

Name 10V1600G10F

Application Group 3B

Dataset Ref. 25°C/- Speed [rpm] 1500 Nominal power [kW] 407 Nominal power [bhp] 546 Frequency [Hz] 50

EU Nonroad St IIIA (97/68/EC); MoEF India / CPCB Stage II; **Exhaust Regulations**

Reference conditions

No.	Description	Index	Value	Unit
6	Intake air temperature		25	°C
8	Barometric pressure		1000	mbar
9	Site altitude above sea level		100	m

0. Data-relevant engine design configuration

· · · · · · · · · · · · · · · · · · ·				
No.	Description	Index	Value	Unit
0	Engine rated speed switchable			
٥	(1500/1800 rpm)		-	-
113	Engine without sequential turbocharging	_	v	
	(turbochargers without cut-in/cut-out control)		^	-
31	Engine with air-cooled charge air		х	-

1. Power-related data

No.	Description	Index	Value	Unit
1	Engine rated speed	Α	1500	rpm
3	Mean piston speed		7.5	m/s
4	Continuous power ISO 3046 (10% overload capability)	۸	407	kW
	(design power DIN 6280, ISO 8528)	А	407	KVV
5	Fuel stop power ISO 3046	Α	448	kW
0	Mean effective pressure (MEP)		18.6	hau
8	(Continuous power ISO 3046)		18.0	bar
19	Mean effective pressure (MEP)		20.5	la a u
	(Fuel stop power ISO 3046)		20.3	bar

2. General Conditions (for maximum power)

	2. Ocherar Conditions (for maximum power)					
No.	Description	Index	Value	Unit		
1	Intake air depression (new filter)	А	25	mbar		
2	Intake air depression, max.	L	50	mbar		
3	Exhaust back pressure	А	85	mbar		
4	Exhaust back pressure, max.	L	85	mbar		
5	Fuel temperature at fuel feed connection	R	38	°C		
0	Fuel temperature at fuel feed connection, max.		60	26		
9	(w/o power reduction)	L	00	C		
10	Fuel temperature at fuel feed connection, max.	L	70	°C		
49	Max. ambient temperature in direct vicinity			26		
	of vibration damper	L	55			

3. Consumption

	· · · · · · · · · · · · · · · · · · ·				
No.	Description	Index	Value	Unit	
17	Specific fuel consumption (be) - 100 % CP	В	215	a/k/A/b	
	(+ 5 %: FN 590: 42 8 MI/kg)	ĸ	213	g/kWh	

BL Reference value: fuel stop power
Maximum engine power that cannot be run continuously on
some applications (stabilization reserve)
DC Reference value: continuous power
Engine power that can be run continuously under standard
conditions

> Actual value must be greater than specified value <a> Actual value must be less than specified value

IX Applicable
The module is valid for this product type
In Non-applicable
The module is not valid for this product type
IX Value not named
The value has not yet been named or will not be named

* Adequate verification not yet available (tolerance +/-10%)
** Adequate verification not yet available (tolerance +/-5%)



Name 10V1600G10F

Application Group 3B

Dataset Ref. 25°C/- Speed [rpm] 1500 Nominal power [kW] 407 Nominal power [bhp] 546 Frequency [Hz] 50

EU Nonroad St IIIA (97/68/EC); MoEF India / CPCB Stage II; **Exhaust Regulations**

