



中国船级社  
CHINA CLASSIFICATION SOCIETY

证书编号/Certificate No.  
PA20PTB00002

型式认可证书  
CERTIFICATE OF TYPE APPROVAL

兹证明本证书所述制造厂具备按照下列标准的要求生产本证书所列产品的能力和条件。

This is to certify that the manufacturer stated in the certificate meets the requirements of the standards listed below and is available with the ability and conditions to produce the products described in the certificate.

制造厂/Manufacturer

TECNOVA HT s.r.l.

地址/Address

Via Castellazzo 29, 200010 Pregnana Milanese, Milan Italy

产品名称/Product

排放监测系统  
Emission Monitoring System  
船用监测报警系统  
Marine Monitoring and Alarm System

认可标准/Approval Standard

- 1. 中国船级社《钢质海船入级规范》（2018）及其修改通报第7篇第2章  
Chapter 2, Part Seven of China Classification Society Rules for Classification of Sea-Going Steel Ships 2018 and its Amendments
- 2. MEPC. 259(68) 决议 :2015 年废气滤清系统指南  
MEPC.259(68) Resolution: 2015 Guidelines for Exhaust Gas Cleaning Systems
- 3. MARPOL 73/78公约附则VI 第13、14条  
Regulations 13 and 14, Annex VI of MARPOL 73/78
- 4. MEPC. 177(58) 决议: 《船用柴油机氮氧化物排放控制技术规则修正案》  
IMO Res. MEPC.177(58) - Amendments of The Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engine (NOx Technical Code 2008).

用于/Intended for

船舶与海上设施/Ships and Offshore Installations

产品明细/Product Description

船用监测报警系统/Marine Monitoring and Alarm System(M0001)

名称/Name	属性(值)/Value	单位/Unit
型号/Type	S-Keeper7(See Additional Page)	
系统组成/System Component	见附页 See Additional Page	

证书有效期至/This Certificate is valid until 2024年11月02日/Nov. 02,2024

发证机构/中国船级社巴黎办事处  
Issued by CCS Paris Office

签发日期 2020年11月03日  
Date Nov. 03,2020

本证书根据中国船级社规范和相关规定签发。所有证书页为一个整体，必须同时使用。纸质证书每页均须由本社盖章方为有效，电子证书含数字签名方为有效，本证书复印件无效。任何单位和个人均不应摘录或节选本证书的部分内容。有关方对所持证书的真实性有疑问时，可以向本社检验机构咨询。This Certificate is issued pursuant to the Rules of the Society and related regulation. All pages of the certificate are taken as a whole and are used simultaneously. No paper certificate page is valid without bearing the stamp of the Society, no electronic certificates is valid without the digital signature, 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. Related parties who are doubted about the authenticity of the certificate may inquire of the Society or its offices.



Form No: T01.

联系方式/Contact Us. 见本社官方网站/See official web site of the Society (<http://www.ccs.org.cn>)

UTN:P020-67121579

**批准的图纸/Approved Drawings**

图纸批准号/ Drawings Approval No. : NP20PPP00219

**产品认可试验报告/ Approval Test Report**

试验报告编号/ Test Report No. : 0031\ME\CMP\20  
 试验报告日期/ Test Report Date : 2020-05-18  
 试验单位/ Laboratory: CSI  
 试验单位地址/ Test Address: Viale Lombardia,20,20021 Bollate(MI) Italia

试验报告编号/ Test Report No. : 400105-1TRFEMC  
 试验报告日期/ Test Report Date : 2020-05-29  
 试验单位/ Laboratory: Nemko Spa  
 试验单位地址/ Test Address: Via del Carroccio,4 - 20853 Blassono(MB)-Italy

试验报告编号/ Test Report No. : 387415TRFEMC  
 试验报告日期/ Test Report Date : 2019-11-29  
 试验单位/ Laboratory: Nemko Spa  
 试验单位地址/ Test Address: Via del Carroccio,4 - 20853 Blassono(MB)-Italy

试验报告编号/ Test Report No. : RAT-MTL-ELE20-024-R00  
 试验报告日期/ Test Report Date : 2020-05-13  
 试验单位/ Laboratory: P & P LMC s. r. l.  
 试验单位地址/ Test Address: Via Pastrengo 9 24068 Seriate(BG)-Italy

试验报告编号/ Test Report No. : MOD 05-04#0  
 试验报告日期/ Test Report Date : 2018-07-20  
 试验单位/ Laboratory: Tecnova HT s. r. l.  
 试验单位地址/ Test Address: Via Castellazzo,29 20010 Pregnana Milanese (Mi) Italy

试验报告编号/ Test Report No. : Tecnova HT s. r. l. verification, in accordance with ISO 8187-1:2006  
 试验报告日期/ Test Report Date : 2015-05-21  
 试验单位/ Laboratory: ECO CHIMICA ROMANA S. r. l.  
 试验单位地址/ Test Address: Via Morsasco, 39, 00166 Roma RM-Italy

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

01. 按规范只认可不进行产品检验的产品 (EASY-S/LITE-S)/The product (EASY-S/LITE-S) 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.
02. 按规范认可后应进行产品检验的产品 (EASY-N/EASY/LITE-N/LITE/FULL) / The product (EASY-N/EASY/LITE-N/LITE/FULL) should be inspected in term of the rules:  
 认可后的产品检验应由本社验船师根据本社规范规定按批准的产品检验计划进行检验, 经检验合格后由本社颁发船用产品证书。  
 After approval, product inspection should be carried out by the Surveyor of the Society in accordance with the approved product inspection scheme, and the Marine Product Certificate will be issued by the Society upon satisfactory inspection.

