



Marine & Offshore
Division

Certificate number: 09668/D0 BV

File number: MAT 23470/01

Product code: 9019I

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

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APPROVAL CERTIFICATE for MATERIALS

This certificate is issued to

SIDENOR ACEROS ESPECIALES, S.L.

Basauri (Vizcaya) - SPAIN

for the type of product

ROUND BARS FOR OFFSHORE MOORING CHAIN CABLE

Round bars in steel grade QR4 for offshore mooring chain cables

Requirements:

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

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 mentioned above.

This certificate will expire on: 15 Mar 2022

For BUREAU VERITAS,

At BV MADRID, on 15 Mar 2017,

Montserrat Espin



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 & Offshore Division 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 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 :

Hot rolled round bars in steel grade QR4 for offshore mooring chain cables made by Vicinay Cadenas S.A.

Steel grade	Delivery condition	Bar diameter
QR4	As Rolled	maximum 78 mm

Steelmaking by Electric arc furnace. LF Refining and Vacuum Degassing. Continuous Casting square billets Billets size 185×185mm.

Approval tests performed on round bars quenched and tempered.

2. DOCUMENTS AND DRAWINGS :

Chemical composition (%) specification on ladle of steel grade QR4 for chains diameter 75mm max.:

Element (%)	C	Mn	Si	P	S	Ni	Mo	Cr	Al	Cu
min.	0.20	0.90	0.15	-	-	0.35	0.20	0.90	0.015	-
max.	0.24	1.15	0.35	0.020	0.020	0.70	0.35	1.25	0.040	0.25
Element (%)	V	As	Sn	Sb	Ti	O2(ppm)	B(ppm)	N2 (ppm)	H2 (ppm)	
min.	0.04	-	-	-	-	-	-	-	-	
max.	0.10	0.025	0.030	0.005	0.015	25	15	150	1.1	

- "R4 grade manufacturing process for round bars (Ø 78mm) at basauri plant" and flow chart -R4-Ø 78-189980 dated 11/03/2014 issued by Sidenor Aceros Especiales, S.L. (Basauri).

3. TEST REPORTS :

"Approval Report for R4 Chain Steel Bar" dated 23/10/1998 issued by SIDENOR Basauri Plant.

4. APPLICATION / LIMITATION :

As per Bureau Veritas Rules. Round bars used for the manufacture of offshore mooring chain cables by Vicinay Cadenas S.A. (Bilbao).

5. PRODUCTION SURVEY REQUIREMENTS :

The round bars are to be supplied by Sidenor Aceros Especiales, S.L. (Basauri) in compliance with the type and the requirements described in this certificate. This type of product is within the category IBV of Bureau Veritas Rule Note NR320. BV product certificate is required.

6. MARKING OF PRODUCT :

As per Bureau Veritas Rules.

7. OTHERS :

This certificate replaces approvals from No.09668/A0 BV to No.09668/C0 BV.

*** END OF CERTIFICATE ***