

MARINE DIVISION

17 bis Place des Reflets - La Défense 2
92400 Courbevoie - France

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Certificate number: 11001/B1 BV

File number : ACM 135/1320/004

Product code : 2060H

This certificate is not valid when presented without the full attached schedule composed of 7 sections

TYPE APPROVAL CERTIFICATE

as per Bureau Veritas Classification Rules

This certificate is issued to

ACO Industries k. s.

Pribyslav - CZECH REPUBLIC

for the type of product

PIPES & FITTINGS

Steel piping systems for fire extinguishing systems - Types GM-X-F and GM-X-CF

Regulations and standards :

- BUREAU VERITAS Rules for the Classification of Steel Ships
- NR 216 Materials Rules

This certificate is issued to attest that BUREAU VERITAS did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of the Regulations and standards mentioned above.

This certificate is valid until : 04 Jan 2011

At Paris la Défense, on : 27 Nov 2007

For BUREAU VERITAS,
By order of the Secretary

Approval office

Local office : BV PRAGUE

Surveyor : P. Stepanek

L. COURREGELONGUE



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with BUREAU VERITAS. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of BUREAU VERITAS Marine Division. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against BUREAU VERITAS for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

Steel piping systems for fire extinguishing systems:

> Types GM-X-F and GM-X-CF

1.1 Dimensions

Piping systems	Type	Size
Galvanized steel piping systems	GM-X-F	DN 40 to DN 150
	GM-X-CF	DN 40 to DN 150

Securing clamp: GM-OMEGA coupling

Maximum working pressure: 16 bar

1.2 Material specification

GM-X-F	Hot dip galvanized steel with internal plastic coating
GM-X-CF	Stainless steel 1.4301 (AISI 304) - 1.4571 (AISI 316 Ti)
Seal	Silicon

2. DOCUMENTS AND DRAWINGS

- Manufacturer catalogue
- Technical Data ref. GMXFLP0601.A (June 2001) for GM-X-F fire extinguishing systems

3. TEST REPORTS

- Test reports 23/01G to 28/01G dated 23/05/2001
- Test Reports 22/01 to 24/01 dated 04/04/2001

4. APPLICATION / LIMITATION

4.1 May be used for:

- Fire main and deck wash piping systems
- Water spray, sprinkler, foam piping systems

4.2 The pipes are to be properly secured and protected from mechanical damages.

5. PRODUCTION SURVEY REQUIREMENTS

5.1 The products are to be manufactured, examined and tested by the manufacturer in accordance with the approved type described in this certificate and Bureau Veritas Rules and Regulations stated on the front page of this certificate.

5.2 Production sites are to be recognized by Bureau Veritas as per NR 320 for HBV products. To this end, the manufacturer has to make the necessary arrangements for a Society's Surveyor to perform visits and product audits at the production sites.

5.3 The manufacturer has declared to Bureau Veritas that the products detailed in this certificate are manufactured at the production site stated on the front page of this certificate.

5.4 No Bureau Veritas certificate is required for the approved product.

6. MARKING OF PRODUCT

The product is to be marked with at least:

- Manufacturer's name or logo
- Model
- Size

7. OTHERS

7.1 This approval is given on the understanding that the manufacturer will accept full responsibility for informing shipbuilders or their sub-contractors of the proper methods of fitting and general maintenance of the products and of the conditions of this approval.

7.2 This certificate supersedes the Type Approval Certificate N° 11001/B0 BV issued on 04/01/2006 by the Society.

*** END OF CERTIFICATE ***

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PIPES & FITTINGS

Steel piping systems for black and grey waters - Types GM-X, GM-Vac, GM-X/Vac, GM-X-C, GM-Vac-C, GM-X-CL

Regulations and standards :

- BUREAU VERITAS Rules for the Classification of Steel Ships
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THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

Steel piping systems for black and grey waters:

> Types GM-X, GM-Vac, GM-X/Vac, GM-X-C, GM-Vac-C, GM-X-CL

1.1 Dimensions

Piping systems	Type	Size
Galvanized steel piping systems	GM-X	DN 40 to DN 200
	GM-Vac	DN 40 to DN 70
	GM-X/Vac	DN 40 to DN 70
Stainless steel piping systems	GM-X-C	DN 40 to DN 150
	GM-Vac-C	DN 40 to DN 70
	GM-X-CL	DN 40 to DN 150

1.2 Material specification

GM-X	Hot dip galvanized steel with internal plastic coating
GM-X-C	Stainless steel 1.4301 (AISI 304) - 1.4571 (AISI 316 Ti)
Seal	NBR / SBR / EPDM / Silicon / Neopren / Viton

2. DOCUMENTS AND DRAWINGS

- Manufacturer catalogue
- Technical Data ref. GMXSLP0201A (February 2001) for pipes and fittings GM-X and GM-X-VAC
- Technical Data ref. GMVACSLP0201A (February 2001) for pipes and fittings GM-VAC
- Technical Data ref. GMXCLP0300.5 (March 2001) for pipes and fittings GM-X-C and GM-X-CL

3. TEST REPORTS

Tests carried out according to DIN standards and found in order.

4. APPLICATION / LIMITATION

4.1 As grey and black water drainage systems on board ships:

- above the freeboard deck,
- below the freeboard deck in enclosed spaces and machinery compartments without direct overboard connection,
- designed for gravity or vacuum operation. (GM-X-Vac: 80 % vacuum),

4.2 The pipes are to be properly secured and protected from mechanical damages.

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