



Marine &amp; Offshore

Certificate number: 38360/B0 BV

File number: MAT 5302-2014

Product code: 64371

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

[www.veristar.com](http://www.veristar.com)

## TYPE APPROVAL CERTIFICATE

*This certificate is issued to*

**Jiangsu Asian Star Anchor Chain Co., Ltd.**

Jingjiang (Jiangsu Province) - CHINA

*for the type of product*

### OFFSHORE MOORING ACCESSORIES

Forged accessories intended for offshore mooring chain cables in grades QR3, QR3S, QR4, QR4S and QR5.

#### Requirements:

Bureau Veritas Rules on Materials and Welding for the Classification of Marine Units

Bureau Veritas Rules for the Classification of Offshore Units

*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: 20 Feb 2025**

**For Bureau Veritas Marine & Offshore,**

At BV SHANGHAI, on 20 Feb 2020,

Jennifer Zhang



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](http://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.

The electronic version is available at: <http://www.veristarm.com/veristarnb/jsp/viewPublicPdfTypepec.jsp?id=n3fyijynkf>

BV Mod. Ad.E 530 June 2017

This certificate consists of 4 page(s)

## THE SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION :

Forged accessories intended for offshore mooring chain cables.

Steel grade	Type of product	Intended for connecting chain cable of max. Nominal Diameter	Delivery condition
QR3- QR3S QR4- QR4S	Kenter shackle End Joining Shackle End Shackle Joining Shackle H Shackle	187mm	Quenched and Tempered (QT)
QR5	Kenter shackle End Shackle	137mm	Quenched and Tempered (QT)
QR3- QR3S QR4- QR4S-QR5	Swivel	137mm	Quenched and Tempered (QT)
QR3- QR3S- QR4	Anchor Swivel Shackle	102mm	Quenched and Tempered (QT)

Accessories manufactured by drawing out, upsetting, bending and machining operations. Minimum reduction ratio is 3:1.

### 2. DOCUMENTS AND DRAWINGS :

2.1 Chemical composition on ladle of grade QR3, QR3S, QR4 and QR4S as per specification given hereafter for bloom supplier Jiangyin Xingcheng Special Steel Co., Ltd.:

Chemical composition - Grade QR3

Element (%)	C	Mn	Si	P	S	Ni	Mo	Cr	Al
min.	0.27	1.40	0.15	-	-	-	-	-	0.010
max.	0.33	1.90	0.35	0.025	0.025	0.30	0.20	0.60	0.050
Element (%)	Cu	Nb	As	Sn	Sb	H(ppm)	O(ppm)	N (ppm)	
min.	-	-	-	-	-	-	-	-	
max.	0.20	0.050	0.03	0.03	0.015	2	25	90	

Chemical composition - Grade QR3S

Element (%)	C	Mn	Si	P	S	Ni	Mo	Cr	Al
min.	0.20	1.20	0.15	-	-	0.10	0.20	0.40	0.010
max.	0.26	1.60	0.30	0.025	0.025	0.70	0.50	1.30	0.050
Element (%)	Cu	Nb	As	Sn	Sb	H(ppm)	O(ppm)	N (ppm)	
min.	-	-	-	-	-	-	-	-	
max.	0.20	0.06	0.03	0.03	0.015	2	25	90	

## Chemical composition - Grade QR4

Element (%)	C	Mn	Si	P	S	Ni	Mo	Cr	Al
<b>min.</b>	0.22	1.20	0.15	-	-	0.70	0.40	0.80	0.010
<b>max.</b>	0.26	1.60	0.30	0.025	0.025	1.00	0.60	1.30	0.050
Element (%)	Cu	Nb	As	Sn	Sb	H(ppm)	O(ppm)	N (ppm)	
<b>min.</b>	-	-	-	-	-	-	-	-	
<b>max.</b>	0.20	0.06	0.03	0.03	0.015	2	25	90	

## Chemical composition - Grade QR4S

Element (%)	C	Mn	Si	P	S	Ni	Mo	Cr	Al
<b>min.</b>	0.20	0.70	0.15	-	-	0.70	0.30	0.80	0.010
<b>max.</b>	0.25	1.60	0.30	0.025	0.025	1.20	0.65	2.00	0.050
Element (%)	Cu	Nb	As	Sn	Sb	H(ppm)	O(ppm)	N (ppm)	
<b>min.</b>	-	-	-	-	-	-	-	-	
<b>max.</b>	0.20	0.10	0.03	0.03	0.015	2	25	90	

2.2 Chemical composition on ladle of grade QR5 as per specification given hereafter for supplier Baoshan Iron & Steel Co., Ltd.:

