



Shenzhen GUOREN Certification Technology Service Co., Ltd.

101#, Building K & Building T, The Second Industrial Zone, Jiazitang Community,
Fenghuang Street, Guangming District, Shenzhen, China

TEST REPORT

Degrees of protection provided by enclosures (IP Code)
IEC 60529:1989+A1:1999+A2:2013

Report Reference No.....:	GRCTR260504006
Date of issue.....:	May. 19, 2026
Testing Laboratory Name.....:	Shenzhen GUOREN Certification Technology Service Co., Ltd.
Address.....:	101#, Building K & Building T, The Second Industrial Zone, Jiazitang Community, Fenghuang Street, Guangming District, Shenzhen, China
Applicant's name.....:	Shenzhen Yifan Power Technology Co., Ltd. (Huizhou)Branch
Address.....:	Xintang section, Xihu New Village, Qiuchang Street, Huiyang District, Huizhou City, Guangdong Province (Building 1, Hehui Innovation Industrial Park)
Manufacturer.....:	Shenzhen Yifan Power Technology Co., Ltd. (Huizhou)Branch
Address.....:	Xintang section, Xihu New Village, Qiuchang Street, Huiyang District, Huizhou City, Guangdong Province (Building 1, Hehui Innovation Industrial Park)
Test specification.....:	IP68
Test specifications / Test standard :	EN 60529: 1991+A1: 2000+A2: 2013+AC:2016-12+AC:2019-02
Test procedure.....:	Test report
Non-standard test method	N/A
Test item description.....:	Electric Thruster
Trade Mark.....:	N/A
Manufacturer.....:	Shenzhen Yifan Power Technology Co., Ltd. (Huizhou)Branch
Model/Type reference.....:	H01
Listed Model.....:	Y01,Y01-K,Y02,Y02-K,Y03,Y04
Listed Models.....:	N/A
Sample Received Date.....:	2026-05-09
Testing Period.....:	2026-05-09 to 2026-05-19
Test result	Pass
Tested by (printed name + signature):	Test engineer Jimmy. Wang
Approved by (printed name + signature):	Manager ZhiHui Deng



1. Function / Description :

The EUT is a Electric Thruster.

2. Degrees of protection:

Table 1—Degrees of protection against access to hazardous parts indicated by the first characteristic numeral

First characteristic numeral	Degrees of protection	
	Brief description	Definition
0	Non-protected	-
1	Protected against access to hazardous parts with the back of a hand	The access probe, sphere of 50 mm ϕ , shall have adequate clearance from hazardous parts
2	Protected against access to hazardous parts with a finger	The jointed test finger of 12mm ϕ , 80 mm length, shall have adequate clearance form hazardous parts
3	Protected against access to hazardous parts with a tool	The access probe of 2.5mm ϕ shall not penetrate
4	Protected against access to hazardous parts with a wire	The access probe of 1.0mm ϕ shall not penetrate
5	Protected against access to hazardous parts with a wire	The access probe of 1.0mm ϕ shall not penetrate
6	Protected against access to hazardous parts with a wire	The access probe of 1.0mm ϕ shall not penetrate
NOTE: In the case of the first characteristic numeral 3,4,5 and 6, protection against access to hazardous parts is satisfied if adequate clearance is kept. The adequate clearance should be specified by the relevant product committee in accordance with 12.3. Due to the simultaneous requirement specified in table 2, the definition "shall not penetrate" is given in table 1.		

Table 2—Degrees of protection against solid foreign objects indicated by the first characteristic numeral

First characteristic numeral	Degrees of protection	
	Brief description	Definition
0	Non-protected	-
1	Protected against solid foreign objects of 50 mm ϕ and greater	The object probe, sphere of 50 mm ϕ , shall not fully penetrate 1)
2	Protected against solid foreign objects of 12.5 mm ϕ and greater	The object probe, sphere of 12.5 mm ϕ , shall not fully penetrate 1)
3	Protected against solid foreign objects of 2.5 mm ϕ and greater	The object probe, sphere of 2.5 mm ϕ , shall not fully penetrate 1)
4	Protected against solid foreign objects of 1.0 mm ϕ and greater	The object probe of 1.0mm ϕ , shall not penetrate at all 1)
5	Dust-protected	Ingress of dust is not totally prevented, but dust shall not penetrate in a quantity to interfere with satisfactory operation of the apparatus or to impair safety
6	Dust-tight	No ingress of dust
1) The full diameter of the object probe shall not pass through an opening of the enclosure.		

