

Computarised Universal Testing Machine



Model : F-5 to 200

Mastering the fine art of testing

FMI make the '**F**' series machines are electronic screw driven machine with precision screw and column construction and variable speed drive. These are high precision high performance universal testing machines, maximum capacity up to 200 kN. With the help of computer and micro-computer from control of load to processing of data are carried out with excellent performance, reliability, flexibility and easy operation.

The machines are suitable for studying mechanical behavior of various materials like iron & metals, rubber, plastics, ceramics, fabrics, composites, cables and wires. As a matter of fact, it is an indispensable instrument for the modern industries. Two options are available mainly acme threaded screw AC motor drive and ball screw with servo drive. The machines confirms to IS, BS & ASTM standards.

Technical Specification :

Model	F-5	F-10	F-20	F-50	F-100	F-200
Maximum Test Load	5 kN	10 kN	20 kN	50 kN	100 kN	200 kN
Load Measurement	By means of exchangeable strain gauge based load cell					
Load measuring range & accuracy	$\pm 1\%$ of indicated load from 2% to 100% of load capacity					
load resolution in N	0.25 N	0.5 N	1 N	2.5 N	5 N	10 N
Displacement resolution	0.01 mm	0.01 mm	0.01 mm	0.01 mm	0.01 mm	0.01 mm
Distance between columns	400 mm	400 mm	400 mm	400 mm	450 mm	450 mm
Drive	Precision AC Servo motor and digital drive of Panasonic, Japan make or equivalent					
Cross head speed	Variable from 0.5 to 500 mm / min					
Cross head travel	Approx 700 mm					
Averall dimensions (L X W X H in mm)	Approx 2100 mm (7 feet).					

Standard accessories

- Pair of Compression plates of 150 mm dia.

Software features :

- Menu driven form system with colour graphs to compare sample test results.
- Test details and reports are stored in database
- User programmable master test templates
- User can select test from master test Templates and can start similar test
- Load and Elongation is continuously displayed on screen
- Overload protection for machine by electronic control
- Tare Load and Reset Elongation facility available
- User selectable sample break detect condition
- Load rate and strain rate are also displayed while testing
- Unlimited Load rate and strain rate control steps *
- With Load rate controller, user can hold the load on specimen for unlimited time *
- With Load rate control, user can specify positive or negative Rate of Loading *
- User selectable units for load and displacement (kg, kN,N, lbf, mm, cm, inch etc.)
results and graphs are automatically displayed accordingly.
- On line display of Load and Displacement (Stress, Extension, Strain) etc. while test is conducted
- Provision of auto zeroing of Elongation at preload set by user
- User Programmable Reports. User can select Header, Footer, Specimen information, Dimensions, Testinformation, Test results, Stastical analysis as per his need.
- Generated reports can be exported to PDF file and can be e-mailed
- If electronic extensometer is used then proof stress values from 0.1% to1%can be determined
- Software will give alert to user to remove extensometer when load crosses .2% of Gauge length selected then proof load value is calculated. (With extensometer)
- Separate graph of extensometer and encoder is displayed
- Provision of calculation of Load and Elongation at yield, Peak load and Load at break, Yield stress, Ultimate stress etc.
- Special software for tensile, compression, bend, TOR steel and other test software as per customer requirements.

FMI Reserves the rights of change in the above specification due to constant improvements in design.



FOR MORE INFORMATION PLEASE CONTACT:



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Computerised Tensile Testing Machine



These models are suitable for testing metals and iron, Plastics, Rubber, Ceramics, Fabrics, Composites, Cables and wires.

Load is measured through a strain gauge based Load Cell and elongation is through rotary encoder.

Depending upon the customers requirement a suitable type of grips are available. Extra Load cell can be offered suitable for low load samples.

