



Lloyd's
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Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

This certificate is issued to:

PRODUCER	Seojin Instech Co., Ltd. 14, Dunchon-daero, 457 beon-gil, Jungwon-gu, Seongnam-si, Gyeonggi-do, Republic of Korea
PLACE OF PRODUCTION	Ningbo Kio Flow Instruments Co., Ltd. (Yuyao Zhenxing Flowmeter Instrument Factory) No.20, Zingye road, Yangming Sci. & Tech. Park, Yuyao City, Zhejiang Province P.R. China
DESCRIPTION	Electromagnetic Flowmeter
TYPE	SMF series
APPLICATION	Marine, offshore and industrial applications for use in environmental categories ENV3 in the "General Power Distribution Zones" as defined in LR Type Approval System Test Specification No. 1-2015 where the Test Specification is satisfactory for the intended operation.
STANDARD	Manufacturer's Design Specifications

Certificate No.	19/40030
Issue Date	17 July 2019
Expiry Date	16 July 2024
Sheet	1 of 3

*Lloyd's Register Asia
119, Daegyo-ro, Jung-gu, Busan*



G.H. Lee
Busan Technical Support Office
Lloyd's Register Asia

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RATINGS	Pipe size	15A to 1000A
	Transducer material	Carbon steel or SUS304
	Case material	Cast aluminium
	Lining material	PTFE or Hard rubber
	Electrode material	STS316L or Hastelloy-C
	Process connection	JIS (5K to 40K), ANSI (#150, #300) or Special
	Measuring range	0 to 12 m/s (forward and reverse flow)
	Accuracy	0.1 to 10 m/s (RD±0.5%)
	Process Temperature	PTFE (up to +160 °C), Hard rubber (up to +80 °C)
	Conductivity	5 µs/cm
	Power supply	220 V a.c.
	Frequency	60 Hz
	Display	Graphic LCD
	Output	4-20mA, Pulse (1 to 5000 Hz), Alarm

Certificate No. 19/40030
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OTHER CONDITION

When transmitter used for serial communication or HART protocol, software lifecycle activities for the transmitter are to be carried out in accordance with an acceptable quality management system which has lifecycle model suitable to the nature of the software product.

Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and regulations.

If the specified standards are amend during the validity of this certificates, the product is to be re-approved prior to it being supplied to vessels to which the amended standard apply.

(In case of applications other than Marine) The application of this Type-Approval Certificate will be limited to the relevant scope of the Specified Standards and acceptance thereof by the local authorities.

“This Certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd’s Register Asia of any modification or changes to the equipment in order to obtain a valid certificate.”

The Design Appraisal Document No.19/40030 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

Certificate No.	19/40030
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DESIGN APPRAISAL DOCUMENT

Date 17 July 2019	Quote this reference on all future communications BTS/ETS/GHL/D/E191260
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LLOYD'S REGISTER TYPE APPROVAL SYSTEM, TA14.

Issued to: **SEOJIN INSTECH CO., LTD.**

for: **ELECTROMAGNETIC FLOWMETER, SMF SERIES
TYPE APPROVAL CERTIFICATE No.19/40030**

The undernoted documents have been reviewed for compliance with the requirements of the Lloyd's Register Type Approval System, TA 14 and this Design Appraisal Document forms part of the Certificate.

