



Marine & Offshore

Certificate number: 61790/A0 BV

File number: ACM 135/2798/1

Product code: 2102I

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

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TYPE APPROVAL CERTIFICATE

This certificate is issued to
WILLBRANDT KG
 Hamburg - GERMANY

for the type of product
NON-METALLIC EXPANSION JOINTS / BELLOWS
 Willbrandt rubber compensators, types: 46, 50, 55 and 55SO

Requirements:

BUREAU VERITAS Rules for the Classification of Steel Ships
 BUREAU VERITAS Rules for the Classification of Offshore Units
 BUREAU VERITAS Rules for the Classification of Naval Ships
 BUREAU VERITAS Rules for the Classification of Yachts

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 16 Apr 2025

For Bureau Veritas Marine & Offshore,
 At BV HAMBURG, on 16 Apr 2020,
 Adama Diene



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 Marine & Offshore. 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 & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore 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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BV Mod. Ad.E 530 June 2017

This certificate consists of 4 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

Willbrandt rubber compensators, types: 46, 50, 55 and 55SO

1.1 Identification and technical data:

File number	Type	Size [DN]	Bellow colour code	Permissible operating data [°C / bar]				End connections
ACM 135/2798/1/1	46	20 – 50	red Sp	-40 / 10	70 / 16	100 / 10	130 / 8	Screw connection
			red	-40 / 10	50 / 16	70 / 12	100 / 10	
			yellow	-20 / 10	50 / 16	70 / 12	90 / 10	
			white	-20 / 10	50 / 16	70 / 12	90 / 10	
			green	-20 / 10	50 / 16	70 / 12	100 / 10	
			orange	-20 / 10	50 / 25	70 / 20	90 / 15	
			black EPDM	40 / 10	50 / 10	70 / 8	90 / 6	
			black CR	-25 / 10	50 / 16	70 / 12	90 / 10	
			yellow LT	-40 / 10	50 / 16	70 / 12	90 / 10	
			yellow St	-20 / 10	60 / 16	70 / 12	90 / 10	
yellow HNBR	-35 / 10	60 / 16	70 / 12	100 / 10				
ACM 135/2798/1/2	50	20 – 400	red SP	-40 / 10	70 / 16	100 / 10	130 / 8	Flange
			red	-40 / 10	50 / 16	70 / 12	100 / 10	
			yellow	-20 / 10	50 / 16	70 / 12	90 / 10	
			white	-20 / 10	50 / 16	70 / 12	90 / 10	
			green	-20 / 10	50 / 16	70 / 12	100 / 10	
			orange	-20 / 10	50 / 25	70 / 20	90 / 15	
			black EPDM	-40 / 10	50 / 10	70 / 8	90 / 6	
			black CR	-25 / 10	50 / 16	70 / 12	90 / 10	
			yellow LT	-40 / 10	50 / 16	70 / 12	90 / 10	
			yellow St	-20 / 10	60 / 16	70 / 12	90 / 10	
yellow HNBR	-35 / 10	60 / 16	70 / 12	100 / 10				
ACM 135/2798/1/2	50	450 – 1000	red SP	-40 / 8	70 / 10	100 / 7.5	130 / 6	Flange
			red	-40 / 8	50 / 10	70 / 8	100 / 6	
			yellow	-20 / 8	50 / 10	70 / 8	90 / 6	
			white	-20 / 8	50 / 10	70 / 8	90 / 6	
			green	-20 / 8	50 / 10	70 / 8	100 / 6	
			black CR	-25 / 8	50 / 10	70 / 8	90 / 6	
			yellow St	-20 / 8	60 / 10	70 / 8	90 / 6	
ACM 135/2798/1/3	55	20 – 400	red SP	-40 / 10	70 / 16	100 / 10	130 / 8	Flange
			red	-40 / 10	50 / 16	70 / 12	100 / 10	
			yellow	-20 / 10	50 / 16	70 / 12	90 / 10	
			green	-20 / 10	50 / 16	70 / 12	100 / 10	
			yellow St	-20 / 10	60 / 16	70 / 12	90 / 10	
ACM 135/2798/1/3	55	450 – 1000	red SP	-40 / 8	70 / 10	100 / 7.5	130 / 6	Flange
			red	-40 / 8	50 / 10	70 / 8	100 / 6	
			yellow	-20 / 8	50 / 10	70 / 8	90 / 6	
			green	-20 / 8	50 / 10	70 / 8	100 / 6	
ACM 135/2798/1/4	55SO	20 – 300	red	-40 / 10	50 / 16	70 / 12	100 / 10	Flange
			yellow	-20 / 10	50 / 16	70 / 12	90 / 10	

1.2 Material specification depending on type and colour code:

Inner tube	EPDM, IIR, NBR, CSM, CR, NBR LT, HNBR, CRN, NBR
Reinforcement	PEEK, Polyamide, Steel cord
Cover	EPDM, CR, CSM, EPDM
End connections	Flanges: Steel, SS, brass, MS, etc. Screw-in parts (Type 46): malleable cast iron, galvanized steel, brass, SS union nut with steel, CuNiFe, MS, RG or stainless steel thread

2. DOCUMENTS AND DRAWINGS:

According to following documents:

Designation	No.	Rev.
WILLBRANDT The Expansion Joint Catalogue Rubber	258-1-05/18-WMD	05/2018
WILLBRANDT Rubber Expansion Joint Type 46 (Catalogue page 26 – 27)	258-1-05/18-WMD	05/2018
WILLBRANDT Rubber Expansion Joint Type 50 (Catalogue page 34 – 40)	258-1-05/18-WMD	05/2018
WILLBRANDT Rubber Expansion Joint Type 55 (Catalogue page 49 – 57)	258-1-05/18-WMD	05/2018

3. TEST REPORTS:

According to the following tests:

- Burst test report no. 05/18 at ConiTech, Hannover / GERMANY dd. 29.01.18
- Burst test report no. 06/18 at ConiTech, Hannover / GERMANY dd. 29.01.18
- Burst test report no. 07/18 at ConiTech, Hannover / GERMANY dd. 29.01.18
- Burst test report no. 08/18 at ConiTech, Hannover / GERMANY dd. 29.01.18
- Burst test report no. 09/18 at ConiTech, Hannover / GERMANY dd. 30.01.18
- Burst test report no. 10/18 at ConiTech, Hannover / GERMANY dd. 30.01.18
- Burst test report no. 12/18 at ConiTech, Hannover / GERMANY dd. 01.02.18
- Burst test report no. 13/18 at ConiTech, Hannover / GERMANY dd. 01.02.18
- Burst test report no. 14/18 at ConiTech, Hannover / GERMANY dd. 01.02.18
- Burst test report no. 29/18 at ConiTech, Hannover / GERMANY dd. 29.03.18
- Burst test report no. 30/18 at ConiTech, Hannover / GERMANY dd. 12.04.18
- Burst test report no. 69/18 at ConiTech, Hannover / GERMANY dd. 08.06.18
- Burst test report no. 99/18 at ConiTech, Hannover / GERMANY dd. 23.11.18
- Flame resistance test report no. IBB 2172 / HAM1900721/3 at Dr.-Ing. T. Bäumer, Herford / GERMANY dd. 26.03.2019
- Flame resistance test report no. IBB 2186 / HAM1900721/5 at Dr.-Ing. T. Bäumer, Herford / GERMANY dd. 11.04.2019
- Flame resistance test report no. IBB 2168 / HAM1900721/1 at Dr.-Ing. T. Bäumer, Herford / GERMANY dd. 26.03.2019
- Flame resistance test report no. IBB 1988 / HAM1800795/1 at Dr.-Ing. T. Bäumer, Herford / GERMANY dd. 11.04.2018
- Endurance test report no. 24/19 at ConiTech, Hannover / GERMANY dd. 9/18/19
- Endurance test report no. 22/19 at ConiTech, Hannover / GERMANY dd. 7/18/19
- Endurance test report no. 25/19 at ConiTech, Hannover / GERMANY dd. 8/6/19
- Endurance test report no. 26/19 at ConiTech, Hannover / GERMANY dd. 8/6/19
- Endurance test report no. 27/19 at ConiTech, Hannover / GERMANY dd. 8/30/19
- Impulse test report no. 03/18 at ConiTech, Hannover / GERMANY dd. 09.01.18
- Impulse test report no. 04/18 at ConiTech, Hannover / GERMANY dd. 31.01.18
- Impulse test report no. 77/18 at ConiTech, Hannover / GERMANY dd. 06.06.18
- Impulse test report no. 98/18 at ConiTech, Hannover / GERMANY dd. 22.11.18

4. APPLICATION / LIMITATION:

- 4.1 May be used for the following services on board, depending on type according to manufacturer`s catalogue:
Sea Water, fresh water, oils, lubricants, fuels, gases, chemicals, foodstuffs.
- 4.2 On board installation and maintenance requirements have to be in accordance with the Society`s Rules requirements and the manufacturer`s recommendations.
- 4.3 For piping led overboard below the freeboard deck, the compensators are not to be fitted unless a suitable stop valve is fitted at the shell. Furthermore, efficient means are to be provided to avoid the flooding of the ship in case of rupture of the compensators.
- 4.4 In all cases, the associated pipes are to be suitably aligned, supported and anchored. The joints are to be at any time accessible, well visible and protected against over extension and compression and against mechanical damage.

5. PRODUCTION SURVEY REQUIREMENTS:

- 5.1 The expansion joints are to be supplied by **Willbrandt KG** in compliance with the type and the requirements described in this certificate.
- 5.2 This type of product is within the category IBV of BUREAU VERITAS Rule Note NR320.

- 5.3 BUREAU VERITAS product certificate is required.
- 5.4 For information, **Willbrandt KG** has declared to BUREAU VERITAS the following production site:
Willbrandt KG, Hamburg / GERMANY
- 5.5 Each rubber expansion joint with fixed flanges / screw connections is to be hydraulic pressure tested according to BUREAU VERITAS Rules under witnessing of a Society's Surveyor.

6. MARKING OF PRODUCT:

Each expansion joint should be marked with:

- Manufacturer's name or logo
- Type designation
- Date of manufacture
- Nominal diameter
- Nominal pressure
- BUREAU VERITAS' marks

7. OTHERS:

- 7.1 It is **Willbrandt KG**'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

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