INTERNATIONAL MARINE CERTIFICATION INSTITUTE (UK)

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CERTIFICATION APPLICATION
Reciprocating internal combustion engines exhaust emission measurement - Test-bed measurement of gaseous and particulate exhaust emissions
EN ISO 18854:2015

FOR **IMCI** USE ONLY
Certificate No.:

Manufacturer:	
Address:	
ZIP Code:	
City:	
Country:	
VAT #:	
Signatory, Name:	
Signatory, Title:	
Phone:	
Email:	
WWW:	
Head of Engineering:	

This application is valid for:

		Indicate
Directive 2013/53/EU (RCD II) related to CE marking for EU.	[Yes, No]	
Recreational Craft Regulation (RCR) related to UKCA marking for United Kingdom	[Yes, No]	

A. General		**Please complete as appropriate**
1	Type and commercial description of the of the engine family (Type on Certificate)	
2	Manufacturer's type coding as marked on the engines	
3	Specification of recreational craft to be propelled by the engine [1]	
4	Location of affixing of the engine identification number	
5	Coding of affixing of the engine identification number	
6	Method of affixing of the engine identification number	
7	Location of affixing of the CE mark	
8	Method of affixing of the CE mark	
9	Address of assembly plant	
10	City of assembly plant	
11	Country of assembly plant	

B. Essential Characteristics of the Engine Family and Common Parameters		
12	Name of engine family	
13	Manufacturer's engine code	
14	Engine durability considered acceptable [3]; yes/no [4]	
15	Specification of engines within this family	
16	Engine Owner's Manual available [3]; yes/no [4]	
17	Combustion cycle (4-stroke/2-stroke) [4]	
18	Combustion chamber type/design	
19	Cooling medium	
20	Method of air aspiration	
21	Valve and porting - configuration	
22	Valve and porting - size and number	
23	Valve and porting - number	
24	Fuel system	
	Engine management systems [5], give proof of identity pursuant to drawing number(s) for:	
25	Charge cooling system	
26	Exhaust gas recirculation	
27	Water injection/emulsion	
28	Air injection	
	Exhaust after-treatment system [5]:	
29	Proof of identical ratio: system capacity/fuel delivery per stroke, pursuant to diagram number(s)	
	Emission control management systems [5]:	
30	Defeat device	
31	Auxiliary control device	
32	Irrational emission control strategy	

Manufacturer:	
Type and commercial description of the of the engine family	
Engine Serial Number	

C. Essential Characteristics of the Parent Engine [2], to be submitted for each parent engine, if more than one:

33	Engine Serial Number	
34	Numbers of drawing(s) of combustion chamber and piston crown	
35	Minimum cross sectional area of inlet port [mm^2]	
36	Minimum cross sectional area of outlet port [mm^2]	
	Cooling system:	
37	Nature of liquid	
38	Circulating pump(s) for liquid; yes/no [4]	
39	Characteristics or make(s) and type(s) of pump(s) [5]	
40	Drive ratio(s)of pump(s) [5]	
	Air:	
41	Blower; yes/no [4]	
42	Characteristics or make(s) and type(s) of blower(s) [5]	
43	Drive ratio(s)of blower(s) [5]	
	Temperature permitted by the manufacturer:	
44	Liquid cooling: maximum temperature at outlet [K]	
45	Air cooling: reference point	
46	Maximum temperature at reference point [K]	
47	Maximum charge air outlet temperature of the inlet intercooler [5] [K]	
48	Maximum exhaust temperature at the point in the exhaust pipe(s) adjacent to the outer flange(s) of the exhaust manifold(s) [K]	
49	Lubricant temperature, minimum [K]	
50	Lubricant temperature, maximum [K]	
	Pressure charger: yes/no [4]	
51	Make	
52	Type	
53	Description of the system (e.g. max charge pressure, waste-gate)	
54	Intercooler	
	Intake system	
55	Maximum allowable intake depression at rated engine speed and at 100% load [kPa]	
	Exhaust system	
56	Maximum allowable exhaust backpressure at rated engine speed and at 100% load [kPa]	

C.1 Additional Anti-Pollution Devices, if any [5]

57	Description and/or diagram(s) attached with number	

C.2 Fuel Feed

	Feed pump	
58	Pressure [7] [kPa] or characteristic diagram with number	
	Injection system	
59	Make(s)	
60	Type(s)	
61	Delivery [7] [mm^3] @ Rated per stroke or cycle [4] at full injection at pump	
62	Delivery [7] [mm^3] @ Maximum Torque per stroke or cycle [4] at full injection at pump	
63	Speed [min^{-1}] @ Rated or characteristic diagram with number	
64	Speed [min^{-1}] @ Maximum Torque or characteristic diagram with number	
65	Mention the method used (on engine/on pump bench) [4]	
66	Injection advance curve [7]	
67	Injection advance timing [7]	
68	Injection piping length [mm]	
69	Injection piping internal diameter [mm]	
70	Injector Make(s)	
71	Injector Type(s)	
72	Injektor opening pressure [7] [kPa] or characteristic diagram with number	
73	Governor Make(s)	
74	Governor Type(s)	
75	Governor speed [7] [min^{-1}] at which cut-off starts under full load	
76	Governor maximum no-load speed [7] [min^{-1}]	
77	Governor idling speed [7] [min^{-1}]	
78	Cold start system Make(s)	
79	Cold start system Type(s)	
80	Cold start system Description	

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Manufacturer:	
Type and commercial description of the of the engine family	
Engine Serial Number	

C.3 Valve Timing

	Maximum lift and angles of opening and closing in relation to top dead centre or equivalent	
81	Maximum lift - Intake [mm]	
82	Opening angle in relation to TDC - Intake [°]	
83	Closing angle in relation to TDC - Intake [°]	
84	Maximum lift - Exhaust [mm]	
85	Opening angle in relation to TDC - Exhaust [°]	
86	Closing angle in relation to TDC - Exhaust [°]	
	Reference and/or setting ranges [4]	

C.4 List of numbers of critical parts [5]

87	Exhaust manifold	
88	Block (ID 10)	
89	Fuel line P/N (ID 16)	
90	Catalytic converter element (ID 15)	
91	Injector (ID 15)	
92	Camshaft (ID 10)	
93	Piston (ID 13)	
94	Cylinder head (ID10)	
95	Turbocharger (ID 17)	
96	Aftercooler core (ID 15)	

C.5 Other critical data [5]

97	Piston P/N	
98	Bowl diameter [mm]	
99	Bowl depth [mm]	
100	Bowl volume [cm^3]	
101	Bowl offset [mm]	
102	Fuel line P/N	
103	Fuel line length [mm]	
104	Fuel line inside diameter [mm]	
105	Injector P/N	
106	Injector make	
107	Injector model	
108	Nozzle P/N	
109	NOP [kPa]	
110	Aftercooler P/N	
111	Aftercooler make	
112	Turbocharger P/N	
113	Turbocharger make	
114	Turbocharger model	
115	Fuel pump P/N	
116	Fuel pump make	
117	Fuel pump model	
118	Catalytic converter element P/N	
119	Fuel pumps static timing	
120	ECU	

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Manufacturer:	
Type and commercial description of the of the engine family	
Engine Serial Number	

