

## 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.

<b>Manufacturer</b>	<b>Hellan Strainer Company</b>
<b>Address</b>	3249 East 80th Street, Cleveland, OH, 44104, USA
<b>Place of Production</b>	The Hellan Strainer Company 3249 East 80th Street, Cleveland, OH, 44104, USA
<b>Type</b>	Strainers
<b>Description</b>	TS, D, Q, 311, 611, WS and WD Fluid Strainers
<b>Trade Name</b>	Hellan Fluid Strainers
<b>Application</b>	Fresh & Saltwater systems including Fire main Fuel Oil Systems Lubricating Oil Systems
<b>Specified Standard</b>	Lloyd's Register Rules and Regulations for Classification of Ships – 2020 Lloyd's Register Rules and Regulations for Classification of Offshore Units – 2020 ASME B 16.1 – 2020 Cast Iron Pipe Flanges and Flanged Fittings ASME B 16.5 – 2020 Pipe Flanges and Flanged Fittings ASME B 16.24 – 2016 Cast Copper Alloy Pipe Flanges and Flanged Fittings
<b>Ratings</b>	See Appendix to this Certificate

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**Gopal Nair**

Americas Design Appraisal Manager to  
Lloyd's Register Quality Assurance Inc  
A member of the Lloyd's Register group

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## Other Conditions

1. Grey cast iron: Material ASTM 278 Class 30- permitted for Class III Systems only. Also use of this material is not permitted for Fire Extinguishing, Steam, and Hydrocarbon Service & Bilge Systems.
2. Electrical- All electrical drive, components and associated drive mechanism are outside the scope of this approval. For hazardous zones, suitability of the electrical components is to be as per the project requirements.
3. Cooling Water System – Sea water-cooling suction lines to main engines and essential auxiliary engines are to be provided with minimum two complete strainer assembly units with isolating valves such that the filters can be manually cleaned without interruption to the cooling water supply.
4. Lube Oil & Fuel Oil Systems- The filters are to be capable of being cleaned without stopping the engine or reducing the supply of filtered oil, accordingly fuel oil and lube oil systems are to be provided with minimum two complete strainer assembly units with isolating valves such that the filters can be manually cleaned without interruption of supply of fuel /lubricating oil.
5. Firefighting Systems: - Location of filters on the fire water line is such that the rubber rings and gaskets of the filters will not be damaged by a fire in the space being protected.
6. Drain- The drainpipe from the strainers sump area for removing debris are to be provided with suitable isolating arrangement and are to be led to a safe location such that it will not result in flooding of any compartment or uncontrolled release of combustible fluids.
7. Pressure Release- A suitable warning plate is to be installed on each strainer assemblies indicating that the unit is under pressure and before removing the covers, strainers are to be isolated and the pressure released. For fuel oil and lubricating oil service a vent cock or valve is to be provided on the outlet piping.
8. Threaded connections- Threaded connections and threaded swage nipples are not to be used on strainer draining lines for combustible fluids or essential services. The connections are to be flanged type.
9. Ball Valves on the drain line- Metal seated ball valves are to be provided for combustible fluids and essential service or resiliently seated (soft seated) ball valves are to be of fire tested type.
10. Sight Flow Indicators- The sight glass is susceptible to damage and release of contents. Accordingly, these indicators are not to be installed on the drain lines for combustible fluid services.
11. Material- Mechanical Properties and certifications of strainers and fittings used in Class I and Class II piping systems on ships or installations classed or intended for classification with LR to comply the relevant sections of Rules for the Manufacture, Testing and Certification of Materials.

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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 Quality Assurance Inc of any modification or changes to the equipment in order to obtain a valid Certificate.

The Design Appraisal Document LR21148447TA and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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United States

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