

UL 340



Stability calculation according to ISO 12217-3-2017 Small craft Stability and buoyancy assessment

By Xiamen DAWN DESIGN

Company: 厦门道恩建筑设计有限公司

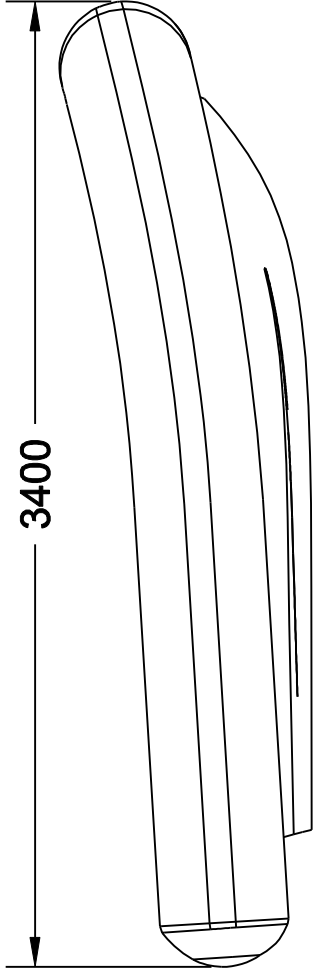
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 DAWN YACHT DESIGN 厦门道恩建筑设计有限公司	ITEM		PROJECT:	UL 340	
	UL 340		Cat.	cat. C	
	Signature		REV.	PAPER	SCALE
Design by			R2	A4	
Checked by			sheet 1 of 8		
Technic by					
Approved by		DATE	2018.05		

CONTENT

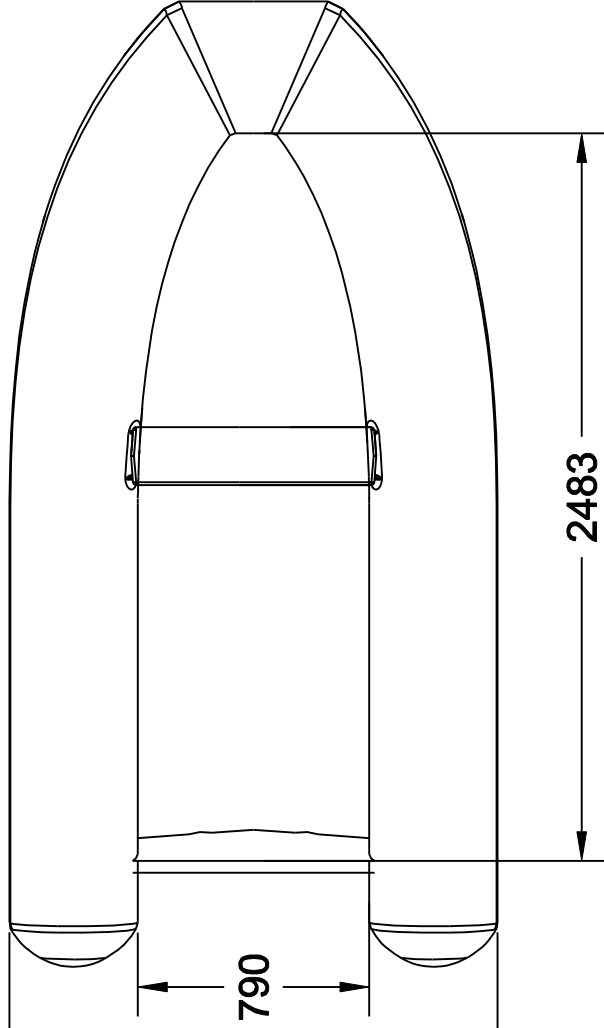
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3400

SPECIFICATION

Loa	3400mm
Beam	1720mm
Inside Length	2480mm
Inside Width	790mm
Weight	52Kg
Max Pax	5+child
Max Load	585Kg
Max HP	20
Shaft	Short
Tube	44cm
Airtight Chambers	3