D. Engine Family Listing

Parameter	Engine #	1 Parent Eng.	2	3	4	5 [8]
Engine type						
Bore	[mm]					
Stroke	[mm]					
Number of cylinders						
Layout of cylinders						
Engine capacity	[l]					
Cylinder displacement (in % of parent engine)	[%]					
Rated speed	[min^{-1}]					
Rated net. power	[kW]					
Specific fuel consumption (at rated net. power)	[g/kWh]					
Fuel delivery per stroke (at rated net. power) [5]	[mm^3/stroke]					
Maximum torque speed	[min^{-1}]					
Maximum torque	[Nm]					
Specific fuel consumption (at rated net. power)	[g/kWh]					
Fuel delivery per stroke (at rated net. power) [5]	[mm^3/stroke]					
Low idle speed	[min^{-1}]					
Volumetric compression ratio						
Injection timing	[°]					
Injection advance	[°]					
Injection Pump - Type						
Injector - Type						
Turbocharger - Make						
Turbocharger - Type						
Governor - Type						
Governor - maximum no load speed	[min^{-1}]					
Governor - speed at which cut-off starts under full load	[min^{-1}]					
Maximum exhaust temperature	[°K]					
Electronic software						
Fuel ratio control						
Maximum charge air outlet temperature of inlet cooler	[°K]					
Maximum fuel feed pump pressure	[kPa]					

E. Attachments

121	Characteristics of engine-related parts of the recreational craft are attached; yes/no [4]	
122	Number of photographs of the parent engine [5]	
123	List further attachments is attached; yes/no [4]	
124	Number of pages of the entire application inclusive the pages of this application form	
125	Name of test laboratory	
126	Reference number of test report	
127	Comments:	

Notes:

[1] Sail, Power, PWC
[2] To be completed in conjunction with the specifications given in EN ISO 18854-2015 cl. 7.
[3] As described in Annex I section B.3 and B.4
[4] Insert as appropriate
[5] If not applicable mark **n.a.**
[6] n.a.
[7] Specify the tolerance
[8] Please continue with additional list if this table is too small.

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Manufacturer:	
Type and commercial description of the of the engine family	
Engine Serial Number	

As the manufacturer or his authorised representative,
I declare under our sole responsibility that the above product(s) to which this declaration relates is in conformity with EN ISO 18854:2015. This application has not been lodged with any other notified body / conformity assessment body.

Date (yymmdd) and Signature of Manufacturer or his authorised Representative:

IMCI / IMCI (UK) office internal use

Application accepted for IMCI: clear name, date (yymmdd) [Yes, No]

Application accepted for IMCI (UK): clear name, date (yymmdd) [Yes, No]

Comments to application or reason(s) if application refused

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TEST RESULT FORM
Reciprocating internal combustion engines exhaust emission measurement - Test-bed measurement of gaseous and particulate exhaust emissions
EN ISO 18854:2015

FOR **IMCI / IMCI (UK)** USE ONLY
Certificate No.:

Manufacturer:	
Address:	
City:	
Country:	
VAT #:	
Signatory, Name:	
Signatory, Title:	
Phone:	
Email:	
WWW:	
Head of Engineering:	

A. Information concerning the conduct of the test(s): **Please complete as appropriate**

1	Type and commercial description of the of the engine family	
2	Manufacturer's type coding as marked on the engines	
3	Engine Serial Number	
4	Reference fuel used for test	
5	Reference fuel Octane/Cetane number	
6	Reference fuel sulphur content	
7	Reference fuel density [g/mm^3]	
8	Lubricant make(s)	
9	Lubricant type(s)	
10	State percentage of oil in mixture if lubricant and fuel are mixed [%]	
	Engine driven equipment [B] **:**	
11	Enumeration and identifying details	
12	Power absorbed at indicated engine speeds [C] [kW]	
13	Engine speed [C], rated [min-1]	
14	Engine speed [C], intermediate [min-1]	
15	Engine speed [C], low idle [min-1]	

Declared power (kW) [B] *absorbed at various engine speeds* [D] **:**

Speed		**Rated**	**Intermediate**			**Low idle**
Absorbing equipment		**[min^{-1}]**	**[min^{-1}]**	**[min^{-1}]**	**[min^{-1}]**	**[min^{-1}]**
	[kW]					
	[kW]					
	[kW]					
	[kW]					
	[kW]					
	[kW]					
	[kW]					
	[kW]					
	[kW]					
	[kW]					
Total	[kW]					

