



**YANMAR**

DIESEL ENGINE  
**TNWV**  
Common Rail Series

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Note : All data is subject to change without notice.



## A SUSTAINABLE FUTURE

YANMAR is engaged in the relentless pursuit of high efficiency, low emission diesel engines.

With technology that already meets the next generation of environmental emissions standards,

YANMAR is providing sustainable solutions towards a new era of prosperity.



DIESEL ENGINE  
**TN MV**  
Common Rail Series



## Perfect Technology for Clean Power

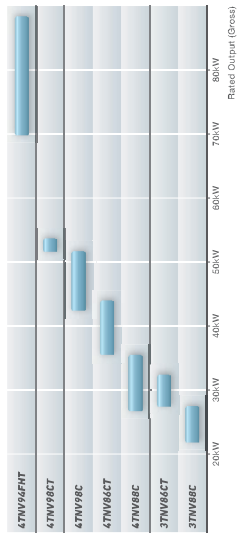
YANMAR smart diesel technology from a future where all devices operate under constant electronic control delivers unparalleled levels of efficient combustion. By monitoring a host of factors from the temperature and oxygen level of the surrounding air to the current engine loading, the engine itself can determine the optimum running conditions to deliver maximum combustion efficiency, in any environment. Through moment by moment feedback and control a powerful and cleanest engine in its category is born, the likes of which the world has never seen.

- **EU Stages Ready**  
Cleanest engine in its category

- **No Scheduled Maintenance DPF\* for 6,000 hours**  
Seamless operation in the field

- **Tough and Reliable Power**

- **Best in Class Fuel Consumption**



\* DPF life for device designed for 100% particulate matter (PM) conversion rate.

■ **COOLED EGR SYSTEM**

The cooled Exhaust Gas Recirculation (EGR) system cools a portion of the emission gas, mixing it with intake air and circulating it in the cylinders, to lower the combustion temperature within the cylinders and reduce NOx. The EGR valve makes precise adjustments to the EGR circulation volume to match the air temperature and oxygen concentration depending on altitude of the intake air, ensuring stable fuel combustion control in any operating conditions.



■ **COMMON RAIL SYSTEM**

The Tier 4 engine uses a fully electronically controlled common rail and fuel injection system. At ignition, the system instantaneously collects and analyzes information such as the outside temperature and altitude, the air's oxygen concentration level, engine load conditions and DPF temperature for precise control of the fuel injection timing and amount, ensuring stable combustion and precise combustion control down to the millisecond that in turn reduces PM and NOx emissions.



■ **YANMAR T1W CLEAN DIESEL TECHNOLOGIES**

■ **DIRECT INJECTION COMBUSTION**

In 1980, YANMAR was one of the first companies to implement direct injection combustion into its small diesel engines. Since then, YANMAR has used its in-house R&D parts manufacturing process to further develop its unique direct injection combustion technology that boasts low emissions, increased fuel economy and high power output. Tier 4 takes this technology to its limit in pursuit of optimal fuel injection for minimal particulate matter (PM) in the exhaust gas.



■ **ECU**

The ECU, which provides integrated control of the engine, collects information about the work environment and load via engine sensors and electronic devices, and instantaneously feeds this information back for the reproduction of ideal operating conditions. Furthermore, using CAN communication, the machine also sends a wide variety of information to the ECU to achieve ideal control of the engine and entire machine. Should something happen unexpectedly, the ECU's SMARTASSIST (YANMAR's diagnostic system for faster servicing) sends communications using



■ **DIESEL PARTICULATE FILTER (DPF)**

The minuscule amount of PM in the emissions gas, which has also been reduced to an absolute minimum, is finally captured by the Diesel Particulate Filter (DPF), preventing its escape into the atmosphere, resulting in unparalleled environmental performance. Moreover, the installation of the DPF allows for consistent power output and response even under rapidly changing loads and low temperatures operating conditions when other might incur poor combustion, all without any added stress to the operator.



Automatic DPF regeneration operates without the operator ever noticing, so there is no need to stop operations. The DPF remains untagged and no scheduled maintenance for 6,000 hours.

