



RIGGER RIGGER FOREMAN SLINGER SOCKETER

(KORTWEG RIGGER OF SOCKETER)

COMPETENTIE STANDAARD

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DNV BUSINESS ASSURANCE
 B.V. ZWOLSEWEG 1
 2994 LB BARENDRECHT
 NEDERLAND
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COMPETENTIE STANDAARD RIGGER

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Summary:

The Rigging and Slings training is developed for operational offshore staff, better known as Riggers.
 A Socketeer is able to create a safe Socket Termination m.b.v. wirelock resin

The aim of the training is to ensure that the participant is able to act safely and efficiently during his activities on board of ships and/or offshore platforms

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1 INLEIDING

1.1 Doel en scope

De competentiestandaard is ontwikkeld om de fundamentele competenties voor een Rigger, rigger-foreman, Slinger en Socketer (voortaan Rigger) inzichtelijk te maken. De scope omvat de verplichtingen waaraan moet worden voldaan om in aanmerking te komen voor certificering.

De standaard kan worden gebruikt

1. door bedrijven om de aanwezige competenties en benodigde competentie-ontwikkeling van haar werknemers in kaart te kunnen brengen;
2. door bedrijven om hun verwachtingen richting opleiders te verduidelijken;
3. door opleiders als de basis voor het vormgeven van een leerweg;
4. als referentie document voor onafhankelijke persoonscertificering
5. als referentie document voor onafhankelijke toetsing van opleidingsprogramma's

1.2 Doelgroep

De standaard richt zich op kraanmachinist op zee en personen, die staalkabels "wire-lock-resin" moeten gieten.

1.3 Beroepsprofiel

Rigger, die vanuit zijn/haar functie in staat moet zijn om hijs-gerelateerde werkzaamheden te verrichten op zee. Bijvoorbeeld mensen die aan boord van bergings- of bevoorradingsschepen goederen moeten overzetten naar werk- of boorplatforms.

Voor de Socketer die aan boord van een zeesleper de gebroken kabel moeten repareren of een trekhoog moet kunnen vernieuwen.

1.4 Professionaliteit

De rigger voert zijn werk uit met een professionele attitude. Hij/zij handelt altijd vanuit actuele kennis en vaardigheden en is op de hoogte van de van toepassing zijnde wet- en regelgeving. Omdat het maken van een fout grote gevolgen kan hebben is hij zich bewust van de gevolgen op economisch, financieel en milieu gebied. Naast de belangen van de organisatie komt advies altijd tot stand vanuit de gedachte van 'safeguarding life, property & environment'. De rigger is gesprekspartner voor de klant (intern of extern) ten aanzien van keuzes en implementatie van door de klant gewenste oplossingen.

2 DEFINIEREN VAN COMPETENTIES

2.1 Algemeen

Taxonomie van vereist professioneel gedrag en vaardigheden onderscheidt diverse niveaus waarop een persoon moet kunnen functioneren. Het betreft een hiërarchische structuur gebaseerd op didactische/educatieve principes. We onderscheiden vier (4) niveaus van wat een individu moet beheersen voor het uitvoeren van eenvoudige tot complexe taken.

Voor elk hoger niveau is het een voorwaarde dat de lagere niveaus worden beheerst. Het niveau van de beroepscompetentie wordt doorgaans bepaald door hoe die wordt gebruikt.

2.2 Cognitieve niveaus

Elke competentie kan worden geclassificeerd. De volgende cognitieve niveaus worden onderscheiden:

Niveau 1: Kennis (K)	Iets onthouden of reproduceren op basis van juiste, eerder verworven kennis en informatie.
Niveau 2: Begrip (B)	Betekenis toekennen aan nieuwe situaties en/of nieuw materiaal, puttend uit herinnering, en het gebruik van noodzakelijke actuele informatie. Het aandragen van bewijs of demonstreren van inzicht in bepaalde activiteiten
Niveau 3: Applicatie (A)	Het gebruiken van eerder verkregen informatie in nieuwe concrete situaties om problemen het hoofd te bieden die op te lossen zijn met een enkel of best antwoord / oplossing.
Niveau 4: Integratie (I)	Het uitsplitsen van informatie in onderdelen en het onderzoeken hiervan om op basis daarvan afwijkende conclusies te kunnen trekken ten aanzien van een gebeurtenis / situatie. Identificatie van motieven en oorzaken, het aanbrengen van wijzigingen in en/of het vinden van bewijs ter ondersteuning van algemene aannames. Het creatief toepassen van kennis en vaardigheden om te komen tot een nieuw geheel. Het beoordelen van de waarde van materiaal op basis van persoonlijke normen, waarden en opinies, wat resulteert in een eindproduct, met een vastgesteld doel zonder dat er directe goede of foute antwoorden voorhanden zijn.

