

## 1. General

The NED-DECK MARINE electro-hydraulic marine cranes of the SCT series have all been designed for long time operation under adverse and extreme conditions in a highly corrosive marine environment.

The SCT cranes are used for a wide variety of applications and can be found on all kind of vessels and offshore platforms.

The SCT electro-hydraulic marine crane is a freestanding deck mounted crane consisting of a pedestal, a slewing ring, a crane housing with integrated power pack unit, a fixed jib and a winch.

Since the safe working load and outreach of the SCT cranes differ enormously, NED-DECK MARINE have chosen for a limited range of standard designs which can be adapted to some extent in order to meet individual and specific needs.

At this moment our standard series consist of the following basic designs:

Basic design	Safe Working Moment (metric ton/meter)
SCT 20	20
SCT 35	35
SCT 70	70
SCT 100	100
SCT 150	150
SCT 300	300

In principle all SCT marine cranes are being designed, built and tested in accordance with the "Rules for the Classification and Certification of Lifting Appliances of Ships and Offshore Units – guidance note NI 184", issued by Bureau Veritas (BV).

Upon request, alternative design criteria and/or certification are always possible.

## 2. Main components

### **Pedestal/Crane base**

Each crane is supplied with a pedestal which should be welded onto the ship's steel structure or counter foundation. The pedestal consists of a steel pipe and a flange on which the crane housing with its slewing ring is placed.

The pedestal has been provided with a man hole and hatch cover for easy access of the electric connections.

The diameter of the pedestal will be determined for each individual project since this diameter depends on the maximum workload and maximum outreach of the crane. As a standard the pedestal is delivered with a total height of 1000 mm.

Upon request alternative pedestal dimensions are possible against additional cost.

### **Slewing ring**

The SCT cranes are all delivered with a high quality slewing ring. This slewing ring is mounted in between the crane housing and pedestal by means of high strength structural bolts and nuts which are tightened to a certain torque. The exact torque will be specified by NDM and can be found on the general arrangement drawing of the crane.

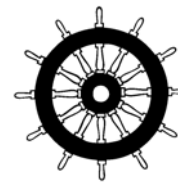


# SPECIFICATION

## Electro-hydraulic Marine Cranes

### SCT Series

#### (Fixed Jib Type)



#### **Crane housing/tower**

The crane housing or tower forms the main steel structure of the crane. It has been built up from special grade steel plates to a stiff rigid superstructure, incorporating the brackets to support the crane's jib and hydraulic cylinder(s).

The bearings to support the crane's jib are so-called self lubricating plain bushings. The bearings for the hydraulic cylinders are of the spherical type

The crane housing also contains the hydraulic oil tank accessible by hatches. It also contains all necessary provisions for fastening of the slewing drives and hydraulic components. The bottom of the crane housing consists of a flange to which the slewing ring is connected.

#### **Jib**

The crane's jib consists of a box-welded steel construction and has been built-up from high quality steel plates. The jib has been provided with bracket(s) to connect the hydraulic cylinder(s) and support brackets to connect the jib to the crane housing.

The jib has furthermore been provided with all necessary stiffeners, a winch support, lifting eyes, wire rope guidings and a double wire sheave housing at the outer end.

Under normal circumstances the jib is supplied as a complete unit but, dependent on the outreach of the crane, it may be possible that, for transportation reasons, the jib is supplied in two parts which afterwards must be bolted and/or welded together by the yard.

#### **Hydraulic system**

The hydraulic oil tank is fully integrated into the crane housing. This hydraulic tank incorporates the hydraulic pump unit, pressure gauge, oil filter, air breather and drain cock.

The hydraulic pump is driven by an electric motor which is placed vertically in the centre of the crane housing. At its turn the hydraulic pump drives the slewing motor(s) and the winch but it also supplies the oil for the luffing cylinder(s).

The capacity of the pump unit is sufficient to ensure the maximum individual speed for each motion of the crane (slewing, luffing and hoisting). More motions at the same time are possible however at reduced speeds.

To ensure a safe and smooth operation, all motions are controlled by means of 3 joysticks, mounted on a hydraulic valve block.

All motions can be controlled at stepless variable speed from "0" to maximum. The joy sticks are of the "spring centred" type (dead man's type).

The valve block is accessible from the operating platform and can either be found on the crane housing or on the operating platform itself.

The hydraulic system has of course been provided with pressure relieve valves preventing overloading the crane.

As a standard, all hydraulic pipes are made of stainless steel. The hydraulic fittings however are made of normal mild steel and protected by means of so-called Denso® tape.

The hydraulic hoses are made of a high quality rubber with excellent properties for long time operation in a marine environment.

The hydraulic system will be delivered cleaned and pre-flushed. The crane is always supplied without hydraulic system oil.

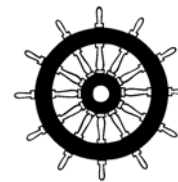


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#### **Slewing drive(s)**

Dependent on the size of the crane, the SCT marine cranes are provided with one or more slewing drives which are mounted onto the crane housing.

These high quality slewing drives ensure safe and accurate slewing of the crane with its full load against unfavourable trim/list conditions.

