

MARINE DIVISION

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

Tel. 33 1 42 91 52 91
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www.veristar.com



Certificate number: 10225/B0 BV

File number : AP 3314

Product code : 3741H

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

HACI AYVAZ END. MAMULLER SAN. VE TIC. A.S.
ISTANBUL - TURKEY

for the type of product

LEVEL SENSORS / TRANSMITTERS

LEVEL CONTROL DEVICE - Type: C-4

Regulations and standards :

BV Rules for the Classification of Steel Ships.

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 Aug 2010

At Paris la Défense, on : 04 Aug 2005

For BUREAU VERITAS,
By order of the Secretary



J. BENOIT

Approval office

Local office : BV ISTANBUL



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.

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Certificate number: 13480/A1 BV

File number : ACM 188/2512/001

Product code : 21011

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

HACI AYVAZ END. MAMULLER SAN. VE TIC. A.S.
ISTANBUL - TURKEY

for the type of product

METALLIC EXPANSION JOINTS / BELLOWS

AYVAZ Axial Expansion Joints with floating flanges PN 2,5 DN 25 to DN 1200

Regulations and standards :

BUREAU VERITAS Rules for the Classification of Steel Ships

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 : 21 Jan 2009

At Paris la Défense, on : 15 Nov 2005

For BUREAU VERITAS,
By order of the Secretary

Approval office

Local office : BV ISTANBUL
Surveyor : T. ERDEN


J. BENOIT





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

AYVAZ Axial Expansion Joints with floating flanges PN 2,5 DN 25 to DN 1200

1.1 Design (metallic bellow PN 2,5)

Size	DN 25 to DN 1200
Working Pressure	PN 2,5
Max. Working Temperature	600 °C
Axial movements	+10 mm /-20 mm
Ends	Lap joint flanges

1.2 Material specification

Bellow	1.4401/ 1.4404/ 1.4541
Band	1.0038
Flange	1.0038

2. DOCUMENTS AND DRAWINGS

> Manufacturer's catalogue 1999 March Edition

> Drawings Expansion Joint with floating flanges series PN 2,5 / 30 mm

N° 702.036.110.025 Type DF 2,5.0025.030 of 21/09/2003	N° 702.036.110.300 Type DF 2,5.0300.030 of 21/09/2003
N° 702.036.110.032 Type DF 2,5.0032.030 of 21/09/2003	N° 702.036.110.350 Type DF 2,5.0350.030 of 21/09/2003
N° 702.036.110.040 Type DF 2,5.0040.030 of 21/09/2003	N° 702.036.110.400 Type DF 2,5.0400.030 of 21/09/2003
N° 702.036.110.050 Type DF 2,5.0050.030 of 21/09/2003	N° 702.036.110.450 Type DF 2,5.0450.030 of 21/09/2003
N° 702.036.110.065 Type DF 2,5.0065.030 of 21/09/2003	N° 702.036.110.500 Type DF 2,5.0500.030 of 21/09/2003
N° 702.036.110.080 Type DF 2,5.0080.030 of 21/09/2003	N° 702.036.110.600 Type DF 2,5.0600.030 of 21/09/2003
N° 702.036.110.100 Type DF 2,5.0100.030 of 21/09/2003	N° 702.036.110.700 Type DF 2,5.0700.030 of 28/10/2003
N° 702.036.110.125 Type DF 2,5.0125.030 of 21/09/2003	N° 702.036.110.800 Type DF 2,5.0800.030 of 28/10/2003
N° 702.036.110.150 Type DF 2,5.0150.030 of 21/09/2003	N° 702.036.110.900 Type DF 2,5.0900.030 of 01/07/2005
N° 702.036.110.200 Type DF 2,5.0200.030 of 21/09/2003	N° 702.036.110.010 Type DF 2,5.1000.030 of 01/07/2005
N° 702.036.110.250 Type DF 2,5.0250.030 of 21/09/2003	N° 702.036.110.012 Type DF 2,5.1200.030 of 04/07/2005

3. TEST REPORTS

Type tests according to Testing Programme performed in-house under supervision of a Society's Surveyor:

- Pressure Impulse test
- Hydraulic pressure test
- Burst pressure test
- Cyclic expansion test

4. APPLICATION / LIMITATION

4.1 The expansion joints may be used for the following service on board:

- Exhaust gas lines

4.2 The calculated maximum values of axial and/or lateral movements at 1000 full cycles are not to be exceeded.

4.3 The expansion joints are to be installed according to manufacturer's instructions and Bureau Veritas Rules.

4.4 The expansion joints must only be fitted in areas where they are always accessible.



5. PRODUCTION SURVEY REQUIREMENTS

5.1 The products are to be manufactured, inspected and tested according to the requirements of Bureau Veritas Rules for the Classification. Arrangements shall be made for a Society's Surveyor to carry out surveys at manufacturer's works or relevant audits when an alternative survey scheme, BV Mode I, has been arranged.

