

**TYPE APPROVAL CERTIFICATE**  
No. MAC349703CS/01

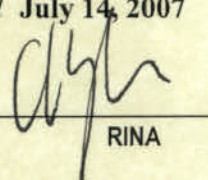


**This is to certify** that the product identified below is in compliance with the applicable requirements of the RINA type approval system.

<i>Description</i>	<b>pipe couplings</b>
<i>Type</i>	<b>Flex Light Type</b>
	<b>NORMACONNECT FL1</b>
	<b>+GF+/NORMA FLEX E</b>
<i>Applicant</i>	<b>RASMUSSEN GMBH</b>
	<b>POSTFACH 11 49 D-63461 MAINTAL - GERMANY</b>
	<b>GERMANIA</b>
<i>Manufacturer</i>	<b>RASMUSSEN GMBH</b>
<i>Place of manufacture</i>	<b>POSTFACH 11 49 D-63461 MAINTAL - GERMANY</b>
	<b>GERMANIA</b>
<i>Reference standards</i>	<b>Part C, Chapter 1, Section 10 of RINA Rules</b>
<i>Reference documents</i>	<b>RINA Type approval system</b>

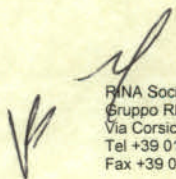
Issued in **Genoa** on **March 11, 2004**. This Certificate is valid until **July 14, 2007**



  
RINA

This certificate consists of this page and 1 enclosure

This certificate annuls and replaces the previous one issued with No. MAC/48201/5/TO/02 on 15.07.2002



RINA Società per azioni  
Gruppo REGISTRO ITALIANO NAVALE  
Via Corsica, 12 - 16128 Genova  
Tel +39 010 53851  
Fax +39 010 5351000



## TYPE APPROVAL CERTIFICATE

No. **MAC349703CS/01**

Enclosure - Page 1 of 2

Flex Light Type

### Denominations

Two denominations are used to describe the same coupling.

The first one FL1 is used in connection with the trade name "NORMA", the second FLEX E is used in connection with the trade name "+GF+/NORMA"

### Reference documents

"NORMACONNECT "Assembly drawings"

### Materials/Components

	W4		W5	
	DIN	AS	DIN	AS
Housing	1.4301	304	1.4571	316 Ti
Bolts	1.4404	316L	1.4404	316L
Hollow Trunnions	1.4571	316Ti	1.4571	316Ti
Protective ring	1.4571	316Ti	1.4571	316Ti
Steel band inlay	1.4571	316Ti	1.4571	316Ti
Plastic band insert	Polyamide with brand name Grivory HTV-4X1 natural and black			
Gasket	Syntehetic rubber NBR or EPDM			

For all diameters of FL1 type is foreseen to use optional plastic band insert as alternative to Stainless Steel 1.4571 band inlay.

### Technical characteristics

Outside pipe diameter: 26.9 mm up to 168.3 mm.

Nominal pressure: PN 16

Temperature range depending upon sealing material:

EPDM -30°C up to + 125°C

NBR -20°C up to + 80°C

### Fields of application

The couplings are acceptable for the following applications:

- 1) bilge systems except within tanks and double bottoms;
- 2) ballast systems except within cargo tanks, fuel oil or lube oil tanks/double bottoms;
- 3) fuel oil systems on open decks and within fuel oil tanks/double bottoms;
- 4) sounding, overflow and venting systems (in engine room only from water tanks and double bottoms)
- 5) cooling water systems;
- 6) compressed air systems;
- 7) steam systems (only condensate return);
- 8) main and auxiliary boilers feed systems;
- 9) cold and hot water sanitary systems;
- 10) drinkable water systems;
- 11) cargo piping (except within ballast tanks/double bottoms) and cargo vents of oil carriers;
- 12) inert gas systems;
- 13) brine systems;
- 14) fire mains and sprinkler systems.





**TYPE APPROVAL CERTIFICATE**

No. **MAC349703CS/01**

Enclosure - Page 2 of 2

**Flex Light Type**

**Acceptance conditions**

The gasket material must be resistant to the fluid conveyed in the pipe and also to the surrounding fluid if the coupling is installed inside a tank.

**Tests carried out**

Type tests carried out at the manufacturer's workshop on 12, 13 and 14 November 1996 and on 6 and 7 February 1997.

**Remarks**

The installation on board is to be carried out in accordance with the Manufacturer's instructions.

The acceptance of the a.m. products on board ship classed with RINA is subject to the satisfactory outcome of testing as per RINA Rules applicable.

This certificate annuls and replaces the previous one issued with no. MAC/48201/5/TO/02 on 15.07.2002.

**Genoa 11/03/2004**