3 VEREISTE COMPETENTIES

Elke vereiste competentie is afgeleid van een taak die dient te worden verricht. De vereiste competenties worden op een objectieve wijze beschreven om duidelijk te definiëren wat er dient te worden gedaan om te voldoen aan het competentie-criterium. Elke competentie bevat een werkwoord en schetst wat de kandidaat in staat moet zijn om te doen. Tevens maken de gedefinieerde competenties het mogelijk om beoordelingscriteria te definiëren.

Aan elke competentie is een cognitief niveau toegekend wat een indicatie is op welk niveau assessment plaats dient te vinden. In veel gevallen kunnen Kennis (K) en Begrip (B) worden beoordeeld door het stellen van vragen. Het vragen naar uitleg of relevante feiten geven inzicht in iemands onderliggende kennis en begrip.

Applicatie (A) and Integratie (I) zijn de niveaus waarop iemand aan moet kunnen tonen dat hij/zij in staat is om aanwezige kennis en begrip toe te passen in praktijksituaties. Deze niveaus worden doorgaans gemeten tijdens praktijkgerichte opdrachten. Praktische opdrachten kunnen van theoretische aard zijn, afhankelijk van de te meten competenties. (bv. de competentie om een cijfermatige analyse uit te voeren, het maken van een projectplan of gedetailleerd rapport, etc.).

4 COMPETENTIE-TABEL ALGEMEEN

Table 1 - Competence Requirements

Column 1 shows the ID for the competence Column 2 defines the expected competence Column 3 defines the level of cognition (Knowledge, Understanding, Application or Intergration) Columns 4 and 5 indicate the applicability to Rigger or Rigger Foreman			Rigger	Rigger Foreman
1	2	3	4	5
1.0	ORGANISATION & MANAGEMENT			
1.1	Regulations, tasks & responsibilities			
1.1.1	State the applicable certification standards related to the job and equipment	K	•	•
1.1.2	Describe the tasks, duties and responsibilities of the rigger	U	•	•
1.1.3	Describe the tasks and responsibilities of others involved in a lifting operation	U	•	•
1.1.4	Make organisational preparations for the rigging and lifting activities (worksite, permit, alignment other disciplines)	A		•
1.1.5	Inform riggers of tasks, duties, responsibilities and applicable local regulations (toolbox)	A		•
1.1.6	Divide tasks for the operation	A		•
1.1.7	Conduct a team de-briefing following an operation	A		•
2.0	EQUIPMENT			
2.1	Cranes, hoists & winches			
2.1.1	Recognize different type of cranes to be able to use correct terminology and signals	U	•	•
2.1.2	Recognise hoists and winches	U	•	•
2.1.3	Recognize different types of boom types (box boom, knuckle boom and lattice boom)	U	•	•
2.1.4	Demonstrate applicable emergency stop procedure during the work process	A	•	•
2.2	Lifting gear			
2.2.1	Recognise lifting beams and spreader bars	U	•	•
2.2.2	Recognise specialised transport and lifting equipment	U	•	•
2.2.3	Recognise various shackles, sheave blocks, chains & chainwork	U	•	•
2.2.4	Describe the operational limitations (eg. subsea use) and safety features of crane blocks	U	•	•
2.2.5	Describe safety devices and their use	U	•	•
2.3	Ropes, slings and cables			
2.3.1	Determine the maximum loads and safe working loads of hoisting gear	I	•	•
2.3.2	Recognise different types of wire ropes and wire rope slings and their application	U	•	•
2.3.3	Recognise the difference between a left-laid and a right-laid rope or cable and how this affects its use	U	•	•
2.3.4	Explain the importance of correct rotation, bending and stowage of both right or left laid cables	U	•	•
2.3.5	Demonstrate the safe application of wire ropes and wire rope slings	A	•	•
2.3.6	Recognise different types of terminations (splices, sockets)	U	•	•
2.3.7	Recognise fibre rope, fibre rope slings and mooring lines	U	•	•
2.3.8	Demonstrate the safe application of fibre rope and fibre rope slings	A	•	•
2.3.9	Demonstrate the knots commonly used during rigging and slinging activities	A	•	•
2.3.10	Explain the differences, advantages and disadvantages of various types of fibre rope	U	•	•
2.4	Storage, inspections and characteristics			
2.4.1	Recognise the correct storage conditions for specific materials and rigging equipment	U	•	•
2.4.2	Explain causes of deterioration of equipment / gear (e.g. UV, sand, moisture, seawater, etc.)	U	•	•
2.4.3	Dismantle and store rigging equipment	A	•	•
2.4.4	Perform pre-use inspections of hoisting equipment and fall arrest equipment	A	•	•
2.4.5	Perform pre-use inspections of gear/equipment used for rigging & slinging operations	A	•	•
2.4.6	Perform an inspection of a 'wire rope socket' and 'wire lock socket'	A	•	•
2.4.7	Describe the criteria for rejection of lifting equipment (Internal and external damages)	U		•
2.4.8	Identify uncertified and/or damaged hoisting equipment and personal protective equipment	I	•	•
2.4.9	State the characteristics of DNV 2.7-1 containers	K	•	•
2.5	Certificates			
2.5.1	Interpret the information on certificates and possible additions / notations	I	•	•