Engine power (kW) [E] **:**

Speed		**Rated**	**Intermediate**			**Low idle**
Condition		**[min^{-1}]**	**[min^{-1}]**	**[min^{-1}]**	**[min^{-1}]**	**[min^{-1}]**
Maximum power measured on test	[kW]					
Total power absorbed by engine driven equipment as per section above	[kW]					
Net engine power	[kW]					

Emission Cycle E4 (for Petrol) [B] ***and Dynamometer settings used:***

Mode		**Rated**	**Intermediate**			**Low idle**
E4 Cycle		**1**	**2**	**3**	**4**	**5**
Speed	[%]	100	80	60	40	idle
Speed	[min^{-1}]					
Torque	[%]	100	71,6	46,5	25,3	0
Torque	[Nm]					
Cycle Weighting Factor	[%]	6	14	15	25	40

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Manufacturer:	
Type and commercial description of the of the engine family	
Engine Serial Number	

Emission Cycle E5 (for Diesel) [B] and Dynamometer settings used:

	mode	Rated	Intermediate			Idle
E3 Cycle		1	2	3	4	n.a.
Power	[%]	100	75	50	25	
Power	[kW]					
Speed	[%]	100	91	80	63	
Speed	[min-1]					
Cycle Weighting Factor	[%]	20	50	15	15	

Emission Cycle E5 (for Diesel) [B] and Dynamometer settings used:

	Mode	**Rated**	**Intermediate**			**Low idle**
E5 Cycle		**1**	**2**	**3**	**4**	**5**
Power	[%]	100	75	50	25	0
Power	[kW]					
Speed	[%]	100	91	80	63	idle
Speed	[min^{-1}]					
Cycle Weighting Factor	[%]	8	13	17	32	30

B.Test results: **Please complete as appropriate**

	Mode	**Rated**	**Intermediate**			**Low idle**
Emissions test results (unweighted emissions)		**1**	**2**	**3**	**4**	**5**
CO - Carbon Monoxide	[g/kWh]					
HC - Hydrocarbons	[g/kWh]					
NO_x - Nitrogen Oxides	[g/kWh]					
PT - Particulates [B]	[g/kWh]					

16	Name of test laboratory	
17	Reference number of test report	
18	Comments:	

Notes:
[A] n.a.
[B] If not applicable mark **n.a.**
[C] as specified by the manufacturer
[D] Must not be greater than 10 % of the power measured during the test
[E] Uncorrected power measured in accordance with the provisions of the appropriate sections of 97/68/EC as amended.

As the manufacturer or his authorised representative,
I declare under our sole responsibility that the above product(s) to which this declaration relates is in conformity with EN ISO 18854:2015. This test report has not been lodged with any other notified body.
A copy of the test report generated by the test rigg is attached.

Date (yymmdd) and Signature of Manufacturer or his authorised Representative:

7 - Signature by the inspector
To be filled in by the inspector

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Manufacturer:	
Type and commercial descriptio	
Engine serial number:	

Evaluation by IMCI / IMCI (UK) Inspector:

I declare under our sole responsibility that I have not been active for the manufacturer in design, construction, marketing or other activities. The contenct of these forms have been checked.

Date (yymmdd) and place of inspection:

Inspector: clear name (surname, first name):

Inspector: Stamp, Signature:

Comments on the Evaluation by Inspector:

This page is only for IMCI / IMCI (UK) office use

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Boat Manufacturer:

Boat Model Name:

WIN Model Year:

Routeing #:

Certificate number:

Evaluation activity by office staff member(s), if applicable

Evaluation staff member: first name, surname:

Date of evaluation (yymmdd):

Evaluation staff member: Signature

Comments on evaluation by staff member:

Review activity by office staff member(s)

Review staff member: first name, surname:

Date of review (yymmdd):

Review staff member: Signature

Comments on review by staff member:

The certification decision is made by signing and dating the corresponding IMCI certificate