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Specn.No. CQAE/3990/1427/C.  
Superseded Specn.No. CQAE/3990/1427/B

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यह प्रति सी डी डी/ओ. एफ.ए. जे.  
द्वारा दी गई है।  
दिनांक: 15/2/22  
Date : 15/2/22  
for JWM/CDD

DEFENCE SPECIFICATION  
FOR  
MACHINE PULLING AND LIFTING UNIVERSAL 3 TONNE - 1A

- 0.0 FOREWORD
- 0.1 This specification has been prepared by the Controllerate of Quality Assurance (Engineering Equipment), Aundh Camp, Pune-411 027 on behalf of Director General Quality Assurance, Ministry of Defence, New Delhi.
- 0.2 The specification has been prepared to lay down general requirements. This would be used to guide manufacturer / Quality Assurance/Inspection and Procurement of equipment/item.
- 0.3 This specification consists of 13 Pages holds good only for the supply order/ acceptance of tender against which it is stated and issued.
- 0.4 This specification shall be used for Tender Inquiry, Procurement, Manufacture and Quality Assurance purpose of the equipment covered in the specification.
- 0.5 This specification is restricted document and therefore should not be communicated to anyone who is not authorized to receive it.
- 0.6 This specification with drawings should be returned to issuing / purchasing authority on completion of tender formalities or completion of supply order.
- 0.7 The Controller, CQAE, Aundh Camp, Pune-411 027 is the AHSP (Authority holding Sealed Particulars). For doubt, regarding any statement covered in this specification shall be referred to the AHSP, who will clarify requirement shall be final and binding on the supplier. Any legal or contractual condition shall be referred to the contract placing authority.
- 0.8 The Quality Assurance Authority for the Eqpt covered in this specification is The Controller, CQAE, Aundh Camp, Pune-411 027 and Quality Assurance Officer will be Senior Quality Assurance Officer (SQAQO) of Senior Quality Assurance Establishment (Engineering Equipment) located at Mumbai, Kolkata, Chennai and New Delhi or an officer nominated by him. SQAQO shall carry out Bulk Quality Assurance of the item.
- 0.9 Clause by clause reference of this specification should be confirmed in writing along with tender inquiry documents/quotation otherwise the tender documents are liable to be rejected for incomplete/inadequate details.
- 0.10 No deviation for stipulated parameter of specification / drawing will be accepted without the concurrence in writing by AHSP and no request will be entertained directly from sub-contractor, if any. The main contractor shall remain responsible for the quality of the product.

- 0.11 The contractor shall extend to the Defence QA Authority or his authorized representative all reasonable facilities for QA and testing of the equipment including gauges, free of cost. In order to ensure that the stores ordered are produced strictly as per this governing specification, the QA Authority or his authorized representative shall be provided free access from raw material to dispatch stage at the manufacture's works at all times during the currency of the contract. If the need is felt, he will also have free access to procurement documents including books of accounts. In case sub-orders are placed on sub contractors, the prior approval of sub-contractors by AHSP and SQAQ, SQAQ (EE) of the area concerned to be obtained. All Quality Assurance and test facilities shall be provide free of cost for the sub-contracted items / by sub contractors.
- 0.12 Advance Samples or Pilot samples, if any, stipulated in the contract are required to be submitted to the Quality Assurance Authority at CQAE, Aundh Camp, Pune-411027 at the vendors risk and cost within stipulated delivery period for testing and approval before undertaking bulk manufacture of item. Bulk manufacture will be undertaken by the contractor after the approval of Advance/ Pilot sample. The bulk supplies will be affected strictly as per approved Advance/ Pilot sample including any improvement /modification suggested during approval of the Advance/Pilot sample. CQAE may carryout inspection of processes and stage inspection during manufacturing of pilot sample.
- 0.13 Stage QA Check will be carried out right from raw material stage to dispatch of the stores. Stage inspection will be carried out by the manufacturer and related reports/test parameters to be submitted to the QA agency as per specification requirements.
- 0.14 Any of the defects noticed during Quality Assurance by QA agency shall not be rectified /repaired without prior approval of the Defence QA Authority.
- 0.15 The manufacturer/contractor is required to incorporate latest technology, state of the art manufacturing procedure and test methods in turning out the product in meeting the requirements of reliability, serviceability, interchange ability and durability of the product.
- 0.16 The warning/safety aspects of the store have to be kept as per standard practice. Guidance in manufacture of the store shall be taken from patent or samples, if any available with the Defence Authorities.
- 0.17 Copies of any national or international or any other specifications, instructions or guides stipulated in this specification for reference shall be obtained from the publishers of the respective documents. The latest version of these documents shall be applicable.
- 0.18 This specification shall be used for the sole purpose of manufacturing and supplying the store to the defence indenter against a specific contract only and not for any other purpose.
- 1.0 SCOPE
- 1.1 This specification deals with general and technical requirement, material, constructions, workmanship, testing, finish and Quality Assurance of Machine Pulling and Lifting Universal 3 Tonne - 1A

