

Government of India

Ministry of Railways

Schedule of Technical Requirement (STR)

For

Electric Lifting Barrier

Signal Directorate

Research Designs & Standards Organisation

Manak Nagar, Lucknow - 226011

September 2006

Scope:

The Schedule of Technical Requirement No.SIQ 0114 covers the norms for machinery & plants required for production, testing equipment for quality assurance and infrastructure for manufacturing of Electric Lifting Barrier for Railway Signaling applications. Vendor shall also comply other relevant laws of the country and quality norms issued by RDSO time to time.

Electric Lifting Barrier

List of specifications for various types of Electric Lifting Barriers

SN	Description	Specification No.
1	Electric Lifting Barrier with hand generator	RDSO/SPN/180/2005
2	Electric Lifting Barrier	IRS:S:41/70

Electric Lifting Barrier

SN	Description
I	Essential machinery and plants required for production-
1	Lathe Machine
2	Milling Machine
3	Shearing Machine
4	Vertical drilling machine
5	Crimping Machine
6	Temperature controlled soldering station
7	Slotting Machine
8	Power Press
9	Oxy Acetyline Welding Machine
10	Electric Arc Welding Machine
11	Gear Hobbing Machine
12	Riveting Machine
13	Hand Grinder
14	Bench Grinder
15	Bench Vice
16	Tools Jigs & Fixtures
17	Electroplating Machine
18	Spray Painting Machine
19	Temperature controlled soldering/ desoldering station
20	Hot chamber (for motor)
21	Coil winding machine with counter meter (for motor)
22	Vacuum Impregnation plant (for motor)
23	Epoxy coating equipment (for motor)
II	Essential testing equipment required for Quality Assurance-
1	Testing panel with voltmeter, ammeter and regulated power supply
2	Variac (25 Amp, 0-300V)
3	Digital megger (500V/DC)
4	Milli ohm meter
5	High voltage tester (0-5KV/100Hz AC)
6	Regulated power supply of different ranges and ratings
7	Hand held True RMS digital Multimeter / Average reading Multimeter
8	Hour meter
9	Stopwatch / Electronic Timer
10	Frequency Meter
11	Tachometer
12	Digital contact thermometer
13	Clamp on meter.

SN	Description
II	Essential testing equipment required for Quality Assurance-
14	Digital micro meter
15	Digital Vernier calipers
16	Measuring Tape
17	Measuring scale
18	Inside & Outside Caliper
19	Spring Balance
20	AC immunity tester (for motor)
21	Temperature rise test setup (for motor)
22	Motor torque /momentary overload test setup (for motor)

Note:

- i) Any outsourcing shall have prior approval of RDSO.
- ii) Outsourcing shall be clearly indicated and its QAP shall be duly verified by inspecting authority.
- iii) All the meters must be calibrated once a year by Government / Reputed agency. In-house calibration wherever feasible, may be done with specific permission of DI/QA/S&T.

Quality Assurance Flow Chart for Electric Lifting Barrier and ELB with hand generator

Incoming Raw material for Chassis & Booms

- CRC Sheet
- MS Angle
- Channel
- Al Sheet etc.

Inward
Inspection

Fabrication of Frames,
cover, doors, Booms,
counterbalance Channel,
Weight, control Panel and
Solenoid lock Box etc.,

Physical Check for
Dimensions as per Drawing

Cleaning of rust
/ Oil and Primer
coating

Baking of
Primer

Final painting/
Powder coating &
baking

Incoming Raw material for Gear Unit

- Cover
- Worm wheel
- Worm
- Gear
- Shaft
- Clutch etc.

Inward
Inspection

Gearbox assembly
as per Drawing &
Dimensions

Incoming Raw - material for Electrical Solenoid lock & Control Panel

- Control Circuit
- Solenoid etc.

Inward
Inspection

Assembly of
Solenoid lock &
Control panel, as
per drawing

Testing
on Jig

Incoming Raw - material for Motor

- Casting Item
- Machining Item
- Terminal block
- Coil
- Core
- Armature
- Fittings
- Bearing etc.

Inward
Inspection

Vacuum
impregnation
for Core,
Armature, &
Coil

Assembly of
Motor parts &
fittings

Visual,
Electrical and
performance
tests on motor
as per
specification

Final
Assembly of Lifting
barrier system

Mounting of Terminals,
Meters, Motors, Generators &
Switches etc. and wiring

Finish

Testing as per
the relevant
Specification

Note - Outsourcing shall be clearly indicated on Flow chart.