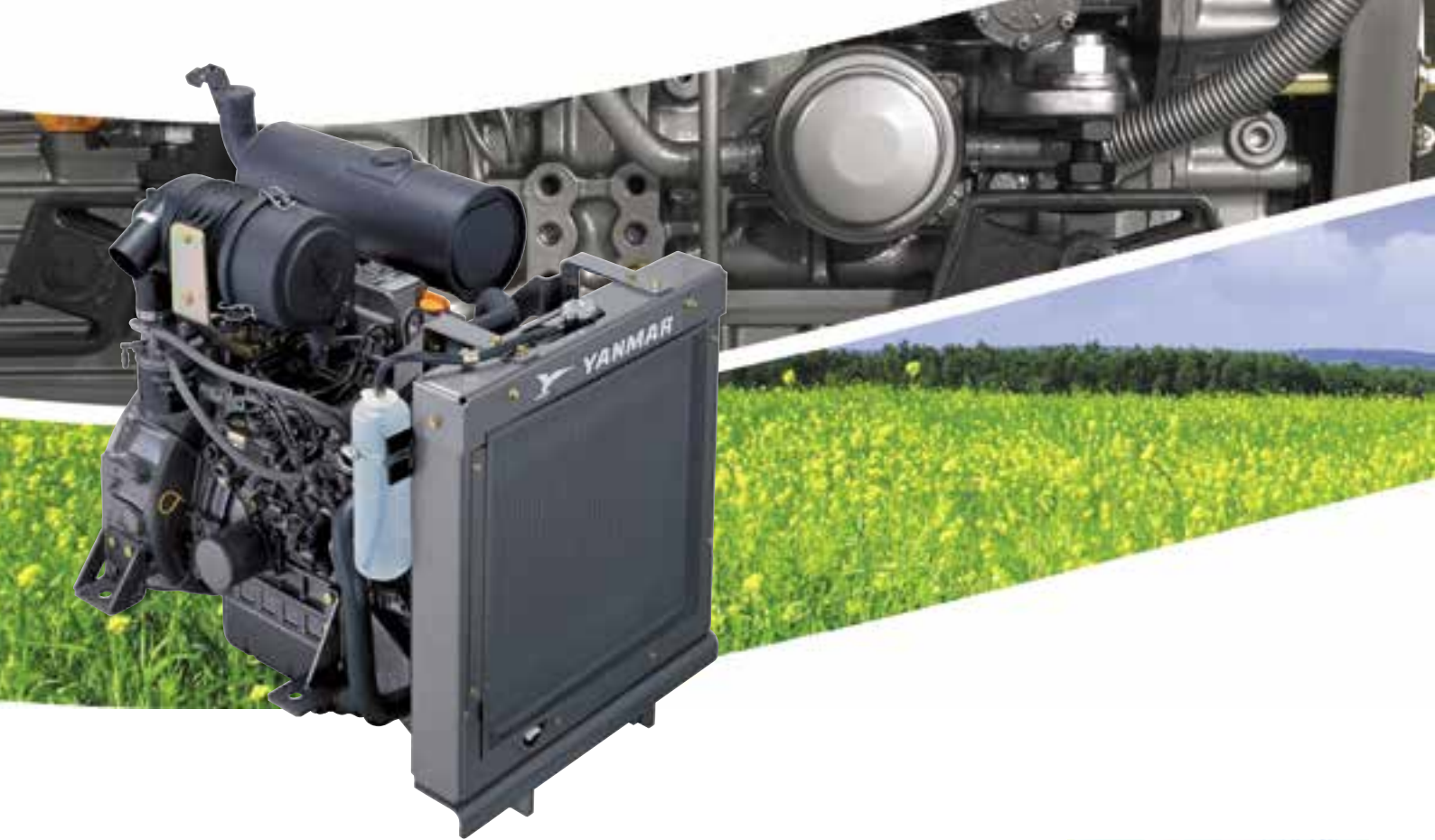
TNV / TNM Power Packs

4TNV88/98

WATER-COOLED DIESEL ENGINES

Rated Output : 6.1 - 61.7 kW





LOW NOISE, SAFE MATERIALS

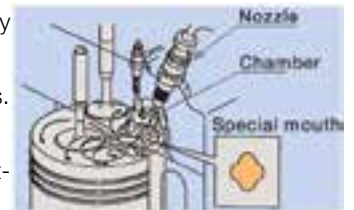
Yanmar's own CAE technologies have optimized stiffness, minimized transformation and reduced radiant noise. Novel CAE technologies were used to obtain the best muffler volumes and sound-proofing materials. The ladder frame structure cylinder block achieves drastic reductions in noise and vibrations from the engine body. (TNM Series). The power pack series has no asbestos, mercury, polybrominated biphenyl, polybrominated diphenyl ether, or cadmium.



CLEAN EXHAUST (IDI ENGINES)

Yanmar research has achieved better flow mixing in both the main chamber and the special mouth around the injector. More Efficient use of the intake air produces cleaner burn and low exhaust emissions.

Instead of the PFR pump, a newly developed in-line pump is used for the smaller TNV/TNM engines. Precise regulatory compliance is assured by the fact that all adjustment is performed at Yanmar's own FIE factory.



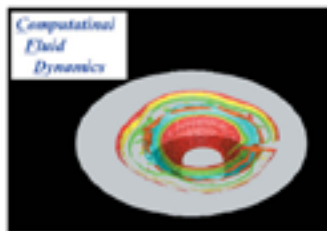
The following features are incorporated:

- Bigger governor force accelerates the response of the fuel control rack. Engine revolution is more constant and matching with a wide range of machinery simpler.
- Control of the fuel injection timing according to engine load reduces emissions.
- Cam profiles are matched to nozzle throttle needs for better injection rate control and lower emissions.

(DI ENGINES)

The fluid energy of the air and fuel charge is bigger and the swirl continues in the chamber during combustion, enhancing mixing and reducing emissions.

The modified angle of the fuel injection nozzle reduces uneven atomization of the fuel between injections. Excellent matching of the intake swirl ratio and combustion chamber shape produces uniform fuel mixing in the combustion chamber. Combustion efficiency, starting, noise and exhaust emission performance are all improved.



Use of 2 intake and 2 exhaust valves on the 4TNV98 and 4TNV98T earns big improvements in air intake and expulsion. The vertically mounted injection nozzle minimizes spray pattern imbalance.



ELECTRONIC CONTROLS SERIES 3

This is the system that expands work flexibility. The electronic control system brings the world's highly evolved electronic governing technologies of many years' experience. It's a standard fitting on the 37kW + engine series, superbly matched to all kinds of equipment, and also available as an option on sub-37kW units.

The EGR valve is modulated according to the RPM, load etc. to reduce NOx emissions and treat the environment well. Fuel

injection is regulated to the optimum level on starting and acceleration. Therefore black diesel smoke is much reduced. All is controlled by external switches.



EGR Valve

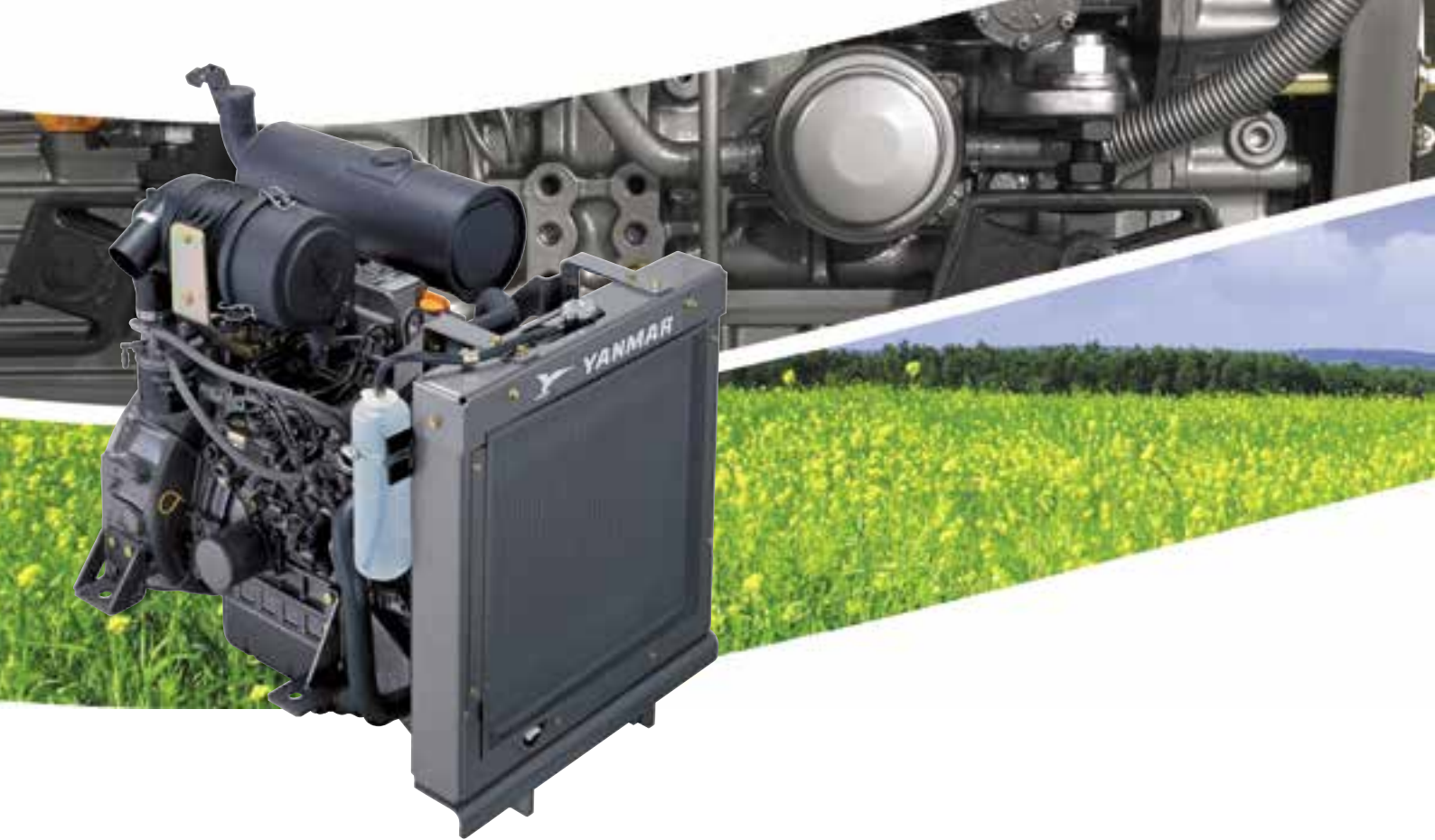
Integrated operation of ECU by CAN-bus communication enables RPM adjustment and the switching of governor features to meet the needs of the job. ECU troubleshooting and service tools have been enhanced for finding the answers on a personal computer.



POWERFUL & COMPACT

Powerful and compact 2-pole generator specifications are available with the 3TNM68, 3TNV70, 3TNM72 and 3TNV76 engines. The compactness is achieved by the improved combustion chamber and a better fuel injection system. They supply large capacity, persevering power for every type of machinery, working always with clean and environment-friendly combustion performance.





DURABILITY & RELIABILITY

The TNV/TNM engines now proudly take up the running as Yanmar's premium small industrial diesel engines. They offer even more enhanced durability due to better block cooling, stiffer crank and pistons, finer tolerance in the journal etc.



CAE analysis has brought lower vibrations and higher strength to the mounting structure for even better reliability in heavy-duty jobs.

FUEL ECONOMY

Experimental and analytical studies of air flow in the combustion chamber have improved the air and fuel mixing with the help of Yanmar's original specially shaped injection hole. The air flow is

now used still more effectively to reduce fuel consumption. Another environment-friendly feature, the engines are compatible with operation on biomass fuel (5%). [Note: the biomass fuel must comply with relevant standards.]



EASY MAINTENANCE

Daily checks and servicing of filters and other maintenance points are easy, and that goes along way towards extending and engines service life. In the DI engines, the electrical fuel feed pump is standard equipment. Air venting from the fuel system is simple and the engine's starting performance is superior, too.



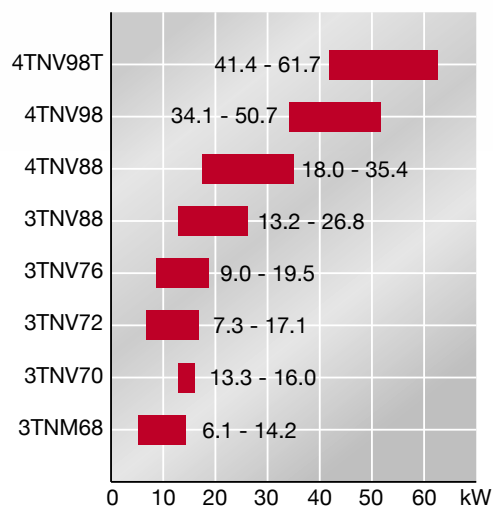
READY TO RUN AND / OR INSTALL

The engine structure satisfies market requirements and many accessory kits are available to assist flexible mounting on various types of machinery.

In generator applications, Group A is open frame generator sets and group B for noise-proofed sets.

SAFETY

All rotating parts have safety covers.





THE WIDE OUTPUT LINEUP OF TNV / TNM POWER PACKS

ENGINE SPEC SELECTION CODE

Power Pack Group		Application		3TNM68	3TNM72	3TNV70	3TNV76
Group A	Induspack	General industrial use		-AS	-AS	-	-CS
	Genepack A	Generator use (open type)	2-pole	-HA	-HA	-	-
			4-pole	-GA	-GA	-	-GA
Group B	Genepack B	Generator use (enclosed type)	2-pole	-	-	-HB	-HB
			4-pole	-	-	-	-GB

Power Pack Group		Application		3TNV88(-B)	4TNV88(-B)	4TNV98(-Z)	4TNV98T(-Z)
Group A	Induspack	General industrial use		-DS	-DS	-NS	-NS
	Genepack A	Generator use (open type)	2-pole	-	-	-	-
			4-pole	-GA	-GA	-GA	-GA
Group B	Genepack B	Generator use (enclosed type)	2-pole	-	-	-	-
			4-pole	-GB	-GB	-GB	-GB

SPECIFICATIONS

Model	3TNM68	3TNM72	3TNV70	3TNV76	3TNV88(-B)	4TNV88(-B)	4TNV98(-Z)	4TNV98(-Z)
Type	Vertical 4-cylinder water cooled diesel engine							
Combustion	Indirect injection				Direct injection			
Aspiration	Naturally aspirated							Turbocharged
No. of Cylinders	3				4			
Cyl. Bore x Stroke (mm)	68 x 72	72 x 74	70 x 74	76 x 82	88 x 90		98 x 110	
Displacement (cc)	784	904	854	1116	1642	2190	3319	
Direction of Rotation	Anti-clockwise							
Cooling System	Radiator							
Lubrication System	Forced lubrication by trochoid pump							
Starting System	Starting motor (D.C. 12V)							

OUTPUT

Industrial use (Induspack)	Model	3TNM68	3TNM72	3TNV76	3TNV88(-B)	4TNV88(-B)	4TNV98-Z	4TNV98T-Z
	Code	-AS	-AS	-CS	-DS	-DS	-NS	-NS
Rated output [kW / min ⁻¹]		14.1 / 3600	17.1 / 3600	18.7 / 3200	26.8 / 3000	35.4 / 3000	50.7 / 2500	61.7 / 2500



OUTPUT

Model				3TNM68	3TNM68	3TNM72	3TNM72	3TNV70	3TNV76	
Code				-HA	-GA	-HA	-GA	-HB	-HB	
Generator use (Genepack)	No. of poles	50 or 60Hz	Rating							
			Prime Power	10.9	-	13.0	-	12.1	15.1	
	2-pole	for 50Hz @ 3000 min ⁻¹	Rated Power	12.0	-	14.3	-	13.3	16.6	
			Prime Power	12.9	-	15.1	-	14.5	17.7	
			Rated Power	14.2	-	16.6	-	16.0	19.5	
			Prime Power	-	5.5	-	6.6	-	-	
	4-pole	for 60Hz @ 1500 min ⁻¹	Rated Power	-	6.1	-	7.3	-	-	
			Prime Power	-	6.6	-	7.8	-	-	
			Rated Power	-	7.3	-	8.6	-	-	
			Prime Power	-	6.6	-	8.0	-	-	
	Applicable Generator Capacity [kVA]	2-pole	for 50Hz @ 3000 min ⁻¹	Prime Power	11.2	-	13.3	-	12.4	16.0
				Rated Power	12.3	-	14.8	-	13.6	17.1
for 60Hz @ 3600 min ⁻¹			Prime Power	13.2	-	15.7	-	15.0	18.4	
			Rated Power	14.7	-	17.2	-	16.6	20.2	
4-pole		for 50Hz @ 1500 min ⁻¹	Prime Power	-	5.3	-	6.6	-	-	
			Rated Power	-	5.9	-	7.5	-	-	
		for 60Hz @ 1800 min ⁻¹	Prime Power	-	6.6	-	8.0	-	-	
			Rated Power	-	7.5	-	8.8	-	-	

Model				3TNV76	3TNV88(-B)	4TNV88(-B)	4TNV98	4TNV98T	
Code				-GA, GB	-GA, GB	-GA, GB	-GA, GB	-GA, GB	
Generator use (Genepack)	No. of poles	50 or 60Hz	Rating						
			Prime Power	-	-	-	-	-	
	2-pole	for 50Hz @ 3000 min ⁻¹	Rated Power	-	-	-	-	-	
			Prime Power	-	-	-	-	-	
			Rated Power	-	-	-	-	-	
			Prime Power	8.2	12.2	16.4	30.7	37.7	
	4-pole	for 60Hz @ 1500 min ⁻¹	Rated Power	9.0	13.2	18.0	34.1	41.4	
			Prime Power	9.8	14.7	19.6	36.4	45.3	
			Rated Power	10.7	16.2	21.6	40.8	50.1	
			Prime Power	-	-	-	-	-	
	Applicable Generator Capacity [kVA]	2-pole	for 50Hz @ 3000 min ⁻¹	Rated Power	-	-	-	-	-
				Prime Power	-	-	-	-	-
for 60Hz @ 3600 min ⁻¹			Prime Power	-	-	-	-	-	
			Rated Power	-	-	-	-	-	
4-pole		for 50Hz @ 1500 min ⁻¹	Prime Power	8.4	12.6	17.0	33.2	41.2	
			Rated Power	9.2	13.5	18.7	36.7	45.0	
		for 60Hz @ 1800 min ⁻¹	Prime Power	10.0	15.4	20.6	40.0	50.0	
			Rated Power	11.0	16.8	22.7	44.4	55.0	

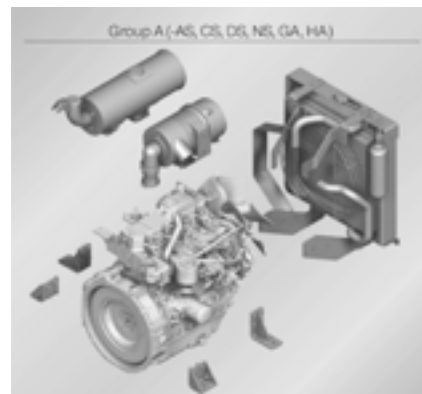
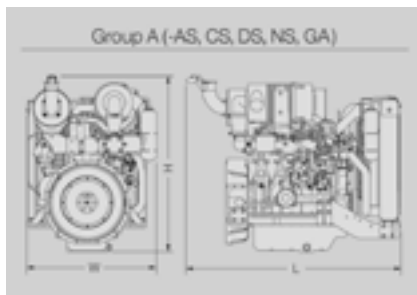
DIMENSIONS

GENEPACK A (-GA, HA)

Model	3TNM68	3TNM72	3TNV76	3TNV88	4TNV88	4TNV98	4TNV98T
Code	-GA, -HA	-GA, -HA	-GA	-(B)GA	-(B)GA	-GA	-GA
Length (mm)	751	722	745	821	1002	1041	938
Width (mm)	474	464	518	609	609	703	703
Height (mm)	668	683	696	792	824	926	925
Weight (kg)	132	138	158	180	210	280	284

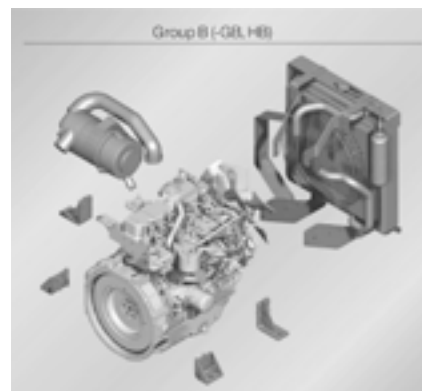
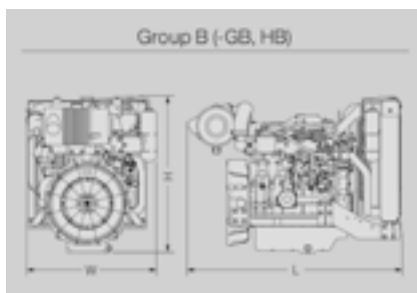
INDUSPACK (-AS, CS, DS, NS)

Model	3TNM68	3TNM72	3TNV76	3TNV88	4TNV88	4TNV98	4TNV98T
Code	-AS	-AS	-CS	-(B)DS	-(B)DS	-ZNS	-ZNS
Length (mm)	751	722	814	821	1002	1042	936
Width (mm)	474	464	514	609	609	701	701
Height (mm)	668	683	696	792	824	967	967
Weight (kg)	132	138	158	181	211	280	284



GENEPACK B (-GB, HA)

Model	3TNV70	3TNV76	3TNV76	3TNV88	4TNV88	4TNV98	4TNV98T
Code	-HB	-GB	-HB	-(B)GB	-(B)GB	-GB	-GB
Length (mm)	798	814	814	875	1002	1155	1154
Width (mm)	518	518	518	609	609	703	703
Height (mm)	683	672	694	731	726	846	846
Weight (kg)	143	153	153	175	202	271	276



GENERATOR USE

Model		3TNM68	3TNM72	3TNM70	3TNM72		3TNV88	
Code		-GA, -HA	GA, -HA	-HB	-GA	-GB, -HB	-(B)GA	-(B)GB
Fuel System	Fuel filter	●	●	●	●	●	●	●
	Mechanical feed pump	●	●	●	●	●	-	-
	Electric fuel pump	-	-	-	-	-	●	●
Lube System	Oil Pan	●	●	●	●	●	●	●
	L.O. press with switch (0.5kg/cm ²)	●	●	●	●	●	●	●
Cooling System	Pusher fan	●	●	●	●	●	●	●
	Thermostat	●	●	●	●	●	●	●
	C.W. temp. switch (on at 110 deg. C)	●	●	●	●	●	●	●
Electrical System	Starting motor	●	●	●	●	●	●	●
	Stop solenoid	●	●	●	●	●	●	●
	Alternator (40A)	●	●	●	●	●	●	●
	Glow plug	●	●	●	●	●	-	-
	Air heater	-	-	-	-	-	●	●
Intake and Exhaust System	Intake manifold (lateral intake)	●	●	●	●	●	●	●
	Exhaust manifold (upper side exhaust)	●	●	●	●	●	●	●
	Turbocharger	-	-	-	-	-	-	-
P.T.O	SAE#5 (width: TNV = 124, TNM = 111)	●	●	●	●	●	-	-
	Semi SAE#4 (width: 105)	-	-	-	-	-	●	●
	SAE#3 (width=125)	-	-	-	-	-	-	-
Power Pack Parts	Air cleaner	●	●	●	●	●	●	●
	Silencer	●	●	▲ (loose)	▲	▲ (loose)	▲	▲ (loose)
	Speed control knob	▲	▲	▲	▲	▲	▲	▲
	Radiator	●	●	●	●	●	●	●
	Engine foot	●	●	●	●	●	●	●
	Instrument panel	▲	▲	▲	▲	▲	▲	▲

Model		4TNV88		4TNV98		4TNV98T	
Code		-(B)GA	-(B)GB	-GA	-GB	-GA	-GB
Fuel System	Fuel filter	●	●	●	●	●	●
	Mechanical feed pump	-	-	-	-	-	-
	Electric fuel pump	●	●	●	●	●	●
Lube System	Oil Pan	●	●	●	●	●	●
	L.O. press with switch (0.5kg/cm ²)	●	●	●	●	●	●
Cooling System	Pusher fan	●	●	●	●	●	●
	Thermostat	●	●	●	●	●	●
	C.W. temp. switch (on at 110 deg. C)	●	●	●	●	●	●
Electrical System	Starting motor	●	●	●	●	●	●
	Stop solenoid	●	●	●	●	●	●
	Alternator (40A)	●	●	●	●	●	●
	Glow plug	-	-	-	-	-	-
	Air heater	●	●	●	●	●	●
Intake and Exhaust System	Intake manifold (lateral intake)	●	●	●	●	●	●
	Exhaust manifold (upper side exhaust)	●	●	●	●	●	●
	Turbocharger	-	-	-	-	●	●
P.T.O	SAE#5 (width: TNV = 124, TNM = 111)	-	-	-	-	-	-
	Semi SAE#4 (width: 105)	●	●	-	-	-	-
	SAE#3 (width=125)	-	-	●	●	●	●
Power Pack Parts	Air cleaner	●	●	●	●	●	●
	Silencer	▲	▲ (loose)	▲	▲ (loose)	▲	▲ (loose)
	Speed control knob	▲	▲	▲	▲	▲	▲
	Radiator	●	●	●	●	●	●
	Engine foot	●	●	●	●	●	●
	Instrument panel	▲	▲	▲	▲	▲	▲

INDUSTRIAL USE

Model		3TNM68	3TNM72	3TNV76	3TNV88	4TNV88	4TNV98	4TNV98T
Code		-AS	-AS	-CS	-(B)DS	-(B)DS	-ZNS	-ZNS
Fuel System	Fuel filter	●	●	●	●	●	●	●
	Mechanical feed pump	●	●	●	-	-	-	-
	Electric fuel pump	-	-	-	●	●	●	●
Lube System	Oil Pan	●	●	●	●	●	●	●
	L.O. press with switch (0.5kg/cm ³)	●	●	●	●	●	●	●
Cooling System	Puller fan	●	●	●	●	●	●	●
	Thermostat	●	●	●	●	●	●	●
	C.W. temp. switch (on at 110 deg. C)	●	●	●	●	●	●	●
Electrical System	Starting motor	●	●	●	●	●	●	●
	Stop solenoid	●	●	●	●	●	-	-
	Electronic Governor	-	-	-	-	-	●	●
	Alternator (40A)	●	●	●	●	●	●	●
	Alternator (55A)	-	-	-	-	-	●	●
	Glow plug	●	●	●	● (-B)	● (-B)	-	-
	Air heater	-	-	-	●	●	●	●
Intake and Exhaust System	Intake manifold (lateral intake)	●	●	●	●	●	●	●
	Exhaust manifold (upper side exhaust)	●	●	●	●	●	●	●
	EGR system	-	-	-	-	-	●	●
	Turbocharger	-	-	-	-	-	-	●
P.T.O	SAE#5 (width: TNV = 124, TNM = 111)	●	●	●	●	●	-	-
	Semi SAE#4 (width: 158)	-	-	-	-	-	●	●
Power Pack Parts	Air cleaner	●	●	●	●	●	●	●
	Silencer	●	●	●	●	●	●	●
	Speed control knob	▲	▲	▲	▲	▲	▲	▲
	Radiator	●	●	●	●	●	●	●
	Engine foot	●	●	●	●	●	●	●
	Instrument panel	▲	▲	▲	▲	▲	-	-
	Wire harness	-	-	-	-	-	●	●
	Accel sensor	-	-	-	-	-	● (loose)	● (loose)



YANMAR

Final Tier 4 Series up to 19kW

WATER-COOLED DIESEL ENGINES





3TNM74F
Output : 17.8kW (23.9hp)

3TNV74F
Output : 13.7kW (18.4hp)

3TNV80F
Output : 17.8kW (23.9hp)

3TNV88F
Output : 18.2kW (24.4hp)



EPA FINAL TIER 4 COMPLIANT DIESEL ENGINES

YANMAR'S NEW DIESEL ENGINES COMPLY WITH THE LATEST EMISSIONS REGULATIONS THROUGH THEIR ORIGINAL ADVANCED DIESEL ENGINE TECHNOLOGIES AND BY DRAWING ON THEIR 100 YEARS EXPERIENCE



3TNM74F



3TNV74F



3TNV80F



3TNV88F



FEATURES

- Compact durable power
- Clean emissions
- Low fuel consumption
- Low noise, low vibration
- Installation sustainability
- High altitude performance control
- Direct injection (3TNV88F only)
- Electronic engine control (3TNV88F only)

MODEL	3TNM74F	3TNV74F	3TNV80F	3TNV88F
Emission Regulation	EPA Final Tier 4			
Combustion	Indirect injection (IDI)			Direct Injection (DI)
Aspiration	Natural Aspiration			
Fuel Injection System	Mechanical			Mechanical with electronic governor
EGR System	N/A			Hot EGR
Cylinders	3			
Bore (mm)	74		80	88
Stroke (mm)	77		84	90
Displacement (cc)	993		1267	1642
Max Rated Output (hp / kW@ rpm)	23.9 / 17.8 @ 3600	18.4 / 13.7 @ 3000	23.9 / 17.8 @ 3000	24.4 / 18.2 @ 2400
Length (mm)	450	504	523	588
Width (mm)	416	427		577
Height (mm)	506		532	697
Dry Weight (kg)	88	103	117	152

NOTE: 1. Conforms to SAE J1995,
2. The 3TNM74F engine only has a backplate, and 3TNV74F/80F/88F all have flywheel housings.

YANMAR

Final Tier 4 19kW to 56kW

WATER-COOLED DIESEL ENGINES

STAGE 5
READY

TNV Series Common Rail

EPA Tier 4 (19 - 56kW)
EU Stage IIIB (37 - 56kW)



TNV SERIES COMMON RAIL ENGINES

EPA TIER 4 (19 - 56kW) EU Stage IIIB (37 - 56kW)



* "DPF" is the filter device designed to remove particulate matter (PM) from exhaust gas.

Direct injection to create clean-burning power

Common rail system to allow fine-tuned electronic control of fuel injection

Cooled EGR (Exhaust Gas Recirculation) to reduce mono-nitrogen oxides (NOx)

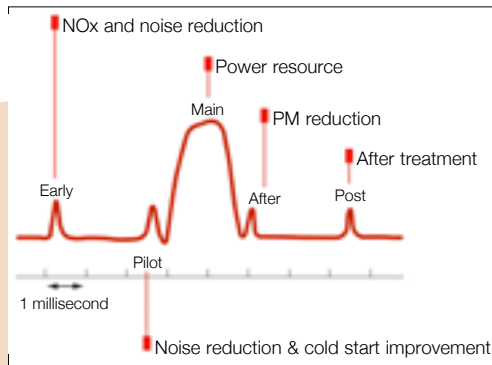
Diesel Particulate Filter (DRF*) to catch particulate matter (PM) in the exhaust gas

Fully electronic control to provide total intelligent engine control.

COMMON RAIL INJECTION SYSTEM

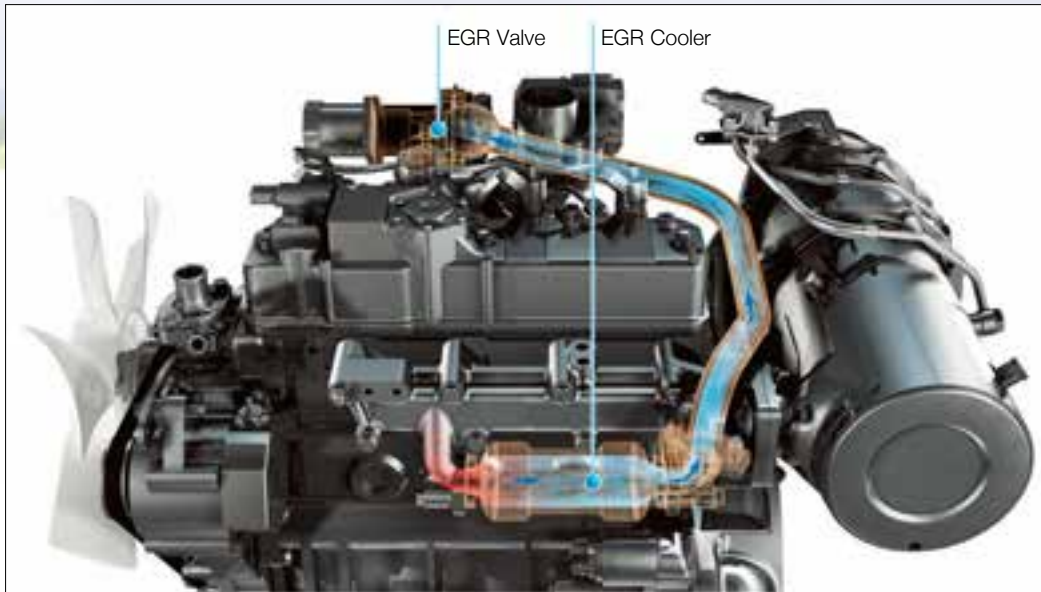
High-pressure fuel is stored in the common rail, and the amount, frequency, and timing of fuel injection are precisely controlled electronically in 1/1000th of a second intervals. Using a high pressure multi-stage injection system, we can reduce the amount of mono-nitrogen oxides (NOx) and particulate matter (PM) contained in the exhaust gas and achieve a quiet, fuel-efficient engine.

FUEL INJECTION PATTERNS OF COMMON RAIL



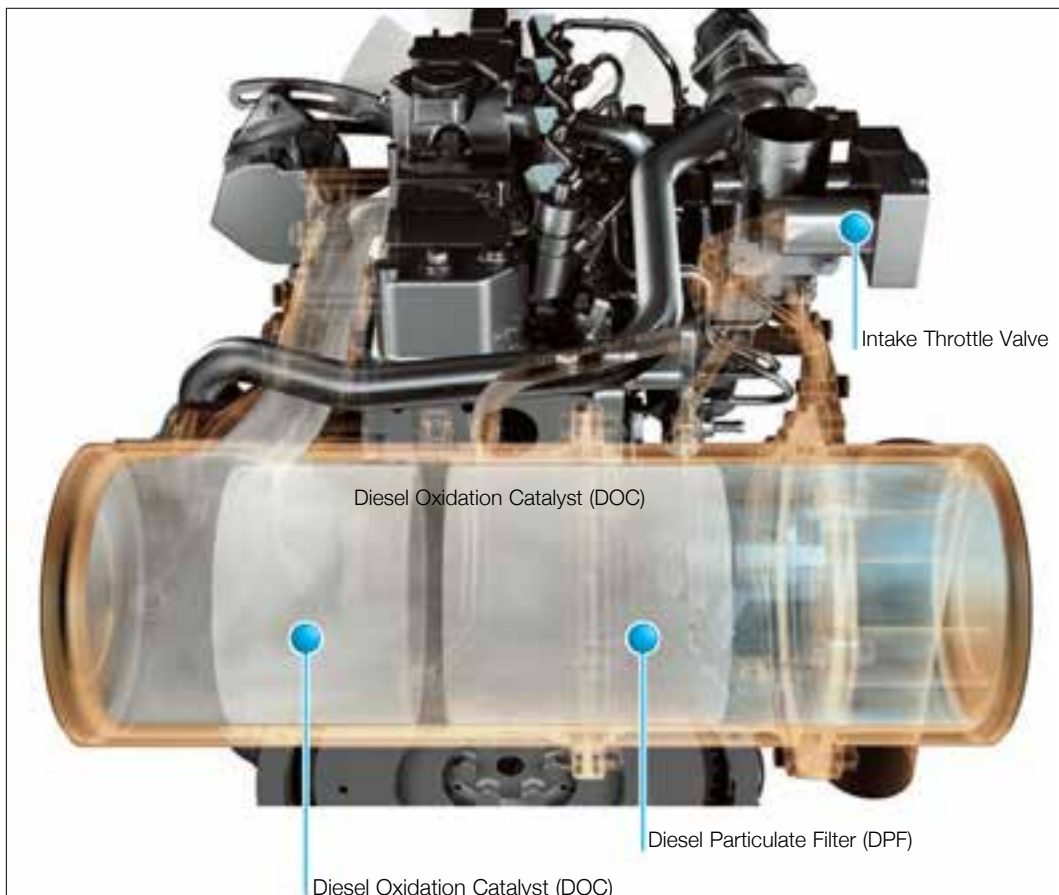
COOLED EGR (EXHAUST GAS RECIRCULATION) SYSTEM

This is a system to recirculate some of the exhaust gas back into the air intake. This lets us reduce NOx emission by controlling the oxygen concentration in the combustion chamber and reducing the combustion temperature. The circulated exhaust gas is cooled by the EGR Cooler and also has its flow volume electronically controlled by the EGR Valve, depending on the engine operation state, in order to attain the optimum combustion conditions.



DIESEL PARTICULATE FILTER (DPF) SYSTEM

Our engines include a DPF system to catch particulate matter (PM) contained in the exhaust gas. The PM trapped inside the DPF is processed when the DPF automatically regenerates, keeping the filter constantly clean.