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RELATED SPECIFICATIONS

	Specification No	Title
IS	5604 : 1984 (Reaffirmed Year : 2020 )	: Hand operated universal gearless pulling and lifting machine.
IS	2062 : 2011 (Reaffirmed Year : 2016 )	: Hot Rolled Medium and High Tensile Structural Steel
IS	2004 : 1991 (Reaffirmed Year : 2018 )	: Carbon steel forgings for general engineering purposes
IS	2611 : 1964 (Reaffirmed Year : 2018 )	: Carbon chromium molybdenum steel forgings for high temperature services
IS	4367 : 1991 (Reaffirmed Year : 2019 )	: Alloy steel forgings for general industrial use
IS	617 : 1994 (Reaffirmed Year : 2020 )	: Aluminium and Aluminium alloy ingots and castings for general engineering purposes
IS	4454 : Part 1 : 2001 (Reaffirmed Year : 2015 )	: Steel Wires for Mechanical Springs - Part 1 : Patented and Cold Drawn Steel Wires - Unalloyed
IS	15560-2005 (Reaffirmed Year : 2020 )	: Point hooks with shank up to 160 Tonnes
IS	2315:1978 (Reaffirmed Year : 2017 )	: Thimbles for wire rope.
IS	2266 : 2019	: Steel Wire Ropes for General Engineering Purpose ( Fifth Revision )
IS	5669 : 2019	: Rolling Bearings Radial Bearings Boundary Dimensions, General Plan ( Second Revision )
IS	5692 : 2019	: Rolling Bearings Radial Bearings Geometrical Product Specifications ( GPS ) and Tolerance Values ( Second Revision )
IS	1161 : 2014 (Reaffirmed Year : 2019 )	: Steel Tubes For Structural Purposes
IS	1239 : Part 1 : 2004 (Reaffirmed Year : 2014 )	: Steel Tubes, Tubular and Other Wrought Steel Fittings - Part 1 : Steel Tubes
IS	2074 : Part 1 : 2015 (Reaffirmed Year : 2020 )	: Ready Mixed Paint, Air Drying, Red Oxide - Zinc Chrome, Priming
IS	8982 : 2019	: Ready Mixed Paint, Finishing, Air-Drying for War Equipment Specification (Second Revision )
IS	3536 : 2016	: Ready Mixed Paint, Brushing, Wood Primer - Specification ( Second Revision )

3.0 MATERIALS

- 3.1 The materials used for various components or sub-assemblies shall be of high grade and conforming to relevant Indian standards specification where ISs are available (otherwise these shall conform to International standards).
- 3.2 The jaws shall be made from alloy steel containing at least 0.90 percent chromium to ensure resistance to abrasion. The alloy steel after suitable heat treatment (hardening and

tempering) shall have the following mechanical purposes.