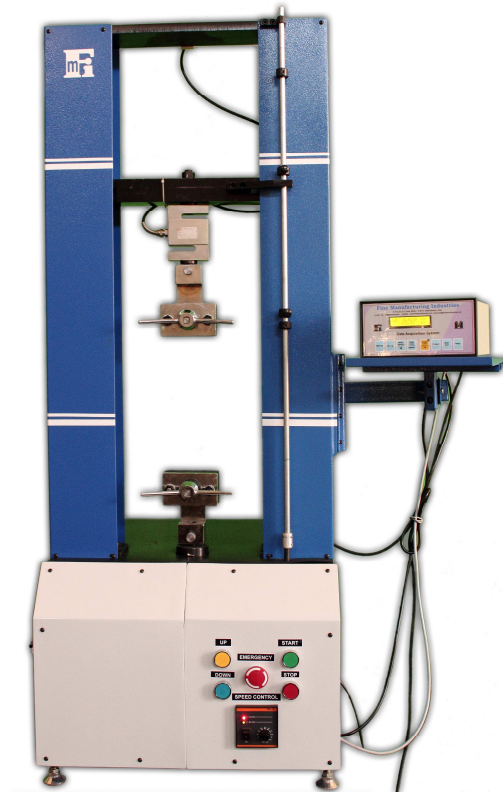
Technical Specification of Tensile Testing Machine

Max. Capacity	2500N	5000N	10 kN	25kN	50 kN
Measuring range	0-2500N	0-5000N	0-10kN	0-25kN	0-50kN
ranges Least Counts	0.125 N	0.25N	0.5 N	1.25N	2.5N
Elongation Scale L.C.	0.01 mm	0.01mm	0.01 mm	0.01mm	0.01mm
Grip separation without Grip : Min Max	25 mm 750 mm			25 mm 600 mm	
variable speed drive stepless variation	5 to 300 mm/min				
H.P. (for standard speed)	1 Hp			2hp	
Supply	3 Phase, 415Volts, 50Hz AC				
Over travel Safety	Provided with each model				

Software features :

- Menu driven form system with colour graphs to compare sample test results.
- Test details and reports are stored in database
- User programmable master test templates
- User can select test from master test Templates and can start similar test
- Load and Elongation is continuously displayed on screen
- Overload protection for machine by electronic control
- Tare Load and Reset Elongation facility available
- User selectable sample break detect condition
- Load rate and strain rate are also displayed while testing
- Unlimited Load rate and strain rate control steps *
- With Load rate controller, user can hold the load on specimen for unlimited time *
- With Load rate control, user can specify positive or negative Rate of Loading *
- User selectable units for load and displacement (kg, kN,N, lbf, mm, cm, inch etc.) Results and graphs are automatically displayed accordingly.
- On line display of Load and Displacement (Stress, Extension, Strain) etc. while test is conducted
- Provision of auto zeroing of Elongation at preload set by user
- User Programmable Reports. User can select Header, Footer, Specimen information, Dimensions, Test information, Test results, Stastical analysis as per his need.
- Generated reports can be exported to PDF file and can be e-mailed
- If electronic extensometer is used then proof stress values from 0.1% to1%can be determined
- Software will give alert to user to remove extensometer when load crosses .2% of Gauge length selected then proof load value is calculated. (With extensometer)
- Separate graph of extensometer and encoder is displayed
- Provision of calculation of Load and Elongation at yield, Peak load and Load at break, Yield stress, Ultimate stress etc.
- Special software for tensile, compression, bend, TOR steel and other test software as per customer requirements.

Digital Tensile Testing Machine



Control Panel features :

- Full fledged sealed membrane alpha numeric keyboard for data entry
16 x 2 Lines LCD Graphics display with backlit for displaying Load and Elongation of crosshead with bigger font size.
- Load indicated with resolution of 0.01% of machine capacity for entire range.
- Elongation is measured with resolution of 0.01 mm.
- Auto detection of overload and over travel and specimen break. On detection of any condition electrical motor is automatically turned off.
- Tare load and Reset Elongation facility to display Peak Load and Elongation at Peak, Load at break, Elongation at break
- RS232C interface for computer connectivity

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FINE MANUFACTURING INDUSTRIES

Material Testing Solutions

TOUCH-SCREEN DIGITAL HARDNESS TESTER

TRSNB-TS

Motorised Rockwell Cum
Brinell Hardness Tester

PRECISION CONTROL / MOTORISED OPERATION

MODEL

TRSNB-TS



7-inch
COLOUR TFT

15-150
TEST LOADS
(KGF)

90 kg
NET WEIGHT

MARKETED BY

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Product Overview

ACCURATE. VERSATILE. EASY TO OPERATE.

