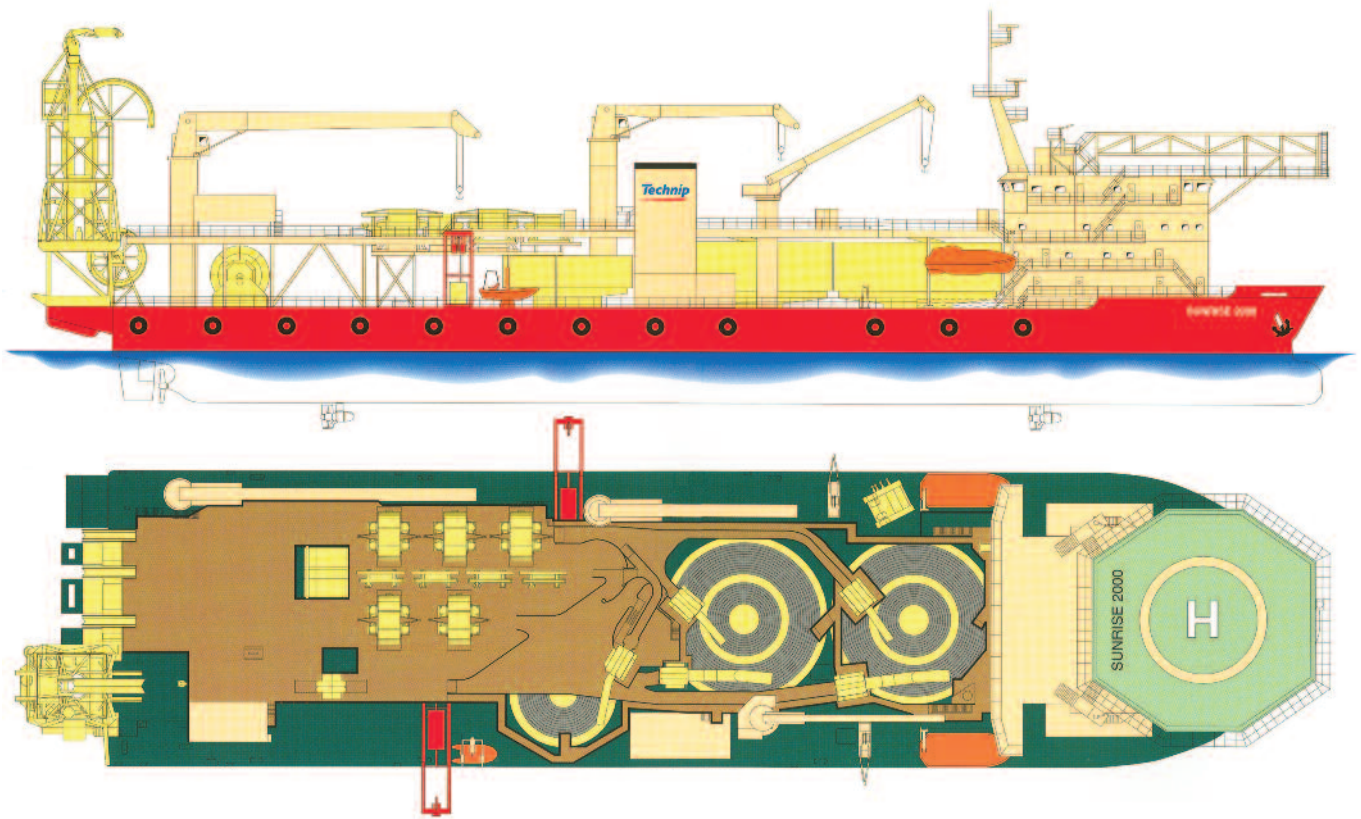


# Sunrise 2000



# Sunrise 2000



One of the most versatile flexible lay vessels in the world.

## CAPABILITIES

The Sunrise 2000 is capable of laying flexible flowlines and umbilicals simultaneously in waters up to 2,000 m deep. To accomplish this with the accuracy and reliability required by the offshore industry, the vessel is equipped with modern technologies in dynamic positioning, power and propulsion, and thruster packages.

The vessel's advanced pipelaying system comprises five independent lay spreads which can deploy three lines simultaneously. The flowlines are stored in two 1,500 Te capacity baskets while a 600 Te capacity basket carries umbilical and

small diameter flowlines. In addition a 175 Te reel can store umbilicals. The Vertical Lay System (VLS), designed in-house for deepwater applications, can install flexible pipe up to 12" diameter at a maximum dynamic load of 270 Te and a maximum lay speed of 16 m per minute.