**Table 3—Degrees of protection against water indicated
by the second characteristic numeral**

Second characteristic numeral	Degrees of protection	
	Brief description	Definition
0	Non-protected	-
1	Protected against vertically falling water drops	Vertically falling drops shall have no harmful effects
2	Protected against vertically falling water drops when enclosure tilted up to 15°.	Vertically falling drops shall have no harmful effects when the enclosure is tilted at any angle up to 15° on either side of the vertical
3	Protected against spraying water	Water sprayed at an angle up to 60° on either side of the vertical shall have no harmful effects
4	Protected against splashing water	Water splashed against the enclosure from any direction shall have no harmful effects
5	Protected against water jets	Water projected in jets against the enclosure from any direction shall have no harmful effects
6	Protected against powerful water jets	Water projected in powerful jets against the enclosure from any direction shall have no harmful effects
7	Protected against the effects of temporary immersion in water	Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is temporarily immersed in water under standardized conditions of pressure and time
8	Protected against the effects of continuous immersion in water	Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is continuously immersed in water under conditions which shall be agreed between manufacturer than for numeral 7
9	Protected against high pressure and temperature water jets	Water projected at high pressure and high temperature against the enclosure from any direction shall not have harmful effects

3. Test conditions:

Table 4—Test conditions for degrees of protection indicated by the first characteristic numeral

First characteristic numeral	Test for protection against	
	access to hazardous parts	solid foreign objects
0	Non test required	Non test required
1	The sphere of 50 mm ϕ shall not fully penetrate and adequate clearance shall be kept	
2	The jointed test finger may penetrate up to its 80 mm length, but adequate clearance shall be kept	The sphere of 12.5 mm ϕ shall not fully penetrate
3	The test rod of 2.5 mm ϕ shall not penetrate and adequate clearance shall be kept	
4	The test rod of 1.0 mm ϕ shall not penetrate and adequate clearance shall be kept	
5	The test wire of 1.0 mm ϕ shall not penetrate and adequate clearance shall be kept	Dust-protected as specified in table 2
6	The test wire of 1.0 mm ϕ shall not penetrate and adequate clearance shall be kept	Dust-tight as specified in table 2
In the case of the first characteristic numeral 1 and 2, "not fully penetrate" means that the full diameter of the sphere shall not pass through an opening of the enclosure.		

Table 5—Test means for the tests for protection against solid foreign objects

First characteristic numeral	Test means (objects probes and dust chamber)	Test force
0	Non test required	-
1	Rigid sphere without handle or guard $50^{+0,05}_0$ mm diameter	$50N \pm 10\%$
2	Rigid sphere without handle or guard $12,5^{+0,05}_0$ mm diameter	$30N \pm 10\%$
3	Rigid steel rod $2,5^{+0,05}_0$ mm diameter with edges free from burrs	$3N \pm 10\%$
4	Rigid steel rod $1,0^{+0,05}_0$ mm diameter with edges free from burrs	$1N \pm 10\%$
5	Dust chamber figure 2, with or without underpressure	-
6	Dust chamber figure 2, with or without under-pressure	-

Table 6—Test means and mains test conditions for the tests for protection against water