One platform for modern Rockwell and Brinell testing

The Fine TRSNB-TS is a touch-screen digital motorised hardness tester designed for metals and alloys in hard or soft conditions. It accommodates flat, round and irregular components while combining controlled loading, sensitive measurement and straightforward operation for quality-control laboratories.



Why TRSNB-TS

01

Touch-screen control

7-inch, 800 x 480 colour TFT interface.

02

Flexible loading

Automatic motorised or selectable manual loading/unloading.

03

Data intelligence

Statistics, automatic storage and 100-result memory.

04

Built-in reporting

Integrated thermal printer and pen-drive expansion.



Performance Features

ENGINEERED FOR CONSISTENT TESTING

Core machine features

01

Automatic load selection

Unidirectional big-dial knob selects 60, 100 and 150 kgf loads.

02

Rust-resistant components

Important components are plated to help prevent corrosion.

03

Precision linear guidance

Antifriction bearing in a hardened, ground stepped bush.

04

Small-specimen capability

Supports pins or balls down to 3 mm diameter.

Digital workflow features

01

Graphical minor-load display

02

Test count, mean, maximum and minimum

03

Major/minor dwell time: 1-30 seconds

04

Automatic storage for 100 results

05

External pen-drive storage expansion

06

Built-in thermal printer

LOADING OPTIONS

Automatic motorised loading/unloading or manual loading/unloading can be selected to suit the test workflow.



Standard Accessories

COMPLETE STANDARD SUPPLY

Ready for routine hardness testing

The TRSNB-TS is supplied with the essential indenters, anvils, reference blocks and operating accessories listed below.

ACCESSORY	QUANTITY
Rockwell diamond indenter	1 No.
Superficial diamond indenter	1 No.
Testing table, dia. 50 mm	1 No.
Testing table, dia. 40 mm, with V-groove for round jobs dia. 6-45 mm	1 No.
Steel ball indenter, dia. 1/16 inch	1 No.
Test block HRC	1 No.
Test block HRB	1 No.
Rockwell superficial test block 30N	1 No.
Steel ball, dia. 1/16 inch	5 Nos.
Allen spanners	3 Nos.
Clamping device	1 No.
Telescopic sleeves for elevation screw	1 Set
Instruction manual	1 Book

FINE TRSNB-TS | TOUCH-SCREEN DIGITAL MOTORISED HARDNESS TESTER



Model : TRS



HARDNESS T E S T E R S

**Rockwell, Rockwell Cum Brinell,
Rockwell Cum Rockwell Superficial**

Fine make hardness testers model TRS, TRS-150, TRB, TRB-250 and TSM are manually operated. These models are designed and developed after years of experience in this field. All the models are manufactured under strict quality at all manufacturing stages.

These models are suitable for testing hardness of metals and alloys of all kinds, hard or soft, whether flat or round etc. or of irregular shape. These Testers are simple in design and easy to operate, still quite sensitive and accurate.

These models strictly conform to IS 3804, BS 891 Part-I & II, ASTM-E-18 for Rockwell test and IS 2281-2005, BS 240, ASTM-E-10 for Brinell test and IS 5073-1988, ASTM-E-18 for Rockwell Superficial test.

Mastering the fine art of testing



Marketed By :





Model : TRB-250

Rockwell System

TRS : Automatic weight selection with automatic zero setting dial gauge.

TRS-150 : Automatic weight selection with automatic zero setting dial gauge.

Rockwell cum Brinell Combined System

TRB : Automatic weight selection with automatic zero setting dial gauge.

TRB-250 : Arrangement similar to TRS with two additional weights of 187.5 kgf and 250 kgf for Brinell tests. On this machine small pin having Dia 2 mm can be tested as plunger is guided with a set of six bearings.

Rockwell cum Rockwell Superficial Combined system

TSM : This hardness tester is similar to TRB-250 machine in construction and with automatic weight selection. This is useful for carrying Rockwell and Rockwell Superficial Tests. The Rockwell Superficial method is useful for checking hardness of very thin sheets and surface hardness.

