

APPROVAL OF MANUFACTURER CERTIFICATE

This is to certify:**That****Schmiedestück-Vertrieb Feuerstein GmbH
Hattingen, Nordrhein-Westfalen, Germany**is an approved manufacturer of
Chain Cables

in accordance with

**Det Norske Veritas' Rules for Classification Pt. 2
DNV-OS-E302 Offshore Mooring Chain**

and the following particulars:

Product	Forged chain cable accessories
Grades	NV K3, NV R3, NV R3S, NV R4, NV R4S NV R5
Delivery condition	See page 2
Max. thickness/diam.	See page 2

This Certificate is valid until **2019-06-30**.Issued at **Høvik** on **2015-08-24**DNV GL local station: **Essen**Approval Engineer: **Gorka Lozano**for **DNV GL**

**Hanne Anita Hjerpetjønn
Head of Section**

Particulars of the approval

Particular of approvals for Offshore mooring chain cable accessories			
Grade ²⁾	Delivery conditions ¹⁾	Max. diameter or thickness (mm)	Material manufacturer ³⁾
NV R3	NQT	152	Deutsche Edelstahlwerke GmbH, Witten plant ^{4)a)}
	NQT	146	Deutsche Edelstahlwerke GmbH, Siegen plant ^{7)f)}
	NQT	160	Ascometal ^{4)e)}
NV R3S	NQT	152	Deutsche Edelstahlwerke GmbH, Witten plant ^{4)a)}
	NQT	102	Třinecké Železárny (Sochorová válcovna TŽ), Kladno plant ^{5)d)}
	NQT	108	Třinecké Železárny (Sochorová válcovna TŽ), Kladno plant ^{5)b)}
	NQT	105	Deutsche Edelstahlwerke GmbH, Witten plant ^{4)c)}
	NQT	84	Deutsche Edelstahlwerke GmbH, Witten plant ^{6)c)}
	NQT	146	Deutsche Edelstahlwerke GmbH, Siegen plant ^{7)f)}
	NQT	160	Ascometal ^{4)e)}
	NQT	93	Nedstaal B.V. ^{8)g)}
	NQT	170 ⁹⁾	Deutsche Edelstahlwerke GmbH, Witten plant ^{7)a)}
NV R4	NQT	152	Deutsche Edelstahlwerke GmbH, Witten plant ^{4)a)}
	NQT	102	Třinecké Železárny (Sochorová válcovna TŽ), Kladno plant ^{5)d)}
	NQT	108	Třinecké Železárny (Sochorová válcovna TŽ), Kladno plant ^{5)b)}
	NQT	105	Deutsche Edelstahlwerke GmbH, Witten plant ^{4)c)}
	NQT	84	Deutsche Edelstahlwerke GmbH, Witten plant ^{6)c)}
	NQT	146	Deutsche Edelstahlwerke GmbH, Siegen plant ^{7)f)}
	NQT	160	Ascometal ^{4)e)}
	NQT	93	Nedstaal B.V. ^{8)g)}
	NQT	170 ⁹⁾	Deutsche Edelstahlwerke GmbH, Witten plant ^{7)a)}

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Grade ²⁾	Delivery conditions ¹⁾	Max. diameter or thickness (mm)	Material manufacturer ³⁾
NV R4S	NQT	84	Třinecké Železářny (Sochorová válcovna TŽ), Kladno plant ^{5)d)}
	NQT	108	Třinecké Železářny (Sochorová válcovna TŽ), Kladno plant ^{5)b)}
	NQT	105	Deutsche Edelstahlwerke GmbH, Witten plant ^{4)c)}
	NQT	84	Deutsche Edelstahlwerke GmbH, Witten plant ^{6)c)}
NV R5	NQT	84	Třinecké Železářny (Sochorová válcovna TŽ), Kladno plant ^{5)d)}
	NQT	108	Třinecké Železářny (Sochorová válcovna TŽ), Kladno plant ^{5)b)}
	NQT	105	Deutsche Edelstahlwerke GmbH, Witten plant ^{4)c)}
	NQT	84	Deutsche Edelstahlwerke GmbH, Witten plant ^{6)c)}

Remarks:

- ¹⁾ NQT: Normalizing, Quenched and Tempered.
- ²⁾ For approved material specification see table S1
- ³⁾ The approval is limited to the listed raw material manufacturer and forging supplier.
- ⁴⁾ Forging carried out by Anker Schroeder ASDO
- ⁵⁾ Forging carried out by PBK ZK
- ⁶⁾ Forging carried out by Ruhrtaler Gesenkschmiede
- ⁷⁾ Forging carried out by Karl Diederichs KG
- ⁸⁾ Forging carried out by Stahlhammer Bommern GmbH
- ⁹⁾ Approval valid only for auxiliary component of the accessory (bolt). Not valid for chain cable accessory.
- a, b, c, d, e, f & g) Linking reference for each specification for chemical composition from the table S1

Particular of approvals for Anchor chain cable and Anchor chain cable accessories ¹⁾		
Grade	Diameter (mm)	Delivery condition ²⁾
NV K3	165	QT

Remarks:

- ¹⁾ Forgings shall be made by approved manufacturer.
- ²⁾ QT: Quenched and Tempered.

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Miscellaneous:

1) Approval of procedures detailed in the approval letter: OENNO716/GLC/P261.1H-J-4963