5.2 Each expansion joint is to be hydraulic pressure tested to twice the maximum working pressure.

6. MARKING OF PRODUCT

Each expansion joint is to be marked clearly to avoid any wrong utilization with:

- Manufacturer's name or logo
- Type designation
- Date of manufacture
-  or  Society's brand as relevant



7. OTHERS

7.1 This approval is given with 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 approved products and of the conditions of this approval.

7.2 This certificate supersedes the Type Approval Certificate N° 13480/A0 BV issued on 21/01/2004 by the Society.

***** END OF CERTIFICATE *****



and in connection with any activities for which it may provide.

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.



Local office : BV ISTANBUL
Surveyor : T. ERDEN



Approval office



For BUREAU VERITAS,
By order of the Secretary

At Paris la Defense, on : 10 Nov 2005

This certificate is valid until : 10 Nov 2010

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.

Regulations and standards :
BUREAU VERITAS Rules for the Classification of Steel Ships

AYVAZ Axial/lateral Expansion Joints with fixed flanges PN 16 - DN 200 to DN 400

METALLIC EXPANSION JOINTS / BELLOWS

for the type of product

HACI AYVAZ END. MAMULLER SAN. VE TIC. A.S.
ISTANBUL - TURKEY

This certificate is issued to

as per Bureau Veritas Classification Rules

TYPE APPROVAL CERTIFICATE



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Certificate number: 15889/A0 BV
File number : ACM 188/2512/03
Product code : 21011
This certificate is not valid when presented without the full attached schedule composed of 7 sections



1. PRODUCT DESCRIPTION

AVVAZ Axial/lateral Expansion Joints with fixed flanges PN 16 - DN 200 to DN 400

1.1 Design (bellow PN 1)

Nominal size/PN	DN 200/PN 16	DN 250/PN 16	DN 350/PN 10	DN 400/PN 10
Max. working pressure (MPa)	0.1	0.1	0.1	0.1
Max. working temperature (°C)	+ 250	+ 250	+ 250	+ 250
Tie rods	No	No	No	No
Movements (mm)	Axial +10/-50	Axial +10/-50	Axial +15/-45	Axial +15/-45
Flanged type	Fixed	Fixed	Fixed	Fixed

1.2 Material specification

Bellow AISI 316L

Band AISI 316L

Flange St 37.2

2. DOCUMENTS AND DRAWINGS

- Manufacturer's catalogue 1999 March Edition

- Drawings Expansion Joint with fixed flanges series

< N° 702.046.100.200 PN 16/DN 200

< N° 702.046.100.250 PN 16/DN 250

< N° 702.046.100.350 PN 10/DN 350

> N° 702.046.100.400 PN 10/DN 400

- Documents of type approval tests

3. TEST REPORTS

3.1 Type tests according to Testing Programme performed in-house under supervision by a BV Surveyor:

- Pressure impulse test

- Hydraulic pressure test

- Burst pressure test

3.2 Cyclic expansion tests (1000 cycles) are based on the tests valid for the products under the certificate I 3480/A0 BV.

4. APPLICATION / LIMITATION

4.1 The expansion joints may be used for the following service on board:

- Exhaust gas lines

4.2 Reduction factors are to be taken in consideration for maximum working pressure and tolerable movement caused by temperature influence according to manufacturer's recommendations.

4.3 The calculated maximum values of axial and/or lateral movements at 1000 full cycles are not to be exceeded.

4.4 The expansion joints are to be installed according to manufacturer's instructions and Bureau Veritas Rules.

4.5 The expansion joints must only be fitted in areas where they are always accessible.

5. PRODUCTION SURVEY REQUIREMENTS

5.1 The products are to be manufactured, inspected and tested according to the requirements of Bureau Veritas Rules for Classification. Arrangements shall be made for a Society's Surveyor to carry out surveys at manufacturer's works or relevant audits when an alternative survey scheme, BV Mode I, has been arranged.