### Integrated control system

The Sunrise 2000 has a Cegelec fully integrated vessel control and monitoring system. This monitors and, where applicable, controls all machinery for power generation and propulsion. Integral with the ICS is a Cegelec DPS 903 triple modular redundancy Dynamic Positioning (DP) system. Up to four radio positioning systems plus two hydroacoustic can be interfaced with the DP system.

### Station keeping

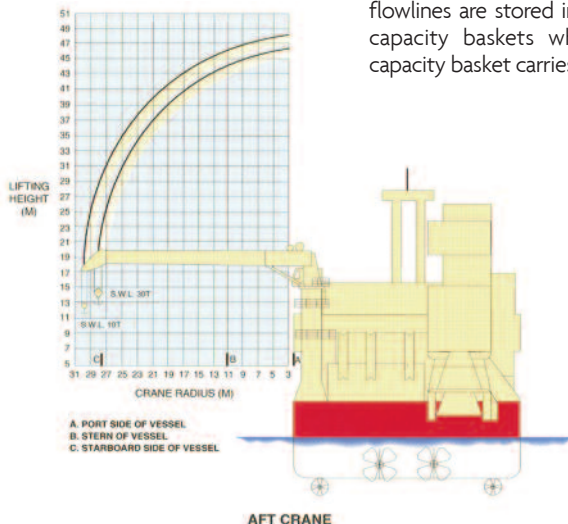
The vessel has four retractable azimuthing thrusters. The DP and thruster system ensures the vessel's capability to maintain deepwater flexible pipelay operations in a wide range of environmental conditions.

### Machinery/Propulsion

The Sunrise 2000 is powered by two Hanshin 6ELS 32RG diesel engines, each capable of producing 2,200 HP (1,641 kW). Each engine drives a fixed pitch propeller. The four azimuthing thrusters (3,550 HP each) are powered by four Wartsila NOHAB diesel engines, each driving a Cegelec generator. This provides flexibility in operation.

### Cranage

The vessel has a number of cranes available for various onboard and subsea handling activities. The main crane located aft is a Hydralift 75 / 34 Te capacity at 15 / 26 m radius. The Sunrise 2000 also has two Aurora Crane Corporation cranes. One of 30 Te capacity is located port amidships and a 15 Te capacity crane is located forward on the starboard side. There are also three auxiliary equipment handling cranes specified as follows: 19 Te capacity - on top of Vertical Lay System, 0.75/3.0 Te at 13.6/4.3 m radius capacity on vessel starboard side and 0.65/13.8 Te at 24.7/4.4 m radius capacity on vessel aft port side.



## SPECIFICATIONS

### Principal dimensions

Length overall	132.0 m
Length between pp	117.0 m
Breadth moulded	30.0 m
Depth moulded	9.8 m

### Operating draft

4.8 m - 6.3 m, plus thrusters project 2.6 m below hull (depending on loading conditions)

### Displacement

18,885 Te at 6.3 m draft

### Gross tonnage

10,781 Te

### Craneage

#### Main lifting facilities

- 1 x Pedestal crane port aft  
75/34 Te at 15/26 m radius  
Max wire length 805 m  
Whip line 10 Te at 30 m radius  
Max wire length 435 m
- 1 x Pedestal crane port midships  
30/15 Te at 15/18.5 m radius  
Whip line 5 Te at 20 m radius
- 1 x Pedestal crane starboard forward  
15/12.5/10 Te at 15/18/18 m radius

### Additional lifting facilities

- 1 x crane over Vertical Lay System:
- 19/5.7 Te at 3/13.5 m radius
  - 0.75/3.0 Te at 13.6/4.3 m radius capacity on vessel starboard side
  - 0.65/13.8 Te at 24.7/4.4 m radius capacity on vessel aft port side

### Capacities

- Fuel oil 2,197 m<sup>3</sup>
- Fresh water 635 m<sup>3</sup>

### Deck services

924 m<sup>3</sup>/hr air compressor at 8 bar

**DP system** Cegelec DPS 903

### Reference systems

- Simrad HiPap 500 & HPR 410
- Artemis Microwave
- MDL Fanbeam
- DGPS (Sercel LD20G2 & NR 203)

### Power plant

- 2 x Hanshin 6ELS 32RG diesel engines 2,200 HP (1,641 kW)
- 4 x Wartsila NOHAB 12V25 diesel engines 3,575 HP (2,667 kW)
- Total power production 18,700 HP (13,950 kW)

### Propulsion

#### Forward

- 2 x Azimuth thrusters 3,550 HP (2,650 kW) each

#### Aft

- 2 x main propellers 2,200 HP (1,641 kW) each
- 2 x Azimuth thrusters 3,550 HP (2,650 kW) each

### Endurance

- Max endurance 80 days for DP operation
- Fresh water making capacity 45 Te/day (in DP)
- Fuel consumption (typical)
 

