

## **SPECIFICATION FOR ONE TON DIGITAL TENSILE TESTING MACHINE**

Specification No. Mech/M&P/3100/GM/22

### **1.0 IMPORTANT INSTRUCTIONS TO TENDERERS FOR FILLING TECHNICAL BID**

- 1.1 Bidders are required to give clause wise comments on the technical specifications, confirming compliance/non-compliance with details of deviations if any along with their effect on the performance. Back references to be avoided, offers are likely to be ignored in case of non-compliance of these instructions for furnishing the information.
- 1.2 Unless otherwise stated, latest alterations/ revisions of specifications/ standards/ drawings shall be applicable. In respect of safety standards and environmental standards relevant to the machine, the machine manufacturers shall ensure compliance with international (CE/ISO/DIN/JIS)/National standards (IS) (where applicable).
- 1.3 Tenderers should offer and quote for all the specified concomitant accessories, as these are considered essential for commissioning and utilization of the machine. Even if bidder does not recommend the purchase any of these accessories, the price must be quoted for comparison purposes and their recommendation/suggestion indicated in the offer. Tenderers should also quote for optional accessories, spares and consumable spares as asked in the specifications.
- 1.4 In case, any item is required in sets, please specify nos./pieces per set. This is essential for proper technical evaluation of the offer. Offers received without this may be considered as incomplete and liable to be rejected.
- 1.5 The bidder should quote only for the specified make of sub-assemblies and equipment wherever specified. Makes of sub-systems other than the specified ones will normally not be acceptable. In case, some other make is quoted, specific reasons for the same including its features/advantages over specified makes must be brought out in the offer.
- 1.6 In case there is a contradiction in any information provided (some parametric values given in the specification and those given in the brochure or some other document enclosed by the tenderer), unless specifically mentioned in the deviation cum confirmation statement the values as given in the specification shall be taken as confirmed by the tenderer and offer evaluated accordingly.
- 1.7 The Purchaser may accept internationally accepted alternative specifications which ensure equal or higher quality than the specifications mentioned in the Technical Specification. However, the decision of the Purchaser in this regard shall be final.
- 1.8 Purchaser reserves the right to verify the details submitted by the bidder by actual site visits.
- 1.9 Other terms & condition of the contract will be as per Indian Railway Standard conditions of contract.

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## 2.0 DESCRIPTION

One Ton Digital Tensile Testing Machine is required for testing of tensile, flexural, peel, share strength and elongation of Rubber, Plastic, FRP, Plywood, all types of adhesives, compreg ply, NFTC, composite materials, LP sheet, various types of foams, curtains fabric, upholstery cloth etc.

## 3.0 PURPOSE & SCOPE OF SUPPLY

3.1 The instrument is required to determine the tensile, flexural, peel, shear strength, elongation of rubber, plastic, FRP, plywood, adhesives, compreg ply, NFTC Composite materials when tested as per ISO37, ASTM D 638, DIN 53504,ASTM 790,ASTMd624,ASTM,ASTMD3163.

3.2 The Contract shall cover –

- i) The supply and delivery of equipment.
- ii) Installation & commissioning of equipment of RCF /Kapurthala.
- iii) Training to personal regarding operation and maintenance at RCF Kapurthala to entire satisfaction of the purchaser.

## 4.0 GENERAL FEATURES

The instrument shall have the following general characteristics :

- 4.1 The instrument should be simple to operate and selection of operating parameters should be controlled /understand easily by the working staff.
- 4.2 The instrument shall have peak force retention memory, which can be recalled to display maximum load exerted on the test specimen before its failure.
- 4.3 The instrument shall have overload protection relay to stop the motor automatically if the load exerted goes above the maximum capacity of the load cell.
- 4.4 The movement of the lower grip is indicated on a digital indicator with pre-set arrangement to automatically stop the motor at any desired separation of grips. There should be digital display of preset & actual speed during operation.
- 4.5 The instrument shall be finished in enamel painting with smooth finish & bright chrome plating to give it a corrosion resistant finish.
- 4.6 The instrument shall have wide leg room under the load unit provides a comfortable working area for attaching & removing jigs.
- 4.7 The instrument should be microprocessor controlled for highly accurate load measurement.
- 4.8 The machine shall have pre set speeds 20,50,75,100,200,300,400&500 mm/min

## 5.0 TECHNICAL FEATURES

Sr.No	PARAMETERS	REQUIREMENT
a)	Frame Capacity	0-1000 Kg.
b)	Motor	Servo Motor with digital drive. 1 HP,3-Phase, 400 V AC
c)	Speed	10-500 mm/ min
d)	Mounting	Free standing vertical mounted with base
e)	Load Ranges	0 to 1000 Kg.
f)	Load Resolution	0.01%
g)	Elongation measurement	Measured between grips on a digital display from 0-900x1 mm.
h)	Load Accuracy	+/- 0.5 %
i)	Grip Separation	Min.25 mm , Max.900 mm
j)	Load Measurement	With the help of load cell and digital display having arrangement to display maximum load exerted during the test.
k)	Noise Level	Not more than 65 db during operation.
l)	Electric controls	Push button controls for up and down movement and

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		stopping. Micro switches for over travel protection.
m)	Operating /test modes	Tensile / bending/flexural/Elongation etc. with suitable accessories.
n)	Safety Features	Emergency stop, over travel protection by full length adjustable limit switches, electronic overload protection up to 100% capacity
o)	Units	Metric, imperial and SI users programmable.
p)	Power supply	220V AC,50Hz,1500 VA
q)	Size	1700(h)x800(w)x500(d) mm Nominal for 1000mm cross head.

