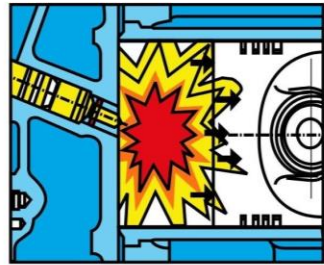


Yanmar's TF(M), TS Engine Many Way Tougher, All Ways Superior

Direct Fuel Injection Produces Dynamic Power

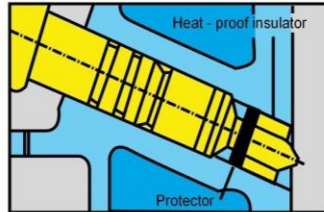
Combustion power acts directly on the toroidal piston crown, boosting energy, decreasing thermal losses.

Extra high output creates the tough torque needed for heavy duty jobs.



Durability of Yanmar's Direct Fuel Injection System enhanced by the heat-proof Insulator for the fuel Injection valve

The fuel injection valve is wrapped in heat-proof material. This improves the durability of the valve.



Bigger Displacement Gives More in Reserve

With their long stroke pistons, they can punch out much greater torque.

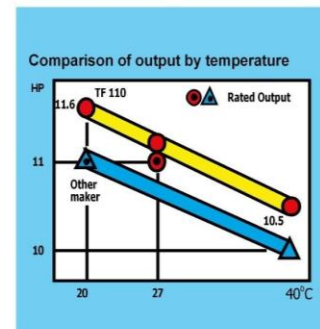
Superior Combustion Combination Direct Injection + Bosch Pump

The high pressure Bosch pump, the hole-valve type injection nozzle, and the toroidal combustion crown add up to the improved combustion formula for better firing and complete burns.

The TF and TS Delivers the power it Promise, Right Over 40°C

Another measure of TF's and TS's superiority can be taken from its power rating at the ambient temperature. Yanmar rates the hp of the TF and TS while operating at 27°C. This gives the TF110, for example, a rating of 11 hp. Other engines, rated at an ambient temperature of only 20°C specify the same 11 hp.

But at the 27°C rating they'll be giving less power than you should expect, while your Yanmar will be delivering 5.5% more! So you know that with a Yanmar you are getting output you can trust, even in ambient temperatures over 40°C.



Significant Drop Fuel and Lube Expenses

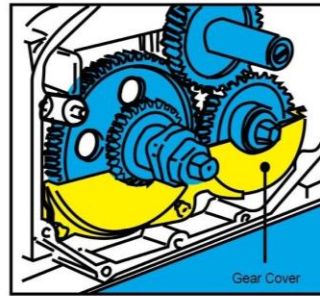
Fuel used to maximum effect

The many advantages of direct fuel injection show in direct savings.

You'll be getting the power you want with economy.

Dramatic Drop in Oil Consumption

A special separator keeps gear oil and crankcase oil independent, effectively controlling temperature increases. This and other unique features help the TF achieve its remarkably low lube oil consumption.



Yanmar – The Complete Diesel Maker

From the basic blocks to the sophisticated fuel systems, Yanmar builds the complete diesel engine. It's a level of integration few makers can claim.

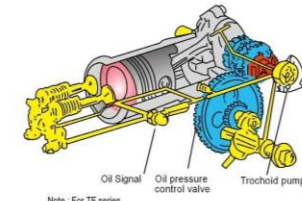


Better Lube System Improves Reliability

* A crank shaft-coupled throchoid pump circulates lube oil, increasing its life and effectiveness.

* TF (M) series throchoid pump driven by camshaft.

* Oil pressure continuously monitored and corrected automatically. Alarm signals for large pressure drops.



Easy Operation, Simple Servicing Less Vibration, Low Noise Level

Larger tanks for longer runs without fill-ups. Balancer reduces vibration (Except TF 70 series)

STANDARD SPARE PARTS & ACCESSORIES

STANDARD SPARE PARTS

No.	Name	No. of unit
1	Element FO strainer	1
*2	V-belt (for fan pulley)	1

*Radiator type only

STANDARD ACCESSORIES & TOOLS

No.	Name	No. of unit
1	Tool bag	1
2	Screw driver	1
3	Wrench (10 x 12)	1
4	Wrench (14 x 17)	1
5	Wrench (19 x 22)	1
6	V-pulley	1
7	Bolt M12 x 35	3
8	Spring washer 12	3
9	Manual book	1

SIZE OF V-PULLEY, PLAIN PULLEY, STUB SHAFT (plain pulley & stub shaft are optional)

Model	V - Pulley		Plain Pulley (optional)		Stub Shaft	
	Type x Dia. mm	Pitch mm	Dia. x Length mm	Pitch mm	Dia. x Length mm	Pitch mm
TF 70	2B x 111	PC Ø 160	70 x 100	PC Ø 124	32 x 55	PC Ø 124
TF 90	3B x 111	PC Ø 160	70 x 100	PC Ø 124	32 x 55	PC Ø 124
TF 120	3B x 126	PC Ø 160	70 x 100	PC Ø 124	32 x 55	PC Ø 124
TF 160	4B x 126	PC Ø 160	125 x 150	PC Ø 160	40 x 90	PC Ø 160
TF 300	4B x 126	PC Ø 160	150 x 150	PC Ø 160	40 x 90	PC Ø 160
TS 190	4B x 126	PC Ø 160	125 x 150	PC Ø 160	40 x 90	PC Ø 160
TS 230	4B x 126	PC Ø 160	125 x 150	PC Ø 160	40 x 90	PC Ø 160

EXPORT SHIPMENT

Model	No. of packing and size (mm)	Cu.m. (Cft)	Gross weight (kg)
TF 70	1 - 720 x 420 x 631	0,191 (6,7)	93,5
TF 90	1 - 780 x 420 x 671	0,220 (7,8)	110,5
TF 120	1 - 820 x 440 x 711	0,257 (9,1)	131,5
TF 160	1 - 900 x 500 x 830	0,374 (13,2)	173,8
TF 300	1 - 1162 x 660 x 931	0,714 (25,2)	292,0
TS 190	1 - 1162 x 560 x 931	0,606 (21,4)	213,5
TS 230	1 - 1162 x 560 x 931	0,606 (21,4)	231,5

Note : All data subject to alteration without prior notice

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