INTER PLANT STANDARD IN STEEL INDUSTRY		
IPSS	**TESTS AND CHECKS FOR ACCEPTANCE OF EOT CRANES**	**IPSS: 2-02-008-18 (First Revision)**
	Corresponding IS does not exist	Formerly: IPSS: 2-02-008-97

0. FOREWORD

0.1 This Inter Plant standard prepared by the Standards Committee on EOT Cranes, IPSS 2:2, in consultation with the steel plants, consultants and established manufacturers of EOT Cranes, was first adopted in 1996 and first revised in March, 2018.

0.2 Inter Plant standards on EOT Cranes primarily aim at achieving rationalization and unification of parts / assemblies of process ad auxiliary equipment used in steel plants and these are intended to provide guidance to the steel plant engineers, consultants and manufacturers in their design activities.

0.3 A need has long been felt for bringing out a standard covering tests and checks to be performed at the manufacturer's as well as the purchaser's premises before acceptance of the EOT cranes. This Interplant standard has been prepared accordingly. The other related standards to be used in conjunction with this standard are given at Appendix-A.

1. SCOPE

1.1 This Inter Plant Standard lays down the tests and checks to be carried out for acceptance of EOT Cranes for steel plants.

2. TESTS & CHECKS TO BE PERFORMED AT MANUFACTURER'S PREMISES

2.0 The crane shall be assembled at the manufacturer's works and the individual mechanisms run idle. Various parameters and accuracies of the crane shall be checked in case of electrical items. Control panels and resistance boxes need not be erected on the girders. Temporary connections to the motors may be given for idle running. All routine tests and special tests if any specified by the customer shall also be carried out during testing /inspection by the customer.

2.1.1 Finish and _____ of weld, details of material used for welding, quality of the riveted joints, tests conducted on welds and other

components shall be examined and the results recorded as indicated in Part 1B, General inspection during manufacture (Page 12)

2.2 **Mechanical and Electrical Items** – The mechanical and the electrical items (see 2.3 and 2.4) shall be subjected to the following factory tests and checks, wherever applicable, according to the provisions of the relevant IPSS and /or IS at the manufacturer's premises in presence of the customer or otherwise. In case of standard manufactured items type tests certificates by the respective manufacturers shall be adequate.

a) Vibration (see 2.2.1)

b) Noise

c) Temperatures rise

d) Hardness wherever applicable

e) Any other parameter, if specified.

2.2.1 **Limits of Vibration Intensity**

a) For Induction Motors

Rating of Motor	Double amplitude in microns at synchronous speed		
	1500	1000	750
Upto 15 kW	32	48	64
Over 15 kW and Upto 75 kW	50	75	100
Over 75 kW	60	90	120

b) For dc Motors

Rating Speed (rpm)	Double Amplitude in Microns
Above 375 upto 1500	100

c) For Gear Boxes – The limits of vibration intensity for gear boxes on the test bed shall be double amplitude of 125 microns. The test shall be carried out by mutual agreement between the supplier and the purchaser.

2.3 **Mechanical Items**

1) All gear boxes

2) All couplings

3) All brakes and brakedrums

4) Hoist barrels and barrel couplings

5) Hooks and hook blocks

6) Wheels and assemblies

7) Line shafts

8) Any other item specified by the purchaser

2.4 **Electrical Items**

1) All motors

2) All panels

3) All resistor boxes

4) Magnets, cable reeling drums, etc.

5) All controllers

6) Trailing cable arrangement

7) Limit switches

3. **TESTS & CHECKS TO BE PERFORMED AT CUSTOMER'S PREMISES**

3.1 **Dimensional Checks**: - These checks shall be carried out according to approved clearance drawing and general arrangement drawing after erection.

3.2 **Insulation Tests**

3.2.1 After erection but before the crane is connected to the supply, the insulation of the electrical equipment shall be measured by a suitable instrument supplying voltage at least twice the rated voltage of the system.

3.2.2 Any reading less than 0.5 M-ohm obtained with an insulation resistance tester of the unregulated type shall be disregarded and the wiring under test shall be sub-divided until a reading higher than 0.5 M-ohm is obtained. Failure to obtain higher reading shows unsatisfactory state of insulation.