- |    |  |   |                       |
|----|--|---|-----------------------|
| a) | Tensile strength                         | : | 900 MN/m <sup>2</sup> |
| b) | Elongation (at gauge length 5.65 A), Min | : | 15%                   |
| c) | Izod impact value, Min                   | : | 40 Nm                 |
| d) | Hardness, Min                            | : | 300 BHN               |

- 3.3 All other forged part subjected to heavy stresses shall be made by drop forging from high tensile steel casting/side cover of machine shall be made either from casting or from fabrication and maintain alignment under all expected condition of service. The casing shall have the minimum factor of safety of 5 and shall be robust Aluminum casting shall confirm to the requirement as per specification IS: 617. Springs shall be of grade-3 cold drawn steel wire conforming to IS: 4454 (Pt-1). Telescopic handle shall be manufactured from ERW or seamless pipes conforming to the requirement of specification IS: 1161 or IS: 1239. Wire rope shall be provided as per requirement of specification IS: 2266. Galvanised steel core wire ropes of 6 x 36 or 6 x 37 construction shall be used for 16 mm diameter. All components of the pulling and lifting machines shall be treated for rust prevention.

#### 4.0 BRIEF DESCRIPTION

The pulling and lifting machine will essentially consist of Jaw block which are required for rectilinear pulling of steel wire ropes by gripping and releasing actions of two sets of jaws alternately. Each set consists of a pair of smooth parallel jaws of suitable length which grip the wire rope firmly by closing top and bottom without causing damage to the rope. These jaws work on the self clamping principle, that is, they are locked by the pulling force of the wire rope itself. The jaw blocks shall be enclosed in a casing having a minimum factor of safety of 5. The machine shall be provided with two mechanism for forward pull (on lifting) and reverse pull (or lowering). Two different levers shall be provided on the machine for forward (or up) and the reverse (or down) motion. The machine shall generally conform to specification IS: 5604.

#### 5.0 SITE CONDITIONS

##### 5.1 Altitude

The machine shall be suitable for use and storage at height upto 4500 meters above sea level at their full rated performance without modification.

##### 5.2 Temperature

The machine shall be made suitable for use and storage within minus (-) 15°C to (+) 55°C.

##### 5.3 Humidity

The machine shall be suitable for use and storage at 100% relative humidity at all temperature below 30°C ambient. At and above this temperature, it should be suitable for a relative humidity, not in excess of that corresponding to a vapour pressure of 4 KPA of mercury.

5.4 Deterioration

The machine should not suffer any deterioration when operated / stored in desert conditions where dust storms are quite frequent.

6.0 ESSENTIAL FEATURES

- 6.1 The safe working load (SWL) in tonne for the purpose of lifting specified by the manufacturer for the machine. In determining the applied loads, the mass of all individual devices, such as slings and eye-hooks shall be included. The load will be moved by the operation of lever and the direction of movement shall be determined by selecting one of the two separate levers provided for the purpose.
- 6.2 It shall be possible to change the direction of movement of the wire rope without releasing the load.
- 6.3 Suitable release lever shall be provided to allow the operator to move the slack wire rope quickly to its required position when the hoist is not under load.
- 6.4 When a load is being lifted, some back slippage of the load is bound to occur permissible back slippage of the load as a percentage of total lift in one stroke (forward and backward) shall be as per clause 7.4 of IS:5604.
- 6.5 The manufacturer shall declare the operating effort on the lever required to raise the safe working load together with the effective radius of the handle of the hoist.
- 6.6 Proof Loading: The lifting and pulling machine shall be tested prior to the operational test with a static load of twice the safe working load which it shall withstand without permanent deformation of any component part for 30 seconds. The machine shall withstand the proof load without permanent deformation of any components part.
- 6.7 Operational Test: After proof loading the lifting and pulling machine shall be made to lift 1.5 times the safe working load (SWL) through a distance of 30 cm in such a manner as to ensure that every part of mechanism comes under load. During the test, there shall be no deformation of any component part.
- 6.8 Breaking Load Testing: If desired by the Inspecting officer a Sample of Pulling and Lifting machine shall be subjected to a gradually increasing load of at least 5 times of the safe working load (SWL) without breakage of material or such distortion as could result in the release of the load. After this test, all parts shall be defaced to make them unusable.
- 6.9 After proof loading and the operational test, the machine shall be thoroughly examined.
- 6.10 The maximum and minimum opening of wire gripping jaws shall be accurate, uniform and suitably heat treated to the required degree so as to avoid the wearing of jaws and causing of slippage of ropes during operation of the machine.