YANMAR'S ORIGINAL DPF REGENERATION CONTROL COMBINES THREE MODELS

ASSIST REGENERATION

When the particulate matter (PM) is trapped in the DPF, the intake throttle valve operates automatically. By reducing the intake air volume and controlling the temperature inside the DPF, the collected particles are automatically eliminated.

RESET REGENERATION

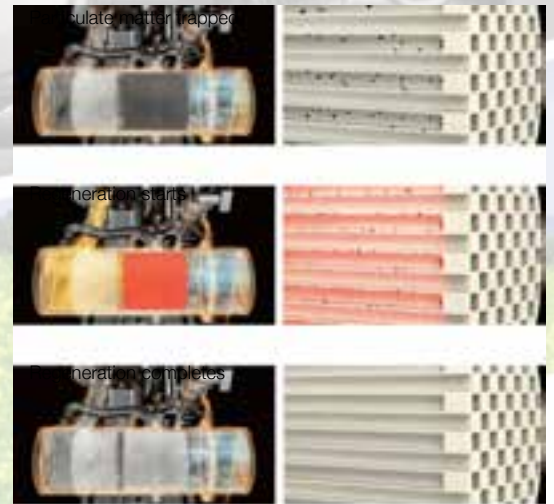
Following combustion in the cylinder, a small amount of fuel is burnt, and the reaction heat from DOC is used to control the temperature in the DPF and automatically eliminate the collected particles.

STATIONARY REGENERATION

The operator can also use manual control to eliminate the particles collected with the DPF.



DPF regeneration request switch



Inside of DPF

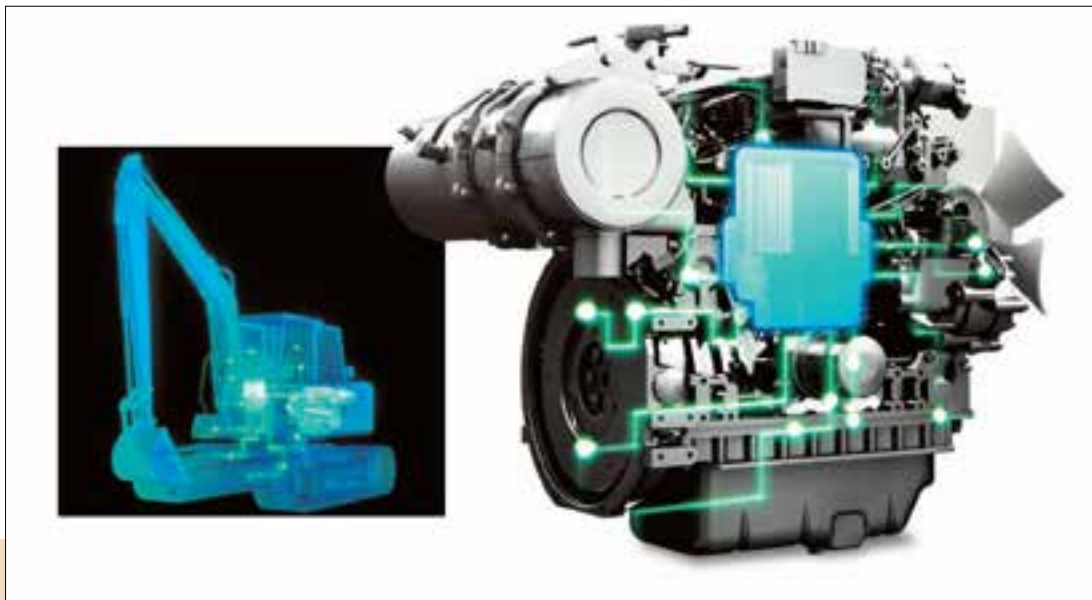


Before

After

ECU (ENGINE CONTROL UNIT)

The ECU is the brain of an engine and constantly exchanges information between the engine itself and the operating machinery to accurately determine operation status and provide optimum control for the situation.



TNV SERIES COMMON RAIL ENGINES

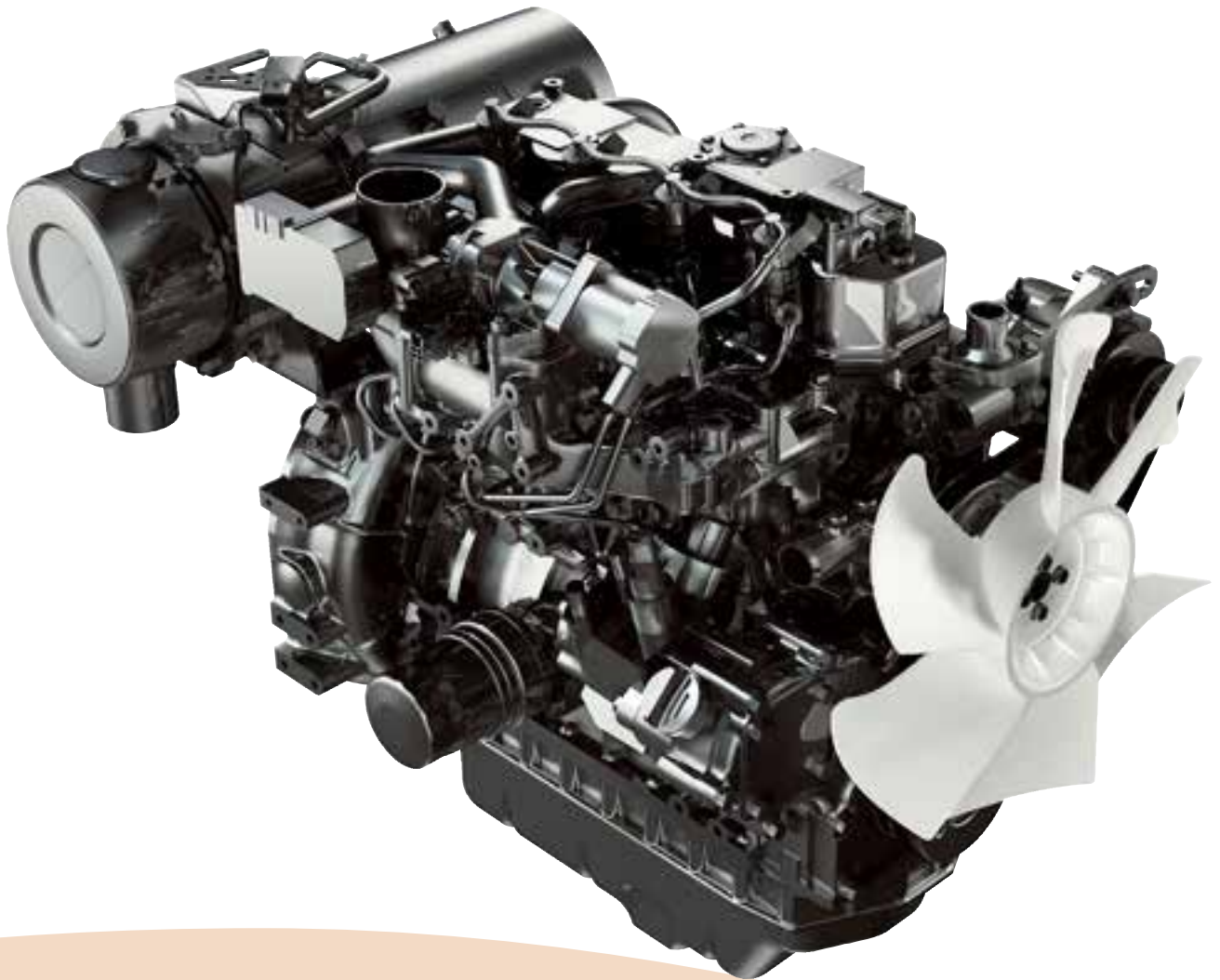
SPECIFICATION

Model	3TNV88C	3TNV86CT	4TNV88C	4TNV86CT	4TNV98C	4TNV98CT
Emission Regulation	EPA Tier 4			EPA Tier 4 / EU Stage III B		
Combustion System	Direct Injection (DI)					
Aspiration	Naturally Aspirated	Turbocharged	Naturally Aspirated	Turbocharged	Naturally Aspirated	Turbocharged
Fuel Injection System	Common Rail					
EGR System	Cooled EGR					
Cylinders	3			4		
Bore (mm)	88	86	88	86	98	98
Stroke (mm)	90				110	
Displacement (cc)	1642	1568	2190	2091	3319	3319
Max Rated Output kW / hp @ r/min *1	27.5 / 36.9 @ 3000	32.4 / 43.4 @ 3000	35.5 / 47.6 @ 3000	44.0 / 59.0 @ 3000	51.7 / 69.3 @ 2500	53.7 / 72.0 @ 2500
After Treatment System	Diesel Particulate Filter (DPF)					
Length (mm) *2	781		871	890	970	
Width (mm) *2	536		524	543	556	574
Height (mm) *2	751	762	746	766	806	820
Dry Weight (kg) *2	170	175	205	210	270	275

*1 Conforms to SAE J1995

*2 With Diesel Particulate Filter (DPF) on flywheel housing





Spare Parts



Picture for illustration purposes only

‘Quality where it counts’

When you've made an investment in a highly engineered Yanmar engine, it makes sense to maintain its reliability by using only genuine Yanmar parts. Genuine parts are not just spare parts they are an important component of the whole machine. Imitation parts are invariably inferior in materials and manufacturing quality. They are not made to last, neither do they do the job that genuine parts are designed and made to do. Genuine parts are designed to fulfil all technical and performance requirements precisely. When you choose genuine Yanmar parts you are 100% assured of quality, reliability and compliance with original equipment specifications.

Engine Model	Oil Filter Element	Fuel Filter Element	Air Filter Element	Alternator/Cooling Water Belt	Engine Gasket Set
L40E-DE	114250-35100 (Q)	114250-55121	114250-12581	N/A	714250-92605
L40E-SE	114250-35100	114250-55121	114250-12581	N/A	714250-92605
L60E-DE	114250-35100 (R)	114250-55121	114250-12581	N/A	714350-92605
L60E-SE	114250-35100	114250-55121	114250-12581	N/A	714350-92605
L75E-DE	114250-35100 (S)	114250-55121	114650-12591	N/A	714550-92605
L75E-SE	114250-35100	114250-55121	114650-12591	N/A	714550-92605
L90E-DE	114250-35100 (T)	114250-55121	114650-12591	N/A	714550-92605
L90E-SE	114250-35100	114250-55121	114650-12591	N/A	714550-92605
L40AE-DE	114250-35110	114250-55121	114250-12581	N/A	714270-92605
L40AE-SE	114250-35100	114250-55121	114250-12581	N/A	714270-92605
L48AE-DE	114250-35110	114250-55121	114250-12581	N/A	714770-92605
L48AE-SE	114250-35100	114250-55121	114250-12581	N/A	714770-92605
L60AE-DE	114250-35110	114250-55121	114250-12581	N/A	714370-92605
L60AE-SE	114250-35100	114250-55121	114250-12581	N/A	714370-92605
L70AE-DE	114250-35110	114250-55121	114250-12581	N/A	714870-92605
L70AE-SE	114250-35100	114250-55121	114250-12581	N/A	714870-92605
L75AE-DE	114250-35110	114250-55121	114650-12591	N/A	714589-92605
L75AE-SE	114250-35100	114250-55121	114650-12591	N/A	714589-92605
L90AE-DE	114250-35110	114250-55121	114650-12591	N/A	714689-92605
L90AE-SE	114250-35100	114250-55121	114650-12591	N/A	714689-92605
L100AE-DE	114250-35110	114250-55121	114650-12591	N/A	714970-92605
L100AE-SE	114250-35100	114250-55121	114650-12591	N/A	714970-92605
L48N	114250-35110	114250-55121	114250-12581	N/A	114210-92600
L70N	114250-35110	114250-55121	114210-12590	N/A	714220-92600
L100N	114250-35110	114250-55121	114210-12590	N/A	714310-92600
L48V	114250-35110	114250-55121	114250-12581	N/A	714110-92600
L70V	114250-35110	114250-55121	114210-12590	N/A	714210-92600
L100V	114250-35110	114250-55121	114210-12590	N/A	714310-92600
TF50	104200-35150	105370-55710	105100-12570	N/A	705090-92601
TF60/70	(B)	105370-55710	105100-12570	N/A	705100-92601
TF80/90	(B)	105370-55710	105300-12570	N/A	705300-92605
TF110/120	(B)	105370-55710	105500-12570	N/A	705500-92605
TF140/160	(B)	105370-55710	105500-12570	N/A	705700-92601
3TNM68 AS	119305-35151	119810-55650	119655-12560	25132-003500	119125-92600
3TNM68 GA	119305-35151	119810-55650	119655-12560	25132-003400	119125-92600
3TNM68 HA	119305-35151	119810-55650	119655-12560	25132-003400	119125-92600
3TNM72 AS	119305-35151	119810-55650	119655-12560	171001-72290	119025-92600
3TNM72 GA	119305-35151	119810-55650	119655-12560	25132-003450	119025-92600
3TNM72 HA	119305-35151	119810-55650	119655-12560	25132-003450	119025-92600
2T72HLE	124085-35112 (N)	104500-55710	171022-12530	121522-42290	724086-92605
3T72HLE	124085-35112 (N)	104500-55710	171022-12530	121522-42290	721086-92605
2T75HLE	124085-35112 (N)	104500-55710	171022-12530	25132-003600	724586-92605
3T75HLE	124085-35112 (N)	104500-55710	129350-12900	25132-003600	721586-92605
3T80LE	124085-35112 (N)	124550-55700	121120-12901-	25132-003600	721180-92605
3T84HLE(-G1)	124085-35112 (N)	104500-55710	121120-12901-	25132-003600	729380-92605 (U)
2T90LE	124085-35112 (N)	124550-55700	121120-12901-	25132-003700	NLA
3T90LE	124085-35112 (N)	124550-55700	121120-12901-	25132-003700	721400-92605
3T95LE	121850-35151	41650-502320	121850-12510	25152-004300	721872-92605
4T95LE	121850-35151	41650-502320	121850-12510	25152-004300	721952-92605
4T95LTE	121850-35151	41650-502320	121850-12510	25152-004400	721087-92605
6T95LE	123672-35151	41650-502320	124610-12620	124610-77351	NLA
6T95LTE	123672-35151	41650-502320	126650-12620	124610-77351	NLA
3TN66E-S/G2	119305-35151 (A)	124550-55700	119860-12510	119256-42290	719288-92600
3TNA72E-S/G2	119305-35151 (A)	124550-55700	119860-12510	119656-42290	719688-92600
3TN75E-S/G1/G2	129150-35152 (A)	119810-55650	121120-12901-	25132-003600 (C) (D)	719888-92604
3TNC78E-S/G1/G2	129150-35152 (A)	119810-55650	121120-12901-	25132-003900 (M)	719888-92620
3TN82E-S/G1/G2	129150-35152 (A)	129100-55650	121120-12901-	25132-003600 (E)(F)(G)	NLA
4TN82E-S	129150-35152 (A)	129100-55650	121120-12901-	25132-003600 (H)	729488-92605
4TN82E-G1/G2	129150-35152 (A)	129100-55650	121120-12901-	25132-003600 (J)(K)	729488-92605
3TN82TE-S	129150-35152 (A)	129100-55650	121120-12901-	121492-42290	729188-92615
3TN82TE-G1	129150-35152 (A)	129100-55650	121120-12901-	25132-003700	729188-92615
3TN82TE-G2	129150-35152 (A)	129100-55650	121120-12901-	121492-42290	729188-92641
4TN82TE-S	129150-35152 (A)	129100-55650	121120-12901-	121492-42290	729488-92655
4TN82TE-G1	129150-35152 (A)	129100-55650	121120-12901-	121492-42290	729488-92674
3TN84E-S	129150-35152 (A)	129100-55650	121120-12901-	121492-42290	729105-92600

- (A) Available in 12-pack (-12)
- (B) Element is rarely replaced/reusable metal strainer
- (C) 3TN75E-G1 use 25132-003700 EFF. S/N 05228
- (D) 3TN75E-G2 use 25132-003700 EFF. S/N 10740
- (E) 3TN82E-S use 121492-42290 EFF. S/N 00644
- (F) 3TN82E-G1 use 121492-42290 EFF. S/N 00621
- (G) 3TN82E-G2 use 121492-42290 EFF. S/N 00756

- (H) 4TN82E-S use 121492-42290 EFF. S/N 00524
- (J) 4TN82E-G1 use 121492-42290 EFF. S/N 00254
- (K) 4TN82E-G2 use 121492-42290 EFF. S/N 00570
- (L) Element listed applies to U.S. supplied kit air cleaner
- (M) Earlier 3TNC78 series used 36" belt 25132-003600
- (N) Available in 12-pack 124550-35110-12
- (O) YDG3800E use 114250-35100 prior to S/N 00382

Yanmar Fast Moving Spare Parts

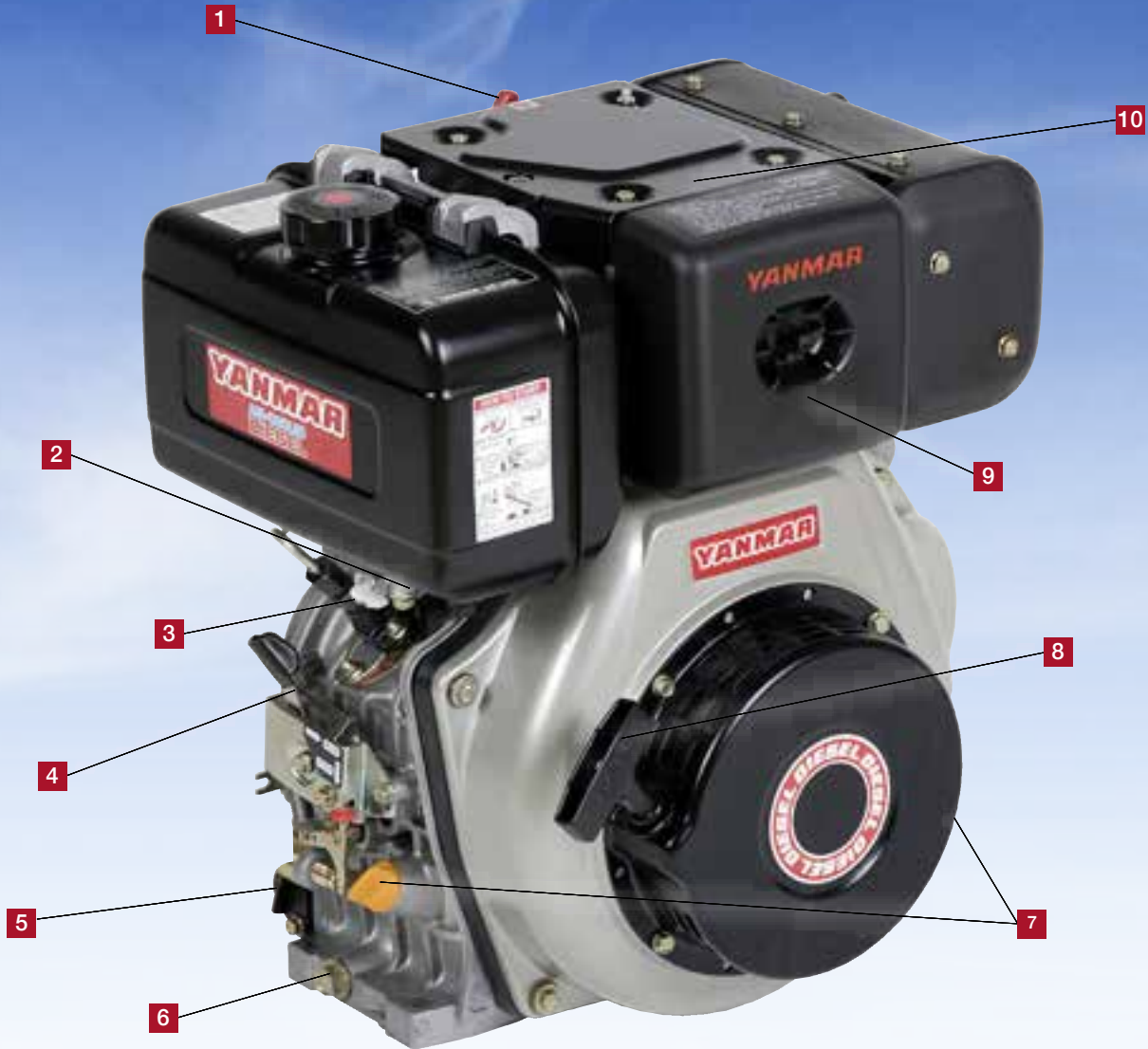
Engine Model	Oil Filter Element	Fuel Filter Element	Air Filter Element	Alternator/Cooling Water Belt	Engine Gasket Set
3TN84E-G1	129150-35152 (A)	129100-55650	121120-12901-	25132-003700	729111-92630
3TN84E-G2	129150-35152 (A)	129100-55650	121120-12901-	121492-42290	729115-92610
4TN84E-S	129150-35152 (A)	129100-55650	121120-12901-	121492-42290	729405-92635
4TN84E-G1	129150-35152 (A)	129100-55650	121120-12901-	25132-003700	729405-92635
4TN84E-G2	129150-35152 (A)	129100-55650	121120-12901-	121492-42290	729411-92655
4TN84TE-S/G2	129150-35152 (A)	129100-55650	121120-12901-	121492-42290	729406-92615
4TN84TE-G1	129150-35152 (A)	129100-55650	121120-12901-	121492-42290	729406-92615
2TNE68E-SA/G2A	119305-35151 (A)	124550-55700	119287-12510 (L)	25137-003400	719309-92610
3TNE68-SA/G1A	119305-35151 (A)	124550-55700	119287-12510 (L)	25137-003300	719265-92611
3TNE68-G2A	119305-35151 (A)	124550-55700	119287-12510 (L)	119256-42290	719265-92611
3TNE74-SA	119305-35151 (A)	124550-55700	119287-12510 (L)	25157-003500	719623-92610
3TNE74-G2A	119305-35151 (A)	124550-55700	119287-12510 (L)	25157-003500	719623-92610
3TNE78A-SA/G1A	129150-35152 (A)	119810-55650	129087-12510 (L)	25132-003900	719822-92600
3TNE78A-G2A	129150-35152 (A)	119510-55650	129087-12510 (L)	25132-003900	719822-92610
3TNE82A-SA/G1A	129150-35152 (A)	119810-55650	129087-12510 (L)	25132-003900	719823-92610
3TNE84-SA	129150-35152 (A)	129100-55650	129087-12510 (L)	25132-003800	729211-92630
3TNE84-G1A	129150-35152 (A)	129100-55650	129087-12510 (L)	25132-003700	729211-92630
3TNE84-G2A	129150-35152 (A)	129100-55650	129087-12510 (L)	25132-003800	729211-92640
3TNE84T-SA/G1A	129150-35152 (A)	129100-55650	129087-12510 (L)	25132-003800	729209-92660
3TNE88-SA	129150-35152 (A)	129100-55650	129087-12510 (L)	25132-003800	729209-92600
3TNE88-G1A	129150-35152 (A)	129100-55650	129087-12510 (L)	25132-003700	729209-92600
4TNE84-SA	129150-35152 (A)	129100-55650	129687-12510 (L)	121492-42290	729209-92600
4TNE84-G1A	129150-35152 (A)	129100-55650	129687-12510 (L)	25132-003700	729209-92600
4TNE84-G2A	129150-35152 (A)	129100-55650	129687-12510 (L)	121492-42290	729608-92615
4TNE84T-SA	129150-35152 (A)	129100-55650	129687-12510 (L)	121492-42290	729418-92605
4TNE84T-G1A	129150-35152 (A)	129100-55650	129687-12510 (L)	121492-42290	729418-92615
4TNE88-SA	129150-35152 (A)	129100-55650	129687-12510 (L)	121492-42290	729609-92600
4TNE88-G1A	129150-35152 (A)	129100-55650	129687-12510 (L)	25132-003800	729609-92600
4TNE94E-SA/G1A	129150-35152 (A)	119000-55601	129687-12510 (L)	25132-004100	729900-92600
4TNE98E-SA/G1A	129150-35152 (A)	119000-55601	129687-12510 (L)	25132-004100	729902-92610
4TNE106(T)E-SA/G1A	119005-35100 (A)	119000-55601	123950-12560-01	25133-004900	723900-92660
2TNV70-ASA	119305-35151 (A)	119810-55650	119287-12510 (L)	171001-42290	719415-92600
2TNV70-HGE	119305-35151 (A)	119810-55650	119287-12510 (L)	171001-42290	719415-92620
3TN70-ASA	119305-35151 (A)	119180-55650	119287-12510 (L)	25132-003600	719515-92600
3TN70-GGE/HE	119305-35151 (A)	119810-55650	119287-12510 (L)	171001-42290	719515-92620
3TNV76-CSA	119305-35151 (A)	119810-55650	129087-12510 (L)	25132-003600	719717-92650
3TNV76-(G)(H)GGE	119305-35151 (A)	119810-55650	129087-12510 (L)	25132-003600	719717-92680
3TNV82A-DSA	129150-35152 (A)	119802-55800 (A)(X)	129087-12510 (L)	25132-003700	719823-92780
3TNV82A-GGE	129150-35152 (A)	119802-55800 (A)(X)	129087-12510 (L)	25132-003800	719823-92790
3TNV84T-KSA	129150-35152 (A)	119802-55800 (A)(X)	129687-12510 (L)	119865-42290	729246-92730
3TNV84T-GGE	129150-35152 (A)	119802-55800 (A)(X)	129687-12510 (L)	119831-42290	729246-92690
3TNV88-DSA	129150-35152 (A)	119802-55800 (A)(X)	129087-12510 (L)	119865-42290	729001-92780
3TNV88-GGE	129150-35152 (A)	119802-55800 (A)(X)	129087-12510 (L)	119831-42290	729001-92790
4TNV84T-DSA	129150-35152 (A)	119802-55800 (A)(X)	129687-12510 (L)	119865-42290	729508-92630
4TNV84T-GGE	129150-35152 (A)	119802-55800 (A)(X)	129687-12510 (L)	119831-42290	729508-92630
4TNV88-DSA	129150-35152 (A)	119802-55800 (A)(X)	129687-12510 (L)	119865-42290	729601-92780
4TNV88-GGE	129150-35152 (A)	119802-55800 (A)(X)	129687-12510 (L)	119831-42290	729601-92780
4TNV98-NSA	129150-35152 (A)	119802-55800 (A)(X)	129935-12520-01 (L)	25132-004150	729907-92670
4TNV98-GGE	129150-35152 (A)	119802-55800 (A)(X)	129935-12520-01 (L)	129052-42290	729907-92670
4TNV98T-NSA	129150-35152 (A)	123907-55800 (Z)	129935-12520-01 (L)	25132-004150	729907-92770
4TNV98T-GGE	129150-35152 (A)	123907-55800 (Z)	129935-12520-01 (L)	129052-42290	729907-92770
2V750	119305-35151 (A)	118200-55510	119287-12510 (L)	N/A	718200-92600
YDG2000E(-1)(-2)	114250-35110 (V)	114250-55121	114250-12581	N/A	714250-92605
YDG3000E(-1)(-2)	114250-35110 (W)	114250-55121	114250-12581	N/A	714350-92605
YDG3800E(-1)(-2)	114250-35110 (O)	114250-55121	114650-12591	N/A	714550-92605
YDG4500E(-1)(-2)	114250-35110 (P)	114250-55121	114650-12591	N/A	714650-92605
YDG2001E	114250-35110	183284-55323	114250-12581	N/A	714250-92605
YDG2501E	114250-35110	183284-55323	114250-12581	N/A	714770-92605
YDG3501E	114250-35110	183284-55323	114250-12581	N/A	714870-92605
YDG5001E	114250-35110	183284-55323	114650-12591	N/A	783384-92605
YDG2700E(E)	114250-35110	183254-55120	114250-12581	N/A	714771-92605
YDG3700E(E)	114250-35110	183254-55120	114250-12581	N/A	714871-92605
YDG5500(E)	114250-35110	183254-55120	114650-12591	N/A	714651-92605
YDG2700EV	114250-35110	X3A06351KA0	114250-12581	N/A	714110-92600
YDG3700EV	114250-35110	X3A06351KA0	114210-12590	N/A	714210-92600
YDG5500EV	114250-35110	X3A06351KA0	114210-12590	N/A	714310-92600

- (P) YDG4500E use 114250-35100 prior to S/N 01139
- (Q) L40E-DE use 114250-35110 EFF. S/N 58518
- (R) L60E-DE use 114250-35110 EFF. S/N 56746
- (S) L75E-DE use 114250-35110 EFF. S/N 01415
- (T) L90E-DE use 114250-35110 EFF. S/N 03420
- (U) 3T84HLE "S" or "G1-S" use 729386-92605
- (V) YDG200E use 114250-35100 prior to S/N 54756

- (W) YDG3000E use 114250-35100 prior to S/N 52865
- (X) Optional "1 MICRON" filter 129004-55801
- (Z) Optional "1 MICRON" filter 129907-55800
- N/A Not applicable on this model
- NLA No longer available

3 and Easy

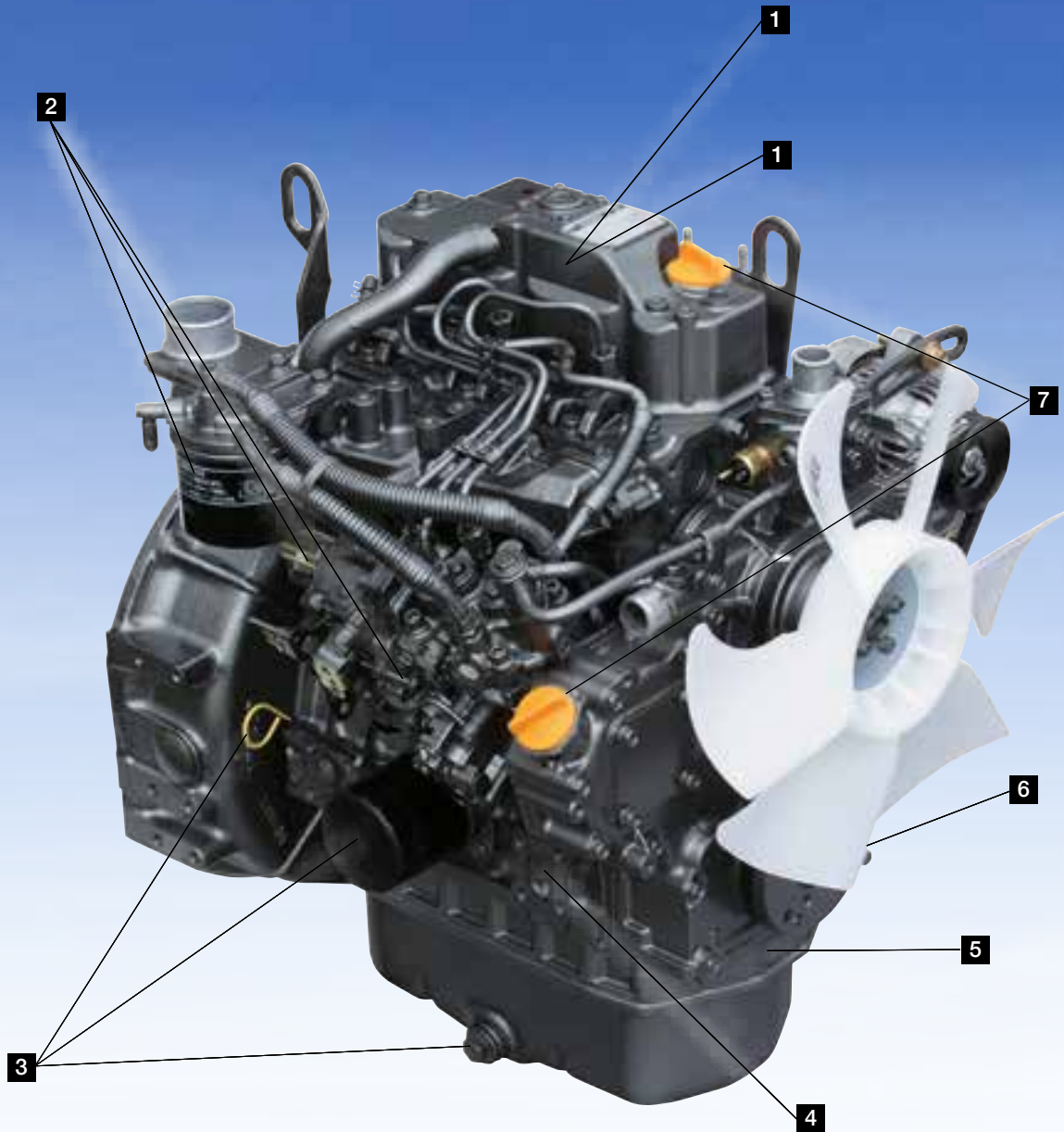
Three good reasons to specify Yanmar's compact diesel engines:



L-Series

1. Decompressor lever.
2. Fuel filter in tank with drain tap.
3. Fuel injection pump. Easy access & removal.
4. Mechanical shut down control.
5. Simple washable oil strainer.
6. Two oil drain positions. (Both sides of engine).
7. Two oil fill positions.
8. Recoil and electric start with flywheel charge system.
9. Easy access air cleaner.
10. Injector easy access and removal.

- ✔ New 3-year warranty on all Yanmar L-Series air-cooled engines and TNV/TNM water-cooled engines purchased **exclusively** from Barrus.*
- ✔ Easy maintenance and servicing for reduced downtime.
- ✔ Industry renowned for reliability in operation, and versatility to meet a wide range of applications.



TNV-Series

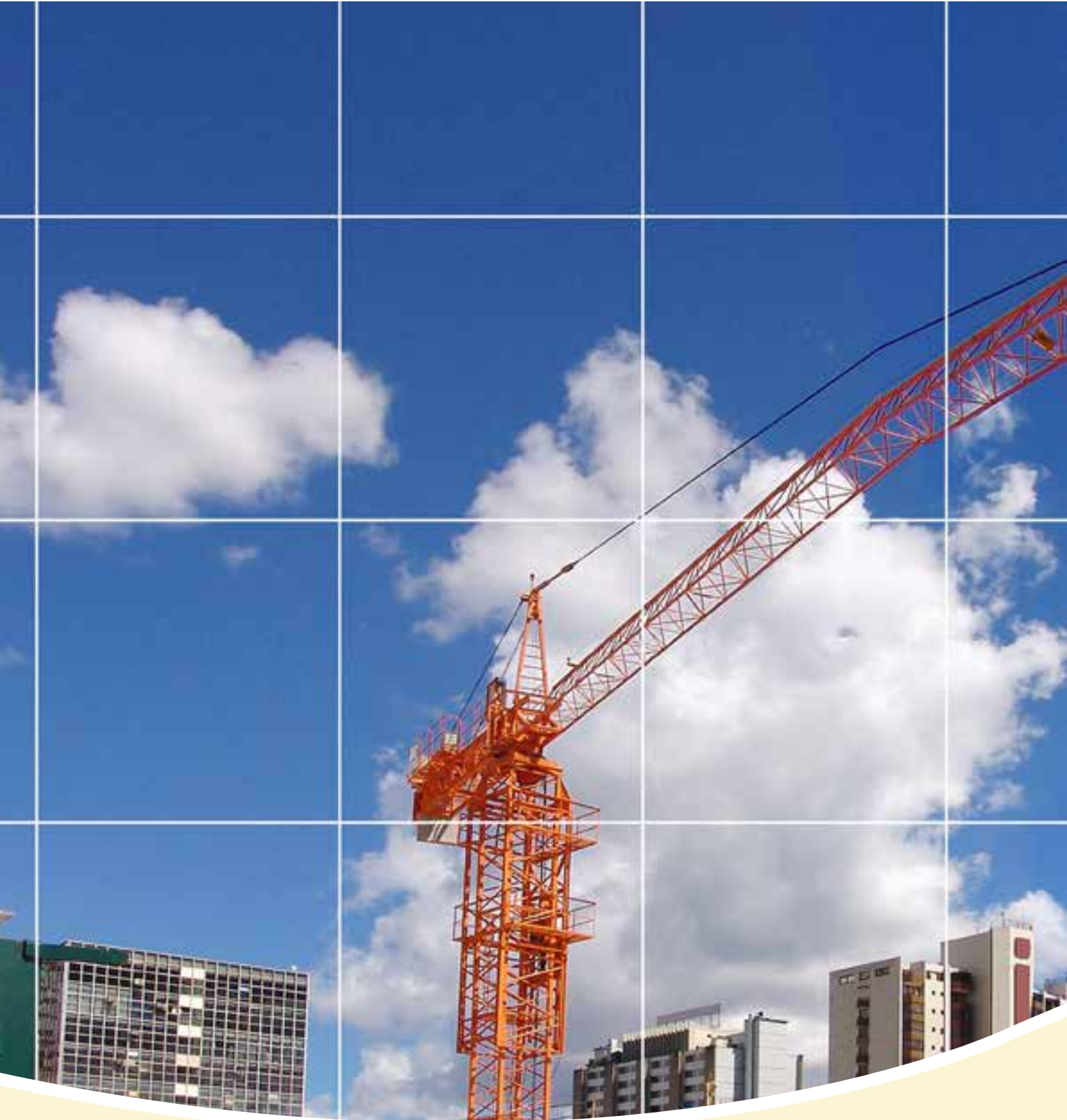
1. IDI combustion system on 0.784 litre to 1.116 litre (low noise & low emission Yanmar design with 2 valves). DI combustion system on 1.331 litre to 3.319 litre (low noise & low emission Yanmar design with 2 & 4 valve options).
2. Easy one side service- fuel filter, fuel solenoid & fuel pump.
3. Easy one side service- oil filter/dipstick & oil drain.
4. High strength-high rigidity crankcase design – low vibration & low noise.
5. Ladder frame section- low vibration & low noise.
6. Additional HOP gear cover drive position.
7. Two oil fill positions.