3.2.3 The insulation resistance of each crane wiring circuit exclusive of connected apparatus shall not be less than 2 m-ohm. If necessary individual apparatus may be disconnected to obtain the value.

3.3 **Performance Tests** – After satisfying 3.1 and 3.2, the crane shall be connected to the supply and after ensuring satisfactory operation regarding smooth operation of controls and mechanisms, the following tests shall be performed.

3.3.1 **Speed Tests**

a) **Hoist** – Full –load hoisting and lowering speeds at different notches shall be measured and recorded, wherever notchwise speeds are specified. The deviation allowed shall be +10 % for hoisting and +25 % , - 10% for lowering. 25 % overload hoisting capacity shall be checked and speed measured. However, only the capability of the crane while dealing with overload without difficulty shall be judged. It is not necessary that rated speed shall be achieved for the overload condition. 5^{th} notch maximum lowering speed with 25 % overload shall be noted and it shall be below 200 % of rated speed. If necessary, electrical circuitry shall be adjusted or modified. The above test may be repeated for 50 % load, if specifically required.

b) **CT & LT Drive** – Full –load final speeds on cross and long travel motions shall be recorded in both directions giving allowance in time for attaining full speed considering acceleration of the drive. Where specified, notchwise full-load speeds shall be measured for both directions. Deviations allowed shall be +10% . 25 % overload handling capability in final notch shall be ascertained in both the motions.

C) **Acceleration** – It is suggested that the LT and CT motor rpm for rated speed considering gear ratios be computed and the total time taken to reach this rpm by putting the controllers directly from OFF to FINAL notch shall be recorded and the acceleration calculated. The tolerance on acceleration shall be +20% of the specified value.

3.3.2 **Motor Performance Tests**:- Tests shall be performed for both no-load and full-load notchwise, for all the motions, and shall be recorded as follows:

a) For dc Motors

1) Armature current at each notch,

2) Armature voltage at each notch,

3) Motor rpm at each notch, and

4) Plugging current for LT and CT

b) For ac Motors

1) Stator current at each notch

2) Rotor Current at each notch

3) Rotor voltage

4) Stator voltage (For thyristor drives)

5) Motor rpm, and

6) Plugging current for LT and CT

3.3.3 **Brake Test**

a) **Hoist** – Hoist brake shall be tested successively three times with 125 % rated load. The brake shall be capable of arresting the load immediately without undue overheating of the brake and brake drum. Where two brakes are provided, one brake shall be made inoperative and the hoist motion shall be tried with 125 % load for hot metal cranes and 100 % load for other cranes. One brake only shall be capable of arresting and holding the load satisfactorily.

b) **LT & CT** – The brakes for cross and long travel shall be tested so as to ascertain that those are capable of arresting the motions with full-load within a distance as specified in metres equal to 10 % of the rated speed in metres per minute.

3.3.4 **Safety Device Check Test**

a) **Overhoist Limit Switch Test** – Overhoist limit switch operation shall be tested successively twice on no-load and full hoist speed. The limit switch shall stop the motion promptly and in no case the hook block shall hit the underframe of the trolley structure. Wherever two limit switches are provided in the hoist, each limit switch shall be tested individual for effectiveness. If necessary, modification of electrical circuitry shall be done.

b) **Other Limit Switches & Safety Device Test** – Other limit switches, if provided, like overlowering, track limit, anticollision device, warning lights etc shall be tested for satisfactory performance and adjusted, if necessary.

c) Earth Check

3.3.5 Sequence Check – All the panels / motions shall be tested for proper sequence while suddenly putting the controllers.

- from OFF to Final notch or
- from Forward to Reverse Final notch or
- from Lower Final notch to Off or
- from OFF to Lower Final notch

No abnormality in performance shall be noticed during the transient operation. If any abnormalities are noticed these shall be adjusted or rectified. These checks may be done on no-load.

3.3.6 Lubrication Check Test

a) For Centralized Grease Lubrication Systems – Sample checks shall be done to ensure that lubrication is reaching the remotest point from the distribution point, if necessary, relocation of piping to avoid bends etc shall be done and

b) For enclosed Gear Boxes – No visible oil leakages shall be noticed after tests are carried out. Wherever recirculating pumps are provided on the grease boxes the effective working of the pumps shall be checked and ensured.