Table 1 - Competence Requirements

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2.5.2	Interpret labels and markings on materials and equipment (e.g. color codes)	I	●	●
3.0 RIGGING OPERATIONS				
3.1 General				
3.1.1	Explain rigger related terminology related to equipment and handling activities	U	●	●
3.2 Planning				
3.2.1	Prepare a lifting plan / work plan (vertical / horizontal)	I		●
3.2.2	Amend a lifting plan on site if required	I		●
3.2.3	Interpret a lifting plan / work plan	I	●	●
3.2.4	Plan a route for a move considering safety and continuity aspects / conflicting operations	I	●	●
3.2.5	Determine Go or No Go for a rigging operation based on prevailing conditions / situations	I	●	●
3.3 Preparation of equipment and lifts				
3.3.1	Select the safest and most efficient materials and equipment for a lifting or mooring job, considering load weights, sizes, work situation and certifications	I	●	●
3.3.2	Prepare non-routine lifts such as ROVs, gas cylinders, powerpacks and piping for hoisting	A	●	●
3.3.3	Explain the problems caused by welding on a load already connected to the crane and preventive measures to be taken	U	●	●
3.3.4	Explain the importance of grounding and static discharge in relation to crane operations	U	●	●
3.3.5	Estimate the centre of gravity for a load based on visual assesment and calculation	I		●
3.3.6	Determine the correct lifting points, considering the assessed centre of gravity	I	●	●
3.3.7	Calculate and prepare multi-leg bridles (symmetrical and a-symmetrical)	A		●
3.4 Estimations & Calculations				
3.4.1	Explain the relationship between the working load limit, safety factor and safe working load	U	●	●
3.4.2	Explain the effect of hoisting angles on tension	U	●	●
3.4.3	Describe the safe use of a socket, considering direction and distribution of force	U	●	●
3.4.4	Make elementary load calculations, using load tables and charts	I	●	●
3.4.5	Evaluate the measures for a load to be hoisted	I	●	●
3.4.6	Determine the mass of a load by visual assessment	I	●	●
3.5 Deck preparation				
3.5.1	Know the deck limitations and areas which require specific attention during moves or landings	K	●	●
3.5.2	Maintain deck access and passage (clear deck policy, marked areas)	A	●	●
3.5.3	Prepare the deck for hoisting operations (e.g. barriers, lighting)	A	●	●
3.5.4	Identify risk areas on deck	A	●	●
3.5.5	Clear and restore the deck following the operation, taking into account housekeeping best practices	A	●	●
3.6 Use of equipment				
3.6.1	Make an initial connection between a load and a component	A	●	●
3.6.2	Demonstrate rigging and de-rigging a load	A	●	●
3.6.3	Demonstrate the correct and safe use of hoists and winches	A	●	●
3.6.4	Demonstrate the correct and safe use of shackles, sheave blocks, chains and chainwork	A	●	●
3.6.5	Demonstrate the correct and safe use of lifting beams and spreader bars	A	●	●
3.6.6	Demonstrate the correct and safe use of specialised transport and lifting equipment (e.g. slings)	A	●	●
3.6.7	Demonstrate the correct and safe use of hydraulic jacks / pulling gear	A	●	●
3.6.8	Manipulate rigging, hoists and pulling gear to move or support materials	A	●	●
3.7 Moving loads				
3.7.1	Recognise the dynamic forces which influence the operations and safety	U	●	●
3.7.2	Demonstrate the ability to anticipate dynamic forces (through wind and waves) during the operations and in communications to lift or land loads	I	●	●
3.7.3	Recognise problems in stability and condition of both the load and hoisting gear after initial tension has been applied to the load	A	●	●
3.7.4	Guide a load to an unobstructed specified position	A	●	●
3.7.5	Guide a load to a specified position when obstructions are present on deck	A	●	●
3.8 Placement & stowage				
3.8.1	Demonstrate the correct placement of loads on deck (e.g. using dunnage)	A	●	●