■ **REGENERATION MODES**

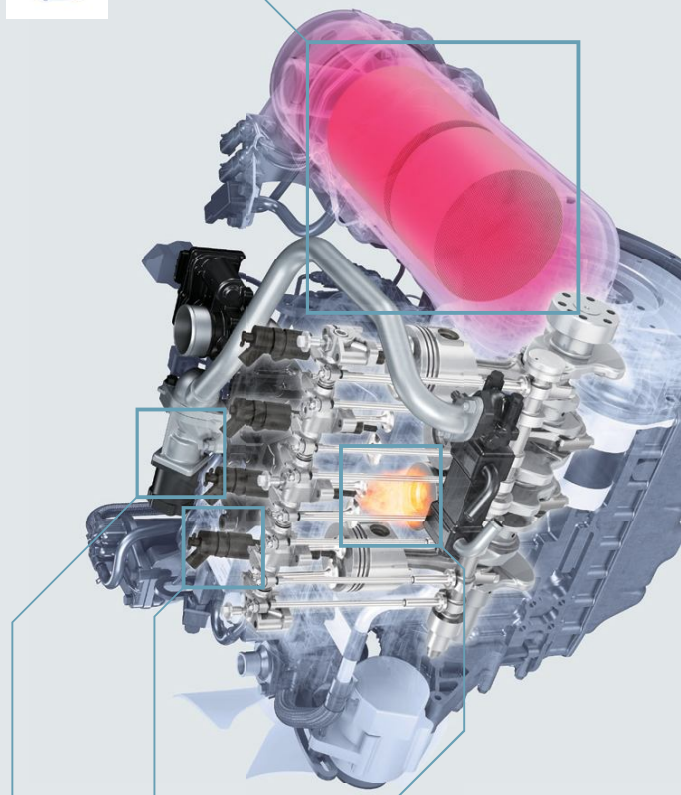
■ **ASSIST REGENERATION**

During low load and low temperature operation when it is difficult to obtain the temperature required for DPF regeneration, rather than using oxidation heat via the post fuel injection, YANMAR assist regeneration is able to elevate the DPF temperature via the intake throttle valve and combustion control. Therefore, DPF regeneration is possible without sacrificing high fuel economy.



■ **RESET REGENERATION**

The PM accumulated in the DPF is predicted and monitored based on the operating and working conditions of the engine. Assist regeneration is repeated until PM reaches a certain level, then it automatically switches to reset regeneration, completely regenerating and combusting the captured PM in the DPF without causing the engine's operation. Operating efficiency doesn't suffer as the operator continues working without ever noticing the reset regeneration process.



## 3TNV88C

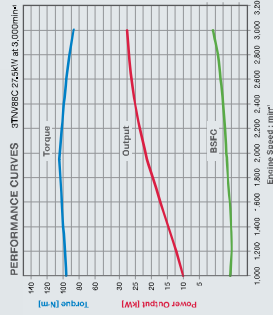
Rated Output (Gross)

# 21.8-27.5kW

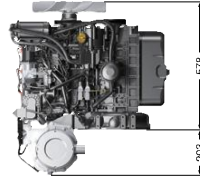
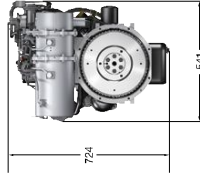


SPECIFICATION		3TNV88C	
Engine Model	3TNV88C		
Emission Compliance	EPA Tier1 / EU Stage III / Swiss and JIS FORN / Korea Tier1 / Japan 2013		
Fuel Function	Diesel Function (D)		
Aspiration	NA		
Fuel Injection System	Common Rail		
Intake Timing Valve	Standard		
Cooling Fan	Standard		
Aftertreatment	DPF		
No. of Cylinders	3		
Bore x Stroke	88 x 90		
Displacement	L	1,842	
Rated Output (Gross)	kW/min	21.8/2,400	26.8/2,500
	PS/min	29.6/2,400	31.0/2,500
Max Torque (Gross)	Non-inertia	105.7/600	105.7/600
Overall Length x Width x Height *	mm	781 x 541 x 724	
Weight (Dry) *	kg	170	

\*: DPF layout is on filtered housing.



DIMENSIONS (mm)



## 3TNV86CT

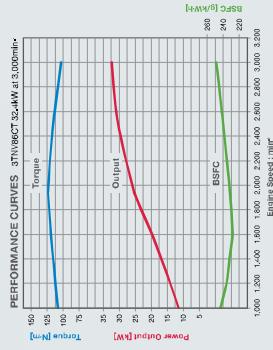
Rated Output (Gross)

# 27.4-32.4kW

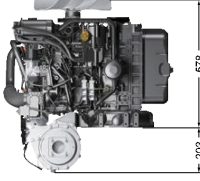
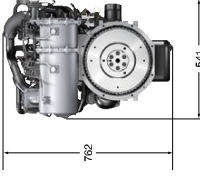