**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, 检查工作应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 date of periodical audit shall be each anniversary date which corresponds to the date of expiry of the relevant certificate and the periodical audit shall be done within a time span of three months before and after the annual surveillance date.

#### 备注/Remarks

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.

中国船级社巴黎办事处  
CCS Paris Office

注: 本证书含有附页, 共3页

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

REQUIRED CALCULATION, NECESSARY MEASURES AND APPLICATION TABLE

S-Keeper Version	Application		Conformity Annex VI		Other calculations		Typical emissions		Calculation Requirements					
	Suitable For Distillate & Residual Fuels	Suitable for LNG	Reg 13 (NOX g/KWh)	Reg 14 (FSC with SO2/CO2 ratio)	CO/CO2 Combustion efficiency	CO2 Emission index	Compl.Comb CO<100ppm	Incompl.Comb CO>100ppm	Qmew Method	Necessary measurements	N Internal sample lines	Optional measurements	Mandatory inputs	Additional inputs
EASY-N	X*	X*	X			X	X	X	AIR&FUE L	NOx	1	O2,Dust	Qmaw, Qmf, Ha, Ta, Pm, Paux, rpm	Da, Df, TSC, PSC, PC
EASY-S	X*			X		X	X	X	Not need	SO2/CO2	1	O2,Dust	None	Pww, Tww, Pe, Dp, Ld, Teb, Tea, Qc, Ph, Pha, Tr
EASY	X*		X	X		X	X	X	AIR&FUE L	NOx/CO2 - SO2	1	O2,Dust	Qmaw, Qmf, Ha, Ta, Pm, Paux, rpm	Da, Df, TSC, PSC, PC, Pww, Tww, Pe, Dp, Ld, Teb, Tea, Qc, Ph, Pha, Tr
LITE-N	X	X	X		X	X	X	X	AIR&FUE L	NOx/CO2 - CO	2	O2,Dust	Qmaw, Qmf, Ha, Pb, Ta, Pm, Paux, rpm	Da, Df, TSC, PSC, PC
LITE-S	X			X		X	X	X	Not need	SO2/CO2 - CO HC	1	O2,Dust	None	Pww, Tww, Pe, Dp, Ld, Teb, Tea, Qc, Ph, Pha, Tr
LITE	X	X	X		X	X	X	X	CBM**	NOx/CO2 - CO HC	2	O2,Dust	Qmf, Ha, Pb, Ta, Pm, Paux, rpm	Da, Df, TSC, PSC, PC
FULL	X		X	X	X	X	X	X	CBM**	NOx/CO2 - SO2/CO HC	2	O2,Dust	Qmf, Ha, Pb, Ta, Pm, Paux, rpm	Da, Df, TSC, PSC, PC, Pww, Tww, Pe, Dp, Ld, Teb, Tea, Qc, Ph, Pha, Tr

\* Suitable where the CO or HC are below 100ppm

\*\* Carbon Balance Method

Qmew= Exhaust mass flow rate wet

**Analyzer Cabinet Technical Specifications**

Measurements method	NO <sub>x</sub> → NDIR (NO with NO <sub>2</sub> to NO converter) SO <sub>2</sub> → NDIR CO → NDIR CO <sub>2</sub> → NDIR HC → Heated Flame ionization detector
Auxiliary inputs	Engine speed and torque, air inlet flow, Fuel flow, ambient temperature, pressure & humidity sensors (required by 'The NO <sub>x</sub> Technical Code' (2008)).
Sample conditioning system	According to NO <sub>x</sub> Technical Code (2008), with system condition monitoring and maintenance indicators.
Software	Windows®-based Emissions Reporting Software Easy self-explaining graphical interface with Process Flow Diagram and real-time parameters values Multilevel Password Protection and Data Encryption to ensure safest tamperproof procedure
I/O Connections to Ship	1 x Ethernet RJ45, 1 x RS-485, 1x Potential free contact
Power supply	230V 50Hz
Power consumption	4,8KVA Max
Dimensions	1990 x 1050 x 830 mm
Operative conditions	From 5°C to 55°C; 95% RH Max
Weight	550 Kg

**Sample Probe Technical Specifications**

Filter element	Bonded silicon carbide, pore size 2 μm 40/20x67mm
Operating pressure	max. 200 kPa abs
Sample gas wetted parts	SS316Ti, SiC; Viton®
Operating temperature	180°C
Under temperature threshold	150°C
Permissible ambient temperature	-20°C...+60°C
Protection class	IP 43
Mounting flange	DN 65, PN 6, DIN 2573
Mounting angle range	5° to 15° with respect to the horizontal, sloping down
Weight	9 kg
Housing	SS304
Power supply	115VAC/60 Hz to 230VAC/50 Hz
Power consumption	approx. 300VA
Dimensions	168 x 330 x 257mm (W x H x D)

**Sample Line Technical Specifications**

Maximum operation temperature	210°C continuous / 250°C peak
Maximum operating pressure	2,8Bar @200°C
Operating temperature	190°C
Sample gas wetted parts	PTFE
Sample tube diameter	2 tubes 6x8
Temperature sensors	2 x PT100 @2m
Operating voltage	230V 50Hz
Thermal capacity	110W/m
Minimum bending radius	200mm
Insulation	Glass fibers and External PA12 Fire Retardant corrugated sheat

External diameter	43mm (48mm for end caps)
Weight	0,9Kg/m

**Particulate Analyzer Technical Specifications**

Measurement method	Inductive Electrification
Measured particle size	0.3 $\mu\text{m}$ or higher
Measurement range	From 0.1 $\text{mg}/\text{m}^3$
Analog output	4...20 mA
Power supply	12-24 VDC
Power consumption	3 W
Operative conditions	From -20°C t 60°C; 95% RH max