YANMAR



JOHN DEERE

Stage 3A Generator Drives

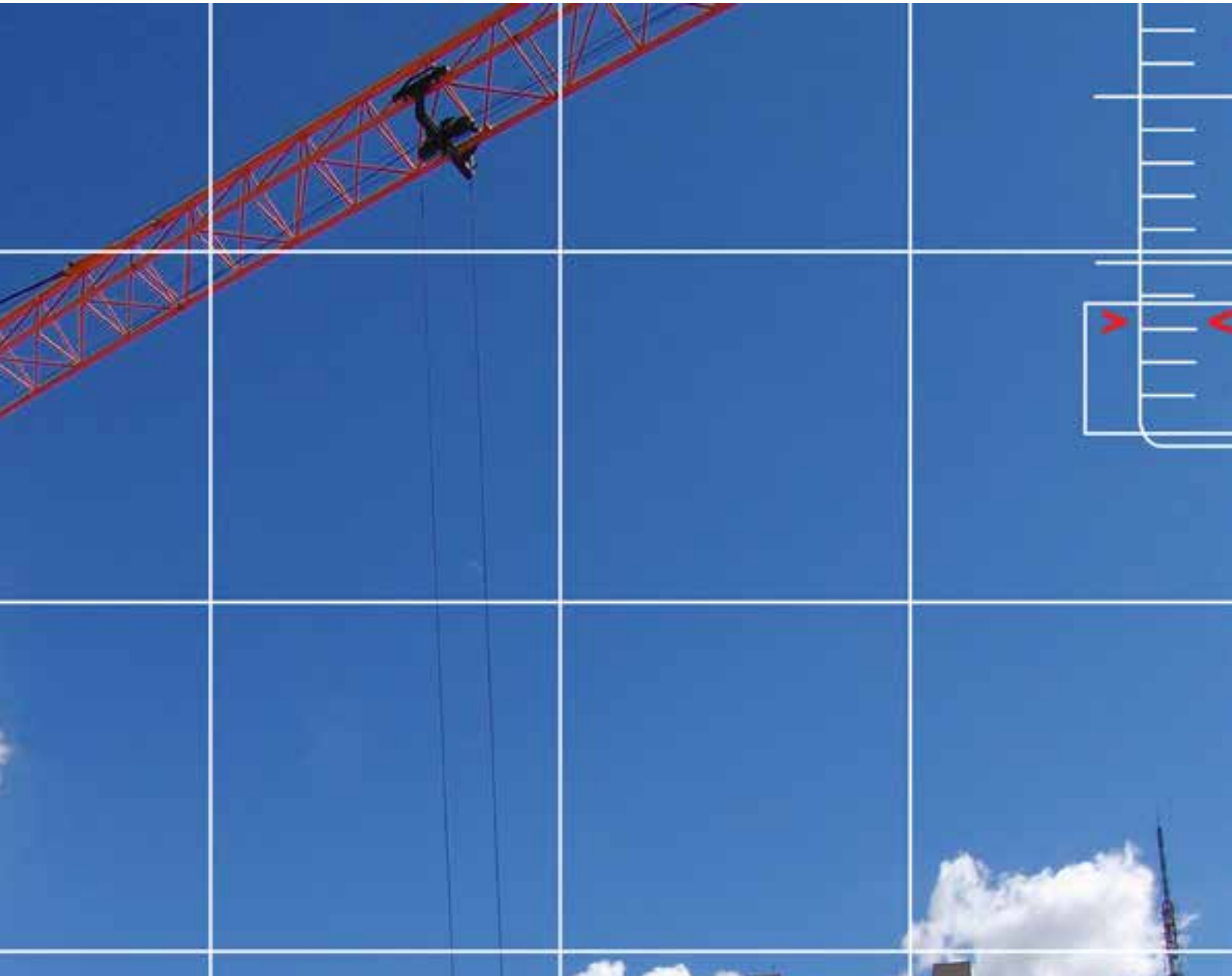


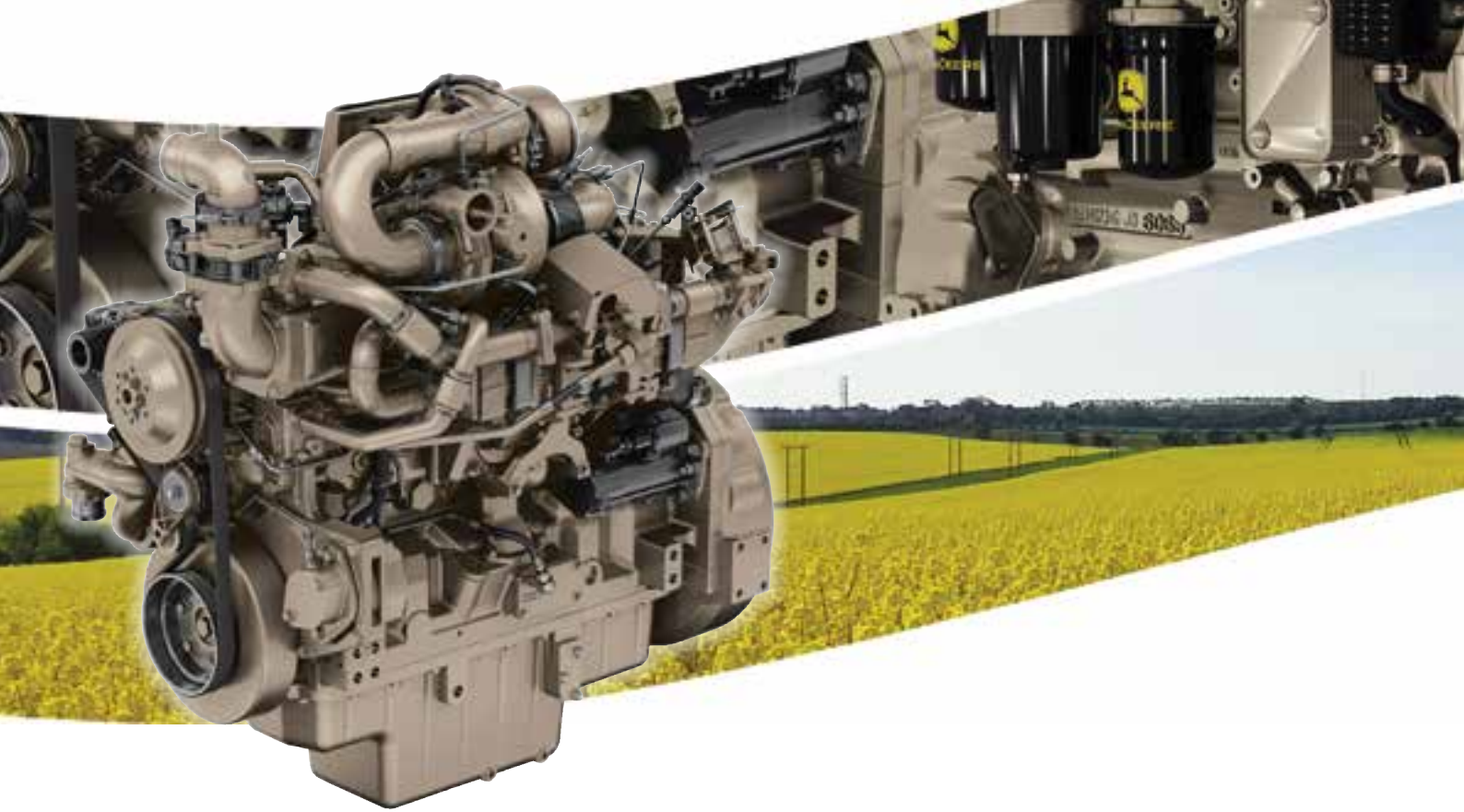
PowerTech M

Output : 28 kW (38 hp) - 61 kW (82 hp)

PowerTech E

Output : 75 kW (101 hp) - 287 kW (384 hp)





EASY MAINTENANCE

John Deere design their engines to facilitate maintenance. The interchangeable wet sleeves enable better temperature control in the combustion chamber and optimize engine performance. They can be replaced on site without having to remove the engine, thus minimizing the machine's downtime and maintenance costs. By using helical-cut gears, engine noise is reduced along with maintenance costs. The crankshaft bearings, camshafts and cylinder heads are also interchangeable.

RELIABILITY

John Deere's sturdy, compact engine blocks are the basis of our products' longevity. But John Deere is also the guarantee of numerous technological assets, which themselves are synonymous with reliability. For example, the dynamically balanced moving parts, such as the track rod and crankshaft, make the engine quieter and limit vibrations, while the automatic belt tightener minimizes maintenance costs and increases belt life. In addition, several functions, such as the thermostat box and the intake air collector, have been built into the cylinder head to limit the risk of leakage.

EASY INSTALLATION

The engine is installed into the machine by using the engine block's front and side mounts. John Deere offer several options and variants in order to ensure their engines' perfect integration and guarantee easy access to the service points for the entire service life of the engine.

QUALITY

John Deere's continuing research and development efforts are the key to the constant improvement of their engines. The commitment to technology excellence and a rigorous manufacturing process are the best guarantees of each John Deere engine's precision. Performance, fuel efficiency, reliability and easy installation, in keeping with environmental standards, are the key words that characterize their engines.

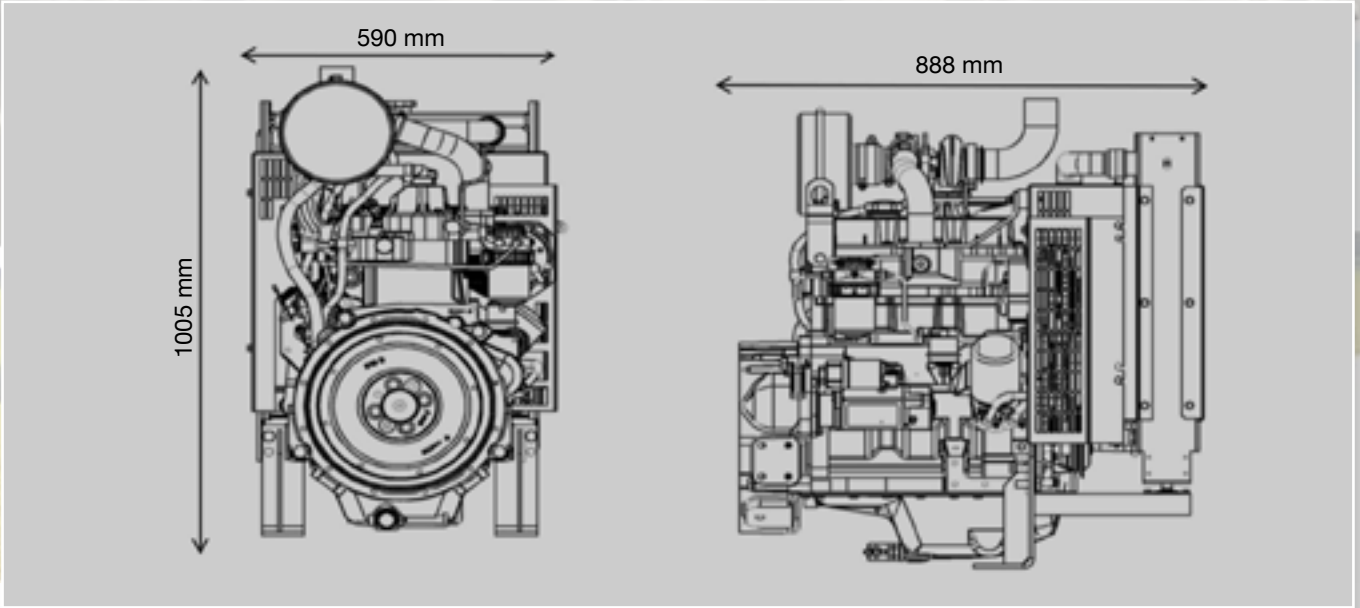
Stage 3A Generator Drives



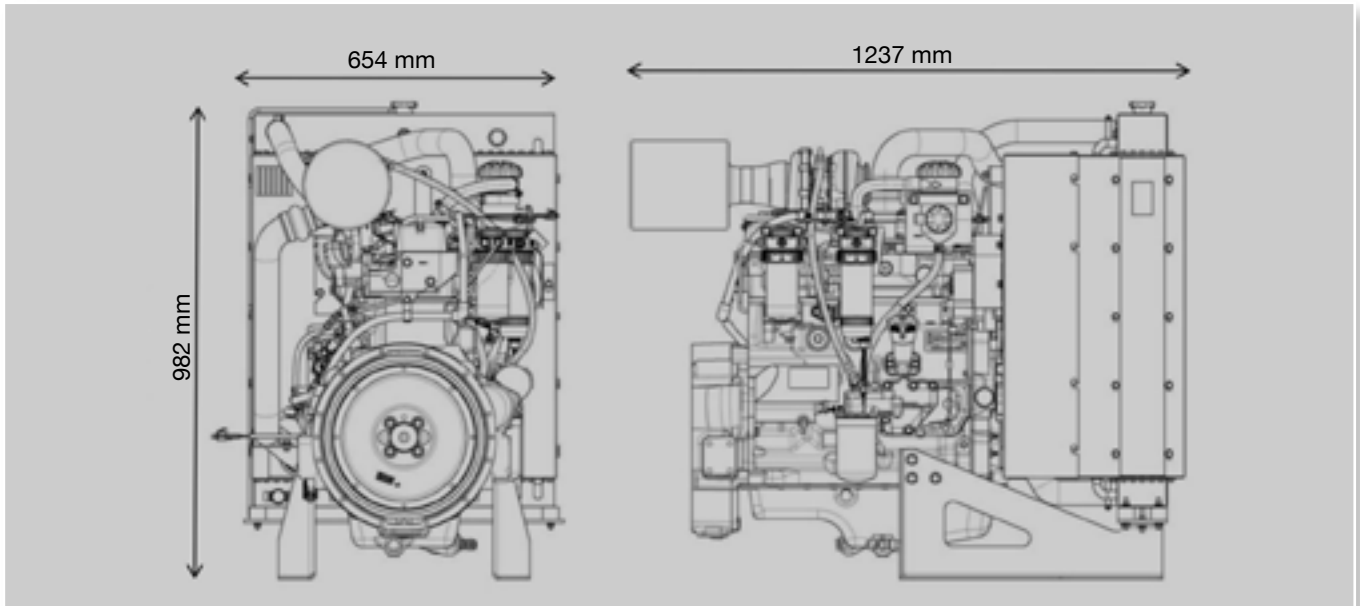
GSPU model*		Engine Power Prime		Prime Ratings		Typical Generator Efficiency	Typical Fan Power
		kW	hp	kVA	kWe**	%	kW
PowerTech M							
3029TFU80	1500 rpm	28	38	29 - 31	24 - 25	88 - 92	1.3
	1800 rpm	32	42	32 - 34	26 - 27	88 - 92	2.2
3029HFU80	1500 rpm	37	50	39 - 41	31 - 33	88 - 92	1.4
	1800 rpm	42	56	43 - 45	34 - 36	88 - 92	2.4
4045HFU81	1500 rpm	57	77	61 - 63	48 - 51	88 - 92	2
	1800 rpm	61	82	63 - 66	50 - 53	88 - 92	3.4
PowerTech E							
4045HFU82	1500 rpm	76	101	81 - 84	64 - 67	88 - 92	2
	1800 rpm	78	105	82 - 86	65 - 69	88 - 92	3.4
	1500 rpm	94	126	98 - 103	79 - 82	88 - 92	4
	1800 rpm	96	129	98 - 103	78 - 82	88 - 92	6.7
	1500 rpm	112	150	116 - 121	92 - 97	88 - 92	6
	1800 rpm	115	154	113 - 119	91 - 95	88 - 92	10.3
6068HFU82	1500 rpm	139	187	144 - 151	115 - 121	88 - 92	7.3
	1800 rpm	142	190	140 - 148	112 - 118	88 - 92	12.6
	1500 rpm	184	246	193 - 202	154 - 162	88 - 92	7.3
	1800 rpm	193	259	197 - 206	157 - 165	88 - 92	12.6
6090HFU84	1500 rpm	230	309	240 - 252	192 - 201	90 - 94	15.2
	1800 rpm	235	315	241 - 252	192 - 202	90 - 94	18.9
	1500 rpm	277	371	292 - 306	234 - 245	90 - 94	15.2
	1800 rpm	287	384	299 - 313	239 - 251	90 - 94	18.9

TECHNICAL DRAWINGS

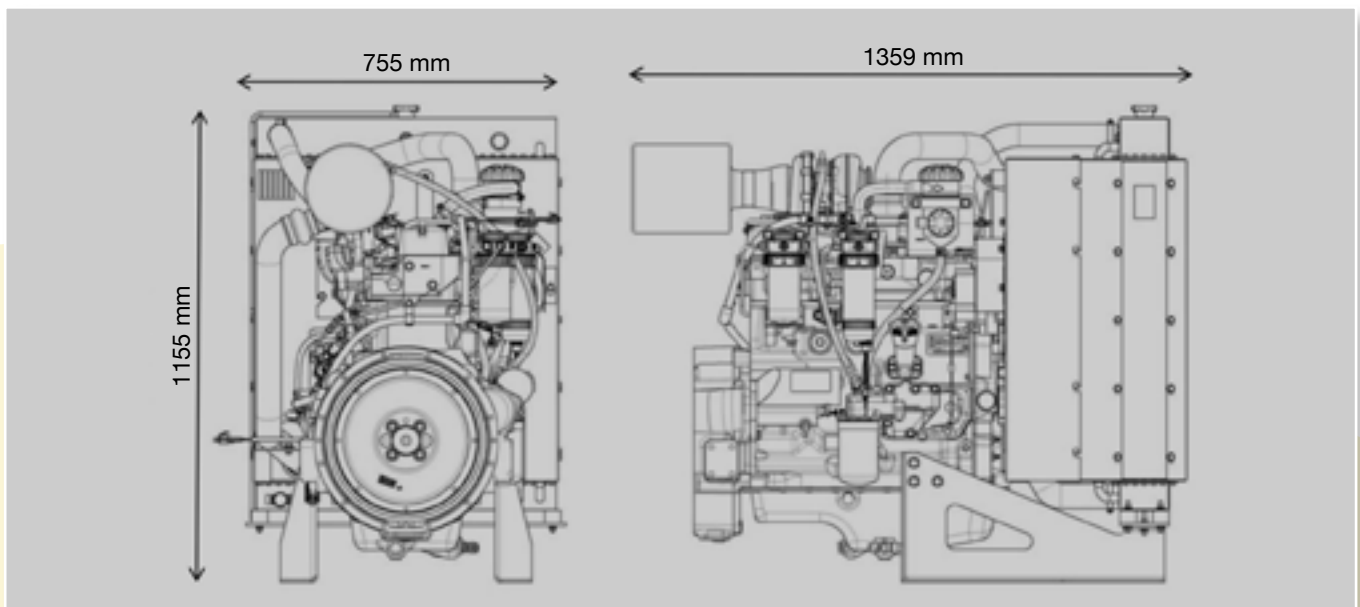
3029TFU80 - 30kVA



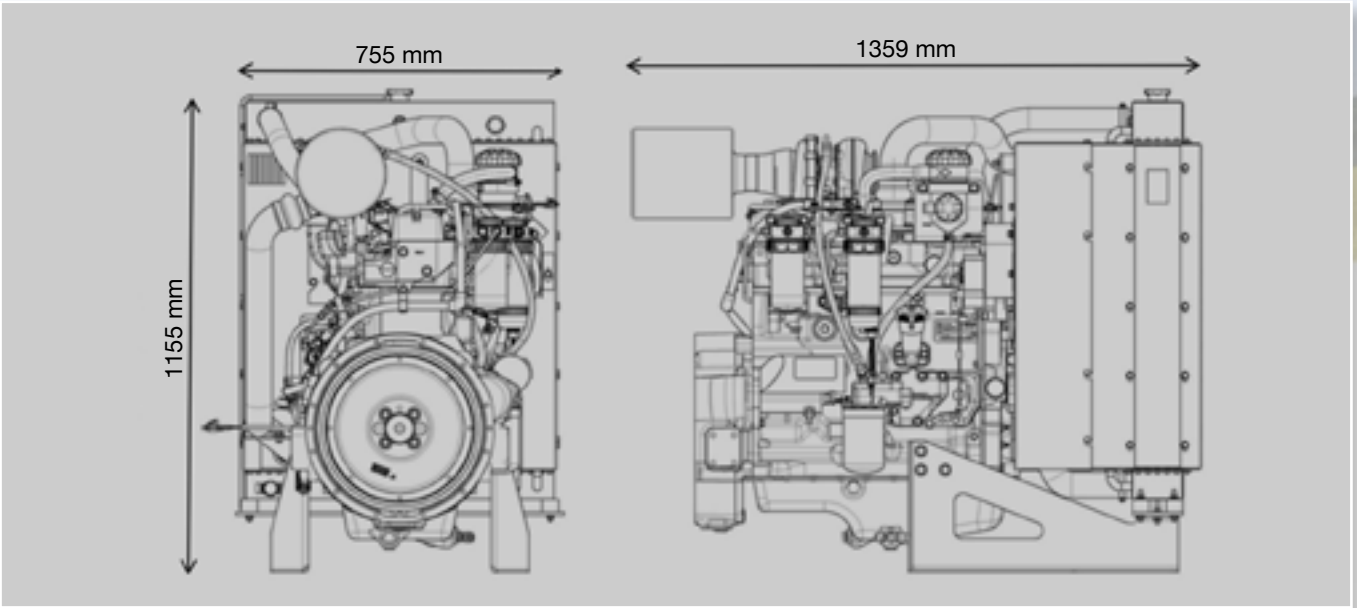
3029HFU80 - 40kVA



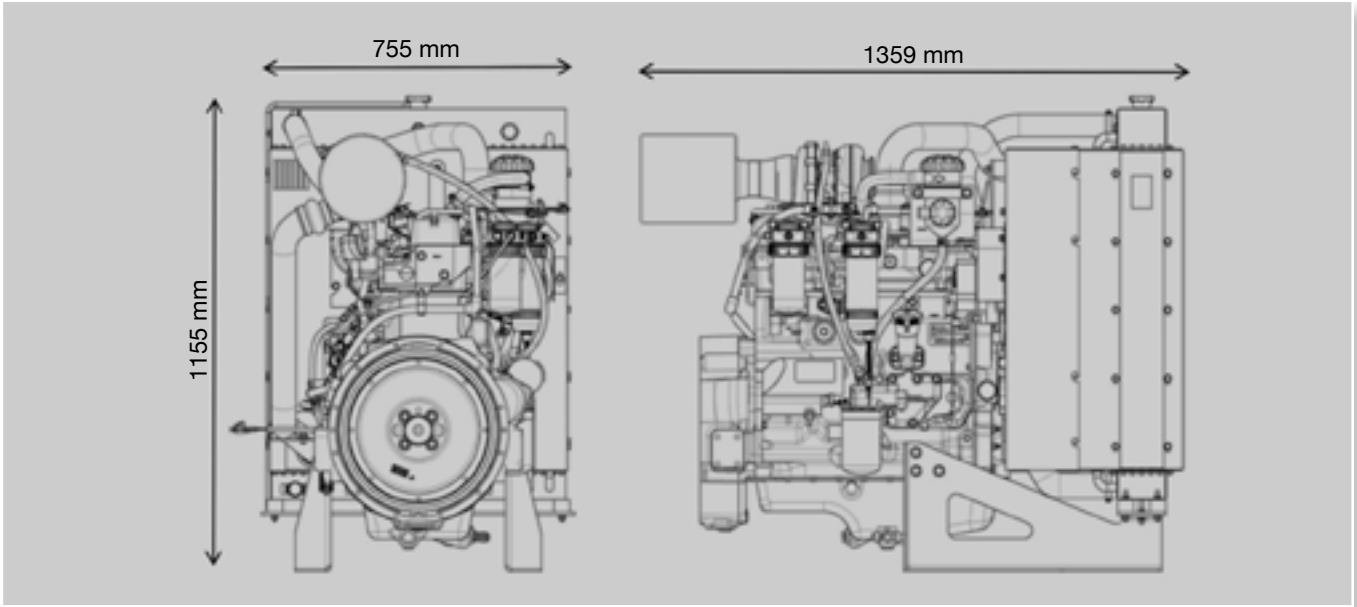
4045HFU81 - 60kVA



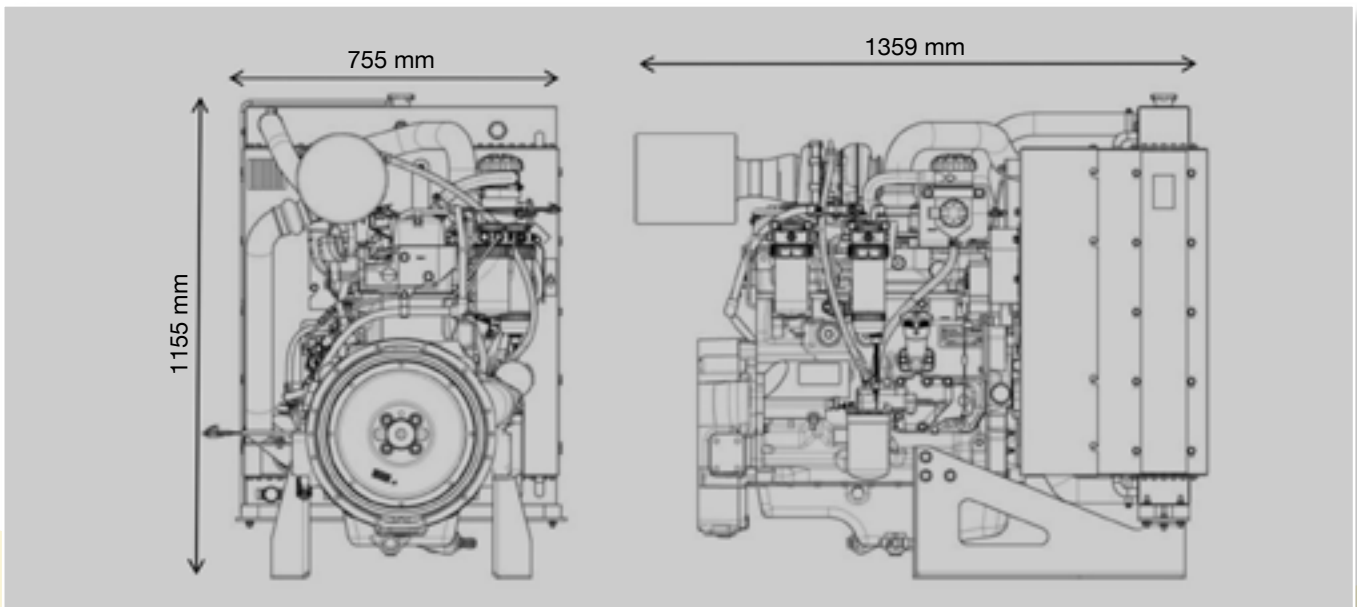
4045HFU82 - 80kVA



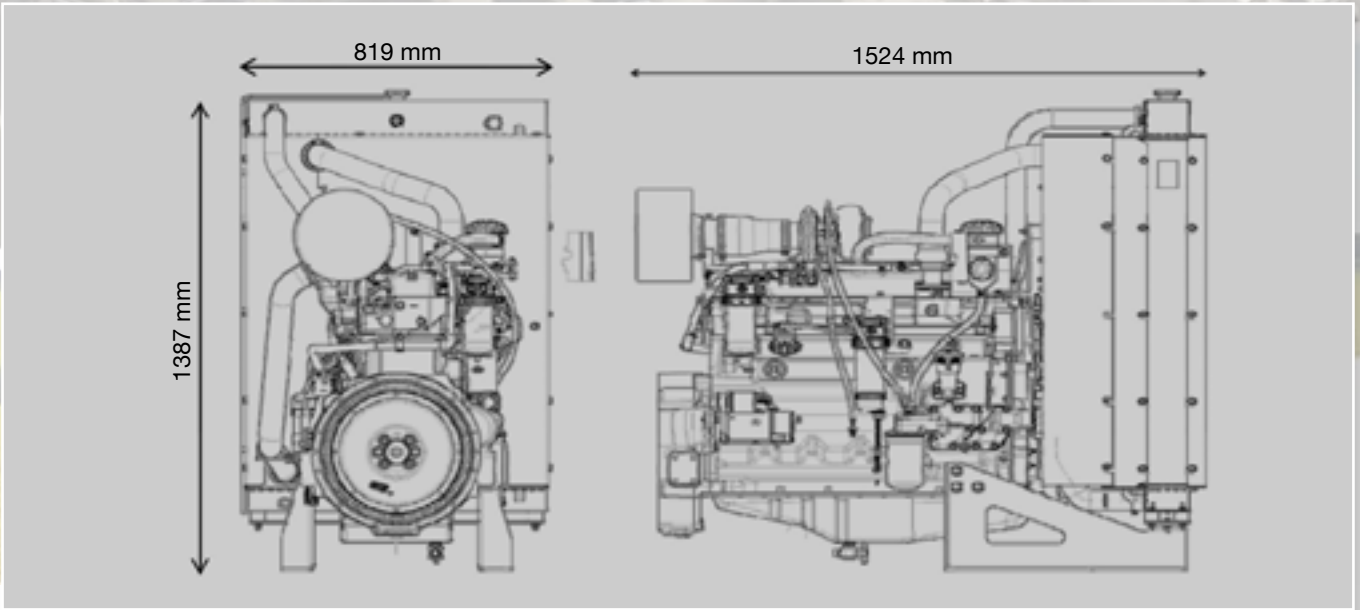
4045HFU82 - 100kVA



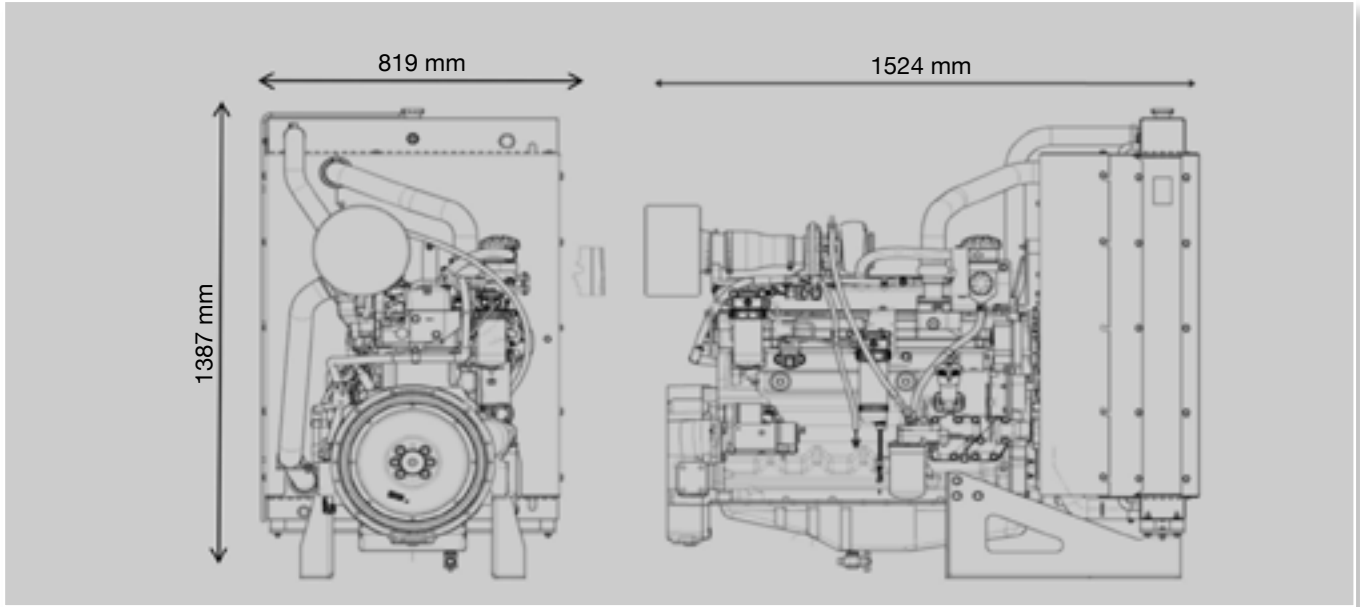
4045HFU82 - 120kVA



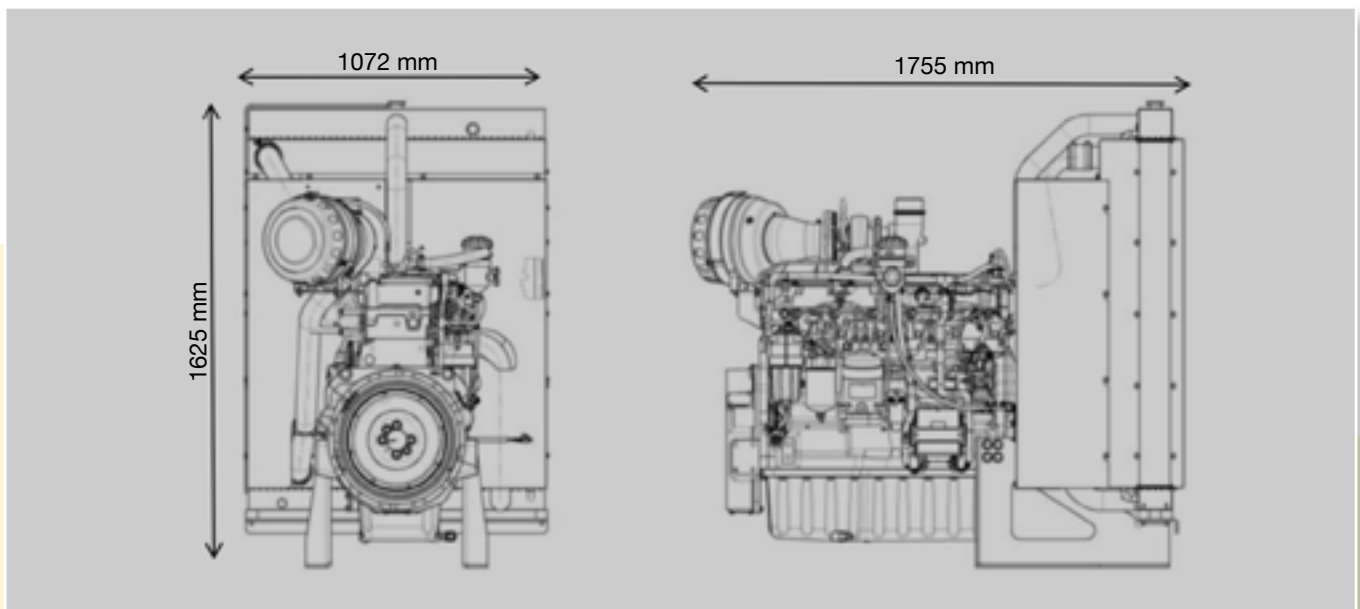
6068HFU82 - 150kVA



6068HFU82 - 200kVA



6090HFU84 - 250kVA / 300kVA





JOHN DEERE

Tier 3 / Stage 3A Diesel Engines

PowerTech M

Output : 56 kW (75 hp) - 74 kW (99 hp)

PowerTech E

Output : 63 kW (85 hp) - 149 kW (200 hp)

PowerTech Plus

Output : 111 kW (149 hp) - 448 kW (600 hp)



POWERTECH M - 2.9L, AND 4.5L ENGINES

FIXED GEOMETRY TURBOCHARGER

Fixed geometry turbochargers are sized for a specific power range and optimized to provide excellent performance across the entire torque curve. They are also designed to maximize fuel economy between the engine's rated speed and peak torque.

MECHANICAL UNIT PUMP (MUP) FUEL SYSTEM

This system uses camshaft-driven MUPs, connected to the injectors by a short fuel line. The short fuel line between the unit pumps and the injectors helps to alleviate after-injection, secondary injection, and other injection abnormalities (2.9L).

MECHANICAL ROTARY PUMP

The timing and fuel injection pressures are optimized to maximize performance and fuel economy at a given rated speed (4.5L).

2-VALVE CYLINDER HEAD

Cross-flow (4.5L) and U-flow (2.9L) head design provides excellent breathing from a lower-cost 2-valve cylinder head.