Motorised Hardness Tester

Model TRS-M : Similar to TRS

Model TRS-150-M : Similar to TRS-150

Model TRB-M : Similar to TRB

Model TRB-250-M : Similar to TRB-250

Model TSM-M : Similar to TSM

Application and removal of major load is motorised. Motorised models have semi automatic operations for products testing.

Drive motor Single Phase, 230-V, 50 Cycles AC.



Model : TSM



Model : TRP-1

Portable Hardness Tester

Portable Rockwell Hardness Tester model TRP-1 is able to test parts where bench type model not useful. This machine is quite handy for product testing of crank shafts, cylinder blocks, liner and assemblies. This can be used for testing the hardness of both inside and outside of surface testing of pipes, bushings, ball bearing rings or other complicated parts. This model can be used in any direction without affecting the accuracy.

Technical Data

Maximum test height : 110 mm

Throat capacity : 55 mm

Weight (Approx.) : 1.75 kg

Standard Accessories

Flat anvil Ø 25 mm : 1 No.

V-anvil Ø 25 mm : 1 No.

Test block HRC : 1 No.

Test block HRB : 1 No.

Diamond indenter : 1 No.

1/16" ball indenter : 1 No.

Steel Ball Ø 1/16" : 5 Nos.

Carry case : 1 No.