7.0 TECHNICAL DATA

The pulling and lifting machine shall satisfy the following technical requirements :-

- a) Lifting capacity/ Safe Working Load : 3 Tonne
- b) Overall dimension : 720 x 320 x 150 mm ( approx)
- c) Weight of the machine : 30 Kg (approx)  
(excluding wire rope)
- d) Effort at full load : 350/600 Newton No load to max load
- e) Mechanical advantage : 85:1
- f) Length of telescopic handle
  - Closed : 90 cm (max)
  - Extended : 115 cm (min)
- g) Run of rope per return stroke : 25 mm (min)
- h) Speed of Movement : 1 to 3 m ( approx)
- j) Diameter of steel wire rope : 16 mm
- k) Breaking load of steel wire rope : 16 Tonne (Min)
- l) Length of steel wire rope : 10 m
- m) Capacity for pulling : Two times the lifting capacity.
- n) The Machine should have two speeds, the change of speed being possible during the operation.
- o) The materials used for manufacturing various parts/ components should conform to the clause 3 of specification No IS:5604.

8.0 TOOLS AND SPARES

The manufacturer / supplier shall supply a set of tools and spares required for maintenance of the equipment free of cost with each machine. Tools and spares shall be in metric size and standard make. Also Tools/ spares for normal maintenance of the equipment shall be supplied by the manufacturer/supplier at the quotation stage.

9.0 ACCESSORIES

Each pulling and lifting machine being supplied against this specification shall be complete with steel wire rope fitted with a hook and Thimble at one end and tapered and fused at the other end. It shall be suitable wound clamped to facilitate carrying. A suitable telescopic handle for to and fro operation shall be provided with each machine.

10.0 LITERATURE

- 10.1 The manufacturer/supplier shall submit the following draft literature to AHSP i.e, Controllerate of Quality Assurance (Engineering Equipment), Aundh Camp, Pune-411027 in triplicate for approval through SQAE(EE) along with advance sample in Defence format, i.e. as per JSG No. 0308:2017 (Rev 2).

- 10.2 Identification parts list (Illustrated) with price of each items as per Defence format. The unit of measurement used in IPF shall be metric system.
- 10.3 User Hand Book should be in bilingual Hindi and English covering operation manual of the equipment as per Defence format.
- 10.4 Repair-maintenance manual.
- 10.5 List of maintenance tools and recommended spare parts duly priced required for maintenance of the equipment for the period of two years and for one major overhaul.
- 10.6 The approved draft literature mentioned above will be printed by the contractor and one set will be supplied along with each equipment free of cost. Additional copies will also be supplied as demanded in the contract. Four copies of the above literature will be supplied to AHSP free of cost.
- 10.7 The contractor to supply relevant drawings, specification, technical details etc. in respect of all separately demandable items as listed in ISPL in regard to:
  - a) Physical characteristics
  - b) Performance characteristics
  - c) Standard to which item has been manufactured to the AHSP for the purpose of codification system. The drawing etc. so provided will not be used except for codification and will be returned back to the manufacturer by the AHSP on completion of codification.

NOTE: The draft copies of all literature shall be vetted/scrutinised by the inspecting officer and finally approved by CQA(Engg-Eqpt) . Aundh Camp, Pune 411027 before final printing/bulk painting.