In port	4.6 m <sup>3</sup> /day
In transit	48.0 m <sup>3</sup> /day
DP	22.0 m <sup>3</sup> /day

### Service speed

- 9 knots on main propellers
- 11.5 knots using aft thrusters and main propellers

### Helideck

rated for S61 N

### Accommodation

92 people in 51 cabins

### Lifesaving appliances

- Lifeboats 2 x 70 person
- Life rafts 2 x 25 person  
8 x 20 person  
2 x 16 person  
2 x 6 person

### Flag

Panama

**Call sign** 3FTB4

### Classification

Lloyd's Register - 100 A 1 LMC, DP (AA)

### Year built/builder

1984 by Kawasaki, Japan

### Flexible pipelay equipment

There are various key elements to the deepwater flexible pipelay equipment onboard the Sunrise 2000. There are five laying systems available for deploying flexible flowlines and umbilical or electric cable. Up to three flexible lines can be laid simultaneously.

### Line storage capacity

There are two 1,500 Te capacity rotating baskets complete with their spooling devices, hydraulic units, electric panels and control cabins for the storage of flexible pipe. Additionally, there is a 600 Te capacity rotating basket for the storage of umbilicals and small diameter hoses and flowlines. In addition, there is a 175 Te umbilical storage reel.

### Vertical laying system

The patented Vertical Lay System was designed in-house for ultra deepwater flexible pipeline installation. It can install pipe up to 600 mm (23.6") outer diameter at a maximum dynamic load of 270 Te in depths down to 2,000 m. The system consists of two sets of quad-track caterpillar tensioners mounted vertically in a derrick located over the stern of the vessel. During

laying, the pipe passes along purpose-built pipeline trays and up to the top of the derrick where a large gutter allows the pipe to turn through 180 degrees. The pipe then passes through the tensioners, through the working table and down to the seabed.

Line connections of up to 1.2 m diameter can be safely accommodated. It is capable of installing flexible pipe from 135 mm (5.3") up to 600 mm (23.6") outer diameter.

A heavy duty retractable working table with handling facilities, is located below the tensioners to facilitate the connection of lines or to subsea structures and hubs up to 3 m x 3 m x 3.5 m.

### Horizontal laying systems

The Sunrise 2000 has two horizontal laying systems, one on the port side and one on the starboard side of the vessel. Designed for operation individually or together, they can install flexible lines from 80 mm (3.15") up to 400 mm (15.75") outside diameter in depths of 2,000 m with a maximum opening of the caterpillars (without tension) up to 1,200 mm (47.24") diameter, to allow connectors to pass through. The port spread (three

caterpillar tensioners) has a 100 Te tensioning capacity. The starboard spread (two caterpillar tensioners) has an 80 Te tensioning capacity.

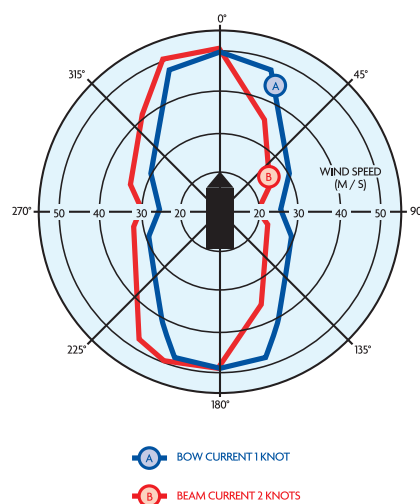
### Umbilical laying systems

There are two umbilical laying systems. One can deploy umbilical through a 175 Te capacity tensioning winch. The other utilises four 7.5 Te capacity twin track tensioners, in conjunction with the 600 Te storage basket, and is dedicated to umbilical laying and recovery in waters up to 2,000 m deep.

### Remotely Operated Vehicles

In order to provide both visual and remote intervention capability, the Sunrise 2000 has two Perry Slingsby Systems Triton® XL ROV systems capable of operating down to 2,000 m depth.

DP Footprint



Technip is a world leader in the fields of project management, engineering and construction for the oil & gas industry, offering a comprehensive portfolio of innovative solutions and technologies.

With 23,000 employees around the world, integrated capabilities and proven expertise in underwater infrastructures (Subsea), offshore facilities (Offshore) and large processing units and plants on land (Onshore), Technip is a key contributor to the development of sustainable solutions for the energy challenges of the 21<sup>st</sup> century.

Present in 48 countries, Technip has operating centers and industrial assets (manufacturing plants, spoolbases, construction yard) on five continents, and operates its own fleet of specialized vessels for pipeline installation and subsea construction.

The Technip share is listed on Euronext Paris exchange and over the counter (OTC) in the USA.

[www.technip.com](http://www.technip.com)



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