TURBOCHARGED

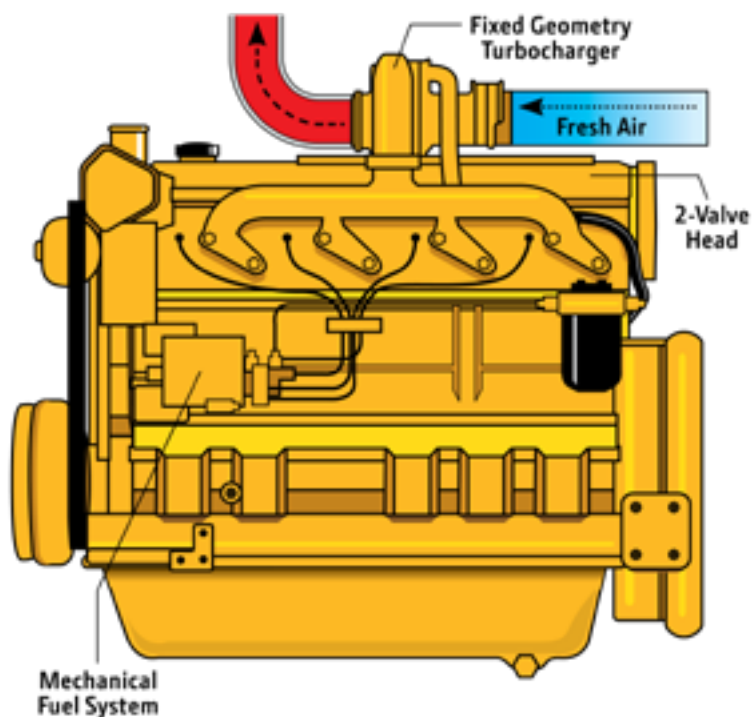
In turbocharged engines, the air is pre-compressed. Due to the higher pressure, more air is supplied into the combustion chamber, allowing a corresponding increase in fuel injection, which results in greater engine output.

COMPACT SIZE

Mounting points are the same as previous engine models.

ADDITIONAL FEATURES

- Self-adjusting poly-vee fan drive
- Forged-steel connecting rods
- Either-side service
- 500-hour oil change
- Glow plugs (2.9L)
- Optional balancer shafts



POWERTECH E - 4.5L, 6.8L AND 9.0L ENGINES

FIXED GEOMETRY TURBOCHARGER

Fixed geometry turbochargers are sized for a specific power range and optimized to provide excellent performance across the entire torque curve. They are also designed to maximize fuel economy between the engine's rated speed and peak torque.

HIGH-PRESSURE COMMON-RAIL (HPCR) AND ENGINE CONTROL UNIT (ECU)

The HPCR fuel system provides variable common rail pressure, multiple injections, and higher injection pressures, up to 1,600 bar (23,000 psi). It also controls fuel injection timing and provides precise control for the start, duration, and end of injection.

2-VALVE CYLINDER HEAD

Cross-flow head design provides excellent breathing from a lower-cost 2-valve cylinder head.

4-VALVE CYLINDER HEAD

The 4-valve cylinder head provides excellent airflow (9.0L).

TURBOCHARGED

In turbocharged engines, the air is pre-compressed. Due to the higher pressure, more air is supplied into the combustion chamber, allowing a corresponding increase in fuel injection, which results in greater engine output (4.5L).

AIR-TO-AIR AFTERCOOLED

This is the most efficient method of cooling intake air to help reduce engine emissions. It enables an engine to meet emissions regulations with better fuel economy and the lowest installed costs.

COMPACT SIZE

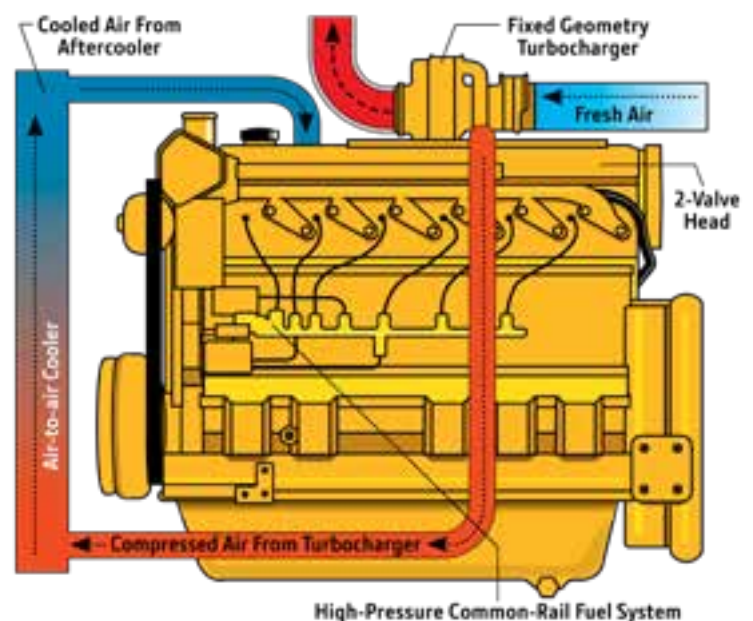
Mounting points are the same as previous engine models.

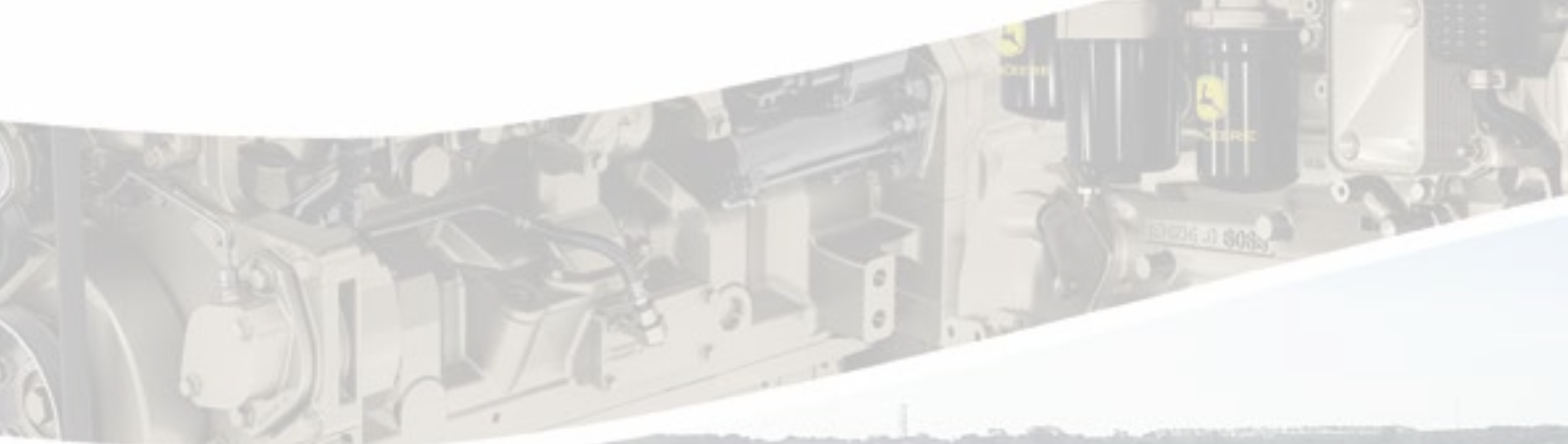
JOHN DEERE ELECTRONIC ENGINE CONTROLS

Electronic engine controls monitor critical engine functions, providing warning and/or shutdown to prevent costly engine repairs and eliminate the need for add-on governing components, all lowering total installed costs.

ADDITIONAL FEATURES

- Self-adjusting poly-vee fan drive
- Forged-steel connecting rods
- Replaceable wet-type cylinder liners
- Either-side service
- 500-hour oil change
- Gear driven auxiliary drive
- Optional balancer shafts (4.5L)





DIFFERENT TECHNOLOGIES FOR DIFFERENT APPLICATIONS

If there's one thing you can count on in the off-highway industry, it's every application having different power demands. The jobs that our family of PowerTech™ engines tackle every day are as varied as the equipment they power.

You might have minimal horsepower demands. Or you might need an engine that can be pushed to the limits without increasing your fuel costs. Either way, John Deere has an engine platform to fit your performance needs, while meeting emissions regulations.

POWERTECH M

The simplest of the PowerTech family, these engines have 2-valve heads, fixed geometry turbochargers and mechanical fuel systems. PowerTech M engines (4.5L) are perfect for less demanding applications. Their mechanical controls are simple to operate and maintain.

POWERTECH E

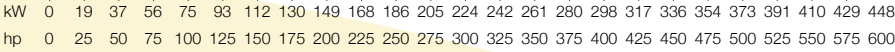
These engines also have 2-valve heads and fixed geometry turbochargers, but introduce full-authority electronic controls and more sophisticated fuel delivery- high-pressure common-rail (HPCR) fuel systems.

QUALITY

John Deere's continuing research and development efforts are the key to the constant improvement of their engines. The commitment to technology excellence and a rigorous manufacturing process are the best guarantees of each John Deere engine's precision. Performance, fuel efficiency, reliability and easy installation, in keeping with environmental standards, are the key words that characterize their engines.

POWER RATINGS

Engine	Power Ratings
PowerTech M 4.5L	56 - 74 kW (75 - 99 hp)
PowerTech E 4.5L	63 - 104 kW (85 - 140 hp)
PowerTech Plus 4.5L	111 - 129 kW (149 - 173 hp)
PowerTech E 6.8L	104 - 149 kW (139 - 200 hp)
PowerTech Plus 6.8L	134 - 205 kW (180 - 275 hp)
PowerTech Plus 9.0L	168 - 298 kW (225 - 400 hp)
PowerTech Plus 13.5L	261 - 448 kW (350 - 600 hp)





JOHN DEERE

Interim Tier 4 / Stage IIIB Diesel Engines

PowerTech PWX

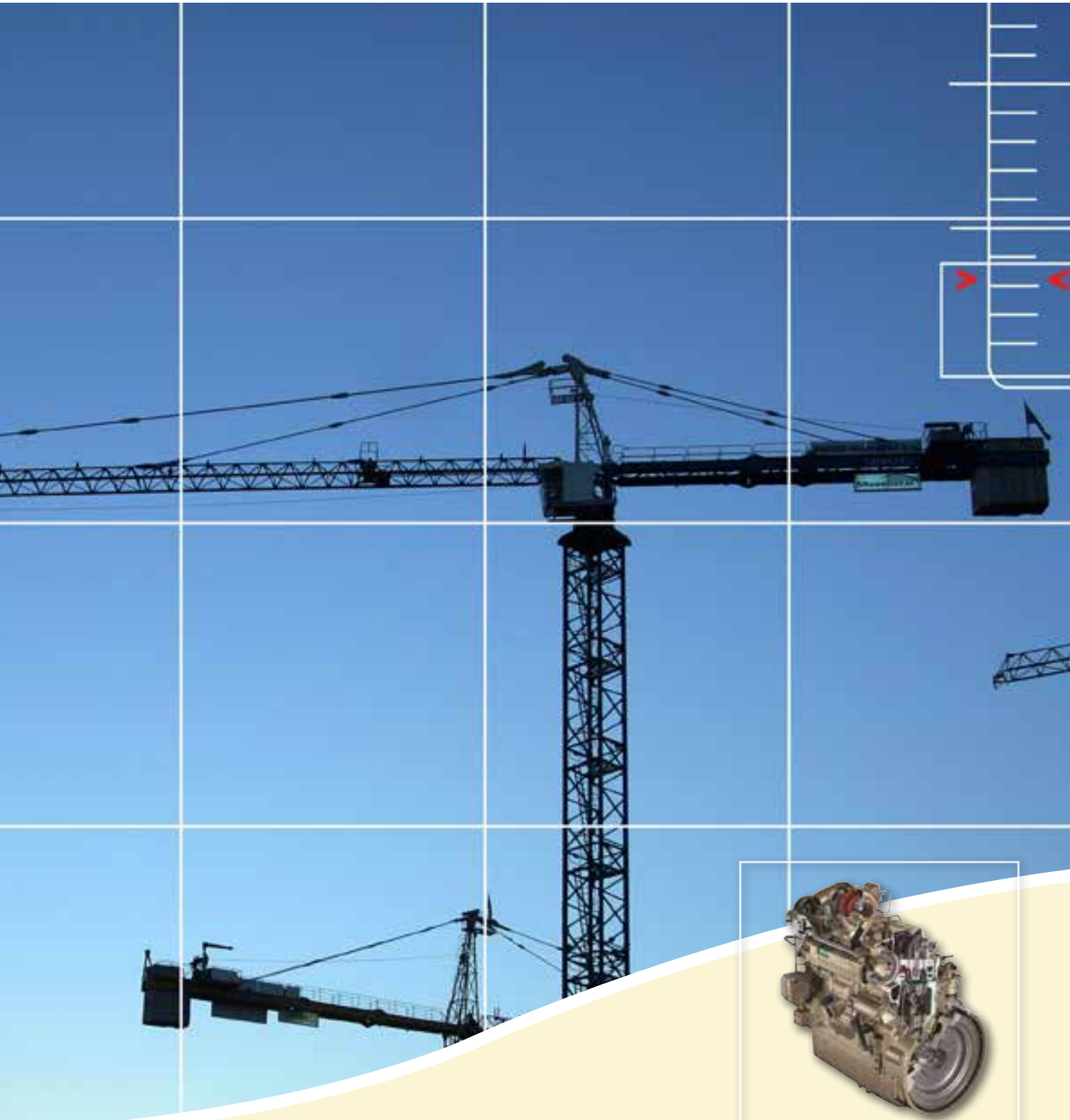
Output : 63 kW (85 hp) - 91 kW (122 hp)

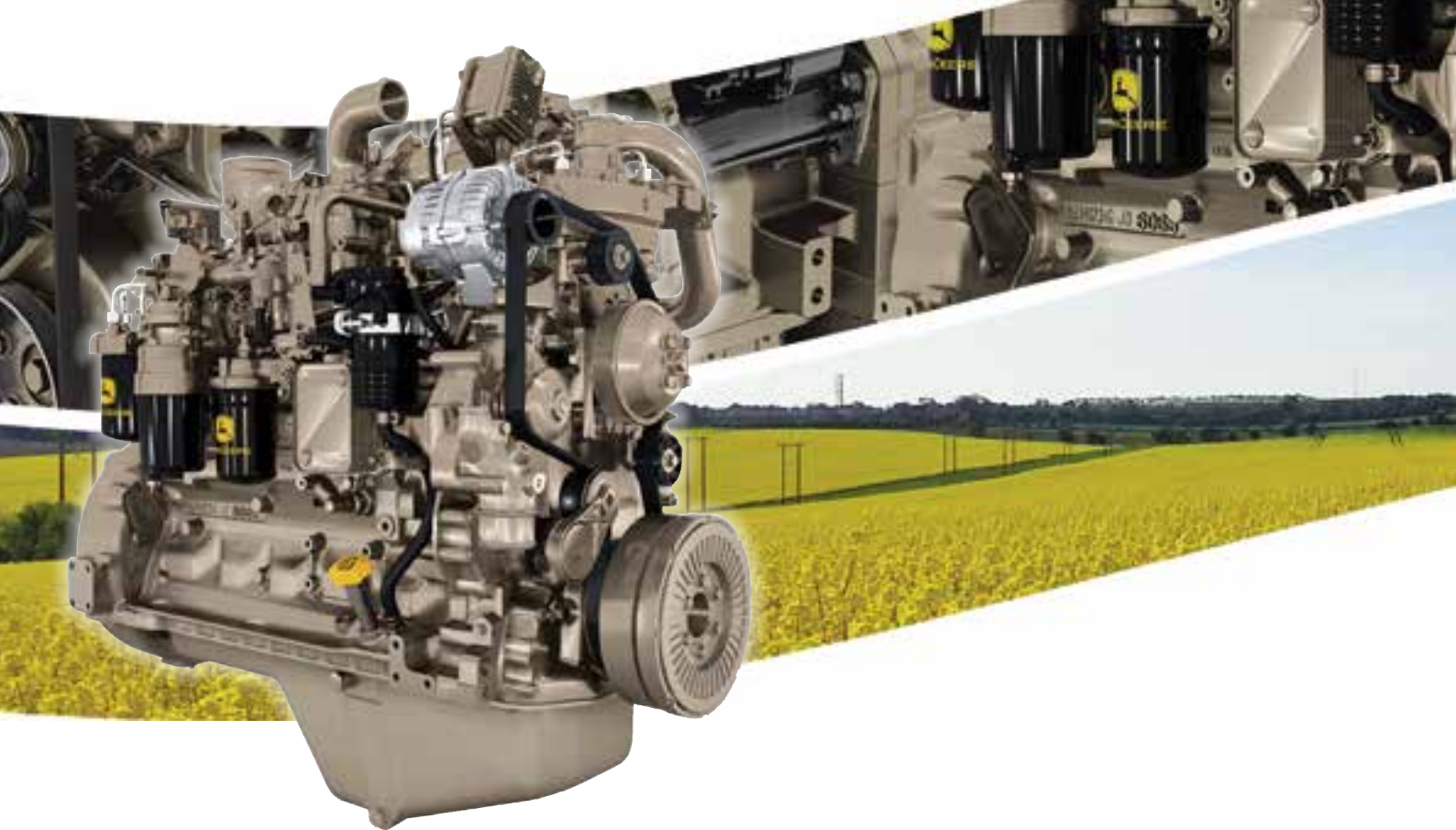
PowerTech PVX

Output : 93 kW (125 hp) - 224 kW (300 hp)

PowerTech PSX

Output : 168 kW (225 hp) - 448 kW (600 hp)





THE RIGHT SOLUTION FOR INTERIM TIER 4 / STAGE IIIB AND BEYOND

John Deere engines 56 kW (75 hp) and above will use our proven PowerTech Plus engine technologies, which include cooled exhaust gas recirculation (EGR) with the addition of an exhaust filter. The lineup will continue to include 4.5L, 6.8L, 9.0L and 13.5L in-line, 4 and 6-cylinder engines.

Some John Deere engines below 56 kW (75 hp) meet interim Tier 4 and Stage III A emissions regulations without the use of cooled EGR or an exhaust filter.

By choosing EGR first for our Tier 3/Stage III A solution, John Deere proved we could they could meet Interim Tier 4/Stage III B emissions regulations for off-highway equipment with diesel engines using a simple single-fluid solution. Our Interim Tier 4 / Stage III B approach continues to use cooled EGR for NOx reduction and adds an integrated exhaust filter for particulate matter (PM) reduction. It is simple to install, operate, and maintain while delivering the power, fluid efficiency, reliability, and low cost of ownership you've come to expect from John Deere.

COOLED EGR IS A PROVEN TECHNOLOGY

- Doesn't require extra fluids that add cost and inconvenience.
- Similar operational and maintenance procedures compared to previous John Deere engines.
- Technicians already understand how to service cooled EGR-based engines.

INTEGRATED EXHAUST FILTERS ARE EASY TO MAINTAIN

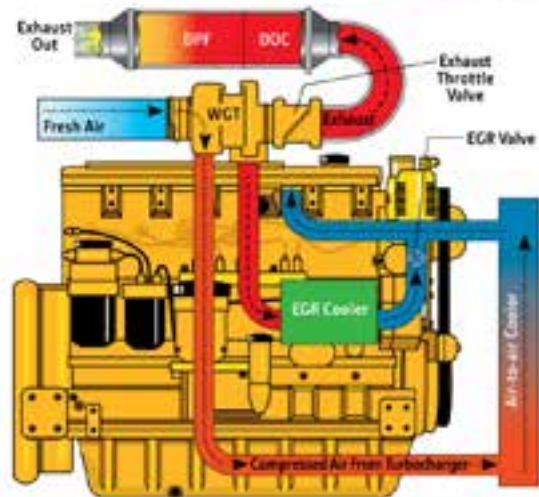
- John Deere exhaust filters are designed to meet the demands of rugged off-highway applications.
- Trapped PM is oxidized within the exhaust filter through a self-activating cleaning process.
- In most cases, the cleaning process does not have an impact on machine operation or require operator involvement.
- Exhaust filter replaces the muffler in most applications.

Interim Tier 4 Stage IIB Diesel Engines

POWERTECH PWX - 63kW to 91kW (85hp to 122hp)

TRIED-AND-TRUE PERFORMANCE

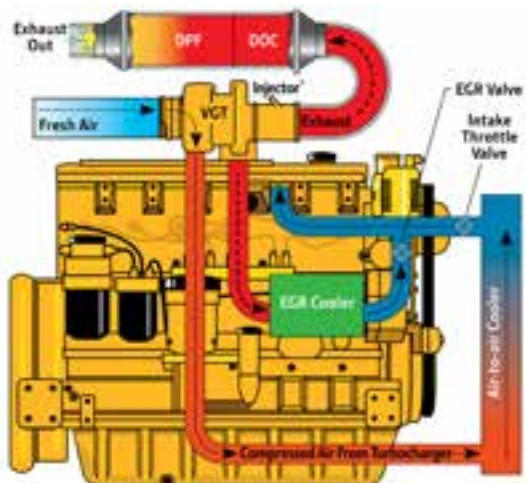
Equipment owners who want straightforward, cost-effective power rely on PowerTech PWX 4.5L engines. These compact engines blend proven cooled EGR technology with simple and reliable wastegated turbocharging to maintain transient response and peak torque in all operating conditions. Their 4-valve cylinder heads also provide excellent airflow for greater low-speed torque. Multiple rated speeds let you fine-tune your engine selection to reduce noise and increase fuel economy.



POWERTECH PVX - 93kW to 224kW (125hp to 300hp)

IMPROVED PERFORMANCE AND EFFICIENCY

When you need unparalleled performance, PowerTech PVX 4.5L, 6.8L or 9.0L engines are the perfect fit for your application. These displacements utilize our proven cooled EGR technology with variable geometry turbocharging (VGT) to optimize performance and combustion efficiency, reduce emissions, and improve fluid economy.

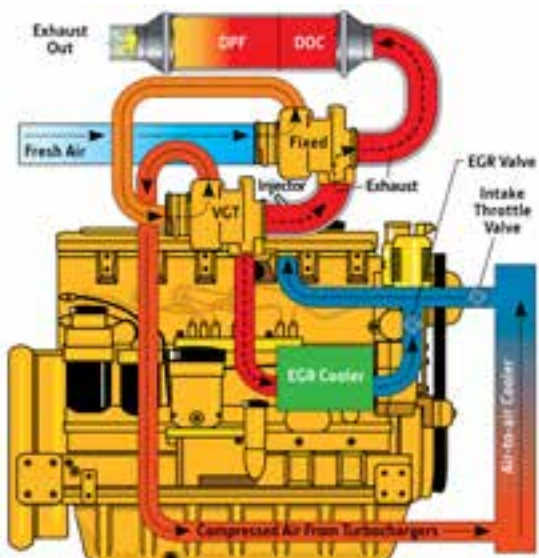


*For engines 130 kW (174 hp) and greater.

POWERTECH PSX - 168kW to 448kW (225hp to 600hp)

RUGGED PERFORMANCE AND RESPONSIVENESS

For off-highway applications where you need maximum transient response and low-speed torque, a PowerTech PSX 6.8L, 9.0L or 13.5L engine is exactly what you need. Along with proven cooled EGR technology, all three displacements feature series turbochargers that improve performance and responsiveness.





JOHN DEERE



Final Tier 4 / Stage IV Diesel Engines



PowerTech EWX

Output : 35 kW (48 hp) - 55 kW (74 hp)

PowerTech PVS

Output : 104 kW (140 hp) - 187 kW (250 hp)

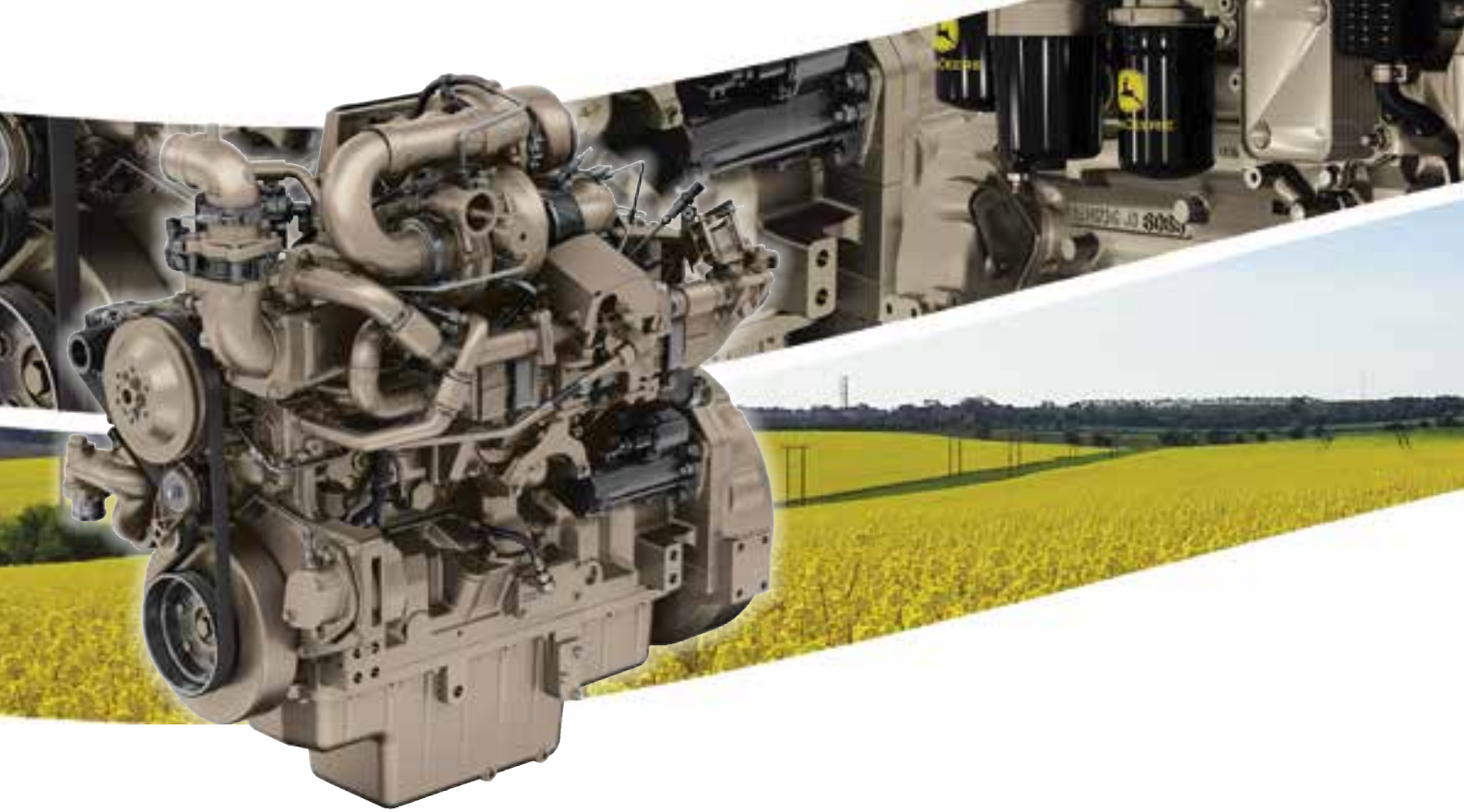
PowerTech PWL

Output : 63 kW (85 hp) - 104 kW (140 hp)

PowerTech PSS

Output : 93 kW (125 hp) - 448 kW (600 hp)





THE RIGHT TECHNOLOGY FOR MAXIMUM PERFORMANCE

John Deere PowerTech Final Tier 4/Stage IV engines, 56kW (75hp) and above, are built on a proven platform of emissions control technologies including cooled exhaust gas recirculation (EGR), exhaust filters, and selective catalytic reduction (SCR).

You can count on John Deere engines to deliver reliable power day in and day out, year after year, and in the toughest off-highway working conditions. John Deere Final Tier 4/Stage IV engines maintain power density, torque and transient response. It all adds up to more productivity, uptime, and value for your machines.

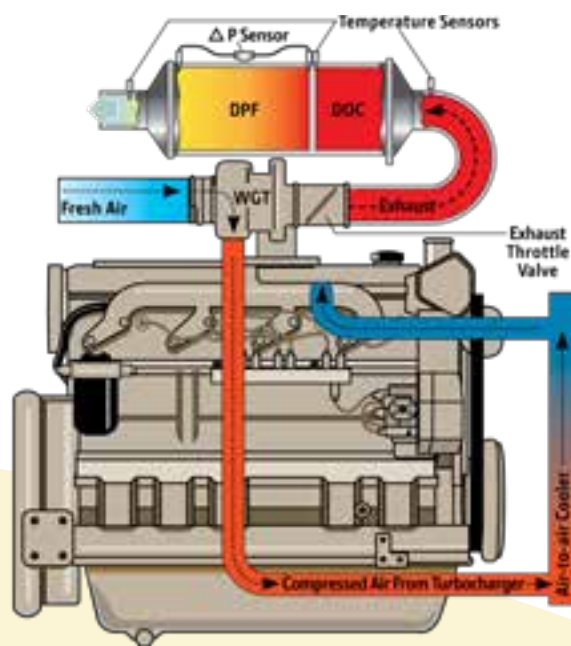
INTEGRATED EMISSIONS CONTROL SYSTEM

- Optimize solution utilizing the right combination of emissions-reduction components to maximise performance whilst meeting regulations.
- Specifically designed to meet the rigorous demands of off-highway applications.

POWERTECH EWX - 36kW to 55kW (48hp to 74hp)

FORTHRIGHT PERFORMANCE AND RELIABILITY

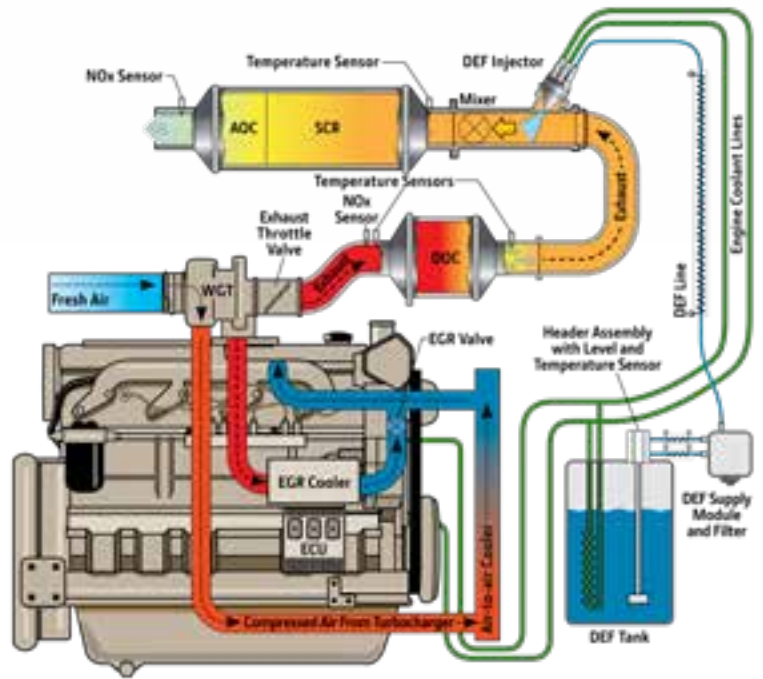
Our straightforward PowerTech EWX 2.9L and 4.5L engines have 2-valve cylinder heads, high-pressure common-rail fuel systems, full authority electronic controls, and proven exhaust filters. These compact, cost-effective engines blend advanced emissions control technologies with simple wastegated turbocharging to maintain transient response and peak torque in all operating conditions.



Final Tier 4 Stage IV Emission Regulations

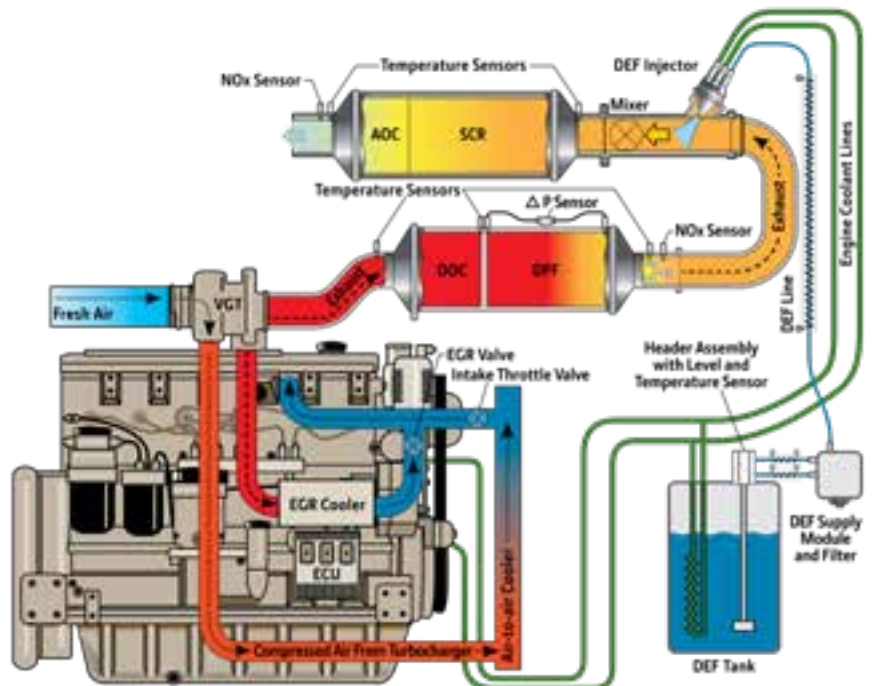
POWERTECH PWL - 63kW to 104kW (84hp to 140hp) UNCOMPROMISING POWER FOR ANY JOB

Our PowerTech PWL 4.5L engines deliver impressive power in a compact package. They combine advanced combustion technologies, enhanced engine calibration, and simple wastegated turbocharging to meet PM levels without a filter. Pairing our proven PowerTech Plus technology with a DOC and an optimized SCR system, these engines offer a compact power solution.



POWERTECH PVS - 104kW to 187kW (140hp to 250hp) A STEP UP IN POWER AND FLUID ECONOMY

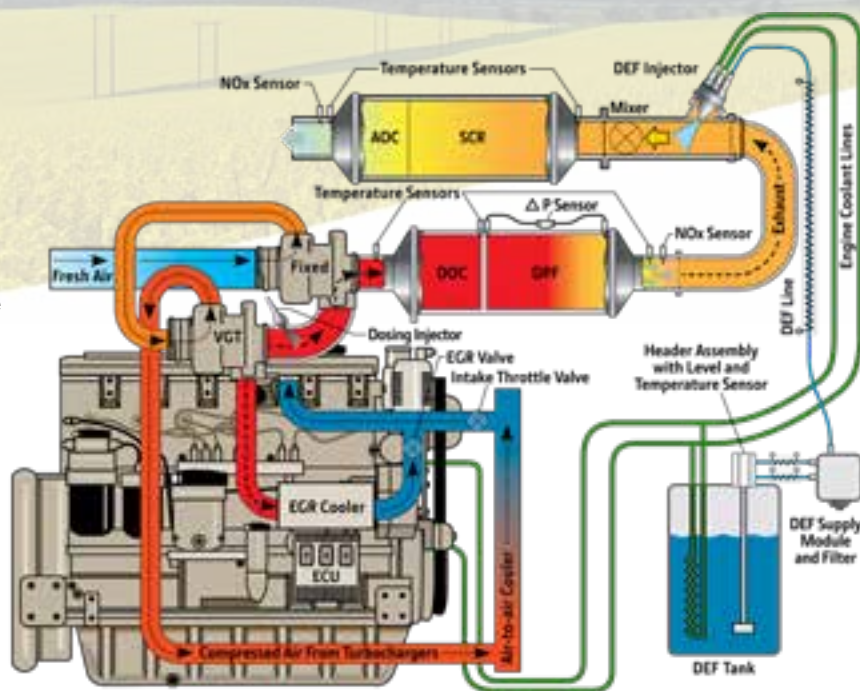
PowerTech PVS 6.8L engines provide reliable power for a wide range of applications. They utilize our proven PowerTech Plus technology with variable geometry turbocharged (VGT) and an optimized SCR system to improve combustion efficiency, reduce emissions, enhance performance, and improve fluid economy.



POWERTECH PSS - 93kW to 448kW (125hp to 600hp)

ULTIMATE PERFORMANCE AND RESPONSIVENESS

For ultimate performance in off-highway applications, PowerTech PSS 4.5L, 6.8L, 9.0L, or 13.5L engines can do almost any job. They can handle steep grades at high altitudes and deliver maximum transient response and low-speed torque. Along with proven PowerTech Plus technology and an optimized SCR system designed specifically for off-highway applications, all displacements feature series turbochargers that improve performance and responsiveness.



PowerTech PSS 9.0L and 13.5L engine configuration shown.

