

General

In-line four stroke diesel engine with direct injection. Rotation direction, anti-clockwise viewed towards flywheel.

Turbocharged

Number of cylinders			6
Displacement, total		litre in ³	7,15 436,0
Firing order			1-5-3-6-2-4
Bore		mm in	108 4,25
Stroke		mm in	130 5,12
Compression ratio			18
Wet weight	Engine only	kg lb	780 1720
	Engine incl. cooling system and air filtration system	kg lb	955 2105
	Engine incl. cooling system, air filtration system, and frame	kg lb	

Performance

			rpm	1500	1800
Prime Power	without fan	kW		184	212
		hp		250	288
	with fan	kW		175	197
		hp		238	268
Standby Power	without fan	kW		202	233
		hp		275	317
	with fan	kW		194	218
		hp		263	296
Torque at:	Prime Power	Nm lbft		1171 864	1125 829
	Standby Power	Nm lbft		1289 950	1237 912
Mean piston speed		m/s ft/sec		6,5 21,4	7,8 25,7
Effective mean pressure at:	Prime Power	MPa psi		2,1 299	2,0 287
		Standby Power	MPa psi		2,3 329
Max combustion pressure at:	Prime Power		MPa psi		14,9 2161
		Standby Power	MPa psi		16 2321
Total mass moment of inertia, J (mR ²)			kgm ² lbft ²		2,60 61,7
Friction Power		kW		17	23
		hp		23,12	31,28
Derating see Technical Diagrams					

Engine noise emission

Test Standards: ISO 3744-1981 (E) sound power (without fan, cooler, intake and exhaust noise)

Tolerance ± 0.75 dB(A)

		rpm	1500	1800
Measured sound power Lw	No load	dB(A)	101,4	103,3
	Prime Power	dB(A)	103,9	105,4
	Standby Power	dB(A)		
Calculated sound pressure Lp at 1 m	No load	dB(A)	87,5	89,4
	Prime Power	dB(A)	90,0	91,5
	Standby Power	dB(A)		

Unsilenced exhaust noise

Data calculated as sound pressure Lp.

Assumed microphone distance 1 m

	rpm	1500	1800
Prime Power	dB(A)	115,8	118,4
Standby Power	dB(A)		

Test conditions for load acceptance data

Warm engine.	Generator	Model	Type of AVR
	mecc alte	ECO 38-2L/4	

Load acceptance performance can vary due to actual alternator inertia, voltage regulator, type of load and local ambient conditions.

Single step load performance at 1500 rpm

Load (%)	Speed diff (%)		Recovery time (s)		Remaining load (%)	Speed diff (%)		Recovery time (s)	
	Prime	Standby	Prime	Standby		Prime	Standby	Prime	Standby
0-20	1,9	2,0	0,8	0,6	20-100	7,3	8,2	2,5	3,2
0-40	3,6	4,2	3,0	2,3	40-100	3,1	5,9	4,5	3,0
0-60	5,5	6,4	2,6	2,3	60-100	2,9	4,0	2,4	2,5
0-80	7,1	9,3	2,5	3,3	80-100	1,7	2,6	2,0	2,0
0-100	10,7	14,0	3,3	3,8					
100-0	8,7	10,0	2,3	2,6					
100-0	8,7	10,0	2,3	2,6					

Single step load performance at 1800 rpm

Load (%)	Speed diff %		Recovery time (s)		Remaining load (%)	Speed diff (%)		Recovery time (s)	
	Prime	Standby	Prime	Standby		Prime	Standby	Prime	Standby
0-20	1,2	1,3	0,9	0,7	20-100	5,4	6,3	3,5	4,0
0-40	2,6	3,2	1,3	1,6	40-100	4,1	4,5	2,9	3,0
0-60	4,2	4,6	2,1	1,6	60-100	2,8	3,6	4,0	2,9
0-80	5,8	5,5	2,7	2,9	80-100	0,9	2,2	1,5	2,5
0-100	6,9	7,0	4,5	3,5					
100-0	6,6	7,3	1,4	1,8					
100-0	6,6	7,3	1,4	1,8					

Cold start performance

			rpm	1500	1800
Time from start to no load speed at ambient temperature:	°C	20	s	6,6	7,6
		5	s	7,0	8,4
		-15*	s	10,5	12,0
		Min start temp*	s	-30,0	-30,0
Time from start to stay within 0.5% of no load speed at ambient temperature:	°C	20	s	6,0	7,0
		5	s	6,2	7,7
		-15*	s	9,6	11,5

* With manifold heater kW engaged, lubrication oil 15W/40 and block heater.

