



Subsea Engineering Competency Profile

FLEXIBLE FLOWLINE AND RISER MANUFACTURE ELECTIVE

URF-004

This competency demonstrates a subsea engineer has expert knowledge of the processes and activities undertaken to manufacture, factory test and package flexible flowlines and risers.

ELEMENT OF COMPETENCE	WHAT THIS COMPETENCE MEANS IN PRACTICE	TYPICAL EXAMPLES OF EVIDENCE
<p>Expert knowledge of:</p> <ul style="list-style-type: none"> • The manufacture and testing of flexible products • Quality control management systems applicable to the manufacture, test and load-out of products • Relevant international standards associated with the manufacture and testing of flexible products • The functional role of each structural layer in the product and how they interact • Resolution of manufacturing defects and errors • The impact that manufacturing and testing has upon the performance of the product during the design, installation, commissioning and operation phases • The methods of handling, packing and transport available and the associated advantages and challenges <p>Working knowledge of:</p> <ul style="list-style-type: none"> • The technical specification and design of flexible products including current material, depth, diameter and pressure limitations 	<p>Provides technical support to the design, manufacture, testing and transportation of flexible products and appurtenances.</p> <p>Capable of:</p> <ul style="list-style-type: none"> • Specifying / implementing quality control requirements • Managing components / materials procurement • Specifying / implementing test methods • Interpreting test results and performing troubleshooting • Providing technical support to an installation team, including unpacking and repair • Interfacing with installation team and support operations executing subsea tieback, intervention or decommissioning • Leading manufacturing reviews and identifying potential issues during the design phase of flexible products and appurtenances • Identifying and resolving production non-conformances, manufacturing defects and errors 	<p>Refer to only as many Indicators of Attainment as you need to demonstrate the Element of Competence</p> <p>Can describe in detail the processes to manufacture the product from raw material through to final product on the quayside.</p> <p>Has at least 5 years' experience leading the manufacturing, testing and load-out of flexible products, representing either the manufacturer or client's perspective. This includes:</p> <ul style="list-style-type: none"> • Qualification, validation and verification activities • Risk based assessments of manufacturing activities • Materials planning and plant scheduling • Key manufacturing activities • Manufacturing quality control including materials traceability and identification and resolution of non-conformances • End-termination and testing activities • Interpretation of test results including from test coupons and pressure testing • Packing, readiness for transportation and load-out



ENGINEERS
AUSTRALIA

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<ul style="list-style-type: none">• Flexible riser end fittings and appurtenances including connectors, bend stiffener connectors, buoyancy modules and clamps• International standards relating to lifting, welding, coating and painting, cathodic protection, and quality assurance• The load-out, installation, tie in and commissioning of flexible products and appurtenances• The key materials available and their limitations• Destructive and non-destructive testing of components and assemblies• Manufacturing process reviews and improvement• Vendors and their product capabilities and limitations.		