## 11. WORKMANSHIP

- 11.1 Workmanship of the equipment shall conform to the best production standards of the industry and to the entire satisfaction of Quality Assurance Officer.
- 11.2 All forged and other parts shall be accurately finished to shape and smoothed all over. All sharp corners/edges shall be free from burrs, cracks and any other manufacturing defects. All sharp corners shall be rounded off.
- 11.3 The castings shall be free from any blow holes, foreign materials and cracks.
- 11.4 All the pins used for re-yetting shall be accurately turned on automatic lathes to ensure complete interchangeability and closed tolerances.
- 11.5 All springs shall be properly heat treated to ensure the required tensions and long life.
- 11.6 All steel components of machine pulling and lifting shall be treated for rust prevention.



12. PAINTING / FINISH

All the exposed parts of the equipment shall be given of primer paint RFU oxide of iron and zinc chromate, universal synthetic bursting/spraying conforming to specification IS:2074. This will be followed by two finishing coats of paint, RFU, finishing air drying (bursting/spraying) for war equipment olive green scamic of ISC No.294 conforming to specification IS:8982.

13. MARKING

13.1 Identification Plate:

An anodized aluminum plate/ blackened brass plate of suitable size and thickness shall be fitted at a prominent place of the equipment and the following details shall be incorporated on the plate:-

- a) Nomenclature
- b) DS Cat Part No/NSN No.
- c) Capacity of Machine
- d) Serial Number
- e) Year of manufacture
- f) Contract number and date
- g) Manufacturer's name

13.2 Space of 53mm dia shall be left blank on name plate to put the inspection mark by inspection officer on identification plate.

13.3 The manufacturer shall ensure that the details given in the identification plate are correct and are as per the relevant clause of specification / supply order /AT. The details shall also be given in their pre-inspection report.

14. INSTRUCTION PLATE

All instruction plate of anodized aluminum/ blackened brass plate of suitable size and thickness shall be fitted at a suitable prominent place of the equipment and the following instructions shall be incorporated.

- a) Operation
- b) Releasing the Rope.
- c) Fabrication
- d) Warning instructions
- e) Do's and Don'ts

15. QUALITY ASSURANCE

Quality assurance of the equipment as well as the bought out items is basically the responsibility of the manufacturer and shall have a built in Quality control systems, maintaining all the records of tests/observation. These records shall be made available to the Quality Assurance Officer when demanded.

16. ADVANCE SAMPLE

An advance sample of acceptable Quality which is a representative of the bulk shall be offered to CQAE(EE), Pune-27 premises. If required as per contract for evaluation and approval before the commencement of bulk supply. The advance sample should accompany with 3 copies of draft literature given in clause 10 of this specification otherwise the advance sample is liable to be rejected. The testing of advance sample will be carried out as per test schedule No. CQAE/TS/1308/c attached to this specification. The advance sample is normally required to be kept at manufacturer's premises till the end of the order for guidance/reference purpose unless otherwise agreed by the AHSP, ie CQAE, Aundh Camp, Pune-27 in writing.

17. BULK INSPECTION

Bulk inspection check shall be carried out by the SQAE(EE) at contractor's premises as per relevant specifications and Test Schedule No. CQAE/TS/1308/b enclosed as Appendix 'A' to this specification on clearance of advance sample by AHSP. All the test facilities and inspection gauges as required by the SQAQ(EE) shall be provided by the contractor free of cost.

18. PRE-INSPECTION

It is mandatory on the part of the manufacturer before tendering the stores for Quality assurance (inspection) he shall carry out a thorough pre-inspection to ensure that the machine pulling and lifting fully conform to the specification in all respect. A certificate and detailed report to this effort shall be submitted by the manufacturer while tendering the advance sample and bulk stores for Quality Assurance check. If pre-inspection of the stores has not been carried out by the manufacturer, the stores offered is liable to be rejected.

