Certificate No:
TAA00003AE

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Flow Sensor

with type designation(s)
Electromagnetic flowmeter LES10 series

Issued to
Jiangsu Shine Technology Co., Ltd.
Changzhou, Jiangsu, **China**

is found to comply with
DNV rules for classification – Ships, offshore units, and high speed and light craft

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Temperature	**B (-25°C - 70°C)**
Humidity	**B**
Vibration	**A (0,7 g)**
EMC	**A**
Enclosure	**IP 66**

Issued at **Hamburg** on **2023-06-19**
This Certificate is valid until **2028-06-18**.
DNV local unit: **Nanjing NB & CMC**

Approval Engineer: **Didier Girardin**

for **DNV**

Joannis Papanuskas
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

Product description

Electromagnetic flowmeter LES10 series

Product	Series	Nominal diameter	Measure Range	Accuracy	Power supply
Electromagnetic flowmeter	LES10	DN15,20,25,32,40,50,65,80, 100,125,150,200,250,300	0.05m/s～6m/s	0.5%	AC187~ 242V

Output Signal	Nominal pressure	Enclosure protection	Medium temperature	Medium	Structure
4~20mA or Frequency(<5KHz), RS485	PN16	IP66	0~180℃	Liquid or solid-liquid two-phase fluid Conductivity>0 .5μs/cm2	All-in-one

Details see annex

Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

Ex-certification is not covered by this certificate. Application in hazardous area to be approved in each case according to the Rules and Ex-Certification/ Special Condition for Safe Use listed in valid Ex-certificate issued by a notified/recognized Certification Body.

Type Approval documentation

See Annex

Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021

Marking of product

The products to be marked with:

- manufacturer name
- model name
- serial number
- power supply ratings

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE

ANNEX

Overview

mm	Lining material			Flow range Select (m^3/h)			Installation dimensions				Connection size		
Nominal diameter	Ne	FEP	PTFE	Commonly used flow	Minimum flow	Maximum flow	L	H	B	¢b	¢K	n-¢d	¢D
15		●		1.5	0.06	6.4	150	268	216	120	65	4-¢14	95
20		●	●	2.5	0.11	11	150	278			75	4-¢14	105
25		●	●	3.5	0.18	18	150	288			85	4-¢14	115
32		●	●	6	0.29	29		313			100	4-¢18	140
40		●	●	10	0.45	45	200	323			110	4-¢18	150
50	●	●	●	15	0.71	71		338			125	4-¢18	165
65	●	●	●	25	1.19	119		358			145	8-¢18	185
80	●	●	●	40	1.81	181		373			160	8-¢18	200
100	●	●	●	60	2.83	283	300	408			190	8-¢18	235
125	●	●	●	100	4.42	442		446			220	8-¢18	270
150	●	●	●	150	6.36	636	350	473			250	8-¢22	300
200	●	●	●	250	11.3	1130	400	548			320	12-¢22	375
250	●	●	●	400	17.66	1766	400	578			355	12-¢26	405
300	●	●	●	600	25.43	2543	500	633			410	12-¢26	460

Note: For more technical parameters, please refer to the product manual Flie No.:SH2022030201

Type Approval documentation

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