INDUSTRIAL FINAL TIER 4/STAGE IV ENGINES

Model Name	Model Number	Litres	Power Ratings	Valve Per Cylinder	Turbo	Cooled EGR	PM Aftertreatment	Exhaust Filter Size	Exhaust Filter Dosing	SCR Catalyst	SCR Size
PowerTech EWX	3029HFC03	2.9L	36 - 55 kW (48 - 74 hp)	2-Valve	WGT	N/A	DOC / DPF	2	Internal	N/A	N/A
PowerTech EWX	4045TFC03	4.5L	55 kW (74 hp)	2-Valve	WGT	N/A	DOC / DPF	2	Internal	N/A	N/A
PowerTech PWL	4045HFC04	4.5L	63 - 104 kW (85 - 140 hp)	4-Valve	WGT	Yes	DOC	2	N/A	Yes	3
PowerTech PSS	4045HFC09	4.5L	93 - 104 kW (125 - 140 hp)	4-Valve	Series	Yes	DOC / DPF	3	Internal	Yes	3
PowerTech PSS	4045HFC09	4.5L	116 - 129 kW (155 - 173 hp)	4-Valve	Series	Yes	DOC / DPF	4	Internal	Yes	4
PowerTech PVS	6068HFC08	6.8L	104 - 129 kW (140 - 173 hp)	4-Valve	VGT	Yes	DOC / DPF	4	Internal	Yes	4
PowerTech PVS	6068HFC08	6.8L	138 - 187 kW (185 - 250 hp)	4-Valve	VGT	Yes	DOC / DPF	5	Internal	Yes	5
PowerTech PSS	6068HFC09	6.8L	168 kW (225 hp)	4-Valve	Series	Yes	DOC / DPF	5	Internal	Yes	5
PowerTech PSS	6068HFC09	6.8L	187 - 224 kW (250 - 300 hp)	4-Valve	Series	Yes	DOC / DPF	6	Internal	Yes	6
PowerTech PSS	6090HFC09	9.0L	187 - 242 kW (250 - 325 hp)	4-Valve	Series	Yes	DOC / DPF	6	External	Yes	6
PowerTech PSS	6090HFC09	9.0L	261 - 317 kW (350 - 425 hp)	4-Valve	Series	Yes	DOC / DPF	7	External	Yes	7
PowerTech PSS	6135HFC09	13.5L	309 - 448 kW (414 - 600 hp)	4-Valve	Series	Yes	DOC / DPF	8	External	Yes	8



JOHN DEERE

Engines and Engine Components





GENUINE JOHN DEERE PARTS JOB-PROVEN PERFORMANCE

There's a reason why John Deere engines and equipment have such a strong reputation - quality. Other companies claim their repair parts meet or exceed OEM specifications for John Deere equipment. But the only real way to ensure performance is to use engine parts designed by John Deere for John Deere engines. Genuine John Deere parts and service restore the original quality and performance of your machines.

JOHN DEERE CYLINDER LINERS - PRECISE SPECIFICATIONS FOR AReason

Consistent microstructures of metals result in higher liner strengths. Inconsistent or random metal structures can lead to:

- Liner flaking
- Poor surface finish
- Lower overall performance.



Random and even graphite distribution



JOHN DEERE PISTONS - STRONGER FOR A REASON

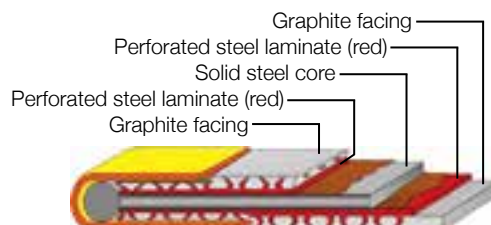
Improve your engine's reliability, durability and uptime. The fibre-reinforced bowl lip provides 50% higher fatigue strength. The design dissipates combustion heat more quickly.



The bore is offset from the centre to increase engine performance and service life by reducing vibration, mechanical stress and surface wear.

JOHN DEERE HEAD GASKETS - SUPERIOR DESIGN FOR A REASON

Five-layer design provides all-round performance. Two graphite layers provide surface sealing whilst two perforated steel layers internally bond the gasket together. A solid core provides support against high pressure.



Genuine John Deere Parts

JOHN DEERE PISTON RINGS - THICKER FOR A REASON

Wider phosphate coating saves you time and money. Longer life reduces premature replacements whilst increased thickness provides proper sealing after initial wear of the rings. Designed to last for the life of the power cylinder.



Phosphate coating

JOHN DEERE OVERHAUL KITS - DETAILED FOR A REASON



Our genuine John Deere kits include rod, main and thrust bearing, thrust washer, oil pan split gasket, factory assembled piston / liner kits, liner packings, front and rear seals, overhaul gasket sets and snap rings.

Viton lower packing material is used for longer life. Rear seals are made with Teflon wear surfaces to limit heat buildup and extend life. Cylinder liners are hardened to increase wear and provide longer engine life.

Expanded engine overhaul kits include the contents of the genuine John Deere overhaul kit plus rod bolts and bushings, piston pins and camshaft bushings and are available for many John Deere engines.

All John Deere overhaul kits come with a 1-year / 1500 hour warranty.

JOHN DEERE CAMSHAFTS - SMOOTHER FOR A REASON

John Deere cam lobes increase performance and reliability. They provide proper valve opening and closing to deliver optimal combustion. The lobe taper design reduces wear and valve acceleration prevents valve and valve seat damage.



JOHN DEERE EXHAUST FILTERS - GENUINE FOR A REASON

Protect your engine and the environment with genuine service parts for John Deere exhaust filters. They are designed to meet the demands of rugged off-highway applications and integrate seamlessly into the vehicle / application to achieve optimum performance. John Deere exhaust filters are serviced using three main components that are sized based upon engine model.



DON'T FORGET THE ENGINE DAMPER

When torque is applied, engines generate harmful vibrations. A damper reduces vibrations, which extends belt life and reduces gear wear. Our engine damper consists of an inertia ring, elastic member and hub assembly attached to the crankshaft.

John Deere recommends changing the damper whenever an overhaul or engine replacement is performed.



MAINTENANCE - OILS, FILTERS & MORE

ENGINE FLUID ANALYSIS

Monitoring fluid condition is critical for detecting any abnormalities that may contribute to poor performance and costly repairs.

Consistent fluid sampling generates valuable data for trend analysis. If something is out of range, determine the root cause of the abnormality and take root action to address it. This prevents premature and catastrophic failure, saving money and downtime in the long run.

JOHN DEERE COOLANTS

Cool-Gard™ II is a fully formulated coolant/antifreeze that delivers premium protection. It protects against corrosion, cavitation, rust and scaling. Meets cooling demands of advanced engine technology in all liquid cooling systems and is compatible with all liquid-cooled engines. 6-year / 6000-hours service life and nitrate free.



JOHN DEERE OILS

Plus-50™ II premium engine oil is designed to provide advanced lubricants performance in all current diesel engines, including today's modern low-emissions engines, as well as all legacy diesel engines. Plus-50 II is designed to meet the requirements of heavy-duty off-highway applications and light-duty applications, including on-highway vehicles.

Plus-50™ II premium engine oil provides these distinct advantages:

- Formulated specifically to inhibit oxidation, deposit, corrosion, and wear with superior soot control.

- Excellent low-temperature fluidity reduces engine wear in cold weather.

- Exceeds API CJ-4 and ACEA E9 performance level for diesel engines.

- Drain intervals may be increased to a total of 500 hours when used in John Deere engines with John Deere oil filters and extended drain oil pan.

- Plus-50™ II is a premium lubricant that provides exceptional performance and protection in non-John Deere engines; follow OEM recommendations for extended service intervals to achieve maximum value.

We strongly recommend that all John Deere IT engines use Plus-50™ II (CJ-4/E9) oil to ensure optimal performance, including extended drain interval options.

Plus-50™ II may be used as a full fleet solution with use in Mack, Cummins (15W40), Mercedes Benz, Volvo, MAN, MTU, Detroit Diesel (15W-40), Renault, and Caterpillar engines. John Deere is not affiliated with these companies.



John Deere Maintenance

JOHN DEERE FUEL CONDITIONERS

Our diesel fuel conditioners are factory-designed and approved to



improve the performance in any diesel-powered equipment. Available in summer and winter formulas, they can be used with diesel or biodiesel blends to B20.

FUEL-PROTECT SUMMER/WINTER

- All diesel types, including biodiesel up to B20.
- Detergents.
- Lubricity improver.
- Cetane improver.
- Water control.
- Cold temperature operability (winter)

FUEL-PROTECT KEEP CLEAN

- Aggressive detergents clean and keep injectors clean
- Helps prevent the formation of stubborn deposits that may cause injector sticking, engine misfire, rough idling, excess exhaust smoking, power less and/or hard starting conditions in modern high-pressure diesel fuel systems.

- May be used in all makes of diesel engines to clean and prevent persistent deposits caused by ultra-low sulfur diesel in high-pressure fuel systems.

- Blends and stays distributed in bulk fuel tanks for easy distribution across the entire fleet.

- Can be used with John Deere fuel conditioners.



FUELSAVER™

FUELSAVER, a Dow Chemical product from John Deere, is an effective antimicrobial agent and an EPA-approved biocide and fuel additive for today's biodiesel and ultra-low sulfur fuels.

- 100% fuel soluble so the active ingredients kill microbes throughout all components of a fuel system.
- Maintains fuel economy and decreases fleet operation costs.
- Add to new fuel tanks to prevent contamination.
- Contaminated fuel tanks require a shock dose.
- For each subsequent tank, a maintenance dose is recommended.



FUEL FILTERS

Genuine John Deere fuel filters capture harmful debris and moisture before they can cause damage to fuel-system components. These top-quality filters are designed by John Deere for John Deere fuel systems.



AIR FILTER

- Reduced fuel consumption
- Increased horsepower
- Longer service life
- Even pleats and more media ensure high efficiency and a longer service interval
- Proper airflow ensures a minimum flow restriction while capturing more contaminants than leading competitive air filters
- A tight seal keeps contaminants from bypassing the filter



ENGINE OIL FILTERS

- Robust construction for airtight seal
- Advanced cellulose media for maximum filtration performance
- High-grade seals and components provide superior durability and corrosion protection
- Proprietary flow technology for optimum particle and water removal



FUEL STORAGE FILTRATION

It's very important to employ adequate filtration on fuel storage and transportation tanks, and John Deere bulk fuel storage tank filters perform exceedingly well. It is also necessary to replace the filter element in fuel storage and transport tanks at least once -preferably several times- each year. John Deere fuel filters always provide high-quality fuel system protection.

BULK FUEL STORAGE FILTRATION

- Bowl and element style
- Spin-on cartridge style
- Both fuel and fuel/water separator filters
- 5 to 100 gpm (20 to 380 lpm)
- 5 to 30 micron
- Differential pressure gauge available



JOHN DEERE GREASE

John Deere grease provides several different functions and features simultaneously.

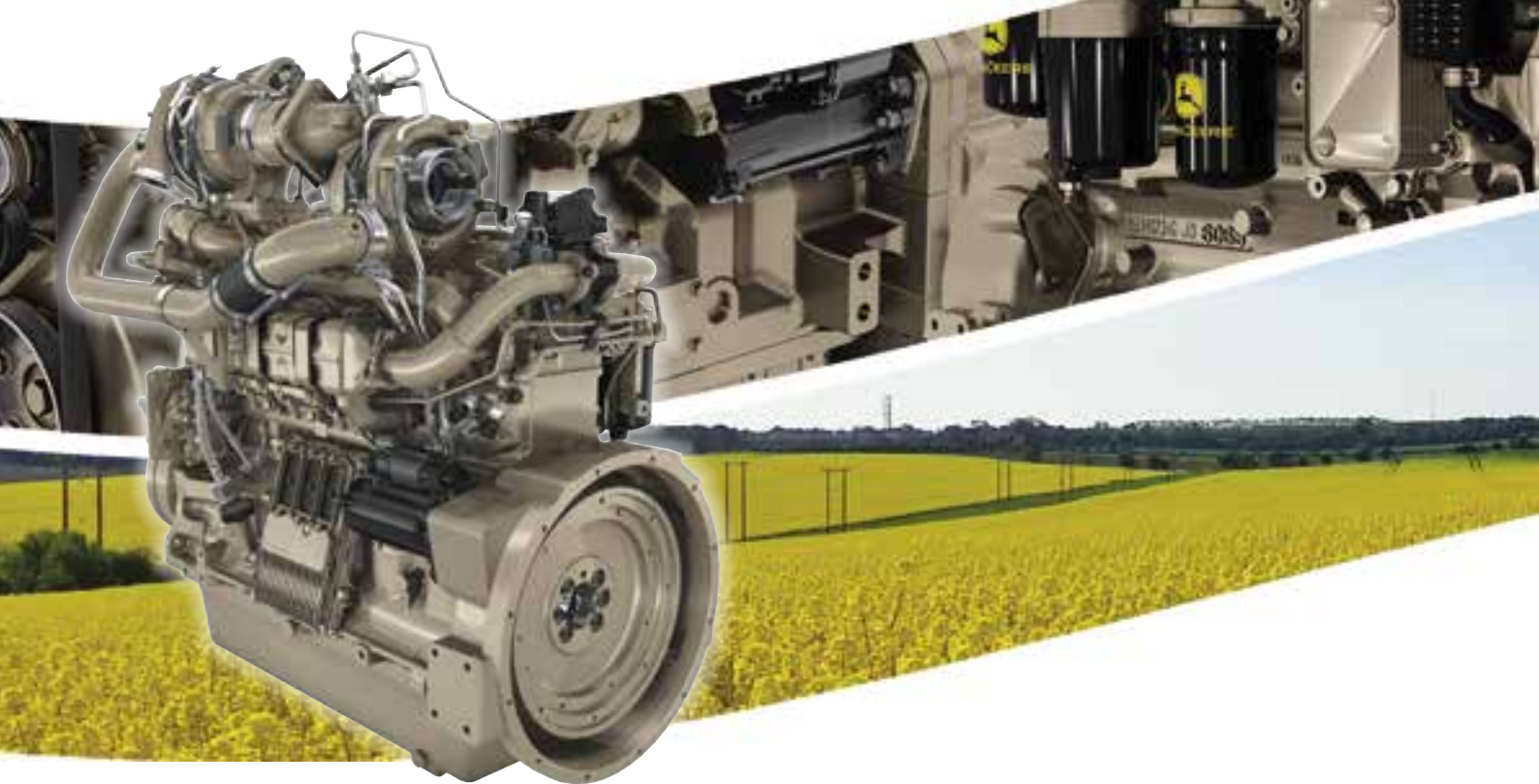
- Lubricates moving parts to prevent wear
- Protects components from corrosion

- Flows under all temperatures to protect moving parts
- Remains intact and in place under severe pressures or shock loads
- Helps seal and keep foreign contaminants out of lubrication points
- Cools protected parts
- Remains in place and continues to lubricate when exposed to water

TYPES OF GREASE

- Multi-Purpose SD Poly urea
- Multi-Purpose Lithium
- Special-Purpose Corn Head
- Special-Purpose HD Moly (3%)
- HD Lithium Complex
- Special-Purpose HD Water-Resistant
- Multi-Purpose Extreme Duty Synthetic



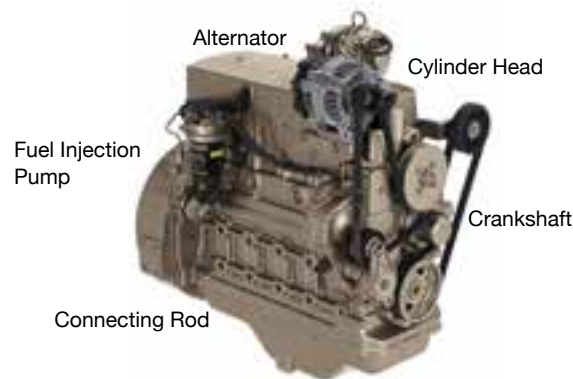


JOHN DEERE REMAN PARTS DELIVER RELIABILITY AND PERFORMANCE

With John Deere remanufactured engines and components, you can rest assured you're getting like-new performance and the highest level of quality and reliability. That's because they're remanufactured to John Deere's original specifications and standards, using only genuine John Deere-approved parts and John Deere- engineered manufacturing process.

STRINGENT REMANUFACTURING PROCESS ENSURES QUALITY EVERY STEP OF THE WAY

Whether it's disassembly, building or testing, you can be assured each and every John Deere Reman fuel injector pump is fully remanufactured - not simply rebuilt or repaired. The result is a product that will provide you like-new performance at a competitive price. The same goes for John Deere Reman water and oil pumps, turbochargers, cylinder heads, crankshafts and connecting rods.



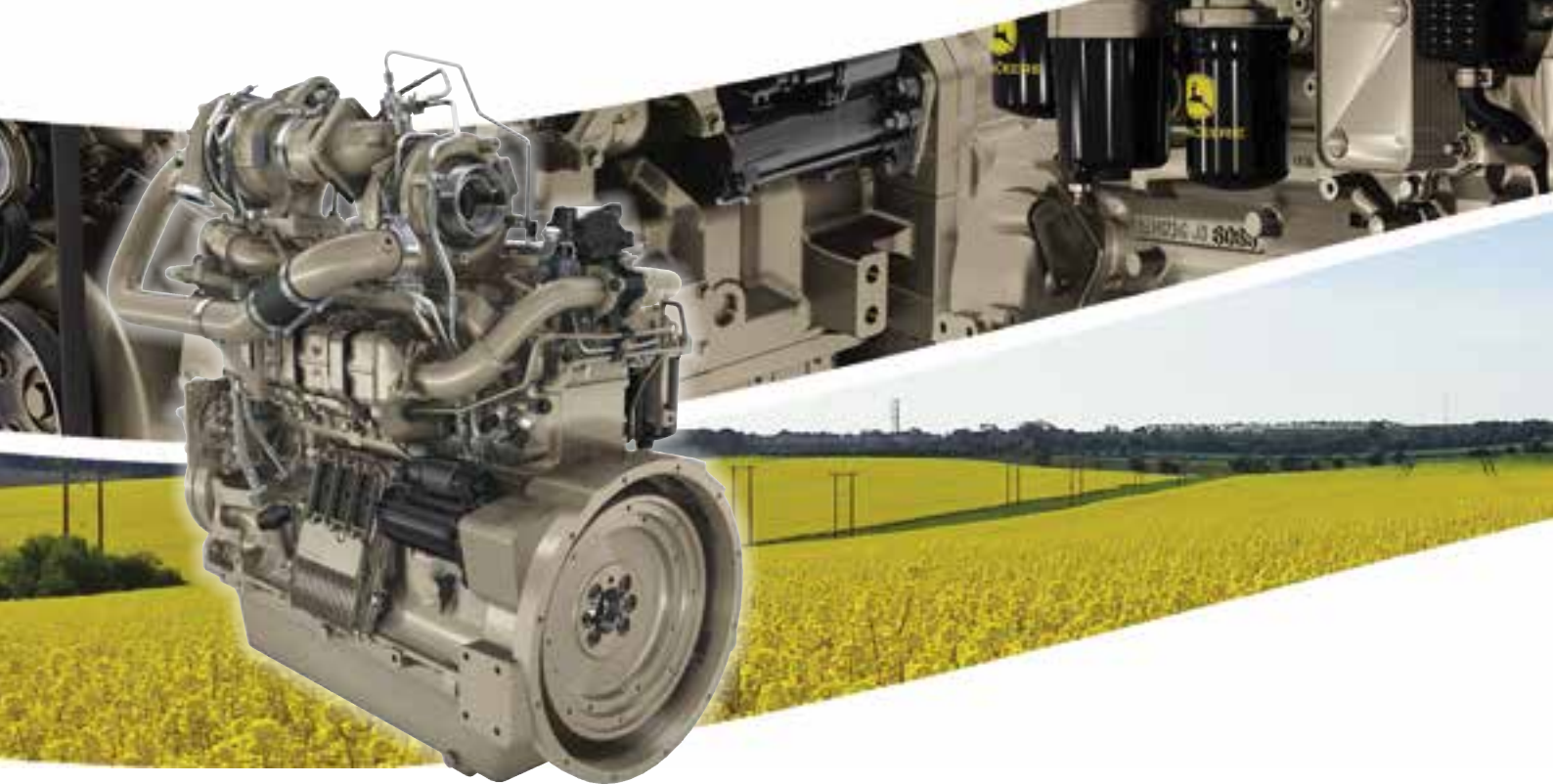
John Deere Reman Parts



JOHN DEERE

Engine Accessories





ENGINEERED TO MEET A WIDE RANGE OF APPLICATION CONDITIONS

John Deere engine accessories and trim kits are designed to fit a wide range of engines, models, and applications. This interchangeability lets John Deere engine distributors and OEMs assemble complete engine packages quickly and efficiently. And it offers more selection and component availability for you and your customers.

You can count on John Deere engine accessories to get the job done in agricultural, construction, forestry, mining, generator drive, marine, and other off-highway applications.

PROVEN TO SAVE DEVELOPMENT TIME AND SATISFY EMISSIONS REGULATIONS

Because all engine accessories and parts are qualified by John Deere, you know they will work seamlessly. That means you can integrate our engines into your machines with shorter program

lead times and fewer engineering requirements. Our application engineering team stands ready to help you integrate John Deere engines into your equipment.

SOLID JOHN DEERE WARRANTY

OEMs tell us strong warranty support is one of the best reasons to install and use John Deere engine accessories. John Deere parts and accessories added to new products by John Deere engine distributors or authorized OEMs are covered under the standard or extended product warranties for our engines. This dependable support provides an extra level of confidence as your equipment goes to work in rugged and critical applications.

FULLY SUPPORTED NETWORK

Whether you need a complete engine package or an individual part, you can get fast service and support from your John Deere engine distributor or any of our 4,000+ service dealers around the world.

Engine Accessories

COOLING AND FAN SYSTEMS

Preconfigured cooling packages with a charge air cooler (CAC), radiator, and shroud for fan guard protection are available for John Deere engines.

John Deere cooling packages are designed for debris tolerance, vibration capability, air temperature rise to the cooling core, and ambient conditions in a wide range of stationary and mobile applications.

CAC and radiator cores are mounted side by side for the greatest heat rejection efficiency, to minimize fan air pressure drop and allow use with either suction or blower fans. Shrouds are designed to provide adequate depth for good fan airflow distribution, and provide adequate fan tip clearance while preventing minimal loss of airflow to the cooling core.

John Deere does the up-front work to streamline integration into your equipment. Our cooling packages are qualified in a matching power unit and verified in a test cell to work in a range of applications. And John Deere keeps working long after your equipment leaves your manufacturing facility — providing customers with convenient parts, service, and warranty support.

COOLING PACKAGE ISOLATOR KIT

Rubber mount between cooling package and machine helps reduce vibration and improve durability.



HOSE AND TUBE KIT

Routes coolant to radiator and air from charge air cooler. Kits available for every combination of engine, model, and cooling

package. Includes all hoses, tubes, and brackets needed to mount the cooling package to the engine. Reduces OEM engineering and installation time.



SURGE TANK KIT

Various surge tanks with pressure caps meet your full range of application needs. Translucent sides provide easy visual inspection. Level warnings can be displayed on instrument gauges for electronically controlled engines.



BELT GUARD KIT

John Deere belt guard kits provide protection from moving parts such as fans, crankshafts, and engine belts. Designed to minimize restriction of airflow and interference with other components. Sized to fit most combinations of engine, model, and cooling package.



FAN OPTIONS

A range of fan sizes and ratios in both fixed-speed and variable-speed configurations allow OEM engineers to easily specify a fan system for optimal airflow. John Deere fan systems are designed to provide the needed fan speed for coolant, engine air, and hydraulic temperature control.

VARIABLE-SPEED FANS

John Deere variable-speed fans cool with a steady flow of benefits. They improve engine performance, fuel economy, and sound levels, while reducing OEM engineering time. Variable-speed fans are available on John Deere Interim Tier 4/Stage III B off-highway and gen-set diesel engines 56 kW (75 hp) and above. They are designed to work as a fully integrated solution with John Deere cooling packages. The ECU-controlled variable-speed fan adjusts to engine speed, load, and ambient conditions to ensure that the cooling system performs throughout the engine's operating range.

- Reduces fan noise. Slower fan speed significantly reduces noise levels and improves operator comfort.
- Increases fuel efficiency. According to JDPS data, a variable-speed fan drive reduces power requirements and fuel costs.
- Reduces design time required for cooling packages because the fan speed automatically adjusts to keep the charge air cooler outlet air at the required temperature to meet emissions regulations.
- Improves engine/vehicle warm-up and cold-weather performance by reducing the amount of cold air circulated in lower ambient temperatures. Eliminates over-cooling and the need for shutters in some applications.
- Extends the life of the cooling package and fan-drive components. Less debris entering the system reduces external wear on the radiator, charge air cooler fins, air conditioning condenser, and hydraulic oil cooler. Slower fan operation also increases life of the fan belt, pulleys, and bearings.

VARIABLE-SPEED FAN EXTENSION HARNESS

Available as an option on certain models to connect the variable-speed fan harness to the main engine harness.

VARIABLE-SPEED FAN SIZES

Available in nine sizes (560 to 1000 mm) for suction or blower applications.



FAN SPACER

Fan spacers are provided for varying engine installations to ensure correct fan position in the shroud. They are matched to the engine mounting bolt hole pattern and pilot. Fan spacer lengths are sized to match suction or blower fan types.



FAN CLUTCH KIT

Clutches (12 volt and 24 volt) are matched to each fan size. Control algorithms are pre-programmed into the ECU for each fan size and clutch combination.



EXHAUST SYSTEMS

John Deere offers exhaust system bellows, isolators, and brackets for engines with remote-mounted aftertreatment devices. All mounting kits are designed to make installation quick and easy with minimal OEM engineering. Mufflers are available when aftertreatment devices are not required. John Deere engines with an engine-mounted aftertreatment device are paired with their exhaust system at the factory, and include all necessary components.

EXHAUST BELLOWS KIT

Installed between the turbocharger outlet and the exhaust filter inlet to absorb and isolate vibration and motion. Available in 3-, 4-, and 5-inch sizes. Includes clamps and gaskets. Bellows come with full Marmon connections on both ends to reduce tooling required by the OEM.



EXHAUST FILTER ISOLATOR KIT

Isolates the filter from high frequency engine vibration and application movement. Made of an elastic material designed to withstand high temperatures.



MUFFLER

Mufflers are available at varying levels of sound attenuation. Can be installed in horizontal or vertical configurations.

EXHAUST SYSTEM MOUNTING BRACKET KIT

Compatible with a wide range of exhaust system inlet and outlet configurations.



INSTRUMENT PANELS & WIRING

John Deere instrument panels give you plug-and-play convenience with installation flexibility for mechanical and electronic engines. Our ready-made solutions talk to the engine control unit (ECU) and aftertreatment system to monitor, control, and display important engine information.

Instrument panels come with a key switch, ramp throttle switch, and associated wiring. They are easily adapted for a range of throttle configurations. All panels are available with an enclosure and isolation mounts for easy application by OEM engineers and easy service by John Deere dealers.

We offer both standard and premium software packages to help you take advantage of the full potential of engine accessories. Contact your John Deere dealer or engine distributor for more information.

COMPLETE INSTRUMENT PANEL

Available as a basic instrument panel with a full-featured diagnostic module, key switch, and enclosure. Also available with standard or premium 2-inch gauges that display engine operating conditions such as oil pressure, coolant temperature, and engine speed.



FULL-FEATURED DIAGNOSTIC MODULE

Dual-capability gauges interpret diagnostic warnings/fault codes and display engine operating conditions. Provides installation flexibility for OEMs providing their own instrument enclosure.



INSTRUMENT PANEL COVER

Covers are available to protect the gauges, both solid and transparent. They also provide some security for machines as the covers can be padlocked closed.



WIRING WITH DIAGNOSTIC MODULE AND GAUGES

Instrumentation and wiring kits are available for installation within an OEM enclosure or cab.



WIRING HARNESS-DIAGNOSTIC MODULE

The service diagnostic port allows field analysis of ECU service codes when a full instrument panel is not available.



MISCELLANEOUS ENGINE ACCESSORIES

From major cooling systems to the smallest mounting bracket, John Deere is your complete source for engine accessories and integration. All John Deere accessories are designed to work together to provide trouble-free performance.

AUXILIARY DRIVES AND COMPRESSORS

Gear-driven John Deere auxiliary drives are available in a variety of configurations and spline sizes to match application, power, and orientation requirements. Front and rear drive options are offered. Refrigerant compressor kits are available for applications requiring air conditioning. A full range of John Deere air compressors meet your specific flow rate requirements. They are also available with an optional auxiliary thru-drive feature.

AUXILIARY DRIVE KITS



REFRIGERANT COMPRESSOR KITS



AIR COMPRESSOR KIT



AIR SYSTEMS AND FILTRATION

John Deere air filters improve performance and durability by removing dust, dirt, and other contaminants from intake air. Our pleat lock design keeps the media evenly spaced for less flow restriction, more dust-holding capacity, and longer service intervals. Hardened gaskets and heavy gauge end caps help maintain a tight seal.

RAIN CAP



AIR CLEANER ASSEMBLY



AIR INTAKE MOLDED HOSE



AIR FILTER ELEMENTS



4-Stroke Vertical Engines



FJ Series

Output : 3.4 kW (4.5 hp)

FX Series

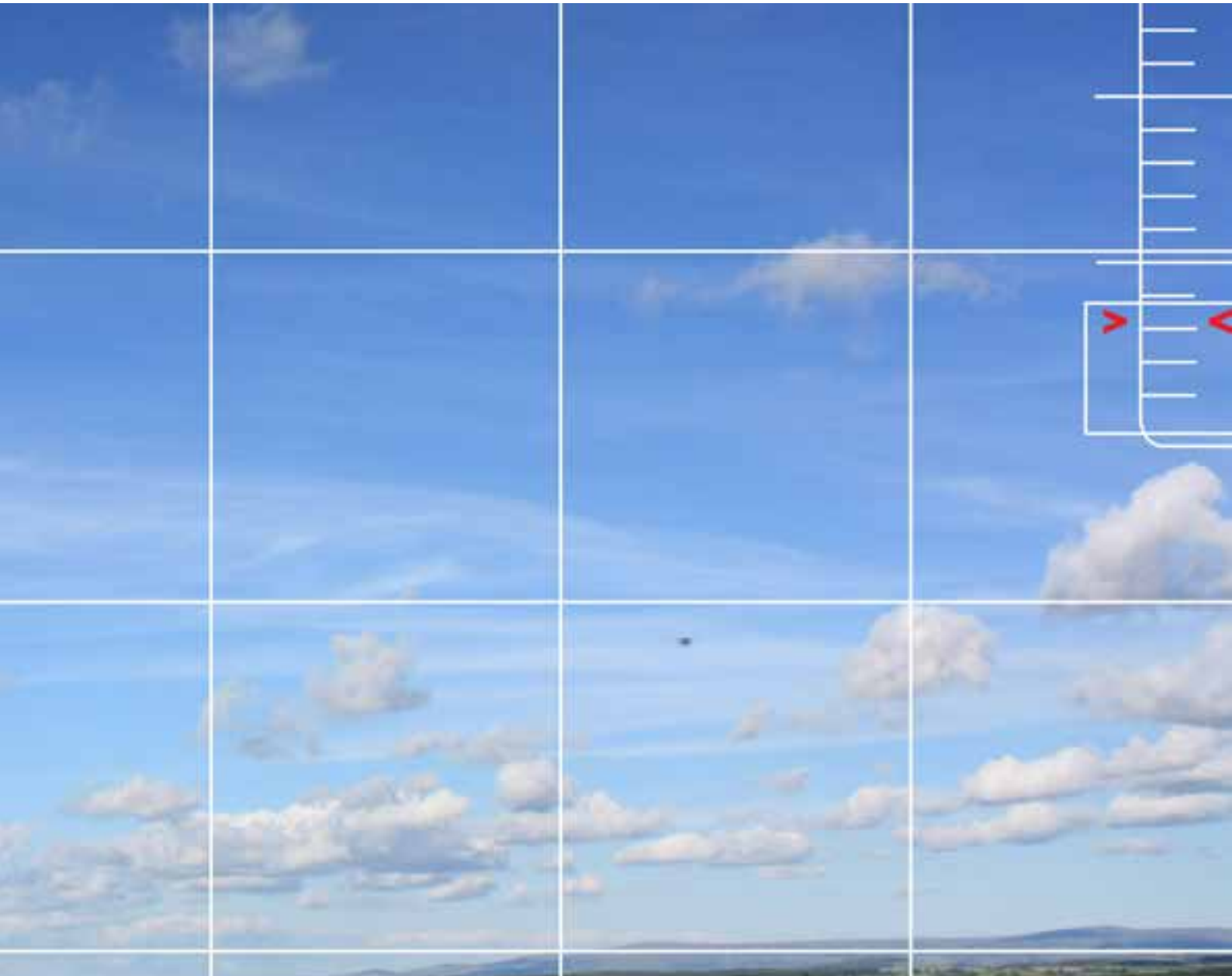
Output : 9.9 kW (13.2 hp) - 16.6 kW (22.2 hp)

FS Series

Output : 9.9 kW (13.2 hp) - 16.6 kW (22.2 hp)

FR Series

Output : 11.3 kW (15.1 hp) - 16.6 kW (22.2 hp)



Kawasaki
— ENGINES —

**UNLIMITED HOURS
WARRANTY**

FOR COMMERCIAL & PRIVATE USE

3 YEAR 4-STROKE

2 YEAR 2-STROKE

FOR FULL TERMS & CONDITIONS VISIT WWW.KAWASAKI-ENGINES.EU





Engine Model	FJ180V STD	FJ180V PRO	FJ180V KAI
Engine Type	Air-cooled, 4-stroke		
Number of Cylinders	1		
Bore x Stroke (mm)	65 x 54		
Displacement (cc)	179		
Max. Power (kW / hp)	3.4 / 4.5 @ 3600 rpm		
Max. Torque (Nm / ft.lbs)	10 / 7.3 @ 2400 rpm		
Fuel Tank Capacity (litres)	1.6		
Oil Capacity (litres)	0.6		
Dry Weight (kg)	17 kg		
Dimensions (L x W x H)	391 x 325 x 286 mm	425 x 323 x 284 mm	422 x 353 x 289 mm

FEATURES

- Dual element cleaner
- Rotating grass screen
- Internally vented carburettor
- Cast iron cylinder liner
- Combined crankcase design
- Large sealed fan
- Metal engine shroud (FJ180V KAI)
- Heavy duty recoil (FJ180V KAI)
- Roller ball type top bearing (FJ180V KAI)

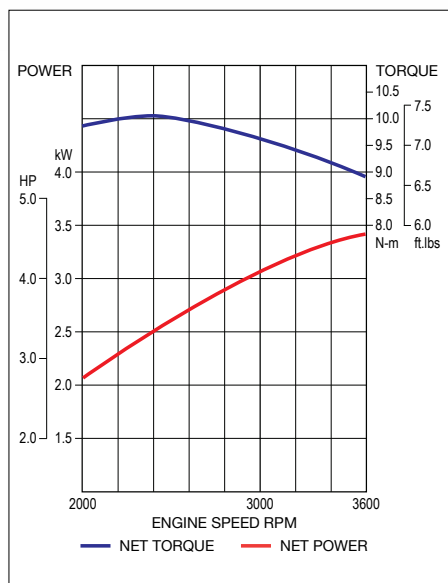
OPTIONS

- Shaft variation: 7/8" x 62 mm: 7/8" x 80mm: 25 x 80 mm
- Flywheel brake
- Various speed control options
- Spin-on oil filter
- M10 threaded mounting holes
- Fuel tank options

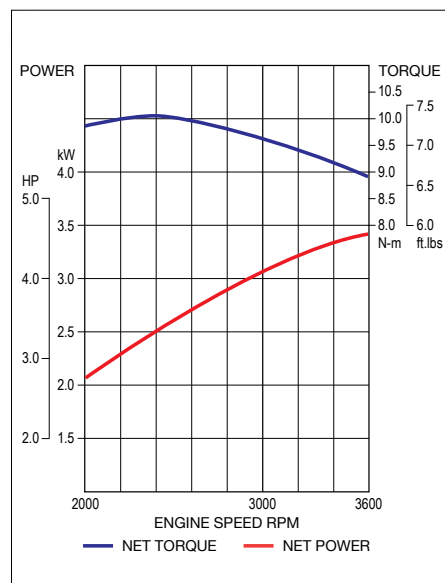
FJ Series Vertical

POWER CURVES

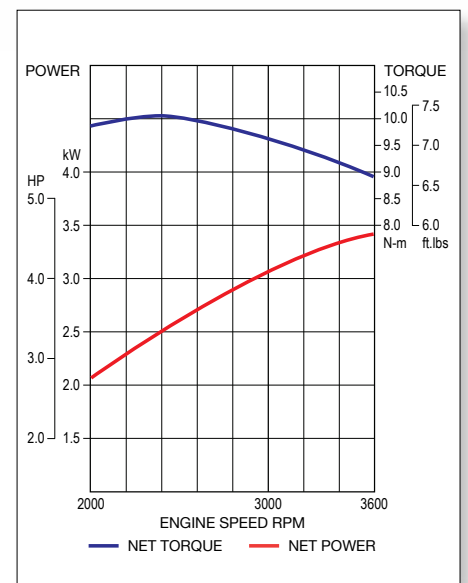
FJ180V STD



FJ180V PRO



FJ180V KAI



FJ180V STD



FJ180V PRO



FJ180V KAI



Engine Model	FX481V	FX541V	FX600V	FX651V	FX691V	FX730V
Engine Type	Air-cooled, 4-stroke, V-twin, vertical shaft, OHV					
Number of Cylinders	2					
Bore x Stroke (mm)	73 x 72			78 x 76		
Displacement (cc)	603			726		
Max. Power (kW / hp)	9.9 / 13.2 @ 3600 rpm	11.3 / 15.1 @ 3600 rpm	12.7 / 17.0 @ 3600 rpm	14.1 / 18.8 @ 3600 rpm	15.4 / 20.6 @ 3600 rpm	16.6 / 22.2 @ 3600 rpm
Max. Torque (Nm / ft.lbs)	38.4 / 28.3 @ 2800 rpm	39.1 / 28.8 @ 2200 rpm	40.4 / 29.8 @ 2200 rpm	53.2 / 39.2 @ 1800 rpm	53.7 / 39.6 @ 2000 rpm	54.3 / 40.0 @ 2000 rpm
Oil Capacity (litres)	1.8			2.1		
Dry Weight (kg)	40.7			46.6		
Dimensions (L x W x H)	468 x 429 x 544 mm			479 x 448 x 565 mm		

