

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:

Directive 2013/53/EU (RCD II) related to CE marking for EU.
Recreational Craft Regulation (RCR) related to UKCA marking for United Kingdom

	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 (as 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	

P

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]	
<i>Cooling system:</i>		
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]	
<i>Air:</i>		
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]	
<i>Temperature permitted by the manufacturer:</i>		
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 ^[6] [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]	
<i>Pressure charger: yes/no ^[4]</i>		
51	Make	
52	Type	
53	Description of the system (e.g. max charge pressure, waste-gate)	
54	Intercooler	
<i>Intake system</i>		
55	Maximum allowable intake depression at rated engine speed and at 100% load [kPa]	
<i>Exhaust system</i>		
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		
<i>Feed pump</i>		
58	Pressure ^[7] [kPa] or characteristic diagram with number	
<i>Injection system</i>		
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	Injector 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	

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 [°]	
<i>Reference and/or setting ranges ^[4]</i>		

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	

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 Test fuel analytical data sheet	
123 Number of photographs of the parent engine ^[5]	
124 List further attachments is attached; yes/no ^[4]	
125 Number of pages of the entire application inclusive the pages of this application form	
126 Name of test laboratory	
127 Reference number of test report	
128 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.



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:

[Redacted signature and date area]

IMCI / IMCI (UK) office internal use

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

[Redacted response for IMCI application]

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

[Redacted response for IMCI (UK) application]

Comments to application or reason(s) if application refused

[Redacted comments area]

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 Fuel used for test (Designator)
- 5 Fuel Octane (RON) / Cetane number
- 6 Fuel Octane (MON)
- 7 Fuel density [g/mm³]
- 8 Fuel boiling point IBP / FBP [°C]
- 9 Fuel flash point (Diesel) [°C]
- 10 Fuel vapour pressure Reid DVPE / - [kPa]
- 11 Fuel sulphur mass fraction [mg/kg]
- 12 Fuel lead /ash mass fraction [mg/kg]
- 13 Lubricant make(s)
- 14 Lubricant type(s)
- 15 State percentage of oil in mixture if lubricant and fuel are mixed [%]

Engine driven equipment ^[B]:

- 16 Enumeration and identifying details
- 17 Power absorbed at indicated engine speeds ^[C] [kW]
- 18 Engine speed ^[C], rated [min⁻¹]
- 19 Engine speed ^[C], intermediate [min⁻¹]
- 20 Engine speed ^[C], low idle [min⁻¹]

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

Absorbing equipment	Speed	Rated	Intermediate		Low idle
		[min ⁻¹]	[min ⁻¹]	[min ⁻¹]	[min ⁻¹]
	[kW]				
	[kW]				
	[kW]				
	[kW]				
	[kW]				
	[kW]				
	[kW]				
	[kW]				
	[kW]				
	[kW]				
Total	[kW]				

Engine power (kW) ^[E]:

Condition	Speed	Rated	Intermediate		Low idle
		[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:

E4 Cycle	Mode	Rated	Intermediate			Low idle
		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

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

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

E3 Cycle	mode	Rated	Intermediate			Idle
		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:

E5 Cycle	Mode	Rated	Intermediate			Low idle
		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

Emissions test results (unweighted emissions)	Mode	Rated	Intermediate			Low idle
		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]					

21						

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 rig is attached.

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



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

Manufacturer: _____
Type and commercial descriptio _____
Engine serial number: _____

Evaluation by IMCI / IMCI (UK) Inspector:

I declare under our sole responsibility that the above product(s) has (have) been developed without my involvement.
The content of the documentation has been checked.

Date (yyymmdd) and place of inspection: _____

Inspector: clear name (surname, first name): _____

Inspector: Stamp, Signature:

Comments on the Evaluation by Inspector:
Durability:

Engine configuration

Ambient data

Equivalency of fuels used

Test cell calibration

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

Boat Manufacturer: _____
Boat Model Name: _____
WIN Model Year: _____

Routeing #: _____

Certificate number: _____

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

Evaluation staff member 1: clear name (surname, first name): _____

Date of evaluation (yymmdd): _____

Evaluation staff member 1: Signature

Comments on evaluation by staff member 1:

Evaluation staff member 2: clear name (surname, first name): _____

Date of evaluation (yymmdd): _____

Evaluation staff member 2: Signature

Comments on evaluation by staff member 2:

Boat Manufacturer: _____
Boat Model Name: _____
WIN Model Year: _____

Review activity by office staff member(s)

Review staff member 1: Surname, first name: _____

Date of review (yymmdd): _____

Review staff member 1: Signature

Comments on review by staff member 1:

Review staff member 2: Surname, first name: _____

Date of review (yymmdd): _____

Review staff member 2: Signature

Comments on review by staff member 2:

Certification decision by office staff member(s)

Certification decision by staff member 1: Surname, first name: _____

Date of certification decision (yymmdd): _____

Certification decision by staff member 1: Signature

Comments on certification decision by staff member 1:

Certification decision staff member 2: Surname, first name: _____

Date of certification decision (yymmdd): _____

Certification decision staff member 2: Signature

Comments on certification decision by staff member 2:
