

TF SERIES

Non-EPA certified

Water-cooled, direct injected, horizontal single-cylinder, 4 cycle diesel power-pack.

Water cooling by radiator or hopper.

Tough Fighter Series								
Model	TF50H	TF50	TF50L	TF50E	TF60H	TF60	TF60L	TF60E
Number of cylinders	1				1			
Bore x stroke (mm)	74 x 72				75 x 80			
Displacement lit.	0.309				0.353			
Cont. output kW (hp)	3.3 (4.5)				3.7 (5.0)			
Rated output kW (hp)	3.7 (5.0)				4.4 (6.0)			
Rated speed (rpm)	2400				2400			
Cooling system	Hopper	Radiator	Radiator	Radiator	Hopper	Radiator	Radiator	Radiator
Starting type	Hand crank	Hand crank	Hand crank	Electric	Hand crank	Hand crank	Hand crank	Electric
Dry weight kg	46	47.5	49	52.5	65	67.5	69	74
Model	TF70H	TF70	TF70L	TF70E	TF80H	TF80	TF80L	TF80E
Number of cylinders	1				1			
Bore x stroke mm	78 x 80				80 x 87			
Displacement lit.	0.382				0.437			
Cont. output kW (hp)	4.4 (6.0)				5.5 (7.5)			
Rated output kW (hp)	5.2 (7.0)				6.3 (8.5)			
Rated speed (rpm)	2400				2400			
Cooling system	Hopper	Radiator	Radiator	Radiator	Hopper	Radiator	Radiator	Radiator
Starting type	Hand crank	Hand crank	Hand crank	Electric	Hand crank	Hand crank	Hand crank	Electric
Dry weight kg	65	67.5	69	74	88.5	88	89	94.5
Model	TF90H	TF90	TF90L	TF90E	TF110H	TF110	TF110L	TF110E
Number of cylinders	1				1			
Bore x stroke mm	85 x 87				88 x 96			
Displacement lit.	0.493				0.583			
Cont. output kW (hp)	6.3 (8.5)				7.4 (10.0)			
Rated output kW (hp)	7.0 (9.5)				8.1 (11.0)			
Rated speed (rpm)	2400				2400			
Cooling system	Hopper	Radiator	Radiator	Radiator	Hopper	Radiator	Radiator	Radiator
Starting type	Hand crank	Hand crank	Hand crank	Electric	Hand crank	Hand crank	Hand crank	Electric
Dry weight kg	88.5	88	89	94.5	102	101	102	108
Model	TF120H	TF120	TF120L	TF120E	TF140H	TF140	TF140(E)	
Number of cylinders	1				1			
Bore x stroke mm	92 x 96				96 x 105			
Displacement lit.	0.638				0.76			
Cont. output kW (hp)	7.7 (10.5)				9.2 (12.5)			
Rated output kW (hp)	8.8 (12.0)				10.3 (14.0)			
Rated speed (rpm)	2400				2400			
Cooling system	Hopper	Radiator	Radiator	Radiator	Hopper	Radiator	Radiator	
Starting type	Hand crank	Hand crank	Hand crank	Electric	Hand crank	Hand crank	Electric	
Dry weight kg	102	101	102	108	133.5	140	148	
Model	TF160H	TF160	TF160E	TS190	TS190R	TS190E	TS230	TS230R
Number of cylinders	1			1				
Bore x stroke mm	102 x 105			110 x 106			112 x 115	
Displacement lit.	0.857			1.007			1.132	
Cont. output kW (hp)	10.3 (14.0)			11.8 (16.0)			14.0 (19.0)	
Rated output kW (hp)	11.8 (16.0)			14.0 (19.0)			16.9 (23.0)	
Rated speed (rpm)	2400			2200			2200	
Cooling system	Hopper	Radiator	Radiator	Hopper	Radiator	Radiator	Hopper	Radiator
Starting type	Hand crank	Hand crank	Electric	Hand crank	Hand crank	Electric	Hand crank	Hand crank
Dry weight kg	133.5	140	148	181	182	191	196	203

"L" includes mounted headlight