				
18	Specific fuel consumption (be) - 75 % CP	R	226	g/kWh
10	(+ 5 %; EN 590; 42.8 MJ/kg)	IX	220	6/ 10011
19	Specific fuel consumption (be) - 50 % CP	R	234	-/1.34/1-
19	(+ 5 %; EN 590; 42.8 MJ/kg)	N.	254	g/kWh
20	Specific fuel consumption (be) - 25 % CP	6	246	- /LAA/b
20	(+ 5 %; EN 590; 42.8 MJ/kg)	R	246	g/kWh
56	Specific fuel consumption (be) - 100 % FSP	R	209	g/kWh
30	(+ 5 %; EN 590; 42.8 MJ/kg)	ĸ		
57	Specific fuel consumption (be) - 75 % FSP	R	221	g/kWh
37	(+ 5 %; EN 590; 42.8 MJ/kg)	ĸ	221	R/KVVII
58	Specific fuel consumption (be) - 50 % FSP	R	233	g/kWh
36	(+ 5 %; EN 590; 42.8 MJ/kg)	K		
59	Specific fuel consumption (be) - 25 % FSP	R	243	- /1.34/1-
39	(+ 5 %; EN 590; 42.8 MJ/kg)	K	245	g/kWh
73	No-load fuel consumption	R	2.1	kg/h
61	Lube oil consumption after 100 h of operation	R	<0.2	% of B
01	(B = fuel consumption per hour)	K	0.2	% UI B
62	Lube oil consumption after 100 h of operation, max.		<0 E	% of B
02	(B = fuel consumption per hour)	L	0.5	
02	(B = fuel consumption per hour)	L	<0.5	

4. Model-related data (basic design)

No.	Description	Index	Value	Unit
3	Engine with exhaust turbocharger (ETC) and intercooler		Х	-
4	Exhaust piping, non-cooled		X	-
33	Working method: four-cycle, diesel, single-acting		X	-
34	Combustion method: direct injection		X	-
36	Cooling system: conditioned water		X	-
37	Direction of rotation: c.c.w. (facing driving end)		X	-
6	Number of cylinders		10	-
7	Cylinder configuration: V angle		90	degrees (°)
10	Bore		122	mm
11	Stroke		150	mm
12	Displacement, cylinder		1.75	liter
13	Displacement, total		17.5	liter
14	Compression ratio		17.5	-
41	Cylinder liners: wet, replaceable		X	-
24	Number of inlet valves, per cylinder		2	-
25	Number of exhaust valves, per cylinder		2	-
15	Number of turbochargers		2	-
28	Standard flywheel housing flange (engine main PTO)		01	SAE
43	Flywheel interface (DISC)		14"	-

5. Combustion air / exhaust gas

No.	Description	Index	Value	Unit
19	Charge-air temperature before cylinder	Α	50	°C
33	Charge-air flow through external air-to-air intercooler	Α	0.28	m³/s

BL Reference value: fuel stop power Maximum engine power that cannot be run continuously on some applications (stabilization reserve)
DL Reference value: continuous power Engine power that can be run continuously under standard conditions

> Actual value must be greater than specified value <a> Actual value must be less than specified value

Adequate verification not yet available (tolerance +/-10%)

The Adequate verification not yet available (tolerance +/-5%)



Name 10V1600G10F

Application Group 3B

Dataset Ref. 25°C/- Speed [rpm] 1500 407 Nominal power [kW] Nominal power [bhp] 546 Frequency [Hz] 50

Exhaust Regulations EU Nonroad St IIIA (97/68/EC); MoEF India / CPCB Stage II;

			T	
34	Charge-air temperature before external	Α	194	°C
3 1	air-to-air intercooler	^	131	C
35	Charge-air temperature after external	^	50	°C
33	air-to-air intercooler	Α	30	C
36	Charge-air temperature after external		65	°C
30	air-to-air intercooler, max.	L	03	C
37	Charge-air temperature after external		-15	°C
37	air-to-air intercooler, min.	L	-13	C
39	Pressure differential in external		130	mbar
33	air-to-air intercooler, max.	_	130	IIIDai
8	Charge-air pressure before cylinder - CP	R	3.04	bar abs
27	Charge-air pressure before cylinder - FSP	R	3.12	bar abs
9	Combustion air volume flow - CP	R	0.56	m³/s
10	Combustion air volume flow - FSP	R	0.57	m³/s
11	Exhaust volume flow (at exhaust temperature) - CP	R	1.51	m³/s
12	Exhaust volume flow (at exhaust temperature) - FSP	R	1.56	m³/s
15	Exhaust temperature after turbocharger - CP	R	496	°C
16	Exhaust temperature after turbocharger - FSP	R	500	°C

