



中国船级社  
CHINA CLASSIFICATION SOCIETY

证书格式号/Form: T01.02-  
QH000041

# 型式认可证书 CERTIFICATE OF TYPE APPROVAL

证书编号/Certificate No. CP17T00001\_03

兹证明本证书所述制造厂生产的下列产品能够满足下面列明认可标准的要求。

This is to certify that the following products produced by the manufacturer stated in the certificate can meet the requirements of the approval standards listed below.

## 认可产品/ Product Approved

舵角指示器

Rudder angel indicator

舵角指示器, 舵角发送器

RUDDER ANGLE INDICATOR, RUDDER ANGLE TRANSMITTER

## 制造厂/ Manufacturer

DEIF A/S

Frisenborgvej 33, DK-7800 Skive, DENMARK

## 附加标志/ Notations

无/Nil.

## 认可标准/ Approval Standard

1. 中国船级社《钢质海船入级规范》(2015)及其修改通报第4篇 第1章  
Chapter 1 of Part 4 of China Classification Society Rules for the Classification of Sea-going Steel Ships 2015 and its Amendments
2. 中国船级社《钢质海船入级规范》(2015)及其修改通报第3篇 第13章  
Chapter 13, Part Three of China Classification Society Rules for the Classification of Sea-going Steel Ships 2015 and its Amendments
3. IMO A.694(17)《作为全球海上遇险和安全系统(GMDSS)组成部分的船载无线电设备和电子导航设备一般要求》  
IMO A.694(17) "General Requirements for Shipborne Radio Equipment Forming Part of the Global Maritime Distress and Safety System(GMDSS) and for Electronic Navigational Aids"
4. IEC 60945(2002)《海上导航和无线电通信设备及系统---一般要求---测试方法和要求的测试结果》  
IEC 60945(2002) "Maritime navigation and radio communication equipment and systems -- General requirements -- Methods of testing and required test results"

证书有效期至/ This Certificate is valid until

2020年11月25日 / Nov. 25, 2020

发证机构

中国船级社哥本哈根办事处

Issued by

CCS Copenhagen Office

签发日期

2017年7月1日

Date

Jul. 1, 2017

本证书根据中国船级社《钢质海船入级规范》及有关程序规定签发。关于证书的有关规定见本证书背面的说明。当本证书包括多页纸张时,则所有证书页为一个整体,必须同时使用。每一页证书均须由本社盖章方为有效。证书复印件无效。任何单位和个人均不应摘录或节选本证书的部分内容。本认可证书不代表本社对个体产品质量的检验。有关各方对所持证书的真实性有疑问时,可以向我社检验机构咨询。

This Certificate is issued pursuant to the Rules for Classification of Sea-going Steel Ships and related procedures of the Society. Refer to the back of the certificate for detailed requirements of the certificate. When the certificate consists of more than one page, all pages of the certificate are taken as a whole and are used simultaneously. No certificate page is valid without bearing the stamp of the Society and no copied form of the certificate is regarded as valid. Any part of the certificate is not to be extracted or abridged by any unit or individual in any form. This approval certificate does not constitute the inspection of the Society about the quality of the unit/batch product. Related parties who are doubted about the authenticity of the certificate may inquire of the Society or its offices.



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Nº 16780593



5.IMO MSC.191(79)《船载航行显示器有关航行信息显示的性能标准》  
IMO MSC.191(79) "Performance Standards for the Presentation of Navigation-Related Information on Shipborne Navigational Displays"  
6.IACS UR E10 《型式认可试验规程》  
IACS UR E10 "Test Specification for Type Approval"

**产品明细/ Product Description**

舵角指示器/RUDDER ANGLE INDICATOR	
产品型号/Type	: TRI-2/XL/BRW-2/BW/XDi/XDi-N   TRI-2/XL/BRW-2/BW/XDi
防护等级/Degree of protection	: Listed in attached sheet
舵角发送器/RUDDER ANGLE TRANSMITTER	
产品型号/Type	: RTA 602/RTC 300/RTC 600
防护等级/Degree of protection	: listed in attached sheet

**批准的图纸和设计计算书/ Approved Drawings and Design Calculations**

图纸批准号/ Drawings Approval No.	: GB16A00015
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**产品认可试验报告/ Approval Test Report**