3.3.7 Impact Test – Fully laden trolley and crane at rated speed shall be subjected to sudden braking.

All equipment on the trolley shall be checked for any damage, foundation looseness etc. If necessary, adequate strengthening shall be carried out.

The mounting of the panels, circuit breakers, resistor boxes, controllers etc shall be checked to ensure that no damage / displacement has taken place. If necessary, strengthening of the equipment mounting shall be carried out.

3.3.8 Deflection Test – The deflection test of girders shall be carried out with the safe working load and 125 % of the rated load. No permanent set shall be allowed after the load is removed. However, deflection need not be measured with 125 % load. For 100 % load, the deflection measurement shall be done as follows:

a) The datum line for measuring the deflection shall be obtained by placing the unladen trolley on the extreme end of the crane span with shorter hook approach.

b) The measurement of deflection shall be noted on the application of load (after lifting it several times) with the trolley in central position and load at rest, at a height of 200-300 mm above the floor level and suspended for 10 minutes. After deflection test, the load shall be removed and trolley shall be placed on the position as given in (a) above and reading taken for checking against permanent set.

c) The deflection of the bridge under rated load must not exceed 1/750 for class 1 & 2 and 1/1000th of the crane span for class 3 & 4.

4. TEST REPORT

4.1 After satisfactory completion of all tests a comprehensive test report (in the formats given in clause 6) shall be submitted by the manufacturer giving the following information :

4.1.1 Checked Results for Principal Dimensions and Structural Deviations (see Part 1A – Page 12)

4.1.2 Material Test Results (see Part 20, Page 14)

a) Principal Steel Members (See part 2A, page 13)

1) For girder proper,

2) For end carriage proper, and

3) For trolley frame proper

b) Wheels and Axles (see Part 2B, Page 13)

c) Wire Ropes (see Part 2C, Page 13)

d) Hooks
e) Gears, pinions and shafts
f) Couplings
g) Rope Drums
h) Sheaves

4.1.3 Performance Test

a) Test results under no-load and full-load for speeds and motor performance ; (see Part 4 B, Page 16-19)

1) Hoisting,
2) LT,
3) CT and
4) Any other motion

b) Insulation (see Part 3, Page 15)
c) Sequence checking

4.1.4 Inspection Results – Of accuracy and function of: (see Part 4, Page 15)

a) Safety devices
b) Lubrication effectiveness
c) Impact test result
d) Brake test

4.1.5 Factory Test Reports

a) Gear boxes
b) Motors
c) Panels
d) Controllers
e) Resistor boxes
f) Magnets
g) Handling attachment, if any
h) Brakes

4.1.6 Deflection Test Results

5. CHECK LIST FOR INSPECTION OF CRANES

5.1 The checks shall be carried out according to the proforma given at Annexure-I, which shall be submitted along with the test report.

6. TEST REPORT

6.1 Test Report shall be submitted in a folder comprising the following information / reports after completion of all tests and checks according to 4. For items covered in 4.1.5, test formats shall cover all the requirements specified in the relevant IPSS Standards.

ANNEXURE – 1(Clause 5.1)

CHECK LIST FOR INSPECTION OF CRANES

A	**GIRDER**	
1	Is there enough clearance between trolley components and roof trusses?	YES / NO
2	Is highest component of trolley accessible from trolley platform?	YES / NO
3	Are these inspection platforms provided for LT wheel changing and power collectors' inspection?	YES / NO
4	Are hand railings and toe guards provided on the walkway platform?	YES / NO
5	Are main girders and end girder joints as per specification / drawings?	YES / NO
6	Are jacking pads of proper design provided for wheel changing of adequate design?	YES / NO
7	Are walkways, if provided over cable troughs, supported adequately?	YES / NO
B	**POINTS TO BE CHECKED IN THE OPERATOR'S CABIN**	
1	Is the mounting of the cabin sufficiently strong?	YES / NO
2	Is the driver's view satisfactory?	YES / NO
3	Can the glass be cleaned from inside the cabin?	YES / NO
4	Are the controllers marked for respective motions correctly and are properly arranged for comfortable operation and maintenance?	YES / NO
5	Are bridge approaches from cabin satisfactory?	YES / NO
6	Is there sufficient distance maintained between snatch block and the cabin front?	YES / NO
7	Is there proper ventilation / head shielding / fire protection to the cabin?	YES / NO