Each slewing drive is an assembly of a planetary gearbox, a fail-safe multi disc brake, a fixed displacement motor and a pinion which is driving the slewing ring of the crane.

The multi disc brakes are spring operated and of the pressure release type.

Apart from the fail-safe multi disc brake the slewing drives are furthermore provided with two brake valves shutting-off the oil flow and thus freezing the crane motion in case of a sudden pressure drop (e.g. as a result of hose rupture).

Unless the crane has been designed for continuous slewing the slewing angle is normally restricted by means of two electric limit switches.

#### **Hydraulic winch**

The SCT marine crane will be delivered with a hydraulic operated winch which is mounted on top of the crane's jib.

The winch is an assembly of a planetary gearbox, a fail-safe multi disc brake, a fixed displacement motor, a drum and a support frame.

The multi disc brake is spring operated and of the pressure release type.

Just like the slewing drives, the winch is also provided with two brake valves shutting-off the oil flow in case of a sudden pressure drop.

The maximum lowering and hoist position of the hook is normally restricted by means of electric limit switches.

#### **Hydraulic cylinder(s)**

Dependent on the size of the crane, the SCT marine cranes are provided with one or two luffing cylinders.

These cylinders are so-called double acting hydraulic cylinders with built-in cushioning at both sides (in and out) and provided with two brake valves, shutting-off the oil flow in case of a sudden pressure drop.

As a standard the piston rods are made of stainless steel AISI 431 – 1.4057 with a nickel-chromium plated surface (60/40).

#### **Electric system**

The electric system of the SCT marine cranes normally consists of an electric motor driving the hydraulic pump, an electric starter box and some limit switches.

The electric motor is a so-called "4-pole squirrel cage induction motor", designed to operate in a marine environment.

The motor is placed in the centre of the crane housing. It is fan cooled and of the totally enclosed type (IP56). Furthermore the electric motor is supplied with class F insulation and with anti-condensation heater. As a standard the electric motor is based on a S6-40% ID duty rating.

The electric starter box has been designed for direct on line start (D.O.L.). Dependent on the available space, the starter box will be mounted either on the crane housing or on the operating platform. The starter box has been made out of a high quality plastic with excellent mechanical properties against influences of seawater and ultraviolet rays.

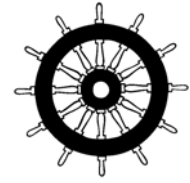


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The enclosure of the starter box is IP56.

For safety reasons and to assure the IP56 enclosure, the door of the starter box has been equipped with two safety locks. Additionally the door can only be opened at the moment the electric power has been shut-off by turning the main switch in "power off" position.

As a standard the electric starter box is supplied with anti-condensation heater, main switch, start/stop push button(s), emergency stop button, "power on" and "electric failure" indicators.

The electric limit switches will automatically shut-off the electric power as soon as the crane and/or winch reach their end positions.

All limit switches are suitable for long time operation in a marine environment and are of the enclosure IP56 as a minimum.

### 3. Accessories

#### **Operating platform**

Dependent on the size of the crane and subsequently the height of its pedestal, the SCT marine crane is normally supplied with an operating platform which is fitted onto the crane housing. From this platform all crane motions can be controlled by means of a valve block with joy sticks. This valve block can either be found on the crane housing or at the platform itself (see also hydraulic system).

The operating platform has been built-up from profiles, steel plates and gratings to a solid and rigid frame. All steel components and gratings are hot dipped galvanised.

The platform has been provided with a safety railing all around and an access ladder.

Dependent on the height of the crane, the access ladder may be provided with a safety cage as well.

#### **Lifting gear**

Dependent on the specification and application, the SCT series are used for single wire as well as for double wire lifting (or both).

In any case the SCT marine cranes will be supplied with all relevant accessories, such as shackles, hook or sheave block, in order to ensure the safe and adequate lifting of the goods.

In case of single wire lifting, the crane is normally supplied with a cargo hook and ball weight. In case of double wire lifting, the crane is normally supplied with a sheave block.

#### **Wire rope(s)**

The steel wire rope(s) which are supplied with the crane are galvanised, of the non-rotating type and of sufficient length for adequate handling of the load.

### 4. Conservation

Unless agreed otherwise, the steelwork will be shot blasted to SA 2,5 and coated with one layer of 2-component epoxy primer of brand **SIGMA**. Dry film thickness 60-80 microns.

This conservation is not suitable for outdoor storage for a long period of time.

### 5. Optional accessories

In principle all SCT marine cranes are built fully in accordance with the customer specification.

Dependent on the specification and application of the crane, the SCT series can be supplied with all kind of optional accessories.

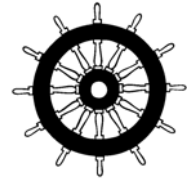


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Some of these accessories are:

- Jib support for sea stowage;
- Explosion proof electric components, in case the flashpoint of the cargo does not exceed 60°C.
- Radiographic remote control operation
- Etc.

The above-mentioned options are just randomly picked from the various possibilities.  
We wish to draw your attention to the fact that all items that have not been mentioned explicitly will be considered as non-standard and subsequently excluded from our scope of supply.