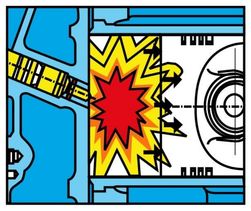
Yanmar's TF(M), TS Engine Many Way Tougher, All Ways Superior

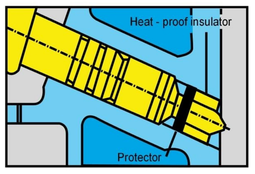
Direct Fuel Injection Produces Dynamic Power

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 improve the durability of the valve.



Bigger Displacement Gives More in Reserve

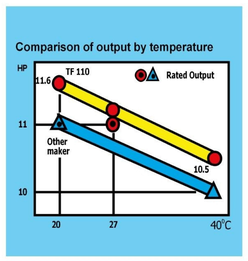
With their long stroke pistons, they can punch out much greater torque.

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.

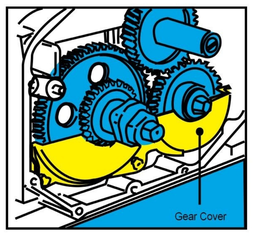


Significant Drop Fuel and Lube Expenses

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.

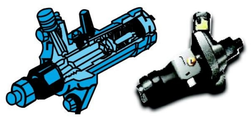
Dramatic Drop in Oil Consumption

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.



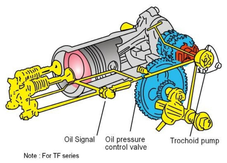
Yanmar – The Complete Diesel Maker

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 it life and effectiveness.
* TF (M) series throchoid pump drived 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

PT. YANMAR DIESEL INDONESIA
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Telp. : (021) 874 1558
Fax. : (021) 874 1559
Email : sales@yanmar.co.id
Website : www.yanmar.co.id

Penyalur / Dealer

Yanmar Diesel Engine, Great Power, Low Diesel Fuel Consumption

YANMAR
Solutioneering Together

100th ANNIVERSARY

DIESEL ENGINES
TF (M), TS series
5.2 - 22.4 Kw (7 - 30 hp)

Photograph may show optional equipment

SNI : 05-0119-2000

b4t ISO 9001:2008 QSC
No Reg : 256-96/19

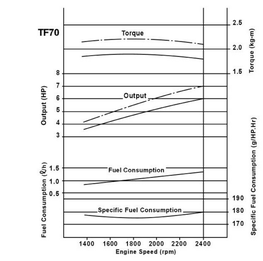
PT. YANMAR DIESEL INDONESIA

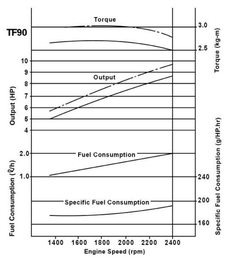
SPECIFICATIONS

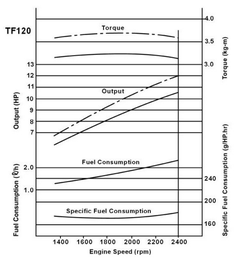
No.	Model	TF 70 H	TF 70	TF 70 L	TF 90 MH	TF 90 M	TF 90 MLY	TF 120 MH	TF 120 M	TF 160 H	TF 160	TF 300 H	TS 190 H	TS 190 R	TS 230 H	TS 230 R
1	Type															
2	Combustion system															
3	Number of cylinder															
4	Injection timing deg.	bTDC 17°			bTDC 18°			bTDC 17°				bTDC 20°	bTDC 19°			
5	Bore x stroke mm	78 x 80			85 x 87			92 x 96		102 x 105		125 x 120	110 x 106		112 x 115	
6	Displacement lit.	0.382			0.493			0.638		0.857		1.472	1.007		1.132	
7	Rated continuous output hp / rpm (kW)	6.0 / 2400 (4.5)			8.5 / 2400 (6.3)			10.5 / 2400 (7.8)		14.0 / 2400 (10.4)		26.0 / 2200 (19.4)	16.0 / 2200 (11.9)		19.0 / 2200 (14.2)	
8	At 1-hr. rated output hp / rpm (kW)	7.0 / 2400 (5.2)			9.5 / 2400 (7.1)			12.0 / 2400 (9.0)		16.0 / 2400 (11.9)		30.0 / 2400 (22.4)	19.0 / 2200 (14.2)		23.0 / 2200 (17.2)	
9	Maximum torque kgf.m / rpm	2.48 / 1800			3.4 / 1600			4.42 / 1800		6.17 / 1600		10.99 / 1600	6.95 / 1600		7.75 / 1600	
10	Compression ratio	18.1			18.0			17.7		17.8		15.5	16.3		16.1	
11	Direction of crankshaft rotation															
12	Specific fuel consumption gr / hp.h	175			170			169		155		171	162			
13	Fuel injection pump	Bosch Type														
14	Injection pressure kg / cm²	200														
15	Lubrication system	Forced lubrication with trochoid pump & hydroulic regulator valve														
16	F.O. tank capacity lit.	7.1			10.5			11.0		14.3		29.5	16.6	13.7	21.5	
17	Lubricating oil capacity (oil pan) lit.	1.8			2.2			2.8		3.0		9.8	3.6		6.0	
18	Lubricating oil applicable	API grade CB, CC or CD (SAE #30, 40, 50, 20W-50)														
19	Cooling water system	Hopper		Radiator	Hopper		Radiator	Hopper	Radiator	Hopper	Radiator	Hopper	Hopper	Radiator	Hopper	Radiator
20	Cooling water capacity lit.	8.0		1.25	8.9		1.65	12.0	2.30	13.0	3.00	26.7	16.3	4.00	22.8	5.90
21	Starting system	Manual (hand starting) or electric starter (radiator type only)														
22	Dimensions : - length mm	607.5			672.0			695.0		776.0		954.5	881.5	894.5	963.5	
	- width mm	311.5			330.5			348.5		379.5		486.5	454.5		467.5	
	- height mm	469.0			496.0			530.0		621.0		795.5	660.0		657.0	
23	Lamp V - W / W			12 - 25 / 25			12 - 45 / 45									
24	Netto weight kg	65.0	67.5	69.0	88.5	88.0	89.0	102.0	101.0	133.5	140.0	260.0	181.0	186.0	196.0	203.0