6. Heat dissipation

No.	Description	Index	Value	Unit
1.0	Heat dissipated by engine coolant - FSP	D	218	kW
16	with oil heat, without charge-air heat	K		
26	Charge-air heat dissipation - CP	R	92	kW
27	Charge-air heat dissipation - FSP	R	99	kW
31	Heat dissipated by return fuel flow - CP	R	3.5	kW
32	Heat dissipated by return fuel flow - FSP	R	3.5	kW
33	Radiation and convection heat, engine - CP	R	21	kW

7. Coolant system (high-temperature circuit)

7. 00	olant system (nign-temperature circuit)			
No.	Description	Index	Value	Unit
17	Coolant temperature	^	95	°C
17	(at engine outlet to cooling equipment)	Α	93	C
20	Coolant temperature after engine, limit 1	L	105	°C
21	Coolant temperature after engine, limit 2	L	109	°C
25	Coolant antifreeze content, max.	L	50	%
30	Cooling equipment: coolant flow rate	А	23.3	m³/h
35	Coolant pump: inlet pressure, min.	L	1.4	bar
36	Coolant pump: inlet pressure, max.	L	3.5	bar
41	Pressure loss in off-engine cooling system, max.	L	0.7	bar
47	Breather valve (expansion tank)	D	1.0+0.3	la a u
47	opening pressure (excess pressure)	R		bar
54	Cooling equipment: height above engine, max.	L	15	m
40	Breather valve (expansion tank)		0.3	la - a
48	opening pressure (depression)	R	-0.2	bar
49	Pressure in cooling system, max.	L	5.0	bar



Name 10V1600G10F

Application Group 3B

Dataset Ref. 25°C/- Speed [rpm] 1500 407 Nominal power [kW] Nominal power [bhp] 546 Frequency [Hz] 50

Exhaust Regulations EU Nonroad St IIIA (97/68/EC); MoEF India / CPCB Stage II;

10. Lube oil system

	e en system			
No.	Description	Index	Value	Unit
1	Lube oil operating temp. before engine, from	R	105	°C
2	Lube oil operating temp. before engine, to	R	115	°C
8	Lube oil operating press. bef. engine, from	R	4.5	bar
9	Lube oil operating press. bef. engine, to	R	5.5	bar
10	Lube oil pressure before engine, alarm	L	2.6	bar
11	Lube oil pressure before engine, shutdown	L	2.4	bar
19	Lube oil fine filter (main circuit):		1	
19	number of units			-
20	Lube oil fine filter (main circuit):		4	
20	number of elements per unit		4	-
56	Lube-oil fine filter (main flow), particle size 1		10	μm
57	Lube-oil fine filter (main flow), filtering efficiency re 1		26	%
58	Lube-oil fine filter (main flow), particle size 2		15	μm
59	Lube-oil fine filter (main flow), filtering efficiency re 2		50	%
60	Lube-oil fine filter (main flow), particle size 3		20	μm
61	Lube-oil fine filter (main flow), filtering efficiency re 3		75	%
32	Lube oil fine filter (main circuit):		2	
32	pressure differential, max.	L		bar

11. Fuel system

11. Fue	I system			
No.	Description	Index	Value	Unit
1	Fuel pressure at engine fuel feed connection, min.	ı	-0.5	bar
_	(when engine is starting)	L	-0.5	Dai
2	Fuel pressure at engine fuel feed connection, max.		0.5	bar
2	(when engine is starting)	L	0.5	Dai
4211	Max. fuel supply volume	Α	4.2	liter/min
4211	Normal mode	^	4.2	inter/illiii
4212	Max. fuel supply volume	Α	5.1	liter/min
4212	Failure mode	A	5.1	iitei/iiiiii
4213	Max. fuel return volume	Α	2.0	liter/min
4213	Normal mode	^	2.0	inter/illiii
4214	Max. fuel return volume	Α	4.1	liter/min
7217	Failure mode	^	4.1	inter/iniin
10	Fuel pressure at return connection on engine, max.	L	<0.4	bar
18	Fuel fine filter (main circuit): number of units	Α	1	-
19	Fuel fine filter (main circuit): number of elements per unit	Α	1	-
68	Fuel fine filter, particle size 1		4	μm
69	Fuel fine filter, filtering efficiency re 1		99.5	%
70	Fuel fine filter, particle size 2		6	μm
71	Fuel fine filter, filtering efficiency re 2		99.8	%
72	Fuel fine filter, particle size 3		14	μm
73	Fuel fine filter, filtering efficiency re 3		99.8	%
21	Fuel fine filter (main circuit): pressure differential, max.	L	2	bar