SPECIFICATION		3TNV86CT	
Engine Model	3TNV86CT		
Emission Compliance	EPA Tier1 / EU Stage III / Swiss and JIS FORN / Korea Tier1 / Japan 2013		
Fuel Function	Diesel Function (D)		
Aspiration	TC		
Fuel Injection System	Common Rail		
Intake Timing Valve	Standard		
Cooling Fan	Standard		
Aftertreatment	DPF		
No. of Cylinders	3		
Bore x Stroke	88 x 90		
Displacement	L	1,968	
Rated Output (Gross)	kW/min	27.4/2,500	31.0/2,800
	PS/min	32.2/2,500	42.1/2,800
Max Torque (Gross)	Non-inertia	127.7/600	127.7/600
Overall Length x Width x Height *	mm	781 x 541 x 782	
Weight (Dry) *	kg	175	

\*: DPF layout is on filtered housing.



DIMENSIONS (mm)



## 4TNV88C

Rated Output (Gross)

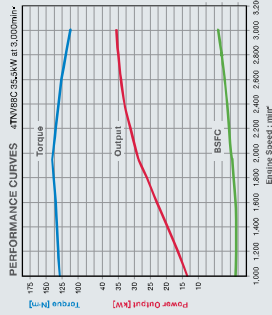
# 26.7-35.5kW



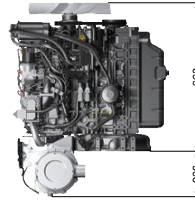
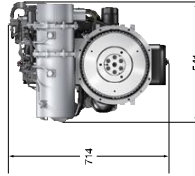
### SPECIFICATION

Engine Model	4TNV88C		
Emission Compliance	EPA Tier4 / EU Stage IIb / Swiss and FOM / Korea Tier4 / Japan 2013		
Fuel Function	Diesel Injection DIH		
Aspiration	NA		
Fuel Injection System	Common Rail		
Intake Timing Valve	Standard		
Cooling Syst	DPF		
Aftertreatment	4		
No. of Cylinders	88 x 90		
Bore x Stroke	267/2,200   281/2,400   303/2,500   317/2,600   343/2,800   35,5/3,000		
Displacement	L		
Rated Output (Gross)	kW/hp		
Max Torque (Gross)	PS/hp		
Overall Length x Width x Height *	mm		
Weight (Dry) *	kg		

\*: DPF layout is on filtered housing.



### DIMENSIONS (mm)



## 4TNV86CT

Rated Output (Gross)

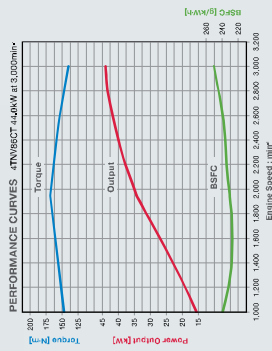
# 35.5-44.0kW



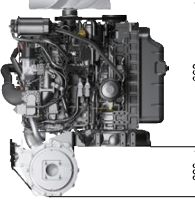
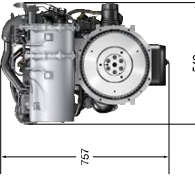
### SPECIFICATION

Engine Model	4TNV86CT		
Emission Compliance	EPA Tier4 / EU Stage IIb / Swiss and FOM / Korea Tier4 / Japan 2013		
Fuel Function	Diesel Injection DIH		
Aspiration	TC		
Fuel Injection System	Common Rail		
Intake Timing Valve	Standard		
Cooling Syst	DPF		
Aftertreatment	4		
No. of Cylinders	88 x 90		
Bore x Stroke	35,5/2,400   37,2/2,600   41,7/2,800   44,0/3,000		
Displacement	L		
Rated Output (Gross)	kW/hp		
Max Torque (Gross)	PS/hp		
Overall Length x Width x Height *	mm		
Weight (Dry) *	kg		

\*: DPF layout is on filtered housing.



### DIMENSIONS (mm)



# 4TNV98C

Rated Output (Gross)

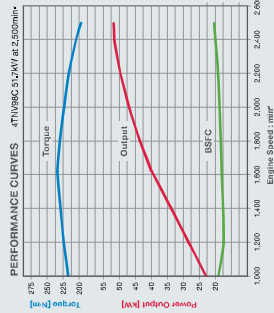
## 42.4-51.7kW



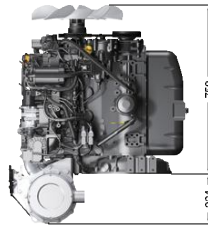
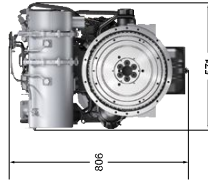
### SPECIFICATION

