

ANNEXURE – II

(Ref.: System and procedure for compliance to emission limits for diesel engines (upto 800 kW) for Genset applications.)

Part - 1

Brief Technical Data & Specifications of Diesel Engines Used for Genset Application (for Family / Parent engine selection as per ISO 8178 Part – 7)

Please fill separate sheet for each family identified

A	ENGINE CATEGORY	INDEGINOUS <input type="checkbox"/>	IMPORTED <input type="checkbox"/>
B	Type of End Application	Constant Speed Genset <input type="checkbox"/>	Variable Speed genset <input type="checkbox"/>
1	Engine Manufacturer's Name		
2	Engine Manufacturing Plant/s		
3	Engine Supplier's/Importer's Name		
3.1	Office Address in India (In Case of overseas supplier)		
4	Engine family identified		
5	Engine Model		
6	Engine layout (Inline / V)		
7	Working principle : 2 / 4 stroke		
8	Bore x Stroke (mm)		
9	Numberof Cylinder		
10	Total swept volume (ltr)		
11	Displacement / cyl. (ltr / cyl)		
12	Rated speed (rpm)		
13	Rated Gross power (kW)		
14	Power / cylinder (kW / cyl)		
15	BMEP at rated power (bar)		
16	Combustion type : DI / IDI		
17	Type of combustion chamber		
18	Cooling type (Air cooled / water cooled)		
19	Compression ratio		
20	No. of valves : 2 / 4 valves		

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21	a).Aspiration : Naturally Aspirated / Turbocharged / Turbocharged - inter-cooled				
	b)Turbocharger - Make				
	c) Inter cooler (air – air / water – air/Jacket water cooled)				
	d)Intake air pressure in inlet manifold				
	e) Intake air temp. in inlet manifold				
22	Fuelling details				
	a)mm ³ / stroke at rated load				
	b)BSFC (g / kW-hr)				
23	Injection system details				
	a)Type : (inline / rotary / PF / Common Rail/other)				
	b)Fuel pump make				
	c)Static injection timing (deg. BTDC)				
	d)Injectors : Make / Type				
	e)Injector hole No. x size (mm)				
	f)Type of timing advance device				
24	After treatment device, if any				
25	Parent Engine Identified by Test Agency				

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Part – 2
APPLICATION FOR TYPE APPROVAL

A	ENGINE CATEGORY(Domestic/Imported)	
B	GESET CATEGORY(Constant Speed/Variable Speed)	
1.0	NAME AND ADDRESS OF THE ENGINE SUPPLIER/IMPORTER (Type Approval Certificate Owner)	
1.1	OFFICE ADDRESS IN INDIA (In Case of overseas supplier)	
2.0	NAME AND ADDRESS OF THE ENGINE MANUFACTURER	
3.0	ADDRESS OF THE MANUFACTURING PLANT/S	
4.0	ENGINE MODEL NAME	
5.0	BRAND NAME	
6.0	ENGINE FAMILY IDENTIFIED	
7.0	DESCRIPTION OF THE ENGINE	
7.1	Engine Type (DI/IDI)	
7.2	Engine Layout (INLINE/V)	
7.3	Working principle (Four-Stroke/Two-Stroke)	
7.4	Bore (mm)	
7.5	Stroke (mm)	
7.6	Number of Cylinders	
7.7	Firing Order	
7.8	Engine Displacement (ltr)	
7.9	Type of Aspiration (Naturally Aspirated/Turbocharged/ Turbocharged & Intercooled)	
7.10	Gross Rated Power (kW)	
7.11	Rated Speed (RPM)	
7.12	Over load Speed (RPM)	
7.13	No load Speed (RPM)	
7.14	Compression Ratio (With Tolerance)	
7.15	Valve details	
	a) No. of intake valves per cylinder	
	b) Intake valve seat dia	
	c) No. of exhaust valves per cylinder	
	d) Exhaust valve seat dia	
7.16	Cooling System : Liquid / Air Cooling	
7.17	Temperature Permitted by the Manufacturer	
	a) Liquid Cooling: Max. Temp. at Engine Outlet	

