Government of India
Ministry of Railways

QMS-36:2009
(Revision 0)

Schedule of Infrastructure Requirements for Manufacturing & Testing facilities and Quality Control requirements

for

Top lock lift hole cap, Knuckle pin with washer,
Yoke pin, Knuckle thrower,
Yoke Pin Support & Yoke Pin Support Wear Plate

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March'2009 **Rs. 400/-**

1.0 SCOPE

1.1 This schedule covers the technical requirement for manufacture and supply of

a) Top lock lift hole cap.
b) Knuckle pin with washer
c) Yoke pin
d) Knuckle thrower
e) Yoke Pin Support & Yoke Pin Support Wear Plate

2.0 REQUIREMENTS

The vendors seeking approval shall have the required facilities as mentioned below from Para 2.1 to 4.10:

2.1 General infrastructure and manufacturing facilities.

2.1.1 Manufacturer should have adequate covered space for storing raw material, manufacturing, arranging inspection, testing finished items awaiting dispatch.

2.2 M&P : The following machinery and plants for suitable capacity should be available.

2.2.1 Top lock lift hole cap.

2.2.2 Plat shearing machine-min 5mm capacity for shearing plates.

2.2.3 Profile cutting machine for cutting plates as per profile.

2.2.4 Blanking & piercing press machine 1 T capacity for making holes.

2.2.5 Suitable dies for blanking and hole making.

2.3 Knuckle pin

2.3.1 Pneumatic hammer/100 kg, or China press/power press 100 T capacity for head formation.

2.3.2 Hack saw – 18" stroke for cutting rods.

2.3.3 Centre lathe – machine for machining & cutting of rounds.

2.3.4 Blanking machine of 1t capacity for manufacturing washer.

2.3.5 Heat treatment furnace (Min 1T) provided with thermocouple and automatic temperature recorder with digital indicator for heat treatment for knuckle pin.

2.3.6 Oil quenching tank of 5 times the capacity of HT furnace.

2.3.7 Hearth

2.3.8 Drilling machine – min ½ inch capacity

2.4 Yoke pin

2.4.1 Centre lathe. 8" capacity for machining yoke pin.

2.4.2 Hack saw for cutting bars as per size.

2.4.3 Heat treatment furnace (min – 1T) provided with thermocouple and automatic temperature recorder with digital indicator.

2.5 Knuckle Thrower

2.5.1 The firm seeking to manufacture from steel casting should satisfy the requirement for category "A' as per IS 12117 (96) or latest.

2.5.2 The firm should have forging facilities as given below

a) Forging hammer – f suitable cap 500 kg (min)
b) Forging dies of suitable size
c) Annealing furnace – 1 T capacity

3.0 TESTING FACILITIES

3.1 Brinell hardness testing machine capable of measuring the hardness upto 500 BHN should be available. If yoke pin is manufactured by case hardening, Vicker hardness testing machine shall be necessary.

3.2 Suitable gauges for checking dimensional accuracy of the component should be available.

3.3 Vernier calliper, dial indicator and other necessary measuring instruments should be available.

4.0 QUALITY CONTROL

4.1 The firm should have acquired ISO 9000 series certification for the product for which an approval is sought and it should be broadly covered in the scope of the certification for manufacture and supply.

4.2 Quality manual of the firms for ISO 9000 should clearly indicate at any stage the control over manufacturing and testing of the said railway product.

4.3 There should exists system of easy traceability of the product from raw material stage to finish product stage.

4.4 Quality Assurance Plan for the product detailing various aspects like

a) Organisational chart
b) Flow process chart
c) Stage inspection details
d) Various parameters to be maintained to ensure control
e) Policy of disposal of rejected castings should be implemented and record is maintained for documentary evidence.

4.5 A diploma holder must be head of the inspection /final control section with 5 years experience in the relevant field.

4.6 There exists a quality manual of the firm indicating the extent of control over production and testing.

4.7 There exists a system of documentation in respect of rejection at customer end warranty replacement.

4.8 System should exists for documentation of the following:

4.8.1 Incoming raw material with TC reference of supplier as well as internal test/audit checking form outside agency.

4.8.2 Stage inspection and test result.

4.8.3 Calibration records.

4.9 Ensure that a proper system is available to deal the customer feedback.

4.10 Ensure that all the relevant specifications and IS standard are available.