1.0 Scope

1.1 To define the requirements for 3-phase electric chain hoists.

2.0 Codes and Standards

2.1 ASME B30.16 “Overhead Hoists (Underhung)

2.2 ASME HST-1M “Performance Standard for Electric Chain Hoists”

2.3 FEM 9.682 “Rules for the Design of Serial Lifting Equipment – Selection of Lifting Motors”

2.4 ISO 4301 “Cranes and Lifting Appliance – Classification”

2.5 JIS B 8815 “Electric Chain Hoists”

2.6 IEC 34-5 “Rotating Electrical Machines – Classification of Degrees of Protection Provided by Enclosures of Rotating Electrical Machines (IP Code)”

2.7 IEC 529 “Degrees of Protection Provided by Enclosures (IP Code)

2.8 NFPA 70 “National Electric Code”

2.9 RoHS (Restriction of Hazardous Substances) Compliance

2.10 BGV-D8 “Winch, Hoist and Pulling Device”

2.11 VPLT 2.0 “Codes of Practice for Event Technology”

2.12 EC Machinery Directive 2006/42/EC

2.13 EC EMC Directive 2004/108/EC

2.14 EC Low Voltage Directive 2006/95/EC

2.15 EN ISO 12100 “Risk Assessment and Risk Reduction”

2.16 EN 818-7 “Short Link Chain for Lifting Purposes”

2.17 EN ISO 13850 “Emergency Stop”

2.18 EN 60204-1 “Electrical Equipment of Machines”

2.19 EN 60204-32 “Safety of machinery – Electrical equipment of machines – Part 32: Requirements for hoisting machines”

2.20 EN 61000-6-4 “Electromagnetic Compatibility – Emission”

2.21 EN 61000-6-2 “Electromagnetic Compatibility – Immunity”

2.22 FEM 9.511 “Classification of Mechanisms”

2.23 FEM 9.683 “Section of Lifting and Travel Motors”

3.0 Design

3.1 The electric chain hoists shall be model TNER as supplied by Harrington Hoists, Inc. The hoists shall be rated 1/2 US Ton through 2 US Ton.

3.2 The electric chain hoists shall meet the specifications and dimensions of EDOC0848, “TNER – Specifications and Dimensions – 1/2 to 2 Ton”.

3.3 The electric chain hoists shall meet the design and construction criteria of paragraph 2.1 above.

3.4 The electric chain hoist shall conform with the EC directives and standards listed in paragraph 2.12 to 2.23

3.5 The hoists' enclosure ratings shall provide protection against water jets from any direction in accordance with IP55 of paragraph 2.7 above.

3.6 The electric chain hoist may be equipped with a four-button pendant control station with a rating of IP65 per item 2.7 above. The pendant shall connect to the hoist directly with control cable and it shall be equipped with integral strain relief.

3.7 The hoists' motor shall be of the totally enclosed squirrel cage induction type. It shall be compatible for 208-230/416-460 volt 3 phase power at 60 Hertz, and it shall be equipped with thermal overload protection. The motor's insulation shall meet Class B requirements. The hoists' motor shall be rated in accordance with paragraph 2.3 above and shall carry the following ratings:

Single Speed Motor

Short Time Rating: 30 minutes

Intermittent Rating: 25% ED, 150 starts/hr

3.8 The electric chain hoists shall be classified with a duty rating of H3 per item 2.2 above.

3.9 In addition to the duty rating requirement of item 3.7 above, the electric chain hoists shall carry rating classifications in accordance with items 2.3, 2.4, and 2.5 above, as per the following charts.

Capacity (US Tons)	Product Code	Classification	
		JIS/ISO	FEM
1/2	TNER005L	M3	1Bm
1	TNER010L	M3	1Bm
2	TNER020L	M3	1Bm

3.10 The electric chain hoists shall be equipped with the Pull Rotor type brake. The brake is rated for at least 200% braking capacity, and at least 500,000 brake operations before adjustment. TNER does not include a secondary brake.

3.11 The electric chain hoists shall be equipped with a friction clutch in the transmission between the hoists' electric motor and the load sheave. The friction clutch shall prevent the motor from turning the load sheave when the load exceeds the friction clutch setting.

3.12 The electric chain hoists shall be equipped with a fixed, non-adjustable over-travel limit switch for the Up and Down directions of hoist operation. The limit switch, when activated, shall interrupt the Up control circuit to prevent additional lifting.

3.13 The electric chain hoists shall be equipped with case-hardened Nickel plated DIN load chain as standard. Black load chain will be optional.

3.14 The electric chain hoist shall conform with the EC directives and standards listed in paragraph 2.13 to 2.24 when equipped with standard parts. CE mark shall be affixed to the hoist to represent the declaration of conformity.

3.15 The electric chain hoists shall be equipped with hooks that are drop forged from carbon steel, and which are designed for ductile mode failure upon overload. The hooks shall be equipped with spring loaded latch type throat closures. The hook shall be equipped with a thrust ball bearing for 360 degree swivel.

3.16 The electric chain hoists shall employ a transmission comprised of a spur and helical gears in a gearbox packed with grease.

3.17 The electric chain hoists shall be equipped with a warning tag per item 2.1 above. The warning tag shall be attached to the hoist handle, it shall be made of durable plastic laminated construction, and it shall give comprehensive information for the safe operation of the hoist.

3.18 The electric chain hoists shall have a single fall of load chain for capacities of 1 US Ton and below. The 2 US Ton capacity model has two falls of load chain.

4.0 Documentation

4.1 Each electric chain hoist shall be supplied with an Owner's Manual that includes the following information.

a) Important Information and Warnings

b) Installation and Operation

c) Inspection

d) Lubrication, Maintenance and Handling, and Troubleshooting.

4.2 Each electric chain hoist shall be supplied with a Parts List.

4.3 Each Theater Hoist shall be supplied with an Owner's Manual Supplement containing information specific to the TNER.