FEATURES

- Overhead V-valves
- 90 degree V-twin
- High performance lubrication system
- Electronic spark ignition
- Automatic compression release
- Heavy duty shift type starter

OPTIONS

- Internally vented carburetor with fuel shut-off solenoid (Twin barrel- FX651, 691, 730)
- Rotating grass screen
- Canister air filter
- Cast iron cylinder liners
- Metal engine covers
- Muffler option (FX481, 541, 600)

FX Series Vertical



FX541V



FX651V



FX730V

Engine Model	FX751V	FX801V	FX850V	FX921V	FX921V DFI	FX1000V	FX1000V DFI
Engine Type	Air-cooled, 4-stroke, V-twin, vertical shaft, OHV						
Number of Cylinders	2						
Bore x Stroke (mm)	84.5 x 76			89.2 x 80			
Displacement (cc)	852			999			
Max. Power (kW / hp)	17.5 / 23.4 @ 3600 rpm	18.9 / 25.3 @ 3600 rpm	19.9 / 26.6 @ 3600 rpm	21.6 / 28.9 @ 3600 rpm		23.5 / 31.4 @ 3600 rpm	
Max. Torque (Nm / ft.lbs)	62.0 / 45.7 @ 2000	63.0 / 46.4 @ 2200		66.7 / 49.2 @ 2400		69.6 / 51.3 @ 2400	
Oil Capacity (litres)	2.0			1.7			
Dry Weight (kg)	58			65.4			
Dimensions (L x W x H)	488 x 464 x 626 mm			508 x 500 x 636 mm	508 x 511 x 636 mm	508 x 500 x 636 mm	508 x 511 x 636 mm



FX801V



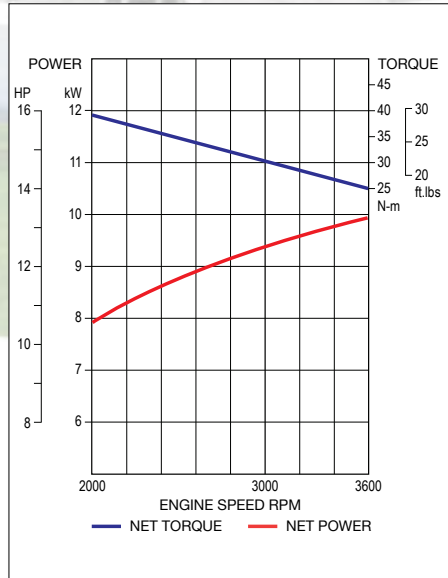
FX921V



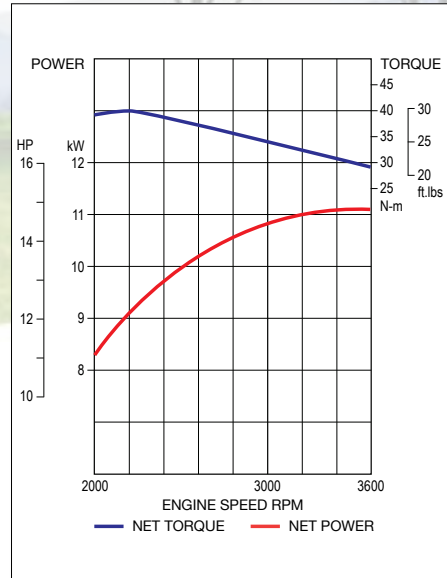
FX1000V

POWER CURVES

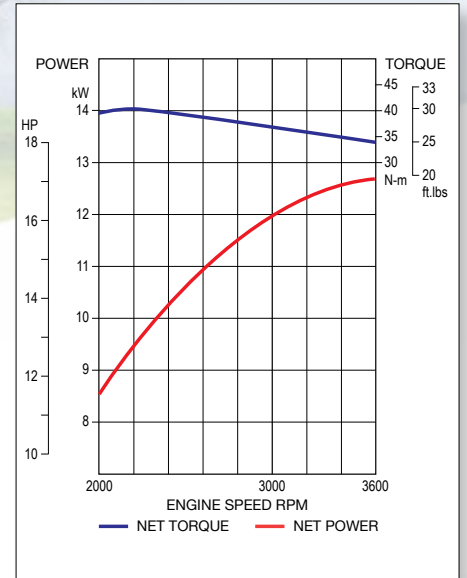
FX481V



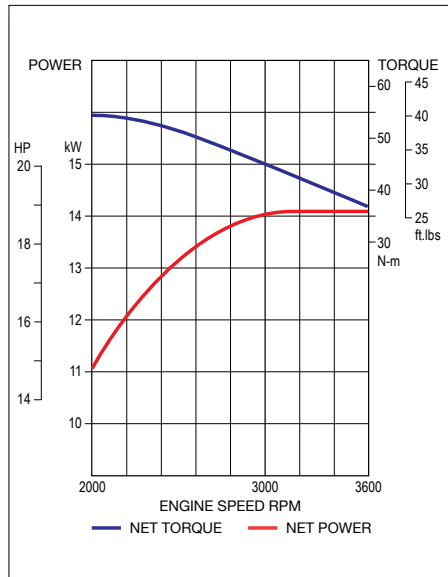
FX541V



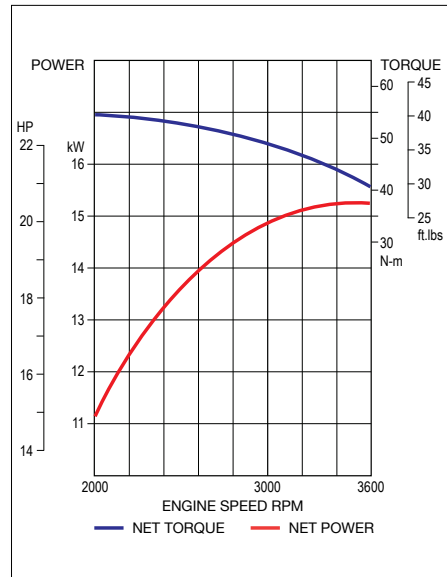
FX600V



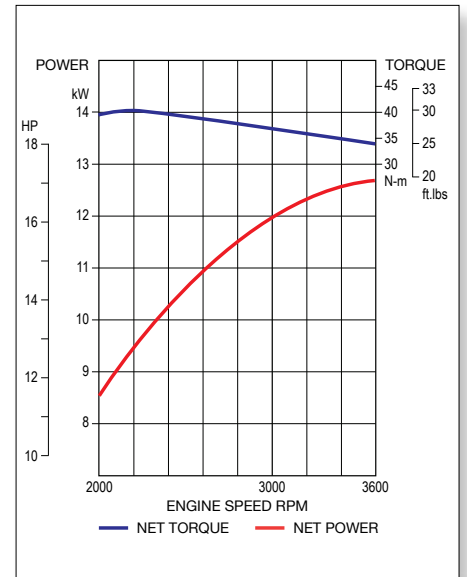
FX651V



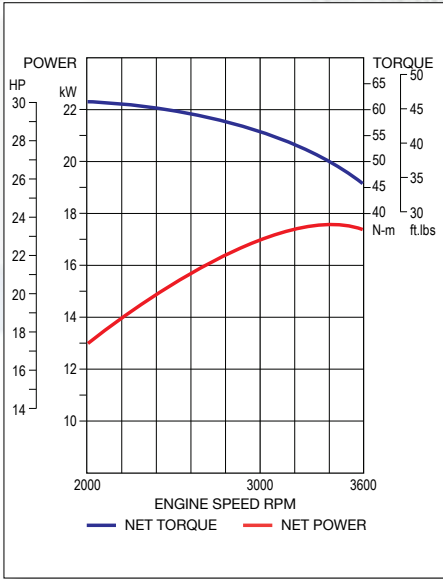
FX691V



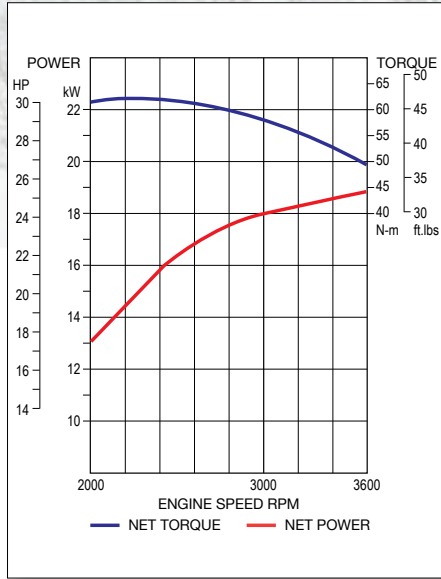
FX730V



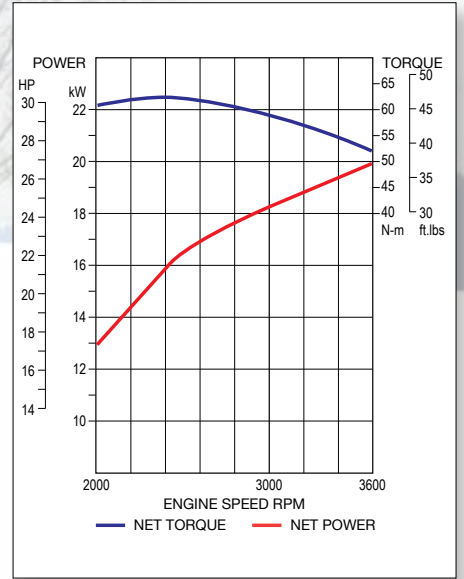
FX751V



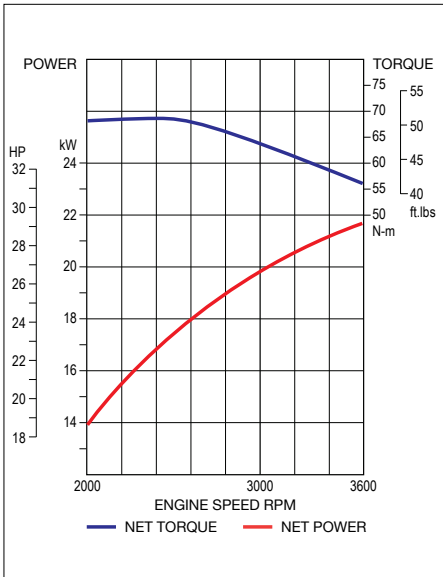
FX801V



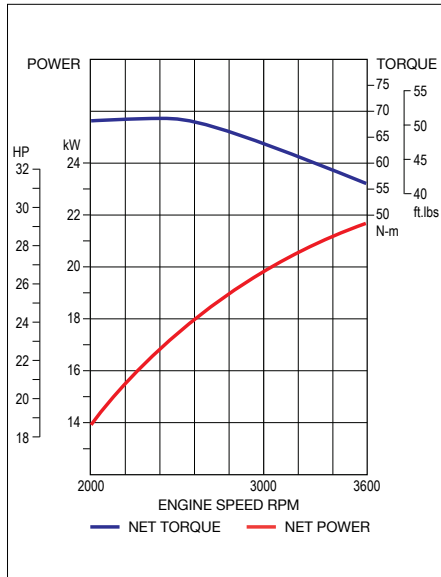
FX850V



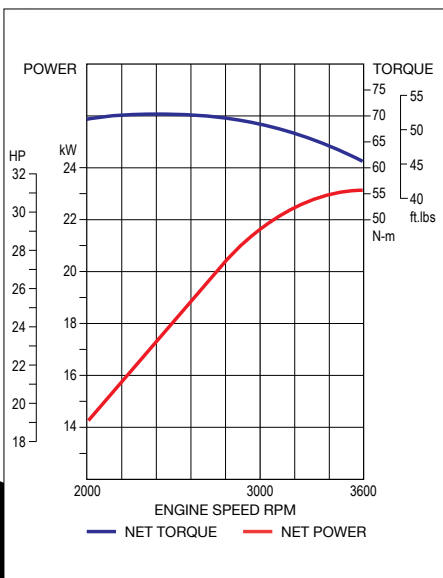
FX921V



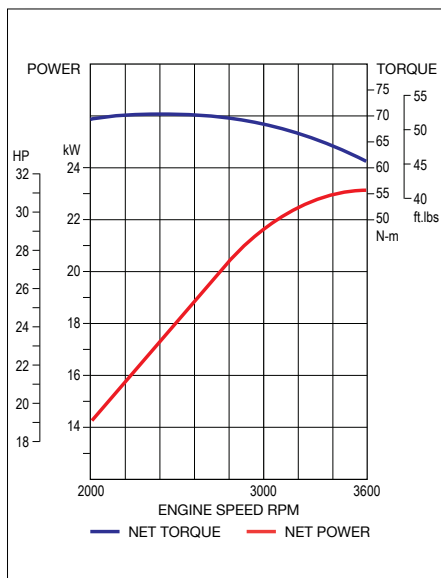
FX921V DFI



FX1000V



FX1000V DFI





Engine Model	FS481V	FS541V	FS600V	FS651V	FS691V	FS730V
Engine Type	Air-cooled, 4-stroke, V-twin, vertical shaft, OHV					
Number of Cylinders	2					
Bore x Stroke (mm)	73 x 72			78 x 76		
Displacement (cc)	603			726		
Max. Power (kW / hp)	9.9 / 13.2 @ 3600 rpm	11.3 / 15.1 @ 3600 rpm	12.7 / 17.0 @ 3600 rpm	14.1 / 18.8 @ 3600 rpm	15.4 / 20.6 @ 3600 rpm	16.6 / 22.2 @ 3600 rpm
Max. Torque (Nm / ft.lbs)	38.4 / 28.3 @ 1800 rpm	39.1 / 28.8 @ 2200 rpm	40.4 / 29.8 @ 2200 rpm	53.2 / 39.2 @ 1800 rpm	53.7 / 39.6 @ 2000 rpm	54.3 / 40.0 @ 2000 rpm
Oil Capacity (litres)	1.8			2.1		
Dry Weight (kg)	36.7			41.5		
Dimensions (L x W x H)	483 x 429 x 362 mm			500 x 457 x 383 mm		

FEATURES

- Overhead V-valves
- 90 degree V-twin
- High performance lubrication system
- Electronic spark ignition
- Automatic compression release

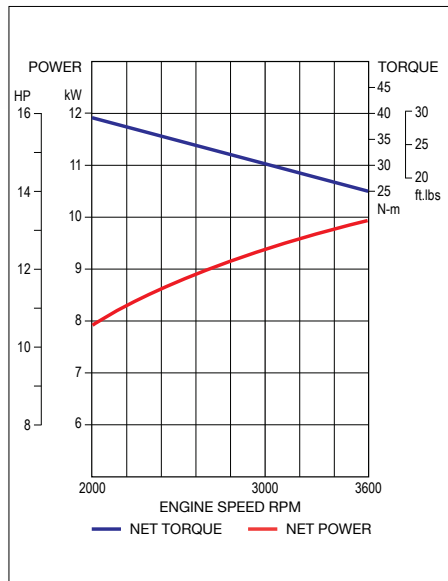
OPTIONS

- Internally vented carburetor with fuel shut-off solenoid
- Rotating grass screen
- Dual element air filter
- Cast iron cylinder liners
- Muffler option (FS481, 541, 600)

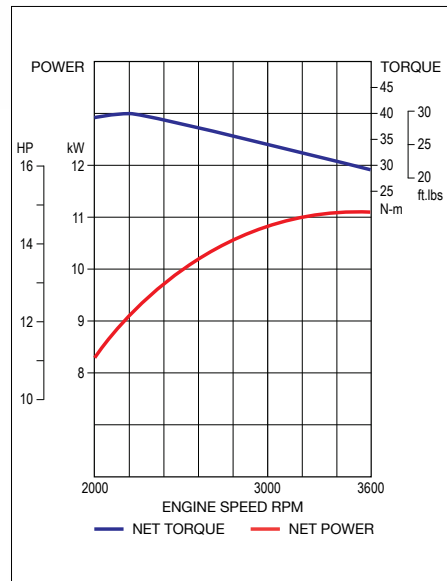
FS Series Vertical

POWER CURVES

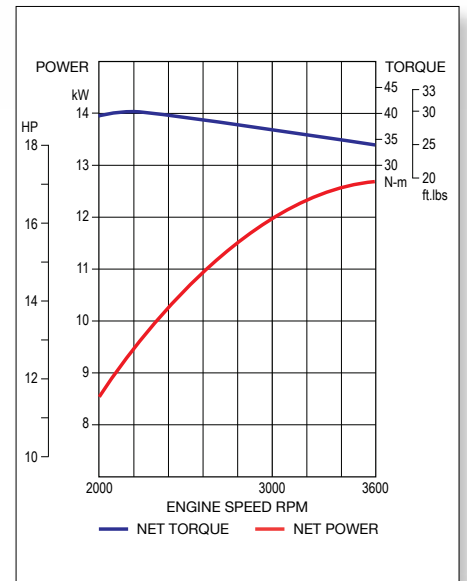
FS481V



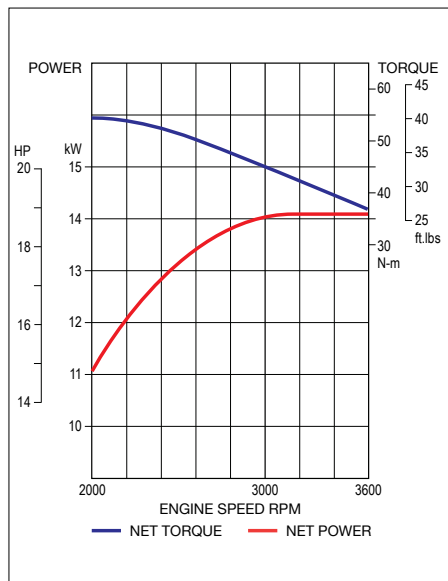
FS541V



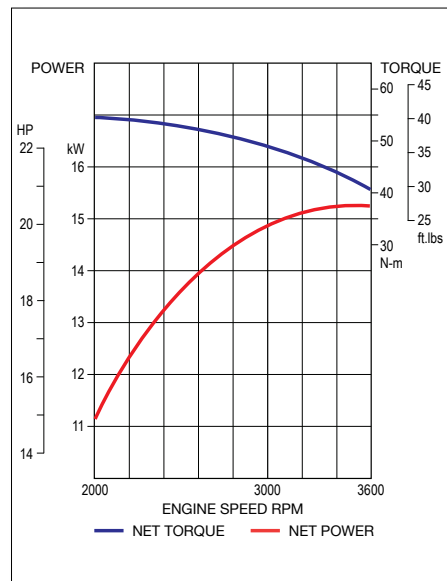
FS600V



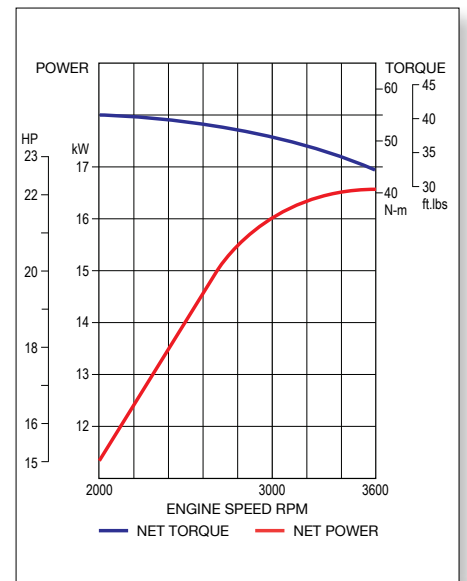
FS651V



FS691V



FS730V





Engine Model	FR541V	FR600V	FR651V	FR691V	FR730V
Engine Type	Air-cooled, 4-stroke, V-twin, Vertical shaft, OHV				
Number of Cylinders	2				
Bore x Stroke (mm)	73 x 72		78 x 76		
Displacement (cc)	603		726		
Max. Power (kW / hp)	11.3 / 15.1 @ 3600	12.7 / 17 @ 3600	14.1 / 18.8 @ 3600	15.4 / 20.6 @ 3600	16.6 / 22.2 @ 3600
Max. Torque (Nm / ft.lbs)	39.1 / 28.8 @ 2200	40.4 / 29.8 @ 2200	53.2 / 39.2 @ 1800	53.7 / 39.6 @ 2000	54.3 / 40 @ 2000
Oil Capacity (litres)	1.8		2.1		
Dry Weight (kg)	36.7		40.4		
Dimensions (L x W x H)	482 x 429 x 362		498 x 461 x 384		

FEATURES

- Overhead V-valves
- 90 degree V-twin
- High performance lubrication system
- Electronic spark ignition

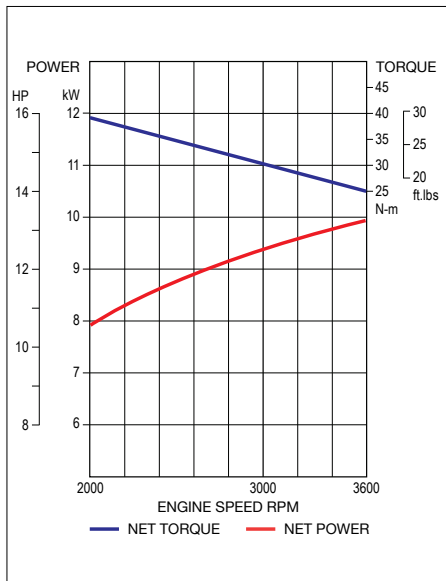
OPTIONS

- Automatic compression release
- Internally vented carburettor with fuel shut-off solenoid
- Rotating grass screen
- Cast iron cylinder liners

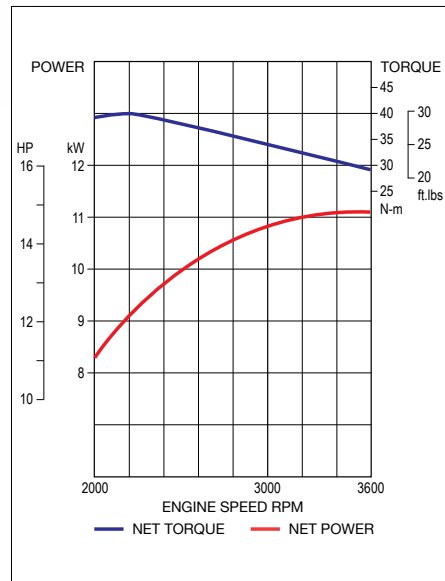
FR Series Vertical

POWER CURVES

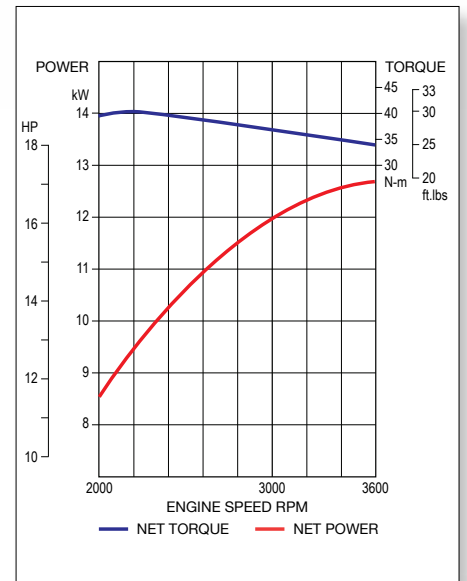
FR541V



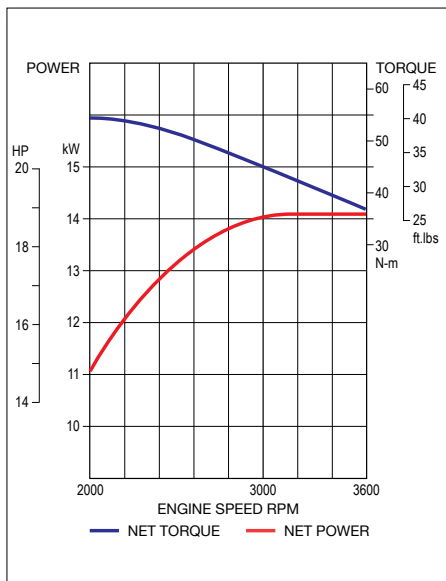
FR600V



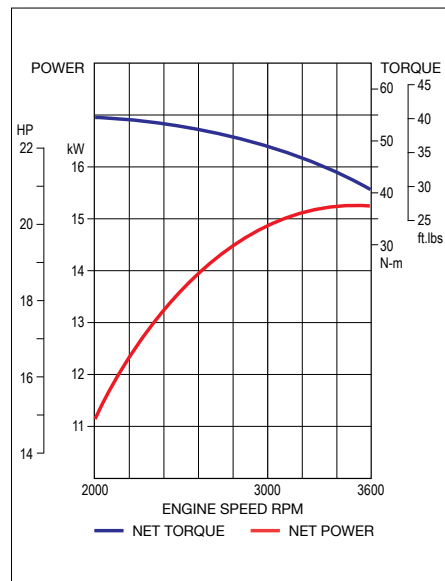
FR651V



FR691V



FR730V



FR600V

4-Stroke Horizontal Engines



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FJ Series

Output : 1.9 kW (2.5 hp) - 5 kW (6.7 hp)

FE Series

Output : 2.6 kW (3.4 hp) - 8.6 kW (11.5 hp)

FH Series

Output : 12.3 kW (16.4 hp) - 17.5kW (23.4 hp)

FD Series

Output : 15.3 kW (20.5 hp) - 20 kW (26.8 hp)





Engine Model	FJ100	FJ130	FJ180	FJ220
Engine Type	Air-cooled, 4-stroke, horizontal shaft, OHV			
Number of Cylinders	1			
Bore x Stroke (mm)	56 x 40	56 x 54	65 x 54	72 x 54
Displacement (cc)	99	133	179	220
Max. Power (kW / hp)	1.9 / 2.5 @ 3600 rpm	2.8 / 3.8 @ 3600 rpm	4.1 / 5.5 @ 3600 rpm	5 / 6.7 @ 3600 rpm
Max. Torque (Nm / ft.lbs)	5.0 / 3.6 @ 2800 rpm	7.9 / 5.8 @ 2800 rpm	11.2 / 8.6 @ 2400 rpm	14 / 10.3 @ 2400 rpm
Fuel Tank Capacity (litres)	1.6	2.8	3.6	
Oil Capacity (litres)	0.46	0.5	0.6	
Dry Weight (kg)	10.8	16.5	17.5	18
Dimensions (L x W x H)	280 x 306 x 315	302 x 360 x 353	304 x 364 x 370	

FEATURES

- Dual element air cleaner
- Internally vented carburettor
- Cast iron cylinder
- K-twin balancer (FJ180 & 220)
- Overhead V-valves (FJ130, 180 & 220)
- Spherical combustion chamber (FJ130, 180 & 220)
- Roller ball type top bearing (FJ180 & 220)
- Inner vent carburettor

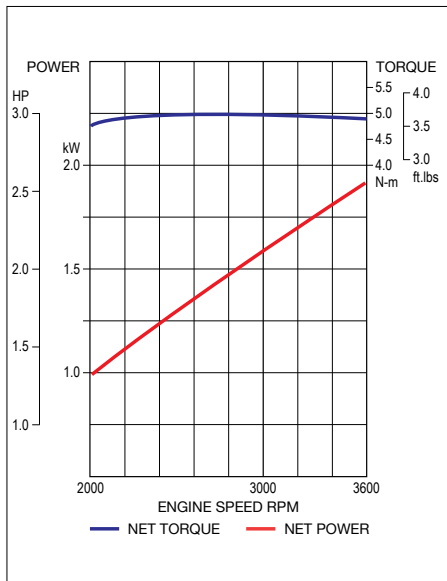
OPTIONS

- Shaft variation: 15 x 50 mm, 3/4" x 58mm straight shaft (FJ100)
- Recoil start (FJ100)
- Reduction 2:1 gearbox
- Oil level sensor (FJ180 & 220)
- Heavy duty (oil bath) air filter (FJ130, 180 & 220)
- Electric starter (FJ180 & 220)
- Charging coil options (FJ180 & 220)
- Oil drain extension (FJ130, 180 & 220)
- Square muffler with deflector (FJ130, 180 & 220)
- Fuel level gauge in fuel tank (FJ130, 180 & 220)

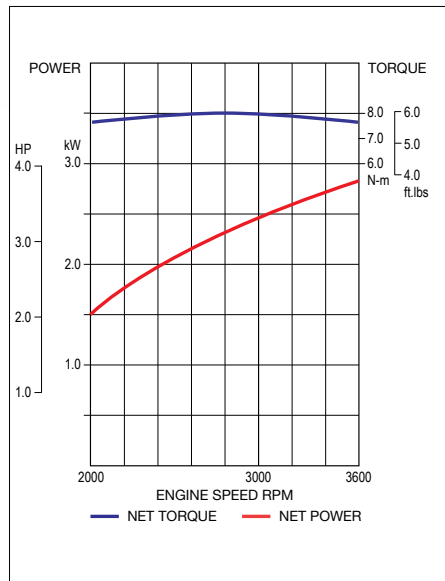
FJ Series Horizontal

POWER CURVES

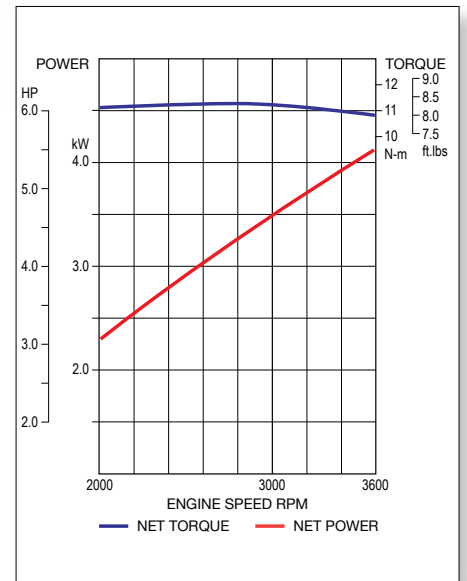
FJ100



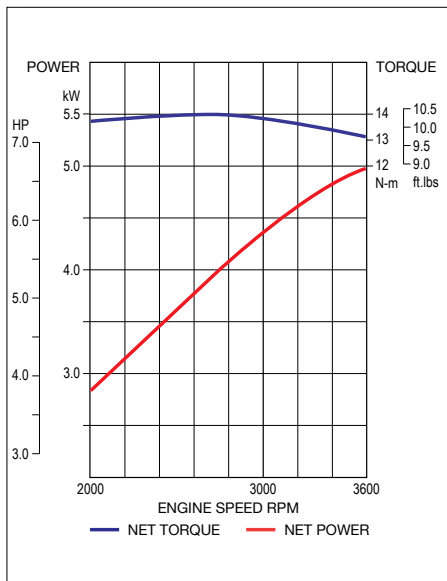
FJ130



FJ180



FJ220



FJ100



FJ220



Engine Model	FE120D	FE170D	FE250D	FE290D	FE350D	FE400D
Engine Type	Air-cooled, 4-stroke, horizontal shaft, OHV					
Number of Cylinders	1					
Bore x Stroke (mm)	60 x 44	66 x 50	76 x 55	78 x 60	83 x 65	87 x 67.5
Displacement (cc)	124	171	249	286	351	401
Max. Power (kW / hp)	2.6 / 3.4 @ 3600 rpm	3.7 / 4.9 @ 3600 rpm	5.6 / 7.5 @ 3600 rpm	6.5 / 8.7 @ 3600 rpm	7.8 / 10.4 @ 3600 rpm	8.6 / 11.5 @ 3600 rpm
Max. Torque (Nm / ft.lbs)	7.5 / 5.5 @ 2800 rpm	9.9 / 7.3 @ 2800 rpm	14.8 / 10.9 @ 2500 rpm	17.2 / 12.6 @ 2800 rpm	20.8 / 15.3 @ 2800 rpm	25.2 / 18.5 @ 2800 rpm
Fuel Tank Capacity (litres)	2.5	3.4	5.3	6.0	6.4	
Oil Capacity (litres)	0.6		1.1		1.3	
Dry Weight (kg)	14.6	17.5	26.8	30.4	34.0	34.5
Dimensions (L x W x H mm)	291 x 349 x 347	300 x 354 x 370	344 x 395 x 432	363 x 408 x 441	378 x 422 x 454	380 x 422 x 461

FEATURES

- Cast iron cylinder
- Dual element air filter
- Reciprocating balancer (FE250D, 290D, 400D)
- Pressurised lubrication (FE290D, 350D, 400D)
- Hydraulic valve lifters (FE250D, 400D)

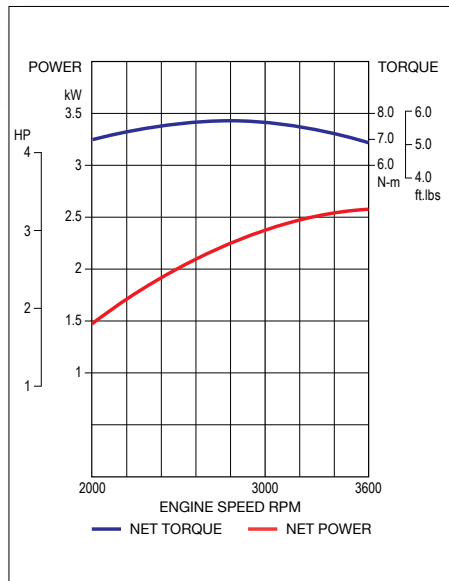
OPTIONS

- Various shaft options (FE120D, 170D, 250D)
- Shaft variation: 25 x 60, 1" x 72mm straight and tapered (FE290D, 350D, 400D)
- Various speed control systems
- 5 or 13 amp charge coil
- Oil level switches
- Reduction 2:1 gearbox (FE120D, 170D, 250D, 290D)

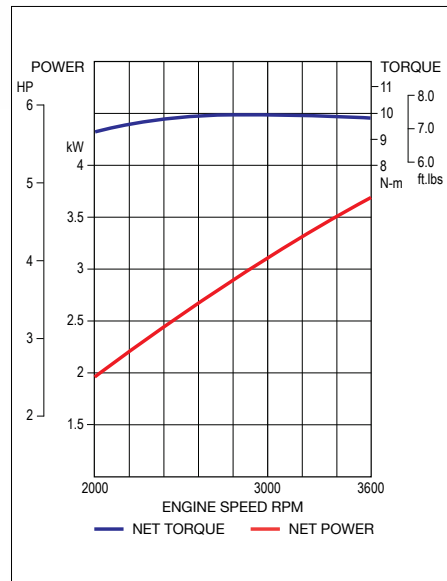
FE Series Horizontal

POWER CURVES (FOR REFERENCE ONLY- NOT IN CURRENT PRODUCTION)