19. GUARANTEE / WARRANTY

The ultimate responsibility for the supply of equipment and its satisfactory performance shall rest with contractor. The equipment shall be guaranteed against defects in design, material, performance and workmanship for a period of 12 months from the date of receipt of stores at consignee's end.

The contractor shall give necessary guarantee that it is obligatory on his part to supply the necessary maintenance spares for a period of not less than 10 years from the date of supply of equipment. If during this period the manufacturer decides to stop production thereof he shall give the indenter / consignee clear 18 months notice to the effect and during this period consignee / indenter shall have the right to place the demand for the time requirements of spares, without any change in the prices.

20. PRESERVATION AND PACKING

All the assemblies and the linkages shall be properly lubricated before they are fitted in the casting. The stores shall be packed in suitable commercial packing boxes duly treated capable of withstanding rough handling during rail/road transit to the entire satisfaction of the inspecting (QA) officer. No stores shall be packed unless they have been preserved to the satisfaction of the inspecting officer.

21. CODIFICATION

The manufacturer / suppliers are required to provide all necessary technical information to fully identify the item. This information is required for defence codification purposes only and in no way jeopardize the commercial interest of the suppliers. Non compliance of this requirement by contractor is likely to render his bid being rejected. The manufacturer has to obtain the NSN No. for all 'P' marked items and same to be included in the literature.

22. INSTRUCTIONS FOR THE USE OF PULLING & TESTING MACHINES

- 22.1 Never lift or drag a load in excess of the safe working load marked on the machine. The machine has been proof loaded to twice the safe working loads under carefully controlled conditions.
- 22.2 Before use, examine the wire rope to ensure that the same is in good condition and the constructions are according to the specification.
- 22.3 Keep the wire sufficiently lubricated along the whole length. In special cases the wire rope may be used dry, but the life of the wire rope in such case will be considerably reduced. If the wire rope slips when the machine is in operation, stop the operation and lower down the load. The machine should be opened and the reason for the trouble should be found out.
- 22.4 Do not allow dirt and sand to get together on the wire or to get into the casing of the machine. There should be adequate provision for lubricating the machine.
- 22.5 Never lift with the point of the hook. All machines should be registered and at periodic intervals should be thoroughly cleaned, inspected and lubricated.

23. SUGGESTION FOR IMPROVEMENT

Any suggestions for improvement of this document may be referred to:-

The Controller  
Controllerate of Quality Assurance Establishment  
(Engineering Equipment)  
Aundh Camp, Pune - 411 027

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Test Schedule No. CQAE/1  
RAGHUBIR SIM  
Appendix "A" to Specn No. CQAE/3990/1-  
JAG (NFSG)

TEST SCHEDULE FOR MACHINE, PULLING AND LIFTING 3 TONNE - 1A

Sl No	Item	Specification Requirements	Tests	Sampling Plan		Acceptance Criteria	Remarks
				Advance sample	Bulk supply		
1	2	3	4	5	6	7	8
1.	Complete Eqpt	Check for Completeness of the Eqpt	Machine, Pulling and Lifting shall be checked for completeness as per contract specn & applicable AT/SO.	100%	100%	Machine, Pulling and Lifting shall be complete in all respect.	
2.	Complete Eqpt	Material Certification	All Materials shall be tested at NABL Accreditation Lab/ Govt approved Lab.	100%	100%	Materials including Wire rope and hook used for mfg of Machine, Pulling and Lifting shall conform to the relevant IS specn.	Test certificates shall be obtained.
3.	Complete Eqpt	Visual inspection.	1. Eqpt shall be Checked for fitment, finish, workmanship, painting and galvanizing, etc 2. Casting defects on the cover. 3. Movements of parts 4. Cracks and excessive clearance on mating parts. 5. Visual inspection of riverts and fitting. 6. Lubrication / Greasing of parts. 7. Leakage of Lubrication oil/ Molten of Grease.	100%	100%	The fitment, finish, workmanship, shall be satisfactory Shall be free from Casting defects Smooth movements of parts without hammering or knocking. Shall be free from cracks, or damage Shall be satisfactory Shall be satisfactory Shall be satisfactory	
4.	Complete Eqpt	Dimensional Check	As per Clause 7 of Specification.	100%	100%	Dimensions shall be within specified limits.	

