

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 LR Type Approval System.

This certificate is issued to:

PRODUCER	George Fischer Sloane, Inc.
PLACE OF PRODUCTION	7777, Sloane Drive Little Rock, AR 72206
DESCRIPTION	Plastics Pipes, Thermoplastic
TYPE	GF+ Fuseal Sea Drain Polypropylene Piping System Pipes +GF + Fuseal Sea Drain Fittings+ GF+Fuseal II (Sea Drain)
APPLICATION	'0' grade non fire endurance type as permitted by the Rules for: Non essential and non pressure systems for Fresh waster & Sea water, black and grey water sanitary drains (internal), scuppers & discharges (overboard), sounding/ air pipes for water tanks/dry spaces.
STANDARD	Lloyds Register Rules and Regulations for Classification of Ships Lloyds Register Rules and Regulations for Classification of Special Service Craft Pipes tested to Low flame Spread performance in accordance with ASTM D635.

Certificate No.	05/60003
Issue Date	1 June 2005
Expiry Date	31 May 2010
Sheet	1 of 2



G. Pallichadath
NAO Technical Operations Houston
Lloyd's Register North America Inc.

*Lloyd's Register North America Inc.
1401 Enclave Parkway, Suite 200, Houston Texas 77077*

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RATINGS

Sizes 1.5" to 6" Nominal Bore
Non pressure Systems up to 180° F (Approx. 80 Deg. C)

Limitations

Refer to Design Appraisal document 05/60003

"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 North America Inc. of any modification or changes to the equipment in order to obtain a valid certificate."

The Design Appraisal Document No. 05/60003 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

Certificate No. 05/60003
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Sheet 2 of 2

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Marine Design Appraisal Document

Lloyd's Register North America, Inc.
LRNA Operations Houston
1401 Enclave Parkway
Suite 200
Houston Texas 77077
USA

Date
1 June 2005

Quote this reference on all future communications
NAO /0402632/GP

LR TYPE APPROVAL SYSTEM, 2002

Issued to: George Fischer Sloane, Inc.
for: GF+ Fuseal Sea Drain Piping System
TYPE APPROVAL CERTIFICATE No. 05/60003

The undernoted documents have been reviewed for compliance with the requirements of LR Type Approval System, 2002 and this Design Appraisal Document forms part of the certificate.

APPROVAL DOCUMENTATION

Request form

15 Oct 2004

TEST REPORTS

LRNA Inc. New Orleans –visit report NOS 0403052
Short Term burst pressure report 04-98-B
Long term pressure test assembly 03-54
Vacuum Pressure test 04-98
External loading & Burst Test 04-98-B
Impact Test 04-98-B

01 Feb. 2005
16 July 2004
16 July 2004
16 July 2004
16 July 2004
16 July 2004

RATINGS

Non pressure Systems up to 180° F (Approx. 80 Deg. C)
Pipes: Sch. 40 (Non Pressure for Fuseal) , Flame retardant Pipe (Bluish colour)

Size (inches)	Diameter	Wall thickness(inches)
1.5	1.9	.145
2	2.375	.154
3	3.5	.216
4	4.5	.237
6	6.625	.28

Fittings

Tees, bends, reducers, wyes, adapters, couplings, caps, bushings, expansion joint, flanges, adapters, fusion collars.

Joining Methods

Fusion

FINAL ACCEPTANCE OF ACTUAL ITEM(S) DEPEND(S) ON SATISFACTORY SURVEY AND TESTING

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Appendix to Marine Design Appraisal Document

Limitations:

1. The piping system has not met fire endurance requirements of IMO Resolution 753(18).
2. The installation should be in accordance with Lloyd's Register Rules and any limitations contained in Part 5, chapter 12 section 5 and table 12.5.3 for the specified applications.
3. The use of plastic piping should be in agreement with the flag administration.
4. Pipes are non conductive type and should be not be used on hazardous areas.
5. Where the pipes penetrate the bulkheads/fire divisions the integrity of the bulkhead/fire division should be maintained in accordance with the Rules/Regulations/statutory instruments.

Supplementary Type Approval Terms and Conditions

Type Approval certifies that a representative sample of the product(s) referred to herein 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 North America, Inc. reserves the right to cancel or withdraw this Type Approval Certificate in accordance with the LR Type Approval System Procedure.



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FINAL ACCEPTANCE OF ACTUAL ITEM(S) DEPEND(S) ON SATISFACTORY SURVEY AND TESTING

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Part 1A
Subject: Pipe and Pipe Couplings
Product: Plastic Piping (Part 1A)

Producer/Licence No.		Description of Product				Cert. No.
		Type	Details of Approval	Application	Remarks	
George Fischer Sloane, Inc. 7777, Sloane Drive Little Rock, AR 72206		GF+ Fuscal Sea Drain Polypropylene Piping System	Sizes 1.5" to 6" Nominal Bore Non pressure Systems up to 180° F (80 Deg. C)	'0' grade non fire endurance type as permitted by the Rules for the following: Non essential and non pressure systems for Fresh waster & Sea water, black and grey water sanitary drains (internal), scuppers & discharges (overboard), sounding/ air pipes for water tanks/ dry spaces	Expires: 31 May 2010 For limitations, see Design Appraisal Document. 05/60003	05/60003

George Fischer Sloane
17 June 2005