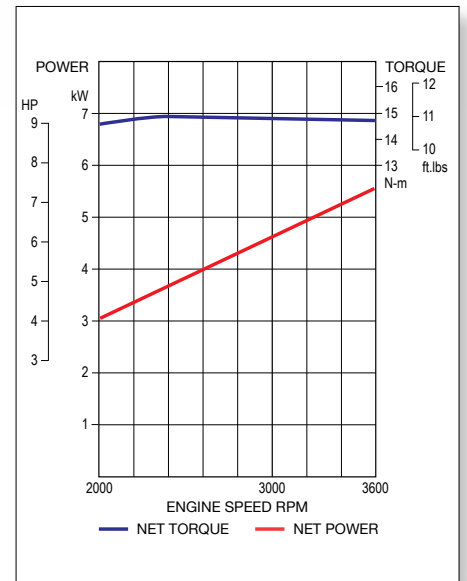
FE120D



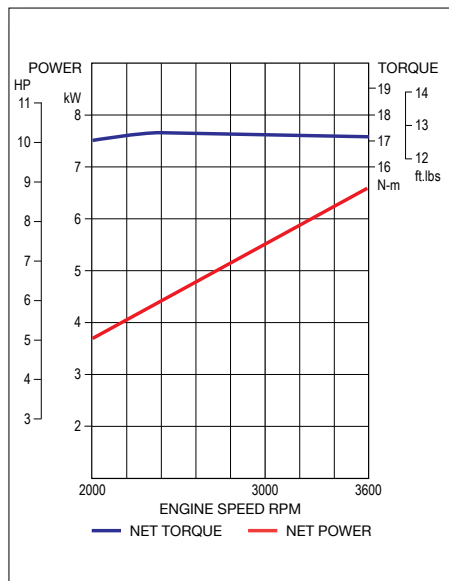
FE170D



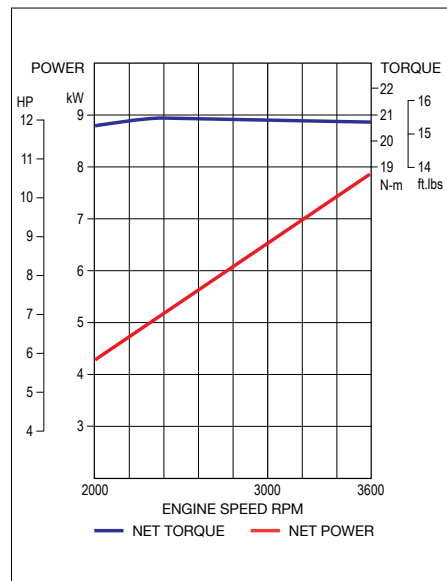
FE250D



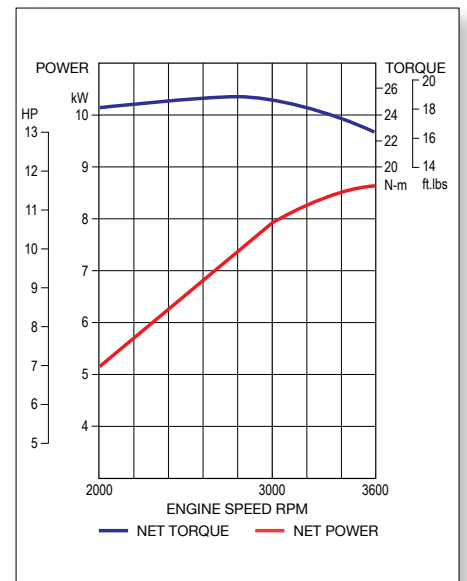
FE290D



FE350D



FE400D





Engine Model	FH601D	FH641D	FH680D	FH721D	FH770 KAI
Engine Type	Air-cooled, 4-stroke, Horizontal shaft, OHV				
Number of Cylinders	2				
Bore x Stroke (mm)	75.2 x 76				80 x 76
Displacement (cc)	675				746
Max. Power (kW / hp)	12.3 / 16.4 @ 3600 rpm	13.6 / 18.2 @ 3600 rpm	14.5 / 19.4 @ 3600 rpm	16 / 21.4 @ 3600 rpm	17.5 / 23.4 @ 3600 rpm
Max. Torque (Nm / ft.lbs)	44.8 / 33 @ 2000 rpm	46.4 / 34.2 @ 2000 rpm	46.4 / 34.2 @ 2200 rpm	48.2 / 35.5 @ 2400 rpm	56 / 41.3 @ 2200 rpm
Fuel Tank Capacity (litres)	1.9				
Dry Weight (kg)	45.4				46.0
Dimensions (L x W x H)	347.5 x 330 x 492 mm				343.4 x 438.4 x 664.8

FEATURES

- Overhead V-valves
- Pressurised lubrication
- Dual element air filter
- Internally vented carburettor
- Rotating grass screen
- Cast iron cylinder liners
- Oil cooler (FH770D KAI)

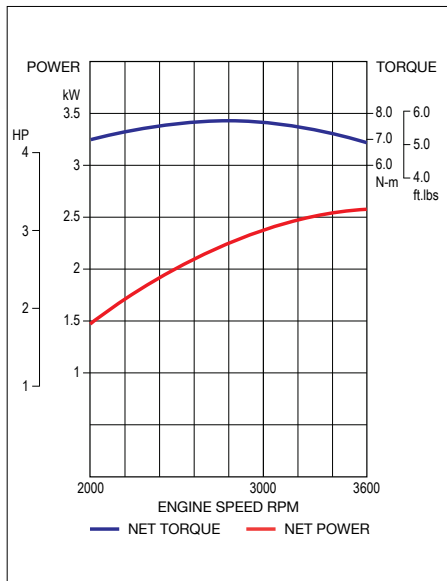
OPTIONS

- Shaft variation: 1 1/8" x 100 mm, 1" x 60 mm (flywheel)
- Various speed control systems
- 13 or 20 amp charge coil
- Various oil drain & starter options
- Oil pressure switches

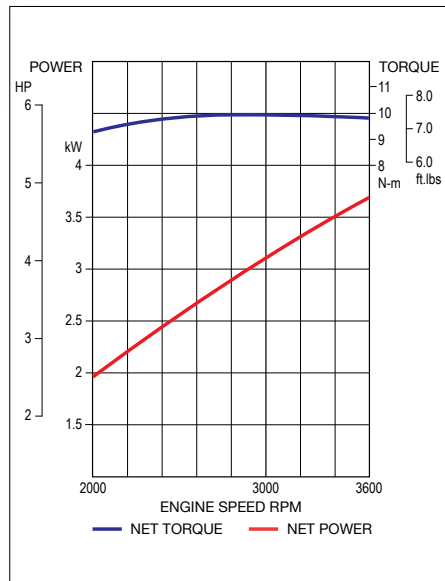
FH Series Horizontal

POWER CURVES

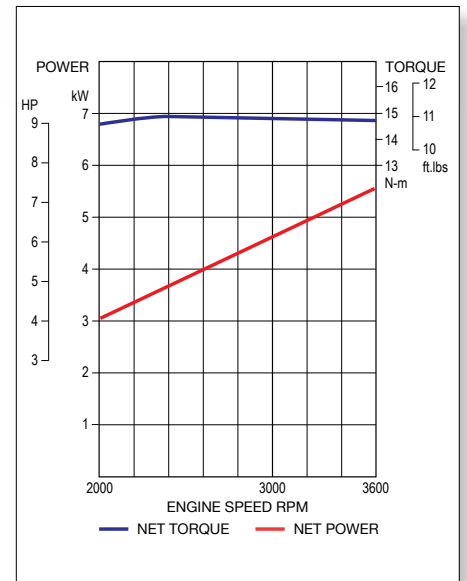
FH601D



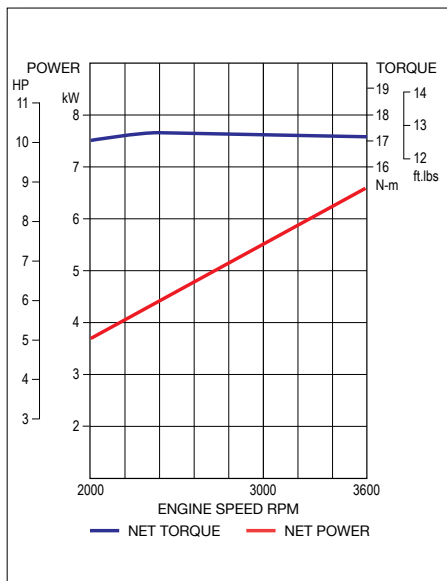
FH641D



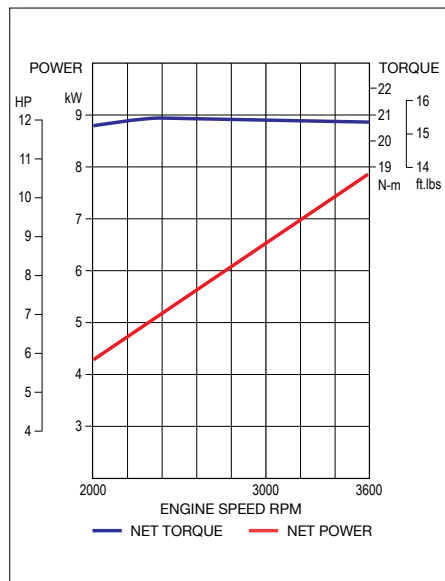
FH680D



FH721D



FH770D KAI



FH770D KAI



Engine Model	FD620D	FD750D	FD791D DFI	FD851D DFI
Engine Type	Liquid-cooled, 4-stroke, Horizontal shaft, OHV			
Number of Cylinders	2			
Bore x Stroke (mm)	78 x 78			82 x 78
Displacement (cc)	745			824
Max. Power (kW / hp)	15.3 / 20.5 @ 3600 rpm	17.5 / 23.4 @ 3600 rpm	18.3 / 24.5 @ 3600 rpm	20 / 26.8 @ 3600 rpm
Max. Torque (Nm / ft.lbs)	50 / 36.9 @ 2400 rpm	52 / 38.3 @ 2300 rpm	52.5 / 38.7 @ 2400 rpm	59 / 43.5 @ 2400 rpm
Fuel Tank Capacity (litres)	2			
Dry Weight (kg)	57			
Dimensions (L x W x H)	520 x 458 x 580 mm			

FEATURES

- Overhead V-valves
- Pressurised lubrication
- Dual element air filter (FD620D, 750D)
- Twin barrel carburettor (FD620D, 750D)
- Cooling temperature switch (FD620D, 750D)
- Cast iron cylinder liners
- Multiport digital fuel injection (FD791D DFI, 851D DFI)
- Compact electronic control unit (FD791D DFI, 851D DFI)
- High pressure pulse-type fuel pump (FD791D DFI, 851D DFI)

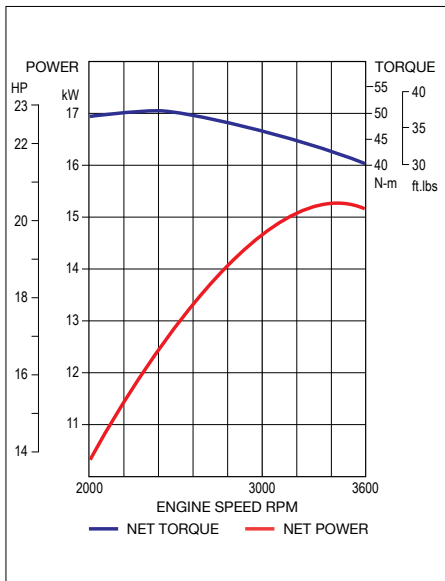
OPTIONS

- Shaft variation: 1" x 80 mm, 1 1/8" x 80 mm, 1 1/8" x 110 mm
- Various speed control systems
- 13, 20 or 30 amp charge coil
- Various oil drain & starter options
- Oil pressure switches
- Heavy duty canister air filter

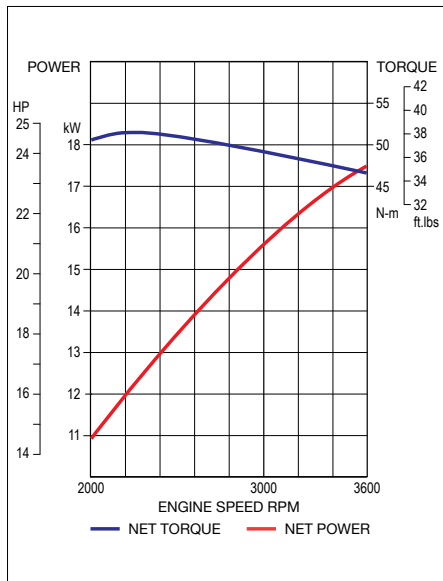
FD Series Horizontal

POWER CURVES

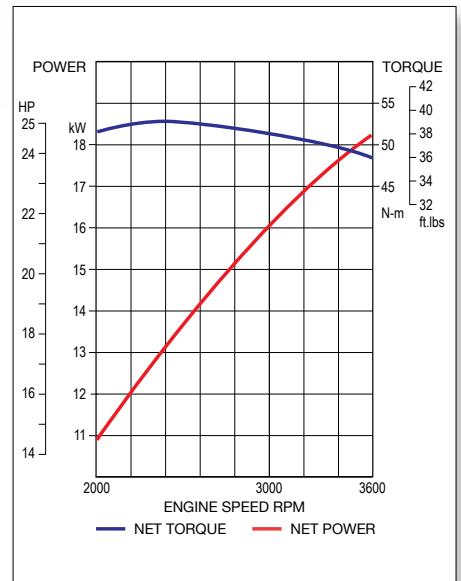
FD620D



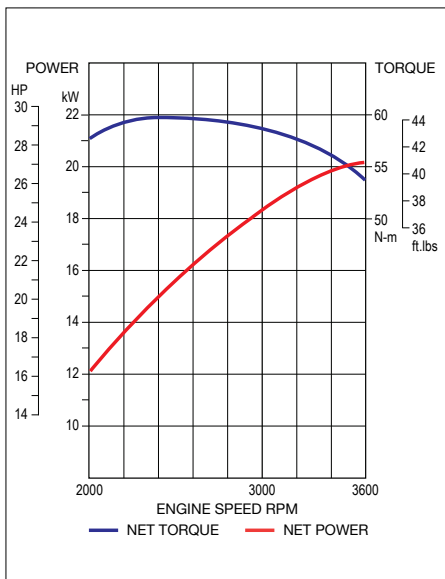
FD750D



FD791D DFI



FD851D DFI

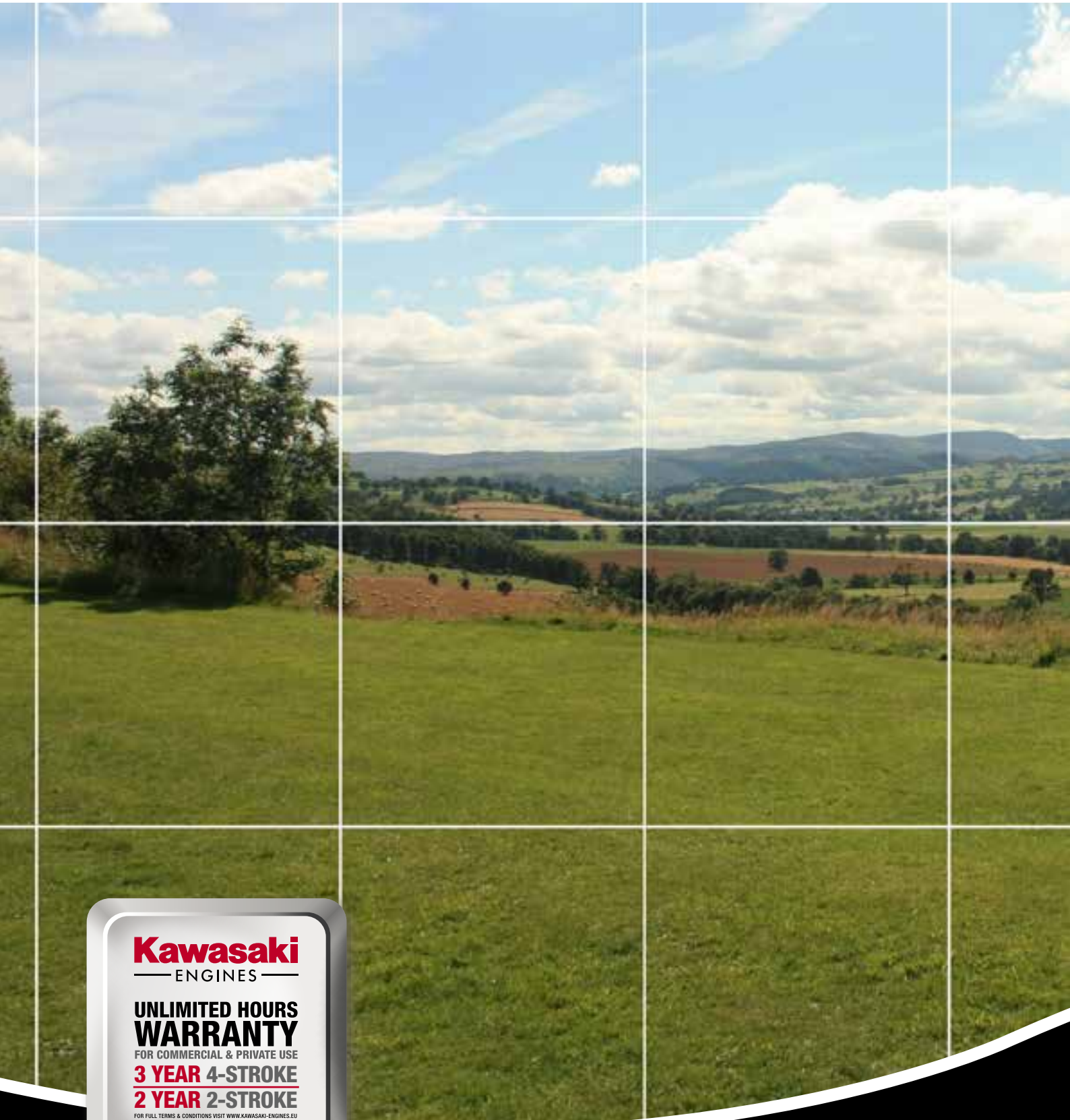


FD620D



FD851D DFI

2-Stroke Horizontal Engines



Kawasaki
— ENGINES —

**UNLIMITED HOURS
WARRANTY**

FOR COMMERCIAL & PRIVATE USE

3 YEAR 4-STROKE

2 YEAR 2-STROKE

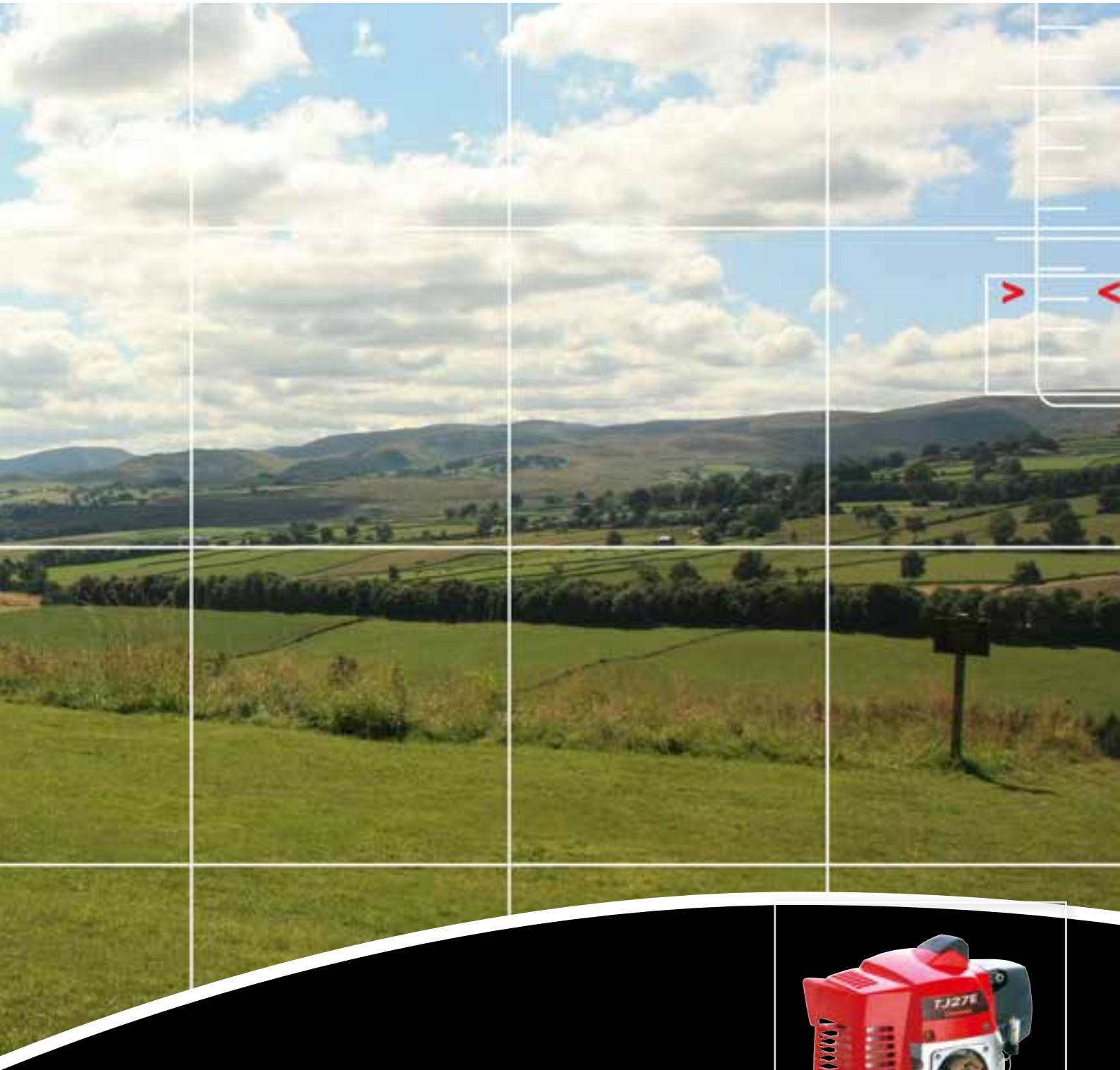
FOR FULL TERMS & CONDITIONS VISIT WWW.KAWASAKI-ENGINES.EU

TJ Series

Output : 0.63 kW (0.84 hp) - 2.0 kW (2.7 hp)

TK Series

Output : 2.9 kW (3.88 hp)





Engine Model	TJ23E	TJ27E	TJ35E	TJ45E
Engine Type	Air-cooled, 2-stroke, Single cylinder, Horizontal shaft			
Cylinders	1			
Bore x Stroke (mm)	32 x 29	34 x 29	37 x 32	42.5 x 32
Displacement (cc)	23.3	26.3	34.4	45.4
Max. Power (kW / hp)	0.63 / 0.84 @ 7500 rpm	0.77 / 1.03 @ 7500 rpm	1.03 / 1.38 @ 7000 rpm	1.42 / 1.9 @ 7500 rpm
Max. Torque (Nm / ft.lbs)	0.97 / 0.71 @ 5000 rpm	1.18 / 0.87 @ 5000 rpm	1.55 / 1.14 @ 5000 rpm	2.18 / 1.6 @ 5000 rpm
Fuel Tank Capacity (litres)	0.5		0.7	0.9
Dry Weight (kg)	2.6		3.1	3.9
Dimensions (L x W x H)	171 x 246 x 221 mm	171 x 253 x 221 mm	181 x 262 x 238 mm	189 x 264 x 262 mm

FEATURES

- Diaphragm carburetor
- Crankcase machined as a set
- KAR start system
- Large volume purge port
- Polyurethane foam air filter
- Lightweight piston
- Dynamically balanced flywheel
- Full cover design
- Centrifugal clutch installed
- Felt air cleaner element
- Low-tone muffler

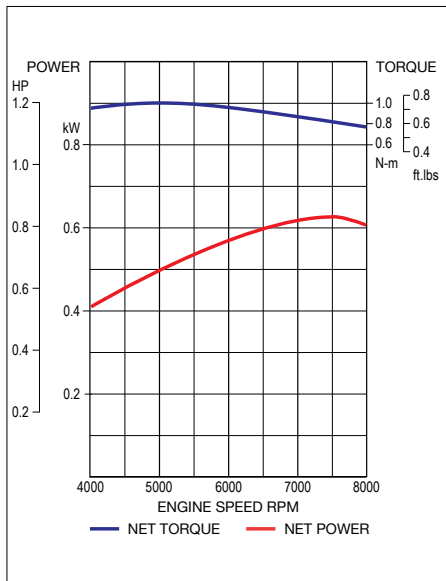
OPTIONS

- Kill switch

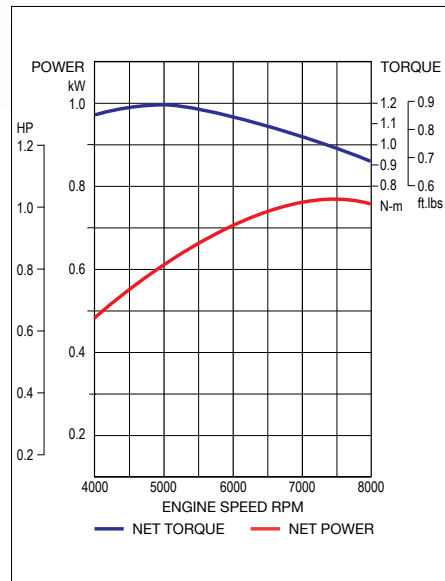
2-Stroke Horizontal Engines

POWER CURVES

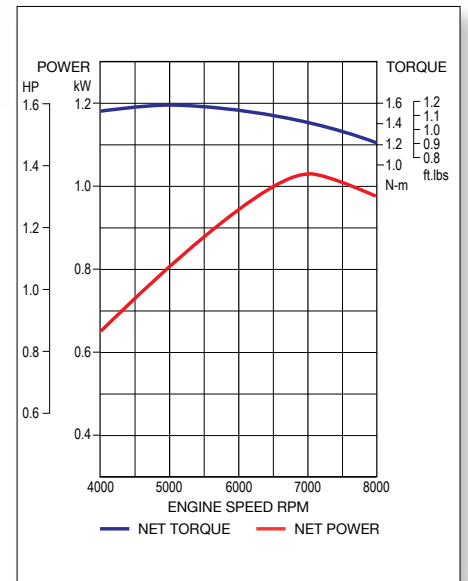
TJ23E



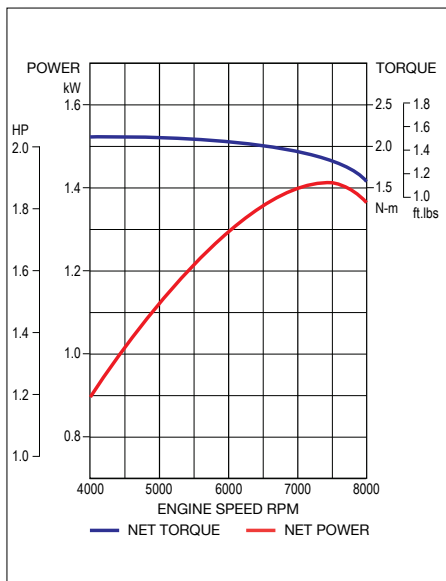
TJ27E



TJ35E



TJ45E



TJ23E



TJ45E



Engine Model	TJ53E	TK53	TK65
Engine Type	Air-cooled, 2-stroke, Single cylinder, Horizontal shaft		
Cylinders	1		
Bore x Stroke (mm)	44 x 35		48.5 x 35
Displacement (cc)	53.2		64.7
Max. Power (kW / hp)	2.0 / 2.7 @ 8500 rpm	2.42 / 3.25 @ 8000 rpm	2.9 / 3.88 @ 8000 rpm
Max. Torque (Nm / ft.lbs)	3.0 / 2.2 @ 5000 rpm	3.3 / 2.43 @ 5500 rpm	4.5 / 3.32 @ 5000 rpm
Fuel Tank Capacity (litres)	1.1	-	-
Dry Weight (kg)	4.5	4.3	4.4
Dimensions (L x W x H)	203 x 290 x 275 mm	193 x 332 x 257 mm	172 x 346 x 261 mm

FEATURES

- Diaphragm carburetor (exc. TJ53E)
- Crankcase machined as a set (TJ53E)
- KAR start system
- Large volume purge port
- Polyurethane foam air filter (exc. TJ53E)
- Lightweight piston (TJ53E)
- Dynamically balanced flywheel (TJ53E)
- Full cover design
- Centrifugal clutch installed
- Felt air cleaner element (TJ23E)
- Low-tone muffler

TK65 FEATURES

- Specialised blower / sprayer engine
- Diaphragm carburettor
- Large muffler
- Large volume purge port
- Large paper element air cleaner
- 50:1 fuel mixture

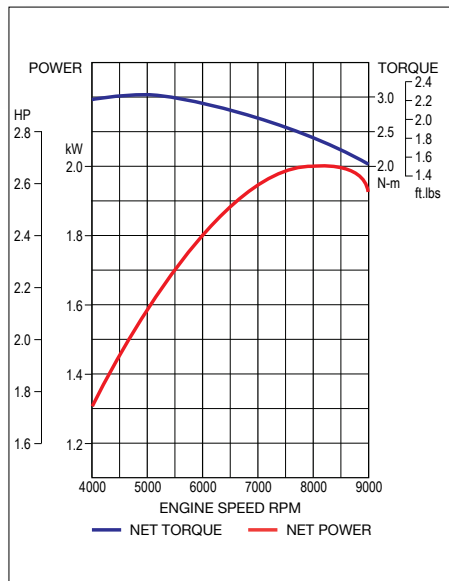
OPTIONS

- Kill switch (exc. TJ53E)

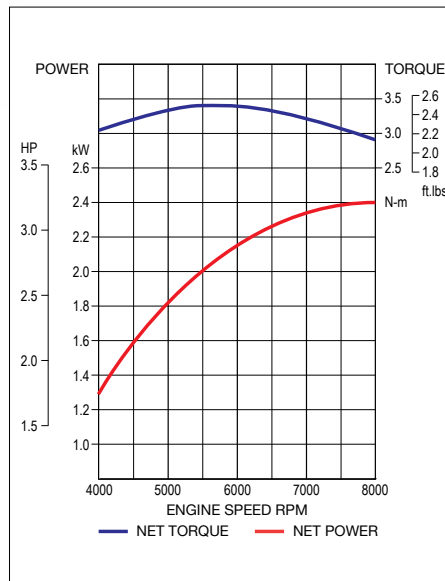
2-Stroke Horizontal Engines

POWER CURVES

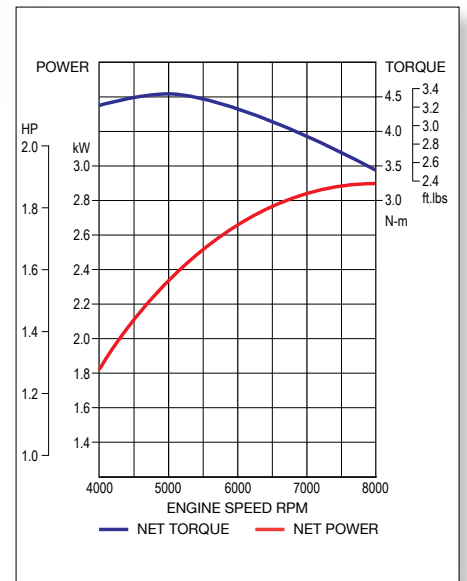
TJ53E



TK53



TK65



TJ53E

2-Stroke Vertical Engine



Kawasaki
— ENGINES —

**UNLIMITED HOURS
WARRANTY**

FOR COMMERCIAL & PRIVATE USE

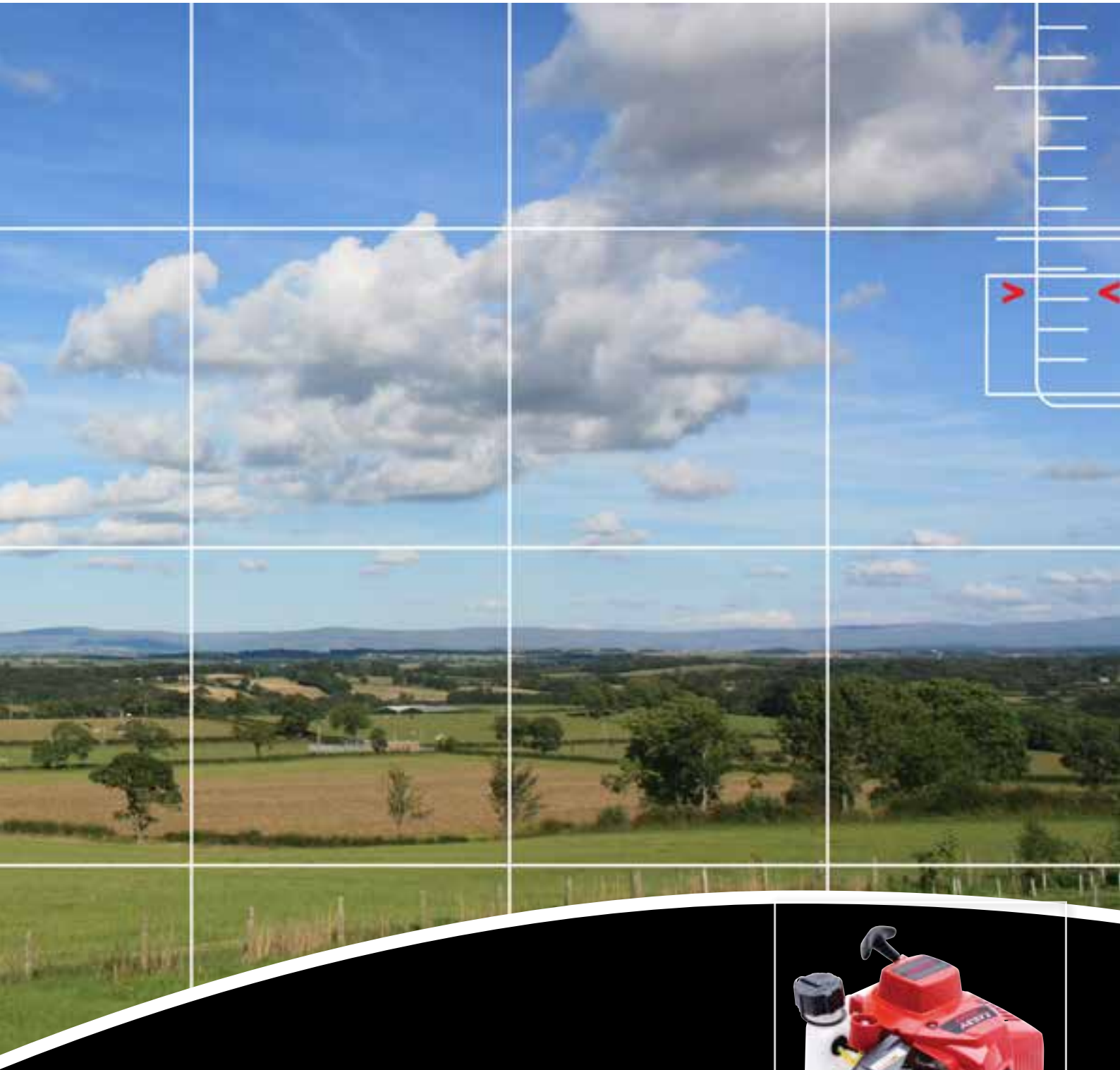
3 YEAR 4-STROKE

2 YEAR 2-STROKE

FOR FULL TERMS & CONDITIONS VISIT WWW.KAWASAKI-ENGINES.EU

TJ Series

Output : 0.63 kW (0.84 hp)





Engine Model	TJ23V
Engine Type	Air-cooled, 2-stroke, Single cylinder, Vertical shaft
Cylinders	1
Bore x Stroke (mm)	32 x 28
Displacement (cc)	22.5
Max. Power (kW / hp)	0.63 / 0.84 @ 8000 rpm
Max. Torque (Nm / ft.lbs)	0.94 / 0.69 @ 5000 rpm
Fuel Tank Capacity (litres)	0.4
Dry Weight (kg)	2.2
Dimensions (L x W x H)	218 x 250 x 186 mm

FEATURES

- Diaphragm carburetor
- Electronic spark ignition
- Centrifugal clutch installed
- Large volume purge pump

OPTIONS

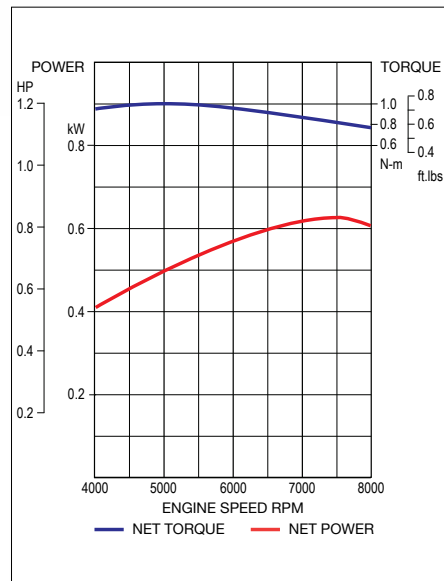
- Full cover design
- Large felt element air filter
- Lightweight

2-Stroke Vertical Engine



POWER CURVES

TJ23E



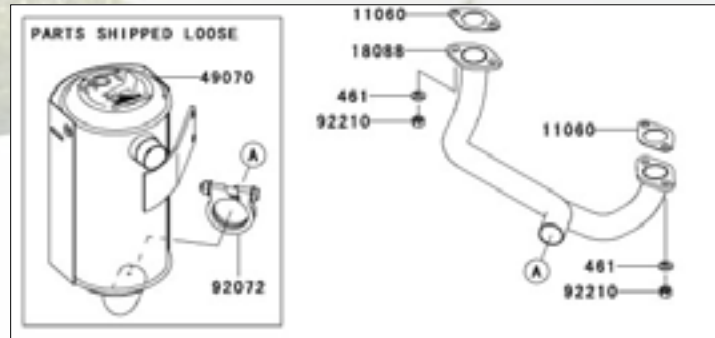


FH Range	FR Range	FS Range	FX Range
FH381V			
FH430V			
FH451V		FS481V	FX481V
FH480V			
FH500V	FR541V		
FH531V		FS541V	FX541V
FH541V			
FH580V			
FH601V	FR600V	FS600V	FX600V
FH641V	FR651V	FS651V	FX651V
FH680V	FR691V	FS691V	FX691V
FH721V	FR730V	FS730V	FX730V

Engine Repower Chart & Small Block Mufflers

Oil Filter Side Muffler

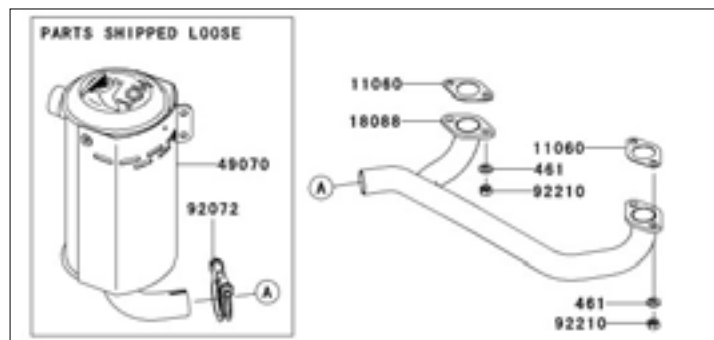
(FR541V & 600V / FS481V, 541V & 600V / FX481V, 541V & 600V)



Ref	Part Number	Description	Quantity
461	KM461DA0800	Washer-Spring, 8mm	4
11060	KM110607016	Gasket, muffler	2
18088	KM180887009	Pipe-Exhaust	1
49070	KM490700038	Muffler-Comp	1
49106	KM491067023	Cover-Muffler	1
92072	KM920727013	Band	1
92153	KM921537029	Bolt	3
92210	KM922107027	Nut, M8	4

Fuel Pump Side Muffler

(FR541V & 600V / FS481V, 541V & 600V / FX481V, 541V & 600V)



Ref	Part Number	Description	Quantity
130A	KM130BA0816	Bolt-Flanged, 8x16	4
461	KM461DA0800	Washer-Spring, 8mm	4
11056	KM1105622429H	Bracket	1
11060	KM110607016	Gasket, muffler	2
18088	KM180887010	Pipe-Exhaust	1
49070	KM490700038	Muffler-Comp	1
49106	KM491067023	Cover-Muffler	1
92012	KM920151143	Nut, 8mm	2
92072	KM920727013	Band	1
92210	KM922107027	Nut, M8	4

Spare Parts



Picture for illustration purposes only

‘Quality where it counts’

When you've made an investment in a highly engineered Kawasaki engine, it makes sense to maintain its reliability by using only genuine Kawasaki parts. Genuine parts are not just spare parts they are an important component of the whole machine. Imitation parts are invariably inferior in materials and manufacturing quality. They are not made to last, neither do they do the job that genuine parts are designed and made to do. Genuine parts are designed to fulfil all technical and performance requirements precisely. When you choose genuine Kawasaki parts you are 100% assured of quality, reliability and compliance with original equipment specifications.



