

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.

Manufacturer	ELAFLEX HIBY GmbH & Co. KG
Address	Schnackenburgallee 121, Hamburg, 22525, Germany
Type	Rubber Expansion Joints
Description	See Appendix
Trade Name	ERV-GS (Yellow Steel), ERV-GS HNBR (Yellow Steel HNBR), ERV-G (Yellow Band), ERV-R (Red Band), ERV-ROTEX (Double Red Band)
Application	<p>Piping systems in marine and offshore fields, classed or intended for classification with Lloyd's Register</p> <p><u>ERV-GS and ERV-GS HNBR Yellow Steel</u></p> <ul style="list-style-type: none">+ Oil fuel, lubricating oil and other flammable liquids+ Sea* - and fresh water cooling lines+ Ballast lines in machinery spaces and duct keels+ Bilge lines in duct keels only+ Cargo lines for MDO and lubricating oil carrier+ Cargo lines inside cargo oil tanks of oil tankers+ All other non- essential pipe lines <p><u>ERV- Yellow Band/Red Band/Double Red Band (ROTEX)</u></p> <p>Fresh and sea* water lines;ballast lines in machinery spaces, duct keels and double bottom water ballast tanks; bilge lines inside duct keels only; sanitary discharge and cargo lines (NBR only) inside the cargo oil tanks of tankers.</p>



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All Types

*Where fitted in sea water lines in machinery compartments, guards are to be provided which will effectively enclose, but not interfere with the action of the expansion joint and which will reduce to the minimum practicable any flow of water in the event of failure of the flexible element

The expansion joints are to be installed in well visible and accessible locations and protected against over extension and compression and against mechanical damage. The adjoining pipes are to be suitably aligned, supported, guided and anchored.

The producer's instructions and recommendations are to be considered

Specified Standard	Lloyd's Register Rules and Regulations for the Classification of Ships, Edit. July 2020 Lloyd's Register Rules and Regulations for the Classification of Naval Ships, Edit. January 2021
Ratings	See Appendix
Other Conditions	For Naval Ship applications it is to be noted that additional project based requirements (Tailoring – Departures from the Rules and Rule additions as per Vol. 1, Pt. 1 Ch. 2, 3.2) are not covered by this Type Approval.

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 EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

Previous Version: 16/20031

The Design Appraisal Document HTS/ENS 34199-16, Issue No. 1 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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Appendix

DESCRIPTION

Rubber expansion joint consisting of:

Yellow Steel

Tube : NBR/HNBR (nitrile), seamless, electrically conductive
 Reinforcement : galvanised steel wire cord, CR rubberised
 Cover : Chloroprene CR
 Flanges : stainless steel, carbon steel, zinc plated or hot galvanized

	<u>Yellow Band</u>	<u>Red Band</u>	<u>Double Red Band (ROTEX)</u>
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Tube	: NBR	Butyl/EPDM	EPDM
Reinforcement	: Nylon text. cord	Nylon text. cord	Polymer text.cord
Cover	: Chloroprene CR	EPDM	EPDM
Flanges	: stainless steel, carbon steel, zinc plated or hot galvanized		

RATINGS

ERV- GS and ERV-GS HNBR Yellow Steel

MAWP : 16 bar at max. service temperature of 60°C, DN 25 to DN 400
 MAWP : 10 bar at max. service temperature of 100°C
 (NBR short time) and 120°C (HNBR short time), DN 25 to DN 600

Restrictions for oil fuel, lubrication oil and other flammable liquids

MAWP : 10 bar at max. service temperature of 90°C, DN 25 to DN 600

ERV- Yellow Band/Red Band/Double Red Band

Yellow Band : PN 16 for DN 25 to DN 350, PN 10 for DN 400 to DN 1000
 at 90°C max.

Red Band : PN 16 for DN 25 to DN 350, PN 10 for DN 400 to DN 1000
 at 100°C max.

Double Red Band (ROTEX) : PN 6 at 110°C max.,
 PN 10 at 100°C max. for DN 25 to DN 1000