试验报告编号/Test Report No.	: 20040401
试验报告日期/Test Report Date	: 2013-12-04
试验单位/ Laboratory	: Deif A/S
试验单位地址/ Test Address	: Denmark
试验报告编号/Test Report No.	: IPA No. 182&220
试验报告日期/Test Report Date	: 2008-08-18
试验单位/ Laboratory	: DEIF
试验单位地址/ Test Address	: Denmark
试验报告编号/Test Report No.	: DANAK-1910190/1910191
试验报告日期/Test Report Date	: 2008-06-12
试验单位/ Laboratory	: DANAK
试验单位地址/ Test Address	: Denmark
试验报告编号/Test Report No.	: IPA No. 293
试验报告日期/Test Report Date	: 2009-09-01
试验单位/ Laboratory	: DEIF
试验单位地址/ Test Address	: Denmark
试验报告编号/Test Report No.	: DANAK-1910397
试验报告日期/Test Report Date	: 2009-01-27
试验单位/ Laboratory	: DANSK
试验单位地址/ Test Address	: Denmark
试验报告编号/Test Report No.	: IPA No. 220-8
试验报告日期/Test Report Date	: 2009-03-18
试验单位/ Laboratory	: DEIF
试验单位地址/ Test Address	: Denmark
试验报告编号/Test Report No.	: IPA0369
试验报告日期/Test Report Date	: 2013-12-04
试验单位/ Laboratory	: DEIF A/S
试验单位地址/ Test Address	: Frisenborgvej 33, DK-7800 Skive, Denmark
试验报告编号/Test Report No.	: DANAK-19/13548
试验报告日期/Test Report Date	: 2013-11-11
试验单位/ Laboratory	: DELTA
试验单位地址/ Test Address	: Agro Food Park 13, 8200 Aarhus N, Denmark
试验报告编号/Test Report No.	: UB 11794
试验报告日期/Test Report Date	: 2013-07-03
试验单位/ Laboratory	: TEA AG
试验单位地址/ Test Address	: Weiherallee 20, 8610 Uster, Switzerland



试验报告编号/Test Report No.	:	IPA0340-01
试验报告日期/Test Report Date	:	2015-04-07
试验单位/ Laboratory	:	DEIF A/S
试验单位地址/ Test Address	:	Denmark
试验报告编号/Test Report No.	:	DANAK-19/13130
试验报告日期/Test Report Date	:	2013-06-06
试验单位/ Laboratory	:	DELTA
试验单位地址/ Test Address	:	Denmark
试验报告编号/Test Report No.	:	DANAK-19/12974
试验报告日期/Test Report Date	:	2013-04-11
试验单位/ Laboratory	:	DELTA
试验单位地址/ Test Address	:	Denmark
试验报告编号/Test Report No.	:	IPA0375-01
试验报告日期/Test Report Date	:	2015-09-15
试验单位/ Laboratory	:	DEIF A/S
试验单位地址/ Test Address	:	Denmark

### 产品适用范围/ Application of the Product

船舶与海上设施/ Ships and Offshore Installations.

### 认可保持条件/ Maintenance Requirements of Approval

1. 型式认可后, 如果产品及其重要零部件的设计、所用材料或制造方法有所改变, 且影响到产品的主要特性、特征; 或产品的性能指标有所更改, 且超过认可的范围, 则有关图纸和文件应经检验机构审批。并在检验机构认为必要时, 经本社检验人员见证有关试验和进行检查, 其结果应能证实仍符合认可条件。

After type approval, if there are changes to the design, materials used or manufacturing method of the product and important components and such changes affect major characteristics and properties of the product, or property indexes of the product are changed and exceed the scope of approval, related drawings and documents are to be examined and approved by the concerned survey office. Where deemed necessary by the survey office, the surveyor to the Society will go to witness relevant tests and conduct inspection and the results should be able to demonstrate compliance with the approval conditions.

2. 工厂的质量管理体系应保持有效运行, 并且与认可时一致。如果质量管理体系发生改变, 应经原体系认证机构审核并报本社批准。

The quality management system of the factory shall be ensure effective operation, and shall be the same as the situation of approval. If there are any changes to the quality management system, auditing of the original certification organization for quality management system and the society's approval shall be obtained.