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	b) Max. Inlet Manifold air temperature (for TCI Engines)	
	c) Lubricant Temperature	Min. Max.
8.0	ADDITIONAL POLLUTION CONTROL DEVICES	
8.1	Oxidation Catalyst	
	a) Make	
	b) Type(Ceramic/Metallic, Precious metal Type	
	c) Substrate Dimension	
	d) ID No.	
8.2	Exhaust Gas Recirculation (EGR) System	
	a) Make	
	b) Type (Internal/External/cooled/uncooled/progressive/ ON-OFF/Electrical/Vacuum based/Other)	
8.3	Other Pollution Control Device (DeNOx/SCR/DPF, etc)	
	a) Make	
	b) Type (Give Complete Details of the system with necessary drawings)	
	c) ID No	
9.0	AIR INTAKE AND FUEL FEED	
9.1	Air Filter	Make:
	Type:	ID No:
9.2	Maximum Permitted Depression of Intake kPa	
9.3	Turbocharger Details, if applicable Turbocharger: Make / Model Name Turbocharger: Part No.	
9.4	Fuel Injection System Description	
9.5	Fuel Pump	
	d) Make	
	e) Type	
	f) ID No.	
	g) Static Injection Timing	
9.6	Injectors	
	a) Make	
	b) Type	
	c) Holder No.	
	d) Nozzle No.	
	e) No. of holes	
	f) Size of holes (mm)	
	g) Hydraulic Through Flow (cc/30 sec at 100 ba	
h) Nozzle Opening Pressure (bar)		

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	i) Injection Piping <ul style="list-style-type: none"> • Length • Internal Diameter 	
9.7	Governor/ECU/Controller	
	a) Make	
	b) Type, Mechanical/Electronic/Hydraulic)	
	c) ID No.	
10	VALVE TIMING (Above ramps/before ramps/at defined valve lift	
10.1	<ul style="list-style-type: none"> • Maximum Lift of inlet valve (mm) • Maximum lift of exhaust valve (mm) • Valve timing angles : <div style="float: right; text-align: right;"> IVO IVC EVO EVC </div> 	
11.0	EXHAUST SYSTEM	
11.1	Specify the Max. Back Pressure (kPa) at rated power (This data to be mentioned for the engines without EGR)	
Notes:		
1) <i>In addition to the names of the suppliers of items mentioned above, the suppliers shall inform the concerned certification agency, the names of new alternate suppliers for these items as and when they are being introduced.</i>		
12.0	Settings and limits declared by the Manufacturer	
12.1	Max. Temperature of Engine Coolant Deg C	
12.2	Lubricating Oil Temperatures Deg C <div style="text-align: right;"> Minimum Maximum </div>	
12.3	Max. Air Intake Depression kPa	
12.4	Max. Intake Manifold Temperature in case of TCIC <div style="text-align: right;"> Deg C </div>	
12.5	Max. Exhaust Back Pressure kPa (This data is required for the engines with EGR)	100% Load : 75% Load : 50% Load : 25% Load : 10% Load :
13.0	Attachments to be Enclosed	
13.1	Combustion Chamber (Piston Crown) Drawing	
13.2	Valve Timing Diagram	
13.3	Oxidation Catalyst Layout and drawing along with specifications	
13.4	Exhaust Gas Recirculation (EGR) Layout and drawing along with specifications	
13.5	Air Intake system layout (from air-filter to intake manifold)	

To the best my knowledge, the details and specifications of the engine declared as above in this document (Annexure – II Part -1 and Part – 2) are correct to true. Undersigned is solely responsible for the accuracy.

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Reference:

“System & Procedure for Compliance to Emission Limit for Genset Application (Up to gross mechanical power 800kWm)”, published by Central Pollution Control Board, Ministry of Environment & Forests, Govt. of India

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