Engine Model	4TNV98C		
Emission Compliance	EPA Tier4 / EU Stage II B / Switzerland F0EN / Korea Tier4 / Japan 2013		
Fuel Injection	Direct Injection DIH		
Aspiration	NA		
Fuel Injection System	Common Rail		
Intake Timing Valve	Standard		
Cooling Syst	DPF		
Aftertreatment	DPF		
No. of Cylinders	4		
Bore x Stroke	98 x 110		
Displacement	L	3,319	
Rated Output (Gross)	kW/min	42.4/2,000	44.3/2,100
	PS/min	57.6/2,000	60.2/2,100
Max Torque (Gross)	Non-instant	235/1,300	235/1,300
Overall Length x Width x Height *	mm	983 x 571 x 806	
Weight (Dry) *	kg	270	

\*: DPF layout is on filtered housing.



### DIMENSIONS (mm)



# 4TNV98CT

Rated Output (Gross)

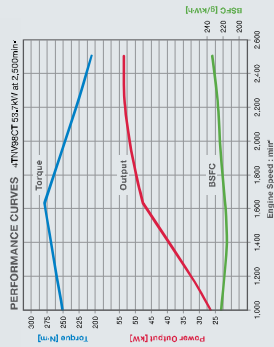
## 51.6-53.7kW



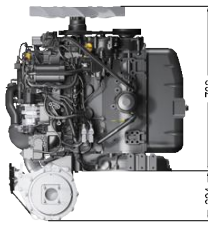
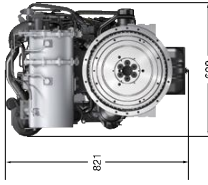
### SPECIFICATION

Engine Model	4TNV98CT		
Emission Compliance	EPA Tier4 / EU Stage II B / Switzerland F0EN / Korea Tier4 / Japan 2013		
Fuel Injection	Direct Injection DIH		
Aspiration	T/C		
Fuel Injection System	Common Rail		
Intake Timing Valve	Standard		
Cooling Syst	DPF		
Aftertreatment	DPF		
No. of Cylinders	4		
Bore x Stroke	98 x 110		
Displacement	L	3,319	
Rated Output (Gross)	kW/min	51.6/2,000	53.7/2,400
	PS/min	70.2/2,000	73.0/2,400
Max Torque (Gross)	Non-instant	296/1,300	280/1,560
Overall Length x Width x Height *	mm	983 x 600 x 851	
Weight (Dry) *	kg	275	

\*: DPF layout is on filtered housing.



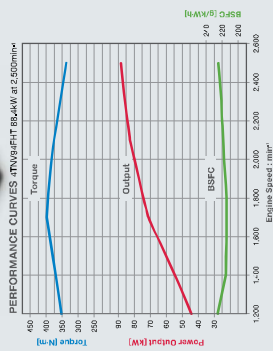
### DIMENSIONS (mm)



# 4TNV94FHT

Rated Output (Gross)

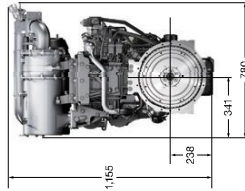
## 69.8-88.4kW



### SPECIFICATION

Engine Model	4TNV94FHT	
Emission Compliance	EPA Final Tier4 / EU StageIV / SwissTier4and POEN	
Fuel Function	Diesel Injection DIH	
Aspiration	TIC with Inverter	
Fuel Injection System	Common Rail	
Intake Manifold Valve	Standard	
Cooling Fan	Standard	
Aftertreatment	DPF-SCR	
No. of Cylinders	4	
Bore x Stroke	94 x 110	
Displacement	3,054	
Rated Output (Gross)	L	69.8/2,000
	PS/kW*	7.62/2,200
		88.4/2,500
Max.Torque (Gross)	PS/kW*	103.5/2,200
		118.5/2,500
Max.Torque (Gross)	PS/kW*	378-410/1,450
		378-410/1,700
Valve	V	1524 (Open)
DPF / SCR Layout	Top of this engine	
Overall Length x Width x Height *	759 x 789 x 1,155	
Weight (Dry) *	370	

\* : DPF/SCR Layout is on top of the engine



### Wide Range Application



### SMARTASSIST-Direct

SMARTASSIST-Direct is YANMAR's standard service tool for all Tier 4 Final products, and allows the engine operator history, information and control system operation status to be easily checked.



### Research & Development

YANMAR operates a diverse R&D program as we seek to create advanced technologies for more clean-burning diesel engines. Using our own unique technology as a starting-point, we add in the latest in advanced technology to comply with EPA Tier 4 / EU Stage IIIB nonroad diesel engine emissions regulations.



YANMAR - To conserve fuel is to serve mankind