Block heater type	Make	Power kW	Engaged hours	Cooling water temp engine block

Lubrication system

			rpm	1500	1800
Lubricating oil consumption	Prime Power	litre/h		0,05	0,05
		US gal/h		0,013	0,013
	Standby Power	litre/h		0,05	0,05
		US gal/h		0,013	0,013
Oil system capacity including filters		litre		34	
		US gal		8,9	
Oil sump capacity:	max	litre		31	
		US gal		8,1	
	min	litre		25	
		US gal		6,5	
Oil change intervals/specifications:		h		500	
		h			
		h			
Engine angularity limits:	front up	°		10	
	front down	°		10	
	side tilt	°		10	
Oil pressure at rated speed		kPa		300 - 500	
		psi		44 - 73	
Lubrication oil temperature in oil sump:	max	°C		125	
		°F		257	
Oil filter micron size		µ		17	

* See also general section in the sales guide

Fuel system

			rpm	1500	1800
Prime Power Specific fuel consumption at:	25%	g/kWh		245	246
		lb/hph		0,397	0,399
		g/kWh		226	223
		lb/hph		0,366	0,361
	75%	g/kWh		213	215
		lb/hph		0,345	0,349
	100%	g/kWh		205	209
		lb/hph		0,332	0,339
Standby Power Specific fuel consumption at:	25%	g/kWh		256	247
		lb/hph		0,415	0,400
	50%	g/kWh		232	228
		lb/hph		0,376	0,370
	75%	g/kWh		221	214
		lb/hph		0,358	0,347
	100%	g/kWh		205	206
		lb/hph		0,332	0,334

Fuel system	rpm	1500	1800
Fuel to conform to	DIN EN590		
System supply flow at:	litre/h	164,0	197,0
	US gal/h	43,3	52,0
Fuel supply line max restriction (Measured at fuel inlet connection)	kPa	35,0	35,0
	psi	5,1	5,1
Fuel supply line max pressure, engine stopped	kPa	35,0	35,0
	psi	5,1	5,1
System return flow	litre/h	102,6	132,0
	US gal/h	27,1	34,9
Fuel return line max restriction (Measured at fuel return connection)	kPa	50,0	50,0
	psi	7,3	7,3
Maximum allowable inlet fuel temp (Measured at fuel inlet connection)	°C	70	70
	°F	158	158
Prefilter / Water separator micron size	μ	10	
Fuel filter micron size	μ	5	
Governor type/make, standard	EMS 2.2		
Injection pump type/make	BOSCH PF45		

Intake and exhaust system		rpm	1500	1800
Air consumption at: (+25°C and 100kPa)	Prime Power	m ³ /min cfm	11,5 406	14 494
	Standby Power	m ³ /min cfm	12 424	15 530
Max allowable air intake restriction including piping		kPa psi	5 0,7	5 0,7
Air filter restriction clean Volvo Penta filter		kPa psi	3 0,4	3 0,4
Heat rejection to exhaust at:	Prime Power	kW BTU/min	121 6881	149 8473
	Standby Power	kW BTU/min	136 7734	177 10066
Exhaust gas temperature after turbine at:	Prime Power	°C °F	465 869	496 925
	Standby Power	°C °F	505 941	550 1022
Max allowable back pressure in exhaust line	Prime Power	kPa psi	7 1,0	7 1,0
	Standby Power	kPa psi	7 1,0	7 1,0
Exhaust gas flow at: (temp and pressure after turbine at the corresponding power setting)	Prime Power	m ³ /min cfm	31,9 1127	38,8 1370
	Standby Power	m ³ /min cfm	33,5 1183	42,7 1508

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TAD753GE

21813919**06****Cooling system****rpm 1500 1800**

Heat rejection radiation from engine at:	Prime Power	kW	18	21
		BTU/min	1024	1194
	Standby Power	kW	21	25
		BTU/min	1177	1405
Heat rejection to coolant at:	Prime Power	kW	114	123
		BTU/min	6483	6995
	Standby Power	kW	119	131
		BTU/min	6767	7450
Coolant	Volvo Penta coolant "ready mix" or Volvo Penta coolant mixed with clean fresh water 40 / 60			
Radiator cooling system type	Closed circuit			
Standard radiator core area		m ²	0,65	
		foot ²	7,00	
Fan diameter		mm	870	
		in	34,25	
Fan power consumption		kW	8,8	15,2
		hp	12	21
Fan drive ratio			1,0:1	
Coolant capacity,	engine	litre	10	
		US gal	2,64	
	engine with std radiator and hoses	litre	34	
		US gal	8,98	
Coolant pump	drive/ratio		2,56:1	
Coolant flow with standard system		l/s	4,08	4,92
		US gal/s	1,08	1,30
Minimum coolant flow		l/s	3,3	3,9
		US gal/s	0,86	1,04
Maximum outer circuit restriction, including piping		kPa	35	35
		psi	5,1	5,1
Thermostat	start to open	°C	86	
		°F	187	
	fully open	°C	98	
		°F	208	
Maximum static pressure head (expansion tank height + pressure cap setting)		kPa	110	
		psi	16,0	
Minimum static pressure head (expansion tank height + pressure cap setting)		kPa	90	
		psi	13,1	
Standard pressure cap setting		kPa	100	
		psi	14,5	
Maximum top tank temperature		°C	108	
		°F	226	
Draw down capacity. The difference between min coolant level in the expansion tank and the lowest level where the engine's coolant system still are functioning		litre		
		US gal		