## 6.0 STANDARD ACCESSORIES TO BE SUPPLIED WITH MAIN UNIT

- 6.1 The supplied shall provide standard accessories i.e. various type of grips for self tightening the samples like set of wedge type, set of roller type, set of corrugated grips etc. along with the equipment at the time of commissioning for the smooth functioning of the equipment. Also optional accessories if any to be quoted separately.
- 6.2 During warranty/ Guarantee period supplier will have to replace all spares free of cost on site. It should be very clear to the supplier that in case instrument / any of its part(s) is required to be sent to its principal outside/ Inside for repair it will be sole responsibility of the supplier to make full arrangement to sent the equipment for repair and then supply the instrument back to RCF free of cost.
- 6.3 The supplier shall provide necessary tools & tackles along with equipment at the time of commissioning of the same.
- 6.4 The firm shall provide the list of customers & certificate for two years satisfaction working of machine from customer side.

## 8.0 OPTIONAL ACCESSORIES AND SPARES

- 8.1 The tenderer should furnish details of optional accessories & spares covered under warranty.
- 8.2 The tenderer should be furnishing the price list of optional accessories & spare parts required for two years normal maintenance of the equipment.
- 8.3 List of recommended optional accessories & spares for normal maintenance after expiry of warranty period to till useful life of the equipment.
- 8.4 Life estimated/expected for each equipment and its sub assembly.

## 9.0 OPERATING CONDITIONS

The equipment shall be capable to operate at temperature 0°C. to +50°C, Relative Humidity 98% max.

## 10.0 COMMISSIONING AND PROVING OUT

- 10.1 The Successful tenderer shall have to commission the machine within 15 days from the date of receipt of machine at RCF, Kapurthala.
- 10.2 The successful tenderer shall have to prove out the accuracy of the machine at RCF premises to the entire satisfaction of the consignee.

## 11.0 TRAINING OF STAFF

The training for operation, maintenance and trouble shooting of the Equipment shall be provided to 3 persons of RCF to their full satisfaction free of cost at RCF, Kapurthala.

## 12.0 ELIGIBILITY CRITERIA

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- 12.1 The tenderer shall be registered on IREPS website ([www.ireps.gov.in](http://www.ireps.gov.in)) to participate in the tendering process.
- 12.2 The tenderer shall have established quality control system and organization to ensure the supply of good quality products to the purchaser.
- 12.3 The tenderer shall provide a performance statement giving a list of major supplies of same/similar equipments effected in last 5 years to the reputed organizations giving details of the order no. and date and the quantity supplied and whether the supply was made within the delivery schedule. Such period shall be reckoned from the date of opening of tender.
- 12.4 References must be given to prove that the instrument model quoted is latest one and has earlier been installed at least 03 locations and has been successfully operating for last 02 years.  
Tenderer not submitting the requisite information may note that his offer is liable to be ignored.

**13.0 DEVIATION**

The tenderer should clearly certify that the machine offered fully meets the specification various design features incorporated in the machine to fulfill different technical performance requirements should be fully explained in the offer. However, minor deviations from this specification, which do not affect or in any way interfere with the stipulated performance standards, or would result in improved safety/reliability or would reduce recurring maintenance/operating cost of the machine, can be considered for acceptance.

**14.0 MAKE**

- 14.1 The supplier shall furnish the complete details of Model No. Make & Manufacturer's details/ address, Country and authorization details of Dealership.
- 14.2 The firm shall provide the calibration certificate of National / International Traceability along with validity of at least two years.

**15.0 AFTER SALES SERVICE**

Supplier should be able to repair and supply various spares required from time to time and should able to attend the problems with respect to equipment supplier should also be able to calibrate the equipment as required by the user.

**16.0 TECHINCAL LITERATURE:-**

Three copies of operational instruction manual, electrical circuit and troubleshooting guide along with warranty/Guarantee certificate for smooth and trouble free working of the instrument for at least two year of its commissioning at site should be provided to the consignee.

**17.0 SPECIAL FEATURES**

Special features incorporated into the machine, if any shall be indicated separately by the tenderer, clearly indicating the advantage of these features.

**18.0 WARRANTY**

The warranty condition of contract will be as per IRS conditions or as quoted by the tenderer whichever is later.

**Note:** Tenderer to furnish following detail of 1 Ton Digital Tensile Testing M/c offered

S.no.	Technical Parameter	Offered by Tenderer

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