> Actual value must be greater than specified value < Actual value must be less than specified value



Name 10V1600G10F

Application Group 3B

Dataset Ref. 25°C/- Speed [rpm] 1500 407 Nominal power [kW] Nominal power [bhp] 546 Frequency [Hz] 50

Exhaust Regulations EU Nonroad St IIIA (97/68/EC); MoEF India / CPCB Stage II;

12. General operating data

12. Ge	neral operating data			
No.	Description	Index	Value	Unit
1	Cold start capability: air temperature	R	-20	°C
1	(w/o starting aid, w/o preheating) - (case A)	K	-20	C
2	Additional condition (to case A):		-20	9.6
2	engine coolant temperature	R	-20	°C
3	Additional condition (to case A): lube oil temperature	R	-20	°C
4	Additional condition (to case A): lube oil viscosity	R	10W40	SAE
9	Cold start capability: air temperature		-40	°C
9	(w/o starting aid, w/ preheating) - (case C)	R	-40	1.0
4.0	Additional condition (to case C):	_	40	0.0
10	engine coolant temperature	R	-40	°C
11	Additional condition (to case C): lube oil temperature	R	-40	°C
12	Additional condition (to case C): lube oil viscosity	R	10W40	SAE
21	Coolant preheating, heater performance (standard)	R	3	kW
22	Coolant preheating, preheating temperature, min.	L	32	°C
3506	Coolant preheating, preheating temperature, max.	L	55	°C
	Breakaway torque (without driven machinery)			
28	coolant temperature +5°C	R	720	Nm
	Breakaway torque (without driven machinery)	_		
30	coolant temperature +40°C	R	430	Nm
	Cranking torque at firing speed (without driven machinery)			
29	coolant temperature +5°C	R	360	Nm
	Cranking torque at firing speed (without driven machinery)			
31	coolant temperature +40°C	R	225	Nm
	Starting is blocked if the engine coolant temperature is			
96	below		-20	°C
37	High idling speed, max. (static)	1	1560	rpm
38	Limit speed for overspeed alarm / emergency shutdown	L	1800	rpm
42	Firing speed, from	R	80	rpm
43	Firing speed, to	R	120	rpm
	Engine coolant temperature before starting full-load operation, recommended			'
44	min.	R	60	°C
48	Minimum continuous load	R	20	%
	Engine mass moment of inertia	1		
50	(without flywheel)	R	2.116	kgm²
52	Standard flywheel mass moment of inertia	R	1.44	kgm²
1982	Block bending moment - SAE 1	R	3	kNm
	Engine mass moment of inertia			
51	(with standard flywheel)	R	3.556	kgm²
109	Speed droop (with electronic governor) adjustable P1	R	4	%
110	Speed droop (with electronic governor) adjustable P2	R	0.4	%
95	Number of starter ring-gear teeth on engine flywheel		157	-
			i .	

13. Starting (electric)



Name 10V1600G10F

Application Group 3B

Dataset Ref. 25°C/- Speed [rpm] 1500 Nominal power [kW] 407 Nominal power [bhp] 546 Frequency [Hz] 50

Exhaust Regulations EU Nonroad St IIIA (97/68/EC); MoEF India / CPCB Stage II;

