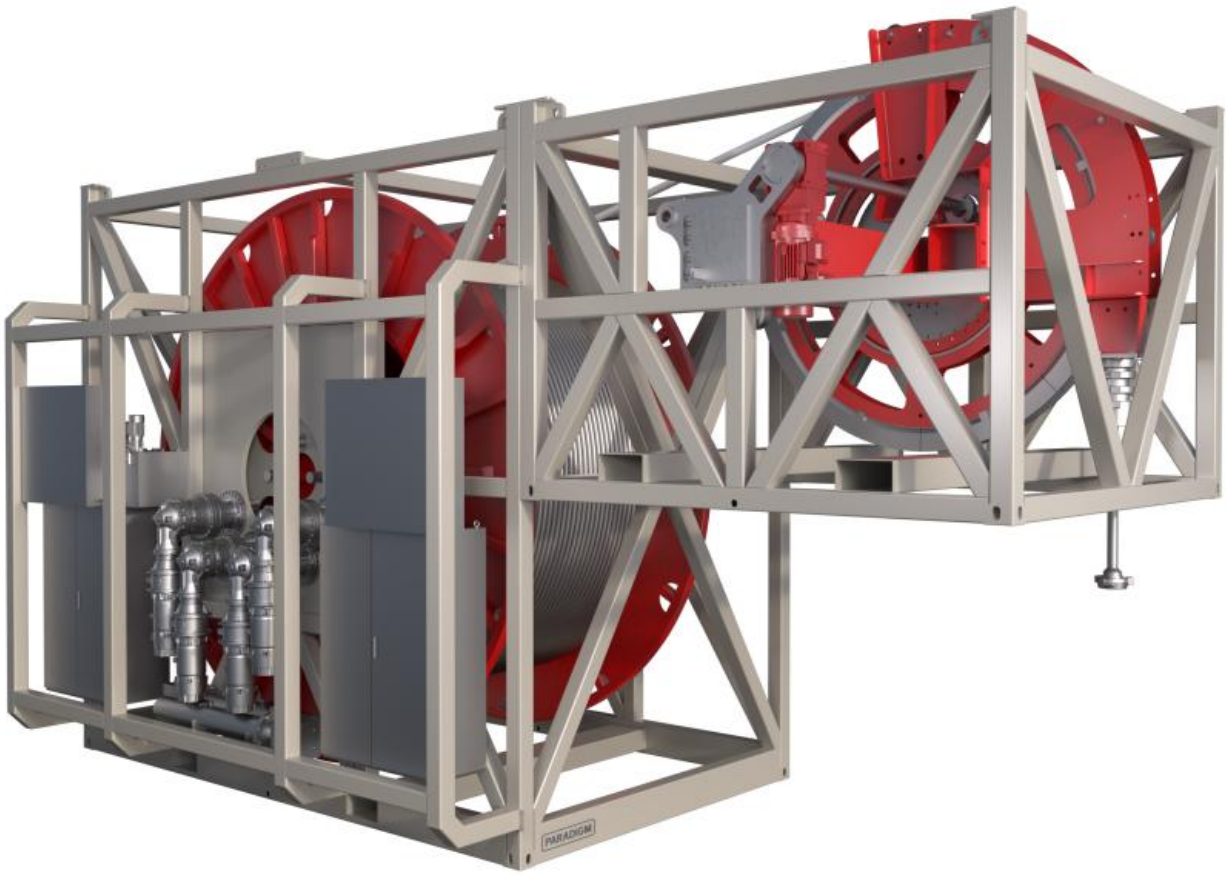
E200 Coiled Tubing Downline Systems

WINCHES

The E200 **Coiled Tubing Downline System** is designed for efficient deployment and retrieval of coiled tubing from multi-service vessels and offshore facilities. Featuring a compact footprint and full redundancy, this system comprises a matching pair of reel skids that can be operated simultaneously or independently. Each skid is equipped with an all-electric liquid-cooled drive system, planetary gearbox, and an internal spring applied electric release disk brake, ensuring precise control and reliable performance. The integrated level-wind sheave is adaptable to various tubing sizes from 2" up to 3.5".



