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**SPECIFIC REQUIREMENTS FOR ELECTRICAL
EQUIPMENT**

July 1998

- 1.0 This specification covers the amendments and / or additions to the standard Transnet Port Terminalst Specifications for electrical equipment and is applicable only to the Port of Richards Bay. This specification must be read in conjunction with the main specification and the TPT standard specifications.

2.0 AMENDMENTS AND ADDITIONS TO THE STANDARD PORTNET SPECIFICATIONS

**2.1 SPECIFICATION HE 8 / 2 / 2 GENERAL ELECTRICAL EQUIPMENT
February 1997**

- 2.1.1 *Replace clause 2.1.1 with the following*
All enclosures used outdoors shall be of stainless steel 316 construction, (NO 3CR 12 to be used), for indoor use in protected areas enclosures of moulded polycarbonate will be acceptable.
- 2.7 *Replace clause 2.7 with the following*
All panels fitted shall have anti-condensation heaters installed.
- 7.1 *Insert the following to clause 7.1*
All exposed limit switches and end of travel limits, shaft encoders etc shall be minimum IP 65 protection.
- 13.8.5.1 *Replace clause 13.8.5.1 with the following*
Cable trays shall be stainless steel grid type, unpainted and shall consist of butting sections made from stainless steel of minimum thickness of 1.2mm.
- 13.9.1 *Insert the following to clause 13.9.1*
Slip-on cable and wire markers to be used, not the clip-on type.

**2.2 SPECIFICATION HE 8 / 2 / 3 ELECTRICAL MOTORS AND
September 1995 GENERATORS**

- 1.4.1 *Replace clause 1.4.1 with the following*
The preferred voltage for motors under 132kW IS 400v AC, for 132 and above kW rated motors the voltage shall be 3,3kV.
- 1.5 *Insert the following to clause 1.5*
For variable frequency variable speed drives the motor shall be correctly rated for all speeds over which it is envisaged to run the motor, and power calculations shall show the torque and kilowatts required for each speed. The highest torque needed will determine the power of the motor selected, the torque/speed/power relationship

must be observed. The variable frequency supply unit shall have at least twice motor full load current amperage capacity.

1.7 *Replace clause 1.7 with the following*

All motors shall have minimum degree of protection of IP 65.

1.7.1 *Replace clause 1.7.1 with the following*

No drain holes are to be drilled in any motors due to high pressure hose washing procedures used at Richards Bay.

1.7.2 *Insert the following as clause 1.7.2*

All motors shall have cast iron frames and end shields. Aluminum is not acceptable at Richards Bay due to corrosion effects of products handled.

1.9 *Replace clause 1.9 and its sub-clauses with the following*

All motors 18.5kW and above and all motors which can become covered with product dust, shall be fitted with the following over-temperature protection equipment:-

1.9.1 Positive temperature thermistor (PT100) type sensors fitted to the stator windings of each phase, to trip the motor overloads when the temperature reaches the maximum stipulated for class B insulation at 45 C ambient temperature.

1.9.2 Bearings are to be fitted with RTD type sensors, embedded in the bearing housing of each bearing, set to trip according to manufacturers specification.

1.9.3 Motors are to be fitted with 220V anti-condensation heaters which are “on” when the motor is “off” and “off” when the motor is “on”.

1.13.2 *Insert the following as clause 1.13.2.*

Sliprings shall be manufactured from electrical quality brass, brushgear shall be either brass or stainless steel.

1.19.8.2 *Replace clause 1.19.8.2 with the following*

AC variable speed drives for motors 30kW to 90kW.

1.19.8.3 *Replace clause 1.19.8.3 with the following*

AC variable speed drives for motors above 90kW.

1.19.8.4 *Replace clause 1.19.8.4 with the following*

Motors over 132kW will be supplied from 3.3kV 3 phase AC and started direct-on-line unless otherwise specified.

1.20.2 *Replace clause 1.20.2 with the following*

Motor starters up to 30kW shall have electronic overload/instantaneous protection relays.

September 1995

- 1.4 *Replace clause 1.4 with the following*
Air-conditioning equipment for Richards Bay Port shall be designed to cope with ambient conditions of 45 degrees C and 100% relative humidity, with high concentrations of chemically corrosive dusts and fumes.

**2.4 SPECIFICATION HE 8 / 2 / 6
October 1995**

LIGHTING ON EQUIPMENT

- 2.1 *Insert the following to clause 2.1*
Fluorescent luminaries to be **4 foot** in length.
- 4.2 *Replace clause 4.2 with the following*
Warning lights with two lamps and automatic switch over facilities to the second lamp in the event of lamp failure, with alarm indication in the operators cabin must be fitted.
- 5.1.7 *Replace clause 5.1.7 with the following*
It must be stressed that all the luminaire bodies, diffusers, brackets, control gear housings etc. shall be manufactured from either stainless steel grade 304 Die-cast aluminum NOT to be used.
- 5.1.11 *Insert the following as clause 5.1.11*
All outdoor light fittings and assisted equipment have a minimum degree of protection IP 65.
- 5.1.12 *Insert the following as clause 5.1.12*
Lighting circuit breakers shall be a double pole type if connected to a center tap transformer supply with the center tap earthed.

**2.5 SPECIFICATION HE 8 / 2 / 7
March 1997**

CABLE REEL SYSTEMS

- 2.1 *Replace clause 2.1 with the following*
Permanent magnet type (rating to be continuous) couplings are preferred, such that automatic torque compensation is provided for constant tension.
- 2.2 *Replace clause 2.2 with the following*
Mono-spiral drums must be of bolted sections. All drums shall be manufactured from stainless steel and shall be painted according to Portnet Specification HE9/2/8. No 3CR12 cable reeling drums to be used.
- 2.10 *Replace clause 2.10 with the following*
Slipping enclosures shall be manufactured of stainless steel, 3CR12 NOT to be used and shall be painted according to Portnet specification HE 9/2/8.
- 5.4 *Insert the following as clause 5.4*

All cable entries to be from the bottom of the connection boxes and enclosures.

**2.6 SPECIFICATION HE 8 / 2 / 11
January 1996**

**MEDIUM VOLTAGE EQUIPMENT FOR
USE ON PORT EQUIPMENT**

2.9 *Replace clause 2.9 with the following*

The pollution level (IEC 186) shall be taken as "Medium" (creepage distance of 20mm/kV) for all equipment installed indoors or inside enclosures with a minimum protection of IP 65. For equipment installed outdoors the pollution level shall be taken as heavy (creepage distance of 25 mm/kV).

5.2.2. *Replace clause 5.2.2 with the following*

Each switchgear panel shall be a self-contained unit with a minimum degree of protection of IP3X for indoor installation and IP65 for outdoor installation unless otherwise specified in the main specification.

7.2. *Replace clause 7.2 with the following*

Panels for outdoor installation shall be constructed from 3CR12 or similar steel sheeting (at least 2 mm), painted according to specification HE9/2/8. MILD STEEL NOT ACCEPTABLE.

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END OF SPECIFICATION HE 8 / 2 / 12

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