Second characteristic numeral	Test means	Water flow rate	Duration of test	Test conditions, see
0	No test required	—	—	—
1	Drip box Figure 3 Enclosure on turntable	$1 \begin{smallmatrix} +0,5 \\ 0 \end{smallmatrix}$ mm/min	10 min	14.2.1
2	Drip box Figure 3 Enclosure in 4 fixed positions of 15° tilt	$3 \begin{smallmatrix} +0,5 \\ 0 \end{smallmatrix}$ mm/min	2,5 min for each position of tilt	14.2.2
3	Oscillating tube Figure 4 Spray ± 60° from vertical, distance max. 200 mm or Spray nozzle Figure 5 Spray ± 60° from vertical	0,07 l/min ± 5% per hole, multiplied by number of holes 10 l/min ± 5 %	10 min 1 min/m ² at least 5 min	14.2.3 a) 14.2.3 b)
4	As for numeral 3 Spray ± 180° from vertical	As for numeral 3		14.2.4
5	Water jet hose nozzle Figure 6 Nozzle 6,3 mm diameter, distance 2,5 m to 3 m	12,5 l/min ± 5 %	1 min/m ² at least 3 min	14.2.5
6	Water jet hose nozzle Figure 6 Nozzle 12,5 mm diameter, distance 2,5 m to 3 m	100 l/min ± 5 %	1 min/m ² at least 3 min	14.2.6
7	Immersion tank Water-level on enclosure: 0,15 m above top 1 m above bottom	—	30 min	14.2.7
8	Immersion tank Water-level: by agreement	—	by agreement	14.2.8
9	Fan jet nozzle Figure 7 Test of small enclosure on turntable Figure 12 Turntable speed (5 ± 1) r/min Spray at 0°, 30°, 60°, 90° Or Test of large enclosures as per intended use Spray from all practical directions Distance (175 ± 25) mm	(15 ± 1) l/min	30 s per position 1 min/m ² at least 3 min	14.2.9 a) 14.2.9 b)

4. Test Result :

CLAUSE	Verdict
12.2 Test for protection against access to hazardous parts for first characteristic numeral 6 (IP6X)	Pass
After Testing:	--
● Does the test wire of 1.0 mm Ø penetrate the enclosure inside?	No
● Does adequate clearance with energized part?	Yes
13.4& 13.5 Dust test for first characteristic numeral 6 (IP6X)	Pass
After Testing:	--
● No ingress of dust penetrate the enclosure inside	Yes
14.2.5 Test for second characteristic numeral 8:continuous immersion subject to agreement (IPX8)	Pass
The lowest point of enclosures with a height less than 850 mm is located 1 000 mm below the surface of the water; The highest point of enclosures with a height equal to or greater than 850 mm is located 150 mm below the surface of the water; The duration of the test is 60 min	--
After Testing:	--
● Any water has entered the enclosure?	No
● Interfere with the correct operation or impair safety?	No

5. Test Set-up Photos of the EUT

H01:



Y01:



Y01K:



Y02:



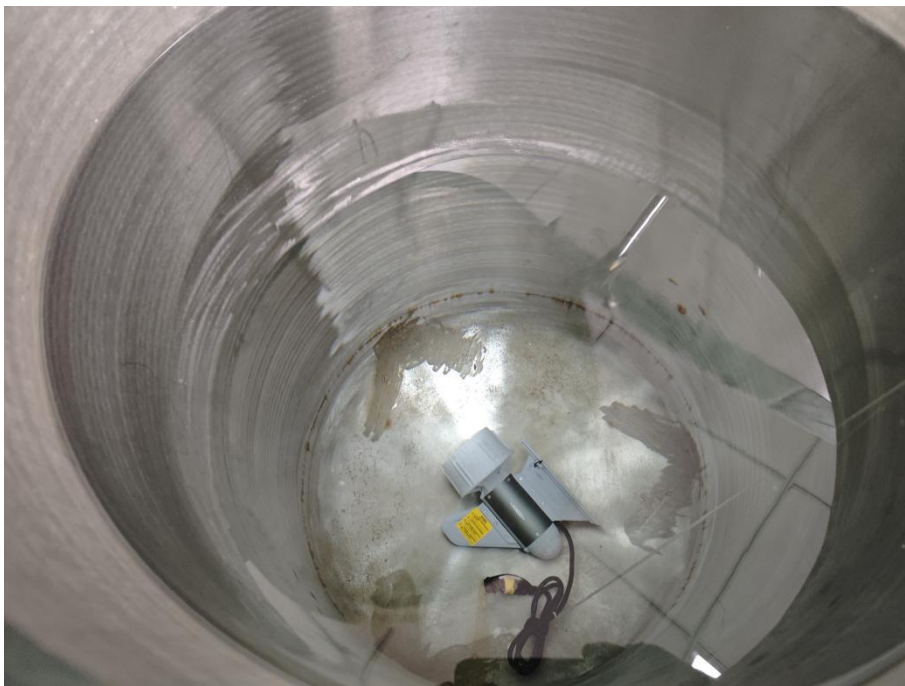
Y02K:



Y03:



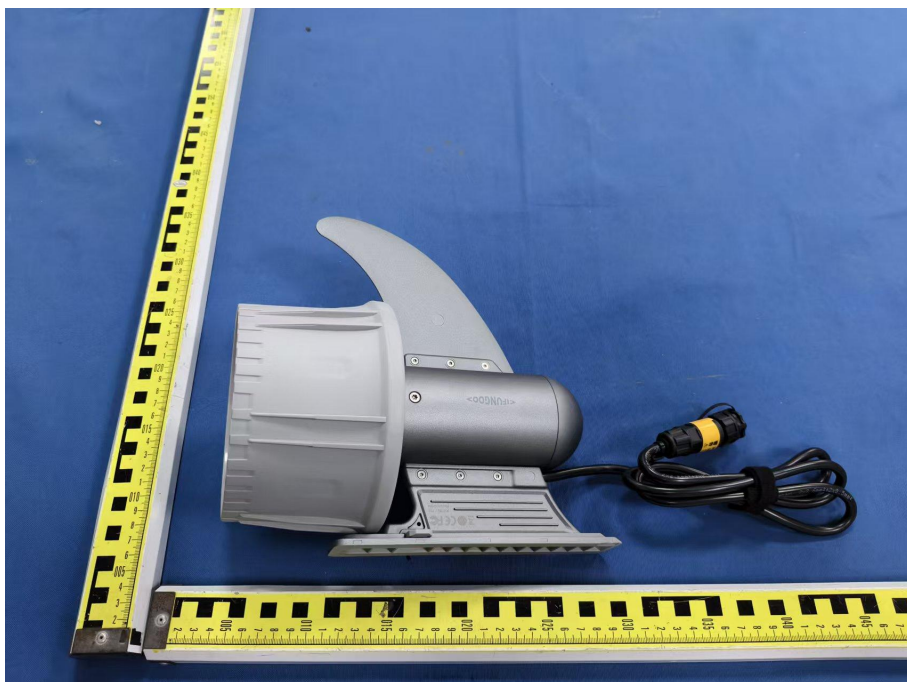
Y04:



6. Photos of EUT



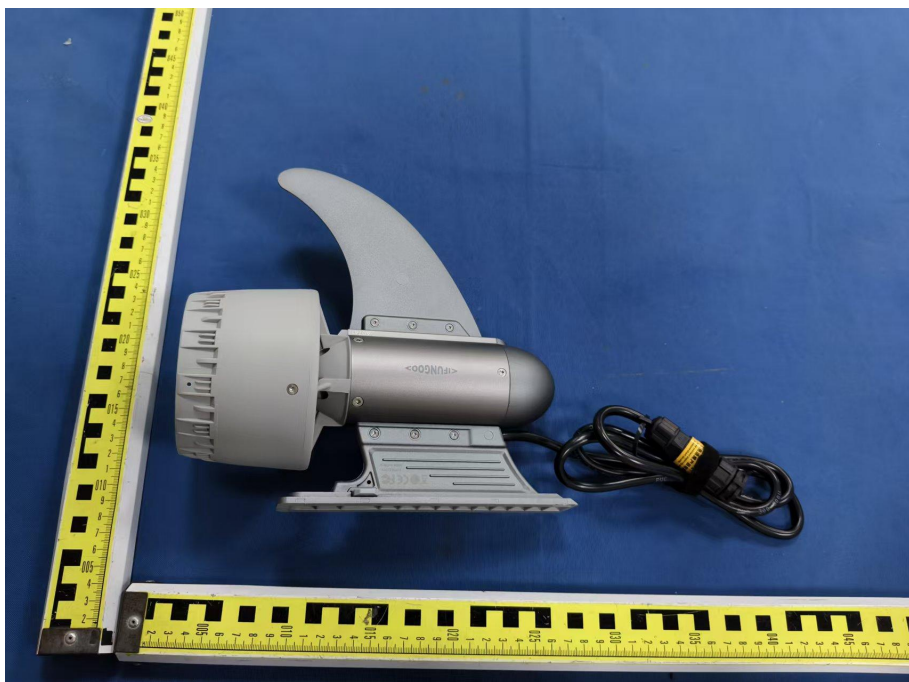
H01



Y01



Y01K



Y02



Y02K



Y03



Y04

.....End of Report.....