APPROVAL DOCUMENTATION

Request for marine service	Form 2502TA	08 May 2018
Production quality assessment for Seojin	Form-PQA	07 September 2018
Production quality assessment for Ningbo	Form-PQA	11 September 2018
Product specification	SJ-M033-SPC-DC001, Rev.0	24 August 2018
Assembly drawing for SMF 150A	SJ-M032-DWG-AS001-LR150, Rev.0	24 August 2018
Assembly drawing for SMF 500A	SJ-M032-DWG-AS001-LR500, Rev.0	24 August 2018
Part drawing for SMF 150-body case	SJ-M032-DWG-PB001-LR150, Rev.0	24 August 2018
Part drawing for SMF 150-electrode	SJ-M032-DWG-PB003-LR150, Rev.0	24 August 2018
Part drawing for SMF 150-cover	SJ-M032-DWG-PB004-LR150, Rev.0	24 August 2018
Part drawing for SMF 150-pipe	SJ-M032-DWG-PB006-LR150, Rev.0	24 August 2018
Part drawing for SMF 150-base	SJ-M032-DWG-PB007-LR150, Rev.0	24 August 2018
Part drawing for SMF 150-window cover	SJ-M032-DWG-PB008-LR150, Rev.0	24 August 2018
Part drawing for SMF 150-wndow	SJ-M032-DWG-PB009-LR150, Rev.0	24 August 2018
Part drawing for SMF 150-coupling	SJ-M032-DWG-PB010-LR150, Rev.0	24 August 2018
Part drawing for SMF 500-body case	SJ-M032-DWG-PB001-LR500, Rev.0	24 August 2018
Part drawing for SMF 500-electrode	SJ-M032-DWG-PB003-LR500, Rev.0	24 August 2018
Part drawing for SMF 500-cover	SJ-M032-DWG-PB004-LR500, Rev.0	24 August 2018
Part drawing for SMF 500-pipe	SJ-M032-DWG-PB006-LR500, Rev.0	24 August 2018
Part drawing for SMF 500-base	SJ-M032-DWG-PB007-LR500, Rev.0	24 August 2018
Part drawing for SMF 500-window cover	SJ-M032-DWG-PB008-LR500, Rev.0	24 August 2018
Part drawing for SMF 500-wndow	SJ-M032-DWG-PB009-LR500, Rev.0	24 August 2018
Part drawing for SMF 500-coupling	SJ-M032-DWG-PB010-LR500, Rev.0	24 August 2018
Part drawing for PCB-display	SJ-M032-DWG-PB011-LR, Rev.0	24 August 2018
Part drawing for PCB-HART	SJ-M032-DWG-PB012-LR, Rev.0	24 August 2018
Part drawing for PCB-IO	SJ-M032-DWG-PB013-LR, Rev.0	24 August 2018
Part drawing for PCB-Main board	SJ-M032-DWG-PB014-LR, Rev.0	24 August 2018
Part drawing for PCB-SMPS-PCB	SJ-M032-DWG-PB015-LR, Rev.0	24 August 2018
Part drawing for SMF circuit diagram	SSS 37 CS, Rev.0	24 August 2018
Inspection & Test procedure	E-SP-055, Rev.0	22 March 2018
Catalogue of AceMag	-	-
Instruction manual	-	-



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TEST REPORTS

Test report by ONETECH	OT-191-RED-051	10 January 2019
Test report by ONETECH	OT-195-RED-115	23 May 2019
Test report by Dt&C	DRCREL 1901-0083	29 January 2019
Test report by Dt&C	DRCREL 1901-0084	29 January 2019
Test report by Dt&C	DRCREL 1901-0085	29 January 2019
Test report for hydrostatic pressure	HPTR-18-036	21 December 2018
Performance test report for flow	SJCC-181220-019	21 December 2018
Performance test report for transmitter	19-001LR	24 May 2019

Supplementary Type Approval Terms and Conditions

Type Approval certifies that a representative sample of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein. It does not mean or imply approval for any other use, nor approval of any product(s) designed or manufactured otherwise than in strict conformity with the said representative sample.

Type Approval is based on the understanding that the manufacturer's recommendations and instructions and any relevant requirements of the Rules and Regulations are complied with.

Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.

Lloyd's Register Asia reserves the right to cancel or withdraw this Type Approval Certificate in accordance with the Lloyd's Register Type Approval System Procedure.



Gyung-Hwan Lee
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**Part 3
Control Units**

Producer/Licence No.	Item Description	Technical Details	Category/Additional Tests	Remarks	Cert. No.
<p>Seojin Instech Co., Ltd. 14, Dunchon-daero, 457 beon-gil, Jungwon-gu, Seongnam-si, Gyeonggi-do, Republic of Korea</p>	<p>Electromagnetic Flowmeter</p> <p>SMF series</p> <p>Pipe size : 15A to 1000A Transducer material: Carbon steel or SUS304 Case material : Cast aluminum Lining material: PTFE or Hard rubber Electrode material: STS316L or Hastelloy-C Process connection: JIS (5K to 40K), ANSI (#150, #300) or Special</p> <p>Measuring range: 0 to 12 m/s (forward and reverse flow) Accuracy: 0.1 to 10 m/s (RD±0.5%) Process Temperature: PTFE (up to +160 °C), Hard rubber (up to +80 °C)</p> <p>Conductivity: 5 µs/cm Power supply: 220 V a.c. Frequency: 60 Hz Display: Graphic LCD Output: 4-20mA, Pulse (1 to 5000 Hz), Alarm</p>	<p>System Power : 220Va.c.</p>	<p>ENV 3, General Power Distribution Zones</p>	<p>Expires: 16 July 2024</p> <p>Standard: Manufacturer's Specifications</p> <p>When transmitter used for serial communication or HART protocol, software lifecycle activities for the transmitter are to be carried out in accordance with an acceptable quality management system which has lifecycle model suitable to the nature of the software product.</p>	<p>19/40030</p>