Element (%)	C	Mn	Si	P	S	Ni	Mo	Cr	Al
<b>min.</b>	0.18	0.40	0.15	-	-	0.80	0.20	1.20	0.015
<b>max.</b>	0.25	1.00	0.45	0.020	0.008	1.20	0.55	2.00	0.045
Element (%)	Cu	Nb	V	Ti	B	As	Sn	Sb	N
<b>min.</b>	-	0.01	0.04	-	-	-	-	-	-
<b>max.</b>	0.25	0.05	0.11	0.01	0.001	0.02	0.02	0.02	0.012

2.3 As per documents issued by Jiangsu Asian Star Anchor Chain Co., Ltd:

- “Manufacturing summary- DOC N° ASAC-AL-BV-TA1310-V0” dated 26 July 2013.
- “Procedure for SSRT - DOC N° ASAC-PD-ABS-TA1310S11-V0” dated 26 July 2013.
- “Procedure for Hot ductility test - DOC N° ASAC-PD-ABS-TA1310S12-V0” dated 26 July 2013.
- “Procedure for Fatigue test - DOC N° ASAC-PD-ABS-TA1310S15-V0” dated 26 July 2013.
- “Forging technology” dated 02 May 2013.
- “Test plan for approval - Application for approval R3/R3S/R4” dated 26 June 2013.
- “Test plan for approval - Application for approval of R4S” dated 26 June 2013.
- Document No.ASAC-AA-BV-TA1312-V1 dated 14/1/2018.
- "Procedure for maintenance of dies and tools".
- Document No.ASAC-TR-BV-TA1504-V0 Rev.0 dated 05/01/2015.
- Document No.ASAC-TR-BV-TA1508-V0 Rev.0 dated 10/07/2015.

2.4 As per drawings issued by Jiangsu Asian Star Anchor Chain Co., Ltd:

- N° ASAC201304-29Z01-152-KS Rev.1 dated 08 August 2014; N° ASAC201304-29Z04-137-SW Rev.1 dated 08 August 2014; N° ASAC201304-29Z01-137-KS Rev.1 dated 14 August 2014; N° ASAC201304-29Z02-102-SWS Rev.3 dated 16 January 2015; N° ASAC201304-29Z02-152-ES Rev.2 dated 10 October 2014; N° ASAC201304-29Z02-137-ES Rev.2 dated 10 October 2014; N° ASAC201304-29Z02-152-EJS Rev.3 dated 16 January 2015, N° ASAC-AR-JSH-140731-001 & -002 & -003 Version 2 dated 31 July 2014; N° ASAC-AR-JSH-140731-004 & -005 & -006 Version 2 dated 13 January 2014; N° ASAC201508-02Z03-187-EJS, N° ASAC201508-02Z04-187-H, N° ASAC201508-02Z02-187-ES, N° ASAC201508-02Z01-187-KS, N° ASAC201508-02Z05-187-JS dated 02/08/2015; N° ASAC201410-08Z01-137-KS Rev.0, N° ASAC201410-08Z02-137-ES Rev.0, N° ASAC201410-08Z03-137-SW Rev.0 dated 08/10/2014.

**3. TEST REPORTS :**

- 3.1 As per documents issued by Jiangsu Asian Star Anchor Chain Co., Ltd:
- “Test report of mooring chain accessories, Grade QR3” dated 01 July 2014.
  - “Test report of mooring chain accessories, Grade QR3S” dated 01 July 2014.
  - “Test report of mooring chain accessories, Grade QR4” dated 01 July 2014.
  - “Test report of mooring chain accessories, Grade QR4S” dated 01 April 2014.
  - “Test report of mooring chain accessories, Grade QR3” dated 20 April 2017.
  - “Test report of mooring chain accessories, Grade QR3S” dated 20 April 2017.
  - “Test report of mooring chain accessories, Grade QR4” dated 16 Decembre 2016.
  - “Test report of mooring chain accessories, Grade QR4S” dated 11 July 2016.
  - “Application scope for mooring chain accessories, Grade QR5” dated 20 May 2016.

**4. APPLICATION / LIMITATION :**

As per Bureau Veritas Rules for Classification Raw materials for forged accessories are to be supplied by Jiangyin Xingcheng Special Steel Co., Ltd, or, Baoshan Iron & Steel Co., Ltd. as applicable.

**5. PRODUCTION SURVEY REQUIREMENTS :**

- 5.1 - The forged accesories are to be supplied by Jiangsu Asian Star Anchor Chain Co., Ltd. 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 - BV product certificate is required.

**6. MARKING OF PRODUCT :**

As per Bureau Veritas Rules for Classification.

**7. OTHERS :**

This certificate replaces approvals N° 38360/A0 BV and N° 38360/A1 BV .

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