Applications

- Riserless Intervention
- Subsea Pipeline Pre-commissioning and Decommissioning
- Well Stimulation
- Hydraulic Intervention

Features

- Single lift 'Plug & Play' system
- Twist lock frame-to-deck interface
- Intuitive joystick & handheld remote control
- Electronic pay out, tension and speed visualization
- D-rings for sea fasting

Benefits

- Compact footprint
- Minimized crew requirements
- Precise deployment/recovery speeds
- Energy efficient, no hydraulic system losses
- No emissions
- Low cost of shipping and operation
- High availability/uptime

Directives & Certifications

- DNVGL-ST-E273 R30 Offshore lifting
- LOLER & PUWER regulations 1998
- Machinery directive 2006/42/EC
- Low voltage directive 2014/35/EU
- Electromagnetic compatibility 2014/30/EU
- ATEX Directive 2014/34/EU, IECEx, Zone 1/2, 3G Gc
- API PSL 2 NACE MR0175/SO 15156

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The **E200** range of **All-Electric Coiled Tubing Downline Reelers** comprises three main modules; the **Power Module**, the **Reel Module** and the **Over-Boarding Sheave Module**.

Deliverable in a Zone2 or non-Zoned configuration, and with standard or sour service pipework, all E200 Reelers feature Drop-in-Drums and separate transport cradles. With its three-piece modular design, yet simultaneously maintaining the combined 'Single-Lift' for quick vessel mobilisation, the E200 sets the new standard for offshore subsea intervention efficiency.

The E200 Reeler contains an all-electric dual (parallel) inverter drive system, liquid cooled, which powers four 50kW compact PM motors, close coupled through angled gearboxes to a ring gear Drop-In-Drum drive mechanism. Internal multi disk fail-safe brakes are used on each motor/gearbox drive line assembly, to provide emergency and parking brakes, whilst operational breaking is provided through the all-electric drive systems brake resistors. The detachable level wind sheave module enables software assisted auto-spooling, Depth-Tension-Speed measurements, pipe over-boarding, and multiple pipe diameter handling with the use of removable inserts. An integrated coiled tubing pull-winch is included, to pull the coiled tubing over the sheave.

The drive system uses the latest design in compact high-power inverters and permanent magnet motors, enabling precise and smooth control of the high torque electric motors. The reel is controlled locally or remotely with the use of a handheld control unit, providing pay-out, haul-in and level wind control as well as camera visualisation. Operational data input for pipe specification, job data and operational safety limits are also inputted via this user interface.

The control unit can be placed on the docking station at the Power Module for local control, or it can be removed and hand-carried to the over boarding/working area (line of sight) for precise deployment control and crew size optimisation.

The system power supply can either be connected to the grid, to a generator set or to a battery bank, and can run on reduced power if needed. With a reduced power supply the system is still capable of reaching maximum tension at a reduced speed or the maximum speed at a reduced tension. For maximum performance the systems need a dual power supply input of 2x 200A. The dual power supply system provides redundancy in case of component failure in the electric drive system. The system can work with stable voltage ranges from 380 VAC up to 480 VAC at 50-60Hz, and depending on the available capacity it can be set between 32A and 400A.

Optional Hardware

- Camera systems, reel view and operation
- Spare Drop-In-Drum
- Sheave Inserts for other coiled tubing sizes
- Clump weight
- Shipping/storage cradle or basket
- Fluid swivel with hydraulic feedthrough
- Plug valve, in reel hydraulic operated
- CT rinse system, fresh water pressure wash
- Corrosion inhibitor applicator system
- Overboarding and sea-fastening skid frame
- Coil scanner
- Motion reference unit
- Wireless pressure sensors
- Flow sensor
- Pig launcher and connection
- Coiled tubing pull-in winch, sheave installation
- Flood and working lights
- Battery pack safe area and zone 2
- Portable diesel genset safe area and zone 2
- ATEX/IECEx Zone 1 or 2 certified drive system

Optional Software

- ParaLife™ Coiled Tubing life management interface
- ParaView™ live data trending