C	**POINTS TO BE CHECKED IN LT MECHANISM AND STRUCTURE**	
1	Are clearances before panels satisfactory?	YES / NO
2	Are coupling guards adequate?	YES / NO
3	Are wheel bogies with assembly shaft free from the hinged pins and do the pins have lubrication and locking facility?	YES / NO
4	Is the maximum misalignment of the line shaft in a horizontal plane from the central line of two driving wheels with 0.5 mm?	YES / NO
5	Is Alignment of driving motor and input shaft of gear boxes within 0.1 mm, both in horizontal and vertical planes?	YES / NO
6	Are dowel pins / stopper pads for gear boxes present?	YES / NO
7	Are panels and resistors rigidly fixed on the structure to prevent sway?	YES / NO
D	**POINTS TO BE CHECKED IN CT MECHANISM**	
1	Are adequate toe guards provided?	YES / NO
2	Is CT rail fixing according to specification?	YES / NO
3	Are hand railings according to specification?	YES / NO
4	Is the approach to trolley proper from bridge girder and end carriage satisfactory?	YES / NO
5	Are jacking pads, safety stops and buffers according to specification?	YES / NO
6	Is approach to different parts for maintenance purpose according to specification?	YES / NO
7	Have general points 4, 5 & 6 for LT motor and hear box (See Item C above) been checked for CT too?	YES / NO

E	**POINTS TO BE CHECKED IN HOIST**	
1	Are rope clamps adequate?	YES / NO
2	Are sheaves adequately guarded against the rope falling off?	YES / NO
3	Do the sheave bearings have proper lubrication facility?	YES / NO
4	Does the equalizer sheave assembly swivel easily on points? Can the sheave be remov4ed easily for servicing?	YES / NO
5	If top sheaves are mounted below trolley frame, is there any working platform to remove the assembly and work on it?	YES / NO
6	Has alignment of motor, gear boxes and brakes been checked according to LT mechanism points Nos. 4, 5 and 6? (see item C above)	YES / NO
7	Is the limit switch counter weight hanging loose or located with idle fall of ropes?	YES / NO
8	For magnet cranes, are hook latches/non-rotating devices of proper design provided?	YES / NO
9	Is there arrangement for proper laying of cable in one layer only while hoisting? (for cable reeling drums)	YES / NO
F	**SAFETY AND ACCESSIBILITY**	
1	IS the wheel inspection platform provided on four corners?	YES / NO
2	Is the repairs cage for current collector provided?	YES / NO
3	Is the buffer provided on four corners of the end carriage?	YES / NO
4	Is the rope guard provided on current collectors?	YES / NO
5	Is the coupling guard provided?	YES / NO
6	Whether all gears are totally enclosed?	YES / NO
7	Is the capacity and size of jack adequate?	YES / NO

8	Vibration pads for panels are in position or not?	YES / NO
9	Are supportsprovided for, a) Control panel, b) Resistor box, c) Cross conductor pillar?	YES / NO
10	Is lubrication facility provided to: a) Tope sheaves, b) Equalizer sheaves, c) Bottom block?	YES / NO
11	Does the hook rotate freely?	YES / NO
12	Whether all electrical equipment are earthed at two points?	YES / NO
13	Whether easy accessibility provided for: a) Motor terminals b) Brakes c) Limit switches d) Cable connections / junction boxes e) Controllers f) Equalizer sheaves g) Top Sheaves h) Cross conductors/festooned collectors i) Lubrication stations?	YES / NO
14	Whether cabin light and socket outlet are provided to operator's cabin?	YES / NO
15	Are all the foundation bolts easily accessible?	YES / NO
G)	**GENERAL POINTS TO BE CHECKED**	
1	Is the overall earthingupto earth current collector satisfactory?	YES / NO
2	Is the alignment of current collectors to down shop leads proper?	YES / NO
3	Is the alignment of current collector to the bus bars provided on cranes for	YES / NO