790

2483

DND

DAWN YACHT DESIGN

Signature	
S.C/L	
Checked by	
Technic by	
Approved by	
DATE	2017.04.19

Drawing Title

General Arrangement

Project Name: UL340

Drawing NO: UI34-01-01

PAPER	SCALE
A4	1:25
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R2	

UL340 Weight			
Weight of the boat	52	kg	
Weight of the motor	104.5	kg	
test load	276.375	kg	5 passengers5 passengers+child
TOTAL test mass:	432.88	kg	

The total test load m_t , in kilograms, shall be calculated using the following formula:

$$m_t = (0,67 \times n \times 75) + (0,67 \times 37,5) \text{ for a child, if applicable}$$

n is the maximum permissible number of adults determined by the manufacturer (see 6.1), i.e. 75 kg for each permissible adult and 37,5 kg for a child, if applicable.

Maximum power

6.2 Maximum motor power

This is applicable to Type V boats only.

The motor maximum power, in kilowatts, shall be determined by the manufacturer and shall not exceed that calculated using the following formula:

$$P_{\max} = 10 \times F(d) - 33$$

where

P_{\max} is the maximum motor power rating, in kilowatts, determined in accordance with ISO 8665;

$F(d)$ is the dimensional factor = $l \times b$

where

l is the overall length of the boat, in metres, from the bow to the extremity of the rear float (excluding handholds or other fittings);

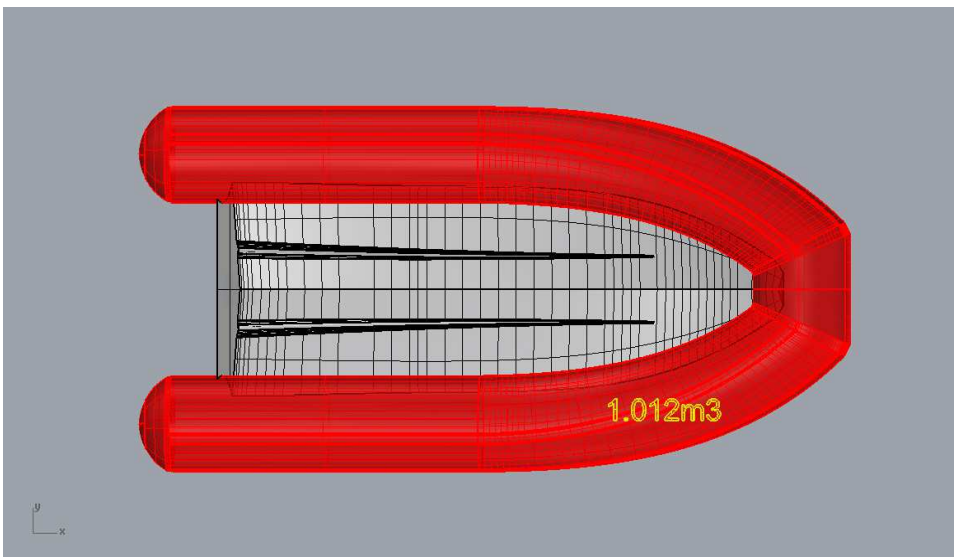
b is the overall beam of the boat, in metres (excluding handholds or other fittings).

	l(m)	b(m)	Pmax Kw	Pmax HP
UL 340	3.4	1.730	25.82	34.63

UL340 Buoyancy

Inflatable Buoyancy tube:

1.012 m³



Maximum Load

The maximum load which may be carried by the boat shall be determined by the manufacturer and shall not exceed that calculated using the following formula:

$$m = (0,75 \times V \times 1000) - m_b$$

where

- m is the maximum load capacity, in kilograms (total mass on board including persons, equipment, motor(s) and fuel);
- V is the volume, in cubic metres, of the buoyancy of the boat;
- m_b is the total mass, in kilograms, of the boat as supplied by the manufacturer [inclusive of all permanently installed equipment supplied with the boat: hull, fittings and similar items but without motor(s) and fuel]. Permanently installed engine(s) and drive systems shall also be included.

Buoyancy volume (m ³)	M (kg)	m (kg)	Max load recommended by manufacturer:
m ³	kg	kg	kg
1.012	52	707	663

Maximum number of passengers

$$n = \frac{l_i}{0,38} - 1$$

where l_i is the inboard length, in metres.

Under no circumstances shall the value, n , expressed in body mass, exceed the maximum load capacity (see 6.4).