3. 认可证书有效期内, 如果出现可能导致本社取消认可的情况, 工厂应及时采取有效的纠正措施。

Within the validity of the approval certificate, if cases occur that may cause the Society to withdraw the approval, the manufacturer should take corrective actions in a prompt and effective manner.

4. 在认可证书有效期内, 本社检验人员可在未经事先通知的情况下对工厂的产品制造过程进行审核, 以验证产品的生产是否符合业经本社批准的图纸和文件。工厂应予以配合。

Within the validity of the approval certificate, the surveyor to the Society may pay unannounced audit to the manufacturing process of the product in order to confirm whether it is in compliance with the drawings and documents approved by the Society. The factory should provide an active cooperation and necessary for the surveyor.

5. 如果属于获得型式认可B 模式证书, 且无需颁发船用产品证书/等效证明文件的情况, 证书获得者应接受本社每年一次的定期审核, 定期审核日为认可证书期满之日对应的每一周年日, 检查工作可在周年日的前后三个月内进行。

If belong to the situation of the product has type approval mode B certificate, and marine product certificate/equivalent document is not necessary, those who have obtained the certificate should be subject to periodical audit every year. The periodical audit should be carried out within 3 months before and after the anniversary date which corresponds to the date of expiry of the relevant.

### 认可后的产品检验方式/ Method of Product Inspection after Approval

按照规范只认可不进行产品检验的产品/The product approved only in term of the rules:

认可后的产品检验由制造厂按本社批准的产品检验计划进行检验, 经检验合格后由制造厂签发合格证明, 并连同该产品的本社认可证书复印件一并交付用户, 制造厂对产品符合公约、法规、本社规范和本社认可的标准规定负责。

After approval, product inspection should be carried out by the Manufacturer in accordance with the product inspection scheme approved by the Society. Upon satisfactory inspection, and the Quality Certificate issued by the Manufacturer should be provided to the purchaser together with the copy of the approval certificate issued by the Society. The manufacturer should take responsibility for the product being in compliance with the convention, statutory regulation, the Society rules and the standard accepted by the Society.



**对于原材料和零部件的检验要求/ Inspection Requirements for Materials and Components**

产品如下原材料和零部件应由本社认可的制造厂生产/The following materials and components of the product should be manufactured by the factory approved by the Society:无/Nil.

产品如下原材料和零部件应经本社检验/The following materials and components of the product should be inspected by the Society:无/Nil.

产品如下原材料和零部件的制造厂清单, 经本社批准方可变更/The list of manufacturer for the following materials and components of the product should not be changed without the Society's approval:无/Nil.

**责任声明/Statement of Responsibility**

本社的认可不影响、替代与本社授权或检验无关的各方对上述工厂的认可和发证, 并且不对与本社授权或检验无关的各方负责, 不承担其未经应允而承认、接受本社认可所导致的法律和经济责任。

The approval of the Society does not affect and replace any approval and certification of the manufacturer by any parties that bear no relation with this Society's authorization or survey and therefore takes no responsibility for these parties. The Society does not undertake any legal and economic liabilities arising from accepting this Society's certificate without prior permission from this Society.

**其他/Others**

1. The Rudder Angle Indicator system might consist of the following equipments:

Rudder Angle Indicator: TRI-2/XL/BRW-2/BW/XDi/XDi-N

Rudder Angle Transmitter : RTA 602/RTC 300/RTC 600, Contelec Vert-X

DC/DC Amplifier: TDG-210

2. 本证书由原GB16T00007\_02证书变更并取代原证书。

This Type Approval Certificate is updated and superseded for the previous one with TAC No. GB16T00007\_02.

3. 本社已审核了产品厂无石棉声明, 但本社的审核不免除产品厂按照合同关系向订货方保证产品无石棉的责任。  
The declaration of asbestos-free submitted by manufacturer has been reviewed by the Society.  
However, liability of the manufacturer to guarantee the products are asbestos-free to purchaser under contract will not be exempted.