	trolley equipment proper?	
4	In case of trailing cables, is the movement of cables and formation of loop smooth?	YES / NO
5	In case of outdoor cranes, have anti-creeper jaws been provided?	YES / NO
6	Is there safe working clearance of 500 mm available in front of electrical panels?	YES / NO
7	Are the bridge under lights accessible for servicing?	YES / NO
8	Are the cable layout and type of cables used according to specification?	YES / NO
9	Is lighting adequate and the lighting fittings approachable?	YES / NO
10	Are identification tags attached to cables and panels components?	YES / NO
11	Is name plate provided on all components?	YES / NO
12	Is wiring diagram available inside panels door?	YES / NO

INSPECTION REPORT FOR _____

(GA Drg. No.: _____)

CRANE TEST RECORDS

M/s _____

Crane Type _____ Mfg. No. _____

1. Manufacturer: _____
2. Manufacturing No: _____
3. Inspection Site : _____
4. Date of Inspection : _____
5. Attending persons : _____

Main Specification

Main hoist load (t)

Main hoist lift (m)

Aux hoist load (t)

Aux hoist lift (m)

Crane span (m)
(For travelling)

Trolley gauge (m)

Special attachments such as magnet, grab, tongs, etc.

Trolley rail size (CR)

Bridge rail size (CR)

Wire rope for main hoist

- Diameter 9mm)
- Length (m)
- Construction

Wire rope for main aux hoist

- Diameter (mm)
- Length (m)
- Const5ruction

Motion	Speed (m/min)	Motor							
		Type	Output	Current	Frame Size	RPM	Duty Type	Mfg.No.	Quantity
Main hoist									
Aux hoist									
LT									
CT									
Opening & Closing									
Slewing									
Any other Motion									

Remarks

Date Tested **Approved by** **Checked by** **Tested by**

PART 1A DIMENSIONAL CHECKING AS PER ACCEPTANCE NORMS FOR EOT CRANES, IPSS: 2-02-002-18

(Clause 4.1.1)

Sl. No. of Table 1*	Description of Components	Variation in Dimension Observed	Remarks

*** OfIPSS: 2-02-002-18**

PART 1B GENERAL INSPECTION DURING MANUFACTURE

(Clause 2.1.1)

Sl. No.	Items	Remarks
1	Smooth operation of gears	
2	Welding material used	
3	Welding employed	
4	Appearance of weld	
5	Whether sheaves move smoothly	
6	Riverts	
7	X ray / ultrasonic tests	
8	Finish	

Note: Inspection of these items shall be on the basis of manufacturer's certificate

PART 2A MATERIAL TEST RESULTS FOR PRINCIPAL STEEL MEMBERS

[Clause 4.1.2 (a)]

Item	Standard followed	Chemical properties	Mechanical properties			
			Tensile Test			Bond test
			Tensile strength (kg / mm^2)	Yield point (kg / mm^2)	Elongation (%)	
Girder						
End Carriage						
Trolley Frame						
Bogies						

PART 2B MATERIAL TEST RESULTS FOR WHEELS[(Clause 4.1.2 (b)]

a) Material

Chemical Composition Hardness

Standard followed

LT

CT

b) No. of Wheels:

i) LT

ii) CT

c) Drawing No:

PART 2C MATERIAL TEST RESULTS OF WIRE ROPES FOR MAIN AND AUXILIARY HOIST [Clause 4.1.2 (c)]

Test certificates for wire ropes in accordance with IS 2266

PART 2D MATERIAL TEST RESULTS FOR MECHANICAL COMPONENTS [Clause 4.1.2]

a) Mechanical Properties

Component	Drg. No.	Heat treatment	As per drawing or actual	Mechanical properties			
				Yield point (kg / mm²)	UTS (kg / mm²)	Elongation	Hardness test BHN
Hooks							
Trunnions							
Axles							
Nuts							
Gears							
Pinions							
Shafts							
Rope drums							
Sheaves							

b) Chemical Composition

Component	Drg. No.	As per drawing or actual	Chemical composition								
			C	Si	Mn	S	P	Ni	Cr	Mo	Others
Hooks											
Trunnions											
Axles											
Nuts											
Gears											
Pinions											
Shafts											
Rope drums											
Sheaves											

c) Remarks :