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Charge air cooler system		rpm	1500	1800
Heat rejection to charge air cooler	Prime Power	kW	30,5	39,7
		BTU/min	1735	2258
	Standby Power	kW	32	43
		BTU/min	1820	2445
Charge air mass flow	Prime Power	kg/s	0,21	0,24
	Standby Power	kg/s	0,23	0,28
Charge air inlet temp. (Charge air temp after turbo compressor)	Prime Power	°C	170	179
		°F	338	354
	Standby Power	°C	173	181
		°F	343	358
Charge air outlet temp. (Charge air temp after intercooler)	Prime Power	°C	40	40
		°F	104	104
	Standby Power	°C	40	40
		°F	104	104
Maximum pressure drop over charge air cooler incl. piping		kPa	15	
		psi	2,18	
Charge air pressure (After charge air cooler)		kPa	200	
		psi	29,01	
Standard charge air cooler core area		m ²	0,41	
		foot ²	4,41	

Cooling performance

Cooling air flow and external restriction at different radiator air temperatures based on 108°C TTT and 40% coolant. Valid at 1 atm. (radiator and cooling fan, see optional equipment)

Engine speed rpm	Air on temp °C	PRIME POWER		STANDBY POWER	
		Air flow m ³ /s	External restriction Pa	Air flow m ³ /s	External restriction Pa
1500	55	3,3	450	3,6	360
	60	3,6	340	4,1	210
	65	4,2	170	4,8	30
	66			4,9	0
	69	4,9	0		
1800	55				
	60	4,1	630	4,7	450
	65	4,7	450	5,5	200
	68			6,1	0
	72	6,1	0		

Note! External restrictions are calculated for values >0 Pa

Engine management system

Functionality	Alternatives	Default setting
Governor mode	Isochronous/droop switchable	Isochronous
Governor droop	1rpm/10Nm - 1rpm/127Nm	1rpm/25Nm
Governor response	N/A	N/A
Dual speed		
Idle speed	550-800 rpm	600 rpm
Fine speed adjustment		
Stop function	Energized to run / stop	Energized to stop
Preheating function	ON/OFF	Option
Lamp test	ON/OFF	ON

Engine sensor and switch settings

Parameter	Unit	Warning level	Alarm level	Engine protection		
		Default setting		Level	Action. Default/Alternative	
		Yellow lamp	Red lamp			
Oil temp	°C	125	130	130,0	Shut down.	
Oil pressure	Low idle	kPa	90	80	80	Shut down
	1500 rpm	kPa	200	170	170	Shut down
	1800 rpm	kPa	230	200	200	Shut down
Oil level						
Piston cooling pressure >1000 rpm	kPa					
Coolant temp	°C	109	114	114	Shut down.	
Coolant level		On		Low level	Shut down.	
Fuel feed pressure	Low idle	kPa				
	>1400 rpm					
Water in fuel						
Crank case pressure	kPa					
Air filter pressure droop	kPa					
Altitude, above sea	m	Automatic derating, see section derating				
Charge air temp	°C	75	80	80	shut down	
Charge air pressure	kPa	340	350	350	shut down	
Engine speed	rpm	115% of rated speed				

Engine protection can be disabled. For consequences please see VP International Limited Warranty Policy

Electrical system

Voltage and type		24V	
Alternator:	make/output	A	Mitsubishi/100
	tacho output	Hz/alt. Rev	
	drive ratio		
Starter motor	make	Mitsubishi	
	type	M008T62471	
	kW	5,0	
Number of teeth on:	flywheel	129	
	starter motor	10	
Max wiring resistance main circuit		mΩ	
Cranking current at +20°C		A	400
Crank engine speed at 20°C		rpm	200
Starter motor battery capacity:	max	Ah/A	135
	min at +5°C	Ah/A	
Inlet manifold heater (at 20 V)		kW	
Power relay for the manifold heater		A	2

Power take off

		rpm	1500	1800
Front end in line with crank shaft max:		Nm	1200	
		lbft	885	
Front end belt pulley load. Direction of load viewed from flywheel side:	max left	kW		
		hp		
	max down	kW		
		hp		
	max right	kW		
		hp		
Timing gear at compressor PTO max:		Nm	187	
		lbft	138	
Speed ratio direction of rotation viewed from flywheel side		1,116 ccw		
Timing gear at servo pump PTO max:		Nm		
		lbft		
Speed ratio direction of rotation viewed from flywheel side				
Timing gear at hydraulic pump PTO max:		Nm		
		lbft		
Speed ratio direction of rotation viewed from flywheel side				
Max allowed bending moment in flywheel housing		Nm	≤ ± 3500	
		lbft		
Max. rear main bearing load		N	5000	
		lbf	1124,0	