No.	Description	Index	Value	Unit
2309	Manufacturer	- III GOX	Prestolite	-
2310	Number of starter		1	-
2312	Starter electrically redundant		-	-
2313	Rated power per starter	R	7.5	kW
2314	Starter, rated voltage	R	24	VDC
2315	Rated short-circuit current per starter	L	1730	Α
	Power consumption per starter	_	400	
3000	(at an engine speed of 100 rpm, SAE0)	R	400	А
2002	Power consumption per starter		540	
3002	(at an engine speed of 100 rpm, SAE1)	R	540	А
2317	Internal resistance of power supply + line resistance per starter	Α	0.008	Ω
2318	Manufacturer		Prestolite	-
2319	Number of starter		1	-
2320	Starter electrically redundant		Х	-
2321	Rated power per starter	R	7.5	kW
2322	Starter, rated voltage	R	24	VDC
2323	Rated short-circuit current per starter	L	1730	Α
2004	Power consumption per starter		400	
3001	(at an engine speed of 100 rpm, SAE0)	R	400	А
2002	Power consumption per starter	_	540	
3003	(at an engine speed of 100 rpm, SAE1)	R	540	Α
2325	Internal resistance of power supply + line resistance per starter	Α	0.008	Ω
2326	Manufacturer		Prestolite	-
2327	Number of starter		2	-
2328	Starter electrically redundant		-	-
2329	Rated power per starter	R	7.5	kW
2330	Starter, rated voltage	R	24	VDC
2331	Rated short-circuit current per starter	L	1730	Α
3251	Power consumption per starter	R	400	^
3231	(at an engine speed of 100 rpm, SAE0)	l K	400	А
3252	Power consumption per starter	_	540	
3232	(at an engine speed of 100 rpm, SAE1)	R	540	А
2333	Internal resistance of power supply + line resistance per starter	Α	0.008	Ω
2347	Generally valid data for starter		X	-
2342	Rated starting-attempt Duration (at +20°C ambient temperature with battery	R	3	S
2343	Interval between starts		5	
2343	(at rated starting-attempt duration), min.	L	5	S
2345	Maximum acceptable starting-attempt duration	L	15	S
2244	Interval between starts	D	60	
2344	(when starting-attempt duration > rated starting-attempt duration)	R	60	S
2246	Starting attempts within 30 minutes	1.	6	
2346	(at +20°C ambient temperature with battery full), max.	L	U	_

16. Inclinations - standard oil system (ref.: waterline)

No. Description	Index	Value	Unit
-----------------	-------	-------	------



Name 10V1600G10F

Application Group 3B

Dataset Ref. 25°C/- Speed [rpm] 1500 Nominal power [kW] 407 Nominal power [bhp] 546 Frequency [Hz] 50

Exhaust Regulations EU Nonroad St IIIA (97/68/EC); MoEF India / CPCB Stage II;

	Longitudinal inclination, continuous max.			
15	driving end down	L	15	degrees (°)
	(Option: max. operating inclinations)			
	Longitudinal inclination, continuous max.			
	driving end up	L	15	degrees (°)
	(Option: max. operating inclinations)			
19	Transverse inclination, continuous max.		15	dograce (°)
19	(Option: max. operating inclinations)	L	13	degrees (°)

18. Capacities

No.	Description	Index	Value	Unit
1	Engine coolant capacity (without cooling equipment)	R	60 *	liter
11	On-engine fuel capacity	R	3 *	liter
	Engine oil capacity, initial filling			
14	(standard oil system)	R	60.5	liter
	(Option: max. operating inclinations)			
	Oil change quantity, max.			
20	(standard oil system)	R	53	liter
	(Option: max. operating inclinations)			
	Oil pan capacity, dipstick mark min.			
28	(standard oil system)	L	46	liter
	(Option: max. operating inclinations)			
	Oil pan capacity, dipstick mark max.			
29	(standard oil system)	L	53	liter
	(Option: max. operating inclinations)			

19. Masses / dimensions

No.	Description	Index	Value	Unit
7	Engine dry mass (with engine-mounted	0	1694 *	lea
/ st	standard accessories, without coupling)	ĸ	1094	kg
12	Engine mass, wet	В	1752	lea
12	(with engine-mounted standard accessories, without coupling)	ĸ	1732	kg