Table 1 - Competence Requirements

Column 1 shows the ID for the competence Column 2 defines the expected competence Column 3 defines the level of cognition (Knowledge, Understanding, Application or Intergration) Columns 4 and 5 indicate the applicability to Rigger or Rigger Foreman		Rigger	Rigger Foreman
3.8.2	Secure loads to the deck in accordance with a stowage plan	A	• •
3.9	Transport of persons		
3.9.1	Describe the procedures for transporting persons by means of manriding applications	U	• •
3.9.2	Recognise various carriers, baskets and personal carriers	U	• •
3.10	Communication		
3.10.1	Demonstrate the standard hand signals: Hoist, lower, stop, emergency stop, slow down, jib (up/down), jib (extend/retract) as laid down in international agreements (BS 7121)	A	• •
3.10.2	Signal or verbally direct workers engaged in hoisting and moving loads in order to ensure safety of workers and materials	A	• •
3.10.3	Direct a crane operator through radio communications, using correct radio protocol	A	• •
3.10.4	Demonstrate a proper handover during activities, communicating the most important issues	A	• •
3.10.5	Maintain operational communication with bridge / control centre / customers	A	•
4.0	SAFETY, HEALTH & ENVIRONMENT		
4.1	Working safely		
4.1.1	Describe the typical hazards related to the rigging operations	U	• •
4.1.2	Recognise the importance of human factors in incidents and accidents	U	• •
4.1.3	Apply safe working methods during all practical activities	A	• •
4.1.4	Demonstrate compliance with safety and environmental procedures during daily operations	A	• •
4.1.5	Apply correct tools and principles	A	• •
4.1.6	Demonstrate the correct and safe use of personal protective aids required for the rigging operation	A	• •
4.1.7	Explain the importance of a work permit for hoisting operations	U	• •
4.1.8	Recognize unsafe working conditions or situations	U	• •
4.1.9	Take action when recognizing unsafe working conditions or situations	U	• •
4.2	Risk evaluation		
4.2.1	Perform a Job Safety Analysis	A	•
4.2.2	Interpret a Job Safety Analysis	I	• •
4.2.3	Perform a Last Minute Risk Assessment	A	• •
4.2.4	Perform a risk evaluation before welding a load to the deck (vessel layout ; tanks, pipes and lines, dangerous goods, etc.)	A	• •

5 CESUUR

5.1 Cesuurtabel Rigging en Slinging-examens

Aantal vragen	30
Aantal keuzes	3
Beheersfactor	66,00%

De kandidaat dient minimaal 21 van de 30 vragen correct beantwoord te hebben om voorgedragen te worden voor certificatie.

5.2 Cesuurtabel Socketing examens

Aantal vragen	10
Aantal keuzes	3
Beheersfactor	66,00%

De kandidaat dient minimaal 7 van de 10 vragen correct beantwoord te hebben om voorgedragen te worden voor certificatie.