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Test Schedule No. CQAE/15.  
Appendix "A" to Specn No. CQAL/3990/14.  
RAGHUBIR SINGH  
JAG (MES)

Sl No	Item	Specification Requirements	Tests	Sampling Plan		Acceptance Criteria	Remarks
				Advance sample	Bulk supply		
1	2	3	4	5	6	7	8
5.	Complete Eqpt	Functional Check	<p>1. <u>Proof Loading:</u> Pulling and Lifting Machine shall be subjected to a proof load with static load of Twice the safe working load for a period 30 seconds.</p> <p>2. <u>Operational Test:</u> After proof loading the lifting and pulling machine shall be made to lift 1.5 times the safe working load (SWL) through a distance of 30 cm in such a manner as to ensure that every part of mechanism comes under load. During the testing following points shall also be checked: a) Wire Rope slippage. b) Effort required. c) Speed of movements.</p> <p>3. <u>Breaking Load Testing*:</u> A Sample of Pulling and Lifting machine shall be subjected to a gradually increasing load of at least 5 times of the safe working load (SWL)</p>	100%	100%	<p>The machine shall withstand the Operational load without permanent deformation of any components part. The wire rope shall be carefully examined for any damage.</p> <p>The machine shall withstand the proof load without permanent deformation, cracks, and flaws of other visual defects in any of components part.</p> <p>The wire rope shall be carefully examined for any damage.</p>	<p>Defective Eqpt should be rejected</p> <p>Balance (90%) shall be tested for full load.</p> <p>Defective Eqpt should be rejected.</p>
				If desired by the Inspecting officer		Shall be free from breakage of material or such distortion as could result in the release of the load.	After this test, all parts shall be defaced to make them unusable.

NOTE: \*If one of the samples fails in the first sampling, another sample to be tested from the same batch/Lot. During the retesting if one of them again fails, than the offered batch/Lot shall be rejected.

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Test Schedule No. CQAL/15,  
Appendix "A" to Specn No. CQAL/3990/14.

RAGHUBIR SINGH  
JAG (MFG)

Sl No	Item	Specification Requirements	Tests	Sampling Plan		Acceptance Criteria	Remarks
				Advance sample	Bulk supply		
1	2	3	4	5	6	7	8
			4. The Machine shall be tested for Pulling and Lifting the load in such a way that force exerted by the machine is 3 Tonne.	100%	100%	Shall confirm.	
6.	Steel Wire Rope and Hook Complete Eqpt	Functional Check	Minimum Breaking Force Minimum 2% of the samples to be tested for Minimum breaking Force as per IS 2266. As per Cl 13 of specification	100%	2%	The minimum breaking force shall be as per tables 3 (6 x 37) or 6 (6 x 36)	Test certificates shall be obtained.
7.	Complete Eqpt	Identification Marking on Eqpt	As per Cl 13 of specification	100%	100%	Marking shall meet requirements as per Cl 13 of specn	
8.	Complete Eqpt	Tools & Accessories.	As per Cl 8 and 9 of specification	100%	100%	Tools & Accessories shall be as per Cl 8 and 9 of specn	
9.	Complete Eqpt	Packing and Preservations	As per Cl 20 of specification	100%	100%	Packing and Preservations shall meet requirements as per Cl 20 of specn.	
10.	Complete Eqpt	Literatures	As per Cl 10 of specification	100%	100%	Literatures shall meet requirements as per Cl 10 of specn	
11.	Complete Eqpt	Guarantee / Warranty	As per Cl 19 of specification	100%	100%	Guarantee / Warranty shall meet requirements as per Cl 19 of specn	