20. Fan / fan cooler

No.	Description	Index	Value	Unit
3	Fan, pusher-type		X	-
18	Fan arrangement: vertical above crankshaft		X	-
9	Fan drive: mechanical via V-belt		X	-
13	Fan: speed	R	1500	rpm

21. Exhaust emissions

No. Description	Index	Value	Unit
-----------------	-------	-------	------

BL Reference value: fuel stop power Maximum engine power that cannot be run continuously on some applications (stabilization reserve)
DL Reference value: continuous power Engine power that can be run continuously under standard conditions

> Actual value must be greater than specified value <a> Actual value must be less than specified value

Adequate verification not yet available (tolerance +/-10%)

The Adequate verification not yet available (tolerance +/-5%)



Name 10V1600G10F

Application Group 3B

Dataset Ref. 25°C/- Speed [rpm] 1500 407 Nominal power [kW] Nominal power [bhp] 546 Frequency [Hz] 50

Exhaust Regulations EU Nonroad St IIIA (97/68/EC); MoEF India / CPCB Stage II;

12052	Emissions data sheet: MoEF India / CPCB Stage II	EDS16000144	-
11967	Emissions data sheet: EURO III A	EDS16000071	-

22. Acoustics

	T	T .	T	T
No.	Description	Index	Value	Unit
	Exhaust noise, unsilenced - CP			
101	(free-field sound-pressure level Lp, 1m distance,	R	109	dB(A)
	ISO 6798, +3dB(A) tolerance)			
201	Exhaust noise, unsilenced - CP	R	121	dB(A)
201	(sound power level LW, ISO 6798, +3dB(A) tolerance)			ub(A)
	Exhaust noise, unsilenced - FSP			
102	(free-field sound-pressure level Lp, 1m distance,	R	109	dB(A)
	ISO 6798, +3dB(A) tolerance)			
202	Exhaust noise, unsilenced - FSP	R	122	dB(A)
202	(sound power level LW, ISO 6798, +3dB(A) tolerance)	11	122	UD(A)
	Exhaust noise, unsilenced - CP			
103	(free-field sound-pressure level Lp, 1m distance,	R	N	
103	ISO 6798)	IX.		
	Spectrum No.			
	Exhaust noise,unsilenced - CP			
203	(sound power level LW, ISO 6798)	R	-	-
	Spectrum No.			
	Engine surface noise with attenuated			
109	intake noise (filter) - CP	R		dB(A)
109	(free-field sound-pressure level Lp, 1m distance,	K		UB(A)
	ISO 6798, +2dB(A) tolerance)			
	Engine surface noise with attenuated			
209	intake noise (filter) - CP	R	-	dB(A)
	(sound power level LW, ISO 6798, +2dB(A) tolerance)			
	Engine surface noise with attenuated			
111	intake noise (filter) - CP	R		
111	(free-field sound-pressure level Lp, 1m distance,	K	-	-
	ISO 6798) Spectrum No.			
	Engine surface noise with attenuated			
211	intake noise (filter) - CP	_		
211	(sound power level LW, ISO 6798)	R	-	-
	Spectrum No.			
	Engine surface noise with attenuated			
112	intake noise (intake silencer) - CP		100	-ID(A)
113	(free-field sound-pressure level Lp, 1m distance,	K	100	dB(A)
	ISO 6798, +2dB(A) tolerance)	R 100		



Speed [rpm] Name 10V1600G10F 1500 407 **Application Group** 3B Nominal power [kW] Dataset Ref. 25°C/-Nominal power [bhp] 546 Frequency [Hz] 50

Exhaust Regulations EU Nonroad St IIIA (97/68/EC); MoEF India / CPCB Stage II;

114	Engine surface noise with attenuated intake noise (intake silencer) - FSP (free-field sound-pressure level Lp, 1m distance, ISO 6798, +2dB(A) tolerance)	R	101	dB(A)
125	Structure borne noise at engine mounting brackets in vertical direction above resilient engine mounts - CP Spectrum No.	R	-	-
126	Structure borne noise at engine mounting brackets in vertical direction above resilient engine mounts - FSP Spectrum No.	R	-	-