



Certificate no.:
TAS000043M

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Winch - General Application

with type designation(s)
Offshore storage cradle 114, 96

issued to

TechnipFMC Group / FlexiFrance SAS
Le Trait, France

is found to comply with

DNV standard DNV-ST-0378 – Offshore and platform lifting appliances

Application:

Support structure for storage reels for flexible and umbilical pipe

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2023-12-11**

This Certificate is valid until **2028-12-10**.

for **DNV**

DNV local unit: **France CMC**

Approval Engineer: **Florian Teica**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Form code: TA 251

Revision: 2023-09

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Design codes/standards used as reference

1. DNV-RP-0232 *Pipeline and cable laying equipment*, Ed. 2021
2. DNVGL-ST-N001 *Marine operations and marine warranty*, September 2018 – for onshore and inshore in-air lifting

Product description

Category: Storage equipment

Design temperature: -20deg C

The operational limitations defined below have been provided by TechnipFMC, data procedures adopted for estimating which have not formed part of this review. It is the end user's responsibility to ensure that these are never exceeded during service.

Storage capacity (pair)

Offshore Cradle type	114	96
Onshore storage [tonne]	1430	1850
Offshore storage (transit) [tonne]	400	400

In-air lifting (see *Application/limitation #1*)

Offshore Cradle type			114	96
Self-weight (pair) [tonne]			15.2	13.6
Dynamic amplification factor (DAF)	When lifted with reel	Onshore	1.1	1.1
		Inshore	1.13	1.13
	When lifted alone	Onshore	1.1	1.1
		Inshore	1.25	1.26

Environmental conditions, transit/survival

Offshore cradle 114									
Vessel type		Transportation vessel				Installation vessel			
Seafastening arrangement (see <i>Application/limitation #2</i>)		Cradle only				Cradle and rails, no bracing		Cradle and rails, with bracing	
		Sheet 1				Sheet 3			
Reel orientation relative to vessel axis/centreline		Parallel		Perpendicular		Perpendicular			
Lateral supports at cradle-reel rim		C- plate	Bolted stopper	C- plate	Bolted stopper	C- plate	Bolted stopper	C- plate	Bolted stopper
Vessel accelerations	Vertical (in addition to gravity)	0.5 g	0.5 g	0.5 g	0.5 g	0.5 g	0.5 g	0.5 g	0.5 g
	Longitudinal*	0.5 g	0.14 g	0.5 g	0.5 g	0.5 g	0.5 g	0.5 g	0.5 g
	Transverse*	0.5 g	0.5 g	0.5 g	0.14 g	0.3g	0.14g	0.5 g	0.14g
Wind speed (at reel location)		51.5 m/s							

*) relative to vessel axis

Offshore cradle 96											
Vessel type		Transportation vessel						Installation vessel			
Seafastening arrangement (see <i>Application/limitation</i> #2)		Cradle only						Cradle and rails, no bracing		Cradle and rails, with bracing	
		Sheet 1						Sheet 3			
Reel orientation relative to vessel axis/centreline		Parallel			Perpendicular			Perpendicular			
Lateral supports at cradle- reel rim		C-plate		Bolted stopper	C-plate		Bolted stopper	C- plate	Bolted stopper	C- plate	Bolted stopper
Vessel accelerations	Vertical (in addition to gravity)	0.5g		0.5g	0.5g		0.5g	0.5g	0.5g	0.5g	0.5g
	Longitudinal*	0.4g	0.31 g	0.12g	0.31g	0.5g	0.5g	0.5g	0.5g	0.5g	0.5g
	Transverse*	0.31 g	0.5g	0.5g	0.4g	0.31g	0.12g	0.25g	0.12g	0.5 g	0.12g
Wind speed (at reel location)		51.5 m/s									

*) relative to vessel axis

Application/Limitation

- The offshore storage cradles may be lifted with/without reel; when lifted together with the reel, C-plates shall be welded at locations as per IREE-L0114054-001 Rev 3 and IREE-L0096044-001 Rev 3
- The approval is based on the following boundary conditions during offshore use:
 - The reel will be resting on appropriately sized cradles supporting the reel flange on a minimum contact arc:

Offshore Cradle type	Reel type	Contact angle [deg]
114	114-54-49	110
96	96-44-49	110

- The offshore cradle supports (vessel deck structure) shall be located as per doc no REEE-S4114054-004 Rev 0 and REEE-S4096044-004 Rev 0.
- The seafastening layout shall be as per drg no REEE-S4114054-004 Rev 0 and REEE-S4096044-004 Rev 0, with regards to:
 - Location and number of lateral supports/restraints; these shall be executed such that they are able to support the flange in both tension and compression.
 - Cradle deck stoppers and bracings shall be as per

	Offshore cradle type	Reel type	Reference drawing
arrangement	114	114-54-49	REEE-S4114054-004 Rev 0
	96	96-44-49	REEE-S4096044-004 Rev 0

- Bolted stopper installation shall be as per FI ME 0005 Rev 2 installation procedure.
- The type approval is not covering:
 - Lateral supports/restraints and lashings; actual seafastening adequacy with regards to strength and location (see also §2 above) shall be evaluated prior to each mobilization
 - The rails and bracing (part of the seafastening arrangement for the *Installation vessel*)
 - Loose gear items (e.g. slings, shackles, links, spreader beam/frame, etc) and the Cradle spreader bar (see REEE-L4114054-004 Rev 0 & REEE-L4096044-004 Rev 0) associated with in-air lifting operations
 - Deck strength (reel cradle support structure)
 - Corrosion in marine environment

Type Approval documentation

Certification

This Type Approval covers design(s) only, i.e. the Type Approval is not valid for the final product, but may be used as basis for obtaining a product certificate.

If a DNV Product Certificate is required, the manufacturing survey shall be followed-up by a DNV Surveyor.

Place of manufacture

1. DNV ID: 10301812
2. DNV ID: 10074145
3. DNV ID: 10092679

Periodical assessment

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNV-CP-0338.

This certificate is only valid if required periodical assessments are carried out with satisfactory results. To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>.

End of certificate