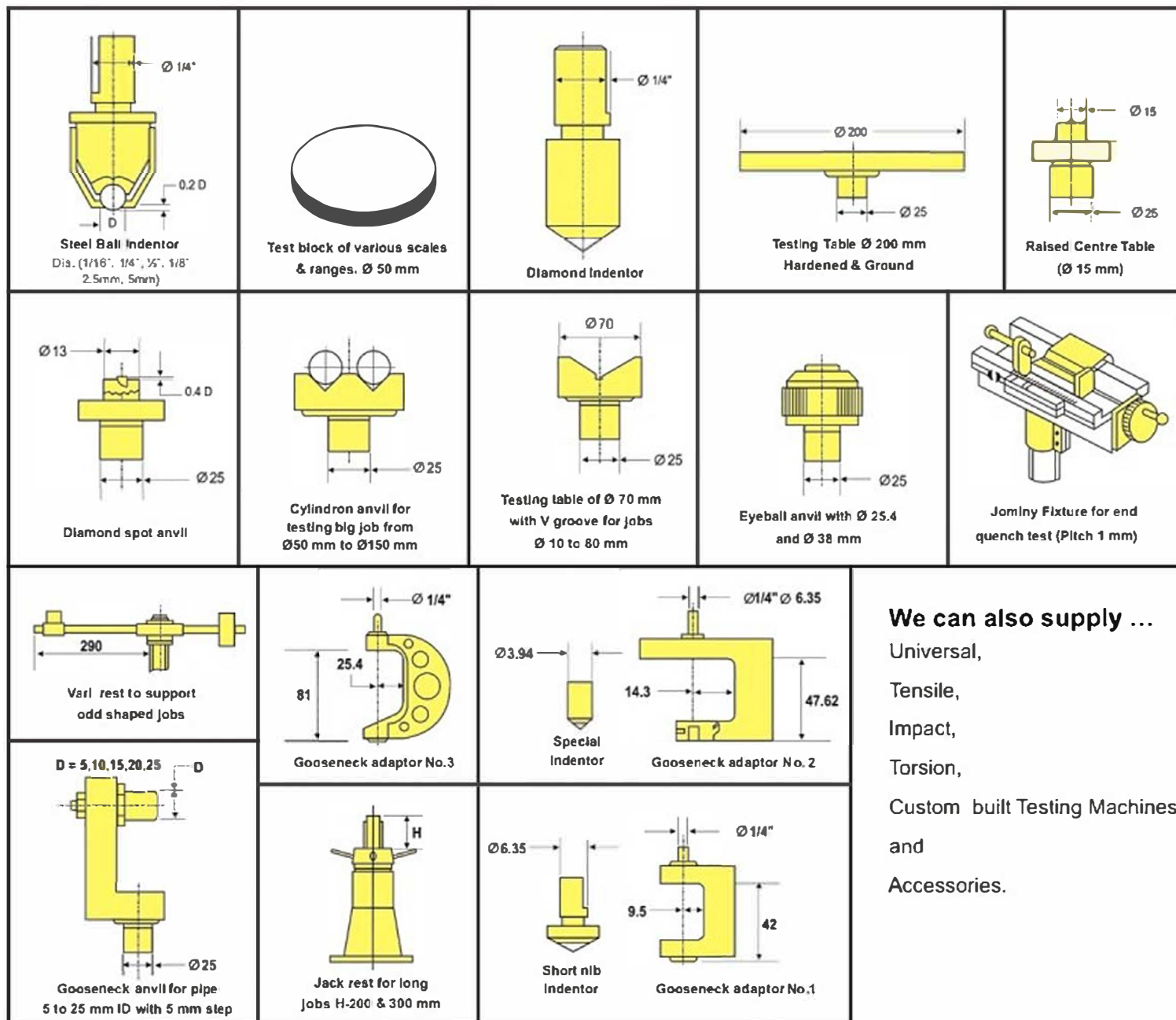
Technical Specifications

Model	TRS	TRS-150	TRB	TRB-250	TSM
1 Test Loads (Kgf)	60, 100, 150 (Rockwell)	60, 100, 150 (Rockwell)	60, 100, 150 (Rockwell) 187.5 (Brinell)	60, 100, 150 (Rockwell) 187.5, 250 (Brinell)	60, 100, 150 (Rockwell) 15, 30, 45 (Rockwell Superficial)
2 Initial loads (Kgf)	10	10	10	10	10 (Rockwell) and 3 (Rockwell Superficial)
3 Max. Test Height (mm)	215	295	215	295	295
4 Depth of Throat (mm)	132	148	132	148	148
5 Max. Depth of Elevating Screw Below Base (mm)	230	290	230	290	290
6 Size of Base (mm) (Approx.)	430 x 180	475 x 220	430 x 180	475 x 220	475 x 220
7 Machine Height (mm)	635	865	635	865	865
8 Nett Weight (Approx.) kg.	65	105	65	105	125

Standard Accessories

Model	TRS	TRS-150	TRB	TRB-250	TSM
1. Rockwell Diamond Indentor	1 No.	1 No.	1 No.	1 No.	1 No.
2. Superficial Diamond Indentor	—	—	—	—	1 No.
3. Testing Table Ø 50 mm	1 No.	1 No.	1 No.	1 No.	1 No.
4. Testing Table Ø 40 mm with 'V' Groove for round Jobs Ø 6 to 45 mm	1 No.	1 No.	1 No.	1 No.	1 No.
5. Steel Ball Indentor Ø 1/16"	1 No.	1 No.	1 No.	1 No.	1 No.
6. Steel Ball Indentor Ø 2.5 mm	—	—	1 No.	1 No.	—
7. Steel Ball Indentor Ø 5 mm	—	—	—	1 No.	—
8. Test Block HRC	1 No.	1 No.	1 No.	1 No.	1 No.
9. Test Block HRB	1 No.	1 No.	1 No.	1 No.	1 No.
10. Test Block HB 2.5 mm / 187.5 Kgf	—	—	1 No.	1 No.	—
11. Test Block Rockwell Superficial 30 N	—	—	—	—	1 No.
12. Steel Ball Ø 1/16"	5 Nos.	5 Nos.	5 Nos.	5 Nos.	5 Nos.
13. Ø 2.5 mm Steel Ball	—	—	5 Nos.	5 Nos.	—
14. Ø 5 mm Steel Ball	—	—	—	5 Nos.	—
15. Allen Spanners	3 Nos.	3 Nos.	3 Nos.	3 Nos.	3 Nos.
16. Clamping Device	1 No.	1 No.	1 No.	1 No.	1 No.
17. Brinell Microscope	—	—	1 No.	1 No.	—
18. PVC Cover for Machine	1 No.	1 No.	1 No.	1 No.	1 No.
19. Rubber Bellow	1 No.	1 No.	1 No.	1 No.	1 No.
20. Instruction Manual	1 Book	1 Book	1 Book	1 Book	1 Book

DETAILS OF ACCESSORIES FOR HARDNESS TESTERS



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