5.2 Each expansion joint is to be hydraulic pressure tested to twice the maximum working pressure.

6. MARKING OF PRODUCT

Each expansion joint is to be marked clearly to avoid any wrong utilization with:

- Manufacturer's name or logo

- Type designation

- Date of manufacture

- BV or Society's brand as relevant

THE SCHEDULE OF APPROVAL



*** END OF CERTIFICATE ***

7. OTHERS
This approval is given with 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 approved products and of the conditions of this approval.

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Certificate number: 06628/C0 BV

File number : ACM 141/0110/001

Product code : 3714H

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

HACI AYVAZ END. MAMULLER SAN. VE TIC. A.S.
ISTANBUL - TURKEY

for the type of product

LEVEL GAUGES / INDICATORS

Type MG-33 and MG-33 S

Regulations and standards :

BUREAU VERITAS Rules for the Classification of Steel Ships

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 : 10 Apr 2011

At Paris la Défense, on : 10 Apr 2006

For BUREAU VERITAS,
By order of the Secretary

Approval office

Local office : BV ISTANBUL
Surveyor : T. ERDEN



J. BENOIT



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

Magnetic Level Indicators

> Type: MG-33 and MG-33 S

1.1 Design

- a vertical chamber
- a float
- two side connections
- an indicating scale with plastic/aluminium rollers containing magnets

1.2 Material specification

Chamber	AISI 304/316
Float	AISI 316
Side connections	AISI 304/316
Indicating scale	Plastic/Aluminium

2. DOCUMENTS AND DRAWINGS

- Technical data and drawing of level control device MG-33
- Drawing MG-33 S (small) DN 15 PN 16
- Drawing MG-33 S (small) DN 20 PN 16

3. TEST REPORTS

- Test report N° 12.0421.2.95 of MPA NRW in Dortmund, Germany

4. APPLICATION / LIMITATION

- 4.1 May be used for tanks intended for fresh water, lub oil and oil fuel according to requirements Pt C, Ch 1, Sec 10 [2.9.2] of BV Rules.
- 4.2 The devices are not admitted for oil fuel and other flammable oils on board passenger ships having to comply with SOLAS Convention, as amended.
- 4.3 The fitting of the devices is to be in accordance with the manufacturer's instructions as well as the Rules and Regulations applicable to the ship.
- 4.4 The devices are to be installed and tested to the Surveyor's satisfaction.

5. PRODUCTION SURVEY REQUIREMENTS

- 5.1 Arrangements shall be made for a Society's Surveyor to carry out, on a periodic basis, visits of the manufacturer's premises and product audits.
- 5.2 Each device is to be supplied with its manuals for installation, use and maintenance.

6. MARKING OF PRODUCT

Each device is to be clearly marked to avoid any wrong utilization with at least:

- Manufacturer's name or logo
- Type designation
- Operational data

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 method of fitting and general maintenance of their products and of the conditions of this approval.
- 7.2 This certificate supersedes the previous certificate N° 06628/B1 BV issued by the Society on 05/01/2006.

*** END OF CERTIFICATE ***



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Certificate N°:
13913/A0 BV
The attached Schedule forms part of the certificate
File Number : ACM 188/2512/02
Product Code : 21011



CERTIFICATE OF TYPE APPROVAL

This is to certify that the product identified below was found to be in compliance with the relevant hereunder stated Regulations & standards

METALLIC EXPANSION JOINTS/BELLOWS
AYVAZ Axial Expansion Joints with fixed and floating flanges PN6, PN10, PN16

MANUFACTURED BY:

HACI AYVAZ END. MAMULLER SAN. VE TIC. A.S.
ISTANBUL - TURKEY

SPECIFIED REGULATIONS & STANDARDS :

- BUREAU VERITAS Rules for the Classification of Steel Ships

The Approval is valid until : 15.03.2010



At Paris la Défense, on : 15.03.2005

J. BENOIT
For the Secretary

This Certificate remains valid until the date stated on hereunder, unless cancelled or revoked, provided the conditions in the attached schedule are complied with and the equipment remains satisfactory into service.

This Certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested.

This Certificate is not valid without the stamp of the above mentioned BUREAU VERITAS Inspection Center.

The manufacturer should notify BUREAU VERITAS of any modification or changes to the equipment in order to obtain a valid Certificate.

The latest published Regulations or Standards referred to, above, and the Marine Division General Conditions are applicable.



THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION :

AYVAZ Axial Expansion Joints with fixed and floating flanges PN6, PN10, PN16

Design: metallic bellows

Nominal size PN	DN 25 to DN 800 PN 6	DN 25 to DN 800 PN 10	DN 25 to DN 350 PN 16
Max. working pressure (MPa)	0,6	1,0	1,6
Max. working temperature (°C)	+550	+550	+550
Tie rods	No	No	No
Movements (mm)	Axial +10/-20	Axial +10/-20	Axial +10/-20
Flanged type	Fixed/floating	Fixed/floating	Fixed/floating

2. DESIGN DRAWINGS and/or SPECIFICATIONS

- Manufacturer's catalogue 1999 March Edition
- Drawings Expansion Joint with fixed flanges series PN 6-30 mm
N° 702.046.120.025 to 702.046.120.800
- Drawings Expansion Joint with floating flanges series PN 6-30 mm
N° 702.036.140.025 to 702.036.140.800
- Drawings Expansion Joint with fixed flanges series PN 10-30 mm
N° 702.046.130.025 to 702.046.130.800
- Drawings Expansion Joint with floating flanges series PN 10-30 mm
N° 702.036.140.025 to 702.036.140.800
- Drawings Expansion Joint with fixed flanges series PN 16-30 mm
N° 702.046.140.025 to 702.046.120.350
- Drawings Expansion Joint with floating flanges series PN 16-30 mm
N° 702.036.140.025 to 702.036.140.350
- Documents of type approval tests N° TTAL.4.007 rev. 0

3. TYPE TEST REPORTS / LABORATORY RECOGNITION STATUS

Type tests according to Testing Programme performed in-house under supervision by a BV Surveyor:

- Pressure impulse test
- Hydraulic pressure test
- Burst pressure test
- Cyclic expansion test (1000 cycles)

4. MATERIALS and/or COMPONENTS REQUIRED TO BE TYPE APPROVED

Not applicable.

5. OTHER MATERIALS and/or COMPONENTS

Bellow 1.4401/ 1.4404/ 1.4541
 Band 1.4401/ 1.4404/ 1.4541
 Flange 1.0038

6. APPLICATION / LIMITATION OF USE

6.1 The expansion joints may be used for the following services on board:

- Steam pressure lines
- Exhaust gas lines (PN 6 fixed and floating type)
- Other marine class II and III piping systems according to the relevant requirements stated in Part C, Chapter 1, Sec 10 of the Bureau Veritas Rules

6.2 The use of floating flanges is only permitted for Class III water pipes and open-ended lines.

6.3 The use of stainless steel is to be restricted as per the requirements of the Bureau Veritas Rules.

6.4 Reduction factors are to be taken in consideration for maximum working pressure and tolerable movement caused by temperature influence according to manufacturer's recommendations.

6.5 The calculated maximum values of axial and/or lateral movements at 1000 full cycles are not to be exceeded.

7. PRODUCTION SURVEY REQUIREMENTS

7.1 The products are to be manufactured, inspected and tested according to the requirements of Bureau Veritas Rules for Classification. Arrangements shall be made for a Society's Surveyor to carry out surveys at manufacturer's works or relevant audits when an alternative survey scheme, BV Mode I, has been arranged.

7.2 Each expansion joint is to be hydraulic pressure tested to twice the maximum working pressure.



8. ON BOARD INSTALLATION & MAINTENANCE REQUIREMENTS

8.1 The expansion joints are to be installed according to manufacturer's instructions and Bureau Veritas Rules.

8.2 The expansion joints must only be fitted in areas where they are always accessible.

9. MARKING FOR IDENTIFICATION

Each expansion joint is to be marked clearly to avoid any wrong utilization with:

- Manufacturer's name or logo
- Type designation
- Date of manufacture
-  or  Society's brand as relevant

10. OTHERS

This approval is given with 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 approved products and of the conditions of this approval.

*** Last page (End of Document) ***

BUREAU VERITAS ISTANBUL.