PART 3 INSULATION TEST

[Clause 4.1.3 (b)]

Items	Specified	Observed	Remarks
a) Main hoist motor			
b) Aux hoist motor			
c) Long travel motor			
d) Cross travel motor			
e) Any other motor			
f) Control			
g) Main current collector			
h) CT current collectors			
i) Lighting circuit			
j) Fan			

PART 4 INSPECTION RESULTS & TEST RECORDS REGARDING ACCURACY AND FUNCTIONS ACCORDING TO STANDARD AFTER ERECTION

(Clause 4.1.4)

PART 4 A GENERAL DIMENSIONS

Description	Stipulated Value of Item	Results
1) Hook Approach (mm)	Specified Dimensions ± mm	
2) Height of lift		
a) Chain Hook		
- Down shop lead side		
- Opposite side		
b) Auxiliary Hook		
- Operator cab side		
- Opposite side		
3) Lift (m)		
a) For Main Hook		
- Above floor (m)		
- Under floor (m)		
b) For Aux Hook		
- Above floor (m)		
- Under floor (m)		
4) Deflection:		
a) On rated load		
b) On 125 % load		

PART 4 B TEST RECORDS

[Clause 4.1.3 (a)]

Motion direction	Load (t)	No. of notch	Speed (m/min)	Motor			Remarks
				RPM	Voltage (v)	Current (A)	
Main hoist (lifting)	No load	1					
		2					
		3					
		4					
		5					
	Full load	1					
		2					
		3					
		4					
		5					
	25% overload	5/Final					
Man hoist (lowering)	No load	1					
		2					
		3					
		4					
		5					
	Full load	1					
		2					
		3					
		4					
		5					
	25% overload	5/Final					

Others Results / Records:

a) Functioning of brakes and limit switches

b) Functioning of lubrication system

c) _____

d) _____

Date Tested	Approved by	Checked by	Tested by

Motion direction	Load (t)	No. of notch	Speed (m/min)	Motor			Remarks
				RPM	Voltage (v)	Current (A)	
Auxiliary hoist (lifting)	No load	1					
		2					
		3					
		4					
		5					
	Full load	1					
		2					
		3					
		4					
		5					
	25% overload	5/Final					
Auxiliary hoist (lowering)	No load	1					
		2					
		3					
		4					
		5					
	Full load	1					
		2					
		3					
		4					
		5					
	25% overload	5/Final					

Others Results / Records:

a) Functioning of brakes and limit switches

b) Functioning of lubrication system

c) _____

d) _____

_____

Date Tested	Approved by	Checked by	Tested by

_____

Motion direction	Load (t)	No. of notch	Speed (m/min)	Motor			Remarks
				RPM	Voltage (v)	Current (A)	
LT (Right)	No load	1					
		2					
		3					
		4					
		5					
	Full load	1					
		2					
		3					
		4					
		5					
	25% overload	5/Final					
LT (Left)	No load	1					
		2					
		3					
		4					
		5					
	Full load	1					
		2					
		3					
		4					
		5					
	25% overload	5/Final					

Others Results / Records:

a) Acceleration Value

b) Braking path

c) Functioning of lubrication system

d) Impact test results

e) _____ _____

f) _____

_____

Date Tested Approved by Checked by Tested by

_____

Motion direction	Load (t)	No. of notch	Speed (m/min)	Motor			Remarks
				RPM	Voltage (v)	Current (A)	
CT (Opposite to cab room side)	No load	1					
		2					
		3					
		4					
		5					
	Full load	1					
		2					
		3					
		4					
		5					
	25% overload	5/Final					
CT (towards cab room side)	No load	1					
		2					
		3					
		4					
		5					
	Full load	1					
		2					
		3					
		4					
		5					
	25% overload	5/Final					

Others Results / Records:

a) Acceleration Value

b) Braking path

c) Functioning of lubrication system

d) Impact test results

e) _____ _____

f) _____

_____

Date Tested Approved by Checked by Tested by

_____

APPENDIX A

(Clause 0.3)