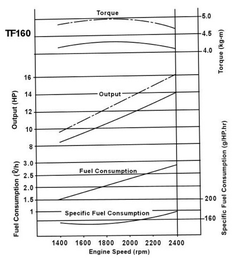
* For Hopper type only : This engine model is not specific sale for export, but it can sale for special demand only

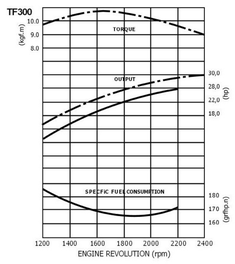
PERFORMANCE CURVES

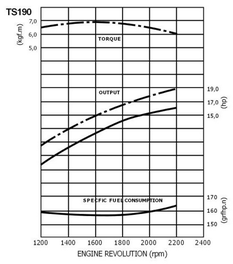


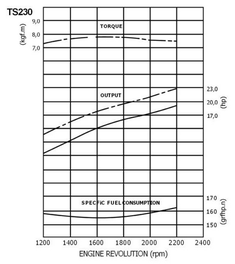












DIMENSIONS

Fig. A

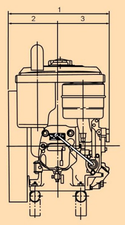
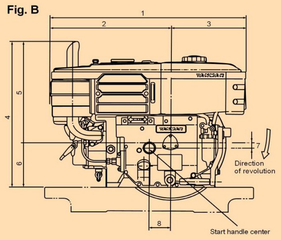
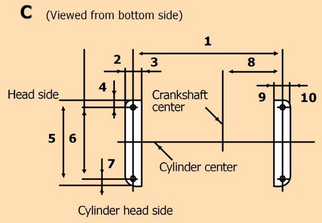


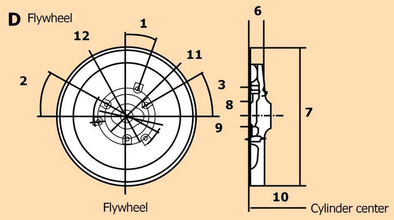
Fig. B



C (Viewed from bottom side)



D Flywheel



Unit : mm (identify radiator with hopper dimensions)

Model	A			B								C										D											
	1	2	3	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	11	12
TF 70	311.5	143	168.5	607.5	362	235	469	324	145	4	73.8	310	13	20	13	166	140	13	125	20	13	–	30°	30°	ø 146H7	ø 182H7	40	ø 346	23	25	143	PC ø 124	PC ø 160
TF 90	330.5	150	180.5	672	404	258	496	344	152	7.3	75.1	340	15	20	15	190	160	15	135	20	15	20°	30°	30°	ø 146H7	ø 182H7	38	ø 384	3	5	148	PC ø 124	PC ø 160
TF 120	348.5	162	186.5	695	434	251	530	365	165	10.2	84.4	370	15	25	15	200	170	15	150	25	15	20°	30°	30°	ø 146H7	ø 182H7	47	ø 384	8	10	162	PC ø 124	PC ø 160
TF 160	379.5	177.5	202	776	476	290	621	441	180	18	87	420	15	25	15	215	185	15	170	25	15	–	30°	30°	–	ø 182H7	49	ø 424	25	0	177.5	–	PC ø 160
TF 300	486.5	231.5	255	954.5	633.5	321	795.5	555.5	240	3.9	126.5	455	40	40	20	260	220	20	201	40	40	–	–	–	ø 182H7	ø –	65	ø 470	15	–	214.5	PC ø 160	–
TS 190	454.5	229	225.5	881.5	589.5	292	660	482	178	21.5	97.5	400	15	25	15	215	185	15	180	25	15	–	–	–	ø 182H7	ø –	75	ø 400	32	–	139	PC ø 160	–
TS 230	467.5	232.5	235.5	963.5	649	313	657	482	175	39.3	72.2	460	17	25	15	250	220	15	210	25	17	–	–	–	ø 182H7	ø –	62	ø 445	24	–	146	PC ø 160	–