中国船级社哥本哈根办事处

CCS Copenhagen Office

\*\*\*\*\*本证书正文完/ End of Text\*\*\*\*\*

注: 本证书含有附页, 共3页

Note: The certificate is attached with 3 additional page(s)



**Production description:****Panorama rudder indicator TRI-2, TRI-2 CAN**

<i>Measuring rang</i>	<i>Voltage</i>	<i>Current</i>
Lowest range	0~4V DC	0mA~1mA DC
	-2~0~2V DC	-1~0~1 mA DC
Highest range	0~100V DC	0~100mA DC
	-100~0~100V DC	-100~0~100 mA DC
Load	0,7kΩ/V	1,5V/1,6V/3,0V
	1,4kΩ/V	

**Technical Specification:**

- ✧ Accuracy: Class 1.5to EN 60051 and IEC 51
- ✧ Protection: IP54
- ✧ Illumination: 24V AC/DC.
- ✧ CAN Indicator (TRI-2 CAN)

**Documents:**

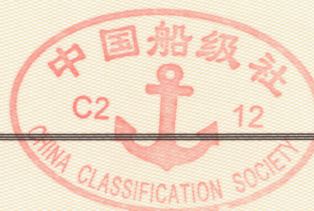
Data sheet: 4921250066D

**Production description:****Rudder angle transmitter RT-2****Technical Specification:**

- ✧ Accuracy: Class 1.5to EN 60051 and IEC 51
- ✧ Protection: IP66
- ✧ Measuring input: 0-90° or 0-140° (span adjustment -30/+5% of full range)
- ✧ Ranges: 4..20mA, 2-wire connection 0..20mA, 3-wire connection,0..20mA, 4-wire connection
- ✧ Power supply H: 12..33V DC

**Documents:**

Data sheet: 4921250052D





**Production description:****Rudder indicator XL, BRW-2, BW**

<i>Measuring rang</i>	<i>Voltage</i>	<i>Current</i>
Lowest range	0 – 10V DC +/- 10V DC	+/- 20mA
Highest range	0 – 10V DC +/- 10V DC	+/- 20mA
Load	1KΩ/V	+/-1mA 1KΩ
		+/-20mA 50KΩ

**Technical Specification:**

- ✧ Accuracy: Class 0.5 (-10...15...30...55°C) Fixed scale.  
Class 1,0 (-10...15...30...55°C) Exchangeable scale.  
According to EN/IEC 60051
- ✧ Protection: XL Front: IP52, with gasket IP66. Rear IP20,  
BW IP66  
BRW-2 IP66  
According EN/IEC 60529
- ✧ Illumination: 7~30 V DC Consumption max. 30mA
- ✧ CAN Indicator

**Documents:**

Data sheet: 4921250057U

**Production description:****Rudder angle transmitter RTA 602****Technical Specification:**

- ✧ Analogue 2 wires 4..20mA
- ✧ Operating voltage: 7.5..35VDC
- ✧ Measuring angle: +/-180 deg.
- ✧ Degree of protection: IP67
- ✧ Software version: SV2.5x

**Documents:**

Data sheet: 4921250068B





**Production description:****Rudder angle transmitter RTC 300, RTC 600****Technical Specification:**

- ✧ CAN angle transmitter
- ✧ Operating voltage: 18..31.2VDC
- ✧ Measuring angle: +/-180 deg.
- ✧ Degree of protection: IP67
- ✧ Software Version: SV1.4x

**Documents:**

Data sheet: 4921250069B

**Production description:****Rudder angle indicator XDi 96, XDi 144, XDi 192****Technical Specification:**

- ✧ Dimensions: XDi 96(HxWxD) 102x102x56(84\*)mm, XDi 144(HxWxD) 102x148x59(87\*)mm, XDi 192(HxWxD) 148x196x61(90\*)mm  
\*(Depth with AX, DX or NX extension module mounted)
- ✧ Protection: from front IP52, from rear IP20; Optional kit: IP66 from front
- ✧ Power supply: 24VDC(18.0..31.2VDC)
- ✧ Interfaces: two CAN interfaces, optional: analogue(AX1), digital(DX1) and serial (NX1/NX2) snap-on interfaces.
- ✧ Software version: XDi platform:2.0x.x, AX1 Modul:1.0x.x, DX1 Modul:1.0x.x, NX1/NX2 Modul:1.0x.x

**Documents:**

Data sheet: 4921250067D