The value n shall always be rounded down to the nearest integer but, if the first decimal place is greater than 5, a child may be added, or if greater than 7, an adult may be added.

For calculations, the body mass of a child is defined as 37,5 kg and the body mass of an adult as 75 kg.

The data displayed on the builder's plate(s), see clause 8 e), shall include at least one adult and not more than one child.

	l_i	n		N. persons
UL 340	2.48	5.526		5+child

Hydrostatics Report

Length Overall, LOA	3.400	m
$L_H =$	3.400	m
Beam Overall, Boa	1.730	m
Waterline Length, Lwl	2.799	m
Waterline Beam, Bwl	1.665	m
Navigational Draft, T	0.271	m
Displacement Weight	432.880	kgf
Volume	0.422	m ³
LCG	0.655	m
TCG	0.000	m
VCG	0.478	m
Fluid Density	1025.000	kg/m ³
LCB	0.650	m
TCB	0.000	m
VCB	0.181	m
Wetted Surface Area	4.412	m ²
Waterplane Area, Awp	3.380	m ²
LCF	0.785	m
TCF	0.000	m
Weight To Immerse	34.679	kgf/cm
I(transverse)	0.723	m ⁴
I(longitudinal)	1.411	m ⁴
BMt	1.713	m
BMI	3.343	m
GMt	1.416	m
GMI	3.046	m
Mt	1.633	m
MI	3.263	m
Heel Angle	0.000	deg
Trim Angle	-0.888	deg
Cb	0.334	
Cwp	0.725	
Cvp	0.460	
Cws	3.811	

Offset load test simulation

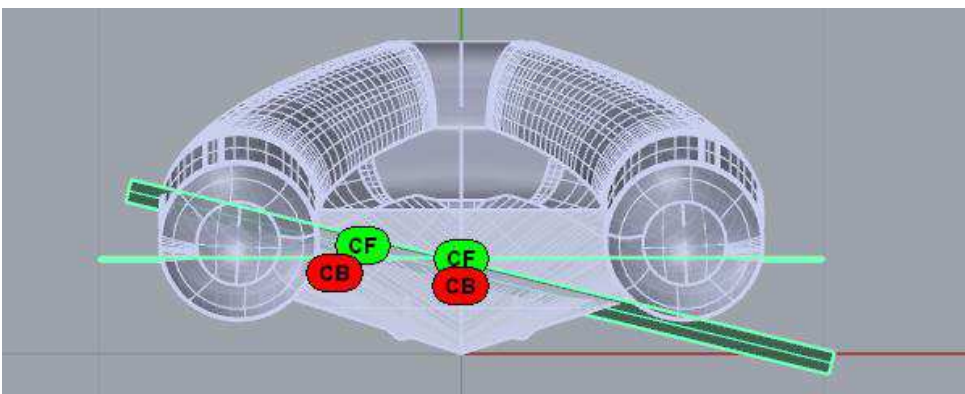
1. Test condition

boat	156.5	655	0	280	102508	0	43820
load	276.38	655	400	590	181029	110552	163064
	432.88	655.0	255.4	477.9	283536	110552	206884

1. General

Length Overall, LOA	3.400	m
L_H	3.400	m
Beam Overall, Boa	1.730	m
Waterline Length, Lwl	2.681	m
Waterline Beam, Bwl	1.594	m
Navigational Draft, T	0.340	m
Displacement Weight	432.880	kgf
Volume	0.422	m ³
LCG	0.655	m
TCG	0.255	m
VCG	0.478	m
Fluid Density	1025.000	kg/m ³
LCB	0.645	m
TCB	0.315	m
VCB	0.214	m
Wetted Surface Area	3.754	m ²
Waterplane Area, Awp	2.540	m ²
LCF	0.880	m
TCF	0.198	m
Weight To Immerse	26.055	kgf/cm
I(transverse)	0.424	m ⁴
I(longitudinal)	1.112	m ⁴
BMt	1.005	m
BMI	2.636	m
GMt	0.734	m
GMI	2.365	m
Mt	0.905	m
MI	2.536	m
Heel Angle	-12.839	deg
Trim Angle	-2.194	deg

2. Test



Water does not enter into the boat.