LPG Exclusive

Output : 42kW @ 2570 rpm

Gas Exclusive

Output : 44kW @ 2570 rpm

Toyota LPG Engines

LPG Convertible

Output : 42kW (LPG) , 43kW (G)





Engine Model	Toyota 4Y Type Engine
Engine Type	4 cycle, water cooled, in-line, OHV
Combustion Chamber Type	Wedge
Aspiration / Air Intake Type	Natural / Counter flow
Cylinders	4
Bore x Stroke (mm)	91 x 86
Displacement (litres)	2.2
Compression Ratio	8.8 : 1
Fuel Type	Gasoline, LPG, NG
Dimensions (L x W x H)	682.9 x 509.6 x 683.2 mm
Dry Weight (kg)	134
Rotation Direction	Anti-clockwise viewed from flywheel
Valve Clearance Intake / Exhaust	0 mm / 0 mm (Hydraulic Lash Adjuster)
Fuel Control	Gasoline: Multi-port injection LPG / NG: Electronic control mixer + injector
Ignition Control	Distributor & ESA (Electronic spark advance)
Speed Control	Electronic governor
Throttle Control	Electronic control throttle

Toyota 4Y 2.2L Engine



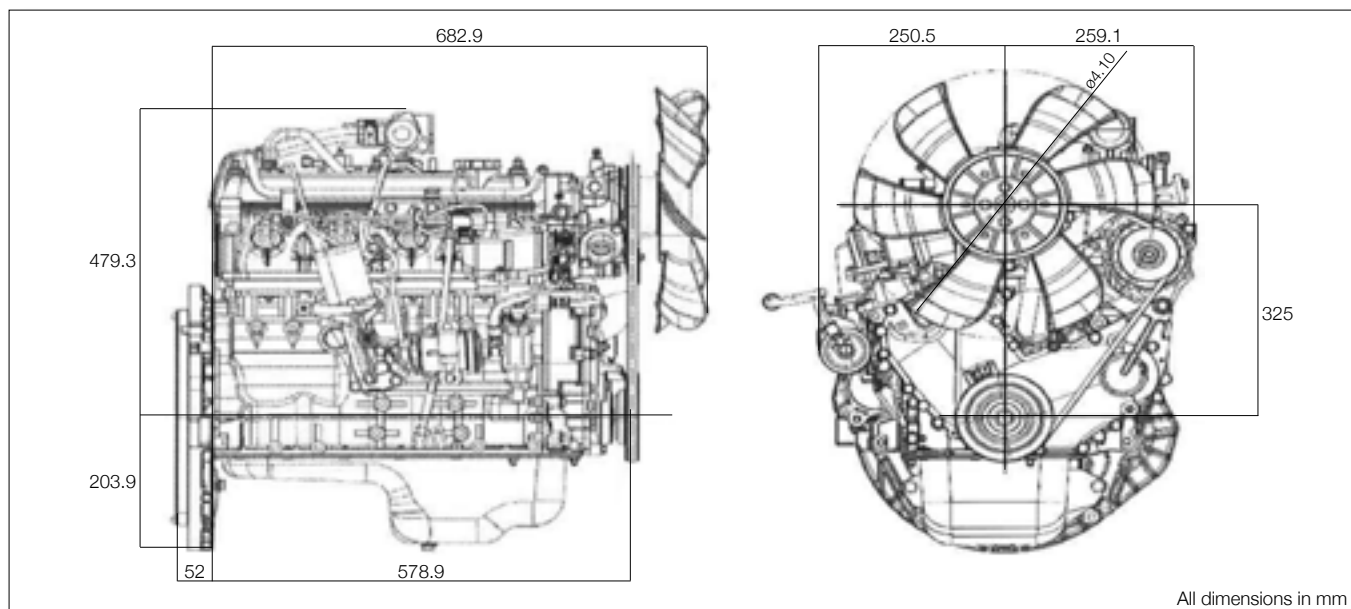
ENGINE PERFORMANCE

Fuel Type	LPG Exclusive	Gasoline Exclusive	LPG Convertible
Max Output (net) kW / rpm	42 / 2570	44 / 2570	42 / 2570 (LPG) 43 / 2570 (G)
Max Torque (net) Nm / rpm	160 / 2200	165 / 2570	160 / 2200 (LPG) 162 / 2570 (G)
Fuel Consumption g / kWh	233	310	310

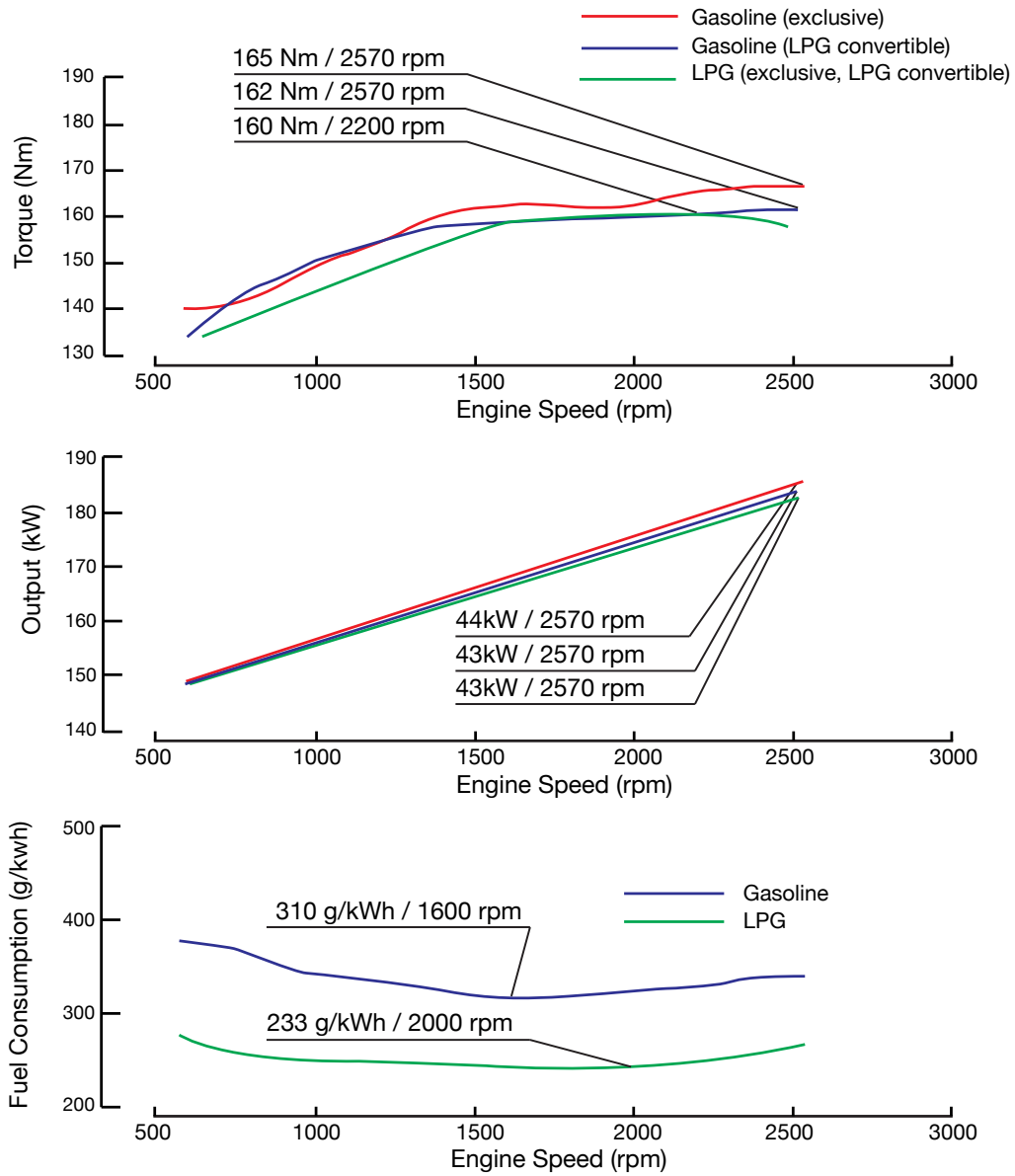
No load maximum revolution - 2570 rpm

No load minimum revolution - 750 rpm

TECHNICAL DRAWINGS



TECHNICAL DRAWINGS





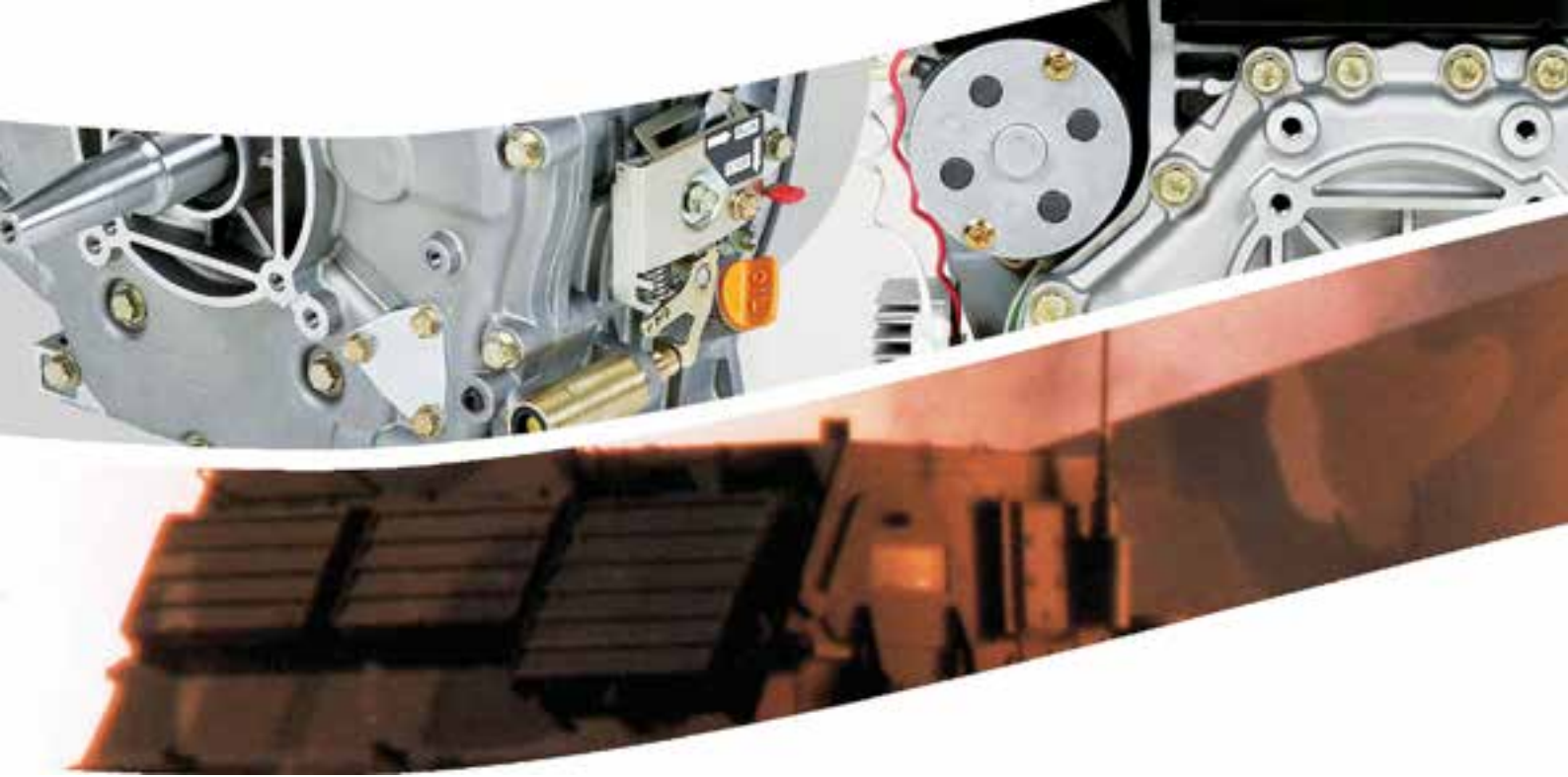
YANMAR



JOHN DEERE

Military Power





THE INDUSTRIAL DIVISION - A SPECIALIST TEAM

The Industrial Division offers a range of diesel engines from some of the world's leading manufacturers including Yanmar and John Deere. A core competency of the Division is its flexible approach to customer's needs, providing specialist engineering support for both one off projects and volume production. The division has built-up many years of military experience, skills and knowledge through its involvement with numerous applications and has become familiar with the MODs exacting requirements.

The Yanmar and John Deere diesel engine ranges are now the choice of many key military equipment manufacturers where the demands for high quality, performance and reliability in operation are expected. These engines are custom-built in line with typical military specifications providing features such as low temperature starting, the capability of operating in extreme climatic conditions and running on multi-fuel options.





TECHNICAL SUPPORT, SERVICE TRAINING AND APPLICATION TESTING

The Industrial Division has the support of an in-house research and development team and extensive, modern custom-engine building facilities. Barrus' test facilities enable delivery of fully tested, run-in and first serviced engines.

Application testing is a vital part of the service provided by the Industrial Division, as there are a number of factors which can influence an engine's performance. There are various tests carried out such as electrical tests and temperature tests, where up to 25 temperature probes and 6 pressure probes can be applied to create an accurate picture of how the engine will perform in use.

Tests are carried out with the end user and the application in mind particularly for military projects where engines are tested to withstand the extremes of the hostile conditions they often have to operate in.

Barrus has been awarded the highest quality standard in the commercial world, ISO 9001-2008





L-Series Air Cooled Engines

- 4hp to 10hp (2.94kW to 7.35kW)
- Lightweight
- Portable
- Air Cooled
- 12V / 24V electrics
- 12V / 24V air inlet heaters
- Multifuel operation
- Recoil and electric start
- Easy service
- Starting capability from -40°C to +52°C
- World wide service support



TNV Water Cooled Engines

- 13.4hp to 84hp (10kW to 64kW)
- Low noise
- Direct and indirect injection options
- High power to weight ratio
- Water cooled
- 12V / 24V electrics
- 12V / 24V air inlet heaters
- Block heaters
- Multifuel operation
- One side service
- Deep sump options
- Optional flywheel housings and flywheels
- Starting capability from -40°C to +52°C
- World wide service support
- Meets all Worldwide Off Highway Emissions Regulations

Yanmar Air & Water Cooled Engines



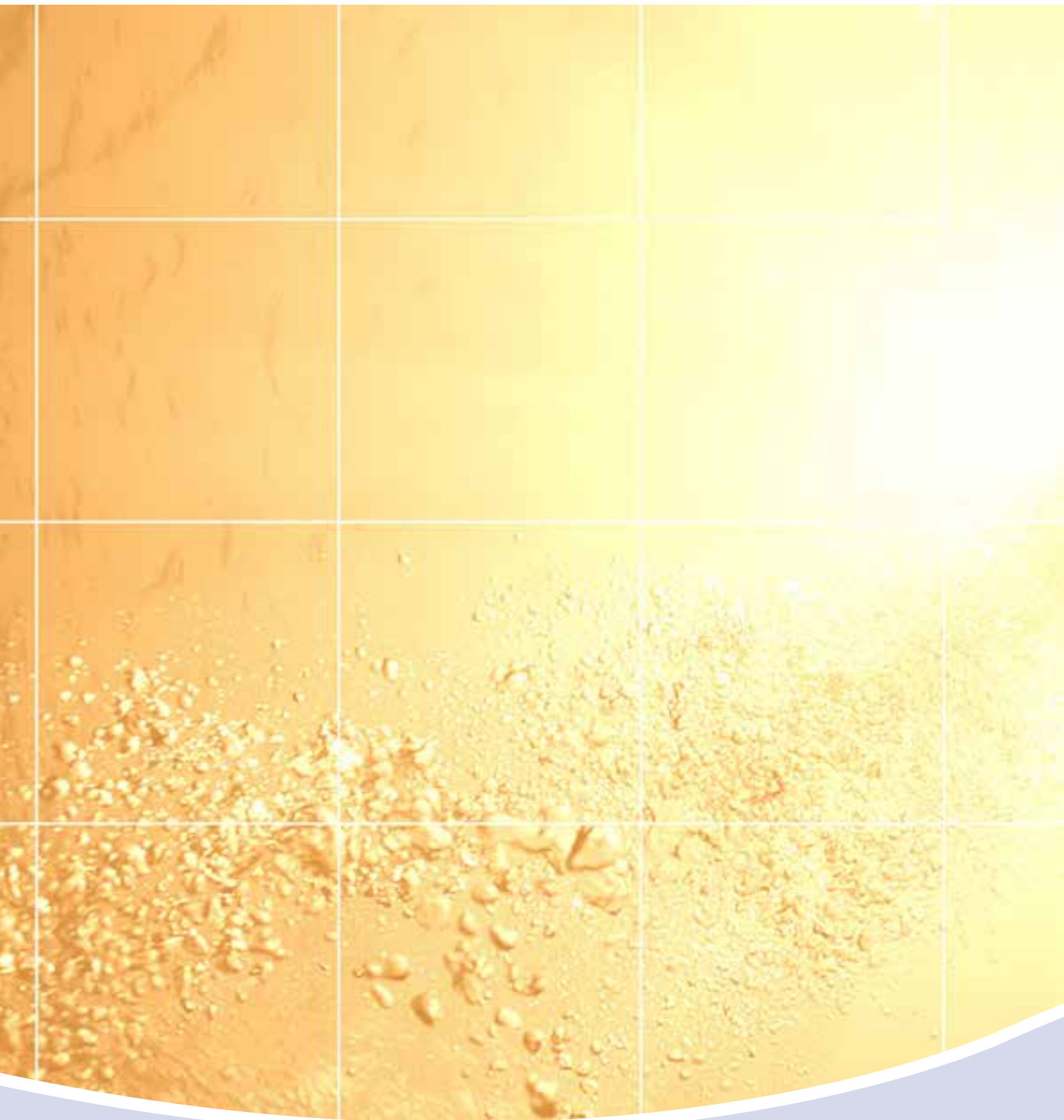


- 48hp to 600hp (36kW to 448kW)
- Low noise
- Direct injection
- Water cooled
- 12V / 24V electrics
- 12V / 24V air inlet heaters
- Block heaters
- Multifuel operation
- One side operation
- Deep sump options
- Optional flywheel housings and flywheel
- Starting capability from -40°C to +52°C
- Strong transient response
- World wide service support
- Meets all Worldwide Off Highway Emissions Regulations

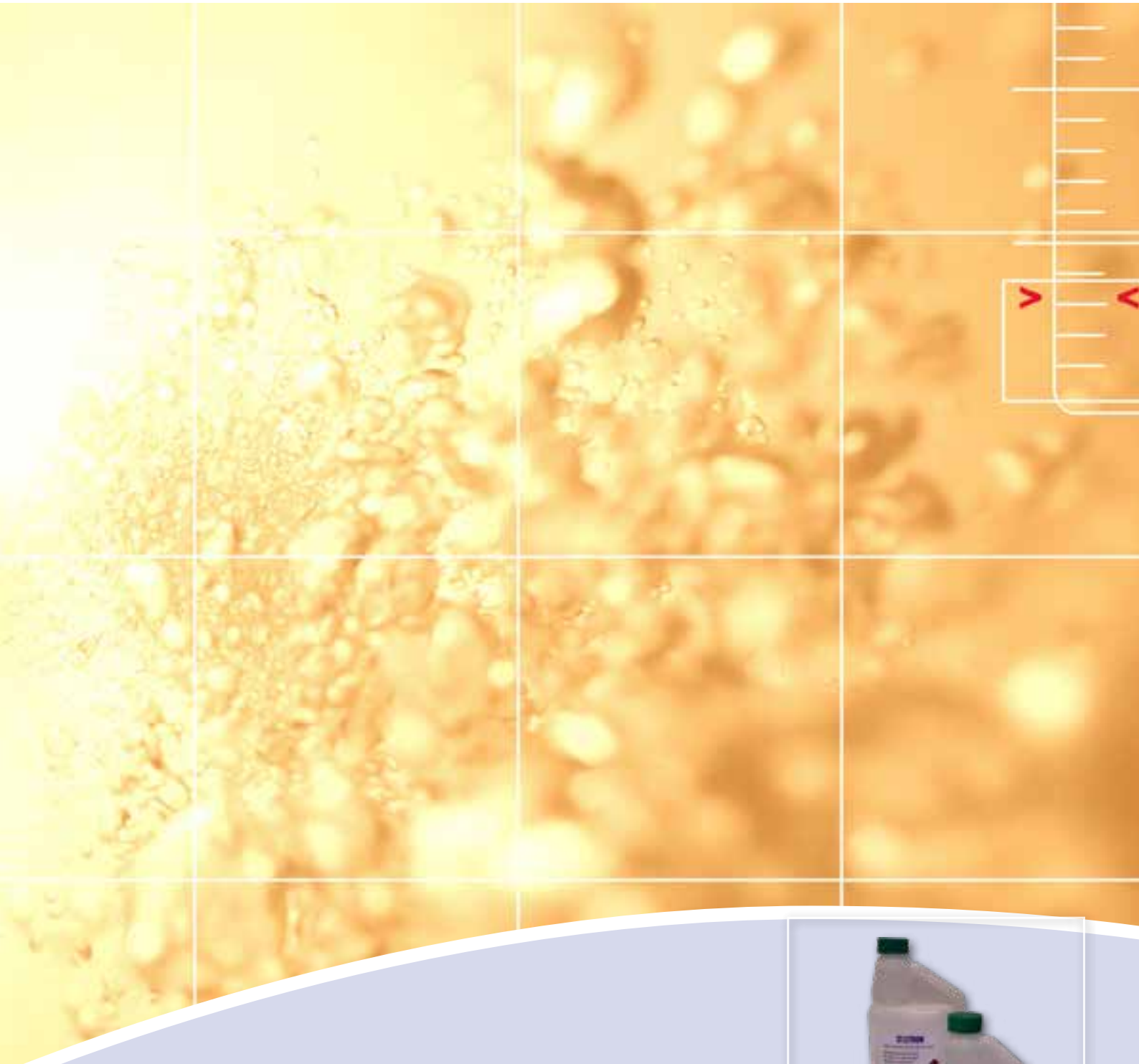


John Deere Engines





Detection Prevention Treatment



DETECTION - PREVENTION - TREATMENT

The FUEL BRIGHT range specialises in innovative and proven products to ensure the quality of stored and transferred fuels. With today's high fuel prices and the precision of modern machinery, ensuring the quality of your fuel has never been more important.

Condensation and water build up in fuel tanks is almost unavoidable and causes serious damage to fuel injection systems & components, leading to severe repair bills and loss of earnings. We all know that prevention is better than cure, which is where our products come in. If you have an already existing problem, our tools/products are all you need to identify the issue, determine the severity of the problem and treat it effectively.

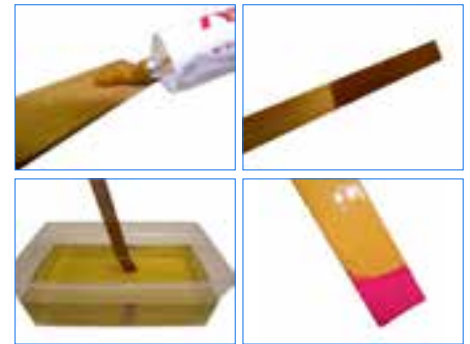
Today's fuels can legally contain bio-fuel. This bio-fuel content can cause damage to expensive fuel injection equipment if the correct precautions are not taken.

Bio-fuels absorb water from their surrounding environment. Allowing microbes the water they require to live, these then form into colonies causing filters to block, less efficient combustion and component wear.

The products in the FUEL BRIGHT range are specifically designed and tested to help keep your stored fuel at its best for longer as well as tackle already existing problems.



Kolor Kut Water Finding Paste, otherwise known as Water Gauging Paste, is used to test for the presence of water in the bottom of oil, diesel, petrol, gasoline, fuel oil, and kerosene tanks. Place a thin film of Kolor Kut Water Finding Paste on a clean gauge line, or rod, approximately where water level is expected to appear. Lower the tape into the tank until the bottom is reached and, on removal, the water level will appear by positive contrast of colours. Instantaneously in petrol, diesel, kerosene and gas oils but heavy oils will require a few seconds to show.



This product will successfully gauge water content in all petroleum and hydrocarbons as well as sulphuric acid, nitric acid, hydrochloric acid, ammonia, soap solutions, salt and other chloride solutions.



Soltron is a mixture of naturally occurring proteins, enzymes and amino acids. The use of Soltron will ensure that you are protected against contamination from microbial and bacterial growth "Bugs". These "bugs" reproduce in your fuel tank contaminating your fuel which in turn blocks your filters causing engine failure. These organisms can after time, attain an immunity to chemical biocidal treatments. However, Soltron breaks up the "bugs" so that they pass through the fuel filters and are removed during combustion. Soltron breaks down bacteria, fungi and yeasts in a prophylactic biocidal role.

SOL1 - 50ml treats 250L

SOL2 - 125ml treats 625L

SOL3 - 500ml treats 2500L

SOL4 - 1L treats 5000L



STANADYNE®

Made by American Fuel Equipment Manufacturer Stanadyne and approved by OEM's such as John Deere, Caterpillar, Ford, Volkswagen and GM. Stanadyne's

Performance Formula eliminates the need for expensive "premium" or blended fuels and is your insurance against poor quality diesel.

- Boosts Cetane to Increase Power and Fuel Economy.
- Cleans, Lubricates and Protects Fuel System Components.
- Compatible with ULS Diesel and all Fuel Systems.
- Provides Cold Weather Protection.
- Removes varnish and other deposits to prevent plugging.

- Cleans and protects fuel system components.
- Helps remove water from fuel.
- Protects against corrosion with an alcohol free formula.
- Effective with up to B20 bio-diesel blends.
- Upgrades and stabilizes fuel by reducing sludge and fuel tank contaminants



MR. FUNNEL

The Fuel Filter Funnel is a heavy-duty, anti-static and fast flow funnel with built in filter technology. When fuel is poured through it, water and debris will not pass through. Only clean, filtered fuel flows through to your engine. The funnel will filter petrol, diesel,

heating oil and kerosene. The sump area collects the deflected water and debris for proper disposal. Choose the funnel with the flow rate that best suits your fuel transfer needs.



RFF1C
2.5 gal. per min



RFF3C
3.5 gal. per min



RFF8C
5 gal. per min



RFF15
12 gal. per min

Fuel BRIGHT Water Soaker

Super absorbent polymer with mesh filter containment.

It is common for condensation to build up in most fuel tanks, especially in Agricultural and Marine equipment stored outside for longer periods. This will cause damage to expensive engine fuel injection components. The Water Soaker will remove any build up of water as well as preventing any further water from accumulating. The Water soaker sits at the bottom of the tank where the collective water settles and absorbs it.



ALSO AVAILABLE



Bacteria Test Kits



Fuel Analyser



Fuel Sampling Pump

Diesel Emission Data - Variable Speed

LEGEND

EPA	Tier 1	Tier 2	Tier 3	Interim Tier 4	Final Tier 4
EU	Stage I	Stage II	Stage IIIA	Stage IIIB	Stage IV

New emissions regulations take effect January 1st of the year indicated by colour change unless otherwise noted.

EXAMPLES

NOx	2.0	2.0, the maximum amount of nitrogen oxides (NOx) allowed in grams / kW-hr.
NMHC	0.19	0.19, the maximum amount of non-methane hydrocarbons (NMHC) allowed in grams / kW-hr.
PM	0.025	0.025, the maximum amount of particulate matter (PM) allowed in grams / kW-hr.

NMHC + NOx	7.5	7.5, the maximum amount of NMHC + NOx allowed in grams / kW -hr.
PM	0.80	0.80, the maximum amount of PM allowed in grams / kW-hr.

EPA NONROAD EMISSIONS REGULATIONS

kW	HP	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
0 - 7	0 - 10					7.5 0.80			7.5 0.40							
8 - 18	11 - 24					7.5 0.80			7.5 0.40							
19 - 36	25 - 49				7.5 0.60				7.5 0.30					4.7 0.03		
37 - 56	50 - 74				7.5 0.40				4.7 0.30	Option 1*				4.7 0.03		
						4.7 0.40	Option 2*		4.7 0.03							
57 - 74	75 - 99				7.5 0.40				4.7 0.40				3.4 0.19 0.02			0.40 0.19 0.02
75 - 129	100 - 174			6.6 0.30				4.0 0.30					3.4 0.19 0.02			0.40 0.19 0.02
130 - 224	175 - 299			6.6 0.20												
225 - 449	300 - 599	6.4 0.20						4.0 0.20				2.0 0.19 0.02			0.40 0.19 0.02	
450 - 559	600 - 749		6.4 0.20													
≥ 560	≥ 750							6.4 0.20				3.5 0.19 0.10				3.5 0.19 0.04

*In the 50 to 75 horsepower category there are two options. Option 1 requires a reduced PM level (.30 vs. .40) but allows Final Tier 4 to be delayed one year (2013).

NOTE: The vertical dashed lines separating the years show when the seven-year life of the Tier 2/3 Equipment Flexibility Provision ends and engines can no longer be placed in vehicle production.

EU NONROAD EMISSIONS REGULATIONS

kW	HP	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
0 - 7	0 - 10	Not regulated in EU														
8 - 18	11 - 24	Not regulated in EU														
19 - 36	25 - 49	8.0 1.5 0.80						7.5 0.60								
37 - 56	50 - 74				7.0 1.3 0.40				4.7 0.40					4.7 0.025		
57 - 74	75 - 99				7.0 1.3 0.40				4.7 0.40				3.3 0.19 0.025			0.40* 0.19 0.025
75 - 129	100 - 174			6.0 1.0 0.30				4.0 0.30					3.3 0.19 0.025			0.40* 0.19 0.025
130 - 559	175 - 749		6.0 1.0 0.20				4.0 0.20					2.0 0.19 0.025			0.40 0.19 0.025	
≥ 560	≥ 750	Not regulated in EU														

*October 1, 2014

FUEL SULFUR REGULATIONS

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
EPA	5000 ppm						500 ppm			15 ppm					
EU	2000 ppm						1000 ppm			10 ppm					



Diesel Emission Data - Constant Speed

LEGEND

EPA	Tier 1	Tier 2	Tier 3	Interim Tier 4	Final Tier 4
EU	Stage I	Stage II	Stage IIIA	Stage IIIB	Stage IV

New emissions regulations take effect January 1st of the year indicated by colour change unless otherwise noted.

EXAMPLES

NOx	2.0	2.0, the maximum amount of nitrogen oxides (NOx) allowed in grams / kW-hr.
NMHC	0.19	0.19, the maximum amount of non-methane hydrocarbons (NMHC) allowed in grams / kW-hr.
PM	0.025	0.025, the maximum amount of particulate matter (PM) allowed in grams / kW-hr.

NMHC + NOx	7.5	7.5, the maximum amount of NMHC + NOx allowed in grams / kW -hr.
PM	0.80	0.80, the maximum amount of PM allowed in grams / kW-hr.

EPA NONROAD EMISSIONS REGULATIONS NEW SOURCE PERFORMANCE STANDARD (NSPS)

kW	HP	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
0 - 7	0 - 10			7.5 0.40							
8 - 18	11 - 24			7.5 0.40							
19 - 36	25 - 49			7.5 0.30					4.7 0.03		
37 - 55	50 - 74			4.7 0.30	Option 1*				4.7 0.03		
				4.7 0.40	Option 2*			4.7 0.03			
56 - 74	75 - 99			4.7 0.40				3.4 0.19 0.02			0.40 0.19 0.02
75 - 129	100 - 174		4.0 0.30					3.4 0.19 0.02			0.40 0.19 0.02
130 - 224	175 - 299										
225 - 449	300 - 599		4.0 0.20				2.0 0.19 0.02			0.40 0.19 0.02	
450 - 559	600 - 749										
≥ 560	≥ 750		6.4 0.20				3.5 0.19 0.10				3.5 0.19 0.04

*In the 50 to 75 horsepower category there are two options. Option 1 requires a reduced PM level (.30 vs. .40) but allows Final Tier 4 to be delayed one year (2013).

NOTE: The vertical dashed lines separating the years show when the seven-year life of the Tier 2/3 Equipment Flexibility Provision ends and engines can no longer be placed in vehicle production.

The new source performance standard (NSPS) required most stationary engines to be Tier 1 compatible on 1st April 2006 and meet current nonroad mobile standards after 1st January 2007.

EPA. Environmental Protection Agency.

EU: European Union.

EU NONROAD EMISSIONS REGULATIONS CONSTANT SPEED

kW	HP	2007	2008	2009	2010	2011	2012	2013	2014	2015
0 - 7	0 - 10	Not regulated in EU								
8 - 18	11 - 24	Not regulated in EU								
19 - 36	25 - 49	8.0 1.5 0.80				7.5 0.60				
37 - 56	50 - 74	7.0 1.3 0.40					4.7 0.40			
57 - 74	75 - 99	7.0 1.3 0.40					4.7 0.40			
75 - 129	100 - 174	6.0 1.0 0.30				4.0 0.30				
130 - 559	175 - 749	6.0 1.0 0.20				4.0 0.20				
≥ 560	≥ 750	Not regulated in EU								

European Union directive 97/68/EC requires constant speed engines, such as mobile gen-sets, meet stage II emissions levels on 01 January 2007. The directive also requires constant speed engines meet Stage III A emissions levels beginning 01 January 2011.

FUTURE REGULATIONS

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	Output	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
EC NRMM	0-19kW	No regulation									Stage V		
	19-37kW	Stage IIIA									Stage V		
	37-56kW	Stage IIIA			Stage IIIB						Stage V		
	56kW-	Stage IIIA		Stage IIIB			Stage IV				Stage V		

Under discussion

	Output	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
US EPA	0-8kW	Tier4			Tier4F								
	8-19kW	Tier4			Tier4F								
	19-37kW	Interim Tier4			Tier4								
	37-56kW	Interim Tier4			Tier4								
	56kW-	Tier3		Interim Tier4			Tier4						

	Output	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Japan	0-8kW	Step2 (LEMA voluntary)											
	8-19kW	Step2 (LEMA voluntary)											
	19-37kW	Step2			Step3			Step4 w/ smoke limit: 0.50m ⁻¹					
	37-56kW	Step2			Step3			Step4 w/ smoke limit: 0.50m ⁻¹					
	56kW-	Step2		Step3			Step4 w/ smoke limit: 0.50m ⁻¹						

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