Reel Capacity	Maximum length		Wraps	Layers
2.875" OD x 0.250" WT, including 0.160" coating PP	3540 m	11600 ft	26	11
Pipe weight	44340 kg		85570 lb	
Fluid density	1.45 kg/dm^3			
Fluid weight	18022 kg		39805 lb	
Flow iron connection	3" 2202 hammer union or compact flange			
Service	Sour service, materials acc. NACE MR0175/ISO 15156			
Medium	Seawater, diesel, brines, MEG, stimulation acids			
Deployed tubing length capacity	3350 m		11000 ft	
Maximum deployed tubing weight in sea water	38050 kg		83900 lb	
Additional weight capacity, Clump weight, etc	5896 kg		13000 lb	
Drive System Performance				
Safe working load at outer layer	26000 kg		57330 lb	
Safe working load at the core	52000 kg		114660 lb	
Maximum rotational speed	3 rpm			
Maximum pipe speed at core layer	21 m/min		70 ft/min	
Maximum pipe speed outer layer	40 m/min		131 ft/min	
Maximum static brake load	1,5 x Maximum pull force (reference DNVGL-RP-0232)			
Electrical Characteristics				
Rated power	250 kW			
Electrical main supply connection	380 – 480 V, 50 – 60 Hz, 400 A, 3PH+GND			
Electrical stationary supply connection	230 V, 50 Hz, 16 A, 1PH+GND			
Signal connections	External signals, ethernet			
Enclosure ratings	IP56			
Installed drive power	250 kW			
Mechanical Characteristics				
Structural design acc.	DNVGL-ST-E273 / Class R30			
Lift between vessel/ platform	Max significant wave height Hs=3m, Sea state 4			
Dynamic Amplification Factor (DAF)	1.3			
Design temperature	-20° C			
Noise level	< 75 dB(A) @ 1 m		< 75 dB(A) @ 3 ft	
Corrosion protection	ISO 8501-1 and ISO 12944-9 Class CX			
Topcoat colour	Single RAL colour – frames, reel, sheave and components			
Over boarding sheave groove diameter	3048 mm, with changeable inserts (2-7/8" as standard)			
Pressure sensor (2x)	1550 bar		22500 psi	
Pressure gauge (2x)	1550 bar		22500 psi	
Non-Shock Cold Working Pressure	1034 bar		15000 psi	
Dimensions & Weights				
Complete Skid				
Overall dimensions (W x L x H)	4500 x 9860 x 6450 mm		177" x 388" x 254"	
Length of base	6060 mm		238"	
Length of reach 2 7/8"OD	3365 mm		132"	
Rated maximum gross weight	100000 kg		220500 lb	
Tare weight without pipe and liquid	40000 kg		88200 lb	
Reel PR201				
Flange diameter	5131 mm		202"	
Core diameter	3048 mm		120"	
Width between flanges	2210 mm		87"	
Freeboard 2 7/8"OD	122 mm		4,8"	
Reel maximum load (pipe+fluid)	63000 kg		137600 lb	
Reel Cradle				
Overall dimensions (W x L x H)	2692 x 5131 x 5200 mm		106" x 202" x 205"	
Length of cradle	3048 mm		120"	
Empty reel weight	12000 kg		26460 lb	

Rated maximum gross weight	80000 kg		165375 lb	
Environmental parameters				
Max. operational sea state	Sea state 4			
Max. transit sea state	Sea state 8			
Operating temperature range	-20 to +50° C		-4 to +122° F	
Humidity	100% at +50° C		100% at +122° F	
Vessel Accelerations and Angles	**Operational**		**Transit**	
Vertical (including g)	12,8 m/s^2		14,7 m/s^2	
Transversal	4,9 m/s^2		7,4 m/s^2	
Longitudinal	4,9 m/s^2		4,9 m/s^2	
Heel angle	5°		15°	
Trim angle	2°		5°	
Reel Capacities, CT OD including 0.160" jacket	Maximum length		Wraps	Layers
2.000" OD x 0.250" WT on Reel PR201 with 120" core	4729 m	15514 ft	36	11
2.375" OD x 0.250" WT on Reel PR201 with 120" core	4072 m	13359 ft	31	11
2.625" OD x 0.250" WT on Reel PR201 with 120" core	3745 m	12288 ft	28	11
2.875" OD x 0.250" WT on Reel PR201 with 120" core	3540 m	11600 ft	26	11
3.500" OD x 0.250" WT on Reel PR202 with 144" core	1758 m	5768 ft	24	6

Notes:
Layer diameters based on stacked pipe
Reel capacity based on a minimum freeboard 1.5 x CT OD
All products, product specifications and data are subject to change without notice, to improve design, reliability, functionality or otherwise.