LIST OF REFERENCE STANDARDS

Sl. Ni.	IS / IPSS Standards	Description
1	IS 807 : 2006	Code of practice for design, manufacture erection and testing (structural portion) of cranes and hoists (first revision) (with Amendment 1)
2	IS 3177:1999	Code of practice for electric overhead travelling cranes and gantry cranes other than steel works crane (first revision)
3	IS 4137 : 1985	Code of practice for heavy duty electric overhead traveling cranes including special service machines for use in steel work (first revision)
4	IPSS: 1-02-020-84	Basic parameters for standardization of steel plant equipment
5	IPSS:1-03-002-08	Specification for dc mill / crane duty motors (800 series) (Third Revision)
6	IPSS:1-03-003-08	Specification for ac mill / crane duty slip ring induction motors (Second Revision) (Amendment1)
7	IPSS:1-03-004-14	Specification for ac crane duty squirrel cage induction motors (Second Revision)
8	IPSS:1-03-005-03	Specification for dc mill / crane duty motors 1600 series) (with Amendment 1 & 2)
9	IPSS:1-04-001-03	Specification for Contactors for voltage not exceeding 1000 V ac or 1200 V dc (first revision)
10	IPSS:1-04-003-03	Specification for Mechanically operated limit switches for control circuit for voltages up to and including 1000 v ac or 1200 v dc (first revision)
11	IPSS:1-04-004-11	Specification for moulded case circuit breakers for voltages not exceeding 1000 V ac or 1200 v dc
12	IPSS:1-08-001-18	Specification for Crane Wheels (first revision)
13	IPSS:1-08-002-18	Specification for Sheaves assembly for EOT Cranes (first revision)

14	IPSS:1-08-003-18	Specification for Steel wire ropes for cranes (third revision)
15	IPSS:1-08-004-18	Specification for Forged crane hooks (first revision)
16	IPSS:1-08-005-18	Specification for Brakes for cranes (first revision)
17	IPSS:1-08-006-18	Feston cable trolley
18	IPSS:1-08-007-18	Specification for hook blocks
19	IPSS:1-08-008-18	Specification for forged Ramshorn hooks
20	IPSS:1-08-009-18	Specification for Laminated ladle hooks
21	IPSS:1-08-010-18	Specification for crane wheel assembly (Live axle type)
22	IPSS:1-08-013-18	Specification for Thimbles
23	IPSS:1-08-014-18	Horizontal gear boxes for cranes
24	IPSS:1-08-017-18	Code of practice for clamping of crane rails
25	IPSS:1-08-020-18	Crane gear boxes – Acceptance Norms
26	IPSS:1-10-001-1	Lifting Magnets (First revision)
27	IPSS:1-10-002-02	Resistance boxes for power circuits (with amendment 1)
28	IPSS:1-10-003-02	Specification for Electro – hydraulic thrustor
29	IPSS:1-10-005-81	Specification for Master controller
30	IPSS:1-10-006-81	Specification for Drum/cam controllers (with amendment 1)
31	IPSS:1-10-008-08	General requirements for current collector assembly
32	IPSS:1-10-010-84	General requirements for control panels for cranes (with amendment 1)
33	IPSS:1-10-011-84	Particular requirements for control panels for ac cranes (with amendment 1)
34	IPSS:1-10-012-84	Particular requirements of control panels for dc cranes
35	IPSS : 2-02-001-18	Design parameters for EOT cranes (with amendment 1)
36	IPSS : 2-02-002-18	Acceptance norms for EOT Cranes
37	IPSS: 2-02-003-18	General code of practice for design of EOT cranes (Mechanical aspects) (first revision)
38	IPSS : 2-02-004-18	General code of practice for design of EOT cranes (electrical aspects) (first revision)

39	IPSS : 2-02-005-18	Code of practice for selection of electric cables for use on EOT cranes (first revision)
40	IPSS : 2-02-006-18	Code of practice for laying of electric cables on EOT cranes
41	IPSS: 2-02-007-18	Guidelines for safety in EOT Cranes
42	IPSS : 2-02-009-18	Reference Guide for EOT Cranes