6 TOETSMATRIJS

Table 2 – Test Matrix				
Topics	<i>Rigger</i>		<i>Rigger Foreman</i>	
	MCQ / OEQ	Practical assessment	MCQ / OEQ	Practical assessment
1.0 ORGANISATION & MANAGEMENT				
1.1 Regulations, tasks & responsibilities	1	-	2	2
2.0 EQUIPMENT				
2.1 Cranes, hoists & winches	3	1	3	1
2.2 Lifting gear	3	-	3	-
2.3 Ropes, slings and cables	2	1	4	2
2.4 Storage, inspections and characteristics	2	2	3	2
2.5 Certificates, labels & markings	2	-	2	-
3.0 RIGGING OPERATIONS				
3.1 General	2	-	2	-
3.2 Planning	-	1	-	2
3.3 Preparation of equipment and lifts	2	2	2	4
3.4 Estimations & Calculations	2	1	4	2
3.5 Deck preparation	1	1	2	1
3.6 Use of equipment	-	3	-	4
3.7 Moving loads	-	2	-	2
3.8 Placement & stowage	-	2	-	2
3.9 Transport of persons	1	-	2	-
3.10 Communication	2	1	2	2
4.0 SAFETY, HEALTH & ENVIRONMENT				
4.1 Working safely	2	2	4	2
4.2 Risk evaluation	-	1	-	2
THEORY				
Questions asked (ref. test matrix)	30		35	
Questions to be answered correctly	21		25	
Required minimum percentage score	70%		70%	
Maximum available time theoretical exam	45 minutes		60 minutes	
PRACTICAL ASSESSMENT				
Practical tasks in the assessment scenarios (ref. test matrix)	20		30	
Practical tasks to be demonstrated correctly	16		24	
Required minimum percentage score	80%		80%	
Maximum available time practical scenarios	180 minutes		240 minutes	
A multiple-choice question (= MCQ) or open ended questions (= OEQ) shall be deemed to have been answered correctly if a candidate has provided a fully correct answer.				

Table 2 – Test Matrix

Topics	Rigger		Rigger Foreman	
	<i>MCQ / OEQ</i>	<i>Practical assessment</i>	<i>MCQ / OEQ</i>	<i>Practical assessment</i>
The practical assignments shall be assessed while monitoring practical skills by an assessor, considering the role of the candidate (Rigger or Rigger Foreman). Attitude and safety awareness are an integral part of competence and will be considered continuously during the assessment				
Both parts of the examination (Theory & Practice) shall be passed before the candidate can be issued a certificate.				

7 OVERIGE VOORWAARDEN

- Geen

8 REFERENTIES

- Van toepassing zijnde norm (en)
- Andere gebruikte referentie documenten

9 SPECIFIEKE COMPETENTIECRITERIA VOOR SOCKETER

Level 1: Knowledge: To remember or to reproduce on basis of appropriate, previously learned information.

Level 2: Understanding: To give meaning to new situations and or new material by recollection and using necessary present information. To give evidence of insight in certain activities.

Level 3: Application: To use previously acquired information in new and concrete situations to solve problems that have single or best answers.

Level 4: Integration: To separate information into their component parts, to examine such information to develop divergent conclusions by identifying motives or causes, making inferences, and or finding evidence to support generalizations. To creatively apply prior knowledge and skills to produce a new or original whole. To judge the value of material based on personal values or opinions, resulting in an end product, with a given purpose, without real right or wrong answers.

Column 1 shows the ID for the competence

Column 2 defines the expected competence

Column 3 defines the level of cognition (1 t/m 4) for socketing

1.0	ORGANISATION & MANAGEMENT	
1.1	Regulations, tasks & responsibilities	
1,1,1	Describe the tasks, duties and responsibilities when making a socket end termination	4
1,1,2	Make organisational preparations for the rigging and lifting activities (worksite, permit, alignment other disciplines)	2
2.0	Theory	
2.1	Wires and sockets, Theory	
2.1.1	Recognize and name the various types of sockets	3
2.1.2	Choose the correct type of socket for the application	2
2.1.3	Name the termination efficiency of the various sockets	1
2.1.4	Demonstrate the theory behind the brush in a socket	3
2.1.5	Inspection criteria of a used socket	3
2.2	Wirelock, Theory	
2.2.1	Demonstrate understanding of the wirelock MSDS sheet	3
2.2.2	Understand the principle of accelerator	1
3.0	Preparation	
3.1	Socketing, work preparation	
3.1.1	Make socket volume calculation or know where to find the correct info	3
3.1.2	Determine minimum required PPE for making socket connection	4
3.1.3	Determine required tools and equipment for making socket connection	4
3.1.4	Inspection of socket + wire + brush	4
4.0	Making socket end termination	
4.1	Socketing, executino of works	
4.1.1	Make termination of steel wire, special attention to low rotational wires	4
4.1.2	Make permanent serving	4
4.1.3	Making a broom / brush	4
4.1.4	Cleaning broom / brush	4
4.1.5	Fitting the socket, including alignment and orientation	4
4.1.6	Sealing the socket	4
4.1.7	Mixing wirelock, optionally including accelerator	4
4.1.8	Pouring the socket	4
4.1.9	Inspection of the socket termination after pouring the socket	4
4.1.10	Proofload of the socket termination	4
4.1.11	Preparation of socket termination report	4
4.1.12	Practical skills: MAKE ONE SOCKET	4
4.1.13	Disconnect / remove socket from wire rope	4